

# Leadership in Circuit Protection



## Introducing Bussmann by Eaton

The protection you rely on. For more, visit [Bussmann.com](http://Bussmann.com)



**Bussmann**  
by **EATON**



Leadership in Circuit Protection.

# The only company that can provide a complete circuit protection solution for all applications.

## Only Eaton can deliver...

- The most diverse solutions to mitigate arc flash energy to keep people and equipment safe
- The smallest and most cost effective way to meet selective coordination requirements
- The most experienced, time-tested solutions to meet national & local code requirements
- The easiest specifications with the most tested fuse/circuit breaker and circuit breaker/circuit breaker series rated combinations
- The only one-stop shop to solve your design challenges using our expertise and an unmatched portfolio

The Eaton advantage.

## Powering business worldwide

As a global diversified power management company, we help customers worldwide manage the power needed for buildings, aircraft, trucks, cars, machinery and businesses.

Eaton's innovative technologies help customers manage electrical, hydraulic and mechanical power more reliably, efficiently, safely and sustainably.

We provide integrated solutions that help make energy, in all its forms, more practical and accessible.

With 2012 sales of \$16.3 billion, Eaton has approximately 103,000 employees around the world and sells products in more than 175 countries.

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**EATON**

*Powering Business Worldwide*





## 3 TIERS OF PROTECTION

Speed up Specification and Selection

**Ultimate Protection**— The best worry free protection in virtually any application. A powerful combination of all performance options in one fuse.

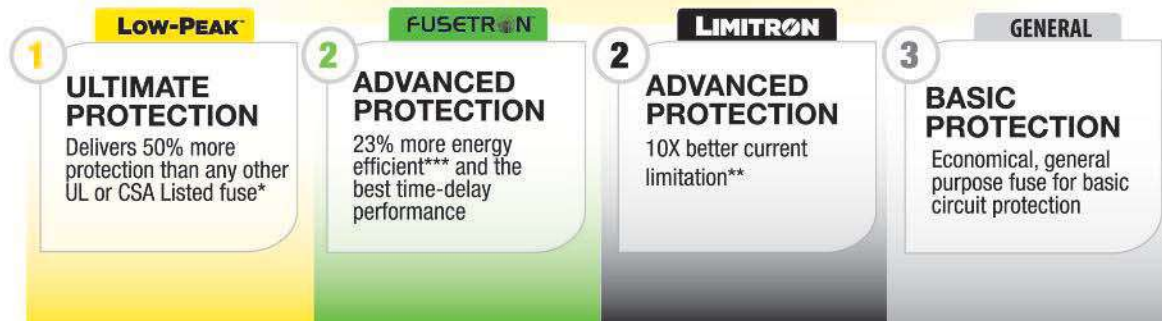
**Advanced Protection**— Application specific protection for sensitive devices and critical components or motors and transformers.

**Basic Protection**— Basic single-element protection for service, feeder and branch circuit applications.



## 4 FUSE FAMILIES

Make Fuse Selection and Replacement Easy



\* 50% higher IR (300kA) than any other UL and CSA Listed Fuse. Includes Class J, L and R fuses.

\*\* Does not include current limiting circuit breakers or current limiting fuses. Protection determined by comparing published values for let-through for Class CC, J, R, and T fuses versus a symmetrical RMS waveform at 250kA.

\*\*\* Test results are based on weighted sales volume of FUSETRON and Ferraz Shawmut (Mersen) fuses by selected amp and volt rating combination. Next leading brand refers to Ferraz Shawmut based on third-party fuse market share data for a twenty-seven month period (July 2008 through September 2010).



# A Complete Line of Circuit Protection Solutions for the Alternative Energy Markets

56

PVM Midget & PV Fuses



63

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289

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57

CUBEFuse™ PVCF & WCF



121

Square Body, BS and UL High Speed Fuses



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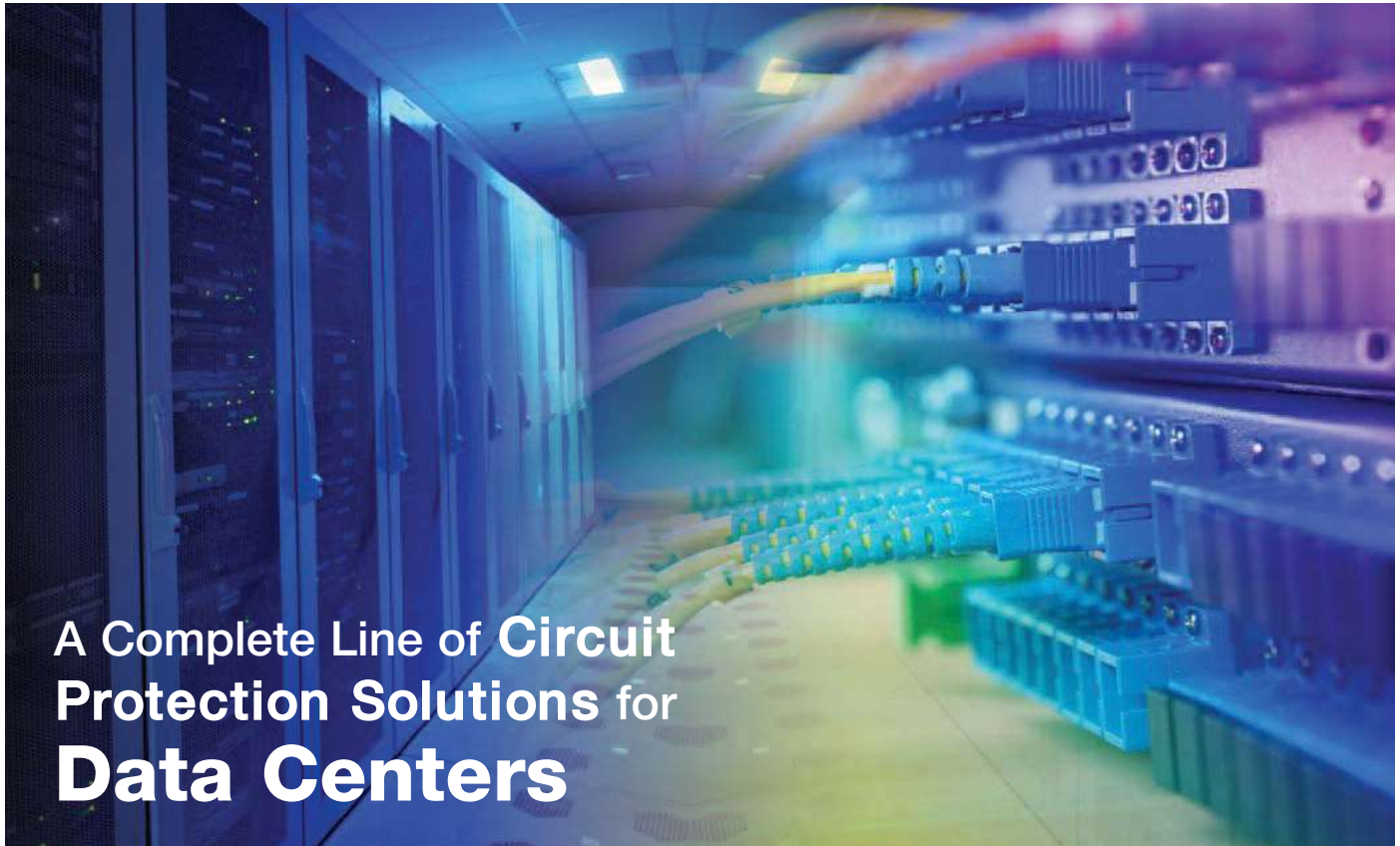


274

Modular Fuse Holders







# A Complete Line of Circuit Protection Solutions for Data Centers

**23**

Low-Peak™  
CC Fuses



**125**

DFJ  
High Speed  
Fuses



**333**

DIN-Rail Terminal  
Blocks and  
Connectors



**28**

CUBEFuse™  
TCF & FCF



**266**

Quik-Spec™  
Coordination  
Panelboard



**380**

Compact Circuit  
Protectors



**121**

Square Body,  
BS and UL  
High Speed Fuses



**325**

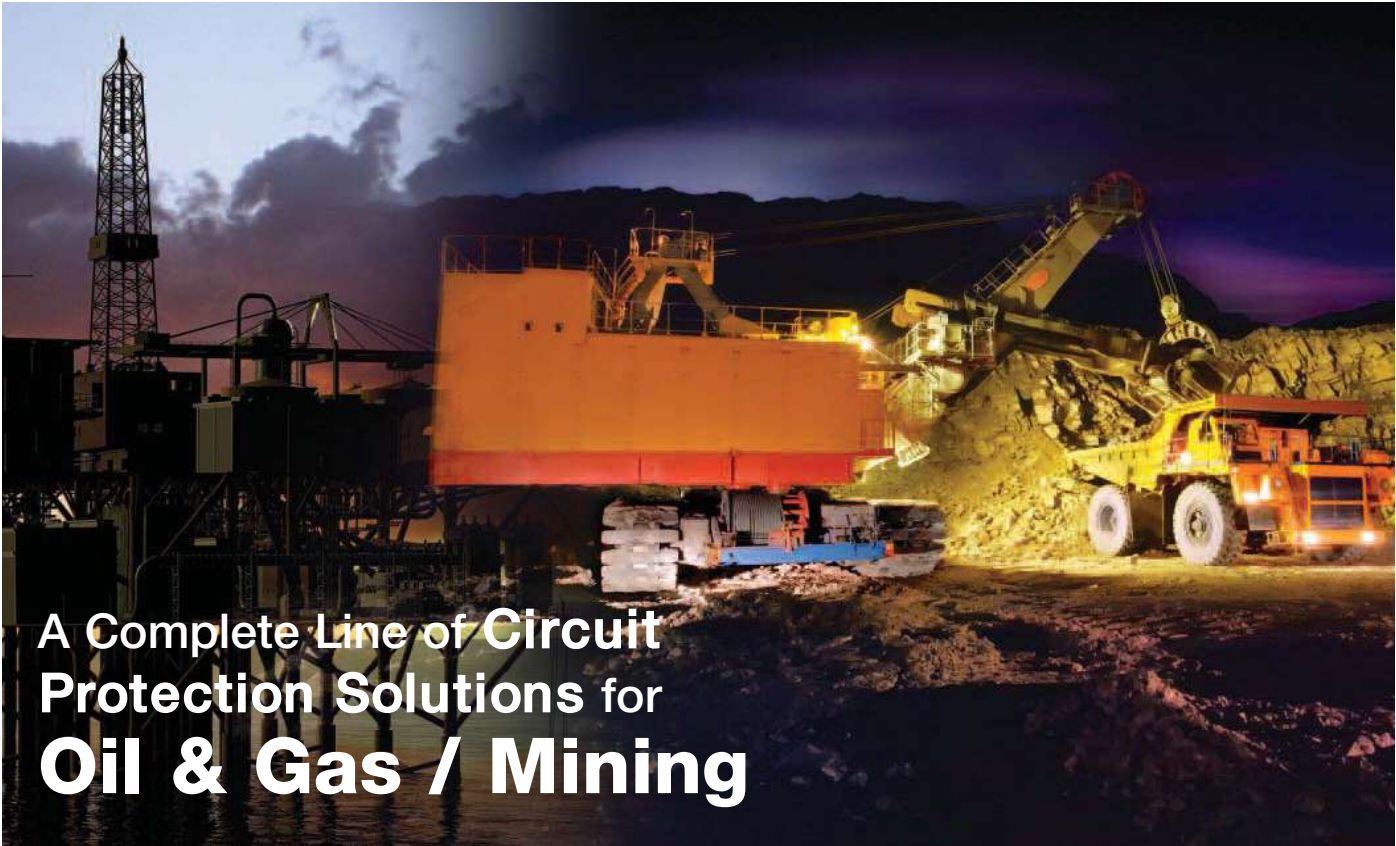
Power  
Distribution  
Blocks



**441**

Surge Protection  
Solutions  
– UL, IEC and LV





# A Complete Line of Circuit Protection Solutions for Oil & Gas / Mining

**23**

Low-Peak™  
Fuses



**121**

Square Body,  
BS and UL  
High Speed Fuses



**327**

Power  
Distribution  
Blocks



**26**

CUBEFuse™  
TCF & FCF



**125**

DFJ  
High Speed  
Fuses



**380**

Compact Circuit  
Protectors



**46**

Fusetron™ Energy  
Efficient Fuses



**266**

Quik-Spec™  
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**441**

Surge Protection  
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Bussmann circuit protection solutions comply with major industrial standards and agency requirements such as: BS, IEC, DIN, UL, NEMA, CSA, CE, C-UL, etc. and are manufactured at facilities that are ISO 9000 certified.

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# PEEL & STICK TABS

Mark the products that are important to you.

|                              |                              |
|------------------------------|------------------------------|
| Low Voltage Branch Circuit   | Low Voltage Branch Circuit   |
| Solar Products               | Solar Products               |
| Low Voltage Supplementary    | Low Voltage Supplementary    |
| Electronic Fuses             | Electronic Fuses             |
| Medium Voltage Fuses         | Medium Voltage Fuses         |
| High Speed Fuses             | High Speed Fuses             |
| IEC & British Standard Fuses | IEC & British Standard Fuses |
| Quik-Spec™ Electrical Gear   | Quik-Spec™ Electrical Gear   |

|                                      |                                      |
|--------------------------------------|--------------------------------------|
| Fuse Holders & Blocks                | Fuse Holders & Blocks                |
| Power Distribution & Terminal Blocks | Power Distribution & Terminal Blocks |
| Connectors                           | Connectors                           |
| Disconnects                          | Disconnects                          |
| Telecom Protection Devices           | Telecom Protection Devices           |
| Surge Protection Devices             | Surge Protection Devices             |
| Accessories                          | Accessories                          |
| Services & Application Guide         | Services & Application Guide         |

|  |                      |
|--|----------------------|
| Index by Part Number   | Index by Part Number |
| New Product  | New Product          |
| New Product  | New Product          |
| New Product  | New Product          |
| <p><b>Write Your Own Descriptions Here</b> </p> |                      |
|  |                      |
|  |                      |
|  |                      |
|  |                      |
|  |                      |

## Selecting Circuit Protection

The following fuse selection guides are based on the 2011 NEC® and provided fuse recommendations for the various applications listed.

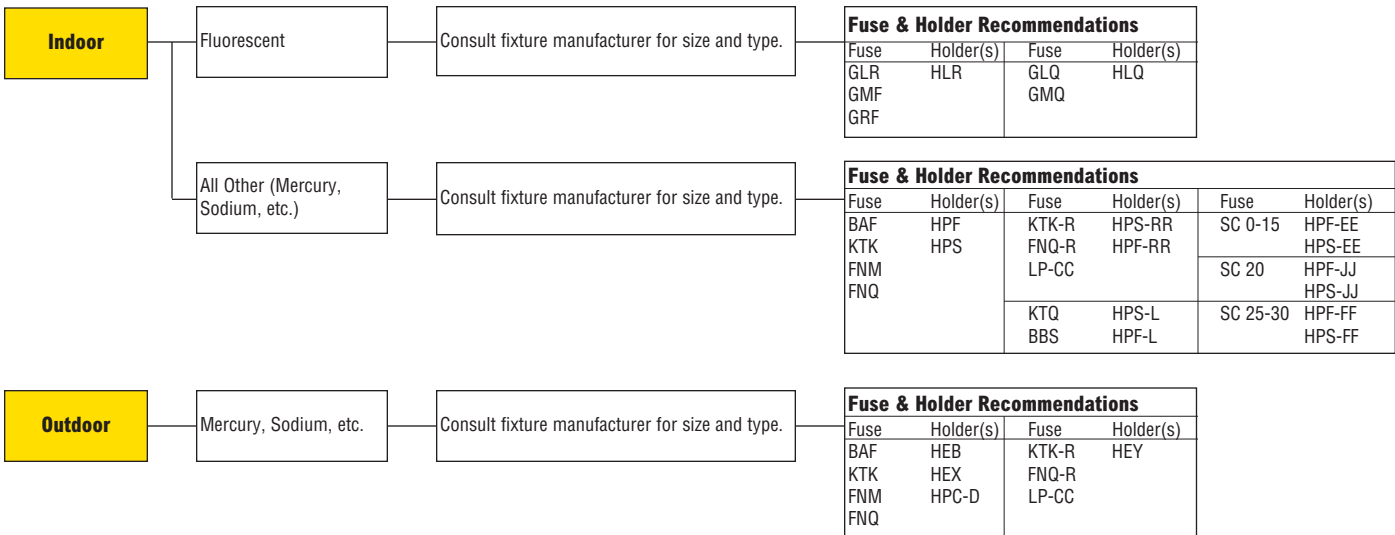
These are only suggestions. Final fuse selection should be performed only by qualified personnel able to fully assess an application's circuit protection requirements. If you need assistance in selecting a fuse for a particular application, call

the Cooper Bussmann Application Engineering team for technical and application support Monday – Friday, 8:00 a.m. – 5:00 p.m. Central Time.

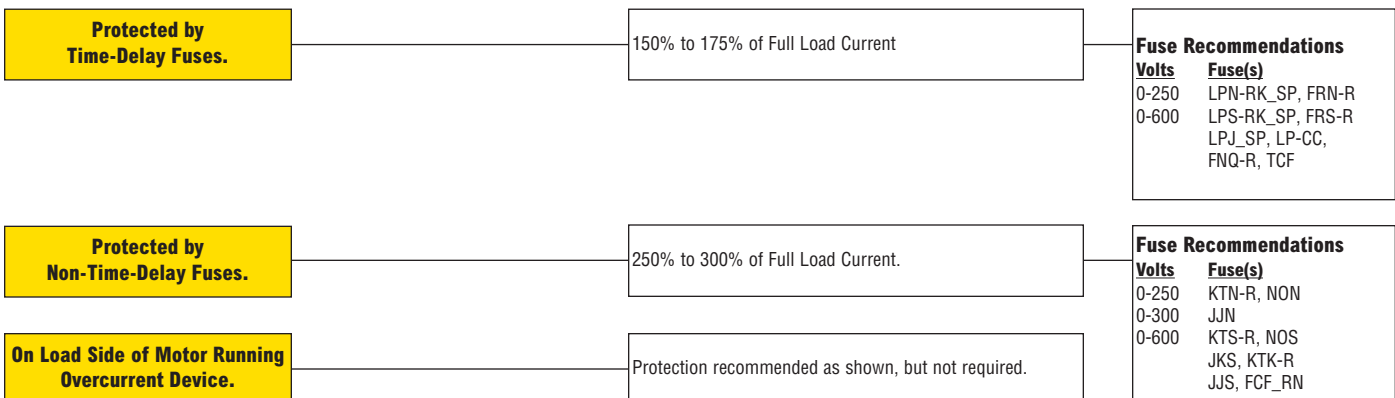
Application Engineering can be reached via phone and e-mail:

- Toll-free phone: 855-287-7626 (855-BUSSMANN)
- E-mail: fusetech@cooperindustries.com

### Ballasts

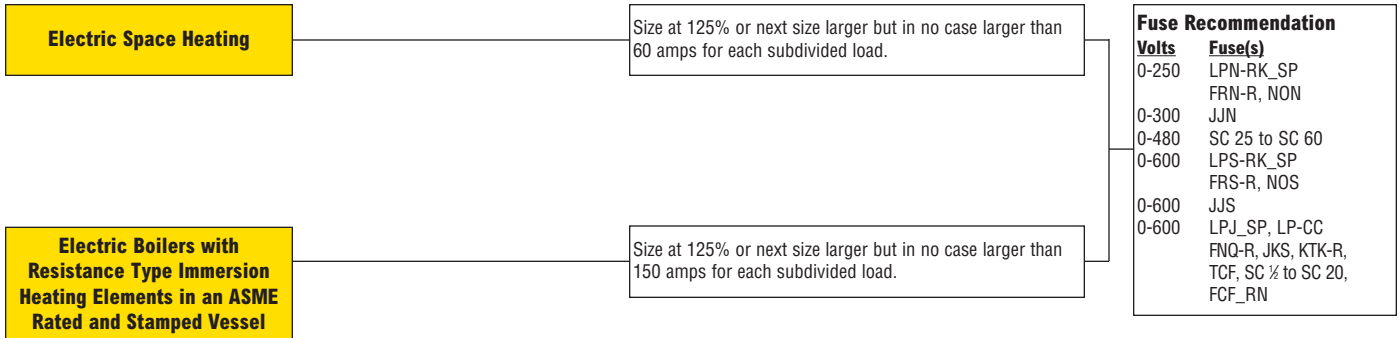


### Capacitors (NEC® 460)

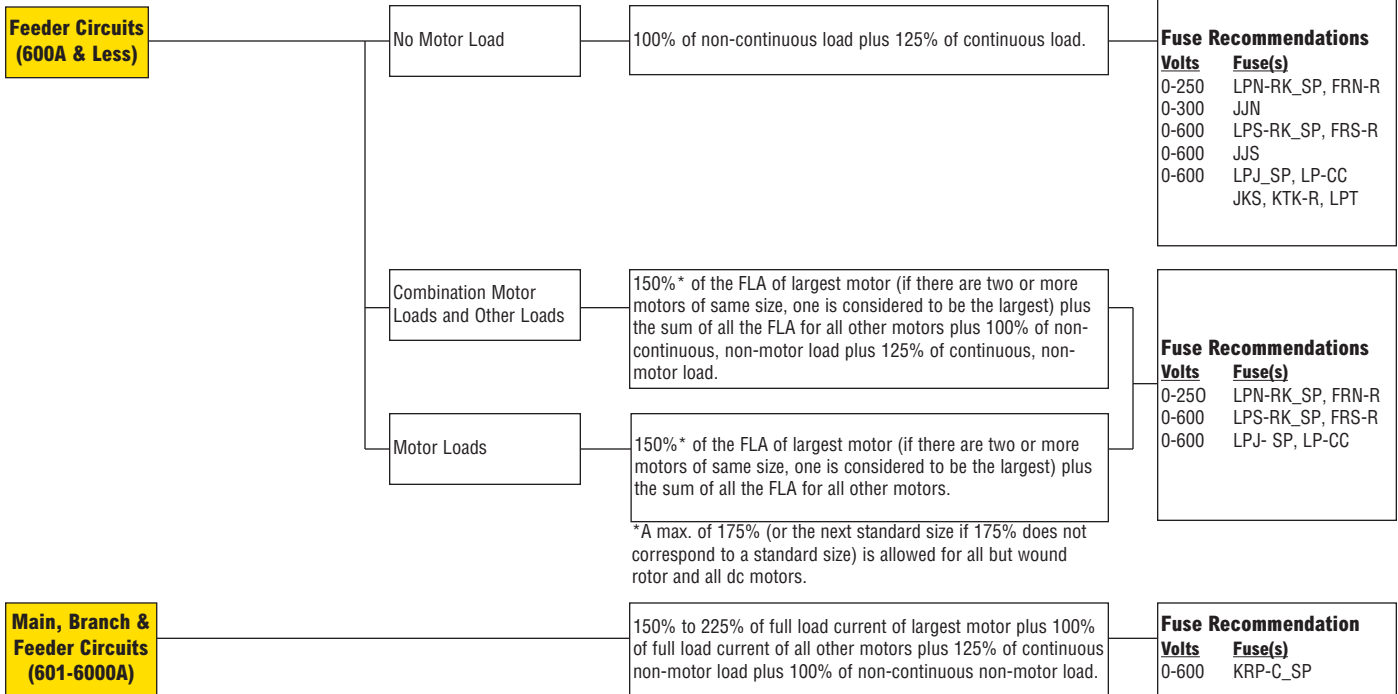


## Selecting Circuit Protection

### Electric Heat (NEC® 424)



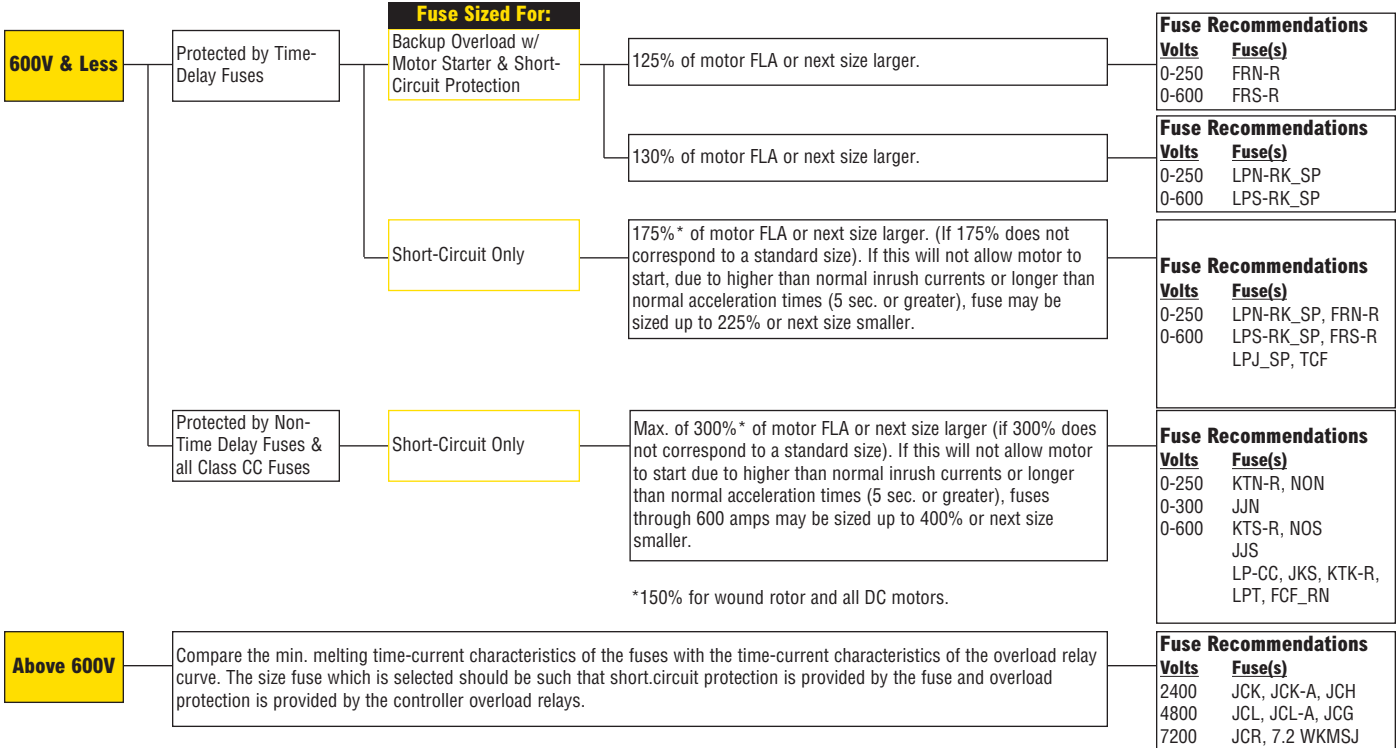
### Mains, Feeders, Branches (NEC® 430)



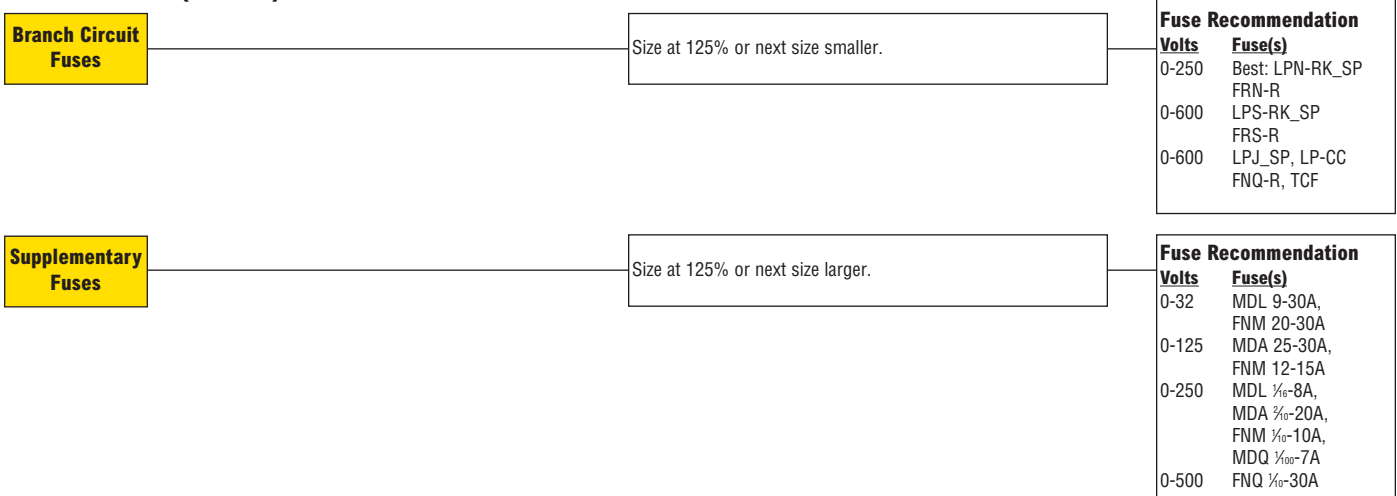


# Selecting Circuit Protection

## Motor Loads (NEC® 430)

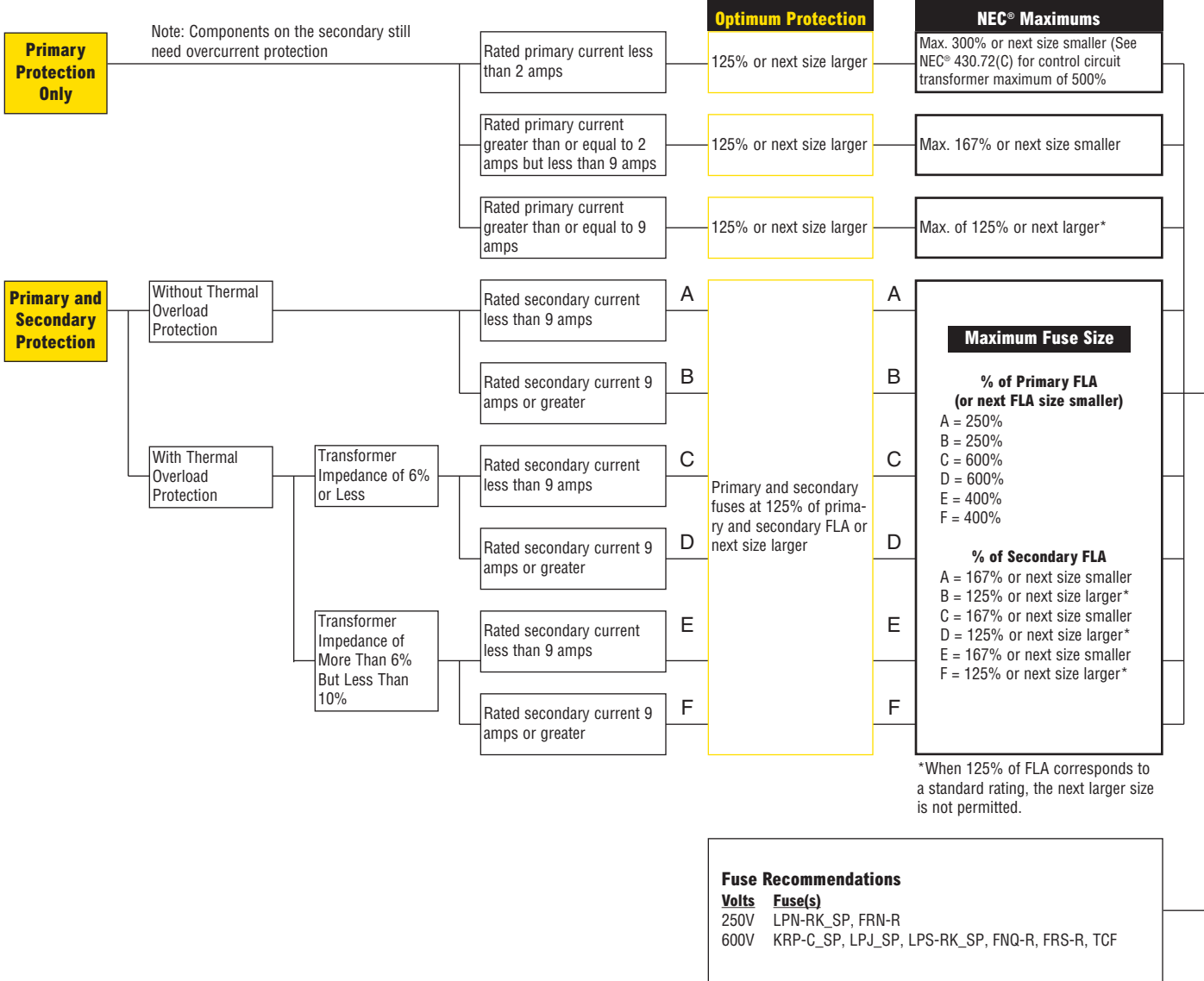


## Solenoids (Coils)



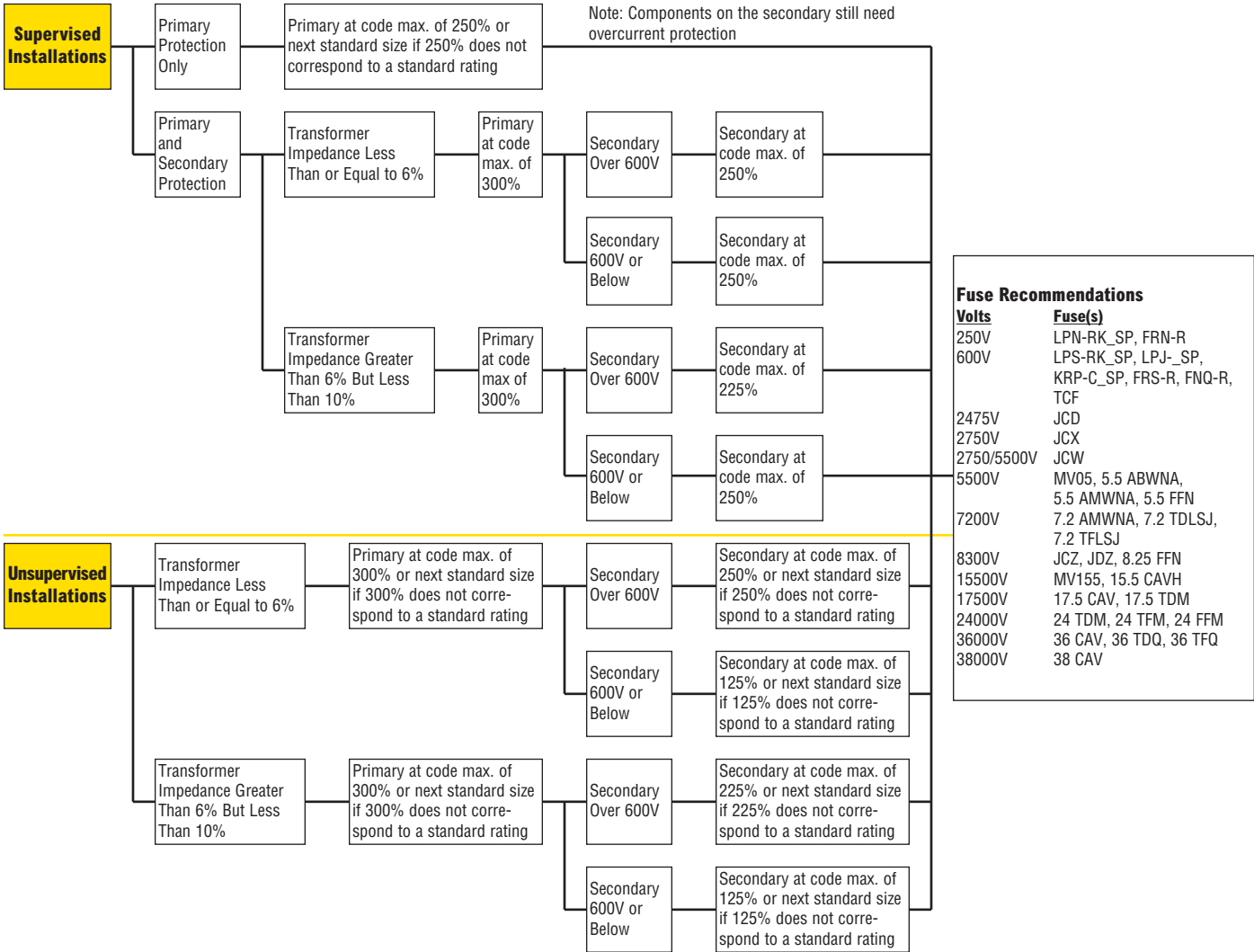
# Selecting Circuit Protection

## Transformers 600V Nominal or Less (NEC® 450.3)

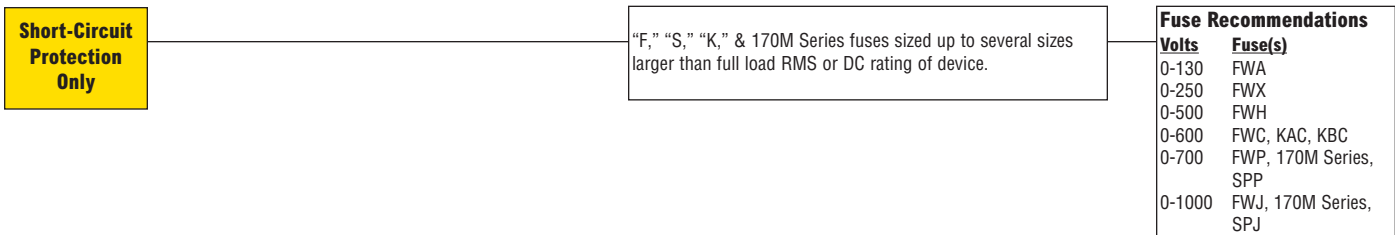


# Selecting Circuit Protection

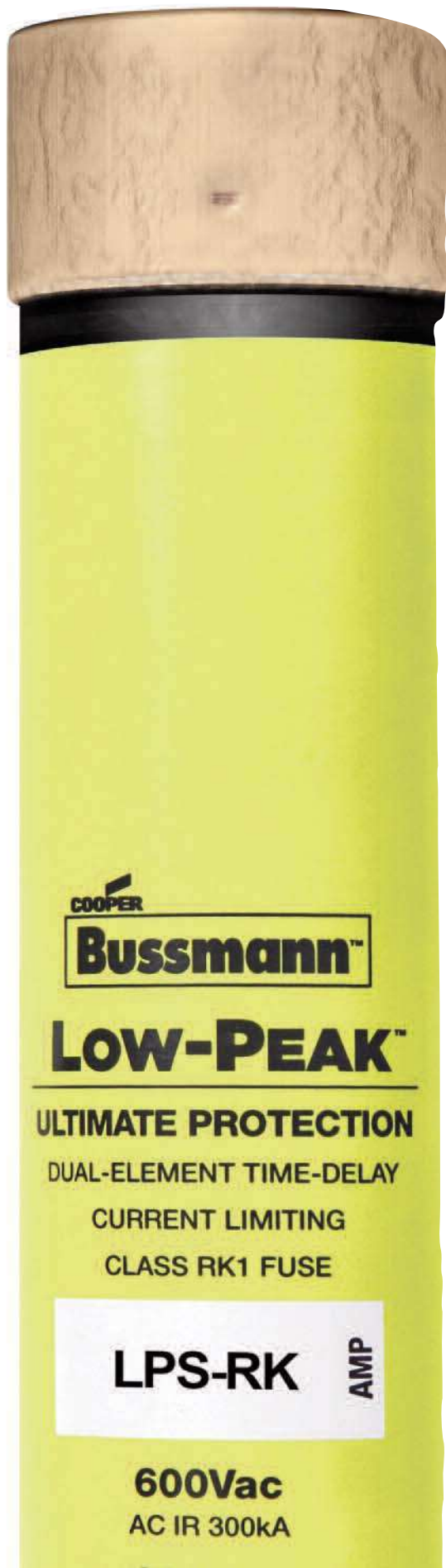
## Transformers Over 600V Nominal (NEC® 450.3)



## Solid State Devices (Diodes, SCRs, Triacs, Transistors)







# Low Voltage, Branch Circuit Rated Fuses

|  |                             |
|--|-----------------------------|
| <b>Fuse Holder &amp; Block Selection Guide</b> | <b>Page</b><br><b>18-20</b> |
| <b>Class Fuse Dimensions</b>                   | <b>21-22</b>                |
| <b>Fuses By Fuse Class</b>                     |                             |

| <u>Class</u>                        | <u>Fuses</u>   | <u>Volts</u> |       |
|-------------------------------------|--|--------------|-------|
| <b>CC</b> .....                     | LP-CC .....  | 600V .....   | 23    |
|                                     | FNQ-R .....  | 600V .....   | 24    |
|                                     | KTK-R .....  | 600V .....   | 25    |
| <b>CF</b> .....                     | TCF* .....   | 600V .....   | 26-27 |
|                                     | FCF .....  | 600V .....   | 28-29 |
|                                     | WCF .....  | 600V .....   | 30-31 |
| <small>*Class J performance</small> |  |              |       |
| <b>CF</b> .....                     | Holder System .....  | 600V .....   | 32-33 |
| <b>G</b> .....                      | SC .....   | 600/480V ..  | 34    |
| <b>J</b> .....                      | LPJ-SP .....   | 600V .....   | 35    |
|                                     | LPJ-SPI Indicator .....  | 600V .....   | 35    |
|                                     | JKS .....  | 600V .....   | 36    |
| <b>K5 &amp; H</b> ...               | NON .....  | 250V .....   | 37    |
|                                     | NOS .....  | 600V .....   | 37    |
| <b>L</b> .....                      | KRP-C_SP .....   | 600V .....   | 38-39 |
|                                     | KRP-CL .....   | 600V .....   | 39    |
|                                     | KLU .....  | 600V .....   | 40    |
|                                     | KTU .....  | 600V .....   | 40    |
| <b>RK1</b> .....                    | LPN-RK_SP .....  | 250V .....   | 41-43 |
|                                     | LPN-RK_SPI Indicator ...   | 250V .....   | 41-43 |
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|                                     | LPS-RK_SPI Indicator ...   | 600V .....   | 41-43 |
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| <b>RK5</b> .....                    | FRN-R (Energy Efficient) ...   | 250V .....   | 46    |
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|                                     | FRS-R (Energy Efficient) ...   | 600V .....   | 47    |
|                                     | FRS-R_ID (Energy Efficient)...   | 600V .....   | 47    |
| <b>T</b> .....                      | JJN .....  | 300V .....   | 48    |
|                                     | JJS .....  | 600V .....   | 49    |
| <b>Plug Fuses</b>                   | W, SL, TL, S,<br>T, P, TC Series & MB<br>Edison Base Circuit<br>Breakers, SA ..... | 125V .....   | 50-52 |

**RED** indicates **NEW** information

## Holders & Blocks For Branch Circuit Rated Fuses

| Class | Fuses | Volts      | Page |
|-------|-------|------------|------|
| CC    | LP-CC | 600V ..... | 23   |
|       | FNQ-R | 600V ..... | 24   |
|       | KTK-R | 600V ..... | 25   |

**Holders**

- OPM-NG-SC3 3-pole, panel/DIN rail mount ..... 284
- OPM-1038R 3-pole, panel/DIN rail mount ..... 283
- OPM-1038RSW 3-pole w/ switch, panel/DIN rail mount .. 282
- CHCC\_D 1 to 3-pole, DIN rail mount ..... 274
- HPF-RR, front panel mount ..... 317
- HPS-RR, front panel mount ..... 317

**Blocks**

- BC Series, panel mount ..... 305



OPM-NG-SC3



OPM-1038R &  
OPM-1038RSW



CHCC\_D



HPF-RR



HPS-RR



BC Series

| Class | Fuses | Volts          | Page |
|-------|-------|----------------|------|
| G     | SC    | 600/480V ..... | 34   |

**Holders**

- HP Series front panel accessible, front panel mount ..... 317

**Blocks**

- BG Series, panel/DIN rail with adapters ..... 305
- G Series, panel/DIN rail with adapters ..... 305



HP Series



BG & G Series

| Class  | Fuses | Volts      | Page |
|--------|-------|------------|------|
| K5 & H | NON   | 250V ..... | 37   |
|        | NOS   | 600V ..... | 37   |

**Blocks**

- Modular Knifeblade Fuse Blocks 250/600V, panel mount .. 289
- Modular Type Fuse Blocks 250/600V, panel mount ..... 306
- H250 Series 1 to 3-pole 250V, panel mount ..... 294
- H600 Series 1 to 3-pole 600V, panel mount ..... 296



Modular Knifeblade



Modular Type



H250 Series



H600 Series

## Holders & Blocks For Branch Circuit Rated Fuses

| Class | Fuses    | Volts      | Page |
|-------|----------|------------|------|
| L     | KRP-C_SP | 600V ..... | 38   |
|       | KRP-CL   | 600V ..... | 39   |
|       | KLU      | 600V ..... | 40   |
|       | KTU      | 600V ..... | 40   |

### Blocks

- 51215 1-pole, panel mount\*
- 51235 3-pole, panel mount\*

\*Call our customer satisfaction team at 636-527-3877 for more information.



51215



51235

Low Voltage  
Branch Circuit  
Fuses

| Class | Fuses     | Volts      | Page |
|-------|-----------|------------|------|
| RK1   | LPN-RK_SP | 250V ..... | .41  |
|       | LPS-RK_SP | 600V ..... | .41  |
|       | KTN-R     | 250V ..... | .44  |

### Blocks

- **Modular Knifeblade Fuse Blocks 250/600V, panel mount . . . 289**
- R250 Series 1- to 3-pole 250V, panel mount . . . . .294
- R600 Series 1- to 3-pole 600V, panel mount . . . . .296



Modular Knifeblade



R250 Series



R600 Series

| Class | Fuses | Volts      | Page |
|-------|-------|------------|------|
| RK5   | FRN-R | 250V ..... | 46   |

### Blocks

- **Modular Knifeblade Fuse Blocks 250/600V, panel mount . . . 289**
- R250 Series 1- to 3-pole 250V, panel mount . . . . .294
- R600 Series 1- to 3-pole 600V, panel mount . . . . .296



Modular Knifeblade



R250 Series



R600 Series

| Class | Fuses | Volts      | Page |
|-------|-------|------------|------|
| T     | JJN   | 300V ..... | 48   |
|       | JJS   | 600V ..... | 49   |

### Blocks

- BH Series modular-style, panel mount (<60A) . . . . .306
- T300 Series 1 to 4-pole 300V, panel mount . . . . .300
- T600 Series 1 to 3-pole 600V, panel mount . . . . .302



BH Series



T300 Series



T600 Series



## Holders & Blocks For Branch Circuit Rated Fuses

| Class | Fuses          | Volts | Page |
|-------|----------------|-------|------|
| J, CF | TCF*, FCF, WCF | 600V  | 31   |
|       | LPJ-SP         | 600V  | 35   |
|       | JKS            | 600V  | 36   |

\*Class J performance

### Holders

- TCFH CUBEFuse holder, panel/DIN-Rail mount . . . . . 32-33
- CH Series Class J modular 1- to 3-pole, panel/ DIN rail mount . . . . . 281
- Safety J™ Series modular holders, panel/DIN rail mount . . . . . 286

### Blocks

- **Modular Knifeblade Fuse Blocks 250/600V, panel mount . . . 289**
- Modular Type Fuse Blocks 600V, panel mount . . . . . 306
- J600 Series, panel mount . . . . . 298
- JP Series pyramid blocks, panel mount . . . . . 299
- BH Series modular-style open blocks, panel mount . . . . . 306



| Class      | Fuses                              | Volts | Page  |
|------------|------------------------------------|-------|-------|
| Plug Fuses | W, SL*, TL, S*, T, P and TC Series | 125V  | 50-52 |

### Box Cover Units

- Standard electrical box mounting . . . . . 307

\*Use of SL & S rejection fuses requires SA adapters, see page 52



### Fuse Reducers For Class R Fuses 250V

| Equipment Fuse Clip Amps | Desired Fuse (Case) Amp Size | Catalog No. (Pairs) 250V |
|--------------------------|------------------------------|--------------------------|
| 60                       | 30                           | NO.263-R                 |
| 100                      | 30                           | NO.213-R                 |
|                          | 60                           | NO.216-R                 |
| 200                      | 60                           | NO.226-R                 |
|                          | 100                          | NO.2621-R                |
| 400                      | 100                          | NO.2641-R                |
|                          | 200                          | NO.242-R                 |
| 600                      | 100                          | NO.2661-R                |
|                          | 200                          | NO.2662-R                |
|                          | 400                          | NO.2664-R*               |

\*Single reducer only (pair not required).

### Fuse Reducers For Class R Fuses 600V

| Equipment Fuse Clip Amps | Desired Fuse (Case) Amp Size | Catalog No. (Pairs) 600V |
|--------------------------|------------------------------|--------------------------|
| 60                       | 30                           | NO.663-R                 |
| 100                      | 30                           | NO.216-R                 |
|                          | 60                           | NO.616-R                 |
| 200                      | 60                           | NO.626-R                 |
|                          | 100                          | NO.2621-R                |
| 400                      | 100                          | NO.2641-R                |
|                          | 200                          | NO.642-R                 |
| 600                      | 100                          | NO.2661-R                |
|                          | 200                          | NO.2662-R                |
|                          | 400                          | NO.2664-R*               |

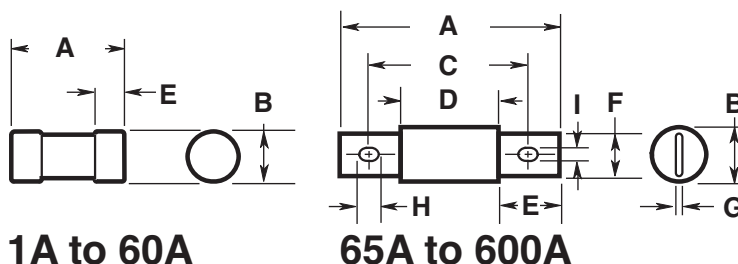
\*Single reducer only (pair not required).

# Branch Circuit Rated Fuse Dimensions

## Class J Dimensions - in (mm)

### Low-Peak and Limitron Fuses LPJ & JKS — 600V

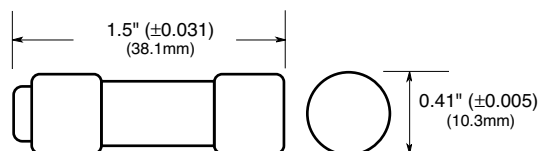
| Amp Range | A            | B           | C            | D           | E           | F           | G           | H           | I           |
|-----------|--------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1-30      | 2.25 (57.2)  | 0.81 (20.6) | —            | —           | 0.50 (12.7) | —           | —           | —           | —           |
| 35-60     | 2.38 (60.3)  | 1.06 (27.0) | —            | —           | 0.63 (15.9) | —           | —           | —           | —           |
| 65-100    | 4.63 (117.5) | 1.13 (28.6) | 3.63 (92.1)  | 2.63 (66.7) | 1.00 (25.4) | 0.75 (28.6) | 0.13 (3.2)  | 0.41 (10.4) | 0.28 (7.1)  |
| 110-200   | 5.75 (146.1) | 1.63 (41.4) | 4.38 (111.1) | 3.00 (76.2) | 1.38 (34.9) | 1.13 (28.6) | 0.19 (4.8)  | 0.38 (9.5)  | 0.28 (7.1)  |
| 225-400   | 7.12 (181.0) | 2.11 (53.6) | 5.25 (133.3) | 3.26 (82.8) | 1.87 (47.6) | 1.62 (41.2) | 0.25 (6.4)  | 0.56 (14.2) | 0.40 (10.3) |
| 450-600   | 8.00 (203.2) | 2.60 (66.0) | 6.00 (152.4) | 3.31 (84.0) | 2.12 (54.0) | 2.00 (50.8) | 0.53 (13.5) | 0.72 (18.3) | 0.53 (13.5) |



1A to 60A

65A to 600A

## Class CC Dimensions - in (mm)

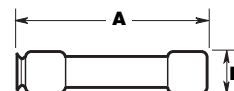


## Class RK1 & RK5 Dimensions - in (mm)

Basic dimensions are same as Class H (formerly NEC) One-Time (NON & NOS) and Superlag Renewable RES & REN fuses.  
NOTE: These fuses can be used to replace existing Class H, RK1 and RK5 fuses relating to dimensional compatibility.

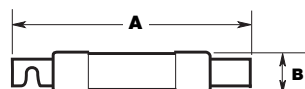
### Ferrule Styles

| Amp Range | 250V     |             | 600V        |             |
|-----------|----------|-------------|-------------|-------------|
|           | A        | B           | A           | B           |
| 1/10-30   | 2 (50.8) | 0.56 (14.3) | 5.0 (127.0) | 0.81 (20.6) |
| 35-60     | 3 (76.2) | 0.81 (20.6) | 5.5 (139.7) | 1.06 (27.0) |



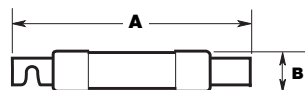
### Fusetron — (FRN-R & FRS-R) & Limitron — (KTN-R & KTS-R)

| Amp Range | 250V          |             | 600V          |             |
|-----------|---------------|-------------|---------------|-------------|
|           | A             | B           | A             | B           |
| 70-100    | 5.88 (149.2)  | 1.06 (26.9) | 7.88 (200.0)  | 1.34 (34.0) |
| 110-200   | 7.13 (181.0)  | 1.56 (39.6) | 9.63 (244.5)  | 1.84 (46.7) |
| 225-400   | 8.63 (219.1)  | 2.38 (60.5) | 11.63 (295.3) | 2.59 (65.8) |
| 450-600   | 10.38 (263.5) | 2.88 (73.2) | 13.38 (339.7) | 3.13 (79.5) |



### Low-Peak — (LPN-RK & LPS-RK)

| Amp Range | 250V          |             | 600V          |             |
|-----------|---------------|-------------|---------------|-------------|
|           | A             | B           | A             | B           |
| 70-100    | 5.88 (149.2)  | 1.16 (29.5) | 7.88 (200.0)  | 1.16 (29.5) |
| 110-200   | 7.13 (181.0)  | 1.66 (42.2) | 9.63 (244.5)  | 1.66 (42.2) |
| 225-400   | 8.63 (219.1)  | 2.38 (60.5) | 11.63 (295.3) | 2.38 (60.5) |
| 450-600   | 10.38 (263.5) | 2.88 (73.2) | 13.38 (339.7) | 2.88 (73.2) |



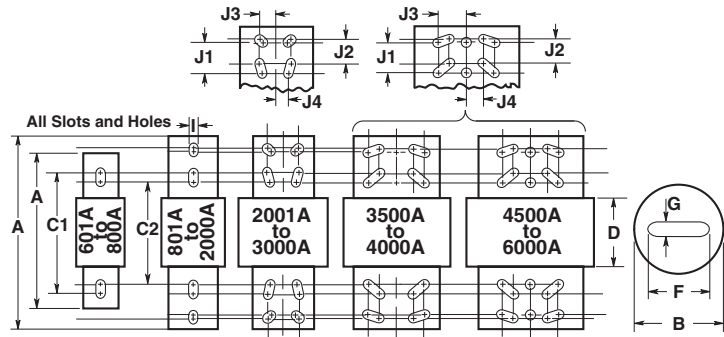
# Branch Circuit Rated Fuse Dimensions

## Class L Dimensions - in (mm)

### Low-Peak and Limitron Fuses

| Amp Range | A             | B            | C1           | C2           | D           | F            | G           | I           | J1          | J2          | J3          | J4          |
|-----------|---------------|--------------|--------------|--------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 601-800   | 8.63 (219.1)  | 2.40 (61.0)  | 6.75 (171.5) | 5.75 (146.1) | 3.75 (95.3) | 2.00 (50.8)  | 0.38 (9.5)  | 0.63 (15.9) | —           | —           | —           | —           |
| 801-1200  | 10.75 (273.1) | 2.40 (61.0)  | 6.75 (171.5) | 5.75 (146.1) | 3.75 (95.3) | 2.00 (50.8)  | 0.38 (9.5)  | 0.63 (15.9) | —           | —           | —           | —           |
| 1350-1600 | 10.75 (273.1) | 3.00 (76.2)  | 6.75 (171.5) | 5.75 (146.1) | 3.75 (95.3) | 2.38 (60.3)  | 0.44 (11.1) | 0.63 (15.9) | —           | —           | —           | —           |
| 1800-2000 | 10.75 (273.1) | 3.50 (88.9)  | 6.75 (171.5) | 5.75 (146.1) | 3.75 (95.3) | 2.75 (69.9)  | 0.50 (12.7) | 0.63 (15.9) | —           | —           | —           | —           |
| 2001-2500 | 10.75 (273.1) | 4.80 (122.0) | 6.75 (171.5) | 5.75 (146.1) | 3.75 (95.3) | 3.50 (88.9)  | 0.75 (19.1) | 0.63 (15.9) | 1.75 (44.5) | 1.38 (34.9) | 0.88 (22.2) | 0.81 (20.6) |
| 3000      | 10.75 (273.1) | 5.00 (127.0) | 6.75 (171.5) | 5.75 (146.1) | 3.75 (95.3) | 4.00 (101.6) | 0.75 (19.1) | 0.63 (15.9) | 1.75 (44.5) | 1.38 (34.9) | 0.88 (22.2) | 0.81 (20.6) |
| 3500-4000 | 10.75 (273.1) | 5.75 (146.1) | 6.75 (171.5) | 5.75 (146.1) | 3.75 (95.3) | 4.75 (120.7) | 0.75 (19.1) | 0.63 (15.9) | 1.75 (44.5) | 1.38 (34.9) | 1.63 (41.3) | 0.88 (22.2) |
| 4500-5000 | 10.75 (273.1) | 6.25 (158.8) | 6.75 (171.5) | 5.75 (146.1) | 3.75 (95.3) | 5.25 (133.4) | 1.00 (25.4) | 0.63 (15.9) | 1.75 (44.5) | 1.38 (34.9) | 1.63 (41.3) | 0.88 (22.2) |
| 6000      | 10.75 (273.1) | 7.13 (181.0) | 6.75 (171.5) | 5.75 (146.1) | 3.75 (95.3) | 5.75 (146.1) | 1.00 (25.4) | 0.63 (15.9) | 1.75 (44.5) | 1.38 (34.9) | 1.63 (41.3) | 0.88 (22.2) |

NOTE: KRP-CL (150A to 600A) fuses have same dimensions as 601-800A case size. KTU (200-600A) have same dimensions, except tube 3" length x 2" diameter (76.2 x 50.8mm); terminal 1 1/8" width x 1 1/4" thick (41.3 x 31.8mm).



## Class T Dimensions - in (mm)

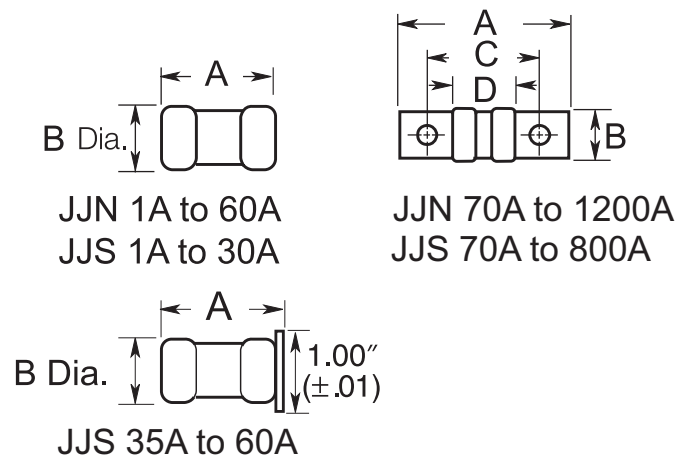
### T-Tron Fuses

#### JJN — 300V

| Amp Range | A            | B           | C           | D           |
|-----------|--------------|-------------|-------------|-------------|
| 1-30      | 0.88 (22.2)  | 0.41 (10.3) | —           | —           |
| 35-60     | 0.88 (22.2)  | 0.56 (14.3) | —           | —           |
| 70-100    | 2.16 (54.8)  | 0.75 (19.1) | 1.56 (39.7) | 0.84 (21.4) |
| 110-200   | 2.44 (61.9)  | 0.88 (22.2) | 1.69 (42.9) | 0.84 (21.4) |
| 225-400   | 2.75 (69.9)  | 1.00 (25.4) | 1.84 (46.8) | 0.86 (21.8) |
| 450-600   | 3.06 (77.8)  | 1.25 (31.8) | 2.03 (51.6) | 0.88 (22.2) |
| 601-800   | 3.38 (85.7)  | 1.75 (44.5) | 2.22 (56.4) | 0.89 (22.6) |
| 801-1200  | 4.00 (101.6) | 2.00 (50.8) | 2.53 (64.3) | 1.08 (27.4) |

#### JJS — 600V

| Amp Range | A            | B           | C           | D           |
|-----------|--------------|-------------|-------------|-------------|
| 1-30      | 1.50 (38.1)  | 0.56 (14.3) | —           | —           |
| 35-60     | 1.56 (39.7)  | 0.81 (20.6) | —           | —           |
| 70-100    | 2.95 (75.0)  | 0.75 (19.1) | 2.36 (59.9) | 1.64 (41.7) |
| 110-200   | 3.25 (82.6)  | 0.88 (22.2) | 2.50 (63.5) | 1.66 (42.1) |
| 225-400   | 3.63 (92.1)  | 1.00 (25.4) | 2.72 (69.1) | 1.73 (44.1) |
| 450-600   | 3.98 (101.2) | 1.25 (31.8) | 2.96 (75.0) | 1.78 (45.2) |
| 601-800   | 4.33 (109.9) | 1.75 (44.5) | 3.17 (80.6) | 1.88 (47.6) |





# Low-Peak™ Time-delay, Rejection-Type Fuses

## LP-CC Class CC

### Specifications

**Description:** Time-delay, current-limiting, rejection-type fuse – 12 seconds (minimum) at 200% rated amps.

**Dimensions:** 1 1/2" x 1 1/2" (10.3 x 38.1mm).

### Ratings:

- Volts — 600Vac (or less)
- 300Vdc (1/2-2 1/2A & 20-30A)
- 150Vdc (2 3/4-15A)
- Amps — 1/2-30A
- IR — 200kA RMS Sym.
- 20kA DC



**Agency Information:** CE, Std. 248-4, Class CC, UL Listed, Guide JDDZ, File E4273, CSA Certified; Class 1422-02, File 53787.

### Features and Benefits

- Time-delay coupled with Class CC current-limiting response provides close sizing on small motor and relay circuits, and maximum component short-circuit current rating protection.
- 200kA interrupting rating provides high ratings for control circuit locations.
- Class CC rejection feature, with appropriate fuse block, prevents inserting lesser-rated supplementary fuses.
- Inventory consolidation of 1 1/2 x 1 1/2 inch supplementary fuses reduces SKU investment and minimizes potential for misapplying fuse.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.

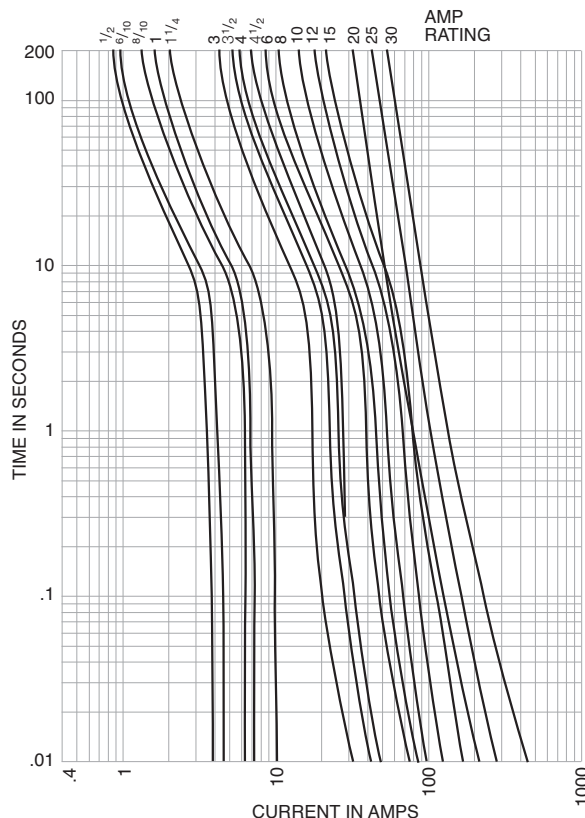
### Typical Applications

- Specialized Circuits
- Industrial Control
- Isolated, In-Line Fuse Holder

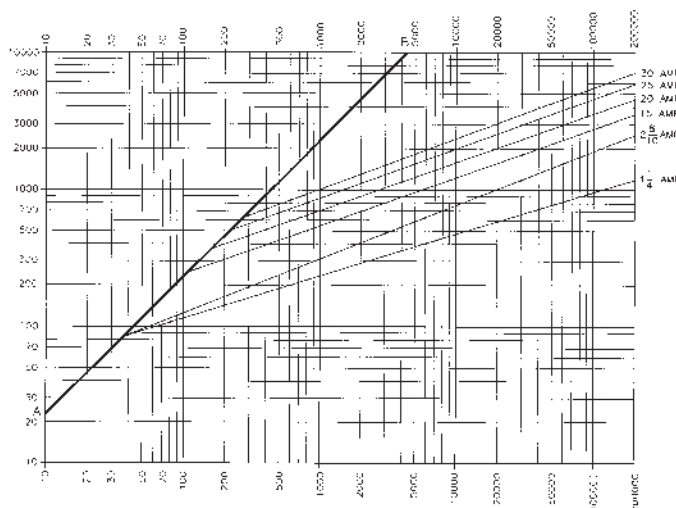
### Catalog Numbers (Amps)

|             |             |             |
|-------------|-------------|-------------|
| LP-CC-1/2   | LP-CC-2-1/2 | LP-CC-7 1/2 |
| LP-CC-3/4   | LP-CC-2-3/4 | LP-CC-8     |
| LP-CC-1     | LP-CC-3     | LP-CC-9     |
| LP-CC-1-1/4 | LP-CC-3-1/4 | LP-CC-10    |
| LP-CC-1-1/2 | LP-CC-3-1/2 | LP-CC-12    |
| LP-CC-1-3/4 | LP-CC-4     | LP-CC-15    |
| LP-CC-1-3/4 | LP-CC-4-1/2 | LP-CC-20    |
| LP-CC-1-3/4 | LP-CC-5     | LP-CC-25    |
| LP-CC-1-3/4 | LP-CC-5-3/4 | LP-CC-30    |
| LP-CC-1-3/4 | LP-CC-6     |             |
| LP-CC-2     | LP-CC-6-1/4 |             |
| LP-CC-2-1/4 | LP-CC-7     |             |

### Time Current Characteristics—Average Melt



### Current Limitation Curves



### Recommended Fuse Holders & Blocks For Class CC Fuses

- See page 18

# CC-Tron Rejection-type Fuses

## FNQ-R Class CC

### Specifications

**Description:** Time-delay, branch circuit, rejection-type fuse.

**Dimensions:** 1<sup>3</sup>/<sub>32</sub>" x 1 1/2" (10.3 x 38.1mm).

### Ratings:

- Volts — 600Vac (or less)
- 300Vdc (15-20A)
- 32Vdc (Self Certified)

Amps — 1/4-30A

IR — 200kA RMS Sym.

— 20kA DC (15 & 20A only)

**Agency Information:** CE, Std. 248-4, Class CC, UL Listed, Guide JDDZ, File E4273 CSA Certified, Class 1422-01, File 53787.

### Features and Benefits

- Time-delay compatible with inrush characteristic of small control transformers.
- Current limitation at Class CC levels provides maximum component short-circuit current rating protection.
- 200kA interrupting rating provides high ratings for control circuit locations.
- Class CC rejection feature, with appropriate fuse block, prevents inserting lesser-rated supplementary fuses.

### Typical Applications

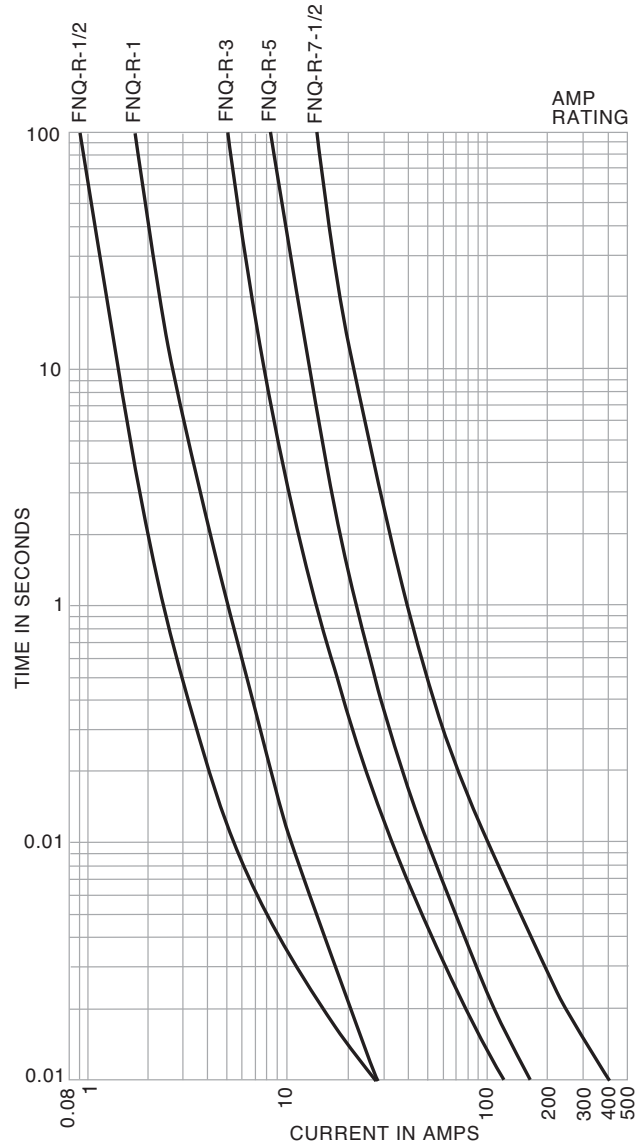
- Line Protection, Small Control Transformers
- Industrial Control
- Isolated, In-Line Fuse Holders

### Catalog Numbers (Amps)

|              |              |              |
|--------------|--------------|--------------|
| FNQ-R-1/4    | FNQ-R-1-3/16 | FNQ-R-6      |
| FNQ-R-3/16   | FNQ-R-1-1/8  | FNQ-R-6-1/4  |
| FNQ-R-1/8    | FNQ-R-2      | FNQ-R-7      |
| FNQ-R-1/2    | FNQ-R-2-1/4  | FNQ-R-7-1/2  |
| FNQ-R-3/8    | FNQ-R-2-1/2  | FNQ-R-8      |
| FNQ-R-1/4    | FNQ-R-2-3/8  | FNQ-R-9      |
| FNQ-R-3/16   | FNQ-R-3      | FNQ-R-10     |
| FNQ-R-1      | FNQ-R-3-3/16 | FNQ-R-12     |
| FNQ-R-1-1/8  | FNQ-R-3-1/2  | FNQ-R-15     |
| FNQ-R-1-1/4  | FNQ-R-4      | FNQ-R-17-1/2 |
| FNQ-R-1-3/16 | FNQ-R-4-1/2  | FNQ-R-20     |
| FNQ-R-1-1/8  | FNQ-R-5      | FNQ-R-25     |
| FNQ-R-1-1/2  | FNQ-R-5-3/16 | FNQ-R-30     |



Time-Current Characteristic Curves—Average Melt



For superior electrical protection, Bussmann recommends upgrading FNQ-R fuse applications to Low-Peak LP-CC fuses See page 17.

### Recommended Fuse Holders & Blocks For Class CC 600V Fuses

- See page 18

# Limitron™ Rejection-type Fuses

## KTK-R Class CC

### Specifications

**Description:** Fast-acting, branch circuit, rejection-type fuse.

**Dimensions:** 1 1/2" x 1 1/2" (10.3 x 38.1mm).

### Ratings:

Volts — 600Vac (or less)

Amps — 1/10-30A

IR — 200kA RMS Sym.

**Agency Information:** CE, Std. 248-4, Class CC, UL Listed, Guide JDDZ, File E4273 CSA Certified, File 53787, Class 1422-02.

### Features and Benefits

- Current limitation at Class CC levels provides maximum component short-circuit current protection.
- 200kA interrupting rating provides high ratings for control circuit locations.
- Class CC rejection feature, with appropriate fuse block, prevents inserting lesser-rated supplementary fuses.

### Typical Applications

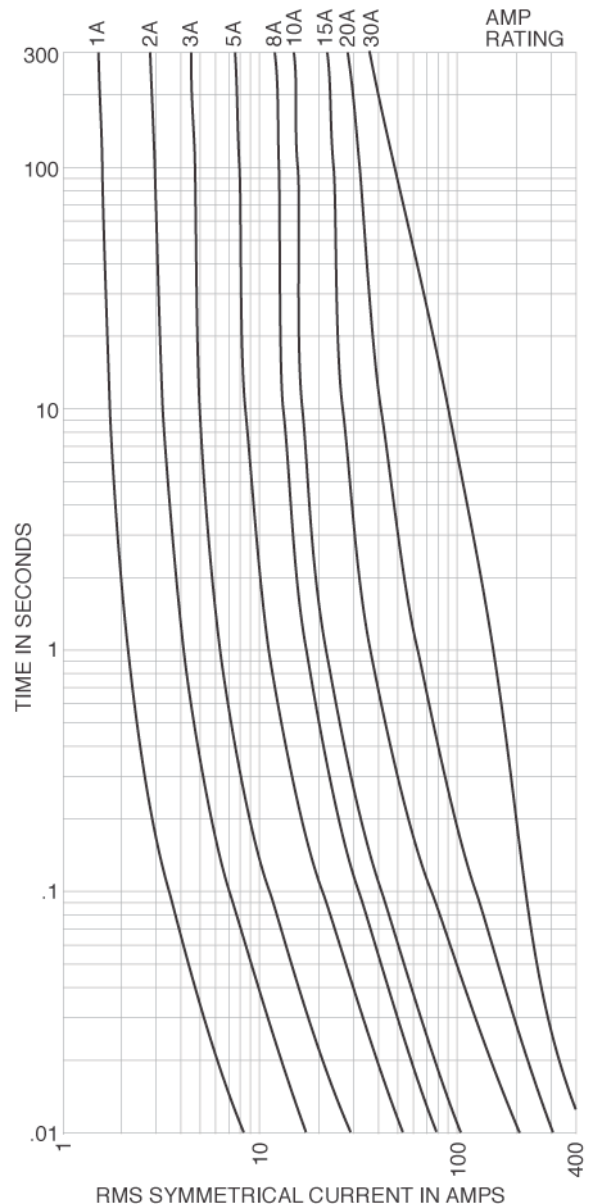
- Specialized Circuits
- Industrial Control
- Isolated, In-Line Fuse Holders (street lighting)

### Catalog Numbers (Amps)

|            |             |          |
|------------|-------------|----------|
| KTK-R-1/10 | KTK-R-1     | KTK-R-7  |
| KTK-R-1/8  | KTK-R-1-1/2 | KTK-R-8  |
| KTK-R-3/10 | KTK-R-2     | KTK-R-9  |
| KTK-R-1/4  | KTK-R-2-1/2 | KTK-R-10 |
| KTK-R-3/8  | KTK-R-3     | KTK-R-12 |
| KTK-R-1/2  | KTK-R-3-1/2 | KTK-R-15 |
| KTK-R-5/8  | KTK-R-4     | KTK-R-20 |
| KTK-R-3/4  | KTK-R-5     | KTK-R-25 |
| KTK-R-1    | KTK-R-6     | KTK-R-30 |



Time-Current Characteristic Curves—Average Melt



Low Voltage  
Branch Circuit  
Fuses

For superior electrical protection, Bussmann recommends upgrading KTK-R fuse applications to Low-Peak LP-CC fuses See page 23.

### Recommended Fuse Holders & Blocks For Class CC Fuses

- See page 18

# Time-Delay Low-Peak CUBEFuse™ Finger-safe Fuse and Fuse Holder System

## TCF Class CF



### Specifications

**Description:** Finger-safe fuse and fuse holder system; dual-element, time-delay fuse; 10 seconds minimum operating time at 500% rated amps.

**Dimensions:** See Dimensions illustration.

**Poles:** 1-pole (gangable)

### Ratings:

Volts — 600Vac (or less)  
— 300Vdc (or less)

Amps — 1-100A

IR — 300kA RMS Sym. (UL)  
— 200kA RMS Sym. (CSA)  
— 100kA DC (UL & CSA)

**Agency Information:** CE, UL Listed Guide JFHR, File E4273, CSA Certified Fuse: Class 1422- 02, File 53787, UL Listed Fuse holder: Guide IZND, File E214079, CSA Certified Fuse holder: Class 6225-01, File 47235.

### Features and Benefits

- Separate overload and short-circuit elements provide time delay for sizing of high inrush loads linked with Class J current limitation.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Smallest footprint of any Class CC, J, T or RK fuse provides substantial space savings and installation flexibility.
- IEC 60529 and finger-safe rating provides enhanced workplace safety.

### Typical Applications

- Electrical Panelboards
- Machinery Disconnects
- Industrial Control
- Required Finger-Safe Systems

### Fuse Catalog Numbers Indicating (Amps)

|         |       |       |        |
|---------|-------|-------|--------|
| TCF6    | TCF25 | TCF50 | TCF100 |
| TCF10   | TCF30 | TCF60 |        |
| TCF15   | TCF35 | TCF70 |        |
| TCF17-½ | TCF40 | TCF80 |        |
| TCF20   | TCF45 | TCF90 |        |

### Fuse Catalog Numbers Non-Indicating (Amps)

|         |           |         |          |
|---------|-----------|---------|----------|
| TCF1RN  | TCF17-½RN | TCF40RN | TCF80RN  |
| TCF3RN  | TCF20RN   | TCF45RN | TCF90RN  |
| TCF6RN  | TCF25RN   | TCF50RN | TCF100RN |
| TCF10RN | TCF30RN   | TCF60RN |          |
| TCF15RN | TCF35RN   | TCF70RN |          |

### Carton Quantity and Weight

| Amp Rating | Carton Qty. | Weight Per Carton |      |
|------------|-------------|-------------------|------|
|            |             | lbs               | kg   |
| TCF1-30A   | 12          | 1.39              | 0.63 |
| TCF35-60A  | 12          | 1.42              | 0.65 |
| TCF70-100A | 6           | 1.74              | 0.79 |



Scan this tag to get the latest product information for the TCF CUBEFuse.

### Recommended Fuse Holders For Class CF Fuses

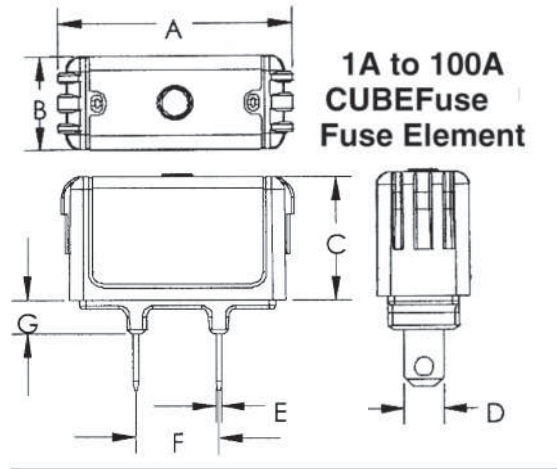
- See pages 32 and 33

Data Sheet: 9000 (fuses) and 9007 (holders)



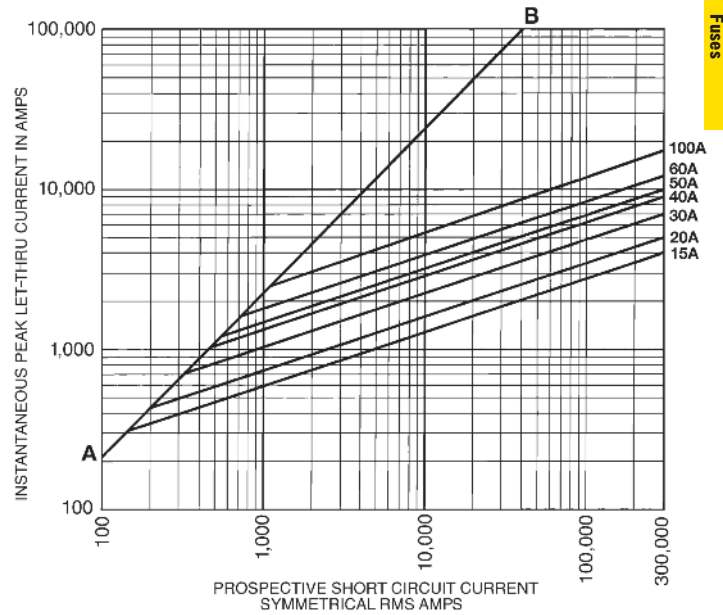
## Time-Delay Low-Peak CUBEFuse™ Finger-safe Fuse and Fuse Holder System

Dimensions for CUBEFuse Fuse and Fuse Holder



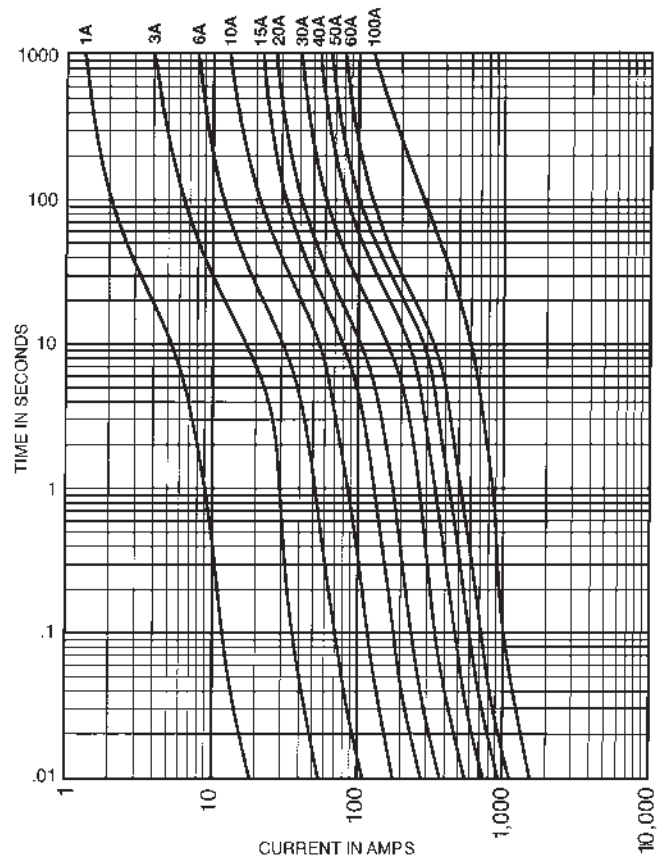
| Fuse Amps | Dimensions - in (mm) |                 |                 |                 |                |                 |                |
|-----------|----------------------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|
|           | A                    | B               | C               | D               | E              | F               | G              |
| 1-15      | 1.88<br>(47.75)      | 0.75<br>(19.05) | 1.00<br>(25.40) | 0.23<br>(5.84)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.28<br>(7.11) |
| 17 ½      | 1.88<br>(47.75)      | 0.75<br>(19.05) | 1.00<br>(25.40) | 0.31<br>(7.87)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.28<br>(7.11) |
| 20        | 1.88<br>(47.75)      | 0.75<br>(19.05) | 1.00<br>(25.40) | 0.31<br>(7.87)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.28<br>(7.11) |
| 25-30     | 1.88<br>(47.75)      | 0.75<br>(19.05) | 1.00<br>(25.40) | 0.31<br>(7.87)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.28<br>(7.11) |
| 35-40     | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.36<br>(9.10)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 45-50     | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.44<br>(11.13) | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 60        | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.44<br>(11.13) | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 70        | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.49<br>(12.45) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |
| 80-90     | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.49<br>(12.45) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |
| 100       | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.57<br>(14.48) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |

Current Limitation Curves



Low Voltage Branch Circuit Fuses

Time-Current Characteristic Curves—Average Melt



Data Sheet: 9000 (fuses) and 9007 (holders)

# UPS & Critical Application Fast-Acting CUBEFuse™ Finger-safe Fuse

## FCF Class CF Fuse



Catalog Symbol: FCF\_RN

**Fast-Acting Fuse:** 4 minutes maximum clearing time at 200% rated current for 1 to 30A fuse  
6 minutes maximum clearing time at 200% rated current for 35 to 60A fuse

**Dimensions:** See Dimensions illustration.

**Poles:** 1-pole (gangable)

**Ratings:**

- Volts — 600Vac (or less)
- 300Vdc (or less)
- Amps — 1-100A
- IR — 300kA RMS Sym. (UL)
- 200kA RMS Sym. (CSA)
- 50kA DC (UL & CSA)

**Agency Information:**

- UL Listed Fuse: Guide JFHR, File E4273
- CSA Certified Fuse: Class 1422- 02, File 53787
- CE compliance for the European Union low voltage directive

**Other Ratings/Specifications:**

Watts Loss at rated current: FCF15RN: 3.48W  
FCF30RN: 5.45W  
FCF60RN: 7.27W

**Operating and Storage Temperature Range:**

-40 to 80°C

**Material Specifications:**

- Case: Glass filled PES (Polyethersulfone)
- Terminals: Copper alloy
- Terminal plating: Electroless tin

**Carton Quantity and Weight**

| Amp Rating  | Carton Qty. | Weight Per Carton |      |
|-------------|-------------|-------------------|------|
|             |             | lbs               | kg   |
| FCF-1-30A   | 12          | 1.39              | 0.63 |
| FCF-35-60A  | 12          | 1.42              | 0.65 |
| FCF-70-100A | 6           | 1.74              | 0.79 |

**Features and Product Benefits**

- The world's first finger-safe power fuse system.
- Smallest footprint of any class fuse including Class J, CC, T and RK.
- Class CF meets Class J fast-acting electrical performance requirements.
- Faster response to damaging faults to help reduce destructive thermal and magnetic forces.
- True fast-acting fuse construction.
- High interrupting rating to safely interrupt faults up to 300kA.
- No venting of arc or molten metal and gases during opening.
- Low let-through currents under fault conditions.

**Fuse Catalog Numbers Non-Indicating (Amps)**

|         |         |         |          |
|---------|---------|---------|----------|
| FCF1RN  | FCF20RN | FCF45RN | FCF90RN  |
| FCF3RN  | FCF25RN | FCF50RN | FCF100RN |
| FCF6RN  | FCF30RN | FCF60RN | —        |
| FCF10RN | FCF35RN | FCF70RN | —        |
| FCF15RN | FCF40RN | FCF80RN | —        |



Scan this tag to get the latest product information for the New FCF CUBEFuse.

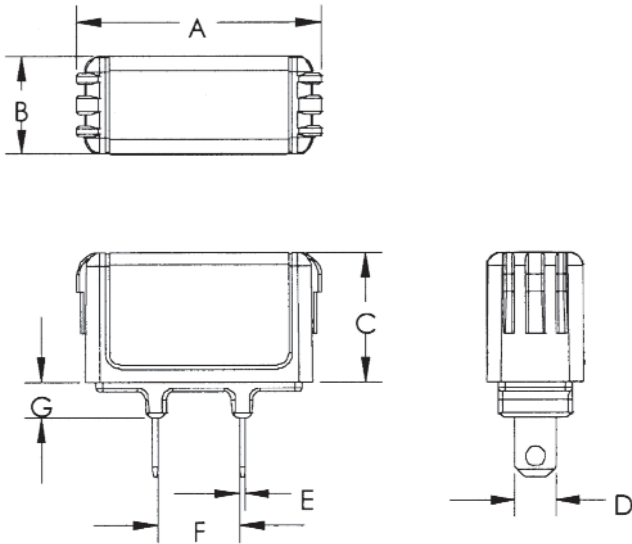
**Recommended Fuse Holders For Class CF Fuses**

- See pages 32 and 33

Data Sheet: 2147

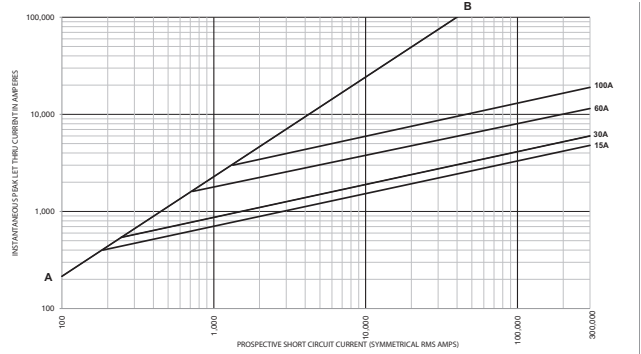
# UPS & Critical Application Fast-Acting CUBEFuse™ Finger-safe Fuse

FCF\_RN Dimensions - in (mm)

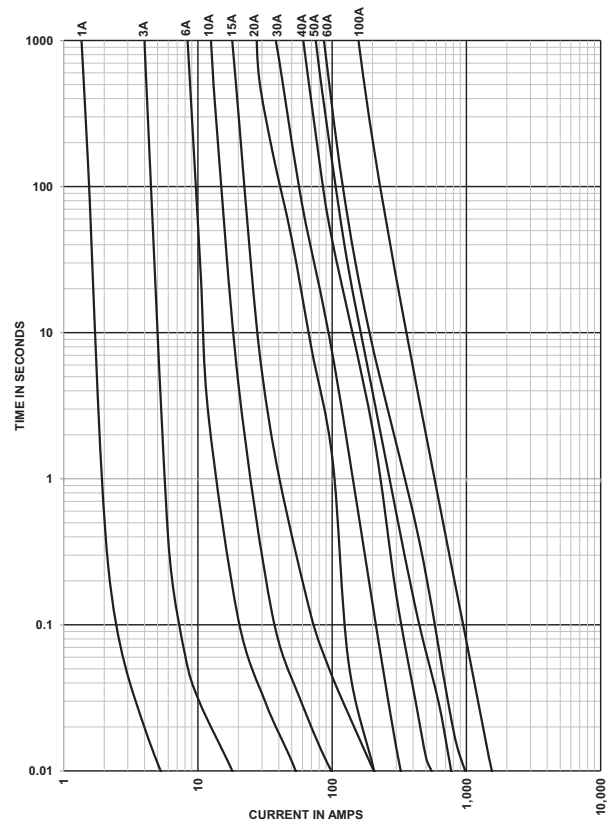


| Fuse Amps | Dimensions - in (mm) |                 |                 |                 |                |                 |                |
|-----------|----------------------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|
|           | A                    | B               | C               | D               | E              | F               | G              |
| 1-15      | 1.88<br>(47.75)      | 0.75<br>(19.05) | 1.00<br>(25.40) | 0.23<br>(5.84)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.28<br>(7.11) |
| 20        | 1.88<br>(47.75)      | 0.75<br>(19.05) | 1.00<br>(25.40) | 0.31<br>(7.87)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.28<br>(7.11) |
| 25-30     | 1.88<br>(47.75)      | 0.75<br>(19.05) | 1.00<br>(25.40) | 0.31<br>(7.87)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.28<br>(7.11) |
| 35-40     | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.36<br>(9.10)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 45-50     | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.44<br>(11.13) | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 60        | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.44<br>(11.13) | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 70        | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.49<br>(12.45) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |
| 80-90     | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.49<br>(12.45) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |
| 100       | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.57<br>(14.48) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |

Current Limitation Curves



Time-Current Characteristic Curves—Average Melt



## Wind Fast-Acting CUBEFuse™ – Finger-safe Fuse

### WCF Class CF Fuse



**Catalog Symbol:** WCF\_RN

**Description:** Finger-safe, fast-acting CUBEFuse for wind power generation.

**Electrical Characteristics:** Maximum clearing time at 200% rated current:

- 4 Minutes for 1 to 30A fuses
- 6 Minutes for 35 to 60A fuses
- 8 Minutes for 70 to 100A fuses

**Ratings:**

Volts — 690Vac

Amps — 1-100A

IR — 50kA AC (1-60A)

IR — 30kA AC (70-100A)

**Agency Information:**

- UL Recognized Fuse: Guide JFHR, File E56412
- cURus component certified C22.2
- CE compliance for the European Union low voltage directive

**Other Ratings/Specifications:**

**Watts Loss at Rated Current:** WCF15RN: 3.48W  
 WCF30RN: 5.45W  
 WCF60RN: 7.27W  
 WCF100RN: 11.50W

**Operating and Storage Temperature Range:** -40 to 90°C

**Material Specifications:**

- Case: Glass filled PES (Polyethersulfone)
- Terminals: Copper alloy
- Terminal plating: Electroless tin

**Installation:**

Fits 690V WCF holders as listed in the table

**Application:**

- Wind Systems:
  - Transformer protection
  - Pitch and speed control
  - Turbine HVAC and lighting

**Features and Product Benefits**

- Maximize uptime and reliability using fuses designed and listed to UL 248-1.
- Minimize chances of equipment failure and personnel injury when using full range fuses having the industry's fastest response time to low-magnitude faults.
- Maximize return on investment with fuses proven to withstand harsh temperatures.
- Minimize design time, operating outage time and replacement cost with fuses qualified in excessively changing environmental conditions.
- Simplify compatibility with readily available industry standard Class CF holders.
- Temperature Derating: Designed to maximize rated capacity in elevated environmental temperatures.
- Overload Protection: Proven to clear faults faster than the UL requirement.
- Power Loss: Minimal energy consumption leading to increased efficiency.

**Catalog Numbers (amp rating)**

| Non-Indicating Wind CUBEFuse |         |         |         |          |
|------------------------------|---------|---------|---------|----------|
| WCF1RN                       | WCF15RN | WCF35RN | WCF60RN | WCF100RN |
| WCF3RN                       | WCF20RN | WCF40RN | WCF70RN | —        |
| WCF6RN                       | WCF25RN | WCF45RN | WCF80RN | —        |
| WCF10RN                      | WCF30RN | WCF50RN | WCF90RN | —        |

**Carton Quantity and Weight**

| Amp Rating | Carton Qty. | Weight Per Carton |      |
|------------|-------------|-------------------|------|
|            |             | lbs               | kg   |
| WCF1-30A   | 12          | 1.39              | 0.63 |
| WCF35-60A  | 12          | 1.42              | 0.65 |
| WCF70-100A | 6           | 1.74              | 0.79 |



Scan this tag to get the latest product information for the New WCF CUBEFuse.

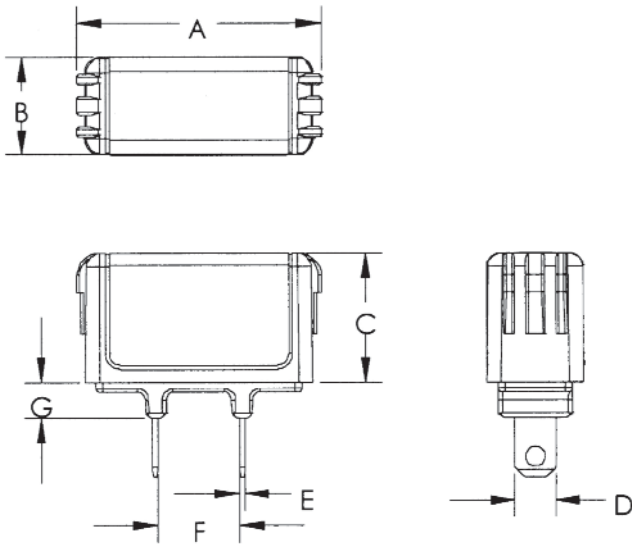
**Recommended Fuse Holders For Class CF Fuses**

- See pages 32 and 33



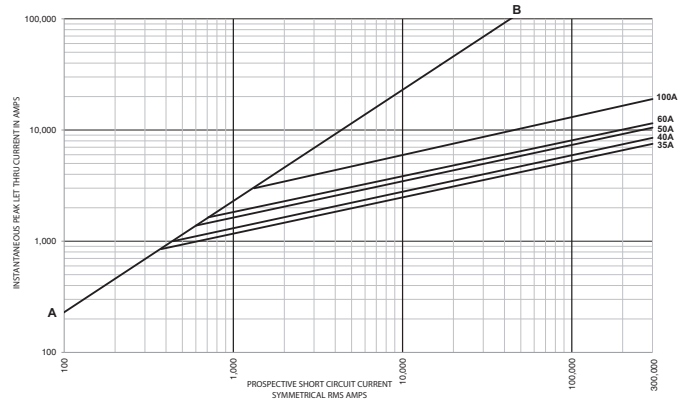
## Wind Fast-Acting CUBEFuse™ – Finger-safe Fuse

WCF\_RN Dimensions – in (mm)

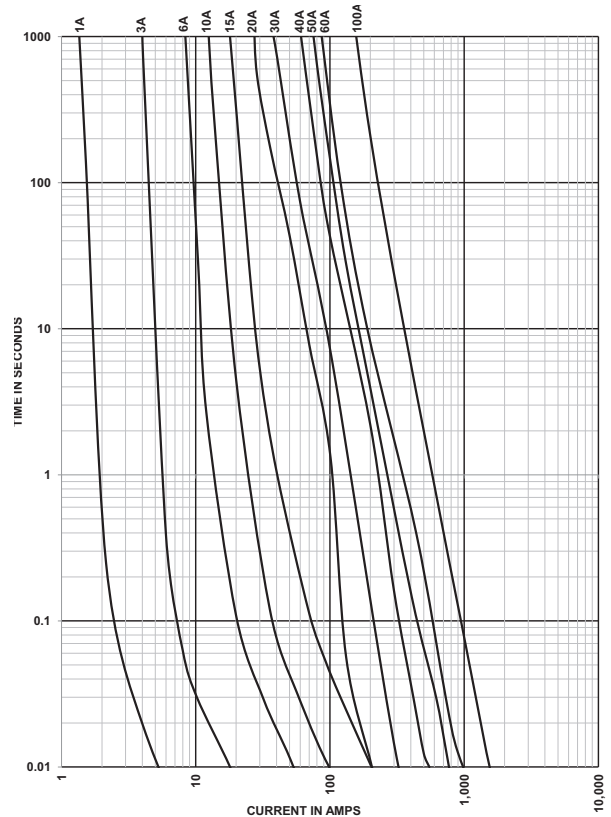


| Fuse Amps | Dimensions - in (mm) |                 |                 |                 |                |                 |                |
|-----------|----------------------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|
|           | A                    | B               | C               | D               | E              | F               | G              |
| 35-40     | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.36<br>(9.10)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 45-50     | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.44<br>(11.13) | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 60        | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.44<br>(11.13) | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 70        | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.49<br>(12.45) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |
| 80-90     | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.49<br>(12.45) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |
| 100       | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.57<br>(14.48) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |

Current Limitation Curves



Time-Current Characteristic Curves—Average Melt



Low Voltage Branch Circuit Fuses

# CUBEFuse™ Finger-safe Fuse Holder System

## CUBEFuse Fuse Holder

**Catalog Symbols:**

|             |                    | <b>Ampacity<br/>(holds any CUBEFuse)</b> |
|-------------|--------------------|--|
| <b>600V</b> | <b>690V (Wind)</b> |  |
| TCFH30N     | TCFH30NW           | (1-30A)                                  |
| TCFH60N     | TCFH60NW           | (1-60A)                                  |
| TCFH100N    | TCFH100NW          | (1-100A)                                 |

**Construction:** Finger-safe

**Mounting:** 35mm DIN-Rail or panel mount

**Ratings:**

- Volts: 600V (UL, CSA)
- 690V (cURus - Wind version)
- Withstand Rating: 300kA RMS Sym. (UL)
- 200kA RMS Sym. (CSA)
- 100kA DC (UL & CSA)
- 50kA AC (cURus, 1-60A Wind version)

**Agency Information:**

- UL Listed Fuse Holder: Guide IZLT, File E14853
- CSA Certified Fuse Holder: Class 6225-01, File 47235
- cURus component Certified
- CE compliance for the European Union low voltage directive



**Operating and Storage Temperature Range:**

-40 to 80°C

**Material Specifications:**

- Holder case: Glass filled PBT
- Interface clips: Copper alloy
- Interface clip plating: Tin
- Terminals: Steel
- DIN Rail spring: Stainless steel

## CUBEFuse™ Holder Applications

| CUBEFuse Holder Catalog Number | Volts | CUBEFuse Type and Ampacity Range Per CUBEFuse Holder |                            |                    |                      |             |
|--------------------------------|-------|--|----------------------------|--------------------|----------------------|-------------|
|                                |       | Non-Indicating Time-Delay TCF_RN                     | Indicating Time-Delay TCF_ | Fast-Acting FCF_RN | Photovoltaic PVCF_RN | Wind WCF_RN |
| TCFH30N                        | 600   | 1-30   | 6-30                       | 1-30               | —                    | —           |
| TCFH60N                        | 600   | 1-60   | 6-60                       | 1-60               | 35-60                | —           |
| TCFH100N                       | 600   | 1-100  | 6-100                      | 1-100              | 35-100               | —           |
| TCFH30NW                       | 690   | —  | —                          | —                  | —                    | 1-30        |
| TCFH60NW                       | 690   | —  | —                          | —                  | —                    | 1-60        |
| TCFH100NW                      | 690   | —  | —                          | —                  | —                    | 1-100       |

### Terminal Torque Ratings by Conductor and Holder Size (75°C Cu only)

| TCFH30N / TCFH30NW |                   | TCFH60N / TCFH60NW |                  | TCFH100N / TCFH100NW |               |
|--------------------|-------------------|--------------------|------------------|----------------------|---------------|
| Single             | Dual              | Single             | Dual             | Single               | Dual          |
| 10-8AWG 25Lb-In    | 18-10AWG 25Lb-In* | 14-10AWG 20Lb-In   | 18-10AWG 20Lb-In | 18-10AWG 25Lb-In**   | 6AWG 45Lb-In† |
| 18-12AWG 20Lb-In   |                   | 8-4AWG 35Lb-In     | 8-6AWG 35Lb-In   | 8-1AWG 40Lb-In†      |               |

\* 18-10AWG Stranded, 14-18AWG solid

\*\* Solid and stranded

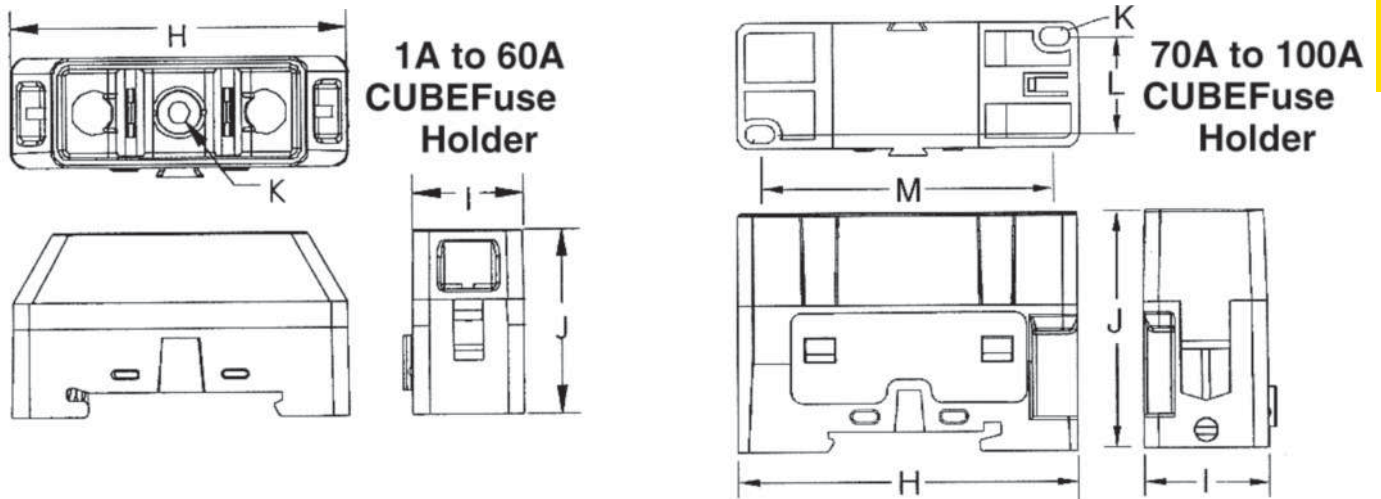
† Stranded

Data Sheet: 9007

# CUBEFuse™ Finger-safe Fuse Holder System

Low Voltage  
Branch Circuit  
Fuses

## Dimensions for CUBEFuse Fuse Holder



## CUBEFuse™ Holder Catalog Numbers

| Catalog Number        | CUBEFuse Amp Range | Wire Range (Cu/AWG) |       | Dimensions - in (mm) |                 |                 |                |                 |                 |
|-----------------------|--------------------|---------------------|-------|----------------------|-----------------|-----------------|----------------|-----------------|-----------------|
|                       |                    | Single              | Dual  | H                    | I               | J               | K              | L               | M               |
| TCFH30N<br>TCFH30NW   | 1-30               | 14-8                | 14-10 | 2.30<br>(58.5)       | 0.76<br>(19.37) | 1.36<br>(34.24) | 0.15<br>(3.76) | —               | —               |
| TCFH60N<br>TCFH60NW   | 1-60               | 14-4                | 10-6  | 2.60<br>(66.12)      | 1.03<br>(26.23) | 1.60<br>(40.64) | 0.17<br>(4.34) | —               | —               |
| TCFH100N<br>TCFH100NW | 1-100              | 10-1                | 6     | 2.91<br>(73.81)      | 1.05<br>(26.74) | 2.01<br>(50.93) | 0.15<br>(3.81) | 0.80<br>(20.39) | 2.51<br>(63.65) |

## Time-delay Fuses

### SC Class G

#### Specifications

**Description:** Fast-acting (½-6A), time-delay (7-60A) fuse.

**Dimensions:** See dimensions illustration.

#### Ratings:

- Volts — 600Vac (½-20A)
- 480Vac (25-60A)
- 170Vdc (½-20A)
- 300Vdc (30 & 60A only)
- Amps — ½-60A
- IR — 100kA RMS Sym.
- 10kA DC

**Agency Information:** CE, Std. 248-5, Class G, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-01, File 53787.

#### Features and Benefits

- Current limiting for component protection, providing Class G energy-limitation for branch circuit protection.
- 100kA interrupting rating provides cost-effective branch circuit fusing.
- Variations in length help prevent overfusing.

#### Typical Applications

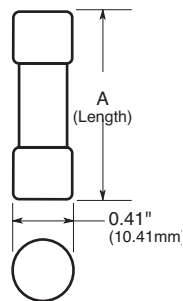
- Fusible Branch Panelboards
- HVAC Branch Circuit Protection

#### Catalog Numbers (Amps)

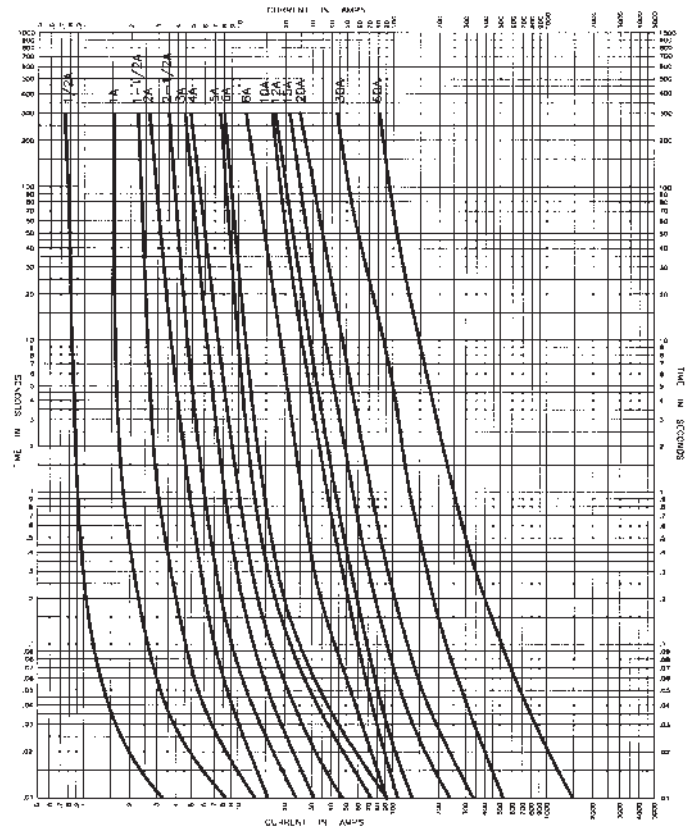
|        |        |       |       |       |       |
|--------|--------|-------|-------|-------|-------|
| SC-½   | SC-2-½ | SC-6  | SC-12 | SC-30 | SC-50 |
| SC-1   | SC-3   | SC-7  | SC-15 | SC-35 | SC-60 |
| SC-1-½ | SC-4   | SC-8  | SC-20 | SC-40 |       |
| SC-2   | SC-5   | SC-10 | SC-25 | SC-45 |       |

#### Dimensions -in (mm)

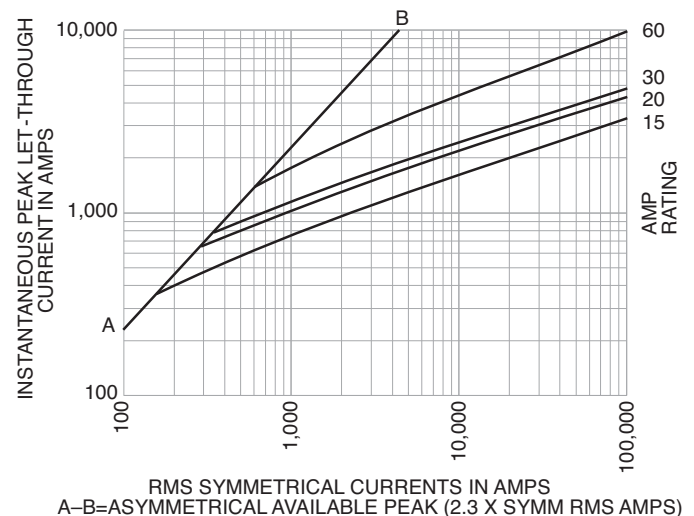
| Fuse Amps    | Length      | Diameter     |
|--------------|-------------|--------------|
| SC-½ to -15  | 1.31 (33.3) | 0.41" (10.4) |
| SC-20        | 1.41 (35.8) | 0.41" (10.4) |
| SC-25 to -30 | 1.62 (41.2) | 0.41" (10.4) |
| SC-35 to -60 | 2.25 (57.1) | 0.41" (10.4) |



#### Time-Current Characteristic Curves—Average Melt



#### Current Limitation Curves



**Recommended Fuse Holders & Blocks For Class G Fuses**  
• See page 18



## Low-Peak™ Dual-element, Time-delay Fuses

### LPJ\_SP Class J

Available With  
Indication



#### Specifications

##### Description:

Dual-element, time-delay fuse; 10 seconds (minimum) at 500% rated amps. Now available with optional indication on select ratings (see Catalog Numbers table).

**Dimensions:** See page 11 for Class J dimensions.

##### Ratings:

- Volts — 600Vac (or less)
- 300Vdc (or less)
- Amps — 1-600A
- IR — 300kA RMS Sym.
- 100kA DC

**Agency Information:** CE, UL Listed - Special Purpose\*, Guide JFHR, File E56412, CSA Certified (200k AIR) Class J per CSA-22.2 No. 248.8, Class 1422-02, File 53787.

#### Features and Benefits

- Separate overload and short-circuit elements provide time delay for sizing of high inrush loads linked with Class J current limitation.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Series combination ratings with branch circuit breakers allows broad range of coverage, independent of breaker manufacturer.

#### Typical Applications

- Power Panelboards
- Branch Circuit Breaker Panelboard Mains
- Machinery Disconnects
- Industrial Control

#### Catalog Numbers (Amps)

|           |              |             |             |
|-----------|--------------|-------------|-------------|
| LPJ-1SP   | LPJ-4-½SP    | LPJ-25SP**  | LPJ-125SP** |
| LPJ-1-¼SP | LPJ-5SP      | LPJ-30SP**  | LPJ-150SP** |
| LPJ-1-⅝SP | LPJ-5-⅝SP    | LPJ-35SP**  | LPJ-175SP** |
| LPJ-1-¾SP | LPJ-6SP**    | LPJ-40SP**  | LPJ-200SP** |
| LPJ-2SP   | LPJ-7SP**    | LPJ-45SP**  | LPJ-225SP** |
| LPJ-2-¼SP | LPJ-8SP**    | LPJ-50SP**  | LPJ-250SP** |
| LPJ-2-½SP | LPJ-9SP**    | LPJ-60SP**  | LPJ-300SP** |
| LPJ-2-⅝SP | LPJ-10SP**   | LPJ-70SP**  | LPJ-350SP** |
| LPJ-3SP   | LPJ-12SP**   | LPJ-80SP**  | LPJ-400SP** |
| LPJ-3-⅝SP | LPJ-15SP**   | LPJ-90SP**  | LPJ-450SP** |
| LPJ-3-¾SP | LPJ-17-½SP** | LPJ-100SP** | LPJ-500SP** |
| LPJ-4SP   | LPJ-20SP**   | LPJ-110SP** | LPJ-600SP** |

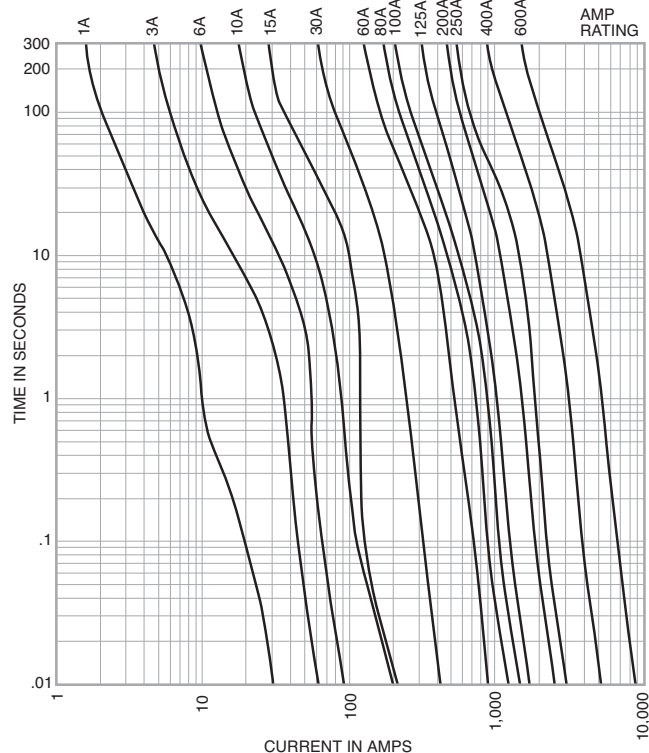
\*Meets all performance requirements of UL Standard 248-8 for Class J fuses.

\*\*Available with optional permanent replace fuse indication. To order, place "I" at end of catalog number. Example: LPJ-6SPI.

Available with silver plated terminals. Add SP/ in front of Catalog Number.

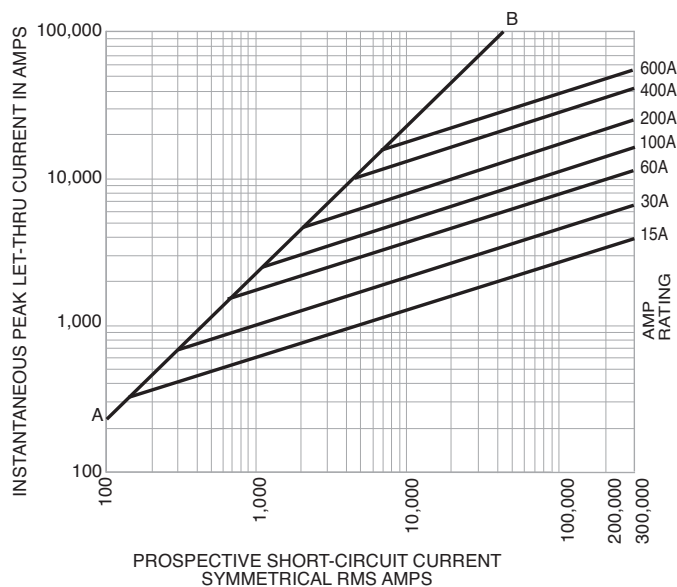
**Data Sheets: 1006 (0-60) and 1007 (70-600)**  
With indication **1062 (6-60) and 1063 (70-600)**

#### Time-Current Characteristic Curves—Average Melt



#### Current Limitation Curves

LPJ Current Limitation Curves



**Recommended Fuse Holders & Blocks For Class J Fuses**  
• See page 20

## Limitron™ Fast-acting Fuses

### JKS Class J

#### Specifications

**Description:** Fast-acting, current-limiting fuse.

**Dimensions:** See page 15 for Class J dimensions.

#### Ratings:

Volts — 600Vac (or less)

Amps — 1-600A

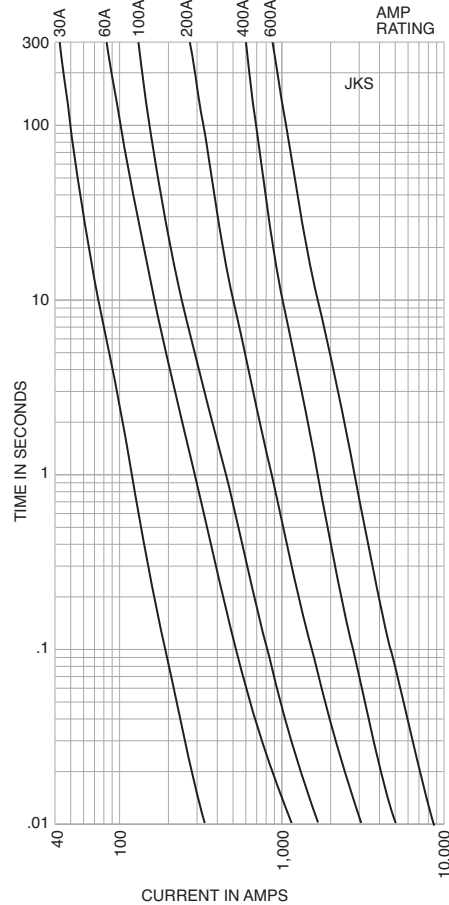
IR — 200kA RMS Sym.

#### Agency Information:

CE, Std.  
248-8, Class J, UL  
Listed, Guide JDDZ,  
File E4273, CSA  
Certified, Class 1422-02, File 53787.



### Time-Current Characteristic Curves—Average Melt



#### Features and Benefits

- Current limitation for non-inductive circuits provides Class J current-limiting response to maximum ground fault and short-circuit conditions.
- 200kA interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.

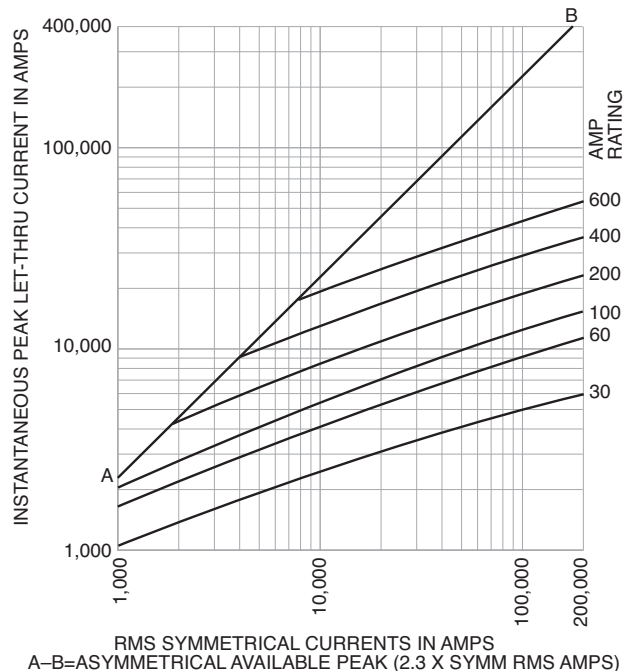
#### Typical Applications

- Power Panelboards
- Machinery Disconnects

#### Catalog Numbers (Amps)

|        |        |         |         |
|--------|--------|---------|---------|
| JKS-1  | JKS-15 | JKS-70  | JKS-225 |
| JKS-2  | JKS-20 | JKS-80  | JKS-250 |
| JKS-3  | JKS-25 | JKS-90  | JKS-300 |
| JKS-4  | JKS-30 | JKS-100 | JKS-350 |
| JKS-5  | JKS-35 | JKS-110 | JKS-400 |
| JKS-6  | JKS-40 | JKS-125 | JKS-450 |
| JKS-8  | JKS-45 | JKS-150 | JKS-500 |
| JKS-10 | JKS-50 | JKS-175 | JKS-600 |
| JKS-12 | JKS-60 | JKS-200 |         |

### Current Limitation Curves



For superior electrical protection, Bussmann recommends upgrading JKS fuse applications to Low-Peak LPJ fuses See page 35.

#### Recommended Fuse Holders & Blocks For Class J Fuses

- See page 20

Data Sheet: 1026 (1-60) and 1027 (70-600)

# One-time General Purpose Fuses

Low Voltage  
Branch Circuit  
Fuses

## NON (250Vac/125Vdc) Class K5 & H NOS (600Vac) Class K5 & H

### Specifications

**Description:** General purpose, non-current-limiting fuses.

**Dimensions:** See page 15 for dimensions.

### Ratings:

- Volts — **NON:**
  - 250Vac
  - 125Vdc (0-100A)
- **NOS:**
  - 600Vac
- Amps — 1/8-600A
  - IR — 50kA RMS Sym. (NON & NOS Class K5 0-60A)
  - 10kA RMS Sym. (NON & NOS Class H65-600A)
  - 50kA @ 125Vdc (NON Class K5 0-60A)
  - 10kA @ 125Vdc (NON Class H 65-100A)



**Agency Information:** CE, UL Listed – 250V: Class K5 (0-60A), Std. 248-9, Class H (65-600A), Std. 248-6, (125Vdc: NON 0-100), 600V: Class K5 (0-60A), Std. 248-9, Class H (70-600A), Std. 248-6, Guide JDDZ, File E4273, CSA Certified – 250V: (0-12, 65-600)†, 600V: (0-600), Class 1421-01, File 53787.

† For CSA Certified 15-60A Ratings, see PON Data Sheet 4126

### Features and Benefits

- Original fuse providing circuit protection.

### Typical Applications

- Light Duty Circuit Locations

### NON (250Vac) Catalog Numbers (Amps)

|           |           |         |         |
|-----------|-----------|---------|---------|
| NON-1/8   | NON-5     | NON-40  | NON-175 |
| NON-1/4   | NON-6     | NON-45  | NON-200 |
| NON-3/8   | NON-6-1/4 | NON-50  | NON-225 |
| NON-1/2   | NON-7     | NON-60  | NON-250 |
| NON-1     | NON-8     | NON-65  | NON-300 |
| NON-1-1/4 | NON-9     | NON-70  | NON-350 |
| NON-1-1/2 | NON-10    | NON-75  | NON-400 |
| NON-1-3/4 | NON-12    | NON-80  | NON-450 |
| NON-2     | NON-15    | NON-90  | NON-500 |
| NON-2-1/2 | NON-20    | NON-100 | NON-600 |
| NON-3     | NON-25    | NON-110 |         |
| NON-3-3/4 | NON-30    | NON-125 |         |
| NON-4     | NON-35    | NON-150 |         |

### NOS (600Vac) Catalog Numbers (Amps)

|        |        |         |         |
|--------|--------|---------|---------|
| NOS-1  | NOS-12 | NOS-70  | NOS-200 |
| NOS-2  | NOS-15 | NOS-75  | NOS-225 |
| NOS-3  | NOS-20 | NOS-80  | NOS-250 |
| NOS-4  | NOS-25 | NOS-90  | NOS-300 |
| NOS-5  | NOS-30 | NOS-100 | NOS-350 |
| NOS-6  | NOS-35 | NOS-110 | NOS-400 |
| NOS-7  | NOS-40 | NOS-125 | NOS-450 |
| NOS-8  | NOS-45 | NOS-150 | NOS-500 |
| NOS-9  | NOS-50 | NOS-175 | NOS-600 |
| NOS-10 | NOS-60 |         |         |

### Recommended Fuse Reducers

| 250V Fuse Amp Size | Clip Amp Size | Catalog Number (Pair) | 600V Fuse Amp Size | Clip Amp Size | Catalog Number (Pair) |
|--------------------|---------------|-----------------------|--------------------|---------------|-----------------------|
| 30                 | 60            | NO.263                | 30                 | 60            | NO.663                |
| 30                 | 100           | NO.213                | 30                 | 100           | NO.216                |
| 60                 | 100           | NO.216                | 60                 | 100           | NO.616                |
| 60                 | 200           | NO.226                | 60                 | 200           | NO.626                |
| 100                | 200           | NO.2621               | 100                | 200           | NO.2621               |
| 100                | 400           | NO.2641               | 100                | 400           | NO.2641               |
| 200                | 400           | NO.2642               | 200                | 400           | NO.2642               |
| 100                | 600           | NO.2661               | 100                | 600           | NO.2661               |
| 200                | 600           | NO.2662               | 200                | 600           | NO.2662               |
| 400                | 600           | NO.2664               | 400                | 600           | NO.2664               |

For superior electrical protection, Bussmann recommends upgrading NON (250Vac) and NOS (600Vac) fuse applications to Low-Peak LPN-RK (250Vac) and LPS-RK (600Vac) fuses See page 41.

### Recommended Fuse Holders & Blocks For Class K5 & H 250V & 600V Fuses

- See page 18

## Low-Peak™ Time-delay Fuses

### KRP-C\_SP Class L

#### Specifications

**Description:** Time-delay fuse – 4 seconds (minimum) at 500% rated amps.

**Dimensions:** See page 16 for Class L dimensions.

#### Ratings:

- Volts — 600Vac (or less)
- 300Vdc (601-2000A)
- Amps — 601-6000A
- (use KRP-CL for current ratings under 601A)
- IR — 300kA RMS Sym.
- 100kA DC



#### Catalog Numbers (Amps)

|             |              |              |              |
|-------------|--------------|--------------|--------------|
| KRP-C-601SP | KRP-C-1000SP | KRP-C-1800SP | KRP-C-3500SP |
| KRP-C-650SP | KRP-C-1100SP | KRP-C-1900SP | KRP-C-4000SP |
| KRP-C-700SP | KRP-C-1200SP | KRP-C-2000SP | KRP-C-4500SP |
| KRP-C-750SP | KRP-C-1350SP | KRP-C-2001SP | KRP-C-5000SP |
| KRP-C-800SP | KRP-C-1400SP | KRP-C-2400SP | KRP-C-6000SP |
| KRP-C-801SP | KRP-C-1500SP | KRP-C-2500SP |              |
| KRP-C-900SP | KRP-C-1600SP | KRP-C-3000SP |              |

**Agency Information:** CE, UL Listed-Special Purpose (meets all performance requirements of UL Standard 248-10 for Class L fuses), Guide JFHR, File E56412, CSA Certified (200k AIR), Class 1422-02, File 53787, Class L per CSA C22.2, No. 248.10.

#### Features and Benefits

- Time-delay of four seconds at five times rating allows closer sizing on large motor loads combined with Class L current limitation.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Interrupting rating of 300kA RMS symmetrical provides adequate ratings without obsolescence for all electrical systems, big or small.
- Quality construction, using high-grade materials, provides lower watts loss and operating temperatures with superior arc quenching during current-limiting action.

#### Typical Applications

- Large Distribution Switchboards
- Power Panelboards
- Large Machinery Disconnects

#### Recommended Fuse Holders & Blocks For Class L Fuses

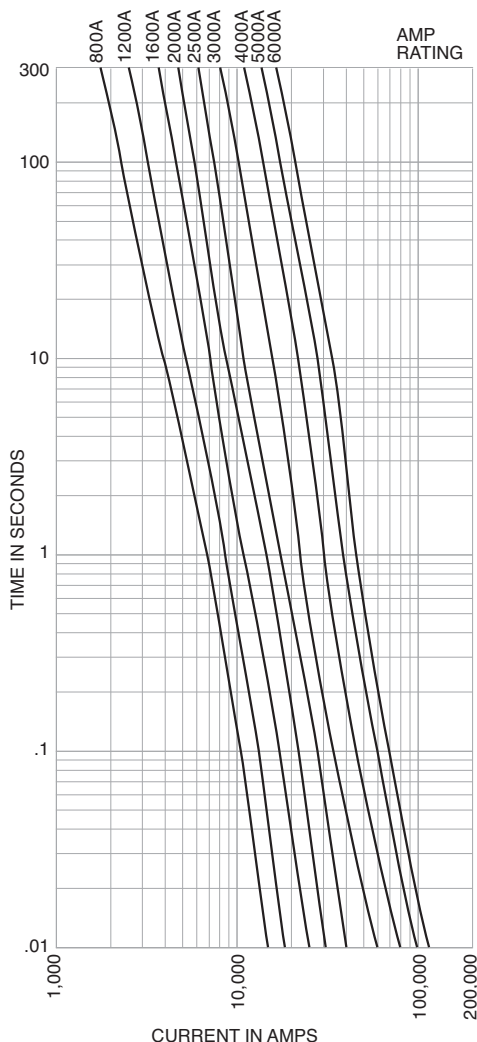
- See page 19

Data Sheets: 1008 and 1009

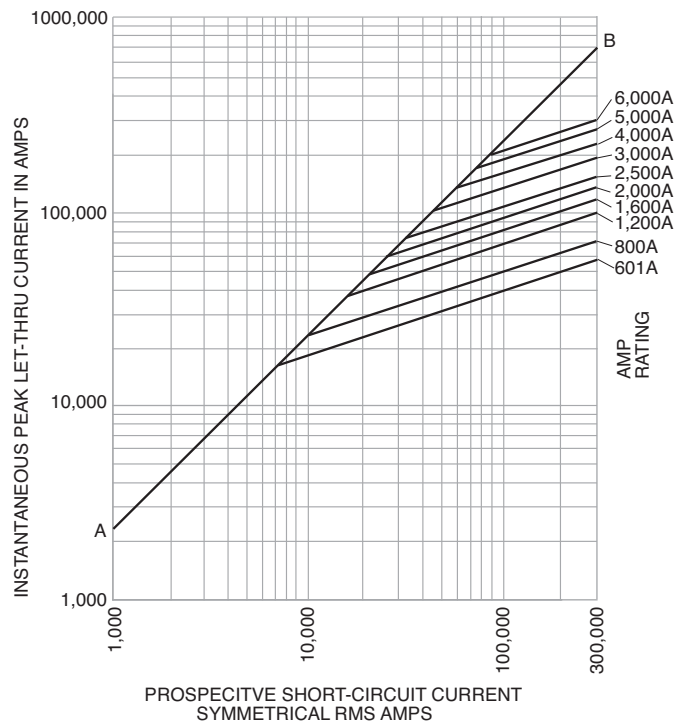


# Low-Peak™ Time-delay Fuses

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Low Voltage  
Branch Circuit  
Fuses

Data Sheets: 1008 and 1009

## KRP-CL Current-limiting, Time-delay Fuses

### Specifications

**Description:** Current-limiting, time-delay fuse.

**Dimensions:** See page 16 for Class L dimensions.

### Ratings:

Volts — 600Vac (or less)

Amps — 225-600A

IR — 200kA RMS Sym.

### Features and Benefits

- Time-delay of four seconds at five times rating allows closer sizing inductive loads coupled with an equivalent Class L current limitation.

- Class L case size for amp ratings from 225 to 600A allows downsize fusing of large Class L fused switches for improved circuit protection.

### Typical Applications

- Large Distribution Switchboards
- Power Panelboards
- Machinery Disconnects

### Catalog Numbers (Amps)

|            |            |            |
|------------|------------|------------|
| KRP-CL-225 | KRP-CL-350 | KRP-CL-500 |
| KRP-CL-250 | KRP-CL-400 | KRP-CL-600 |
| KRP-CL-300 | KRP-CL-450 |            |

### Recommended Fuse Holders & Blocks For Class L Fuses

- See page 19

Data Sheet: 1016

## Limitron™ Fuses

### KTU Class L

#### Specifications

**Description:** Fast-acting, bolt-mount fuse.

**Dimensions:** See page 22 for Class L dimensions.

#### Ratings:

- Volts — 600Vac (or less)
- Amps — 601-6000A
- IR — 200kA RMS Sym.

**Agency Information:** CE, Std. 248-10, Class L, UL Listed, Guide JDDZ, File E4273 CSA Certified, Class 1422-02, File 53787.

#### Features and Benefits

- 200kA interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.
- Quality construction using high-grade materials provides lower watts loss and operating temperatures with superior arc quenching during current-limiting action.

#### Typical Applications

- Large Distribution Switchboards
- Power Panelboards

#### Catalog Number (Amps)

|         |          |          |
|---------|----------|----------|
| KTU-601 | KTU-1000 | KTU-2001 |
| KTU-650 | KTU-1100 | KTU-2400 |
| KTU-700 | KTU-1200 | KTU-2500 |
| KTU-750 | KTU-1400 | KTU-3000 |
| KTU-800 | KTU-1500 | KTU-3500 |
| KTU-801 | KTU-1600 | KTU-4000 |
| KTU-850 | KTU-1800 | KTU-5000 |
| KTU-900 | KTU-2000 | KTU-6000 |



### KLU Class L

#### Specifications

**Description:** Time-delay, bolt-mount fuse - 5 seconds (minimum) at 500% rated amps. See KRP-CL for amp ratings below 601A.

**Dimensions:** See page 22 for Class L dimensions.

#### Ratings:

- Volts — 600Vac (or less)
- Amps — 601-4000A
- IR — 200kA RMS Sym.

**Agency Information:** CE, Std. 248-10, Class L, UL Listed, Guide JDDZ, File E4273, CSA Certified, CSA Class 1422-02, File 53787.

#### Features and Benefits

- 200kA interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high fault circuits.

#### Typical Applications

- Large Distribution Switchboards
- Power Panelboards
- Large Machinery Disconnects

#### Catalog Numbers (Amps)

|          |          |          |
|----------|----------|----------|
| KLU-601  | KLU-1200 | KLU-2500 |
| KLU-650  | KLU-1500 | KLU-3000 |
| KLU-700  | KLU-1600 | KLU-4000 |
| KLU-800  | KLU-1800 |          |
| KLU-1000 | KLU-2000 |          |



For superior electrical protection, Cooper Bussmann recommends upgrading KTU fuse applications to Low-Peak KRP-C fuses See page 38.

#### Recommended Fuse Holders & Blocks For Class L Fuses

- See page 19

Data Sheet: 1010

For superior electrical protection, Cooper Bussmann recommends upgrading KLU fuse applications to Low-Peak KRP-C fuses See page 38.

#### Recommended Fuse Holders & Blocks For Class L Fuses

- See page 19

Data Sheet: 1013

# Low-Peak™ Dual-element, Time-delay Fuses

**LPN-RK\_SP (250V) Class RK1**

**LPS-RK\_SP (600V) Class RK1**

Available With  
Indication



**Specifications**

**Description:**

Current-limiting, dual-element, time-delay fuse; 10 seconds (minimum) at 500% rated amps (8 seconds for 0-30A sizes). Now available with optional indication on select ratings (see Catalog Numbers table).

**Dimensions:** See page 15 for Class RK1 dimensions.

**Ratings:**

Volts **LPN-RK:**

- 250Vac (or less)
- 125Vdc (0-60A)
- 250Vdc (70-600A)

**LPS-RK:**

- 600Vac (or less)
- 300Vdc

Amps — 1/10-600A

- IR — 300kA RMS Sym.
- 100kA DC

**Agency Information:** CE, UL Listed – Special Purpose\*, Guide JFHR, File E56412, CSA Certified (200k AIR), Class RK1 per CSA C22.2, No. 248.12, Class 1422-02, File 53787.

**Features and Benefits**

- Separate overload and short-circuit elements provide time delay for close sizing of high inrush loads linked with RK1 current-limitation and selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents widespread blackouts.
- Inventory consolidation of Class RK1, RK5 and H fuses for reduced SKU investment and minimizing potential for misapplying fuse.
- 300kA RMS symmetrical interrupting rating provides adequate ratings without obsolescence for all electrical systems, big or small.
- Insulated end caps reduces exposure to live parts and extends air gap to distance between blades of adjacent mounted fuses or to housing.

**Data Sheets:** LPN-RK — 1003 (0-60) and 1004 (70-600)  
 LPN-RK with indication — 1066 (70-600)  
 LPS-RK — 1001 (0-60) and 1002 (70-600)  
 LPS-RK with indication — 1061 (0-60) and 1064 (70-600)

**Typical Applications**

- Large Distribution Switchboards
- Power Panelboards
- Motor Control Centers
- Machinery Disconnect Switches

**LPN Catalog Numbers (Amps)**

|                |                 |                |
|----------------|-----------------|----------------|
| LPN-RK-1/10SP  | LPN-RK-3-1/2SP  | LPN-RK-60SP**  |
| LPN-RK-1/100SP | LPN-RK-4SP      | LPN-RK-70SP**  |
| LPN-RK-1/2SP   | LPN-RK-4-1/2SP  | LPN-RK-80SP**  |
| LPN-RK-1/20SP  | LPN-RK-5SP      | LPN-RK-90SP**  |
| LPN-RK-1/25SP  | LPN-RK-5-1/2SP  | LPN-RK-100SP** |
| LPN-RK-1/30SP  | LPN-RK-6SP      | LPN-RK-110SP** |
| LPN-RK-1/35SP  | LPN-RK-6-1/2SP  | LPN-RK-125SP** |
| LPN-RK-1/40SP  | LPN-RK-8SP      | LPN-RK-150SP** |
| LPN-RK-1SP     | LPN-RK-9SP      | LPN-RK-175SP** |
| LPN-RK-1-1/2SP | LPN-RK-10SP     | LPN-RK-200SP** |
| LPN-RK-1-1/4SP | LPN-RK-12SP     | LPN-RK-225SP** |
| LPN-RK-1-1/5SP | LPN-RK-15SP     | LPN-RK-250SP** |
| LPN-RK-1-1/6SP | LPN-RK-17-1/2SP | LPN-RK-300SP** |
| LPN-RK-1-1/8SP | LPN-RK-20SP     | LPN-RK-350SP** |
| LPN-RK-2SP     | LPN-RK-25SP     | LPN-RK-400SP** |
| LPN-RK-2-1/2SP | LPN-RK-30SP     | LPN-RK-450SP** |
| LPN-RK-2-1/3SP | LPN-RK-35SP**   | LPN-RK-500SP** |
| LPN-RK-2-1/4SP | LPN-RK-40SP**   | LPN-RK-600SP** |
| LPN-RK-3SP     | LPN-RK-45SP**   |                |
| LPN-RK-3-1/2SP | LPN-RK-50SP**   |                |

\*Meets all performance requirements of UL Standard 248-12 for Class RK1 fuses.  
 \*\*Available with optional indication. To order, place "I" at end of Catalog Number. Example: LPN-RK-35SP-I.  
 0-60A fuses available with Nickel plate option. (Ex: LPS-RK30SPNP) 70-600A fuses available with Tin plate option. Example: LPS-RK-100SP-TP.

**LPS Catalog Numbers - (Amps)**

|                 |                  |                   |                |
|-----------------|------------------|-------------------|----------------|
| LPS-RK-1/10SP   | LPS-RK-2-1/2SP   | LPS-RK-10SP**     | LPS-RK-100SP** |
| LPS-RK-1/20SP   | LPS-RK-2-1/4SP   | LPS-RK-12SP**     | LPS-RK-110SP** |
| LPS-RK-1/25SP   | LPS-RK-2-1/5SP   | LPS-RK-15SP**     | LPS-RK-125SP** |
| LPS-RK-1/30SP   | LPS-RK-3SP       | LPS-RK-17-1/2SP** | LPS-RK-150SP** |
| LPS-RK-1/35SP   | LPS-RK-3-1/2SP   | LPS-RK-20SP**     | LPS-RK-175SP** |
| LPS-RK-1/40SP   | LPS-RK-3-1/4SP   | LPS-RK-25SP**     | LPS-RK-200SP** |
| LPS-RK-1/45SP   | LPS-RK-4SP       | LPS-RK-30SP**     | LPS-RK-225SP** |
| LPS-RK-1SP      | LPS-RK-4-1/2SP   | LPS-RK-35SP**     | LPS-RK-250SP** |
| LPS-RK-1-1/2SP  | LPS-RK-5SP       | LPS-RK-40SP**     | LPS-RK-300SP** |
| LPS-RK-1-1/4SP  | LPS-RK-5-1/2SP   | LPS-RK-45SP**     | LPS-RK-350SP** |
| LPS-RK-1-1/5SP  | LPS-RK-6SP**     | LPS-RK-50SP**     | LPS-RK-400SP** |
| LPS-RK-1-1/6SP  | LPS-RK-6-1/2SP** | LPS-RK-60SP**     | LPS-RK-450SP** |
| LPS-RK-1-1/8SP  | LPS-RK-7SP**     | LPS-RK-70SP**     | LPS-RK-500SP** |
| LPS-RK-1-1/10SP | LPS-RK-8SP**     | LPS-RK-80SP**     | LPS-RK-600SP** |
| LPS-RK-2SP      | LPS-RK-9SP**     | LPS-RK-90SP**     |                |

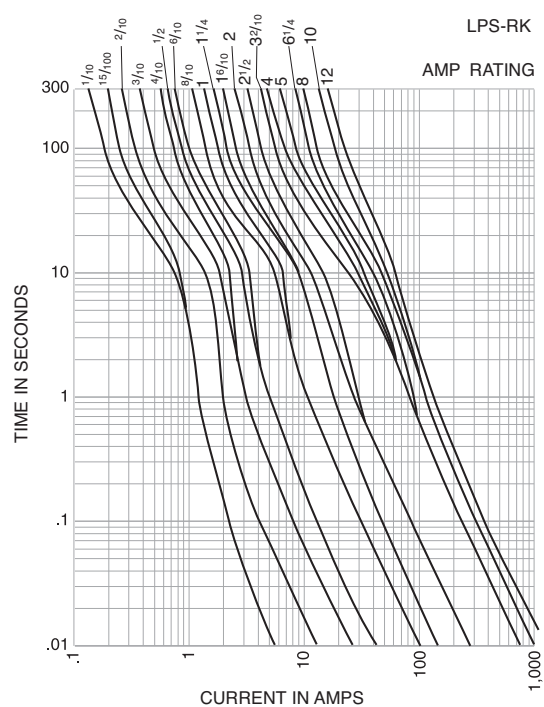
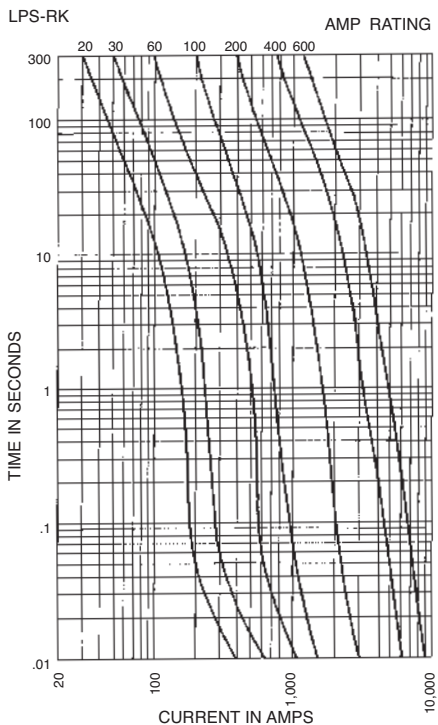
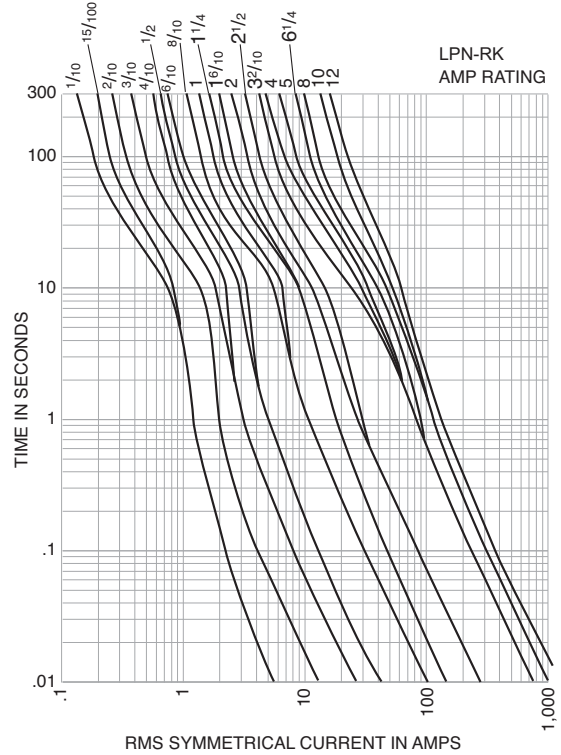
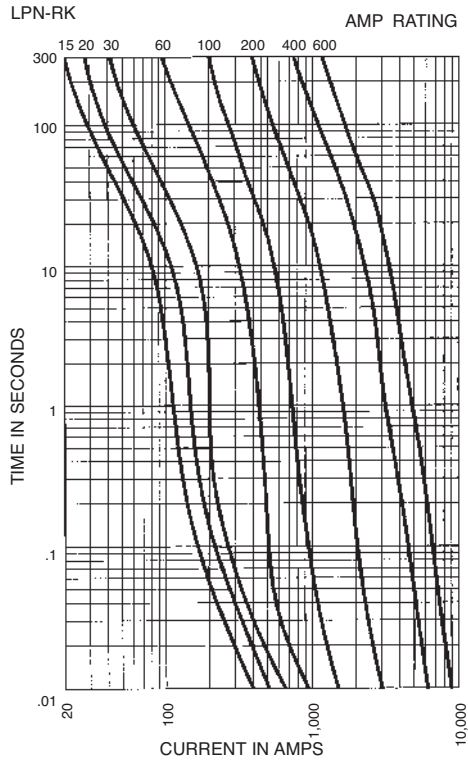
\*Meets all performance requirements of UL Standard 248-12 for Class RK1 fuses.  
 \*\*Available with optional replace fuse indication. To order, place "I" at end of Catalog Number. Example: LPS-RK-15SP-I.

**Recommended Fuse Holders & Blocks For Class RK1 Fuses**

- See page 19

# Low-Peak™ Dual-element, Time-delay Fuses

## Time-Current Characteristic Curves—Average Melt



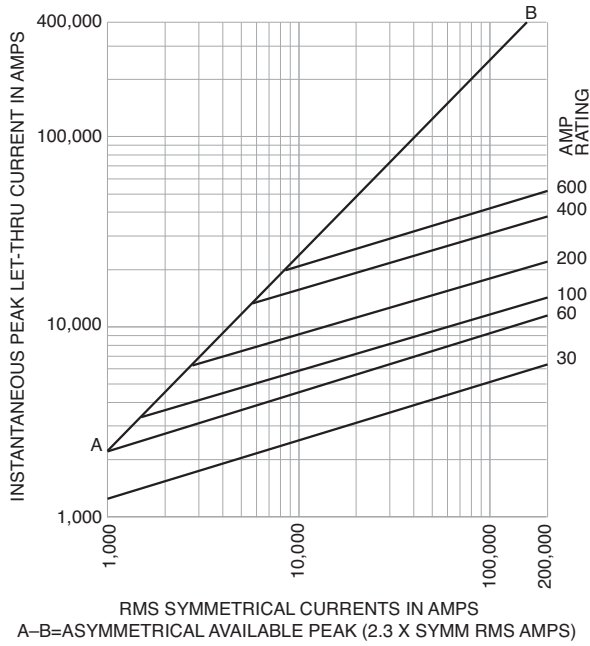
Data Sheets: LPN-RK — 1003 (0-60) and 1004 (70-600)  
Data Sheets: LPS-RK — 1001 (0-60) and 1002 (70-600)

Recommended Fuse Holders & Blocks For Class RK1 Fuses  
• See page 19

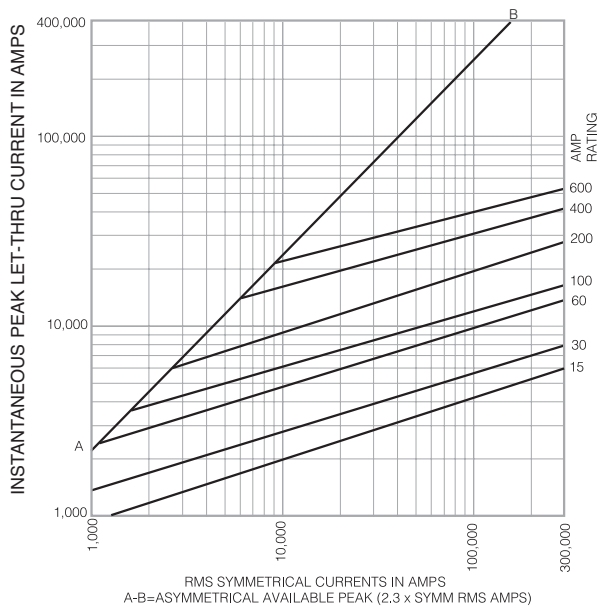
# Low-Peak™ Dual-element, Time-delay Fuses

Low Voltage  
Branch Circuit  
Fuses

**Current Limitation Curves—LPN-RK**



**Current Limitation Curves—LPS-RK**



Data Sheets: LPN-RK — 1003 (0-60) and 1004 (70-600)  
Data Sheets: LPS-RK — 1001 (0-60) and 1002 (70-600)

Recommended Fuse Holders & Blocks For Class RK1 Fuses  
• See page 19



## Limitron™ Fast-acting Fuses

### KTN-R (250V) Class RK1

#### Specifications

**Description:** Fast-acting, current-limiting fuse.

**Dimensions:** See page 21 for Class RK1 dimensions.

#### Ratings:

- Volts — 250Vac (or less)
- Amps — 1-600A
- IR — 200kA RMS Sym.

**Agency Information:** CE, Std. 248-12, Class RK1, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

#### Features and Benefits

- Current limitation for non-inductive circuits provides Class RK1 current-limiting response to maximum ground fault and short-circuit conditions.
- 200kA interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.

#### Typical Applications

- Panelboards

#### Catalog Numbers (Amps)

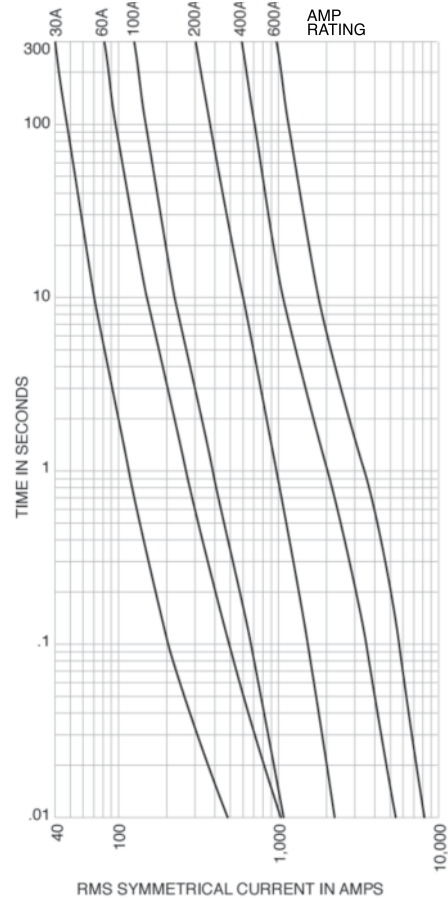
|          |           |           |
|----------|-----------|-----------|
| KTN-R-1  | KTN-R-30  | KTN-R-125 |
| KTN-R-2  | KTN-R-35  | KTN-R-150 |
| KTN-R-3  | KTN-R-40  | KTN-R-175 |
| KTN-R-4  | KTN-R-45  | KTN-R-200 |
| KTN-R-5  | KTN-R-50  | KTN-R-225 |
| KTN-R-6  | KTN-R-60  | KTN-R-250 |
| KTN-R-8  | KTN-R-70  | KTN-R-300 |
| KTN-R-10 | KTN-R-75  | KTN-R-350 |
| KTN-R-12 | KTN-R-80  | KTN-R-400 |
| KTN-R-15 | KTN-R-90  | KTN-R-450 |
| KTN-R-20 | KTN-R-100 | KTN-R-500 |
| KTN-R-25 | KTN-R-110 | KTN-R-600 |

For superior electrical protection, Bussmann recommends upgrading KTN-R fuse applications to Low-Peak LPN-RK fuses See page 41.

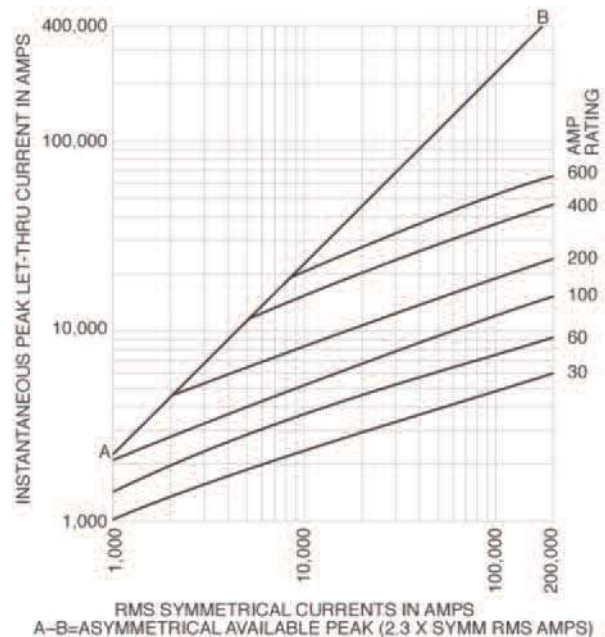
#### Recommended Fuse Holders & Blocks For Class RK1 Fuses

- See page 19

#### Time-Current Characteristic Curves—Average Melt



#### Current Limitation Curves



## Limitron™ Fast-acting Fuses

### KTS-R (600V) Class RK1

#### Specifications

**Description:** Fast-acting, current-limiting fuse.

**Dimensions:** See page 21 for Class RK1 dimensions.

#### Ratings:

- Volts — 600Vac (or less)
- Amps — 1-600A
- IR — 200kA RMS Sym.

**Agency Information:** CE, Std. 248-12, Class RK1, UL Listed, Guide JDDZ, File E54273, CSA Certified, C22.2 No. 248.12, Class 1422-02, File 53787.

#### Features and Benefits

- Current limitation for non-inductive circuits provides Class RK1 current-limiting response to maximum ground fault and short-circuit conditions.
- 200kA interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.

#### Typical Applications

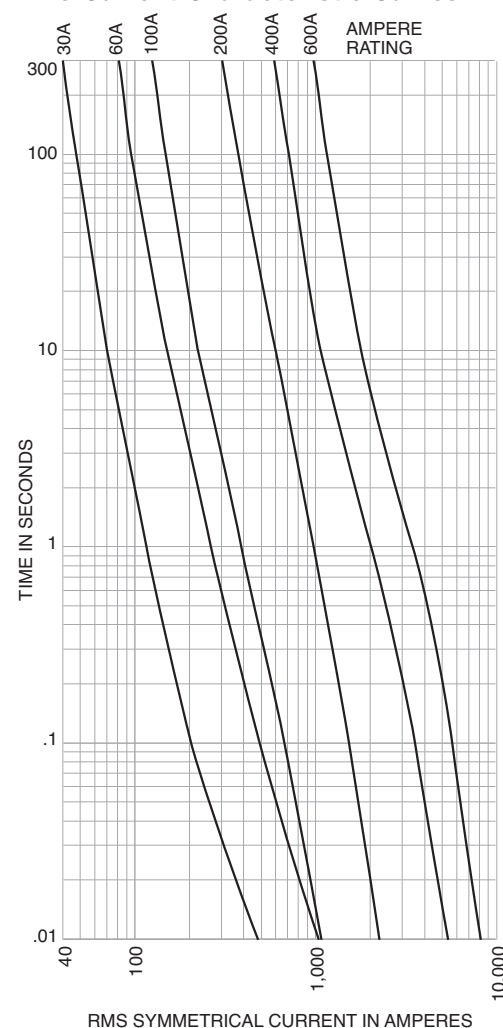
- Panelboards

#### Catalog Numbers (Amps)

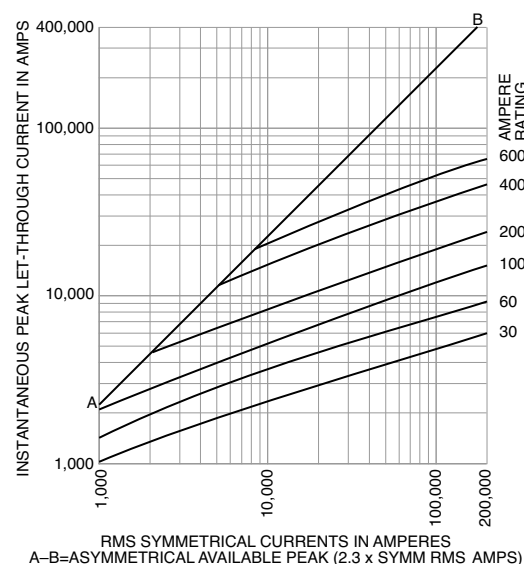
|          |           |           |
|----------|-----------|-----------|
| KTS-R-1  | KTS-R-30  | KTS-R-125 |
| KTS-R-2  | KTS-R-35  | KTS-R-150 |
| KTS-R-3  | KTS-R-40  | KTS-R-175 |
| KTS-R-4  | KTS-R-45  | KTS-R-200 |
| KTS-R-5  | KTS-R-50  | KTS-R-225 |
| KTS-R-6  | KTS-R-60  | KTS-R-250 |
| KTS-R-8  | KTS-R-70  | KTS-R-300 |
| KTS-R-10 | KTS-R-75  | KTS-R-350 |
| KTS-R-12 | KTS-R-80  | KTS-R-400 |
| KTS-R-15 | KTS-R-90  | KTS-R-450 |
| KTS-R-20 | KTS-R-100 | KTS-R-500 |
| KTS-R-25 | KTS-R-110 | KTS-R-600 |



**Time-Current Characteristic Curves—Average Melt**



**Current-Limitation Curves**



For superior electrical protection, Bussmann recommends upgrading KTN-R fuse applications to Low-Peak LPN-RK fuses See page 41.

#### Recommended Fuse Holders & Blocks For Class RK1 Fuses

- See page 19

Data Sheet: 1044

# Fusetron™ Energy Efficient, Dual-element, Time-delay Fuses

## FRN-R (250V) Class RK5

### Specifications

**Description:** Dual-element, time-delay fuse – 10 seconds (minimum) at 500% rated amps (8 seconds for 0-30A sizes). Available with indication on select ratings (see Catalog Numbers table).

**Dimensions:** See page 15 for Class RK5 dimensions.

### Ratings:

- Volts — 250Vac (or less)
  - 125Vdc (1/10-60A, 110-200A)
  - 250Vdc (225-600A)
- Amps — 1/10-600A
  - IR — 200kA RMS Sym.
  - 20kA DC



Available  
With  
Indication



**Agency Information:** CE, Std. 248-12, Class RK5, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-01, File 53787.

### Features and Benefits

- Separate overload and short-circuit elements provide time delay for sizing as close as 125% of motor FLA.
- 2:1 selective coordination amp ratio (within the Cooper Bussmann RK5 fuse family) prevents overcurrent events from opening upstream Fusetron fuses.
- Insulated end caps for 225A-600A fuses reduces exposure to live parts and extends air gap to distance between blades of adjacent mounted fuses or to housing.

### Typical Applications

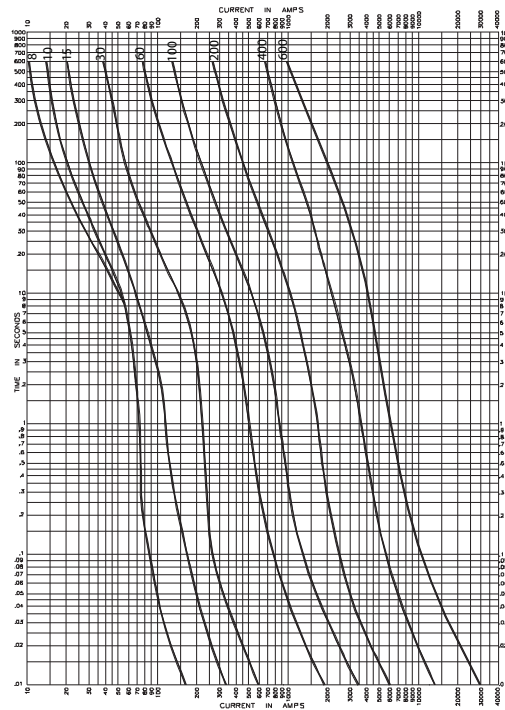
- Power Panelboards
- Motor Control Centers
  - Combination Starters
  - Machinery Disconnects

### Catalog Numbers (Amps)

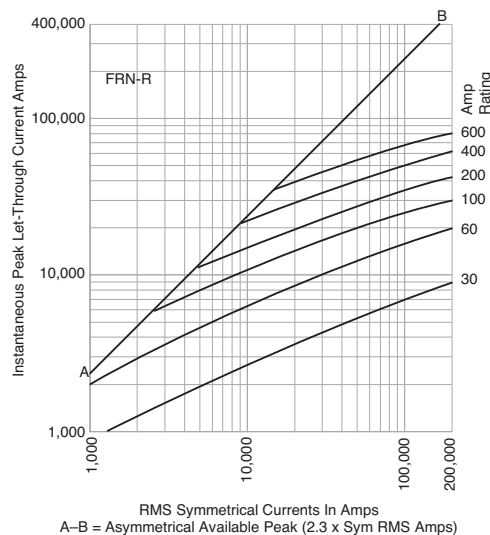
|              |              |               |           |
|--------------|--------------|---------------|-----------|
| FRN-R-1/10   | FRN-R-2      | FRN-R-10*     | FRN-R-100 |
| FRN-R-1/8    | FRN-R-2-1/4  | FRN-R-12*     | FRN-R-110 |
| FRN-R-1/100  | FRN-R-2-1/2  | FRN-R-15*     | FRN-R-125 |
| FRN-R-3/10   | FRN-R-2-3/10 | FRN-R-17-1/2* | FRN-R-150 |
| FRN-R-1/4    | FRN-R-3      | FRN-R-20*     | FRN-R-175 |
| FRN-R-3/10   | FRN-R-3-3/10 | FRN-R-25*     | FRN-R-200 |
| FRN-R-1/2    | FRN-R-3-1/2  | FRN-R-30*     | FRN-R-225 |
| FRN-R-1/2    | FRN-R-4      | FRN-R-35*     | FRN-R-250 |
| FRN-R-3/10   | FRN-R-4-1/2  | FRN-R-40*     | FRN-R-300 |
| FRN-R-3/10   | FRN-R-5      | FRN-R-45*     | FRN-R-350 |
| FRN-R-1      | FRN-R-5-1/10 | FRN-R-50*     | FRN-R-400 |
| FRN-R-1-1/2  | FRN-R-6      | FRN-R-60*     | FRN-R-450 |
| FRN-R-1-1/4  | FRN-R-6-1/4  | FRN-R-70      | FRN-R-500 |
| FRN-R-1-1/10 | FRN-R-7      | FRN-R-75      | FRN-R-600 |
| FRN-R-1-1/2  | FRN-R-7-1/2  | FRN-R-80      |           |
| FRN-R-1-1/10 | FRN-R-8*     | FRN-R-85      |           |
| FRN-R-1-1/10 | FRN-R-9*     | FRN-R-90      |           |

\*Available with indication. To order, place "ID" at the end of the catalog number. Example: FRN-R-30ID

### Time-Current Characteristic Curves—Average Melt



### Current Limitation Curves



For superior electrical protection, Bussmann recommends upgrading FRN-R fuse applications to Low-Peak LPN-RK fuses. See page 41.

### Recommended Fuse Holders & Blocks For Class RK5 Fuses

- See page 19

### Recommended Fuse Reducers For Class R Fuses

- See page 20

**Data Sheets: 1019 (1/10-60) and 1020 (70-600)**  
**Data Sheet: 1169 (8-60) FRN-R with indication**

## Fusetron™ Energy Efficient, Dual-element, Time-delay Fuses

### FRS-R (600V) Class RK5

#### Specifications

**Description:** Dual-element, time-delay fuse – 10 seconds (minimum) at 500% rated amps. Now available with optional indication on select ratings (see Catalog Numbers table).

**Dimensions:** See page 15 for Class RK5 dimensions.

#### Ratings:

- Volts — 600Vac (or less)
- Amps — 1/10-30A
  - IR — 200kA RMS Sym.
  - 20kA @300Vdc
- Amps — 35-60A
  - IR — 200kA RMS Sym.
  - 20kA @250Vdc
- Amps — 65-600A
  - IR — 200kA RMS Sym.
  - 20kA @250Vdc



**Available With Indication**

**Agency Information:** CE, Std. 248-12, Class RK5, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

#### Features and Benefits

- 2:1 selective coordination ratio (within RK5 fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Insulated end caps for 65-600A fuses reduces exposure to live parts and extends air gap to distance between blades of adjacent mounted fuses or to housing.

#### Typical Applications

- Power Panelboards
- Motor Control Centers
- Combination Starters
- Machinery Disconnects

#### Catalog Numbers (Amps)

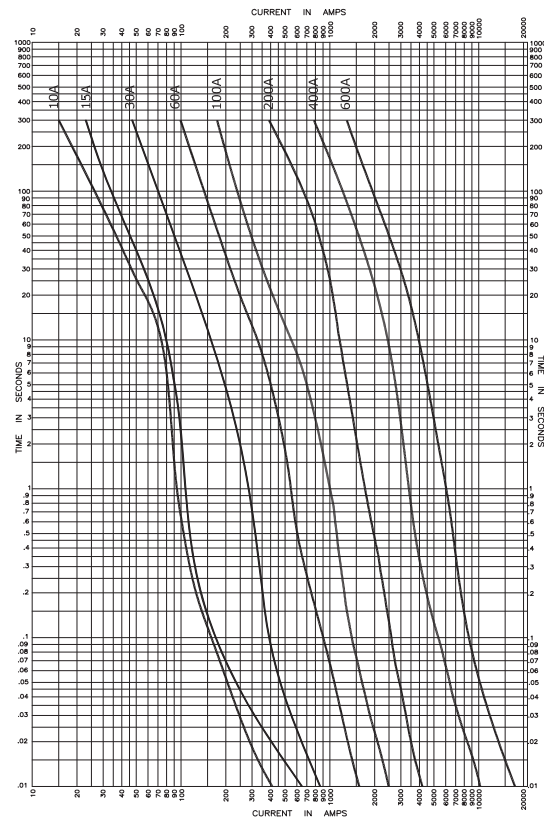
|              |              |               |           |
|--------------|--------------|---------------|-----------|
| FRS-R-1/10   | FRS-R-2      | FRS-R-10*     | FRS-R-100 |
| FRS-R-1/8    | FRS-R-2-1/4  | FRS-R-12*     | FRS-R-110 |
| FRS-R-1/100  | FRS-R-2-1/2  | FRS-R-15*     | FRS-R-125 |
| FRS-R-1/10   | FRS-R-2-3/10 | FRS-R-17-1/2* | FRS-R-150 |
| FRS-R-1/4    | FRS-R-3      | FRS-R-20*     | FRS-R-175 |
| FRS-R-3/10   | FRS-R-3-3/10 | FRS-R-25*     | FRS-R-200 |
| FRS-R-1/10   | FRS-R-3-1/2  | FRS-R-30*     | FRS-R-225 |
| FRS-R-1/2    | FRS-R-4      | FRS-R-35*     | FRS-R-250 |
| FRS-R-5/10   | FRS-R-4-1/2  | FRS-R-40*     | FRS-R-300 |
| FRS-R-1/10   | FRS-R-5      | FRS-R-45*     | FRS-R-350 |
| FRS-R-1      | FRS-R-5-3/10 | FRS-R-50*     | FRS-R-400 |
| FRS-R-1-1/8  | FRS-R-6*     | FRS-R-60*     | FRS-R-450 |
| FRS-R-1-1/4  | FRS-R-6-1/2* | FRS-R-65      | FRS-R-500 |
| FRS-R-1-3/10 | FRS-R-7*     | FRS-R-70      | FRS-R-600 |
| FRS-R-1-1/2  | FRS-R-7-1/2* | FRS-R-75      |           |
| FRS-R-1-5/10 | FRS-R-8*     | FRS-R-80      |           |
| FRS-R-1 1/10 | FRS-R-9*     | FRS-R-90      |           |

\*Available with indication. To order, place "ID" at the end of the catalog number. Example: FRS-R-7ID.

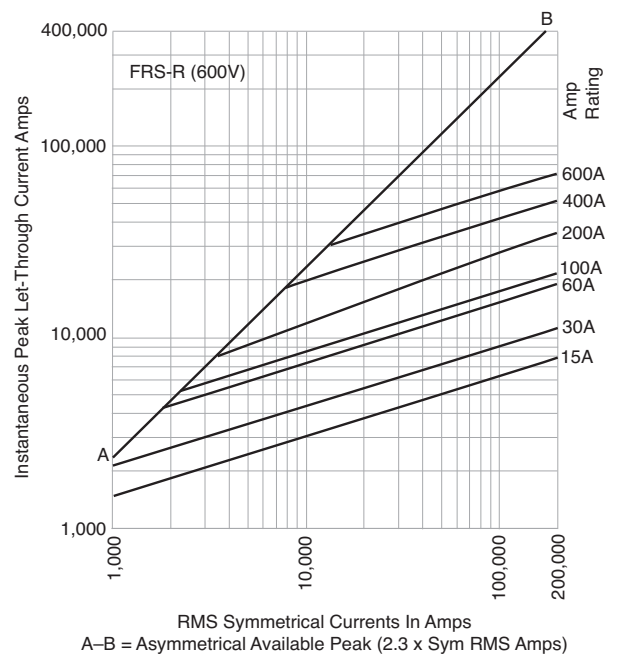
For superior electrical protection, Bussmann recommends upgrading FRS-R fuse applications to Low-Peak LPS-RK fuses. See page 41.

**Data Sheet: 1017 (1/10-60), 1018 (65-600)**  
**Data Sheet: 1070 (6-60) FRS-R with Indication**

#### Time-Current Characteristic Curves—Average Melt



#### Current Limitation Curves



#### Recommended Fuse Holders & Blocks For Class RK5 Fuses

• See page 19

#### Recommended Fuse Reducers For Class R Fuses

• See page 20



## T-Tron™ Fast-acting Fuses

### JJN Class T

#### Specifications

**Description:** Fast-acting, current-limiting fuse.

**Dimensions:** See page 16 for Class T dimensions.

#### Ratings:

- Volts — 300Vac (or less)
- 160Vdc (15-600A)
- 170Vdc (601-1200A)
- Amps — 1-1200A
- IR — 200kA RMS Sym.
- 20kA DC @ 160Vdc
- 100kA DC @ 170Vdc

**Agency Information:** CE, Std. 248-15, Class T, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

#### Features and Benefits

- Series combination ratings with branch circuit breakers allows broad range of coverage, independent of breaker manufacturer.
- Current limitation for non-inductive circuits provides Class T current-limiting response to maximum ground fault and short-circuit conditions.
- 200kA interrupting rating provides high ratings at all circuit locations.
- Small footprint allows more efficient use of available space.

#### Typical Applications

- Large Apartment Complexes
- Multi-Family Meter Stacks
- VFD Line Protection

#### Catalog Numbers (Amps)

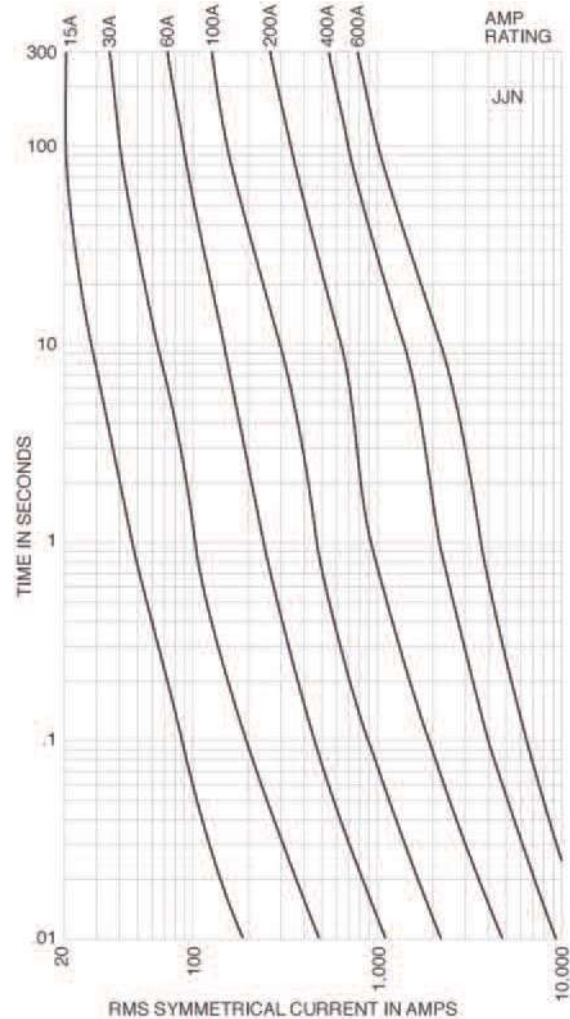
|        |        |        |         |         |         |          |
|--------|--------|--------|---------|---------|---------|----------|
| JJN-1  | JJN-15 | JJN-40 | JJN-80  | JJN-150 | JJN-300 | JJN-600  |
| JJN-2  | JJN-20 | JJN-45 | JJN-90  | JJN-175 | JJN-350 | JJN-700  |
| JJN-3  | JJN-25 | JJN-50 | JJN-100 | JJN-200 | JJN-400 | JJN-800  |
| JJN-6  | JJN-30 | JJN-60 | JJN-110 | JJN-225 | JJN-450 | JJN-1000 |
| JJN-10 | JJN-35 | JJN-70 | JJN-125 | JJN-250 | JJN-500 | JJN-1200 |

#### Recommended Fuse Holders & Blocks For Class T Fuses

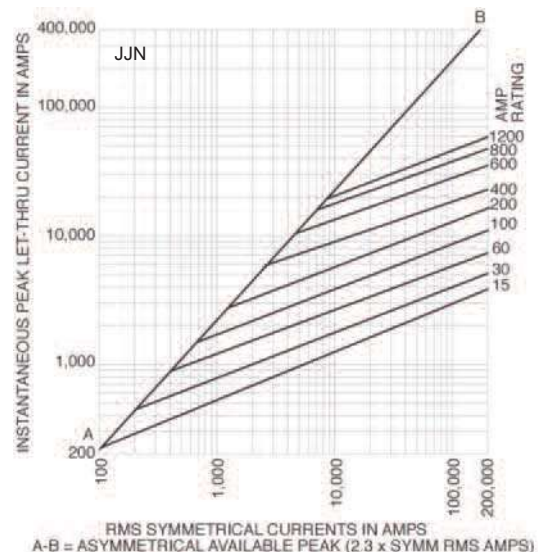
- See page 19



#### Time-Current Characteristic Curves—Average Melt



#### Current Limitation Curves





## T-Tron™ Fast-acting Fuses

### JJS Class T

#### Specifications

**Description:** Very fast-acting, current-limiting fuse.

**Dimensions:** See page 16 for Class T dimensions.

#### Ratings:

- Volts — 600Vac (or less)
- Amps — 1-800A
- IR — 200kA RMS Sym.

**Agency Information:** CE, Std. 248-15, Class T, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

#### Features and Benefits

- Series combination ratings with branch circuit breakers allows broad range of coverage, independent of breaker manufacturer.
- Current limitation for non-inductive circuits provides Class T current-limiting response to maximum ground fault and short-circuit conditions.
- 200kA interrupting rating provides high ratings at all circuit locations.
- Small footprint allows more efficient use of available space.

#### Typical Applications

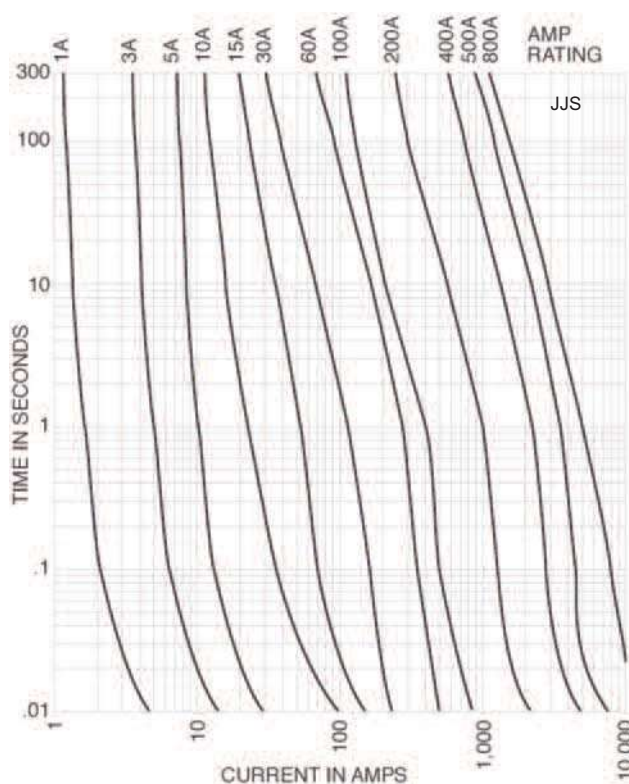
- Large Apartment Complexes
- Multi-Family Meter Stacks
- VFD Line Protection

#### Catalog Numbers (Amps)

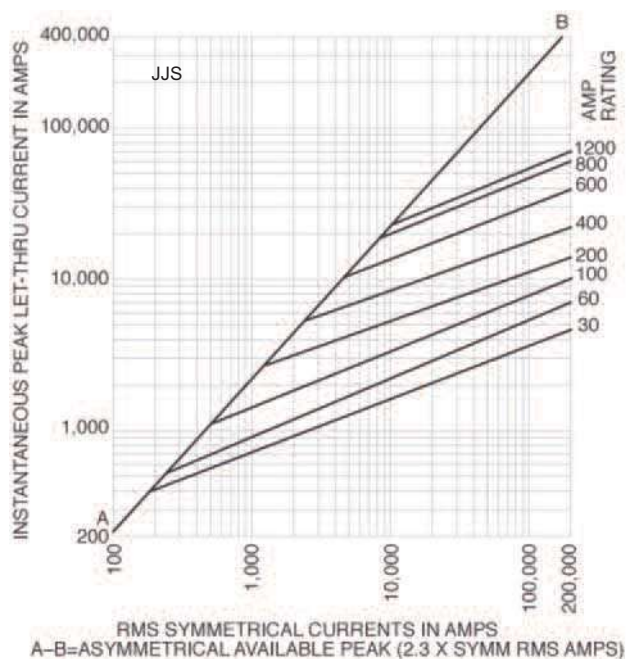
|        |        |        |         |         |         |         |
|--------|--------|--------|---------|---------|---------|---------|
| JJS-1  | JJS-15 | JJS-40 | JJS-80  | JJS-150 | JJS-300 | JJS-600 |
| JJS-2  | JJS-20 | JJS-45 | JJS-90  | JJS-175 | JJS-350 | JJS-800 |
| JJS-3  | JJS-25 | JJS-50 | JJS-100 | JJS-200 | JJS-400 |         |
| JJS-6  | JJS-30 | JJS-60 | JJS-110 | JJS-225 | JJS-450 |         |
| JJS-10 | JJS-35 | JJS-70 | JJS-125 | JJS-250 | JJS-500 |         |



#### Time-Current Characteristic Curves—Average Melt



#### Current Limitation Curves



#### Recommended Fuse Holders & Blocks For Class T Fuses

- See page 19

Data Sheet: 1029

## Plug Fuses

### W Series

#### Specifications

**Description:** Fast-acting plug fuse.

**Dimensions:** Edison base plug.

**Construction:** Brass threads with plastic body.

#### Ratings:

Volts — 125Vac

Amps — ½-12A

IR — 10kA RMS Sym.

**Agency Information:** CE, Std. 248-11, UL Listed, Guide JEFV, File E12112.

#### Features and Benefits

- Dependable, fast-acting circuit protection with 10kA interrupting rating for added safety when applied to existing plug fuse systems and 125-volt single-phase control circuits.

#### Typical Applications

- Replacement only in existing systems.
- For general purpose circuit protection.
- Use for lighting and other non-motor circuits.

#### Catalog Numbers\* (Amps)

|       |       |       |           |
|-------|-------|-------|-----------|
| W-½   | W-2 ½ | W-6   | W-10      |
| W-1   | W-3   | W-6 ½ | W-12      |
| W-1 ¼ | W-4   | W-7   | W-DUMMY** |
| W-2   | W-5   | W-8   |           |

\*W-15, W-20, W-25, and W-30 plug fuses obsoleted. Suggest replacing with either T-(Amp) or TL-(Amp) plug fuses.

\*\* Non-conductive dummy base. Not a fuse.



### SL and TL Series

#### Specifications

**Description:** Time-delay, loaded link plug fuse.

#### Dimensions:

SL — Rejection base

TL — Edison base

#### Construction:

SL — Plastic base with rejection threads

TL — Brass threads with plastic body

#### Ratings:

Volts — 125Vac

Amps — 15-30A

IR — 10kA RMS Sym.

**Agency Information:** CE, Std. 248-11, UL Listed, Guide JEFV, File E12112.

#### Features and Benefits

- Time-delay loaded link TL Series Edison base plug fuses pass motor overload starting currents without opening and allow closer sizing to motor load for added protection.
- Time-delay loaded link SL Series fuses provide a rejection feature (when used alone or with Fustat adapters to retrofit Edison base holders) to help prevent overfusing.

#### Typical Applications

- Small motor and inductive load circuits with high in-rush current levels.
- Used with box cover units to provide equipment protection.
- Applications benefiting from fuse rejection (SL Series only).

#### SL Catalog Numbers (Amps)

|       |       |       |       |
|-------|-------|-------|-------|
| SL-15 | SL-20 | SL-25 | SL-30 |
|-------|-------|-------|-------|

#### TL Catalog Numbers (Amps)

|       |       |       |       |
|-------|-------|-------|-------|
| TL-15 | TL-20 | TL-25 | TL-30 |
|-------|-------|-------|-------|



**Data Sheet: 1036**

#### Recommended Fuse Holders For W Series Plug Fuses

- See page 20

**Data Sheets: 1033 (SL) & 1035 (TL)**

#### Recommended Fuse Holders For SL & TL Series Plug Fuses

- See page 20
- See page 52 for Fustat adapters for use with SL Series

## Plug Fuses

### S and T Series

#### Specifications

**Description:** Dual-element, time-delay plug fuse.

#### Dimensions:

- S — Rejection base
- T — Edison base

#### Construction:

- S — Plastic base with rejection threads
- T — Brass threads with plastic body

#### Ratings:

- Volts — 125Vac
- Amps — S Series: ¼-30A
- T Series: ⅓-30A
- IR — 10kA RMS Sym.

**Agency Information:** CE, Std. 248-11, Type S and T; UL Listed (0-6¼) Guide JFHR, File E56412 (7-30A) Guide JEFV, File E12112; CSA Certified, Class 1423-01, File 53787.

#### Features and Benefits

- Time-delay, dual-element T Series Edison base plug fuses provide small motor overload protection when used with box cover units.
- Time-delay, dual-element S Series plug fuses provide a rejection feature (when used alone or with Fustat adapters to retrofit Edison base holders) to prevent overfusing of branch circuits.

#### Typical Applications

- S Series — Residential Load Centers
- T Series — Box Cover Units for small motor overload protection
- Applications benefiting from fuse rejection (S Series only)

#### S Series Catalog Numbers (Amps)

|     |       |       |       |       |      |      |
|-----|-------|-------|-------|-------|------|------|
| S-¼ | S-⅓   | S-1-⅓ | S-2-½ | S-4   | S-7  | S-14 |
| S-⅓ | S-1   | S-1-⅓ | S-2-⅓ | S-4-½ | S-8  | S-15 |
| S-⅓ | S-1-½ | S-2   | S-3   | S-5   | S-9  | S-20 |
| S-½ | S-1-¼ | S-2-¼ | S-3-⅓ | S-6   | S-10 | S-25 |
| S-⅓ | S-1-⅓ | S-5-⅓ | S-3-½ | S-6-¼ | S-12 | S-30 |

#### T Series Catalog Numbers (Amps)

|     |       |       |       |      |      |
|-----|-------|-------|-------|------|------|
| T-⅓ | T-1-½ | T-2-¼ | T-4   | T-7  | T-15 |
| T-⅓ | T-1-¼ | T-2-½ | T-4-½ | T-8  | T-20 |
| T-½ | T-1-⅓ | T-2-⅓ | T-5   | T-9  | T-25 |
| T-⅓ | T-1-⅓ | T-3   | T-5-⅓ | T-10 | T-30 |
| T-⅓ | T-1-⅓ | T-3-⅓ | T-6   | T-12 |      |
| T-1 | T-2   | T-3-½ | T-6-¼ | T-14 |      |

**Data Sheet: 1032 (S) & 1034 (T)**

#### Recommended Fuse Holders For S & T Series Plug Fuses

- See page 20
- See page 52 for Fustat adapters for use with S Series

### P & TC Series

#### Specifications

#### Description:

P Series - Type P dual-element fuse

TC Series - Type D dual-element, time-delay fuse

**Dimensions:** Edison base

**Construction:** Brass threads with plastic body.

#### Ratings:

- Volts — 125Vac or less
- Amps — 15-30A
- IR — 10kA

#### Agency Information:

- P Series - CSA Certified
- TC Series - CSA Certified (Class 1423-01, File # 53787)

#### Features and Benefits

##### P Series

- “P” Rating for Canadian applications.
- Non-time delay for non-inductive loads

##### TC Series

- “D” Rating for Canadian applications
- Heavy duty TC fuses are industrial strength products, featuring dual-element construction.
- This spring loaded design provides superior short-circuit and overload protection.
- The TC fuses have more time-delay than the medium duty fuses in order to better protect industrial motors and residential circuits.

#### Typical Applications

- P Series — Non-inductive loads, residential load centers
- TC Series — Box Cover Units for small motor overload protection

#### P Series Catalog Numbers (Amps)

|      |      |      |      |
|------|------|------|------|
| P-15 | P-20 | P-25 | P-30 |
|------|------|------|------|

#### TC Series Catalog Numbers (Amps)

|       |       |       |       |
|-------|-------|-------|-------|
| TC-15 | TC-20 | TC-25 | TC-30 |
|-------|-------|-------|-------|

**Data Sheet: 1039 (TC Series only)**

#### Recommended Fuse Holders For P & TC Series Plug Fuses

- See page 20
- See page 52 for Fustat adapters for use with S Series



## Plug Fuses

### MB Edison Base Circuit Breakers



**Specifications**

**Description:** Edison base manual reset circuit breakers.

**Dimensions:** Edison base

**Construction:** Brass threads with plastic body

**Ratings:**

- Volts — 125Vac only
- Amps — 15-20A
- IR — 10kA RMS Sym.

**Agency Information:** UL Listed, File E14942

**Features and Benefits**

- Fit standard Edison base fuse receptacles.
- Resettable upon overload event.

**Typical Applications\***

- Replacing Edison base plug fuses in residential fuse panels.

**Catalog Numbers\* (Amps)**

|       |
|-------|
| MB-15 |
| MB-20 |

\* Not for use in box cover units or for inductive loads.

### SA Fustat Fuse Adapters



**Specifications**

**Description:** Adapters for using Type S and SL rejection fuses in Edison base fuse sockets.

**Agency Information:** UL Listed, File E12853; CSA Certified File #6225-01, File #47235.

**Features and Benefits**

- Fustat adapters screw into the “Edison” thread fuse sockets of standard fuse boxes making it easy to retrofit existing fuse installations
- Available in various amp ratings to cover a wide range of rating requirements

**Typical Applications**

- Plug fuse installations where it is desirable to restrict fuse amp ratings

**Catalog Numbers (Amps)**

|                                      |                                      |         |
|--------------------------------------|--------------------------------------|---------|
| SA-1*                                | SA-3- <sup>3</sup> / <sub>10</sub> * | SA-10*  |
| SA-1- <sup>1</sup> / <sub>4</sub> *  | SA-4*                                | SA-15** |
| SA-1- <sup>1</sup> / <sub>10</sub> * | SA-5*                                | SA-20** |
| SA-2*                                | SA-6- <sup>1</sup> / <sub>2</sub> *  | SA-30** |
| SA-2- <sup>1</sup> / <sub>2</sub> *  | SA-8*                                |         |

\* Single motor circuits.

\*\* Branch circuits.

**Fustat® Adapters for Small Motor Protection\***

| Adapter                            | Accepts Fuses  |
|------------------------------------|--|
| SA-1                               | S-1 or smaller   |
| SA-1- <sup>1</sup> / <sub>4</sub>  | S-1- <sup>1</sup> / <sub>4</sub> or smaller                            |
| SA-1- <sup>1</sup> / <sub>10</sub> | S-1- <sup>1</sup> / <sub>10</sub> or smaller                           |
| SA-2                               | S-2 or S-1- <sup>1</sup> / <sub>10</sub>                               |
| SA-2- <sup>1</sup> / <sub>2</sub>  | S-2- <sup>1</sup> / <sub>2</sub> to S-1- <sup>1</sup> / <sub>10</sub>  |
| SA-3- <sup>3</sup> / <sub>10</sub> | S-3- <sup>3</sup> / <sub>10</sub> to S-1- <sup>1</sup> / <sub>10</sub> |
| SA-4                               | S-4 to S-3- <sup>1</sup> / <sub>2</sub>                                |
| SA-5                               | S-5 to S-3- <sup>1</sup> / <sub>2</sub>                                |
| SA-6- <sup>1</sup> / <sub>2</sub>  | S-6- <sup>1</sup> / <sub>2</sub> to S-3- <sup>1</sup> / <sub>2</sub>   |
| SA-8                               | S-8 to S-7   |
| SA-10                              | S-10 to S-7  |
| SA-15                              | S-15 to S-7  |
| SA-20                              | S-20   |
| SA-30                              | S-30 to S-20   |

\* Both motor running and short-circuit protection.

**Fustat® Adapters for Branch Circuit Protection**

| Adapter | Accepts Fuses |
|---------|---------------|
| SA-15   | S-15 to S-7   |
| SA-20   | S-20          |
| SA-30   | S-25          |
| SA 30   | S-30 to S-20  |



Scan this tag to get the latest product information for Solar Products.

# Solar Fuse Products

Page  
54-55

## Fuse Holder & Block Selection Guide

| Volt           | Fuses        | Size                                    |       |
|----------------|--------------|---|-------|
| 600Vdc         | <b>PVM</b>   | $1\frac{1}{32}'' \times 1\frac{1}{2}''$ | 56    |
| 600Vac /300Vdc | <b>PVCF</b>  | CUBEFuse                                | 57-58 |
| 600Vac/dc      | <b>PVS-R</b> | RK5                                     | 59    |
| 1000Vdc        | <b>PV</b>    | 10x38mm                                 | 60    |
| 1000/1100Vdc   | <b>PV</b>    | 14x51mm                                 | 61    |
| 1000Vdc        | <b>NH1</b>   | NH Size 1                               | 62    |
| 1000Vdc        | <b>XL PV</b> | XL Size 01, 1, 2, 3                     | 63-65 |
| 1300/1500Vdc   | <b>PV</b>    | 14x65mm                                 | 66    |
| 1200/1500Vdc   | <b>XL PV</b> | XL Size 01, 1, 2, 3                     | 67-69 |

Solar  
Products

**RED** indicates **NEW** information





## Holders & Blocks For Branch Circuit Rated Fuses

| 600 Volts | Fuses | Volts | Page |
|-----------|-------|-------|------|
| Midget    | PVM   | 600V  | 56   |
| CF        | CFPV  | 600V  | 57   |
| RK5       | PVS-R | 600V  | 59   |

**Holders**

- TCFH Series CUBEFuse holder 32
- CHM Series DIN-Rail mount holders 274
- HEB Series in-line holders 310

**Blocks**

- Modular Knifeblade Fuse Blocks 250/600V, panel mount . . 289
- R600 Series RK5 open fuse blocks 296
- BM Series midget open fuse blocks 305



CHM Series



HEB Series



TCFH Series



BM Series



Modular Knifeblade



R600 Series

| 1000 Volts | Fuses      | Volts      | Page |
|------------|------------|------------|------|
| 10x38mm    | PV-_A10    | 1000V      | 60   |
| 14x51mm    | PV-_A14    | 1000/1100V | 61   |
| NH1        | PV-_ANH    | 1000V      | 62   |
| 01XL       | PV-_A-01XL | 1000V      | 63   |
| 1XL        | PV-_A-1XL  | 1000V      | 63   |
| 2XL        | PV-_A-2XL  | 1000V      | 63   |
| 3L         | PV-_A-3L   | 1000V      | 63   |

**Holders**

- CHPV Series 10x38 DIN-Rail mount holders 274-277
- CH14 Series 14x51 DIN-Rail mount holders 274-277
- HEB Series\* 10x38 in-line holders 310
- SD1 Series\*\* NH1 holders 63

\* Self certified to 1000Vdc.

\*\* IEC only to 1000Vdc.

**Blocks**

- SD1XL-S Series 01XL & 1XL blocks 63
- SD2XL-S Series 2XL blocks 63
- SD3L-S Series 3L blocks 63



CHPV Series



CH14 Series



HEB Series



SD1-D-PV Series



SD1XL-S Series



SD2XL-S Series



SD3L-S Series

## Holders & Blocks For Branch Circuit Rated Fuses

| 1500 Volts | Fuses         | Volts      | Page |
|------------|---------------|------------|------|
| 01XL       | PV-_A-01XL-15 | 1500V      | 63   |
| 1XL        | PV-_A-1XL-15  | 1500V      | 63   |
| 2XL        | PV-_A-2XL-15  | 1500V      | 63   |
| 3L         | PV-_A-3L-15   | 1500V      | 63   |
| 14x65mm    | PV-_A14*      | 1300/1500V | 66   |

### Blocks

- SD1XL-S Series\*\* 01XL & 1XL blocks 63
- SD2XL-S Series\*\* 2XL blocks 63
- SD3L-S Series\*\* 3L blocks 63

\* Available with tags for bolt mounting or 10mm fixings for mounting in modular blocks for 10mm diameter fuses.

\*\* IEC only to 1500Vdc.



SD1XL-S Series



SD2XL-S Series



SD3L-S Series

# 1 3/32" x 1 1/2" Midget PV Fuses

## PVM

### Specifications

**Description:** A range of UL 2579 fast-acting 600Vdc Midget fuses specifically designed to protect solar power systems in extreme ambient temperature, high cycling and low level fault current conditions (reverse current, multi-array fault).

**Dimensions:** 1 3/32" x 1 1/2"  
(10.3 x 38.1mm).

### Ratings:

Volts — 600Vdc to UL 2579  
Amps — 4-30A  
IR — 50kA DC (4-30A)

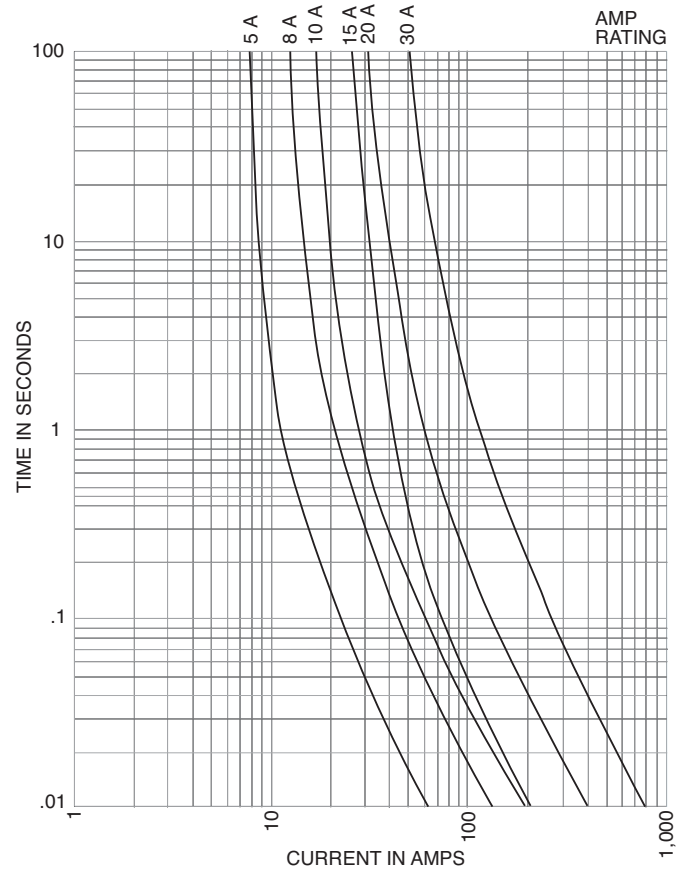
**Agency Information:** UL Listed 2579, Guide JFGA, File E335324, CSA Component Certified C22.2.

### Features and Benefits

- Specifically designed to protect solar power systems in extreme ambient temperature per UL 2579 listed
- Capable of withstanding high cycling and low level fault current conditions

### Typical Applications

- Solar Combiner Boxes
- Solar String Protectors



### Power Loss (Watts)

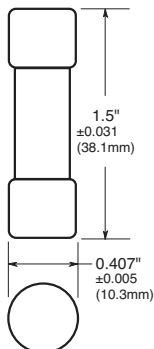
| Catalog Number | Amp Rating | Power Loss (Watts)   |                      |
|----------------|------------|----------------------|----------------------|
|                |            | 0.8 x I <sub>n</sub> | 1.0 x I <sub>n</sub> |
| PVM-10         | 10         | 1.04                 | 1.86                 |
| PVM-15         | 15         | 1.00                 | 1.72                 |
| PVM-30         | 30         | 1.65                 | 2.91                 |

I<sub>n</sub> = Rated current

### Catalog Numbers (Amps)

|       |       |        |        |
|-------|-------|--------|--------|
| PVM-4 | PVM-7 | PVM-10 | PVM-20 |
| PVM-5 | PVM-8 | PVM-12 | PVM-25 |
| PVM-6 | PVM-9 | PVM-15 | PVM-30 |

### Dimensions - (mm)



### Recommended Fuse Holders & Blocks For the PVM Fuse

- See page 54

# Fast-Acting CUBEFuse™

## PVCF Class CF Fuse



Catalog Symbol: PVCF\_RN

**Fast-Acting Fuse:** 6 minutes maximum clearing time at 200% rated current for 30 to 60A fuse  
8 minutes maximum clearing time at 200% rated current for 70 to 100A fuse

**Ratings:**

- Volts — 600Vac (Photovoltaic applications)
- 300Vdc
- Amps — 35-100A
- IR — 300kA RMS Sym. (UL)
- 200kA RMS Sym. (CSA)
- 50kA DC (UL & CSA)

**Agency Information:**

- UL 2579 Listed Fuse: Guide JFGA, File E335324
- CSA Certified Fuse: Class C22.2

**Other Ratings/Specifications:**

Watts Loss at Rated Current: PVCF35RN: 5.45W  
PVCF60RN: 7.27W  
PVCF100RN: 11.50W

**Operating and Storage Temperature Range:** -40 to 90°C

**Material Specifications:**

- Case: Glass filled PES (Polyethersulfone)
- Terminals: Copper alloy
- Terminal plating: Electroless tin

**Carton Quantity and Weight**

| Amp Rating   | Carton Qty. | Weight Per Carton |      |
|--------------|-------------|-------------------|------|
|              |             | lbs               | kg   |
| PVCF-35-60A  | 12          | 1.42              | 0.65 |
| PVCF-70-100A | 6           | 1.74              | 0.79 |

**Features and Product Benefits**

- Maximize uptime and reliability using fuses designed and listed to UL 2579: *Low Voltage Fuses - Fuses for Photovoltaic Systems*.
- Minimize chances of equipment failure and personnel injury when using full range fuses having the industry’s fastest response time to low-magnitude faults.
- Maximize return on investment with fuses proven to withstand harsh temperatures.
- Minimize design time, operating outage time and replacement cost with fuses qualified in excessively changing environmental conditions.
- Simplify compatibility with readily available industry standard Class CF holders.
- Temperature Derating: Designed to maximize rated capacity in elevated environmental temperatures.
- Overload Protection: Proven to clear faults faster than the UL requirement.
- Power Loss: Minimal energy consumption leading to increased efficiency.

**Fuse Catalog Numbers Non-Indicating (Amps)**

|          |          |           |
|----------|----------|-----------|
| PVCF35RN | PVCF50RN | PVCF80RN  |
| PVCF40RN | PVCF60RN | PVCF90RN  |
| PVCF45RN | PVCF70RN | PVCF100RN |



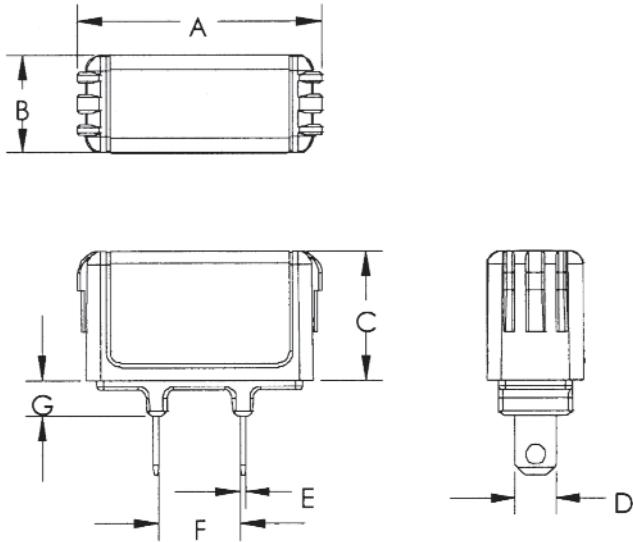
Scan this tag to get the latest product information for the New PVCF CUBEFuse.

**Recommended Fuse Holders For Class CF Fuses**

- See pages 32 and 33

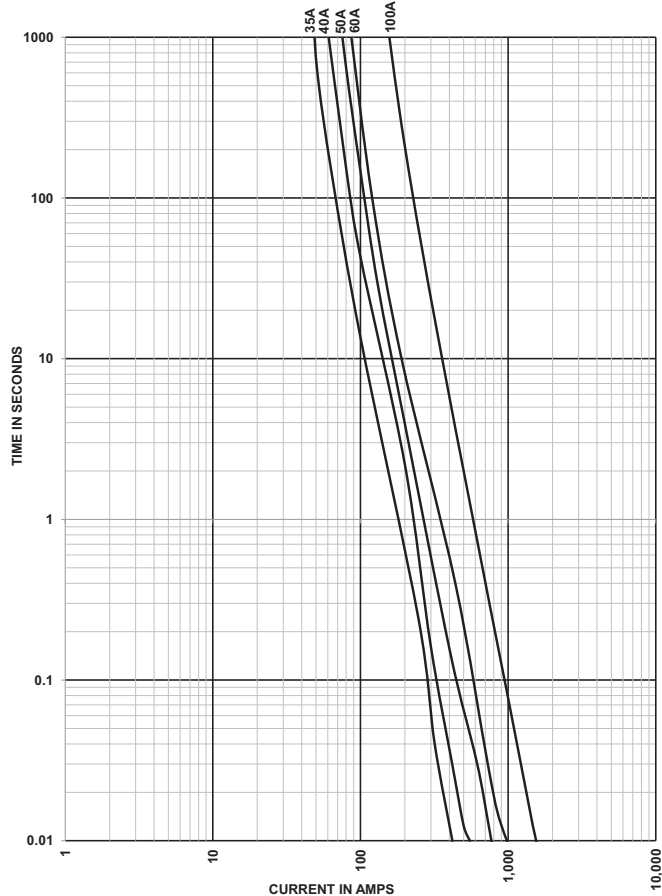
# Fast-Acting CUBEFuse™

PVCF\_RN Dimensions – in (mm)

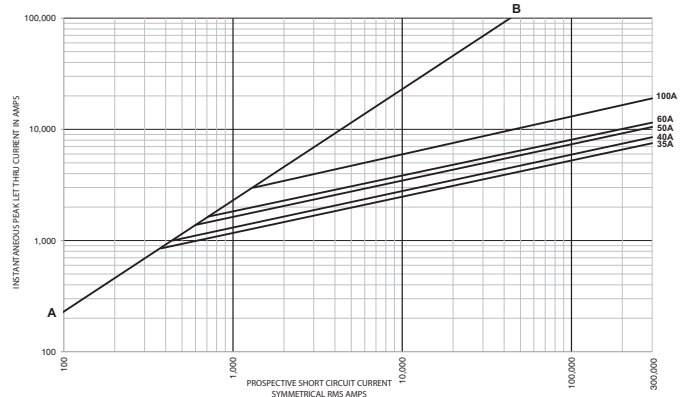


| Fuse Amps | Dimensions - in (mm) |                 |                 |                 |                |                 |                |
|-----------|----------------------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|
|           | A                    | B               | C               | D               | E              | F               | G              |
| 35-40     | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.36<br>(9.10)  | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 45-50     | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.44<br>(11.13) | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 60        | 2.13<br>(54.10)      | 1.00<br>(25.40) | 1.13<br>(28.58) | 0.44<br>(11.13) | 0.04<br>(1.02) | 0.63<br>(15.93) | 0.38<br>(9.65) |
| 70        | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.49<br>(12.45) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |
| 80-90     | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.49<br>(12.45) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |
| 100       | 3.01<br>(76.45)      | 1.00<br>(25.40) | 1.26<br>(32.00) | 0.57<br>(14.48) | 0.06<br>(1.60) | 0.58<br>(14.78) | 0.38<br>(9.65) |

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



CUBEFuse Holders

| Catalog Numbers (amps) | Fits Fuse Holder |          |
|------------------------|------------------|----------|
|                        | TCFH60N          | TCFH100N |
| Non-Indicating         |                  |          |
| PVCF35RN               | X                | X        |
| PVCF40RN               | X                | X        |
| PVCF45RN               | X                | X        |
| PVCF50RN               | X                | X        |
| PVCF60RN               | X                | X        |
| PVCF70RN               |                  | X        |
| PVCF80RN               |                  | X        |
| PVCF90RN               |                  | X        |
| PVCF100RN              |                  | X        |



# Limitron™ Fast-acting Fuses

## PVS-R (600Vac/dc) Class RK5

### Specifications

**Description:** A range of UL 2579 fast-acting 600Vdc Class RK5 fuses specifically designed to protect solar power systems in extreme ambient temperature, high cycling and low level fault current conditions (reverse current, multi-array fault).

**Dimensions:** See page 15 for Class RK5 dimensions.

### Ratings:

- Volts — 600Vac to UL 248-12  
600Vdc to UL 2579
- Amps — 20-400A
- IR — 200kA RMS Sym. AC  
20kA DC (20-60A)  
10kA DC (70-400A)

**Agency Information:** UL Std. 248-12, Class RK5, UL Listed, Guide JFGA, File E335324. Photovoltaic to UL 2579, CSA Component Certified C22.2.

### Features and Benefits

- Current limitation for non-inductive circuits provides Class RK5 current-limiting response to ground fault and short-circuit conditions.
- Designed for the protection and isolation of photovoltaic systems.

### Typical Applications

- Photovoltaic systems
- Inverters
- Solar DC Safety Switches
- Recombiner Boxes

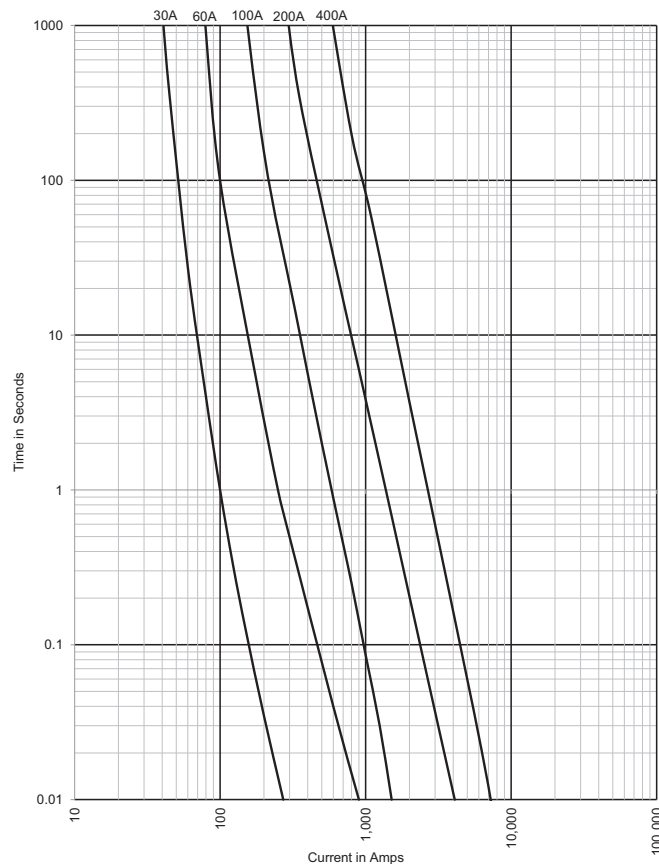
### Catalog Numbers (Amps)

|          |           |           |
|----------|-----------|-----------|
| PVS-R-20 | PVS-R-70  | PVS-R-175 |
| PVS-R-25 | PVS-R-80  | PVS-R-200 |
| PVS-R-30 | PVS-R-90  | PVS-R-225 |
| PVS-R-35 | PVS-R-100 | PVS-R-250 |
| PVS-R-40 | PVS-R-110 | PVS-R-300 |
| PVS-R-50 | PVS-R-125 | PVS-R-350 |
| PVS-R-60 | PVS-R-150 | PVS-R-400 |



Designed to meet the new UL Photovoltaic Fuse Standard

Time-Current Characteristic Curves—Average Melt



Solar Products

### Recommended Fuse Holders & Blocks For Class RK5 Fuses

- See page 19

Data Sheet: 4203

# 10x38mm Photovoltaic Fuses

## PV

### Specifications

**Class:** gPV

**Description:** A range of fuses specifically designed for the protection and isolation of photovoltaic strings.

**Dimensions:** 1 1/2" x 1 1/2"  
(10.3 x 38.1mm).



### Ratings:

Volts — 1000Vdc

Amps — 1-20A

IR — 33kAdc

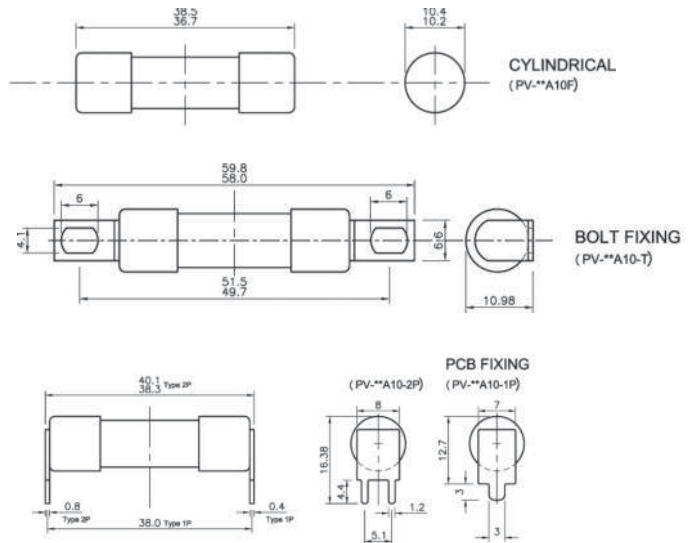
IR (Min) — 1.3 x I<sub>n</sub>

**Agency Information:** CCC pending, UL Listed E335324, IEC 60269-6, UL 2579, CSA.

### Features and Benefits

- Capable of interrupting low over currents associated with faulted PV strings.
- High DC voltage rating.
- Variety of mounting options for flexibility.

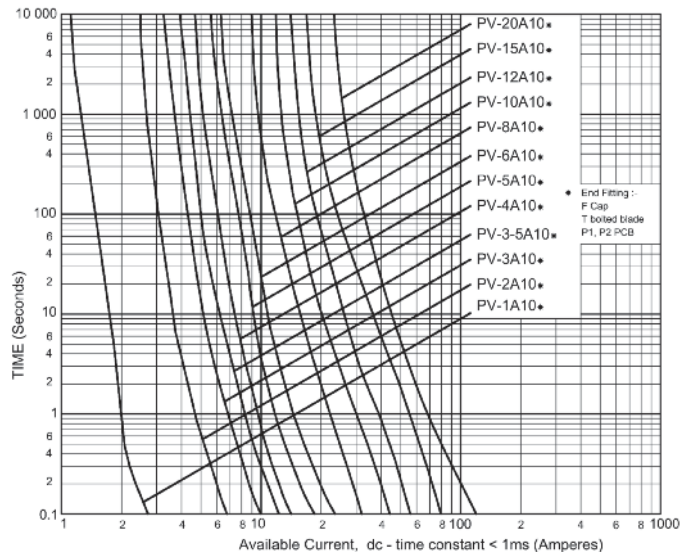
### Dimensions - mm



### Catalog Numbers (Amps)

| Part Number | Current Rating (Amps) | Energy Integrals I <sup>2</sup> t (A <sup>2</sup> s) |                | Watts Loss         |                |
|-------------|-----------------------|--|----------------|--------------------|----------------|
|             |                       | Pre-Arcing   | Total at 1000V | 0.8 I <sub>n</sub> | I <sub>n</sub> |
| PV-1A10F    | 1                     | 0.15   | 0.4            | 0.8                | 1.5            |
| PV-2A10F    | 2                     | 1.2  | 3.4            | 0.6                | 1.0            |
| PV-3A10F    | 3                     | 4  | 11             | 0.8                | 1.3            |
| PV-3-5A10F  | 3.5                   | 6.6  | 18             | 0.9                | 1.4            |
| PV-4A10F    | 4                     | 9.5  | 26             | 1.0                | 1.5            |
| PV-5A10F    | 5                     | 19   | 50             | 1.0                | 1.6            |
| PV-6A10F    | 6                     | 30   | 90             | 1.1                | 1.8            |
| PV-8A10F    | 8                     | 3  | 32             | 1.2                | 2.1            |
| PV-10A10F   | 10                    | 7  | 70             | 1.2                | 2.3            |
| PV-12A10F   | 12                    | 12   | 120            | 1.5                | 2.7            |
| PV-15A10F   | 15                    | 22   | 220            | 1.7                | 2.9            |
| PV-20A10F   | 20                    | 34   | 350            | 2.1                | 3.6            |

### Time-Current Characteristic Curves—Average Melt



### Recommended Fuse Holders & Blocks For Class RK5 Fuses

- See page 19

# 14x51mm Photovoltaic Fuses

## 14x51mm

### Specifications

**Description:** A range of 14x51mm package fuse links specifically designed for protecting and isolating photovoltaic strings. These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

**Dimensions:** See dimension illustration.

**Construction:** Melamine tube with silver fuse element.

### Ratings:

Rated Volts — 1000Vdc (25 & 32A)  
1100Vdc (15 & 20A)

Rated Breaking Capacity: 10kA  
Amps — 15-32A

**Agency Information:** UL Listed, Guide JFGA, File E335324. Photovoltaic to UL 2579, IEC 60269-6 gPV, CSA. CCC pending.

### Features and Benefits

- Specifically designed to provide fast-acting protection under low fault current conditions associated with PV systems
- High DC voltage rating
- Demonstrated performance in extreme temperature cycling conditions

### Typical Applications

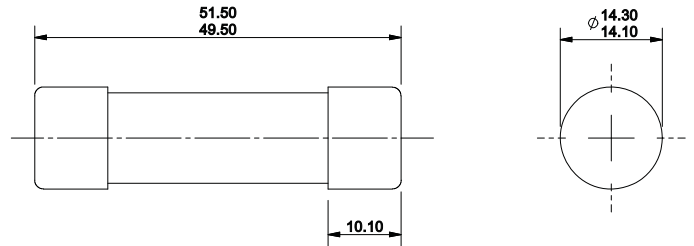
- Photovoltaic systems

### Catalog Numbers

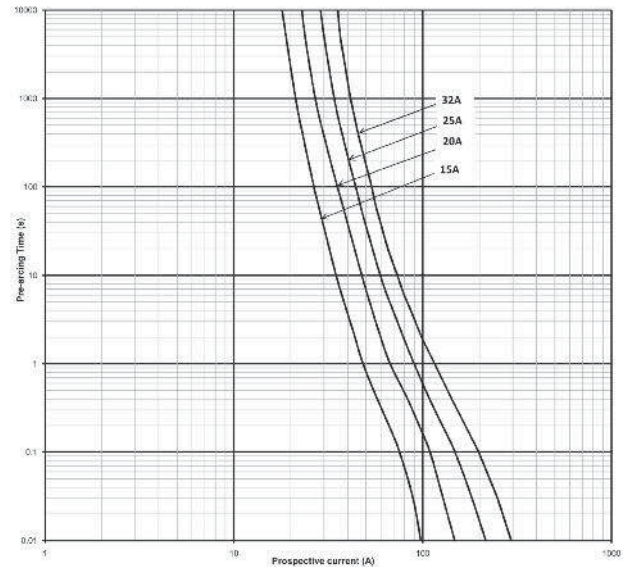
| Part Number | Current Rating (Amps) | Rated Voltage | Energy Integrals I <sup>2</sup> t (A <sup>2</sup> s) |                        | Watts Loss        |                |
|-------------|-----------------------|---------------|--|------------------------|-------------------|----------------|
|             |                       |               | Pre-Arcing   | Total at Rated Voltage | 0.8I <sub>n</sub> | I <sub>n</sub> |
| PV-15A14F   | 15                    | 1100Vdc       | 14   | 265                    | 2.1               | 4              |
| PV-20A14F   | 20                    |               | 27   | 568                    | 2.7               | 5              |
| PV-25A14F   | 25                    | 1000Vdc       | 65   | 943                    | 2.7               | 5.1            |
| PV-32A14F   | 32                    |               | 120  | 1740                   | 3.3               | 6.2            |



### Dimensions - mm



### Time-Current Characteristic Curves—Average Melt



Available Current (Amps), DC-Time Constant 1-3ms

### Recommended Fuse Holders & Blocks For Class RK5 Fuses

- See page 19

# NH1 Photovoltaic Fuses

## Specifications

**Description:** A range of NH fuse links specifically designed for protecting and isolating photovoltaic array combiners and disconnects. These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

**Dimensions:** See dimension illustration.

**Construction:** Melamine tube with silver fuse element.

## Ratings:

Rated Volts — 1000Vdc

Rated Breaking Capacity: 50kA

Amps — 32-160A

**Agency Information:** UL Listed, Guide JFGA, File E335324. Photovoltaic to UL 2579, IEC 60269-6 gPV, CSA. CCC pending.

## Features and Benefits

- Specifically designed to provide fast-acting protection under low fault current conditions associated with PV systems
- High DC voltage rating
- Variety of mounting options for flexibility
- Demonstrated performance in extreme temperature cycling conditions

## Typical Applications

- Photovoltaic systems
- Inverters

## Catalog Numbers

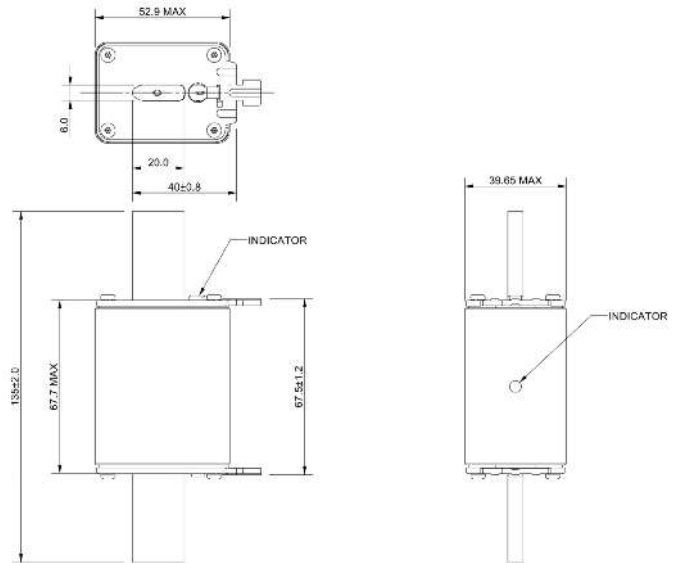
| Part Number | Current Rating (Amps) | Energy Integrals I <sup>2</sup> t (A <sup>2</sup> s) |                | Watts Loss        |                |
|-------------|-----------------------|--|----------------|-------------------|----------------|
|             |                       | Pre-Arcing   | Total at 1000V | 0.8I <sub>n</sub> | I <sub>n</sub> |
| PV-32ANH1   | 32                    | 80   | 720            | 4.3               | 8.5            |
| PV-40ANH1   | 40                    | 185  | 1670           | 4.6               | 9              |
| PV-50ANH1   | 50                    | 400  | 3600           | 5.4               | 10.5           |
| PV-63ANH1   | 63                    | 470  | 4300           | 6.1               | 12             |
| PV-80ANH1   | 80                    | 640  | 5760           | 7.9               | 15.5           |
| PV-100ANH1  | 100                   | 1300   | 11,700         | 8.4               | 16.5           |
| PV-125ANH1  | 125                   | 2600   | 23,400         | 8.9               | 17.5           |
| PV-160ANH1  | 160                   | 5200   | 46,800         | 12.2              | 24             |

## Recommended NH1 Fuse Holders - SD(size)-D

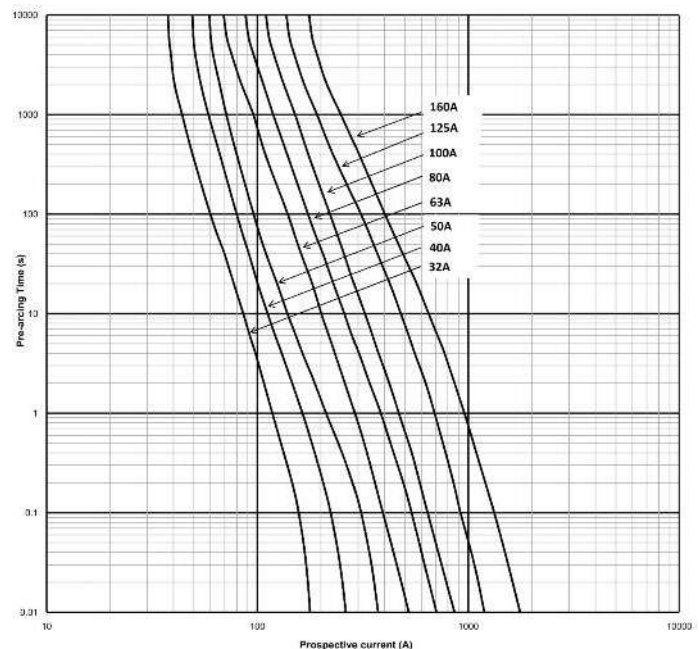
- See page 54

## Dimensions - mm

### Size 1



## Time-Current Characteristic Curves—Average Melt



## Available Current (Amps), DC-Time Constant 1-3ms

# XL Photovoltaic Fuses

## 1000Vdc XL Style Photovoltaic Fuses



### Specifications

**Description:** A range of XL package fuses specifically designed for protecting and isolating photovoltaic array combiners and disconnects.

These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

**Dimensions:** See dimension illustration.

### Ratings:

- Volts — 1000Vdc
- Amps — 63 to 630A:
  - IR — 50kA @ 63 to 160A
  - 33kA @ 200 to 315A
  - 50kA @ 350 to 630A

- Agency Information:** — IEC 60269-6
- RoHS compliant
  - UL 2579
  - CSA
  - CCC (pending)

### Features and Benefits

- Specifically designed to provide fast-acting protection under low fault current conditions associated with PV systems
- High DC voltage rating
- Variety of mounting options for flexibility
- Demonstrated performance in extreme temperature cycling conditions

### Typical Applications

- Photovoltaic systems
- Inverters

### Recommended Fuse Holders

- SD1XL-S (suitable for 01 and 1XL)
- SD2XL-S (suitable for 2XL)
- SD3L-S (suitable for 3L)



**See Data Sheet 720146 for information on the SD\_\_-S Fuse Holders.**

| Part Number/Style |                | Body Size | Current Rating (Amps) | Volts   | Energy Integrals I <sup>2</sup> t (A <sup>2</sup> s) |               | Watts Loss        |                |
|-------------------|----------------|-----------|-----------------------|---------|--|---------------|-------------------|----------------|
| Bladed            | Bolted         |           |                       |         | Pre-Arcing   | Total @ 1000V | 0.8I <sub>n</sub> | I <sub>n</sub> |
| PV-63A-01XL       | PV-63A-01XL-B  | 01        | 63                    | 1000Vdc | 350  | 2520          | 12                | 24             |
| PV-80A-01XL       | PV-80A-01XL-B  |           | 80                    |         | 660  | 4752          | 14                | 27             |
| PV-100A-01XL      | PV-100A-01XL-B |           | 100                   |         | 1350   | 9720          | 15                | 30             |
| PV-125A-01XL      | PV-125A-01XL-B |           | 125                   |         | 1930   | 13,896        | 20                | 40             |
| PV-160A-01XL      | PV-160A-01XL-B |           | 160                   |         | 3900   | 28,080        | 25                | 44             |
| PV-200A-1XL       | PV-200A-1XL-B  | 1         | 200                   | 1000Vdc | 9400   | 27,260        | 31                | 60             |
| PV-200A-2XL       | PV-200A-2XL-B  | 2         | 200                   | 1000Vdc | 4152   | 31,000        | 29                | 62             |
| PV-250A-2XL       | PV-250A-2XL-B  |           | 250                   |         | 7721   | 57,000        | 35                | 70             |
| PV-315A-2XL       | PV-315A-2XL-B  |           | 315                   |         | 17,600   | 130,000       | 40                | 75             |
| PV-350A-3L        | PV-350A-3L-B   | 3         | 350                   | 1000Vdc | 30,885   | 160,700       | 41                | 90             |
| PV-400A-3L        | PV-400A-3L-B   |           | 400                   |         | 44,000   | 230,000       | 63                | 100            |
| PV-500A-3L        | PV-500A-3L-B   |           | 500                   |         | 48,300   | 251,200       | 71                | 138            |
| PV-630A-3L        | PV-630A-3L-B   |           | 630                   |         | 100,000  | 520,000       | 92                | 180            |

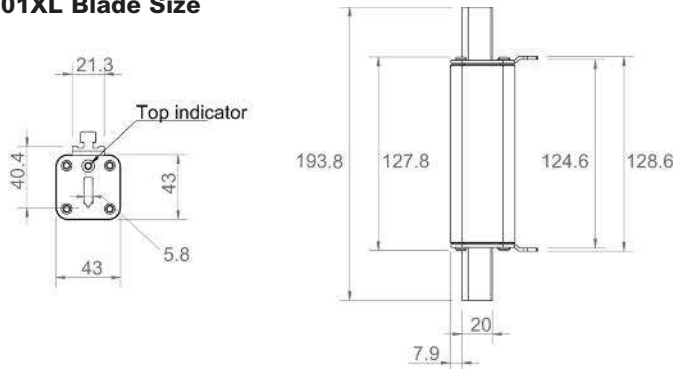
Data Sheet: 720134



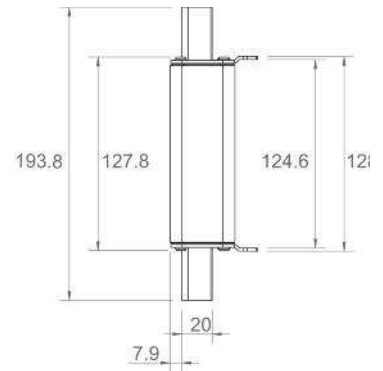
# XL Photovoltaic Fuses for Solar Applications

Dimensions - mm (not to scale)

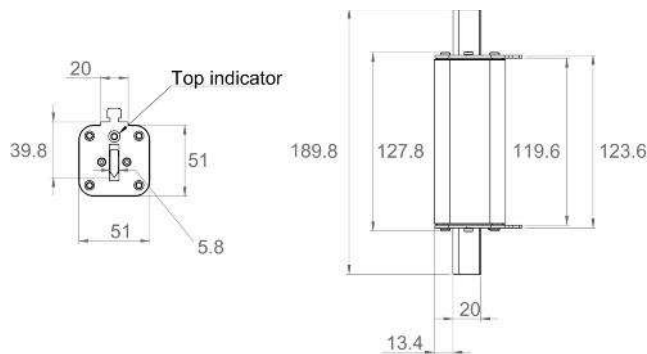
## 01XL Blade Size



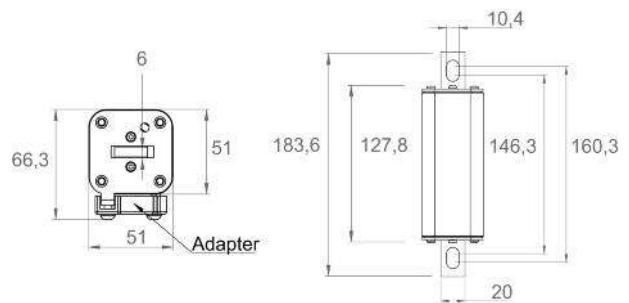
## 01XL Bolt Size



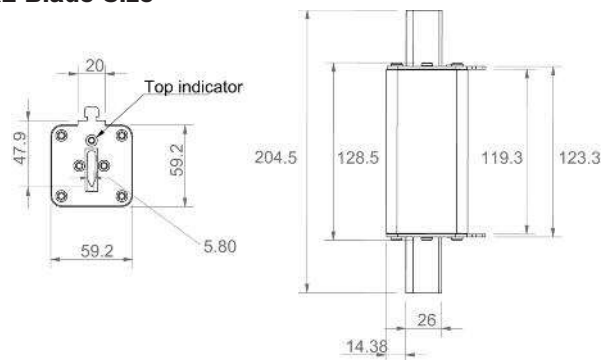
## 1XL Blade Size



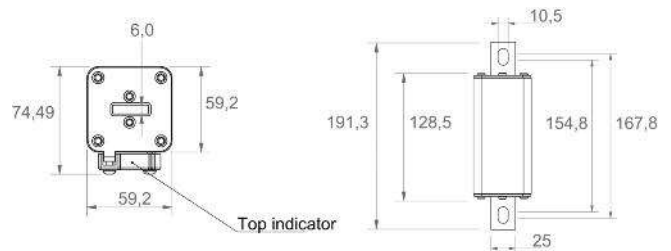
## 1XL Bolt Size



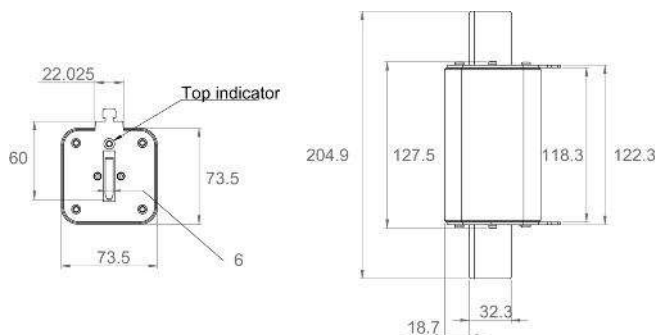
## 2XL Blade Size



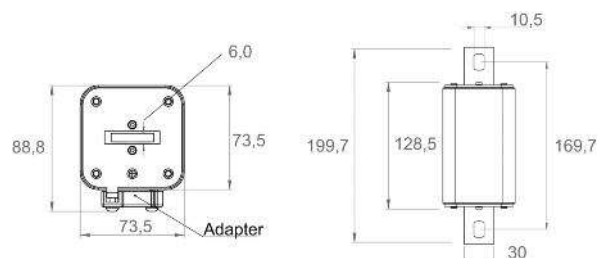
## 2XL Bolt Size



## 3L Blade Size



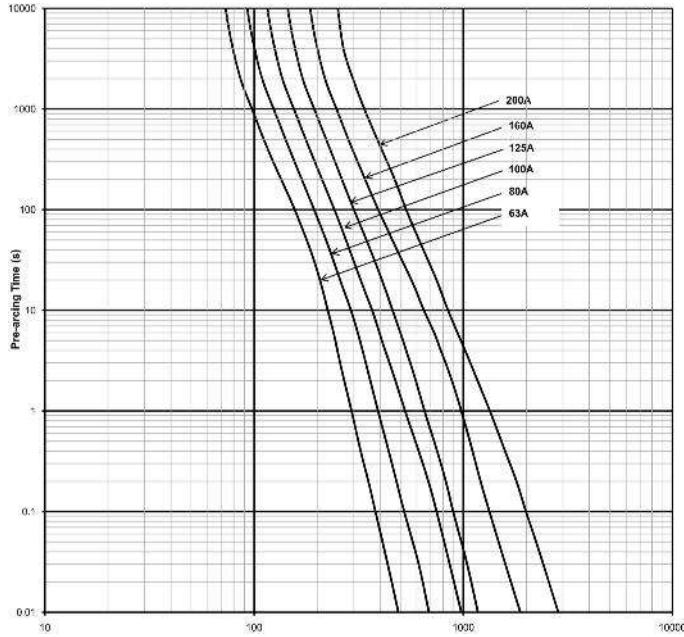
## 3L Bolt Size



Data Sheet: 720134

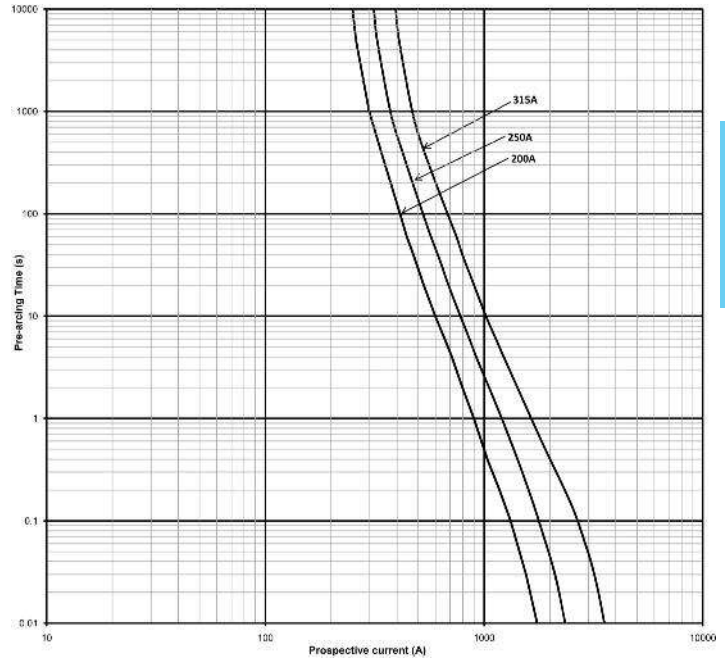
# XL Photovoltaic Fuses for Solar Applications

Time Current Curves for 01XL and 1XL



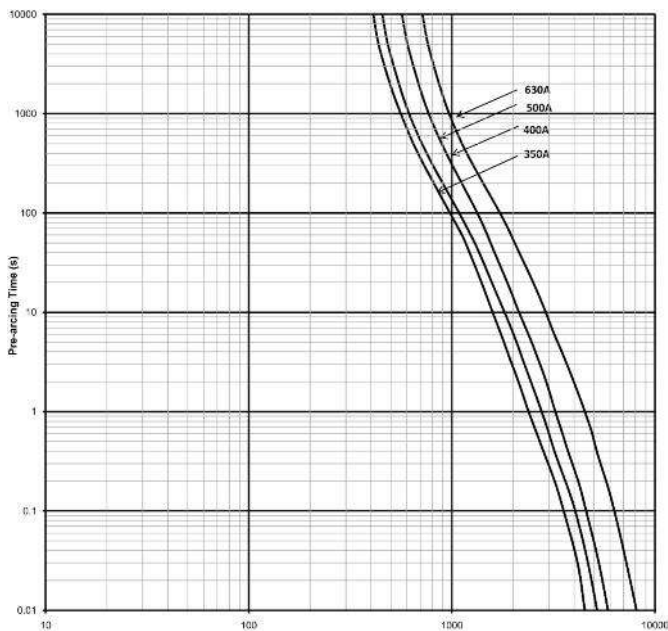
Available Current (Amps), DC-Time Constant 1-3ms

Time Current Curves for 2XL



Available Current (Amps), DC-Time Constant 1-3ms

Time Current Curves for 3L



Available Current (Amps), DC-Time Constant 1-3ms

# 14x65mm Photovoltaic Fuses

## Specifications

**Description:** A range of 14x65mm package fuse links specifically designed for protecting and isolating photovoltaic strings. These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

**Dimensions:** See dimension illustration.

**Construction:** Melamine tube with silver fuse element.

## Ratings:

Rated Volts — 1300Vdc (25 & 32A)  
1500Vdc (15 & 20A)

Rated Breaking Capacity: 10kA

Amps — 15-32A

**Agency Information:** UL Listed, Guide JFGA, File E335324. Photovoltaic to UL 2579, IEC 60269-6 gPV, CSA. CCC pending.

## Features and Benefits

- Specifically designed to provide fast-acting protection under low fault current conditions associated with PV systems
- High DC voltage rating
- Demonstrated performance in extreme temperature cycling conditions

## Typical Applications

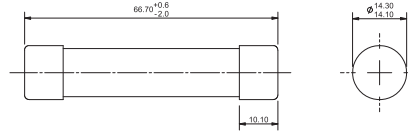
- Photovoltaic systems

## Catalog Numbers

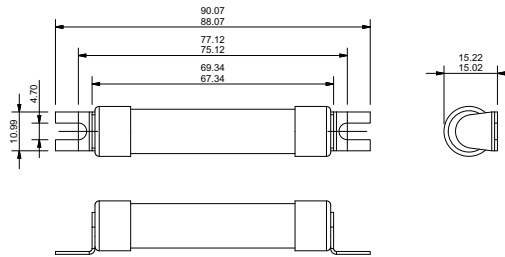


## Dimensions - mm

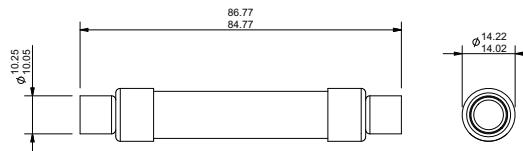
### Cylindrical PV - (amp rating) A14LF



### Cylindrical with Tags PV - (amp rating) A14L-T

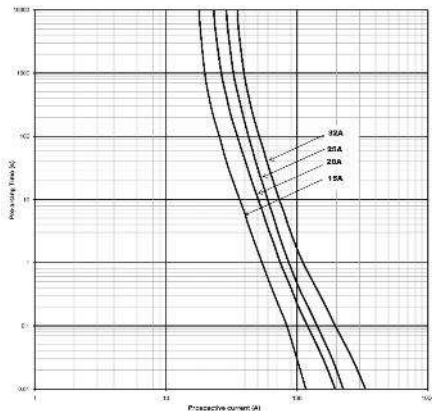


### Cylindrical with 10mm Fixings PV - (amp rating) A14LF10F



| Cylindrical | Part Number           |                               | Current Rating (Amps) | Rated Voltage | Energy Integrals I <sup>2</sup> t (A <sup>2</sup> s) |                        | Watts Loss         |                |
|-------------|-----------------------|-------------------------------|-----------------------|---------------|--|------------------------|--------------------|----------------|
|             | Cylindrical with Tags | Cylindrical with 10mm Fixings |                       |               | Pre-Arching  | Total at Rated Voltage | 0.8 I <sub>n</sub> | I <sub>n</sub> |
| PV-15A14LF  | PV-15A14L-T           | PV-15A14LF10F                 | 15                    | 1500Vdc       | 14   | 160                    | 3.2                | 5.8            |
| PV-20A14LF  | PV-20A14L-T           | PV-20A14LF10F                 | 20                    |               | 34   | 400                    | 3.6                | 6.5            |
| PV-25A14LF  | PV-25A14L-T           | PV-25A14LF10F                 | 25                    | 1300Vdc       | 65   | 550                    | 4.1                | 7.5            |
| PV-32A14LF  | PV-32A14L-T           | PV-32A14LF10F                 | 32                    |               | 105  | 900                    | 5.7                | 10.4           |

## Time-Current Characteristic Curves—Average Melt



Available Current (Amps), DC-Time Constant 1-3ms

Data Sheet: 720139

# XL Photovoltaic Fuses

## 1500Vdc XL Style Photovoltaic Fuses



### Specifications

**Description:** A range of XL package fuses specifically designed for protecting and isolating photovoltaic array combiners and disconnects.

These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

**Dimensions:** See dimension illustration.

### Ratings:

- Volts — 1200Vdc (160A)
- 1500Vdc (50-125A, 200-400A)
- Amps — 63 to 400A:
- IR — 33kA

**Agency Information:** UL Listed, Guide JFGA, File E335324. Photovoltaic to UL 2579, IEC 60269-6 gPV, CSA. CCC pending.

### Features and Benefits

- Specifically designed to provide fast-acting protection under low fault current conditions associated with PV systems
- High DC voltage rating
- Variety of mounting options for flexibility
- Demonstrated performance in extreme temperature cycling conditions

### Typical Applications

- Photovoltaic systems
- Inverters

### Recommended Fuse Holders

- SD1XL-S (suitable for 01 and 1XL)
- SD2XL-S (suitable for 2XL)
- SD3L-S (suitable for 3L)



See Data Sheet 720146 for information on the SD\_\_S Fuse Holders.

Solar Products

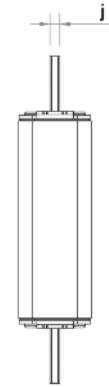
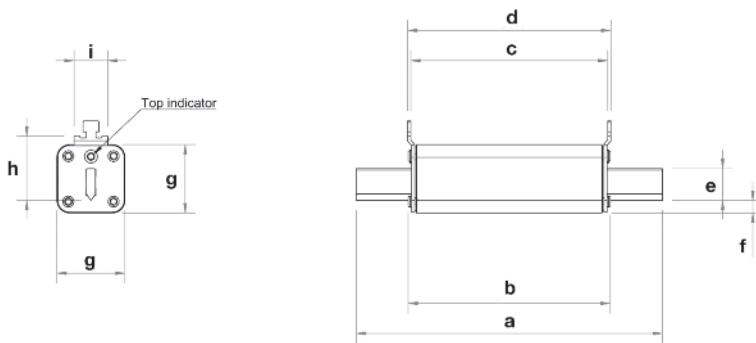
| Part Number/Style |                   | Body Size | Current Rating (Amps) | Volts   | Energy Integrals I <sup>2</sup> t (A <sup>2</sup> s) |               | Watts Loss        |                |
|-------------------|-------------------|-----------|-----------------------|---------|--|---------------|-------------------|----------------|
| Bladed            | Bolted            |           |                       |         | Pre-Arcing   | Total @ 1000V | 0.8I <sub>n</sub> | I <sub>n</sub> |
| PV-50A-01XL-15    | PV-50A-01XL-B-15  | 01        | 50                    | 1500Vdc | 280  | 1450          | 6                 | 26             |
| PV-63A-01XL-15    | PV-63A-01XL-B-15  |           | 63                    |         | 420  | 2250          | 17                | 28             |
| PV-80A-01XL-15    | PV-80A-01XL-B-15  |           | 80                    |         | 950  | 5000          | 18                | 30             |
| PV-100A-01XL-15   | PV-100A-01XL-B-15 |           | 100                   |         | 1250   | 6500          | 22                | 38             |
| PV-125A-01XL-15   | PV-125A-01XL-B-15 |           | 125                   |         | 2200   | 11,500        | 27                | 48             |
| PV-160A-01XL-12   | PV-160A-01XL-B-12 |           | 160                   |         | 5000   | 19,500        | 24                | 48             |
| PV-100A-1XL-15    | PV-100A-1XL-B-15  | 1         | 100                   | 1500Vdc | 1250   | 6000          | 24                | 43             |
| PV-125A-1XL-15    | PV-125A-1XL-B-15  |           | 125                   |         | 1950   | 9360          | 25                | 52             |
| PV-160A-1XL-15    | PV-160A-1XL-B-15  |           | 160                   |         | 4200   | 20,160        | 30                | 58             |
| PV-200A-1XL-15    | PV-200A-1XL-B-15  |           | 200                   |         | 9400   | 45,120        | 31                | 61             |
| PV-125A-2XL-15    | PV-125A-2XL-B-15  | 2         | 125                   | 1500Vdc | 2200   | 11,000        | 23                | 43             |
| PV-160A-2XL-15    | PV-160A-2XL-B-15  |           | 160                   |         | 5000   | 25,000        | 26                | 50             |
| PV-200A-2XL-15    | PV-200A-2XL-B-15  |           | 200                   |         | 9300   | 36,000        | 28                | 56             |
| PV-250A-2XL-15    | PV-250A-2XL-B-15  |           | 250                   |         | 13,700   | 68,000        | 38                | 72             |
| PV-250A-3L-15     | PV-250A-3L-B-15   | 3         | 250                   | 1500Vdc | 20,000   | 61,000        | 35                | 62             |
| PV-315A-3L-15     | PV-315A-3L-B-15   |           | 315                   |         | 38,000   | 116,000       | 40                | 72             |
| PV-355A-3L-15     | PV-355A-3L-B-15   |           | 355                   |         | 44,000   | 136,000       | 46                | 84             |
| PV-400A-3L-15     | PV-400A-3L-B-15   |           | 400                   |         | 58,000   | 177,000       | 50                | 91             |

Data Sheet: 720134

# XL Photovoltaic Fuses

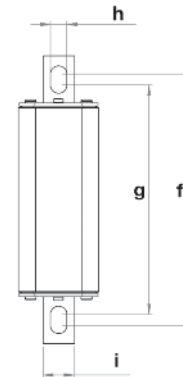
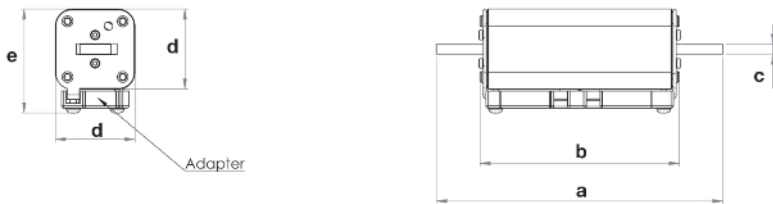
**Dimensions - mm**

**Bladed - Size 01XL, 1XL, 2XL and 3L**



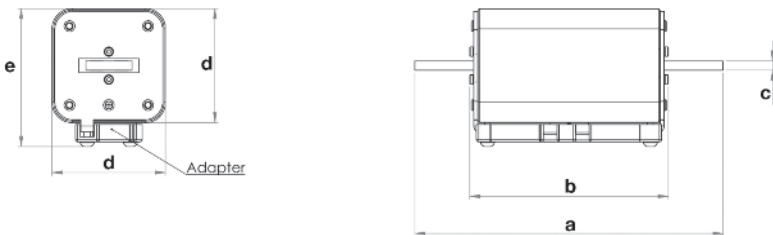
| Size | a     | b     | c     | d     | e    | f     | g    | h    | i    | j   |
|------|-------|-------|-------|-------|------|-------|------|------|------|-----|
| 01XL | 193.8 | 127.8 | 124.6 | 128.6 | 20   | 7.9   | 43   | 40.4 | 21.3 | 5.8 |
| 1XL  | 189.8 | 127.8 | 119.6 | 123.6 | 20   | 13.4  | 51   | 39.8 | 20   | 5.8 |
| 2XL  | 204.5 | 128.5 | 119.3 | 123.3 | 26   | 14.38 | 59.2 | 47.9 | 20   | 5.8 |
| 3L   | 204.9 | 127.5 | 118.3 | 122.3 | 32.3 | 18.7  | 73.5 | 60   | 22   | 6   |

**Bladed - Size 01XL, 1XL, 2XL and 3L**



| Size | a     | b     | c | d    | e    | f     | g     | h    | i  |
|------|-------|-------|---|------|------|-------|-------|------|----|
| 01XL | 187.6 | 127.8 | 6 | 43   | 58.3 | 164.3 | 150.3 | 10.4 | 20 |
| 1XL  | 183.6 | 127.8 | 6 | 51   | 66.3 | 160.3 | 146.3 | 10.4 | 20 |
| 2XL  | 191.3 | 128.5 | 6 | 59.2 | 74.5 | 167.8 | 154.8 | 10.5 | 25 |

**Bladed - Size 01XL, 1XL, 2XL and 3L**

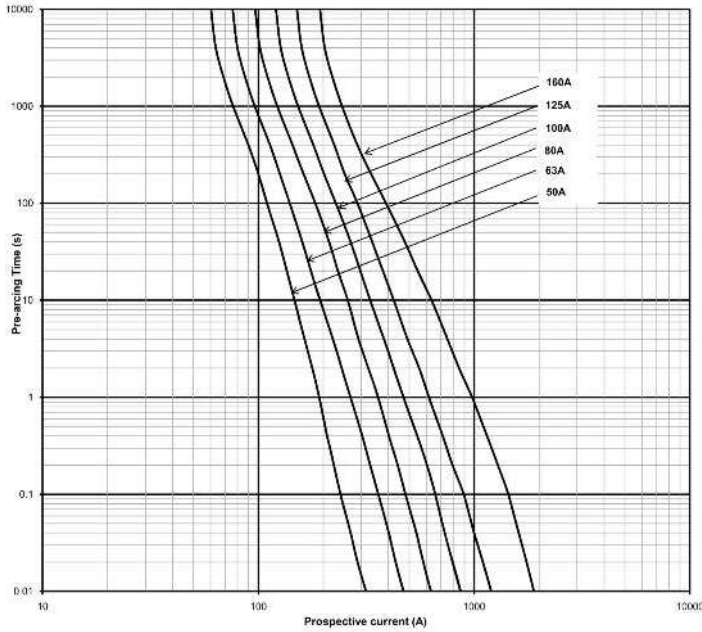


| Size | a     | b     | c | d    | e    | f     | g    | h  |
|------|-------|-------|---|------|------|-------|------|----|
| 3L   | 199.7 | 128.5 | 6 | 73.5 | 88.8 | 169.7 | 10.5 | 30 |



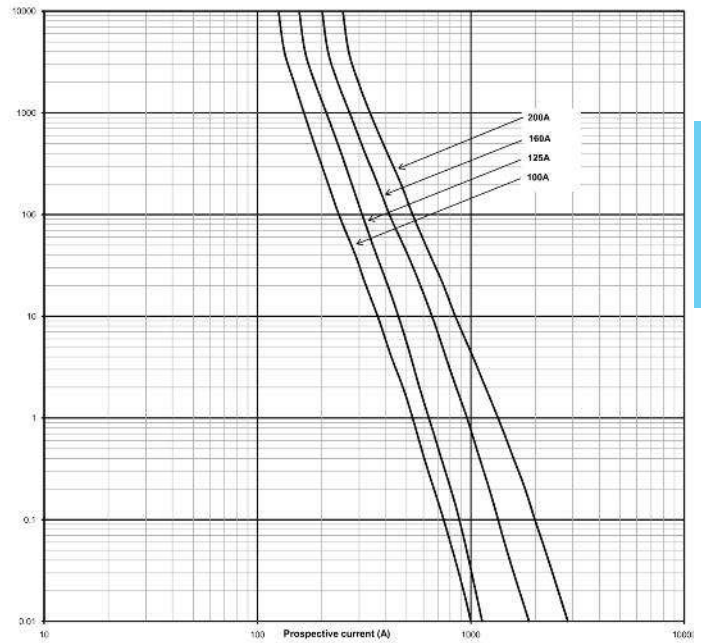
# XL Photovoltaic Fuses

Time Current Curves for 01XL - 1500Vdc



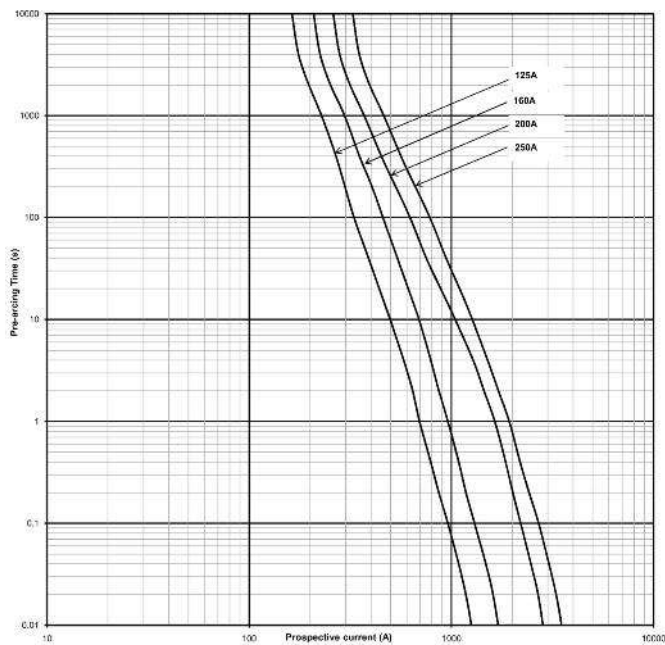
Available Current (Amps), DC-Time Constant 1-3ms

Time Current Curves for 1XL - 1500Vdc



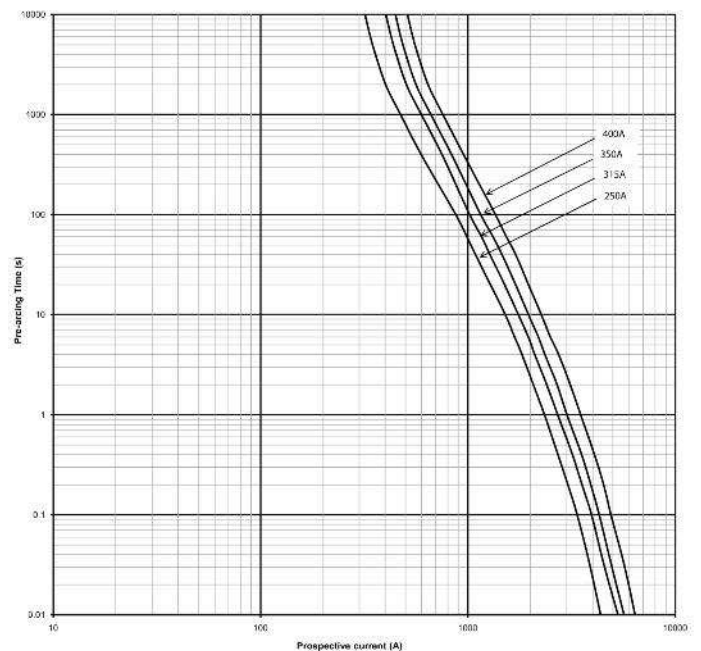
Available Current (Amps), DC-Time Constant 1-3ms

Time Current Curves for 2XL - 1500Vdc



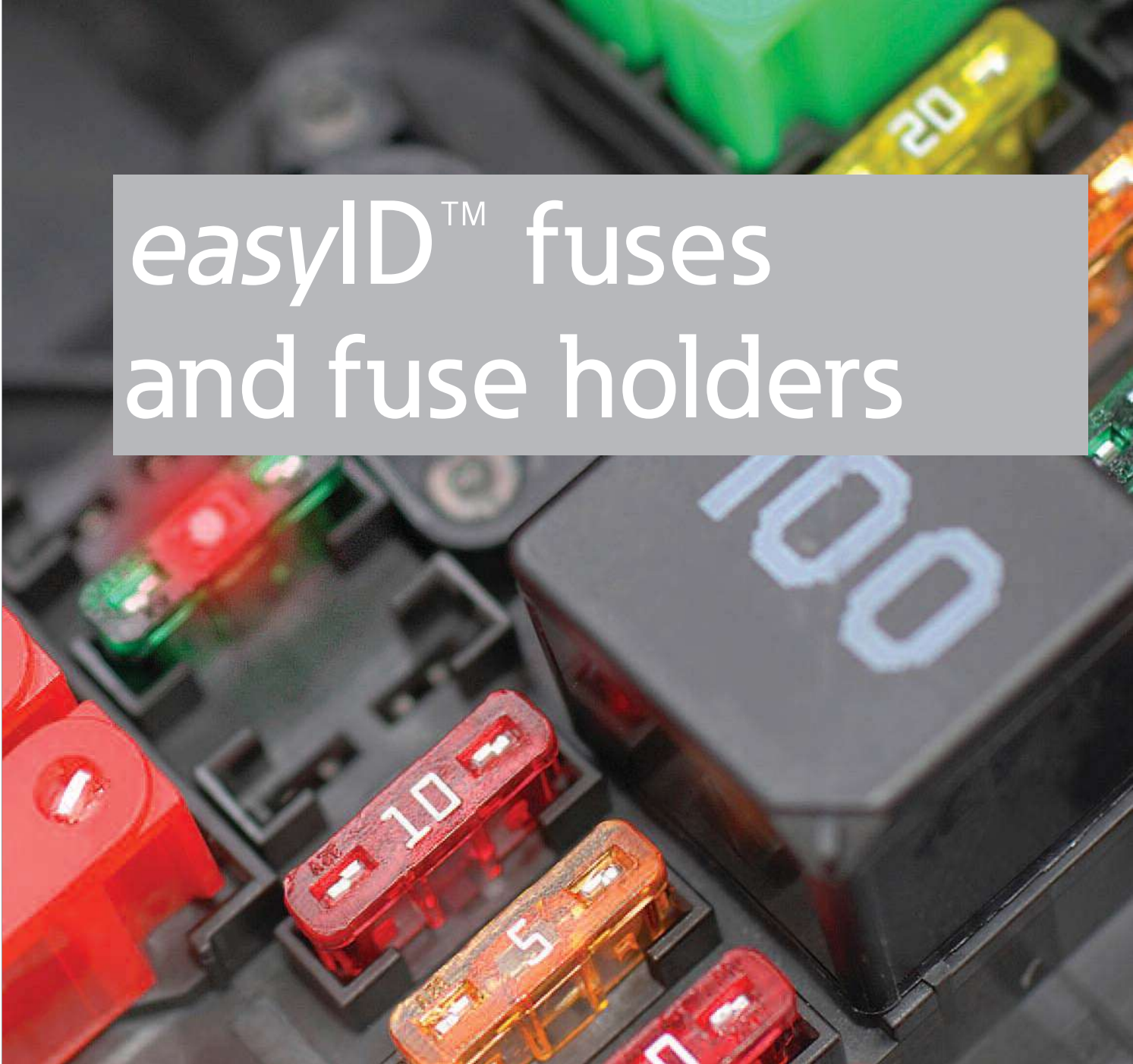
Available Current (Amps), DC-Time Constant 1-3ms

Time Current Curves for 3L - 1500Vdc



Available Current (Amps), DC-Time Constant 1-3ms

# easyID™ fuses and fuse holders



Find blown fuses fast and easy.  
Utilize LED technology to  
indicate a blown fuse.

**Bussmann**  
by **EAT•N**

# Low Voltage Supplementary Fuses

## Section Contents

RED indicates NEW information



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Low Voltage Supplementary Fuses



# Holders & Blocks for Low Voltage Supplementary Fuses

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**Blocks**

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## Holders & Blocks for Low Voltage Supplementary Fuses

### 1 3/32" X 1 3/8" Fuses

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HPS-L



BM Series

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| GLD 1/4" X 1 1/4" .....            | 125V ..... | 78   |
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| MIN 1 3/32" X 1 1/2" .....         | 250V ..... | 78   |
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HLD



HK Series

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- 1 3/32" X 2": 1-Pole signal block cat. # 2778 (not shown in catalog)\*
- 1 3/32" X 2": 2-Pole signal block cat. # 2837 (not shown in catalog)\*
- 1 3/32" X 2": 3-Pole signal block cat. # 2838 (not shown in catalog)\*

\*Call our customer satisfaction team at 636-527-3877 for more information.



Series 8000

### Automotive Blade-type Fuses

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easyID™  
Illuminating Holders

HHC, HHD, HHF  
& HHG

HHL & HHM

HHX

### In-Line Rejecting and Non-Rejecting Fuses

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HLQ³ Fuse Holders



HLR Fuse Holder



# Cable Limiters & Welder Limiters

## K Series

### Specifications

**Description:** Cable limiters.

### Ratings:

- Volts — 600Vac
- IR — 200kA RMS Sym. @ 600Vac

### Agency Information:

UL Listing: KDM, KDR, KDP and KFM, KCM, KCM-B and KCR.

### Features and Benefits

- Sizes and ratings available to meet many applications.

### Typical Applications

- Protecting low voltage distribution and service entrance cables against short-circuit currents.

### Catalog Numbers

#### Copper Cable Limiter — 600 Volts

| Catalog Number | Cable Size | Catalog Number | Cable Size |
|----------------|------------|----------------|------------|
|----------------|------------|----------------|------------|

#### Tubular Terminals

|                    |     |   |          |
|--------------------|-----|---|----------|
| KCY                | #4  | KCF                                       | 4/0      |
| KCZ                | #3  | KCH                                       | 250 MCM  |
| KCA                | #2  | KCJ <sup>1,2</sup>                        | 350 MCM  |
| KCB                | #1  | KCM <sup>1,2,3</sup> , KCM-B <sup>1</sup> | 500 MCM  |
| KCC                | 1/0 | KCV                                       | 600 MCM  |
| KCD <sup>1,2</sup> | 2/0 | KCR <sup>1,2</sup>                        | 750 MCM  |
| KCE                | 3/0 | KCS                                       | 1000 MCM |

#### Tubular Terminal and Offset Bolt-Type Terminal

|     |     |                      |         |
|-----|-----|----------------------|---------|
| KQV | #12 | KDD <sup>1</sup>     | 2/0     |
| KQT | #10 | KDE                  | 3/0     |
| KFZ | #8  | KDF                  | 4/0     |
| KIG | #6  | KDH                  | 250 MCM |
| KDY | #4  | KDJ <sup>1,2</sup>   | 350 MCM |
| KDA | #2  | KDM <sup>1,2,3</sup> | 500 MCM |
| KDB | #1  | KDU                  | 600 MCM |
| KDC | 1/0 | KDR <sup>1,2</sup>   | 750 MCM |

#### Compression Connector Rod and Tubular Terminals

|       |         |                  |         |
|-------|---------|------------------|---------|
| KEX   | 4/0     | KQO              | 350 MCM |
| KFH-A | 250 MCM | KDT <sup>1</sup> | 500 MCM |

#### \*Center Bolt-Type Terminal and Off-Set Bolt-Type Terminal

|                  |         |                  |         |
|------------------|---------|------------------|---------|
| KPF              | 4/0     | KDP <sup>1</sup> | 500 MCM |
| KFT <sup>1</sup> | 250 MCM | KFM <sup>1</sup> | 750 MCM |
| KEW <sup>1</sup> | 350 MCM |                  |         |

<sup>1</sup>Copper or aluminum cable; sizes of all other limiters pertain to copper only. KFM copper only. <sup>1</sup>UL Listed (File E90818).

<sup>2</sup>Available with shrink tube “\_V” suffix.

<sup>3</sup>Available with molded rubber boots. Add “-B” to end of part number.

## Accessories

Boots can be purchased separately.

For KCM BOOT-KCM

For KDM BOOT-KDM

Installation tools can be purchased separately from Thomas and Betts

• Crimp Tool: TBM-14M

• Die: 15506 KDM/15515 KDR

## 64000 & 68000 Series

### Specifications

**Description:** Welder limiters.

### Ratings:

- Volts — 600Vac (or less)
- IR — 200kA RMS Sym.

### Features and Benefits

- Current-limiting devices designed specially for use on welder circuits only
- Time-current characteristics are designed to hold on the intermittent overloading encountered in welder operation, while providing short-circuit protection to the circuit and equipment
- Welder limiters have excess current capacity in the operating range as needed for this type of service

### Typical Applications

- Welder circuits
- Because welder limiters have special characteristics, they are not intended for application on general-use circuits

### Catalog Numbers

| Catalog Numbers | Fuse Holder Type | Nominal Amp Rating |
|-----------------|------------------|--------------------|
| 68300           | Class H          | 300                |
| 68600           | Class H          | 600                |
| 64200           | Class J          | 200                |
| 64300           | Class J          | 300                |



## 1 3/32" x 1 1/2" Fast-acting Fuses

### BAF

#### Specifications

**Class:** Supplemental

**Description:** Fast-acting supplementary fuse.

**Dimensions:** 1 3/32" x 1 1/2" (10.3 x 38.1mm).

#### Ratings:

Volts — 250Vac (or less)

Amps — 3/10-30A

IR — 10kA @ 125Vac (3/10-30A)

— 35A (3/10-1A @ 250Vac)

— 100A (1 1/2-3A @ 250Vac)

— 200A (4-10A @ 250Vac)

— 750A (12A- 15A @ 250Vac)

— 200A (20-30A @ 250Vac)

**Agency Information:** CE, Std. 248-14, UL 0-15/250V, Guide JDYX, File E19180 CSA Certified, 0-15/250V, Class 1422-01, File 53787.

#### Features and Benefits

- Low cost supplemental protection of 125V and 250V non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc-flash hazards. (and minimize potential for misapplying fuse.)

#### Typical Applications

- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits

#### Catalog Numbers (Amps)

|            |           |        |
|------------|-----------|--------|
| BAF-3/4    | BAF-2-3/4 | BAF-9  |
| BAF-1/2    | BAF-3     | BAF-10 |
| BAF-3/10   | BAF-4     | BAF-12 |
| BAF-3/10   | BAF-5     | BAF-15 |
| BAF-1      | BAF-6     | BAF-20 |
| BAF-1-1/2  | BAF-6-3/4 | BAF-25 |
| BAF-1-3/10 | BAF-7     | BAF-30 |
| BAF-2      | BAF-8     |        |

\*All have interrupting rating of 10,000A at 125V.

For superior electrical protection, Bussmann recommends upgrading BAF and fuse applications to Low-Peak LP-CC fuses See page 23.

**Data Sheet: 2011 (0-30)**



### KTK

#### Specifications

**Class:** Supplemental

**Description:** Fast-acting supplementary fuse.

**Dimensions:** 1 3/32" x 1 1/2" (10.3 x 38.1mm).

#### Ratings:

Volts — 600Vac (or less)

Amps — 3/10-30A

IR — 100kA RMS Sym. (UL)

**Agency Information:** CE, Std. 248-14, UL Listed, Guide JDYX, File E19180.

#### Features and Benefits

- Low cost supplemental protection of 600V or less non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc flash hazards.

#### Typical Applications

- Control Circuits
- Lighting Circuit Protection
- Meter Circuits

#### Catalog Numbers (Amps)

|                            |           |           |         |         |
|----------------------------|-----------|-----------|---------|---------|
| 600Vac - UL Listed and CSA |           |           |         |         |
| KTK-3/10                   | KTK-3/4   | KTK-4     | KTK-12  | KTK-50* |
| KTK-3/10                   | KTK-1     | KTK-5     | KTK-15  |         |
| KTK-3/10                   | KTK-1-1/4 | KTK-6     | KTK-20  |         |
| KTK-3/4                    | KTK-1-1/2 | KTK-7     | KTK-25  |         |
| KTK-3/10                   | KTK-2     | KTK-7-1/2 | KTK-30  |         |
| KTK-3/10                   | KTK-2-1/2 | KTK-8     | KTK-35* |         |
| KTK-1/2                    | KTK-3     | KTK-9     | KTK-40* |         |
| KTK-3/10                   | KTK-3-1/2 | KTK-10    | KTK-45* |         |

\*Rated for no more than 24A continuous.

For superior electrical protection, Bussmann recommends upgrading KTK fuse applications to Low-Peak LP-CC fuses See page 23.

**Data Sheet: 1011**



### KLM

#### Specifications

**Class:** Supplemental

**Description:** Full range, fast-acting, DC midget fuse.

**Dimensions:** 1 3/32" x 1 1/2" (10.3 X 38.1mm).

#### Ratings:

Volts — 600Vac/dc

Amps — 3/10-30A

IR — 100kA AC

— 50kA DC

**Agency Information:** CE, UL Listed: STD. 248-14, (FILE #E19180), CSA Certified, C22.2 NO. 248. 14 (CLASS #1422-01, FILE #53787).

#### Features and Benefits

- Full range, fast-acting, 600Vac/dc midget fuse.
- Minimum interrupting rating or 200% rated current at 600Vdc.

#### Typical Applications

- DC Control Circuits Requiring Fast-Acting Fuses.
- Solar power energy sources - use the Bussmann PVM fuse for DC ratings up to 600Vdc.

#### Catalog Numbers (Amps) - KLM

|          |           |        |        |
|----------|-----------|--------|--------|
| KLM-3/10 | KLM-3/4   | KLM-5  | KLM-20 |
| KLM-3/10 | KLM-1     | KLM-6  | KLM-25 |
| KLM-3/10 | KLM-1-1/2 | KLM-8  | KLM-30 |
| KLM-3/4  | KLM-2     | KLM-10 |        |
| KLM-3/10 | KLM-3     | KLM-12 |        |
| KLM-1/2  | KLM-4     | KLM-15 |        |



**Recommended fuse blocks/fuse holders for 1 3/32" x 1 1/2" fuses**

- See page 72

## 1<sup>3</sup>/<sub>32</sub>" x 1 1<sup>1</sup>/<sub>2</sub>" Time-delay Fuses

### FNM

#### Specifications

**Class:** Supplemental

**Description:** Time-delay supplementary fuse.

**Dimensions:** 1<sup>3</sup>/<sub>32</sub>" x 1 1<sup>1</sup>/<sub>2</sub>" (10.3 x 38.1mm).

#### Ratings:

Volts — 250Vac (or less)

Amps — 1/10-30A

IR — 35A (1/10-1A @ 250Vac)

— 100A (1 1/8-3 1/2A @ 250Vac)

— 200A (4-10A @ 250Vac)

— 10kA (1/10-10A @ 125Vac)

— 10kA (12-30A @ 250Vac)

**Agency Information:** CE, Std. 248-14, UL Listed, 0-30/250Vac; File E19180, Guide JDYX, CSA Certified, 1-30/250Vac; Class 1422-01, File 53787.

#### Features and Benefits

- Low cost supplemental protection of 125V and 250V inductive circuits.

#### Typical Applications

- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits
- Upgrading to LP-CC product will reduce SKU investment and minimize potential for misapplying fuse

#### Catalog Numbers (Amps)

|            |            |            |            |           |        |
|------------|------------|------------|------------|-----------|--------|
| FNM-1/10   | FNM-1/2    | FNM-1-1/2  | FNM-3      | FNM-6     | FNM-15 |
| FNM-1/8    | FNM-9/10   | FNM-1-9/10 | FNM-3-3/10 | FNM-6-1/4 | FNM-20 |
| FNM-15/100 | FNM-3/4    | FNM-1-1/10 | FNM-3-1/2  | FNM-7     | FNM-25 |
| FNM-1/10   | FNM-1      | FNM-2      | FNM-4      | FNM-8     | FNM-30 |
| FNM-1/4    | FNM-1-1/2  | FNM-2-1/4  | FNM-4-1/2  | FNM-9     |        |
| FNM-3/10   | FNM-1-1/4  | FNM-2-1/2  | FNM-5      | FNM-10    |        |
| FNM-1/10   | FNM-1-1/10 | FNM-2-9/10 | FNM-5-9/10 | FNM-12    |        |



### FNQ

#### Specifications

**Class:** Supplemental

**Description:** Time-delay supplementary fuse.

**Dimensions:** 1<sup>3</sup>/<sub>32</sub>" x 1 1<sup>1</sup>/<sub>2</sub>" (10.3 x 38.1mm).

#### Ratings:

Volts — 500Vac (or less)

Amps — 1/10-30A

IR — 10kA RMS Sym.

**Agency Information:** CE, Std. 248-14, UL Listed, Guide JDYX, File E19180 CSA Certified, Class 1422-01, File 53787.

#### Features and Benefits

- Low cost supplemental protection of transformers and relays at 500V or less.

#### Typical Applications

- Control Transformer 480V Primary Protection
- Lighting Circuit Protection
- Meter Circuits

#### Catalog Numbers (Amps)

|            |           |            |            |        |        |
|------------|-----------|------------|------------|--------|--------|
| FNQ-1/10   | FNQ-1/10  | FNQ-1-1/2  | FNQ-3-1/2  | FNQ-7  | FNQ-20 |
| FNQ-1/8    | FNQ-1/2   | FNQ-1-9/10 | FNQ-4      | FNQ-8  | FNQ-25 |
| FNQ-15/100 | FNQ-9/10  | FNQ-2      | FNQ-4-1/2  | FNQ-9  | FNQ-30 |
| FNQ-3/10   | FNQ-9/10  | FNQ-2-1/4  | FNQ-5      | FNQ-10 |        |
| FNQ-1/4    | FNQ-1     | FNQ-2-1/2  | FNQ-5-9/10 | FNQ-12 |        |
| FNQ-1/10   | FNQ-1-1/2 | FNQ-3      | FNQ-6      | FNQ-14 |        |
| FNQ-3/10   | FNQ-1-1/4 | FNQ-3-3/10 | FNQ-6-1/4  | FNQ-15 |        |



For superior electrical protection, Bussmann recommends upgrading FNM and FNQ fuse applications to Low-Peak LP-CC fuses See page 23.

#### Recommended fuse blocks and fuse holders for

1<sup>3</sup>/<sub>32</sub>" x 1 1<sup>1</sup>/<sub>2</sub>" fuses

- See page 72

Data Sheet: 2028

For superior electrical protection, Bussmann recommends upgrading FNM and FNQ fuse applications to Low-Peak LP-CC fuses See page 23.

#### Recommended fuse blocks and fuse holders for

1<sup>3</sup>/<sub>32</sub>" x 1 1<sup>1</sup>/<sub>2</sub>" fuses

- See page 72

Data Sheet: 1012

## 1 $\frac{3}{32}$ " x 1 $\frac{3}{8}$ " Fast-acting Fuses

### BBS

#### Specifications

**Class:** Supplemental

**Description:** Fast-acting supplementary fuse.

**Dimensions:** 1 $\frac{3}{32}$ " x 1  $\frac{3}{8}$ "  
(10.3 x 34.9mm).

**Construction:** Fiber cartridge.

#### Ratings:

Volts — 600Vac ( $\frac{1}{10}$ -5A)  
— 250Vac (6 - 10A)  
— 48Vac (12-30A)

Amps —  $\frac{1}{10}$ -30A

IR — 10kA RMS Sym.

**Agency Information:** CE, Std. 248-14, UL Listed, 0-5A/600V, Guide JDYX, File E19180, CSA Certified, 0-5A/600V, Class 1422-01, File 53787.

#### Features and Benefits

- Low cost supplemental protection of non-inductive circuits
- Reduced interchangeability with other supplemental fuses minimizes misapplication

#### Typical Applications

- Control Circuits
- Lighting Ballasts
- Meter Circuits

#### Catalog Numbers (Amps)

|                     |                       |        |        |
|---------------------|-----------------------|--------|--------|
| BBS- $\frac{1}{10}$ | BBS- $\frac{3}{10}$   | BBS-4  | BBS-15 |
| BBS- $\frac{2}{10}$ | BBS-1                 | BBS-5  | BBS-20 |
| BBS- $\frac{1}{4}$  | BBS-1- $\frac{1}{2}$  | BBS-6  | BBS-25 |
| BBS- $\frac{3}{10}$ | BBS-1- $\frac{3}{10}$ | BBS-7  | BBS-30 |
| BBS- $\frac{1}{2}$  | BBS-1- $\frac{1}{10}$ | BBS-8  |        |
| BBS- $\frac{6}{10}$ | BBS-2                 | BBS-10 |        |
| BBS- $\frac{3}{4}$  | BBS-3                 | BBS-12 |        |



**Recommended fuse blocks/fuse holders for 1 $\frac{3}{32}$ " x 1  $\frac{3}{8}$ " fuses**

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**Data Sheet: 2010 (0-30A)**

## Pin Indication Fuses

### GBA

#### GLD

**Specifications**

**Class:** Supplemental

**Description:** Fast-acting, pin indication fuse.

**Dimensions:** ¼" x 1 ¼"  
(6.6 x 31.7mm) 3AG.

**Ratings:**

Volts — See Agency Info below

Amps — ½-15A

IR — See Agency Info below

**Agency Information:** CE, Std. 248-14, UL Listed, 0-5A/125Vac, 10,000 AIC, Guide JDYX, File E19180, UL Recognized, 6A/125Vac, 1000AIC 8-15A/50Vac/dc, 300 AIC Guide JDYX2, File E19180, CSA Certified: 0-5A/125Vac, 10,000 AIC Class 1422-01, File 53787.

**Features and Benefits**

- Type GBA has a "red" pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).
- Type GLD has a plated pin to activate transmitting a electrical signal to indicate the location of opened circuits, resulting in reduced downtime.

**Typical Applications**

- Control Circuits
- Electronic Circuits

**GLD Catalog Numbers (Amps)**

|         |       |        |
|---------|-------|--------|
| GLD-½   | GLD-2 | GLD-6  |
| GLD-¾   | GLD-3 | GLD-10 |
| GLD-1   | GLD-4 | GLD-12 |
| GLD-1-½ | GLD-5 | GLD-15 |

**GBA Catalog Numbers (Amps)**

|         |       |        |
|---------|-------|--------|
| GBA-½   | GBA-2 | GBA-8  |
| GBA-¾   | GBA-3 | GBA-10 |
| GBA-1   | GBA-4 | GBA-15 |
| GBA-1-½ | GBA-5 |        |

**Recommended fuse blocks/fuse holders for ¼" x 1 ¼" indicating fuses**

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**Data Sheet: 2012**

### MIC & MIN

**Specifications**

**Class:** Supplemental

**Description:** Fast-acting, pin indication fuse.

**Dimensions:** 1 3/32" x 1 ½"  
(10.3 x 38.1mm) 5AG.

**Ratings:**

Volts — 250Vac  
(1-15A)  
— 32Vac (20-30A)

Amps — 1-30A  
IR — 35A (1A @250Vac)  
— 100A (2-3A @250Vac)  
— 200A (5-10A @250Vac)  
— 750A (15A @250Vac)  
— 10kA (20-30A @32V)  
— 35A (1A @250Vac)

**Agency Information:** CE, Std. 248-14, MIC—0-15A UL Listed, 125Vac/10kA IR Guide JDYX, File E19180, MIN—1-5A CSA Certified, Class 1422-01, File 53787.

**Features and Benefits**

- Type MIN has a "red" pin indicator providing visual identification of failed circuits, resulting in faster trouble shooting (reduced circuit downtime).
- Type MIC has silver-plated pin transmitting an electrical signal indicating location of a failed circuit, resulting in faster troubleshooting (reduced circuit downtime).

**Typical Applications**

- Control Circuits
- PLC Circuits
- Electronic Circuits

**MIC Catalog Numbers (Amps)**

|       |        |        |
|-------|--------|--------|
| MIC-1 | MIC-5  | MIC-20 |
| MIC-2 | MIC-10 | MIC-25 |
| MIC-3 | MIC-15 | MIC-30 |

**MIN Catalog Numbers (Amps)**

|       |        |        |
|-------|--------|--------|
| MIN-1 | MIN-5  | MIN-20 |
| MIN-2 | MIN-10 | MIN-25 |
| MIN-3 | MIN-15 | MIN-30 |

**Recommended signal block for 1 3/32" x 1 ½" indicating fuses**

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**Data Sheet: 2047**

### FNA

**Specifications**

**Class:** Supplemental

**Description:** Time-delay, pin indication fuse.

**Dimensions:** 1 3/32" x 1 ½"  
(10.3 x 38.1mm).

**Ratings:**

Volts — 250Vac (½-¾A)  
— 125Vac (1-15A)  
— 32Vac (20-30A)

Amps — ½-30A

IR — 35A (½-¾A @ 250Vac)  
— 10kA (½-15A @ 125Vac)  
— 1kA (20-30A @ 32V)

**Agency Information:** CE, Std. 248-14, UL Listed ½-¾A, IR 35A@ 250V, IR 10kA@ 125V, 1-15A, IR 10kA@ 125V, Guide JDYX, File 19180, CSA Certified, 0-¾A/250V, 1-10A/125V, Class 1422-01, File 53787.

**Features and Benefits**

- FNA has a pin indicator providing visual identification of failed circuits, resulting in reduced circuit downtime.
- Time-delay response allows close sizing on control transformers and relays

**Typical Applications**

- Control Circuits
- Electronic Circuits

**Catalog Numbers (Amps)**

|             |         |         |         |
|-------------|---------|---------|---------|
| FNA-½A      | FNA-¾A  | FNA-2-½ | FNA-6-¼ |
| FNA-½       | FNA-1   | FNA-2-¾ | FNA-7   |
| FNA-1-1/100 | FNA-1-½ | FNA-3   | FNA-8   |
| FNA-¾       | FNA-1-¼ | FNA-3-¾ | FNA-9   |
| FNA-¼       | FNA-1-¼ | FNA-3-½ | FNA-10  |
| FNA-¾       | FNA-1-½ | FNA-4   | FNA-12* |
| FNA-¾       | FNA-1-¾ | FNA-4-½ | FNA-15* |
| FNA-½       | FNA-1-¾ | FNA-5   | FNA-20* |
| FNA-¾       | FNA-2   | FNA-5-¾ | FNA-25* |
| FNA-¾       | FNA-2-¼ | FNA-6   | FNA-30  |

\*12-30A versions are dual-tube construction

**Recommended signal block for**

**1 3/32" x 1 ½" indicating fuses**

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**Data Sheet: 2029**





# Pin Indication Fuse and Actuator, and Limiters

## ANN & ANL Limiters

**Specifications**  
**Description:** Circuit limiters.  
**ANN:** Very fast-acting limiter.  
**ANL:** Non-time delay limiter.  
**Dimensions:** 7/8" x 3 3/16"  
 (22.2 x 81.0mm).

**Ratings:**  
**ANN:**  
 Volts — 125Vac  
 — 80Vdc  
 Amps — 10-800A  
 IR — 2500A @ 125Vac  
 — 2700A @ 80Vdc

**ANL:**  
 Volts — 80Vdc  
 Amps — 35-750A  
 IR — 2700A @ 80Vdc

**Agency Information:**  
**ANN:** 35-400A @ 125Vac, IR=2500A and 500A @ 80Vdc, IR=2700A: UL Recognized Guide JFHR2, File E56412; CSA Certified Class 1422-30, File 53787, CE for 35-400A.  
**ANL:** UL Recognized, CSA Certified, 35-750A @ 80Vdc, IR = 2700A, Guide JFHR2, File E56412, Class 1422-30, File 53787, SAE J1171.

**Features and Benefits**

- Fast-acting circuit protection (ANN).
- Time-delay sizing for inductive circuits (ANL).
- Window shows limiter status.

**Typical Applications**

- Fork lifts, Marine, Aviation

### ANN Catalog Numbers (Amps)

|        |         |         |         |
|--------|---------|---------|---------|
| ANN-10 | ANN-90  | ANN-225 | ANN-400 |
| ANN-35 | ANN-100 | ANN-250 | ANN-500 |
| ANN-40 | ANN-125 | ANN-275 | ANN-600 |
| ANN-50 | ANN-150 | ANN-300 | ANN-700 |
| ANN-60 | ANN-175 | ANN-325 | ANN-800 |
| ANN-80 | ANN-200 | ANN-350 |         |

### ANL Catalog Numbers (Amps)

|         |         |         |         |
|---------|---------|---------|---------|
| ANL-35  | ANL-125 | ANL-250 | ANL-500 |
| ANL-40  | ANL-130 | ANL-275 | ANL-600 |
| ANL-50  | ANL-150 | ANL-300 | ANL-675 |
| ANL-60  | ANL-175 | ANL-325 | ANL-750 |
| ANL-80  | ANL-200 | ANL-350 |         |
| ANL-100 | ANL-225 | ANL-400 |         |



## MIS

**Specifications**  
**Class:** Supplemental  
**Description:** Non time-delay pin indication fuse.  
**Dimensions:** 1/2" x 2"  
 (10.3 x 50.8mm).

**Ratings:**  
 Volts — 600Vac  
 Amps — 1-12A  
 IR — 200kA

**Features and Benefits**

- Type MIS has a pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).
- Type MIS can be used in circuits rated 600V or less.
- Type MIS has an interrupting rating of 200kA.

**Typical Applications**

- 480V Control Circuits
- PLC Circuits

### Catalog Numbers (Amps)

|       |       |        |
|-------|-------|--------|
| MIS-1 | MIS-4 | MIS-10 |
| MIS-2 | MIS-5 | MIS-12 |
| MIS-3 | MIS-8 |        |

**Test Specifications**

| Fuse  | Load | Opening Time    |
|-------|------|-----------------|
| All   | 110% | 0 4 hrs. (min.) |
| 1-5A  | 150% | 0 6 min. (max.) |
| 6-12A | 150% | 12 min. (max.)  |

**Recommended signal block for 1/2" x 2" indicating fuses**

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## KAZ

**Specifications**  
**Description:** Non-fuse actuator.  
**Dimensions:** 1/2" x 2"  
 (10.3 x 50.8mm).

**Ratings:**  
 Volts — 600Vac  
 Amps — N/A  
 IR — 200kA

**Agency Information:**  
 CE, UL Listed, Guide JDVS, File E58836.

**Features and Benefits**

- Bussmann signal blocks 2778, 2837 or 2838 with KAZ actuators mounted in parallel with fuses having a rating of 50A or larger to provide blown fuse dropout of shunt-trip fused switches.
- Type KAZ can be used in circuits rated 600V or less.
- Type KAZ has an interrupting rating of 200kA.

**Typical Applications**

- Large, Shunt-Trip Fused Switches
- Fuse Protected Circuits Rated 50A or Larger With Shunt-Trip Devices.

**Catalog Number: KAZ**

**Recommended signal block for 1/2" x 2" indicating fuses**

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**Data Sheet: 2021**



Low Voltage Supplementary Fuses

## 4164 & 4164-FR Limiter Blocks

**Specifications**  
**Description:** Limiter fuse blocks for ANL & ANN.  
 • 4164 furnished with nylon inserted locknuts  
 • 4164-FR furnished with standard hex nuts  
**Dimensions:** Length: 3.38"  
 Width: 0.95"  
 Height: 1.62"  
 Studs center to center: 2.43"



**Ratings:**  
 Volts — 125Vac  
 — 80Vdc  
 — 32Vdc (Self Certified)  
 Amps — 10-800A  
**Poles:** 1 - stud terminal

**Data Sheets: 2023 (ANN), 2024 (ANL)**

**Data Sheet: 2133**

## In-line Size Rejecting Fuses and Fuse Holders

### GLQ

#### Specifications

**Class:** Supplemental

**Description:** Fast-acting, size-rejecting in-line fuse.

**Construction:** Glass tube.

#### Ratings:

Volts — 300Vac (or less)

Amps — 1-10A

IR — 10kA

**Agency Information:** CE, Std. 248-14, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787).

#### Features and Benefits

- In-Line, fast-acting circuit protection.
- Rejection feature prevents overfusing.

#### Typical Applications

- In-line Lighting Ballast Protection



### GMQ

#### Specifications

**Class:** Supplemental

**Description:** Time-delay, size-rejecting in-line fuse.

**Construction:** Ceramic tube.

#### Ratings:

Volts — 300Vac (or less)

Amps — ½-6¼A

IR — 10kA

**Agency Information:** CE, Std. 248-14, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787)

#### Features and Benefits

- In-line, fast-acting circuit protection.
- Rejection feature prevents overfusing.

#### Typical Applications

- In-Line Lighting Ballast Protection



#### Catalog Numbers (Amps) and Rejection Holders

| Fuse                  | Holder <sup>1, 2</sup> | Fuse   | Holder <sup>1, 2</sup> |
|-----------------------|------------------------|--------|------------------------|
| GLQ-1                 | HLQ-1- $\frac{9}{10}$  | GLQ-3  | HLQ-3- $\frac{2}{10}$  |
| GLQ-1-½               | HLQ-1- $\frac{9}{10}$  | GLQ-4  | HLQ-5                  |
| GLQ-1- $\frac{9}{10}$ | HLQ-1- $\frac{9}{10}$  | GLQ-5  | HLQ-5                  |
| GLQ-2                 | HLQ-3- $\frac{2}{10}$  | GLQ-9  | HLQ-10                 |
| GLQ-2-½               | HLQ-3- $\frac{2}{10}$  | GLQ-10 | HLQ-10                 |

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 10A, 300Vac.

2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

- Do not put tension on line (rear) terminal of fuse holder.

#### Catalog Numbers (Amps) and Rejection Holders

| Fuse                  | Holders <sup>1, 2</sup> | Fuse                  | Holders <sup>3, 4</sup> |
|-----------------------|-------------------------|-----------------------|-------------------------|
| GMQ-½                 | HLQ-½                   | GMQ-2-½               | HLQ-3- $\frac{2}{10}$   |
| GMQ- $\frac{9}{10}$   | HLQ-1- $\frac{9}{10}$   | GMQ-3                 | HLQ-3- $\frac{2}{10}$   |
| GMQ- $\frac{9}{10}$   | HLQ-1- $\frac{9}{10}$   | GMQ-3- $\frac{2}{10}$ | HLQ-3- $\frac{2}{10}$   |
| GMQ-1                 | HLQ-1- $\frac{9}{10}$   | GMQ-4                 | HLQ-5                   |
| GMQ-1-¼               | HLQ-1- $\frac{9}{10}$   | GMQ-6                 | HLQ-8                   |
| GMQ-1- $\frac{9}{10}$ | HLQ-1- $\frac{9}{10}$   | GMQ-6-¼               |                         |
| GMQ-2                 | HLQ-3- $\frac{2}{10}$   |                       |                         |

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 10A, 300Vac.

2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2033

Data Sheet: 2030



**HLQ<sup>3</sup> Fuse Holders**  
for both GLQ & GMQ fuses.

## In-line Non-rejecting Fuses and Fuse Holders

### GLR

#### Specifications

**Class:** Supplemental

**Description:** Fast-acting, non-rejection, in-line fuse.

**Construction:** Glass tube.

#### Ratings:

Volts — 300Vac (or less)

Amps —  $\frac{3}{16}$ -15A

IR — 10kA

**Agency Information:** CE, Std. 248-14, UL Listed, 0-15A/300Vac (Guide JDYX, File E19180), CSA Certified, 0-10A/300V (Class 1422-01, File 53787).

#### Features and Benefits

- In-line, fast-acting circuit protection.

#### Typical Applications

- In-Line Lighting Ballast Protection



### GMF

### GRF

#### Specifications

**Class:** Supplemental

**Description:** Time-delay, non-rejection, in-line fuse.

**Construction:** Glass tube.

#### Ratings:

Volts — 300Vac (or less)

Amps —  $\frac{3}{10}$ -10A

IR — 10kA

**Agency Information:** CE, Std. 248-14 0-10A, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787).

#### Features and Benefits

- In-line, time-delay circuits protection.

#### Typical Applications

- In-Line Lighting Ballast Protection



#### Catalog Numbers (Amps) and Non-Rejection Holders

| Fuse                  | Holder <sup>1, 2*</sup> | Fuse   | Holder <sup>1, 2*</sup> |
|-----------------------|-------------------------|--------|-------------------------|
| GLR- $\frac{1}{2}$    | HLR                     | GLR-6  | HLR                     |
| GLR-1                 | HLR                     | GLR-7  | HLR                     |
| GLR-1- $\frac{1}{2}$  | HLR                     | GLR-8  | HLR                     |
| GLR-1- $\frac{3}{10}$ | HLR                     | GLR-9  | HLR                     |
| GLR-2                 | HLR                     | GLR-10 | HLR                     |
| GLR-3                 | HLR                     | GLR-12 | HLR                     |
| GLR-4                 | HLR                     | GLR-15 | HLR-2A                  |
| GLR-5                 | HLR                     |        |                         |

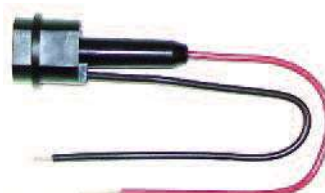
1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 300Vac.

2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

\* **For two leads (one each for line and loadside) order HLR-2A, 15A, 300V**

- An alternative to the HLR fuse holder is the A fuse holder. The A fuse holder comes *WITHOUT* leads. The customer inserts #18 insulated solid copper wire into the line side receptacle as well as into the load side receptacle. It has the same body dimensions, utilizes the same mounting hole, and takes the same mounting clips as the HLR. The A fuse holder is UL Recognized, 10A, 300Vac, Guide IZLT2, File E14853 and CSA Certified, 10A, 300Vac, Class 6225-01, File 47235.
- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2032



HLR-2A Fuse Holder

#### Catalog Numbers (-Amps) and Non-Rejection Holders

| Fuse                  | Holder <sup>1, 2*</sup> | Fuse                  | Holder <sup>1, 2*</sup> |
|-----------------------|-------------------------|-----------------------|-------------------------|
| GMF- $\frac{3}{10}$   | HLR                     | GMF-3                 | HLR                     |
| GMF- $\frac{1}{2}$    | HLR                     | GMF-3- $\frac{3}{10}$ | HLR                     |
| GMF- $\frac{3}{10}$   | HLR                     | GMF-4                 | HLR                     |
| GMF- $\frac{3}{10}$   | HLR                     | GMF-5                 | HLR                     |
| GMF-1                 | HLR                     | GMF-6- $\frac{1}{4}$  | HLR                     |
| GMF-1- $\frac{1}{4}$  | HLR                     | GMF-10                | HLR                     |
| GMF-1- $\frac{3}{10}$ | HLR                     | GRF-7                 | HLR                     |
| GMF-2                 | HLR                     | GRF-8                 | HLR                     |
| GMF-2- $\frac{1}{2}$  | HLR                     | GRF-10                | HLR                     |
| GMF-2- $\frac{3}{10}$ | HLR                     |                       |                         |

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 300Vac.

2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043" to 0.062" or #4909 for thickness 0.030" to 0.042".

\* **For two leads order HLR-2A, 15A, 300V**

- An alternative to the HLR fuse holder is the A fuse holder. The A fuse holder comes *WITHOUT* leads. The customer inserts #18 insulated solid copper wire into the line side receptacle as well as into the load side receptacle. It has the same body dimensions, utilizes the same mounting hole, and takes the same mounting clips as the HLR. The A fuse holder is UL Recognized, 10A, 300Vac, Guide IZLT2, File E14853 and CSA Certified, 10A, 300Vac, Class 6225-01, File 47235.
- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2031



HLR Fuse Holder

# Automotive Blade-type Fuses & Holders

## ATC Fuse



### Specifications

**Description:** Fast-acting blade fuse.

**Construction:** Colored plastic housing with zinc fuse element.

### Ratings:

- Volts — 32Vdc
- Amps — 1-40A
- IR — 1000A

**Agency Information:** UL Recognized, (3-40A) (Guide JFHR2, File E56412), SAE Standard J1284.

### Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

### Typical Applications

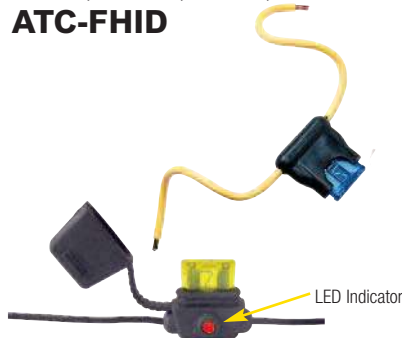
- Automotive

### Catalog Numbers (Amps)

| Non-Indicating | *Indicating | Color      |
|----------------|-------------|------------|
| ATC-1          |             | Black      |
| ATC-2          |             | Gray       |
| ATC-3          | ATC-3ID     | Violet     |
| ATC-4          |             | Pink       |
| ATC-5          | ATC-5ID     | Tan        |
| ATC-7-1/2      | ATC-7-1/2ID | Brown      |
| ATC-10         | ATC-10ID    | Red        |
| ATC-15         | ATC-15ID    | Blue       |
| ATC-20         | ATC-20ID    | Yellow     |
| ATC-25         | ATC-25ID    | Clear      |
| ATC-30         | ATC-30ID    | Green      |
| ATC-35         | ATC-35ID    | Blue-Green |
| ATC-40         | ATC-40ID    | Orange     |

\*Call Bussmann Customer Satisfaction for ordering information.

## HHC, HHD, HHF, HHG & ATC-FHID



### easyID™ LED Indicating Holder

### Specifications

**Description:** In-line fuse holders for ATC™ Blade-Type fuses.

**Dimensions:** See Dimensions illustration.

### Ratings:

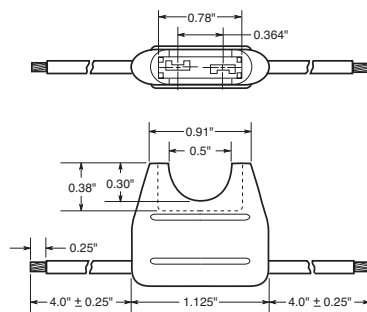
- Volts: — 32Vdc
- Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

### Catalog Numbers

| Catalog Numbers | Fuse Holder Description             | Fuse Amps | Electrical Connection |
|-----------------|-------------------------------------|-----------|-----------------------|
| HHC             | Yellow                              | 1-20      | #16 black leadwire    |
| HHD             | Black                               | 1-30      | #12 yellow leadwire   |
| HHF             | Black w/ cover                      | 1-20      | #16 yellow leadwire   |
| HHG             | Black w/ cover                      | 1-30      | #12 yellow leadwire   |
| ATC-FHID        | Indicating Holder<br>Black w/ cover | 1-20      | #16 black leadwire    |

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

### HHC & HHD Dimensions - in



## ATM Fuse



### Specifications

**Description:** Fast-acting blade fuse.

**Construction:** Colored plastic housing with zinc fuse element.

### Ratings:

- Volts — 32Vdc
- Amps — 2-30A
- IR — 1000A

### Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

### Typical Applications

- Automotive

### Catalog Numbers (Amps)

| Non-Indicating | *Indicating | Low-Profile | Color  |
|----------------|-------------|-------------|--------|
| ATM-2          |             |             | Gray   |
| ATM-3          | ATM-3ID     |             | Violet |
| ATM-4          |             |             | Pink   |
| ATM-5          | ATM-5ID     | ATM-5LP     | Tan    |
| ATM-7-1/2      | ATM-7-1/2ID | ATM-7-1/2LP | Brown  |
| ATM-10         | ATM-10ID    | ATM-10LP    | Red    |
| ATM-15         | ATM-15ID    | ATM-15LP    | Blue   |
| ATM-20         | ATM-20ID    | ATM-20LP    | Yellow |
| ATM-25         | ATM-25ID    | ATM-25LP    | Clear  |
| ATM-30         | ATM-30ID    | ATM-30LP    | Green  |

\*Call Bussmann Customer Satisfaction for ordering information.

# Automotive Blade-type Fuses & Holders

## HHL, HHM & ATM-FHID



### Specifications

**Description:** In-line fuse holders for ATM Fuses.

### Ratings:

Volts: — 32Vdc

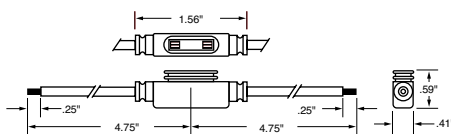
Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

### Catalog Numbers

| Catalog Numbers | Fuse Holder Description             | Fuse Amps | Electrical Connection                          |
|-----------------|-------------------------------------|-----------|--|
| HHL             | Black w/ cover                      | 2-20      | #16 black leadwire, 4" length stripped to 1/4" |
| HHM             | Black w/ cover                      | 2-30      | #12 red leadwire, 4" length stripped to 1/4"   |
| ATM-FHID        | Indicating Holder<br>Black w/ cover | 2-20      | #16 black leadwire                             |

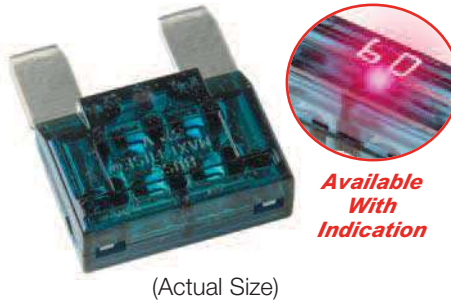
A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

### HHL & HHM Dimensions - in



Data Sheet: 2128

## MAX Maxi-Fuse



### Specifications

**Description:** Fast-acting blade fuse.

**Construction:** Colored plastic housing with zinc fuse element.

### Ratings:

Volts — 32Vdc

Amps — 20-80A (non-indicating)  
20-100A (indicating)

IR — 1000A

### Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

### Typical Applications

- Automotive

### Catalog Numbers (Amps)

| Non-Indicating | *Indicating | Color  |
|----------------|-------------|--------|
| MAX-20         | MAX-20ID    | Yellow |
| MAX-25         |             | Gray   |
| MAX-30         | MAX-30ID    | Green  |
| MAX-35         |             | Brown  |
| MAX-40         | MAX-40ID    | Orange |
| MAX-50         | MAX-50ID    | Red    |
| MAX-60         | MAX-60ID    | Blue   |
| MAX-70         | MAX-70ID    | Tan    |
| MAX-80         | MAX-80ID    | Clear  |
|                | MAX-100ID   | Purple |

\*Call Bussmann Customer Satisfaction for ordering information.

### Recommended in-line fuse holder for blade type fuses

- Page 83

Data Sheet: 2049

## HHX



### Specifications

**Description:** In-line fuse holders for MAXI Fuses.

### Ratings:

Volts: — 32Vdc

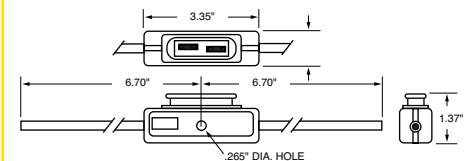
Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

### Catalog Numbers

| Catalog Numbers | Fuse Holder Description | Fuse Amps | Electrical Connection               |
|-----------------|-------------------------|-----------|-------------------------------------|
| HHX             | Black w/ cover          | 20-60     | #6 red leadwire, 5" with blunt ends |

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

### Dimensions - in



Data Sheet: 2129

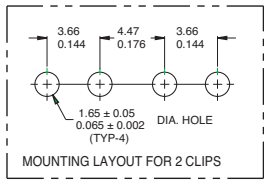
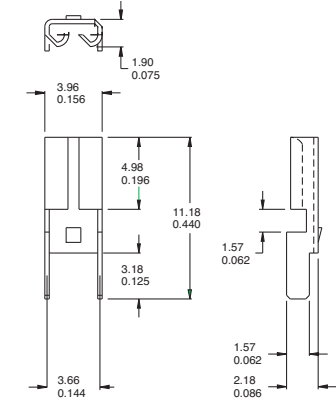
Low Voltage Supplementary Fuses



# Automotive Blade-type PCB Fuseclips

## ATM Fuses 1A5778 Series

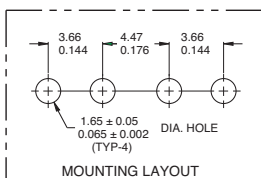
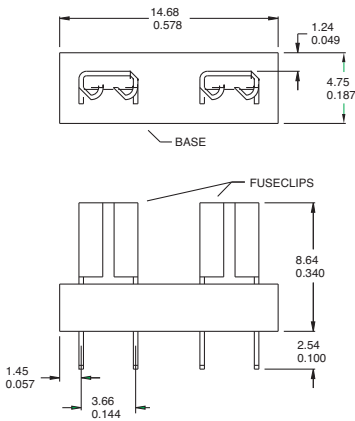
### Dimensional Data



MATERIAL: BRASS, NICKEL PLATED, 0.30/0.012 THICK

### Data Sheet: 2131

## 1A5779 Series



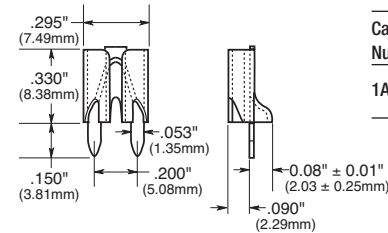
### SPECIFICATIONS

|                    |                                    |
|--------------------|------------------------------------|
| FUSECLIPS          | BRASS, NICKEL PLATED               |
| BASE MATERIAL      | GLASS FILLED NYLON, UL RATED 94V-0 |
| CURRENT RATING     | 15 AMPS                            |
| VOLTAGE RATING     | 500V AC                            |
| TEMPERATURE RATING | -50°C TO 145°C<br>-58°F TO 292°F   |

### Data Sheet: 2131

## ATC Fuses (0 to 20 Amps) 1A5600 Series

### Dimensional Data

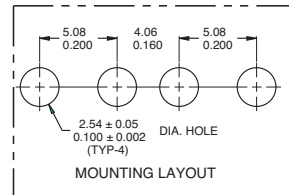
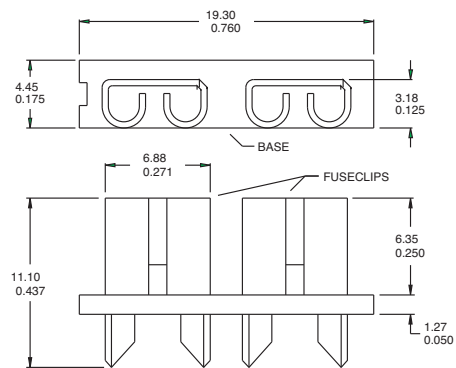


| Catalog Number | Clip Mat.*  | Finish           |
|----------------|-------------|------------------|
| 1A5600         | Cart. Brass | Satin Finish Tin |

### Data Sheet: 2131

## 1A5780 Series

### Dimensional Data



### SPECIFICATIONS

|                    |                                    |
|--------------------|------------------------------------|
| FUSECLIPS          | BRASS, NICKEL PLATED               |
| BASE MATERIAL      | GLASS FILLED NYLON, UL RATED 94V-0 |
| CURRENT RATING     | 15 AMPS                            |
| VOLTAGE RATING     | 500V AC                            |
| TEMPERATURE RATING | -50°C TO 145°C -58°F 292°F         |

\*Spg. Br. - Spring Bronze; BeCu - Beryllium Copper; Cart. Brass - Cartridge Brass

\*\*\*For RoHS compliant version add "-R" option code suffix to part number.

### Data Sheet: 2131

# Electronic - PC Board and Small Dimension Fuses & Accessories



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Scan this tag to get the  
latest product information for  
Electronic Fuses and Accessories.

## 5 x 15mm Ferrule Fuses

### C515 (axial leads)

#### C519

**Specifications**  
**Description:**  
Time-delay fuse.

**Dimensions:**  
5 x 15mm  
(0.197" X 0.591").

**Construction:**  
Glass tube.

**Ratings:**

- Volts — 125Vac (3.5-7A)
- 250Vac (125mA-3A)
- 32Vdc (Self Certified)
- Amps — 125mA-7A
- IR — 25A (350mA @ 600Vac)
- 35A (125mA-1A @ 250Vac)
- 100A (1.25-3A @ 250Vac)
- 400A (3.5-7A @ 125Vac)
- 10kA (125mA-3A @ 125Vac)

**Agency Information:** CE, UL Listed File E19180, Guide JDYX 125mA-250mA and 375mA-3A, UL Recognized, File E19180, Guide JDYX2, 350mA and 3.5A-7A, CSA Certification File 53787, Class 1422-01, 125mA-250mA and 375mA-3A.

**Features and Benefits**

- Time-delay for closer sizing on inductive circuits.

**Typical Application**

- Electronic Circuits
- Printed Circuit Boards

**Catalog Numbers (Amps)**

**With Axial Leads**

|            |             |            |
|------------|-------------|------------|
| C515-125-R | C515-800-R  | C515-2.5-R |
| C515-250-R | C515-1-R    | C515-3-R   |
| C515-350-R | C515-1.25-R | C515-3.5-R |
| C515-375-R | C515-1.5-R  | C515-4-R   |
| C515-500-R | C515-1.6-R  | C515-5-R   |
| C515-600-R | C515-2-R    | C515-6-R   |
| C515-750-R | C515-2.25-R | C515-7-R   |

**Without Axial Leads**

|            |             |             |
|------------|-------------|-------------|
| C519-125-R | C519-750-R  | C519-2.25-R |
| C519-250-R | C519-1-R    | C519-2.5-R  |
| C519-350-R | C519-1.25-R | C519-3-R    |
| C519-375-R | C519-1.5-R  | C519-3.5-R  |
| C519-500-R | C519-1.6-R  | C519-4-R    |
| C519-600-R | C519-2-R    | C519-5-R    |



### C518 (axial leads)

#### C520

**Specifications**  
**Description:**  
Fast-acting fuse.

**Dimensions:**  
5 x 15mm  
(0.197" X 0.591").

**Construction:**  
Glass tube.

**Ratings:**

- Volts — 250Vac
- 32Vdc (Self Certified)
- Amps — 100mA-5A
- IR — 35A (100mA-750mA @ 250Vac)
- 10kA (100mA-5A @ 125Vac)
- 100A (1.5-3.5A @ 250Vac)
- 200A (4-5A @ 250Vac)

**Agency Information:** CE, UL Recognized File E19180, Guide JDYX2CSA Certification File 53787, Class 1422-01.

**Features and Benefits**

- Small footprint saves space in equipment.
- Fast-acting for maximum component protection.
- Available in ferrule and axial leaded configurations

**Typical Applications**

- Electronic Circuits
- Printed Circuit Boards

**Catalog Numbers (Amps)**

**With Axial Leads**

|            |            |          |
|------------|------------|----------|
| C518-100-R | C518-750-R | C518-4-R |
| C518-125-R | C518-2-R   | C518-5-R |
| C518-250-R | C518-2.5-R |          |
| C518-375-R | C518-3-R   |          |
| C518-500-R | C518-3.5-R |          |

**Without Axial Leads**

|            |            |            |
|------------|------------|------------|
| C520-100-R | C520-750-R | C520-3.5-R |
| C520-125-R | C520-1.5-R | C520-4-R   |
| C520-250-R | C520-2-R   | C520-5-R   |
| C520-375-R | C520-2.5-R |            |
| C520-500-R | C520-3-R   |            |



### C517 (axial leads)

**Specifications**

**Description:** Fast-acting fuse.

**Construction:** Glass tube.

**Ratings:**

- Volts — 350Vac\*
- 32Vdc (Self Certified)
- Amps — 3A
- IR — 100A @ 350Vac
- 100A @ 250Vac
- 10kA @ 125Vac

\*350Vac/100A IR is UL Recognized

**Agency Information:** CE, UL Listing File E19180, Guide JDYX, CSA Certification File 53787, Class 1422-01, UL Recognized, File E19180, Guide JDYX2.

- Small footprint saves space in equipment.
- Fast-acting for maximum component protection.
- 350Vac rating for 277V ballast circuit protection.

**Typical Applications**

- Electronic Circuits
- Printed Circuit Boards
- Electronic Ballast Protection

**Catalog Number (Amps)**

**With Axial Leads**

C517-3-R



## 5 x 20mm European (IEC) Ferrule Fuses

### S500-V (GDB-V)\* (axial leads)

#### S500 (GDB)\*

##### Specifications

**Description:** Fast-acting, low-breaking capacity fuse.

##### Construction:

Glass tube, nickel-plated brass endcaps (silver-plated endcaps, 32-125mA).

##### Ratings:

Volts — 250Vac (or less)  
— 32Vdc (Self Certified)

Amps — 32mA-10A

IR — See catalog table

**Agency Information:** CE, cURus, SEMKO, VDE, BSI, IMQ, CCC.

See data sheet for complete agency information. Not all approvals apply to all ratings.

##### Features and Benefits

- Fast-acting for maximum protection, conforms to IEC 60127-2 (160mA-10A).

##### Typical Applications

- Electronic Circuits

##### Catalog Numbers (Amps)

| Catalog Numbers | IR (Amps) | I <sup>2</sup> t | Max Voltage Drop (mV) |
|-----------------|-----------|------------------|-----------------------|
| S500-32-R       | 35        | 0.000047         | 3200                  |
| S500-40-R       | 35        | 0.00011          | 2500                  |
| S500-50-R       | 35        | 0.00020          | 2400                  |
| S500-63-R       | 35        | 0.00057          | 2000                  |
| S500-80-R       | 35        | 0.0012           | 1200                  |
| S500-100-R      | 35        | 0.003            | 1100                  |
| S500-125-R      | 35        | 0.005            | 1000                  |
| S500-160-R      | 35        | 0.008            | 2000                  |
| S500-200-R      | 35        | 0.016            | 1700                  |
| S500-250-R      | 35        | 0.028            | 1400                  |
| S500-315-R      | 35        | 0.058            | 1300                  |
| S500-400-R      | 35        | 0.018            | 1100                  |
| S500-500-R      | 35        | 0.018            | 220                   |
| S500-630-R      | 35        | 0.035            | 220                   |
| S500-800-R      | 35        | 0.067            | 190                   |
| S500-1-R        | 35        | 0.60             | 200                   |
| S500-1.25-R     | 35        | 0.84             | 200                   |
| S500-1.6-R      | 35        | 1.6              | 190                   |
| S500-2-R        | 35        | 4.2              | 150                   |
| S500-2.5-R      | 35        | 6.1              | 150                   |
| S500-3.15-R     | 35        | 13               | 130                   |
| S500-4-R        | 40        | 22               | 130                   |
| S500-5-R        | 50        | 42               | 120                   |
| S500-6.3-R      | 63        | 69               | 120                   |
| S500-8-R        | 80        | -                | 120                   |
| S500-10-R       | 100       | -                | 120                   |

##### Options

Axial leads, put "V" in P/N,

\*When ordering GDB version, do not add "-R" suffix to part number.

Data Sheet: 2052 (S500), 2015 (GDB)

### S501-V (GDA-V)\* (axial leads)

#### S501 (GDA)\*

##### Specifications

**Description:** Fast-acting, high-breaking capacity fuse.

##### Construction:

Ceramic tube, nickel-plated brass endcaps (silver-plated endcaps 50mA-400mA).

##### Ratings:

Volts — 250Vac (or less)  
— 32Vdc (Self Certified)

Amps — 50mA-10A\*\*

IR — 1500A @ 250Vac

**Agency Information:** CE, cURus, SEMKO, VDE, IMQ, CCC, CSA, BSI.

See data sheet for complete agency information. Not all approvals apply to all ratings.

##### Features and Benefits

- Fast-acting for maximum protection.
- High break capacity for use in higher fault energy electronic circuitry.
- Conforming to IEC standards.

##### Typical Applications

- Electronic Circuits

##### Catalog Numbers (Amps)

| Catalog Numbers | I <sup>2</sup> t | Typical Voltage Drop (mV) |
|-----------------|------------------|---------------------------|
| S501-50-R       | 0.0017           | 9000                      |
| S501-63-R       | 0.0005           | 3300                      |
| S501-80-R       | 0.0011           | 2600                      |
| S501-100-R      | 0.0018           | 2300                      |
| S501-125-R      | 0.0037           | 1900                      |
| S501-160-R      | 0.008            | 1600                      |
| S501-200-R      | 0.020            | 1350                      |
| S501-250-R      | 0.027            | 1300                      |
| S501-315-R      | 0.010            | 1400                      |
| S501-400-R      | 0.018            | 1200                      |
| S501-500-R      | 0.038            | 1050                      |
| S501-630-R      | 0.064            | 1200                      |
| S501-800-R      | 0.097            | 490                       |
| S501-1-R        | 0.146            | 330                       |
| S501-1.25-R     | 0.313            | 297                       |
| S501-1.6-R      | 0.748            | 239                       |
| S501-2-R        | 2.0              | 205                       |
| S501-2.5-R      | 3.9              | 190                       |
| S501-3.15-R     | 8.1              | 160                       |
| S501-4-R        | 14               | 160                       |
| S501-5-R        | 25               | 155                       |
| S501-6.3-R      | 48               | 150                       |
| S501-8-R        | N/A              | N/A                       |
| S501-10-R       | N/A              | N/A                       |

##### Options

Axial leads, put "V" in P/N.

\*When ordering GDA version, do not add "-R" suffix to part number.

\*\*GDA is not available above 6.3A.

Data Sheet: 2051 (S501), 2014 (GDA)

### S505-V (axial leads)

#### S505

##### Specifications

**Description:** Time-delay, high-breaking capacity fuse.

##### Construction:

Ceramic tube, silver-plated brass endcaps.

##### Ratings:

Volts — 250Vac (or less)

— 32Vdc (Self Certified)

Amps — 500mA-12A

IR — 1500A @ 250Vac

**Agency Information:** UL, CSA, SEMKO, VDE, BSI, IMQ, PSE/JET, CCC, EK, FIMKO.

See data sheet for complete agency information. Not all approvals apply to all ratings.

##### Features and Benefits

- Time-delay performance ideal for inductive circuits.
- Conforming to IEC standards.

##### Typical Applications

- Electronic Circuits

##### Catalog Numbers (Amps)

| Catalog Numbers | Typical I <sup>2</sup> t | Max Voltage Drop (mV) |
|-----------------|--------------------------|-----------------------|
| S505-500-R      | 0.188*                   | 295                   |
| S505-800-R      | 0.632*                   | 189                   |
| S505-1-R        | 1.28                     | 152.5                 |
| S505-1.25-R     | 2.22                     | 150                   |
| S505-1.6-R      | 6.78                     | 125                   |
| S505-2-R        | 9.60                     | 118.5                 |
| S505-2.5-R      | 16.60                    | 115                   |
| S505-3.15-R     | 36.60                    | 102.5                 |
| S505-4-R        | 38.45*                   | 86.5                  |
| S505-5-R        | 71.30*                   | 77.5                  |
| S505-6.3-R      | 197                      | 75                    |
| S505-8-R        | 311                      | 75                    |
| S505-10-R       | 397                      | 72                    |
| S505-12-R       | 713.7*                   | 77                    |

\*The typical I<sup>2</sup>t value was measured at 10 times of rated current under DC.

##### Options

Axial leads, put "V" in P/N.

Data Sheet: 2037

Electronic  
Fuses

# 5 x 20mm European (IEC) Ferrule Fuses

## S505H (S505H-V)\* (axial leads)

### Specifications

**Description:** Time-delay, high-breaking capacity fuse.

### Construction:

Ceramic tube, nickel-plated brass endcaps.

### Ratings:

- Volts — 600Vac/400Vdc
- 500mA-5A
- 6.3A-10A
- 500Vac/400Vdc

- Amps — 500mA-10A
- IR — 35A @ 250Vac

**Agency Information:** cURus, CCC, CQC, TUV, PSE/JET.

See data sheet for complete agency information. Not all approvals apply to all ratings.

### Features and Benefits

- Time-delay, high breaking capacity
- Conforming to IEC standards

### Typical Applications

- Power supplies - adapters
- Desktops/notebooks

### Catalog Numbers (Amps)

| Catalog Numbers | Typical $I^2t$ (A <sup>2</sup> s) <sup>1</sup> | Max Voltage Drop (mV) <sup>3</sup> |
|-----------------|--|------------------------------------|
| S505H-500-R     | 0.188  | 295                                |
| S505H-800-R     | 0.632  | 189                                |
| S505H-1-R       | 1.28   | 153                                |
| S505H-1.25-R    | 2.22   | 150                                |
| S505H-1.6-R     | 6.78   | 125                                |
| S505H-2-R       | 11.44  | 128                                |
| S505H-2.5-R     | 24.23  | 126                                |
| S505H-3.15-R    | 43.55  | 121                                |
| S505H-4-R       | 38.45  | 90                                 |
| S505H-5-R       | 71.3   | 89                                 |
| S505H-6.3-R     | 111.4  | 80                                 |
| S505H-8-R       | 228.2  | 76                                 |
| S505H-10-R      | 349.5  | 72                                 |

1. Typical Pre-Arc I<sup>2</sup>t: Measured at 10I<sub>n</sub> DC.  
 2. - Breaking Capacity of 250VAC/1500A is tested by all agency approvals, test condition is 250Vac, PF: 0.7-0.8.  
 - Breaking Capacity of Max. voltage is tested by UL, PF:1.  
 - Breaking Capacity Test of DC is tested by UL under Capacitor Bank 4800mF (for 400V, 1500A) 2400mF (for 400V, 500A).  
 3. Typical Voltage Drop: Voltage drop is measured under ambient 20°C with rated current.

### Options

Axial leads, put "V" in P/N.



## S506-V (GDC-V)\* (axial leads) S506 (GDC)\*

### Specifications

**Description:** Time-delay, low-breaking capacity fuse.

**Construction:** Glass tube, nickel-plated brass endcaps.

### Ratings:

- Volts — 250Vac (or less)
- 32Vdc (Self Certified)
- Amps — 32mA-15A\*\*
- IR — 35A @ 250Vac

**Agency Information:** UR, CSA, cURus, SEMKO, VDE, BSI, IMQ, PSE/JET, CCC.

See data sheet for complete agency information. Not all approvals apply to all ratings.

### Features and Benefits

- Time-delay compatibility for inductive circuits
- Conforming to IEC standards

### Typical Applications

- Electronic Circuits

### Catalog Numbers (Amps)

| Catalog Numbers | Typical $I^2t$ | Max Voltage Drop (mV) |
|-----------------|----------------|-----------------------|
| S506-32-R       | 0.0051         | 1050                  |
| S506-40-R       | 0.0072         | 920                   |
| S506-50-R       | 0.0095         | 800                   |
| S506-63-R       | 0.021          | 760                   |
| S506-80-R       | 0.038          | 580                   |
| S506-100-R      | 0.045          | 490                   |
| S506-125-R      | 0.063          | 390                   |
| S506-160-R      | 0.093          | 320                   |
| S506-200-R      | 0.114          | 340                   |
| S506-250-R      | 0.265          | 270                   |
| S506-315-R      | 0.621          | 250                   |
| S506-400-R      | 0.872          | 210                   |
| S506-500-R      | 0.827          | 140                   |
| S506-630-R      | 1.33           | 150                   |
| S506-800-R      | 2.78           | 75                    |
| S506-1-R        | 6.45           | 87.5                  |
| S506-1.25-R     | 10.05          | 86                    |
| S506-1.6-R      | 21.7           | 82                    |
| S506-2-R        | 31.6           | 77                    |
| S506-2.5-R      | 59.4           | 72.5                  |
| S506-3.15-R     | 96.4           | 68.5                  |
| S506-4-R        | 71.8           | 67                    |
| S506-5-R        | 142.5          | 60.5                  |
| S506-6.3-R      | 237.6          | 54                    |
| S506-8-R        | 255.8          | 55                    |
| S506-10-R       | 450            | 54                    |
| S506-12.5-R     | 1019.5         | 45                    |
| S506-15-R       | 1091.7         | 65.5                  |

### Options

Axial leads, put "V" in P/N.

\*When ordering GDC version, do not add "-R" suffix to part number.

\*\*GDC series is not available above 6.3A.





# 5 x 20mm North American (UL) Ferrule Fuses

## GMA-V (axial leads)

### GMA

#### Specifications

##### Description:

Fast-acting fuse.

##### Dimensions:

5 x 20mm  
(0.197" x 0.788").

##### Construction:

Glass tube,  
nickel-plated brass  
endcaps.



##### Ratings:

- Volts — 250Vac (63mA-2.5A)
- 125Vac (3.15-15A)
- 32Vdc (Self Certified)
- Amps — 63mA-15A
- IR — 35A (63mA- 1A @ 250Vac,  
p.f. = 0.7-0.8)
- 10kA (63mA-6A @ 125Vac,  
p.f. = 0.7-0.8)
- 100A (1.25-2.5A @ 250Vac,  
p.f. = 0.7-0.8)
- 200A (7-8A @ 125Vac, p.f. = 1.0)
- 150A (10-15A @ 125Vac,  
p.f. = 1.0)

**Agency Information:** CE, Std. 248-14, UL Listed Guide JDYX, File E19180, 0-6A, UL Recognized, Guide JDYX2, File E19180, 7-15A, CSA Certified, Class 1422-01, File 53787, 0-6.

#### Features and Benefits

- Fast-acting for maximum protection.

#### Typical Applications

- Electronic Circuits

#### Catalog Numbers (Amps)

##### With Axial Leads

|             |              |            |
|-------------|--------------|------------|
| GMA-V-63-R  | GMA-V-800-R  | GMA-V-4-R  |
| GMA-V-100-R | GMA-V-1-R    | GMA-V-5-R  |
| GMA-V-125-R | GMA-V-1.25-R | GMA-V-6-R  |
| GMA-V-200-R | GMA-V-1.5-R  | GMA-V-7-R  |
| GMA-V-250-R | GMA-V-1.6-R  | GMA-V-8-R  |
| GMA-V-300-R | GMA-V-2-R    | GMA-V-10-R |
| GMA-V-500-R | GMA-V-2.5-R  | GMA-V-15-R |
| GMA-V-600-R | GMA-V-3.15-R |            |
| GMA-V-750-R | GMA-V-3.5-R  |            |

##### Without Axial Leads

|           |            |          |
|-----------|------------|----------|
| GMA-63-R  | GMA-800-R  | GMA-4-R  |
| GMA-100-R | GMA-1-R    | GMA-5-R  |
| GMA-125-R | GMA-1.25-R | GMA-6-R  |
| GMA-200-R | GMA-1.5-R  | GMA-7-R  |
| GMA-250-R | GMA-1.6-R  | GMA-8-R  |
| GMA-300-R | GMA-2-R    | GMA-10-R |
| GMA-500-R | GMA-2.5-R  | GMA-15-R |
| GMA-600-R | GMA-3.15-R |          |
| GMA-750-R | GMA-3.5-R  |          |

Data Sheet: 2017

## GMC-V (axial leads)

### GMC

#### Specifications

**Description:** Medium time-delay fuse.

**Dimensions:** 5 x 20mm  
(0.197" x 0.788").

**Construction:** Glass tube, nickel-plated brass endcaps.

##### Ratings:

- Volts — 250Vac (63mA-3.15A)
- 125Vac (3.5-10A)
- 32Vdc (Self Certified)
- Amps — 63mA-10A
- IR — 35A (63mA- 1A @ 250Vac,  
p.f. = 0.7-0.8)
- 10kA (63mA-6A @ 125Vac, p.f. = 0.7-0.8)
- 100A (1.25-3.15A @ 250Vac,  
p.f. = 0.7-0.8)
- 200A (6.3-10A @ 125Vac, p.f. = 1.0)

**Agency Information:** CE, Std. 248-14, UL Listed Guide JDYX, File E19180, 0-6.3A, UL Recognized, Guide JDYX2, File E19180, 7-8A, CSA Certified, Class 1422-01, File 53787, 0-6.3A.

#### Features and Benefits

- Conforming to UL standards.

#### Typical Applications

- Electronic Circuits

#### Catalog Numbers (Amps)

##### With Axial Leads

|             |              |            |
|-------------|--------------|------------|
| GMC-V-63-R  | GMC-V-500-R  | GMC-V-2.5  |
| GMC-V-80-R  | GMC-V-600-R  | GMC-V-3.15 |
| GMC-V-100-R | GMC-V-630-R  | GMC-V-3.5  |
| GMC-V-125-R | GMC-V-750-R  | GMC-V-4    |
| GMC-V-150-R | GMC-V-800-R  | GMC-V-5    |
| GMC-V-200-R | GMC-V-1-R    | GMC-V-6    |
| GMC-V-250-R | GMC-V-1.25-R | GMC-V-6.3  |
| GMC-V-300-R | GMC-V-1.5-R  | GMC-V-7    |
| GMC-V-315-R | GMC-V-1.6-R  | GMC-V-8    |
| GMC-V-400-R | GMC-V-2-R    | GMC-V-10   |

##### Without Axial Leads

|           |            |            |
|-----------|------------|------------|
| GMC-63mA  | GMC-500-R  | GMC-2.5-R  |
| GMC-80mA  | GMC-600-R  | GMC-3.15-R |
| GMC-100mA | GMC-630-R  | GMC-3.5-R  |
| GMC-125mA | GMC-750-R  | GMC-4-R    |
| GMC-150mA | GMC-800-R  | GMC-5-R    |
| GMC-200mA | GMC-1-R    | GMC-6-R    |
| GMC-250mA | GMC-1.25-R | GMC-6.3-R  |
| GMC-300mA | GMC-1.5-R  | GMC-7-R    |
| GMC-315mA | GMC-1.6-R  | GMC-8-R    |
| GMC-400mA | GMC-2-R    | GMC-10-R   |

Data Sheet: 4395



## GMD-V (axial leads)

### GMD

#### Specifications

**Description:** Time-delay fuse.

**Dimensions:** 5 x 20mm  
(0.197" x 0.788").

##### Construction:

Glass tube, nickel-plated brass endcaps.



##### Ratings:

- Volts — 250Vac
- 32Vdc (Self Certified)
- Amps — 125mA-4A
- IR — 10kA (125mA-3A @ 125Vac,  
p.f. = 0.7-0.8)
- 10kA (4A @ 125Vac,  
p.f. = 1.0)
- 35A (125mA-1A @ 250Vac,  
p.f. = 0.7-0.8)
- 100A (1.2A-3.A @ 250Vac,  
p.f. = 0.7-0.8)
- 200A (4A @ 250Vac,  
p.f. = 1.0)

**Agency Information:** CE, UL Listed Guide JDYX, File E19180, 125mA-3A, UL Recognized, Guide JDYX2, File E19180, 4A, CSA Certified, Class 1422-01, File 53787, 0-4A, PSE/JET. File 1641-31003-1001, 1.2A-4A.

#### Features and Benefits

- Time-delay compatibility for inductive circuits.
- Conforming to UL standards.

#### Typical Applications

- Electronic Circuits

#### Catalog Numbers (Amps)

##### With Axial Leads

|             |              |             |
|-------------|--------------|-------------|
| GMD-V-125-R | GMD-V-500-R  | GMD-V-1.5-R |
| GMD-V-150-R | GMD-V-600-R  | GMD-V-1.6-R |
| GMD-V-200-R | GMD-V-630-R  | GMD-V-2-R   |
| GMD-V-250-R | GMD-V-750-R  | GMD-V-2.5-R |
| GMD-V-300-R | GMD-V-800-R  | GMD-V-3-R   |
| GMD-V-315-R | GMD-V-1-R    | GMD-V-4-R   |
| GMD-V-375-R | GMD-V-1.2-R  |             |
| GMD-V-400-R | GMD-V-1.25-R |             |

##### Without Axial Leads

|           |            |           |
|-----------|------------|-----------|
| GMD-125-R | GMD-500-R  | GMD-1.5-R |
| GMD-150-R | GMD-600-R  | GMD-1.6-R |
| GMD-200-R | GMD-630-R  | GMD-2-R   |
| GMD-250-R | GMD-750-R  | GMD-2.5-R |
| GMD-300-R | GMD-800-R  | GMD-3-R   |
| GMD-315-R | GMD-1-R    | GMD-4-R   |
| GMD-375-R | GMD-1.2-R  |           |
| GMD-400-R | GMD-1.25-R |           |

Data Sheet: 2019

# 1/4" Dia. x 5/8" to 1" Length Ferrule Fuses

## AGA

### Specifications

**Description:** Fast-acting fuse.

### Dimensions:

1/4" x 5/8"  
(6.4 x 15.9mm).

**Construction:** Glass tube.

### Ratings:

Volts — 125Vac (or less)  
— 32Vdc (Self Certified)

Amps — 1-30A

IR — 10kA (1-1 1/2A @ 125Vac)  
— 200A (2-5A @ 125Vac)  
— 1000A (6-30A @ 32Vac)

**Agency Information:** CE, Std. 248-14, UL File E19180, UL Listed, Guide JDYX 0-3 1/2A UL Recognized, Guide JDYX2 12-30A.

### Features and Benefits

- Fast-acting for maximum protection.
- Size rejects insertion of other fuse types.

### Typical Applications

- Electronic Circuits

### Catalog Numbers (Amps)

|           |           |        |
|-----------|-----------|--------|
| AGA-1     | AGA-5     | AGA-15 |
| AGA-1-1/2 | AGA-6     | AGA-20 |
| AGA-2     | AGA-7     | AGA-25 |
| AGA-2-1/2 | AGA-7-1/2 | AGA-30 |
| AGA-3     | AGA-10    |        |



## AGW

### Specifications

**Description:** Fast-acting fuse.

**Dimensions:** 1/4" x 7/8"  
(6.4 x 22.2mm).

**Construction:** Glass tube.

### Ratings:

Volts — 32Vac  
— 32Vdc (Self Certified)

Amps — 1-30A

### Features and Benefits

- Fast-acting for maximum protection.

### Typical Applications

- Electronic Circuits

### Catalog Numbers (Amps)

|           |           |        |
|-----------|-----------|--------|
| AGW-1     | AGW-4     | AGW-15 |
| AGW-1-1/2 | AGW-5     | AGW-20 |
| AGW-2     | AGW-6     | AGW-25 |
| AGW-2-1/2 | AGW-7-1/2 | AGW-30 |
| AGW-3     | AGW-10    |        |



## AGX

### Specifications

**Description:** Fast-acting fuse.

**Dimensions:** 1/4" x 1"  
(6.4 x 25.4mm).

**Construction:** Glass tube.

### Ratings:

Volts — 250Vac (1/6-20A)  
— 125Vac (25-30A)  
— 32Vdc (1/6-30A)

Amps — 1/6-30A

IR — 35A (1/6-1A @ 250Vac)  
— 10kA (1/6-10A @ 125Vac)  
— 200A (15-20A @ 125Vac)  
— 100A (25-30A @ 125Vac)  
— 1000A (8-30A @ 32Vac)

**Agency Information:** cULus: AGX 0-10A (Guide JDYX, File E 19180 and Guide JDYX7, File E19180), UL Recognized Card: AGX 15-30A (Guide JDYX2, File E19180), CSA Component Acceptance Card : AGX 15-30A (Class No. 1422-01, File 53787)

### Features and Benefits

- Size rejects insertion of other fuse types.

### Typical Applications

- Electronic Circuits

### Catalog Numbers (Amps)

|           |           |        |
|-----------|-----------|--------|
| AGX-1/4   | AGX-1-1/2 | AGX-8  |
| AGX-3/16  | AGX-2     | AGX-10 |
| AGX-3/8   | AGX-2-1/2 | AGX-15 |
| AGX-1/2   | AGX-3     | AGX-20 |
| AGX-5/8   | AGX-4     | AGX-25 |
| AGX-3/4   | AGX-5     | AGX-30 |
| AGX-1     | AGX-6     |        |
| AGX-1-1/4 | AGX-7     |        |



# 1/4" Dia. x 1 1/4" Length Fast-acting Ferrule Fuses

## AGC (AGC-V axial leads)

### Specifications

#### Description:

Fast-acting fuse.

**Dimensions:** 1/4" x 1 1/4"  
(6.4 x 31.7mm).

**Construction:** Glass tube with nickel-plated brass endcaps.

#### Ratings:

- Volts — 250Vac (1/20-10A)
- 32Vac (12-30A)
- 32Vdc (Self Certified)
- Amps — 1/20-30A
- IR — 35A (1/20-1A @ 250Vac)
- 100A (1 1/4-3A @ 250Vac)
- 200A (4-10A @ 250Vac)
- 10kA (1/20-10A @ 125Vac)
- 1000A (12-30A @ 32Vdc)



RoHS

**Agency Information:** CE, UL Listed, Guide JDYX, File E19180, 0-10A UL Recognized, Guide JDYX2, File E19180, 12-30A CSA Certification, Class 1422-01, File 053787, 1/20-30A.

### Features and Benefits

- Original electronic glass tube fuse.
- Fast-acting for maximum protection.
- Wide amp/volt ratings allow versatility of protecting electronic circuits.

### Typical Applications

- Electronic Circuits

### Catalog Numbers (Amps)

#### With Axial Leads

|              |               |            |
|--------------|---------------|------------|
| AGC-V-1/20-R | AGC-V-1-1/4-R | AGC-V-8-R  |
| AGC-V-1/10-R | AGC-V-1-1/2-R | AGC-V-9-R  |
| AGC-V-1/8-R  | AGC-V-2-R     | AGC-V-10-R |
| AGC-V-3/10-R | AGC-V-2-1/4-R | AGC-V-12-R |
| AGC-V-1/4-R  | AGC-V-2-1/2-R | AGC-V-14-R |
| AGC-V-3/8-R  | AGC-V-3-R     | AGC-V-15-R |
| AGC-V-3/10-R | AGC-V-4-R     | AGC-V-20-R |
| AGC-V-1/2-R  | AGC-V-5-R     | AGC-V-25-R |
| AGC-V-1/2-R  | AGC-V-6-R     | AGC-V-30-R |
| AGC-V-3/4-R  | AGC-V-7-R     |            |
| AGC-V-1-R    | AGC-V-7-1/2-R |            |

#### Without Axial Leads

|            |             |          |
|------------|-------------|----------|
| AGC-1/20-R | AGC-1-1/4-R | AGC-8-R  |
| AGC-1/10-R | AGC-1-1/2-R | AGC-9-R  |
| AGC-1/8-R  | AGC-2-R     | AGC-10-R |
| AGC-3/10-R | AGC-2-1/4-R | AGC-12-R |
| AGC-1/4-R  | AGC-2-1/2-R | AGC-14-R |
| AGC-3/8-R  | AGC-3-R     | AGC-15-R |
| AGC-3/10-R | AGC-4-R     | AGC-20-R |
| AGC-1/2-R  | AGC-5-R     | AGC-25-R |
| AGC-1/2-R  | AGC-6-R     | AGC-30-R |
| AGC-3/4-R  | AGC-7-R     |          |
| AGC-1-R    | AGC-7-1/2-R |          |

Data Sheet: 2001

## ABC (ABC-V axial leads)

### Specifications

**Description:** Fast-acting fuse.

**Dimensions:** 1/4" x 1 1/4"  
(6.4 x 31.7mm).

**Construction:** Ceramic tube with nickel-plated brass endcaps.

#### Ratings:

- Volts — 250Vac/125Vdc (1/4-15A, 20-30A)\*
- 250Vac (18A)
- 32Vdc (Self Certified)
- Amps — 1/4-30A
- IR\*\* — 35A (1/4-1A @ 250Vac)
- 100A (1 1/4-3A @ 250Vac)
- 200A (4-10A @ 250Vac)
- 750A (12-15A @ 250Vac)
- 400A (18-20A @ 250Vac)
- 10kA (1/4-15A @ 125Vac)
- 1kA (18-30A @ 125Vac)
- 10kA (1/4-15, 20A @ 125Vdc)
- 400A (25-30A @ 125Vdc)
- 200A (25-30A @ 250Vac)



RoHS

\*CSA approvals for 25A and 30A are at 125Vac - IR 1000A and Vdc - IR 400A (IR 1000A at 75Vdc)

\*\*Interrupting ratings measured at 70% - 80% power factor on AC. The interrupting ratings for 18A and 20A were measured at 85%-95% power factor on AC. The interrupting ratings for 25A and 30A were measured at 89% power factor on AC.

**Agency Information:** CE, Std. 248-14 UL Listed, Guide JDYX File E19180, 1/4-15A; UL Recognized, Guide JDYX2, File E19180, 18-30A; CSA Certification, Class 1422-01 & 1422-30, File 53787, 1/4-30A.

### Features and Benefits

- Ceramic body allows for higher amp/volt rating combinations.

### Typical Applications

- Electronic Circuits

### Catalog Numbers (Amps)

#### With Axial Leads

|               |            |            |
|---------------|------------|------------|
| ABC-V-1/4-R   | ABC-V-3-R  | ABC-V-12-R |
| ABC-V-1/2-R   | ABC-V-4-R  | ABC-V-15-R |
| ABC-V-3/4-R   | ABC-V-5-R  | ABC-V-18-R |
| ABC-V-1-R     | ABC-V-6-R  | ABC-V-20-R |
| ABC-V-1-1/2-R | ABC-V-7-R  | ABC-V-25-R |
| ABC-V-2-R     | ABC-V-8-R  | ABC-V-30-R |
| ABC-V-2-1/2-R | ABC-V-10-R |            |

#### Without Axial Leads

|             |          |          |
|-------------|----------|----------|
| ABC-1/4-R   | ABC-3-R  | ABC-12-R |
| ABC-1/2-R   | ABC-4-R  | ABC-15-R |
| ABC-3/4-R   | ABC-5-R  | ABC-18-R |
| ABC-1-R     | ABC-6-R  | ABC-20-R |
| ABC-1-1/2-R | ABC-7-R  | ABC-25-R |
| ABC-2-R     | ABC-8-R  | ABC-30-R |
| ABC-2-1/2-R | ABC-10-R |          |

Data Sheet: 2000

## GBB (GBB-V axial leads)

### Specifications

**Description:** Very fast-acting fuse.

**Dimensions:** 1/4" x 1 1/4"  
(6.4 x 31.7mm).

**Construction:** Ceramic cartridge with nickel-plated brass endcaps.

#### Ratings:

- Volts — 250Vac/125Vdc
- Amps — 1-30A
- IR — 200A @ 250Vac
- 200A (20-30A @ 125Vac/dc)
- 10,000A (1A -15A @ 125Vac/dc)



RoHS

### Agency Information:

CE, Std. 248-14, UL Recognized, 1-30, 125Vdc/250Vac, File E56412, Guide JFHR2, CSA Accepted, 1-30, 125Vdc/250Vac, File 53787, Class 1422-30.

### Features and Benefits

- Very fast-acting performance allows protection of highly sensitive electronic circuitry.

### Typical Applications

- Electronic Circuits

### Catalog Numbers (Amps)

#### With Axial Leads

|               |            |            |
|---------------|------------|------------|
| GBB-V-1-R     | GBB-V-6-R  | GBB-V-15-R |
| GBB-V-1-1/4-R | GBB-V-7-R  | GBB-V-20-R |
| GBB-V-2-R     | GBB-V-8-R  | GBB-V-25-R |
| GBB-V-3-R     | GBB-V-9-R  | GBB-V-30-R |
| GBB-V-4-R     | GBB-V-10-R |            |
| GBB-V-5-R     | GBB-V-12-R |            |

#### Without Axial Leads

|             |          |          |
|-------------|----------|----------|
| GBB-1-R     | GBB-6-R  | GBB-15-R |
| GBB-1-1/4-R | GBB-7-R  | GBB-20-R |
| GBB-2-R     | GBB-8-R  | GBB-25-R |
| GBB-3-R     | GBB-9-R  | GBB-30-R |
| GBB-4-R     | GBB-10-R |          |
| GBB-5-R     | GBB-12-R |          |

Data Sheet: 2013

# 1/4" Dia. x 1 1/4" Length Time-delay Ferrule Fuses

## MDL-V (axial leads)

### MDL

#### Specifications

##### Description:

Time-delay fuse.

**Dimensions:** 1/4" x 1 1/4"  
(6.4 x 31.7mm).

**Construction:** Glass tube with nickel-plated brass endcaps.

#### Ratings:

- Volts — 250Vac (1/6-8A) ◆ RoHS
- 32Vac (9-30A)
- 32Vdc (Self Certified)
- Amps — 1/6-30A
- IR\* — 35A (1/6-1A @ 250Vac)
- 100A (1 1/4-3A @ 250Vac)
- 200A (4-8A @ 250Vac)
- 10000A (1/6-8A @ 125Vac)
- 1000A (9-30A @ 32Vac)



\*Interrupting ratings were measured at 70% – 80% power factor on AC, and at a time constant described in UL 198L.

**Agency Information:** CE, UL Listed, Guide JDYX, File E19180, 1/6-8A; CSA Certification Class 1422-01, 1/6-8A; UL Recognized, Guide JDYX2, File E19180, 9-30A; CSA Component Acceptance, Class 142230, 9-30A.

#### Features and Benefits

- Time-delay allows close sizing on inductive circuits.

#### Typical Applications

- Electronic Circuits

#### Catalog Numbers (Amps)

##### With Axial Leads

|              |               |            |
|--------------|---------------|------------|
| MDL-V-1/6-R  | MDL-V-1-R     | MDL-V-7-R  |
| MDL-V-1/10-R | MDL-V-1-1/4-R | MDL-V-8-R  |
| MDL-V-1/8-R  | MDL-V-1-1/2-R | MDL-V-9-R  |
| MDL-V-3/16-R | MDL-V-2-R     | MDL-V-10-R |
| MDL-V-1/4-R  | MDL-V-2-1/2-R | MDL-V-12-R |
| MDL-V-3/8-R  | MDL-V-2-1/2-R | MDL-V-15-R |
| MDL-V-1/2-R  | MDL-V-3-R     | MDL-V-20-R |
| MDL-V-3/4-R  | MDL-V-4-R     | MDL-V-25*  |
| MDL-V-5/8-R  | MDL-V-5-R     | MDL-V-30*  |
| MDL-V-3/4-R  | MDL-V-6-R     |            |

##### Without Axial Leads

|            |             |          |
|------------|-------------|----------|
| MDL-1/6-R  | MDL-1-R     | MDL-7-R  |
| MDL-1/10-R | MDL-1-1/4-R | MDL-8-R  |
| MDL-1/8-R  | MDL-1-1/2-R | MDL-9-R  |
| MDL-3/16-R | MDL-2-R     | MDL-10-R |
| MDL-1/4-R  | MDL-2-1/2-R | MDL-12-R |
| MDL-3/8-R  | MDL-2-1/2-R | MDL-15-R |
| MDL-1/2-R  | MDL-3-R     | MDL-20-R |
| MDL-3/4-R  | MDL-4-R     | MDL-25*  |
| MDL-5/8-R  | MDL-5-R     | MDL-30*  |

\*MDL-25 & MDL-30 are not available in RoHS compliant construction.

Data Sheet:2004

## MDQ-V (axial leads)

### MDQ

#### Specifications

##### Description:

Dual-element, time-delay fuse.

**Dimensions:** 1/4" x 1 1/4"  
(6.4 x 31.7mm).

**Construction:** Glass tube with nickel-plated brass endcaps.

#### Ratings:

- Volts — 250Vac (1/100-7A)
- 32Vac (7 1/2-15A)
- 32Vdc (Self Certified)
- Amps — 1/100-15A
- IR — 35A (1/100-1A @ 250Vac)
- 100A (1 1/4-3A @ 250Vac)
- 200A (4-7A @ 250Vac)
- 1000A (7 1/2-12A @ 32Vac)



**Agency Information:** Std. 248-14, UL Listed, File E19180; Guide JDYX, 1/6-7A CSA Certification, File 47233, Class 1422-01, 1/6-7A, UL Recognized, Guide JDYX2, File E19180, 7.1-30A.

#### Features and Benefits

- Dual-element design allows closer sizing to inductive circuits than any other fuses.

#### Typical Applications

- Electronic Relay and Control Circuits

#### Catalog Numbers (Amps)

##### With Axial Leads

|                |              |              |             |
|----------------|--------------|--------------|-------------|
| MDQ-V-1/100    | MDQ-V-1/50   | MDQ-V-1-1/2  | MDQ-V-5     |
| MDQ-V-1/50     | MDQ-V-1/25   | MDQ-V-1-1/10 | MDQ-V-6     |
| MDQ-V-1/16     | MDQ-V-1/10   | MDQ-V-1-1/10 | MDQ-V-6-1/2 |
| MDQ-V-1/10     | MDQ-V-1/5    | MDQ-V-2      | MDQ-V-7     |
| MDQ-V-1/5      | MDQ-V-1/5    | MDQ-V-2-1/4  | MDQ-V-7-1/2 |
| MDQ-V-15/100   | MDQ-V-3/4    | MDQ-V-2-1/2  | MDQ-V-8     |
| MDQ-V-175/1000 | MDQ-V-1      | MDQ-V-2-1/2  | MDQ-V-9     |
| MDQ-V-3/16     | MDQ-V-1      | MDQ-V-3      | MDQ-V-10    |
| MDQ-V-1/8      | MDQ-V-1-1/10 | MDQ-V-3-3/10 | MDQ-V-12    |
| MDQ-V-1/4      | MDQ-V-1-1/4  | MDQ-V-4      | MDQ-15      |

##### Without Axial Leads

|              |            |            |           |
|--------------|------------|------------|-----------|
| MDQ-1/100    | MDQ-1/50   | MDQ-1-1/2  | MDQ-5     |
| MDQ-1/50     | MDQ-1/25   | MDQ-1-1/10 | MDQ-6     |
| MDQ-1/16     | MDQ-1/10   | MDQ-1-1/10 | MDQ-6-1/2 |
| MDQ-1/10     | MDQ-1/5    | MDQ-2      | MDQ-7     |
| MDQ-1/5      | MDQ-1/5    | MDQ-2-1/4  | MDQ-7-1/2 |
| MDQ-15/100   | MDQ-3/4    | MDQ-2-1/2  | MDQ-8     |
| MDQ-175/1000 | MDQ-1      | MDQ-2-1/2  | MDQ-9     |
| MDQ-3/16     | MDQ-1      | MDQ-3      | MDQ-10    |
| MDQ-1/8      | MDQ-1-1/10 | MDQ-3-3/10 | MDQ-12    |
| MDQ-1/4      | MDQ-1-1/4  | MDQ-4      | MDQ-15    |

Data Sheet: 2044

## MDA-V (axial leads)

### MDA

#### Specifications

##### Description:

Time-delay fuse.

**Dimensions:** 1/4" x 1 1/4" (6.35 x 31.75mm).

**Construction:** Ceramic tube with nickel-plated brass endcaps.

#### Ratings:

- Volts — 250Vac (or less) ◆ RoHS
- 125Vdc (20A- 30A)
- 32Vdc (Self Certified)
- Amps — 1/4-30A
- IR\*\* — 35A (1/4-1A @ 250Vac)
- 100A (1 1/2-2A @ 250Vac)
- 200A (2 1/2-10A @ 250Vac)
- 750A (12-15A @ 250Vac)
- 1500A (20-30A @ 250Vac)
- 10kA (1/4-30A @ 125Vac)
- 10kA (20-30A @ 125Vdc)



\*\*Interrupting ratings were measured at 70% – 80% power factor on AC, and at a time constant described in UL 248.

**Agency Information:** CE, Std. 248-14, UL Listed, Guide JDYX, File E19180, 0-20A CSA Certification, Class 1422-01, File 53787, 0-20A. UL Recognized, Guide JDYX2, File E19180, 25-30A, CSA Component Acceptance, Class 1422-30, 25-30A

#### Features and Benefits

- Ceramic body allows for higher amp/volt rating combinations.
- Inventory consolidation by replacing MDL fuses allows for reduced SKU investment and minimizing potential for misapplying fuse.

#### Typical Applications

- Electronic Circuits

#### Catalog Numbers (Amps)

##### With Axial Leads

|               |            |            |
|---------------|------------|------------|
| MDA-V-1/4-R   | MDA-V-3-R  | MDA-V-12-R |
| MDA-V-1/2-R   | MDA-V-4-R  | MDA-V-15-R |
| MDA-V-3/4-R   | MDA-V-5-R  | MDA-V-20-R |
| MDA-V-1-R     | MDA-V-6-R  | MDA-V-25-R |
| MDA-V-1-1/2-R | MDA-V-7-R  | MDA-V-30-R |
| MDA-V-2-R     | MDA-V-8-R  |            |
| MDA-V-2-1/2-R | MDA-V-10-R |            |

##### Without Axial Leads

|             |          |           |
|-------------|----------|-----------|
| MDA-1/4-R   | MDA-3-R  | MDA-12-R  |
| MDA-1/2-R   | MDA-4-R  | MDA-15-R  |
| MDA-3/4-R   | MDA-5-R  | MDA-20-R  |
| MDA-1-R     | MDA-6-R  | MDA-25A-R |
| MDA-1-1/2-R | MDA-7-R  | MDA-30A-R |
| MDA-2-R     | MDA-8-R  |           |
| MDA-2-1/2-R | MDA-10-R |           |

Data Sheet: 2002



# PC Board Mount Fuse Holders

## HTC-45M



### PCB Vertical Mount

#### Specifications

**Description:** PCB vertical mount bayonet cap and fuse holder.

**Dimensions:** See Dimensions illustration.

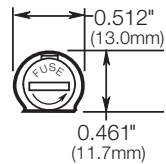
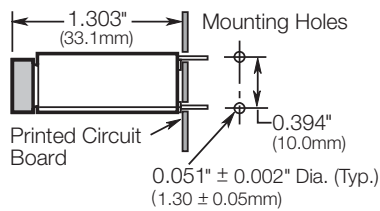
#### Ratings:

See Specifications table.

#### Agency Information:

See Specifications table notes 1, 2, 5.

#### Dimensions - in (mm)



Data Sheet 2110

## HTC-50M



### PCB Horizontal Mount

#### Specifications

**Description:** PCB horizontal mount bayonet cap and fuse holder.

**Dimensions:** See Dimensions illustration.

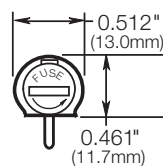
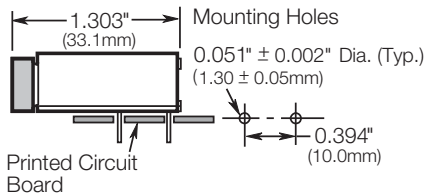
#### Ratings:

See Specifications table.

#### Agency Information:

See Specifications table notes 1, 2.

#### Dimensions - in (mm)



Data Sheet 2110

## HTC-60M



### PCB Stand-Off Mount

#### Specifications

**Description:** Four-leg PCB stand-off fuse holder.

**Dimensions:** See Dimensions illustration.

#### Ratings:

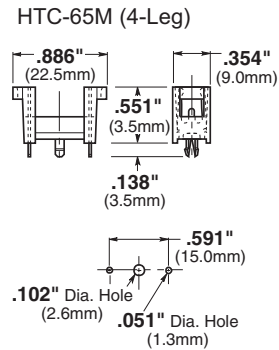
Volts: — 250V

Amps: — 6.3A

#### Agency Information:

See Specifications table notes 1, 4.

#### Dimensions - in (mm)



Data Sheet 2110

### Specifications

**Terminals** — Tin-plated brass with 3mm (HTC-35M, -55M) and 4.8mm (HTC-70M).

**Molded Materials** — High temperature thermoplastic that meets the flammability ratings of UL 94VO; Glow Wire Test: 960°C per IEC 695-2-1.

**Solderability** — In accordance with IEC 68-2-20.

**Electrical** — Contact Resistance: ≤10mW; Insulation Resistance: ≥10MW; Dielectric Strength ≥2000Vac.

**Shock Safety** — PC2 (fuse holders).

#### Agency Information:

- 1) cURus: Guide 1ZLT2 & 1ZLT8, File E14853
- 2) VDE: 40004457
- 3) VDE: 40004458
- 4) VDE: 40004459
- 5) VDE: 40004463



# PC Board Mount Fuse Holders

## HBH-I (for 1/4" x 1 1/4" fuses)

## HBH-M (for 5 x 20mm fuses)

### PCB Horizontal Mount

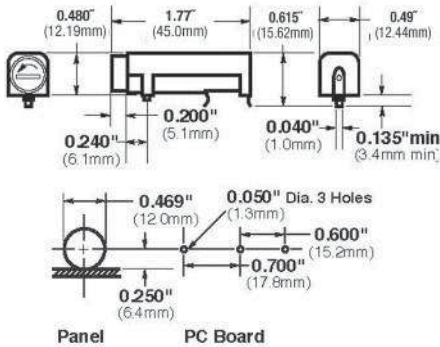
#### Specifications

**Description:** PCB horizontal mount fuse holder.

**Dimensions:** See Dimensions illustration.

**Ratings:** See Specifications table.

#### Dimensions - in (mm)



Data Sheet: 2118

## HBV-I (for 1/4" x 1 1/4" fuses)

## HBV-M (for 5 x 20mm fuses)

### PCB Vertical Mount with Stability Pins

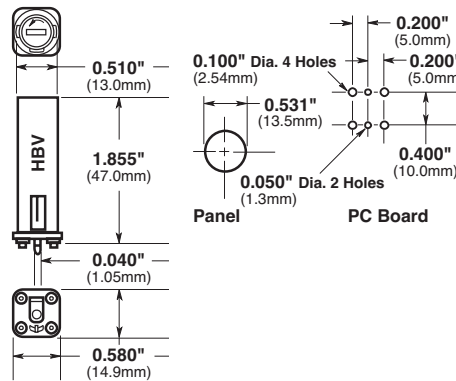
#### Specifications

**Description:** PCB vertical mount fuse holder with stability pins.

**Dimensions:** See Dimensions illustration.

**Ratings:** See Specifications table.

#### Dimensions - in (mm)



Data Sheet: 2118

## HBW-I (for 1/4" x 1 1/4" fuses)

## HBW-M (for 5 x 20mm fuses)

### PCB Vertical Mount without Stability Pins

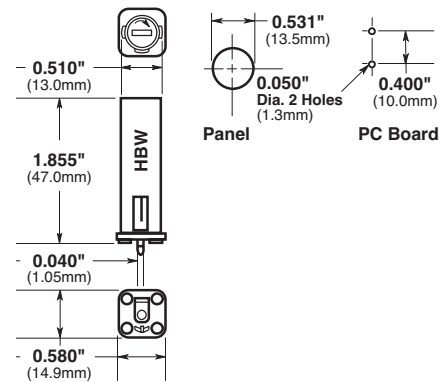
#### Specifications

**Description:** PCB vertical mount fuse holder without stability pins.

**Dimensions:** See Dimensions illustration.

**Ratings:** See Specifications table.

#### Dimensions - in (mm)



Data Sheet: 2118



FBI



FBM

### Fuse Holder Caps (Fit all three shown above)

#### Specifications

**Electrical Ratings:** UL — 16A @ 250V; CSA — 12A @ 250V; VDE — 6.3A @ 250V; SEMKO — 10A @ 250V  
**Insulation resistance** — 10 megohm at 500Vdc. **Contact resistance** — less than 0.005 ohms @ 200mV. **Dielectric strength** — over 200V/mil.

**Molded Material:** High dielectric molded phenolic with a UL 94V0 flammability rating.

**Fuse Carrier & Knob:** Spring-loaded, bayonet-type. Tin plated brass. Screwdriver slotted.

**Mounting:** "Kicked" terminals (all models) and stabilizer pins on HBV & HBW models for increased stability.

**Temperature Rating (RTI):** Body: 150°C, Knob: 130°C

**Agency Information:** CE, UL Recognized — Guide IZLT2, File EI4853;  
 CSA Certified — Class 6225-01, File 47235  
 VDE — 4009241 (HBV, HBW)  
 SEMKO — 800444

# PC Board Fuseclips for 5mm Diameter Fuses

## HTC-15M, HTC-140M

### PCB Mounted Fuse Holder & Snap-On Cover

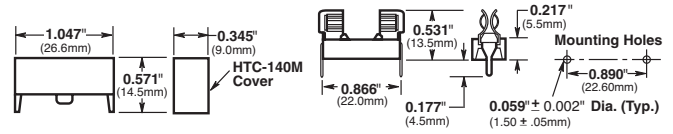
Voltage Rating: 250V, 6.3A, 1.6W

HTC-15M (fuse holder), HTC-140M (natural cover),  
HTC-150M\* (transparent cover)



**Agency Information:** See Specifications table notes 1, 3  
on bottom of page 65

\*Available in bulk only. Use this format: BK/HTC-150M  
**Data Sheet: 2110**



## HTC-200M

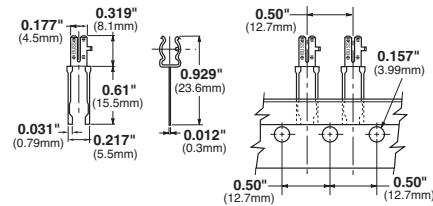
### PCB Mounted Fuseclip

Construction: Tin-plated bronze

Tape and Fan Fold packed

Ammo Pack (AP/HTC-200M) 1000 pieces per box

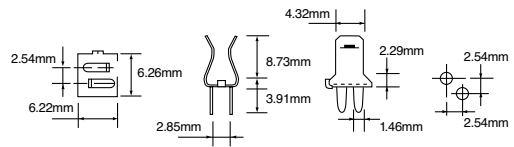
**Data Sheet: 2110**



## HTC-210M

### PCB Mounted Fuseclip with End Stops

**Data Sheet: 2110**



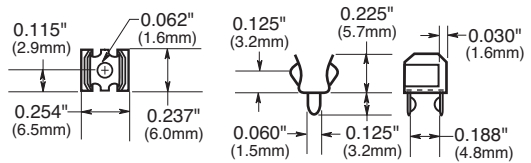
## 1A3399 Series

### PCB Fuseclips with End Stops & Straight Leads

| Catalog Numbers | Clip Material*    | Finish     |
|-----------------|-------------------|------------|
| 1A3399-01       | Beryllium copper* | Silver     |
| 1A3399-04-R     | Beryllium copper* | Bright tin |
| 1A3399-10-R     | Spring bronze     | Bright tin |

\*Beryllium copper recommended for amps higher than 15 amps.

**Data Sheet: 2131**



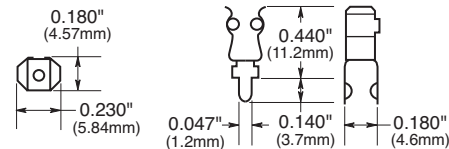
## 1A5018 Series

### PCB High Profile Fuseclips with End Stops & Straight Leads

| Catalog Numbers | Clip Material* | Finish     |
|-----------------|----------------|------------|
| 1A5018-7        | Spring bronze  | Silver     |
| 1A5018-10-R     | Spring bronze  | Bright tin |

\*Beryllium copper recommended for amps higher than 15 amps.

**Data Sheet: 2131**

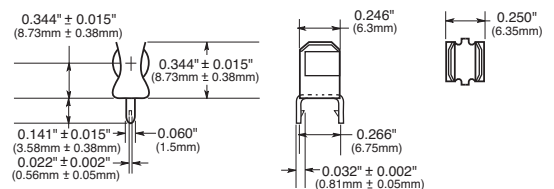


## 1A5601 Series

### PCB Fuseclips (0-7A)

| Catalog Number | Clip Material   | Finish     |
|----------------|-----------------|------------|
| 1A5601         | Cartridge brass | Bright tin |

**Data Sheet: 2131**

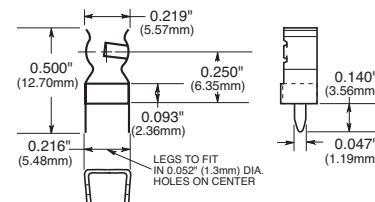


## 1A5602 Series

### PCB Fuseclips (0-7A)

| Catalog Number | Clip Material   | Finish     |
|----------------|-----------------|------------|
| 1A5602         | Cartridge brass | Bright tin |

**Data Sheet: 2131**

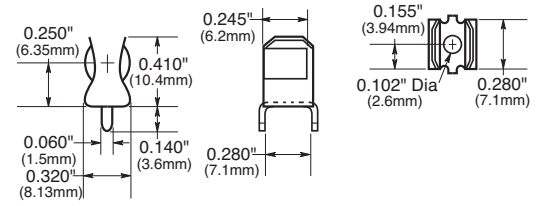


# PC Board Fuseclips for 1/4" Diameter Fuses

## 1A3398 Series

PCB Fuseclips without End Stops with Straight Leads

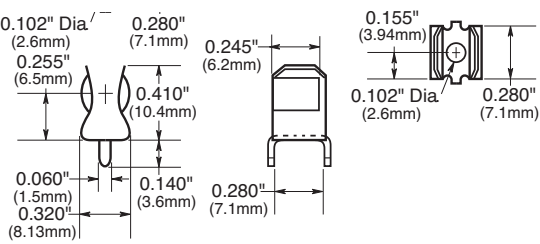
| Catalog Numbers | Clip Material   | Finish     |
|-----------------|-----------------|------------|
| 1A3398-07-R     | Cartridge brass | Bright tin |



## 1A1907 Series

PCB Fuseclips with End Stops & Straight Leads

| Catalog Numbers | Clip Material*           | Finish             |
|-----------------|--------------------------|--------------------|
| 1A1907-02       | Cartridge brass          | None/bright dipped |
| 1A1907-03-R     | High Performance Copper* | Bright tin         |
| 1A1907-05       | High Performance Copper* | Silver             |
| 1A1907-06-R     | Cartridge brass          | Bright tin         |



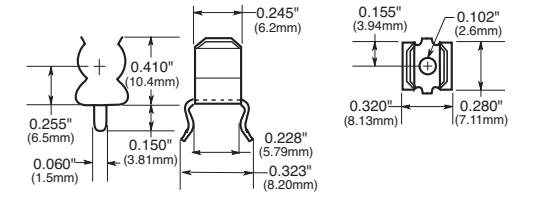
\*High Performance Copper recommended for amps higher than 15A.

Data Sheet: 2131

## 1A4533 Series

PCB Fuseclips without End Stops or Angled Out Leads

| Catalog Numbers | Clip Material*           | Finish     |
|-----------------|--------------------------|------------|
| 1A4533-01-R     | High Performance Copper* | Bright tin |
| 1A4533-06-R     | Cartridge brass          | Bright tin |



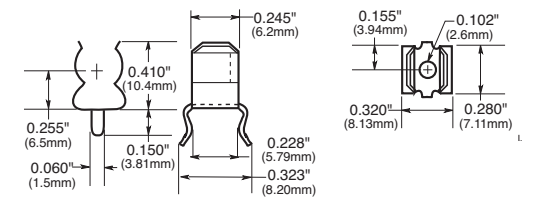
\*High Performance Copper recommended for amps higher than 15A.

Data Sheet: 2131

## 1A4534 Series

PCB Fuseclips with End Stops & Angled Out Leads

| Catalog Numbers | Clip Material*           | Finish     |
|-----------------|--------------------------|------------|
| 1A4534-01-R     | High Performance Copper* | Bright tin |
| 1A4534-06-R     | Cartridge brass          | Bright tin |



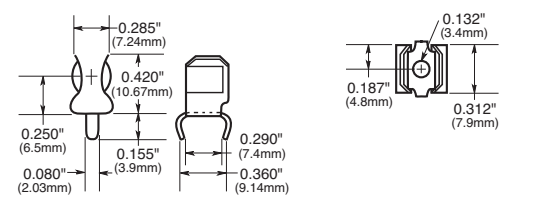
\*High Performance Copper recommended for amps higher than 15A.

Data Sheet: 2131

## 1A1119 Series

Fuseclips with End Stops & Angled In Leads

| Catalog Numbers | Clip Material*           | Finish     |
|-----------------|--------------------------|------------|
| 1A1119-04-R     | High Performance Copper* | Bright tin |
| 1A1119-05       | High Performance Copper* | Silver     |
| 1A1119-10-R     | Cartridge brass          | Bright tin |



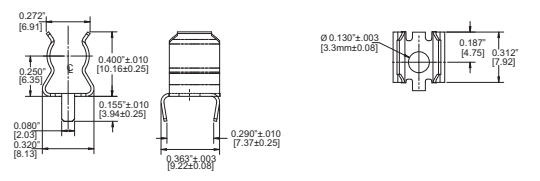
\*High Performance Copper recommended for amps higher than 15A.

Data Sheet: 2131

## 1A1120 Series

PCB Fuseclips without End Stops or Angled In Leads

| Catalog Numbers | Clip Material*           | Finish             |
|-----------------|--------------------------|--------------------|
| 1A1120-02       | Cartridge brass          | None/bright dipped |
| 1A1120-05       | High Performance Copper* | Silver             |
| 1A1120-06-R     | High Performance Copper* | Bright tin         |
| 1A1120-09-R     | Cartridge brass          | Bright tin         |



\*High Performance Copper recommended for amps higher than 15A.

Data Sheet: 2131

## PC Board Fuseclips for 1/4" Diameter Fuses

### 5681 & 5682 Series

#### PCB Fuseclips with Mounting Holes For 1/4" Diameter Fuses

| Catalog Number | End Stop | Clip Mat.** | Finish     | Dimensions (Inches) |             |            |           |       | Hole Dia. | Ref. |
|----------------|----------|-------------|------------|---------------------|-------------|------------|-----------|-------|-----------|------|
|                |          |             |            | B (To End Stop)     | C (Contact) | D (Height) | E (Width) |       |           |      |
| 5681-01        | No       | BeCu        | Silver     | †                   | 0.265       | 0.41       | 0.32      | 0.132 | Fig. 2    |      |
| 5681-08        |          | Spg. Br.    | Nickel     |                     |             |            |           |       |           |      |
| 5681-15-R      |          | Spg. Br.    | Bright Tin |                     |             |            |           |       |           |      |
| 5682-01        | Yes      | BeCu        | Silver     | 0.108               | 0.262       | 0.41       | 0.32      | 0.132 | Fig. 1    |      |
| 5682-02        |          | BeCu        | Silver     |                     |             |            |           |       |           |      |
| 5682-11-R      |          | BeCu        | Bright Tin | 0.131               |             |            |           |       |           |      |
| 5682-41-R      |          | Spg. Br.    | Bright Tin | 0.106               |             |            |           |       |           |      |
| 5682-44-R      |          | Spg. Br.    | Bright Tin | 0.132               |             |            |           |       |           |      |

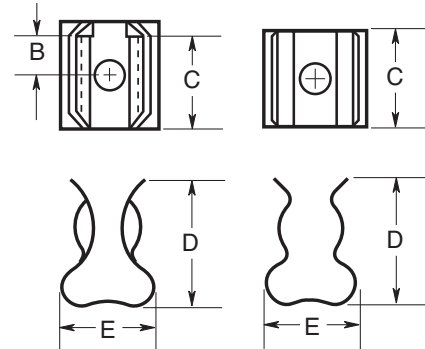


Figure 1

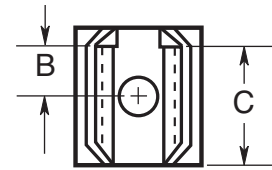
Figure 2

# PC Board Fuseclips for 1/32", 13/32" and 1/16" Diameter Fuses

## 5672 & 5674 Series

PCB Fuseclips with Mounting Holes For 1/32" Diameter Fuses

| Catalog Number | End Stop | Clip Mat.** | Finish     | Dimensions (Inches) |             |            |           |           | Ref.   |
|----------------|----------|-------------|------------|---------------------|-------------|------------|-----------|-----------|--------|
|                |          |             |            | B (To End Stop)     | C (Contact) | D (Height) | E (Width) | Hole Dia. |        |
| 5672-11        | No       | Spg. Br.    | Bright Tin | †                   | 0.362       | 0.52       | 0.38      | 0.172     | Fig. 2 |
| 5674-01        | Yes      | BeCu        | Silver     | 0.168               | 0.356       | 0.52       | 0.38      | 0.172     | Fig. 1 |
| 5674-10        |          | BeCu        | Bright Tin |                     |             |            |           |           |        |
| 5674-41        |          | Spg. Br.    | Bright Tin |                     |             |            |           |           |        |



## 1A3400 Series\*\*\*

For 13/32" Diameter Fuses  
With End Stops & Straight Leads

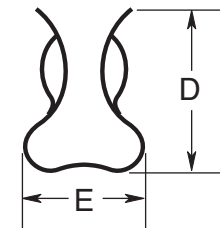
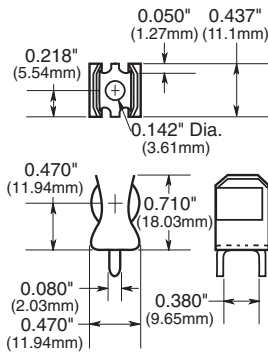
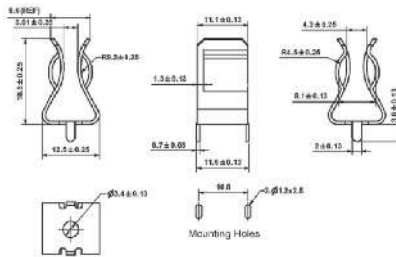


Figure 1

### Dimensional Data



1A3400-09 & 1A3400-10



1A3400-12

### Specifications:

| Catalog Number | Clip Material    | Finish     | Amp Rating |
|----------------|------------------|------------|------------|
| 1A3400-09      | Spring Bronze    | Bright Tin | 20A Max.   |
| 1A3400-10      | Beryllium Copper | Silver     | 30A Max.   |
| 1A3400-12      | Spring Brass     | Bright Tin | 15A Max.   |

\*\*\*For RoHS compliant version add "-R" option code suffix to part number.

## 5956 & 5960 Series

PCB Fuseclips with Mounting Holes For 1/32" Diameter Fuses

| Catalog Number | End Stop | Clip Mat.** | Finish      | Dimensions (Inches) |             |            |           |           | Ref.   |       |
|----------------|----------|-------------|-------------|---------------------|-------------|------------|-----------|-----------|--------|-------|
|                |          |             |             | B (To End Stop)     | C (Contact) | D (Height) | E (Width) | Hole Dia. |        |       |
| 5956-16        | No       | Spg. Br.    | Bright Tin  | †                   | 0.312       | 0.71       | 0.47      | 0.172     | Fig. 2 |       |
| 5960-07        | Yes      | BeCu        | Silver      | 0.168               | 0.387       | 0.71       | 0.47      | 0.196     | Fig. 1 |       |
| 5960-09        |          | BeCu        | Silver      |                     |             |            |           |           |        | 0.20  |
| 5960-44        |          | Spg. Br.    | Nickel      |                     |             |            |           |           |        | 0.20  |
| 5960-51        |          | Spg. Br.    | Bright Dip* |                     |             |            |           |           |        | 0.168 |
| 5960-53        |          | Spg. Br.    | Bright Dip* |                     |             |            |           |           |        | 0.20  |
| 5960-61-R      |          | Spg. Br.    | Bright Tin  |                     |             |            |           |           |        | 0.168 |
| 5960-62-R      |          | Spg. Br.    | Bright Tin  |                     |             |            |           |           |        | 0.168 |
| 5960-63-R      |          | Spg. Br.    | Bright Tin  |                     |             |            |           |           |        | 0.20  |
| 5960-64-R      |          | Spr. Br.    | Bright Tin  |                     |             |            |           |           |        | 0.20  |

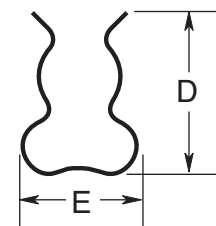
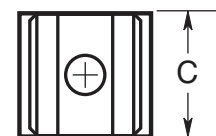


Figure 2

## 5591 & 5592 Series

PCB Fuseclips with Mounting Holes For 1/16" Diameter Fuses



| Catalog Number | End Stop | Clip Mat.** | Finish      | Dimensions (Inches) |             |            |           |           | Ref.   |
|----------------|----------|-------------|-------------|---------------------|-------------|------------|-----------|-----------|--------|
|                |          |             |             | B (To End Stop)     | C (Contact) | D (Height) | E (Width) | Hole Dia. |        |
| 5591-42        | Yes      | Spg. Br.    | Bright Dip* | 0.26                | 0.51        | 0.89       | 0.60      | 0.172     | Fig. 1 |
| 5591-52-R      |          | Spg. Br.    | Bright Tin  |                     |             |            |           |           |        |
| 5592-01        | No       | BeCu        | Silver      | 0.252               | 0.56        | 0.875      | 0.60      | 0.20      | Fig. 2 |

\* Bright Dip is actually treated bare metal with no plating.  
\*\* Spg. Br. — Spring Bronze; BeCu — Beryllium Copper.  
† Hole in center of both clip and contact area.



# Medium Voltage Fuses



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Scan this tag to get the latest product information for Medium Voltage Fuses.

## Medium Voltage Fuses

### Worldwide Circuit Protection Solutions

Bussmann is a world-leading supplier of medium voltage fuses. Each product is backed by an efficient worldwide distribution network with unrivaled service and technical support. Bussmann circuit protection solutions comply with major international standards: ANSI, BS, DIN, IEC and UL.

#### Fuse Types

Medium voltage fuses generally fit into two categories – expulsion fuses and current limiting fuses. The definitions per ANSI C37.40 are:

**Expulsion Fuse:** “A vented fuse in which the expulsion effect of the gases produced by internal arcing, either alone or aided by other mechanisms results in current interruption.” Expulsion fuses will limit the duration of an overcurrent event, but they will not limit the magnitude of fault current.

**Current Limiting Fuse:** “A fuse unit that, when in its current-responsive element is melted by a current within the fuse’s specified current-limiting range, abruptly introduces a high resistance to reduce current magnitude and duration, resulting in subsequent current interruption.” A current limiting fuse will reduce the magnitude a fault current as well as limit the duration of the overcurrent event when operating in its current limiting range. Bussmann offers a broad range of current limiting fuses for protection of feeders, transformers and motor circuits designed to ANSI, BS, DIN and IEC standards.

#### Medium Voltage Current Limiting Fuses

Current limiting fuses are classified into three categories:

1. Full Range – defined by ANSI C37.40 as “a fuse capable of interrupting all currents from the maximum rated interrupting current down to the minimum continuous current that causes the melting of the fusible element(s), when the fuse is applied at the maximum ambient temperature specified by the manufacturer.” It is able to interrupt any current that will melt its element.
2. General Purpose – defined by ANSI C37.40 as “a fuse capable of interrupting all currents from the maximum rated interrupting current down to the current that causes melting of the fusible element(s) in one hour.” Not all currents fall

within this range. It is possible for the fuse to be exposed to an overcurrent lower than the value given by the one hour criteria. In that case, a different overcurrent protection device would be required to interrupt the overcurrent.

3. Back-up – defined by ANSI C37.40 as “a fuse capable of interrupting all currents from the maximum interrupting rating current down to the minimum interrupting current.” The minimum interrupting current is the lowest current that the fuse will be able to clear properly. This creates a need to place a low current interrupting device, such as motor overloads, in series with the back-up rated fuse.

#### E- and R-Rated Fuses

In North America, current limiting fuses typically fall into the category of E-Rated fuses and R-Rated fuses. Bussmann also offers a wide range of current limiting fuses designed to BS, DIN and IEC standards.

E-Rated fuses are used to protect feeder circuits, power transformers and potential transformers. E-Rated fuses have defined current response times specified by ANSI C37.46. E-Rated fuses 100A and below must melt in 300sec at an rms current within the range of 200% to 240% of the continuous current rating. E-Rated fuses above 100A must melt in 600sec at an rms current within the range of 240% to 264% of the continuous current rating of the fuse. Bussmann offers a wide variety of full range and general purpose E-Rated fuses from 2.4kV up to 38kV.

R-Rated fuses are back-up fuses that provide short-circuit protection for motor circuits. They are applied with MV motor starters which provide the overload protection for the circuit. R-Rated fuses also have defined current response times specified by ANSI C37.46. R-Rated fuses will melt in a range of 15 – 35sec at a current equal to 100 times the “R” rating. Bussmann offers 2.4kV, 5.08kV, 7.2kV and 8.3kV R-Rated fuses for motor circuit protection.

# E-Rated Fuses for Transformers and Feeders

## MV055

### Specifications

**Description:** E-rated medium, voltage current-limiting fuses for transformer and feeder protection.



**Dimensions:** See Catalog Numbers table.

**Construction:** Silver ribbon element surrounded by silica filler housed in a fiberglass tube and plated endcaps. An epoxy paint protects the fuse tube from the surrounding environment.

### Ratings:

- Volts: — 5.5kV (10-450A)
- Amps: — 5-450A (5.5kV)
- IR: — 50kA Sym. Max

**Agency Information:** Meets E requirements per ANSI C37.46, Meets full range requirements per ANSI C37.40.

### Features and Benefits

- MV055 Standard clip center distance of 12 inches with 2 and 3 inch barrel diameters for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Full range rating with 50KA Interrupting Rating
- Double pulsed at 90% of minimum I<sup>2</sup>t to establish manufacturing reliability

### MV055 Typical Applications

- 5.0kV Transformer Primary Protection
- 5.0kV Feeder Circuit Protection
- 5.0kV Voltage Switches
- 5.0kV Metal-enclosed Switchgear

### Dimensions - in

Diagram 1

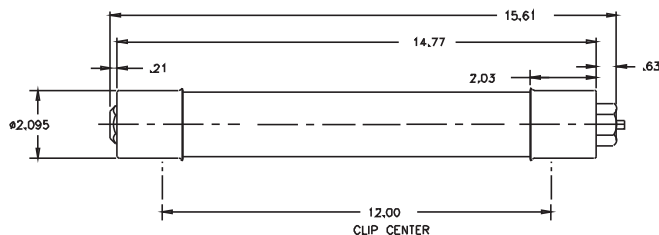
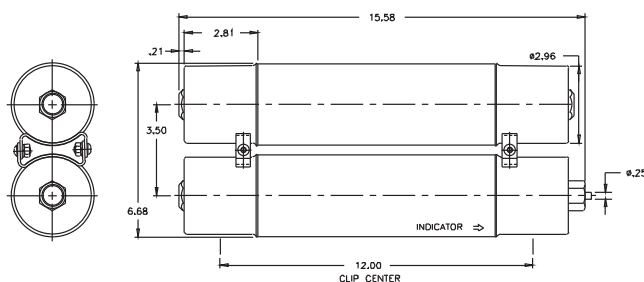


Diagram 2



### 5.5kV Catalog Numbers

| Catalog Numbers | Amp Rating | Min Melt I <sup>2</sup> t | Max Clear I <sup>2</sup> t | Dimensions (in)* |      |             |         |
|-----------------|------------|---------------------------|----------------------------|------------------|------|-------------|---------|
|                 |            |                           |                            | Length           | Dia. | Clip Center | Barrels |
| MV055F1CAX10E   | 10         | 850                       | 8,000                      | 15.75            | 1    | 12          | 1       |
| MV055F1CAX15E   | 15         | 2,070                     | 11,000                     |                  |      |             |         |
| MV055F1CAX20E   | 20         | 2,370                     | 23,000                     |                  |      |             |         |
| MV055F1CAX25E   | 25         | 4,650                     | 31,000                     |                  |      |             |         |
| MV055F1CAX30E   | 30         | 9,490                     | 45,000                     |                  |      |             |         |
| MV055F1CAX40E   | 40         | 9,490                     | 45,000                     |                  |      |             |         |
| MV055F1CAX50E   | 50         | 13,600                    | 90,000                     |                  |      |             |         |
| MV055F1CAX65E   | 65         | 30,700                    | 181,000                    |                  |      |             |         |
| MV055F1DAX10E   | 10         | 850                       | 8,000                      |                  |      |             |         |
| MV055F1DAX15E   | 15         | 2,070                     | 12,000                     |                  |      |             |         |
| MV055F1DAX20E   | 20         | 2,370                     | 23,000                     | 2                | 12   | 1           |         |
| MV055F1DAX25E   | 25         | 4,650                     | 31,000                     |                  |      |             |         |
| MV055F1DAX30E   | 30         | 9,490                     | 45,000                     |                  |      |             |         |
| MV055F1DAX40E   | 40         | 9,490                     | 45,000                     |                  |      |             |         |
| MV055F1DAX50E   | 50         | 13,600                    | 90,000                     |                  |      |             |         |
| MV055F1DAX65E   | 65         | 30,700                    | 181,000                    |                  |      |             |         |
| MV055F1DAX80E   | 80         | 54,600                    | 270,000                    |                  |      |             |         |
| MV055F1DAX100E  | 100        | 116,200                   | 580,000                    |                  |      |             |         |
| MV055F1DAX125E  | 125        | 167,400                   | 600,000                    |                  |      |             |         |
| MV055F1DAX150E  | 150        | 218,700                   | 786,000                    |                  |      |             |         |
| MV055F1DAX175E  | 175        | 227,900                   | 1,100,000                  | 2                | 12   | 2           |         |
| MV055F2DAX200E  | 200        | 297,600                   | 1,520,000                  |                  |      |             |         |
| MV055F2DAX250E  | 250        | 669,600                   | 2,400,000                  |                  |      |             |         |
| MV055F2DAX300E  | 300        | 874,800                   | 3,149,000                  |                  |      |             |         |
| MV055F2DAX350E  | 350        | 911,600                   | 4,376,000                  |                  |      |             |         |
| MV055F2DAX400E  | 400        | 1,190,400                 | 6,071,000                  |                  |      |             |         |
| MV055F2DAX450E  | 450        | 1,555,000                 | 9,796,000                  |                  |      |             |         |

1" = 25.4mm

Recommended Fuse Clips - see page 120

Data Sheet: 6700

# E-Rated Fuses for Transformers and Feeders

## MV155

### Specifications

**Description:** E-rated medium, voltage current-limiting fuses for transformer and feeder protection.



**Dimensions:** See Catalog Numbers table.

**Construction:** Silver ribbon element surrounded by silica filler housed in a fiberglass tube and plated endcaps. An epoxy paint protects the fuse tube from the surrounding environment.

### Ratings:

Volts: — 15.5kV (5-200A)

Amps: — 5-200A (15.5kV)

IR: — 50kA Sym. Max

**Agency Information:** Meets E requirements per ANSI C37.46, Meets full range requirements per ANSI C37.40.

### Features and Benefits

- MV155 Standard clip center distance of 15 and 18 inches with 2 and 3 inch barrel diameters for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Full range rating with 50kA Interrupting Rating
- Double pulsed at 90% of minimum I<sup>2</sup>t to establish manufacturing reliability

### MV155 Typical Applications

- 15.0kV Transformer Primary Protection
- 15.0kV Feeder Circuit Protection
- 15.0kV Voltage Switches
- 15.0kV Metal-enclosed Switchgear

### Dimensions - in

Diagram 1

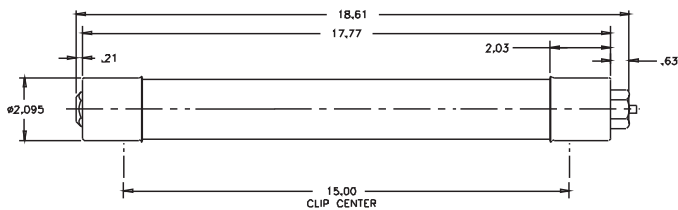
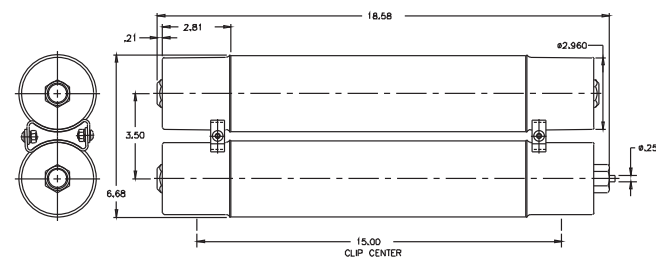


Diagram 2



### Data Sheet: 6700

### 15.5kV Catalog Numbers

| Catalog Numbers | Amp Rating | Min Melt I <sup>2</sup> t | Max Clear I <sup>2</sup> t | Dimensions* |      |             |         |
|-----------------|------------|---------------------------|----------------------------|-------------|------|-------------|---------|
|                 |            |                           |                            | Length      | Dia. | Clip Center | Barrels |
| MV155F1CBX5E    | 5          | 180                       | 2,900                      | 18.75       | 1    | 15          | 1       |
| MV155F1CBX7E    | 7          | 850                       | 8,000                      |             |      |             |         |
| MV155F1CBX10E   | 10         | 850                       | 8,000                      |             |      |             |         |
| MV155F1CBX15E   | 15         | 2,070                     | 12,000                     |             |      |             |         |
| MV155F1CBX20E   | 20         | 2,370                     | 23,000                     |             |      |             |         |
| MV155F1CBX25E   | 25         | 4,650                     | 31,000                     |             |      |             |         |
| MV155F1CBX30E   | 30         | 9,490                     | 45,000                     |             |      |             |         |
| MV155F1DBX10E   | 10         | 850                       | 8,000                      |             |      |             |         |
| MV155F1DBX15E   | 15         | 2,070                     | 12,000                     |             |      |             |         |
| MV155F1DBX20E   | 20         | 2,370                     | 23,000                     |             |      |             |         |
| MV155F1DBX25E   | 25         | 4,650                     | 31,000                     | 21.75       | 2    | 18          | 2       |
| MV155F1DBX30E   | 30         | 9,490                     | 45,000                     |             |      |             |         |
| MV155F1DBX40E   | 40         | 9,490                     | 45,000                     |             |      |             |         |
| MV155F1DBX50E   | 50         | 13,600                    | 90,000                     |             |      |             |         |
| MV155F1DBX65E   | 65         | 30,700                    | 181,000                    |             |      |             |         |
| MV155F1DBX80E   | 80         | 54,600                    | 270,000                    |             |      |             |         |
| MV155F1DBX100E  | 100        | 116,200                   | 600,000                    |             |      |             |         |
| MV155F2DBX125E  | 125        | 123,000                   | 677,000                    |             |      |             |         |
| MV155F2DBX150E  | 150        | 218,700                   | 1,287,000                  |             |      |             |         |
| MV155F2DBX175E  | 175        | 314,700                   | 1,689,000                  |             |      |             |         |
| MV155F2DBX200E  | 200        | 465,100                   | 2,405,000                  | 18          | 18   | 1           | 2       |
| MV155F1DCX65E   | 65         | 30,700                    | 181,000                    |             |      |             |         |
| MV155F1DCX80E   | 80         | 54,600                    | 270,000                    |             |      |             |         |
| MV155F1DCX100E  | 100        | 116,200                   | 600,000                    |             |      |             |         |
| MV155F2DCX125E  | 125        | 123,000                   | 677,000                    |             |      |             |         |
| MV155F2DCX150E  | 150        | 218,700                   | 1,287,000                  |             |      |             |         |
| MV155F2DCX175E  | 175        | 314,700                   | 1,689,000                  |             |      |             |         |
| MV155F2DCX200E  | 200        | 465,100                   | 2,405,000                  |             |      |             |         |

\*1" = 25.4mm.

Recommended Fuse Clips - see page 120

### Data Sheet: 6701

# E-Rated Fuses for Transformer & Feeders

## JCX, JCY, JCU, JCZ and JDZ

### Specifications

**Description:** Indoor/enclosure E-rated medium voltage, current-limiting fuses for feeders and power transformers with blown fuse indication.

**Dimensions:** See Catalog Numbers table.

**Construction:** plated ferrules.

### Ratings:

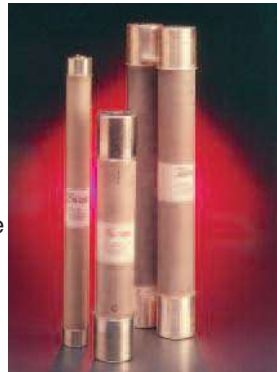
Volts: — 2750-8300V - See Catalog Numbers table for details

Amps: — ½-750A

IR: — 40-63kA Sym

— 60-100kA ASYM

— See Catalog Numbers table for details



### Features and Benefits

- Physically dimensioned for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Full range ANSI classification

### Typical Applications

- Medium Voltage Transformer Primary Protection
- Medium Voltage Feeder Circuit Protection
- Medium Voltage Switches
- Medium Voltage Metal-enclosed Switchgear

### Catalog Numbers

| Catalog Numbers                         | Amp Rating | Maximum Design Voltage | Construction | Maximum Interrupting Capacity |             | Dimensions - in (mm) |             |
|---|------------|------------------------|--------------|-------------------------------|-------------|----------------------|-------------|
|   |            |                        |              | Amps (Asym.)                  | Amps (Sym.) | Length               | Diameter    |
| <b>2400V; E-Rated; Indoor/Enclosure</b> |            |                        |              |                               |             |                      |             |
| JCX-1E                                  | 1          | 2750                   | Single       | 60,000                        | 40,000      | 9.19 (233.38)        | 2 (50.8)    |
| JCX-2E                                  | 2          | 2750                   | Single       | 60,000                        | 40,000      | 9.19 (233.38)        | 2 (50.8)    |
| JCX-3E                                  | 3          | 2750                   | Single       | 60,000                        | 40,000      | 9.19 (233.38)        | 2 (50.8)    |
| JCX-5E                                  | 5          | 2750                   | Single       | 60,000                        | 40,000      | 9.19 (233.38)        | 2 (50.8)    |
| JCX-7E                                  | 7          | 2750                   | Single       | 60,000                        | 40,000      | 9.19 (233.38)        | 2 (50.8)    |
| JCX-10E                                 | 10         | 2750                   | Single       | 60,000                        | 40,000      | 9.19 (233.38)        | 2 (50.8)    |
| JCX-15E                                 | 15         | 2750                   | Single       | 80,000                        | 50,000      | 9.5 (241.3)          | 2.1 (53.34) |
| JCX-20E                                 | 20         | 2750                   | Single       | 80,000                        | 50,000      | 9.5 (241.3)          | 2.1 (53.34) |
| JCX-25E                                 | 25         | 2750                   | Single       | 80,000                        | 50,000      | 9.5 (241.3)          | 2.1 (53.34) |
| JCX-30E                                 | 30         | 2750                   | Single       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-40E                                 | 40         | 2750                   | Single       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-50E                                 | 50         | 2750                   | Single       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-65E                                 | 65         | 2750                   | Single       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-80E                                 | 80         | 2750                   | Single       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-100E                                | 100        | 2750                   | Single       | 80,000                        | 40,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-125E                                | 125        | 2750                   | Single       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-150E                                | 150        | 2750                   | Single       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-200E                                | 200        | 2750                   | Single       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-225E                                | 225        | 2750                   | Single       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-250E/280X                           | 250/280    | 2750                   | Double       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-300E/325X                           | 300/325    | 2750                   | Double       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-350X                                | 350        | 2750                   | Double       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-400X                                | 400        | 2750                   | Double       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| JCX-450X                                | 450        | 2750                   | Double       | 80,000                        | 50,000      | 10.81 (276.35)       | 3 (76.2)    |
| <b>5500V; E-Rated; Indoor/Enclosure</b> |            |                        |              |                               |             |                      |             |
| JCY-½E                                  | 0.5        | 5500                   | Single       | 60,000                        | 40,000      | 11.19 (284.18)       | 2 (50.8)    |
| JCY-1E                                  | 1          | 5500                   | Single       | 60,000                        | 40,000      | 11.19 (284.18)       | 2 (50.8)    |
| JCY-2E                                  | 2          | 5500                   | Single       | 60,000                        | 40,000      | 11.19 (284.18)       | 2 (50.8)    |
| JCY-3E                                  | 3          | 5500                   | Single       | 60,000                        | 40,000      | 11.19 (284.18)       | 2 (50.8)    |
| JCY-5E                                  | 5          | 5500                   | Single       | 60,000                        | 40,000      | 11.19 (284.18)       | 2 (50.8)    |
| JCY-7E                                  | 7          | 5500                   | Single       | 60,000                        | 40,000      | 11.19 (284.18)       | 2 (50.8)    |
| JCY-10E                                 | 10         | 5500                   | Single       | 60,000                        | 40,000      | 11.19 (284.18)       | 2 (50.8)    |
| JCY-15E                                 | 15         | 5500                   | Single       | 60,000                        | 40,000      | 11.19 (284.18)       | 2 (50.8)    |
| JCY-20E                                 | 20         | 5500                   | Single       | 60,000                        | 40,000      | 11.19 (284.18)       | 2 (50.8)    |
| JCY-25E                                 | 25         | 5500                   | Single       | 60,000                        | 40,000      | 11.19 (284.18)       | 2 (50.8)    |

Contact Bussmann for the latest product information on E-Rated fuses for transformer and feeder protection. Recommended fuseclips: see page 120 - 1A0065, 9078A67G04, A3354730

Medium Voltage Fuses



# E-Rated Fuses for Transformer & Feeders

## Catalog Numbers: E-Rated; Indoor/Enclosure

| Catalog Numbers                         | Amp Rating | Maximum Design Voltage | Construction | Maximum Interrupting Capacity |              | Dimensions - in (mm) |             |
|---|------------|------------------------|--------------|-------------------------------|--------------|----------------------|-------------|
|   |            |                        |              | Amps. (Asym.)                 | Amps. (Sym.) | Length               | Diameter    |
| <b>5500V; E-Rated; Indoor/Enclosure</b> |            |                        |              |                               |              |                      |             |
| JCU-10E                                 | 10         | 5500                   | Single       | 80,000                        | 50,000       | 17.81 (452.4)        | 3 (76.2)    |
| JCU-15E                                 | 15         | 5500                   | Single       | 80,000                        | 50,000       | 12.88 (327.0)        | 2.1 (53.34) |
| JCU-20E                                 | 20         | 5500                   | Single       | 80,000                        | 50,000       | 12.88 (327.0)        | 2.1 (53.34) |
| JCU-25E                                 | 25         | 5500                   | Single       | 80,000                        | 50,000       | 12.88 (327.0)        | 2.1 (53.34) |
| JCU-30E                                 | 30         | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-40E                                 | 40         | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-50E                                 | 50         | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-65E                                 | 60         | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-80E                                 | 80         | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-100E                                | 100        | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-125E                                | 125        | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-150E                                | 150        | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-175E                                | 175        | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-200E                                | 200        | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-250E                                | 250        | 5500                   | Single       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-300E                                | 300        | 5500                   | Double       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-350E                                | 350        | 5500                   | Double       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-400E                                | 400        | 5500                   | Double       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-450E                                | 450        | 5500                   | Double       | 100,000                       | 63,000       | 17.88 (454.15)       | 3 (76.20)   |
| JCU-600E                                | 600        | 5500                   | *            | 80,000                        | 50,000       | 28.81 (731.77)       | 4 (101.60)  |
| JCU-750E                                | 750        | 5500                   | *            | 80,000                        | 50,000       | 28.81 (731.77)       | 4 (101.60)  |
| <b>8300V; E-Rated; Indoor/Enclosure</b> |            |                        |              |                               |              |                      |             |
| JCZ-15E                                 | 15         | 8300                   | Single       | 80,000                        | 50,000       | 15.51 (393.95)       | 2.1 (53.34) |
| JCZ-20E                                 | 20         | 8300                   | Single       | 80,000                        | 50,000       | 15.51 (393.95)       | 2.1 (53.34) |
| JCZ-25E                                 | 25         | 8300                   | Single       | 80,000                        | 50,000       | 15.51 (393.95)       | 2.1 (53.34) |
| JCZ-30E                                 | 30         | 8300                   | Single       | 80,000                        | 50,000       | 17.88 (454.15)       | 3 (76.2)    |
| JCZ-40E                                 | 40         | 8300                   | Single       | 80,000                        | 50,000       | 17.88 (454.15)       | 3 (76.2)    |
| JCZ-50E                                 | 50         | 8300                   | Single       | 80,000                        | 50,000       | 17.88 (454.15)       | 3 (76.2)    |
| JCZ-65E                                 | 65         | 8300                   | Single       | 80,000                        | 50,000       | 17.88 (454.15)       | 3 (76.2)    |
| JCZ-80E                                 | 80         | 8300                   | Single       | 80,000                        | 50,000       | 17.88 (454.15)       | 3 (76.2)    |
| JCZ-100E                                | 100        | 8300                   | Single       | 80,000                        | 50,000       | 17.88 (454.15)       | 3 (76.2)    |
| JCZ-125E                                | 125        | 8300                   | Single       | 80,000                        | 50,000       | 17.88 (454.15)       | 3 (76.2)    |
| JCZ-150E                                | 150        | 8300                   | Single       | 80,000                        | 50,000       | 17.88 (454.15)       | 3 (76.2)    |
| JCZ-200E                                | 200        | 8300                   | Double       | 80,000                        | 50,000       | 17.88 (454.15)       | 3 (76.2)    |
| JDZ-20E                                 | 20         | 8300                   | Single       | 80,000                        | 50,000       | 15.88 (403.2)        | 3 (76.2)    |
| JDZ-25E                                 | 25         | 8300                   | Single       | 80,000                        | 50,000       | 15.88 (403.2)        | 3 (76.2)    |
| JDZ-30E                                 | 30         | 8300                   | Single       | 80,000                        | 50,000       | 15.88 (403.2)        | 3 (76.2)    |
| JDZ-40E                                 | 40         | 8300                   | Single       | 80,000                        | 50,000       | 15.88 (403.2)        | 3 (76.2)    |
| JDZ-50E                                 | 50         | 8300                   | Single       | 80,000                        | 50,000       | 15.88 (403.2)        | 3 (76.2)    |
| JDZ-65E                                 | 65         | 8300                   | Single       | 80,000                        | 50,000       | 15.88 (403.2)        | 3 (76.2)    |
| JDZ-80E                                 | 80         | 8300                   | Double       | 80,000                        | 50,000       | 15.88 (403.2)        | 3 (76.2)    |
| JDZ-100E                                | 100        | 8300                   | Double       | 80,000                        | 50,000       | 15.88 (403.2)        | 3 (76.2)    |
| JDZ-125E                                | 125        | 8300                   | Double       | 80,000                        | 50,000       | 15.88 (403.2)        | 3 (76.2)    |

Recommended fuseclips: see page 120 - 1A0065, 9078A67G04, A3354730

General Notes:

1. All fuses are fitted with a striker pin which can be used for indication or tripping purposes.
2. The fuses are suitable for use either indoors or outdoors.
3. These fuses are interchangeable with corresponding fuses produced by most other leading North American manufacturers.

Contact Bussmann for the latest product information on E-Rated fuses for transformer and feeder protection.

\*Bolt on mounting

## E-Rated Fuses: CL-14 & Bolt-In

### ECL055

#### Specifications

**Description:** E-rated medium voltage, current-limiting fuses for transformer and feeder protection.

**Construction:** Filament wound, glass epoxy fuse tube, with silica filler, and silver-plated copper terminals and endcaps containing a silver element in a double concentric helical configuration.

#### Ratings:

Volts: — 5.5kV

Amps: — 10-900A

IR: — 63kA Sym. Max

**Agency Information:** Meets E requirements per ANSI C37.46, Meets General Purpose requirements per ANSI C37.40.

#### Features and Benefits

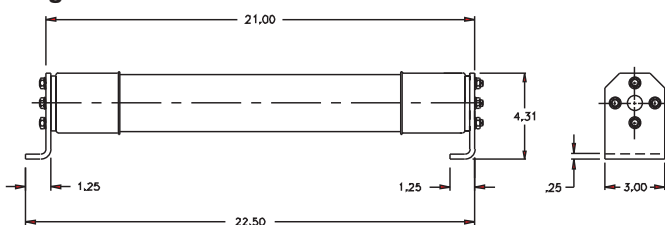
- Clip-lock and bolt-in style available in double and triple barrel fuse designs for application flexibility
- The filament wound, glass epoxy fuse tube provides moisture protection for the fuse. This makes Cooper Bussmann medium voltage fuses suitable for both indoor and outdoor application (outdoor applications require installation inside an appropriate enclosure)
- Open fuse indication (indicator travel distance is 16mm) easily integrates into automation schemes
- 50/60Hz operating frequency make these fuses applicable world-wide

#### Typical Applications

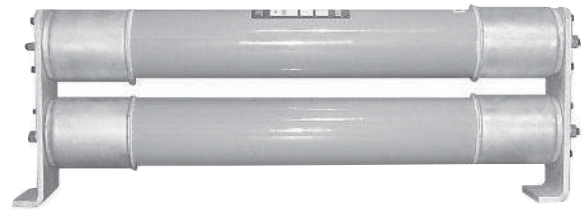
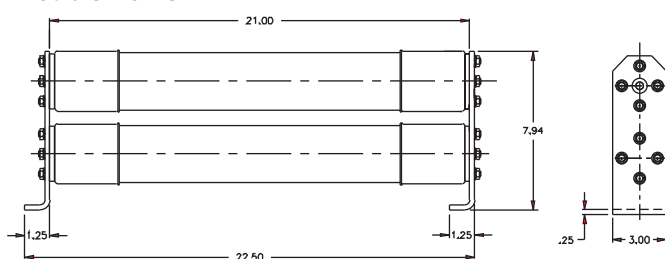
- 5.0kV Transformer Primary Protection
- 5.0kV Feeder Circuit Protection
- 5.0kV Voltage Switches
- 5.0kV Metal-enclosed Switchgear

#### Dimensions - in

##### Single Barrel



##### Double Barrel



#### Catalog Numbers

| Catalog Numbers | Amp Rating | Voltage | IR Max Sym. | # of Barrels | Style     |           |   |         |
|-----------------|------------|---------|-------------|--------------|-----------|-----------|---|---------|
| ECL055-10E      | 10         | 5.5kV   | 63kA        | 1            | Clip-Lock |           |   |         |
| ECL055-15E      | 15         | —       |             |              |           |           |   |         |
| ECL055-20E      | 20         | —       |             |              |           |           |   |         |
| ECL055-25E      | 25         | —       |             |              |           |           |   |         |
| ECL055-30E      | 30         | —       |             |              |           |           |   |         |
| ECL055-40E      | 40         | —       |             |              |           |           |   |         |
| ECL055-50E      | 50         | —       |             |              |           |           |   |         |
| ECL055-65E      | 65         | —       |             |              |           |           |   |         |
| ECL055-80E      | 80         | —       |             |              |           |           |   |         |
| ECL055-100E     | 100        | —       |             |              |           |           |   |         |
| ECL055-125E     | 125        | —       |             |              |           |           |   |         |
| ECL055-150E     | 150        | —       |             |              |           |           |   |         |
| ECL055-200E     | 200        | —       |             |              |           |           |   |         |
| ECL055-250E     | 250        | —       |             |              |           |           |   |         |
| ECL055-300E     | 300        | —       |             |              |           |           |   |         |
| ECL055-400E     | 400        | —       |             |              |           |           |   |         |
| ECL055-450E     | 450        | —       |             |              |           |           |   |         |
| ECL055-500E     | 500        | —       |             |              |           |           |   |         |
| ECL055-600E     | 600        | —       |             |              |           |           |   |         |
| ECL055-750E     | 750        | —       |             |              |           |           |   |         |
| ECL055-900E     | 900        | —       |             |              |           |           |   |         |
|                 |            |         |             |              | 2         | Clip-Lock |   |         |
|                 |            |         |             |              |           |           | 3 | Bolt-In |
|                 |            |         |             |              |           |           |   |         |

#### Catalog Number Construction (Example)

| Catalog Number | Voltage Rating | Amp Rating |
|----------------|----------------|------------|
| ECL            | 055            | 500E       |
|                | 055 = 5.5 kV   |            |

#### Catalog Number Cross Reference

| Bussmann Catalog Numbers | Mersen New Catalog # | Mersen Old Catalog # |
|--------------------------|----------------------|----------------------|
| ECL055-10E               | A055C1DORO-10E       | 225-007-937          |
| ECL055-15E               | A055C1DORO-15E       | 225-007-938          |
| ECL055-20E               | A055C1DORO-20E       | 225-007-939          |
| ECL055-25E               | A055C1DORO-25E       | 225-007-940          |
| ECL055-30E               | A055C1DORO-30E       | 225-007-941          |
| ECL055-40E               | A055C1DORO-40E       | 225-007-942          |
| ECL055-50E               | A055C1DORO-50E       | 225-007-943          |
| ECL055-65E               | A055C1DORO-65E       | 225-007-944          |
| ECL055-80E               | A055C1DORO-80E       | 225-007-945          |
| ECL055-100E              | A055C1DORO-100E      | 225-007-946          |
| ECL055-125E              | A055C1DORO-125E      | 225-007-947          |
| ECL055-150E              | A055C1DORO-150E      | 225-007-948          |
| ECL055-200E              | A055C1DORO-200E      | 225-007-949          |
| ECL055-250E              | A055C1DORO-250E      | 225-007-950          |
| ECL055-300E              | A055C1DORO-300E      | 225-007-951          |
| ECL055-400E              | A055C1DORO-400E      | 225-007-952          |
| ECL055-450E              | A055C2DORO-450E      | 225-007-953          |
| ECL055-500E              | A055C2DORO-500E      | 225-007-954          |
| ECL055-600E              | A055C2DORO-600E      | 225-007-955          |
| ECL055-750E              | A055B3DORO-750E      | A055X750E-4          |
| ECL055-900E              | A055B3DORO-900E      | A055X900E-4          |

Data Sheet: 9002

# E-Rated Fuses: CL-14 & Bolt-In

## ECL083

### Specifications

**Description:** E-rated medium voltage, current-limiting fuses for transformer and feeder protection.

**Construction:** Filament wound, glass epoxy fuse tube, with silica filler, and silver-plated copper terminals and endcaps containing a silver element in a double concentric helical configuration.

### Ratings:

- Volts: — 8.3kV
- Amps: — 65-350A
- IR: — 50kA

**Agency Information:** Meets E requirements per ANSI C37.46, Meets General Purpose requirements per ANSI C37.40.

### Features and Benefits

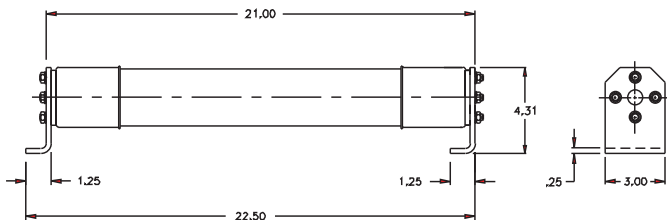
- Clip-lock and bolt-in style available in double and triple barrel fuse designs for application flexibility
- The filament wound, glass epoxy fuse tube provides moisture protection for the fuse. This makes Cooper Bussmann medium voltage fuses suitable for both indoor and outdoor application (outdoor applications require installation inside an appropriate enclosure)
- Open fuse indication (indicator travel distance is 16mm) easily integrates into automation schemes
- 50/60Hz operating frequency make these fuses applicable world-wide

### Typical Applications

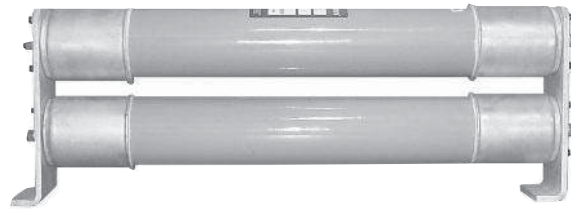
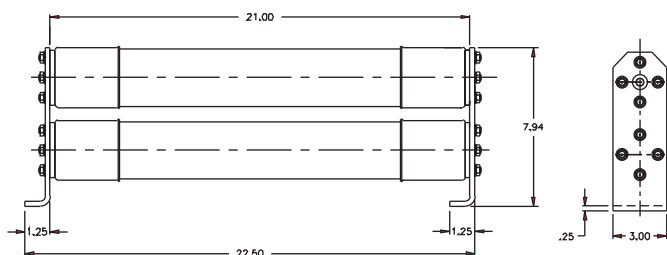
- 8.0kV Transformer Primary Protection
- 8.0kV Feeder Circuit Protection
- 8.0kV Voltage Switches
- 8.0kV Metal-enclosed Switchgear

### Dimensions - in

#### Single Barrel



#### Double Barrel



### Catalog Number Construction (Example)

| Catalog Number | Voltage Rating | Amp Rating |
|----------------|----------------|------------|
| ECL            | 083            | 300E       |
|                | 083 = 8.3 kV   |            |

### Electrical Characteristics

| Part Number | Amps | Volts | IR Max Sym. | # of Barrels | Figure # | Style     |
|-------------|------|-------|-------------|--------------|----------|-----------|
| ECL083-65E  | 65   | 8.3kV | 50kA        | 1            | 1        | Clip-Lock |
| ECL083-80E  | 80   | 8.3kV | 50kA        | 1            | 1        | Clip-Lock |
| ECL083-100E | 100  | 8.3kV | 50kA        | 1            | 1        | Clip-Lock |
| ECL083-125E | 125  | 8.3kV | 50kA        | 1            | 1        | Clip-Lock |
| ECL083-150E | 150  | 8.3kV | 50kA        | 1            | 1        | Clip-Lock |
| ECL083-175E | 175  | 8.3kV | 50kA        | 1            | 1        | Clip-Lock |
| ECL083-200E | 200  | 8.3kV | 50kA        | 2            | 2        | Clip-Lock |
| ECL083-250E | 250  | 8.3kV | 50kA        | 2            | 2        | Clip-Lock |
| ECL083-300E | 300  | 8.3kV | 50kA        | 2            | 2        | Clip-Lock |
| ECL083-350E | 350  | 8.3kV | 50kA        | 2            | 2        | Clip-Lock |

### Catalog Number Cross Reference

| Bussmann Catalog Numbers | Mersen New Catalog # | Mersen Old Catalog # |
|--------------------------|----------------------|----------------------|
| ECL083-65E               | N/A                  | N/A                  |
| ECL083-80E               | N/A                  | N/A                  |
| ECL083-100E              | N/A                  | N/A                  |
| ECL083-125E              | N/A                  | N/A                  |
| ECL083-150E              | N/A                  | N/A                  |
| ECL083-175E              | N/A                  | N/A                  |
| ECL083-200E              | N/A                  | N/A                  |
| ECL083-250E              | N/A                  | N/A                  |
| ECL083-300E              | N/A                  | N/A                  |
| ECL083-350E              | N/A                  | N/A                  |

Data Sheet: 9007

## E-Rated Fuses: CL-14

### ECL155

#### Specifications

**Description:** E-rated medium voltage, current-limiting fuses for transformer and feeder protection.

**Construction:** Filament wound, glass epoxy fuse tube, with silica filler, and silver-plated copper terminals and endcaps containing a silver element in a double concentric helical configuration.

#### Ratings:

Volts: — 15.5kV

Amps: — 10-300A

IR: — 63kA Sym. (10-200A)

— 50kA Sym. (250-300A)

**Agency Information:** Meets E requirements per ANSI C37.46, Meets General Purpose requirements per ANSI C37.40.

#### Features and Benefits

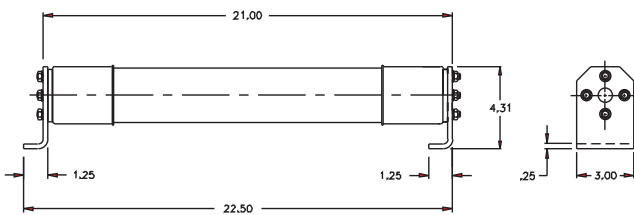
- Clip-lock double barrel fuse design assures positive installation
- The filament wound, glass epoxy fuse tube provides moisture protection for the fuse. This makes Cooper Bussmann medium voltage fuses suitable for both indoor and outdoor application (outdoor applications require installation inside an appropriate enclosure)
- Open fuse indication (indicator travel distance is 16mm) easily integrates into automation schemes
- 50/60Hz operating frequency make these fuses applicable world-wide

#### Typical Applications

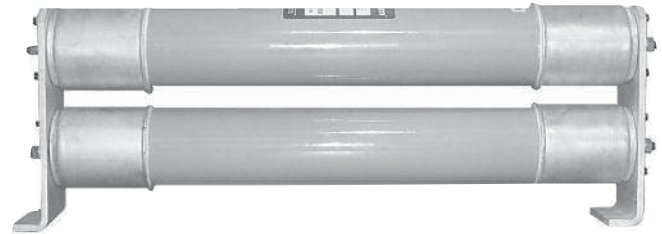
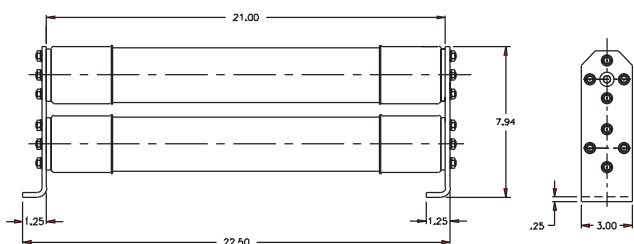
- 15.0kV Transformer Primary Protection
- 15.0kV Feeder Circuit Protection
- 15.0kV Voltage Switches
- 15.0kV Metal-enclosed Switchgear

#### Dimensions - in

##### Single Barrel



##### Double Barrel



#### Catalog Numbers

| Catalog Numbers | Amp Rating | Voltage | IR Voltage Max Sym. | # of Barrels | Style     |
|-----------------|------------|---------|---------------------|--------------|-----------|
| ECL155-10E      | 10         | 15.5kV  | 63kA                | 1            | Clip-Lock |
| ECL155-15E      | 15         |         |                     |              |           |
| ECL155-20E      | 20         |         |                     |              |           |
| ECL155-25E      | 25         |         |                     |              |           |
| ECL155-30E      | 30         |         |                     |              |           |
| ECL155-40E      | 40         |         |                     |              |           |
| ECL155-50E      | 50         |         |                     |              |           |
| ECL155-65E      | 65         |         |                     |              |           |
| ECL155-80E      | 80         |         |                     |              |           |
| ECL155-100E     | 100        |         |                     |              |           |
| ECL155-125E     | 125        | 50kA    |                     | 2            |           |
| ECL155-150E     | 150        |         |                     |              |           |
| ECL155-200E     | 200        |         |                     |              |           |
| ECL155-250E     | 250        |         |                     |              |           |
| ECL155-300E     | 300        |         |                     |              |           |

#### Catalog Number Construction (Example)

| Catalog Number | Voltage Rating | Amp Rating |
|----------------|----------------|------------|
| ECL            | 155            | 300E       |
|                | 155 = 15.5 kV  |            |

#### Catalog Number Cross Reference

| Bussmann Catalog Numbers | Mersen New Catalog # | Mersen Old Catalog # |
|--------------------------|----------------------|----------------------|
| ECL155-10E               | A155C1DORO-10E       | 225-007-967          |
| ECL155-15E               | A155C1DORO-15E       | 225-007-968          |
| ECL155-20E               | A155C1DORO-20E       | 225-007-969          |
| ECL155-25E               | A155C1DORO-25E       | 225-007-970          |
| ECL155-30E               | A155C1DORO-30E       | 225-007-971          |
| ECL155-40E               | A155C1DORO-40E       | 225-007-972          |
| ECL155-50E               | A155C1DORO-50E       | 225-007-973          |
| ECL155-65E               | A155C1DORO-65E       | 225-007-974          |
| ECL155-80E               | A155C1DORO-80E       | 225-007-975          |
| ECL155-100E              | A155C1DORO-100E      | 225-007-976          |
| ECL155-125E              | A155C2DORO-125E      | 225-007-977          |
| ECL155-150E              | A155C3DORO-150E      | 225-007-978          |
| ECL155-200E              | A155C3DORO-200E      | 225-007-979          |
| ECL155-250E              | A155C3DORO-250E      | 225-007-980          |
| ECL155-300E              | A155C3DORO-300E      | 225-007-981          |

Data Sheet: 9004

# E-Rated Fuses for Potential & Small Power Transformers

## AB, AD, AM and CAV



### Ratings:

- Volts: — 5.5-38kV
- Amps: — 0.5-15A
- IR: — 40kA-80kA Sym.
- See Catalog Numbers table for details

### Features and Benefits

- Sized for retrofitting in existing hardware
- Space saving size

### Typical Applications

- Primary protection of medium voltage potential transformers
- Primary protection of small medium voltage service transformers
- Primary protection of small medium voltage control transformers

### Specifications

**Description:** Indicating and non-indicating E-Rated medium voltage, current-limiting fuses for potential and small power transformers.

**Dimensions:** See Catalog Numbers table.  
Dimension Illustration on the following page

## Catalog Numbers: E-Rated PT Fuses, Indicating & Non-Indicating

### 3.6kV; E-Rated PT Fuse; Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions   |             |               | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|--------------|-------------|---------------|---------------------|
|                |            |               |             | Length       | Diameter    | Clip Centers  |                     |
| 3.6CAV2        | 2          | 3.6kV         | 50kA        | 8.66 (220)   | 1.63 (41.3) | 7.46 (189.48) | 1A0835              |
| 3.6ABWNA3.15   | 3.15       | 3.6kV         | 50kA        | 5.6 (142.2)  | 1 (25.4)    | 4.42 (112.2)  | A3354705            |
| 3.6ABWNA6.3    | 3.15       | 3.6kV         | 50kA        | 5.6 (142.2)  | 1 (25.4)    | 4.42 (112.2)  | A3354705            |
| 3.6ABCNA3.15   | 3.15       | 3.6kV         | 50kA        | 7.69 (195.3) | 1 (25.4)    | 6.51 (165.3)  | A3354705            |
| 3.6ABCNA6.3    | 6.3        | 3.6kV         | 50kA        | 7.69 (195.3) | 1 (25.4)    | 6.51 (165.3)  | A3354705            |
| 3.6ABCNA10     | 10         | 3.6kV         | 50kA        | 7.69 (195.3) | 1 (25.4)    | 6.51 (165.3)  | A3354705            |

### 5.5kV; E-Rated PT Fuse; Indicating & Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions    |             |               | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|---------------|-------------|---------------|---------------------|
|                |            |               |             | Length        | Diameter    | Clip Centers  |                     |
| 5.5CAVH0.5E    | 0.5        | 5.5kV         | 63kA        | 7.375 (187.3) | 1.63 (41.3) | 6.18 (156.84) | 1A0835              |
| 5.5CAVH1E      | 1          | 5.5kV         | 63kA        | 7.375 (187.3) | 1.63 (41.3) | 6.18 (156.84) | 1A0835              |
| 5.5CAVH2E      | 2          | 5.5kV         | 63kA        | 7.375 (187.3) | 1.63 (41.3) | 6.18 (156.84) | 1A0835              |
| 5.5CAV15E      | 15         | 5.5kV         | 63kA        | 7.375 (187.3) | 1.63 (41.3) | 6.18 (156.84) | 1A0835              |
| 5.5ABWNA0.5E   | 0.5        | 5.5kV         | 50kA        | 5.6 (142.2)   | 1 (25.4)    | 4.42 (112.2)  | A3354705            |
| 5.5ABWNA1E     | 1          | 5.5kV         | 50kA        | 5.6 (142.2)   | 1 (25.4)    | 4.42 (112.2)  | A3354705            |
| 5.5ABWNA2E     | 2          | 5.5kV         | 50kA        | 5.6 (142.2)   | 1 (25.4)    | 4.42 (112.2)  | A3354705            |
| 5.5ABWNA3E     | 3          | 5.5kV         | 50kA        | 5.6 (142.2)   | 1 (25.4)    | 4.42 (112.2)  | A3354705            |
| 5.5ABWNA5E     | 5          | 5.5kV         | 50kA        | 5.6 (142.2)   | 1 (25.4)    | 4.42 (112.2)  | A3354705            |
| 5.5AMWNA0.5E   | 0.5        | 5.5kV         | 50kA        | 5.6 (142.2)   | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |
| 5.5AMWNA1.0E   | 1          | 5.5kV         | 50kA        | 5.6 (142.2)   | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |
| 5.5AMWNA2.0E   | 2          | 5.5kV         | 50kA        | 5.6 (142.2)   | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |
| 5.5AMWNA3.0E   | 3          | 5.5kV         | 50kA        | 5.6 (142.2)   | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |
| 5.5AMWNA4.0E   | 4          | 5.5kV         | 50kA        | 5.6 (142.2)   | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |
| 5.5AMWNA5.0E   | 5          | 5.5kV         | 50kA        | 5.6 (142.2)   | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |

Type CAVH are fitted with a striker pin for indication

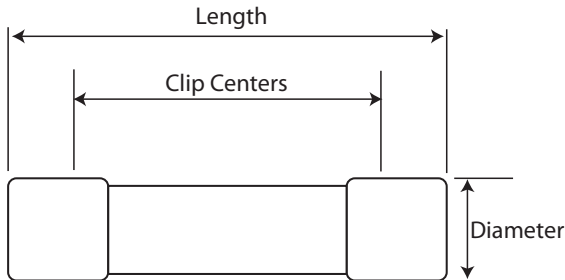
### 7.2kV; E-Rated PT Fuse; Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions   |             |               | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|--------------|-------------|---------------|---------------------|
|                |            |               |             | Length       | Diameter    | Clip Centers  |                     |
| 7.2CAV2        | 2          | 7.2kV         | 63kA        | 8.66 (220)   | 1.63 (41.3) | 7.46 (189.48) | 1A0835              |
| 7.2CAV4        | 4          | 7.2kV         | 63kA        | 8.66 (220)   | 1.63 (41.3) | 7.46 (189.48) | 1A0835              |
| 7.2CAV6        | 6          | 7.2kV         | 63kA        | 8.66 (220)   | 1.63 (41.3) | 7.46 (189.48) | 1A0835              |
| 7.2CAV10       | 10         | 7.2kV         | 63kA        | 8.66 (220)   | 1.63 (41.3) | 7.46 (189.48) | 1A0835              |
| 7.2ABWNA3.15   | 3.15       | 7.2kV         | 45kA        | 5.6 (142.2)  | 1 (25.4)    | 4.42 (112.2)  | A3354705            |
| 7.2ABWNA6.3    | 6.3        | 7.2kV         | 45kA        | 5.6 (142.2)  | 1 (25.4)    | 4.42 (112.2)  | A3354705            |
| 7.2ABCNA3.15   | 3.15       | 7.2kV         | 45kA        | 7.69 (195.3) | 1 (25.4)    | 6.51 (165.3)  | A3354705            |
| 7.2ABCNA6.3    | 6.3        | 7.2kV         | 45kA        | 7.69 (195.3) | 1 (25.4)    | 6.51 (165.3)  | A3354705            |
| 7.2AMWNA0.5E   | 0.5        | 7.2kV         | 50kA        | 5.6 (142.2)  | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |
| 7.2AMWNA1.0E   | 1          | 7.2kV         | 50kA        | 5.6 (142.2)  | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |
| 7.2AMWNA2.0E   | 2          | 7.2kV         | 50kA        | 5.6 (142.2)  | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |
| 7.2AMWNA3.0E   | 3          | 7.2kV         | 50kA        | 5.6 (142.2)  | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |
| 7.2AMWNA4.0E   | 4          | 7.2kV         | 50kA        | 5.6 (142.2)  | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |
| 7.2AMWNA5.0E   | 5          | 7.2kV         | 50kA        | 5.6 (142.2)  | 0.81 (20.6) | 4.79 (121.6)  | 1A1837              |



## E-Rated Fuses for Potential & Small Power Transformers

### Dimension Illustration



### Catalog Numbers: E-Rated PT Fuses, Indicating & Non-Indicating

#### 12kV; E-Rated PT Fuse; Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions   |             |               | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|--------------|-------------|---------------|---------------------|
|                |            |               |             | Length       | Diameter    | Clip Centers  |                     |
| 12CAV2         | 2          | 12kV          | 40kA        | 8.66 (220)   | 1.63 (41.3) | 7.46 (189.48) | 1A0835              |
| 12ABCNA3.15    | 3.15       | 12kV          | 45kA        | 7.69 (195.3) | 1 (25.4)    | 6.51 (165.3)  | A3354705            |

#### 15.5kV; E-Rated PT Fuse; Indicating & Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions    |             |              | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|---------------|-------------|--------------|---------------------|
|                |            |               |             | Length        | Diameter    | Clip Centers |                     |
| 15.5CAV(H)0.5E | 0.5        | 15.5kV        | 80kA        | 12.87 (326.9) | 1.63 (41.3) | 1.2 (30.5)   | 1A0835              |
| 15.5CAV(H)1E   | 1          | 15.5kV        | 80kA        | 12.87 (326.9) | 1.63 (41.3) | 1.2 (30.5)   | 1A0835              |
| 15.5CAV(H)2E   | 2          | 15.5kV        | 80kA        | 12.87 (326.9) | 1.63 (41.3) | 1.2 (30.5)   | 1A0835              |
| 15.5CAV3E      | 3          | 15.5kV        | 80kA        | 12.87 (326.9) | 1.63 (41.3) | 1.2 (30.5)   | 1A0835              |
| 15.5CAV5E      | 5          | 15.5kV        | 80kA        | 12.87 (326.9) | 1.63 (41.3) | 1.2 (30.5)   | 1A0835              |
| 15.5CAV7E      | 7          | 15.5kV        | 80kA        | 12.87 (326.9) | 1.63 (41.3) | 1.2 (30.5)   | 1A0835              |

Type CAVH are fitted with a striker pin for indication

#### 17.5kV; E-Rated PT Fuse; Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions    |             |               | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|---------------|-------------|---------------|---------------------|
|                |            |               |             | Length        | Diameter    | Clip Centers  |                     |
| 17.5CAV2       | 2          | 17.5kV        | 40kA        | 8.66 (220)    | 1.63 (41.3) | 7.46 (189.48) | 1A0835              |
| 17.5CAV4       | 4          | 17.5kV        | 40kA        | 8.66 (220)    | 1.63 (41.3) | 7.46 (189.48) | 1A0835              |
| 17.5CAV6       | 6          | 17.5kV        | 40kA        | 8.66 (220)    | 1.63 (41.3) | 7.46 (189.48) | 1A0835              |
| 17.5CAV10      | 10         | 17.5kV        | 40kA        | 8.66 (220)    | 1.63 (41.3) | 7.46 (189.48) | 1A0835              |
| 17.5ABGNA3.15  | 3.15       | 17.5kV        | 35kA        | 14.13 (358.9) | 1 (25.4)    | 12.95 (328.9) | A3354705            |

#### 24kV; E-Rated PT Fuse; Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions    |             |                | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|---------------|-------------|----------------|---------------------|
|                |            |               |             | Length        | Diameter    | Clip Centers   |                     |
| 24CAV2         | 2          | 24kV          | 40kA        | 13.39 (340.1) | 1.63 (41.3) | 12.19 (309.62) | 1A0835              |
| 24CAV3         | 3          | 24kV          | 40kA        | 13.39 (340.1) | 1.63 (41.3) | 12.19 (309.62) | 1A0835              |
| 24CAV4         | 4          | 24kV          | 40kA        | 13.39 (340.1) | 1.63 (41.3) | 12.19 (309.62) | 1A0835              |
| 24ABGNA3.15    | 3.15       | 24kV          | 25kA        | 14.13 (358.9) | 1 (25.4)    | 12.95 (328.9)  | A3354705            |

#### 36kV; E-Rated PT Fuse; Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions    |             |                | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|---------------|-------------|----------------|---------------------|
|                |            |               |             | Length        | Diameter    | Clip Centers   |                     |
| 36CAV2         | 2          | 36kV          | 40kA        | 17.32 (439.9) | 1.63 (41.3) | 16.12 (409.44) | 1A0835              |
| 36CAV4         | 4          | 36kV          | 40kA        | 17.32 (439.9) | 1.63 (41.3) | 16.12 (409.44) | 1A0835              |
| 36ABGNA3.15    | 3.15       | 36kV          | 31.5kA      | 14.13 (358.9) | 1 (25.4)    | 12.95 (328.9)  | A3354705            |

#### 38kV; E-Rated PT Fuse; Indicating & Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions    |             |                | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|---------------|-------------|----------------|---------------------|
|                |            |               |             | Length        | Diameter    | Clip Centers   |                     |
| 38CAVH0.5E     | 0.5        | 38kV          | 40kA        | 17.32 (439.9) | 1.63 (41.3) | 16.12 (409.44) | 1A0835              |
| 38CAVH1E       | 1          | 38kV          | 40kA        | 17.32 (439.9) | 1.63 (41.3) | 16.12 (409.44) | 1A0835              |
| 38CAVH2E       | 2          | 38kV          | 40kA        | 17.32 (439.9) | 1.63 (41.3) | 16.12 (409.44) | 1A0835              |
| 38CAV4E        | 4          | 38kV          | 40kA        | 17.32 (439.9) | 1.63 (41.3) | 16.12 (409.44) | 1A0835              |

# E-Rated, PT Fuses for Potential & Small Power Transformers

## JCD, JCW, JCQ, JCI & JCT

### Specifications

**Description:** Indicating and non-indicating E-rated medium voltage, current-limiting fuses for potential and small power transformers.

**Dimensions:** See Catalog Numbers table.

**Construction:** Plated ferrules.

### Ratings:

Volts: — 2.4-15.5kV (See Catalog Numbers table for details)

Amps: — ½-10A

IR: — 25-80kA Sym

— 40-130kA ASYM

— See Catalog Numbers table for details



### Features and Benefits

- Sized for retrofitting in existing hardware
- Space saving size

### Typical Applications

- Primary protection of medium voltage potential transformers
- Primary protection of small medium voltage service transformers
- Primary protection of small medium voltage control transformers

### 2.4kV; E-Rated PT Fuse; Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions |          |              | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|------------|----------|--------------|---------------------|
|                |            |               |             | Length     | Diameter | Clip Centers |                     |
| JCD-1-2E       | 0.5        | 2.4kV         | 63kA        | 4.49 (114) | 0.8 (20) | 3.86 (98)    | 1A1837              |
| JCD-1E         | 1          | 2.4kV         | 40kA        | 4.49 (114) | 0.8 (20) | 3.86 (98)    | 1A1837              |
| JCD-2E         | 2          | 2.4kV         | 40kA        | 4.49 (114) | 0.8 (20) | 3.86 (98)    | 1A1837              |
| JCD-5E         | 5          | 2.4kV         | 25kA        | 4.49 (114) | 0.8 (20) | 3.86 (98)    | 1A1837              |

### 2.4/5.5kV; E-Rated PT Fuse; Non-indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions |             |              | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|------------|-------------|--------------|---------------------|
|                |            |               |             | Length     | Diameter    | Clip Centers |                     |
| JCW-1/2E       | 0.5        | 2.4kV/5.5kV   | 40kA        | 7.31 (185) | 1.56 (39.7) | 5.93 (150.6) | 1A0835              |
| JCW-1E         | 1          | 2.4kV/5.5kV   | 40kA        | 7.31 (185) | 1.56 (39.7) | 5.93 (150.6) | 1A0835              |
| JCW-2E         | 2          | 2.4kV/5.5kV   | 40kA        | 7.31 (185) | 1.56 (39.7) | 5.93 (150.6) | 1A0835              |
| JCW-3E         | 3          | 2.4kV/5.5kV   | 40kA        | 7.31 (185) | 1.56 (39.7) | 5.93 (150.6) | 1A0835              |
| JCW-4E         | 4          | 2.4kV/5.5kV   | 40kA        | 7.31 (185) | 1.56 (39.7) | 5.93 (150.6) | 1A0835              |
| JCW-5E         | 5          | 2.4kV/5.5kV   | 40kA        | 7.31 (185) | 1.56 (39.7) | 5.93 (150.6) | 1A0835              |

### 5.5kV; E-Rated PT Fuse; Indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions  |            |              | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|-------------|------------|--------------|---------------------|
|                |            |               |             | Length      | Diameter   | Clip Centers |                     |
| JCQ-3E         | 3          | 5.5kV         | 130kA       | 9.5 (241.3) | 1.6 (40.6) | 8.12 (206)   | 1A0835              |
| JCQ-5E         | 5          | 5.5kV         | 130kA       | 9.5 (241.3) | 1.6 (40.6) | 8.12 (206)   | 1A0835              |
| JCQ-10E        | 10         | 5.5kV         | 130kA       | 9.5 (241.3) | 1.6 (40.6) | 8.12 (206)   | 1A0835              |

### 8.3kV; E-Rated PT Fuse; Indicating

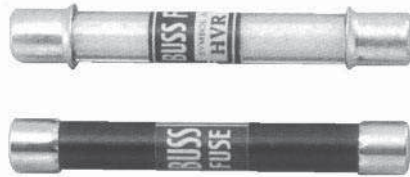
| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions  |            |              | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|-------------|------------|--------------|---------------------|
|                |            |               |             | Length      | Diameter   | Clip Centers |                     |
| JCI-3E         | 3          | 8.3kV         | 80kA        | 12.88 (327) | 1.6 (40.6) | 11.5 (292)   | 1A0835              |
| JCI-5E         | 5          | 8.3kV         | 80kA        | 12.88 (327) | 1.6 (40.6) | 11.5 (292)   | 1A0835              |
| JCI-10E        | 10         | 8.3kV         | 80kA        | 12.88 (327) | 1.6 (40.6) | 11.5 (292)   | 1A0835              |

### 15.5kV; E-Rated PT Fuse; Indicating

| Catalog Number | Amp Rating | Rated Voltage | IR RMS Sym. | Dimensions   |            |               | Spare Parts (Clips) |
|----------------|------------|---------------|-------------|--------------|------------|---------------|---------------------|
|                |            |               |             | Length       | Diameter   | Clip Centers  |                     |
| JCT-3E         | 3          | 15.5kV        | 80kA        | 17.5 (444.5) | 1.6 (40.6) | 16.12 (409.4) | 1A0835              |
| JCT-5E         | 5          | 15.5kV        | 80kA        | 17.5 (444.5) | 1.6 (40.6) | 16.12 (409.4) | 1A0835              |
| JCT-10E        | 10         | 15.5kV        | 80kA        | 17.5 (444.5) | 1.6 (40.6) | 16.12 (409.4) | 1A0835              |

## PT Fuses

**HVA, HVB,  
HVJ, HVL,  
HVR, HVT,  
HVU, HVW &  
HVX**



### Specifications

**Description:** Medium voltage, non-time delay, fast-acting fuses.

**Dimensions:** See Basic Catalog Numbers table.

### Ratings:

Volts: — 1-10kV (See Basic Catalog Numbers table)

Amps: — 1/6-10A (See Basic Catalog Numbers table)

### Features and Benefits

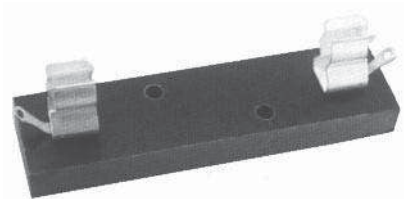
- Physical size varies with electrical rating of fuse to prevent over-fusing.
- Space saving size.

### Typical Applications

- Medium Voltage Instrument Protection
- Medium Voltage Circuit Protection

### Test Specifications

| Basic Catalog Numbers   | Load / Opening Time                         |
|-------------------------|---|
| HVA, HVB, HVJ, HVL      | 110% / 4 Hours (min)<br>135% / 1 Hour (max) |
| HVR, HVT, HVU, HVW, HVX | 100% / 4 Hours (min)<br>150% / 1 Hour (max) |



**Fuse blocks:** 4528, 4529

**Voltage Rating:** 1000 to 10,000V

| Basic Catalog Numbers | Fuse Block Catalog Number | Fuse Clip Catalog Number |
|-----------------------|---------------------------|--------------------------|
| HVA, HVR              | 4528                      | 5960                     |
| HVB, HVT              | 4529                      | 5960                     |
| HVJ, HVU              | N/A                       | 4180                     |
| HVL, HVX              | N/A                       | 4180                     |

Use #8 screws on blocks 4528 and 4529.

| Basic Catalog Number | kV  | Amp Ratings   | Maximum S.C.       | Dimensions - in (mm) |              |
|----------------------|-----|---|--------------------|----------------------|--------------|
|                      |     |   |                    | Diameter             | Length       |
| HVA                  | 1   | 1/6, 1/10, 1/8, 3/10, 1/4, 3/16, 1/2, 3/8, 1, 1 1/2, 2, 3, 4, 6, 10 | 20kW DC/30kVA AC   | 0.41 (10.4)          | 3 (76.1)     |
| HVB                  | 2.5 | 1/2, 3/4, 1, 1 1/2, 2, 3  | 20kW DC/30kVA AC   | 0.41 (10.4)          | 4.5 (114.2)  |
| HVJ                  | 5   | 1/6, 1/8, 1/4, 1/2, 3/4, 1 1/2, 2, 4, 6, 10                         | 20kW DC/30kVA AC   | 0.81 (20.6)          | 5 (126.9)    |
| HVL                  | 10  | 1/6, 1/8, 1/4, 1/2, 1, 1 1/2, 2, 3                                  | 20kW DC/30kVA AC   | 0.81 (20.6)          | 10 (254)     |
| HVR                  | 1   | 1/2, 1, 2, 3, 4, 5  | kVA-500 AC only    | 0.41 (10.4)          | 3 (76.2)     |
| HVW                  | 1.2 | 1, 2, 3, 4, 5, 8  | kVA-12,000 AC only | 0.41 (10.4)          | 2.25 (57.1)  |
| HVT                  | 2.5 | 1/2, 1, 2, 3, 5   | kVA-1250 AC only   | 0.41 (10.4)          | 4.5 (114.2)  |
| HVU                  | 5   | 1/2, 1, 2, 3, 4, 5  | kVA-2500 AC only   | 0.81 (20.6)          | 5 (126.9)    |
| HVX                  | 10  | 1/2, 1, 3, 5  | kVA-5,000 AC only  | 0.41 (10.4)          | 10.0 (253.8) |

### Catalog Number Build-A-Code

Basic Catalog Number      Amps

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# R-Rated Fuses for Motor Circuit Protection

**JCG, JCH, JCK,  
JCK-A, JCK-B, JCL,  
JCL-A, JCL-B, JCR-A,  
& JCR-B**

**Specifications**

**Description:** Indoor/enclosure R-Rated medium voltage, current-limiting fuses for motor circuit protection.

**Dimensions:** See Dimensions illustrations.

**Ratings:**

- Volts: — 2.4-7.2kV (See Catalog Numbers table for details)
- Amps: — 25-450A (See Catalog Numbers table for details)
- IR: — 50kA Sym
- 80kA ASYM
- See Catalog Numbers table for details



**Agency Information:** UL Recognized: 2540Vac — JCK, JCK-A, 5080Vac — JCL, JCL-A, UL Recognized (Guide #MSSS2, File #E96676).

**Features and Benefits**

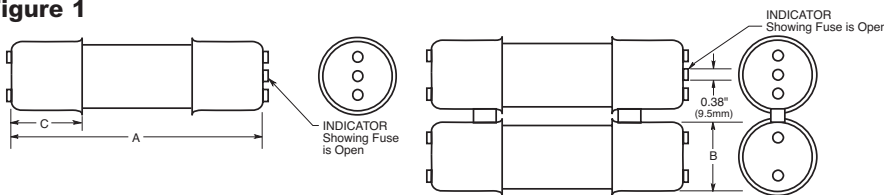
- Physically dimensioned for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Available with optional Cutler Hammer® hookeye for ease of insertion and removal
- Classified as back-up fuses for current-limited protection of medium voltage motor controllers

**Typical Applications**

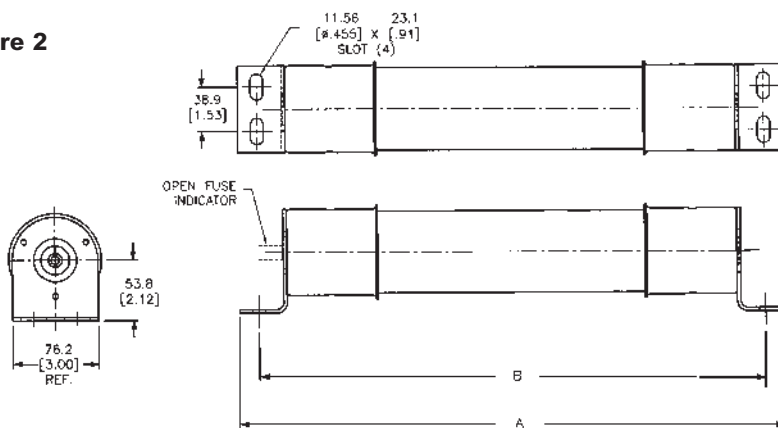
- Medium Voltage Motor Controllers

**Dimensions - mm (in)**

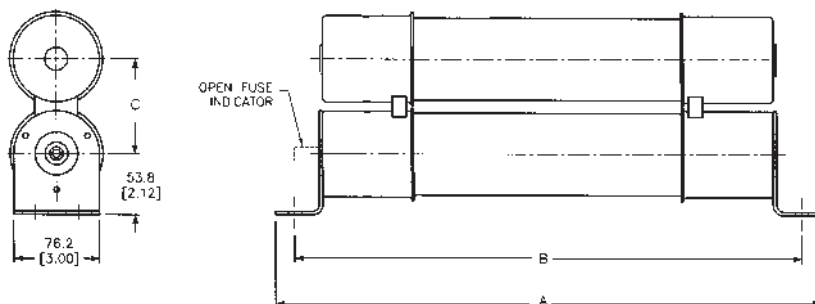
**Figure 1**



**Figure 2**



**Figure 3**



Data Sheet 6001

# R-Rated Fuses for Motor Circuit Protection

## Catalog Numbers: R-Rated; Indoor/Enclosure

| Catalog Numbers             | Amp Ratings | Maximum Design Voltage | Dimensions - in (mm)* |            |            | Construction | Max Int. Cap. Amps (Asym.) | Amps (Sym.) | Min Int. Cap. Amps (Sym.) |
|-----------------------------|-------------|------------------------|-----------------------|------------|------------|--------------|----------------------------|-------------|---------------------------|
|                             |             |                        | A                     | B          | C          |              |                            |             |                           |
| <b>2400V (See Figure 1)</b> |             |                        |                       |            |            |              |                            |             |                           |
| JCK-2R                      | 70          | 2540                   | 11.24 (285.5)         | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 165                       |
| JCK-3R                      | 100         | 2540                   | 11.24 (285.5)         | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 220                       |
| JCK-4R                      | 130         | 2540                   | 11.24 (285.5)         | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 320                       |
| JCK-5R                      | 150         | 2540                   | 11.24 (285.5)         | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 410                       |
| JCK-6R                      | 170         | 2540                   | 11.24 (285.5)         | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 480                       |
| JCK-9R                      | 200         | 2540                   | 11.24 (285.5)         | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 720                       |
| JCK-12R                     | 230         | 2540                   | 11.24 (285.5)         | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 970                       |
| JCK-18R                     | 390         | 2540                   | 11.24 (285.5)         | 3.0 (76.2) | 3.0 (76.2) | Double       | 80,000                     | 50,000      | 1,430                     |
| JCK-24R                     | 450         | 2540                   | 11.24 (285.5)         | 3.0 (76.2) | 3.0 (76.2) | Double       | 80,000                     | 50,000      | 1,880                     |

## 2400V — With Westinghouse Ampguard Hookeye (See Figure 1)

|           |     |      |               |            |            |        |        |        |       |
|-----------|-----|------|---------------|------------|------------|--------|--------|--------|-------|
| JCK-A-2R  | 70  | 2540 | 11.24 (285.5) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 165   |
| JCK-A-3R  | 100 | 2540 | 11.24 (285.5) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 220   |
| JCK-A-4R  | 130 | 2540 | 11.24 (285.5) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 320   |
| JCK-A-5R  | 150 | 2540 | 11.24 (285.5) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 410   |
| JCK-A-6R  | 170 | 2540 | 11.24 (285.5) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 480   |
| JCK-A-9R  | 200 | 2540 | 11.24 (285.5) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 720   |
| JCK-A-12R | 230 | 2540 | 11.24 (285.5) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 970   |
| JCK-A-18R | 390 | 2540 | 11.24 (285.5) | 3.0 (76.2) | 3.0 (76.2) | Double | 80,000 | 50,000 | 1,430 |
| JCK-A-24R | 450 | 2540 | 11.24 (285.5) | 3.0 (76.2) | 3.0 (76.2) | Double | 80,000 | 50,000 | 1,880 |

## 2400V — Bolt-On (See Figures 2 & 3)

|           |     |      |               |               |             |        |        |        |       |
|-----------|-----|------|---------------|---------------|-------------|--------|--------|--------|-------|
| JCK-B-30  | 25  | 2540 | 14.18 (360.2) | 12.81 (325.4) | -           | Single | 80,000 | 50,000 | 90    |
| JCK-B-2R  | 70  | 2540 | 14.18 (360.2) | 12.81 (325.4) | -           | Single | 80,000 | 50,000 | 170   |
| JCK-B-3R  | 100 | 2540 | 14.18 (360.2) | 12.81 (325.4) | -           | Single | 80,000 | 50,000 | 245   |
| JCK-B-4R  | 130 | 2540 | 14.18 (360.2) | 12.81 (325.4) | -           | Single | 80,000 | 50,000 | 340   |
| JCK-B-5R  | 150 | 2540 | 14.18 (360.2) | 12.81 (325.4) | -           | Single | 80,000 | 50,000 | 430   |
| JCK-B-6R  | 170 | 2540 | 14.18 (360.2) | 12.81 (325.4) | -           | Single | 80,000 | 50,000 | 500   |
| JCK-B-9R  | 200 | 2540 | 14.18 (360.2) | 12.81 (325.4) | -           | Single | 80,000 | 50,000 | 1,000 |
| JCK-B-12R | 230 | 2540 | 14.18 (360.2) | 12.81 (325.4) | -           | Single | 80,000 | 50,000 | 1,250 |
| JCK-B-18R | 390 | 2540 | 14.18 (360.2) | 12.81 (325.4) | 3.56 (90.4) | Double | 80,000 | 50,000 | 1,700 |
| JCK-B-24R | 450 | 2540 | 14.18 (360.2) | 12.81 (325.4) | 3.56 (90.4) | Double | 80,000 | 50,000 | 1,210 |

## 2400V — Hermetically Sealed, For Use with Ampguard Motor Starters (See Figure 1)

|         |     |      |               |            |            |        |        |        |       |
|---------|-----|------|---------------|------------|------------|--------|--------|--------|-------|
| JCH-30  | 25  | 2540 | 10.81 (275.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 90    |
| JCH-2R  | 70  | 2540 | 10.81 (275.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 170   |
| JCH-3R  | 100 | 2540 | 10.81 (275.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 245   |
| JCH-4R  | 130 | 2540 | 10.81 (275.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 340   |
| JCH-5R  | 150 | 2540 | 10.81 (275.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 430   |
| JCH-6R  | 170 | 2540 | 10.81 (275.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 500   |
| JCH-9R  | 200 | 2540 | 10.81 (275.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 1,000 |
| JCH-12R | 230 | 2540 | 10.81 (275.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 1,250 |
| JCH-18R | 390 | 2540 | 10.81 (275.6) | 3.0 (76.2) | 3.0 (76.2) | Double | 80,000 | 50,000 | 1,700 |
| JCH-24R | 450 | 2540 | 10.81 (275.6) | 3.0 (76.2) | 3.0 (76.2) | Double | 80,000 | 50,000 | 2,100 |

## 4800V (See Figure 1)

|         |     |      |               |            |            |        |        |        |       |
|---------|-----|------|---------------|------------|------------|--------|--------|--------|-------|
| JCL-2R  | 70  | 5080 | 15.76 (400.3) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 165   |
| JCL-3R  | 100 | 5080 | 15.76 (400.3) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 220   |
| JCL-4R  | 130 | 5080 | 15.76 (400.3) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 320   |
| JCL-5R  | 150 | 5080 | 15.76 (400.3) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 410   |
| JCL-6R  | 170 | 5080 | 15.76 (400.3) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 480   |
| JCL-9R  | 200 | 5080 | 15.76 (400.3) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 720   |
| JCL-12R | 230 | 5080 | 15.76 (400.3) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 970   |
| JCL-18R | 390 | 5080 | 15.76 (400.3) | 3.0 (76.2) | 3.0 (76.2) | Double | 80,000 | 50,000 | 1,430 |
| JCL-24R | 450 | 5080 | 15.76 (400.3) | 3.0 (76.2) | 3.0 (76.2) | Double | 80,000 | 50,000 | 1,880 |

\* See previous page Figure 2 for single construction and Figure 3 for double construction information.  
Recommended fuseclips: see page 120 - 1A0065, A3354730, 9078A67G04.



# R-Rated Fuses for Motor Circuit Protection

## Catalog Numbers: R-Rated; Indoor/Enclosure

| Catalog Numbers  | Amp Ratings | Maximum Design Voltage | Dimensions - in (mm) |            |            | Construction | Max Int. Cap. Amps (Asym.) | Amps (Sym.) | Min Int. Cap. Amps (Sym.) |
|--|-------------|------------------------|----------------------|------------|------------|--------------|----------------------------|-------------|---------------------------|
|  |             |                        | A                    | B          | C          |              |                            |             |                           |
| <b>4800V — With Westinghouse Ampguard Hookeye (See Figure 1)</b> |             |                        |                      |            |            |              |                            |             |                           |
| JCL-A-2R   | 70          | 5080                   | 15.76 (400.3)        | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 165                       |
| JCL-A-3R   | 100         | 5080                   | 15.76 (400.3)        | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 220                       |
| JCL-A-4R   | 130         | 5080                   | 15.76 (400.3)        | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 320                       |
| JCL-A-5R   | 150         | 5080                   | 15.76 (400.3)        | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 410                       |
| JCL-A-6R   | 170         | 5080                   | 15.76 (400.3)        | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 480                       |
| JCL-A-9R   | 200         | 5080                   | 15.76 (400.3)        | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 720                       |
| JCL-A-12R  | 230         | 5080                   | 15.76 (400.3)        | 3.0 (76.2) | 3.0 (76.2) | Single       | 80,000                     | 50,000      | 970                       |
| JCL-A-18R  | 390         | 5080                   | 15.76 (400.3)        | 3.0 (76.2) | 3.0 (76.2) | Double       | 80,000                     | 50,000      | 1,430                     |
| JCL-A-24R  | 450         | 5080                   | 15.76 (400.3)        | 3.0 (76.2) | 3.0 (76.2) | Double       | 80,000                     | 50,000      | 1,880                     |

## 4800V — Bolt-On (See Figures 2 & 3)

|           |     |      |               |               |             |        |        |        |       |
|-----------|-----|------|---------------|---------------|-------------|--------|--------|--------|-------|
| JCL-B-30  | 30  | 5080 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 95    |
| JCL-B-2R  | 70  | 5080 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 180   |
| JCL-B-3R  | 100 | 5080 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 270   |
| JCL-B-4R  | 130 | 5080 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 350   |
| JCL-B-5R  | 150 | 5080 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 450   |
| JCL-B-6R  | 170 | 5080 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 540   |
| JCL-B-9R  | 200 | 5080 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 700   |
| JCL-B-12R | 230 | 5080 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 1,000 |
| JCL-B-18R | 390 | 5080 | 19.25 (488.9) | 17.88 (454.1) | 3.31 (84.1) | Double | 80,000 | 50,000 | 1,450 |
| JCL-B-24R | 450 | 5080 | 19.25 (488.9) | 17.88 (454.1) | 3.31 (84.1) | Double | 80,000 | 50,000 | 2,000 |

## 4800V — Hermetically Sealed, For Use with Ampguard Motor Starters (See Figure 1)

|           |     |      |               |            |            |        |        |        |       |
|-----------|-----|------|---------------|------------|------------|--------|--------|--------|-------|
| JCG-30    | 30  | 5080 | 15.91 (404.1) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 95    |
| JCG-2R    | 70  | 5080 | 15.91 (404.1) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 180   |
| JCG-3R    | 100 | 5080 | 15.91 (404.1) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 270   |
| JCG-4R    | 130 | 5080 | 15.91 (404.1) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 350   |
| JCG-5R    | 150 | 5080 | 15.91 (404.1) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 450   |
| JCG-6R    | 170 | 5080 | 15.91 (404.1) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 540   |
| JCG-9R    | 200 | 5080 | 15.91 (404.1) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 700   |
| JCG-12R   | 230 | 5080 | 15.91 (404.1) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 1,000 |
| JCG-A-18R | 390 | 5080 | 15.91 (404.1) | 3.0 (76.2) | 3.0 (76.2) | Double | 80,000 | 50,000 | 1,450 |
| JCG-A-24R | 450 | 5080 | 15.91 (404.1) | 3.0 (76.2) | 3.0 (76.2) | Double | 80,000 | 50,000 | 2,000 |

## 7200V — With Ampguard Hookeye (See Figure 1)

|           |     |      |               |            |            |        |        |        |       |
|-----------|-----|------|---------------|------------|------------|--------|--------|--------|-------|
| JCR-A-2R  | 70  | 8300 | 15.85 (402.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 160   |
| JCR-A-3R  | 100 | 8300 | 15.85 (402.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 250   |
| JCR-A-4R  | 130 | 8300 | 15.85 (402.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 325   |
| JCR-A-5R  | 150 | 8300 | 15.85 (402.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 390   |
| JCR-A-6R  | 170 | 8300 | 15.85 (402.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 500   |
| JCR-A-9R  | 200 | 7200 | 15.85 (402.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 750   |
| JCR-A-12R | 230 | 7200 | 15.85 (402.6) | 3.0 (76.2) | 3.0 (76.2) | Single | 80,000 | 50,000 | 1,000 |
| JCR-A-18R | 390 | 7200 | 15.85 (402.6) | 3.0 (76.2) | 3.0 (76.2) | Double | 80,000 | 50,000 | 1,450 |
| JCR-A-24R | 450 | 7200 | 15.85 (402.6) | 3.0 (76.2) | 3.0 (76.2) | Double | 80,000 | 50,000 | 2,500 |

## 7200V — Bolt-On (See Figures 2 & 3)

|           |     |      |               |               |             |        |        |        |       |
|-----------|-----|------|---------------|---------------|-------------|--------|--------|--------|-------|
| JCR-B-2R  | 70  | 8300 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 160   |
| JCR-B-3R  | 100 | 8300 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 250   |
| JCR-B-4R  | 130 | 8300 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 325   |
| JCR-B-5R  | 150 | 8300 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 390   |
| JCR-B-6R  | 170 | 8300 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 500   |
| JCR-B-9R  | 200 | 7200 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 750   |
| JCR-B-12R | 230 | 7200 | 19.25 (488.9) | 17.88 (454.1) | -           | Single | 80,000 | 50,000 | 1,000 |
| JCR-B-18R | 390 | 7200 | 19.25 (488.9) | 17.88 (454.1) | 3.31 (84.1) | Double | 80,000 | 50,000 | 1,450 |
| JCR-B-24R | 450 | 7200 | 19.25 (488.9) | 17.88 (454.1) | 3.31 (84.1) | Double | 80,000 | 50,000 | 2,500 |

Recommended fuseclips: see page 120 - 1A0065, A3354730, 9078A67G04.

## British Standard Dimensioned IEC Fuses for Motor Circuit Protection

The Bussmann range of motor fuses are designed to meet the specific requirements necessary for motor protection. During the starting cycle of direct on-line motors, the fuse elements will reach a considerably higher temperature than during normal operation; (this is due to the high amount of current the motor will draw as it starts, typically, six times its normal load current value). This results in expansion and contraction of the fuse elements and could cause premature operation of the fuse.

Bussmann motor fuses encompass an advanced design to minimize this effect. This therefore, negates the need to over specify the fuse rating due to high values of motor starting current.

Bussmann motor fuses operate extremely quickly under heavy fault currents, resulting from the time / current characteristic. Low power dissipation ensures low temperature rise, important in multi-tier starters for example. Switching (arc), voltages are lower than permitted values, therefore, 5.5kV fuses are also suitable for 4.8kV and 2.4kV circuits.

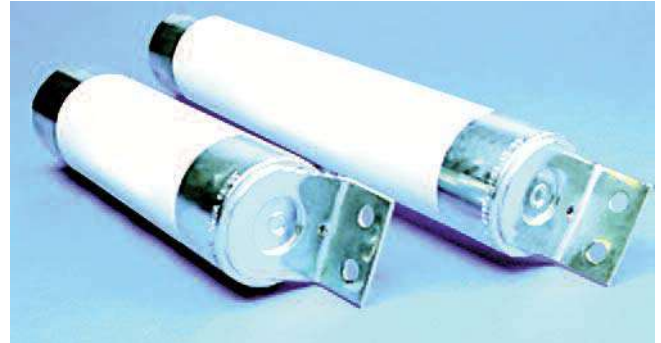


Table of Ratings

| Basic Cat. Number | Volts | Breaking Capacity | Amp Ratings                             | Dimensions - in (mm) |            | Dimensional Standard                              |
|-------------------|-------|-------------------|---|----------------------|------------|---|
|                   |       |                   |   | Length               | Diameter   |   |
| 3.6WJON6          | 3.6kV | 50kA              | 5, 6.3, 10, 16, 20, 25, 31.5, 40, 50    | 7.56 (192)           | 1.4 (35.6) | BS 2692 (TA1) Interchangeable with GEC Type K2 PA |
| 3.6WDOH6          | 3.6kV | 50kA              | 50, 63, 80, 100, 125                    | 7.56 (192)           | 2 (50.8)   | BS 2692 (TA1) or DIN 43625                        |
| 3.6WFOH6          | 3.6kV | 50kA              | 160, 200                                | 7.56 (192)           | 3 (76.2)   | BS 2692 (TA1) or DIN 43625                        |
| 3.6WDLSJ          | 3.6kV | 50kA              | 50, 63, 80, 100, 125                    | 11.5 (292.1)         | 2 (50.8)   | DIN 43625   |
| 3.6WFLSJ          | 3.6kV | 50kA              | 160, 200                                | 11.5 (292.1)         | 3 (76.2)   | DIN 43625   |
| 3.6WDFHO          | 3.6kV | 50kA              | 50, 63, 80, 100, 125                    | 10 (254)             | 2 (51)     | BS 2692 (TA2)                                     |
| 3.6WFFHO          | 3.6kV | 50kA              | 160, 200                                | 10 (254)             | 3 (76.2)   | BS 2692 (TA2)                                     |
| 3.6WKFHO          | 3.6kV | 50kA              | 250, 315, 355, 400                      | 10 (254)             | 3 (76.2)   | BS 2692 (TA2)                                     |
| 5.5VFNHA          | 5.5kV | 60kA              | 2R-6R                                   | 15.86 (402.8)        | 3 (76.2)   | ANSI R-Rated                                      |
| 5.5VKNHA          | 5.5kV | 60kA              | 9R-24R                                  | 15.86 (402.8)        | 3 (76.2)   | ANSI R-Rated                                      |
| 7.2WFNHO          | 7.2kV | 40kA              | 25, 31.5, 40, 50, 63, 80, 100, 125, 160 | 15.86 (402.8)        | 3 (76.2)   | BS 2692 (TA4)                                     |
| 7.2WKNHO          | 7.2kV | 40kA              | 200, 224, 250, 315                      | 15.86 (402.8)        | 3 (76.2)   | BS 2692 (TA4)                                     |
| 7.2WFMSJ          | 7.2kV | 63kA              | 25, 31.5, 40, 50, 63, 80, 125, 160      | 17.40 (442)          | 3 (76.2)   | DIN 43625   |
| 7.2WKMSJ          | 7.2kV | 63kA              | 200, 224, 250, 315, 355                 | 17.40 (442)          | 3 (76.2)   | DIN 43625   |

Catalog Number Build-A-Code

kV      Basic Catalog Number      Amps  
 ---      ---      ---

Medium Voltage Fuses

# DIN Dimensioned IEC Fuses for Transformer Protection

**DIN Dimension Fuses**  
To Spec. DIN 43625



**Specifications**

**Catalog Symbol:** See Basic Catalog Numbers table.

**Description:** DIN dimension fuses to Specification DIN 43625 covering current-limiting fuses with performance in compliance with IEC 60282-1. These are in accordance with the R10 and, in some cases, the R20 series of preferred numbers.

**Dimensions:** See Catalog Numbers table.

Volts: — See voltage associated with the Basic Catalog Numbers in the table.

Amps: — See amp rating associated with the Basic Catalog Numbers in the table.

IR: — See IR associated with the Basic Catalog Numbers in the table.

**Agency Information:** Comply with DIN dimensional standard DIN 43625, VDE 0670 part 4, VDE 0670 part 40Z and with IEC 60282-1 (2005).

**Features and Benefits**

- DIN dimensioned for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Designed for use in IEC equipment

**Typical Applications**

- Medium Voltage IEC designed equipment

**Catalog Number Build-A-Code**

kV      Basic Catalog Number      Amps  
 ---      ---      ---

**Catalog Numbers**

| kV   | Catalog Numbers | Amp Ratings                             | Dimensions - in (mm) Diameter x Length | IR RMS Sym |
|------|-----------------|---|--|------------|
| 3.6  | 3.6ADOSJ(amp)   | 6.3, 10, 16, 20, 25, 31.5, 40           | 2.00 x 7.56 (51 x 192)                 | 50kA       |
|      | 3.6WDOSJ(amp)   | 50, 63, 80, 100, 125                    | 2.00 x 7.56 (51 x 192)                 |            |
|      | 3.6WFOSJ(amp)   | 160, 200                                | 3.00 x 7.56 (76 x 192)                 |            |
|      | 3.6ADLSJ(amp)   | 25, 40                                  | 2.00 x 11.50 (51 x 292)                |            |
|      | 3.6WDLSJ(amp)   | 50, 63, 80, 100, 125                    | 2.00 x 11.50 (51 x 292)                |            |
|      | 3.6WFLSJ(amp)   | 160, 200                                | 3.00 x 11.50 (76 x 292)                |            |
|      | 3.6WKLSJ(amp)   | 250, 315, 400                           | 3.00 x 11.50 (76 x 292)                |            |
| 7.2  | 7.2DLSJ(amp)    | 6.3, 10, 16, 20, 25, 31.5, 40, 50, 63   | 2.00 x 11.50 (51 x 292)                | 40kA       |
|      | 7.2FLSJ(amp)    | 80, 100, 125, 160                       | 3.00 x 11.50 (76 x 292)                |            |
|      | 7.2WKMSJ(amp)   | 200, 225, 250, 315, 355                 | 3.00 x 17.41 (76 x 442)                |            |
| 12   | 12DLEJ(amp)     | 6.3, 10, 16, 20, 25, 31.5, 40, 50, 63   | 2.00 x 11.50 (51 x 292)                | 63kA       |
|      | 12HLEJ(amp)     | 80, 100                                 | 2.52 x 11.50 (64 x 292)                |            |
|      | 12KLEJ(amp)     | 125                                     | 3.00 x 11.50 (76 x 292)                |            |
|      | 12TXLEJ(amp)*   | 160, 200                                | 3.50 x 11.50 (88 x 292)                |            |
| 17.5 | 17.5DLSJ(amp)*  | 6.3, 10, 16, 20, 25, 31.5, 40           | 2.00 x 11.50 (51 x 292)                | 35.5kA     |
|      | 17.5FLSJ(amp)*  | 50                                      | 3.00 x 11.50 (76 x 292)                |            |
|      | 17.5DMEJ(amp)   | 6.3, 10, 16, 20, 25, 31.5, 40, 50, 63   | 2.00 x 17.41 (51 x 442)                | 50kA       |
|      | 17.5HMEJ(amp)   | 80, 100                                 | 2.52 x 17.41 (64 x 442)                |            |
|      | 17.5KMEJ(amp)   | 125                                     | 3.00 x 17.41 (76 x 442)                |            |
| 24   | 24DMEJ(amp)     | 6.3, 10, 16, 20, 25, 31.5, 40, 50       | 2.00 x 17.41 (51 x 442)                | 50kA       |
|      | 24HMEJ(amp)     | 63                                      | 2.52 x 17.41 (64 x 442)                |            |
|      | 24TFMEJ(amp)    | 80, 100* <sup>1</sup>                   | 3.00 x 17.41 (76 x 442)                | 31.5kA     |
|      | 24TXMEJ(amp)*   | 125 <sup>2</sup> , 160                  | 3.46 x 17.41 (88 x 442)                |            |
| 36   | 36DQJSJ(amp)    | 3.15 <sup>3</sup> , 6.3, 10, 16, 20, 25 | 2.00 x 21.16 (51 x 537)                | 35.5kA     |
|      | 36TFQJSJ(amp)   | 31.5, 40, 50                            | 3.00 x 21.16 (76 x 537)                |            |
|      | 36TXQEJ(amp)*   | 63                                      | 3.46 x 21.16 (88 x 537)                | 20kA       |

Recommended fuseclips for DIN style fuses – 270303, A3354745 see page 120.

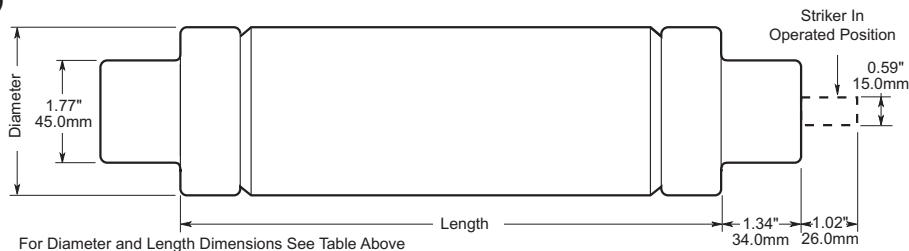
\*Not compliant with VDE 0670, part 402.

<sup>1</sup>-IR RMS Sym is 63kA

<sup>2</sup>-IR RMS Sym is 40kA

<sup>3</sup>-IR RMS Sym is 20kA

**Dimensions - In (mm)**



## Expulsion Fuse Links for Use in High Voltage Distribution Cut-Outs

### Specifications

**Description:** Expulsion fuse links available in a wide range of options from 15kV to 72kV in ANSI T&K characteristics.

### Ratings:

Volts: — 15 to 72kV

Amps: — 1 to 100A

Breaking Capacity: depends on voltage but is approximately 8kA

### Agency Information:

Type T: complies with ANSI C37-42

Type K: complies with ANSI C37-42

### Features and Benefits

- Wide range of options available from 15kV to 72kV in ANSI T & K characteristics.
- Extra rapid option also available.

### Packaging:

Up to and including 50A: 25 in a carton

From 60A to 100A: 10 in a carton

To avoid incorrect replacement the fuse links have colour coded labels:

Pink label: Type XA

Yellow label: Type K

Green label: Type T



### Typical Applications:

- Primary side transformer protection
- Feeder protection
- Capacitor bank protection

### Use of Application

Expulsion fuse links current ratings should be selected on the basis of maximum expected transient no damage currents rather than on full load current. In addition, the selection of higher current ratings will reduce the possibility of supply interruption due to transient surges such as those due to lightning strikes.

Links should be handled with a reasonable degree of care when installing. Excessively rough handling may damage the element.

It is normal, under certain fault conditions, for arc extinguishing material and/or metal particles to be expelled from the fuse assembly. It is therefore recommended that reasonable precautions be taken to prevent the installation being approached by unauthorised persons.

### How to order - Parts Referencing System

| Rated Voltage (kV)   | 1st Letter<br>Type of Current Characteristics  | 2nd Letter<br>Type of Termination   | Rated Current (A)  |
|----------------------|--|---|--|
| 15<br>25<br>46<br>72 | <p><b>T</b> = complies with ANSI C 37-42 requirements for slow acting T characteristics</p> <p><b>K</b> = complies with ANSI C 37-42 requirements for fast acting K characteristics</p> <p><b>XA</b> = this type of expulsion fuse link has an extra rapid characteristic. It is suitable for applications where a high degree of system protection is required at the expense of discrimination</p> <p><b>S</b> = Solid links rated at 100A are also available in both button head and universal versions for fitting into expulsion fuse carriers where required. These can be ordered in a similar way using the abbreviation S, e.g. 15SB, etc</p> | <p><b>B</b> = a fixed NEMA button head link</p> <p><b>U</b> = a universal link, with double tail and slip off NEMA button head</p> <p><b>D</b> = double tailed link without NEMA button head</p> <p><b>BR</b> = as pattern B but the button head is attached via a 1/4 UNF thread to allow use of an extension rod.</p> <p>See outline drawings opposite page for reference</p> | 1, 2, 3, 4, 5,<br>6, 7.5, 8, 10,<br>12, 15, 20,<br>25, 30, 40,<br>50, 60, 65,<br>75, 80, 100 |

Thus a typical ordering reference for a 15kV NEMA Type K, button head 30A fuse link would be 15KB30 expulsion fuse link.

The fuse link assembly for a given range is standard to all rated voltages. The exception is that the tail length is varied to suit the dimensions of expulsion carrier of different ratings.

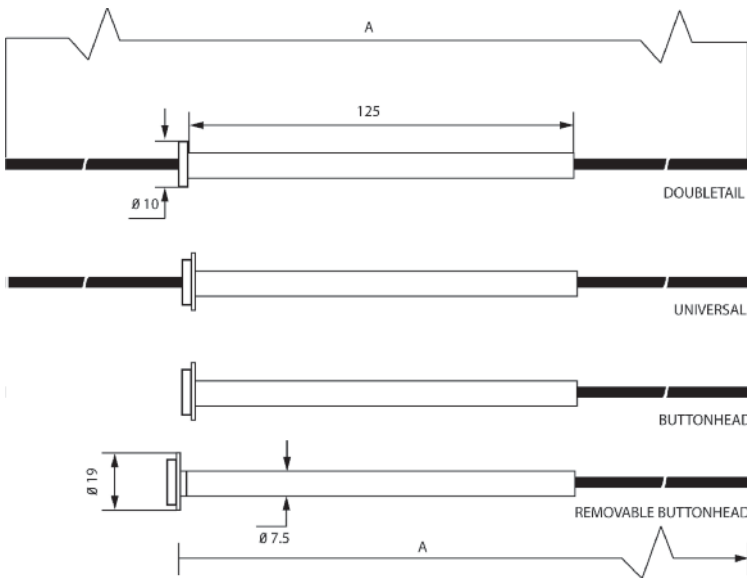
# Expulsion Fuse Links for Use in High Voltage Distribution Cut-Outs

## Dimensions - mm (in)

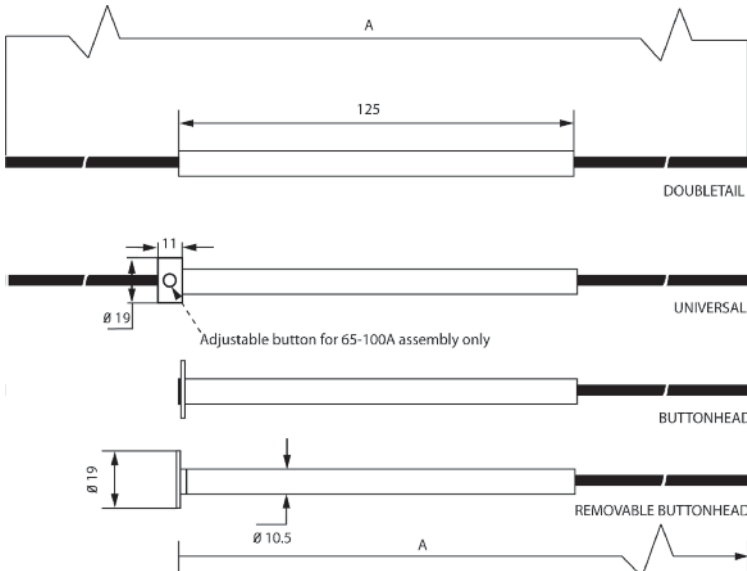
| Type kV | A          |
|---------|------------|
| 15kV    | 533 (21")  |
| 25kV    | 660 (26")  |
| 46kV    | 787 (31")  |
| 72kV    | 1016 (40") |

Notes: Type BR is similar to button head shown, except that the button head is attached via a ¼ UNF thread. Tails can be cut to any length.

### 1-50A



### 60-100A





# EEI-NEMA Type K & T and Type H & N

## FL: Type H and EEI-NEMA Type K & T Fuses



### Specifications

**Description:** Medium voltage fuses: Type H (high surge), EEI-NEMA Type K (fast-acting), EEI-NEMA Type T (slow-acting).

### Ratings:

Amps: — 1-200A  
(See Catalog Numbers tables)

### Features and Benefits

- Wide range of EEI-NEMA type fuse links for use in open fuse cutouts
- Voltage ratings up to 27kV.
- Can be coordinated with other overcurrent protective devices for sectionalizing to isolate feeder branches.

### Typical Applications

- Medium Voltage Fused Cutouts

### High-Surge Type H Fuses

High-surge, Type H fuses are manufactured in ratings of 1, 2, 3, 5, and 8A. They have been developed principally for primary fusing of small-sized transformers. Type H links are manufactured in the universal buttonhead design.

### Type N Fuses

Type N fuses conform to previous NEMA standards and have been superseded by Type K and T links. Type N fuses are manufactured in the universal button design in ratings of 5 through 200A for use in NEMA standard dimensioned cutouts rated through 27kV.

## Catalog Numbers

### EEI-NEMA and High-Surge Universal Tin Element

#### Fuses for Cutouts — Rated to 27kV

Non-Removable Button-Head For Standard Open or Enclosed Cutouts

| Catalog Numbers     |                        |                        |      |
|---------------------|------------------------|------------------------|------|
| Type H (High Surge) | EEI-NEMA Type K (Fast) | EEI-NEMA Type T (Slow) | Amps |
| FL11H1              | FL11K1                 | FL11T1                 | 1    |
| FL11H2              | FL11K2                 | FL11T2                 | 2    |
| FL11H3              | FL11K3                 | FL11T3                 | 3    |
| FL11H5              | FL11K5                 | FL11T5                 | 5    |
| —                   | FL11K6                 | FL11T6                 | 6    |
| FL11H8              | FL11K8                 | FL11T8                 | 8    |
| —                   | FL11K10                | FL11T10                | 10   |
| —                   | FL11K12                | FL11T12                | 12   |
| —                   | FL11K15                | FL11T15                | 15   |
| —                   | FL11K20                | FL11T20                | 20   |
| —                   | FL11K25                | FL11T25                | 25   |
| —                   | FL11K30                | FL11T30                | 30   |
| —                   | FL11K40                | FL11T40                | 40   |
| —                   | FL11K50                | FL11T50                | 50   |
| —                   | FL11K65                | FL11T65                | 65   |
| —                   | FL11K80                | FL11T80                | 80   |
| —                   | FL11K100               | FL11T100               | 100  |
| —                   | FL11K140               | FL11T140               | 140  |
| —                   | FL11K200               | FL11T200               | 200  |

Removable Button-Head For Cutouts Requiring Removable-Button Links

### Catalog Numbers

| EEI-NEMA Type K (Fast) | EEI-NEMA Type T (Slow) | Amps |
|------------------------|------------------------|------|
| FL3K1                  | FL3T1                  | 1    |
| FL3K2                  | FL3T2                  | 2    |
| FL3K3                  | FL3T3                  | 3    |
| FL3K5                  | FL3T5                  | 5    |
| FL3K6                  | FL3T6                  | 6    |
| FL3K8                  | FL3T8                  | 8    |
| FL3K10                 | FL3T10                 | 10   |
| FL3K12                 | FL3T12                 | 12   |
| FL3K15                 | FL3T15                 | 15   |
| FL3K20                 | FL3T20                 | 20   |
| FL3K25                 | FL3T25                 | 25   |
| FL3K30                 | FL3T30                 | 30   |
| FL3K40                 | FL3T40                 | 40   |
| FL3K50                 | FL3T50                 | 50   |
| FL3K65                 | FL3T65                 | 65   |
| FL3K80                 | FL3T80                 | 80   |
| FL3K100                | FL3T100                | 100  |
| FL3K140                | FL3T140                | 140  |
| FL3K200                | FL3T200                | 200  |

Adapter-type removable-button links with ferrule adapter to convert to double-leader links are available in K and T types. Order by description.

### EEI-NEMA Type K Universal Silver-Element Fuses

#### for Cutouts — Rated through 27kV

Non-Removable Button-Head For Standard Open or Enclosed Cutouts

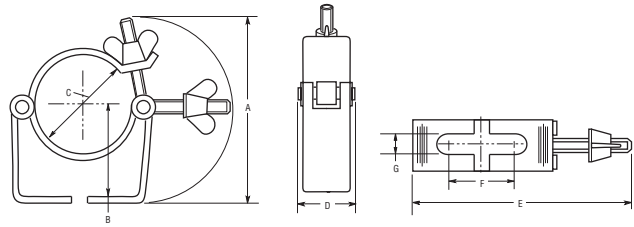
| Catalog Numbers |      |
|-----------------|------|
| EEI-NEMA Type K | Amps |
| FL12K8          | 8    |
| FL12K10         | 10   |
| FL12K12         | 12   |
| FL12K15         | 15   |
| FL12K25         | 25   |
| FL12K50         | 50   |

# Fuseclips for Medium & High Voltage Fuses

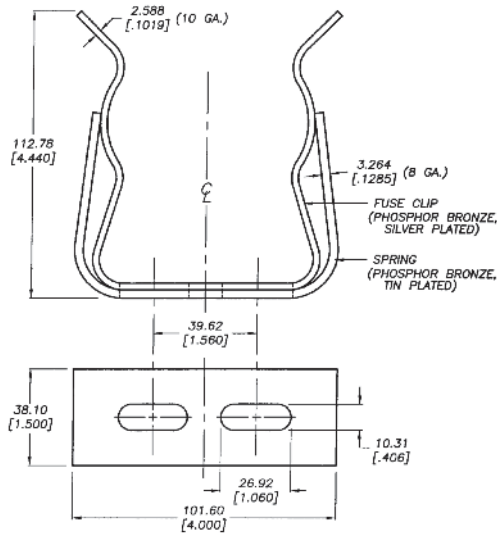
## Recommended Fuseclips for Medium Voltage Fuses

| Catalog Numbers | Fuse Diameter - in (mm) | Clip Dimensions (in) |       |       |       |       |       |       |
|-----------------|-------------------------|----------------------|-------|-------|-------|-------|-------|-------|
|                 |                         | A                    | B     | C     | D     | E     | F     | G     |
| A3354710        | 2 (50.8)                | 3.749                | 1.979 | 2.009 | 1.189 | 4.539 | 1.509 | 0.399 |
| A3354730        | 3 (76)                  | 4.139                | 2.449 | 3.009 | 1.189 | 5.639 | 1.509 | 0.399 |
| A3354745        | 1.77 (45)               | 3.50                 | 2.50  | 1.77  | 1.19  | 4.50  | 1.50  | 0.38  |

Fuseclips are for single barrel applications only. Are not sold in pairs.

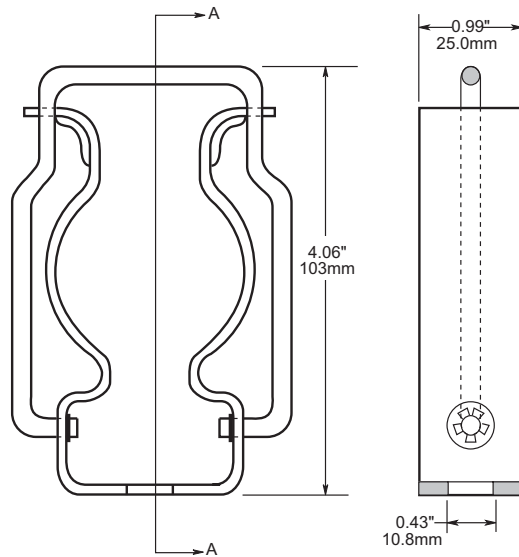


### 1A0065 3" Diameter Clip

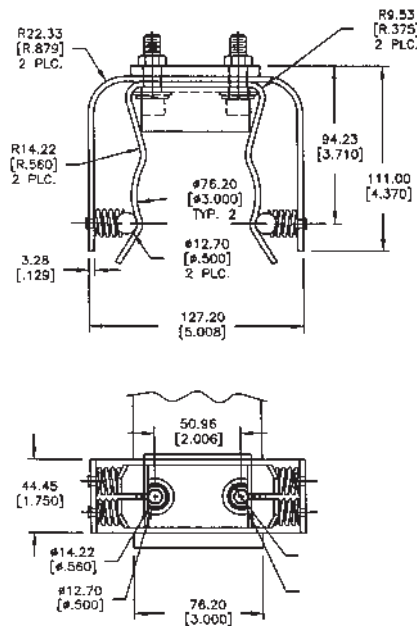


2 CLIP ASSEMBLIES PER PACKAGE.  
DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

### 270303 DIN Fuseclip



### 9078A67G04 3" Diameter Clip



2 Cup assemblies per package.  
Dimensions shown are for reference only.

# High Speed Fuses

## Section Contents

|  | <b>Page</b> |
|--|-------------|
| General Applications . . . . .               | 122-123     |
| North American fuses & accessories . . . . . | 124-141     |
| DFJ - High speed Class J fuse . . . . .      | 125         |
| Square Body fuses & accessories . . . . .    | 142-213     |
| BS 88 fuses & accessories . . . . .          | 214-222     |
| Ferrule fuses & accessories. . . . .         | 223-243     |



Scan this tag to get the latest product information for High Speed Fuses.



## General Applications

### Rated Voltage

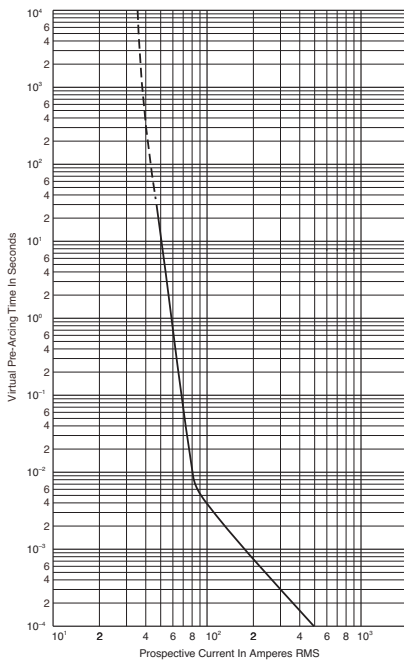
The AC voltage rating of Bussmann fuses is given in volts rms. Fuses tested to IEC are tested at 5% above their rated voltage. British Style BS 88 fuses are tested at 10% above their rated voltage. UL recognition tests are performed at the rated voltage.

### Rated Current

Rated current is given in amps rms. Bussmann fuses can continuously carry the rated current.

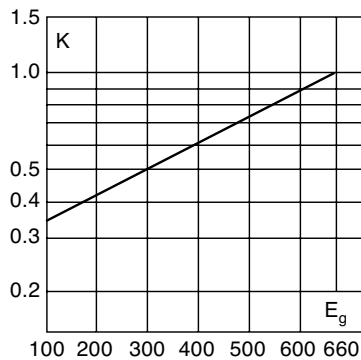
### Melting Characteristic

The melting characteristic shows the virtual melting time in seconds as a function of the prospective current in amps rms. The fuses are specially constructed for short-circuit protection against high level fault currents. Loading and operation of the fuse in the non-continuous/dashed section of the melt curve must be avoided. The curve can also be read as the real melting time as a function of the RMS value of the pre-arc current.



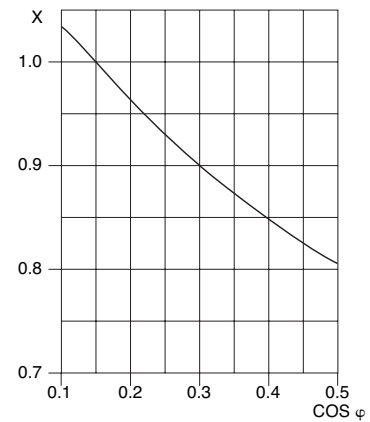
### Clearing Integrals

The total clearing  $I^2t$  at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing  $I^2t$  is found by multiplying by correction factor, K, given as a function of applied working voltage,  $E_g$ , (rms).



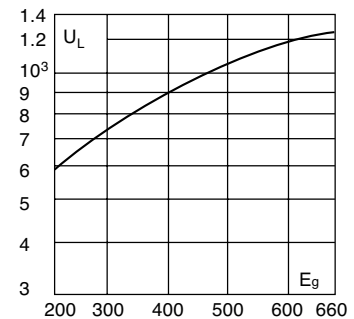
### Power Factor

For other power factor values, the total clearing integral can be calculated as a multiple of the clearing integrals, the correction factor K and the correction factor X.



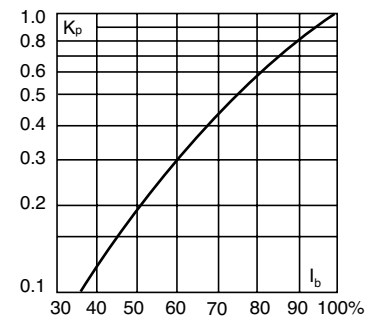
### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage,  $E_g$ , (rms) at a power factor of 15%.



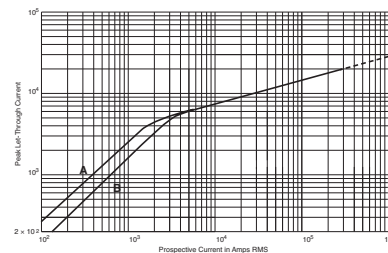
### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



### Cut-Off Current

A fuse operation relating to short-circuits only. When a fuse operates in its current-limiting range, it will clear a short-



circuit in less than 1/2 cycle. Also, it will limit the instantaneous peak let-through current to a value substantially less than

## General Applications

that obtainable in the same circuit if that fuse were replaced with a solid conductor of equal impedance.

- A asymmetrical current
- B symmetrical current

### Parallel Connection

When fuses are connected in parallel it is recommended that the applied voltage does not exceed  $0.9 U_N$  (the rated voltage of the fuse). This is due to the fact that the energy released within the fuses may be unevenly shared between the parallel connected barrels.

When fuses are connected in parallel, one must take into account that the current sharing is not necessarily equal. And it must be checked, that the maximum load current is not exceeded.

### Series Connection

Fuses in series may not equally divide the applied voltage. It is recommended that series connected fuses should only be operated at fault currents that yield melting times less than 10 ms and a recovery voltage per fuse of less than or equal to  $0.9 U_N$  (the rated voltage of the fuse).

### Mounting Guidance

The recommendations below have to be followed when mounting a Bussmann fuse with end plate threaded holes.

1. Screw in studs: 5 N•m Max, 3 N•m Min
2. Attachment of the fuse to bussbar by means of nut and washer:

| Thread Configuration | Torque (N•m)* |     |
|----------------------|---------------|-----|
|                      | Max           | Min |
| 5/16" - 18, M8       | 25            | 20  |
| 3/8" - 16, M10       | 45            | 40  |
| 1/2" - 24            | 45            | 40  |
| 1/2" - 13, M12       | 65            | 50  |
| 3/4" - 20            | 65            | 50  |

\*1 N•m = 0.7375 lb-ft

### Overloads

The design of Bussmann fuses is such that they can be operated under rather severe operating conditions imposed by overloads (any load current in excess of the maximum permissible load current).

In applications, there will be a maximum overload current,  $I_{max}$ , which can be imposed on the fuse with a corresponding duration and frequency of occurrence.

Time durations fall into two categories:

1. Overloads longer than one second
2. Overloads less than one second termed "impulse" loads.

The following table gives general application guidelines which, in the expression  $I_{max} < (\% \text{ factor}) \times I_t$ ,  $I_t$  is the

melting current corresponding to the time "t" of the overload duration as read from the time-current curve of the fuse. The guidelines in the table below determine the acceptability of the selected fuses for a given  $I_{max}$ :

| Frequency of Occurrence  | Overloads (> 1 sec)         | Impulse Loads (< 1 sec)     |
|--------------------------|-----------------------------|-----------------------------|
| Less than once per month | $I_{max} < 80\% \times I_t$ | $I_{max} < 70\% \times I_t$ |
| Less than twice per week | $I_{max} < 70\% \times I_t$ | $I_{max} < 60\% \times I_t$ |
| Several times per day    | $I_{max} < 60\% \times I_t$ | —                           |

When impulse loads are an intrinsic/normal parameter of the load current either as single pulse or in trains of pulses or when their level is higher than the melting current at 0.01 seconds (per time-current curve), contact Bussmann for application assistance.

In addition to the parameters set forth in the preceding table, the RMS value of the load current as calculated for any period of 10 minutes or more should not exceed the maximum permissible load current.

Furthermore, it is important that a fuse should not be applied in the non-continuous/dashed portion of the associated time-current curve.

Any time-current combination point which falls in the non-continuous/dashed portion of the time-current curve is beyond the capability of the fuse to operate properly.

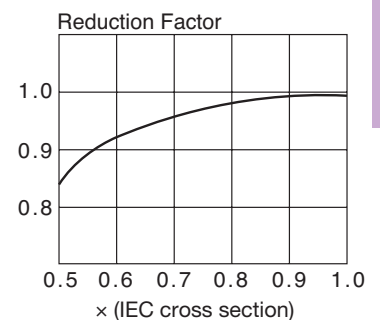
### DC Operation

Depending upon the short-circuit time constant and the magnitude of the prospective short-circuit current, the dc voltage at which a fuse can be applied may be less than its ac rating. Long time constants require a lower dc voltage. Conversely, however, higher available prospective short-circuit currents result in faster fuse openings and thus permit a fuse to be operated at a higher DC voltage.

Consult Bussmann for additional information and application assistance when fuses have to operate under DC conditions.

### Load Current Versus Conductor Cross Section

Reduction of permissible load current when the conductor cross section is less than that given in IEC Publication 269-1 & 4 valid for Bussmann high speed fuses.

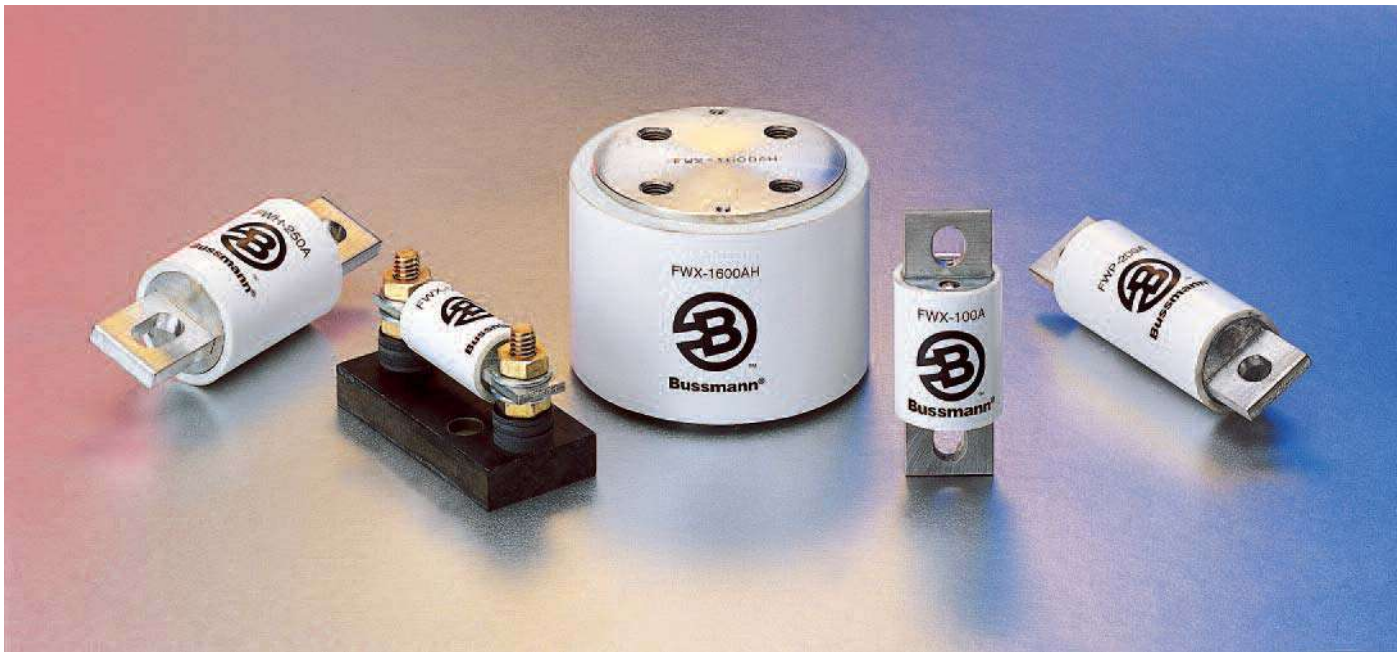


### Application Assistance

If you have application problems or need a fuse outside our standard program, please contact the nearest Bussmann representative. Phone numbers are shown on the back cover.



# North American Fuses



## Introduction

### North American Contents

| Catalog Number | Volts | Amp Range | Page    |
|----------------|-------|-----------|---------|
| DFJ            | 600   | 1-600     | 125     |
| FWA            | 130   | 1000-4000 | 126-127 |
| FWA            | 150   | 70-1000   | 128-129 |
| FWX            | 250   | 35-2500   | 130-131 |
| FWH            | 500   | 35-1600   | 132-133 |
| KAC            | 600   | 1-1000    | 134     |
| KBC            | 600   | 35-800    | 135     |
| FWP            | 700   | 5-1200    | 136-138 |
| FWJ            | 1000  | 35-2000   | 139-140 |

### Accessories

Fuse Bases 141

### North American Fuse Ranges

| Amps      | Volts | AC | DC |
|-----------|-------|----|----|
| 1000-4000 | 130   | X  | X  |
| 70-1000   | 150   | X  | X  |
| 35-2500   | 250   | X  | X  |
| 35-1600   | 500   | X  | X  |
| 1-1000    | 600   | X  | —  |
| 5-1200    | 700   | X  | X  |
| 40-600    | 800   | —  | X  |
| 35-2000   | 1000  | X  | —  |

## General Information

Bussmann offers a complete range of North American blade and flush-end style fuses and accessories. Their design and construction were optimized to provide:

- Low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability
- Low arc voltage
- Excellent DC performance

North American style fuses provide an excellent solution for medium power applications. While there are currently no published standards for these fuses, the industry has standardized on mounting centers that accept Bussmann fuses.

## Voltage Rating

All Bussmann North American style fuses are tested at their rated voltage. Bussmann should be consulted for applications exceeding those values.

## Accessories

External and internal open fuse indication is available for selected portions of the North American line. Fuse blocks are available for most applications.

## Drive Fuse High Speed Fuses

### DFJ Class J



#### Specifications

**Description:** High speed, current-limiting fuse. The Bussmann Drive Fuse will provide maximum protection for AC and DC drives and controllers and meet NEC® branch circuit protection requirements. The Drive Fuse has the lowest I<sup>2</sup>t of any branch circuit fuse to protect power semiconductor devices that utilize diodes, GTOs, SCRs and SSRs.

**Dimensions:** See page 21 for Class J dimensions.

**Construction:** Melamine tube with silver fuse element.

#### Ratings:

Volts — 600Vac (or less), 450Vdc (or less)

Amps — 1-600A

IR — 200kA RMS Sym., 100kA DC

**Agency Information:** CE, Std. 248-8, Class J, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

#### Features and Benefits

- Easily coordinated with existing and new variable speed drives and electric controllers.
- Standard Class J dimensions allowing the use of readily available fuse blocks, holders, and switches.
- Allows the lowest let-thru energy of any branch circuit overcurrent protective device.

#### Typical Applications

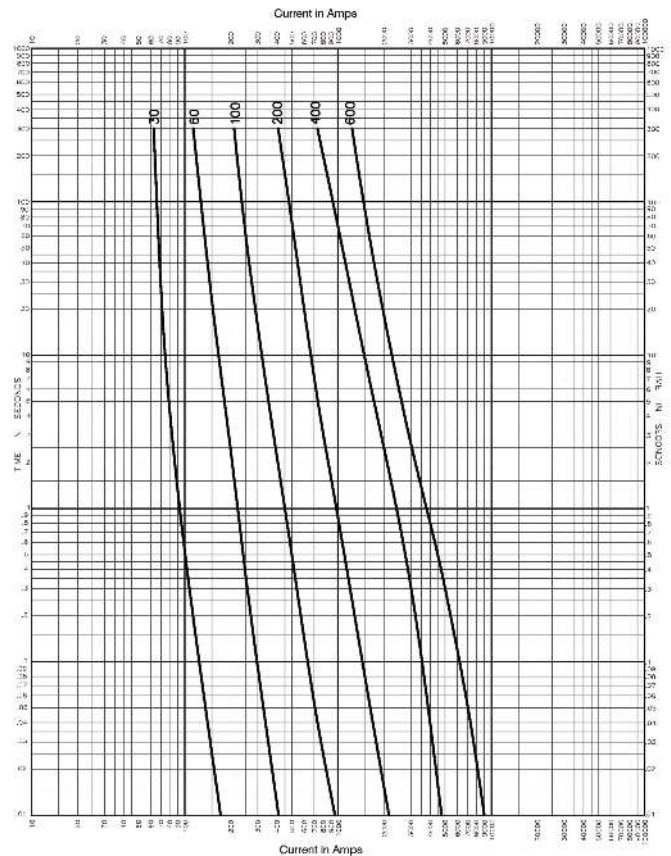
- Protection of AC and DC drives
- Equipment using power semiconductor devices

#### Catalog Numbers (Amps)

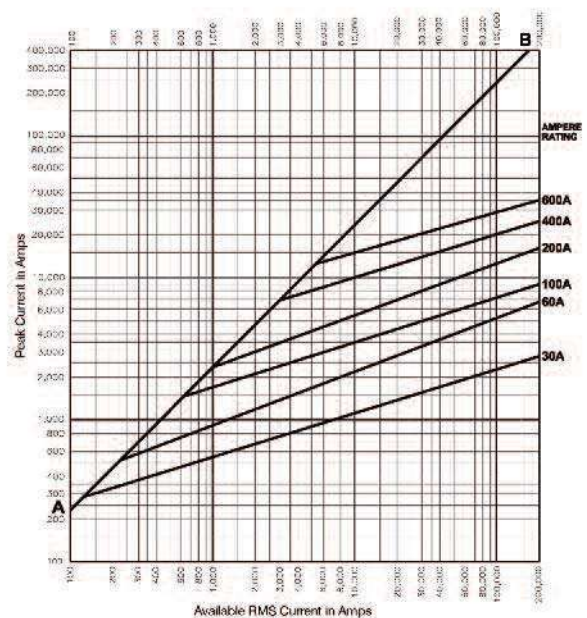
|        |        |         |         |
|--------|--------|---------|---------|
| DFJ-1  | DFJ-15 | DFJ-70  | DFJ-225 |
| DFJ-2  | DFJ-20 | DFJ-80  | DFJ-250 |
| DFJ-3  | DFJ-25 | DFJ-90  | DFJ-300 |
| DFJ-4  | DFJ-30 | DFJ-100 | DFJ-350 |
| DFJ-5  | DFJ-35 | DFJ-110 | DFJ-400 |
| DFJ-6  | DFJ-40 | DFJ-125 | DFJ-450 |
| DFJ-8  | DFJ-45 | DFJ-150 | DFJ-500 |
| DFJ-10 | DFJ-50 | DFJ-175 | DFJ-600 |
| DFJ-12 | DFJ-60 | DFJ-200 |         |

Data Sheet: 1048

### Time-Current Characteristic Curves—Average Melt



### Current Limitation Curves



## North American — FWA 130V: 1000-4000A

### FWA

#### Specifications

**Description:** North American style flush-end high speed fuses.

**Dimensions:** See Dimensions illustrations.

#### Ratings:

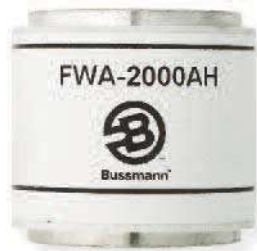
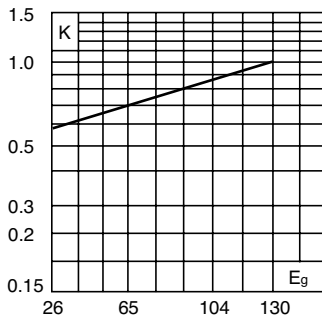
- Volts: — 130Vac
- Amps: — 1000-4000A
- IR: — 200kA RMS Sym.
- 50kA @130Vdc

**Agency Information:** CE, UL Recognized JFHR2.E91958 on 1000-2000A fuses

#### Electrical Characteristics

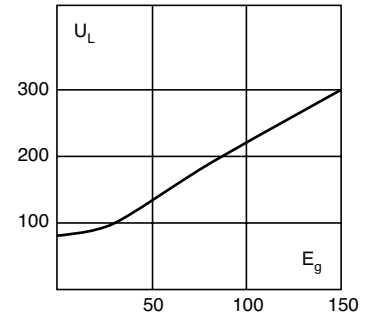
##### Total Clearing $I^2t$

The total clearing  $I^2t$  at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing  $I^2t$  is found by multiplying by correction factor, K, given as a function of applied working voltage,  $E_g$ , (rms).



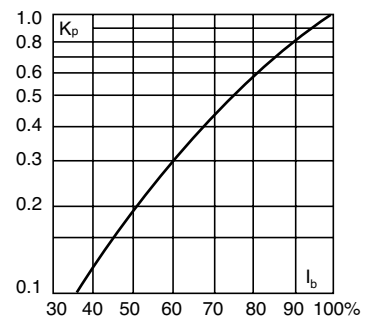
#### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage,  $E_g$ , (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Catalog Numbers

| Catalog Numbers | Electrical Characteristics |                             |                  |            |
|-----------------|----------------------------|-----------------------------|------------------|------------|
|                 | Rated Current RMS-Amps     | $I^2t$ (A <sup>2</sup> Sec) |                  | Watts Loss |
|                 |                            | Pre-arc                     | Clearing at 130V |            |
| FWA-1000AH      | 1000                       | 170000                      | 460000           | 60         |
| FWA-1200AH      | 1200                       | 270000                      | 730000           | 70         |
| FWA-1500AH      | 1500                       | 520000                      | 1400000          | 78         |
| FWA-2000AH      | 2000                       | 860000                      | 2400000          | 108        |
| FWA-2500AH      | 2500                       | 1500000                     | 4100000          | 130        |
| FWA-3000AH      | 3000                       | 2100000                     | 5700000          | 150        |
| FWA-4000AH      | 4000                       | 3400000                     | 9200000          | 257        |

• Watts loss provided at rated current.  
• See accessories on page 141.

#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

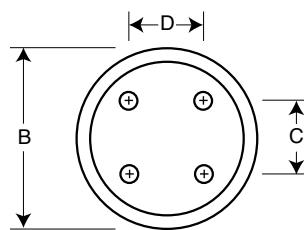
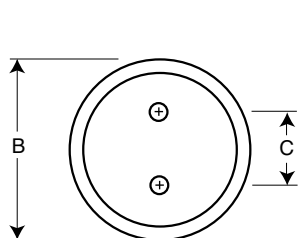
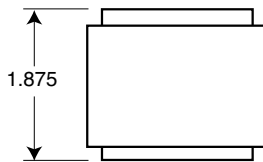
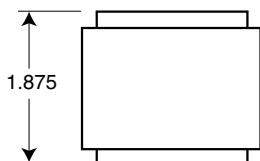
#### Dimensions - in

| Catalog Number    | Fig. | B   | C   | D   | Thread Depth                                |
|-------------------|------|-----|-----|-----|---|
| FWA-1000AH-2000AH | 1    | 2.0 | 1.0 | —   | Tapped $\frac{3}{8}$ "-24 x $\frac{1}{2}$ " |
| FWA-2500AH-3000AH | 1    | 3.0 | 1.5 | —   | Tapped $\frac{1}{2}$ "-20 x $\frac{1}{2}$ " |
| FWA-4000AH        | 2    | 3.5 | 1.5 | 1.5 | Tapped $\frac{1}{2}$ "-20 x $\frac{1}{2}$ " |

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 1000-3000A

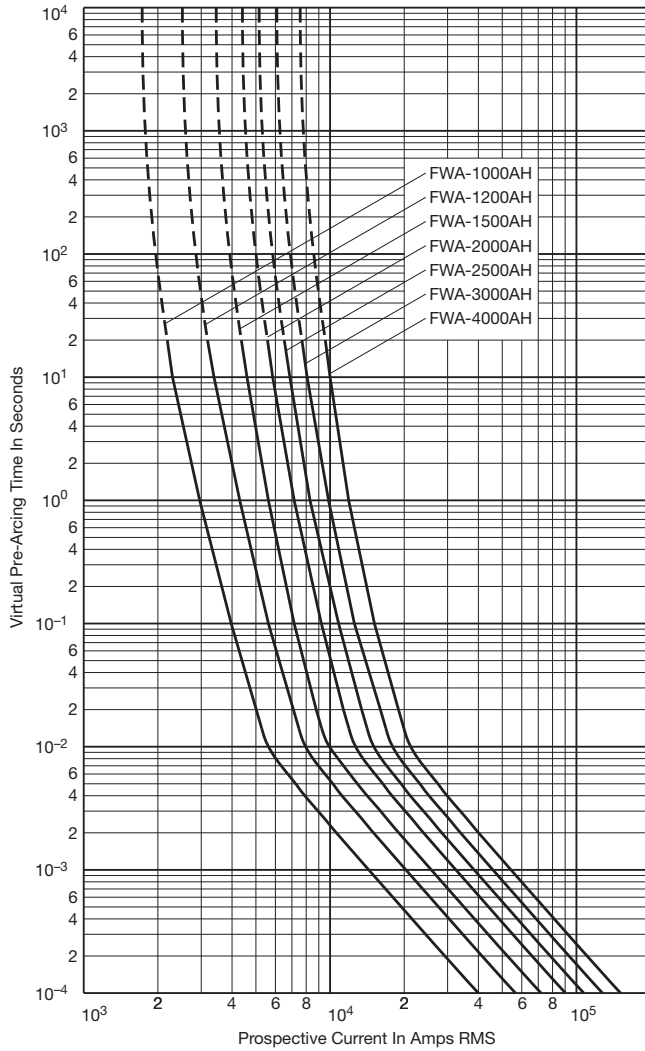
Fig. 2: 4000A



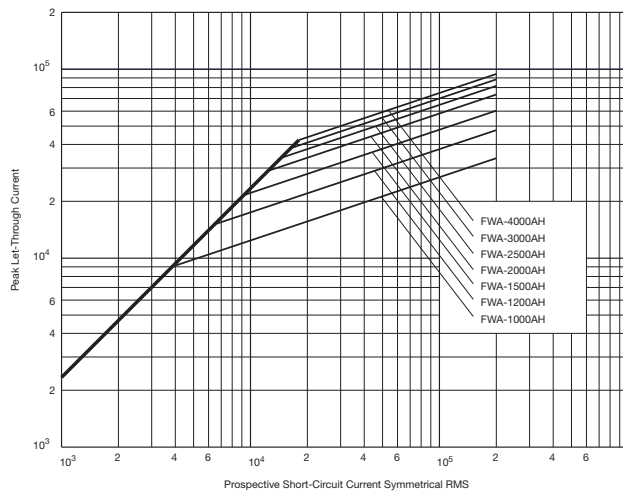
## North American — FWA 130V: 1000-4000A

### FWA 1000-4000A: 130V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785301



## North American — FWA 150V: 70-1000A

### FWA

#### Specifications

**Description:** North American style stud-mount fuses.

**Dimensions:** See Dimensions illustrations.

#### Ratings:

- Volts: — 150Vac/dc\*
- Amps: — 70-1000A
- IR: — 100kA Sym. (70-400A)
- 200kA Sym. (450-1000A)
- 20kA @ 150Vdc (70-800A)
- 100kA @ 80Vdc (70-1000A)

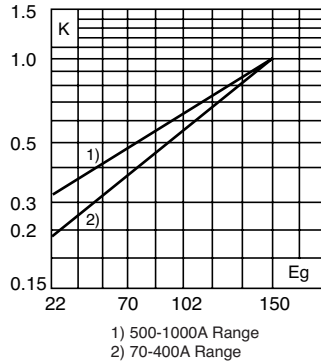
\*1000A rated @ 80Vdc.

**Agency Information:** CE, UL Recognized JFHR2.E91958

#### Electrical Characteristics

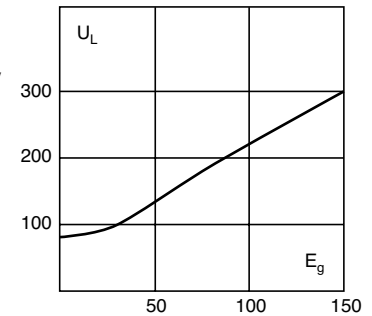
##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



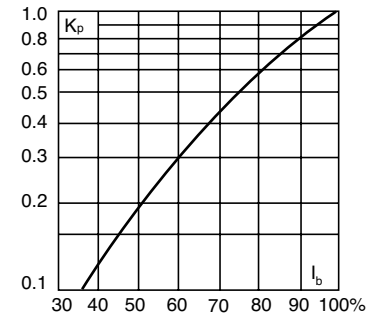
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Catalog Numbers

| Catalog Number | Rated Current RMS-Amps | Electrical Characteristics            |                  |            |
|----------------|------------------------|---------------------------------------|------------------|------------|
|                |                        | I <sup>2</sup> t (A <sup>2</sup> Sec) |                  | Watts Loss |
|                |                        | Pre-arc                               | Clearing at 150V |            |
| FWA-70B        | 70                     | 470                                   | 4000             | 6.9        |
| FWA-80B        | 80                     | 670                                   | 6000             | 7.7        |
| FWA-100B       | 100                    | 1200                                  | 12000            | 9.0        |
| FWA-125B       | 125                    | 1870                                  | 18000            | 11.2       |
| FWA-150B       | 150                    | 2700                                  | 26000            | 13.5       |
| FWA-200B       | 200                    | 4780                                  | 45000            | 17.6       |
| FWA-250B       | 250                    | 7470                                  | 70000            | 22.5       |
| FWA-300B       | 300                    | 10760                                 | 100000           | 27.0       |
| FWA-350B       | 350                    | 15700                                 | 140000           | 30.6       |
| FWA-400B       | 400                    | 20300                                 | 180000           | 35.2       |
| FWA-500A       | 500                    | 39000                                 | 120000           | 35.0       |
| FWA-600A       | 600                    | 46000                                 | 140000           | 47.0       |
| FWA-700A       | 700                    | 75000                                 | 220000           | 49.0       |
| FWA-800A       | 800                    | 92000                                 | 280000           | 58.0       |
| FWA-1000A      | 1000                   | 170000                                | 510000           | 60.0       |

• Watts loss provided at rated current.  
• See accessories on page 141.

#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### Dimensions - in

Fig. 1: 70-400A

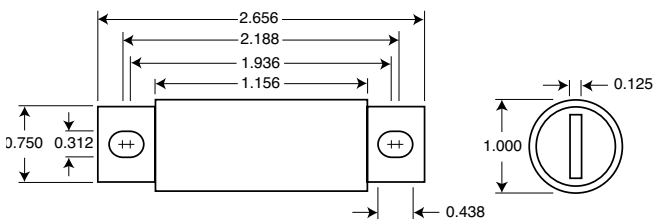
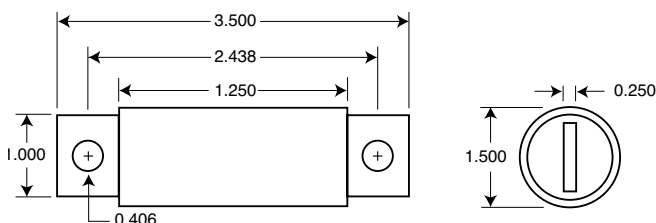


Fig. 2: 500-1000A



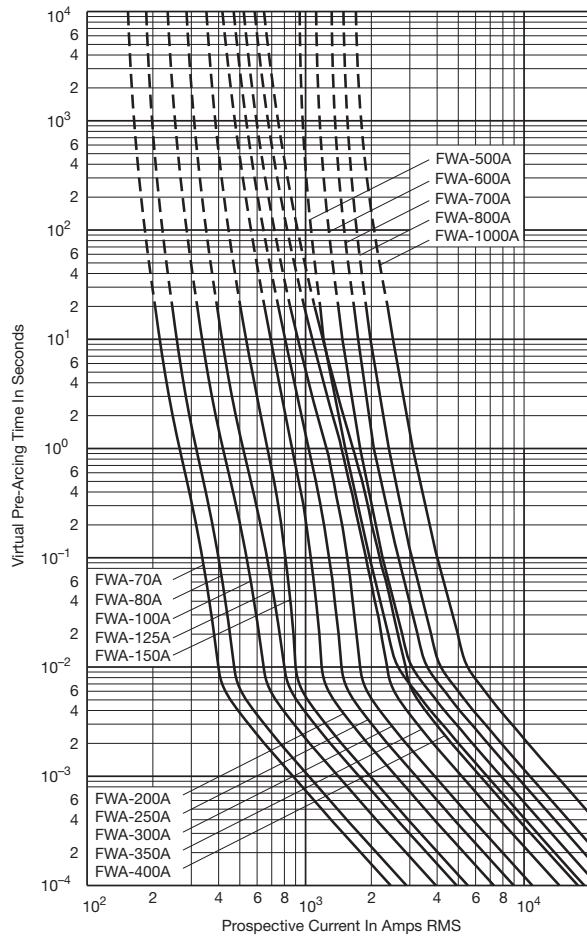
1mm = 0.0394" / 1" = 25.4mm



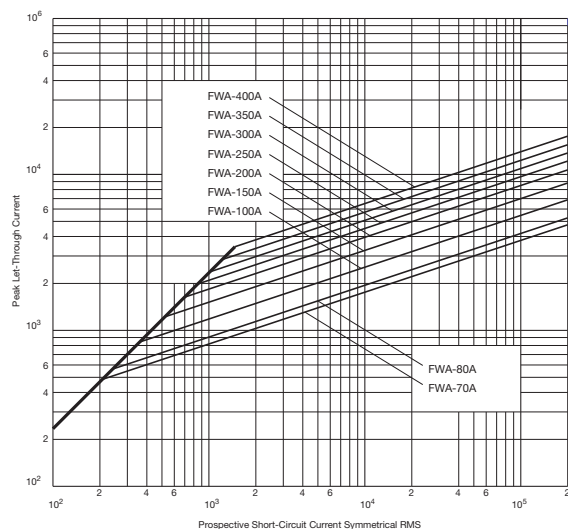
## North American — FWA 150V: 70-1000A

### FWA 70-1000A: 150V

**Time-Current Curve**



**Peak Let-Through Curve**



**Data Sheet: 35785310**

# North American — FWX 250V: 35-2500A

## FWX

### Specifications

**Description:** North American style stud-mount and flush-end fuses.

**Dimensions:** See Dimensions illustrations.

### Ratings:

- Volts: — 250Vac/dc
- Amps: — 35-2500A
- IR: — 200kA RMS Sym.  
50kA@250Vdc (35-800A)

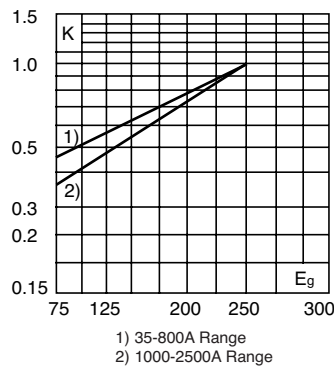
**Agency Information:** CE, UL Recognized JFHR2.E56412 & CSA Component Acceptance file Class 1422-30, (53787) on 35-800A fuses (50kA IR @250Vdc).



### Electrical Characteristics

#### Total Clearing I<sup>2</sup>t

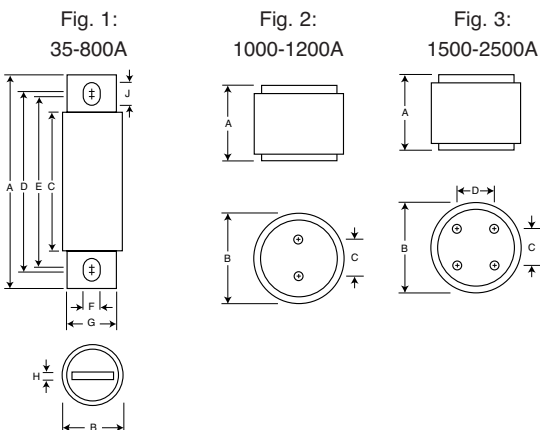
The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



#### Dimensions - in

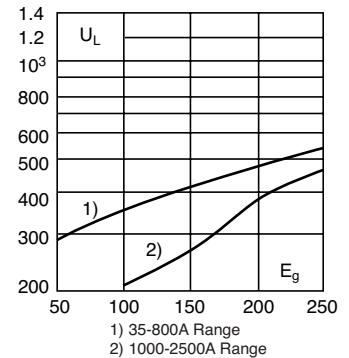
| Amp Range | Fig. | A    | B    | C    | D    | E    | F    | G    | H    | J    | Tapped Thread Depth |
|-----------|------|------|------|------|------|------|------|------|------|------|---------------------|
| 35-60     | 1    | 3.19 | 0.81 | 1.59 | 2.59 | 2.25 | 0.34 | 0.63 | 0.13 | 0.52 | —                   |
| 70-200    | 1    | 3.13 | 1.22 | 1.59 | 2.44 | 2.19 | 0.34 | 1.00 | 0.19 | 0.47 | —                   |
| 225-600   | 1    | 3.84 | 1.50 | 1.59 | 2.94 | 2.25 | 0.41 | 1.00 | 0.25 | 0.75 | —                   |
| 700-800   | 1    | 3.84 | 2.00 | 1.59 | 3.03 | 2.28 | 0.41 | 1.50 | 0.25 | 0.78 | —                   |
| 1000-1200 | 2    | 2.59 | 3.00 | 1.50 | —    | —    | —    | —    | —    | —    | 3/8"-24 x 1/2"      |
| 1500-2500 | 3    | 2.59 | 3.50 | 1.50 | —    | —    | —    | —    | —    | —    | 3/8"-24 x 1/2"      |

1mm = 0.0394" / 1" = 25.4mm



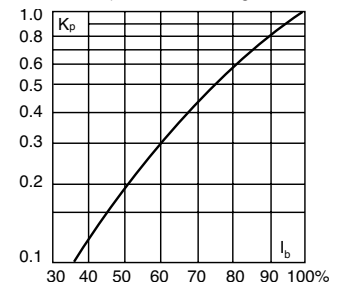
### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



### Catalog Numbers

| Catalog Number | Rated Current RMS-Amps | Electrical Characteristics            |                  |            |
|----------------|------------------------|---------------------------------------|------------------|------------|
|                |                        | I <sup>2</sup> t (A <sup>2</sup> Sec) |                  | Watts Loss |
|                |                        | Pre-arc                               | Clearing at 250V |            |
| FWX-35A        | 35                     | 50                                    | 230              | 4.2        |
| FWX-40A        | 40                     | 60                                    | 310              | 5.2        |
| FWX-45A        | 45                     | 80                                    | 390              | 5.7        |
| FWX-50A        | 50                     | 100                                   | 520              | 6.0        |
| FWX-60A        | 60                     | 140                                   | 740              | 8.1        |
| FWX-70A        | 70                     | 330                                   | 1400             | 7.2        |
| FWX-80A        | 80                     | 430                                   | 1850             | 8.1        |
| FWX-90A        | 90                     | 570                                   | 2450             | 9.0        |
| FWX-100A       | 100                    | 740                                   | 3150             | 10.0       |
| FWX-125A       | 125                    | 1130                                  | 4850             | 12.5       |
| FWX-150A       | 150                    | 1620                                  | 6950             | 15.7       |
| FWX-175A       | 175                    | 2170                                  | 9300             | 18.5       |
| FWX-200A       | 200                    | 2790                                  | 12000            | 22         |
| FWX-225A       | 225                    | 3210                                  | 14700            | 24         |
| FWX-250A       | 250                    | 3960                                  | 18100            | 27         |
| FWX-275A       | 275                    | 4720                                  | 21600            | 31         |
| FWX-300A       | 300                    | 6000                                  | 27300            | 32         |
| FWX-350A       | 350                    | 10600                                 | 48600            | 39         |
| FWX-400A       | 400                    | 14500                                 | 66100            | 44         |
| FWX-450A       | 450                    | 22100                                 | 101000           | 49         |
| FWX-500A       | 500                    | 28000                                 | 128000           | 54         |
| FWX-600A       | 600                    | 41100                                 | 188000           | 62         |
| FWX-700A       | 700                    | 48800                                 | 190000           | 72         |
| FWX-800A       | 800                    | 59000                                 | 230000           | 84         |
| FWX-1000AH     | 1000                   | 44000                                 | 360000           | 100        |
| FWX-1200AH     | 1200                   | 92000                                 | 750000           | 103        |
| FWX-1500AH     | 1500                   | 120000                                | 880000           | 140        |
| FWX-1600AH     | 1600                   | 160000                                | 1200000          | 140        |
| FWX-2000AH     | 2000                   | 320000                                | 2300000          | 151        |
| FWX-2500AH     | 2500                   | 670000                                | 4700000          | 163        |

• Watts loss provided at rated current. • See accessories on page 141.

### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Superior cycling capability

### Typical Applications

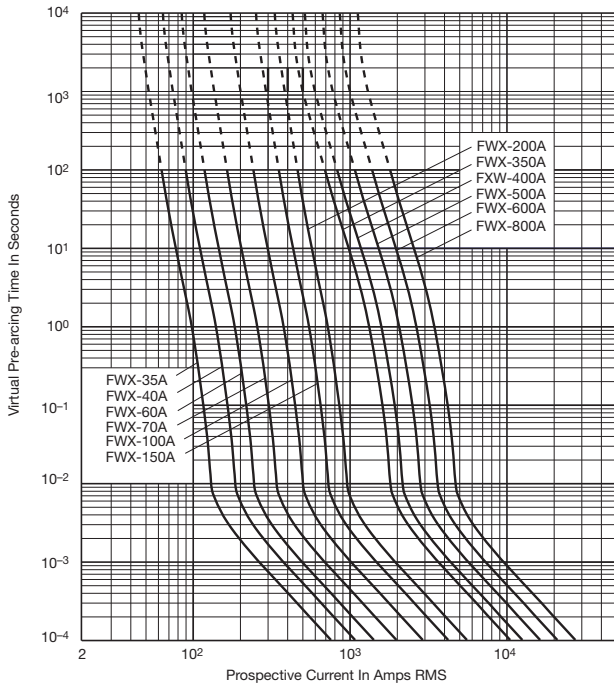
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Data Sheet: 720005

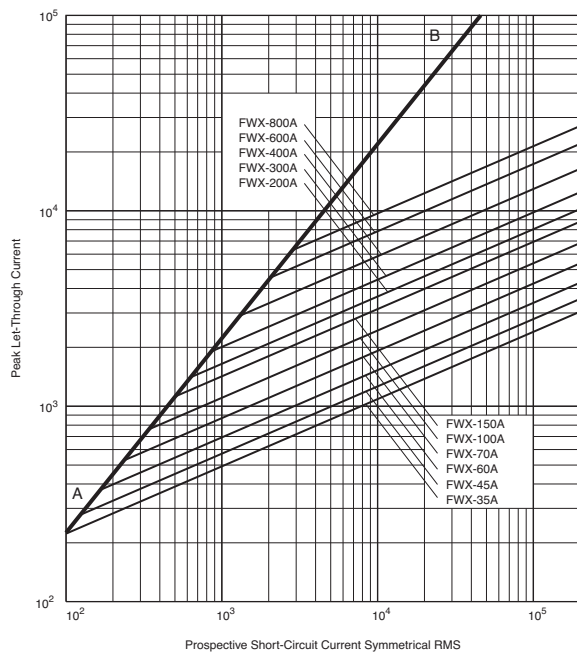
## North American — FWX 250V: 35-2500A

### FWX 35-800A: 250V

Time-Current Curve



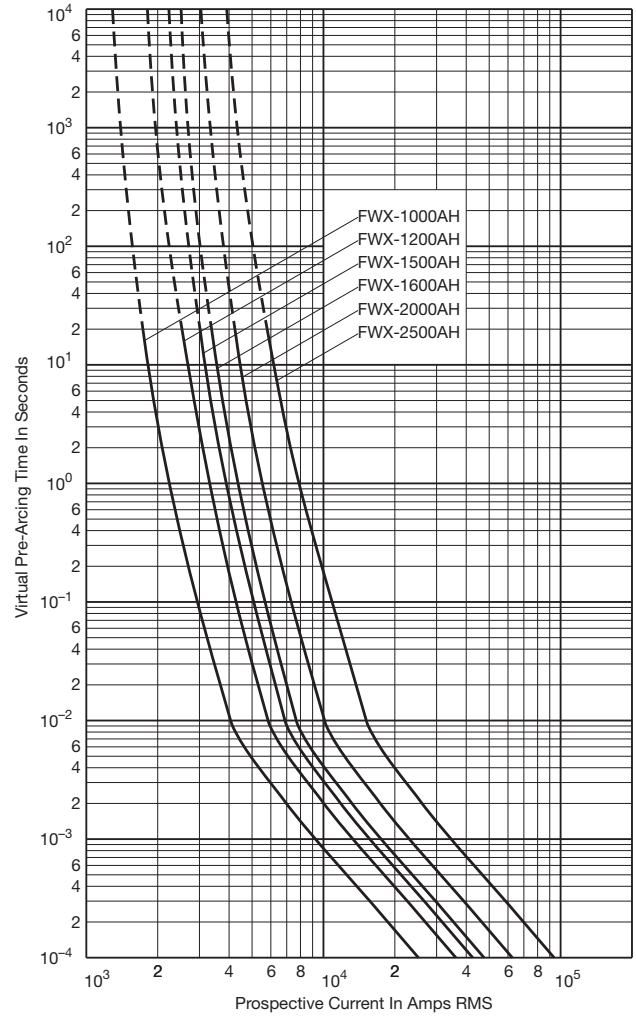
Peak Let-Through Curve



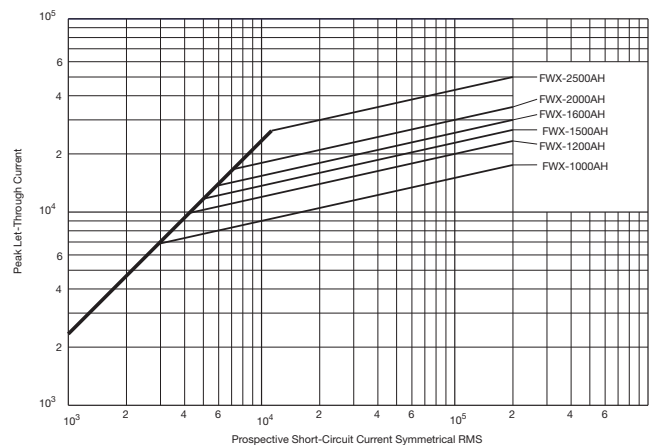
Data Sheet: 359

### FWX 1000-2500A(H): 250V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785299

## North American — FWH 500V: 35-1600A

### FWH

#### Specifications

**Description:** North American style stud-mount fuses.

**Dimensions:** See Dimensions illustration.

#### Ratings:

Volts: — 500Vac/dc (35-800A only)

Amps: — 35-1600A

IR: — 200kA Sym.

— 50kA @ 500Vdc (35-800A)

**Agency Information:** CE, UL Recognition JFHR2.E91958

FWH\_B (35-200A, 1000-1200A), JFHR2.E56412

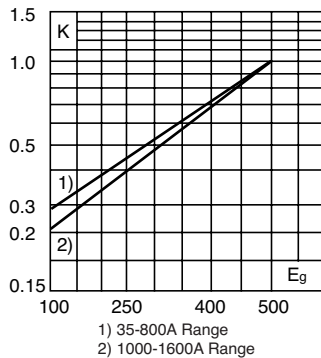
FWH\_A (225-600A), CSA Component Acceptance Class 1422-30, File 53787 (35-1600A).



#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



#### Dimensions - in

| Amp Range | Fig. | A           | B     | C     | D     | E     | F     | G     | H     | J     |
|-----------|------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 35-60     | 1    | 3.188       | 0.813 | 1.593 | 2.541 | 2.193 | 0.344 | 0.719 | 0.125 | 0.518 |
| 70-100    | 1    | 3.625       | 0.947 | 1.736 | 2.853 | 2.807 | 0.352 | 0.750 | 0.125 | 0.375 |
| 125-200   | 1    | 3.625       | 1.156 | 1.836 | 2.892 | 2.768 | 0.344 | 1.000 | 0.188 | 0.406 |
| 225-400   | 1    | 4.340       | 1.500 | 2.090 | 3.440 | 2.750 | 0.410 | 1.000 | 0.250 | 0.750 |
| 450-600   | 1    | 4.340       | 2.000 | 2.090 | 3.530 | 2.780 | 0.410 | 1.500 | 0.250 | 0.780 |
| 700-800   | 1    | 6.340       | 2.500 | 2.090 | 4.970 | 3.440 | 0.530 | 2.000 | 0.380 | 1.300 |
| 1000-1200 | 1    | 6.969       | 3.000 | 3.219 | 5.465 | 4.475 | 0.625 | 2.375 | 0.438 | 1.120 |
| 1400-1600 | 2    | See Drawing |       |       |       |       |       |       |       |       |

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 35-1200A

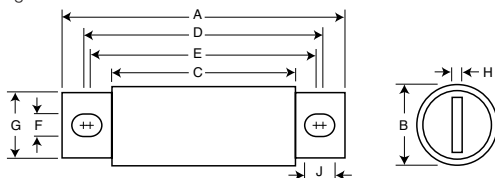
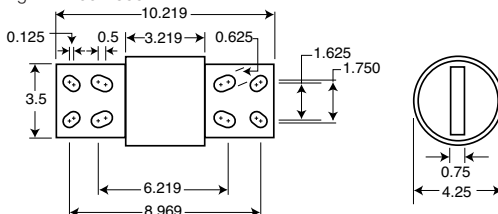
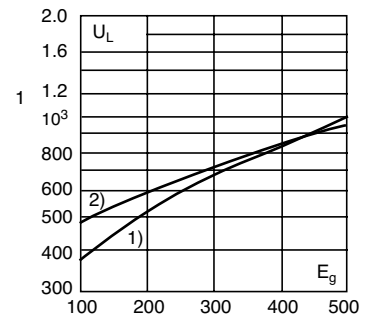


Fig. 2: 1400-1600A



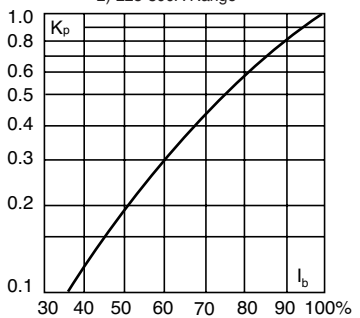
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Catalog Numbers

| Catalog Numbers | Electrical Characteristics |                                       |                  |            |
|-----------------|----------------------------|---------------------------------------|------------------|------------|
|                 | Rated Current RMS-Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |                  | Watts Loss |
|                 |                            | Pre-arc                               | Clearing at 500V |            |
| FWH-35B         | 35                         | 34                                    | 150              | 8          |
| FWH-40B         | 40                         | 76                                    | 320              | 7.5        |
| FWH-45B         | 45                         | 105                                   | 450              | 7.5        |
| FWH-50B         | 50                         | 135                                   | 670              | 7.5        |
| FWH-60B         | 60                         | 210                                   | 900              | 9.9        |
| FWH-70B         | 70                         | 210                                   | 900              | 10.6       |
| FWH-80B         | 80                         | 305                                   | 1400             | 12.7       |
| FWH-90B         | 90                         | 360                                   | 1600             | 15         |
| FWH-100B        | 100                        | 475                                   | 2000             | 17         |
| FWH-125B        | 125                        | 800                                   | 3500             | 25         |
| FWH-150B        | 150                        | 1100                                  | 4600             | 30         |
| FWH-175B        | 175                        | 1450                                  | 6200             | 35         |
| FWH-200B        | 200                        | 1900                                  | 8500             | 40         |
| FWH-225A        | 225                        | 4600                                  | 23300            | 39         |
| FWH-250A        | 250                        | 6300                                  | 32200            | 41         |
| FWH-275A        | 275                        | 7900                                  | 40300            | 46         |
| FWH-300A        | 300                        | 9800                                  | 49800            | 51         |
| FWH-325A        | 325                        | 13700                                 | 63800            | 53         |
| FWH-350A        | 350                        | 14500                                 | 72900            | 58         |
| FWH-400A        | 400                        | 19200                                 | 96700            | 65         |
| FWH-450A        | 450                        | 24700                                 | 127000           | 74         |
| FWH-500A        | 500                        | 29200                                 | 149000           | 84         |
| FWH-600A        | 600                        | 41300                                 | 206000           | 108        |
| FWH-700A        | 700                        | 55000                                 | 298000           | 120        |
| FWH-800A        | 800                        | 76200                                 | 409000           | 129        |
| FWH-1000A       | 1000                       | 92000                                 | 450000           | 145        |
| FWH-1200A       | 1200                       | 122000                                | 600000           | 180        |
| FWH-1400A       | 1400                       | 200000                                | 1000000          | 210        |
| FWH-1600A       | 1600                       | 290000                                | 1400000          | 230        |

\* Watts loss provided at rated current. \* See accessories on page 141.

#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Superior cycling capability

#### Typical Applications

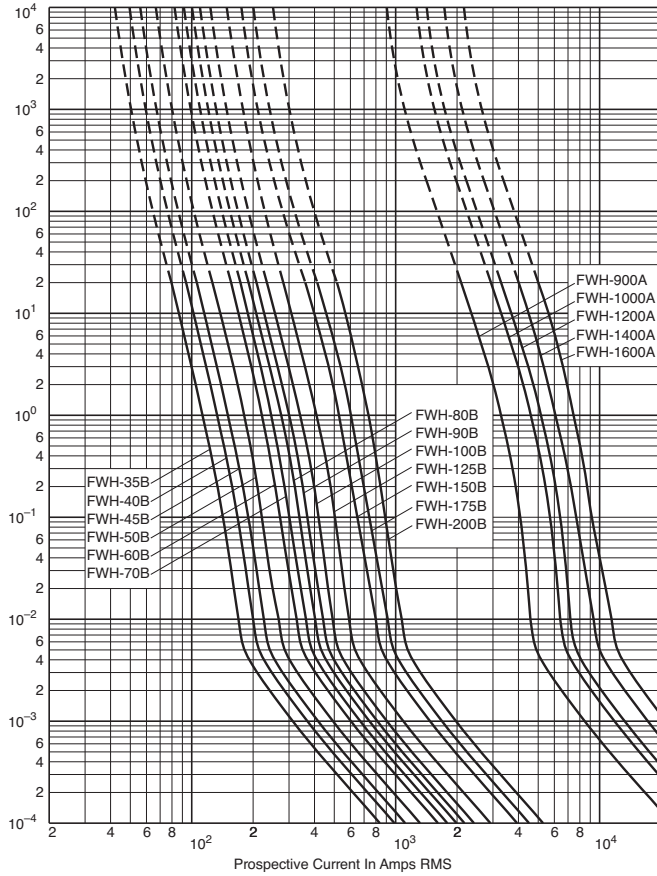
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

**Data Sheet: 720007**

## North American — FWH 500V: 35-1600A

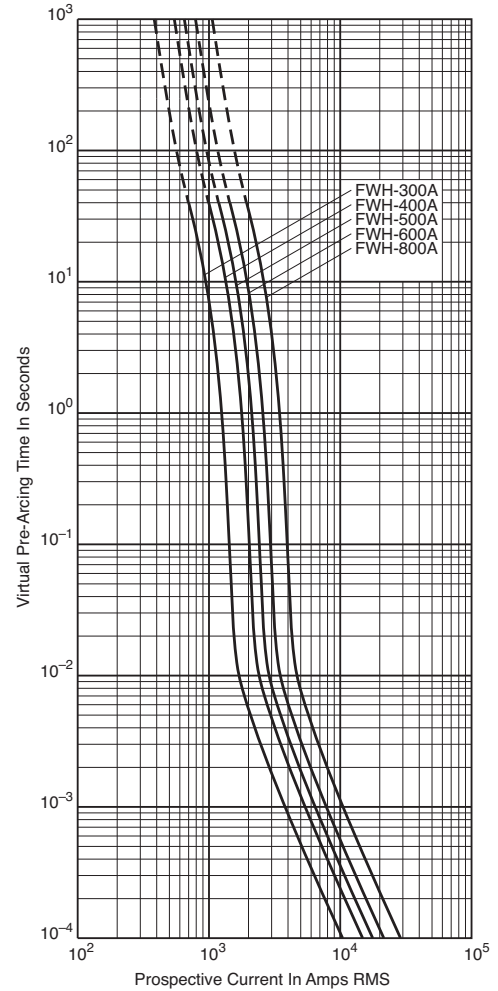
### FWH 35-200A(B) & 900-1600A(A): 500V

Time-Current Curve

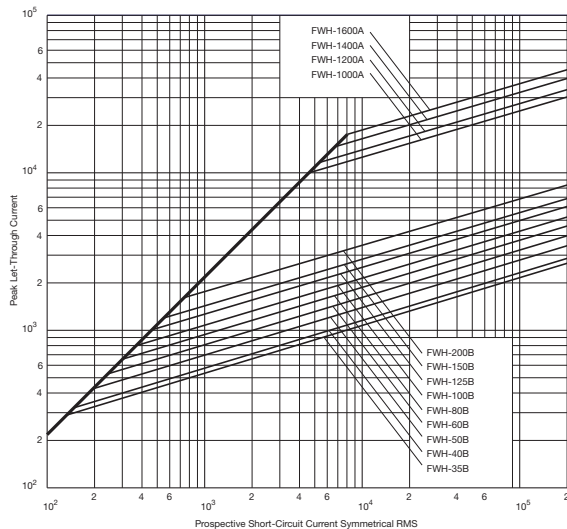


### FWH 250-800A: 500V

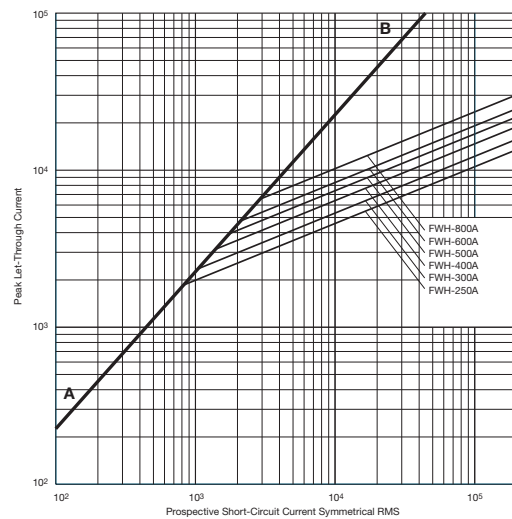
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve





## North American — KAC 600V: 1-1000A

### KAC

#### Specifications

**Description:** North American style stud-mount fuses. These 600V fuses are supplied as replacements only. For new installations, Bussmann recommends the 700V FWP Series fuse.

**Dimensions:** See Dimensions illustrations.

#### Ratings:

Volts: — 600Vac

Amps: — 1-1000A

IR: — 200kA RMS Sym.

**Agency Information:** CE, UL Recognition JFHR2.E56413 on 1-600A only.



#### Catalog Numbers (Amps)

|          |         |          |
|----------|---------|----------|
| KAC-1    | KAC-25  | KAC-175  |
| KAC-2    | KAC-30  | KAC-200  |
| KAC-3    | KAC-35  | KAC-225  |
| KAC-4    | KAC-40  | KAC-250  |
| KAC-5    | KAC-45  | KAC-300  |
| KAC-6    | KAC-50  | KAC-350  |
| KAC-7    | KAC-60  | KAC-400  |
| KAC-8    | KAC-70  | KAC-450  |
| KAC-9    | KAC-80  | KAC-500  |
| KAC-10   | KAC-90  | KAC-600  |
| KAC-12   | KAC-100 | KAC-700  |
| KAC-15   | KAC-110 | KAC-800  |
| KAC-17.5 | KAC-125 | KAC-1000 |
| KAC-20   | KAC-150 |          |

• See accessories on page 141.

#### Features and Benefits

- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

- Power converters/rectifiers
- Reduced voltage starters

#### Dimensions - in

| Amp Range | Fig. | A     | B1    | B2    | B3    | C     | D     | E     | F     | G     | H     |
|-----------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1-30A     | 1    | 2.875 | 2.500 | —     | —     | 1.875 | 0.406 | —     | 0.563 | 0.063 | 0.257 |
| 35-60A    | 2    | 4.375 | —     | 3.750 | 3.500 | 2.750 | 0.625 | 0.343 | 0.813 | 0.094 | 0.468 |
| 70-100A   | 2    | 5.000 | —     | 4.063 | 3.656 | 2.750 | 0.750 | 0.406 | 1.000 | 0.125 | 0.609 |
| 110-200A  | 2    | 5.140 | —     | 4.390 | 3.766 | 2.906 | 1.000 | 0.406 | 1.500 | 0.188 | 0.718 |
| 225-400A  | 2    | 6.182 | —     | 4.815 | 4.565 | 3.000 | 1.625 | 0.562 | 2.000 | 0.250 | 0.687 |
| 450-800A  | 1    | 6.250 | 4.750 | —     | —     | 3.063 | 2.000 | —     | 2.500 | 0.250 | 0.563 |
| 1000A     | 1    | 7.250 | 4.750 | —     | —     | 3.063 | 2.750 | —     | 3.500 | 0.375 | 0.563 |

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 1-30 & 450-1000A

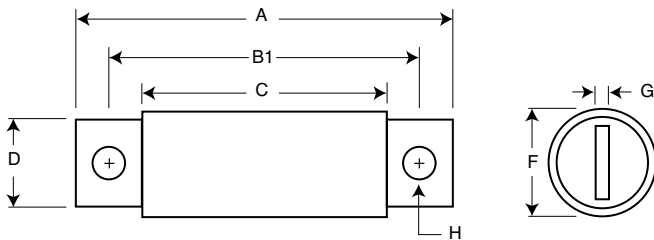
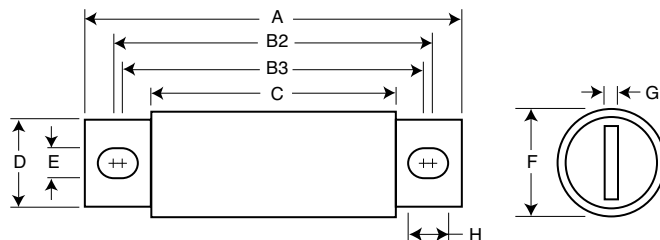


Fig. 2: 35-400A



## North American — KBC 600V: 35-800A

### KBC

#### Specifications

**Description:** North American style stud-mount and flush-end fuses. These 600V fuses are supplied as replacements only. For new installations, Bussmann recommends the 700V FWP Series fuse.

**Dimensions:** See Dimensions illustrations.

#### Ratings:

Volts: — 600Vac

Amps: — 35-800A

IR: — 200kA RMS Sym.

**Agency Information:** CE, UL Recognition JFHR2.E56412 on 35-600A only.



#### Catalog Numbers (Amps)

|        |         |         |
|--------|---------|---------|
| KBC-35 | KBC-100 | KBC-300 |
| KBC-40 | KBC-110 | KBC-350 |
| KBC-45 | KBC-125 | KBC-400 |
| KBC-50 | KBC-150 | KBC-450 |
| KBC-60 | KBC-175 | KBC-500 |
| KBC-70 | KBC-200 | KBC-600 |
| KBC-80 | KBC-225 | KBC-800 |
| KBC-90 | KBC-250 |         |

• See accessories on page 141.

#### Features and Benefits

- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

- Power converters/rectifiers
- Reduced voltage starters

#### Dimensions - in

| Amp Range | Fig. | A           | B     | C     | D     | E     | F     | G     | H     | I     |  |
|-----------|------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 35-60A    | 1    | 4.375       | 3.750 | 3.500 | 2.750 | 0.343 | 0.625 | 0.813 | 0.094 | 0.468 |  |
| 70-100A   | 2    | See Drawing |       |       |       |       |       |       |       |       |  |
| 110-200A  | 1    | 4.406       | 3.719 | 3.594 | 2.906 | 0.312 | 0.875 | 1.219 | 0.187 | 0.375 |  |
| 225-400A  | 1    | 5.125       | 4.188 | 3.563 | 2.906 | 0.406 | 1.000 | 1.500 | 0.250 | 0.719 |  |
| 450-600A  | 1    | 5.125       | 4.389 | 3.687 | 2.875 | 0.406 | 1.500 | 2.000 | 0.250 | 0.757 |  |
| 800A      | 3    | See Drawing |       |       |       |       |       |       |       |       |  |

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 35-60 and 110-600A

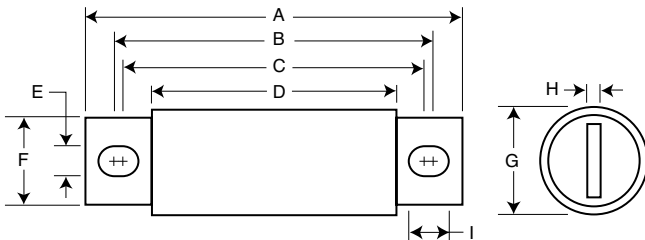


Fig. 2: 70-100A

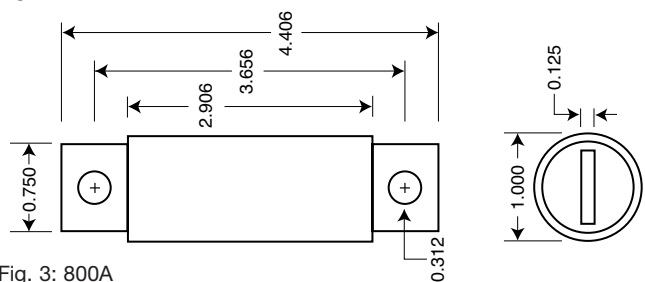
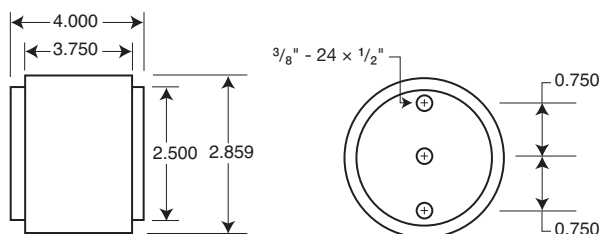


Fig. 3: 800A



Data Sheet: 720010

## North American — FWP 700V: 5-1200A

### FWP

#### Specifications

**Description:** North American style stud-mount fuses.

**Dimensions:** See Dimensions illustrations.

#### Ratings:

Volts: — 700Vac/dc

Amps: — 5-1200A

IR: — 200kA RMS Sym.

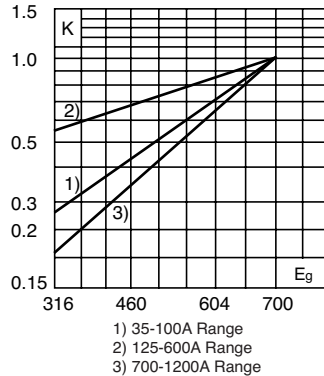
— 50kA @700Vdc

**Agency Information:** CE, UL Recognition JFHR2.E91958 FWP\_B (5-100A, 700-1200A), JFHR2.E56412 FWP\_A (125-600A) & CSA Component Acceptance file Class 1422-30, (53787) on 5-800A

#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



#### Dimensions - in

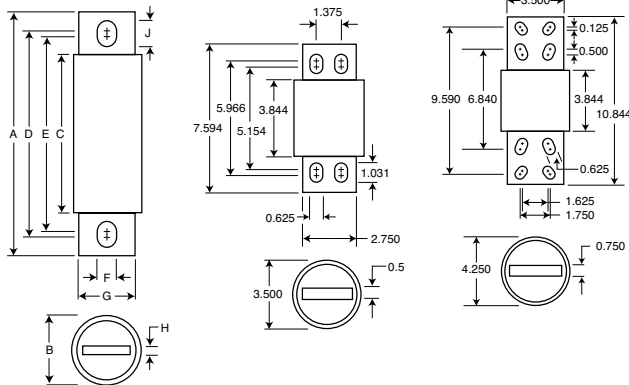
| Range    | Fig. | A           | B     | C     | D     | E     | F     | G     | H     | I     |
|----------|------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 5-30     | 1    | 2.870       | 0.563 | 1.855 | 2.477 | 2.477 | 0.250 | 0.405 | 0.063 | 0.250 |
| 35-60    | 1    | 4.375       | 0.813 | 2.750 | 3.708 | 3.312 | 0.344 | 0.725 | 0.125 | 0.542 |
| 70-100   | 1    | 4.406       | 0.947 | 2.594 | 3.625 | 3.563 | 0.344 | 0.750 | 0.125 | 0.375 |
| 125-200  | 1    | 5.090       | 1.500 | 2.840 | 4.190 | 3.500 | 0.410 | 1.000 | 0.250 | 0.750 |
| 225-400  | 1    | 5.090       | 2.000 | 2.840 | 4.280 | 3.530 | 0.410 | 1.500 | 0.250 | 0.780 |
| 450-600  | 1    | 7.090       | 2.500 | 2.840 | 5.720 | 4.190 | 0.530 | 2.000 | 0.380 | 1.300 |
| 700-800  | 1    | 6.630       | 2.000 | 2.844 | 5.562 | 5.062 | 0.625 | 1.500 | 0.250 | 0.875 |
| 900-1000 | 2    | See Drawing |       |       |       |       |       |       |       |       |
| 1200     | 3    | See Drawing |       |       |       |       |       |       |       |       |

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 5-800A

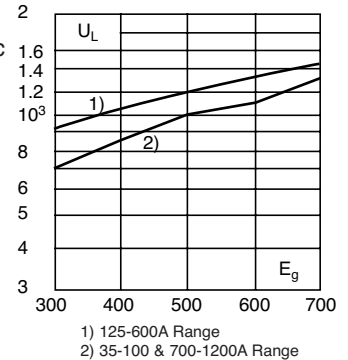
Fig. 2: 900-1000A

Fig. 3: 1200A



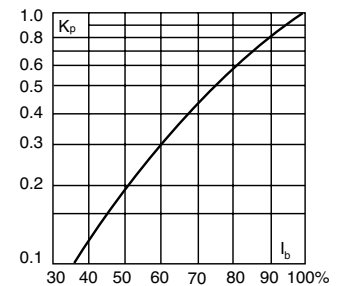
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Catalog Numbers

| Catalog Numbers | Rated Current RMS-Amps | Electrical Characteristics            |                  | Watts Loss |
|-----------------|------------------------|---------------------------------------|------------------|------------|
|                 |                        | I <sup>2</sup> t (A <sup>2</sup> Sec) |                  |            |
|                 |                        | Pre-arc                               | Clearing at 700V |            |
| FWP-5B          | 5                      | 1.6                                   | 10               | 1.5        |
| FWP-10B         | 10                     | 3.6                                   | 20               | 4          |
| FWP-15B         | 15                     | 10                                    | 75               | 5.5        |
| FWP-20B         | 20                     | 26                                    | 180              | 6          |
| FWP-25B         | 25                     | 44                                    | 340              | 7          |
| FWP-30B         | 30                     | 58                                    | 450              | 9          |
| FWP-35B         | 35                     | 34                                    | 160              | 12         |
| FWP-40B         | 40                     | 76                                    | 320              | 12         |
| FWP-50B         | 50                     | 135                                   | 600              | 12         |
| FWP-60B         | 60                     | 210                                   | 950              | 15.5       |
| FWP-70B         | 70                     | 305                                   | 2000             | 18         |
| FWP-80B         | 80                     | 360                                   | 2400             | 21         |
| FWP-90B         | 90                     | 415                                   | 2700             | 25         |
| FWP-100B        | 100                    | 540                                   | 3500             | 27         |
| FWP-125A        | 125                    | 1800                                  | 7300             | 28         |
| FWP-150A        | 150                    | 2900                                  | 11700            | 32         |
| FWP-175A        | 175                    | 4200                                  | 16700            | 35         |
| FWP-200A        | 200                    | 5500                                  | 22000            | 43         |
| FWP-225A        | 225                    | 7700                                  | 31300            | 45         |
| FWP-250A        | 250                    | 10500                                 | 42500            | 48         |
| FWP-300A        | 300                    | 17600                                 | 71200            | 58         |
| FWP-350A        | 350                    | 23700                                 | 95600            | 65         |
| FWP-400A        | 400                    | 31000                                 | 125000           | 78         |
| FWP-450A        | 450                    | 36400                                 | 137000           | 94         |
| FWP-500A        | 500                    | 45200                                 | 170000           | 107        |
| FWP-600A        | 600                    | 66700                                 | 250000           | 122        |
| FWP-700A        | 700                    | 54000                                 | 300000           | 125        |
| FWP-800A        | 800                    | 78000                                 | 450000           | 140        |
| FWP-900A        | 900                    | 91500                                 | 530000           | 150        |
| FWP-1000A       | 1000                   | 120000                                | 600000           | 170        |
| FWP-1200A       | 1200                   | 195000                                | 1100000          | 190        |

\* Watts loss provided at rated current. \* See accessories on page 141.

#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Superior cycling capability

#### Typical Applications

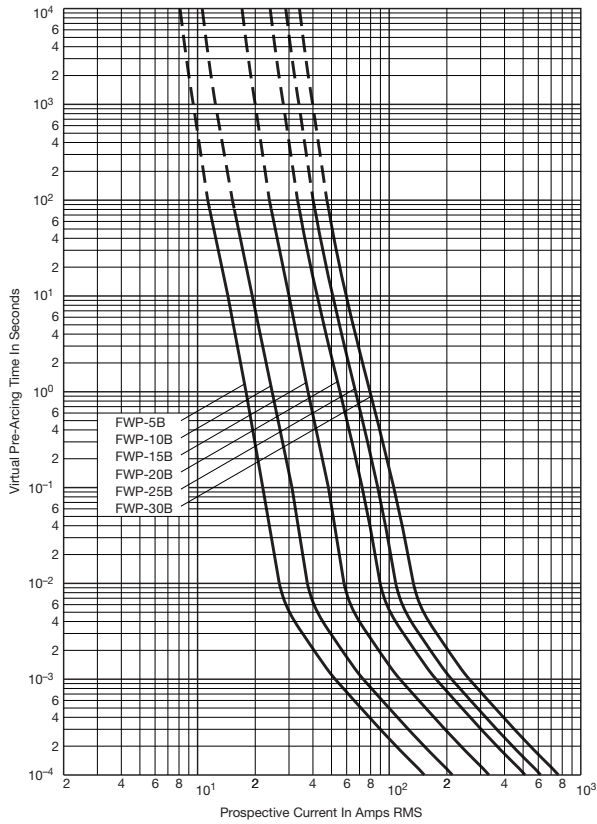
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Data Sheet: 720012

## North American — FWP 700V: 5-1200A

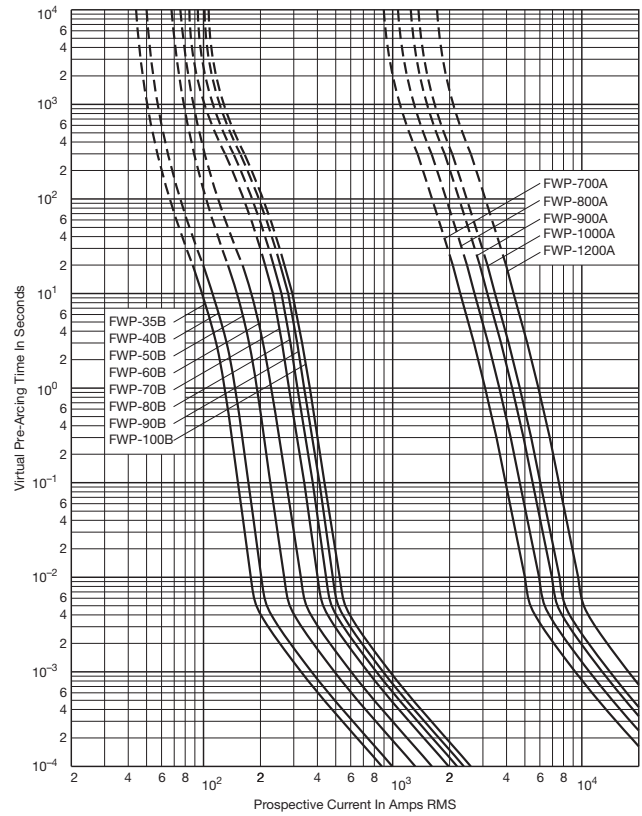
### FWP 5-30A(B): 700V

Time-Current Curve

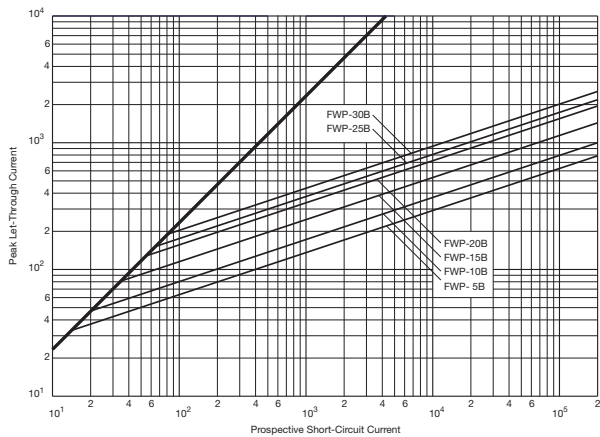


### FWP 35-100A(B) & 700-1200A(A): 700V

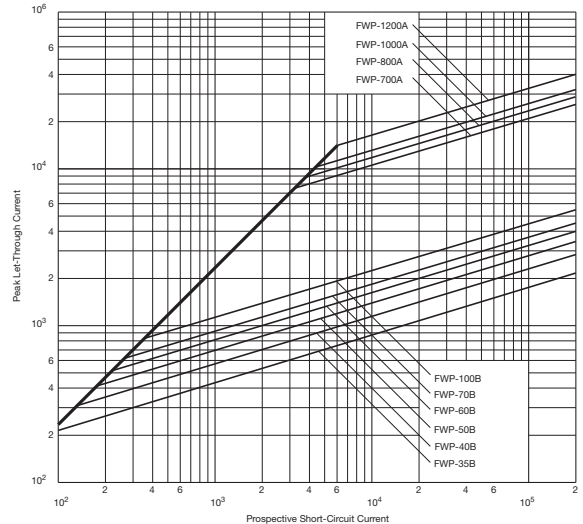
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



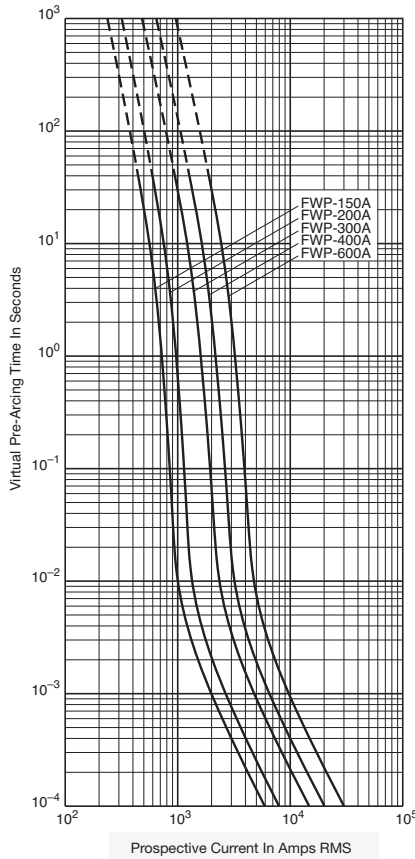
Data Sheet: 35785316

Data Sheet: 35785308

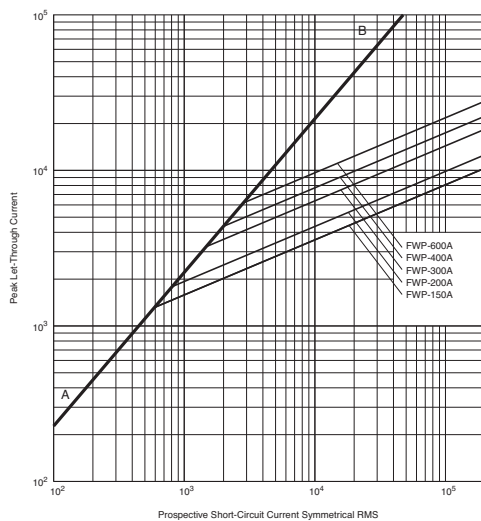
## North American — FWP 700V: 5-1200A

### FWP 150-600A: 700V

#### Time-Current Curve



#### Peak Let-Through Curve





## North American — FWJ 1000V: 35-2000A

### FWJ

#### Specifications

**Description:** North American style stud-mount fuses.

**Dimensions:** See Dimensions illustration.

#### Ratings:

Volts: — 1000Vac/800Vdc

Amps: — 35-2000A

IR: — 25kA (35-200A)

— 100kA (250-2000A)

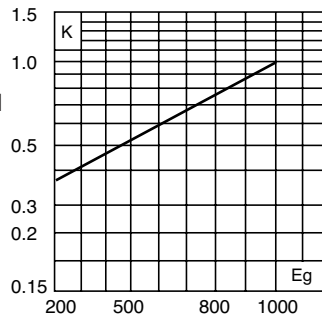
— 50kA @ 800Vdc  
(35-200A, 450-600A)

**Agency Information:** CE, UL Recognition JFHR8.E91958 on 35-600A only.

#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).

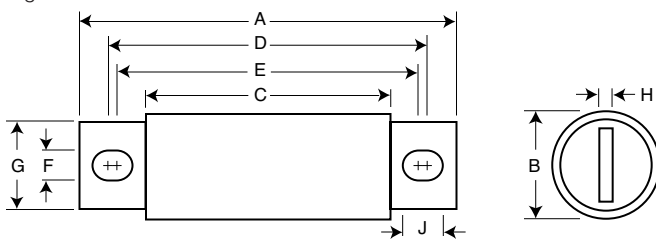


#### Dimensions - in

| Amp Range | Fig. | A     | B     | C     | D     | E     | F     | G     | H     | I     |
|-----------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 35-60     | 1    | 5.000 | 0.940 | 3.110 | 4.235 | 4.180 | 0.352 | 0.750 | 0.125 | 0.380 |
| 70-100    | 1    | 4.932 | 1.125 | 3.085 | 4.266 | 4.156 | 0.352 | 1.000 | 0.188 | 0.407 |
| 125-200   | 1    | 5.685 | 1.526 | 3.261 | 4.803 | 4.055 | 0.445 | 1.000 | 0.250 | 0.819 |
| 250-400   | 1    | 5.768 | 2.000 | 3.500 | 4.811 | 4.150 | 0.433 | 1.500 | 0.250 | 0.764 |
| 500-600   | 1    | 7.201 | 2.500 | 3.465 | 5.984 | 4.706 | 0.562 | 2.000 | 0.375 | 1.201 |
| 800-2000  | 1    | 6.811 | 3.500 | 3.312 | 5.472 | 4.962 | 0.625 | 2.750 | 0.500 | 0.880 |

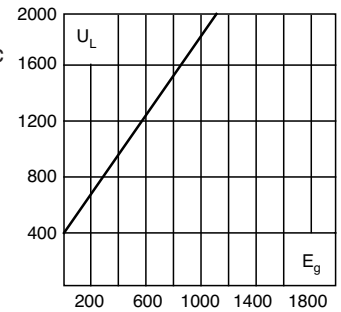
1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 35-2000A



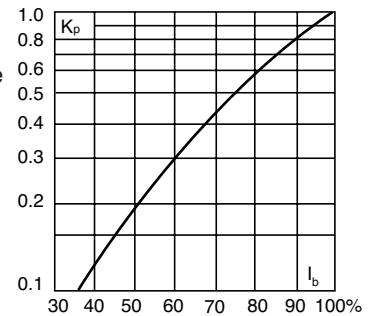
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Catalog Numbers

| Catalog Numbers | Rated Current RMS-Amps | Electrical Characteristics            |         |                   | Watts Loss |
|-----------------|------------------------|---------------------------------------|---------|-------------------|------------|
|                 |                        | I <sup>2</sup> t (A <sup>2</sup> Sec) |         | Clearing at 1000V |            |
|                 |                        | Pre-arc                               |         |                   |            |
| FWJ-35A         | 35                     | 210                                   | 2000    | 7                 |            |
| FWJ-40A         | 40                     | 300                                   | 2500    | 8                 |            |
| FWJ-50A         | 50                     | 470                                   | 3500    | 10                |            |
| FWJ-60A         | 60                     | 670                                   | 5000    | 11                |            |
| FWJ-70A         | 70                     | 1100                                  | 6900    | 12                |            |
| FWJ-80A         | 80                     | 1550                                  | 9700    | 13                |            |
| FWJ-90A         | 90                     | 1900                                  | 12000   | 14                |            |
| FWJ-100A        | 100                    | 2800                                  | 17500   | 15                |            |
| FWJ-125A        | 125                    | 4800                                  | 35000   | 16                |            |
| FWJ-150A        | 150                    | 6300                                  | 45000   | 20                |            |
| FWJ-175A        | 175                    | 7500                                  | 65000   | 30                |            |
| FWJ-200A        | 200                    | 11700                                 | 80000   | 32                |            |
| FWJ-250A        | 250                    | 16000                                 | 112000  | 50                |            |
| FWJ-300A        | 300                    | 23500                                 | 164000  | 56                |            |
| FWJ-350A        | 350                    | 33000                                 | 231000  | 62                |            |
| FWJ-400A        | 400                    | 47000                                 | 330000  | 67                |            |
| FWJ-500A        | 500                    | 39500                                 | 329000  | 95                |            |
| FWJ-600A        | 600                    | 61000                                 | 520000  | 105               |            |
| FWJ-800A        | 800                    | 87000                                 | 500000  | 182               |            |
| FWJ-1000A       | 1000                   | 190000                                | 1100000 | 206               |            |
| FWJ-1200A       | 1200                   | 370000                                | 2100000 | 240               |            |
| FWJ-1400A       | 1400                   | 470000                                | 2700000 | 248               |            |
| FWJ-1600A       | 1600                   | 700000                                | 4000000 | 267               |            |
| FWJ-1800A       | 1800                   | 925000                                | 5300000 | 239               |            |
| FWJ-2000A       | 2000                   | 1330000                               | 7600000 | 244               |            |

• Watts loss provided at rated current.  
• See accessories on page 141.

#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

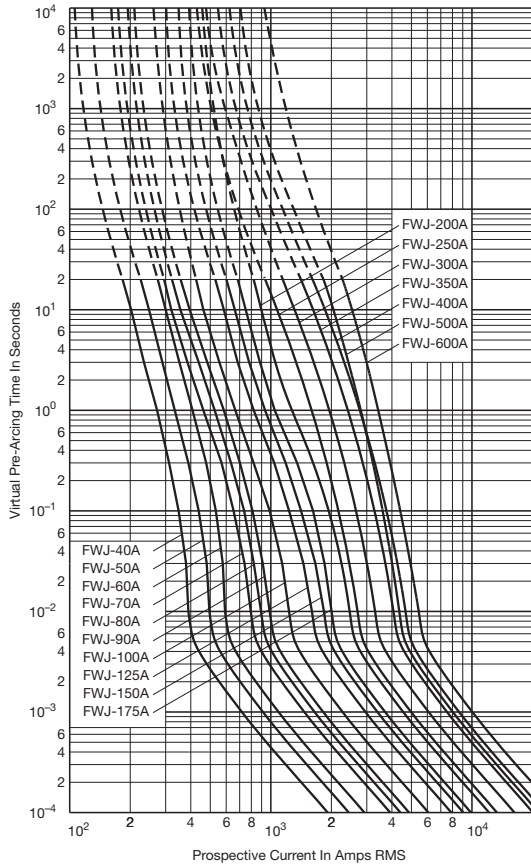
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Data Sheet: 720027

# North American — FWJ 1000V: 35-2000A

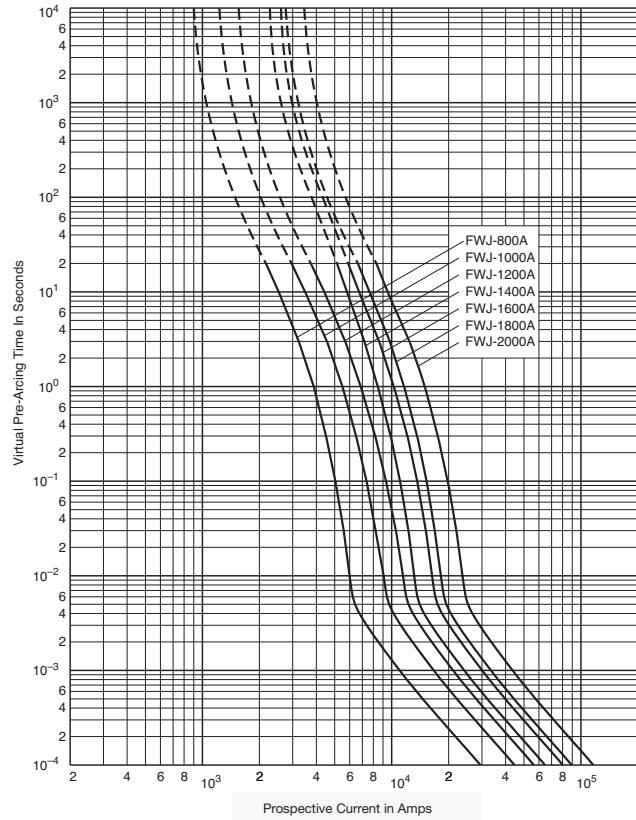
## FWJ 35-600A: 1000V

Time-Current Curve



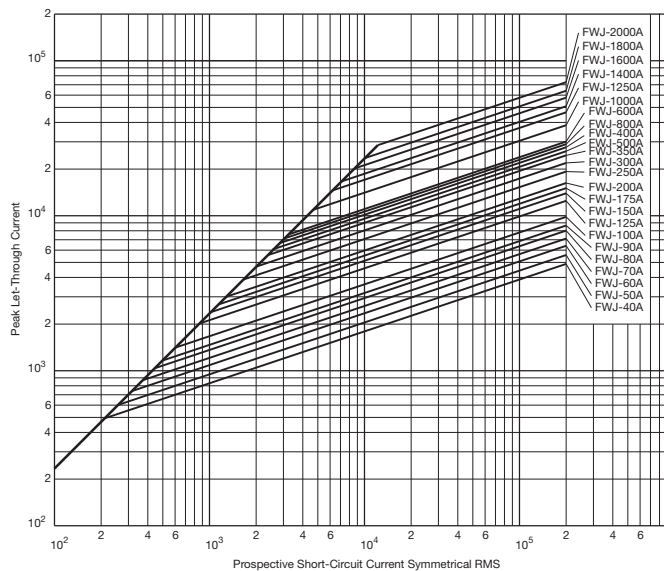
## FWJ 800-2000A: 1000V

Time-Current Curve



Data Sheet: 35785309

Peak Let-Through Curve



Data Sheet: 35785303

## North American Fuse Accessories

### Fuse Bases (Blocks)

#### Modular Style

Bussmann offers a comprehensive line of fuse bases that provide the user with design and manufacturing flexibility. Two identical half bases make up a Bussmann modular fuse base. These “split” units can be panel mounted any distance apart to accommodate any length fuse.

#### Stud Type (Not sold in pairs)

The simpler design is the C5268 Series modular fuse base. With this design, the fuse terminal and cable (with termination) are mounted on the same stud, minimizing labor needed for installation. The stud type base is available in the configuration shown in the table below.

| Catalog Number | Max Fuse Amp Rating | Stud Height (in) | Stud Dia. & Threads |
|----------------|---------------------|------------------|---------------------|
| C5268-1        | 200                 | 1.00             | 5/16"-18            |
| C5268-2        | 200                 | 1.75             | 5/16"-18            |
| C5268-3        | 200                 | 0.75             | 5/16"-18            |
| C5268-4        | 100                 | 1.00             | 1/4"-20             |
| C5268-5        | 100                 | 1.75             | 1/4"-20             |

#### Connector Type

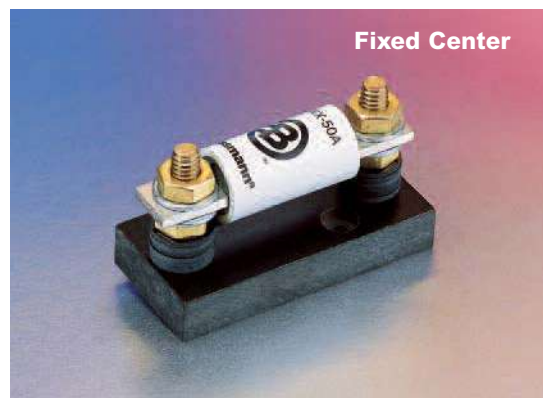
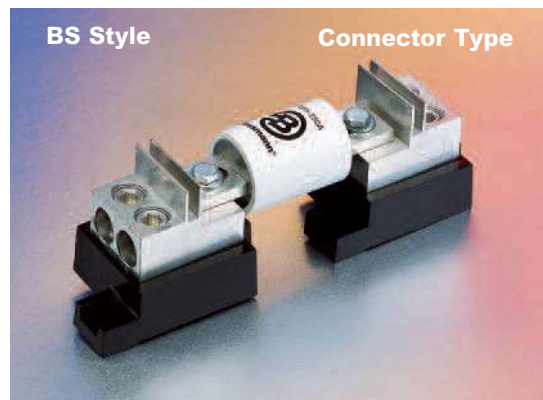
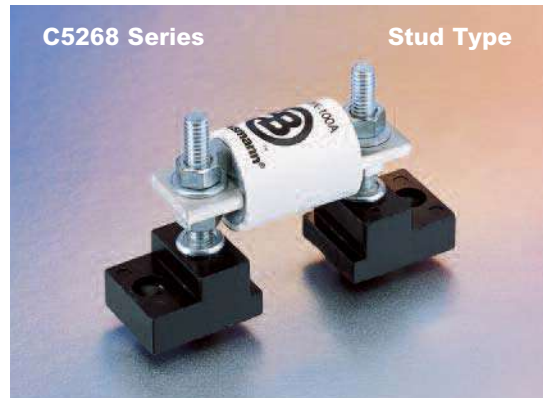
Bussmann also offers a modular style fuse base that utilizes a tin-plated connector (for wire termination and heat dissipation) and a plated-steel stud (for fuse mounting). The connector type fuse base is available in the configurations shown below. Consult Bussmann for additional product details.

| Modular Base Style | Max Voltage | Max Fuse Amp Rating | Data Sheet Number |
|--------------------|-------------|---------------------|-------------------|
| 1BS101             | 600         | 100                 | 1206              |
| 1BS102             | 600         | 400                 | 1207              |
| 1BS103             | 600         | 400                 | 1208              |
| 1BS104             | 600         | 600                 | 1209              |
| BH-0xxx            | 700         | 100                 | 1200              |
| BH-1xxx            | 2500        | 400                 | 1201              |
| BH-2xxx            | 5000        | 400                 | 1202              |
| BH-3xxx            | 1250        | 700                 | 1203              |

Refer to page 306 for BH style holders.

#### Fixed Center Base Style

Bussmann offers a comprehensive line of fixed mount style fuse bases under the trademark TRON™ rectifier fuse blocks. The cable and fuse connections are similar to the stud type fuse base — both are mounted on the same stud. Consult Bussmann for complete product details.



# Square Body Fuses



## Introduction

### Square Body Contents Application Information

Page  
143-144

| Volts (IEC/UL)     | Size        | Class       | Fuse Style        | Page              |         |
|--------------------|-------------|-------------|-------------------|-------------------|---------|
| 690/700            | 000,00      | aR          | DIN 43 653        | 145-147           |         |
|                    |             | aR          | Flush End Contact | 145-147           |         |
|                    |             | aR          | DIN 43 620        | 148-149           |         |
|                    | 1*, 1, 2, 3 | aR          | DIN 43 653        | 150-151           |         |
|                    |             |             | Flush End Contact | 152-153           |         |
|                    |             | aR          | US Style          | 154-155           |         |
|                    |             | aR          | French Style      | 156-157           |         |
|                    |             | aR          | Fuse Curves       | 158-159           |         |
|                    |             | 1*, 2, 3    | aR                | DIN 43 620        | 160-162 |
|                    |             | 4           | aR                | Flush End Contact | 163-164 |
| 1000               | 23, 24      | aR          | Flush End Contact | 165-166           |         |
|                    |             | aR          | DIN 43 620        | 168-171           |         |
|                    | 00, 1, 2, 3 | aR          | DIN 43 653        | 172-173           |         |
|                    |             | 1*, 1, 2, 3 | aR                | DIN 43 653        | 174-175 |
|                    |             |             | aR                | Flush End Contact | 176-177 |
|                    |             |             | aR                | US Style          | 178-179 |
|                    |             | aR          | Fuse Curves       | 180-181           |         |
|                    |             | 4           | aR                | Flush End Contact | 182-184 |
|                    |             | 24          | aR                | Flush End Contact | 185-186 |
|                    | 1250/1300   | 1*, 1, 2, 3 | aR                | DIN 43 653        | 187-188 |
| aR                 |             |             | Flush End Contact | 189-190           |         |
| aR                 |             |             | US Style          | 191-192           |         |
| aR                 |             | Fuse Curves | 193-194           |                   |         |
| 4                  |             | aR          | Flush End Contact | 195-197           |         |
| 23                 |             | aR          | Flush End Contact | 198-199           |         |
| 1000-2000 DC Fuses | 5           | aR          | Flush End Contact | 200               |         |
|                    |             |             |                   | 201-211           |         |

### Accessories

| Accessories      | Page |
|------------------|------|
| Indicator System | 212  |
| Fuse Bases       | 213  |

### Square Body Fuse Ranges

| Amps    | Volts | AC | DC |
|---------|-------|----|----|
| 10-7500 | 690   | X  | —  |
| 50-1400 | 1250  | X  | —  |

## General Information

Designed and tested to:

- IEC 60269: Part 4
- UL Recognized

Bussmann offers a complete range of square body style fuses and accessories. Their unique design and construction provide:

- Minimal energy let-through (I<sup>2</sup>t)
- Low operating temperature
- Low watts loss

Square body style fuses are a very attractive solution for high power applications which require a compact design with superior performance. The construction and design of square body style fuses make it easy for Bussmann to manufacture custom products. Our cataloged offering provides only a sample of the wide variety of product which is available.

Each square body style fuse is available with a number of different end fittings. Options include:

- DIN 43 653
- DIN 43 620
- Flush End (Metric/US)
- French Style
- US Style

## Voltage Rating

All Bussmann square body style fuses are tested to IEC 60269: Part 4. This standard requires a test voltage which is 5% higher than the rated voltage. In North America, fuses are required to clear only their rated voltage.

## Accessories

Square Body style fuses are available with three different open fuse indicator systems. Options include visual indication and indication utilizing a microswitch. Fuse blocks are also available for most applications.

## Square Body Applications

### Maximum Permissible Load Current

The rated current value of Bussmann fuses is based on the ambient temperature in the space immediately below the fuse of 20°C. The following graph gives correction factors (k) for a range of temperatures (-40°C to +80°C). Maximum permissible continuous load currents can be calculated by applying the following formula:

$$I_b \leq I_n \approx k \approx (1 + 0.05 V) \times K_b$$

where

**$I_b$**  = Maximum permissible continuous load current

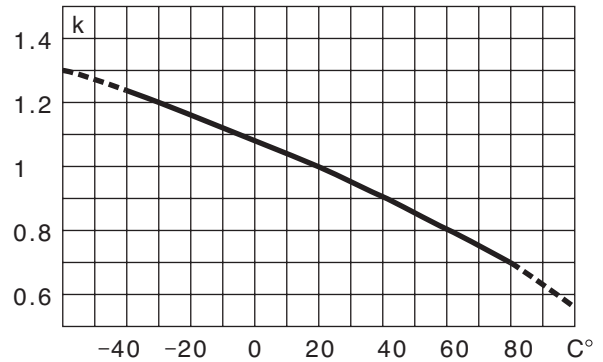
**$I_n$**  = Rated current of fuse

**k** = Temperature correction factor

**v** = Velocity of cooling air in m/s (max. 5 m/s).

**$K_b$**  = Fuse load constant 1.0

Temperature Correction Curve



The maximum permissible continuous load current  $I_b$  of a fuse can be checked empirically (i.e., by satisfying the formula below) by making simple voltage and temperature measurements under actual operating conditions after the fuse has been installed in its operating location and loaded at the calculated  $I_b$  value:

$$\frac{E_2}{E_1} \approx (0.92 + 0.004t) \leq N$$

where

**$E_1$**  = Voltage drop across fuse after 5 seconds

**$E_2$**  = Voltage drop across fuse after 2 hours

**t** = Air temperature at start of test (°C)

**N** = Constant

**Fuse Rated Voltage (IEC) N**

|      |     |
|------|-----|
| 690  | 1.5 |
| 1250 | 1.6 |

### Body Cross Section

Standard fuse program includes barrels with different cross sections.

| Size                       | 000     | 00      | 1       | 1       | 2       | 3       | 4         |
|----------------------------|---------|---------|---------|---------|---------|---------|-----------|
| Maximum Cross-section (mm) | 21 × 36 | 30 × 47 | 45 × 45 | 53 × 53 | 61 × 61 | 76 × 76 | 105 × 105 |
|                            |         |         |         |         |         |         |           |



## Square Body Applications

### Example Application of Square Body High Speed Fuses Subject to Overload and Impulse Loading

Select a short-blade indicating fuse with indicator/adaptor to permit the use of a single-pole microswitch for remote indication and determine if the fuse selected will meet the following application parameters.

#### Application Parameters

##### Load Currents Expected

| Load Type     | Duration          | Frequency of Occurrence  | Amps  |
|---------------|-------------------|--------------------------|-------|
| (1) Normal    | Continuous        | —                        | 300A  |
| (2) Overload  | 60 Seconds        | Once Per Hour            | 500A  |
| (3a) Overload | 10 Seconds        | 2-3 Times Per Week       | 700A  |
| (3b) Overload | 20 Seconds (max.) | Once Per Month           |       |
| (4) Impulse   | 0.5 Seconds       | Less Than Once Per Month | 1100A |

##### Voltage Data

|  |      |
|--|------|
| (5) Voltage Applied to Fuse During Fault Conditions (+10%) | 400V |
|--|------|

##### Temperature Data

|   |      |
|---|------|
| (6) Temperature Inside Cubicle in Which Fuse is Located (Natural Convection Cooling Only) | 60°C |
|---|------|

##### Thyristor Data

|  |                        |
|--|------------------------|
| (7) Thyristor Peak Voltage Withstand                         | 1000V                  |
| (8) Thyristor I <sup>2</sup> t Withstand at 10 Milliseconds* | 90,000A <sup>2</sup> s |

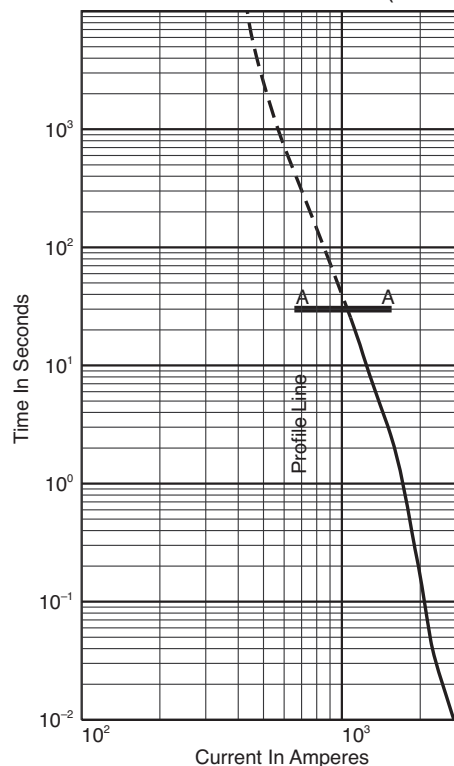
\*Note: The I<sup>2</sup>t withstand of the thyristor may be given for other impulse durations (i.e., 1.5 ms, 3.5 ms, or 8.3 ms); however, the stated fuse I<sup>2</sup>t is valid for all impulse durations of 10 ms or less.

#### Application Procedure

| Step   | Procedure   | Remarks |
|--|---|---------|
| (1) Select a short-blade fuse to permit mounting of microswitch 170H0069   | 1.1 Taking into consideration only the continuous load current and ambient temperature, from Table on page 127 tentatively select fuse 170M3669 (400A, 690V).   | —       |
| (2) Determine I <sup>2</sup> t (total clearing) at 440V.   | 2.1 See Table, page 127. Note I <sup>2</sup> t is 105,000A <sup>2</sup> s at rated voltage of 690V.<br>2.2 From the figure on page 126, note that correction factor K = 0.65.<br>2.3 I <sup>2</sup> t <sub>660V</sub> × K = I <sup>2</sup> t <sub>440V</sub><br>105,000 × 0.65 = 68,250 | OK      |
| (3) Determine maximum arc voltage at 440V  | 3.1 From the figure on page 126, note that maximum voltage at 440V is 900V  | OK      |
| (4) Determine maximum permissible continuous load current I <sub>b</sub> .   | 4.1 Per page 115 data,<br>I <sub>b</sub> = I <sub>n</sub> × k × (1 + 0.05V) × K <sub>p</sub><br>I <sub>b</sub> = 400A × 0.8 × (1 + 0) × 1<br>I <sub>b</sub> = 320A  | —       |
| (5) Plot a "line profile" showing the expected load and overload currents. Determine that overload and impulse load currents do not exceed their maximum permissible values. | 5.0 Calculate I <sub>max</sub> per Table, High Speed Fuse Application Guide page 16, for each overload and impulse load.  | —       |
| (Item 2)   | 5.1 I <sub>max</sub> < 60% × I <sub>t</sub><br>500A < 60% × 950A<br>500A < 570A   | OK      |
| (Item 3a)  | 5.2 I <sub>max</sub> < 60% × I <sub>t</sub><br>700A < 60% × 1360A<br>700A < 780A  | OK      |
| (Item 3b)  | 5.3 I <sub>max</sub> < 70% × I <sub>t</sub><br>700A < 70% × 1150A<br>700A < 805A  | OK      |
| (Item 4)   | 5.4 I <sub>max</sub> < 70% × I <sub>t</sub><br>1100A < 70% × 1800A<br>1100A < 1260A   | OK      |

The tentatively selected fuse 170M3669 with microswitch 170H0069 meets all application parameters; no further selection would be necessary.

170M3669 (400A)



#### Calculation of Watt Loss

From the Table on page 127, watt loss at 400 amps is 60 watts. The continuous load current of 300A is 75% of rated current (400A). From page 126, the correction factor  $K_p = 0.5$ .

$$\begin{aligned} \text{Watt Loss } 75\% &= \text{Watt Loss } 100\% \times K_p \\ &= 60W \times 0.5 \\ &= 30 \text{ watts} \end{aligned}$$

#### Special Fuses

Other high speed fuses are available from Bussmann with voltage ratings of 380 to 10,000V and current ratings up to 10,000A in a single unit configuration. Fuses can be supplied with open fuse, "pin" indicators. Various types of microswitches are also available (see page 212).

## Square Body DIN 43 653 — 690V/700V (IEC/UL): 10-400A

### 690V/700V (IEC/UL) 10-400A

#### Specifications

**Description:** Square body DIN 43-653 stud mount high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 690Vac (IEC)  
— 700Vac (UL)

Amps: — 10-400A

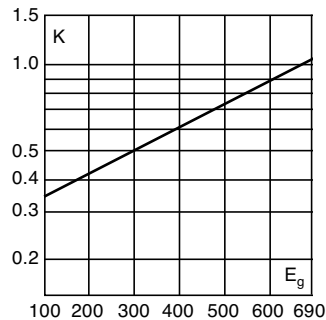
IR: — 200kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30 on Size 000.

#### Electrical Characteristics

##### Total Clearing $I^2t$

The total clearing  $I^2t$  at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing  $I^2t$  is found by multiplying by correction factor, K, given as a function of applied

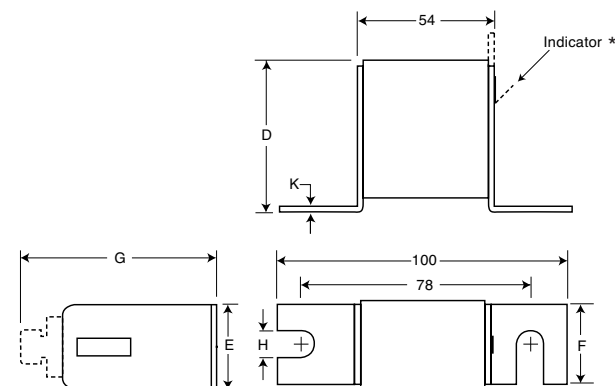


#### Dimensions - mm

Type -U/80, -/80, -TN/80

| Size | D  | E  | F  | G  | H  | K |
|------|----|----|----|----|----|---|
| 000  | 40 | 21 | 20 | 51 | 8  | 2 |
| 00   | 51 | 30 | 28 | 67 | 10 | 2 |

1mm = 0.0394" / 1" = 25.4mm



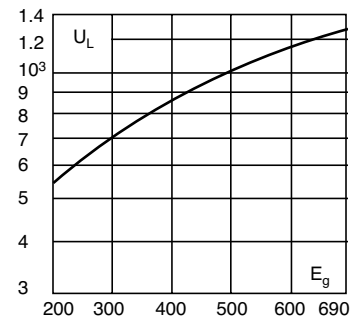
\* Indication for Size 00 fuses is a red pin.



working voltage,  $E_g$ , (rms).

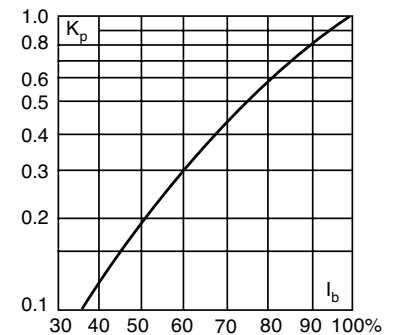
#### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage,  $E_g$ , (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers

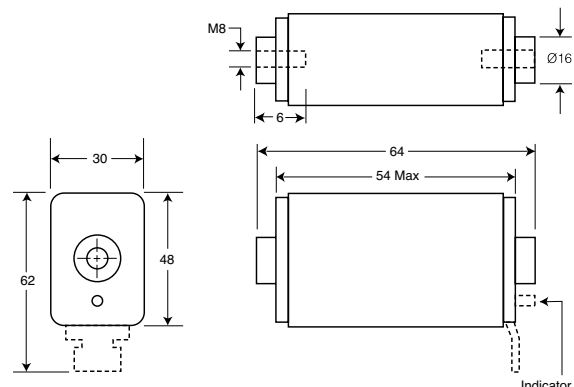
#### For Other Voltage Ratings in This Body Style

- See page 172 (1000V)

#### Dimensions (mm)

Type 00B/60, 00BTN/60

1mm = 0.0394" / 1" = 25.4mm



## Square Body DIN 43 653 — 690V/700V (IEC/UL): 10-400A

### Catalog Numbers

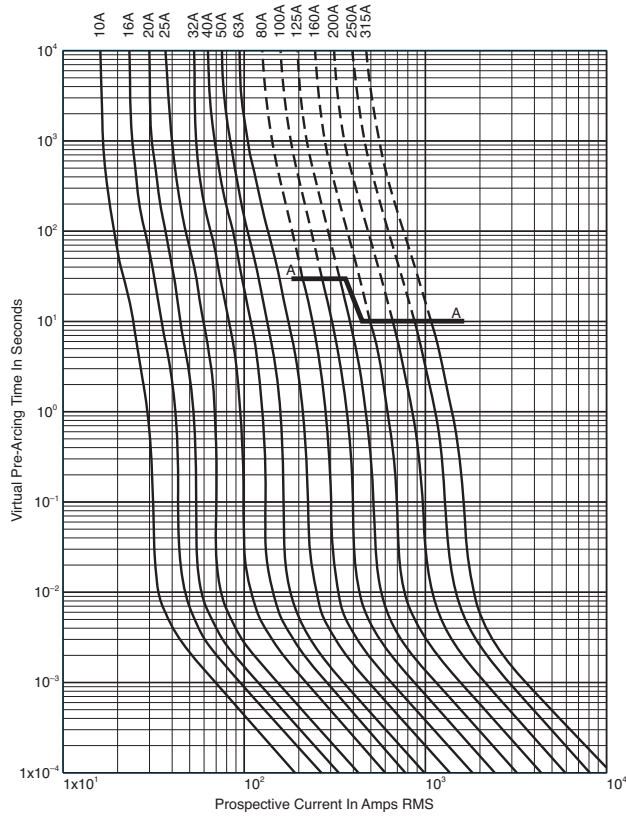
| Catalog Numbers               |                             |  |                               |  | Size | Electrical Characteristics   |                                       |                     |               |
|-------------------------------|-----------------------------|--|-------------------------------|--|------|------------------------------|---------------------------------------|---------------------|---------------|
| -U/80<br>Without<br>Indicator | -/80<br>Visual<br>Indicator | -TN/80<br>Type T<br>Indicator<br>for Micro | 00B/60<br>Visual<br>Indicator | 00BTN/60<br>Type T<br>Indicator<br>for Micro |      | Rated<br>Current<br>RMS-Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |                     | Watts<br>Loss |
|                               |                             |  |                               |  |      |                              | Pre-arc                               | Clearing<br>at 660V |               |
| 170M1308                      | 170M1358                    | 170M1408                                   |                               |  | 10   | 3.8                          | 25.5                                  | 3.0                 |               |
| 170M1309                      | 170M1359                    | 170M1409                                   |                               |  | 16   | 7.2                          | 48                                    | 5.5                 |               |
| 170M1310                      | 170M1360                    | 170M1410                                   |                               |  | 20   | 11.5                         | 78                                    | 7                   |               |
| 170M1311                      | 170M1361                    | 170M1411                                   |                               |  | 25   | 19                           | 130                                   | 9                   |               |
| 170M1312                      | 170M1362                    | 170M1412                                   |                               |  | 32   | 40                           | 270                                   | 10                  |               |
| 170M1313                      | 170M1363                    | 170M1413                                   |                               |  | 40   | 69                           | 460                                   | 12                  |               |
| 170M1314                      | 170M1364                    | 170M1414                                   |                               |  | 50   | 115                          | 770                                   | 15                  |               |
| 170M1315                      | 170M1365                    | 170M1415                                   |                               |  | 63   | 215                          | 1450                                  | 16                  |               |
| 170M1316                      | 170M1366                    | 170M1416                                   |                               |  | 80   | 380                          | 2550                                  | 19                  |               |
| 170M1317                      | 170M1367                    | 170M1417                                   |                               |  | 100  | 695                          | 4650                                  | 24                  |               |
| 170M1318                      | 170M1368                    | 170M1418                                   |                               |  | 125  | 1200                         | 8500                                  | 28                  |               |
| 170M1319                      | 170M1369                    | 170M1419                                   |                               |  | 160  | 2300                         | 16000                                 | 32                  |               |
| 170M1320                      | 170M1370                    | 170M1420                                   |                               |  | 200  | 4200                         | 28000                                 | 37                  |               |
| 170M1321                      | 170M1371                    | 170M1421                                   |                               |  | 250  | 7750                         | 51500                                 | 42                  |               |
| 170M1322                      | 170M1372                    | 170M1422                                   |                               |  | 315  | 12000                        | 80500                                 | 52                  |               |
|                               | 170M2608                    | 170M2658                                   | 170M2708                      | 170M2758                                     | 25   | 19                           | 130                                   | 6                   |               |
|                               | 170M2609                    | 170M2659                                   | 170M2709                      | 170M2759                                     | 32   | 28.5                         | 195                                   | 7                   |               |
|                               | 170M2610                    | 170M2660                                   | 170M2710                      | 170M2760                                     | 40   | 50                           | 360                                   | 9                   |               |
|                               | 170M2611                    | 170M2661                                   | 170M2711                      | 170M2761                                     | 50   | 95                           | 640                                   | 10                  |               |
|                               | 170M2612                    | 170M2662                                   | 170M2712                      | 170M2762                                     | 63   | 170                          | 1200                                  | 12                  |               |
|                               | 170M2613                    | 170M2663                                   | 170M2713                      | 170M2763                                     | 80   | 310                          | 2100                                  | 15                  |               |
|                               | 170M2614                    | 170M2664                                   | 170M2714                      | 170M2764                                     | 100  | 620                          | 4150                                  | 20                  |               |
|                               | 170M2615                    | 170M2665                                   | 170M2715                      | 170M2765                                     | 125  | 1000                         | 6950                                  | 25                  |               |
|                               | 170M2616                    | 170M2666                                   | 170M2716                      | 170M2766                                     | 160  | 1900                         | 13000                                 | 30                  |               |
|                               | 170M2617                    | 170M2667                                   | 170M2717                      | 170M2767                                     | 200  | 3400                         | 23000                                 | 35                  |               |
|                               | 170M2618                    | 170M2668                                   | 170M2718                      | 170M2768                                     | 250  | 6250                         | 42000                                 | 45                  |               |
|                               | 170M2619                    | 170M2669                                   | 170M2719                      | 170M2769                                     | 315  | 10000                        | 68500                                 | 55                  |               |
|                               | 170M2620                    | 170M2670                                   | 170M2720                      | 170M2770                                     | 350  | 13500                        | 91500                                 | 60                  |               |
|                               | 170M2621                    | 170M2671                                   | 170M2721                      | 170M2771                                     | 400  | 18000                        | 125000                                | 70                  |               |

- Watts loss provided at rated current.
- Microswitch indicator ordered separately.
- See accessories on pages 212-213.
- For fuse curves see page 147.

## Square Body Size 000, 00 — 690V/700V (IEC/UL): 10-400A

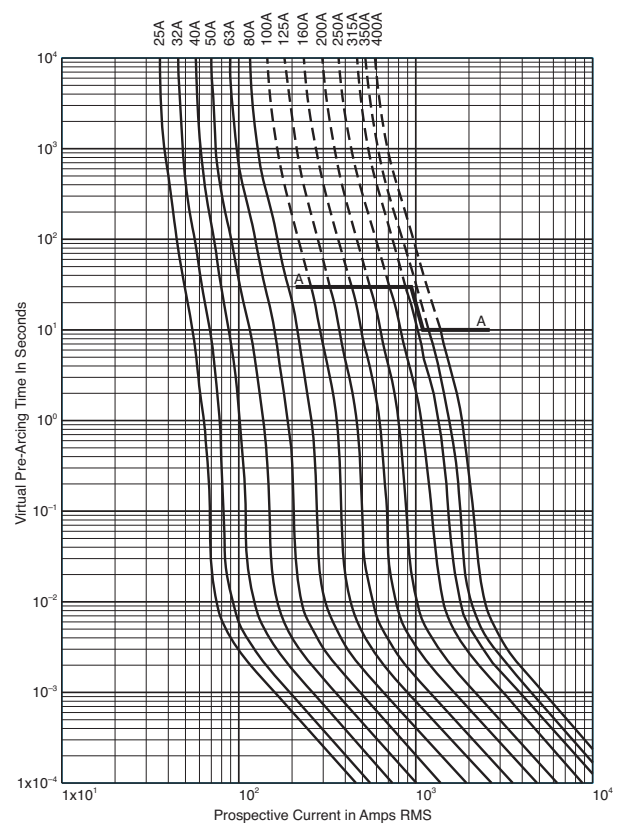
### Size 000 — 10-315A: 690V

Time-Current Curve

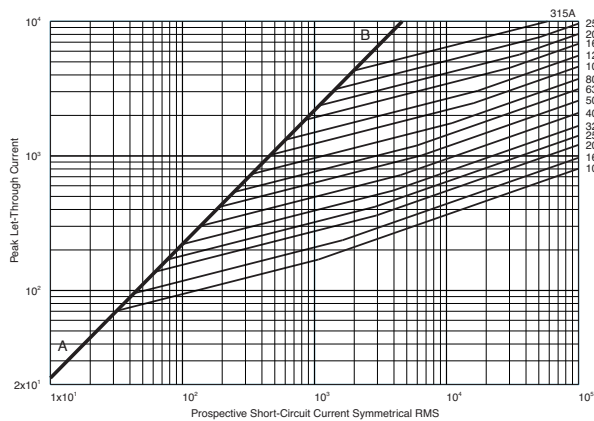


### Size 00 — 25-400A: 690V

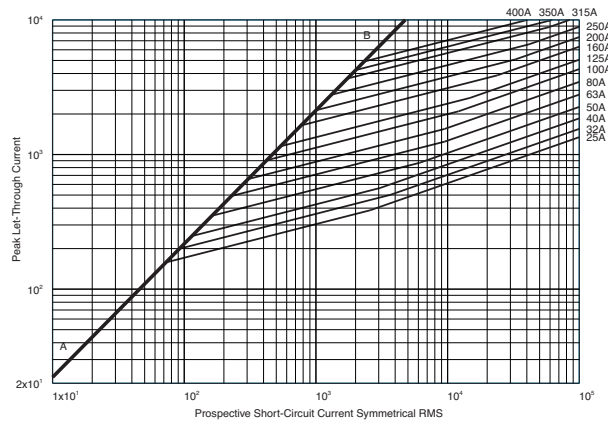
Time-Current Curve



### Peak Let-Through Curve



### Peak Let-Through Curve



Data Sheet: 17056310

Data Sheet: 172056312

## Square Body DIN 43 620 — 690V (IEC/UL): 10-315A

### 690V (IEC/UL) 10-315A

#### Specifications

**Description:** Square body DIN 43 620 blade style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 690Vac

Amps: — 10-315A

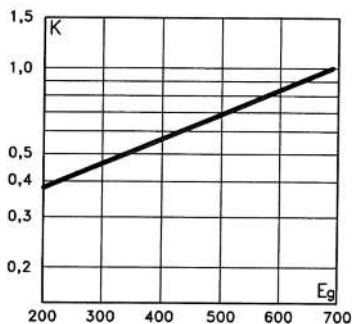
IR: — 200kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2. & CSA Component Acceptance file Class 1422-30, (53787)

#### Electrical Characteristics

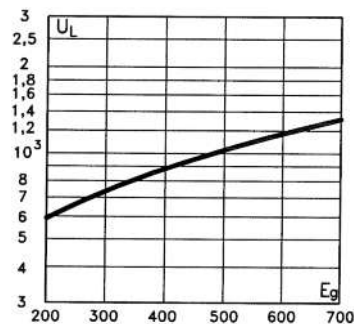
##### Total Clearing $I^2t$

The total clearing  $I^2t$  at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing  $I^2t$  is found by multiplying by correction factor, K, given as a function of applied working voltage,  $E_g$ , (rms).



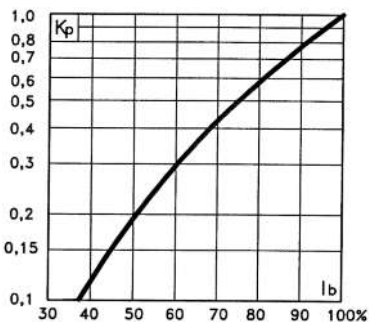
#### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage,  $E_g$ , (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

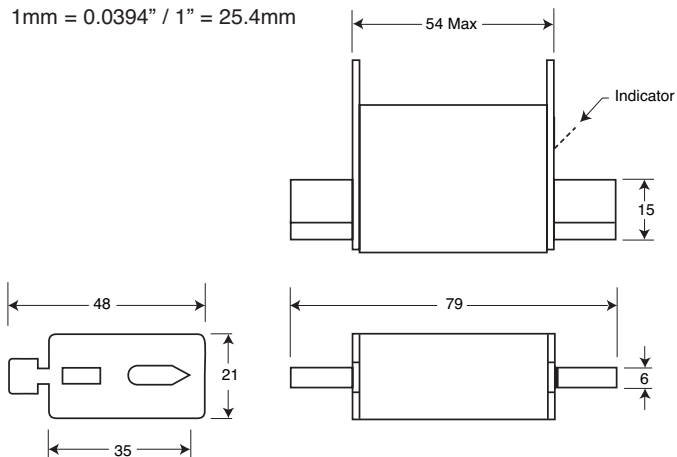
#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### Dimensions - mm

DIN 000 Type T

1mm = 0.0394" / 1" = 25.4mm





## Square Body DIN 43 620 — 690V (IEC/UL): 10-315A

### Catalog Numbers

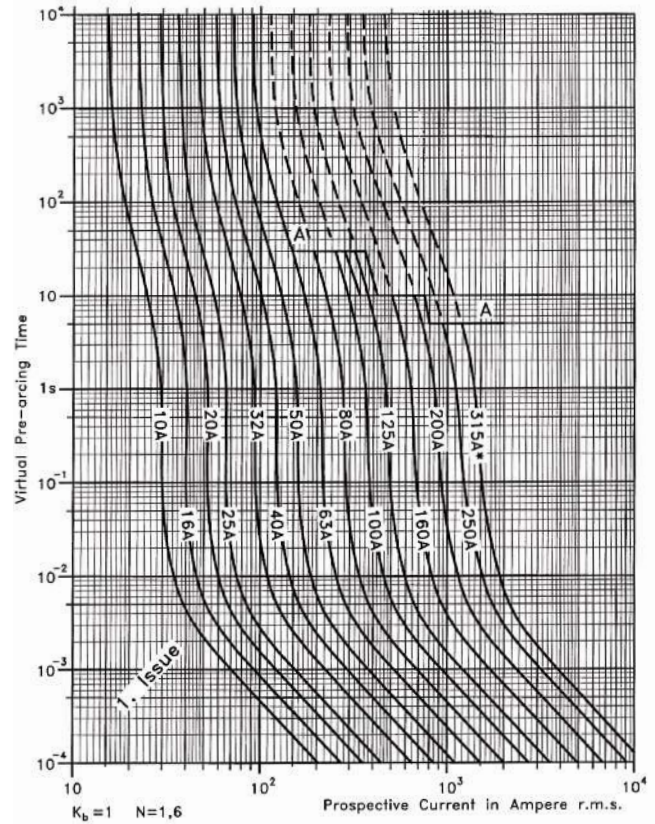
| Catalog Numbers<br>DIN<br>Type T<br>Indicator<br>for Micro | Size | Electrical Characteristics   |                                       |                     |               |    |
|--|------|------------------------------|---------------------------------------|---------------------|---------------|----|
|  |      | Rated<br>Current<br>RMS-Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |                     | Watts<br>Loss |    |
|  |      |                              | Pre-arc                               | Clearing<br>at 660V |               |    |
| 170M1558D  | 000  | 10                           | 4                                     | 27                  | 2.5           |    |
| 170M1559D  |      | 16                           | 7                                     | 51                  | 4             |    |
| 170M1560D  |      | 20                           | 11.5                                  | 82.5                | 5             |    |
| 170M1561D  |      | 25                           | 19                                    | 140                 | 6             |    |
| 170M1562D  |      | 32                           | 40                                    | 285                 | 7             |    |
| 170M1563D  |      | 40                           | 65                                    | 490                 | 8.5           |    |
| 170M1564D  |      | 50                           | 115                                   | 815                 | 9.5           |    |
| 170M1565D  |      | 63                           | 215                                   | 1550                | 11.5          |    |
| 170M1566D  |      | 80                           | 380                                   | 2700                | 15            |    |
| 170M1567D  |      | 100                          | 695                                   | 4950                | 16.5          |    |
| 170M1568D  |      | 125                          | 1180                                  | 8250                | 21.5          |    |
| 170M1569D  |      | 160                          | 2300                                  | 16500               | 25            |    |
| 170M1570D  |      | 200                          | 4350                                  | 31000               | 29.5          |    |
| 170M1571D  |      | 250                          | 7900                                  | 56000               | 35.5          |    |
| 170M1572D  |      | 00                           | 315                                   | 12000               | 84500         | 45 |

- Watts loss provided at rated current.
- Microswitch indicator ordered separately. See accessories on pages 212-213.

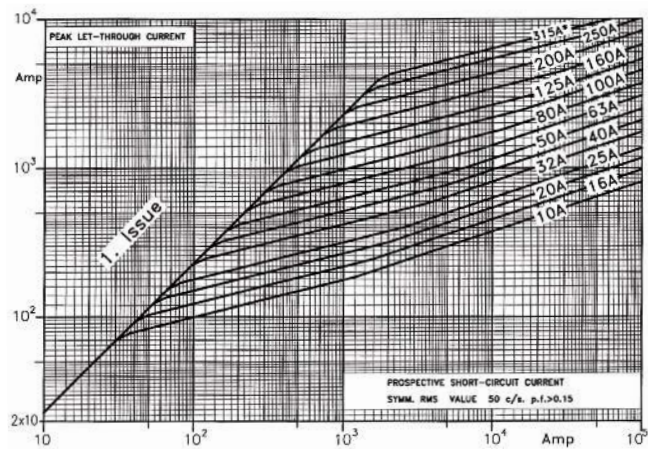
### Rated Current

The rated current of this fuse range has been given with copper conductors that have a current density of 1.3A/mm<sup>2</sup> (IEC 60269-4). For conductor cross section according to IEC 60269-1, the fuses with a rated current higher than 125A must be derated. Please contact Bussmann for application assistance.

### Size 000 — 10-315A: 690V Time-Current Curve



### Peak Let-Through Curve



Data Sheet: 72056310

## Square Body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

### 690V/700V (IEC/UL) 40-2000A

#### Specifications

Description: Square body DIN 43 653 stud-mount high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 690Vac (IEC)

— 700Vac (UL)

Amps: — 40-2000A

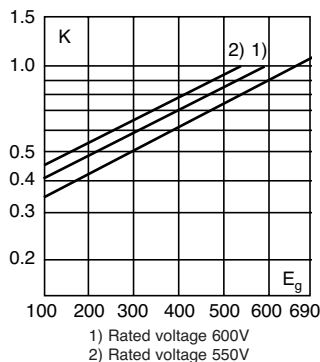
IR: — 200kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



#### Dimensions - mm

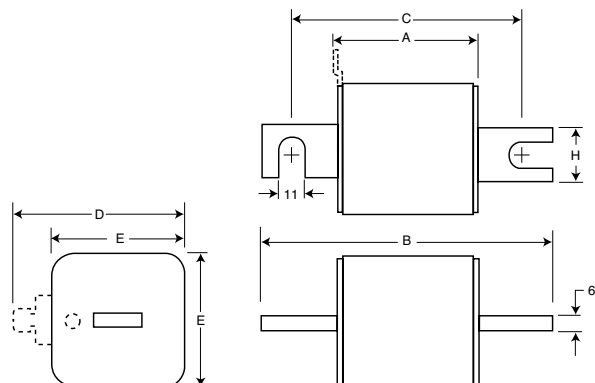
| Size | A  | B   | B** | C  | C** | D*** | E  | H  |
|------|----|-----|-----|----|-----|------|----|----|
| 1*   | 50 | 104 | 134 | 78 | 108 | 58   | 45 | 22 |
| 1    | 50 | 108 | 138 | 78 | 108 | 66   | 53 | 25 |
| 2    | 50 | 108 | 138 | 78 | 108 | 75   | 61 | 25 |
| 3    | 51 | 109 | 139 | 78 | 108 | 90   | 76 | 30 |

\*\*Valid for fuses type -/110, -TN/110.

\*\*\*Microswitch.

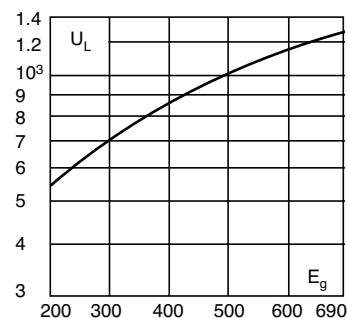
1mm = 0.0394" / 1" = 25.4mm

Type -/80, -TN/80, -/110, -TN/110.



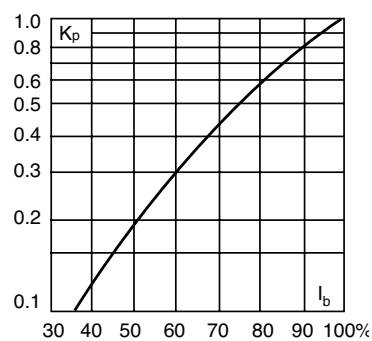
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

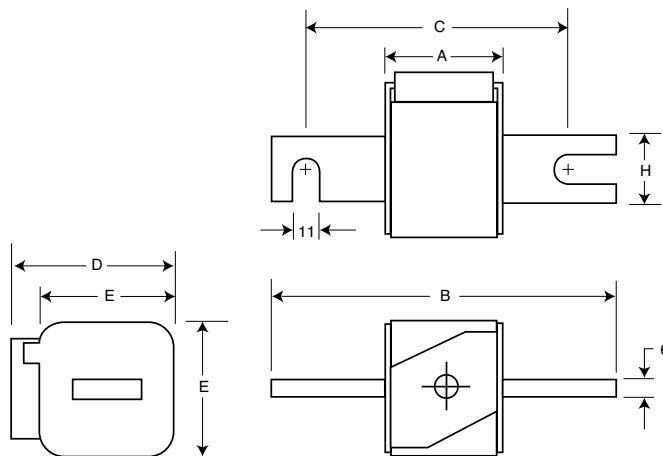
#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

- See pages 174 (1000V) and 187 (1250V/1300V)

Type -KN/80, -KN/110



## Square Body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

### Catalog Numbers

| Catalog Numbers                      |  |  |                              |   |  | Size  | Electrical Characteristics |                                       |          |                  |
|--------------------------------------|--|--|------------------------------|---|--|-------|----------------------------|---------------------------------------|----------|------------------|
| -/80<br>Visual<br>Watts<br>Indicator | -TN/80<br>Type T<br>Indicator<br>for Micro | -KN/80<br>Type K<br>Indicator<br>for Micro | -/110<br>Visual<br>for Micro | -TN/110<br>Type T<br>Indicator<br>for Micro | -KN/110<br>Type K<br>Indicator<br>-KN/80 |       | Rated<br>RMS-Amps          | I <sup>2</sup> t (A <sup>2</sup> Sec) |          | Clearing<br>Loss |
|                                      |  |  |                              |   |  |       |                            | Current<br>Pre-arc                    | at 660V  |                  |
| 170M3008                             | 170M3058                                   | 170M3108                                   | 170M3158                     | 170M3208                                    | 170M3258                                 | 1*    | 40                         | 40                                    | 270      | 9                |
| 170M3009                             | 170M3059                                   | 170M3109                                   | 170M3159                     | 170M3209                                    | 170M3259                                 |       | 50                         | 77                                    | 515      | 11               |
| 170M3010                             | 170M3060                                   | 170M3110                                   | 170M3160                     | 170M3210                                    | 170M3260                                 |       | 63                         | 115                                   | 770      | 14               |
| 170M3011                             | 170M3061                                   | 170M3111                                   | 170M3161                     | 170M3211                                    | 170M3261                                 |       | 80                         | 185                                   | 1250     | 18               |
| 170M3012                             | 170M3062                                   | 170M3112                                   | 170M3162                     | 170M3212                                    | 170M3262                                 |       | 100                        | 360                                   | 2450     | 21               |
| 170M3013                             | 170M3063                                   | 170M3113                                   | 170M3163                     | 170M3213                                    | 170M3263                                 |       | 125                        | 550                                   | 3700     | 26               |
| 170M3014                             | 170M3064                                   | 170M3114                                   | 170M3164                     | 170M3214                                    | 170M3264                                 |       | 160                        | 1100                                  | 7500     | 30               |
| 170M3015                             | 170M3065                                   | 170M3115                                   | 170M3165                     | 170M3215                                    | 170M3265                                 |       | 200                        | 2200                                  | 15000    | 35               |
| 170M3016                             | 170M3066                                   | 170M3116                                   | 170M3166                     | 170M3216                                    | 170M3266                                 |       | 250                        | 4200                                  | 28500    | 40               |
| 170M3017                             | 170M3067                                   | 170M3117                                   | 170M3167                     | 170M3217                                    | 170M3267                                 |       | 315                        | 7000                                  | 46500    | 50               |
| 170M3018                             | 170M3068                                   | 170M3118                                   | 170M3168                     | 170M3218                                    | 170M3268                                 |       | 350                        | 10000                                 | 68500    | 55               |
| 170M3019                             | 170M3069                                   | 170M3119                                   | 170M3169                     | 170M3219                                    | 170M3269                                 |       | 400                        | 15000                                 | 105000   | 60               |
| 170M3020                             | 170M3070                                   | 170M3120                                   | 170M3170                     | 170M3220                                    | 170M3270                                 |       | 450                        | 21000                                 | 140000   | 65               |
| 170M3021                             | 170M3071                                   | 170M3121                                   | 170M3171                     | 170M3221                                    | 170M3271                                 |       | 500                        | 27000                                 | 180000   | 70               |
| 170M3022                             | 170M3072                                   | 170M3122                                   | 170M3172                     | 170M3222                                    | 170M3272                                 |       | 550                        | 34000                                 | 230000   | 75               |
| 170M3023                             | 170M3073                                   | 170M3123                                   | 170M3173                     | 170M3223                                    | 170M3273                                 |       | 630                        | 48500                                 | 325000   | 80               |
| 170M4008                             | 170M4058                                   | 170M4108                                   | 170M4158                     | 170M4208                                    | 170M4258                                 |       | 1                          | 200                                   | 1650     | 11500            |
| 170M4009                             | 170M4059                                   | 170M4109                                   | 170M4159                     | 170M4209                                    | 170M4259                                 | 250   |                            | 3100                                  | 21000    | 55               |
| 170M4010                             | 170M4060                                   | 170M4110                                   | 170M4160                     | 170M4210                                    | 170M4260                                 | 315   |                            | 6200                                  | 42000    | 58               |
| 170M4011                             | 170M4061                                   | 170M4111                                   | 170M4161                     | 170M4211                                    | 170M4261                                 | 350   |                            | 8500                                  | 59000    | 60               |
| 170M4012                             | 170M4062                                   | 170M4112                                   | 170M4162                     | 170M4212                                    | 170M4262                                 | 400   |                            | 13500                                 | 91500    | 65               |
| 170M4013                             | 170M4063                                   | 170M4113                                   | 170M4163                     | 170M4213                                    | 170M4263                                 | 450   |                            | 17000                                 | 120000   | 70               |
| 170M4014                             | 170M4064                                   | 170M4114                                   | 170M4164                     | 170M4214                                    | 170M4264                                 | 500   |                            | 25000                                 | 170000   | 72               |
| 170M4015                             | 170M4065                                   | 170M4115                                   | 170M4165                     | 170M4215                                    | 170M4265                                 | 550   |                            | 34000                                 | 230000   | 75               |
| 170M4016                             | 170M4066                                   | 170M4116                                   | 170M4166                     | 170M4216                                    | 170M4266                                 | 630   |                            | 52000                                 | 350000   | 80               |
| 170M4017                             | 170M4067                                   | 170M4117                                   | 170M4167                     | 170M4217                                    | 170M4267                                 | 700   |                            | 69500                                 | 465000   | 85               |
| 170M4018                             | 170M4068                                   | 170M4118                                   | 170M4168                     | 170M4218                                    | 170M4268                                 | 800   |                            | 105000                                | 725000   | 95               |
| 170M4019                             | 170M4069                                   | 170M4119                                   | 170M4169                     | 170M4219                                    | 170M4269                                 | †900  |                            | 155000                                | †850000  | 100              |
| 170M5008                             | 170M5058                                   | 170M5108                                   | 170M5158                     | 170M5208                                    | 170M5258                                 | 2     | 400                        | 11000                                 | 74000    | 65               |
| 170M5009                             | 170M5059                                   | 170M5109                                   | 170M5159                     | 170M5209                                    | 170M5259                                 |       | 450                        | 15500                                 | 105000   | 70               |
| 170M5010                             | 170M5060                                   | 170M5110                                   | 170M5160                     | 170M5210                                    | 170M5260                                 |       | 500                        | 21500                                 | 145000   | 75               |
| 170M5011                             | 170M5061                                   | 170M5111                                   | 170M5161                     | 170M5211                                    | 170M5261                                 |       | 550                        | 28000                                 | 190000   | 80               |
| 170M5012                             | 170M5062                                   | 170M5112                                   | 170M5162                     | 170M5212                                    | 170M5262                                 |       | 630                        | 41000                                 | 275000   | 90               |
| 170M5013                             | 170M5063                                   | 170M5113                                   | 170M5163                     | 170M5213                                    | 170M5263                                 |       | 700                        | 60500                                 | 405000   | 95               |
| 170M5014                             | 170M5064                                   | 170M5114                                   | 170M5164                     | 170M5214                                    | 170M5264                                 |       | 800                        | 86000                                 | 575000   | 105              |
| 170M5015                             | 170M5065                                   | 170M5115                                   | 170M5165                     | 170M5215                                    | 170M5265                                 |       | 900                        | 125000                                | 840000   | 110              |
| 170M5016                             | 170M5066                                   | 170M5116                                   | 170M5166                     | 170M5216                                    | 170M5266                                 |       | 1000                       | 180000                                | 1250000  | 115              |
| 170M5017                             | 170M5067                                   | 170M5117                                   | 170M5167                     | 170M5217                                    | 170M5267                                 |       | 1100                       | 245000                                | 1600000  | 120              |
| 170M5018                             | 170M5068                                   | 170M5118                                   | 170M5168                     | 170M5218                                    | 170M5268                                 |       | 1250                       | 365000                                | 2400000  | 130              |
| 170M6008                             | 170M6058                                   | 170M6108                                   | 170M6158                     | 170M6208                                    | 170M6258                                 |       | 3                          | 500                                   | 14000    | 95000            |
| 170M6009                             | 170M6059                                   | 170M6109                                   | 170M6159                     | 170M6209                                    | 170M6259                                 | 550   |                            | 19500                                 | 135000   | 100              |
| 170M6010                             | 170M6060                                   | 170M6110                                   | 170M6160                     | 170M6210                                    | 170M6260                                 | 630   |                            | 31000                                 | 210000   | 105              |
| 170M6011                             | 170M6061                                   | 170M6111                                   | 170M6161                     | 170M6211                                    | 170M6261                                 | 700   |                            | 44500                                 | 300000   | 110              |
| 170M6012                             | 170M6062                                   | 170M6112                                   | 170M6162                     | 170M6212                                    | 170M6262                                 | 800   |                            | 69500                                 | 465000   | 115              |
| 170M6013                             | 170M6063                                   | 170M6113                                   | 170M6163                     | 170M6213                                    | 170M6263                                 | 900   |                            | 100000                                | 670000   | 120              |
| 170M6014                             | 170M6064                                   | 170M6114                                   | 170M6164                     | 170M6214                                    | 170M6264                                 | 1000  |                            | 140000                                | 945000   | 125              |
| 170M6015                             | 170M6065                                   | 170M6115                                   | 170M6165                     | 170M6215                                    | 170M6265                                 | 1100  |                            | 190000                                | 1300000  | 130              |
| 170M6016                             | 170M6066                                   | 170M6116                                   | 170M6166                     | 170M6216                                    | 170M6266                                 | 1250  |                            | 290000                                | 1950000  | 140              |
| 170M6017                             | 170M6067                                   | 170M6117                                   | 170M6167                     | 170M6217                                    | 170M6267                                 | 1400  |                            | 370000                                | 2450000  | 155              |
| 170M6018                             | 170M6068                                   | 170M6118                                   | 170M6168                     | 170M6218                                    | 170M6268                                 | 1500  |                            | 460000                                | 3100000  | 160              |
| 170M6019                             | 170M6069                                   | 170M6119                                   | 170M6169                     | 170M6219                                    | 170M6269                                 | 1600  |                            | 580000                                | 3900000  | 160              |
| 170M6020                             | 170M6070                                   | 170M6120                                   | 170M6170                     | 170M6220                                    | 170M6270                                 | †1800 |                            | 880000                                | †5250000 | 165              |
| 170M6021                             | 170M6071                                   | 170M6121                                   | 170M6171                     | 170M6221                                    | 170M6271                                 | ‡2000 | 1150000                    | ‡6350000                              | 175      |                  |

†Rated voltage (IEC) 600V.

‡Rated voltage (IEC) 550V.

• Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 212-213.

• For fuse curves see pages 158 and 159.

## Square Body Flush End Contact — 690V/700V (IEC/UL): 40-2000A

### 690V/700V (IEC/UL) 40-2000A

#### Specifications

**Description:** Square body flush end contact high speed fuses.

**Dimensions:** See dimensions illustrations.

#### Ratings:

Volts: — 690Vac (IEC)  
— 700Vac (UL)

Amps: — 40-2000A

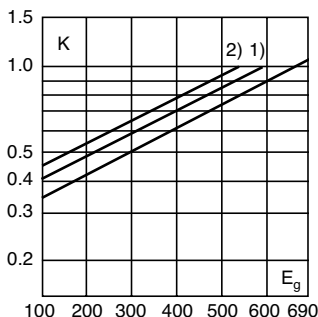
IR: — 200kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).

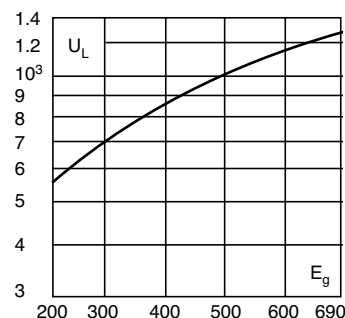


1) Rated voltage 600V.  
2) Rated voltage 550V



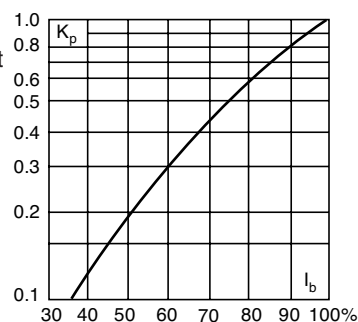
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

- See pages 176 (1000V) and 189 (1250V/1300V)

#### Dimensions - mm

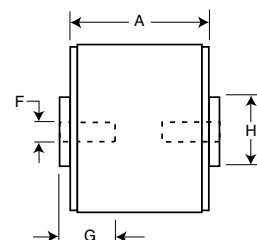
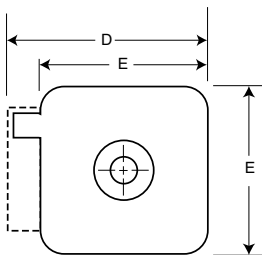
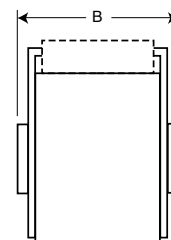
Type -B/-, -BKN/-, -G/-, -GKN/-

| Size | A  | B  | D  | E  | F   | F** (in)          | G  | H   |
|------|----|----|----|----|-----|-------------------|----|-----|
| 1*   | 50 | 51 | 59 | 45 | M8  | 3/16" - 18 UNC-2B | 5  | ø17 |
| 1    | 50 | 51 | 69 | 53 | M8  | 3/16" - 18 UNC-2B | 8  | ø20 |
| 2    | 50 | 51 | 77 | 61 | M10 | 3/16" - 16 UNC-2B | 10 | ø24 |
| 3    | 51 | 53 | 92 | 76 | M12 | 1/2" - 13 UNC-2B  | 10 | ø30 |

\*\*Valid for fuses type -G/- & -GKN/-.

NB: B = 65 for: Size 2, 1100-1250A  
Size 3, 1600-2000A

1mm = 0.0394" / 1" = 25.4mm



## Square Body Flush End Contact — 690V/700V (IEC/UL): 40-2000A

### Catalog Numbers

| Catalog Numbers             |   |                             |   | Size  | Electrical Characteristics   |                                       |                     |               |
|-----------------------------|---|-----------------------------|---|-------|------------------------------|---------------------------------------|---------------------|---------------|
| -B/-<br>Visual<br>Indicator | -BKN/<br>Type K<br>Indicator<br>for Micro | -G/-<br>Visual<br>Indicator | -GKN/<br>Type K<br>Indicator<br>for Micro |       | Rated<br>Current<br>RMS-Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |                     | Watts<br>Loss |
|                             |   |                             |   |       |                              | Pre-arc                               | Clearing<br>at 660V |               |
| 170M3408                    | 170M3458                                  | 170M3508                    | 170M3558                                  | 1*    | 40                           | 40                                    | 270                 | 9             |
| 170M3409                    | 170M3459                                  | 170M3509                    | 170M3559                                  |       | 50                           | 77                                    | 515                 | 11            |
| 170M3410                    | 170M3460                                  | 170M3510                    | 170M3560                                  |       | 63                           | 115                                   | 770                 | 14            |
| 170M3411                    | 170M3461                                  | 170M3511                    | 170M3561                                  |       | 80                           | 185                                   | 1250                | 18            |
| 170M3412                    | 170M3462                                  | 170M3512                    | 170M3562                                  |       | 100                          | 360                                   | 2450                | 21            |
| 170M3413                    | 170M3463                                  | 170M3513                    | 170M3563                                  |       | 125                          | 550                                   | 3700                | 26            |
| 170M3414                    | 170M3464                                  | 170M3514                    | 170M3564                                  |       | 160                          | 1100                                  | 7500                | 30            |
| 170M3415                    | 170M3465                                  | 170M3515                    | 170M3565                                  |       | 200                          | 2200                                  | 15000               | 35            |
| 170M3416                    | 170M3466                                  | 170M3516                    | 170M3566                                  |       | 250                          | 4200                                  | 28500               | 40            |
| 170M3417                    | 170M3467                                  | 170M3517                    | 170M3567                                  |       | 315                          | 7000                                  | 46500               | 50            |
| 170M3418                    | 170M3468                                  | 170M3518                    | 170M3568                                  |       | 350                          | 10000                                 | 68500               | 55            |
| 170M3419                    | 170M3469                                  | 170M3519                    | 170M3569                                  |       | 400                          | 15000                                 | 105000              | 60            |
| 170M3420                    | 170M3470                                  | 170M3520                    | 170M3570                                  |       | 450                          | 21000                                 | 140000              | 65            |
| 170M3421                    | 170M3471                                  | 170M3521                    | 170M3571                                  |       | 500                          | 27000                                 | 180000              | 70            |
| 170M3422                    | 170M3472                                  | 170M3522                    | 170M3572                                  |       | 550                          | 34000                                 | 230000              | 75            |
| 170M3423                    | 170M3473                                  | 170M3523                    | 170M3573                                  |       | 630                          | 48500                                 | 325000              | 80            |
| 170M4408                    | 170M4458                                  | 170M4508                    | 170M4558                                  |       | 1                            | 200                                   | 1650                | 11500         |
| 170M4409                    | 170M4459                                  | 170M4509                    | 170M4559                                  | 250   |                              | 3100                                  | 21000               | 55            |
| 170M4410                    | 170M4460                                  | 170M4510                    | 170M4560                                  | 315   |                              | 6200                                  | 42000               | 58            |
| 170M4411                    | 170M4461                                  | 170M4511                    | 170M4561                                  | 350   |                              | 8500                                  | 59000               | 60            |
| 170M4412                    | 170M4462                                  | 170M4512                    | 170M4562                                  | 400   |                              | 13500                                 | 91500               | 65            |
| 170M4413                    | 170M4463                                  | 170M4513                    | 170M4563                                  | 450   |                              | 17000                                 | 120000              | 70            |
| 170M4414                    | 170M4464                                  | 170M4514                    | 170M4564                                  | 500   |                              | 25000                                 | 170000              | 72            |
| 170M4415                    | 170M4465                                  | 170M4515                    | 170M4565                                  | 550   |                              | 34000                                 | 230000              | 75            |
| 170M4416                    | 170M4466                                  | 170M4516                    | 170M4566                                  | 630   |                              | 52000                                 | 350000              | 80            |
| 170M4417                    | 170M4467                                  | 170M4517                    | 170M4567                                  | 700   |                              | 69500                                 | 465000              | 85            |
| 170M4418                    | 170M4468                                  | 170M4518                    | 170M4568                                  | 800   |                              | 105000                                | 725000              | 95            |
| 170M4419                    | 170M4469                                  | 170M4519                    | 170M4569                                  | †900  |                              | 155000                                | †850000             | 100           |
| 170M5408                    | 170M5458                                  | 170M5508                    | 170M5558                                  | 2     | 400                          | 11000                                 | 74000               | 65            |
| 170M5409                    | 170M5459                                  | 170M5509                    | 170M5559                                  |       | 450                          | 15500                                 | 105000              | 70            |
| 170M5410                    | 170M5460                                  | 170M5510                    | 170M5560                                  |       | 500                          | 21500                                 | 145000              | 75            |
| 170M5411                    | 170M5461                                  | 170M5511                    | 170M5561                                  |       | 550                          | 28000                                 | 190000              | 80            |
| 170M5412                    | 170M5462                                  | 170M5512                    | 170M5562                                  |       | 630                          | 41000                                 | 275000              | 90            |
| 170M5413                    | 170M5463                                  | 170M5513                    | 170M5563                                  |       | 700                          | 60500                                 | 405000              | 95            |
| 170M5414                    | 170M5464                                  | 170M5514                    | 170M5564                                  |       | 800                          | 86000                                 | 575000              | 105           |
| 170M5415                    | 170M5465                                  | 170M5515                    | 170M5565                                  |       | 900                          | 125000                                | 840000              | 110           |
| 170M5416                    | 170M5466                                  | 170M5516                    | 170M5566                                  |       | 1000                         | 180000                                | 1250000             | 115           |
| 170M5417                    | 170M5467                                  | 170M5517                    | 170M5567                                  |       | 1100                         | 245000                                | 1600000             | 120           |
| 170M5418                    | 170M5468                                  | 170M5518                    | 170M5568                                  |       | 1250                         | 365000                                | 2400000             | 130           |
| 170M6408                    | 170M6458                                  | 170M6508                    | 170M6558                                  |       | 3                            | 500                                   | 14000               | 95000         |
| 170M6409                    | 170M6459                                  | 170M6509                    | 170M6559                                  | 550   |                              | 19500                                 | 135000              | 100           |
| 170M6410                    | 170M6460                                  | 170M6510                    | 170M6560                                  | 630   |                              | 31000                                 | 210000              | 105           |
| 170M6411                    | 170M6461                                  | 170M6511                    | 170M6561                                  | 700   |                              | 44500                                 | 300000              | 110           |
| 170M6412                    | 170M6462                                  | 170M6512                    | 170M6562                                  | 800   |                              | 69500                                 | 465000              | 115           |
| 170M6413                    | 170M6463                                  | 170M6513                    | 170M6563                                  | 900   |                              | 100000                                | 670000              | 120           |
| 170M6414                    | 170M6464                                  | 170M6514                    | 170M6564                                  | 1000  |                              | 140000                                | 945000              | 125           |
| 170M6415                    | 170M6465                                  | 170M6515                    | 170M6565                                  | 1100  |                              | 190000                                | 1300000             | 130           |
| 170M6416                    | 170M6466                                  | 170M6516                    | 170M6566                                  | 1250  |                              | 290000                                | 1950000             | 140           |
| 170M6417                    | 170M6467                                  | 170M6517                    | 170M6567                                  | 1400  |                              | 370000                                | 2450000             | 155           |
| 170M6418                    | 170M6468                                  | 170M6518                    | 170M6568                                  | 1500  |                              | 460000                                | 3100000             | 160           |
| 170M6419                    | 170M6469                                  | 170M6519                    | 170M6569                                  | 1600  |                              | 580000                                | 3900000             | 160           |
| 170M6420                    | 170M6470                                  | 170M6520                    | 170M6570                                  | †1800 |                              | 880000                                | †5250000            | 165           |
| 170M6421                    | 170M6471                                  | 170M6521                    | 170M6571                                  | ‡2000 |                              | 1150000                               | ‡6350000            | 175           |

†Rated voltage (IEC) 600V.

‡Rated voltage (IEC) 550V.

\* Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 212-213.

• For fuse curves see pages 158 and 159.



## Square Body US Style — 690V/700V (IEC): 40-2000A

### 690V/700V (IEC) 40-2000A

#### Specifications

**Description:** Square body US style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 690Vac (IEC)  
— 700Vac (UL)

Amps: — 40-200A

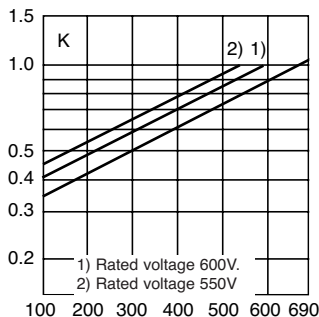
IR: — 200kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



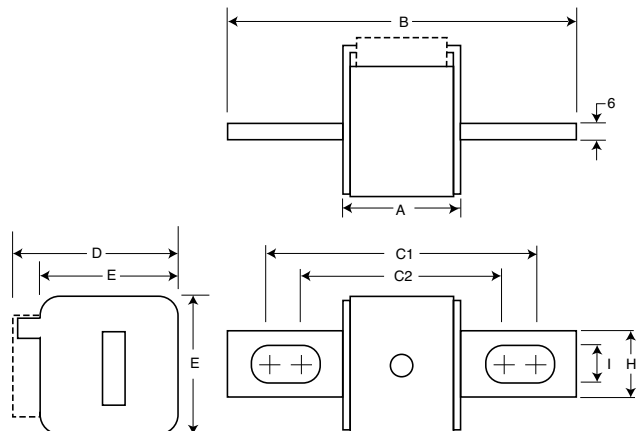
#### Dimensions - mm

Type -FU/-, -FKE/-, FU/115-, -FKE/115

| Size | A  | B   | B** | C1  | C1** | C2 | C2** | D  | E  | H  | I  |
|------|----|-----|-----|-----|------|----|------|----|----|----|----|
| 1*   | 50 | 110 | 148 | 85  | 123  | 72 | 110  | 59 | 45 | 20 | 10 |
| 1    | 50 | 136 | 157 | 104 | 126  | 78 | 100  | 69 | 53 | 25 | 14 |
| 2    | 50 | 135 | 159 | 105 | 125  | 78 | 99   | 77 | 61 | 25 | 14 |
| 3    | 51 | 135 | 155 | 106 | 125  | 77 | 97   | 92 | 76 | 36 | 16 |

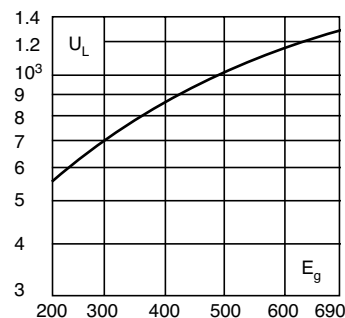
\*\*Valid for fuses type -FU/115 & -FKE/115.

1mm = 0.0394" / 1" = 25.4mm



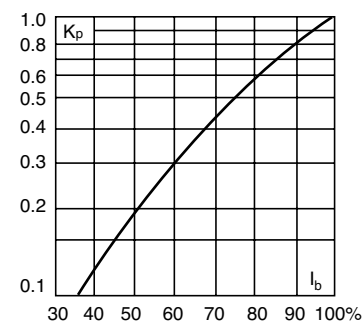
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

- See pages 178 (1000V) and 191 (1250V/1300V)

## Square Body US style — 690V/700V (IEC): 40-2000A

### Catalog Numbers

| Catalog Numbers              |   |                                 |  | Size | Electrical Characteristics   |                                       |                     |               |    |
|------------------------------|---|---------------------------------|--|------|------------------------------|---------------------------------------|---------------------|---------------|----|
| -FU/<br>Without<br>Indicator | -FKE/<br>Type K<br>Indicator<br>for Micro | -FU/115<br>Without<br>Indicator | -FKE/115<br>Type K<br>Indicator<br>for Micro |      | Rated<br>Current<br>RMS-Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |                     | Watts<br>Loss |    |
|                              |   |                                 |  |      |                              | Pre-arc                               | Clearing<br>at 660V |               |    |
| 170M3608                     | 170M3658                                  | 170M3708                        | 170M3758                                     | 1*   | 40                           | 40                                    | 270                 | 9             |    |
| 170M3609                     | 170M3659                                  | 170M3709                        | 170M3759                                     |      | 50                           | 77                                    | 515                 | 11            |    |
| 170M3610                     | 170M3660                                  | 170M3710                        | 170M3760                                     |      | 63                           | 115                                   | 770                 | 14            |    |
| 170M3611                     | 170M3661                                  | 170M3711                        | 170M3761                                     |      | 80                           | 185                                   | 1250                | 18            |    |
| 170M3612                     | 170M3662                                  | 170M3712                        | 170M3762                                     |      | 100                          | 360                                   | 2450                | 21            |    |
| 170M3613                     | 170M3663                                  | 170M3713                        | 170M3763                                     |      | 125                          | 550                                   | 3700                | 26            |    |
| 170M3614                     | 170M3664                                  | 170M3714                        | 170M3764                                     |      | 160                          | 1100                                  | 7500                | 30            |    |
| 170M3615                     | 170M3665                                  | 170M3715                        | 170M3765                                     |      | 200                          | 2200                                  | 15000               | 35            |    |
| 170M3616                     | 170M3666                                  | 170M3716                        | 170M3766                                     |      | 250                          | 4200                                  | 28500               | 40            |    |
| 170M3617                     | 170M3667                                  | 170M3717                        | 170M3767                                     |      | 315                          | 7000                                  | 46500               | 50            |    |
| 170M3618                     | 170M3668                                  | 170M3718                        | 170M3768                                     |      | 350                          | 10000                                 | 68500               | 55            |    |
| 170M3619                     | 170M3669                                  | 170M3719                        | 170M3769                                     |      | 400                          | 15000                                 | 105000              | 60            |    |
| 170M3620                     | 170M3670                                  | 170M3720                        | 170M3770                                     |      | 450                          | 21000                                 | 140000              | 65            |    |
| 170M3621                     | 170M3671                                  | 170M3721                        | 170M3771                                     |      | 500                          | 27000                                 | 180000              | 70            |    |
| 170M3622                     | 170M3672                                  | 170M3722                        | 170M3772                                     |      | 550                          | 34000                                 | 230000              | 75            |    |
| 170M3623                     | 170M3673                                  | 170M3723                        | 170M3773                                     |      | 630                          | 48500                                 | 325000              | 80            |    |
| 170M4608                     | 170M4658                                  | 170M4708                        | 170M4758                                     |      | 1                            | 200                                   | 1650                | 11500         | 45 |
| 170M4609                     | 170M4659                                  | 170M4709                        | 170M4759                                     |      |                              | 250                                   | 3100                | 21000         | 55 |
| 170M4610                     | 170M4660                                  | 170M4710                        | 170M4760                                     |      |                              | 315                                   | 6200                | 42000         | 58 |
| 170M4611                     | 170M4661                                  | 170M4711                        | 170M4761                                     | 350  |                              | 8500                                  | 59000               | 60            |    |
| 170M4612                     | 170M4662                                  | 170M4712                        | 170M4762                                     | 400  |                              | 13500                                 | 91500               | 65            |    |
| 170M4613                     | 170M4663                                  | 170M4713                        | 170M4763                                     | 450  |                              | 17000                                 | 120000              | 70            |    |
| 170M4614                     | 170M4664                                  | 170M4714                        | 170M4764                                     | 500  |                              | 25000                                 | 170000              | 72            |    |
| 170M4615                     | 170M4665                                  | 170M4715                        | 170M4765                                     | 550  |                              | 34000                                 | 230000              | 75            |    |
| 170M4616                     | 170M4666                                  | 170M4716                        | 170M4766                                     | 630  |                              | 52000                                 | 350000              | 80            |    |
| 170M4617                     | 170M4667                                  | 170M4717                        | 170M4767                                     | 700  |                              | 69500                                 | 465000              | 85            |    |
| 170M4618                     | 170M4668                                  | 170M4718                        | 170M4768                                     | 800  |                              | 105000                                | 725000              | 95            |    |
| 170M4619                     | 170M4669                                  | 170M4719                        | 170M4769                                     | ±900 | 155000                       | ±850000                               | 100                 |               |    |
| 170M5608                     | 170M5658                                  | 170M5708                        | 170M5758                                     | 2    | 400                          | 11000                                 | 74000               | 65            |    |
| 170M5609                     | 170M5659                                  | 170M5709                        | 170M5759                                     |      | 450                          | 15500                                 | 105000              | 70            |    |
| 170M5610                     | 170M5660                                  | 170M5710                        | 170M5760                                     |      | 500                          | 21500                                 | 145000              | 75            |    |
| 170M5611                     | 170M5661                                  | 170M5711                        | 170M5761                                     |      | 550                          | 28000                                 | 190000              | 80            |    |
| 170M5612                     | 170M5662                                  | 170M5712                        | 170M5762                                     |      | 630                          | 41000                                 | 275000              | 90            |    |
| 170M5613                     | 170M5663                                  | 170M5713                        | 170M5763                                     |      | 700                          | 60500                                 | 405000              | 95            |    |
| 170M5614                     | 170M5664                                  | 170M5714                        | 170M5764                                     |      | 800                          | 86000                                 | 575000              | 105           |    |
| 170M5615                     | 170M5665                                  | 170M5715                        | 170M5765                                     |      | 900                          | 125000                                | 840000              | 110           |    |
| 170M5616                     | 170M5666                                  | 170M5716                        | 170M5766                                     |      | 1000                         | 180000                                | 1250000             | 115           |    |
| 170M5617                     | 170M5667                                  | 170M5717                        | 170M5767                                     |      | 1100                         | 245000                                | 1600000             | 120           |    |
| 170M5618                     | 170M5668                                  | 170M5718                        | 170M5768                                     |      | 1250                         | 365000                                | 2400000             | 130           |    |
| 170M6608                     | 170M6658                                  | 170M6708                        | 170M6758                                     | 3    | 500                          | 14000                                 | 95000               | 95            |    |
| 170M6609                     | 170M6659                                  | 170M6709                        | 170M6759                                     |      | 550                          | 19500                                 | 135000              | 100           |    |
| 170M6610                     | 170M6660                                  | 170M6710                        | 170M6760                                     |      | 630                          | 31000                                 | 210000              | 105           |    |
| 170M6611                     | 170M6661                                  | 170M6711                        | 170M6761                                     |      | 700                          | 44500                                 | 300000              | 110           |    |
| 170M6612                     | 170M6662                                  | 170M6712                        | 170M6762                                     |      | 800                          | 69500                                 | 465000              | 115           |    |
| 170M6613                     | 170M6663                                  | 170M6713                        | 170M6763                                     |      | 900                          | 100000                                | 670000              | 120           |    |
| 170M6614                     | 170M6664                                  | 170M6714                        | 170M6764                                     |      | 1000                         | 140000                                | 945000              | 125           |    |
| 170M6615                     | 170M6665                                  | 170M6715                        | 170M6765                                     |      | 1100                         | 190000                                | 1300000             | 130           |    |
| 170M6616                     | 170M6666                                  | 170M6716                        | 170M6766                                     |      | 1250                         | 290000                                | 1950000             | 140           |    |
| 170M6617                     | 170M6667                                  | 170M6717                        | 170M6767                                     |      | 1400                         | 370000                                | 2450000             | 155           |    |
| 170M6618                     | 170M6668                                  | 170M6718                        | 170M6768                                     |      | 1500                         | 460000                                | 3100000             | 160           |    |
| 170M6619                     | 170M6669                                  | 170M6719                        | 170M6769                                     |      | 1600                         | 580000                                | 3900000             | 160           |    |
| 170M6620                     | 170M6670                                  | 170M6720                        | 170M6770                                     |      | †1800                        | 880000                                | †5250000            | 165           |    |
| 170M6621                     | 170M6671                                  | 170M6721                        | 170M6771                                     |      | ±2000                        | 1150000                               | ±6350000            | 175           |    |

†Rated voltage (IEC) 600V.

‡Rated voltage (IEC) 550V.

• Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 212-213.

• For fuse curves see pages 158 and 159.

## Square Body French Style — 690V/700V (IEC/UL): 40-1500A

### 690V/700V (IEC/UL) 40-1500A

#### Specifications

**Description:** Square body French style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 690Vac (IEC)  
— 700Vac (UL)

Amps: — 40-1500A

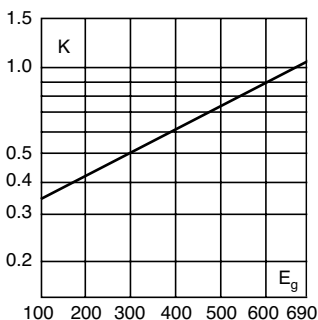
IR: — 200kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2 & CSA Component Acceptance file Class 1422-30, (53787) on Sizes (1, 2, 3) only

#### Electrical Characteristics

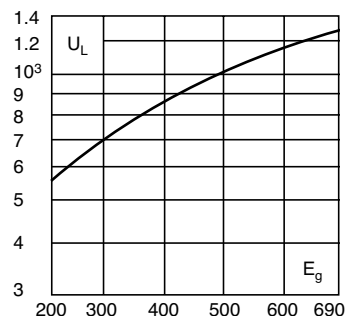
##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



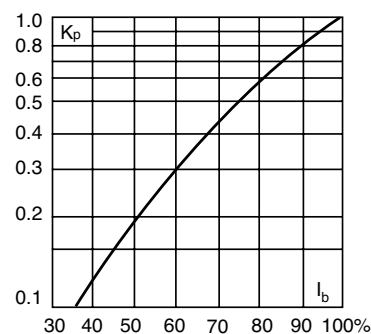
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

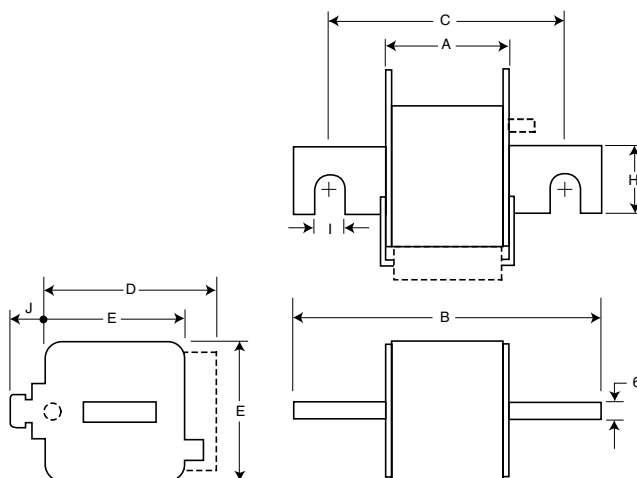
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### Dimensions - mm

Type -E/-, -EKN/-

| Size | A  | B   | C  | D  | E  | H  | I  | J  |
|------|----|-----|----|----|----|----|----|----|
| 1*   | 50 | 102 | 76 | 59 | 45 | 18 | 9  | 13 |
| 1    | 50 | 111 | 86 | 69 | 53 | 25 | 11 | 11 |
| 2    | 50 | 126 | 91 | 77 | 61 | 30 | 13 | 12 |
| 3    | 51 | 126 | 91 | 92 | 76 | 36 | 13 | 13 |

1mm = 0.0394" / 1" = 25.4mm



## Square Body French Style — 690V/700V (IEC/UL): 40-1500A

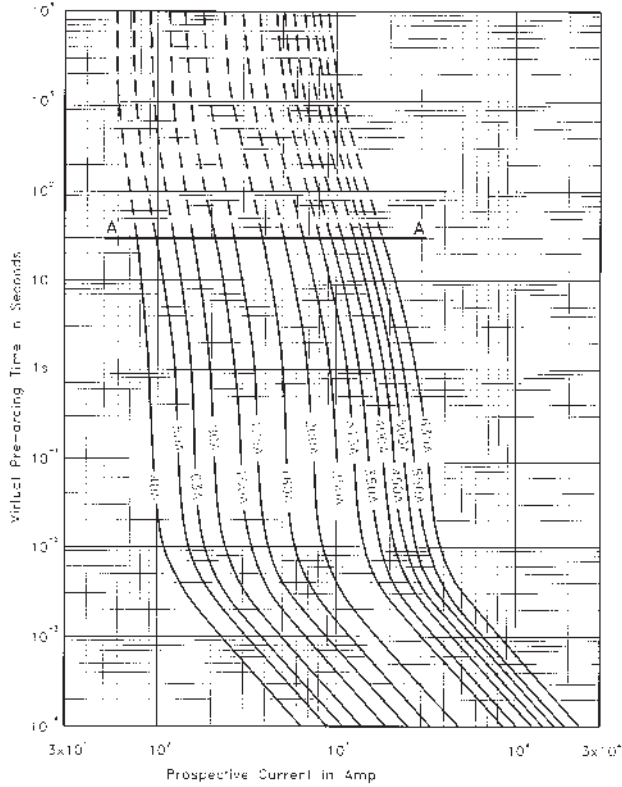
### Catalog Numbers

| Catalog Numbers                         |   | Size | Electrical Characteristics   |                                       |                     |               |
|---|---|------|------------------------------|---------------------------------------|---------------------|---------------|
| -E/<br>Type T<br>Indicator<br>For Micro | -EKN/<br>Type K<br>Indicator<br>for Micro |      | Rated<br>Current<br>RMS-Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |                     | Watts<br>Loss |
|   |   |      |                              | Pre-arc                               | Clearing<br>at 660V |               |
| 170M3308                                | 170M3358                                  | 1*   | 40                           | 40                                    | 270                 | 9             |
| 170M3309                                | 170M3359                                  |      | 50                           | 77                                    | 515                 | 11            |
| 170M3310                                | 170M3360                                  |      | 63                           | 115                                   | 770                 | 14            |
| 170M3311                                | 170M3361                                  |      | 80                           | 185                                   | 1250                | 18            |
| 170M3312                                | 170M3362                                  |      | 100                          | 360                                   | 2450                | 21            |
| 170M3313                                | 170M3363                                  |      | 125                          | 550                                   | 3700                | 26            |
| 170M3314                                | 170M3364                                  |      | 160                          | 1100                                  | 7500                | 30            |
| 170M3315                                | 170M3365                                  |      | 200                          | 2200                                  | 15000               | 35            |
| 170M3316                                | 170M3366                                  |      | 250                          | 4200                                  | 28500               | 40            |
| 170M3317                                | 170M3367                                  |      | 315                          | 7000                                  | 46500               | 50            |
| 170M3318                                | 170M3368                                  |      | 350                          | 10000                                 | 68500               | 55            |
| 170M3319                                | 170M3369                                  |      | 400                          | 15000                                 | 105000              | 60            |
| 170M3320                                | 170M3370                                  |      | 450                          | 21000                                 | 140000              | 65            |
| 170M3321                                | 170M3371                                  |      | 500                          | 27000                                 | 180000              | 70            |
| 170M4308                                | 170M4358                                  |      | 1                            | 200                                   | 1650                | 11500         |
| 170M4309                                | 170M4359                                  | 250  |                              | 3100                                  | 21000               | 55            |
| 170M4310                                | 170M4360                                  | 315  |                              | 6200                                  | 42000               | 58            |
| 170M4311                                | 170M4361                                  | 350  |                              | 8500                                  | 59000               | 60            |
| 170M4312                                | 170M4362                                  | 400  |                              | 13500                                 | 91500               | 65            |
| 170M4313                                | 170M4363                                  | 450  |                              | 17000                                 | 120000              | 70            |
| 170M4314                                | 170M4364                                  | 500  |                              | 25000                                 | 170000              | 72            |
| 170M4315                                | 170M4365                                  | 550  |                              | 34000                                 | 230000              | 75            |
| 170M4316                                | 170M4366                                  | 630  |                              | 52000                                 | 350000              | 80            |
| 170M4317                                | 170M4367                                  | 700  |                              | 69500                                 | 465000              | 85            |
| 170M4318                                | 170M4368                                  | 800  | 105000                       | 725000                                | 95                  |               |
| 170M5308                                | 170M5358                                  | 2    | 400                          | 11000                                 | 74000               | 65            |
| 170M5309                                | 170M5359                                  |      | 450                          | 15500                                 | 105000              | 70            |
| 170M5310                                | 170M5360                                  |      | 500                          | 21500                                 | 145000              | 75            |
| 170M5311                                | 170M5361                                  |      | 550                          | 28000                                 | 190000              | 80            |
| 170M5312                                | 170M5362                                  |      | 630                          | 41000                                 | 275000              | 90            |
| 170M5313                                | 170M5363                                  |      | 700                          | 60500                                 | 405000              | 95            |
| 170M5314                                | 170M5364                                  |      | 800                          | 86000                                 | 575000              | 105           |
| 170M5315                                | 170M5365                                  |      | 900                          | 125000                                | 840000              | 110           |
| 170M5316                                | 170M5366                                  | 1000 | 180000                       | 1250000                               | 115                 |               |
| 170M6308                                | 170M6358                                  | 3    | 500                          | 14000                                 | 95000               | 95            |
| 170M6309                                | 170M6359                                  |      | 550                          | 19500                                 | 135000              | 100           |
| 170M6310                                | 170M6360                                  |      | 630                          | 31000                                 | 210000              | 105           |
| 170M6311                                | 170M6361                                  |      | 700                          | 44500                                 | 300000              | 110           |
| 170M6312                                | 170M6362                                  |      | 800                          | 69500                                 | 465000              | 115           |
| 170M6313                                | 170M6363                                  |      | 900                          | 100000                                | 670000              | 120           |
| 170M6314                                | 170M6364                                  |      | 1000                         | 140000                                | 945000              | 125           |
| 170M6315                                | 170M6365                                  |      | 1100                         | 190000                                | 1300000             | 130           |
| 170M6316                                | 170M6366                                  |      | 1250                         | 290000                                | 1950000             | 140           |
| 170M6317                                | 170M6367                                  |      | 1400                         | 370000                                | 2450000             | 155           |
| 170M6318                                | 170M6368                                  | 1500 | 460000                       | 3100000                               | 160                 |               |

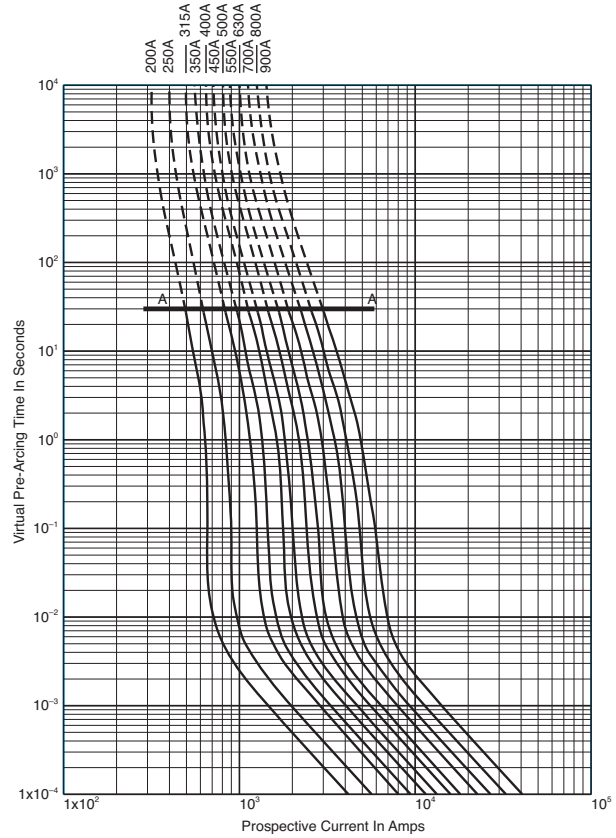
- Watts loss provided at rated current.
- Microswitch indicator ordered separately. See accessories on pages 212-213.
- For fuse curves see pages 158 and 159.

# Square Body, French Style - Size 1\*, 1 — 690V/700V (IEC/UL): 40-2000A

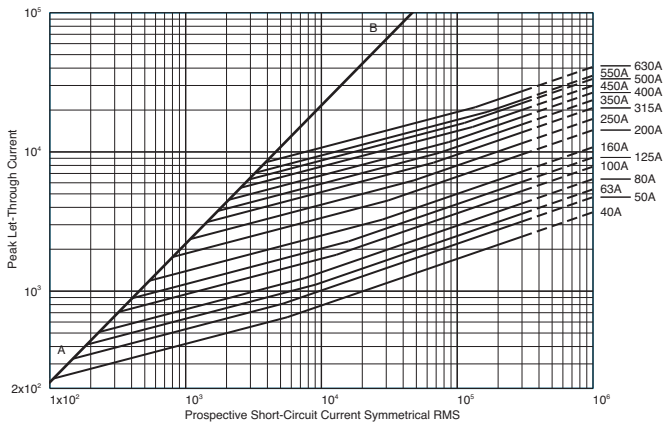
**Size 1\* — 40-630A: 690V**  
Time-Current Curve



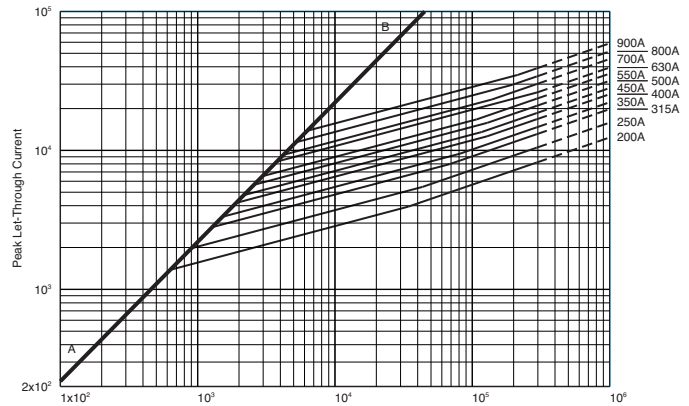
**Size 1 — 200-900A: 690V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**

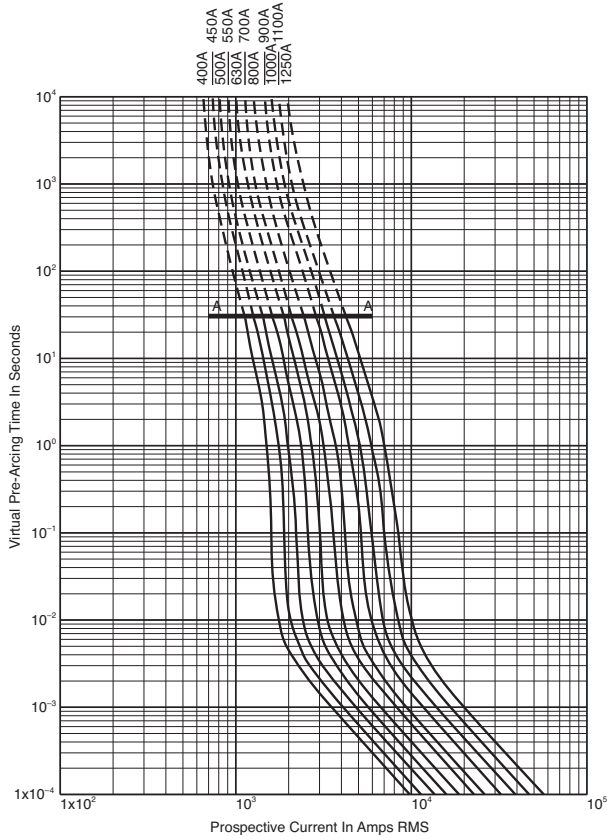


900 amp fuse is derated to 550V (IEC).

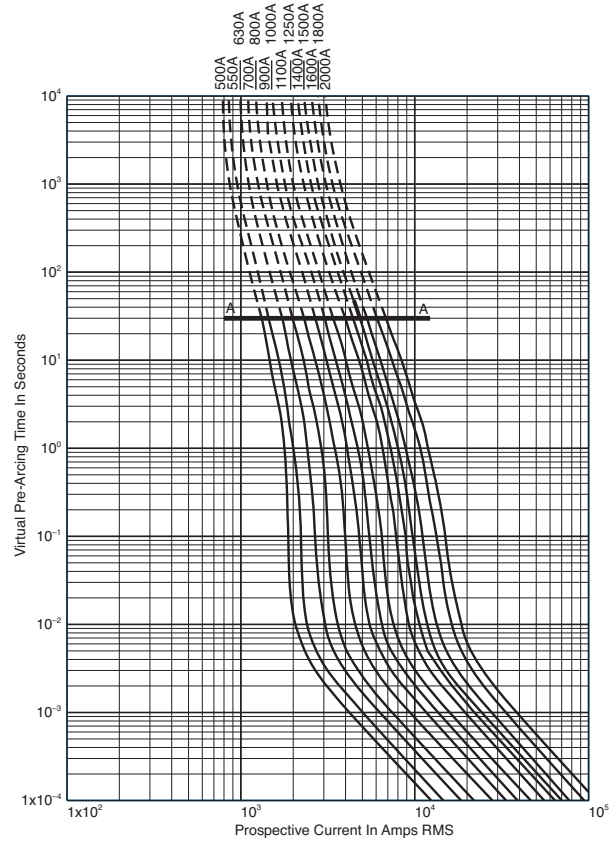


## Square Body, French Style - Size 2, 3 — 690V/700V (IEC/UL): 40-2000A

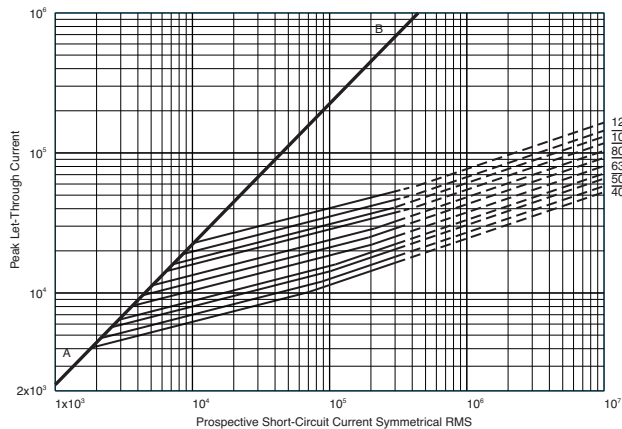
**Size 2 — 400-1250A: 690V**  
Time-Current Curve



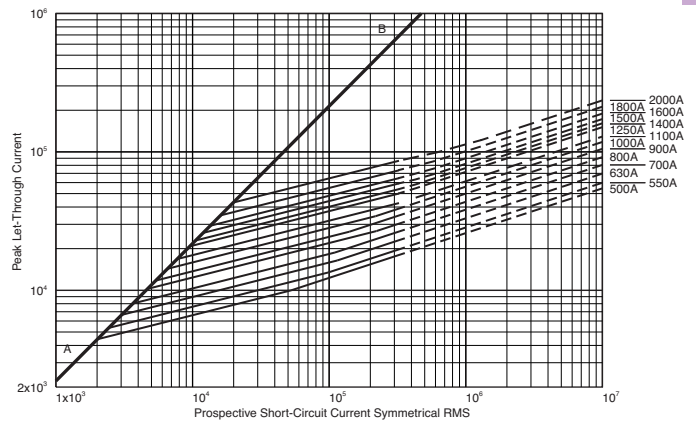
**Size 3 — 500-2000A: 690V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



1800A fuse is derated to 600V (IEC).  
2000A fuse is derated to 550V (IEC).

## Square Body DIN 43 620 — 690V/700V (IEC/UL): 40-1000A

### 690V/700V (IEC/UL) 40-1000A

#### Specifications

**Description:** Square body DIN 43 620 blade style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 690Vac (IEC)  
— 700Vac (UL)

Amps: — 40-1000A

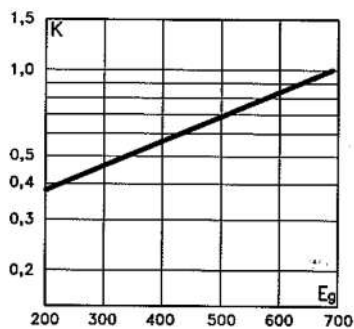
IR: — 200kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

#### Electrical Characteristics

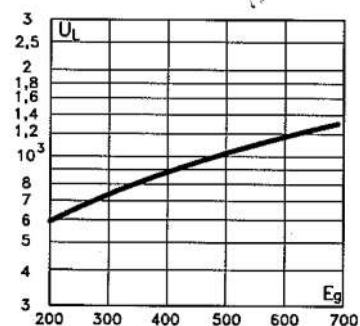
##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



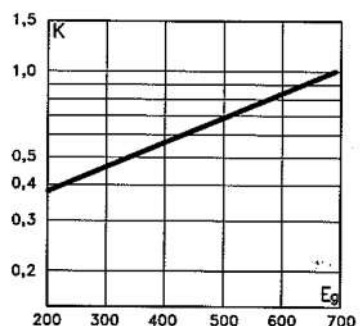
##### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



##### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



##### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

##### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

##### For Full Range Fuses in This Body Style

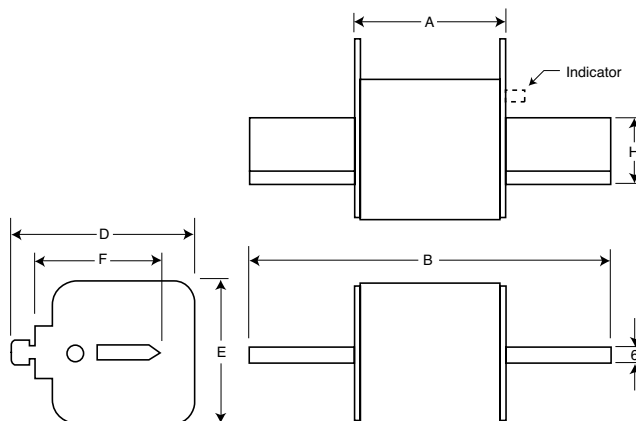
- See page 168

#### Dimensions (mm)

Type DIN 1\*, DIN 2, DIN 3

| Size | A  | B   | D  | E  | F  | H  |
|------|----|-----|----|----|----|----|
| 1*   | 69 | 135 | 58 | 45 | 40 | 20 |
| 2    | 69 | 150 | 71 | 55 | 48 | 26 |
| 3    | 68 | 150 | 88 | 76 | 60 | 33 |

1mm = 0.0394" / 1" = 25.4mm



## Square Body DIN 43 620 — 690V/700V (IEC/UL): 40-600A

### Catalog Numbers

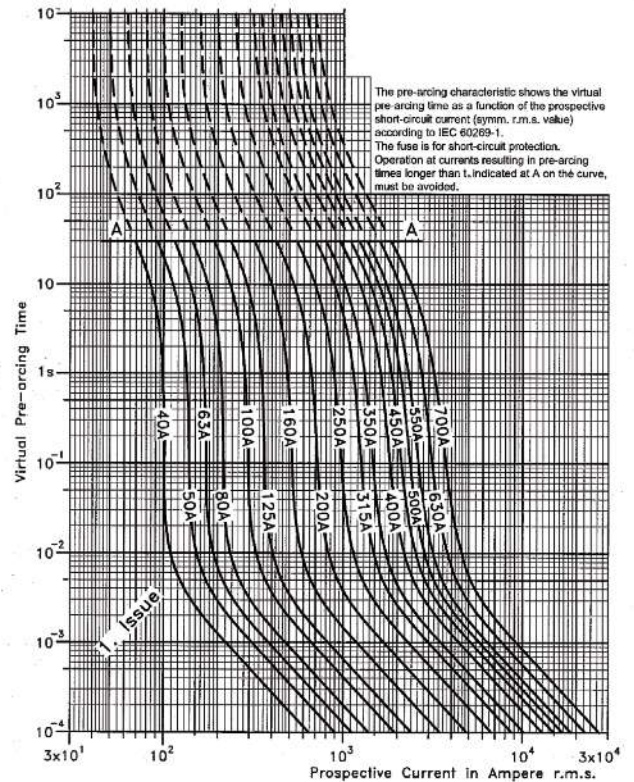
| Catalog Numbers<br>DIN Type T<br>Indicator<br>for Micro | Size | Electrical Characteristics   |                                       |                     |               |
|---|------|------------------------------|---------------------------------------|---------------------|---------------|
|   |      | Rated<br>Current<br>RMS-Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |                     | Watts<br>Loss |
|   |      |                              | Pre-arc                               | Clearing<br>at 660V |               |
| 170M3808D   | 1*   | 40                           | 40                                    | 285                 | 4             |
| 170M3809D   |      | 50                           | 78                                    | 550                 | 4.5           |
| 170M3810D   |      | 63                           | 120                                   | 850                 | 6.5           |
| 170M3811D   |      | 80                           | 185                                   | 1350                | 8.5           |
| 170M3812D   |      | 100                          | 360                                   | 2600                | 10            |
| 170M3813D   |      | 125                          | 550                                   | 3900                | 11            |
| 170M3814D   |      | 160                          | 1150                                  | 8250                | 12            |
| 170M3815D   |      | 200                          | 2300                                  | 16500               | 12.5          |
| 170M3816D   |      | 250                          | 4350                                  | 31000               | 16            |
| 170M3817D   |      | 315                          | 7300                                  | 52000               | 20            |
| 170M3818D   |      | 350                          | 10000                                 | 73000               | 21.5          |
| 170M3819D   |      | 400                          | 16000                                 | 115000              | 60            |
| 170M4863D   |      | 450                          | 21500                                 | 155000              | 26.3          |
| 170M4864D   |      | 500                          | 27000                                 | 190000              | 28.5          |
| 170M4865D   |      | 550                          | 33500                                 | 240000              | 33            |
| 170M4866D   |      | 630                          | 48500                                 | 345000              | 37.5          |
| 170M4867D   |      | 700                          | 69500                                 | 495000              | 39            |
| 170M5808D   | 2    | 400                          | 11000                                 | 79000               | 29            |
| 170M5809D   |      | 450                          | 16000                                 | 115000              | 32            |
| 170M5810D   |      | 500                          | 21500                                 | 155000              | 34            |
| 170M5811D   |      | 550                          | 29000                                 | 215000              | 36            |
| 170M5812D   |      | 630                          | 41000                                 | 295000              | 42            |
| 170M5813D   |      | 700                          | 60500                                 | 430000              | 43            |
| 170M5814D   |      | 800                          | 86000                                 | 610000              | 48            |
| 170M5820D   |      | 900                          | 125000                                | 895000              | 52            |
| 170M5816D   |      | 1000                         | 180000                                | 1300000             | 53            |
| 170M5817D   |      | 1100                         | 245000                                | 1750000             | 56            |
| 170M6808D   | 3    | 500                          | 14000                                 | 99500               | 43            |
| 170M6809D   |      | 550                          | 19500                                 | 140000              | 44            |
| 170M6810D   |      | 630                          | 31000                                 | 220000              | 45            |
| 170M6811D   |      | 700                          | 45000                                 | 320000              | 46            |
| 170M6812D   |      | 800                          | 69500                                 | 490000              | 48            |
| 170M6813D   |      | 900                          | 100000                                | 720000              | 50            |
| 170M6814D   |      | 1000                         | 140000                                | 985000              | 56            |
| 170M6892D   |      | 1100                         | 190000                                | 1400000             | 57            |
| 170M8554D   |      | 1250                         | 300000                                | 2150000             | 61            |
| 170M8555D   |      | 1400                         | 380000                                | 2700000             | 70            |
| 170M8556D   |      | 1500                         | 470000                                | 3350000             | 72            |
| 170M8557D   |      | 1600                         | 585000                                | 4150000             | 74            |

- Watts loss provided at rated current.
- Microswitch indicator ordered separately. See accessories on pages 212-213.
- For fuse curves see page 162.

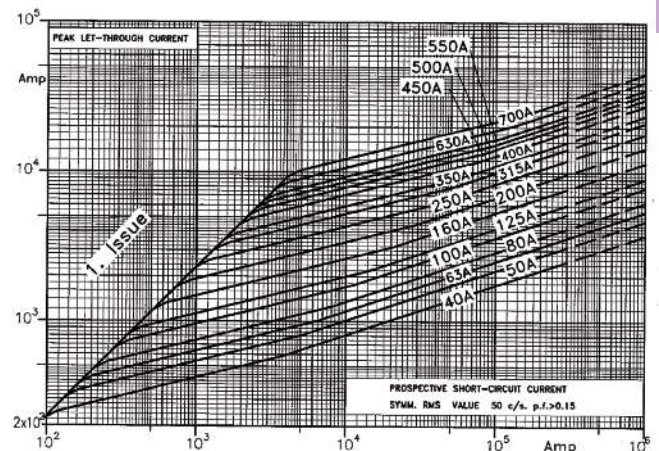
### Rated Current

The rated current of this fuse range has been given with copper conductors that have a current density of 1.3A/mm<sup>2</sup> (IEC 60269-4). For conductor cross section according to IEC 60269-1, the fuses must be derated. Please contact Bussmann for application assistance.

### Size 1\* — 40-630A: 690V Time-Current Curve



### Peak Let-Through Curve

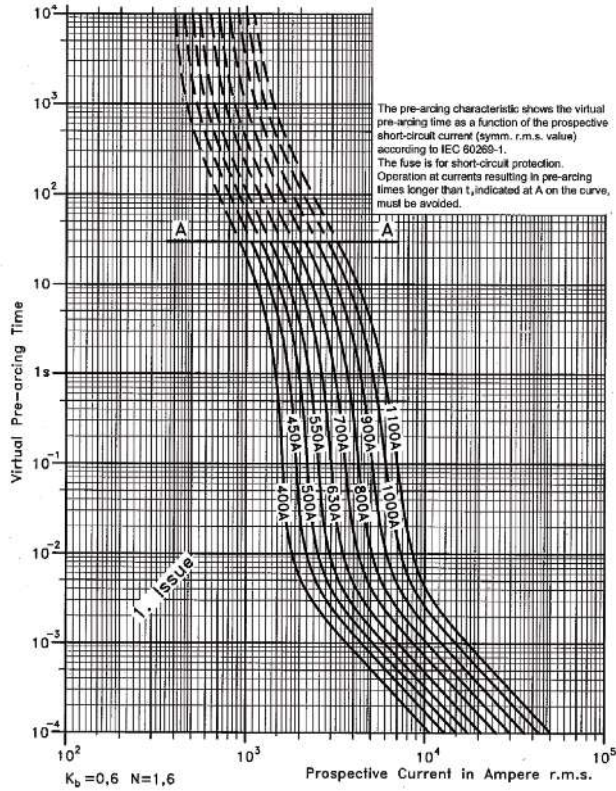


Data Sheet: 17056314

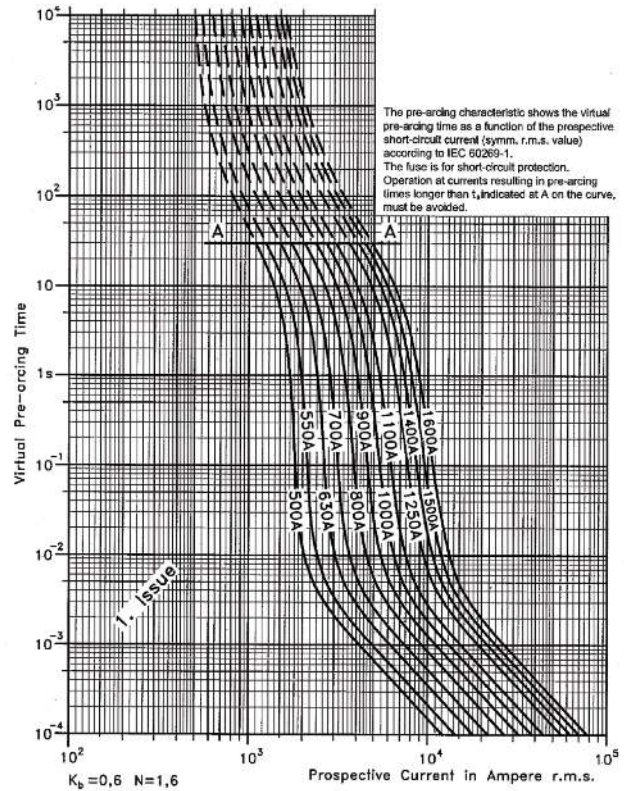


# Square Body DIN 43 620 — 690V/700V (IEC/UL): 40-1000A

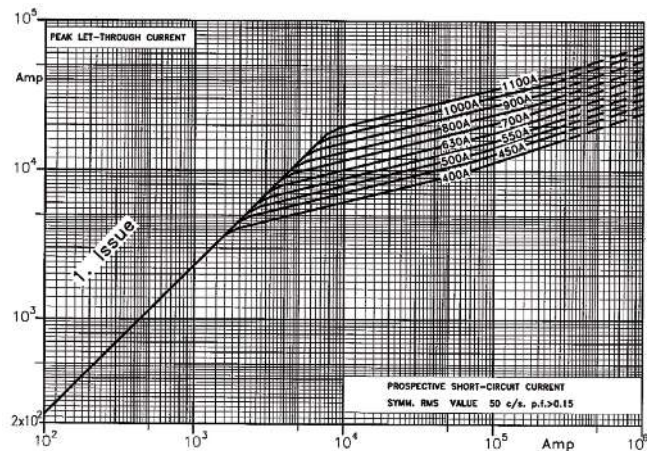
**Size 2 — 400-1250A: 690V**  
Time-Current Curve



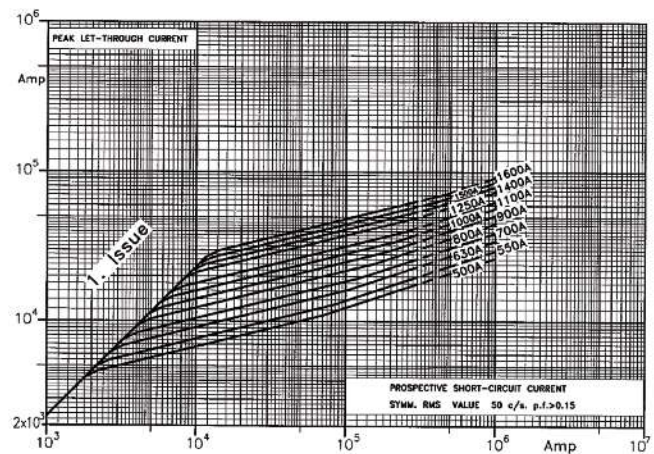
**Size 3 — 500-2000A: 690V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



## Square Body Flush End Contact — 690/700V (IEC/UL): 1000-4000A

### 690V (IEC) 1000-4000A

#### Specifications

**Description:** Square body flush end contact high speed fuses.

**Dimensions:** See dimensions illustrations.

#### Ratings:

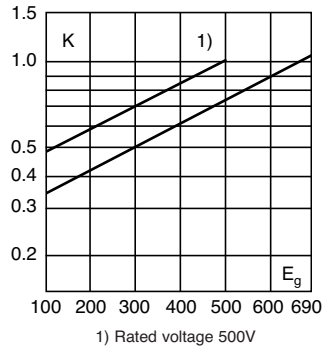
- Volts: — 690Vac
- Amps: — 1000-4000A
- IR: — 200kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).

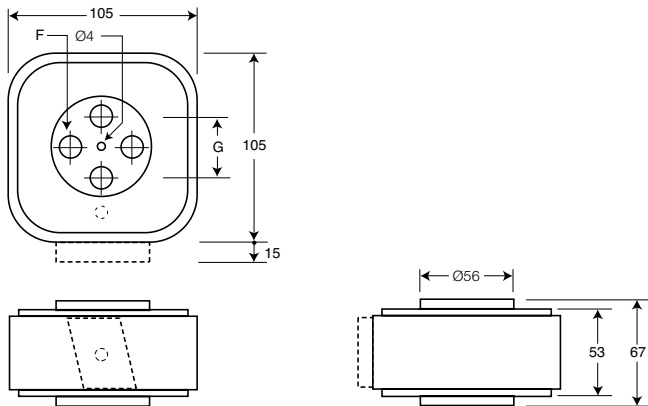


#### Dimensions - mm

Type 4B/-, 4BKN/-, 4G/-, 4GKN/-

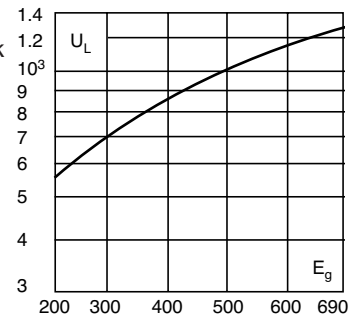
| Size | F (in)                | G  |
|------|-----------------------|----|
| 4B   | M10 10 deep           | 33 |
| 4G   | ½" -13 UNC-2B 10 deep | 38 |

1mm = 0.0394" / 1" = 25.4mm



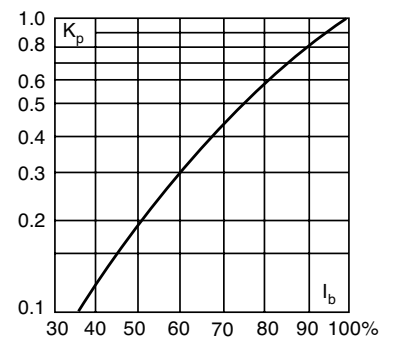
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

- See pages 182 (1000V) and 195 (1250V)



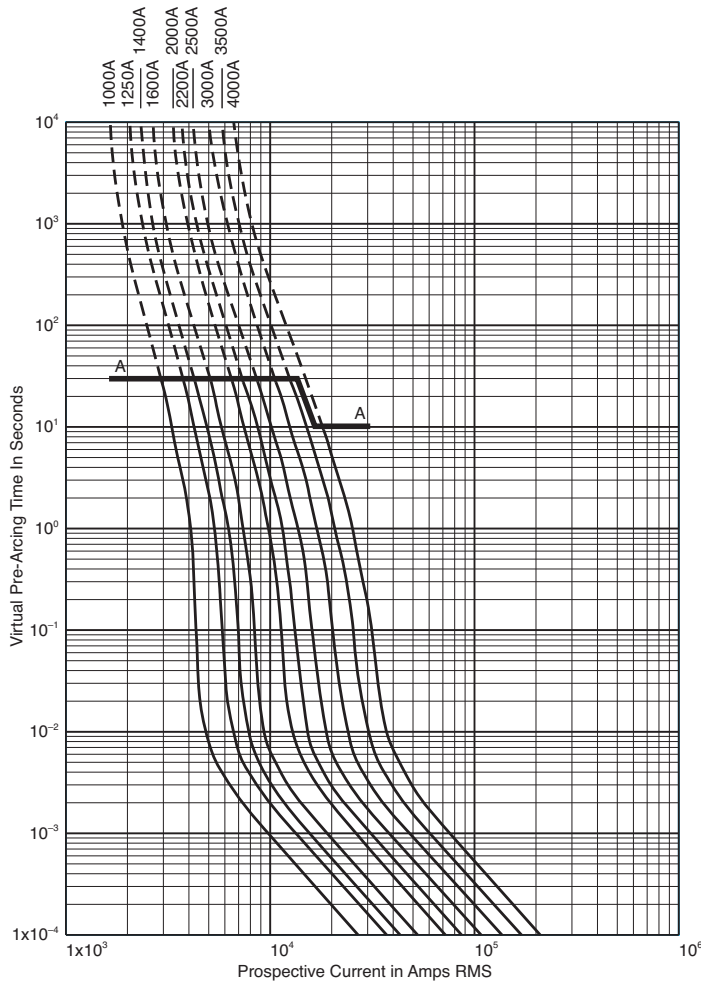
# Square Body Flush End Contact — 690V (IEC): 1000-4000A

## Catalog Numbers

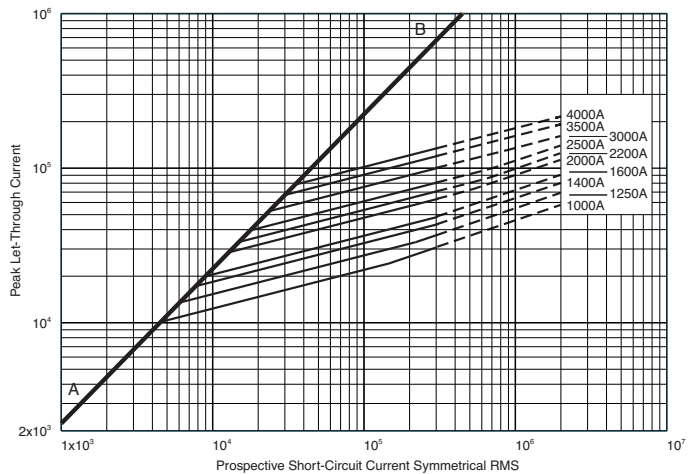
| Catalog Numbers             |  |                             |  | Size | Electrical Characteristics |                 |                                       |                     |                |                 |
|-----------------------------|--|-----------------------------|--|------|----------------------------|-----------------|---------------------------------------|---------------------|----------------|-----------------|
| -B/-<br>Visual<br>Indicator | -BKN/-<br>Type K<br>Indicator<br>for Micro | -G/-<br>Visual<br>Indicator | -GKN/-<br>Type K<br>Indicator<br>for Micro |      | Rated Current RMS          |                 | I <sup>2</sup> t (A <sup>2</sup> Sec) |                     | Watts Loss     |                 |
|                             |  |                             |  |      | Norm.<br>Cool.             | Liquid<br>Cool. | Pre-arc                               | Clearing<br>at 660V | Norm.<br>Cool. | Liquid<br>Cool. |
| 170M7058                    | 170M7078                                   | 170M7098                    | 170M7118                                   | 4    | 1000                       | 1350            | 76000                                 | 505000              | 175            | 315             |
| 170M7059                    | 170M7079                                   | 170M7099                    | 170M7119                                   |      | 1250                       | 1700            | 145000                                | 965000              | 195            | 355             |
| 170M7060                    | 170M7080                                   | 170M7100                    | 170M7120                                   |      | 1400                       | 1900            | 205000                                | 1400000             | 205            | 375             |
| 170M7061                    | 170M7081                                   | 170M7101                    | 170M7121                                   |      | 1600                       | 2200            | 305000                                | 2050000             | 220            | 405             |
| 170M7062                    | 170M7082                                   | 170M7102                    | 170M7122                                   |      | 2000                       | 2700            | 600000                                | 3950000             | 245            | 445             |
| 170M7063                    | 170M7083                                   | 170M7103                    | 170M7123                                   |      | 2500                       | 3400            | 1200000                               | 7800000             | 275            | 495             |
| 170M7064                    | 170M7084                                   | 170M7104                    | 170M7124                                   |      | 3000                       | 4100            | 2000000                               | 13500000            | 305            | 555             |
| 170M7065                    | 170M7085                                   | 170M7105                    | 170M7125                                   |      | 3500                       | 4700            | 3250000                               | 22000000            | 325            | 585             |
| 170M7066                    | 170M7086                                   | 170M7106                    | 170M7126                                   |      | †4000                      | †5400           | 4700000                               | †28000000           | 355            | 640             |

- †Rated voltage (IEC) 500V.
- Watts loss provided at rated current.
- Liquid Cool. = Liquid cooling. Temperature on the terminals not to exceed 60°C.
- Microswitch indicator ordered separately. See accessories on pages 212-213.

## Size 4 — 1000-4000A: 690V Time-Current Curve



## Peak Let-Through Curve



4000A fuse is derated to 500V (IEC).

Data Sheet: 17056328

## Square Body Flush End Contact Size 23, 24 — 660V (IEC): 1000-7500A

### 660V (IEC) 1000-7500A

#### Specifications

**Description:** High speed square body fuses, for the protection of the power rectifier section of the equipment.

**Dimensions:** See dimensions illustrations.

#### Ratings:

Volts: — 660Vac

Amps: — 1000-4000A

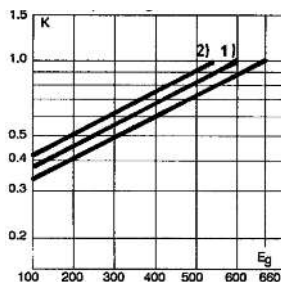
IR: — 300kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

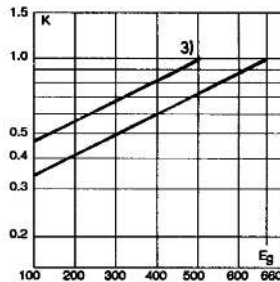


#### Electrical Characteristics

##### Total clearing $I^2t$



Size 23



Size 24

The total clearing  $I^2t$  at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing  $I^2t$  is found by multiplying by correction factor, K, given as a function of applied working voltage,  $E_g$ , (rms).

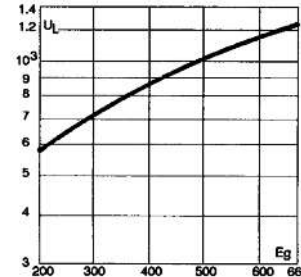
#### Features and Benefits

- Low watts loss
- Superior cycling capability

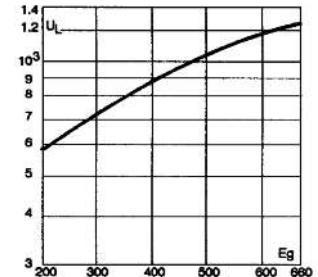
#### Typical Applications

- Power converters/rectifiers
- Reduced voltage starters

#### Arc Voltage



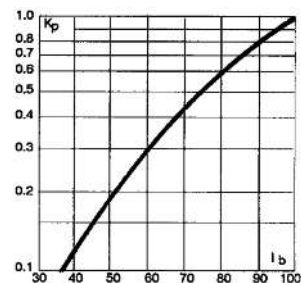
Size 23



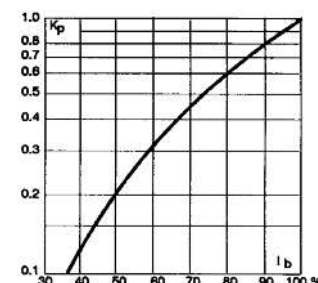
Size 24

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage  $E_g$ , (rms) at a power factor of 15%.

#### Power Losses



Size 23



Size 24

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.

#### For Other Voltage Ratings in This Body Style

- See pages 185 (1000V) and 198 (1250V)

## Square Body Flush End Contact Size 23, 24 — 660V (IEC): 1000-7500A

| Fuse Size | Catalogue Number           |                             |                             |                            |                             |                             | Electrical Characteristics |                       |                                       |            |               |       |
|-----------|----------------------------|-----------------------------|-----------------------------|----------------------------|-----------------------------|-----------------------------|----------------------------|-----------------------|---------------------------------------|------------|---------------|-------|
|           | -BU/55<br>Visual Indicator | -BKE/55<br>Type K Indicator | -BKN/55<br>Type K Indicator | -GU/55<br>Visual Indicator | -GKE/55<br>Type K Indicator | -GKN/55<br>Type K Indicator | Rated Voltage (V)          | Rated Current RMS-Amp | I <sup>2</sup> t (A <sup>2</sup> Sec) |            | Watt Loss (W) |       |
|           | Pre-arc                    | Clearing at 660V            |                             |                            |                             |                             |                            |                       |                                       |            |               |       |
| 23        | 170M6858                   | 170M6898                    | 170M6878                    | 170M6918                   | 170M6958                    | 170M6938                    | 660                        | 1000                  | 79,000                                | 530,000    | 170.0         |       |
|           | 170M6859                   | 170M6899                    | 170M6879                    | 170M6919                   | 170M6959                    | 170M6939                    |                            | 1100                  | 95,000                                | 635,000    | 185.0         |       |
|           | 170M6860                   | 170M6900                    | 170M6880                    | 170M6920                   | 170M6960                    | 170M6940                    |                            | 1250                  | 155,000                               | 1,050,000  | 190.0         |       |
|           | 170M6861                   | 170M6901                    | 170M6881                    | 170M6921                   | 170M6961                    | 170M6941                    |                            | 1400                  | 200,000                               | 1,350,000  | 210.0         |       |
|           | 170M6862                   | 170M6902                    | 170M6882                    | 170M6922                   | 170M6962                    | 170M6942                    |                            | 1500                  | 240,000                               | 1,650,000  | 215.0         |       |
|           | 170M6863                   | 170M6903                    | 170M6883                    | 170M6923                   | 170M6963                    | 170M6943                    |                            | 1600                  | 315,000                               | 2,150,000  | 220.0         |       |
|           | 170M6864                   | 170M6904                    | 170M6884                    | 170M6924                   | 170M6964                    | 170M6944                    |                            | 1800                  | 450,000                               | 3,050,000  | 230.0         |       |
|           | 170M6865                   | 170M6905                    | 170M6885                    | 170M6925                   | 170M6965                    | 170M6945                    |                            | 2000                  | 625,000                               | 4,200,000  | 240.0         |       |
|           | 170M6866                   | 170M6906                    | 170M6886                    | 170M6926                   | 170M6966                    | 170M6946                    |                            | 2200                  | 805,000                               | 5,400,000  | 255.0         |       |
|           | 170M6867                   | 170M6907                    | 170M6887                    | 170M6927                   | 170M6967                    | 170M6947                    |                            | 2500                  | 1,250,000                             | 8,350,000  | 265.0         |       |
|           | 170M6868                   | 170M6908                    | 170M6888                    | 170M6928                   | 170M6968                    | 170M6948                    |                            | 3000                  | 2,250,000                             | 15,500,000 | 285.0         |       |
|           | 170M6869                   | 170M6909                    | 170M6889                    | 170M6929                   | 170M6969                    | 170M6949                    |                            | 600                   | 3500                                  | 3,450,000  | 21,000,000    | 315.0 |
|           | 170M6870                   | 170M6910                    | 170M6890                    | 170M6930                   | 170M6970                    | 170M6950                    |                            | 550                   | 4000                                  | 5,000,000  | 27,500,000    | 340.0 |

Data Sheet: 170K6326

### Catalog Numbers:

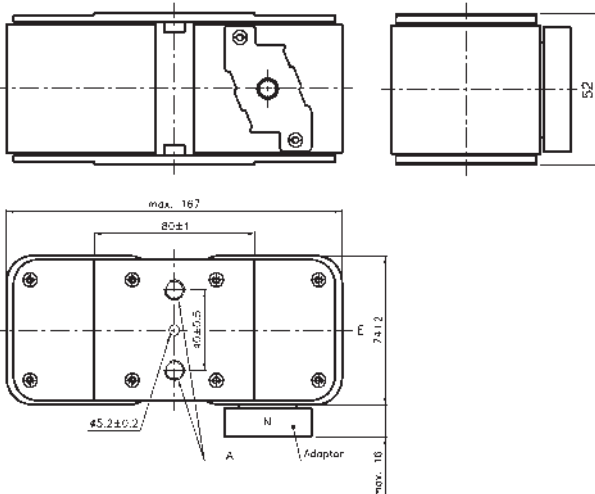
| Fuse Size | Catalogue Number            |                             |                             |                             | Electrical Characteristics |                       |                                       |           |                |     |
|-----------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|-----------------------|---------------------------------------|-----------|----------------|-----|
|           | -BU/60<br>without Indicator | -BKN/60<br>Type K Indicator | -GU/60<br>without Indicator | -GKN/60<br>Type K Indicator | Rated Voltage (V)          | Rated Current RMS-Amp | I <sup>2</sup> t (A <sup>2</sup> Sec) |           | Watts Loss (W) |     |
|           | Pre-arc                     | Clearing at 660V            |                             |                             |                            |                       |                                       |           |                |     |
| 24        | 170M7138                    | 170M7158                    | 170M7198                    | 170M7218                    | 690                        | 2000                  | 340000                                | 2300000   | 340            |     |
|           | 170M7139                    | 170M7159                    | 170M7199                    | 170M7219                    |                            | 2500                  | 650000                                | 4350000   | 390            |     |
|           | 170M7140                    | 170M7160                    | 170M7200                    | 170M7220                    |                            | 3000                  | 1100000                               | 7300000   | 430            |     |
|           | 170M7141                    | 170M7161                    | 170M7201                    | 170M7221                    |                            | 3500                  | 1800000                               | 12000000  | 460            |     |
|           | 170M7142                    | 170M7162                    | 170M7202                    | 170M7222                    |                            | 4000                  | 2700000                               | 18000000  | 490            |     |
|           | 170M7143                    | 170M7163                    | 170M7203                    | 170M7223                    |                            | 4500                  | 3800000                               | 25500000  | 520            |     |
|           | 170M7144                    | 170M7164                    | 170M7204                    | 170M7224                    |                            | 5000                  | 5450000                               | 36500000  | 540            |     |
|           | 170M7145                    | 170M7165                    | 170M7205                    | 170M7225                    |                            | 5500                  | 7400000                               | 49500000  | 560            |     |
|           | 170M7146                    | 170M7166                    | 170M7206                    | 170M7226                    |                            | 6000                  | 9600000                               | 64000000  | 580            |     |
|           | 170M7147                    | 170M7167                    | 170M7207                    | 170M7227                    |                            | 6500                  | 12500000                              | 83000000  | 600            |     |
|           | 170M7148                    | 170M7168                    | 170M7208                    | 170M7228                    |                            | 7000                  | 15000000                              | 100000000 | 630            |     |
|           | 170M7149                    | 170M7169                    | 170M7209                    | 170M7229                    |                            | 500                   | 7500                                  | 18500000  | †93000000      | 660 |

† A's @ 500V  
Data Sheet: 170K6332

### Dimensions - mm

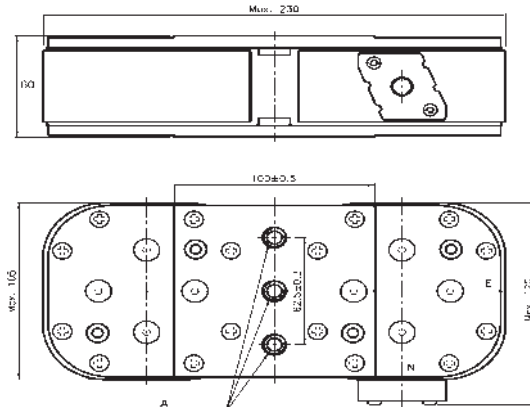
#### Size 23

Type - BU 55, -BKE/55, -BKN 55, -GU/55, -GKE/55, -GKN 55



#### Size 24

Type - BU 55, -BKE/55, -BKN 55, -GU/55, -GKE/55, -GKN 55

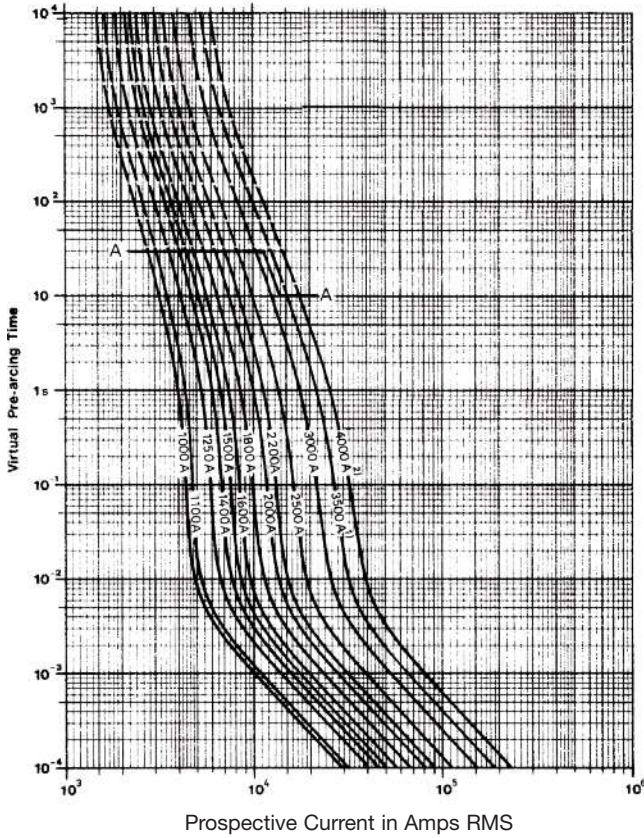


| Size  | A                 |
|-------|-------------------|
| 24BKN | 2x3 M12           |
| 24GKN | 2x3 1/2" 16UNC-2B |

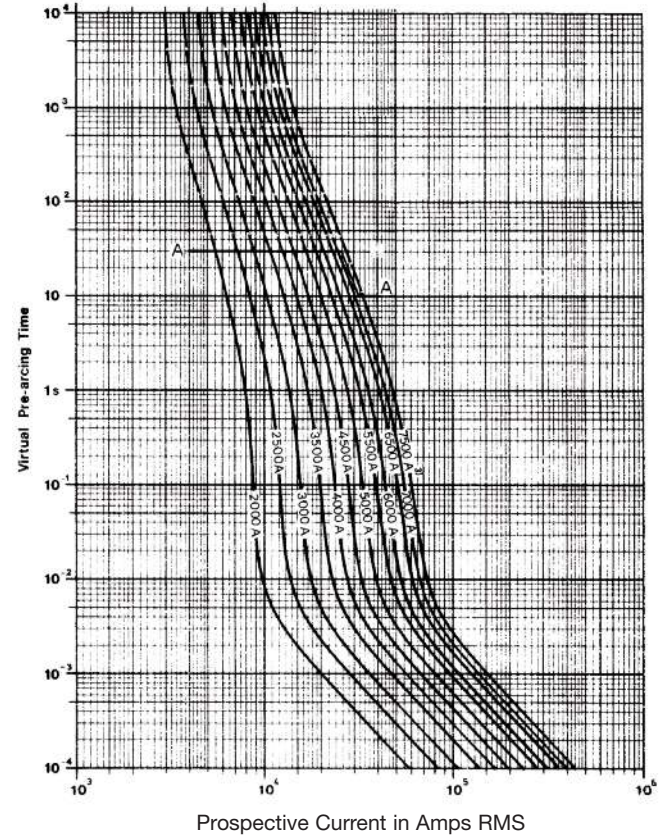


# Square Body Flush End Contact Size 23, 24 — 660V (IEC): 1000-7500A

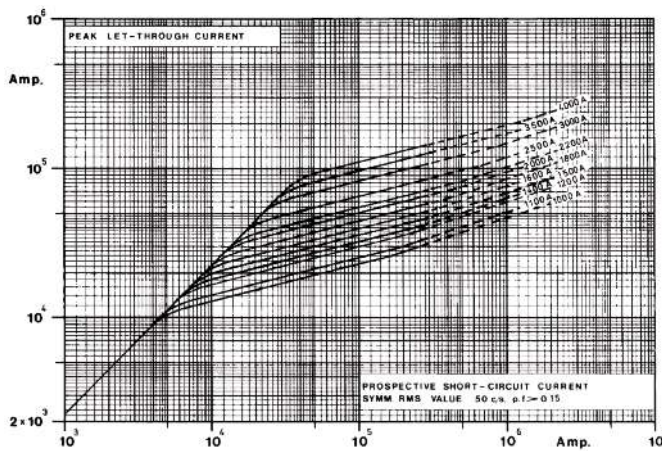
**Size 23 — 10000-4000A: 660V**  
Time-Current Curve



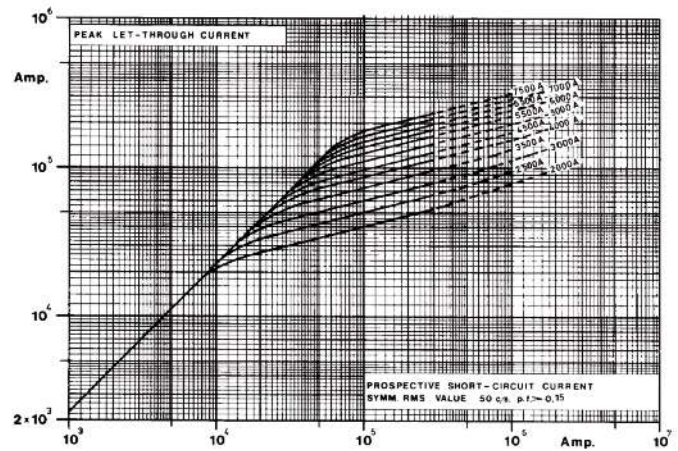
**Size 24 — 2000-7500A: 660V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



Data Sheet: Available upon request

Data Sheet: Available upon request

## Square Body DIN 43 620 — 690V (IEC): 10-800A Class gR — Full Range Fuses

### 690V (IEC) 10-800A

#### Specifications

**Description:** Square body DIN 43 620 blade style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 690Vac (IEC)

Amps: — 10-800A

IR: — 300kA RMS Sym.

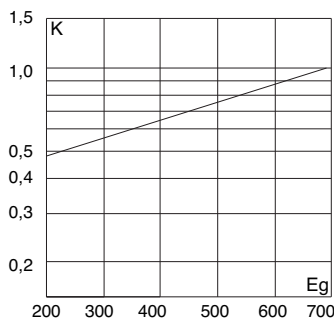
**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

#### Electrical

#### Characteristics

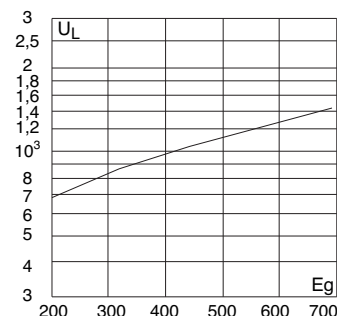
#### Total clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



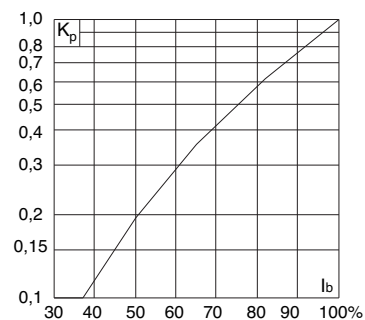
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Operating Class aR Fuses in This Body Style

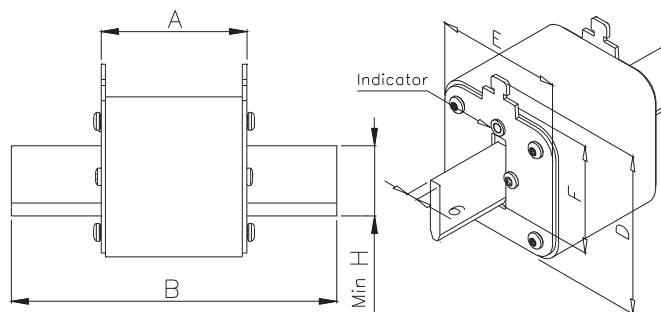
- See page 160

#### Dimensions - mm

Type DIN 00, DIN 1, DIN 2, DIN 3

| Size | A  | B Max | D Max | E  | F Min | H  |
|------|----|-------|-------|----|-------|----|
| 00   | 49 | 78.5  | 60    | 30 | 35    | 15 |
| 1    | 68 | 135   | 66    | 52 | 40    | 20 |
| 2    | 68 | 150   | 74    | 60 | 48    | 25 |
| 3    | 68 | 150   | 89    | 75 | 60    | 32 |

1 mm = 0.0394" 1" = 25.4 mm





## Square Body DIN 43 620 — 690V (IEC): 10-800A Class gR — Full Range Fuses

### Catalog Numbers

| Catalog Numbers<br>Type T<br>Indicator<br>For Micro | Size | Electrical Characteristics |                                       |                     |               |
|---|------|----------------------------|---------------------------------------|---------------------|---------------|
|   |      | RMS<br>Amp<br>Rating*      | I <sup>2</sup> t (A <sup>2</sup> Sec) |                     | Watts<br>Loss |
|   |      |                            | Pre-arc                               | Clearing<br>at 600V |               |
| 170M2691  | 00   | 10                         | 3.8                                   | 20                  | 3.5           |
| 170M2692  |      | 16                         | 7.2                                   | 38                  | 5.5           |
| 170M2693  |      | 20                         | 13                                    | 70                  | 6             |
| 170M2694  |      | 25                         | 24                                    | 125                 | 8             |
| 170M2695  |      | 32                         | 53                                    | 275                 | 9             |
| 170M2696  |      | 40                         | 95                                    | 490                 | 10            |
| 170M2697  |      | 50                         | 185                                   | 1000                | 11            |
| 170M2698  |      | 63                         | 345                                   | 1800                | 14            |
| 170M2699  |      | 80                         | 695                                   | 3600                | 16            |
| 170M2700  |      | 100                        | 1250                                  | 6650                | 19            |
| 170M2701  |      | 125                        | 2300                                  | 12000               | 23            |
| 170M2702  |      | 160                        | 4350                                  | 22500               | 29            |
| 170M4176  |      | 1                          | 50                                    | 135                 | 705           |
| 170M4177  | 63   |                            | 245                                   | 1300                | 15            |
| 170M4178  | 80   |                            | 500                                   | 2600                | 17            |
| 170M4179  | 100  |                            | 950                                   | 4850                | 20            |
| 170M4180  | 125  |                            | 1850                                  | 9500                | 23            |
| 170M4181  | 160  |                            | 3450                                  | 18000               | 28            |
| 170M4182  | 200  |                            | 6750                                  | 34500               | 31            |
| 170M4183  | 250  |                            | 13500                                 | 70500               | 35            |
| 170M4184  | 315  |                            | 26000                                 | 135000              | 41            |
| 170M4185  | 350  |                            | 34000                                 | 175000              | 45            |
| 170M4186  | 400  |                            | 48500                                 | 250000              | 48            |
| 170M5881  | 2    | 200                        | 5650                                  | 29000               | 33            |
| 170M5882  |      | 250                        | 10000                                 | 52500               | 40            |
| 170M5883  |      | 315                        | 19500                                 | 105000              | 46            |
| 170M5884  |      | 350                        | 26000                                 | 135000              | 50            |
| 170M5885  |      | 400                        | 39500                                 | 205000              | 53            |
| 170M5886  |      | 450                        | 55500                                 | 290000              | 59            |
| 170M5887  |      | 500                        | 73000                                 | 375000              | 66            |
| 170M5888  |      | 550                        | 100000                                | 515000              | 70            |
| 170M5889  |      | 630                        | 150000                                | 770000              | 79            |
| 170M6080  | 3    | 350                        | 23000                                 | 120000              | 55            |
| 170M6081  |      | 400                        | 34000                                 | 175000              | 59            |
| 170M6082  |      | 450                        | 48500                                 | 250000              | 62            |
| 170M6083  |      | 500                        | 64000                                 | 330000              | 67            |
| 170M6084  |      | 550                        | 84500                                 | 435000              | 70            |
| 170M6085  |      | 630                        | 125000                                | 645000              | 85            |
| 170M6086  |      | 700                        | 160000                                | 840000              | 93            |
| 170M6087  |      | 800                        | 245000                                | 1300000             | 99            |

\*The RMS amp rating of this fuse range is given with open fuse bases connected to copper conductors according to IEC 60269, Part 1, table 10. When used in enclosed fuse bases/ disconnects, derating factors have to be observed.

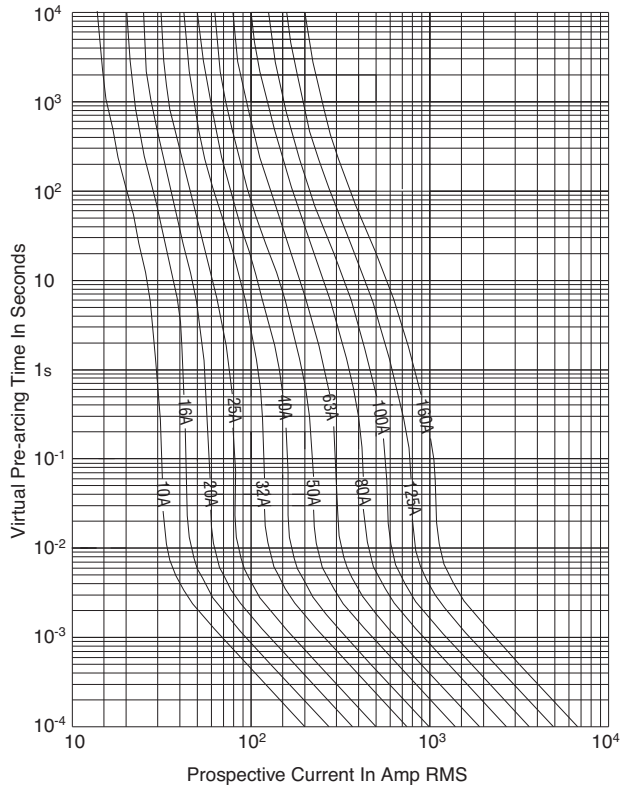
Please contact Bussmann for application assistance.

- Watts loss provided at rated current.
- Microswitch ordered separately. See accessories on page 212-213.
- For fuse curves see pages 170 and 171.

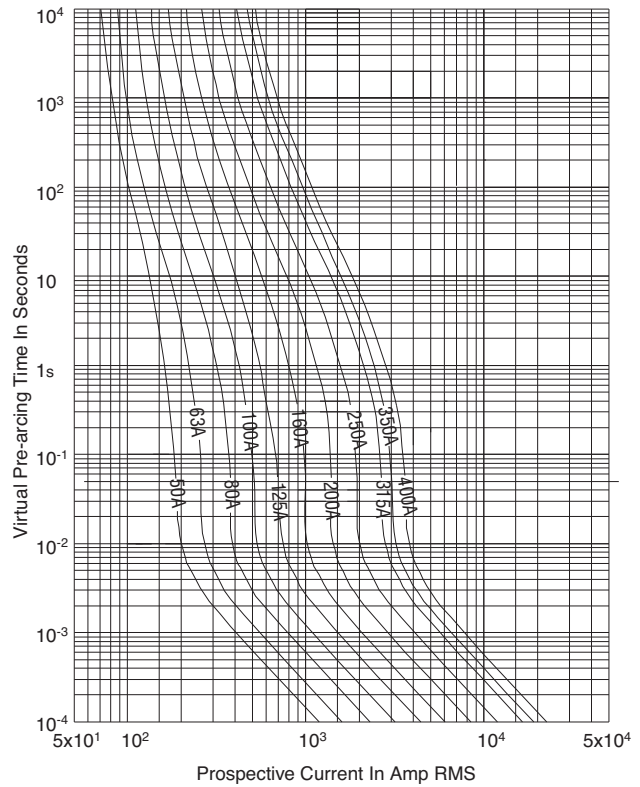
High Speed  
Fuses

# Square Body, DIN 43 620 - Size 00, 1 — 690V (IEC): 10-800A Class gR — Full Range Fuses

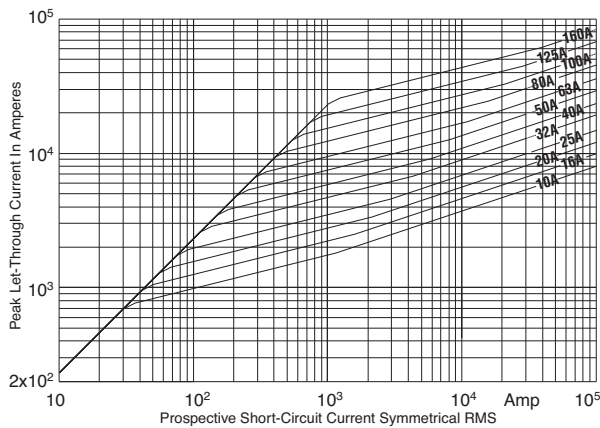
**Size 00 — 10-160A: 690V**  
Time-Current Curve



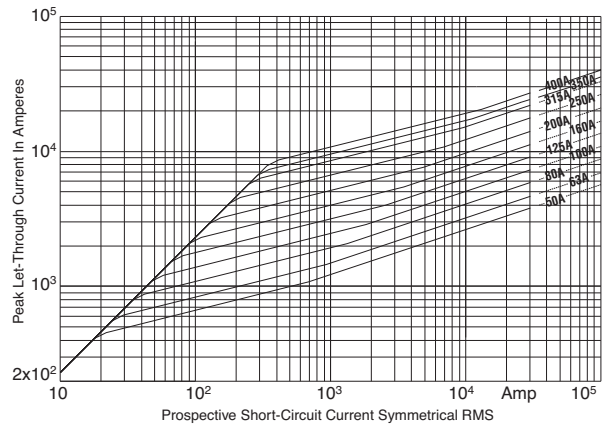
**Size 1 — 50-400A: 690V**  
Time-Current Curve



**Peak Let-Through Curve**

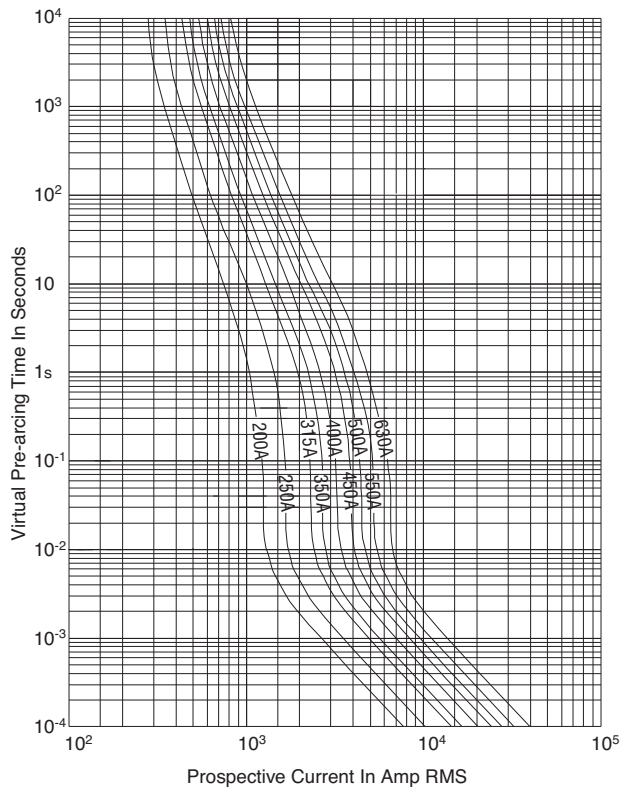


**Peak Let-Through Curve**

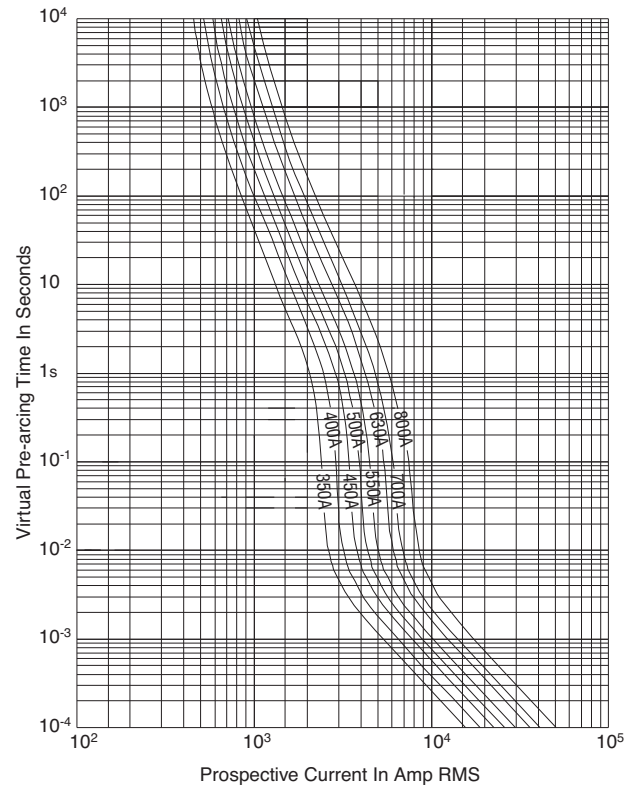


## Square Body, DIN 43 620 - Size 2, 3 — 690V (IEC): 10-800A Class gR — Full Range Fuses

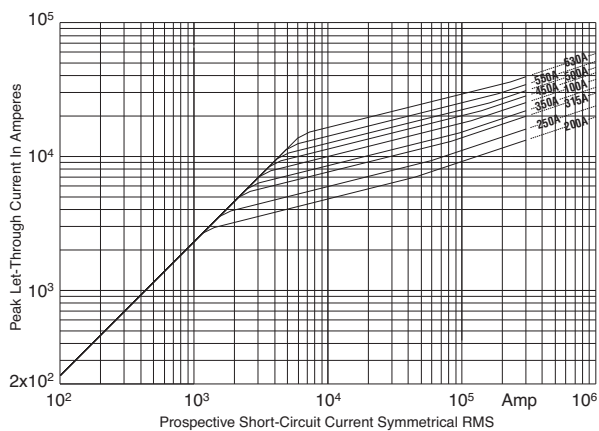
**Size 2 — 200-630A: 690V**  
Time-Current Curve



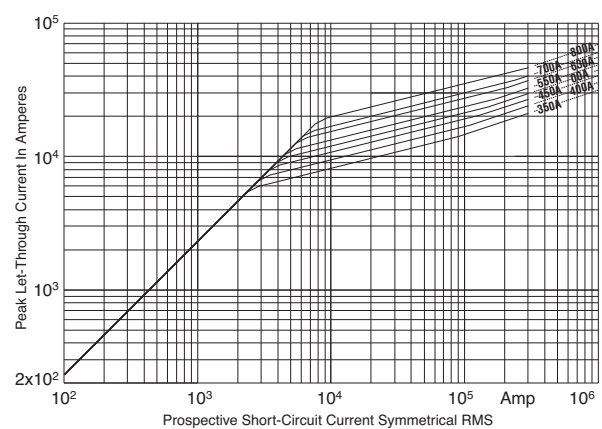
**Size 3 — 350-800A: 690V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



## Square Body DIN 43 653 — 1000V (IEC): 20-315A

### 1000V (IEC) 20-315A

#### Specifications

Description: Square body DIN 43 653 stud-mount high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1000Vac (20-250A)

— 900Vac (315A)

Amps: — 20-315A

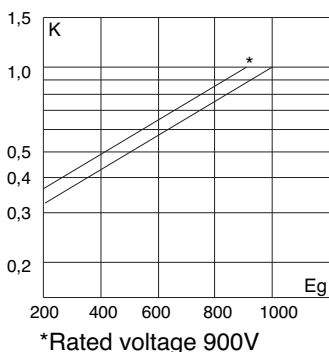
IR: — 150kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

#### Electrical Characteristics

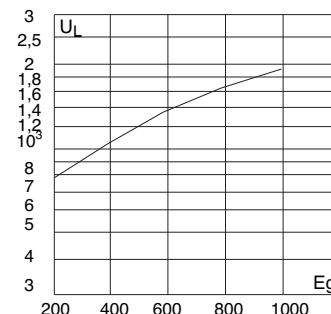
##### Total clearing $I^2t$

The total clearing  $I^2t$  at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing  $I^2t$  is found by multiplying by correction factor, K, given as a function of applied working voltage,  $E_g$ , (rms).



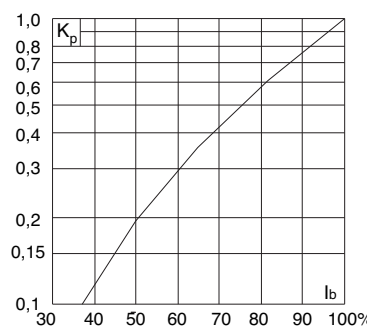
#### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage  $E_g$ , (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

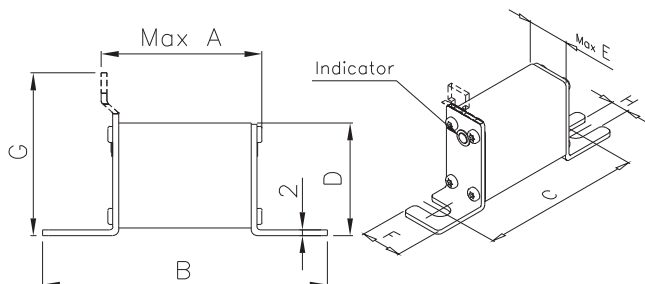
- See page 145 (690V/700V)

#### Dimensions - mm

Type 00TN/80 – 00/80

| Size    | Max A | B  | C  | D  | Max E | F  | G  | H  |
|---------|-------|----|----|----|-------|----|----|----|
| 00/80   | 54    | 98 | 78 | 51 | 30    | 28 |    | 10 |
| 00TN/80 | 54    | 98 | 78 | 51 | 30    | 28 | 67 | 10 |

1mm = 0.0394" / 1" = 25.4mm



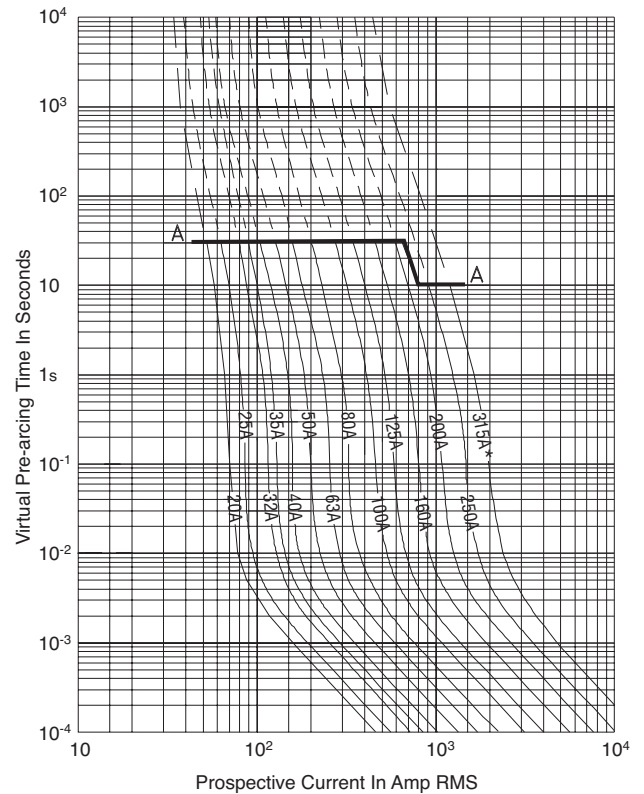
## Square Body DIN 43 653 — 1000V (IEC): 20-315A

### Catalog Numbers

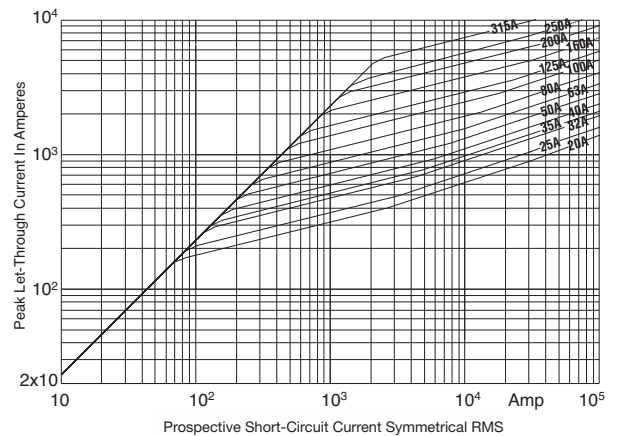
| Catalog Numbers                  |                                    | Size | Rated Voltage | Electrical Characteristics |                                       |                           |    | Watts Loss |
|----------------------------------|------------------------------------|------|---------------|----------------------------|---------------------------------------|---------------------------|----|------------|
| 00/80 Visual Indicator for Micro | 00TN/80 Type T Indicator for Micro |      |               | Rated Current RMS Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |                           |    |            |
|                                  |                                    |      |               |                            | Pre-arc                               | Clearing at Rated Voltage |    |            |
| 170M4802                         | 170M4822                           | 00   | 1000          | 20                         | 20                                    | 140                       | 5  |            |
| 170M4803                         | 170M4823                           |      |               | 25                         | 30                                    | 210                       | 7  |            |
| 170M4804                         | 170M4824                           |      |               | 32                         | 55                                    | 390                       | 9  |            |
| 170M4805                         | 170M4825                           |      |               | 35                         | 69                                    | 500                       | 10 |            |
| 170M4806                         | 170M4826                           |      |               | 40                         | 100                                   | 690                       | 11 |            |
| 170M4807                         | 170M4827                           |      |               | 50                         | 170                                   | 1200                      | 13 |            |
| 170M4808                         | 170M4828                           |      |               | 63                         | 280                                   | 2000                      | 18 |            |
| 170M4809                         | 170M4829                           |      |               | 80                         | 500                                   | 3500                      | 22 |            |
| 170M4810                         | 170M4830                           |      |               | 100                        | 950                                   | 6850                      | 25 |            |
| 170M4811                         | 170M4831                           |      |               | 125                        | 1500                                  | 11500                     | 33 |            |
| 170M4812                         | 170M4832                           |      |               | 160                        | 3000                                  | 22000                     | 37 |            |
| 170M4813                         | 170M4833                           |      |               | 200                        | 5600                                  | 40500                     | 40 |            |
| 170M4814                         | 170M4834                           |      |               | 250                        | 10000                                 | 74000                     | 48 |            |
| 170M4815                         | 170M4835                           |      |               | 315                        | 18000                                 | 115000                    | 58 |            |

- Watts loss provided at rated current.
- Microswitch ordered separately. See accessories on page 212-213.

### Size 00 — 20-315A: 1000V Time-Current Curve



### Peak Let-Through Curve



\* 315A fuse is derated to 900V



## Square Body DIN 43 653 — 1000V (IEC): 50-1400A

### 1000V (IEC) 50-1400A

#### Specifications

**Description:** Square body mount high speed fuses.

**Dimensions:** See dimensions illustrations.

**Ratings:**

Volts: — 1000Vac.

Amps: — 50-1400A

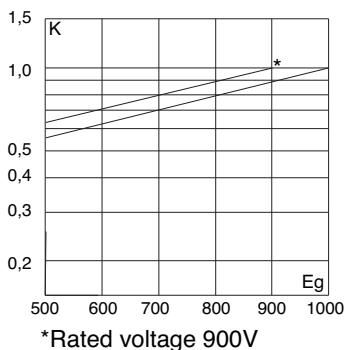
IR: — 125kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

#### Electrical Characteristics

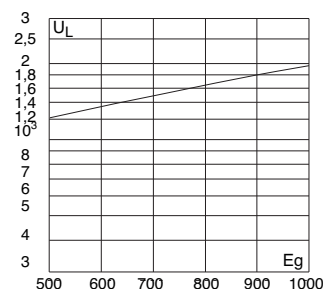
##### Total clearing $I^2t$

The total clearing  $I^2t$  at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing  $I^2t$  is found by multiplying by correction factor, K, given as a function of applied working voltage,  $E_g$ , (rms).



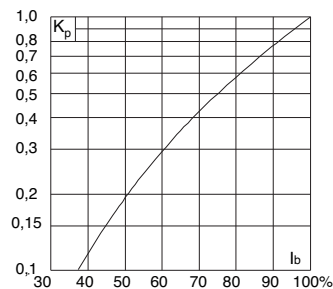
#### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage  $E_g$ , (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

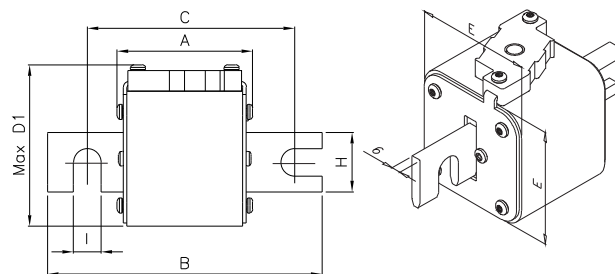
- See pages 150 (690V/700V) and 187 (1250V/1300V)

#### Dimensions - mm

##### Type -KN/110

| Size     | A  | B   | C   | Max D1 | E  | G | H  | I  |
|----------|----|-----|-----|--------|----|---|----|----|
| 1*KN/110 | 80 | 138 | 108 | 61     | 43 | 6 | 22 | 11 |
| 1KN/110  | 80 | 138 | 108 | 69     | 51 | 6 | 25 | 11 |
| 2KN/110  | 80 | 138 | 108 | 77     | 59 | 6 | 25 | 11 |
| 3KN/110  | 81 | 139 | 108 | 92     | 74 | 6 | 30 | 11 |

##### Type-KN/110

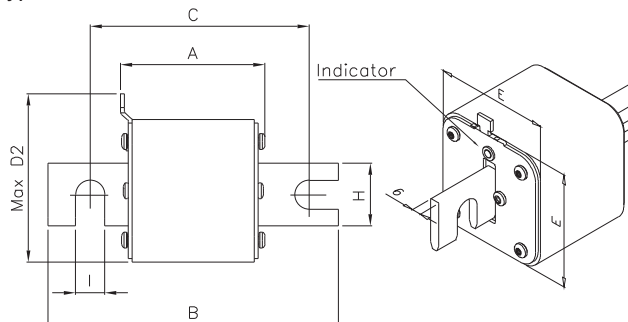


##### Type -TN/110

| Size     | A  | B   | C   | Max D2 | E  | G | H  | I  |
|----------|----|-----|-----|--------|----|---|----|----|
| 1*TN/110 | 80 | 138 | 108 | 61     | 43 | 6 | 22 | 11 |
| 1TN/110  | 80 | 138 | 108 | 69     | 51 | 6 | 25 | 11 |
| 2TN/110  | 80 | 138 | 108 | 75     | 59 | 6 | 25 | 11 |
| 3TN/110  | 81 | 139 | 108 | 90     | 74 | 6 | 30 | 11 |

1mm = 0.0394" / 1" = 25.4mm

##### Type-TN/110



## Square Body DIN 43 653 — 1000V (IEC): 50-1400A

### Catalog Numbers

| Catalog Numbers                             |   | Size | Rated Voltage | Electrical Characteristics      |                                       |                                 | Watts Loss |    |
|---|---|------|---------------|---------------------------------|---------------------------------------|---------------------------------|------------|----|
| -KN/110<br>Type K<br>Indicator for<br>Micro | -TN/110<br>Type T<br>Indicator for<br>Micro |      |               | Rated<br>Current<br>RMS<br>Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |                                 |            |    |
|   |   |      |               |                                 | Pre-arc                               | Clearing<br>at Rated<br>Voltage |            |    |
| 170M3965                                    | 170M3981                                    | 1*   | 1000          | 50                              | 135                                   | 815                             | 20         |    |
| 170M3966                                    | 170M3982                                    |      | 1000          | 63                              | 215                                   | 1300                            | 25         |    |
| 170M3967                                    | 170M3983                                    |      | 1000          | 80                              | 460                                   | 2750                            | 30         |    |
| 170M3968                                    | 170M3984                                    |      | 1000          | 100                             | 860                                   | 5100                            | 35         |    |
| 170M3969                                    | 170M3985                                    |      | 1000          | 125                             | 1450                                  | 8600                            | 40         |    |
| 170M3970                                    | 170M3986                                    |      | 1000          | 160                             | 2850                                  | 17500                           | 45         |    |
| 170M3971                                    | 170M3987                                    |      | 1000          | 200                             | 4950                                  | 29500                           | 48         |    |
| 170M3972                                    | 170M3988                                    |      | 1000          | 250                             | 9550                                  | 57000                           | 50         |    |
| 170M3973                                    | 170M3989                                    |      | 1000          | 315                             | 21500                                 | 130000                          | 60         |    |
| 170M3974                                    | 170M3990                                    |      | 1000          | 350                             | 29000                                 | 175000                          | 65         |    |
| 170M3975                                    | 170M3991                                    |      | 1000          | 400                             | 42000                                 | 250000                          | 70         |    |
| 170M4965                                    | 170M4980                                    |      | 1             | 1000                            | 160                                   | 2200                            | 13500      | 40 |
| 170M4966                                    | 170M4981                                    |      |               | 1000                            | 200                                   | 4150                            | 24500      | 45 |
| 170M4967                                    | 170M4982                                    | 1000 |               | 250                             | 7750                                  | 46000                           | 52         |    |
| 170M4968                                    | 170M4983                                    | 1000 |               | 315                             | 16500                                 | 98500                           | 60         |    |
| 170M4969                                    | 170M4984                                    | 1000 |               | 350                             | 21500                                 | 130000                          | 65         |    |
| 170M4970                                    | 170M4985                                    | 1000 |               | 400                             | 31000                                 | 185000                          | 70         |    |
| 170M4971                                    | 170M4986                                    | 1000 |               | 450                             | 44500                                 | 265000                          | 80         |    |
| 170M4972                                    | 170M4987                                    | 1000 |               | 500                             | 63000                                 | 375000                          | 85         |    |
| 170M4973                                    | 170M4988                                    | 1000 |               | 550                             | 84500                                 | 500000                          | 90         |    |
| 170M4974                                    | 170M4989                                    | 1000 |               | 630                             | 125000                                | 755000                          | 98         |    |
| 170M5966                                    | 170M5981                                    | 2    | 1000          | 250                             | 6750                                  | 40000                           | 65         |    |
| 170M5967                                    | 170M5982                                    |      | 1000          | 315                             | 13500                                 | 81500                           | 75         |    |
| 170M5968                                    | 170M5983                                    |      | 1000          | 350                             | 16500                                 | 99000                           | 80         |    |
| 170M5969                                    | 170M5984                                    |      | 1000          | 400                             | 26000                                 | 155000                          | 85         |    |
| 170M5970                                    | 170M5985                                    |      | 1000          | 450                             | 35500                                 | 210000                          | 90         |    |
| 170M5971                                    | 170M5986                                    |      | 1000          | 500                             | 49500                                 | 295000                          | 95         |    |
| 170M5972                                    | 170M5987                                    |      | 1000          | 550                             | 66000                                 | 390000                          | 100        |    |
| 170M5973                                    | 170M5988                                    |      | 1000          | 630                             | 93500                                 | 555000                          | 110        |    |
| 170M5974                                    | 170M5989                                    |      | 1000          | 700                             | 130000                                | 770000                          | 115        |    |
| 170M5975                                    | 170M5990                                    |      | 1000          | 800                             | 195000                                | 1200000                         | 125        |    |
| 170M8614                                    | 170M8629                                    | 3    | 1000          | 315                             | 9200                                  | 54500                           | 90         |    |
| 170M8615                                    | 170M8630                                    |      | 1000          | 350                             | 13000                                 | 77500                           | 95         |    |
| 170M8616                                    | 170M8631                                    |      | 1000          | 400                             | 19000                                 | 115000                          | 105        |    |
| 170M8617                                    | 170M8632                                    |      | 1000          | 450                             | 27000                                 | 160000                          | 107        |    |
| 170M8618                                    | 170M8633                                    |      | 1000          | 500                             | 37500                                 | 225000                          | 110        |    |
| 170M8619                                    | 170M8634                                    |      | 1000          | 550                             | 52000                                 | 310000                          | 115        |    |
| 170M8620                                    | 170M8635                                    |      | 1000          | 630                             | 82500                                 | 490000                          | 120        |    |
| 170M8621                                    | 170M8636                                    |      | 1000          | 700                             | 115000                                | 700000                          | 125        |    |
| 170M8622                                    | 170M8637                                    |      | 1000          | 800                             | 170000                                | 1050000                         | 135        |    |
| 170M8623                                    | 170M8638                                    |      | 1000          | 900                             | 250000                                | 1500000                         | 145        |    |
| 170M8624                                    | 170M8639                                    |      | 1000          | 1000                            | 340000                                | 2050000                         | 150        |    |
| 170M8625                                    | 170M8640                                    |      | 1000          | 1100                            | 460000                                | 2750000                         | 155        |    |
| 170M8626                                    | 170M8641                                    |      | 1000          | 1250                            | 575000                                | 3400000                         | 175        |    |
| 170M8627                                    | 170M8642                                    |      | 900           | 1400                            | 795000                                | 4200000                         | 185        |    |

- Watts loss provided at rated current.
- Microswitch ordered separately. See accessories on page 212-213.
- For fuse curves see pages 180 and 181.

## Square Body Flush End Contact — 1000V (IEC): 50–1400A

### 1000V (IEC) 50–1400A

#### Specifications

**Description:** Square body flush end contact high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1000Vac.

Amps: — 50-1400A

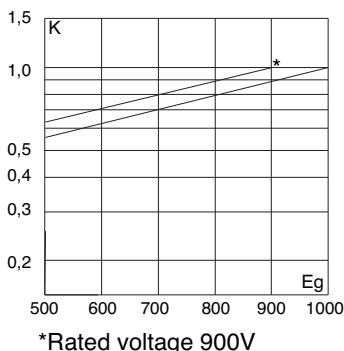
IR: — 150kA (Est. 300kA) RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

#### Electrical Characteristics

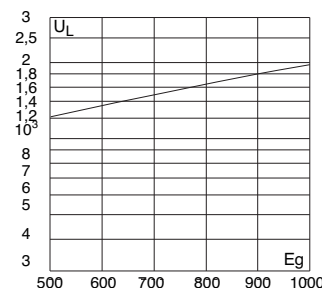
##### Total clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



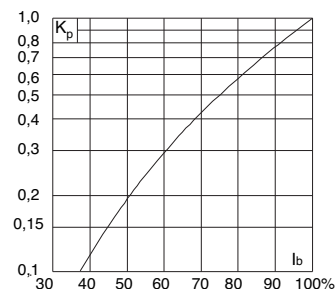
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

- See pages 152 (690V/700V) and 189 (1250V/1300V)

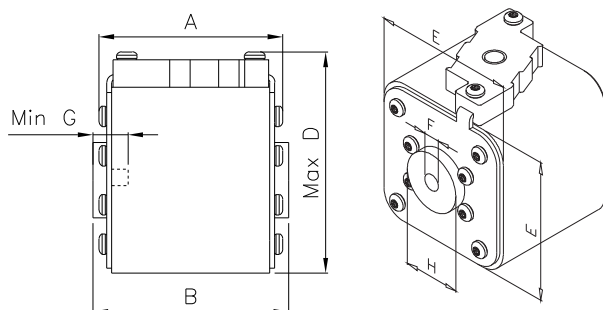
#### Dimensions - mm

Type -BKN/- and -GKN/-

| Size            | A    | B    | Max D | E  | F   | F* (in)           | Min G | H     |
|-----------------|------|------|-------|----|-----|-------------------|-------|-------|
| 1*BKN/75+GKN/75 | 72.5 | 74   | 61    | 43 | M8  | 5/16" - 18 UNC-2B | 5     | ø17.5 |
| 1BKN/75+GKN/75  | 73.2 | 74   | 69    | 52 | M8  | 5/16" - 18 UNC-2B | 8     | ø20   |
| 2BKN/75+GKN/75  | 73.2 | 74.4 | 77    | 59 | M10 | 3/8" - 16 UNC-2B  | 10    | ø24   |
| 3BKN/75+GKN/75  | 73.3 | 75.4 | 92    | 74 | M12 | 1/2" - 13 UNC-2B  | 10    | ø30   |
| 3BKN/90+GKN/90  | 80.3 | 91.4 | 92    | 74 | M12 | 1/2" - 13 UNC-2B  | 10    | ø30   |

\* Valid for fuses type -GKN/-.

1mm = 0.0394" / 1" = 25.4mm



## Square Body Flush End Contact — 1000V (IEC): 50–1400A

### Catalog Numbers

| Catalog Numbers                            |  | Size | Electrical Characteristics |                              |                                       |                                 |               |
|--|--|------|----------------------------|------------------------------|---------------------------------------|---------------------------------|---------------|
| -BKN/-<br>Type K<br>Indicator for<br>Micro | -GKN/-<br>Type K<br>Indicator for<br>Micro |      | Rated<br>Voltage           | Rated<br>Current<br>RMS-Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |                                 | Watts<br>Loss |
|  |  |      |                            |                              | Pre-arc                               | Clearing<br>at Rated<br>Voltage |               |
| 170M3951                                   | 170M3921                                   | 1*   | 1000                       | 50                           | 135                                   | 815                             | 20            |
| 170M3952                                   | 170M3922                                   |      | 1000                       | 63                           | 215                                   | 1300                            | 25            |
| 170M3953                                   | 170M3923                                   |      | 1000                       | 80                           | 460                                   | 2750                            | 30            |
| 170M3954                                   | 170M3924                                   |      | 1000                       | 100                          | 860                                   | 5100                            | 35            |
| 170M3955                                   | 170M3925                                   |      | 1000                       | 125                          | 1450                                  | 8600                            | 40            |
| 170M3956                                   | 170M3926                                   |      | 1000                       | 160                          | 2850                                  | 17500                           | 45            |
| 170M3957                                   | 170M3927                                   |      | 1000                       | 200                          | 4950                                  | 29500                           | 48            |
| 170M3958                                   | 170M3928                                   |      | 1000                       | 250                          | 9550                                  | 57000                           | 50            |
| 170M3959                                   | 170M3929                                   |      | 1000                       | 315                          | 21500                                 | 130000                          | 60            |
| 170M3960                                   | 170M3930                                   |      | 1000                       | 350                          | 29000                                 | 175000                          | 65            |
| 170M3961                                   | 170M3931                                   | 1000 | 400                        | 42000                        | 250000                                | 70                              |               |
| 170M4951                                   | 170M4921                                   | 1    | 1000                       | 160                          | 2200                                  | 13500                           | 40            |
| 170M4952                                   | 170M4922                                   |      | 1000                       | 200                          | 4150                                  | 24500                           | 45            |
| 170M4953                                   | 170M4923                                   |      | 1000                       | 250                          | 7750                                  | 46000                           | 52            |
| 170M4954                                   | 170M4924                                   |      | 1000                       | 315                          | 16500                                 | 98500                           | 60            |
| 170M4955                                   | 170M4925                                   |      | 1000                       | 350                          | 21500                                 | 130000                          | 65            |
| 170M4956                                   | 170M4926                                   |      | 1000                       | 400                          | 31000                                 | 185000                          | 70            |
| 170M4957                                   | 170M4927                                   |      | 1000                       | 450                          | 44500                                 | 265000                          | 80            |
| 170M4958                                   | 170M4928                                   |      | 1000                       | 500                          | 63000                                 | 375000                          | 85            |
| 170M4959                                   | 170M4929                                   |      | 1000                       | 550                          | 84500                                 | 500000                          | 90            |
| 170M4960                                   | 170M4930                                   |      | 1000                       | 630                          | 125000                                | 755000                          | 98            |
| 170M5952                                   | 170M5922                                   | 2    | 1000                       | 250                          | 6750                                  | 40000                           | 65            |
| 170M5953                                   | 170M5923                                   |      | 1000                       | 315                          | 13500                                 | 81500                           | 75            |
| 170M5954                                   | 170M5924                                   |      | 1000                       | 350                          | 16500                                 | 99000                           | 80            |
| 170M5955                                   | 170M5925                                   |      | 1000                       | 400                          | 26000                                 | 155000                          | 85            |
| 170M5956                                   | 170M5926                                   |      | 1000                       | 450                          | 35500                                 | 210000                          | 90            |
| 170M5957                                   | 170M5927                                   |      | 1000                       | 500                          | 49500                                 | 295000                          | 95            |
| 170M5958                                   | 170M5928                                   |      | 1000                       | 550                          | 66000                                 | 390000                          | 100           |
| 170M5959                                   | 170M5929                                   |      | 1000                       | 630                          | 93500                                 | 555000                          | 110           |
| 170M5960                                   | 170M5930                                   |      | 1000                       | 700                          | 130000                                | 770000                          | 115           |
| 170M5961                                   | 170M5931                                   |      | 1000                       | 800                          | 195000                                | 1200000                         | 125           |
| 170M8600                                   | 170M8500                                   | 3    | 1000                       | 315                          | 9200                                  | 54500                           | 90            |
| 170M8601                                   | 170M8501                                   |      | 1000                       | 350                          | 13000                                 | 77500                           | 95            |
| 170M8602                                   | 170M8502                                   |      | 1000                       | 400                          | 19000                                 | 115000                          | 105           |
| 170M8603                                   | 170M8503                                   |      | 1000                       | 450                          | 27000                                 | 160000                          | 107           |
| 170M8604                                   | 170M8504                                   |      | 1000                       | 500                          | 37500                                 | 225000                          | 110           |
| 170M8605                                   | 170M8505                                   |      | 1000                       | 550                          | 52000                                 | 310000                          | 115           |
| 170M8606                                   | 170M8506                                   |      | 1000                       | 630                          | 82500                                 | 490000                          | 120           |
| 170M8607                                   | 170M8507                                   |      | 1000                       | 700                          | 115000                                | 700000                          | 125           |
| 170M8608                                   | 170M8508                                   |      | 1000                       | 800                          | 170000                                | 1050000                         | 135           |
| 170M8609                                   | 170M8509                                   |      | 1000                       | 900                          | 250000                                | 1500000                         | 145           |
| 170M8610                                   | 170M8510                                   |      | 1000                       | 1000                         | 340000                                | 2050000                         | 150           |
| 170M8611                                   | 170M8511                                   |      | 1000                       | 1100                         | 460000                                | 2750000                         | 155           |
| 170M8612**                                 | 170M8512**                                 |      | 1000                       | 1250                         | 575000                                | 3400000                         | 175           |
| 170M8613**                                 | 170M8513**                                 | 900  | 1400                       | 795000                       | 4200000                               | 185                             |               |

- \*\*Overall length is 90mm, for all other fuses the overall length is 75mm.
- Watts loss provided at rated current.
  - Microswitch ordered separately. See accessories on page 212-213.
  - For fuse curves see pages 180 and 181.

## Square Body US style — 1000V (IEC): 50-1400A

### 1000V (IEC) 50-1400A

#### Specifications

**Description:** Square body US style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

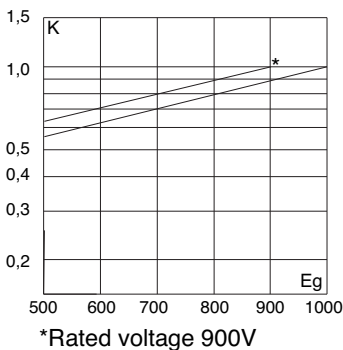
- Volts: — 1000Vac.
- Amps: — 50-1400A
- IR: — 150kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

#### Electrical Characteristics

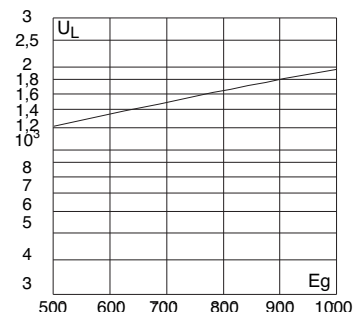
##### Total clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



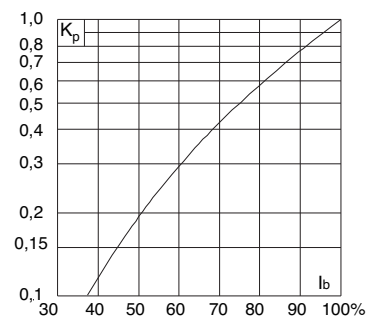
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

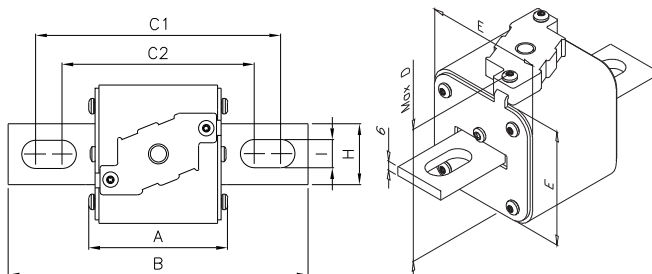
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### Dimensions - mm

Type -FKE/115

| Size      | B   | C1  | C2  | D  | E  | H  | I  |
|-----------|-----|-----|-----|----|----|----|----|
| 1*FKE/115 | 156 | 130 | 101 | 59 | 45 | 20 | 10 |
| 1FKE/115  | 160 | 127 | 102 | 69 | 53 | 25 | 14 |
| 2FKE/115  | 160 | 127 | 102 | 77 | 61 | 25 | 14 |
| 3FKE/115  | 159 | 128 | 101 | 92 | 76 | 36 | 16 |

1mm = 0.0394" / 1" = 25.4mm



#### For Other Voltage Ratings in This Body Style

- See pages 154 (690V/700V) and 191 (1250V/1300)



## Square Body US style — 1000V (IEC): 50-1400A

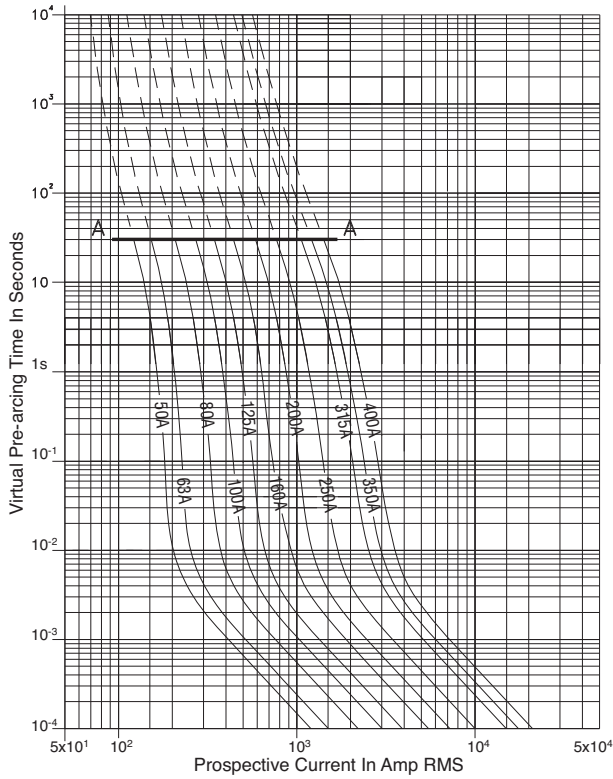
### Catalog Numbers

| Catalog Numbers<br>-FKE/115<br>Type K<br>Indicator for<br>Micro | Size | Electrical Characteristics   |                                       |                      |               |
|---|------|------------------------------|---------------------------------------|----------------------|---------------|
|   |      | Rated<br>Current<br>RMS-Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |                      | Watts<br>Loss |
|   |      |                              | Pre-arc                               | Clearing<br>at 1000V |               |
| 170M3531  | 1*   | 50                           | 135                                   | 815                  | 20            |
| 170M3532  |      | 63                           | 215                                   | 1300                 | 25            |
| 170M3533  |      | 80                           | 460                                   | 2750                 | 30            |
| 170M3534  |      | 100                          | 860                                   | 5100                 | 35            |
| 170M3535  |      | 125                          | 1450                                  | 8600                 | 40            |
| 170M3536  |      | 160                          | 2850                                  | 17500                | 45            |
| 170M3537  |      | 200                          | 4950                                  | 29500                | 48            |
| 170M3538  |      | 250                          | 9550                                  | 57000                | 50            |
| 170M3539  |      | 315                          | 21500                                 | 130000               | 60            |
| 170M3540  |      | 350                          | 29000                                 | 175000               | 65            |
| 170M3541  | 400  | 42000                        | 250000                                | 70                   |               |
| 170M4531  | 1    | 160                          | 2200                                  | 13500                | 40            |
| 170M4532  |      | 200                          | 4150                                  | 24500                | 45            |
| 170M4533  |      | 250                          | 7750                                  | 46000                | 52            |
| 170M4534  |      | 315                          | 16500                                 | 98500                | 60            |
| 170M4535  |      | 350                          | 21500                                 | 130000               | 65            |
| 170M4536  |      | 400                          | 31000                                 | 185000               | 70            |
| 170M4537  |      | 450                          | 44500                                 | 265000               | 80            |
| 170M4538  |      | 500                          | 63000                                 | 375000               | 85            |
| 170M4539  |      | 550                          | 84500                                 | 500000               | 90            |
| 170M4540  |      | 630                          | 125000                                | 755000               | 98            |
| 170M5531  | 2    | 250                          | 6750                                  | 40000                | 65            |
| 170M5532  |      | 315                          | 13500                                 | 81500                | 75            |
| 170M5533  |      | 350                          | 16500                                 | 99000                | 80            |
| 170M5534  |      | 400                          | 26000                                 | 155000               | 85            |
| 170M5535  |      | 450                          | 35500                                 | 210000               | 90            |
| 170M5536  |      | 500                          | 49500                                 | 295000               | 95            |
| 170M5537  |      | 550                          | 66000                                 | 390000               | 100           |
| 170M5538  |      | 630                          | 93500                                 | 555000               | 110           |
| 170M5539  |      | 700                          | 130000                                | 770000               | 115           |
| 170M5540  |      | 800                          | 195000                                | 1200000              | 125           |
| 170M8531  | 3    | 315                          | 9200                                  | 54500                | 90            |
| 170M8532  |      | 350                          | 13000                                 | 77500                | 95            |
| 170M8533  |      | 400                          | 19000                                 | 115000               | 105           |
| 170M8534  |      | 450                          | 27000                                 | 160000               | 107           |
| 170M8535  |      | 500                          | 37500                                 | 225000               | 110           |
| 170M8536  |      | 550                          | 52000                                 | 310000               | 115           |
| 170M8537  |      | 630                          | 82500                                 | 490000               | 120           |
| 170M8538  |      | 700                          | 115000                                | 700000               | 125           |
| 170M8539  |      | 800                          | 170000                                | 1050000              | 135           |
| 170M8540  |      | 900                          | 250000                                | 1500000              | 145           |
| 170M8541  |      | 1000                         | 340000                                | 2050000              | 150           |
| 170M8542  |      | 1100                         | 460000                                | 2750000              | 155           |
| 170M8543  |      | 1250                         | 575000                                | 3400000              | 175           |
| 170M8544*   |      | 1400                         | 795000                                | 4200000*             | 185           |

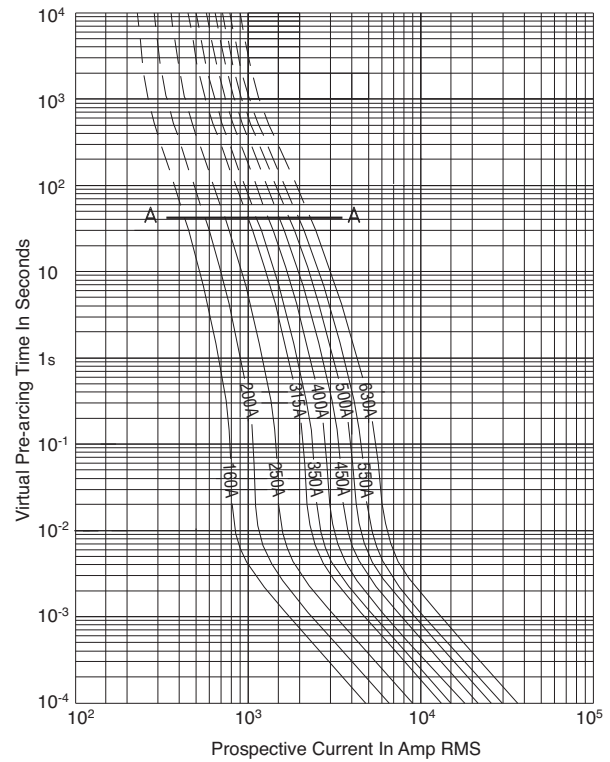
- \* Rated voltage 900V.
- Watts loss provided at rated current.
- Microswitch ordered separately. See accessories on pages 212-213.
- For fuse curves see pages 180 and 181.

# Square Body, US style - Size 1\*, 1 — 1000V (IEC): 50-1400A

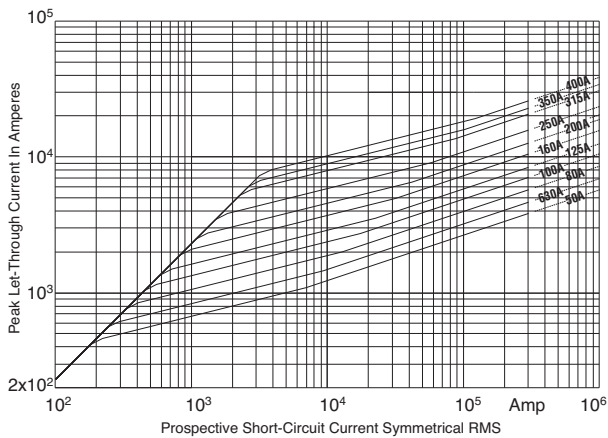
**Size 1\* — 50-400A: 1000V**  
Time-Current Curve



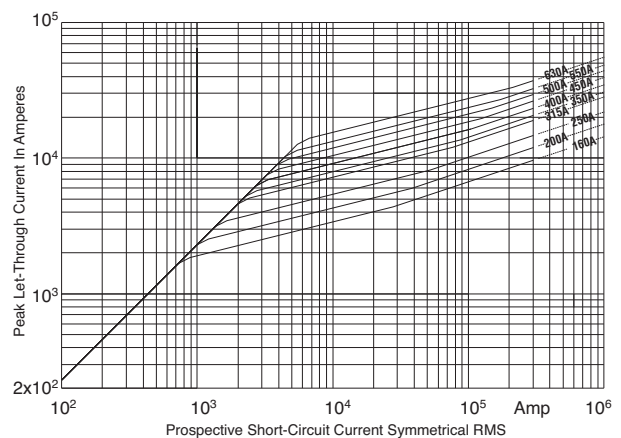
**Size 1 — 160-630A: 1000V**  
Time-Current Curve



**Peak Let-Through Curve**

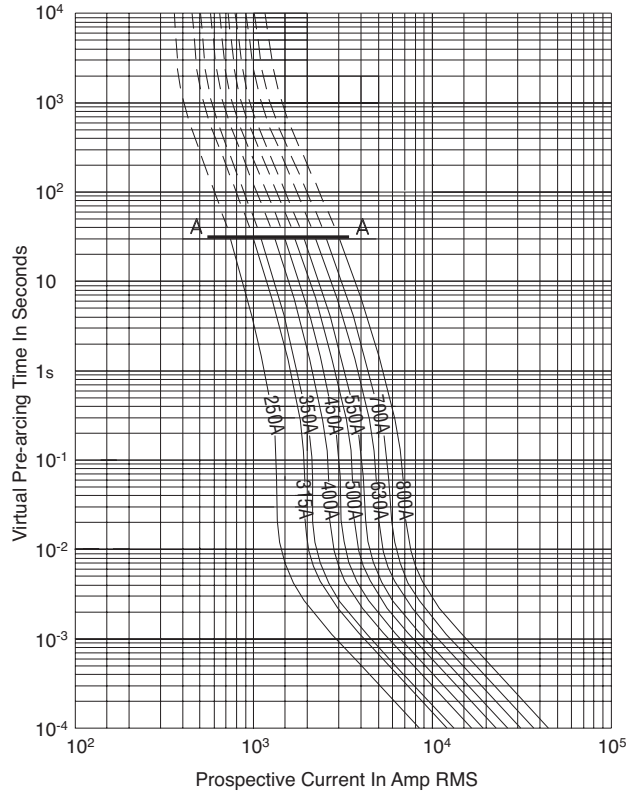


**Peak Let-Through Curve**

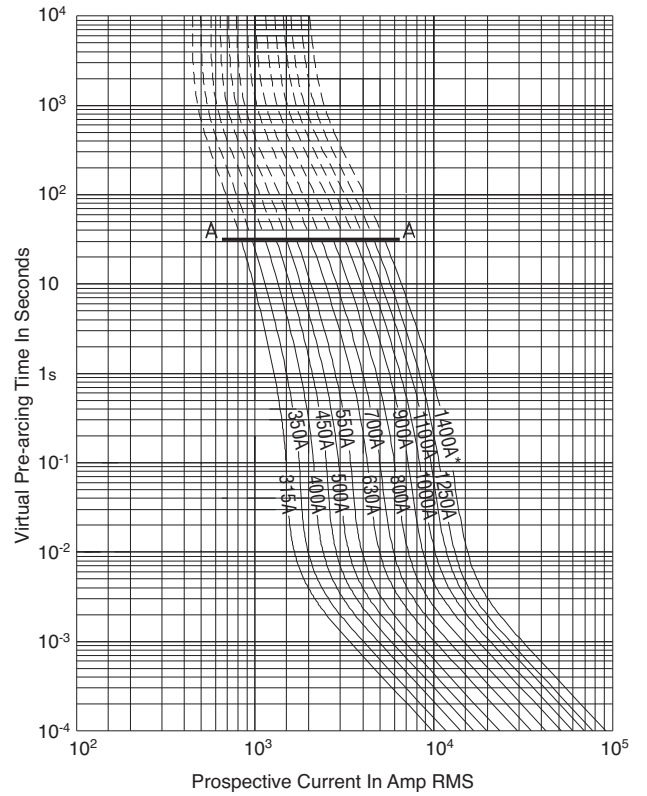


## Square Body, US style - Size 2, 3 — 1000V (IEC): 50-1400A

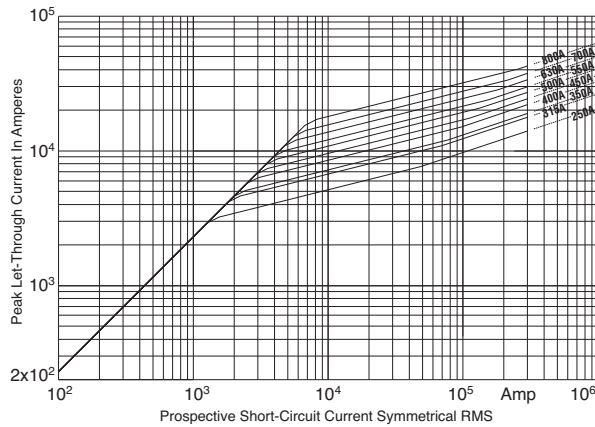
**Size 2 — 250-800A: 1000V**  
Time-Current Curve



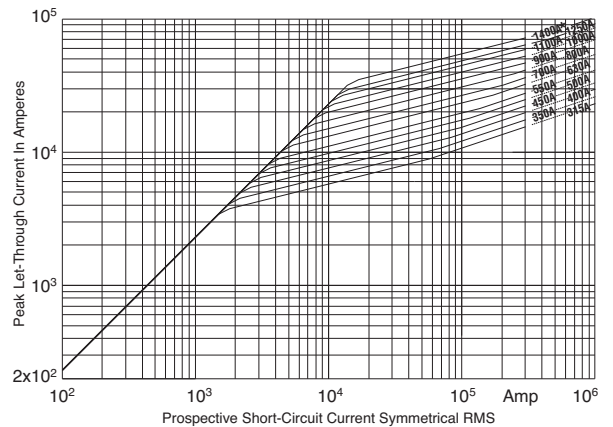
**Size 3 — 315-1400A: 1000V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



## Square Body Flush End Contact Size 4 — 1000V (IEC): 1000-2700A

### 1000V (IEC) 1000-2700A

#### Specifications

**Description:** Square body DIN 43 620 blade style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1000Vac (IEC)

Amps: — 1000-2700A

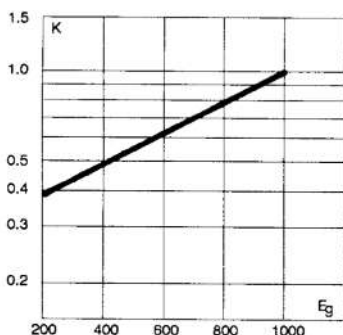
IR: — 125kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

#### Electrical Characteristics

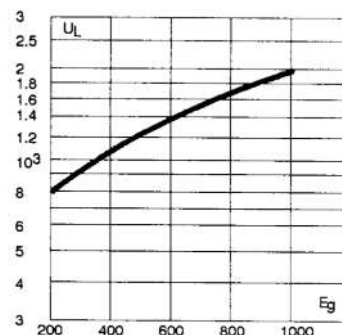
##### Total clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



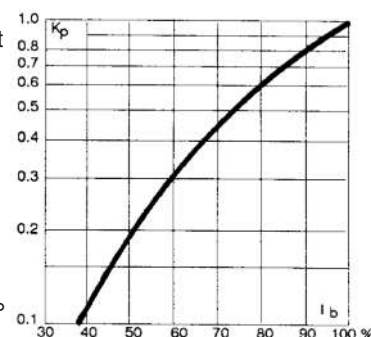
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

- See pages 163 (690V/700V) and 195 (1250V)

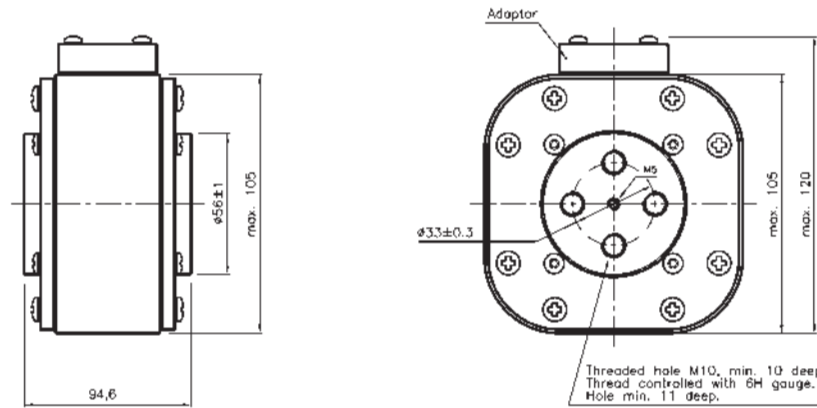
#### Catalog Numbers

| Fuse Size | Catalog Number                 |                                 | Electrical Characteristics |                             |                                       |                      |                     |
|-----------|--------------------------------|---------------------------------|----------------------------|-----------------------------|---------------------------------------|----------------------|---------------------|
|           | -BKN/95<br>Type K<br>Indicator | -SBKN/90<br>Type K<br>Indicator | Rated<br>Voltage<br>(V)    | Rated<br>Current<br>RMS-Amp | I <sup>2</sup> t (A <sup>2</sup> Sec) |                      | Watt<br>Loss<br>(W) |
|           |                                |                                 |                            |                             | Pre-arc                               | Clearing<br>at 1000V |                     |
| 4         | —                              | 170M7542                        | 1000                       | 1000                        | 180000                                | 1100000              | 195                 |
|           | —                              | 170M7031                        |                            | 1100                        | 250000                                | 1500000              | 200                 |
|           | 170M7636                       | 170M7548                        |                            | 1500                        | 600000                                | 3600000              | 250                 |
|           | 170M7639                       | 170M7034                        |                            | 1700                        | 850000                                | 5000000              | 260                 |
|           | 170M7963                       | 170M7544                        |                            | 2000                        | 1450000                               | 8600000              | 270                 |
|           | 170M7090                       | 170M7035                        |                            | 2200                        | 2000000                               | 12000000             | 280                 |
|           | 170M7640                       | 170M7036                        |                            | 2500                        | 3000000                               | 18000000             | 295                 |
|           | 170M7658                       | 170M7037                        |                            | 2700                        | 3700000                               | 22000000             | 310                 |

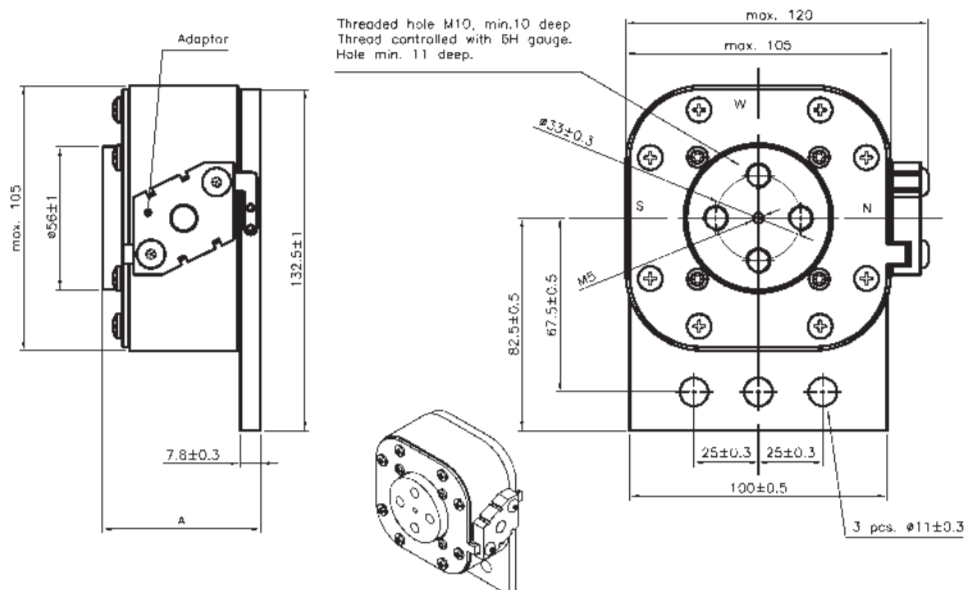
# Square Body Flush End Contact Size 4 — 1000V (IEC): 1000-2700A

## Dimensions - mm

Type 4BKN 95



Type 4SBKN 95

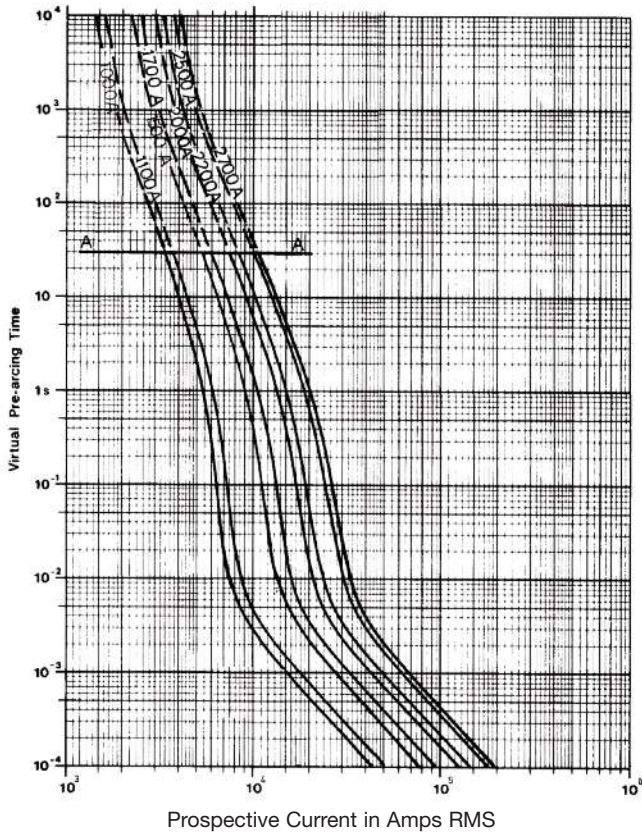


High Speed  
Fuses

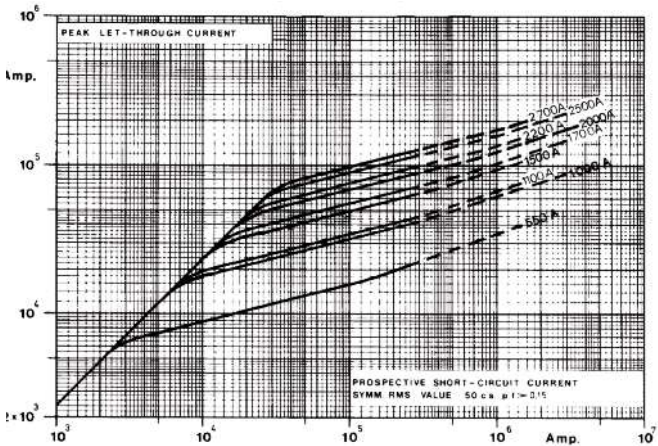


# Square Body Flush End Contact Size 4 — 1000V (IEC): 1000-2700A

Size 4 — 1000-2700A: 660V  
Time-Current Curve



## Peak Let-Through Curve



Data Sheet: Available upon request

## Square Body Flush End Contact Size 24 — 1000V (IEC): 2000-5000A

### 1000V (IEC) 2000-5000A

#### Specifications

**Description:** High speed square body fuses, for the protection of the power rectifier section of the equipment.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1000Vac

Amps: — 2000-5000A

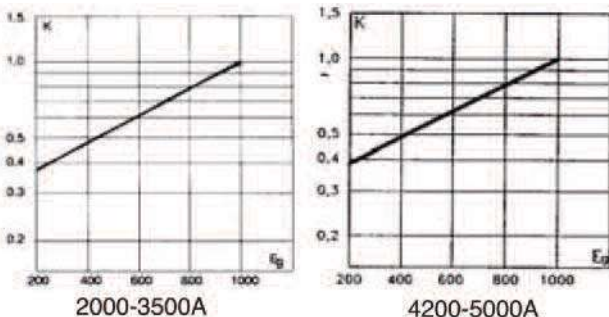
IR: — 300kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.



#### Electrical Characteristics

##### Total clearing $I^2t$



The total clearing  $I^2t$  at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing  $I^2t$  is found by multiplying by correction factor, K, given as a function of applied working voltage,  $E_g$ , (rms).

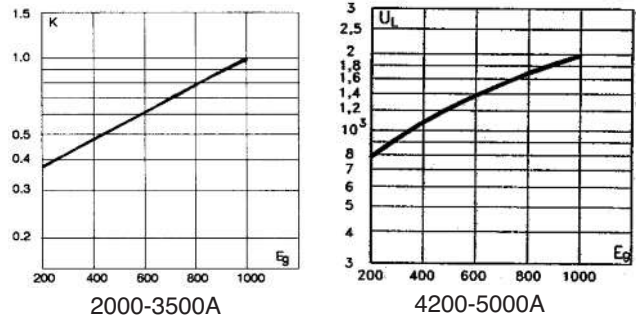
#### Features and Benefits

- Low watts loss
- Superior cycling capability

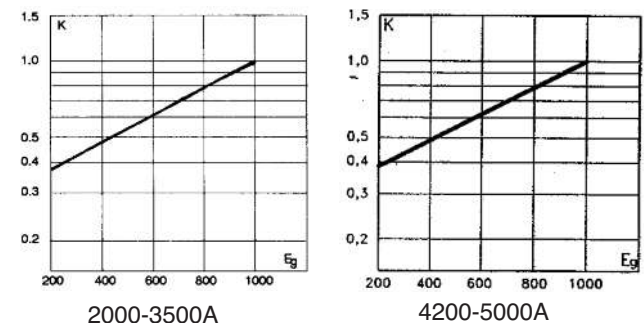
#### Typical Applications

- Power converters/rectifiers
- Reduced voltage starters

#### Arc Voltage



This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage  $E_g$ , (rms) at a power factor of 15%.



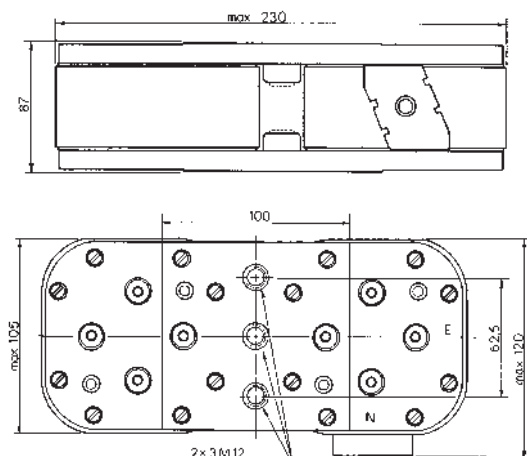
#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_D$ , is given as a function of the RMS load current,  $I_D$ , in % of the rated current.

#### For Other Voltage Ratings in This Body Style

- See pages 165 (660V) and 198 (1250V)

#### Dimensions - mm



#### Catalog Numbers

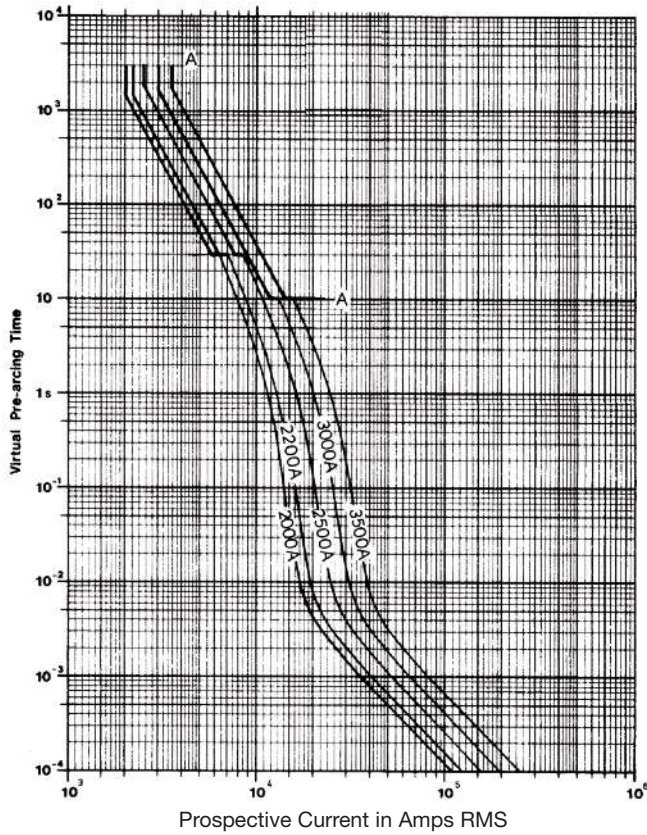
| Fuse Size | Cat. Number | Electrical Characteristics |                       |                             |                   |               |
|-----------|-------------|----------------------------|-----------------------|-----------------------------|-------------------|---------------|
|           |             | Rated Voltage (V)          | Rated Current RMS-Amp | $I^2t$ (A <sup>2</sup> Sec) |                   | Watt Loss (W) |
|           |             |                            |                       | Pre-arc                     | Clearing at 1000V |               |
| 24        | 170M7608    | 1000                       | 2000                  | 885000                      | 5700000           | 345           |
|           | 170M7680    |                            | 3000                  | 2900000                     | 19000000          | 430           |
|           | 170M7567    |                            | 3200                  | 3300000                     | 20000000          | 440           |
|           | 170M7568    |                            | 3500                  | 4500000                     | 27000000          | 450           |
|           | 170M7569    |                            | 4000                  | 6800000                     | 40000000          | 475           |
|           | 170M7498    |                            | 4200                  | 8000000                     | 47500000          | 485           |
|           | 170M7488    |                            | 4500                  | 10000000                    | 59000000          | 495           |
|           | 170M7622    |                            | 5000                  | 14000000                    | 82500000          | 540           |

Data Sheet: 170K7540, 170K8514

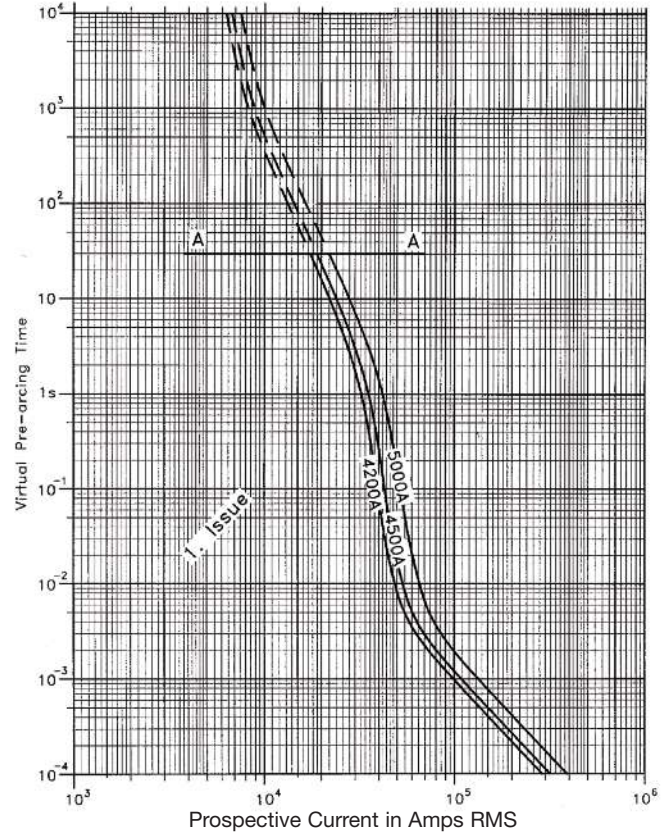


# Square Body Flush End Contact Size 24 — 1000V (IEC): 2000-5000A

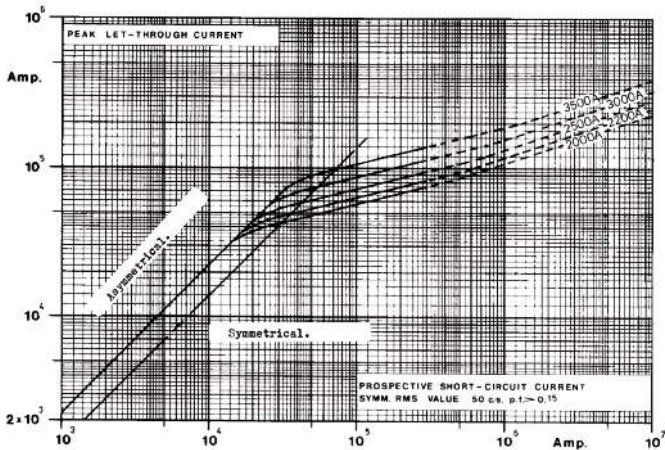
**Size 24 — 2000-3500A: 1000V**  
Time-Current Curve



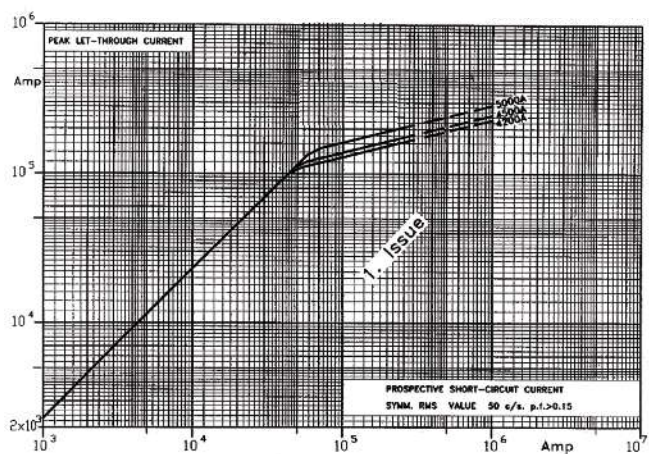
**Size 24 — 4200-5000A: 1000V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



Data Sheet: Available upon request

Data Sheet: Available upon request

## Square Body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

### 1250V/1300V (IEC/UL) 50-1400A

#### Specifications

**Description:** Square body DIN 43 653 stud-mount high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1250Vac (IEC)  
— 1300Vac (UL)

Amps: — 50-1400A

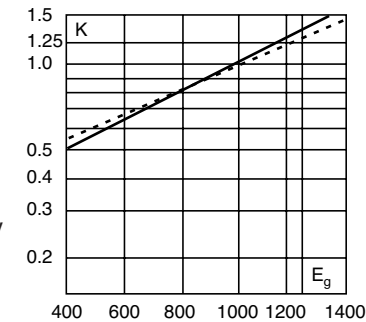
IR: — 100kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



Dashed lines (-----) apply to the following amperages:

| Size | Amps.     |
|------|-----------|
| 1*   | 400A      |
| 1    | 500-630A  |
| 2    | 630-1000A |
| 3    | 800-1400A |

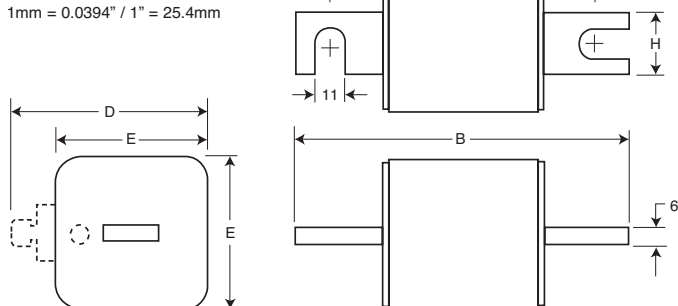
#### Dimensions - mm

Type -/110, -TN/110

| Size | A  | B   | D** | E  | H  |
|------|----|-----|-----|----|----|
| 1*   | 80 | 138 | 58  | 45 | 20 |
| 1    | 80 | 138 | 66  | 53 | 25 |
| 2    | 80 | 138 | 75  | 61 | 25 |
| 3    | 81 | 139 | 90  | 76 | 30 |

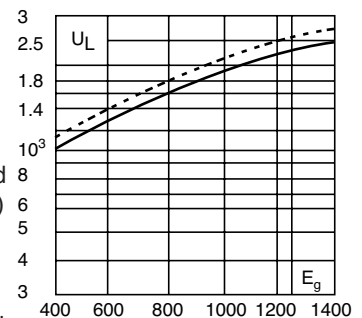
\*\*Microswitch.

1mm = 0.0394" / 1" = 25.4mm



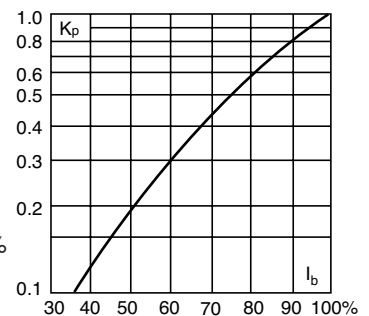
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

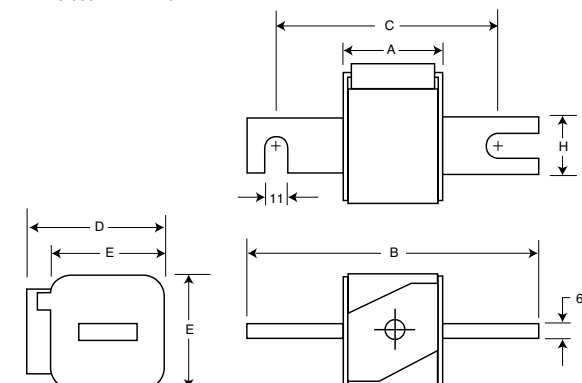
#### For Other Voltage Ratings in This Body Style

- See pages 150 (690V/700V) and 176 (1000V)

Type -KN/110

| Size | A  | B   | D  | E  | H  |
|------|----|-----|----|----|----|
| 1*   | 80 | 138 | 58 | 45 | 20 |
| 1    | 80 | 138 | 66 | 53 | 25 |
| 2    | 80 | 138 | 75 | 61 | 25 |
| 3    | 81 | 139 | 90 | 76 | 30 |

1mm = 0.0394" / 1" = 25.4mm



## Square Body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

### Catalog Numbers

| Catalog Numbers        |                                    |                                    | Size  | Electrical Characteristics |                                       |                   |                   | Watts Loss |
|------------------------|------------------------------------|------------------------------------|-------|----------------------------|---------------------------------------|-------------------|-------------------|------------|
| -/110 Visual Indicator | -TN/110 Type T Indicator for Micro | -KN/110 Type K Indicator for Micro |       | Rated Current RMS-Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |                   |                   |            |
|                        |                                    |                                    |       |                            | Pre-arc                               | Clearing at 1000V | Clearing at 1250V |            |
| 170M3138               | 170M3188                           | 170M3238                           | 1*    | 50                         | 135                                   | 815               | 1100              | 15         |
| 170M3139               | 170M3189                           | 170M3239                           |       | 63                         | 215                                   | 1300              | 1750              | 20         |
| 170M3140               | 170M3190                           | 170M3240                           |       | 80                         | 420                                   | 2500              | 3350              | 25         |
| 170M3141               | 170M3191                           | 170M3241                           |       | 100                        | 750                                   | 4450              | 5950              | 30         |
| 170M3142               | 170M3192                           | 170M3242                           |       | 125                        | 1450                                  | 9000              | 11500             | 35         |
| 170M3143               | 170M3193                           | 170M3243                           |       | 160                        | 2600                                  | 16000             | 21000             | 40         |
| 170M3144               | 170M3194                           | 170M3244                           |       | 200                        | 5150                                  | 31000             | 41000             | 45         |
| 170M3145               | 170M3195                           | 170M3245                           |       | 250                        | 9200                                  | 54500             | 73000             | 55         |
| 170M3146               | 170M3196                           | 170M3246                           |       | 315                        | 18500                                 | 115000            | 150000            | 60         |
| 170M3147               | 170M3197                           | 170M3247                           |       | 350                        | 27000                                 | 165000            | 220000            | 65         |
| 170M3148               | 170M3198                           | 170M3248                           | 400   | 53000                      | 265000                                | 335000            | 70                |            |
| 170M4138               | 170M4188                           | 170M4238                           | 1     | 160                        | 1900                                  | 11500             | 15500             | 45         |
| 170M4139               | 170M4189                           | 170M4239                           |       | 200                        | 3800                                  | 22500             | 30000             | 50         |
| 170M4140               | 170M4190                           | 170M4240                           |       | 250                        | 7750                                  | 46000             | 61500             | 60         |
| 170M4141               | 170M4191                           | 170M4241                           |       | 315                        | 15000                                 | 90000             | 120000            | 65         |
| 170M4142               | 170M4192                           | 170M4242                           |       | 350                        | 20000                                 | 125000            | 165000            | 70         |
| 170M4143               | 170M4193                           | 170M4243                           |       | 400                        | 29500                                 | 175000            | 235000            | 75         |
| 170M4144               | 170M4194                           | 170M4244                           |       | 450                        | 42000                                 | 250000            | 335000            | 80         |
| 170M4145               | 170M4195                           | 170M4245                           |       | 500                        | 69500                                 | 340000            | 435000            | 85         |
| 170M4146               | 170M4196                           | 170M4246                           |       | 550                        | 95000                                 | 465000            | 590000            | 95         |
| 170M4147               | 170M4197                           | 170M4247                           |       | 630†                       | 130000                                | 660000            |                   | 100        |
| 170M5138               | 170M5188                           | 170M5238                           | 2     | 250                        | 6500                                  | 38500             | 51500             | 65         |
| 170M5139               | 170M5189                           | 170M5239                           |       | 280                        | 9350                                  | 55500             | 74500             | 70         |
| 170M5140               | 170M5190                           | 170M5240                           |       | 315                        | 13000                                 | 77500             | 105000            | 75         |
| 170M5141               | 170M5191                           | 170M5241                           |       | 350                        | 16500                                 | 97500             | 135000            | 80         |
| 170M5142               | 170M5192                           | 170M5242                           |       | 400                        | 23000                                 | 140000            | 180000            | 85         |
| 170M5143               | 170M5193                           | 170M5243                           |       | 450                        | 34000                                 | 205000            | 270000            | 90         |
| 170M5144               | 170M5194                           | 170M5244                           |       | 500                        | 48000                                 | 285000            | 380000            | 95         |
| 170M5145               | 170M5195                           | 170M5245                           |       | 550                        | 62000                                 | 370000            | 495000            | 100        |
| 170M5146               | 170M5196                           | 170M5246                           |       | 630                        | 115000                                | 575000            | 730000            | 110        |
| 170M5147               | 170M5197                           | 170M5247                           |       | 700                        | 160000                                | 795000            | 1050000           | 115        |
| 170M5148               | 170M5198                           | 170M5248                           | 800   | 245000                     | 1200000                               | 1550000           | 120               |            |
| 170M5149               | 170M5199                           | 170M5249                           | 900‡  | 360000                     | 1750000                               |                   | 125               |            |
| 170M5150               | 170M5200                           | 170M5250                           | 1000‡ | 480000                     | 2350000                               |                   | 135               |            |
| 170M6138               | 170M6188                           | 170M6238                           | 3     | 315                        | 9500                                  | 58000             | 77500             | 85         |
| 170M6139               | 170M6189                           | 170M6239                           |       | 350                        | 13500                                 | 81500             | 110000            | 90         |
| 170M6140               | 170M6190                           | 170M6240                           |       | 400                        | 19500                                 | 120000            | 160000            | 95         |
| 170M6141               | 170M6191                           | 170M6241                           |       | 450                        | 31000                                 | 185000            | 245000            | 100        |
| 170M6142               | 170M6192                           | 170M6242                           |       | 500                        | 39000                                 | 235000            | 310000            | 105        |
| 170M6143               | 170M6193                           | 170M6243                           |       | 550                        | 55000                                 | 325000            | 435000            | 110        |
| 170M6144               | 170M6194                           | 170M6244                           |       | 630                        | 83500                                 | 495000            | 665000            | 115        |
| 170M6145               | 170M6195                           | 170M6245                           |       | 700                        | 115000                                | 705000            | 940000            | 120        |
| 170M6146               | 170M6196                           | 170M6246                           |       | 800‡                       | 205000                                | 995000            | 1300000           | 125        |
| 170M6147               | 170M6197                           | 170M6247                           |       | 900‡                       | 305000                                | 1500000           | 1900000           | 130        |
| 170M6148               | 170M6198                           | 170M6248                           | 1000‡ | 450000                     | 2150000                               | 2750000           | 135               |            |
| 170M6149               | 170M6199                           | 170M6249                           | 1100‡ | 575000                     | 2800000                               | 3600000           | 140               |            |
| 170M6150               | 170M6200                           | 170M6250                           | 1250‡ | 810000                     | 3950000                               |                   | 145               |            |
| 170M6151               | 170M6201                           | 170M6251                           | 1400‡ | 1250000                    | 6000000                               |                   | 150               |            |

†Rated voltage (IEC) 1100V.

‡Rated voltage (IEC) 1250V.

• Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 212-213.

• For fuse curves see pages 193 and 194.



## Square Body Flush End Contact — 1250V/1300V (IEC/UL): 50-1400A

### 1250V/1300V (IEC/UL) 50-1400A

#### Specifications

**Description:** Square body flush end contact high speed fuses.

**Dimensions:** See dimensions illustrations.

#### Ratings:

Volts: — 1250Vac (IEC)  
— 1300Vac (UL)

Amps: — 50-1400A

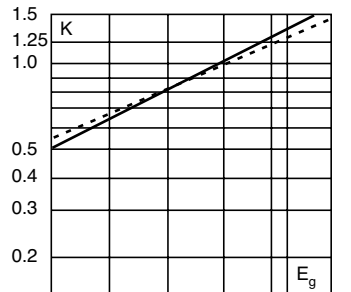
IR: — 100kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



Dashed lines (---) apply to the following amperages:.

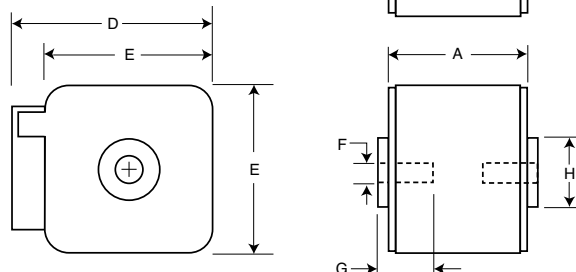
| Size | Amps.     |
|------|-----------|
| 1*   | 400A      |
| 1    | 500-630A  |
| 2    | 630-1000A |
| 3    | 800-1400A |

#### Dimensions - mm

Type -BKN/-, -GKN/-

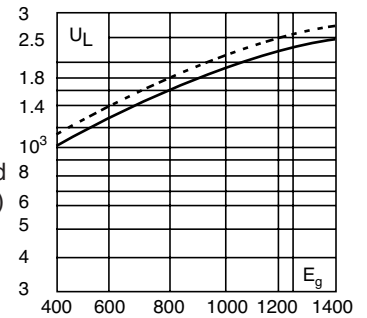
| Size | Type         | A  | B  | D  | E  | F   | F** (in)          | G  | H   |
|------|--------------|----|----|----|----|-----|-------------------|----|-----|
| 1*   | BKN + GKN/75 | 74 | 75 | 59 | 45 | M8  | 5/16" - 18 UNC-2B | 5  | Ø17 |
| 1*   | BKN/80       | 80 | 81 | 59 | 45 | M8  |                   | 5  | Ø17 |
| 1    | BKN + GKN/75 | 74 | 75 | 69 | 53 | M8  | 5/16" - 18 UNC-2B | 8  | Ø20 |
| 1    | BKN/80       | 80 | 81 | 69 | 53 | M8  |                   | 8  | Ø20 |
| 2    | BKN + GKN/75 | 74 | 75 | 77 | 61 | M10 | 3/8" - 16 UNC-2B  | 10 | Ø24 |
| 2    | BKN/80       | 80 | 81 | 77 | 61 | M10 |                   | 10 | Ø24 |
| 2    | BKN + GKN/90 | 80 | 91 | 77 | 61 | M10 | 3/8" - 16 UNC-2B  | 10 | Ø24 |
| 3    | BKN + GKN/75 | 74 | 76 | 92 | 76 | M12 | 1/2" - 13 UNC-2B  | 10 | Ø30 |
| 3    | BKN/80       | 81 | 83 | 92 | 76 | M12 |                   | 10 | Ø30 |
| 3    | BKN + GKN/90 | 81 | 91 | 92 | 76 | M12 | 1/2" - 13 UNC-2B  | 10 | Ø30 |

\*\*Valid for fuses type -GKN/-.  
1mm = 0.0394" / 1" = 25.4mm



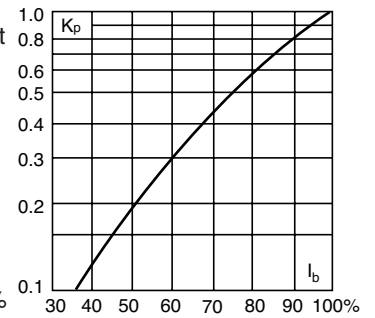
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

- See pages 152 (690V/700V) and 176 (1000V)

# Square Body Flush End Contact — 1250V/1300V (IEC/UL): 50-1400A

## Catalog Numbers

| Catalog Numbers                             |   |   |   |   | Electrical Characteristics |                                  |                                       |                      |                      |               |
|---|---|---|---|---|----------------------------|----------------------------------|---------------------------------------|----------------------|----------------------|---------------|
| -BKN/75<br>Type K<br>Indicator<br>for Micro | -BKN/80<br>Type K<br>Indicator<br>for Micro | -BKN/90<br>Type K<br>Indicator<br>for Micro | -GKN/75<br>Type K<br>Indicator<br>for Micro | -GKN/90<br>Type K<br>Indicator<br>for Micro | Size                       | Rated<br>Current<br>RMS-<br>Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |                      |                      | Watts<br>Loss |
|   |   |   |   |   |                            |                                  | Pre-arc                               | Clearing<br>at 1000V | Clearing<br>at 1250V |               |
| 170M3388                                    | 170M3438                                    |   | 170M3488                                    |   | 1*                         | 50                               | 135                                   | 815                  | 1100                 | 15            |
| 170M3389                                    | 170M3439                                    |   | 170M3489                                    |   |                            | 63                               | 215                                   | 1300                 | 1750                 | 20            |
| 170M3390                                    | 170M3440                                    |   | 170M3490                                    |   |                            | 80                               | 420                                   | 2500                 | 3350                 | 25            |
| 170M3391                                    | 170M3441                                    |   | 170M3491                                    |   |                            | 100                              | 750                                   | 4450                 | 5950                 | 30            |
| 170M3392                                    | 170M3442                                    |   | 170M3492                                    |   |                            | 125                              | 1450                                  | 9000                 | 11500                | 35            |
| 170M3393                                    | 170M3443                                    |   | 170M3493                                    |   |                            | 160                              | 2600                                  | 16000                | 21000                | 40            |
| 170M3394                                    | 170M3444                                    |   | 170M3494                                    |   |                            | 200                              | 5150                                  | 31000                | 41000                | 45            |
| 170M3395                                    | 170M3445                                    |   | 170M3495                                    |   |                            | 250                              | 9200                                  | 54500                | 73000                | 55            |
| 170M3396                                    | 170M3446                                    |   | 170M3496                                    |   |                            | 315                              | 18500                                 | 115000               | 150000               | 60            |
| 170M3397                                    | 170M3447                                    |   | 170M3497                                    |   |                            | 350                              | 27000                                 | 165000               | 220000               | 65            |
|   | 170M3448                                    |   |   |   | 400                        | 53000                            | 265000                                | 335000               | 70                   |               |
| 170M4388                                    | 170M4438                                    |   | 170M4488                                    |   | 1                          | 160                              | 1900                                  | 11500                | 15500                | 45            |
| 170M4389                                    | 170M4439                                    |   | 170M4489                                    |   |                            | 200                              | 3800                                  | 22500                | 30000                | 50            |
| 170M4390                                    | 170M4440                                    |   | 170M4490                                    |   |                            | 250                              | 7750                                  | 46000                | 61500                | 60            |
| 170M4391                                    | 170M4441                                    |   | 170M4491                                    |   |                            | 315                              | 15000                                 | 90000                | 120000               | 65            |
| 170M4392                                    | 170M4442                                    |   | 170M4492                                    |   |                            | 350                              | 20000                                 | 125000               | 165000               | 70            |
| 170M4393                                    | 170M4443                                    |   | 170M4493                                    |   |                            | 400                              | 29500                                 | 175000               | 235000               | 75            |
| 170M4394                                    | 170M4444                                    |   | 170M4494                                    |   |                            | 450                              | 42000                                 | 250000               | 335000               | 80            |
| 170M4395†                                   | 170M4445                                    |   | 170M4495†                                   |   |                            | 500                              | 69500                                 | 340000               | 435000               | 85            |
| 170M4396‡                                   | 170M4446                                    |   | 170M4496‡                                   |   |                            | 550                              | 95000                                 | 465000               | 590000               | 95            |
| 170M4397‡                                   | 170M4447‡                                   |   | 170M4497‡                                   |   |                            | 630                              | 130000                                | 660000               |                      | 100           |
| 170M5388                                    | 170M5438                                    |   | 170M5588                                    |   | 2                          | 250                              | 6500                                  | 38500                | 51500                | 65            |
| 170M5389                                    | 170M5439                                    |   | 170M5589                                    |   |                            | 280                              | 9350                                  | 55500                | 74500                | 70            |
| 170M5390                                    | 170M5440                                    |   | 170M5590                                    |   |                            | 315                              | 13000                                 | 77500                | 105000               | 75            |
| 170M5391                                    | 170M5441                                    |   | 170M5591                                    |   |                            | 350                              | 16500                                 | 97500                | 135000               | 80            |
| 170M5392                                    | 170M5442                                    |   | 170M5592                                    |   |                            | 400                              | 23000                                 | 140000               | 180000               | 85            |
| 170M5393                                    | 170M5443                                    |   | 170M5593                                    |   |                            | 450                              | 34000                                 | 205000               | 270000               | 90            |
| 170M5394                                    | 170M5444                                    | 170M5494                                    | 170M5594                                    | 170M5644                                    |                            | 500                              | 48000                                 | 285000               | 380000               | 95            |
| 170M5395                                    | 170M5445                                    | 170M5495                                    | 170M5595                                    | 170M5645                                    |                            | 550                              | 62000                                 | 370000               | 495000               | 100           |
| 170M5396†                                   | 170M5446                                    | 170M5496                                    | 170M5596†                                   | 170M5646                                    |                            | 630                              | 115000                                | 575000               | 730000               | 110           |
| 170M5397‡                                   | 170M5447‡                                   | 170M5497                                    | 170M5597‡                                   | 170M5647                                    |                            | 700                              | 160000                                | 795000               | 1050000              | 115           |
| 170M5398‡                                   | 170M5448‡                                   | 170M5498                                    | 170M5598‡                                   | 170M5648                                    | 800                        | 245000                           | 1200000                               | 1550000              | 120                  |               |
|   |   | 170M5499                                    |   | 170M5649                                    | 900†                       | 360000                           | 1750000                               |                      | 125                  |               |
|   |   | 170M5500                                    |   | 170M5650                                    | 1000†                      | 480000                           | 2350000                               |                      | 135                  |               |
| 170M6338                                    | 170M6538                                    |   | 170M6588                                    |   | 3                          | 315                              | 9500                                  | 58000                | 77500                | 85            |
| 170M6339                                    | 170M6539                                    |   | 170M6589                                    |   |                            | 350                              | 13500                                 | 81500                | 110000               | 90            |
| 170M6340                                    | 170M6540                                    |   | 170M6590                                    |   |                            | 400                              | 19500                                 | 120000               | 160000               | 95            |
| 170M6341                                    | 170M6541                                    |   | 170M6591                                    |   |                            | 450                              | 31000                                 | 185000               | 245000               | 100           |
| 170M6342                                    | 170M6542                                    |   | 170M6592                                    |   |                            | 500                              | 39000                                 | 235000               | 310000               | 105           |
| 170M6343                                    | 170M6543                                    |   | 170M6593                                    |   |                            | 550                              | 55000                                 | 325000               | 435000               | 110           |
| 170M6344                                    | 170M6544                                    | 170M6494                                    | 170M6594                                    | 170M6644                                    |                            | 630                              | 83500                                 | 495000               | 665000               | 115           |
| 170M6345                                    | 170M6545                                    | 170M6495                                    | 170M6595                                    | 170M6645                                    |                            | 700                              | 115000                                | 705000               | 940000               | 120           |
| 170M6346†                                   | 170M6546                                    | 170M6496¥                                   | 170M6596†                                   | 170M6646¥                                   |                            | 800                              | 205000                                | 995000               | 1300000              | 125           |
| 170M6347‡                                   | 170M6547‡                                   | 170M6497¥                                   | 170M6597‡                                   | 170M6647¥                                   |                            | 900                              | 305000                                | 1500000              | 1900000              | 130           |
| 170M6348‡                                   | 170M6548‡                                   | 170M6498¥                                   | 170M6598‡                                   | 170M6648¥                                   | 1000                       | 450000                           | 2150000                               | 2750000              | 135                  |               |
| 170M6349‡                                   | 170M6549‡                                   | 170M6499¥                                   | 170M6599‡                                   | 170M6649¥                                   | 1100                       | 575000                           | 2800000                               | 3600000              | 140                  |               |
|   |   | 170M6500                                    |   | 170M6650                                    | 1250†                      | 810000                           | 3950000                               |                      | 145                  |               |
|   |   | 170M6501                                    |   | 170M6651                                    | 1400†                      | 1250000                          | 6000000                               |                      | 150                  |               |

†Rated voltage (IEC) 1100V.

‡Rated voltage (IEC) 1000V.

¥Rated voltage (IEC) 1250V.

• Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 212-213.

• For fuse curves see pages 193 and 194.

## Square Body US Style — 1250V/1300V (IEC/UL): 50-1400A

### 1250V/1300V (IEC/UL) 50-1400A

#### Specifications

**Description:** Square body US style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1250Vac (IEC)  
— 1300Vac (UL)

Amps: — 50-1400A

IR: — 100kA RMS Sym.

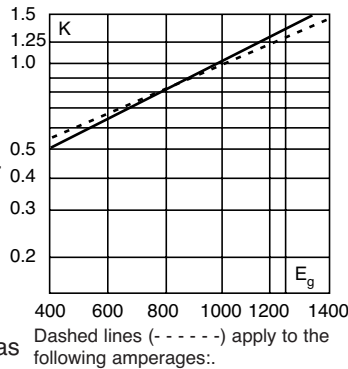
**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.



#### Electrical Characteristics

#### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



| Size | Amps.     |
|------|-----------|
| 1*   | 400A      |
| 1    | 500-630A  |
| 2    | 630-1000A |
| 3    | 800-1400A |

#### Dimensions - mm

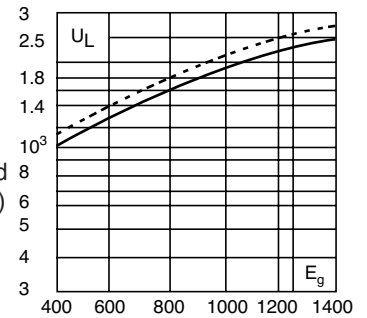
Type -FU/115, -FKE/115

| Size | B   | C1  | C2  | D  | E  | H  | I  |
|------|-----|-----|-----|----|----|----|----|
| 1*   | 156 | 130 | 101 | 59 | 45 | 20 | 10 |
| 1    | 160 | 127 | 102 | 69 | 53 | 25 | 14 |
| 2    | 160 | 127 | 102 | 77 | 61 | 25 | 14 |
| 3    | 159 | 128 | 101 | 92 | 76 | 36 | 16 |

1mm = 0.0394" / 1" = 25.4mm

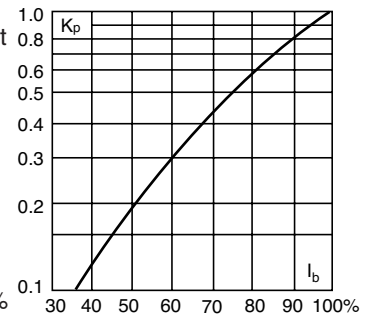
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

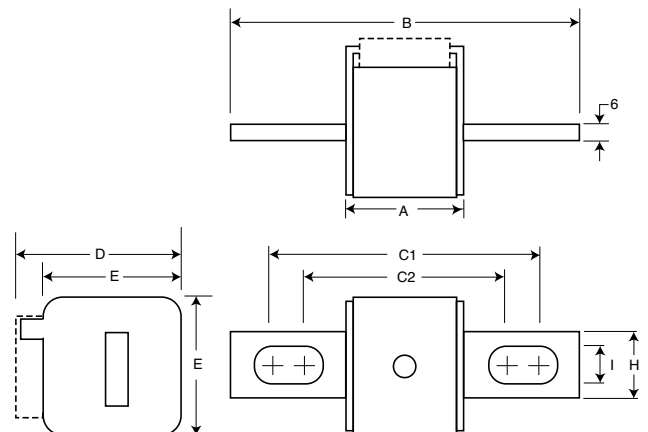
- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

- See pages 153 (690V/700V) and 178 (1000V)



## Square Body US Style — 1250V/1300V (IEC/UL): 50-1400A

### Catalog Numbers

| Catalog Numbers           |                                     | Size  | Electrical Characteristics |                                       |                   |                   |            |
|---------------------------|-------------------------------------|-------|----------------------------|---------------------------------------|-------------------|-------------------|------------|
| -FU/115 Without Indicator | -FKE/115 Type K Indicator for Micro |       | Rated Current RMS-Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |                   |                   | Watts Loss |
|                           |                                     |       |                            | Pre-arc                               | Clearing at 1000V | Clearing at 1250V |            |
| 170M3688                  | 170M3738                            | 1*    | 50                         | 135                                   | 815               | 1100              | 15         |
| 170M3689                  | 170M3739                            |       | 63                         | 215                                   | 1300              | 1750              | 20         |
| 170M3690                  | 170M3740                            |       | 80                         | 420                                   | 2500              | 3350              | 25         |
| 170M3691                  | 170M3741                            |       | 100                        | 750                                   | 4450              | 5950              | 30         |
| 170M3692                  | 170M3742                            |       | 125                        | 1450                                  | 9000              | 11500             | 35         |
| 170M3693                  | 170M3743                            |       | 160                        | 2600                                  | 16000             | 21000             | 40         |
| 170M3694                  | 170M3744                            |       | 200                        | 5150                                  | 31000             | 41000             | 45         |
| 170M3695                  | 170M3745                            |       | 250                        | 9200                                  | 54500             | 73000             | 55         |
| 170M3696                  | 170M3746                            |       | 315                        | 18500                                 | 115000            | 150000            | 60         |
| 170M3697                  | 170M3747                            |       | 350                        | 27000                                 | 165000            | 220000            | 65         |
| 170M4688                  | 170M4738                            | 1     | 160                        | 1900                                  | 11500             | 15500             | 45         |
| 170M4689                  | 170M4739                            |       | 200                        | 3800                                  | 22500             | 30000             | 50         |
| 170M4690                  | 170M4740                            |       | 250                        | 7750                                  | 46000             | 61500             | 60         |
| 170M4691                  | 170M4741                            |       | 315                        | 15000                                 | 90000             | 120000            | 65         |
| 170M4692                  | 170M4742                            |       | 350                        | 20000                                 | 125000            | 165000            | 70         |
| 170M4693                  | 170M4743                            |       | 400                        | 29500                                 | 175000            | 235000            | 75         |
| 170M4694                  | 170M4744                            |       | 450                        | 42000                                 | 250000            | 335000            | 80         |
| 170M4695                  | 170M4745                            |       | 500†                       | 69500                                 | 340000            |                   | 85         |
| 170M4696                  | 170M4746                            |       | 550‡                       | 95000                                 | 465000            |                   | 95         |
| 170M4697                  | 170M4747                            |       | 630‡                       | 130000                                | 660000            |                   | 100        |
| 170M5688                  | 170M5738                            | 2     | 250                        | 6500                                  | 38500             | 51500             | 65         |
| 170M5689                  | 170M5739                            |       | 280                        | 9350                                  | 55500             | 74500             | 70         |
| 170M5690                  | 170M5740                            |       | 315                        | 13000                                 | 77500             | 105000            | 75         |
| 170M5691                  | 170M5741                            |       | 350                        | 16500                                 | 97500             | 135000            | 80         |
| 170M5692                  | 170M5742                            |       | 400                        | 23000                                 | 140000            | 180000            | 85         |
| 170M5693                  | 170M5743                            |       | 450                        | 34000                                 | 205000            | 270000            | 90         |
| 170M5694                  | 170M5744                            |       | 500                        | 48000                                 | 285000            | 380000            | 95         |
| 170M5695                  | 170M5745                            |       | 550                        | 62000                                 | 370000            | 495000            | 100        |
| 170M5696                  | 170M5746                            |       | 630                        | 115000                                | 575000            | 730000            | 110        |
| 170M5697                  | 170M5747                            |       | 700‡                       | 160000                                | 795000            |                   | 115        |
| 170M5698                  | 170M5748                            | 800‡  | 245000                     | 1200000                               |                   | 120               |            |
| 170M5699                  | 170M5749                            | 900‡  | 360000                     | 1750000                               |                   | 125               |            |
| 170M5700                  | 170M5750                            | 1000‡ | 480000                     | 2350000                               |                   | 135               |            |
| 170M6688                  | 170M6738                            | 3     | 315                        | 9500                                  | 58000             | 77500             | 185        |
| 170M6689                  | 170M6739                            |       | 350                        | 13500                                 | 81500             | 110000            | 90         |
| 170M6690                  | 170M6740                            |       | 400                        | 19500                                 | 120000            | 160000            | 95         |
| 170M6691                  | 170M6741                            |       | 450                        | 31000                                 | 185000            | 245000            | 100        |
| 170M6692                  | 170M6742                            |       | 500                        | 39000                                 | 235000            | 310000            | 105        |
| 170M6693                  | 170M6743                            |       | 550                        | 55000                                 | 325000            | 435000            | 110        |
| 170M6694                  | 170M6744                            |       | 630                        | 83500                                 | 495000            | 665000            | 115        |
| 170M6695                  | 170M6745                            |       | 700                        | 115000                                | 705000            | 940000            | 120        |
| 170M6696                  | 170M6746                            |       | 800                        | 205000                                | 995000            | 1300000           | 125        |
| 170M6697                  | 170M6747                            |       | 900                        | 305000                                | 1500000           | 1900000           | 130        |
| 170M6698†                 | 170M6748†                           | 1000¥ | 450000                     | 2150000                               |                   | 135               |            |
| 170M6699†                 | 170M6749†                           | 1100¥ | 575000                     | 2800000                               |                   | 140               |            |
| 170M6700‡                 | 170M6750‡                           | 1250¥ | 810000                     | 3950000                               |                   | 145               |            |
| 170M6701‡                 | 170M6751‡                           | 1400¥ | 1250000                    | 6000000                               |                   | 150               |            |

†Rated voltage (IEC) 1100.

‡Rated voltage (IEC) 1000V.

¥ UL Recognition at 1000V.

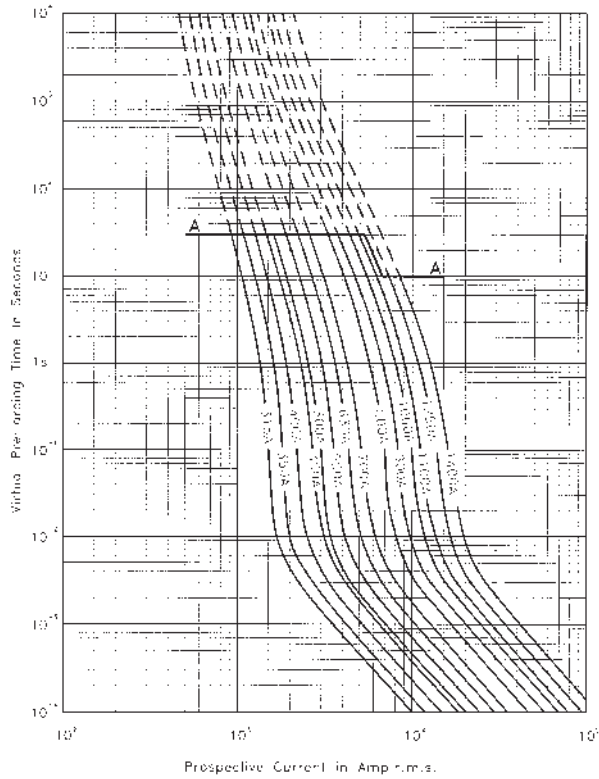
• Watts loss provided at rated current.

• Microswitch indicator ordered separately. See accessories on pages 212-213.

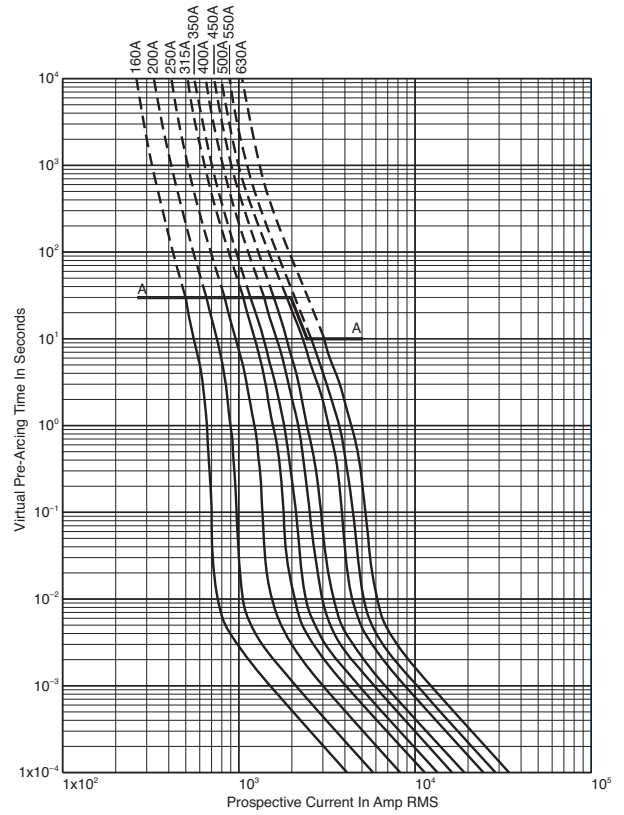
• For fuse curves see pages 193 and 194.

## Square Body Size 1\*, 1 — 1250V/1300V (IEC/UL): 50-1400A

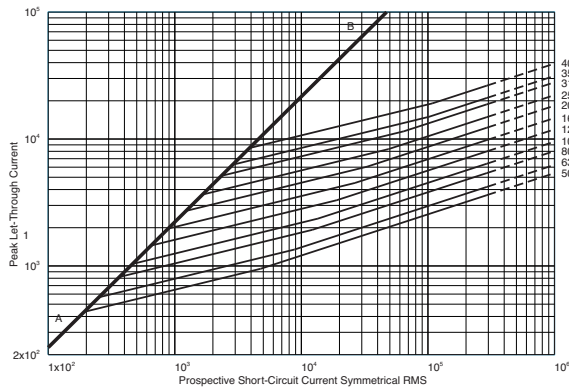
**Size 1\* — 50-400A:1250V**  
Time-Current Curve



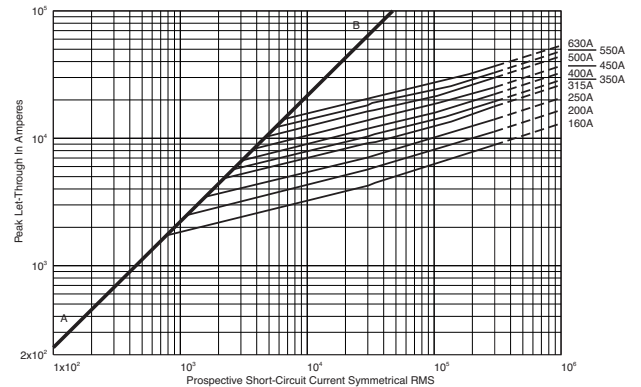
**Size 1 — 160-630A: 1250V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**

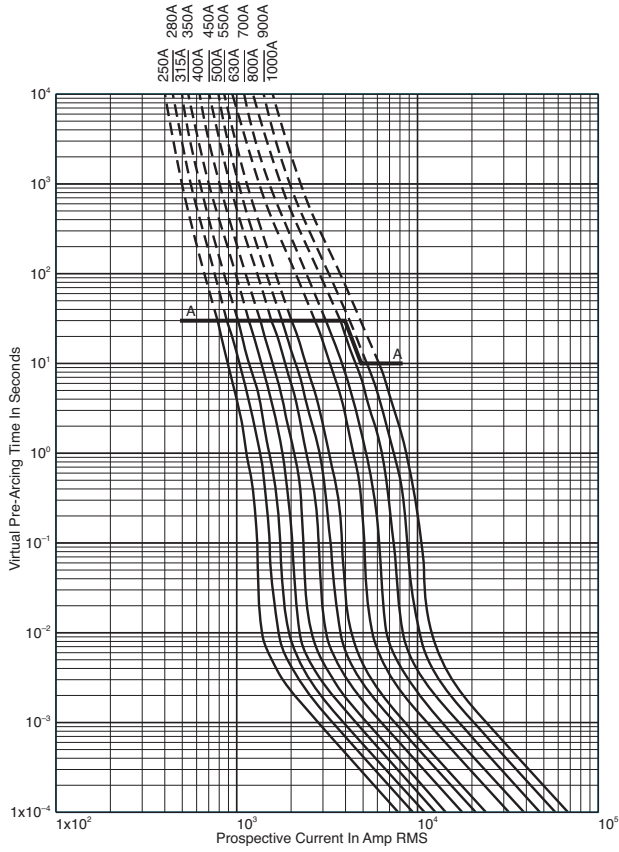


630A fuse is derated to 1100V (IEC).

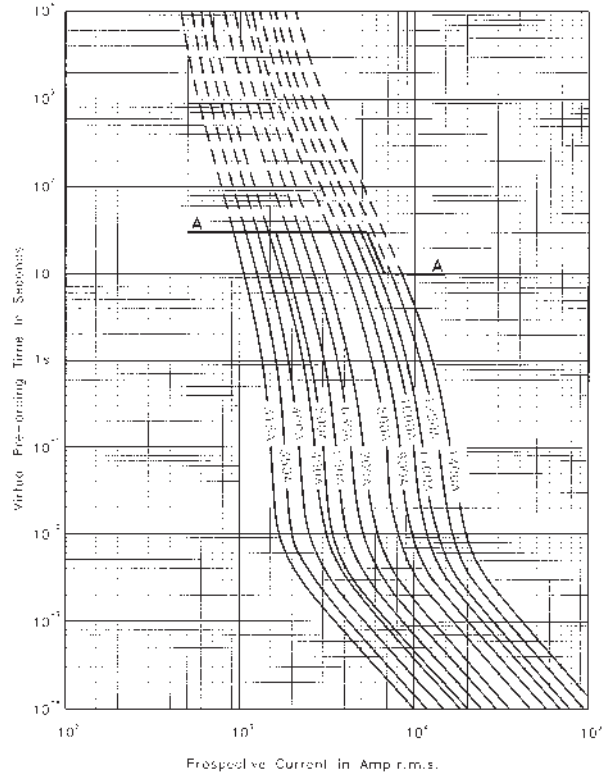


# Square Body Size 2, 3 — 1250V/1300V (IEC/UL): 50-1400A

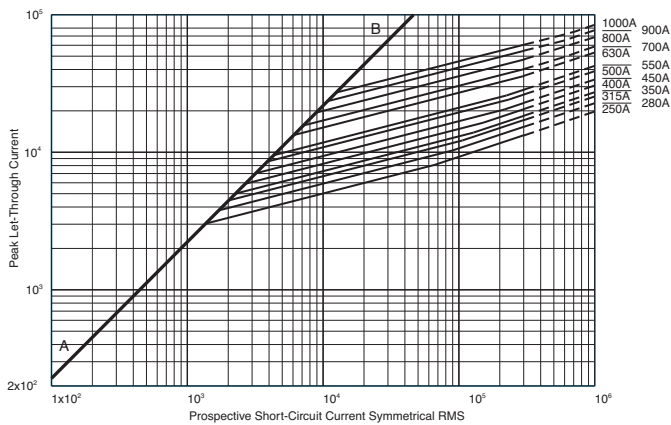
**Size 2 — 250-1000A: 1250V**  
Time-Current Curve



**Size 3 — 315-1400A: 1250V**  
Time-Current Curve

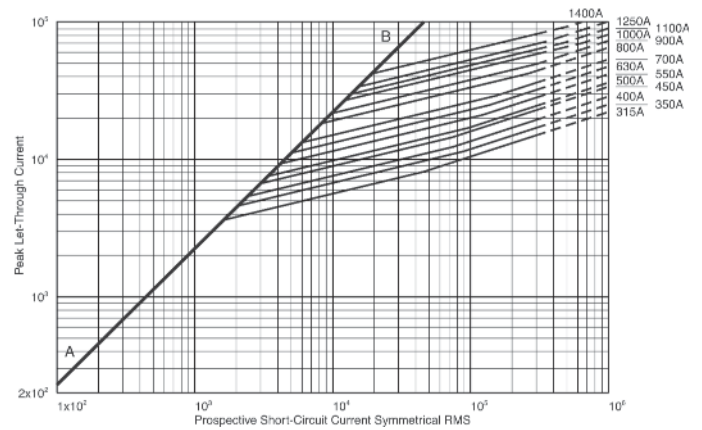


**Peak Let-Through Curve**



900-1000A fuses are derated to 1100V (IEC).

**Peak Let-Through Curve**



1250-1400A fuses are derated to 1100V (IEC).

## Square Body Flush End Contact Size 4 — 1250V (IEC): 1400-2500A

### 1250V (IEC) 1400-2500A

#### Specifications

**Description:** High speed square body fuses, for the protection of the power rectifier section of the equipment.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1250Vac (IEC)

Amps: — 1400-2500A

IR: — 125kA RMS Sym.

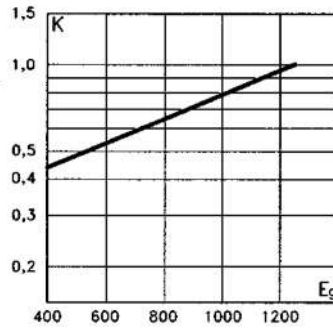
**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

#### Electrical

#### Characteristics

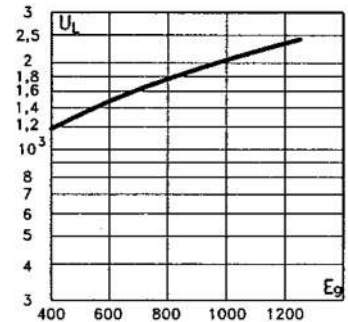
#### Total clearing $I^2t$

The total clearing  $I^2t$  at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing  $I^2t$  is found by multiplying by correction factor, K, given as a function of applied working voltage,  $E_g$ , (rms).



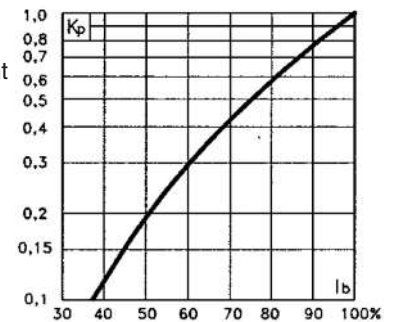
#### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage  $E_g$ , (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

- See pages 163 (690V/700V) and 182 (1000V)

#### Catalog Numbers

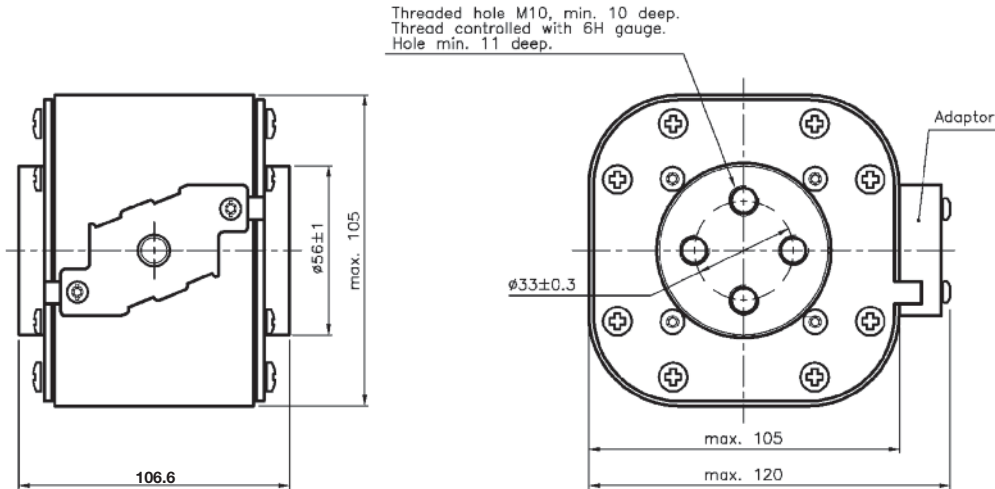
| Fuse Size | Catalog Number                  |                                  | Electrical Characteristics |                       |                             |                   |               |
|-----------|---------------------------------|----------------------------------|----------------------------|-----------------------|-----------------------------|-------------------|---------------|
|           | -BKN/105<br>Type K<br>Indicator | -SBKN/105<br>Type K<br>Indicator | Rated Voltage (V)          | Rated Current RMS-Amp | $I^2t$ (A <sup>2</sup> Sec) |                   | Watt Loss (W) |
|           |                                 |                                  |                            |                       | Pre-arc                     | Clearing at 1250V |               |
| 4         | 170M7217                        | 170M7512                         | 1250                       | 1400                  | 800000                      | 5000000           | 195           |
|           | 170M7597                        | 170M7510                         |                            | 1500                  | 1000000                     | 6200000           | 200           |
|           | 170M7676                        | 170M7511                         |                            | 1700                  | 1400000                     | 8700000           | 220           |
|           | 170M7532                        | 170M7976                         |                            | 1800                  | 1700000                     | 11000000          | 225           |
|           | 170M7633                        | 170M7513                         |                            | 2000                  | 2300000                     | 14500000          | 235           |
|           | 170M7592                        | 170M7546                         |                            | 2200                  | 3100000                     | 19500000          | 245           |
|           | 170M7107                        | 170M7516                         |                            | 2400                  | 4000000                     | 25000000          | 255           |
|           | 170M7595                        | 170M7978                         |                            | 2500                  | 4500000                     | 28000000          | 260           |

Data Sheet: 170K6640 , 170K6642

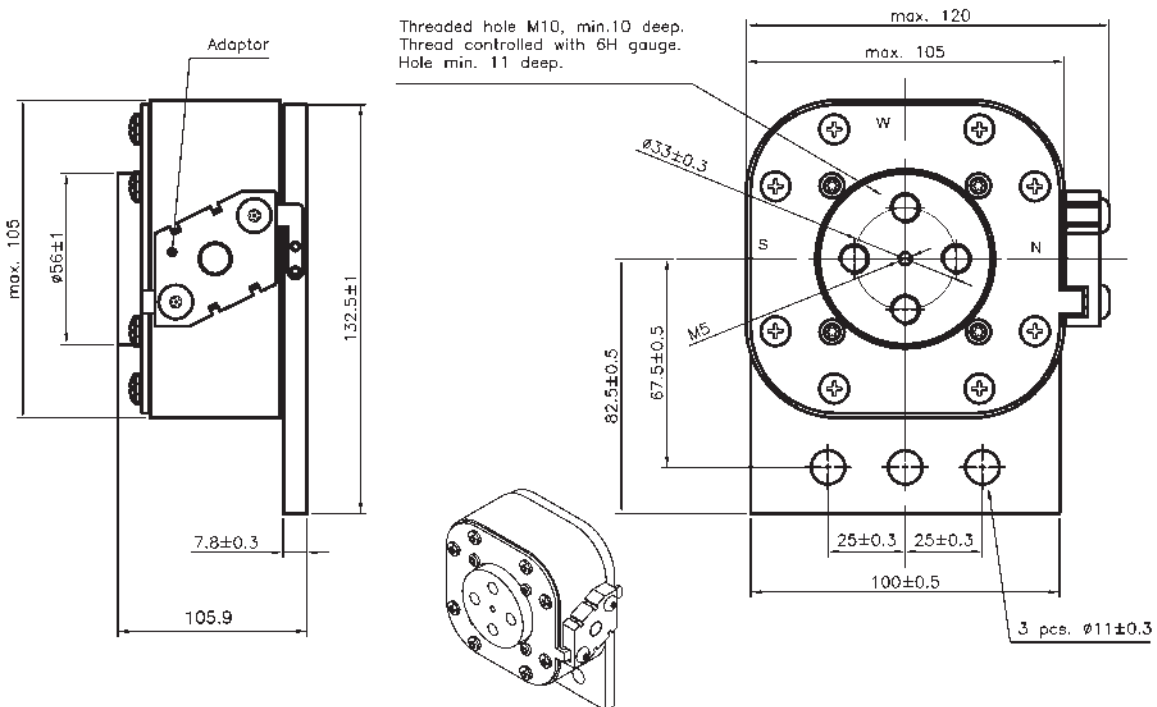
# Square Body Flush End Contact Size 4 — 1250V (IEC): 1400-2500A

## Dimensions - mm

Type 4BKN 105



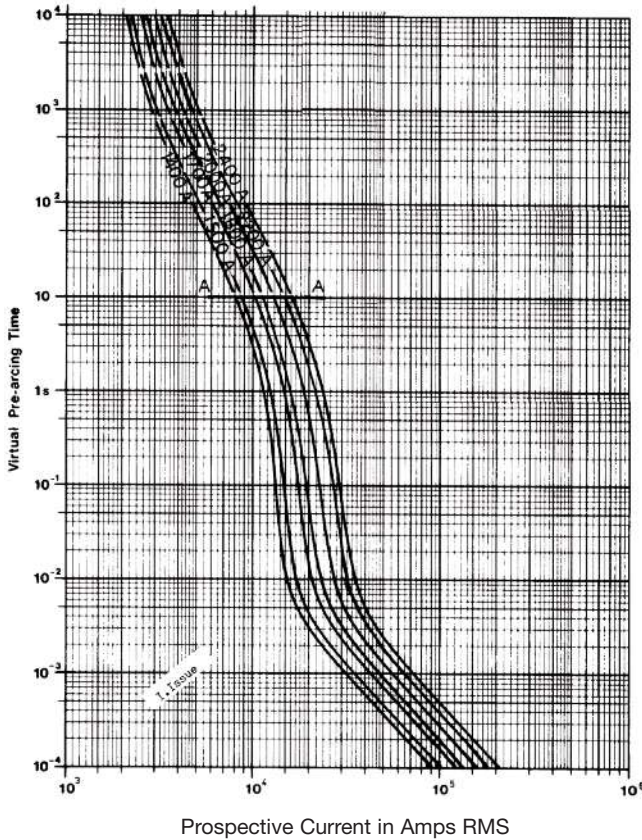
Type 4SBKN 105



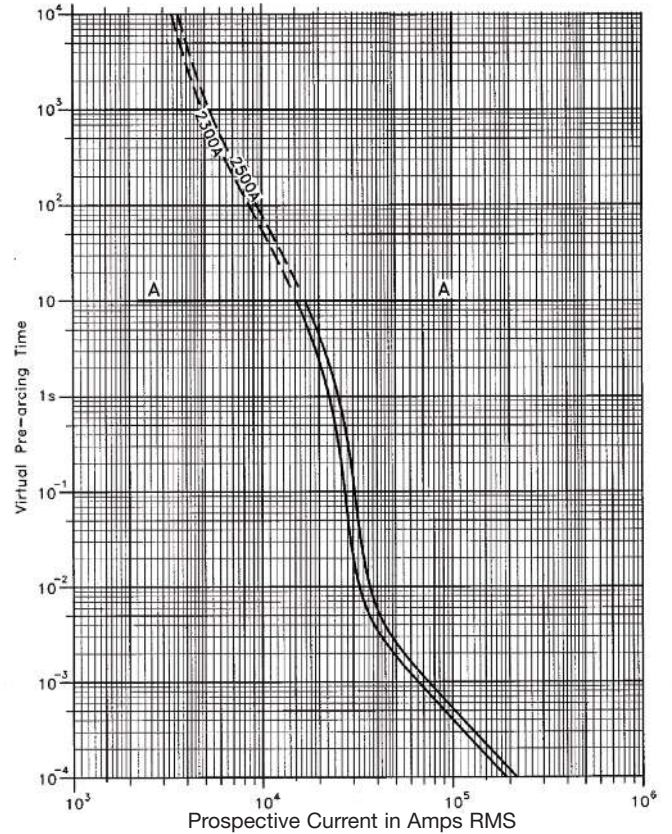


# Square Body Flush End Contact Size 4 — 1250V (IEC): 1400-2500A

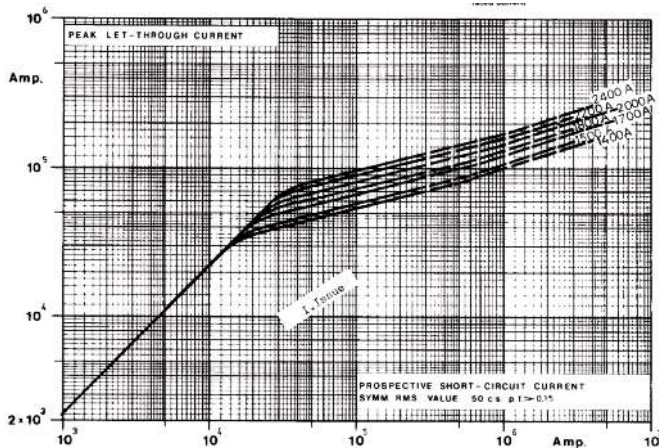
**Size 4 — 1400-2400A: 1250V**  
Time-Current Curve



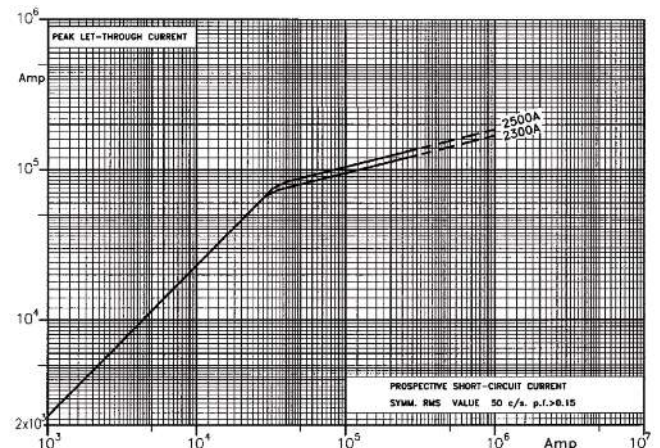
**Size 4 — 2300-2500A: 1250V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



Data Sheet: Available upon request

Data Sheet: Available upon request

## Square Body Flush End Contact Size 23— 1250V (IEC/UL): 630-2800A

### 1250V (IEC) 630-2800A

#### Specifications

**Description:** High speed square body fuses, for the protection of the power rectifier section of the equipment.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1250Vac (IEC)

Amps: — 630-2800A

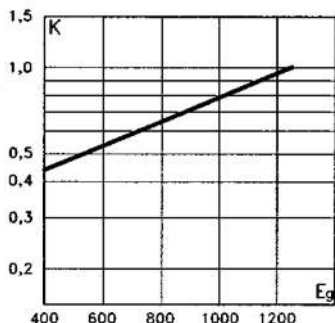
IR: — 125kA RMS Sym.

**Agency Information:** CE, Designed and tested to IEC 60269: Part 4. UL Recognized.

#### Electrical Characteristics

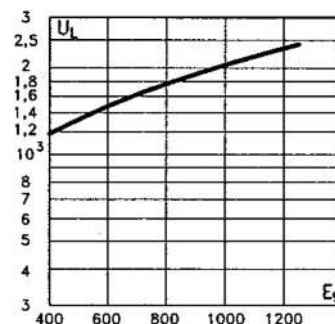
##### Total clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



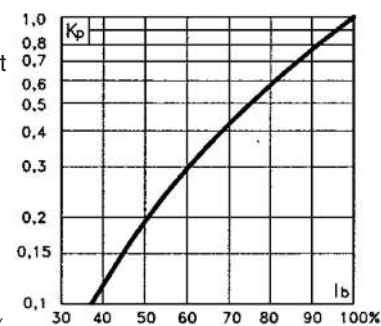
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### For Other Voltage Ratings in This Body Style

- See pages 165 (660V) and 185 (1000V)

#### Catalog Numbers

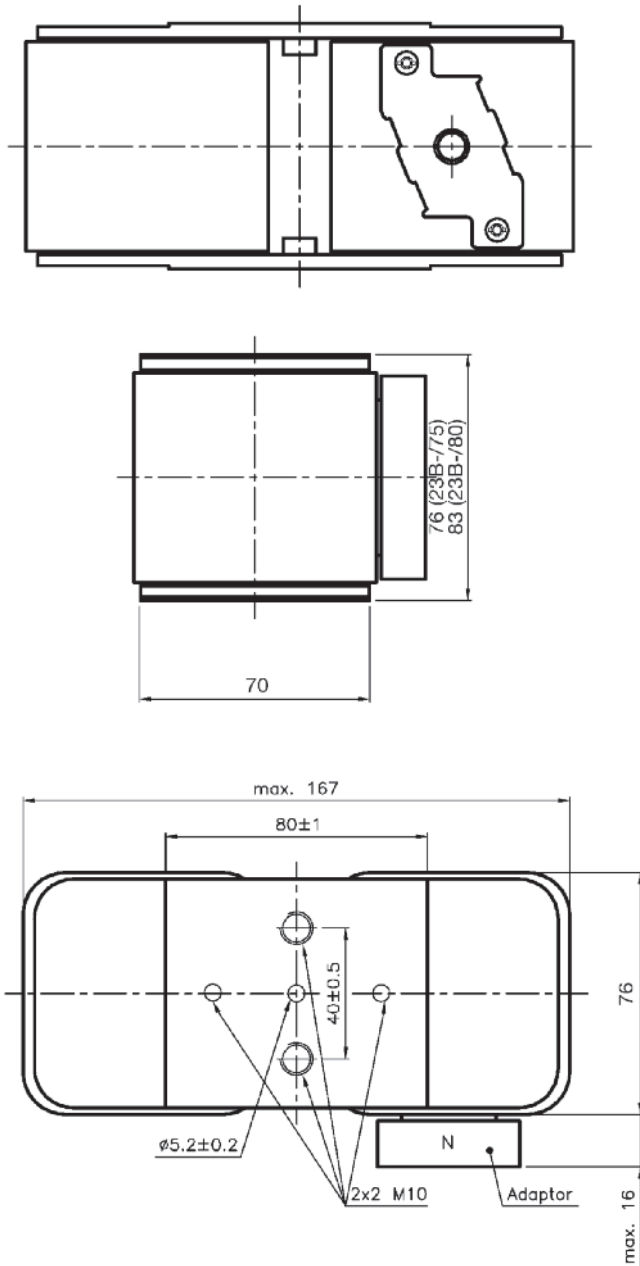
| Fuse Size | Catalog Number           |                          |                          |                          |                          |                          | Electrical Characteristics |                       |                                       |                   |                |
|-----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------------------|-----------------------|---------------------------------------|-------------------|----------------|
|           | -BU/75 without Indicator | -BKE/75 Type K Indicator | -BKN/75 Type K Indicator | -BU/80 without Indicator | -BKE/80 Type K Indicator | -BKN/80 Type K Indicator | Rated Voltage (V)          | Rated Current RMS-Amp | I <sup>2</sup> t (A <sup>2</sup> Sec) |                   | Watts Loss (W) |
|           |                          |                          |                          |                          |                          |                          |                            |                       | Pre-arc                               | Clearing at 1250V |                |
| 23        | 170M6775                 | 170M6795                 | 170M6785                 |                          |                          |                          | 1250                       | 630                   | 38000                                 | 310000            | 170            |
|           | 170M6776                 | 170M6796                 | 170M6786                 |                          |                          |                          |                            | 700                   | 54000                                 | 440000            | 180            |
|           | 170M6777                 | 170M6797                 | 170M6787                 |                          |                          |                          |                            | 800                   | 78000                                 | 640000            | 190            |
|           | 170M6805                 | 170M6807                 | 170M6806                 |                          |                          |                          |                            | 900                   | 120000                                | 980000            | 200            |
|           | 170M6778                 | 170M6798                 | 170M6788                 |                          |                          |                          |                            | 1000                  | 155000                                | 1250000           | 210            |
|           | 170M6779                 | 170M6799                 | 170M6789                 |                          |                          |                          |                            | 1100                  | 220000                                | 1750000           | 220            |
|           | 170M6780                 | 170M6800                 | 170M6790                 |                          |                          |                          |                            | 1250                  | 330000                                | 2700000           | 230            |
|           | 170M6781                 | 170M6801                 | 170M6791                 |                          |                          |                          |                            | 1400                  | 460000                                | 3800000           | 240            |
|           | 170M6782                 | 170M6802                 | 170M6792                 |                          |                          |                          |                            | 1600                  | 820000                                | 5200000           | 250            |
|           | 170M6783                 | 170M6803                 | 170M6793                 |                          |                          |                          |                            | 1800                  | 1200000                               | 7600000           | 260            |
|           |                          |                          |                          | 170M6784                 | 170M6804                 | 170M6794                 | 2000                       | 1800000               | 11000000                              | 270               |                |
|           |                          |                          |                          | 170M6815                 | 170M6833                 | 170M6827                 | 2200                       | 2300000               | 14500000                              | 280               |                |
|           |                          |                          |                          | 170M6816                 | 170M6834                 | 170M6828                 | 1100                       | 2500                  | 3200000                               | +16000000         | 290            |
|           |                          |                          |                          | 170M6817                 | 170M6835                 | 170M6829                 |                            | 2800                  | 5000000                               | +24000000         | 300            |

† A<sup>2</sup>s @ 1000V  
Data Sheet: 170K6638

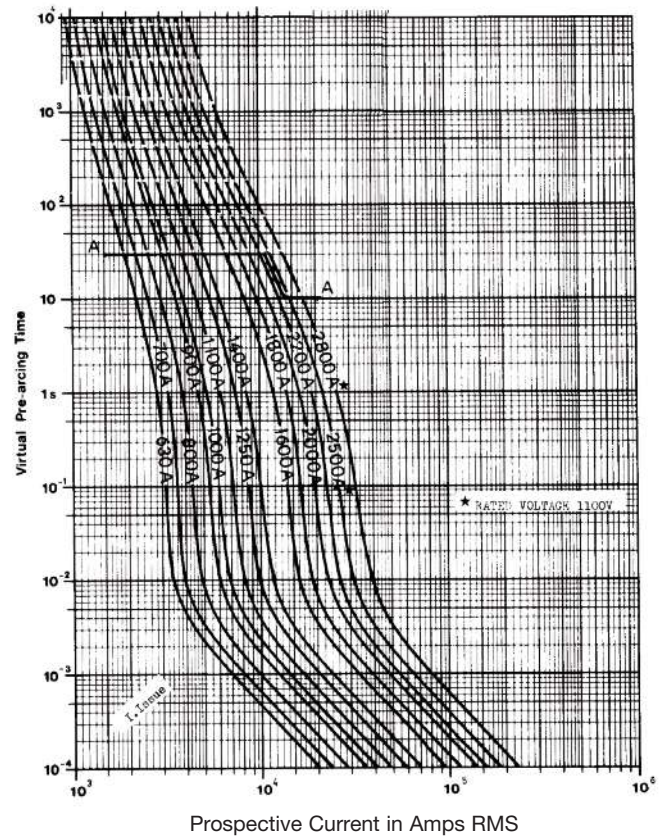


# Square Body Flush End Contact Size 23— 1250V (IEC/UL): 630-2800A

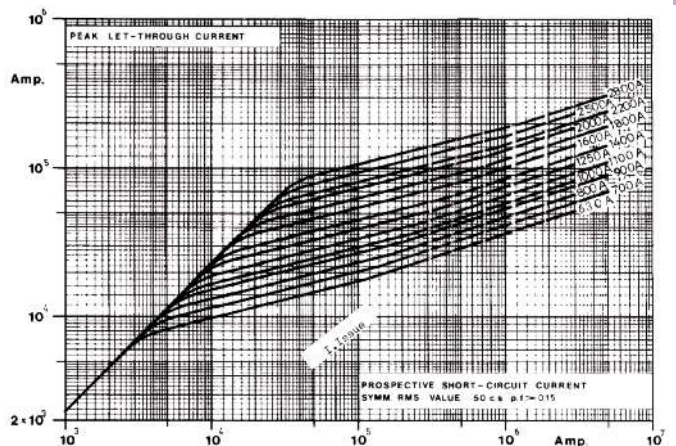
Dimensions - mm



Size 23 — 630-2800A: 1250V  
Time-Current Curve



Peak Let-Through Curve



High Speed  
Fuses

## Square Body Flush End Contact Size 5— 1000V-2000V: 1800-5000A

### 1000V (IEC) 1800-5000A

#### Specifications

**Description:** High speed square body fuses, for the protection or isolation for components such as diodes, silicon controlled rectifiers (SCRs), Gate torn-Off Thyristors (GTOs) and IGBTs.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1000-2000Vac (IEC)

Amps: — 1800-5000A

IR: — 300kA RMS Sym. estimated, 197kA tested

**Agency Information:** Consult Bussmann.  
bulehighspeedtechnical@cooperindustries.com

#### Features and Benefits

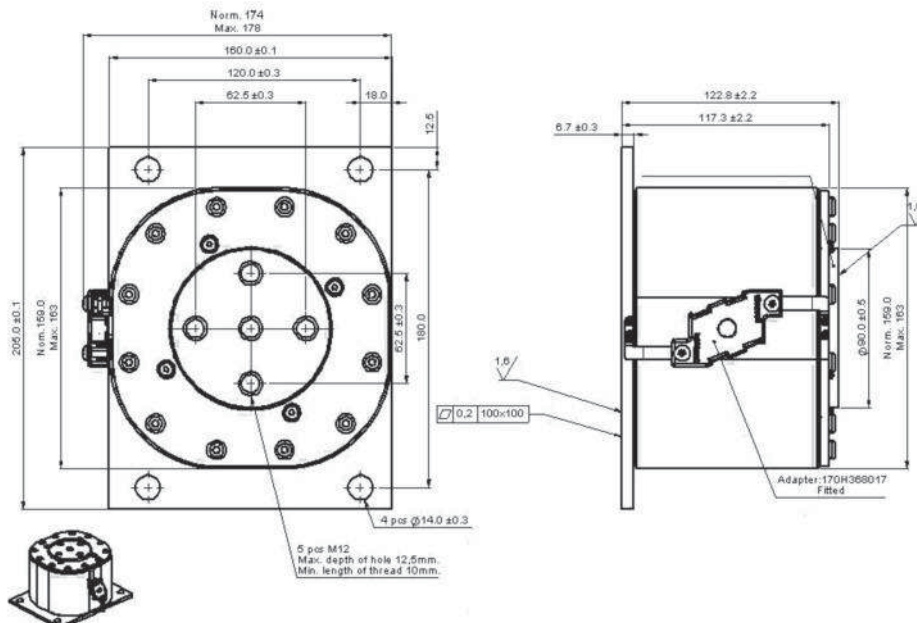
- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss
- Superior cycling capability

#### Typical Applications

- AC and DC drives
- High power converters/rectifiers



#### Dimensions - mm (in)



This dimension drawing is an example of the range of size 5 fuses available.

**Contact Bussmann for available parts and technical information.**

## Square Body DC Fuses — 750Vdc: 63-500A

### 750Vdc 63-500A

#### Specifications

**Description:** High speed fuses, for the protection of DC circuits in equipment.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 750Vdc

Amps: — 63-500A

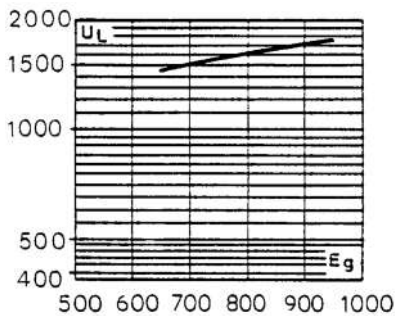
IR: — 750Vdc IR: 100kA, L/R = 100 ms.  
— 1000Vdc IR: 100kA, L/R = 40 ms

**Agency Information:** Consult Cooper Bussmann.

#### Electrical Characteristics

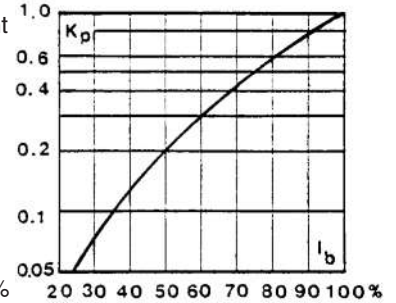
##### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage  $E_g$ .



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

#### Catalog Numbers

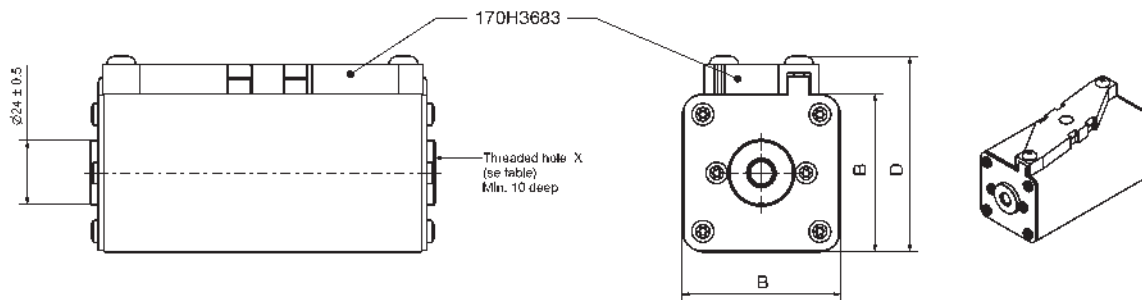
| Fuse Size | Catalog Numbers |          | Electrical Characteristics |                       |               |
|-----------|-----------------|----------|----------------------------|-----------------------|---------------|
|           | -BK/130         | -EK/-    | Rated Voltage (Vdc)        | Rated Current RMS-Amp | Watt Loss (W) |
| 1*        | 170E3577        | 170E3583 | 750                        | 63                    | 10.0          |
|           | 170E3578        | 170E3584 |                            | 80                    | 13.0          |
|           | 170E3579        | 170E3585 |                            | 100                   | 16.0          |
|           | 170E3580        | 170E3586 |                            | 125                   | 21.0          |
|           | 170E3581        | 170E3587 |                            | 160                   | 26.0          |
| 1         | 170E5417        | 170E5420 |                            | 200                   | 37.0          |
|           | 170E5418        | 170E5421 |                            | 250                   | 46.0          |
| 2         | 170E8335        | 170E8345 |                            | 250                   | 47.0          |
|           | 170E8336        | 170E8346 |                            | 315                   | 57.0          |
|           | 170E8337        | 170E8347 |                            | 400                   | 73.0          |
| 3         | 170E9681        | 170E9685 | 500                        | 91.0                  |               |

Data Sheet: Size 1\*: 170K3620  
Size 1: 170K3622  
Size 2: 170K3624  
Size 3: 170K3626  
Microswitch: 170H0069, 170H3027 (gold)

# Square Body DC Fuses — 750Vdc: 63-500A

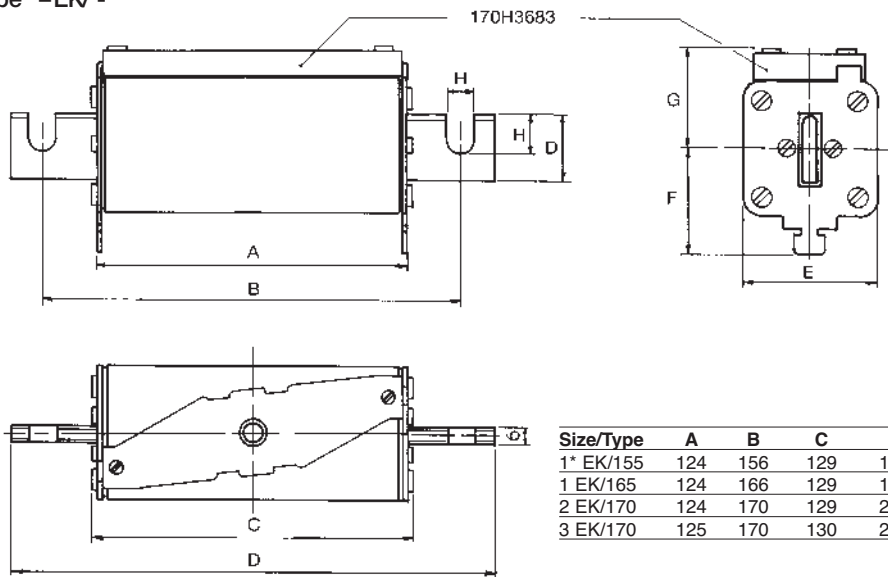
## Dimensions - mm

Type -BK/130



| Size/Type | A   | B  | D  |
|-----------|-----|----|----|
| 1* BK/130 | 129 | 43 | 61 |
| 1 BK/130  | 130 | 51 | 69 |
| 2 BK/130  | 130 | 59 | 77 |
| 3 BK/130  | 131 | 74 | 90 |

Type -EK/ -

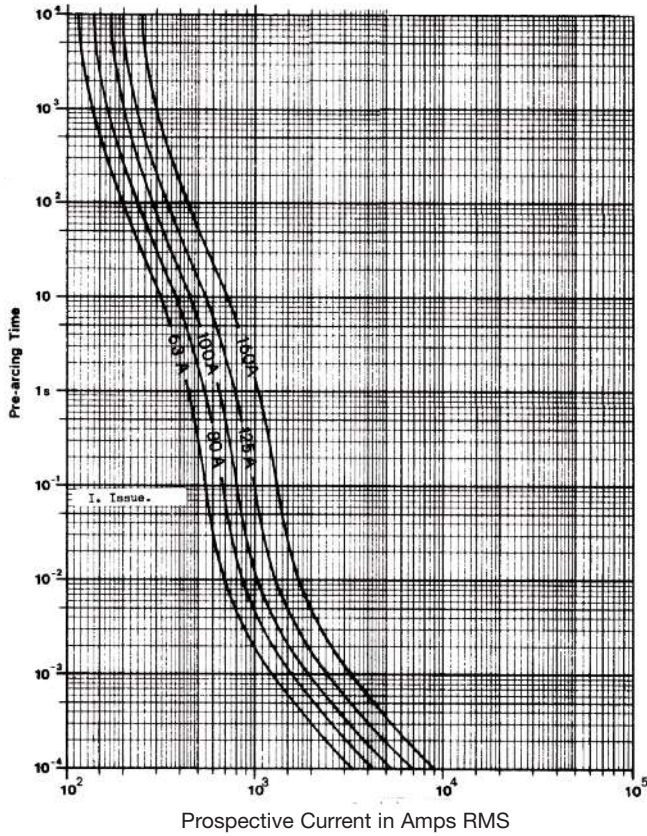


| Size/Type | A   | B   | C   | D   | E  | F  | G  | H  | I  | J  |
|-----------|-----|-----|-----|-----|----|----|----|----|----|----|
| 1* EK/155 | 124 | 156 | 129 | 180 | 43 | 36 | 41 | 9  | 9  | 18 |
| 1 EK/165  | 124 | 166 | 129 | 191 | 51 | 37 | 41 | 11 | 14 | 25 |
| 2 EK/170  | 124 | 170 | 129 | 205 | 59 | 42 | 48 | 13 | 21 | 30 |
| 3 EK/170  | 125 | 170 | 130 | 206 | 74 | 51 | 56 | 13 | 20 | 36 |

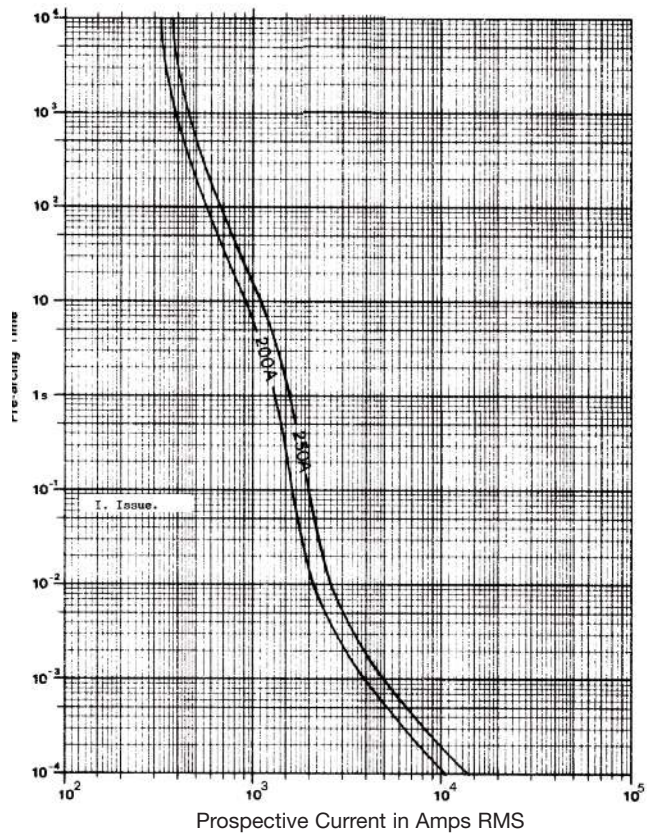


# Square Body DC Fuses — 750Vdc: 63-500A

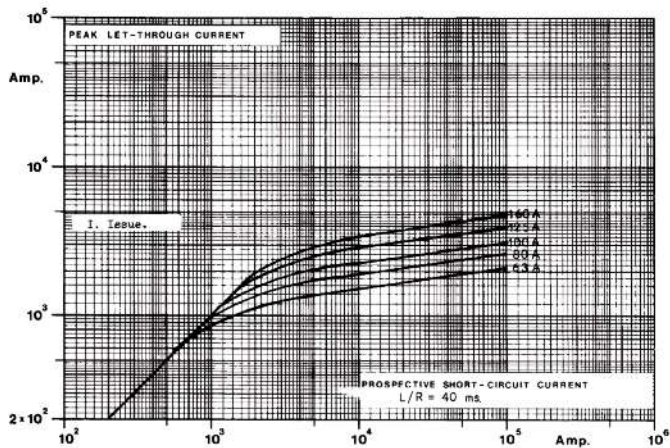
**Square Body DC Fuse — 63-160A: 750V**  
Time-Current Curve



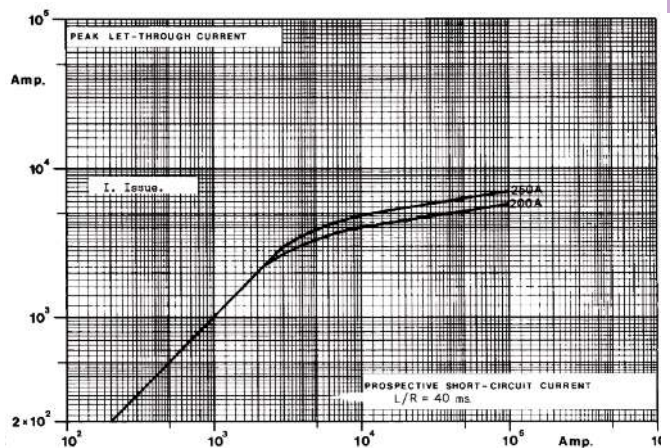
**Square Body DC Fuse — 200-250A: 750V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



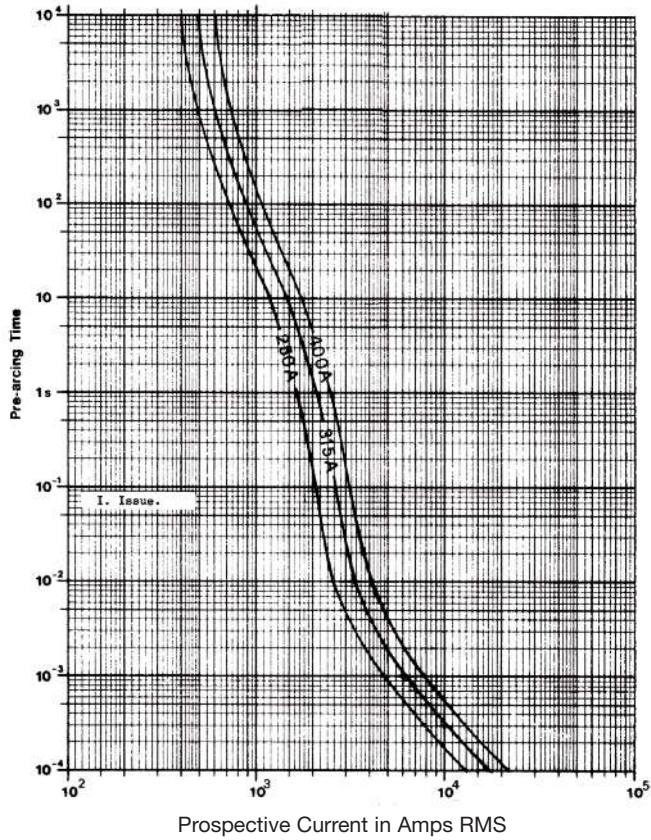
Data Sheet: Available upon request

Data Sheet: Available upon request

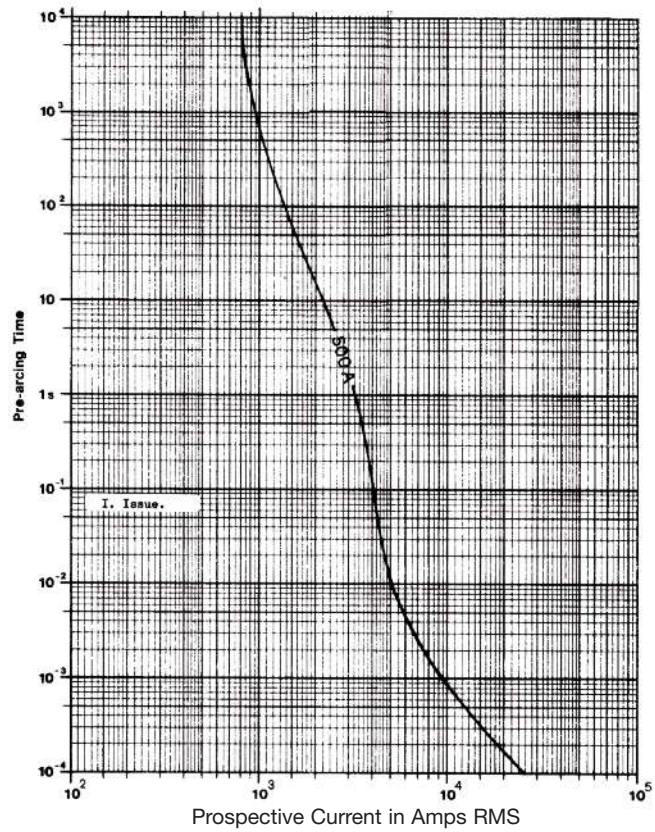


# Square Body DC Fuses — 750Vdc: 63-500A

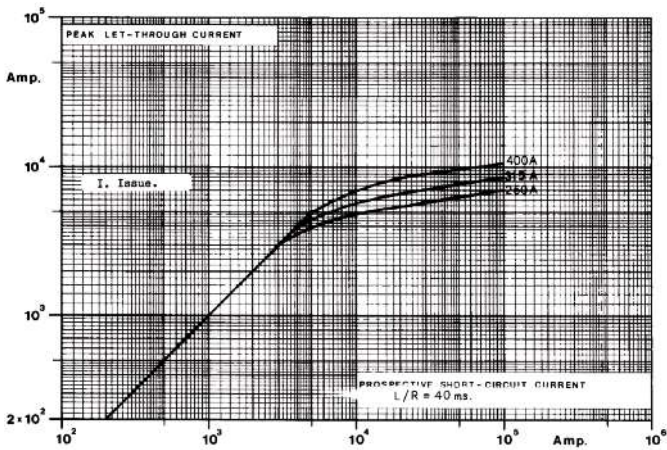
**Square Body DC Fuse — 250-400A: 750V**  
Time-Current Curve



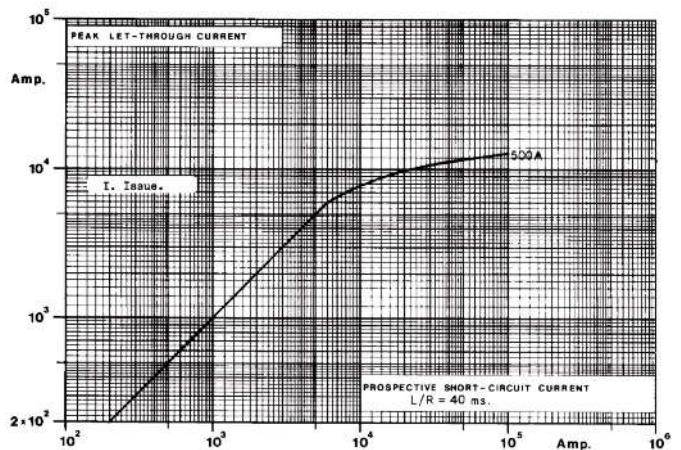
**Square Body DC Fuse — 500A: 750V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



Data Sheet: Available upon request

Data Sheet: Available upon request

## Square Body DC Fuses — 1200Vdc: 160-420A

### 1200Vdc 160-420A

#### Specifications

**Description:** High speed fuses that provide superior protection in light and heavy harsh DC traction applications as 1200Vdc and below circuits, and as DC link/power converters.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1200Vdc

Amps: — 160-420A

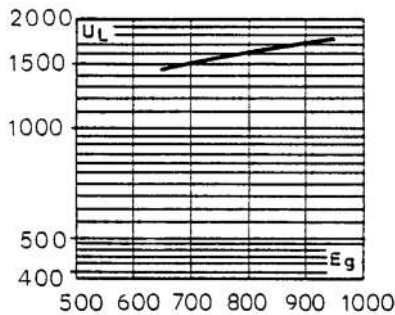
IR: — 1200Vdc = 100kA L/R: 15 ms.

**Agency Information:** Consult Cooper Bussmann.

#### Electrical Characteristics

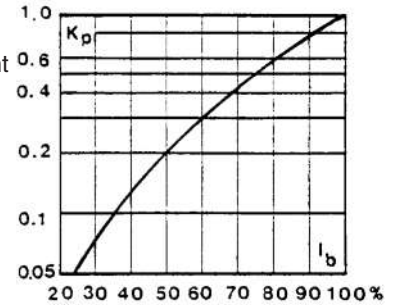
##### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage  $E_g$ .



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

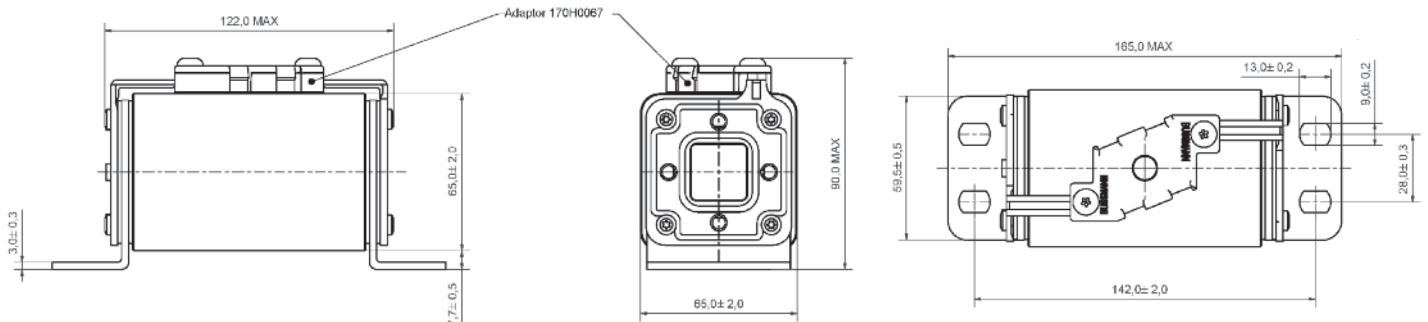
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### Catalog Numbers

| Fuse Type  | Cat. Numbers<br>-SKNB/140<br>Type K<br>Indicator | Electrical Characteristics |                          |                                       |            |                   |
|------------|--|----------------------------|--------------------------|---------------------------------------|------------|-------------------|
|            |  | Rated Voltage<br>(Vdc)     | Rated Current<br>RMS-Amp | Max Ft (A <sup>2</sup> Sec) @ 1000Vdc |            | Watts Loss<br>(W) |
|            |  |                            |                          | L/R = 15ms                            | L/R = 45ms |                   |
| 2SKN / 140 | 170F8230   | 1200                       | 160                      | 12000                                 | 20000      | 75.0              |
|            | 170F8231   |                            | 200                      | 20000                                 | 35000      | 85.0              |
|            | 170F8232   |                            | 250                      | 43000                                 | 75000      | 94.0              |
|            | 170F8233   |                            | 315                      | 87000                                 | 150000     | 104.0             |
|            | 170F8234   |                            | 400                      | 180000                                | 310000     | 120.0             |
|            | 170F8235   |                            | 420                      | 215000                                | 375000     | 122.0             |

Data Sheet: 170K5520  
Microswitch: 170H0069, 170H3027 (gold)

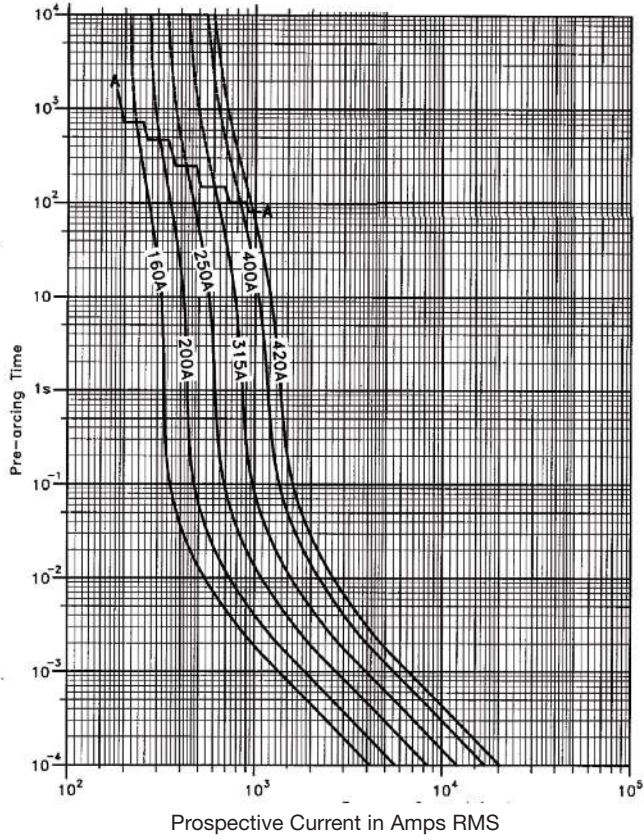
#### Dimensions - mm





# Square Body DC Fuses — 1200Vdc: 160-420A

## Square Body DC Fuse — 160-420A: 1200V Time-Current Curve



Data Sheet: Available upon request

## Square Body DC fuses — 2000Vdc: 10-125A

### 2000Vdc 10-125A

#### Specifications

**Description:** High speed fuses for the protection of DC circuits in equipment.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1200Vdc

Amps: — 160-420A

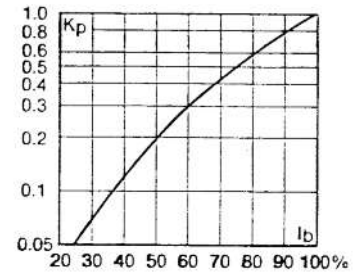
IR: — 1200Vdc = 100kA L/R: 15 ms.

**Agency Information:** Consult Bussmann.



#### Power Losses

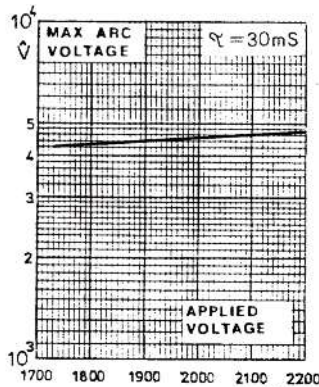
Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Electrical Characteristics

##### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage  $E_g$ .



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

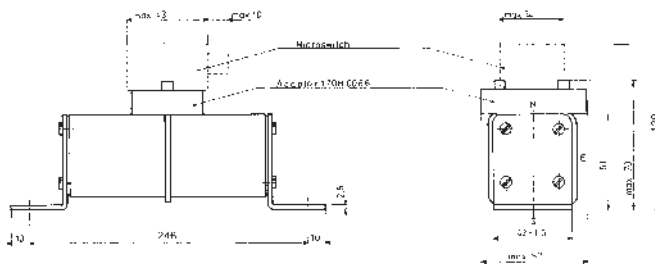
#### Catalog Numbers

| Fuse Type | Cat. Number               | Electrical Characteristics |                       |               |
|-----------|---------------------------|----------------------------|-----------------------|---------------|
|           | -SKN/246 Type K Indicator | Rated Voltage (Vdc)        | Rated Current RMS-Amp | Watt Loss (W) |
| 1*SKN/246 | 170E3976                  | 2000                       | 10                    | 7             |
|           | 170E3970                  |                            | 16                    | 11            |
|           | 170E3950                  |                            | 20                    | 13            |
|           | 170E3951                  |                            | 25                    | 17            |
|           | 170E3952                  |                            | 32                    | 22            |
|           | 170E3953                  |                            | 40                    | 27            |
|           | 170E3954                  |                            | 50                    | 34            |
|           | 170E3955                  |                            | 63                    | 43            |
|           | 170E3956                  |                            | 80                    | 50            |

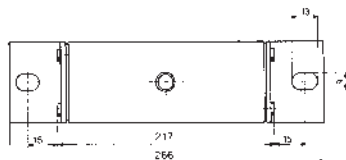
| Fuse Type | Cat. Number               | Electrical Characteristics |                       |               |
|-----------|---------------------------|----------------------------|-----------------------|---------------|
|           | -SKN/246 Type K Indicator | Rated Voltage (Vdc)        | Rated Current RMS-Amp | Watt Loss (W) |
| 1*SKN/246 | 170E3937                  | 2000                       | 20                    | 13            |
|           | 170E3938                  |                            | 25                    | 16            |
|           | 170E3939                  |                            | 32                    | 20            |
|           | 170E3940                  |                            | 40                    | 25            |
|           | 170E3941                  |                            | 50                    | 32            |
|           | 170E3942                  |                            | 63                    | 40            |
|           | 170E3943                  |                            | 80                    | 51            |
|           | 170E3944                  |                            | 100                   | 64            |
|           | 170E3945                  |                            | 125                   | 80            |

#### Dimensions - mm

Data Sheet: 170K4538  
Microswitch: 170H0239, 170H3030 (gold)



Data Sheet: 170K4900  
Microswitch: 170H0239, 170H3030 (gold)

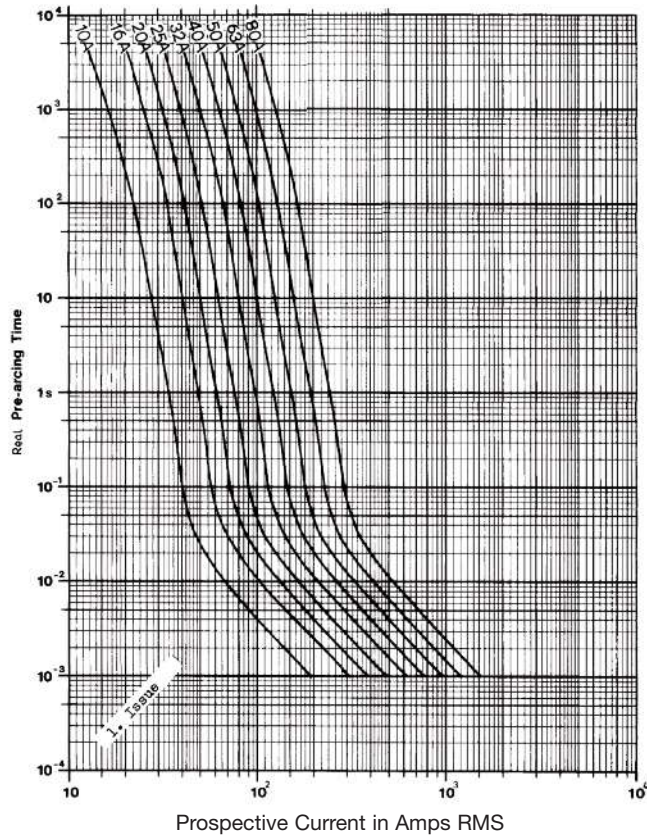


High Speed Fuses

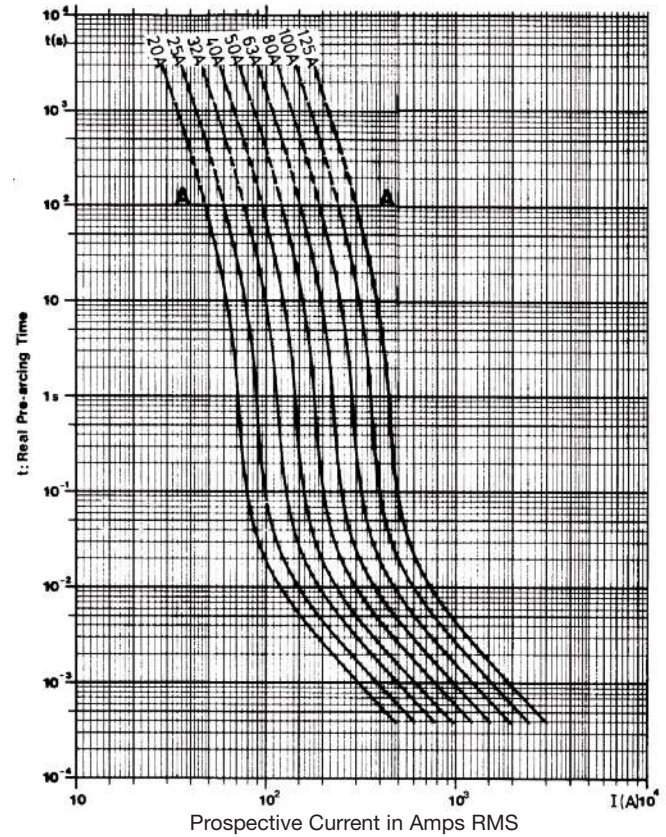


# Square Body DC fuses — 2000Vdc: 10-125A

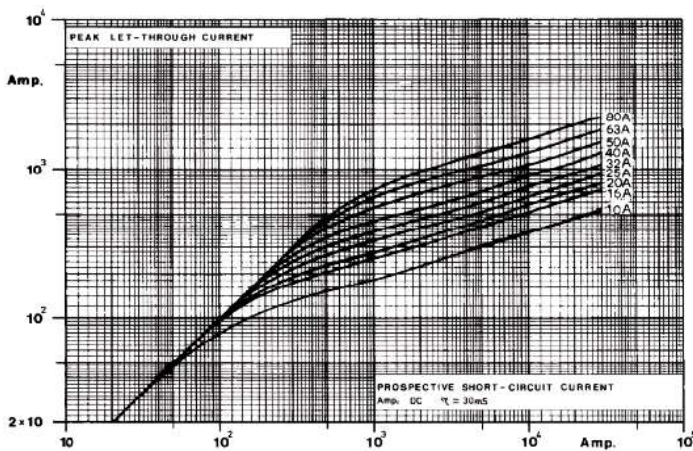
**Square Body DC Fuses — 10-80A: 2000V**  
Time-Current Curve



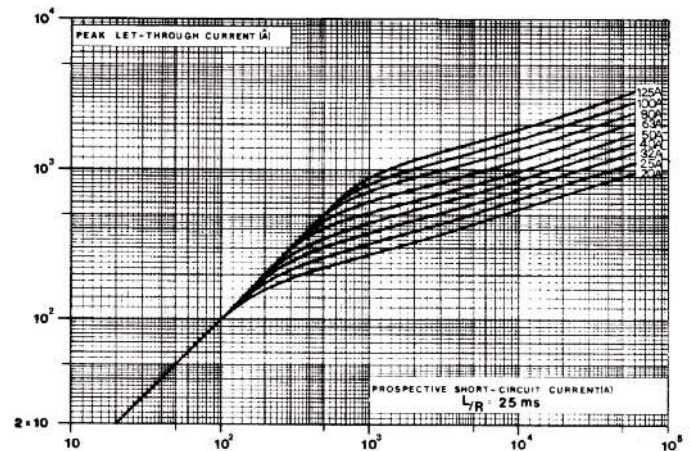
**Square Body DC Fuses — 20-125A: 2000V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



Data Sheet: Available upon request

Data Sheet: Available upon request



## Square Body DC Fuses — 4000Vdc: 20-450A

### 4000Vdc 20-450A

#### Specifications

**Description:** High speed fuses for the protection of DC circuits in equipment.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 4000Vdc

Amps: — 20-450A

IR: — 60kA L/R: 25 ms.

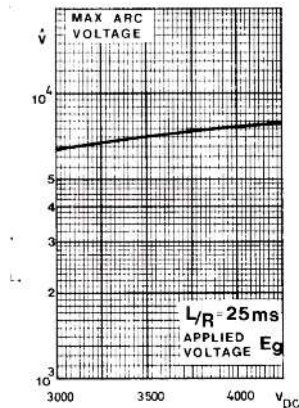
**Agency Information:** Consult Bussmann.



#### Electrical Characteristics

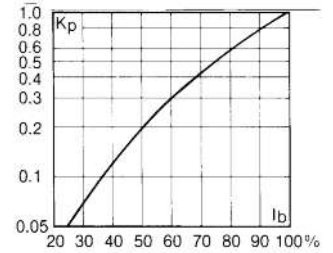
##### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage  $E_g$ .



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through ( $I^2t$ )
- Low watts loss
- Superior cycling capability

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

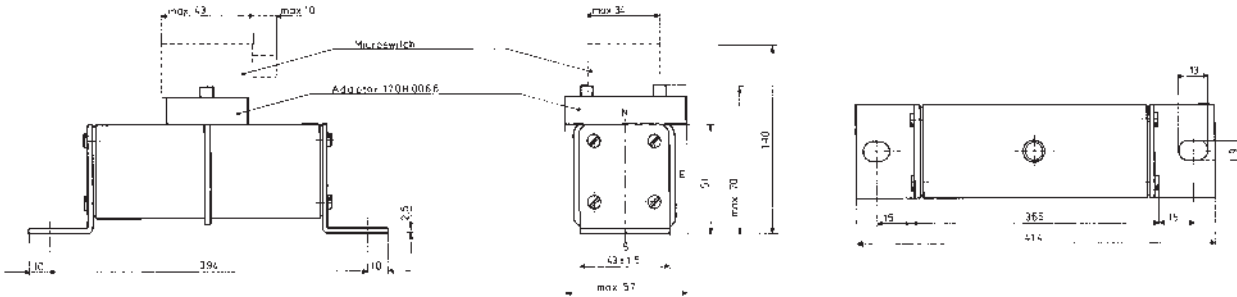
#### Catalog Numbers

| Fuse Type   | Cat. Numbers              |                     | Electrical Characteristics |                |
|-------------|---------------------------|---------------------|----------------------------|----------------|
|             | -SKN/394 Type K Indicator | Rated Voltage (Vdc) | Rated Current RMS-Amp      | Watts Loss (W) |
| 1*SKN/394   | 170E3914                  | 4000                | 20                         | 23             |
|             | 170E3915                  |                     | 25                         | 28             |
|             | 170E3916                  |                     | 32                         | 34             |
|             | 170E3917                  |                     | 40                         | 45             |
|             | 170E3918                  |                     | 50                         | 57             |
|             | 170E3919                  |                     | 63                         | 72             |
|             | 170E3984                  |                     | 80                         | 91             |
|             | 170E3933                  |                     | 100                        | 114            |
|             | 170E3922                  |                     | 125                        | 143            |
| 2 SKN/394   | 170E8882                  | 4000                | 160                        | 182            |
|             | 170E8883                  |                     | 200                        | 228            |
|             | 170E8884                  |                     | 250                        | 285            |
| 2//2SKN/394 | 170E8885                  | 4000                | 315                        | 360            |
|             | 170E8886                  |                     | 350                        | 400            |
|             | 170E8887                  |                     | 400                        | 455            |
|             | 170E8888                  |                     | 450                        | 515            |

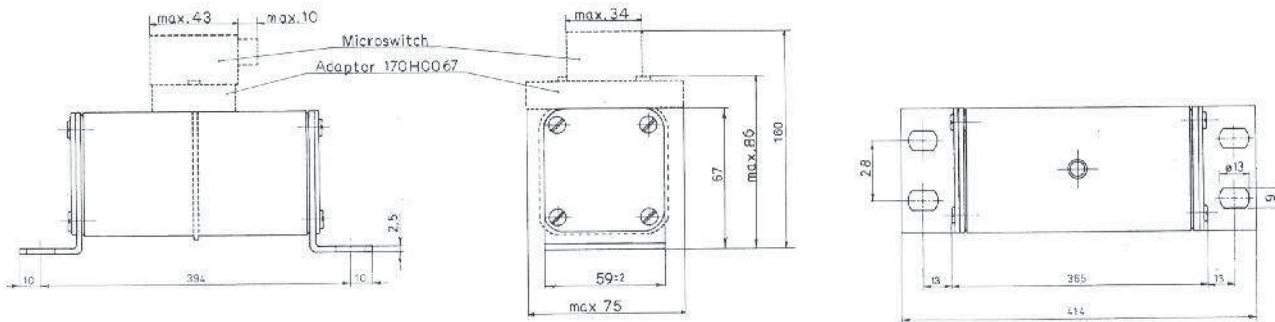
## DC Fuses — 4000Vdc: 20-450A

### Dimensions - mm

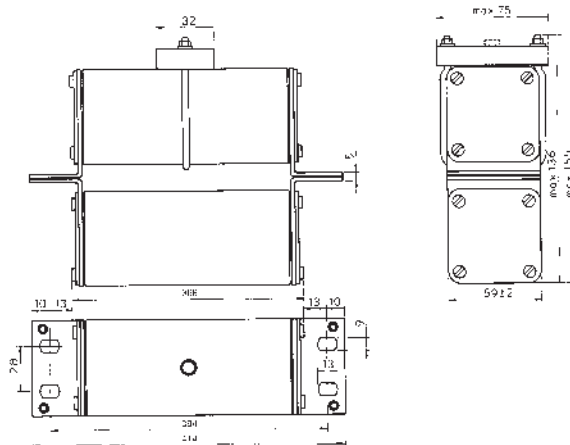
Type 1\* SKN 394



Type 2SKN 394

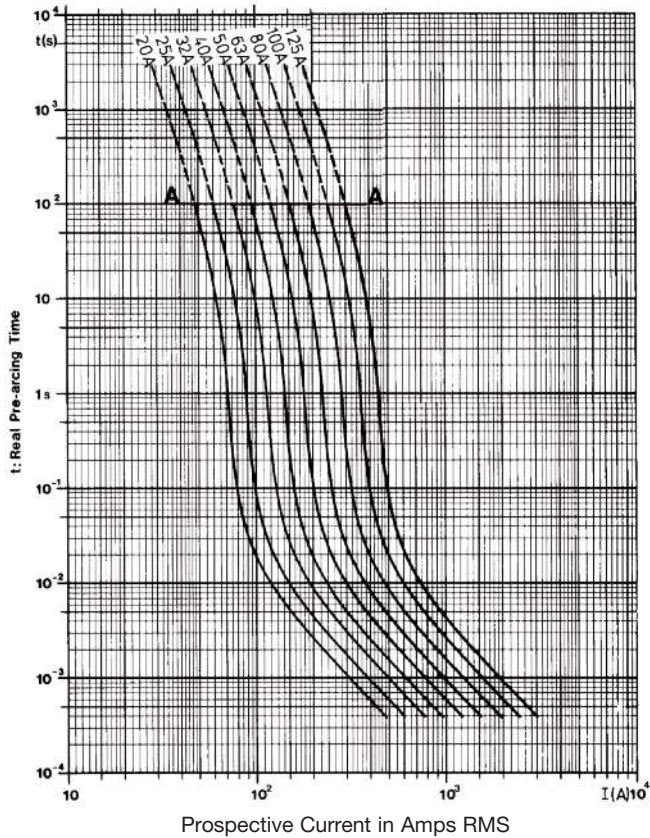


Type 2// SKN 394

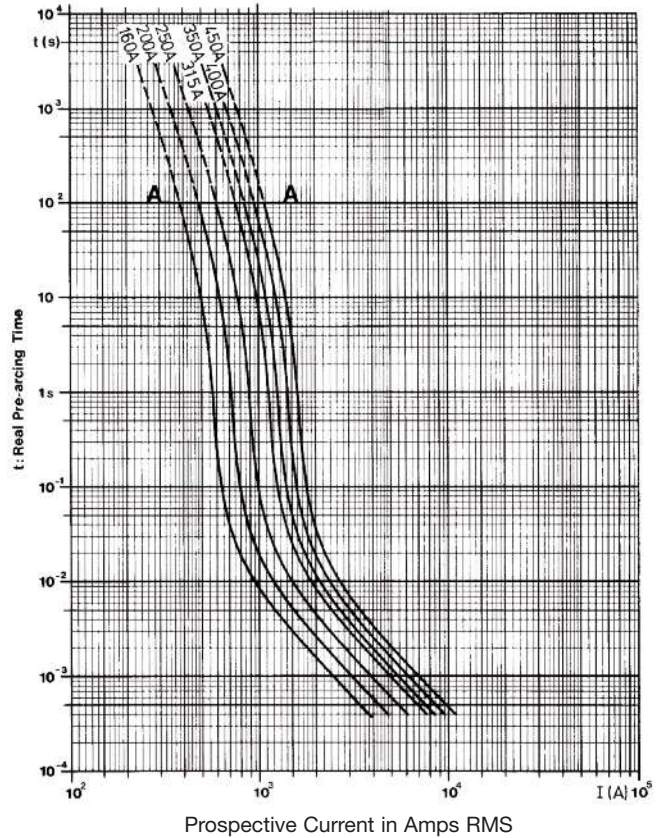


# Square Body DC Fuses — 4000Vdc: 20-450A

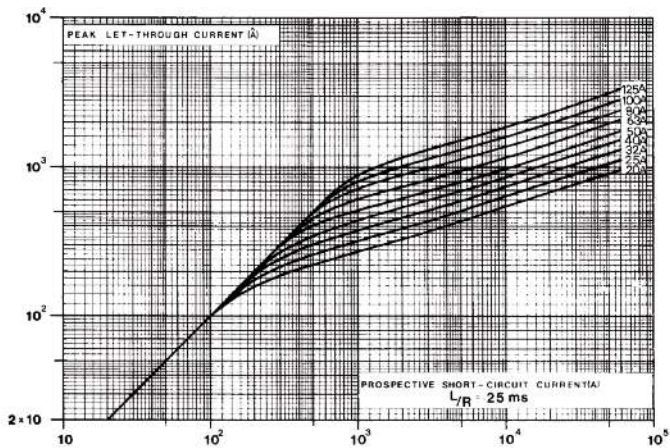
**Square Body DC Fuses — 20-125A: 2000V**  
Time-Current Curve



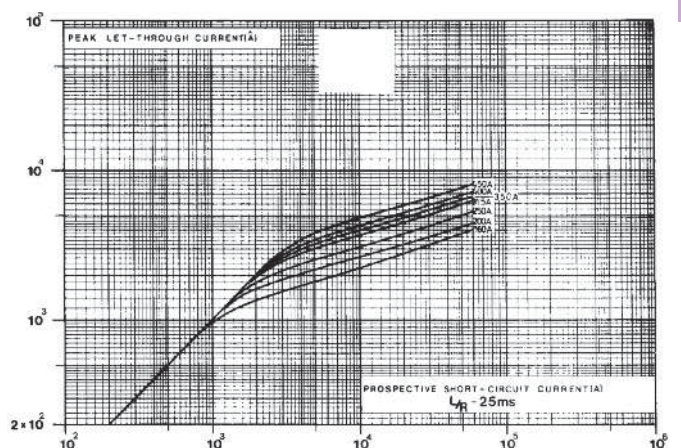
**Square Body DC Fuses — 160-450A: 4000V**  
Time-Current Curve



**Peak Let-Through Curve**



**Peak Let-Through Curve**



Data Sheet: Available upon request

Data Sheet: Available upon request



## Square Body Fuse Accessories

### Indicator Systems

Typower ZILOX fuses are available with three different indicator systems.

#### 1. Visual Indicator

The indicator situated in one cover plate is clearly visible as soon as the fuse has operated. The minimum voltage for operating the indicator is 20V.

#### 2. Type T Indicator

The indicator is situated on one cover plate with a cover plate tag to accommodate an auxiliary switch. The minimum voltage for operating the indicator is 20V. A special low voltage indicator (1.5V) is available on request.

#### 3. Type K Indicator

This indicator is situated on the fuse body. It is covered by an adapter for snap-on mounting of an auxiliary switch. The operating voltage of the indicator is 1.5V. As a matter of safety, the factory mounted adapter must not be removed from the fuse.



### Microswitch

The Typower ZILOX fuses with either type T indicator or type K indicator can be equipped with a microswitch for remote electrical indication of fuse operations. All microswitches have one normally open and one normally closed contact. Ratings are 2A, 250Vac.

| Microswitch | 6.3 x 0.8mm Lugs | 2.8 x 0.5mm Lugs | Indicator Type |
|-------------|------------------|------------------|----------------|
| 170H0235    | X                |                  | T              |
| 170H0236    | X                |                  | T              |
| 170H0237    |                  | X                | T              |
| 170H0238    |                  | X                | T              |
| 170H0069    | X                |                  | K              |

| Size | DIN 43 653 |          | DIN 43 620 |        | French Style |          | Flush End |        | US Style |          |
|------|------------|----------|------------|--------|--------------|----------|-----------|--------|----------|----------|
|      | Type T     | Type K   | Type T     | Type K | Type T       | Type K   | Type T    | Type K | Type K   | Type K   |
| 000  | 170H0236   |          | 170H0236   |        |              |          |           |        |          |          |
|      | 170H0238   |          | 170H0238   |        |              |          |           |        |          |          |
| 00   | 170H0235   |          |            |        |              |          | 170H0235  |        |          |          |
|      | 170H0237   |          |            |        |              |          | 170H0237  |        |          |          |
| 1*   | 170H0235   | 170H0069 | 170H0235   |        | 170H0236     | 170H0069 |           |        | 170H0069 | 170H0069 |
|      | 170H0237   |          | 170H0237   |        | 170H0238     |          |           |        |          |          |
| 1    | 170H0235   | 170H0069 |            |        | 170H0236     | 170H0069 |           |        | 170H0069 | 170H0069 |
|      | 170H0237   |          |            |        | 170H0238     |          |           |        |          |          |
| 2    | 170H0235   | 170H0069 | 170H0235   |        | 170H0236     | 170H0069 |           |        | 170H0069 | 170H0069 |
|      | 170H0237   |          | 170H0237   |        | 170H0238     |          |           |        |          |          |
| 3    | 170H0235   | 170H0069 | 170H0236   |        | 170H0236     | 170H0069 |           |        | 170H0069 | 170H0069 |
|      | 170H0237   |          | 170H0238   |        | 170H0238     |          |           |        |          |          |
| 4    |            |          |            |        |              |          |           |        | 170H0069 |          |
| 23   |            |          |            |        |              |          |           |        | 170H0069 |          |
| 24   |            |          |            |        |              |          |           |        | 170H0069 |          |

## Square Body Fuse Accessories

### Fuse Bases (Blocks)

#### DIN 43 653 Fuse Bases

For the Typower ZILOX fuses according to DIN 43 653, the following fuse bases are available:

| Catalog Number | Max Volts | Amp Rating | Center Distance |
|----------------|-----------|------------|-----------------|
| 170H3003       | 1000      | 630        | 80mm            |
| 170H3004       | 1000      | 1250       | 80mm            |
| 170H3005       | 1400      | 630        | 110mm           |
| 170H3006       | 1400      | 1250       | 110mm           |

The fuse bases rated 1250A can also be used for the fuses with higher rated current if the maximum load current is derated according to the table below:

| Fuse Amp Rating | Max Amp Load In Fuse Base |
|-----------------|---------------------------|
| 1400            | 1325                      |
| 1500            | 1400                      |
| 1600            | 1500                      |
| 1800            | 1650                      |
| 2000            | 1800                      |

| Fixed Center Base Style | Max Volts | Max. Fuse Amp Rating | Fuse Size |
|-------------------------|-----------|----------------------|-----------|
| 170H1007                | 1000      | 400                  | 00, 000   |
| 170H1013                | 660       | 200                  | 0000,000  |

UL Recognized to UL 512.

#### Universal Fuse Bases

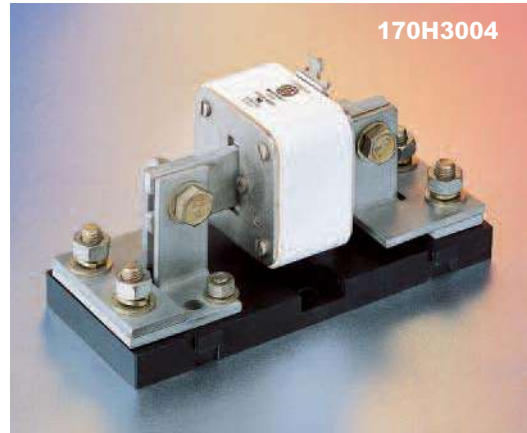
For the Typower ZILOX fuses according to DIN 43 653, French style and North American style, the following fuse bases are available:

| Modular Base Style | Max Volts | Max. Fuse Amp Rating | Data Sheet |
|--------------------|-----------|----------------------|------------|
| 1BS101             | 600       | 100                  | 1206       |
| 1BS102             | 600       | 400                  | 1207       |
| 1BS103             | 600       | 400                  | 1208       |
| 1BS104             | 600       | 600                  | 1209       |
| BH-0xxx            | 700       | 200                  | 1200       |
| BH-1xxx            | 2500      | 400                  | 1201       |
| BH-2xxx            | 5000      | 400                  | 1202       |
| BH-3xxx            | 1250      | 700                  | 1203       |

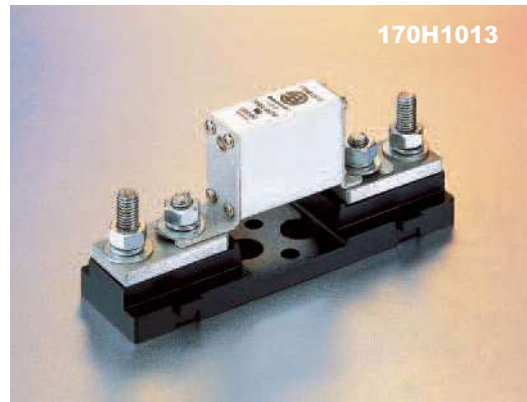
Modular fuse bases are UL Recognized to UL 512 and meet the spacing requirements of UL 347. Contact your Bussmann sales representative for more complete ordering information.

#### DIN 43 620 Fuse Bases

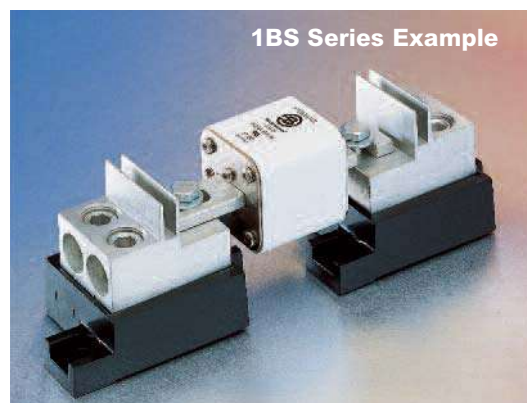
| Size   | Part Number |
|--------|-------------|
| 000-00 | SB00-D      |
| 1*, 1  | SB1-D       |
| 2,3    | SB2-D       |



170H3004



170H1013



1BS Series Example



## British BS 88 Fuses



### Introduction

#### British BS 88 Contents

| Fuse Volts | Amp Range | Page    |
|------------|-----------|---------|
| 240        | 6-900     | 215-217 |
| 690        | 6-710     | 218-221 |

#### Accessories

|                               |     |
|-------------------------------|-----|
| Indicator System & Fuse Bases | 222 |
|-------------------------------|-----|

#### British BS 88 Fuse Ranges

| Amps  | Vac | Vdc |
|-------|-----|-----|
| 6-900 | 240 | 150 |
| 6-710 | 690 | 500 |

### General Information

Designed and tested to:

- BS 88: Part 4
- IEC 269: Part 4
- UL Recognized

Bussmann offers the industry's widest range of British style semiconductor fuses and accessories.

Bussmann British style products use innovative arc quenching techniques and high grade materials to provide:

- Minimal energy let-through ( $I^2t$ )
- Excellent DC performance
- Good surge withstand profile

British style fuses are typically found in equipment manufactured in the United Kingdom or British Commonwealth countries. However, North American manufacturers have begun to specify British style fuses — particularly in UPS applications at 240V or less — to take advantage of their size, performance and cost benefits.

### Voltage Rating

All Bussmann British style fuses are tested to IEC 269: Part 4. This standard requires a test voltage which is 5% higher than the rated voltage. In North America, fuses are required to clear only their rated voltage.

### Accessories

Trip-indicator fuses are available for use in parallel with the main fuse. Indicator fuses can be attached to the associated fuselink, or mounted separately in panel-mounted fuseclips. In addition, a push-on adapter and microswitch attachment are available, to provide remote indication. Fuse blocks are also available for most applications.

# British BS 88 — 240V: 6-900A

## LCT, LET, LMT, LMMT

### Specifications

**Description:** BS 88 style stud-mount fuses.

**Dimensions:** See dimensions illustrations.

### Ratings:

Volts: — 240Vac/150Vdc

Amps: — 6-900A

IR: — 200kA RMS Sym.

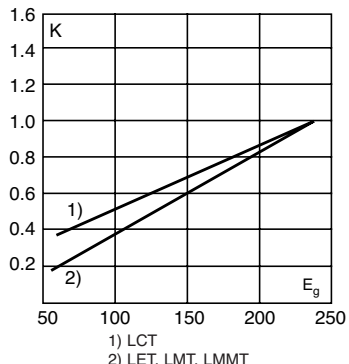
**Agency Information:** CE, Designed and tested to: BS 88 Part 4, IEC 269 Part 4, UL Recognized. All fuses above have been tested at 318Vac. Consult Bussmann for specific UL Recognition status.



### Electrical Characteristics

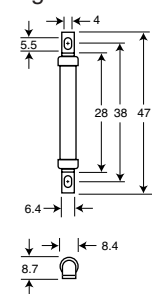
#### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



### Dimensions - mm

Fig. 1: LCT



1mm = 0.0394" / 1" = 25.4mm

Fig. 2: LET

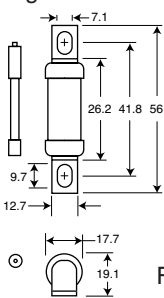
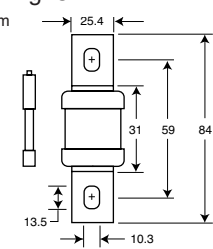
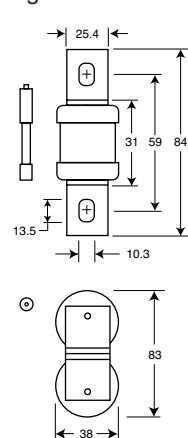


Fig. 3: LMT



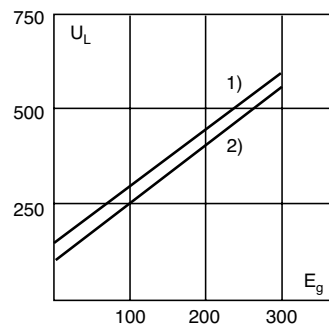
Indicator (Optional)

Fig. 4: LMMT



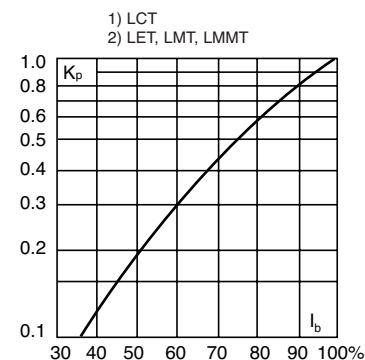
### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



### Catalog Numbers

#### Electrical Characteristics

| Catalog Numbers | Type  | Rated Current RMS-Amps | I <sup>2</sup> t (A <sup>2</sup> Sec) |          | Watts Loss |
|-----------------|-------|------------------------|---------------------------------------|----------|------------|
|                 |       |                        | Pre-arc                               | Clearing |            |
| 6LCT            | LCT   | 6                      | 2                                     | 6        | 1.0        |
| 10LCT           |       | 3.8                    | 12                                    | 22       | 2.5        |
| 12LCT           |       | 7                      | 22                                    | 32       | 2.5        |
| 16LCT           |       | 20                     | 50                                    | 100      | 2.5        |
| 20LCT           |       | 25                     | 80                                    | 160      | 4.0        |
| 25LET           |       | LET                    | 25                                    | 18       | 120        |
| 32LET           | 32    |                        | 200                                   | 450      | 5.0        |
| 35LET           | 50    |                        | 320                                   | 600      | 5.0        |
| 50LET           | 100   |                        | 500                                   | 1400     | 7.0        |
| 63LET           | 180   |                        | 1100                                  | 2200     | 9.0        |
| 80LET           | 300   |                        | 1900                                  | 3800     | 10.0       |
| 100LET          | 600   |                        | 3800                                  | 7500     | 10.0       |
| 125LET          | 600   |                        | 3800                                  | 7500     | 16.0       |
| 160LET          | 1100  |                        | 7000                                  | 16000    | 20.0       |
| 180LETa         | 1800  |                        | 12000                                 | 29000    | 21.0       |
| 160LMT          | LMT   | 160                    | 1100                                  | 7000     | 17.0       |
| 200LMT          |       | 1500                   | 10000                                 | 20000    | 28.0       |
| 250LMT          |       | 3200                   | 20000                                 | 40000    | 28.0       |
| 315LMT          |       | 6000                   | 35000                                 | 75000    | 35.0       |
| 355LMT          |       | 8000                   | 50000                                 | 100000   | 35.0       |
| 400LMT          |       | 14000                  | 70000                                 | 160000   | 40.0       |
| 450LMT          | 18000 | 100000                 | 220000                                | 42.0     |            |
| 400LMMT         | LMMT  | 400                    | 6000                                  | 35000    | 60.0       |
| 500LMMT         |       | 14000                  | 80000                                 | 170000   | 64.0       |
| 630LMMT         |       | 24000                  | 150000                                | 300000   | 75.0       |
| 710LMMT         |       | 32000                  | 200000                                | 460000   | 77.0       |
| 800LMMT         |       | 52000                  | 300000                                | 600000   | 82.0       |
| 900LMMT         |       | 75000                  | 400000                                | 800000   | 97.0       |

• Watts loss provided at rated current.

• Note: 7LET, 10LET, 12LET and 16LET are available for replacement purposes on existing equipment.

• See accessories on page 222.

### Features and Benefits

- Excellent cycling capability
- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)

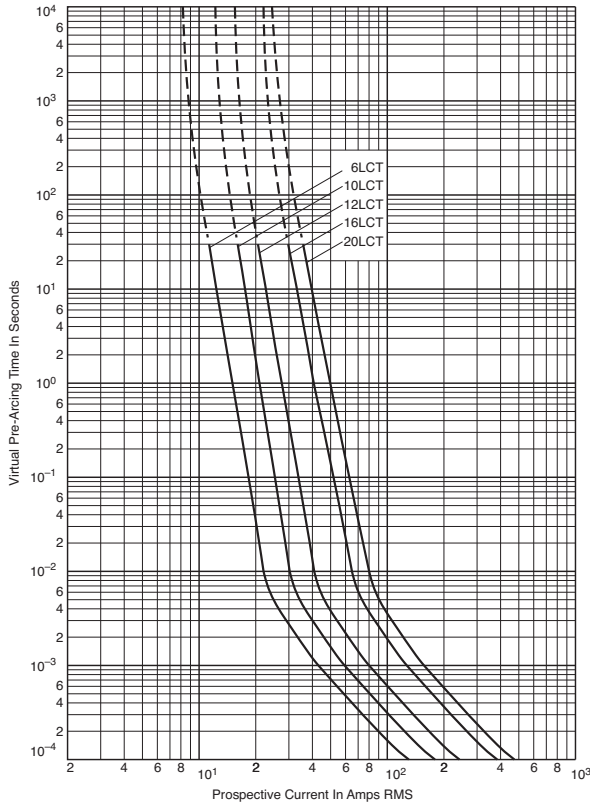
### Typical Applications

- DC Common bus
- AC and DC drives
- Power converters/rectifiers
- Reduced voltage starters

# British BS 88 — 240V: 6-900A

## LCT 6-20A: 240V

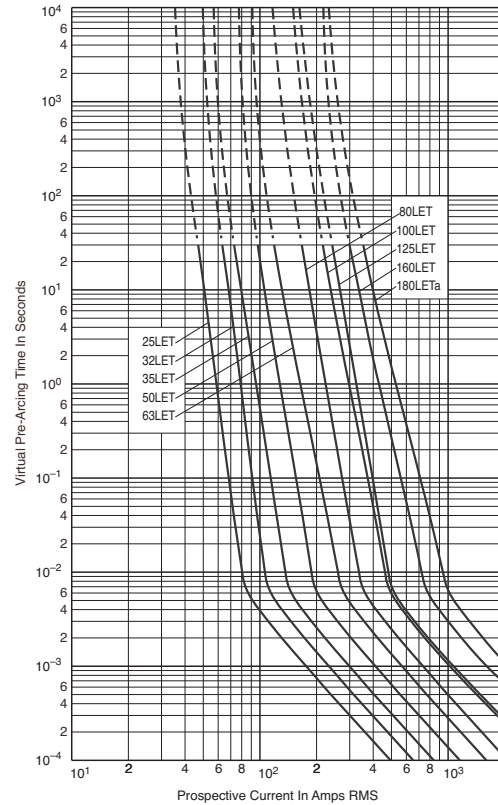
Time-Current Curve



Data Sheet: 35785296

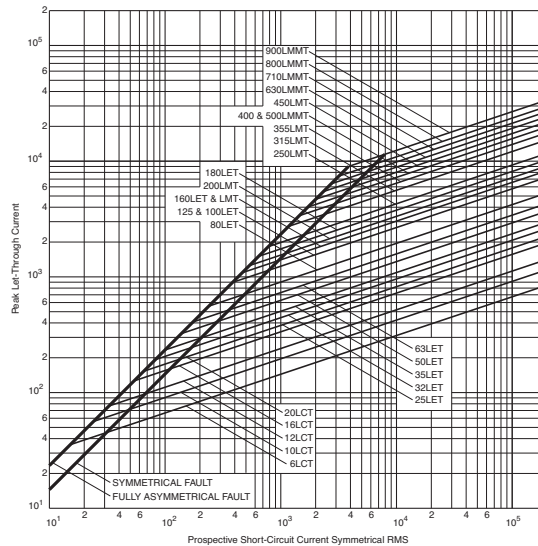
## LET 25-180A: 240V

Time-Current Curve



Data Sheet: 35785293

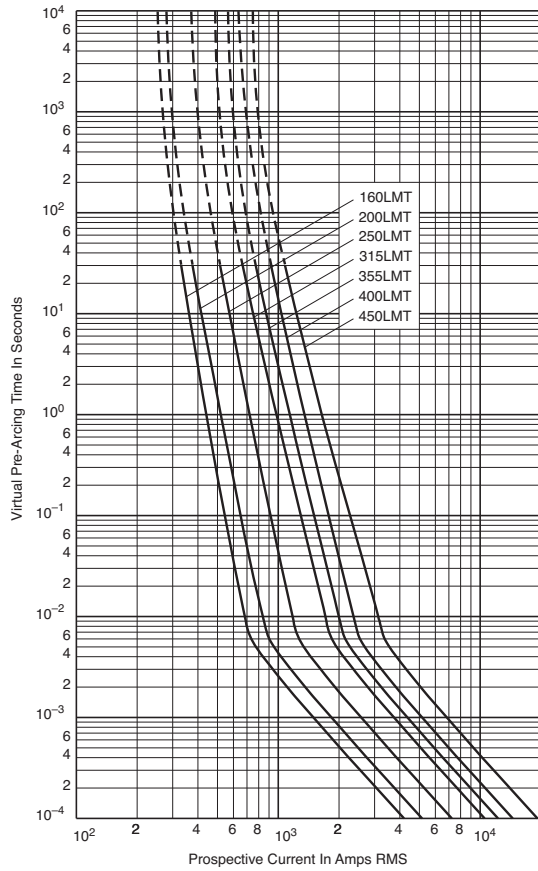
## Peak Let-Through Curve



## British BS 88 — 240V: 6-900A

### LMT 160-450A: 240V

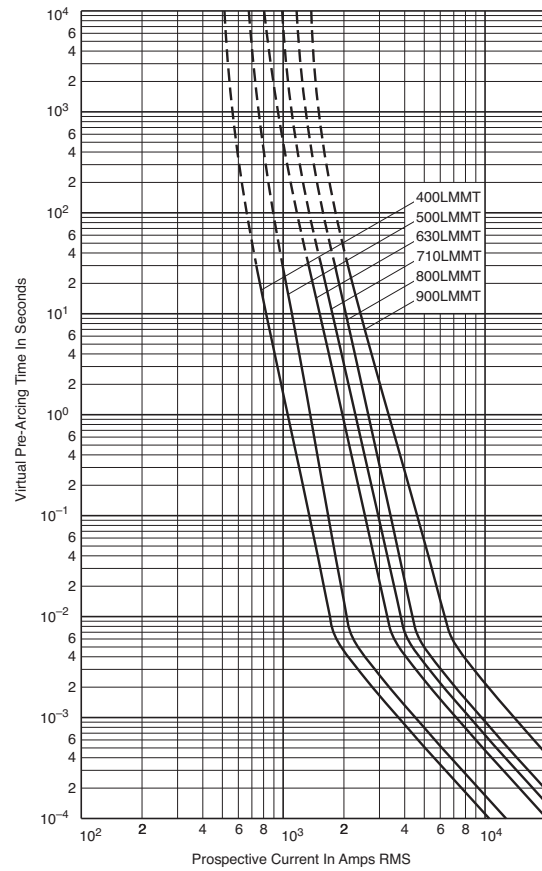
Time-Current Curve



Data Sheet: 35785294

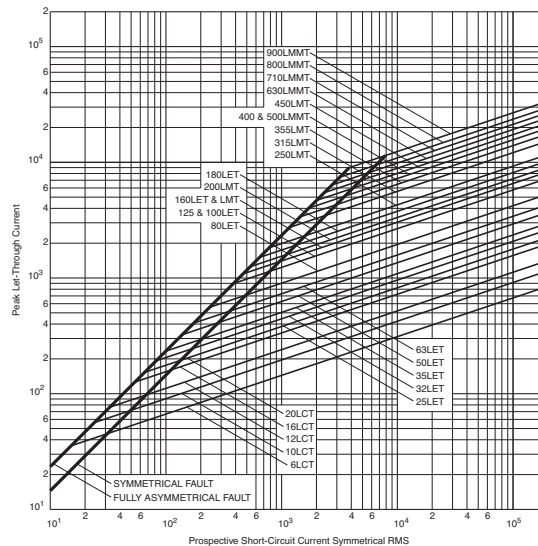
### LMMT 400-900A: 240V

Time-Current Curve



Data Sheet: 35785295

### Peak Let-Through Curve



## British BS 88 — 690V: 6-710A

### CT, ET, FE, EET, FEE, FM, FMM, MT, MMT

#### Specifications

**Description:** BS 88 style stud-mount fuses.

**Dimensions:** See dimensions illustrations.

#### Ratings:

Volts: — 690Vac/500Vdc

Amps: — 6-710A

IR: — 200kA RMS Sym.

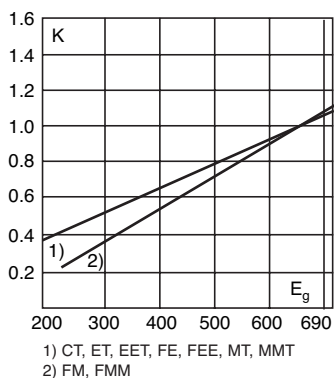


**Agency Information:** CE, Designed and tested to: BS 88 Part 4, IEC 269 Part 4, UL Recognized. MT and MMT — 350Vdc (IEC) rating. Consult Bussmann for UL Recognition status.

#### Electrical Characteristics

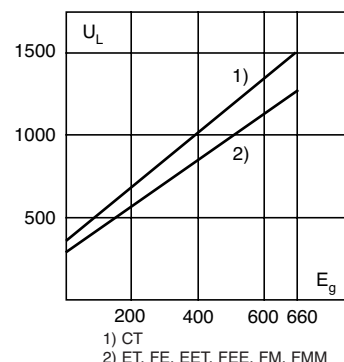
##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



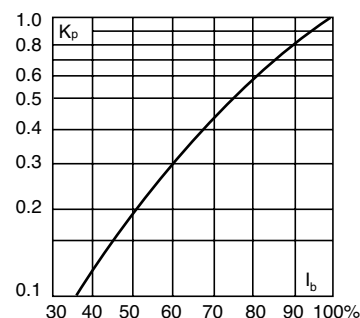
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Features and Benefits

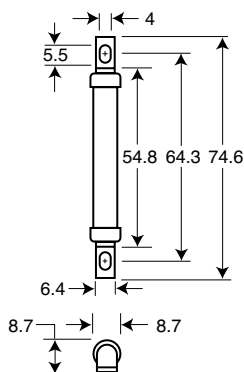
- Excellent cycling capability
- Excellent DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### Dimensions - mm

Fig. 1: CT



1mm = 0.0394" / 1" = 25.4mm

Fig. 2: ET, FE

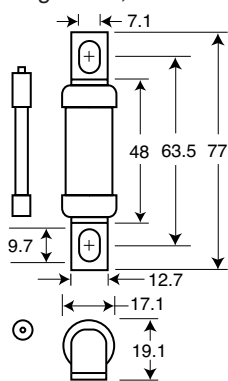


Fig. 3: EET, FEE

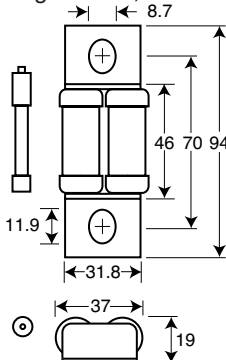


Fig. 4: FM, MT

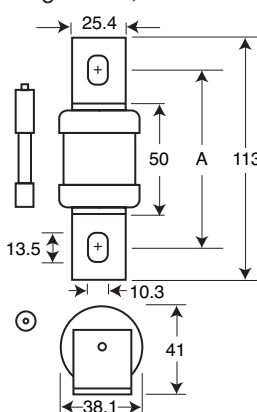
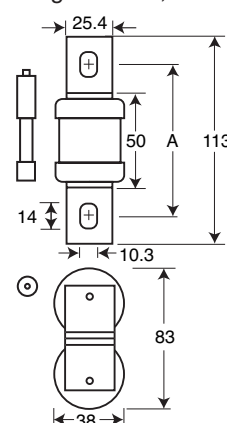


Fig. 5: FMM, MMT



Figs. 4 & 5 "A" Dimensions

| Type | "A"     |
|------|---------|
| FM   | 80-85mm |
| FMM  | 80-85mm |
| MT   | 85mm    |
| MMT  | 85mm    |



## British BS 88 — 690V: 6-710A

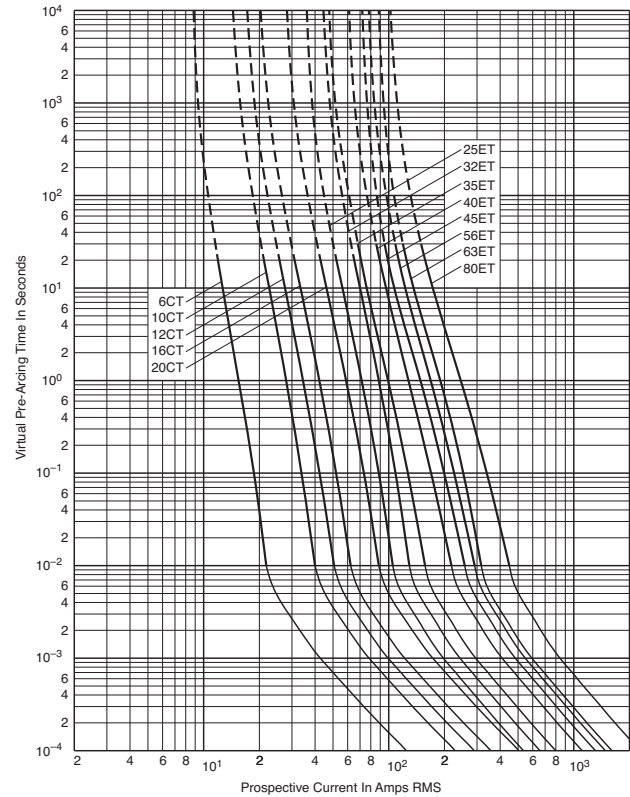
### Catalog Numbers

| Catalog Numbers | Type | Electrical Characteristics |                         |                  |         | Watts Loss |
|-----------------|------|----------------------------|-------------------------|------------------|---------|------------|
|                 |      | Rated Current RMS-Amps     | Pt (A <sup>2</sup> Sec) |                  | Pre-arc |            |
|                 |      |                            | Clearing at 415V        | Clearing at 660V |         |            |
| 6CT             | CT   | 6                          | 1.8                     | 8.5              | 12      | 2          |
| 10CT            |      | 10                         | 7                       | 30               | 48      | 3          |
| 12CT            |      | 12                         | 10                      | 40               | 65      | 3          |
| 16CT            |      | 16                         | 16                      | 66               | 110     | 7          |
| 20CT            |      | 20                         | 32                      | 150              | 220     | 7          |
| 25ET            | ET   | 25                         | 25                      | 150              | 250     | 7          |
| 32ET            |      | 32                         | 32                      | 190              | 350     | 11         |
| 35ET            |      | 35                         | 52                      | 310              | 500     | 11         |
| 40ET            |      | 40                         | 103                     | 600              | 900     | 9          |
| 45ET            |      | 45                         | 103                     | 680              | 1100    | 11         |
| 56ET            |      | 56                         | 135                     | 950              | 1500    | 14         |
| 63ET            |      | 63                         | 171                     | 1200             | 2000    | 16         |
| 80ET            | 80   | 360                        | 2500                    | 4000             | 18      |            |
| 35FE            | FE   | 35                         | 33                      | 130              | 200     | 9          |
| 40FE            |      | 40                         | 52                      | 180              | 300     | 9          |
| 45FE            |      | 45                         | 76                      | 270              | 450     | 11         |
| 50FE            |      | 50                         | 103                     | 380              | 600     | 11         |
| 63FE            |      | 63                         | 135                     | 480              | 750     | 12         |
| 71FE            |      | 71                         | 210                     | 600              | 950     | 17         |
| 80FE            |      | 80                         | 250                     | 900              | 1500    | 20         |
| 90FE            |      | 90                         | 360                     | 1300             | 2100    | 20         |
| 100FE           |      | 100                        | 470                     | 1800             | 2800    | 23         |
| 90EET           |      | EET                        | 90                      | 490              | 3000    | 4500       |
| 110EET          | 110  |                            | 600                     | 4000             | 6500    | 27         |
| 140EET          | 140  |                            | 1050                    | 7000             | 12000   | 35         |
| 160EET          | 160  |                            | 1500                    | 10000            | 17000   | 39         |
| 100FEE          | FEE  | 100                        | 400                     | 1600             | 2400    | 24         |
| 120FEE          |      | 120                        | 540                     | 1900             | 3100    | 32         |
| 140FEE          |      | 140                        | 850                     | 2500             | 3800    | 36         |
| 160FEE          |      | 160                        | 1000                    | 3700             | 5700    | 46         |
| 180FEE          |      | 180                        | 1400                    | 5300             | 8400    | 46         |
| 200FEE          |      | 200                        | 1900                    | 7100             | 11400   | 52         |
| 180FM           | FM   | 180                        | 1400                    | 7500             | 13500   | 40         |
| 200FM           |      | 200                        | 2600                    | 10500            | 18500   | 40         |
| 225FM           |      | 225                        | 3700                    | 14500            | 26500   | 44         |
| 250FM           |      | 250                        | 5200                    | 20500            | 37500   | 48         |
| 280FM           |      | 280                        | 7000                    | 30500            | 55000   | 48         |
| 315FM           |      | 315                        | 10000                   | 40000            | 77000   | 55         |
| 350FM           |      | 350                        | 15000                   | 60000            | 105000  | 55         |
| 400FMM          | FMM  | 400                        | 10000                   | 40000            | 72500   | 85         |
| 450FMM          |      | 450                        | 15000                   | 60000            | 105000  | 90         |
| 500FMM          |      | 500                        | 20000                   | 82000            | 150000  | 100        |
| 550FMM          |      | 550                        | 30000                   | 120000           | 215000  | 100        |
| 630FMM          |      | 630                        | 45000                   | 180000           | 310000  | 100        |
| 700FMM          |      | 700                        | 60000                   | 245000           | 420000  | 120        |
| 160MT           |      | MT                         | 160                     | 2400             | 15000   | 25000      |
| 180MT           | 180  |                            | 3800                    | 25000            | 38000   | 26         |
| 200MT           | 200  |                            | 6000                    | 40000            | 58000   | 27         |
| 250MT           | 250  |                            | 11500                   | 80000            | 110000  | 32         |
| 280MT           | 280  |                            | 16500                   | 100000           | 150000  | 35         |
| 315MT           | 315  |                            | 19000                   | 125000           | 180000  | 42         |
| 355MT           | 355  |                            | 22000                   | 160000           | 200000  | 51         |
| 180MMT          | MMT  | 180                        | 1650                    | 12000            | 18000   | 42         |
| 200MMT          |      | 200                        | 2200                    | 16000            | 23000   | 42         |
| 225MMT          |      | 225                        | 3700                    | 26000            | 40000   | 42         |
| 280MMT          |      | 280                        | 6600                    | 47000            | 70000   | 47         |
| 315MMT          |      | 315                        | 8600                    | 62000            | 91000   | 51         |
| 355MMT          |      | 355                        | 13500                   | 97000            | 140000  | 54         |
| 400MMT          |      | 400                        | 21000                   | 150000           | 220000  | 60         |
| 450MMT          |      | 450                        | 30000                   | 220000           | 320000  | 57         |
| 500MMT          |      | 500                        | 42000                   | 300000           | 450000  | 64         |
| 560MMT          |      | 560                        | 60000                   | 430000           | 640000  | 64         |
| 630MMT          |      | 630                        | 68500                   | 500000           | 720000  | 86         |
| 710MMT          | 710  | 78000                      | 600000                  | 850000           | 105     |            |

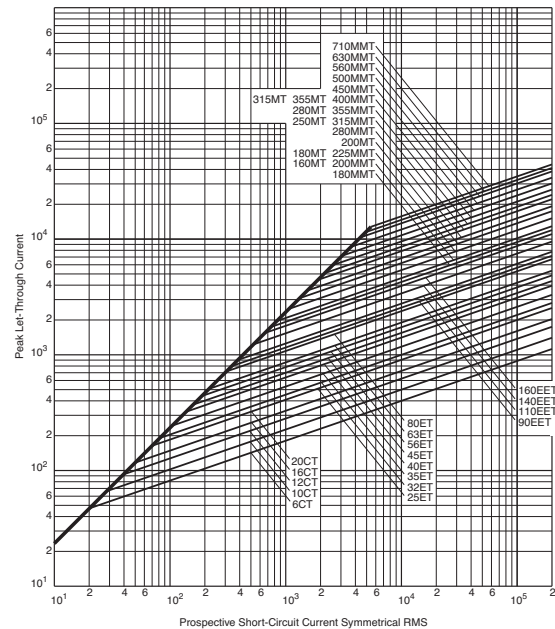
- Watts loss provided at rated current.
- Note: FC, 8ET, 12ET, 15ET, 20ET, 65EET and 75EET are available for replacement purposes on existing equipment.
- See accessories on page 222.

### CT 6-20, ET 25-80A: 690V

#### Time-Current Curve



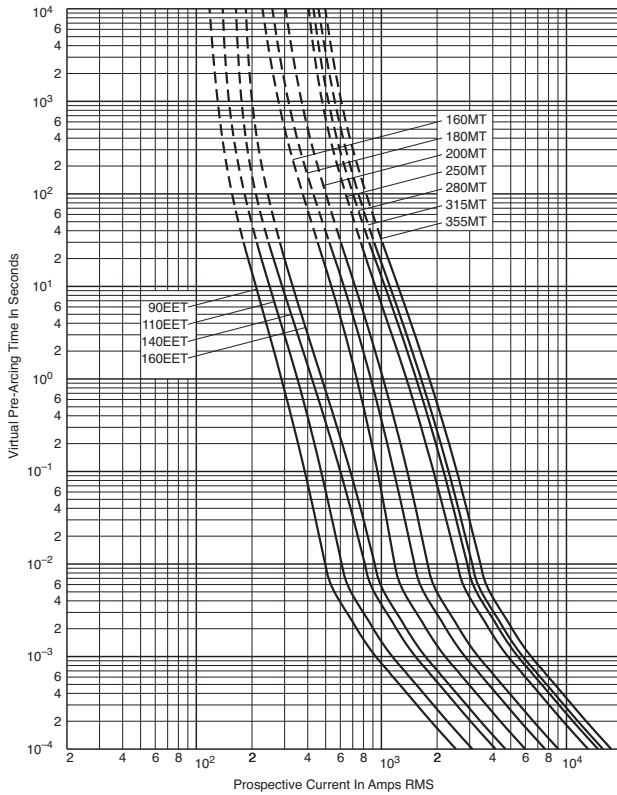
#### Peak Let-Through Curve



# British BS 88 — 690V: 6-710A

## EET 90-160A, MT 160-355A: 690V

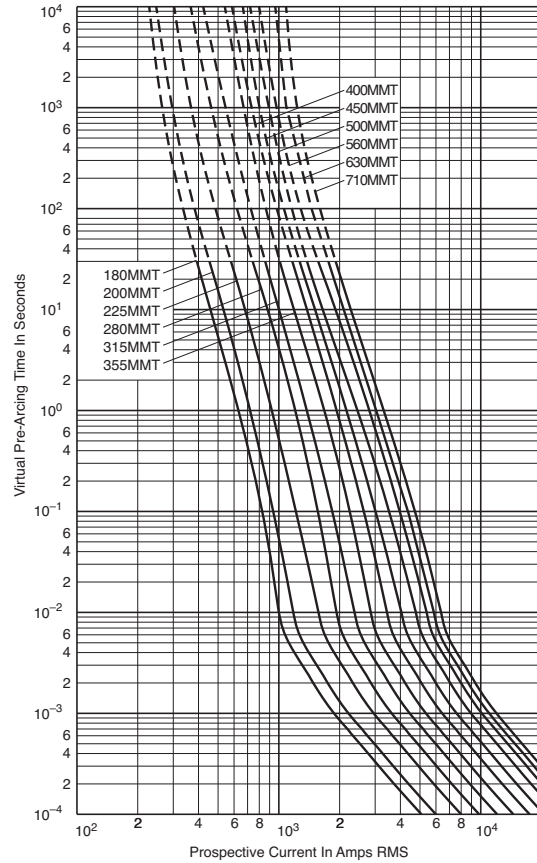
Time-Current Curve



Data Sheet: 35785313

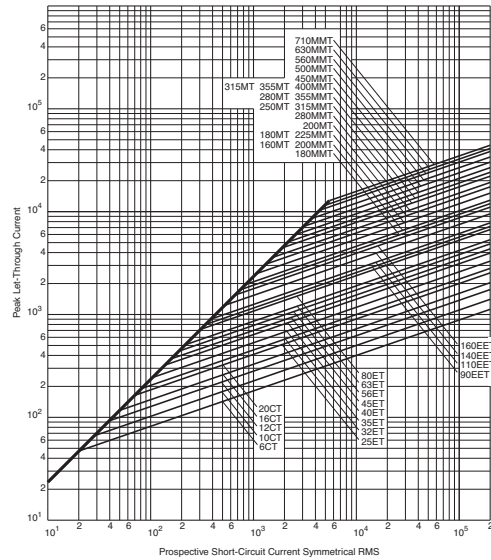
## MMT 180-710A: 690V

Time-Current Curve



Data Sheet: 35785311

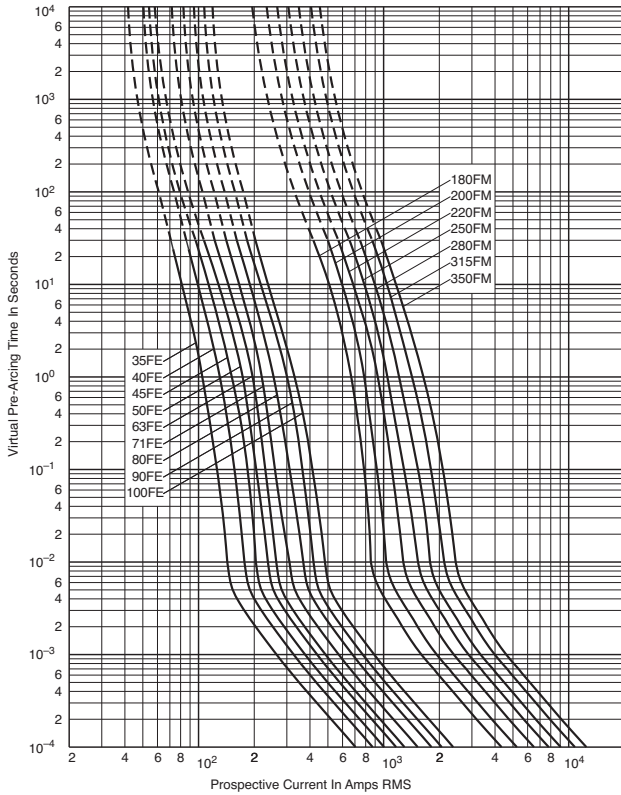
## Peak Let-Through Curve



## British BS 88 — 690V: 6-710A

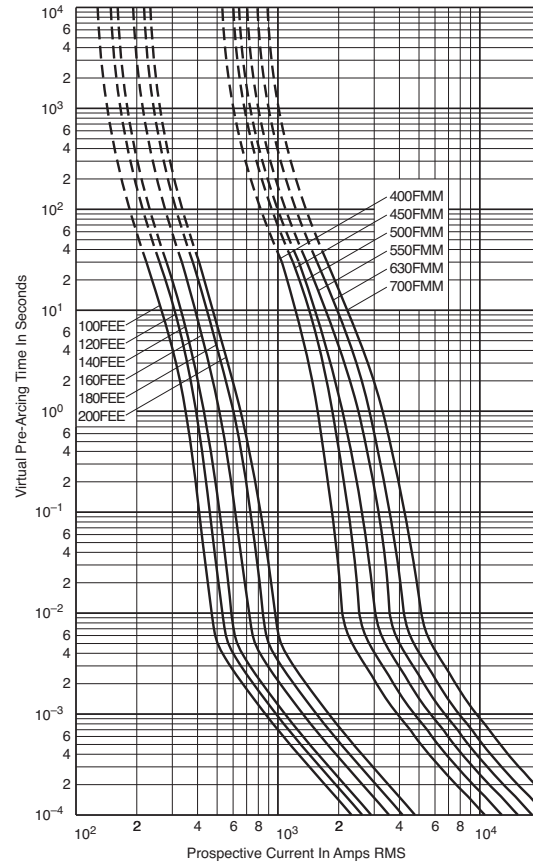
### FE 35-100A & FM 180-350A: 690V

Time-Current Curve

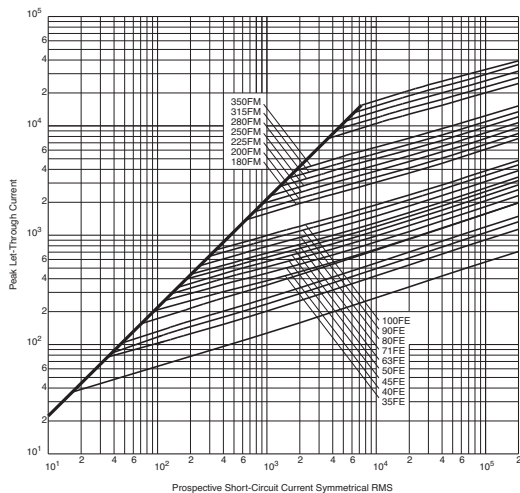


### FEE 100-200A & FMM 400-700A: 690V

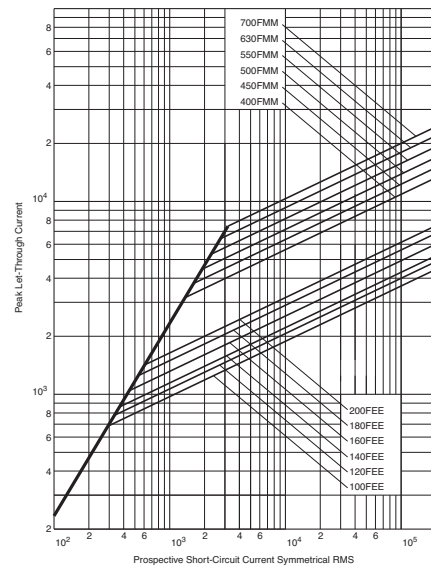
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



Data Sheet: 35785314

Data Sheet: 35785292

## British BS 88 Fuse Accessories

### Indicator System

#### Trip-Indicators

Trip-indicators are available for use in parallel with the main fuse. They can either be attached to the associated fuse or mounted separately in panel mounted fuse clips, reference CL1. A push-on adapter and microswitch attachment is available for use with the trip indicator to give the facility of remote indication, reference MAI.

Fuse ratings of 20A and below cannot usually accommodate a trip-indicator.

When a trip-indicator is to be attached to the main fuse an accessory pack comprising a pair of mounting clips and an appropriate trip indicator would be required. The clips are snapped onto the fuse end caps and the indicator is pressed into clips as shown.

#### Electrical Specifications

| Type                                     | TI500   | TI700   |
|--|---------|---------|
| Maximum RMS Voltage                      | 500     | 700     |
| Maximum Peak Voltage                     | 700     | 1000    |
| Maximum DC Voltage                       | 130     | 350     |
| Cold Resistance (ohms)                   | 0.3     | 0.45    |
| Maximum permissible steady-state current | 1.5A    | 1.5A    |
| Interrupting Capacity (RMS Symm.)        | 100,000 | 100,000 |
| Pre-Arcing I <sup>2</sup> t              | 23      | 23      |
| Total I <sup>2</sup> t (max volts)       | 46      | 46      |

#### Fuse Indicator Kits

| Kit. Ref. | Details        | RMS Volts | For use with Fuse Ref. |
|-----------|----------------|-----------|------------------------|
| EC-250    | Fuse Mount     | 250       | LET                    |
| MC250     | Indicator Kits | 250       | LMT & LMMT             |
| EC-600    | (Includes one  | 660       | FE, FEE & ET           |
| MC600     | indicator      | 660       | FM & FMM               |
| MC700     | and two clips) | 700       | MT & MMT               |

### Microswitch Adapter – MAI

We offer a microswitch, complete with adapter for securing the indicator. The microswitch is provided with double pole, single throw contacts, having both a normally open and a normally closed position. A special material has been employed in the construction of the adapter to provide reliable operation in the range of temperatures associated with standard operating conditions and during fuse operation.

#### Microswitch and Adapter Type MAI

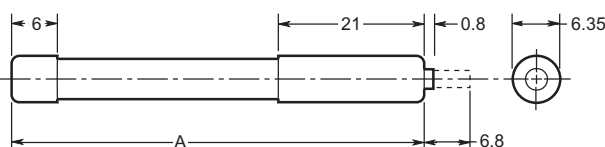
|                                      |         |
|--------------------------------------|---------|
| <b>Current Rating:</b>               |         |
| AC 50/60Hz resistive load @ 250V RMS | 4A      |
| AC 50/60Hz resistive load @ 127V RMS | 6A      |
| DC, resistive load @ 110Vdc          | 0.7A DC |
| DC, resistive load @ 30Vdc           | 2A DC   |
| <b>Maximum Working Voltage:</b>      |         |
| Contact-to-contact (RMS)             | 1000V   |
| Contact-to-contact (RMS)             | 1500V   |
| <b>Maximum DC Volts:</b>             | 110Vdc  |

#### CL1 Panel Mount Clips

CL1 Panel mount fuse clips are available for mounting a trip-indicator when mounting directly on the fuse is impractical. Order part number CL1.

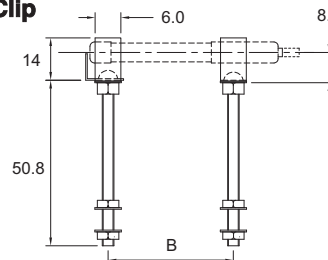


#### Trip-Indicator Dimensions - mm



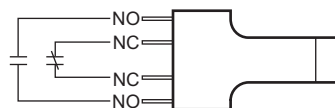
| Ref.   | Dim. "A" (mm) | RMS Volts |
|--------|---------------|-----------|
| TI250  | 37.6          | 250       |
| TI500  | 47.5          | 500       |
| TI600  | 55.7          | 600       |
| TI700  | 61.8          | 700       |
| TI1100 | 98.4          | 1100      |
| TI1500 | 120.6         | 1500      |
| TI2000 | 147.5         | 2000      |
| TI2500 | 198.3         | 2500      |

#### CL1 Panel Mount Clip Dimensions - mm

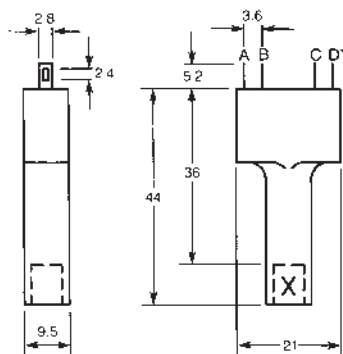


### Microswitch Adapter – MAI

#### Terminal Arrangement



#### Dimensions in mm



\*\*A-D=N/O contacts  
B=C=N/C contacts

## Ferrule Fuses



### Table of Contents

| Basic Catalog Number | Volts          | Amp Range | Page    |
|----------------------|----------------|-----------|---------|
| FWA                  | 150            | 5-60      | 224-225 |
| FWX                  | 250            | 1-50      | 226-227 |
| FWH                  | 500            | 0.25-30   | 228-231 |
| FWC                  | 600            | 6-32      | 232-233 |
| FWP                  | 690V/700       | 1-100     | 234-237 |
| FWK                  | 750            | 5-60      | 238-239 |
| FWJ                  | 1000           | 20-30     | 240-241 |
| FWL/FWS              | 1250/1500/2000 | 2-30      | 242     |

### Accessories

|              |     |
|--------------|-----|
| Fuse Holders | 241 |
|--------------|-----|

### Ferrule Fuse Ranges

| Volts           | Amps    | AC | DC          |
|-----------------|---------|----|-------------|
| 150             | 5-60    | X  | X           |
| 250             | 1-50    | X  | X           |
| 500             | 0.25-30 | X  | X           |
| 600             | 6-32    | X  | X           |
| 700 (22 x 58mm) | 20-100  | X  | —           |
| 700 (14 x 51mm) | 1-50    | X  | X           |
| 750             | 5-60    | X  | X           |
| 1000            | 20-30   | X  | X (800Vdc)  |
| 1250            | 20-30   | X  | X (1000Vdc) |
| 1500            | 8-15    | X  | X (1000Vdc) |
| 2000            | 2-6     | X  | X (1000Vdc) |

### General Information

Bussmann offers a full line of ferrule style (cylindrical clip-mounted) fuses, designed and tested to meet standards and requirements in various locations around the world. Their unique design and construction provide:

- Superior cycling capability
- Low energy let-through (I<sup>2</sup>t)

Ferrule fuses provide an excellent solution for small UPS, small ac drives and other low power applications where space is at a premium.

### Voltage Rating

All Bussmann ferrule fuses — except 690V — have been tested at their rated voltage. The 690V ferrule fuse has been tested to the IEC 60269 standard, which requires clearing at the rated voltage +5%.

### Accessories

Ferrule fuses may be mounted in fuseclips, fuse holders, fuse blocks or fused switches. A variety of products are available. Please consult Bussmann Application Engineering to discuss your requirement.



## Ferrule — FWA 150V: 5-60A

### FWA 5-30A (10 x 38mm) 35-60A (21 X 51mm)

#### Specifications

**Description:** Ferrule style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts — 150Vac/dc

Amps — 5-60A

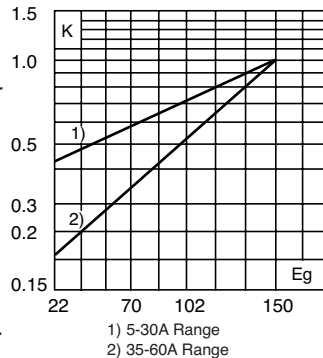
IR: — 100kA Sym.

**Agency Information:** CE, UL Recognition JFHR2.E91958

#### Electrical Characteristics

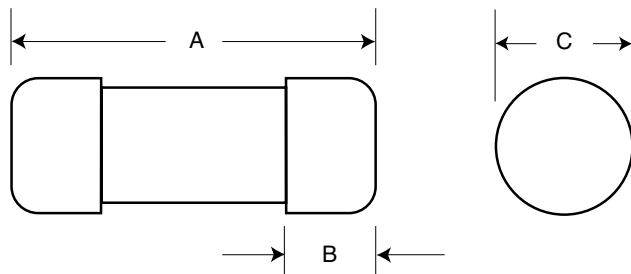
##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



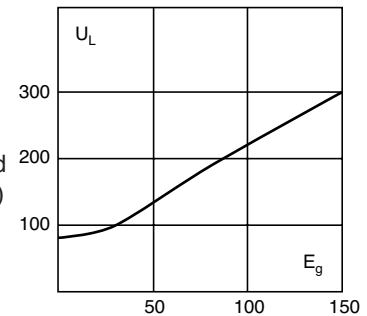
#### Dimensions - in (mm)

| Amp Range | Dimensions |              |              |
|-----------|------------|--------------|--------------|
|           | A          | B            | C            |
| 5-30      | 1.5 (38.1) | 0.375 (9.5)  | 0.406 (10.3) |
| 35-60     | 2.0 (50.8) | 0.625 (15.9) | 0.811 (20.6) |



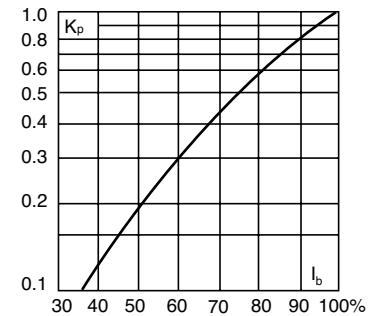
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Catalog Numbers

| Catalog Numbers | Size  | Electrical Characteristics |                                       |                  |            |
|-----------------|---|----------------------------|---------------------------------------|------------------|------------|
|                 |   | Rated Current RMS-Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |                  | Watts Loss |
|                 |   |                            | Pre-arc                               | Clearing at 150V |            |
| FWA-5A10F       |   | 5                          | 1.6                                   | 8                | 1          |
| FWA-10A10F      |   | 10                         | 3.6                                   | 16               | 2.7        |
| FWA-15A10F      | 10 x 38mm                                   | 15                         | 14                                    | 55               | 3.3        |
| FWA-20A10F      | ( <sup>13</sup> / <sub>32</sub> " x 1 1/2") | 20                         | 33                                    | 130              | 3.8        |
| FWA-25A10F      |   | 25                         | 58                                    | 220              | 4.9        |
| FWA-30A10F      |   | 30                         | 100                                   | 400              | 4.9        |
| FWA-35A21F      |   | 35                         | 75                                    | 800              | 4.5        |
| FWA-40A21F      |   | 40                         | 100                                   | 1000             | 5.1        |
| FWA-45A21F      | 21 x 51mm                                   | 45                         | 130                                   | 1300             | 6          |
| FWA-50A21F      | ( <sup>13</sup> / <sub>16</sub> " x 2")     | 50                         | 170                                   | 1600             | 7.3        |
| FWA-60A21F      |   | 60                         | 250                                   | 2400             | 8.0        |

• Watts loss provided at rated current.  
• See accessories on page 243.

#### Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

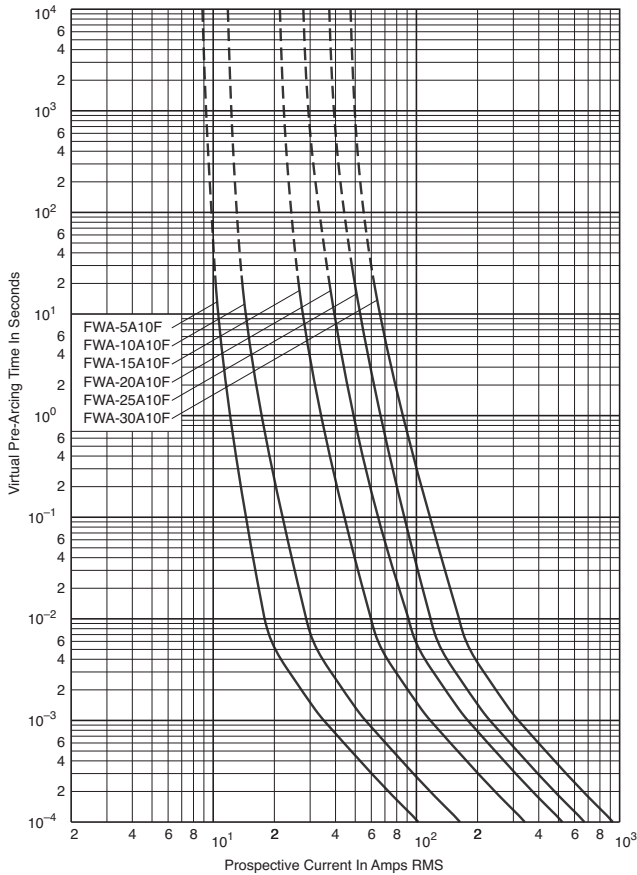
#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

## Ferrule — FWA 150V: 5-60A

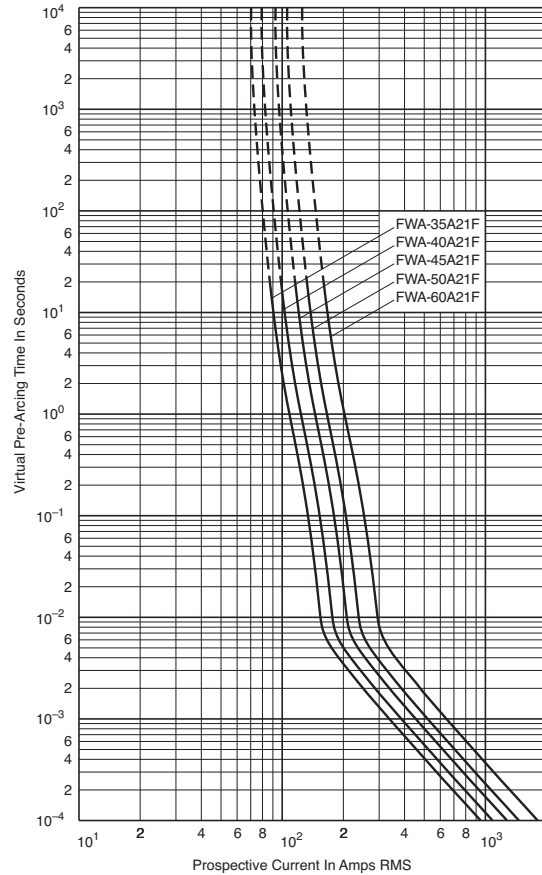
### FWA 5-30A: 150V (10 x 38mm)

Time-Current Curve

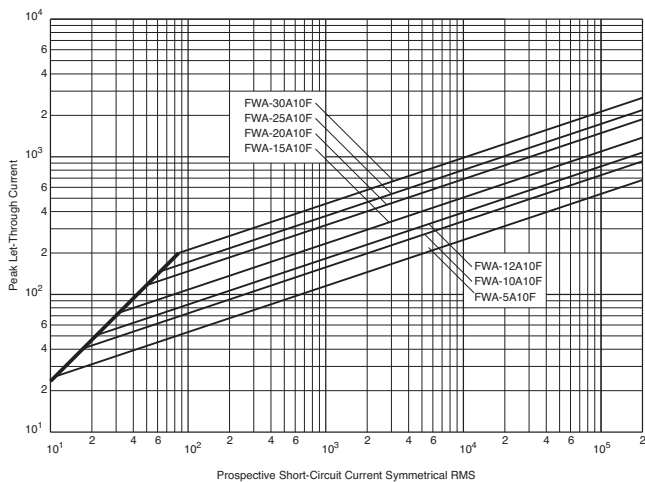


### FWA 35-60A: 150V (21 x 51mm)

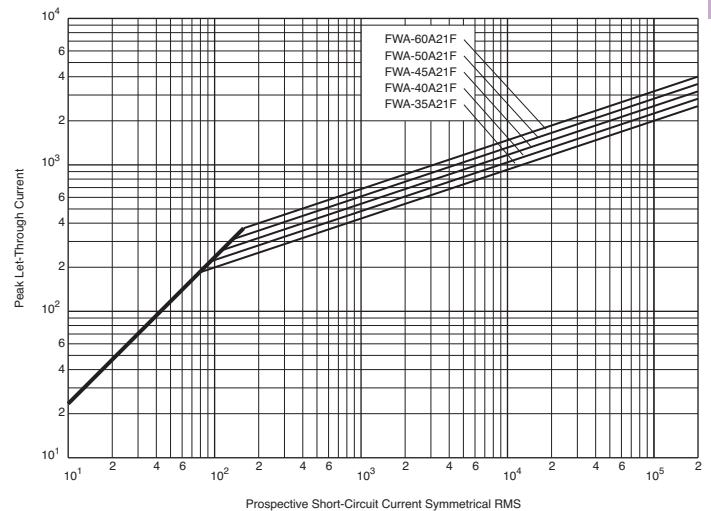
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



Data Sheet: 35785317

Data Sheet: 35785305

## Ferrule — FWX 250V (UL): 1-50A

### FWX (14 x 51mm)

#### Specifications

**Description:** Ferrule style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 250Vac/dc

Amps: — 1-50A

IR: — 200kA RMS Sym.

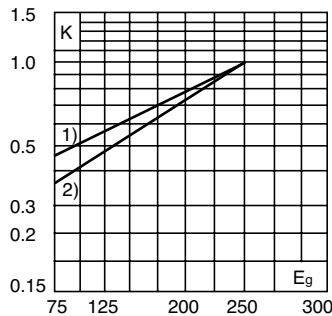
— 50kA @ 250Vdc

**Agency Information:** CE, UL Recognition JFHR2.E91958 1-50A & CSA Component Acceptance file Class 1422-30, 1422-90 (53787) 5-30A

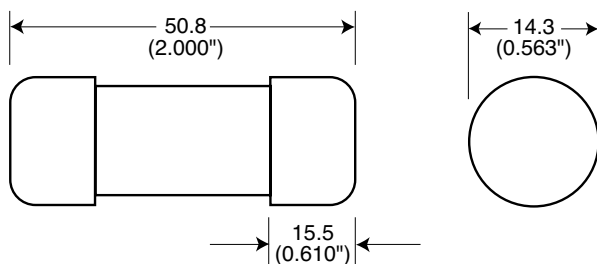
#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).

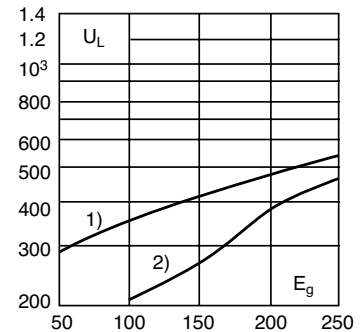


#### Dimensions - mm (in)



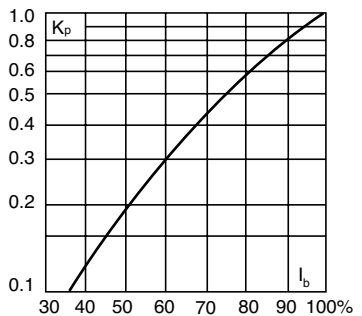
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Catalog Numbers

| Catalog Number | Size  | Electrical Characteristics |                                       |                  |            |
|----------------|---|----------------------------|---------------------------------------|------------------|------------|
|                |   | Rated Current RMS-Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |                  | Watts Loss |
|                |   |                            | Pre-arc                               | Clearing at 250V |            |
| FWX-1A14F      | 14 x 51mm<br>( <sup>1</sup> / <sub>16</sub> " x 2") | 1                          | —                                     | —                | —          |
| FWX-2A14F      |   | 2                          | —                                     | —                | —          |
| FWX-3A14F      |   | 3                          | —                                     | —                | —          |
| FWX-4A14F      |   | 4                          | —                                     | —                | —          |
| FWX-5A14F      |   | 5                          | 1.6                                   | 13               | 1.3        |
| FWX-10A14F     |   | 10                         | 3.6                                   | 24               | 3.4        |
| FWX-15A14F     |   | 15                         | 14                                    | 83               | 3.8        |
| FWX-20A14F     |   | 20                         | 33                                    | 200              | 4.6        |
| FWX-25A14F     |   | 25                         | 58                                    | 300              | 5.3        |
| FWX-30A14F     |   | 30                         | 100                                   | 500              | 5.9        |
| FWX-50A14F     | 50  | 200                        | 1800                                  | 5.7              |            |

- Watts loss provided at rated current.
- (250Vdc/Interrupting rating 50kA) UL Recognition & CSA Component Acceptance on 5 through 30A only. Consult Bussmann for additional ratings.
- See accessories on page 243.

#### Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

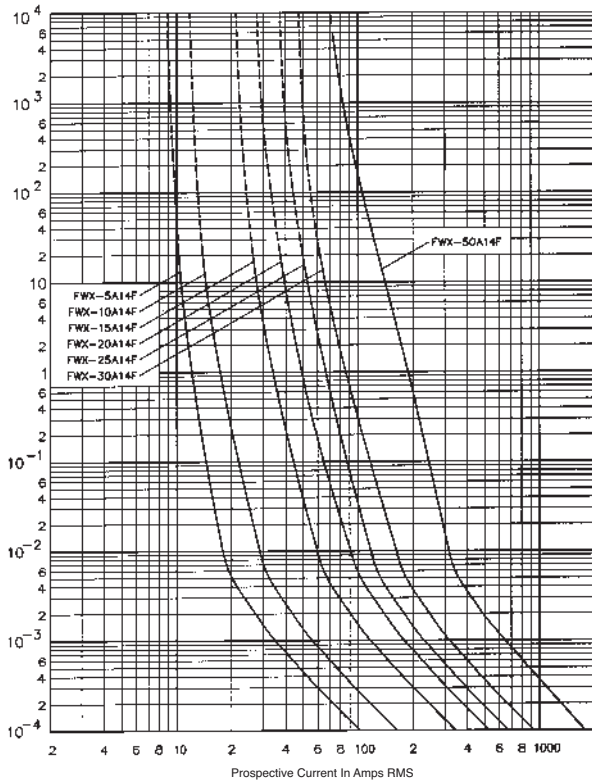
#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

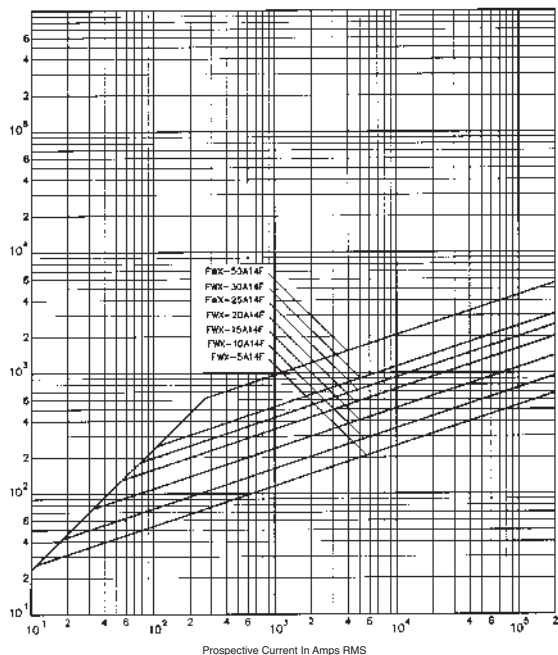
## Ferrule — FWX 250V (UL): 1-50A

### FWX 1-30A: 250V (14 x 51mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785302

## Ferrule — FWH 500V: 0.25-30A

### FWH (6 x 32mm)

#### Specifications

**Description:** Ferrule style high speed fuses.

**Dimensions:** See dimensions illustrations.

#### Ratings:

Volts: — 500Vac (0.25-6.3A)  
500Vdc (2-5A)

Amps: — 0.25-30A

IR: — 50kA at ≥ 20% pf (0.25-20A)  
— 20kA at ≥ 20% pf (25-30A)

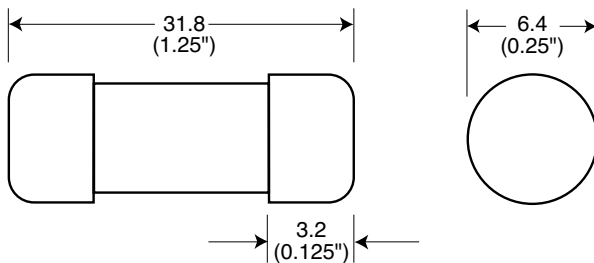
**Agency Information:** CE, UL Recognition JFHR2.E91958  
0.25-30A, CSA Component Acceptance file Class 1422-30,  
1422-90 (53787) 0.25-7A

#### Opening Times

| Amp Ratings | 150%     | 200%     | 300%     |
|-------------|----------|----------|----------|
| 0.25-7      | > 30 min | < 30 min | ≤ 10 sec |
| 10-30       | < 30 min | < 30 min | ≤ 10 sec |



#### Dimensions - mm (inches)



### Catalog Numbers

| Catalog Numbers | Size       | Rated Current RMS-Amps | Electrical Characteristics            |                  |            |
|-----------------|------------|------------------------|---------------------------------------|------------------|------------|
|                 |            |                        | I <sup>2</sup> t (A <sup>2</sup> Sec) |                  | Watts Loss |
|                 |            |                        | Pre-arc                               | Clearing at 500V |            |
| FWH-.250A6F     |            | 0.25*                  | 0.01                                  | 0.05             | 2.7        |
| FWH-.500A6F     |            | 0.5*                   | 0.05                                  | 0.25             | 1.2        |
| FWH-001A6F      |            | 1*                     | 0.4                                   | 2                | 1.7        |
| FWH-002A6F      |            | 2*                     | 1.3                                   | 3.5              | 3.2        |
| FWH-3.15A6F     |            | 3.15*                  | 3.1                                   | 7.7              | 2.9        |
| FWH-005A6F      |            | 5*                     | 15                                    | 40               | 2.1        |
| FWH-6.30A6F     | 6 x 32mm   | 6.3*                   | 36                                    | 90               | 2.3        |
| FWH-007A6F      | (¼" x 1¼") | 7*                     | 50                                    | 125              | 2.5        |
| FWH-010A6F      |            | 10**                   | 9.9                                   | 139              | 2.86       |
| FWH-12.5A6F     |            | 12.5**                 | 20                                    | 60               | 3.53       |
| FWH-015A6F      |            | 15**                   | 44                                    | 146              | 3.08       |
| FWH-016A6F      |            | 16**                   | 48                                    | 177              | 4.48       |
| FWH-020A6F      |            | 20**                   | 75                                    | 259              | 4.26       |
| FWH-025A6F      |            | 25**                   | 126                                   | 345              | —          |
| FWH-030A6F      |            | 30**                   | 145                                   | 430              | —          |

\*300% minimum opening current at rated voltage.  
\*\*200% minimum opening current at rated voltage.  
• Consult Bussmann for DC ratings.  
• See accessories on page 243.

### Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

### Typical Applications

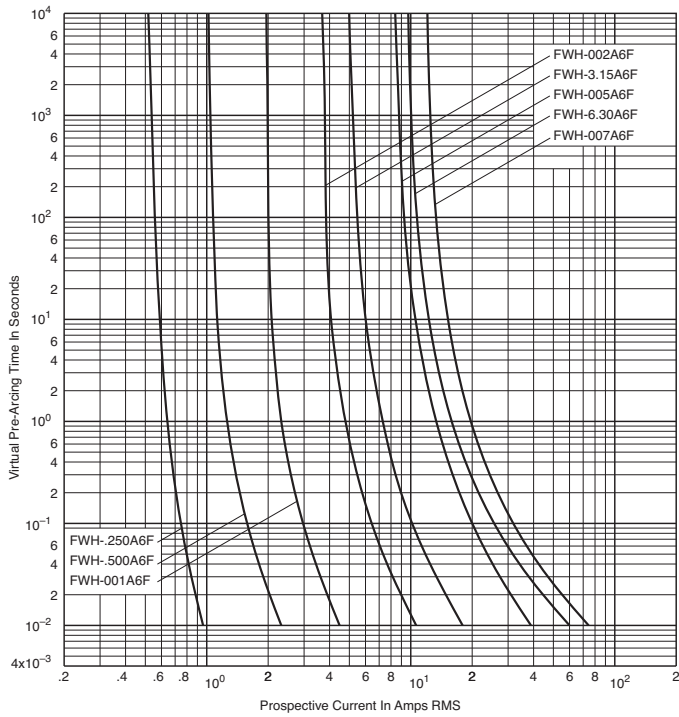
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters



## Ferrule — FWH 500V: 0.25-30A

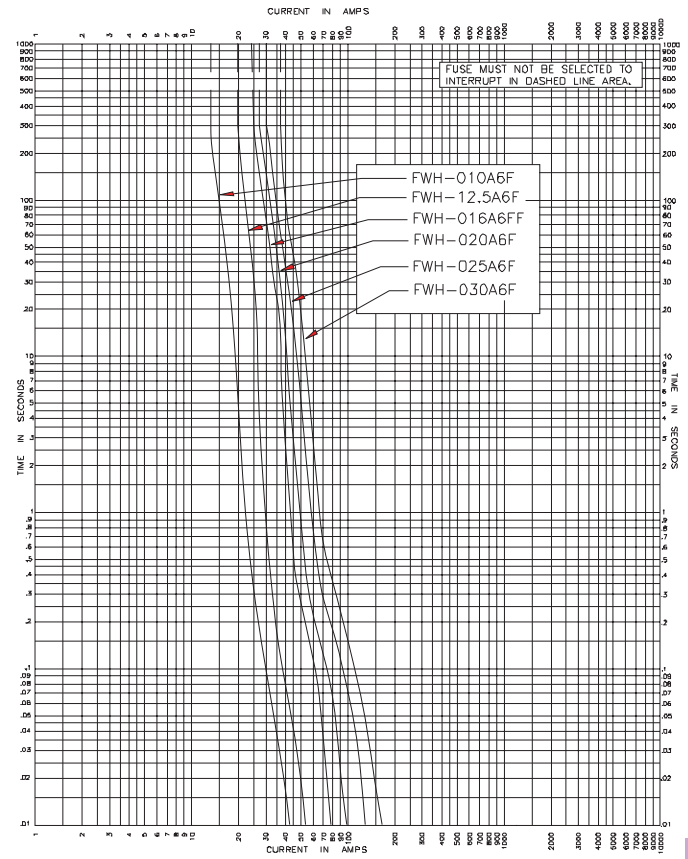
### FWH 0.25-7A: 500V (6 x 32mm)

Time-Current Curve



### FWH 10-30A: 500V (6 x 32mm)

Time-Current Curve



## Ferrule — FWH 500V: 1-30A

### FWH (14 x 51mm)

#### Specifications

**Description:** Ferrule style high speed fuses.

**Dimensions:** See Dimensions illustration.

#### Ratings:

Volts: — 500Vac

Amps: — 1-30A

IR: — 200kA RMS Sym.

— 50kA @500Vdc

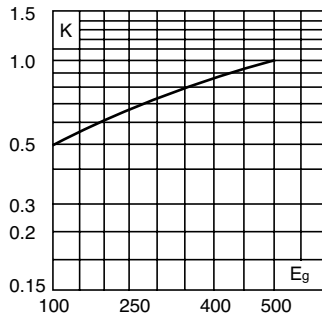
**Agency Information:** CE, UL Recognition 1- 30A & CSA Component Acceptance file Class 1422-30, (53787) on: 5 - 30A.



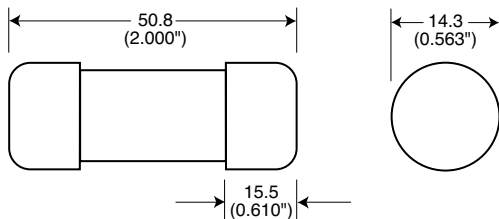
#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).

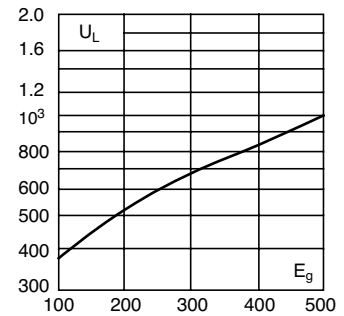


#### Dimensions - mm (inches)



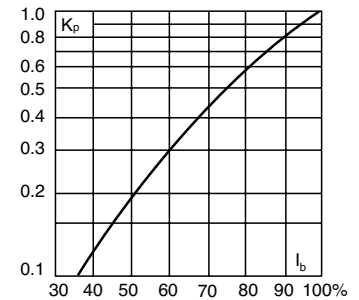
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Catalog Numbers

| Catalog Numbers | Size        | Electrical Characteristics |                                       |                  |            |
|-----------------|-------------|----------------------------|---------------------------------------|------------------|------------|
|                 |             | Rated Current RMS-Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |                  | Watts Loss |
|                 |             |                            | Pre-arc                               | Clearing at 500V |            |
| FWH-1A14F       | 14 x 51mm   | 1                          | —                                     | —                | —          |
| FWH-2A14F       | (1/8" x 2") | 2                          | —                                     | —                | —          |
| FWH-3A14F       |             | 3                          | —                                     | —                | 2.3        |
| FWH-4A14F       |             | 4                          | —                                     | —                | —          |
| FWH-5A14F       |             | 5                          | 1.6                                   | 6.4              | 1.5        |
| FWH-6A14F       |             | 6                          | 1.6                                   | 6.4              | 1.5        |
| FWH-10A14F      |             | 10                         | 3.6                                   | 13               | 4          |
| FWH-12A14F      |             | 12                         | —                                     | —                | —          |
| FWH-15A14F      |             | 15                         | 10                                    | 40               | 5.5        |
| FWH-20A14F      |             | 20                         | 26                                    | 96               | 6          |
| FWH-25A14F      |             | 25                         | 49                                    | 191              | 7          |
| FWH-30A14F      |             | 30                         | 58                                    | 232              | 9          |

• Watts loss provided at rated current.  
• See accessories on page 243.

#### Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

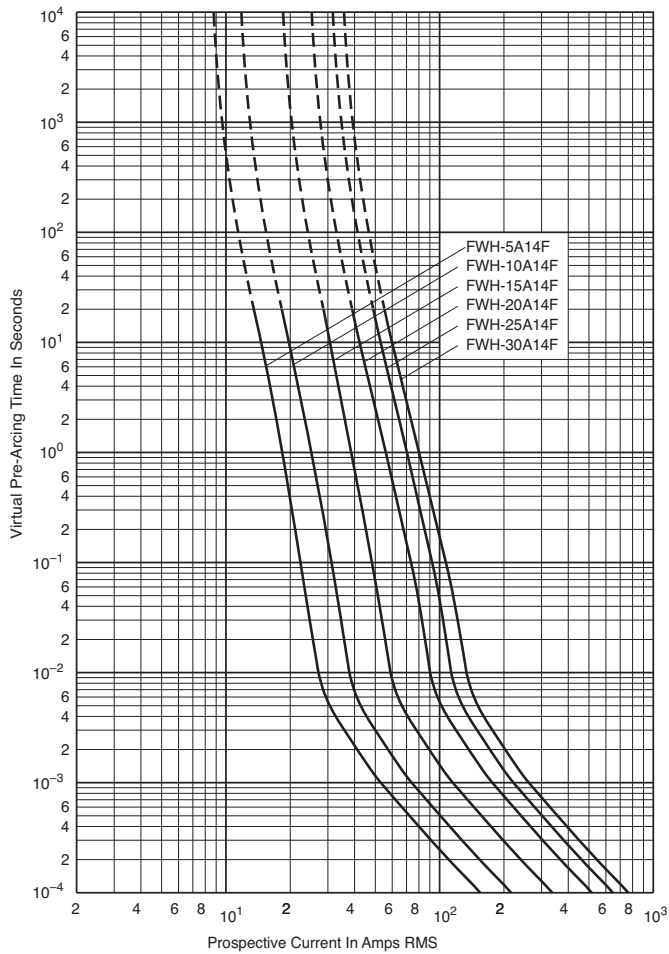
#### Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

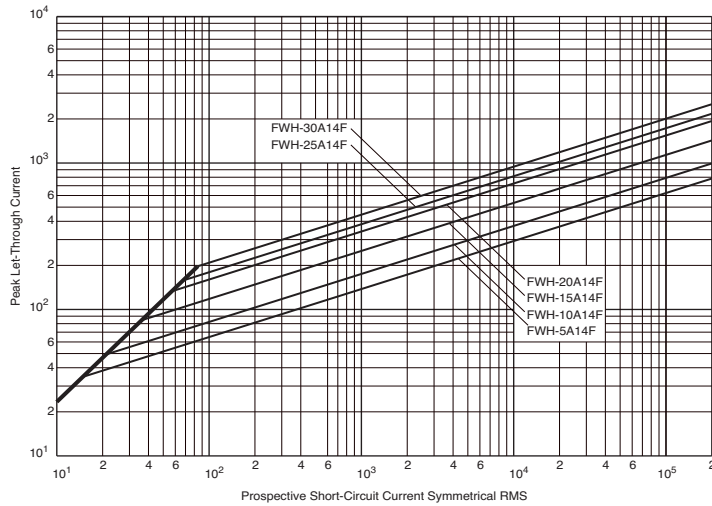
## Ferrule — FWH 500V: 1-30A

### FWH 1-30A: 500V (14 x 51mm)

**Time-Current Curve**



**Peak Let-Through Curve**



Data Sheet: 35785298

## Ferrule — FWC 600V: 6-32A

### FWC (10 x 38mm)

#### Specifications

**Description:** Ferrule style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 600Vac/700Vdc (6-25A)  
600Vac (30-32A)

Amps: — 6-32A

IR: — 200kA RMS Sym.

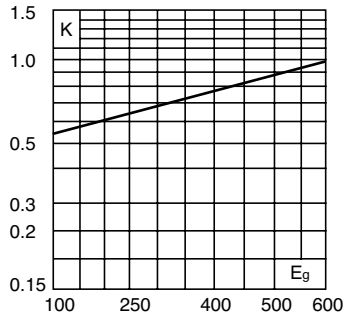
— 50kA @ 700Vdc (6-25A)

**Agency Information:** CE, UL Recognition JFHR8.E91958 6-32A. & CSA Component Acceptance file Class 1422-30, (53787) on (6-32A)

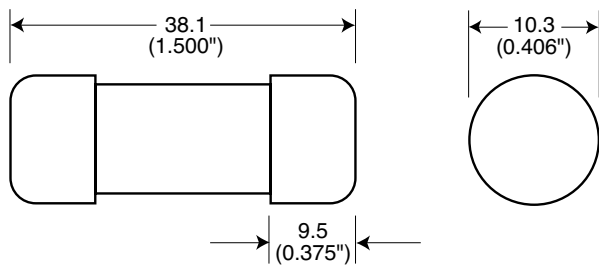
#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working



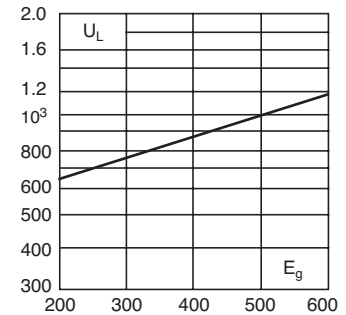
#### Dimensions - mm (in)



voltage,  $E_g$ , (rms).

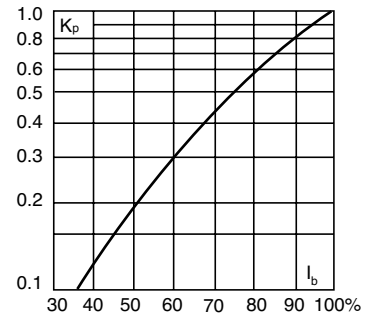
#### Arc Voltage

This curve gives the peak arc voltage,  $U_L$ , which may appear across the fuse during its operation as a function of the applied working voltage,  $E_g$ , (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor,  $K_p$ , is given as a function of the RMS load current,  $I_b$ , in % of the rated current.



#### Catalog Numbers

| Catalog Numbers | Size   | Electrical Characteristics |                                       |                  |            |
|-----------------|--|----------------------------|---------------------------------------|------------------|------------|
|                 |  | Rated Current RMS-Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |                  | Watts Loss |
|                 |  |                            | Pre-arc                               | Clearing at 600V |            |
| FWC-6A10F       | 10 x 38mm<br>( <sup>13</sup> / <sub>16</sub> " x 1 1/2") | 6                          | 4                                     | 30               | 1.5        |
| FWC-8A10F       |  | 8                          | 6                                     | 50               | 2.0        |
| FWC-10A10F      |  | 10                         | 9                                     | 70               | 2.5        |
| FWC-12A10F      |  | 12                         | 15                                    | 120              | 3.0        |
| FWC-16A10F      |  | 16                         | 25                                    | 150              | 3.5        |
| FWC-20A10F      |  | 20                         | 34                                    | 260              | 4.8        |
| FWC-25A10F      |  | 25                         | 60                                    | 390              | 6.0        |
| FWC-30A10F      |  | 30                         | 95                                    | 600              | 7.5        |
| FWC-32A10F      |  | 32                         | 95                                    | 600              | 7.5        |

• Watts loss provided at rated current.  
• See accessories on page 243.

#### Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

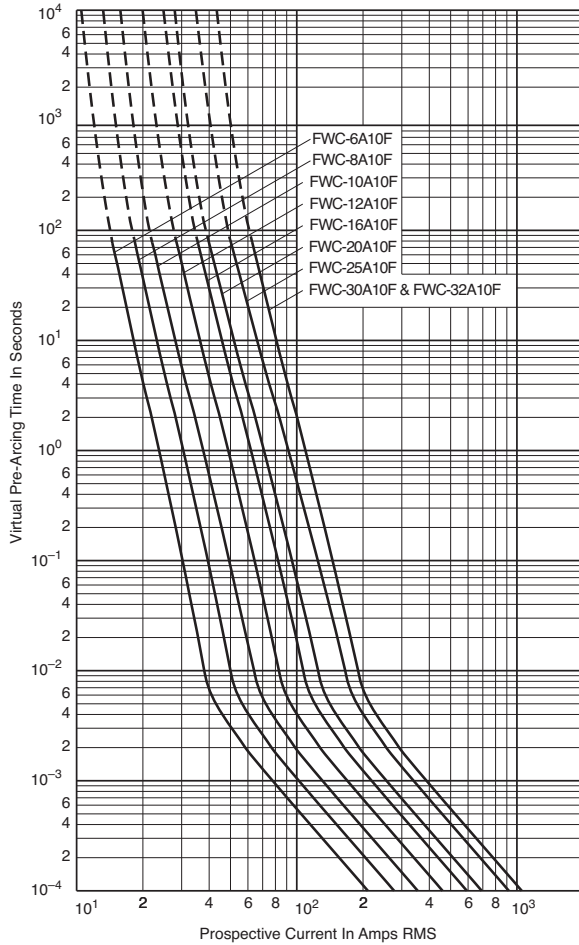
#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

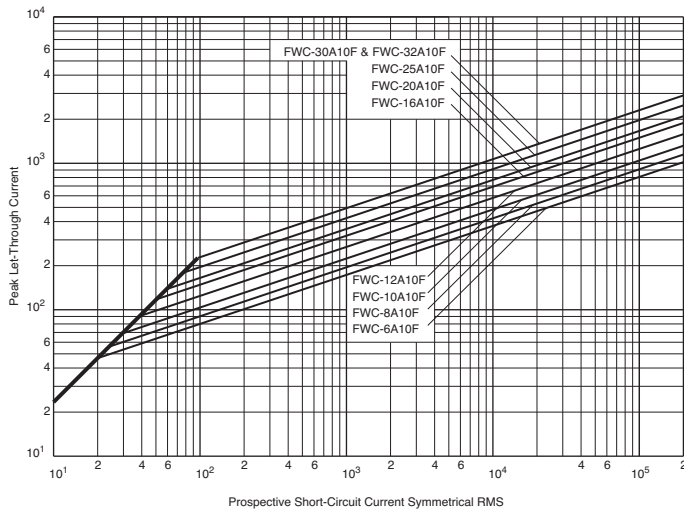
## Ferrule — FWC 600V: 6-32A

### FWC 6-32A: 600V (10 x 38mm)

**Time-Current Curve**



**Peak Let-Through Curve**



Data Sheet: 35785306



## Ferrule — FWP 690V/700V (IEC/UL): 1-50A, Striker Optional

### FWP (14 x 51mm)

#### Specifications

**Description:** Ferrule style high speed fuses with and without indicating striker.

**Dimensions:** See dimensions illustrations.

#### Ratings:

- Volts: — 690Vac (IEC)
- 700Vac (UL)
- 800Vdc (5-50A)
- Amps: — 1-50A
- IR: — 200kA RMS Sym.
- 50kA @800Vdc

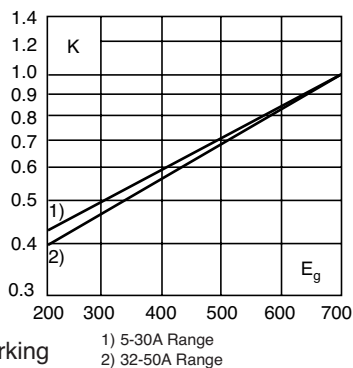
**Agency Information:** CE, UL Recognition JFHR2.E91958, CSA Component Acceptance file Class 1422-30, 1422-90 (53787) for versions without indicator only. Designed and tested to IEC 60269: Part 4.

#### Electrical

##### Characteristics

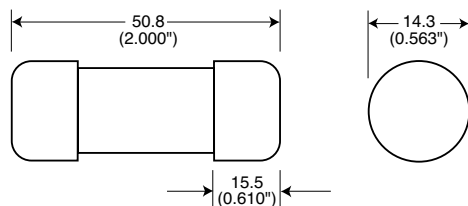
##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).

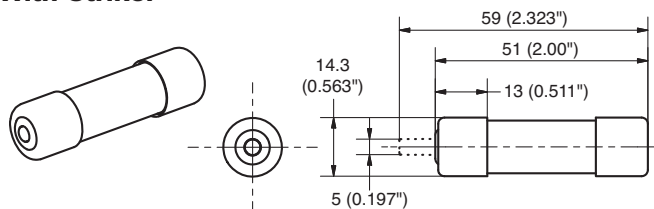


##### Dimensions - mm (in)

##### Without Striker

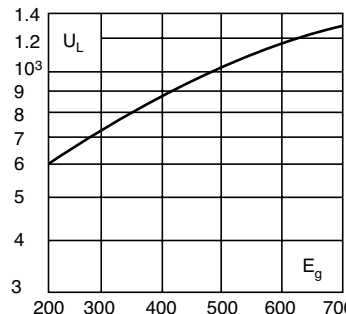


##### With Striker



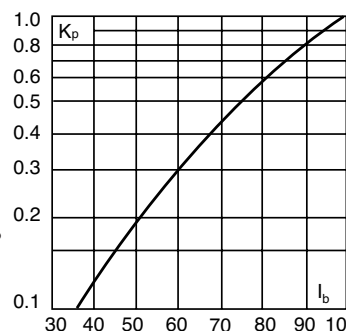
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Catalog Numbers

| Catalog Numbers | Size  | Electrical Characteristics |                       |   |            |
|-----------------|---|----------------------------|-----------------------|---|------------|
|                 |   | Current RMS-Amps           | Rated Minimum Melting | I <sup>2</sup> t (A <sup>2</sup> Sec) Clearing At Rated Voltage | Watts Loss |
| Without Striker | 14 x 51mm<br>( <sup>5</sup> / <sub>16</sub> " x 2") | 1                          | —                     | —   | —          |
| FWP-1A14F       |   | 2                          | —                     | —   | —          |
| FWP-2A14F       |   | 2.5                        | —                     | —   | —          |
| FWP-2.5A14F     |   | 3                          | —                     | —   | —          |
| FWP-3A14F       |   | 4                          | —                     | —   | —          |
| FWP-4A14F       |   | 5                          | 1.6                   | 11.0  | 1.5        |
| FWP-5A14F       |   | 10                         | 3.6                   | 38.5  | 4          |
| FWP-10A14F      |   | 15                         | 8.6                   | 70  | 5.5        |
| FWP-15A14F      |   | 20                         | 26.0                  | 230   | 6          |
| FWP-20A14F      |   | 25                         | 46.5                  | 375   | 7          |
| FWP-25A14F      |   | 30                         | 58                    | 485   | 9          |
| FWP-30A14F      | 32  | 68                         | 600                   | 7.6   |            |
| FWP-32A14F      | 40  | 84                         | 750                   | 8   |            |
| FWP-40A14F      | 50  | 200                        | 1800                  | 9   |            |
| With Striker*   | 14 x 51mm<br>( <sup>5</sup> / <sub>16</sub> " x 2") | 10                         | 3.6                   | 38.5  | 4          |
| FWP-10A14FI     |   | 15                         | 8.6                   | 70  | 5.5        |
| FWP-15A14FI     |   | 20                         | 26.0                  | 230   | 6          |
| FWP-20A14FI     |   | 25                         | 46.5                  | 375   | 7          |
| FWP-25A14FI     |   | 30                         | 58                    | 485   | 9          |
| FWP-30A14FI     |   | 32                         | 68                    | 600   | 7.6        |
| FWP-32A14FI     |   | 40                         | 84                    | 750   | 8          |
| FWP-40A14FI     | 50  | 200                        | 1800                  | 9   |            |

\*Striker range is 600Vdc only  
• Watts loss provided at rated current.  
• See accessories on page 243.

#### Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

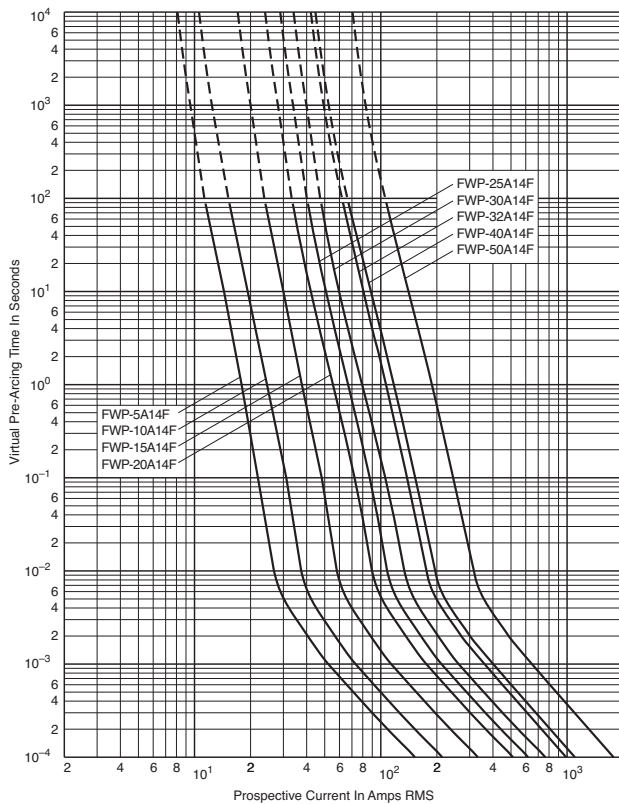
**Data Sheet: 720025**

## Ferrule — FWP 690V/700V (IEC/UL): 1-50A, Striker Optional

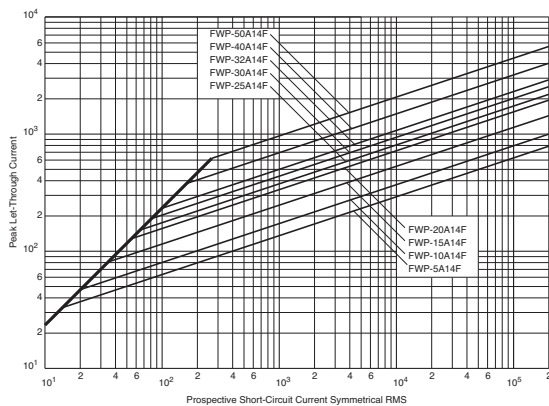
**Without Striker**

**FWP 5-50A: 660V/700V (14 x 51mm)**

**Time-Current Curve**



**Peak Let-Through Curve**



**Data Sheet: 35785307**

## Ferrule — FWP 690V/700V (IEC/UL): 20-100A, Striker Optional

### FWP (22 x 58mm)

#### Specifications

**Description:** Ferrule style high speed fuses with and without indicating striker.

**Dimensions:** See dimensions illustration.

#### Ratings:

- Volts: — 690Vac (IEC)
- 700Vac (UL)
- 500Vac
- 500Vdc (20-100A)

Amps: — 20-100A

IR: — 200kA RMS Sym.

— 50kA @ 500Vdc

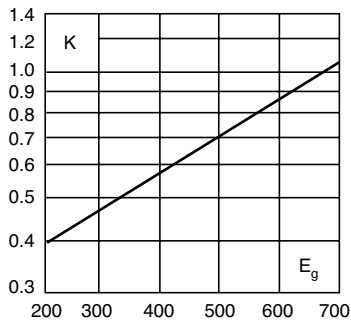
**Agency Information:** CE, UL Recognition JFHR2.E91958, CSA Component Acceptance file Class 1422-30, 1422-90 (53787)

#### Electrical

##### Characteristics

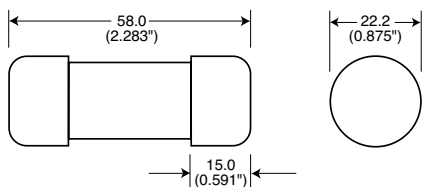
#### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).

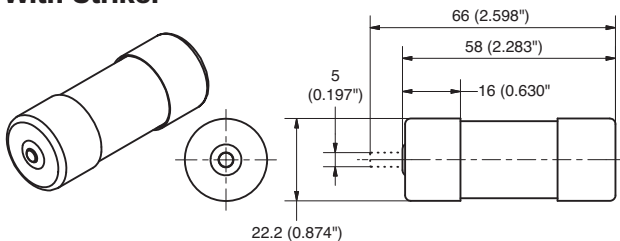


#### Dimensions - mm (in)

##### Without Striker



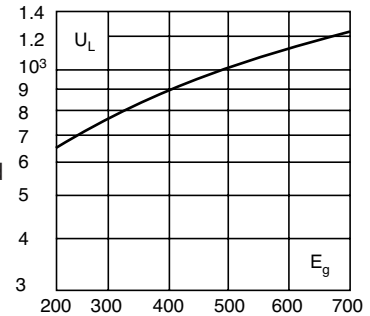
##### With Striker



FWP with striker option.

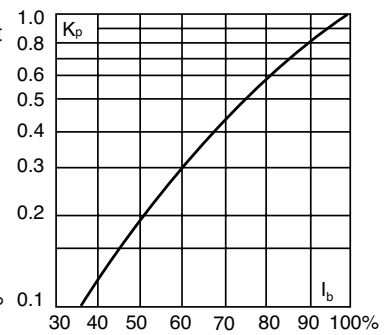
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Catalog Numbers

| Catalog Numbers        | Size   | Rated Current RMS-Amps | Electrical Characteristics            |                           | Watts Loss |
|------------------------|--|------------------------|---------------------------------------|---------------------------|------------|
|                        |  |                        | I <sup>2</sup> t (A <sup>2</sup> Sec) |                           |            |
|                        |  |                        | Minimum Melting                       | Clearing At Rated Voltage |            |
| <b>Without Striker</b> |  |                        |                                       |                           |            |
| FWP-20A22F             | 22 x 58mm<br>( <sup>7</sup> / <sub>8</sub> " x 2 <sup>1</sup> / <sub>2</sub> " | 20                     | 19.0                                  | 260                       | 5          |
| FWP-25A22F             |  | 25                     | 34.0                                  | 410                       | 6          |
| FWP-32A22F             |  | 32                     | 53.5                                  | 605                       | 8          |
| FWP-40A22F             |  | 40                     | 68                                    | 750                       | 9          |
| FWP-50A22F             |  | 50                     | 135                                   | 1600                      | 9.5        |
| FWP-63A22F             |  | 63                     | 280                                   | 3080                      | 11         |
| FWP-80A22F             |  | 80                     | 600                                   | 6600                      | 13.5       |
| FWP-100A22F            | 100*   | 1100                   | 12500                                 | 16                        |            |
| <b>With Striker</b>    |  |                        |                                       |                           |            |
| FWP-20A22FI            | 22 x 58mm<br>( <sup>7</sup> / <sub>8</sub> " x 2 <sup>1</sup> / <sub>2</sub> " | 20                     | 19.0                                  | 260                       | 5          |
| FWP-25A22FI            |  | 25                     | 34.0                                  | 410                       | 6          |
| FWP-32A22FI            |  | 32                     | 53.5                                  | 605                       | 8          |
| FWP-40A22FI            |  | 40                     | 68                                    | 750                       | 9          |
| FWP-50A22FI            |  | 50                     | 135                                   | 1600                      | 9.5        |
| FWP-63A22FI            |  | 63                     | 280                                   | 3080                      | 11         |
| FWP-80A22FI            |  | 80                     | 600                                   | 6600                      | 13.5       |
| FWP-100A22FI           | 100*   | 1100                   | 12500                                 | 16                        |            |

\*IEC/UL Voltage rating 690/700

#### Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

#### Typical Applications

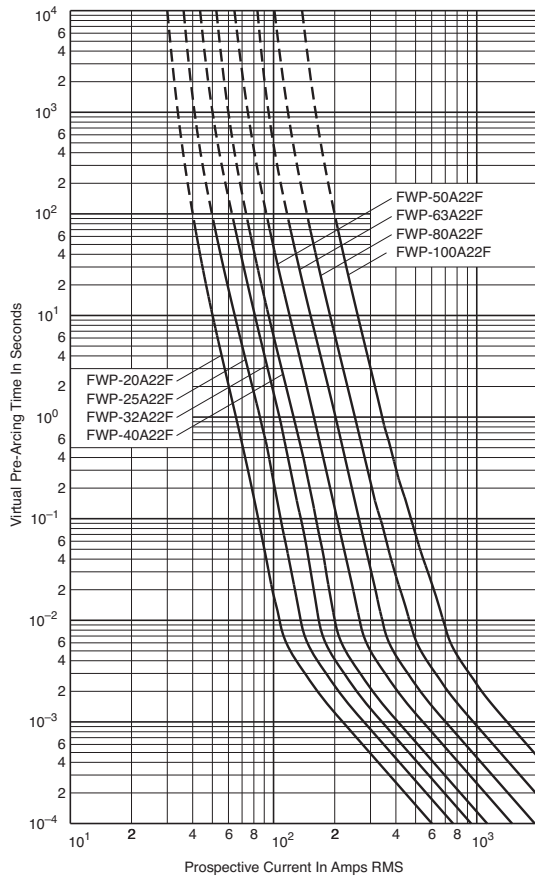
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

## Ferrule — FWP 690V/700V (IEC/UL): 20-100A, Striker Optional

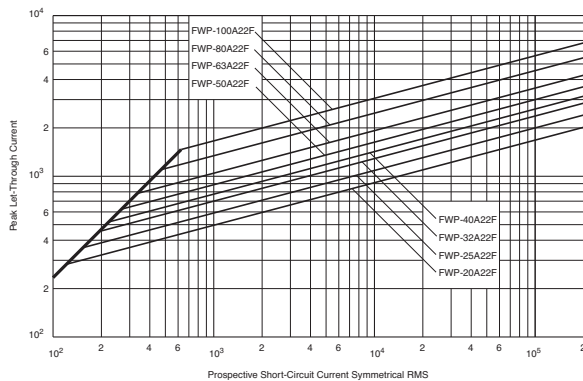
Without Striker

**FWP 20-100A: 660V/700V (22 x 58mm)**

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785291

## Ferrule — FWK 750V: 5-60A

### FWK 5-30A (20 x 127mm) 35-60A (25 x 146mm)

#### Specifications

**Description:** Ferrule style high speed fuses.

**Dimensions:** See Dimensions illustrations.

#### Ratings:

Volts: — 750Vac

— 750Vdc (Time constant = 10-15mS)

Amps: — 5-60A

IR: — 45kA RMS Sym.

**Agency Information:** CE

#### Catalog Numbers

| Catalog Numbers | Size  | Electrical Characteristics |                                       |                    |
|-----------------|---|----------------------------|---------------------------------------|--------------------|
|                 |   | Rated Current RMS-Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |                    |
|                 |   |                            | Pre-arc                               | Clearing at 750Vdc |
| FWK-5A20F       | 20 x 127mm<br>( <sup>13</sup> / <sub>16</sub> " x 5") | 5                          | 8.5                                   | 16                 |
| FWK-8A20F       |   | 8                          | 50                                    | 100                |
| FWK-10A20F      |   | 10                         | 95                                    | 200                |
| FWK-15A20F      |   | 15                         | 100                                   | 240                |
| FWK-20A20F      |   | 20                         | 125                                   | 315                |
| FWK-25A20F      |   | 25                         | 400                                   | 1100               |
| FWK-30A20F      | 30  | 800                        | 2600                                  |                    |
| FWK-35A25F      | 25 x 146mm<br>(1" x 5 <sup>7</sup> / <sub>16</sub> ") | 35                         | 1300                                  | 4300               |
| FWK-40A25F      |   | 40                         | 1600                                  | 5300               |
| FWK-50A25F      |   | 50                         | 3100                                  | 12000              |
| FWK-60A25F      |   | 60                         | 5900                                  | 24000              |

Recommended fuseholders for 20x127, -2, -3  
Recommended fuseclips for 20x127, 1A1837  
Recommended fuseclips for 25x146, A3354705



#### Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

#### Dimensions - mm (in)

Fig. 1: 5-30A

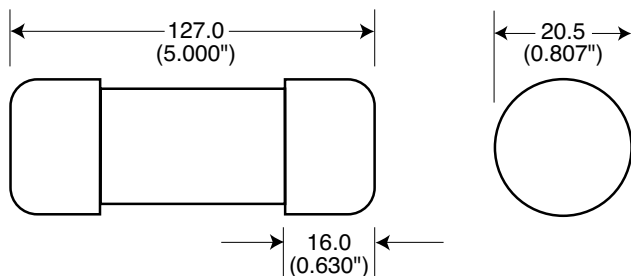
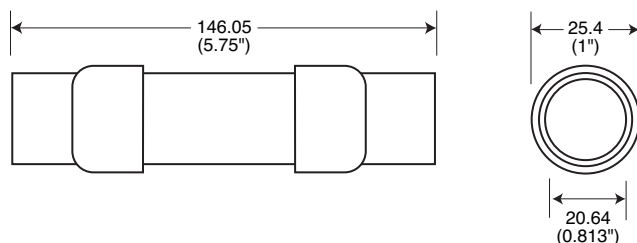


Fig. 2: 35-60A

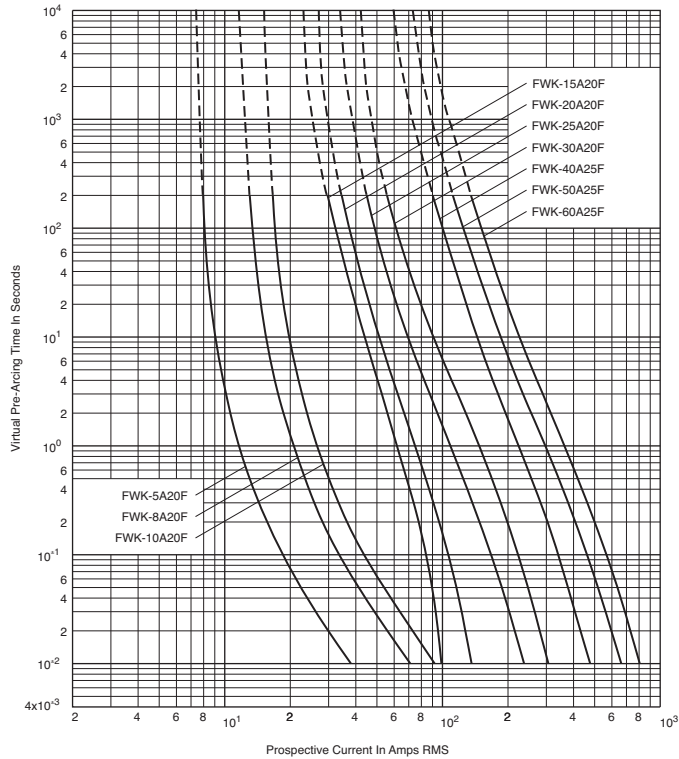




## Ferrule — FWK 750V: 5-60A

**FWK 750V: 5-30A (20 x 127mm)**  
**35-60A (25 x 146mm)**

### Time-Current Curve



## Ferrule — FWJ 1000V: 20-30A

### FWJ (14 x 67mm)

#### Specifications

**Description:** Ferrule style high speed fuses.

**Dimensions:** See dimensions illustration.

#### Ratings:

Volts: — 1000Vac/800Vdc

Amps: — 20-30A

IR: — 25kA RMS Sym.

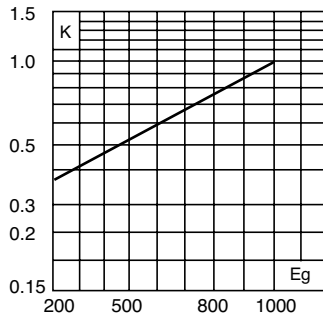
— 20kA @ 800Vdc

**Agency Information:** CE, UL Recognized JFHR2.E91958

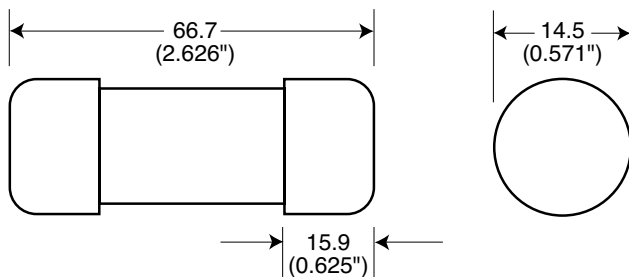
#### Electrical Characteristics

##### Total Clearing I<sup>2</sup>t

The total clearing I<sup>2</sup>t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I<sup>2</sup>t is found by multiplying by correction factor, K, given as a function of applied working voltage, E<sub>g</sub>, (rms).



#### Dimensions - mm (in)

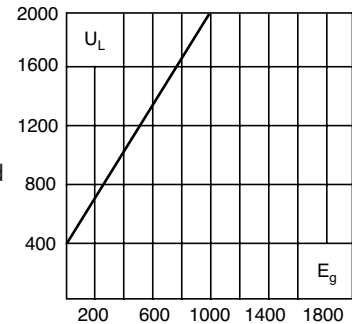


#### Fuseclips:

- Catalog Number: 5591 (see data sheet 2132)

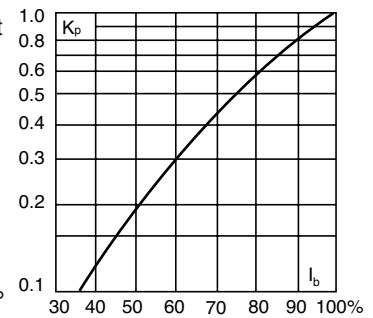
#### Arc Voltage

This curve gives the peak arc voltage, U<sub>L</sub>, which may appear across the fuse during its operation as a function of the applied working voltage, E<sub>g</sub>, (rms) at a power factor of 15%.



#### Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K<sub>p</sub>, is given as a function of the RMS load current, I<sub>b</sub>, in % of the rated current.



#### Catalog Numbers

| Catalog Numbers | Size            | Electrical Characteristics |                                       |                   |            |
|-----------------|-----------------|----------------------------|---------------------------------------|-------------------|------------|
|                 |                 | Rated Current RMS-Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |                   | Watts Loss |
|                 |                 |                            | Pre-arc                               | Clearing at 1000V |            |
| FWJ-20A14F      | 14 x 67mm       | 20                         | 25                                    | 220               | 9          |
| FWJ-25A14F      | (5/8" x 2 5/8") | 25                         | 33                                    | 350               | 11         |
| FWJ-30A14F      |                 | 30                         | 52                                    | 450               | 14         |

• Watts loss provided at rated current.

• See accessories on page 243.

#### Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

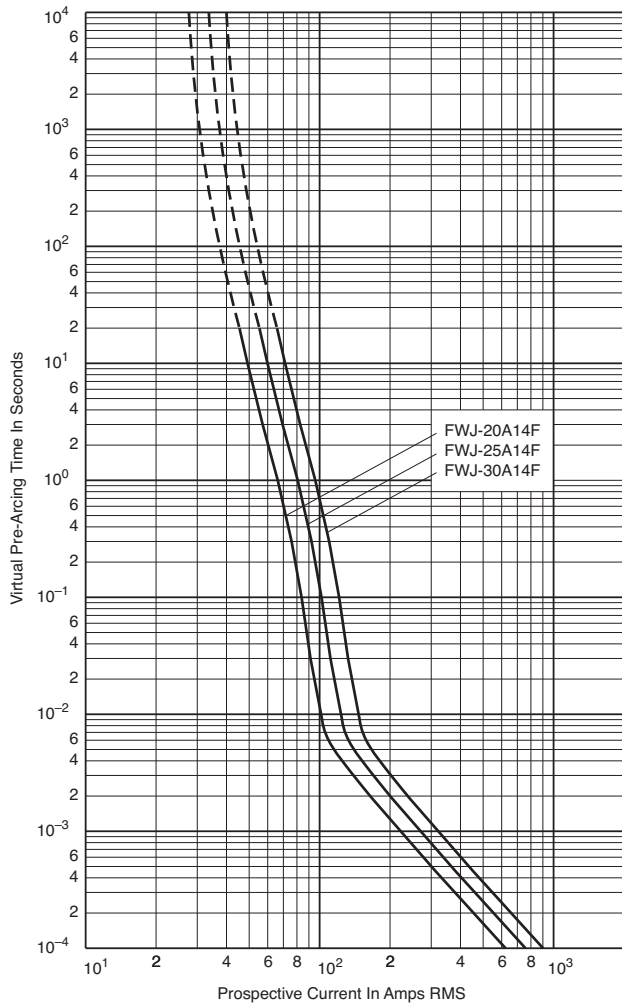
#### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

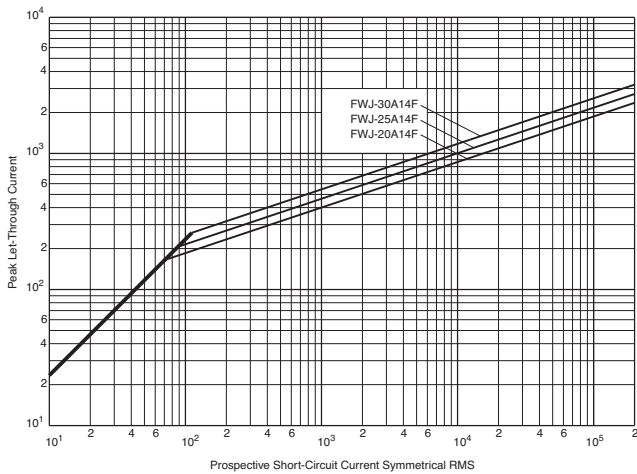
## Ferrule — FWJ 1000V: 20-30A

### FWJ 20-30A: 1000V (14 x 67mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785315

## Ferrule — FWS/FWL 1000Vdc: 2-30A

**FWS 2-15A (20 x 127mm)**  
**FWL 20-30A (20 x 127mm)**

### Specifications

**Description:** Ferrule style full range fuses.

**Dimensions:** See dimensions illustrations.

### Ratings:

- Volts: — 1200Vac (FWL 20-30A)
- 1400Vac (FWS 8-15A)
- 2100Vac (FWS 2-6A)
- 1000Vdc (FWL/FWS 2-30)

Amps: — 2-30A

- IR: — 45kA RMS Sym.
- 30kA @ 1000Vdc

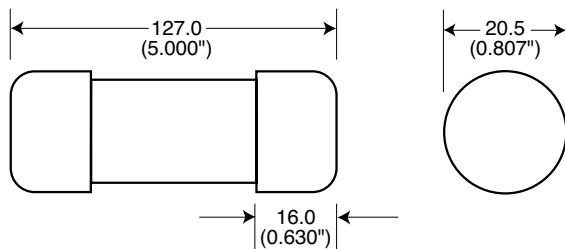
**Agency Information:** CE, IEC 60077

### Catalog Numbers

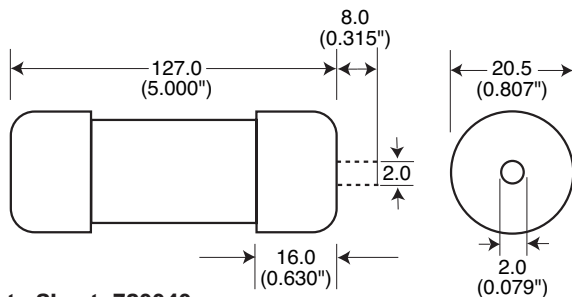
| Catalog Numbers | Size  | Electrical Characteristics |                                       |      |                     | Watts Loss |
|-----------------|---|----------------------------|---------------------------------------|------|---------------------|------------|
|                 |   | Rated Current RMS-Amps     | I <sup>2</sup> t (A <sup>2</sup> Sec) |      | Clearing at 1000Vdc |            |
|                 |   |                            | Pre-arc                               |      |                     |            |
| FWS-2A20F       | 20 x 127mm<br>( <sup>13</sup> / <sub>16</sub> " x 5") | 2                          | 0.8                                   | 2.4  | 4.4                 |            |
| FWS-6A20F       |   | 6                          | 27                                    | 81   | 6.7                 |            |
| FWS-8A20F       |   | 8                          | 64                                    | 192  | 7.6                 |            |
| FWS-10A20F      |   | 10                         | 118                                   | 277  | 3.0                 |            |
| FWS-12A20F      |   | 12                         | 170                                   | 380  | 3.4                 |            |
| FWS-15A20F      | 15  | 209                        | 500                                   | 5.0  |                     |            |
| FWL-20A20F      | 20 x 127mm<br>( <sup>13</sup> / <sub>16</sub> " x 5") | 20                         | 675                                   | 1550 | 5.9                 |            |
| FWL-25A20F      |   | 25                         | 1200                                  | 2760 | 6.5                 |            |
| FWL-30A20F      |   | 30                         | 1850                                  | 4300 | 7.5                 |            |

- ADD "I" to catalog number for indicating version.
- Enclosed finger-safe fuse holder – CH127
- See accessories on page 243.
- Watts loss provided at rated current.

### Dimensions - mm (in)



### Indicating Version - Dimensions - mm (in)



Data Sheet: 720040



### Features and Benefits

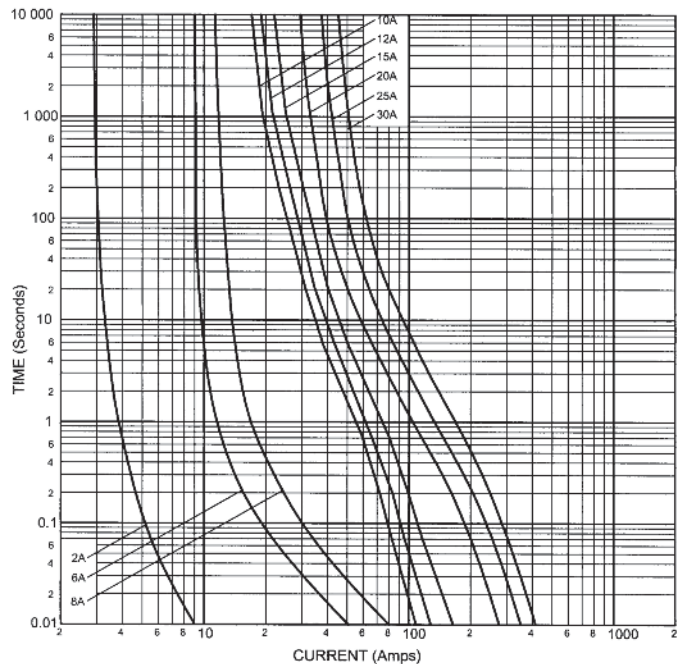
- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I<sup>2</sup>t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

### Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters
- Traction aux circuits
- Capacitor protection

## FWL/FWS 2-30A: 1000Vdc 2-30A (20 x 127mm)

### Time-Current Curve



## Ferrule Fuse Accessories

### Fuse Holders

#### Specifications

**Catalog Symbol:** CH Series

**Description:** DIN-Rail mount fuse holders

#### Agency Information:

UL File E14853, Guide IZLT Listed, IZLT2 Recognized  
CSA: File 47235, CHPV and CHM - Class 6225-30,  
CHCC - Class 6225-01

**Ratings:** 600V/30A (UL)  
690V/32A (IEC)

#### Features and Benefits

- Finger-safe design - No exposed contacts
- DIN-Rail mount (35mm) - Fits standard mounting rails
- Optional open fuse indication lights tells fuse status at a glance
- Handle/fusepuller easily installs and removes fuses
- Available in single and multi-pole configurations
- Wire ready lugs and spade terminal connections save installation time
- CE marking
- Available up to 1000Vdc
- PLC device available for remote monitoring

#### Typical Applications

- Switchboard panel, control consoles, small motors, transformers, and similar applications

#### Recommended Cooper Bussmann Fuse Types

Class CC North American Class CC Fuses - LP-CC, FNQ-R, KTK-R

10 x 38 North American Midget Fuses - FNQ, KTK, AGU, BAF, BAN, FNM, FWA, FWC, & PV

14 x 51 FWX, FWH, FWP & NON

22 x 58 FWP

See pages 274-280 for CH Series fuse holder information.



### Fuse Blocks

#### Specifications

**Catalog Symbol:** J70100, J70032

**Description:** Fuse blocks for 22x58mm & 14x51mm fuses.

#### Ratings:

Volts: — 700Vac/dc  
Amps: — 32-100A  
Withstand: — 200kA RMS Sym.

**Agency Information:** CE, UL Recognized, Guide IZLT2, File E14853

**Flammability Rating:** UL 94V0



#### Catalog Numbers

| Catalog Numbers | Fuse Size | Amps | Poles | Max Wire Size | Terminations                 |
|-----------------|-----------|------|-------|---------------|------------------------------|
| J70032-1CR      | 14x51     | 32   | 1     | #2            | Box Lug w/<br>Retaining Clip |
| J70032-2CR      |           | 32   | 2     | #2            |                              |
| J70032-3CR      |           | 32   | 3     | #2            |                              |
| J70100-1CR      | 22x58     | 100  | 1     | #2            |                              |
| J70100-2CR      |           | 100  | 2     | #2            |                              |
| J70100-3CR      |           | 100  | 3     | #2            |                              |



# High speed fuses



Faster lead-time.  
Better protection.  
More energy efficient.

**Bussmann**  
by **EAT•N**

# IEC and British Standard Fuses

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Scan this tag to get the  
latest product information for  
IEC and British Standard Fuses.

## Application Data

The standard range of fuses for low voltage industrial and general purpose applications meet the requirements of BS 88 and IEC 60269. By using advanced fuse technology, current ratings up to 400A have compact dimensions, but retain standard dimensional and performance requirements. These designs are for 315/240V systems. The standard range of fuses are available from 2-1250A in the following tag forms: Offset Blade - Offset Bolted - Center Bolted.

Supplementary ranges cover applications up to 660Vac and 500Vdc including those with nonstandard tag fixings.

Bussmann fuses are manufactured under quality systems independently assessed to BS 5750 (ISO 9002) and appropriate ratings carry the ASTA 20 endorsement.

Selecting fuses is relatively simple and effective. The following notes cover the majority of applications. For further information contact our Application Engineers at toll free phone: 855-287-7626 (855-BUSSMANN).

### Circuit Loading

The current rating of the fuse should not be less than the full load current of the circuit. The circuit should be so designed that small overloads of long duration will not be of frequent occurrence.

### Cable Ratings & Protection

There is an increasing move away from 70°C PVC insulation to materials that are more environmentally friendly, for example 90°C XLPE. The ratings of fusegear, switches, accessories, etc. are generally based upon the equipment being connected to conductors intended to be operated at a temperature not exceeding 70°C in normal service.

In view of the above, it is recommended that the practice of designs based upon conductor temperatures of 70°C be regarded as the norm. The equipment manufacturer should be consulted to ascertain the reduction of nominal current rating of the equipment if conductor temperatures exceeding 70°C are used. In addition, an overriding factor is often voltage drop.

Fuses with gG characteristics protect associated cables against both overload and short-circuit current, provided that the current rating of the fuse  $1_N$  is equal or less than the current carrying capacity of the cable  $1_Z$ .

In motor circuits, the motor starter will provide the overload protection and the fuses will provide the short-circuit protection. The maximum fuse size that can be used depends upon the type of cable used and is determined using the appropriate K factor. The following table gives the maximum sizes of fuses that are recommended for two popular cables with copper conductors, 70°C PVC (K = 115) and 90°C thermosetting (K = 143).

## Application Data for BS Low Voltage Fuses

| Cable Size (mm <sup>2</sup> ) | Max. Fuse Rating (amps) |         |
|-------------------------------|-------------------------|---------|
|                               | K = 115                 | K = 143 |
| 1                             | 16                      | 16      |
| 1.5                           | 20                      | 25*     |
| 2.5                           | 32*                     | 32*     |
| 4                             | 50*                     | 50*     |
| 6                             | 63*                     | 63*     |
| 10                            | 100*                    | 125*    |
| 16                            | 125*                    | 160*    |
| 25                            | 200*                    | 250*    |
| 35                            | 315*                    | 355*    |
| 50                            | 400*                    | 500     |
| 70                            | 560                     | 630     |
| 95                            | 710                     | 800     |
| 120                           | 800                     | 1000    |

\* Extended Motor Circuit dual ratings can be used.

### Protection Against Electrical Shock

For a TN System, a disconnecting time not exceeding 5s is permitted for a distribution circuit. The maximum values of earth fault loop impedance (Zs) of 240V for Bussmann gG fuses to BS 88: Parts 2 and 6 are:

| Rating (A) | Zs (Ohms) | Rating (A) | Zs (Ohms) | Rating (A) | Zs (Ohms) |
|------------|-----------|------------|-----------|------------|-----------|
| 6          | 14        | 50         | 1.1       | 250        | 0.16      |
| 10         | 7.7       | 63         | 0.86      | 315        | 0.13      |
| 16         | 4.3       | 80         | 0.60      | 400        | 0.096     |
| 20         | 3.0       | 100        | 0.44      | 500        | 0.073     |
| 25         | 2.4       | 125        | 0.35      | 630        | 0.054     |
| 32         | 1.9       | 160        | 0.27      | 800        | 0.044     |
| 40         | 1.4       | 200        | 0.20      |            |           |

### Ambient Temperature

The derating, in terms of current, of 0.5% per °C above an ambient of 35°C is recommended.

### Interrupting Rating

The standardized interrupting rating values are 80kA for voltages of 415Vac and above, and 40kA for DC applications. The 240Vac designs have an interrupting rating of 50kA.

### Coordination Ratio

All fuses to BS 88 Parts 2 and 6 will give a coordination ratio of 2:1; and for most practical situations a ratio of 1.6:1 (two steps in the R10 series). Example: an upstream fuse rated at 160A will coordinate with a downstream fuse rated at 100A.

### Current and Energy Limitation

The range of fuses have pre-arcing I<sup>2</sup>t values towards the bottom limits of BS 88 Parts 2 and 6. This ensures excellent current and energy limitation. They also have lower power losses at rated current. This assists in the appropriate interchangeability with other makes of fuses.

### Transformers

When fuses are used on the primary side of transformers, the normal fuse current rating should be at least twice the nominal transformer primary current.

### Fluorescent Lighting

The normal fuse current rating should be at least twice the normal full load current of the maximum number of lights to be simultaneously switched.

### Capacitor Circuits

For power factor correction in capacitor circuits, the fuse should be chosen with a current rating greater than 1.5 times the rated capacitor current. This takes into account the high inrush current, circuit harmonics and capacitor tolerances.

### Motor Circuits

In motor circuits, the fuse has to withstand the motor's starting current and often requires a higher rating than the motor's full load current. Coordination recommendations are made by the manufacturers of motor starters in accordance with IEC 60947-4-1. To get Type 2 coordination with fuses, tests are performed with the latest gG or gM fuses to BS 88 or IEC 60269 that have pre-arcing I<sup>2</sup>t values towards the bottom of specified limits. This means that Bussmann fuses are suitable to provide Type 2 coordination.

Extended dual ratings of motor circuit protection fuses with gM characteristics are available in most popular fuse sizes to extend the use of associated equipment with appropriate economies. In the majority of applications, gG fuses are used. It is not essential to use gM fuses for motor circuit protection, they simply extend the utilization of standard equipment.

Below is a table of recommended fuses at 415V. In most applications, the run-up time is less than 5 seconds and duty is infrequent - no more than twice per hour. The next larger rating should be used for more demanding applications.

| Rating Motor |       | Direct On-line |                    | Asst. Start Standard (gG) |
|--------------|-------|----------------|--------------------|---------------------------|
|              |       | Standard (gG)  | Motor Circuit (gM) |                           |
| kW           | A     | A              | A                  | A                         |
| 0.25         | 0.8   | 4              | -                  | 2                         |
| 0.37         | 1.1   | 4              | -                  | 2                         |
| 0.55         | 1.5   | 6              | -                  | 4                         |
| 0.75         | 2.0   | 6              | -                  | 4                         |
| 1.1          | 3.0   | 10             | -                  | 6                         |
| 1.5          | 3.6   | 16             | -                  | 0 1                       |
| 2.2          | 5.0   | 16             | -                  | 0 1                       |
| 3.0          | 6.5   | 20             | -                  | 6 1                       |
| 4.0          | 8.4   | 20             | -                  | 6 1                       |
| 5.5          | 11.0  | 25             | 20M25              | 2 20                      |
| 7.5          | 15.0  | 40             | 32M40              | 25                        |
| 11.0         | 20.0  | 50             | 32M50              | 32                        |
| 15.0         | 27.0  | 63             | 32M63              | 40                        |
| 18.5         | 33.0  | 80             | 63M80              | 50                        |
| 22.0         | 38.0  | 80             | 63M80              | 50                        |
| 30.0         | 54.0  | 100            | 63M100             | 80                        |
| 37.0         | 66.0  | 125            | 100M125            | 80                        |
| 45.0         | 79.0  | 160            | 100M160            | 100                       |
| 55.0         | 98.0  | 160            | 100M160            | 100                       |
| 75.0         | 135.0 | 250            | 200M250            | 160                       |
| 90.0         | 155.0 | 250            | 200M250            | 160                       |
| 110.0        | 185.0 | 315            | 200M315            | 200                       |
| 132.0        | 220.0 | 355            | 315M400            | 250                       |
| 150.0        | 250.0 | 355            | 315M400            | 315                       |
| 185.0        | 310.0 | 450            | 400M500            | 355                       |
| 200.0        | 335.0 | 500            | 4 00M500           | 400                       |
| 225.0        | 375.0 | 560            | -                  | 400                       |
| 250.0        | 415.0 | 560            | -                  | 450                       |
| 280.0        | 460.0 | 630            | -                  | 500                       |
| 335.0        | 562.0 | 710            | -                  | 630                       |
| 355.0        | 596.0 | 800            | -                  | 710                       |

# CSA Type P and Type D Fuses

## CDS, CDN & PON Type P & D

### Specifications

**Description:** CSA time-delay Type D & P fuses.

**Dimensions:** See Catalog Numbers table and Dimensions illustration.

### Ratings:

Volts: — 250Vac (CDN & PON)  
— 600Vac (CDS)

Amps: — 10-600A

IR: — 10kA minimum

**Agency Information:** CE, CSA Certified to C22.2 No. 59.1.

### Features and Benefits

- Economical fuse in a variety of ratings for applications not requiring time-delay.

### Typical Applications

- Lighting, heating and other circuits not subject to temporary surges and where available short-circuit current are relatively low.

### Basic Catalog Numbers

#### Time-Delay CSA Type “D” Fuses

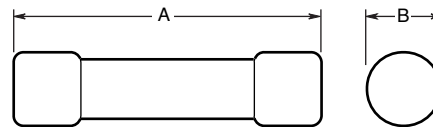
| Catalog Numbers | Volts  | Amp Ratings  |
|-----------------|--------|--|
| CDN             | 250Vac | Below 10A use FRN-R 10, 12, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100  |
|                 |        | 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600                  |
|                 |        | Below 10A use FRS-R 10, 12, 15, 20, 25, 30, 35, 40, 45, 50, 60                   |
|                 |        | 70, 80, 90, 100, 110, 125, 150, 175, 200,  |
|                 |        | 225, 250, 300, 350, 400, 450, 500, 600   |
| CDS             | 600Vac | 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600 |

#### One-Time CSA Type “P” Fuses

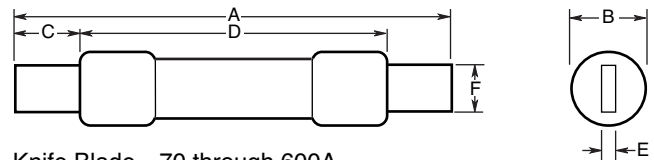
| Catalog Number | Volts  | Amp Ratings                        |
|----------------|--------|------------------------------------|
| PON            | 250Vac | 15, 20, 25, 30, 35, 40, 45, 50, 60 |



### Dimensions



Ferrule Design—1 through 60A



Knife Blade—70 through 600A

### Catalog Numbers

| Basic Catalog Number and Volts | Dimensions in (mm) |               |                |                    |                     |                   |               |
|--------------------------------|--------------------|---------------|----------------|--------------------|---------------------|-------------------|---------------|
|                                | Amp Ratings        | A Overall     | B Max Diameter | C Min Blade Length | D Min Barrel Length | E Blade Thickness | F Blade Width |
| CDN/PON 250Vac                 | 1-30               | 2.0 (50.8)    | 0.56 (14.3)    | —                  | —                   | —                 | —             |
|                                | 35-60              | 3.0 (76.2)    | 0.81 (20.6)    | —                  | —                   | —                 | —             |
|                                | 70-100             | 5.88 (149.4)  | —              | 1.0 (25.4)         | —                   | 0.13 (3.2)        | 0.75 (19.1)   |
|                                | 110-200            | 7.3 (185.4)   | —              | 1.38 (34.9)        | 4.13 (104.8)        | 0.19 (4.8)        | 1.13 (28.6)   |
|                                | 225-400            | 8.63 (219.2)  | —              | 1.88 (47.6)        | 4.63 (117.5)        | 0.25 (6.4)        | 1.63 (41.3)   |
| CDS 600Vac                     | 450-600            | 10.38 (263.7) | —              | 2.25 (57.2)        | 5.19 (131.8)        | 0.25 (6.4)        | 2 (50.8)      |
|                                | 1-30               | 5.0 (127.0)   | 0.81 (20.6)    | —                  | —                   | —                 | —             |
|                                | 35-60              | 5.5 (139.7)   | 1.06 (27.0)    | —                  | —                   | —                 | —             |
|                                | 70-100             | 7.88 (200.2)  | —              | 1.0 (25.4)         | —                   | 0.13 (3.2)        | 0.75 (19.1)   |
|                                | 110-200            | 9.63 (244.6)  | —              | 1.38 (34.9)        | 6.13 (115.6)        | 0.19 (4.8)        | 1.13 (28.6)   |
|                                | 225-400            | 11.63 (295.4) | —              | 1.88 (47.6)        | 7.13 (118.1)        | 0.25 (6.4)        | 1.63 (41.3)   |
| 450-600                        | 13.38 (339.9)      | —             | 2.25 (57.2)    | 8.19 (208.0)       | 0.25 (6.4)          | 2 (50.8)          |               |

### To Order

To order, specify Basic Catalog Number and amp rating. Example: CDN-30

Data Sheet: 4126



# Tron™ HRC Form II Class C Fuses

## CGL Form II Class C

### Specifications

**Description:** Current-limiting HRCII-C fuses designed to withstand inrush currents on typical motor start-ups while offering high current limitation in the short-circuit region.

**Dimensions:** See Dimensions illustrations.

### Ratings:

Volts: — 600Vac/250Vdc (1-30A)

Amps: — 1-600A

IR: — 200kA (40,000A DC)

**Agency Information:** CE, CSA Certified, C22.2 No. 106.

### Features and Benefits

- Close sizing to loads allows using smaller and less costly switches
- Provides a higher degree of short-circuit protection
- Helps protect motors against burnout from overloads

### Typical Applications

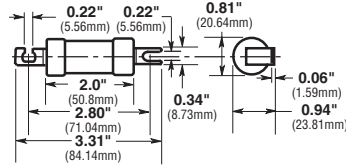
- For use in circuits subject to surge currents such as those caused by motors, transformers and other inductive loads

### Catalog Numbers (-Amps)

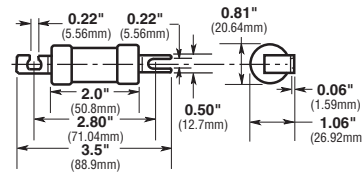
|        |         |         |
|--------|---------|---------|
| CGL-1  | CGL-40  | CGL-175 |
| CGL-2  | CGL-45  | CGL-200 |
| CGL-3  | CGL-50  | CGL-225 |
| CGL-4  | CGL-60  | CGL-250 |
| CGL-6  | CGL-70  | CGL-300 |
| CGL-10 | CGL-80  | CGL-350 |
| CGL-15 | CGL-90  | CGL-400 |
| CGL-20 | CGL-100 | CGL-450 |
| CGL-25 | CGL-110 | CGL-500 |
| CGL-30 | CGL-125 | CGL-600 |
| CGL-35 | CGL-150 |         |



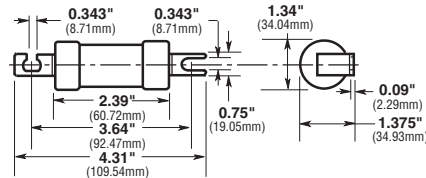
### Dimensions



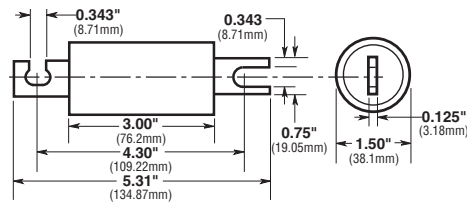
CGL 1-30



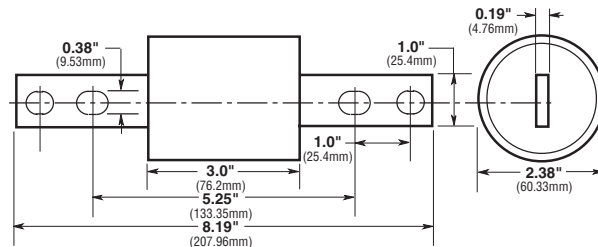
CGL 35-60



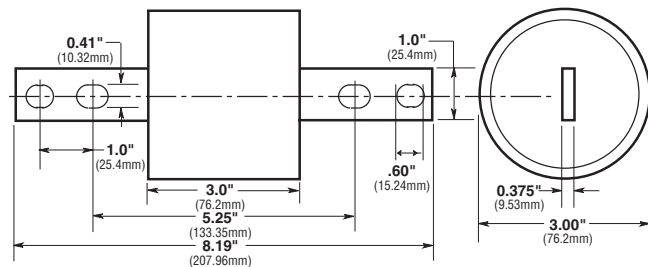
CGL 70-100



CGL 110-200



CGL 225-400



CGL 450-600



## HRCI Industrial Ceramic Body Fuses

### CIF21 HRCI-CA

#### Specifications

**Description:** The HRCI-CA fuse provides both overload and short-circuit protection to HRCI requirements. Offset blades for bolt-on mounting. CIF21 fuse fits the Cooper Bussmann CAMaster fuse holder (see data sheet 4132).

**Dimensions:** See Dimensions illustration.

**Construction:** Ceramic body.

#### Ratings:

Volts: — 600Vac/250Vdc

Amps: — 1-30A

IR: — 200kA RMS Sym.

**Agency Information:** CE, CSA C22.2, No. 106-M92.

**Mounting:** Bolt-on.

#### Catalog Numbers

| Catalog Numbers | Amp Ratings |
|-----------------|-------------|
| 1CIF21          | 1           |
| 3CIF21          | 3           |
| 6CIF21          | 6           |
| 10CIF21         | 10          |
| 15CIF21         | 15          |
| 20CIF21         | 20          |
| 25CIF21         | 25          |
| 30CIF21         | 30          |

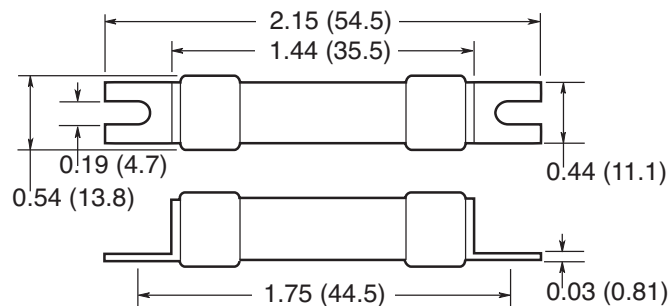
#### Features and Benefits

- Close sizing to loads allows using smaller and less costly switches
- Provides a higher degree of short-circuit protection
- Helps protect motors against burnout from overloads

#### Typical Applications

- For use in circuits subject to surge currents such as those caused by motors, transformers and other inductive loads

#### Dimensions - in (mm)



Data Sheet: 4127

### CIF06 HRCI-CB

#### Specifications

**Description:** A miniature industrial fuse that provides both short-circuit and overload protection and the CIF06 fits the 30A SAFEloc fuse holder.

**Dimensions:** See Dimensions illustration.

**Construction:** Ground ceramic body with plated end caps.

#### Ratings:

Volts: — 600Vac/250Vdc

Amps: — 1-30A

IR: — 200kA RMS Sym.

**Agency Information:** CE, CSA C22.2 No. 106-M92 (3-30A only).

**Mounting:** Clip-in offset blades.

#### Catalog Number

| Catalog Numbers | Amp Ratings |
|-----------------|-------------|
| 1CIF06          | 1           |
| 3CIF06          | 3           |
| 6CIF06          | 6           |
| 10CIF06         | 10          |
| 15CIF06         | 15          |
| 20CIF06         | 20          |
| 25CIF06         | 25          |
| 30CIF06         | 30          |

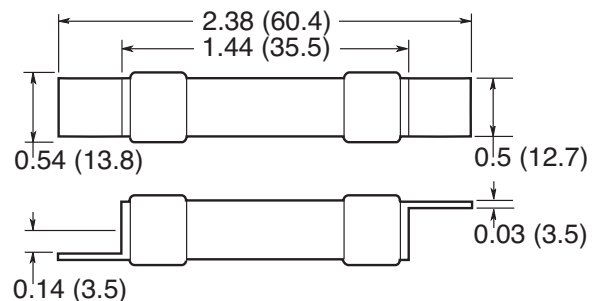
#### Features and Benefits

- Close sizing to loads allows using smaller and less costly switches
- Provides a higher degree of short-circuit protection
- Helps protect motors against burnout from overloads

#### Typical Applications

- For use in circuits subject to surge currents such as those caused by motors, transformers and other inductive loads

#### Dimensions - in (mm)



Data Sheet: 4128

# HRCI-J Fast-acting Fuses

## CJ HRCI-J

### Specifications

**Description:** HRCI-J fast-acting fuses are industrial duty fuses with the excellent current-limiting characteristics of fast-acting HRCI-J fuses to limit damage to equipment and installations by the thermal and magnetic energy associated with a large short-circuit fault current. Overload characteristics limit cable damage due to low overload currents.

**Dimensions:** See Catalog Numbers table and Dimensions illustrations.

**Construction:** Ceramic body fuse.

### Ratings:

Volts: — 600Vac (or less), 250Vdc

Amps: — 1-600A

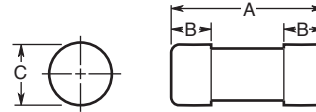
IR: — 200kA

**Agency Information:** CSA C22.2 No. 106 M92; Designed to BS 88:2, IEC 60269-2.

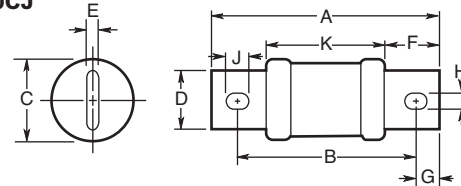


### Dimensions

#### 1CJ to 60CJ



#### 70CJ to 600CJ



### Catalog Numbers

| Catalog Numbers | Amp Ratings | Dimensions - in (mm) |            |             |             |            |             |             |             |             |           |
|-----------------|-------------|----------------------|------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-----------|
|                 |             | A                    | B          | C           | D           | E          | F           | G           | H           | J           | K         |
| 1CJ             | 1           |                      |            |             |             |            |             |             |             |             |           |
| 3CJ             | 3           |                      |            |             |             |            |             |             |             |             |           |
| 6CJ             | 6           |                      |            |             |             |            |             |             |             |             |           |
| 10CJ            | 10          |                      |            |             |             |            |             |             |             |             |           |
| 15CJ            | 15          | 2.25 (57)            | 0.5 (12.7) | 0.81 (20.6) | —           | —          | —           | —           | —           | —           | —         |
| 20CJ            | 20          |                      |            |             |             |            |             |             |             |             |           |
| 25CJ            | 25          |                      |            |             |             |            |             |             |             |             |           |
| 30CJ            | 30          |                      |            |             |             |            |             |             |             |             |           |
| 35CJ            | 35          |                      |            |             |             |            |             |             |             |             |           |
| 40CJ            | 40          |                      |            |             |             |            |             |             |             |             |           |
| 45CJ            | 45          | 2.38 (60)            | 0.63 (16)  | 1.06 (27)   | —           | —          | —           | —           | —           | —           | —         |
| 50CJ            | 50          |                      |            |             |             |            |             |             |             |             |           |
| 60CJ            | 60          |                      |            |             |             |            |             |             |             |             |           |
| 70CJ            | 70          |                      |            |             |             |            |             |             |             |             |           |
| 80CJ            | 80          | 4.63 (117)           | 3.63 (92)  | 1.13 (28)   | 0.75 (19)   | 0.13 (3.2) | 1 (25.4)    | 0.5 (12.7)  | 0.28 (7.1)  | 0.38 (9.5)  | 2.63 (67) |
| 90CJ            | 90          |                      |            |             |             |            |             |             |             |             |           |
| 100CJ           | 100         |                      |            |             |             |            |             |             |             |             |           |
| 110CJ           | 110         |                      |            |             |             |            |             |             |             |             |           |
| 125CJ           | 125         |                      |            |             |             |            |             |             |             |             |           |
| 150CJ           | 150         | 5.75 (146)           | 4.38 (111) | 1.63 (41)   | 1.13 (28.6) | 0.19 (4.8) | 1.38 (35)   | 0.69 (17.5) | 0.28 (7.1)  | 0.38 (9.5)  | 3 (76)    |
| 175CJ           | 175         |                      |            |             |             |            |             |             |             |             |           |
| 200CJ           | 200         |                      |            |             |             |            |             |             |             |             |           |
| 225CJ           | 225         |                      |            |             |             |            |             |             |             |             |           |
| 250CJ           | 250         |                      |            |             |             |            |             |             |             |             |           |
| 300CJ           | 300         | 7.13 (181)           | 5.25 (133) | 2.13 (54)   | 1.63 (41)   | 0.25 (6.3) | 1.88 (47.6) | 0.94 (24)   | 0.41 (10.3) | 0.53 (13.5) | 3.38 (86) |
| 350CJ           | 350         |                      |            |             |             |            |             |             |             |             |           |
| 400CJ           | 400         |                      |            |             |             |            |             |             |             |             |           |
| 450CJ           | 450         |                      |            |             |             |            |             |             |             |             |           |
| 500CJ           | 500         | 8 (203)              | 6 (152)    | 2.63 (66)   | 2 (51)      | 0.38 (9.5) | 2.13 (54)   | 1 (25.4)    | 0.53 (13.5) | 0.69 (17.5) | 3.75 (96) |
| 600CJ           | 600         |                      |            |             |             |            |             |             |             |             |           |

Data Sheet: 4129

# HRCI - Miscellaneous Type K Fuses

## CIH, CIK & CIL HRCI-MISC

### Specifications

**Description:** HRI fuses provide both overload and short-circuit protection, featuring offset blades for bolt down mounting.

**Dimensions:** See Catalog Numbers table and Dimensions illustration.

**Construction:** Ceramic body.

### Ratings:

Volts: — 600V

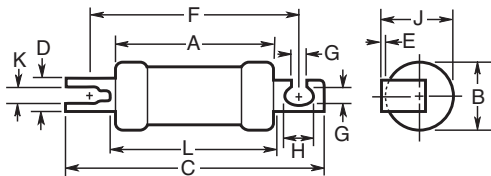
Amps: — 1-100A

IR: — 200kA@600V

**Agency Information:** CE, CSA C22.2 No. 106 M92.



### Dimensions



(The CIL14 has a rejection hole, not a slot as shown above.)

### Catalog Numbers

| Catalog Numbers | Amp Ratings | Dimensions - in (mm) |           |            |            |            |           |            |             |            |            |           |
|-----------------|-------------|----------------------|-----------|------------|------------|------------|-----------|------------|-------------|------------|------------|-----------|
|                 |             | A Max                | B Max     | C Max      | D Nom      | E Nom      | F Nom     | G Nom      | H Nom       | J Max      | K Nom      | L Max     |
| 1CIH07          | 1           | 2.25 (57)            | 0.94 (24) | 3.38 (86)  | 0.38 (9.2) | 0.04 (1.0) | 2.88 (73) | 0.21 (5.2) | 0.31 (8)    | 1 (25.4)   | 0.10 (2.6) | 2.38 (60) |
| 3CIH07          | 3           |                      |           |            |            |            |           |            |             |            |            |           |
| 6CIH07          | 6           |                      |           |            |            |            |           |            |             |            |            |           |
| 10CIH07         | 10          |                      |           |            |            |            |           |            |             |            |            |           |
| 15CIH07         | 15          |                      |           |            |            |            |           |            |             |            |            |           |
| 20CIH07         | 20          |                      |           |            |            |            |           |            |             |            |            |           |
| 25CIH07         | 25          |                      |           |            |            |            |           |            |             |            |            |           |
| 30CIH07         | 30          | 2.28 (58)            | 1.06 (27) | 3.56 (91)  | 0.5 (12.7) | 0.05 (1.2) | 2.88 (73) | 0.21 (5.2) | 0.41 (10.5) | 1.09 (28)  | 0.13 (3.2) | 2.38 (61) |
| 35CIK07         | 35          |                      |           |            |            |            |           |            |             |            |            |           |
| 40CIK07         | 40          |                      |           |            |            |            |           |            |             |            |            |           |
| 50CIK07         | 50          |                      |           |            |            |            |           |            |             |            |            |           |
| 60CIK07         | 60          | 2.75 (70)            | 1.44 (37) | 4.38 (111) | 0.75 (19)  | 0.09 (2.5) | 3.69 (94) | 0.34 (8.7) | 0.41 (10.5) | 1.5 (38.5) | —          | 2.91 (74) |
| 80CIL14         | 80          |                      |           |            |            |            |           |            |             |            |            |           |
| 90CIL14         | 90          |                      |           |            |            |            |           |            |             |            |            |           |
| 100CIL14        | 100         |                      |           |            |            |            |           |            |             |            |            |           |

### Recommended Fuse Holders

| Fuse   | Fuse Holder |
|--------|-------------|
| 1-30A  | CM30CF      |
| 35-60A | CM60CF      |

# HRC Form II Current-limiting Fuses

## HRC Form II

### Specifications

**Description:** HRC Form II current-limiting fuses.

**Dimensions:** See Catalog Numbers table and Dimensions illustrations.

**Construction:** Ceramic body.

### Ratings:

Volts: — 600Vac (or less)  
— 250Vdc

Amps: — 2-600A

IR: — 200kA RMS Sym.

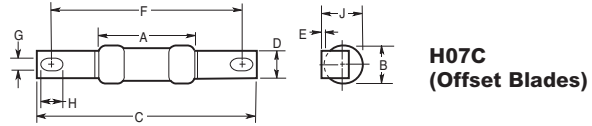
**Agency Information:** CE, CSA C22.2 No.106M1992;  
BS 88:2, IEC 60269:2.

### Typical Applications

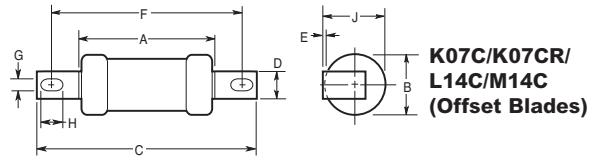
- Used to protect motor control circuits, together with contactors and overload protection relays to provide Type 2 coordination - per IEC 60947-4.



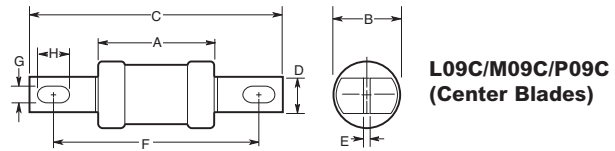
### Dimensions



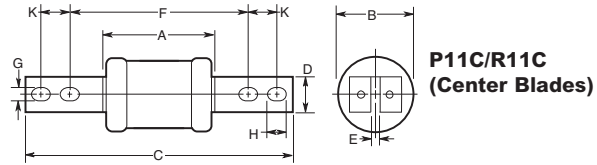
**H07C  
(Offset Blades)**



**K07C/K07CR/  
L14C/M14C  
(Offset Blades)**



**L09C/M09C/P09C  
(Center Blades)**



**P11C/R11C  
(Center Blades)**

### Catalog Numbers

| Catalog Numbers | Amp Ratings | Dimensions - in (mm) |             |            |             |            |            |            |           |           |         | CSA Category |
|-----------------|-------------|----------------------|-------------|------------|-------------|------------|------------|------------|-----------|-----------|---------|--------------|
|                 |             | A                    | B           | C          | D           | E          | F          | G          | H         | J         | K       |              |
| 2H07C           | 2           | 1.38 (35)            | 0.56 (14)   | 3.38 (85)  | 0.38 (9)    | 0.06 (1.2) | 2.88 (73)  | 0.22 (5.6) | 0.31 (8)  | 0.56 (14) | —       | HRCII-C      |
| 4H07C           | 4           |                      |             |            |             |            |            |            |           |           |         |              |
| 6H07C           | 6           |                      |             |            |             |            |            |            |           |           |         |              |
| 10H07C          | 10          |                      |             |            |             |            |            |            |           |           |         |              |
| 15H07C          | 15          |                      |             |            |             |            |            |            |           |           |         |              |
| 20H07C          | 20          |                      |             |            |             |            |            |            |           |           |         |              |
| 25H07C          | 25          | 2.19 (56)            | 0.88 (22)   | 3.44 (87)  | 0.5 (13)    | 0.13 (3.2) | 3.69 (94)  | 0.34 (8.7) | 0.44 (11) | —         | HRCII-C |              |
| 30H07C          | 30          |                      |             |            |             |            |            |            |           |           |         |              |
| 40K07C          | 40          |                      |             |            |             |            |            |            |           |           |         |              |
| 50K07C          | 50          | 2.38 (60)            | 0.88 (21.4) | 4.38 (111) | 0.56 (14.3) | 0.09 (2.4) | 4.38 (111) | 0.34 (8.7) | 0.56 (14) | —         | HRCII-C |              |
| 60K07C          | 60          |                      |             |            |             |            |            |            |           |           |         |              |
| 80K07CR         | 80          | 3.06 (178)           | 2.31 (59)   | 5.38 (136) | 0.75 (19)   | 0.13 (3.2) | 5.25 (133) | 0.41 (10)  | 0.63 (16) | —         | 1 (25)  | HRCII-C      |
| 100K07CR        | 100         |                      |             |            |             |            |            |            |           |           |         |              |
| 80L14C          | 80          |                      |             |            |             |            |            |            |           |           |         |              |
| 100L14C         | 100         |                      |             |            |             |            |            |            |           |           |         |              |
| 125M14C         | 125         |                      |             |            |             |            |            |            |           |           |         |              |
| 150M14C         | 150         |                      |             |            |             |            |            |            |           |           |         |              |
| 200M14C         | 200         |                      |             |            |             |            |            |            |           |           |         |              |
| 80L09C          | 80          |                      |             |            |             |            |            |            |           |           |         |              |
| 100L09C         | 100         |                      |             |            |             |            |            |            |           |           |         |              |
| 125M09C         | 125         |                      |             |            |             |            |            |            |           |           |         |              |
| 150M09C         | 150         | 3.06 (178)           | 2.31 (59)   | 5.38 (136) | 0.75 (19)   | 0.13 (3.2) | 5.25 (133) | 0.41 (10)  | 0.63 (16) | —         | 1 (25)  | HRCII-C      |
| 200M09C         | 200         |                      |             |            |             |            |            |            |           |           |         |              |
| 250P09C         | 250         |                      |             |            |             |            |            |            |           |           |         |              |
| 300P09C         | 300         |                      |             |            |             |            |            |            |           |           |         |              |
| 350P09C         | 350         |                      |             |            |             |            |            |            |           |           |         |              |
| 400P09C         | 400         |                      |             |            |             |            |            |            |           |           |         |              |
| 250P11C         | 250         |                      |             |            |             |            |            |            |           |           |         |              |
| 300P11C         | 300         |                      |             |            |             |            |            |            |           |           |         |              |
| 350P11C         | 350         |                      |             |            |             |            |            |            |           |           |         |              |
| 400P11C         | 400         |                      |             |            |             |            |            |            |           |           |         |              |
| 450R11C         | 450         | 3.19 (81)            | 2.88 (73)   | 8.25 (210) | 1 (25.4)    | 0.19 (5)   | 5.25 (133) | 0.41 (10)  | 0.63 (16) | —         | 1 (25)  | HRCII-C      |
| 500R11C         | 500         |                      |             |            |             |            |            |            |           |           |         |              |
| 600R11C         | 600         |                      |             |            |             | 0.25 (6.3) |            |            |           |           |         |              |

# BS 88 British Standard Low Voltage Fuses

## SSD, NSD, ESD BS 88 Part 1

### Specifications

**Description:** The NSD and ESD are low voltage fuses complying with general purpose gG characteristics.

**Construction:** Ceramic body.

### Ratings:

Volts: — 240-550Vac (See Catalog Numbers table)

Amps: — 2-63A (See Catalog Numbers table)  
 — 20M25-63M100A Motor Starter ratings (See Catalog Numbers table)

IR: — 33kA (SSD)  
 — 80kA (NSD, ESD)

**Agency Information:** CE, Meets the requirements of BS 88 Part 1 and IEC 60269-1.

**Mounting:** Offset blades.



### Basic Catalog Numbers

| Basic Catalog Numbers | Amp Ratings  | Max AC Voltage Ratings | BS 88 Ref. |
|-----------------------|--|------------------------|------------|
| SSD                   | 2, 4, 6, 10, 16, 20, 25, 32                            | 240                    | E1         |
| NSD                   | 2, 4, 6, 10, 16, 20, 25, 32,                           | 550                    | F1         |
|                       | 20M25*, 20M32*, 20M36*, 32M36*, 32M40*, 32M50*, 32M63* | 415                    | F1         |
| ESD                   | 2, 4, 6, 10, 16, 25, 32                                | 550                    | F2         |
|                       | 40, 50, 63, 63M80, 63M100*                             | 415                    | F2         |

\*"M" indicates motor starter ratings.

### To Order

To order, specify Basic Catalog Number and amp rating. Example: SSD-20

### Recommended Fuse Holders

| Basic Fuse Catalog Numbers | Holder Catalog Numbers |
|----------------------------|------------------------|
| NSD                        | 32NNSF                 |
| ESD                        | 63ENSF                 |

## STD, NITD, AAO, BAO, OSD, CEO, DEO BS 88 Part 1

### Specifications

**Description:** The STD to DEO types are low voltage fuses complying with general purpose gG characteristics.

**Construction:** Ceramic body.

### Ratings:

Volts: — 240-550Vac (See Catalog Numbers table)

Amps: — 2-200A (See Catalog Numbers table)  
 — 20M25-200M315A Motor Starter ratings (See Catalog Numbers table)

IR: — 33kA (STD)  
 — 80kA (NITD, AAO, BAO, CEO, DEO)

**Agency Information:** CE, Meets the requirements of BS 88 Part 1 and IEC 60269-1.

**Mounting:** Offset bolted blades.



### Typical Applications

- The STD type are used in 240V street lighting cut-outs
- NITD to DEO types used for industrial and general purpose applications

### Basic Catalog Numbers

| Basic Catalog Numbers | Amp Ratings   | Max AC Voltage Ratings | BS 88 Ref. |
|-----------------------|---|------------------------|------------|
| STD                   | 2, 4, 6, 10, 16, 20, 25, 32                         | 240                    | —          |
| NITD                  | 2, 4, 6, 10, 16, 20, 25, 32                         | 550                    | —          |
|                       | 20M25*, 20M32*, 32M40*, 32M50*, 32M63*              | 415                    | —          |
| AAO                   | 2, 4, 6, 10, 16, 20, 25, 32, 32M40*, 32M50*, 32M63* | 550                    | —          |
| BAO                   | 40, 50, 63, 63M80*, 63M100*                         | 550                    | A3         |
| CEO                   | 32, 40, 50, 63, 80, 100                             | 550                    | A4         |
|                       | 100M125*, 100M160*, 100M200*                        | 415                    | A4         |
| DEO                   | 125, 160, 200, 200M250*, 200M315*                   | 415                    | —          |
| OSD                   | 80, 100   | 550                    | —          |
|                       | 100M125*, 100M160*                                  | 415                    | —          |

\*"M" indicates motor starter ratings.

### To Order

To order, specify Basic Catalog Number and amp rating. Example: BAO-16

### Recommended Fuse Blocks & Holders

| Basic Fuse Catalog Numbers | Block/Holder Catalog Numbers |
|----------------------------|------------------------------|
| NITD                       | CM32FC                       |
| AAO                        | CM32F                        |
| BAO                        | CM63F                        |
| OSD                        | CM100F                       |
| CEO                        | BH-0111                      |

Data Sheets 4105 (SSD), 4100 (NSD) and 4101 (ESD)  
 Data Sheets 4123 (STD), 4106 (NITD), 4109 (AAO), 4112 (BAO), 4107 (OSD), 4115 (CEO) and 4117 (DEO)

Data Sheets 4105 (SSD), 4100 (NSD) and 4101 (ESD)



# BS 88 British Standard Low Voltage Fuses

## AC, AD, BC, BD, CD, DD, ED, EFS BS 88

### Specifications

**Description:** Low voltage fuses that comply with general purpose gG characteristics and available up to 400A with two hole mount and up to 1250A with four hole mount.

**Construction:** Ceramic body.

### Ratings:

Volts: — 415/550Vac, 250Vdc (See Catalog Numbers table)

Amps: — 2-400A (See Catalog Numbers table)  
— 63M80-400M500A Motor Starter ratings (See Catalog Numbers table)

IR: — See Catalog Numbers table

**Agency Information:** CE, Meets the requirements of BS 88 Parts 1 and 2 and IEC 60269-1.

**Mounting:** Center bolted blades, two-hole mount.

### Basic Catalog Numbers

| Basic Catalog Numbers | Amp Ratings                                     | Interrupting Ratings |      | Max Voltage Ratings |     | BS 88 Ref. |
|-----------------------|---|----------------------|------|---------------------|-----|------------|
|                       |   | AC                   | DC   | AC                  | DC  |            |
| AC                    | 2, 4, 6, 10, 16, 20, 25, 32                     | 80kA                 | 40kA | 550                 | 250 | —          |
| AD                    | 2, 4, 6, 10, 16, 20, 25, 32                     | 80kA                 | 40kA | 550                 | 250 | —          |
| BC                    | 40, 50, 63<br>63M80*, 63M100*                   | 80kA                 | 40kA | 550                 | 250 | —          |
|                       |   | 80kA                 | —    | 550                 | —   | —          |
| BD                    | 40, 50, 63                                      | 80kA                 | 40kA | 550                 | 250 | —          |
| CD                    | 80, 100, 100M125*, 100M160*, 100M200*, 100M200* | 80kA                 | —    | 415                 | —   | B1         |
| DD                    | 125, 160, 200, 200M250*, 200M315*               | 80kA                 | —    | 415                 | —   | B2         |
| ED                    | 250, 315, 355, 400, 315M400*, 400M500*          | 80kA                 | —    | 415                 | —   | B3         |
|                       |   | 80kA                 | —    | 550                 | —   | B4         |
| EFS                   | 125, 160, 200, 250, 315                         | 80kA                 | —    | 415                 | —   | —          |

\*"M" indicates motor starter ratings.

### To Order

To order, specify Basic Catalog Number and amp rating. Example: BC-40

### Recommended Fuse Blocks & Holder

| Basic Fuse Catalog Numbers | Block/Holder Catalog Numbers |
|----------------------------|------------------------------|
| AC                         | BH-0111 Modular fuse block   |
| AD                         | 200DF Fuse holder            |
| BC                         | BH-0111 Modular fuse block   |
| BD                         | 200DF-L                      |
| CD                         | 200DF-L                      |
| DD                         | 200DF-L                      |
| ED                         | BH-1131 Modular fuse block   |

Data Sheets 4110 (AC), 4111 (AD), 4113 (BC), 4114 (BD), 4116 (CD), 4118 (DD), 4119 (ED) and 4121 (EFS)

## EF, FF, FG, GF, GG, GH BS 88

### Specifications

**Description:** Low voltage fuses complying with general purpose gG characteristics and available up to 400A with two hole mount and up to 1250A with four hole mount.

**Construction:** Ceramic body.

### Ratings:

Volts: — 415/550Vac, 250/400Vdc (See Catalog Numbers table for details)

Amps: — 355-1250

IR: — See Catalog Numbers table

**Agency Information:** CE, Meets the requirements of BS 88 Parts 1 and 2 and IEC269-1.

**Mounting:** Center bolted blades, four-hole mount.

### Basic Catalog Numbers

| Basic Catalog Numbers | Amp Ratings            | Interrupting Ratings |      | Max Voltage Ratings |     | BS 88 Ref. |
|-----------------------|------------------------|----------------------|------|---------------------|-----|------------|
|                       |                        | AC                   | DC   | AC                  | DC  |            |
| EF                    | 355, 400<br>400M500*   | 80kA                 | —    | 415                 | —   | C1         |
|                       |                        | 80kA                 | —    | 550                 | —   | —          |
| FF                    | 450, 500, 560, 630     | 80kA                 | 40kA | 550                 | 400 | C2         |
| FG                    | 450, 500, 560, 630     | 80kA                 | 40kA | 550                 | 400 | —          |
| GF                    | 710, 800               | 80kA                 | 40kA | 550                 | 250 | C3         |
| GG                    | 710, 800<br>1000, 1250 | 80kA                 | 40kA | 550                 | 250 | —          |
|                       |                        | 80kA                 | —    | 550                 | —   | —          |
| GH                    | 710, 800, 1000, 1250   | 80kA                 | —    | 550                 | —   | —          |

\*"M" indicates motor starter ratings. \*"M" indicates motor starter ratings.

### To Order

To order, specify Basic Catalog Number and amp rating. Example: FG-450

Data Sheets 4120 (EF), 4102 (FF), 4122 (FG), 4103 (GF), 4104 (GG) and 4108 (GH)

# DIN Style Type D and Neozed Low Voltage Fuses

## D16, D27, D33, D125 Type D

**Specifications**

**Description:** DIN style Type D low voltage fuses.

**Dimensions:** See Catalog Numbers table and Dimensions illustrations.

**Construction:** Ceramic body.

**Ratings:**

- Volts: — 500Vac
- Amps: — 2-100A
- IR: — 100kA

**Agency Information:** CE, "D" type fuses complying with DIN 49360 Part 2 and DIN 49515, operating class gL.

**Catalog Numbers**

| Catalog Numbers | Amp Ratings | Dimension "D" (mm) | Color Code | Figure Number |
|-----------------|-------------|--------------------|------------|---------------|
| 2D16            | 2           | 6                  | Pink       | 1             |
| 4D16            | 4           | 6                  | Brown      |               |
| 6D16            | 6           | 6                  | Green      |               |
| 10D16           | 10          | 8                  | Red        |               |
| 16D16           | 16          | 10                 | Grey       |               |
| 20D16           | 20          | 12                 | Blue       |               |
| 25D16           | 25          | 14                 | Yellow     |               |
| 2D27            | 2           | 6                  | Pink       | 2             |
| 4D27            | 4           | 6                  | Brown      |               |
| 6D27            | 6           | 6                  | Green      |               |
| 10D27           | 10          | 8                  | Red        |               |
| 16D27           | 16          | 10                 | Grey       |               |
| 20D27           | 20          | 12                 | Blue       |               |
| 25D27           | 25          | 14                 | Yellow     |               |
| 35D33           | 35          | 16                 | Black      | 3             |
| 50D33           | 50          | 18                 | White      |               |
| 63D33           | 63          | 20                 | Copper     |               |
| 80D125          | 80          | 5                  | Silver     | 4             |
| 100D125         | 100         | 7                  | Red        |               |

Additional Fuse links: Quick acting fuselinks in body sized D16, D27, D33 and D125 rated 2-100A. Reference number suffixed Q, i.e. 10D27Q. Voltage rating 500V. Gauge rings and keys can also be supplied.

**Dimensions - mm**

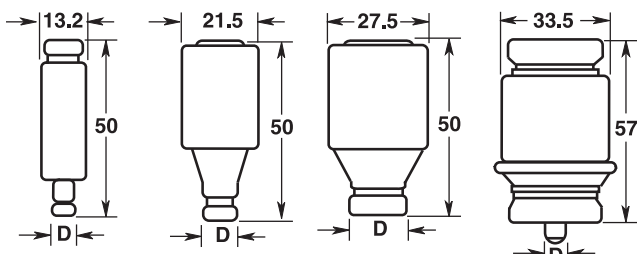


Figure 1

Figure 2

Figure 3

Figure 4

Data Sheet: 4124

## NZ01, NZ02 Type D0

**Specifications**

**Description:** Low voltage Neozed fuses suitable for use on 250Vdc systems.

**Dimensions:** See Catalog Numbers table and Dimensions illustration.

**Construction:** Ceramic body.

**Ratings:**

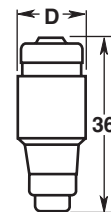
- Volts: — 400Vac
- Amps: — 2-63A
- IR: — 100kA

**Agency Information:** CE

**Catalog Numbers**

| Catalog Numbers | Amp Ratings | Dimension "D" (mm) | Color Code |
|-----------------|-------------|--------------------|------------|
| 2NZ01           | 2           | 11                 | Pink       |
| 4NZ01           | 4           | 11                 | Brown      |
| 6NZ01           | 6           | 11                 | Green      |
| 10NZ01          | 10          | 11                 | Red        |
| 16NZ01          | 16          | 11                 | Grey       |
| 20NZ02          | 20          | 15                 | Blue       |
| 25NZ02          | 25          | 15                 | Yellow     |
| 35NZ02          | 35          | 15                 | Black      |
| 50NZ02          | 50          | 15                 | White      |
| 63NZ02          | 63          | 15                 | Copper     |

**Dimensions - mm**



Data Sheet: 4124

# NH HRC Fuses

## NHG B

**Specifications**

**Class:** gG/gL

**Description:** DIN square bodied, dual indication industrial fuses.

**Construction:** Steatite insulator, corrosion-proof (aluminum) metal parts with full-contact, silver-plated copper blades.

**Sizes:** DIN 000 to 4.

**Selectivity Ratio:** 1:1.6 up to 500Vac.



**Ratings:**

Volts: — 500Vac/250Vdc

— 690Vac/250Vdc

Amps: — 2-1250A

IR: — 120kA

Frequency: — 50Hz

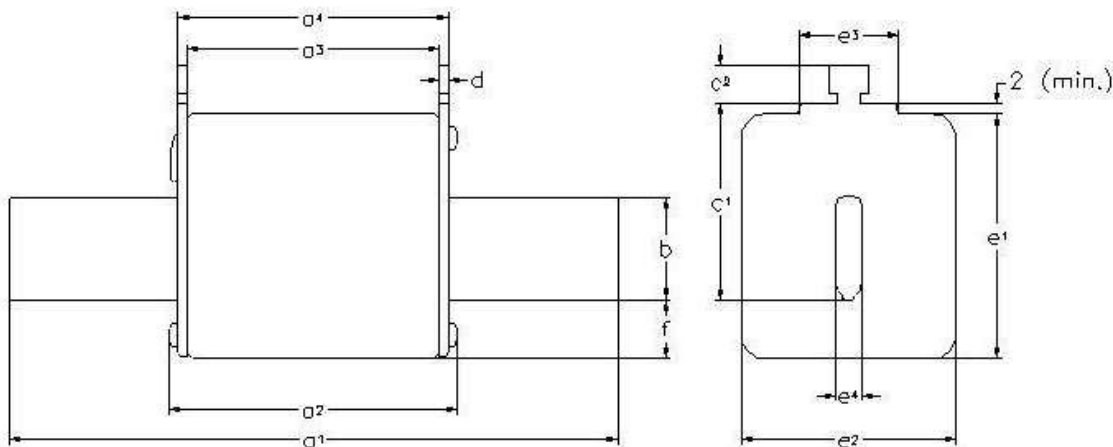
Operating Frequency: — 45-62Hz

**Agency Information:** IEC 60269, VDE0636, DIN 43620 Part 1 to 4, VDE Mark and CE.

| Fuse Blocks | Size         |
|-------------|--------------|
| SB00-D      | 000-00       |
| SB1-D       | 1*, 1        |
| SB2-D       | 02, 2, 03, 3 |

**Dimensions - mm**

| Fuse Size | a <sup>1</sup> | a <sup>2</sup> (max) | a <sup>3</sup> | a <sup>4</sup> | b (nom) | c <sup>1</sup> (± 8) | c <sup>2</sup> (nom) | D (nom)   | e <sup>1</sup> (max) | e <sup>2</sup> (max) | e <sup>3</sup> (max) | e <sup>4</sup> (nom) | f (max) |
|-----------|----------------|----------------------|----------------|----------------|---------|----------------------|----------------------|-----------|----------------------|----------------------|----------------------|----------------------|---------|
| 000       | 78.5 ± 1.5     | 54                   | 45 ± 1.5       | 49 ± 1.5       | 15      | 35                   | 10                   | 2 ± 0.5   | 41                   | 21                   | 16                   | 6                    | 8       |
| 00        | 78.5 ± 1.5     | 54                   | 45 ± 1.5       | 49 ± 1.5       | 15      | 35                   | 11                   | 7.0 ± 0.5 | 48                   | 30                   | 25                   | 6                    | 15      |
| 0         | 125 ± 2.5      | 68                   | 62 +3/-1.5     | 68 +1.5/-3     | 15      | 35                   | 11                   | 2.5 ± 0.5 | 48                   | 30                   | 25                   | 6                    | 15      |
| 01        | 135 ± 2.5      | 75                   | 62 ± 2.5       | 68 ± 2.5       | 15      | 40                   | 11                   | 2.5 ± 0.5 | 48                   | 30                   | 25                   | 6                    | 15      |
| 1         | 135 ± 2.5      | 75                   | 62 ± 2.5       | 68 ± 2.5       | 20      | 40                   | 11                   | 2.5 ± 0.5 | 53                   | 52                   | 25                   | 6                    | 15      |
| 02        | 150 ± 2.5      | 75                   | 62 ± 2.5       | 68 ± 2.5       | 20      | 48                   | 11                   | 2.5 ± 0.5 | 53                   | 52                   | 25                   | 6                    | 15      |
| 2         | 150 ± 2.5      | 75                   | 62 ± 2.5       | 68 ± 2.5       | 25      | 48                   | 11                   | 2.5 ± 0.5 | 61                   | 60                   | 25                   | 6                    | 15      |
| 03        | 150 ± 3        | 75                   | 62 ± 2.5       | 68 ± 2.5       | 25      | 60                   | 11                   | 2.5 ± 0.5 | 61                   | 60                   | 25                   | 6                    | 15      |
| 3         | 150 ± 3        | 75                   | 62 ± 2.5       | 68 ± 2.5       | 32      | 60                   | 11                   | 3.0 ± 0.5 | 75                   | 70                   | 25                   | 6                    | 18      |
| 4         | 200            | 84                   | 80             | 90             | 50      | 85                   | 11                   | 3         | 120                  | 87                   | —                    | 8                    | 30      |






# NH HRC Fuses

| 500Vac / 250Vdc | Size             | Rated Current (Amps) | gG/gL Dual Indicator Voltage Conducting Metal Gripping Lugs | Carton Quantity |
|-----------------|------------------|----------------------|---|-----------------|
|                 |                  | 2                    | 2NHG00B   | 3               |
|                 |                  | 4                    | 4NHG00B   | 3               |
|                 |                  | 6                    | 6NHG00B   | 3               |
|                 |                  | 10                   | 10NHG00B  | 3               |
|                 |                  | 16                   | 16NHG00B  | 3               |
|                 |                  | 20                   | 20NHG00B  | 3               |
|                 |                  | 25                   | 25NHG00B  | 3               |
|                 |                  | 32                   | 32NHG00B  | 3               |
|                 |                  | 35                   | 35NHG00B  | 3               |
|                 |                  | 40                   | 40NHG00B  | 3               |
|                 |                  | 50                   | 50NHG00B  | 3               |
|                 |                  | 63                   | 63NHG00B  | 3               |
|                 |                  | 80                   | 80NHG00B  | 3               |
|                 |                  | 100                  | 100NHG00B   | 3               |
|                 |                  | 125                  | 125NHG00B   | 3               |
|                 |                  | 160                  | 160NHG00B   | 3               |
|                 |                  | 10                   | 10NHGOB   | 3               |
|                 |                  | 16                   | 16NHGOB   | 3               |
|                 |                  | 20                   | 20NHGOB   | 3               |
|                 |                  | 25                   | 25NHGOB   | 3               |
|                 |                  | 32                   | 32NHGOB   | 3               |
|                 |                  | 35                   | 35NHGOB   | 3               |
|                 |                  | 40                   | 40NHGOB   | 3               |
|                 |                  | 50                   | 50NHGOB   | 3               |
|                 |                  | 63                   | 63NHGOB   | 3               |
|                 |                  | 80                   | 80NHGOB   | 3               |
|                 |                  | 100                  | 100NHGOB  | 3               |
|                 |                  | 125                  | 125NHGOB  | 3               |
|                 |                  | 160                  | 160NHGOB  | 3               |
|                 |                  | 10                   | 10NHG01B  | 3               |
|                 |                  | 16                   | 16NHG01B  | 3               |
|                 |                  | 20                   | 20NHG01B  | 3               |
|                 |                  | 25                   | 25NHG01B  | 3               |
|                 |                  | 32                   | 32NHG01B  | 3               |
|                 |                  | 35                   | 35NHG01B  | 3               |
|                 |                  | 40                   | 40NHG01B  | 3               |
|                 |                  | 50                   | 50NHG01B  | 3               |
|                 |                  | 63                   | 63NHG01B  | 3               |
|                 |                  | 80                   | 80NHG01B  | 3               |
|                 |                  | 100                  | 100NHG01B   | 3               |
|                 |                  | 125                  | 125NHG01B   | 3               |
|                 |                  | 160                  | 160NHG01B   | 3               |
|                 |                  | 200                  | 200NHG1B  | 3               |
|                 |                  | 224                  | 224NHG1B  | 3               |
|                 |                  | 250                  | 250NHG1B  | 3               |
|                 |                  | 35                   | 35NHG02B  | 3               |
|                 |                  | 40                   | 40NHG02B  | 3               |
|                 |                  | 50                   | 50NHG02B  | 3               |
|                 |                  | 63                   | 63NHG02B  | 3               |
|                 |                  | 80                   | 80NHG02B  | 3               |
|                 |                  | 100                  | 100NHG02B   | 3               |
|                 |                  | 125                  | 125NHG02B   | 3               |
|                 |                  | 160                  | 160NHG02B   | 3               |
|                 |                  | 200                  | 200NHG02B   | 3               |
|                 |                  | 224                  | 224NHG02B   | 3               |
|                 |                  | 250                  | 250NHG02B   | 3               |
|                 |                  | 315                  | 315NHG2B  | 3               |
|                 |                  | 355                  | 355NHG2B  | 3               |
|                 |                  | 400                  | 400NHG2B  | 3               |
|                 |                  | 250                  | 250NHG03B   | 3               |
|                 |                  | 315                  | 315NHG03B   | 3               |
|                 |                  | 355                  | 355NHG03B   | 3               |
|                 |                  | 400                  | 400NHG03B   | 3               |
|                 |                  | 500                  | 500NHG3B  | 3               |
|                 |                  | 630                  | 630NHG3B  | 3               |
|                 |                  | 500                  | 500NHG4G  | 1               |
|                 |                  | 630                  | 630NHG4G  | 1               |
|                 |                  | 800                  | 800NHG4G  | 1               |
|                 |                  | 1000                 | 1000NHG4G   | 1               |
|                 |                  | 1250                 | 1250NHG4G   | 1               |
|                 | Single Indicator |                      |   |                 |
|                 | Slotted End      |                      |   |                 |
|                 | Tags             |                      |   |                 |



IEC & British Fuses

# NH HRC Fuses

| 690Vac / 250Vdc   | Size         | Rated Current (Amps) | gG/gL Dual Indicator Voltage Conducting Metal Gripping Lugs | Carton Quantity |              |   |
|---|--------------|----------------------|---|-----------------|--------------|---|
|    | 000          | 2                    | 2NHG000B-690  | 3               |              |   |
|   |              | 4                    | 4NHG000B-690  | 3               |              |   |
|   |              | 6                    | 6NHG000B-690  | 3               |              |   |
|   |              | 10                   | 10NHG000B-690   | 3               |              |   |
|   |              | 16                   | 16NHG000B-690   | 3               |              |   |
|   |              | 20                   | 20NHG000B-690   | 3               |              |   |
|   |              | 25                   | 25NHG000B-690   | 3               |              |   |
|   |              | 32                   | 32NHG000B-690   | 3               |              |   |
|   |              | 35                   | 35NHG000B-690   | 3               |              |   |
|   |              | 40                   | 40NHG000B-690   | 3               |              |   |
|   | 0            | 50                   | 50NHG00B-690  | 3               |              |   |
|   |              | 63                   | 63NHG00B-690  | 3               |              |   |
|   |              | 80                   | 80NHG00B-690  | 3               |              |   |
|   |              | 100                  | 100NHG00B-690   | 3               |              |   |
|   |              | 6                    | 6NHGOB-690  | 3               |              |   |
|   |              | 10                   | 10NHGOB-690   | 3               |              |   |
|   |              | 16                   | 16NHGOB-690   | 3               |              |   |
|   |              | 20                   | 20NHGOB-690   | 3               |              |   |
|   |              | 25                   | 25NHGOB-690   | 3               |              |   |
|   |              | 32                   | 32NHGOB-690   | 3               |              |   |
|  | 0            | 35                   | 35NHGOB-690   | 3               |              |   |
|   |              | 40                   | 40NHGOB-690   | 3               |              |   |
|   |              | 50                   | 50NHGOB-690   | 3               |              |   |
|   |              | 63                   | 63NHGOB-690   | 3               |              |   |
|   |              | 80                   | 80NHGOB-690   | 3               |              |   |
|   |              | 100                  | 100NHGOB-690  | 3               |              |   |
|   |              | 50                   | 50NHG1B-690   | 3               |              |   |
|   |              | 63                   | 63NHG1B-690   | 3               |              |   |
|   |              | 80                   | 80NHG1B-690   | 3               |              |   |
|   |              | 100                  | 100NHG1B-690  | 3               |              |   |
|   | 1            | 125                  | 125NHG1B-690  | 3               |              |   |
|   |              | 160                  | 160NHG1B-690  | 3               |              |   |
|   |              | 200                  | 200NHG1B-690  | 3               |              |   |
|   |              | 63                   | 63NHG2B-690   | 3               |              |   |
|   |              | 80                   | 80NHG2B-690   | 3               |              |   |
|   |              | 100                  | 100NHG2B-690  | 3               |              |   |
|   |              | 125                  | 125NHG2B-690  | 3               |              |   |
|   |              | 160                  | 160NHG2B-690  | 3               |              |   |
|   |              | 200                  | 200NHG2B-690  | 3               |              |   |
|   |              |                      | 2   | 224             | 224NHG2B-690 | 3 |
| 250   | 250NHG2B-690 |                      |   | 3               |              |   |
| 315   | 315NHG2B-690 |                      |   | 3               |              |   |
| 250   | 250NHG3B-690 |                      |   | 3               |              |   |
| 315   | 315NHG3B-690 |                      |   | 3               |              |   |
|   | 3            |                      |   | 355             | 355NHG3B-690 | 3 |
|   |              |                      |   | 400             | 400NHG3B-690 | 3 |
|   |              |                      |   | 425             | 425NHG3B-690 | 3 |
|   |              |                      |   | 500             | 500NHG3B-690 | 3 |



# NH Fuse Bases

**SB\*-D, SB\*-S**  
**Up to 690V / 160 - 1250A**  
**Sizes 00, 0, 1, 2, 3, 4**



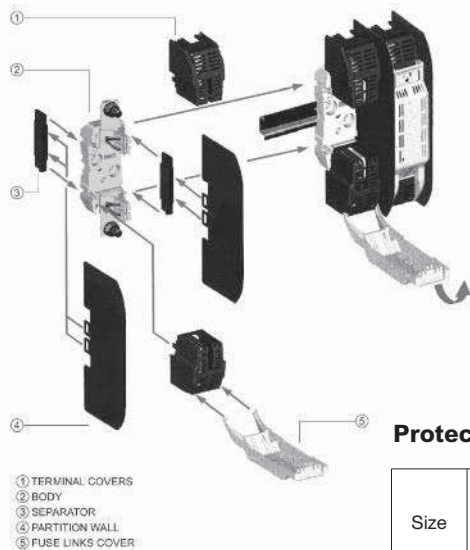
**Description:** NH fuse bases with thermoplastic bodies. DIN-Rail and screw mounting (size 4 screw fix). Range of protection accessories for live parts in order to obtain IP20 protection standard.

**Ratings:**

- Volts: up to 690Vac
- Amps: 2 to 1250A

**Applications:** Protection of industrial circuits and electrical apparatus

**Standards and Approvals:** IEC 60269, DIN 43620



**Part Numbers**

| Size | Poles | Current (Amps) | Part Numbers                  | Carton Quantity | Compatible Fuse Size |
|------|-------|----------------|-------------------------------|-----------------|----------------------|
|      |       |                | DIN Screw                     |                 |                      |
| 00   | 1     | 160A           | SB00-D                        | 3               | 000 & 00             |
|      | 3     |                | TB00-D<br>TB00-D-IP20         | 1               |                      |
| 0    | 1     | 160A           | SB0-D                         | 3               | 0                    |
|      | 3     |                | TB0-D                         | 1               |                      |
| 1    | 1     | 250A           | SB1-D                         | 3               | 01 & 1               |
|      | 3     |                | TB1-D                         | 1               |                      |
| 2    | 1     | 400A           | SB2-D                         | 3               | 02 & 2               |
|      | 3     |                | TB2-D                         | 1               |                      |
| 3    | 1     | 630A           | SB3-D                         | 3               | 03 & 3               |
|      | 3     |                | TB3-D                         | 1               |                      |
| 4    | 1     | 1250A          | SB4-S (Screw Connection only) | 3               | 4                    |

**Neutral**

| Size | Current (Amps) | Part Ref | Carton Quantity |
|------|----------------|----------|-----------------|
| NH00 | 160            | SL00     | 3               |
| NH0  | 160            | SL0      |                 |
| NH1  | 250            | SL1      |                 |
| NH2  | 400            | SL2      |                 |
| NH3  | 630            | SL3      |                 |
| NH4  | 1000           | SL4      |                 |



**Fuse extraction handle**

| Size  | Part Ref | Carton Quantity |
|-------|----------|-----------------|
| C00-3 | FEH      | 1               |



**Protection accessories**

| Size  | Current (Amps) | Separation Partition ④ |                 | Fuse Casing ⑤ |                 | Terminal Cover ① |                 | Separator ③ |                 |
|-------|----------------|------------------------|-----------------|---------------|-----------------|------------------|-----------------|-------------|-----------------|
|       |                | Part Ref               | Carton Quantity | Part Ref      | Carton Quantity | Part Ref         | Carton Quantity | Part Ref    | Carton Quantity |
| NH00* | 160A           | SP00*                  | 2               | FC00*         | 3               | CS00*            | 6               | BC00*       | 2               |
| NH0   | 160A           | SP0                    | 2               | FC0           | 3               | CS0              | 6               | BC0         | 2               |
| NH1   | 250A           | SP1-2                  | 2               | FC1-2         | 3               | CS1              | 6               | BC1-2       | 2               |
| NH2   | 400A           | SP1-2                  | 2               | FC1-2         | 3               | CS2              | 6               | BC1-2       | 2               |
| NH3   | 630A           | SP3                    | 2               | FC3           | 3               | CS3              | 6               | BC3         | 2               |

\* For single pole only

**IP Protection Kits**

| Part Reference | Description                               |
|----------------|---|
| TB00-D-IP20    | Complete triple pole fuse base IP20 rated |
| FPK0-3P        | IP20 kit for TB0-D fuse base              |
| FPK1-3P        | IP20 kit for TB1-D fuse base              |
| FPK2-3P        | IP20 kit for TB2-D fuse base              |
| FPK3-3P        | IP20 kit for TB3-D fuse base              |

**Microswitch**

| Part Ref | Carton Quantity |
|----------|-----------------|
| BVL-50   | 1               |

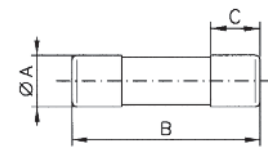


Microswitch suitable for the following NH Fuse links:  
 - 400 Volts gG/gL  
 - 500 Volts gG/gL and aM  
 - 690 Volts gG/gL and aM

## Class gG/gL IEC 60269 Industrial Ferrule Fuses

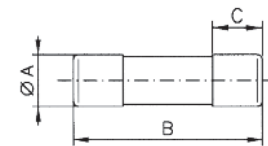
8 x 31mm: 400Vac, 0.5 - 25A

| Catalog Number | Rated Amps | Rated Voltage | Dimensions (mm) |      |     |
|----------------|------------|---------------|-----------------|------|-----|
|                |            |               | A               | B    | C   |
| C08G0-5        | 0.5        | 400Vac        | 8.5             | 31.5 | 6.3 |
| C08G1          | 1          |               |                 |      |     |
| C08G2          | 2          |               |                 |      |     |
| C08G4          | 4          |               |                 |      |     |
| C08G6          | 6          |               |                 |      |     |
| C08G8          | 8          |               |                 |      |     |
| C08G10         | 10         |               |                 |      |     |
| C08G12         | 12         |               |                 |      |     |
| C08G16         | 16         |               |                 |      |     |
| C08G20         | 20         |               |                 |      |     |
| C08G25         | 25         |               |                 |      |     |



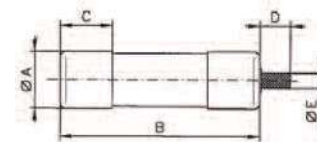
10 x 38mm: 500Vac, 0.5 - 32A

| Catalog Number | Rated Amps | Rated Voltage | Dimensions (mm) |    |    |
|----------------|------------|---------------|-----------------|----|----|
|                |            |               | A               | B  | C  |
| C10G0-5        | 0.5        | 500Vac        | 10.3            | 38 | 10 |
| C10G1          | 1          |               |                 |    |    |
| C10G2          | 2          |               |                 |    |    |
| C10G4          | 4          |               |                 |    |    |
| C10G6          | 6          |               |                 |    |    |
| C10G8          | 8          |               |                 |    |    |
| C10G10         | 10         |               |                 |    |    |
| C10G12         | 12         |               |                 |    |    |
| C10G16         | 16         |               |                 |    |    |
| C10G20         | 20         |               |                 |    |    |
| C10G25         | 25         |               |                 |    |    |
| C10G32         | 32         |               |                 |    |    |
|                | 400Vac     |               |                 |    |    |



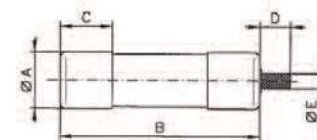
14 x 51mm: 400Vac - 500Vac - 690Vac, 1 - 50A

| Catalog Number | Rated Amps | Rated Voltage | Dimensions (mm) |    |    |   |   |
|----------------|------------|---------------|-----------------|----|----|---|---|
|                |            |               | A               | B  | C  | D | E |
| C14G1          | 1          | 690Vac        | 14.3            | 51 | 13 | 8 | 4 |
| C14G2          | 2          |               |                 |    |    |   |   |
| C14G4          | 4          |               |                 |    |    |   |   |
| C14G6          | 6          |               |                 |    |    |   |   |
| C14G8          | 8          |               |                 |    |    |   |   |
| C14G10         | 10         |               |                 |    |    |   |   |
| C14G12         | 12         |               |                 |    |    |   |   |
| C14G16         | 16         |               |                 |    |    |   |   |
| C14G20         | 20         |               |                 |    |    |   |   |
| C14G25         | 25         |               |                 |    |    |   |   |
| C14G32         | 32         |               |                 |    |    |   |   |
| C14G40         | 40         |               |                 |    |    |   |   |
| C14G50         | 50         |               |                 |    |    |   |   |
|                | 500Vac     |               |                 |    |    |   |   |
|                | 400Vac     |               |                 |    |    |   |   |



22 x 58mm: 400Vac - 500Vac - 690Vac, 2 - 125A

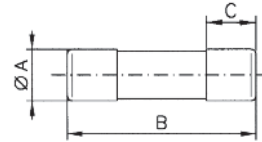
| Catalog Number | Rated Amps | Rated Voltage | Dimensions (mm) |    |    |   |   |
|----------------|------------|---------------|-----------------|----|----|---|---|
|                |            |               | A               | B  | C  | D | E |
| C22G2          | 2          | 690Vac        | 22.2            | 58 | 16 | 8 | 4 |
| C22G4          | 4          |               |                 |    |    |   |   |
| C22G6          | 6          |               |                 |    |    |   |   |
| C22G8          | 8          |               |                 |    |    |   |   |
| C22G10         | 10         |               |                 |    |    |   |   |
| C22G12         | 12         |               |                 |    |    |   |   |
| C22G16         | 16         |               |                 |    |    |   |   |
| C22G20         | 20         |               |                 |    |    |   |   |
| C22G25         | 25         |               |                 |    |    |   |   |
| C22G32         | 32         |               |                 |    |    |   |   |
| C22G40         | 40         |               |                 |    |    |   |   |
| C22G50         | 50         |               |                 |    |    |   |   |
| C22G63         | 63         |               |                 |    |    |   |   |
| C22G80         | 80         |               |                 |    |    |   |   |
| C22G100        | 100        |               |                 |    |    |   |   |
| C22G125        | 125        |               |                 |    |    |   |   |
|                | 500Vac     |               |                 |    |    |   |   |
|                | 400Vac     |               |                 |    |    |   |   |



## Class aM IEC Industrial Ferrule Fuses - Class aM IEC 60269

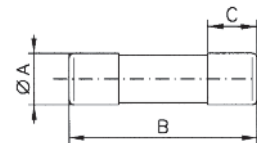
8 x 31mm: 400Vac, 1 - 8A

| Catalog Number | Rated Amps | Rated Voltage | Dimensions (mm) |      |     |
|----------------|------------|---------------|-----------------|------|-----|
|                |            |               | A               | B    | C   |
| C08M1          | 1          | 400Vac        | 8.5             | 31.5 | 6.3 |
| C08M2          | 2          |               |                 |      |     |
| C08M4          | 4          |               |                 |      |     |
| C08M6          | 6          |               |                 |      |     |
| C08M8          | 8          |               |                 |      |     |



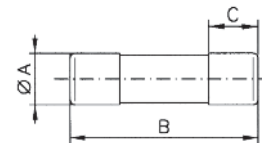
10 x 38mm: 400Vac - 550Vac, 0.16 - 25A

| Catalog Number | Rated Amps | Rated Voltage | Dimensions (mm) |      |      |
|----------------|------------|---------------|-----------------|------|------|
|                |            |               | A               | B    | C    |
| C10M0-16       | 0.16       | 550Vac        | 10.3            | 38.0 | 10.0 |
| C10M0-25       | 0.25       |               |                 |      |      |
| C10M0-5        | 0.5        |               |                 |      |      |
| C10M1          | 1          |               |                 |      |      |
| C10M2          | 2          |               |                 |      |      |
| C10M4          | 4          |               |                 |      |      |
| C10M6          | 6          |               |                 |      |      |
| C10M8          | 8          |               |                 |      |      |
| C10M10         | 10         |               |                 |      |      |
| C10M12         | 12         |               |                 |      |      |
| C10M16         | 16         |               |                 |      |      |
| C10M20         | 20         | 400Vac        | 10.3            | 38.0 | 10.0 |
| C10M25         | 25         |               |                 |      |      |



14 x 51mm: 690Vac - 500Vac, 0.25 - 50A

| Catalog Number | Rated Amps | Rated Voltage | Dimensions (mm) |    |    |
|----------------|------------|---------------|-----------------|----|----|
|                |            |               | A               | B  | C  |
| C14M0-25       | 0.25       | 690Vac        | 14.3            | 51 | 13 |
| C14M1          | 1          |               |                 |    |    |
| C14M2          | 2          |               |                 |    |    |
| C14M4          | 4          |               |                 |    |    |
| C14M6          | 6          |               |                 |    |    |
| C14M8          | 8          |               |                 |    |    |
| C14M10         | 10         |               |                 |    |    |
| C14M12         | 12         |               |                 |    |    |
| C14M16         | 16         |               |                 |    |    |
| C14M20         | 20         |               |                 |    |    |
| C14M25         | 25         |               |                 |    |    |
| C14M32         | 32         |               |                 |    |    |
| C14M40         | 40         |               |                 |    |    |
| C14M50         | 50         |               |                 |    |    |
|                |            |               |                 |    |    |



22 x 58mm: 400Vac - 500Vac - 690Vac, 2 - 125A

| Catalog Number | Rated Amps | Rated Voltage | Dimensions (mm) |    |    |
|----------------|------------|---------------|-----------------|----|----|
|                |            |               | A               | B  | C  |
| C22M2          | 2          | 690Vac        | 22.2            | 58 | 16 |
| C22M4          | 4          |               |                 |    |    |
| C22M6          | 6          |               |                 |    |    |
| C22M8          | 8          |               |                 |    |    |
| C22M10         | 10         |               |                 |    |    |
| C22M12         | 12         |               |                 |    |    |
| C22M16         | 16         |               |                 |    |    |
| C22M20         | 20         |               |                 |    |    |
| C22M25         | 25         |               |                 |    |    |
| C22M32         | 32         |               |                 |    |    |
| C22M40         | 40         |               |                 |    |    |
| C22M50         | 50         |               |                 |    |    |
| C22M63         | 63         |               |                 |    |    |
| C22M80         | 80         |               |                 |    |    |
| C22M100        | 100        | 500Vac        | 22.2            | 58 | 16 |
| C22M125        | 125        |               |                 |    |    |
|                |            | 400Vac        |                 |    |    |



### Neutral Links

| Catalog Number | Product Class |
|----------------|---------------|
| C8NL           | QR            |
| C10NL          |               |
| C14NL          |               |
| C22NL          |               |

# Class aM & gG/gL IEC Industrial Ferrule Fuses with Striker

14 X 51



22 X 58



## Class gG/gL with Striker

| Catalog Number With Striker | Amp Rating | Watts Loss (W) | Voltage (AC) | Interrupting Rating (kA) |
|-----------------------------|------------|----------------|--------------|--------------------------|
| C14G2S                      | 2          | 0.24           | 500          | 120                      |
| C14G4S                      | 4          | 0.45           |              |                          |
| C14G6S                      | 6          | 0.42           |              |                          |
| C14G8S                      | 8          | 0.70           |              |                          |
| C14G10S                     | 10         | 0.53           |              |                          |
| C14G12S                     | 12         | 0.88           |              |                          |
| C14G16S                     | 16         | 1.16           |              |                          |
| C14G20S                     | 20         | 1.23           |              |                          |
| C14G25S                     | 25         | 1.46           |              |                          |
| C14G32S                     | 32         | 2.04           |              |                          |
| C14G40S                     | 40         | 3.34           |              |                          |
| C14G50S                     | 50         | 3.04           |              |                          |
| Catalog Number With Striker | Amp Rating | Watts Loss (W) | Voltage (AC) | Interrupting Rating (kA) |
| C22G4S                      | 4          | 0.48           | 690          | 80                       |
| C22G6S                      | 6          | 0.47           |              |                          |
| C22G8S                      | 8          | 0.73           |              |                          |
| C22G10S                     | 10         | 0.74           |              |                          |
| C22G12S                     | 12         | 0.83           |              |                          |
| C22G16S                     | 16         | 1.21           |              |                          |
| C22G20S                     | 20         | 1.29           |              |                          |
| C22G25S                     | 25         | 1.53           |              |                          |
| C22G32S                     | 32         | 2.13           |              |                          |
| C22G40S                     | 40         | 3.40           |              |                          |
| C22G50S                     | 50         | 3.48           |              |                          |
| C22G63S                     | 63         | 4.46           |              |                          |
| C22G80S                     | 80         | 5.86           | 500          | 120                      |
| C22G100S                    | 100        | 6.61           |              |                          |
| C22G125S                    | 125        | 8.42           | 400          |                          |

14 X 51



22 X 58



## Class aM with Striker

| Catalog Number With Striker | Amp Rating | Watts Loss (W) | Voltage (AC) | Interrupting Rating (kA) |              |                          |
|-----------------------------|------------|----------------|--------------|--------------------------|--------------|--------------------------|
| C14M1S                      | 1          | 0.14           | 500          | 120                      |              |                          |
| C14M2S                      | 2          | 0.24           |              |                          |              |                          |
| C14M4S                      | 4          | 0.45           |              |                          |              |                          |
| C14M6S                      | 6          | 0.42           |              |                          |              |                          |
| C14M8S                      | 8          | 0.70           |              |                          |              |                          |
| C14M10S                     | 10         | 0.53           |              |                          |              |                          |
| C14M12S                     | 12         | 0.88           |              |                          |              |                          |
| C14M16S                     | 16         | 1.16           |              |                          |              |                          |
| C14M20S                     | 20         | 1.23           |              |                          |              |                          |
| C14M25S                     | 25         | 1.46           |              |                          |              |                          |
| C14M32S                     | 32         | 2.04           |              |                          |              |                          |
| C14M40S                     | 40         | 3.34           |              |                          |              |                          |
| C14M50S                     | 50         | 3.04           |              |                          | 400          |                          |
| Catalog Number With Striker | Amp Rating | Watts Loss (W) |              |                          | Voltage (AC) | Interrupting Rating (kA) |
| C22M2S                      | 2          | 0.29           | 690          | 80                       |              |                          |
| C22M4S                      | 4          | 0.48           |              |                          |              |                          |
| C22M6S                      | 6          | 0.47           |              |                          |              |                          |
| C22M8S                      | 8          | 0.73           |              |                          |              |                          |
| C22M10S                     | 10         | 0.74           |              |                          |              |                          |
| C22M12S                     | 12         | 0.83           |              |                          |              |                          |
| C22M16S                     | 16         | 1.21           |              |                          |              |                          |
| C22M20S                     | 20         | 1.29           |              |                          |              |                          |
| C22M25S                     | 25         | 1.53           |              |                          |              |                          |
| C22M32S                     | 32         | 2.13           |              |                          |              |                          |
| C22M40S                     | 40         | 3.40           |              |                          |              |                          |
| C22M50S                     | 50         | 3.48           |              |                          | 500          | 120                      |
| C22M63S                     | 63         | 4.46           |              |                          |              |                          |
| C22M80S                     | 80         | 5.86           |              |                          |              |                          |
| C22M100S                    | 100        | 6.61           |              |                          |              |                          |
| C22M125S                    | 125        | 8.42           | 400          |                          |              |                          |

## HRC Fuse Holders

### CAMaster

**Specifications**  
**Catalog Symbol:**

See table below.

**Description:** The CAMaster HRC fuse holder features a unique cam-action for easy fuse removal while allowing significantly improved contact pressure between fuse carrier and base contact that enhances electrical performance. A range of lockable safety carriers for the fuse holder (catalog reference: LSC), are available.

**Ratings:**

Volts: — 690V

Amps: — 30-100A (See Catalog Number table for details)

**Agency Information:** CE, CSA C22.2 No. 39; IEC 269 AND BS 88.

**Mounting:** 35mm DIN-Rail or single screw mounting.

**Catalog Numbers**

| Catalog Numbers | Amp Ratings | Details For:         | Fuse Accepted |
|-----------------|-------------|----------------------|---------------|
| CM20CF          | 30          | HRCI-CA Applications | _CIF21        |
| CM30CF          | 30          | HRCII Applications   | _H07C         |
| CM60CF          | 60          |                      | _K07C         |
| CM100CF         | 100         |                      | _K07CR        |

**Accessory Catalog Numbers for CAMaster Units**

| Catalog Numbers | Amp Ratings | Details                    | Fuse Holder Accepted |
|-----------------|-------------|----------------------------|----------------------|
| 20BS            | 30          | Back Stud                  | CM20CF               |
| 32BS            | 30          |                            | CM30CF               |
| 60/100BS        | 60/100      |                            | CM60/100CF           |
| GLP             | All         | Ganging Link Kit           | 3-Pole               |
| NI              | All         | 660V Neon Indicator        | —                    |
| 20LSC           | 30          | Security Carrier with Clip | CM20CF               |
| 30LSC           | 30          |                            | CM30CF               |
| 60/100LSC       | 60/100A     |                            | CM60/100CF           |



### SAFEloc

**Specifications**  
**Catalog Symbol:**

See table below.

**Description:** The SAFEloc HRC fuse holders (for use with HRCI-CB fuses) provides a positive, stress-free fuse fitting and locks it in position to ensure safe insertion and withdrawal from the base. Base contacts are fully shrouded to help protect against electric shock. Shrouds utilize simple slide/snap action allowing access to the contact terminal screws.

**Ratings:**

Volts: — 600V

Amps: — 30-60A (See Catalog Number table for details)

**Agency Information:** CE, Designed to accommodate the compact range of offset blade fuse to CSA C22.2 No. 106, HRCI-CB.

**Mounting:** 35mm DIN-Rail or single screw mounting.



**Catalog Numbers\***

| Catalog Numbers | Amp Ratings | Connection | Fuse Accepted |
|-----------------|-------------|------------|---------------|
| C30F            | 30          | Front      | _CIF06        |
| C30BS           |             | Back       |               |
| C30FBS          |             | Front-Back |               |
| C60F            | 60          | Front      | EK-Amp        |
| C60BS           |             | Back       |               |
| C60FBS          |             | Front-Back |               |

\*For use with HRCI-CB Fuses.



# Quik-Spec coordination panelboards



The new Quik-Spec coordination panelboard with a footprint up to 40% smaller than other fusible panelboards is now available up to 1200A

**Bussmann**  
by **EAT•N**

# Quik-Spec™ Electrical Gear

## Section Contents

|   | Page    |
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**RED** indicates **NEW** information



Scan this tag to get the latest product information for Quik-Spec Coordination Panel Boards.



# 30-400A Quik-Spec™ Coordination Panelboard

**Specifications**

**Description:** Configurable fusible panelboard with 30-400A mains and branches from 1-100A rated 600Vac.

**Ratings:**

Volts: — 600Vac (or less), 125Vdc (or less)\*\*

Bus Amps: — 30, 60, 100, 200, 225 or 400A

**Options:**

- Main: — MLO (main lug only)
- Fused disconnect switch
- Non-fused disconnect switch

Enclosure: — NEMA 1 or 3R

- Standard size panelboard (20" W x 5" D x various heights)\*
- For other ratings consult factory

Panel: — Feed; Top & Bottom\*\*\*

- Mounting; Surface or Flush\*\*\*\*
- Door/Trim; Regular or Door-in-Door\*\*\*\*

Branch: — Circuits; Up to 18, 30 and 42\*

- Amps; Up to 100A
- Type; 1-, 2- and 3-Pole

Fuse: — Six-fuse spare fuse compartment

- Time-delay or UPS/critical applications (fast-acting) CUBEFuse™

**Assembly**

SCCR: — 200kA, 100kA or 50kA AC, 100kA or 20kA@125Vdc\*

**Through-Lugs**

**& Loadside**

Disconnect: — Feed-Through - single and double  
— Fused loadside disconnect, ≥100A-≤200A (400A panels only)

Neutrals: — 200A and 400A Unbonded and Bonded

Ground: — Non-Isolated or Isolated

\*Depending on configuration

\*\*125Vdc rating applicable to 40 amp or less CCPBs on MLO panels only.

\*\*\*Top feed not available on NEMA 3R enclosure

\*\*\*\*Flush mount and Door-in-Door not available with NEMA 3R enclosure



**Agency Information:** UL Listed to UL 67, complies with NFPA 70 (NEC®; National Electric Code),

**Features and Benefits:**

- UL and CSA listing makes it easy to address NEC® selective coordination requirements in an all fused system
- Value-engineered for greater flexibility with up to 400A mains, 200kA SCCR, 100A branches with 18, 30 and 42 branch positions
- Same size footprint as traditional circuit breaker panelboards and 40% smaller than standard fusible panelboards: 20" W x 5 3/4" D x various heights (depending on configuration)
- Increase safety with current-limiting finger-safe Low-Peak CUBEFuse that reduces arc flash hazard levels
- Quik-Quote online configurator makes specifying and ordering easy – delivers a full bill of material and submittal drawings for an entire project
- Available for 10 day shipment with QuikShip™ service

**Ordering:**

The QSCP is factory configured to the specific electrical system. Contact your Bussmann distributor or representative to place your order. Have all relevant electrical and circuit information on hand.

QuikShip – 10 Business Day Shipment



# 600-1200A Quik-Spec™ Coordination Panelboard

**Specifications**

**Description:** Fusible panelboard with 600, 800 and 1200A mains and branches from 1-600A, rated 600Vac.

**Ratings:**

Volts: — 600Vac (or less), 125Vdc  
Amps: — 600, 800 and 1200A

**Options:**

- Main: — Main lug only
- Enclosure: — NEMA 1 floor mount
- Branch: — 1-, 2- and 3-pole, 15-600A branch disconnect
- Fuse: — Time-delay, non-indicating (Class CF TCF\_R and/or Class J LPJ\_SP)
- Time-delay, indicating (Class CF TCF\_ and/or Class J LPJ\_SPI)
- Fast-acting, non-indicating (Class CF TCF\_RN and/or Class J JKS)
- DFJ high speed Class J fuses

**Agency Information:** Complies with NFPA 70 (NEC®, National Electrical Code®) UL Listed to UL 67,

**Features and Benefits:**

- Configurable panelboards with options for 600, 800 and 1200A mains and branches from 1-600A all rated 200kA SCCR at 600Vac
- Smallest standard fusible panelboards in the industry
- Featuring the finger-safe UL Class CF CUBEFuse with 1-600A ampacity rejection features (1-100A)
- Available with time-delay or UPS/Critical application fast-acting fuses



- UL listing makes it simple to address NEC® selective coordination system requirements in an all fused system
- Quik-Quote online configurator makes specifying and ordering easy – delivers a full bill of material and submittal drawings for an entire project

**Ordering:**

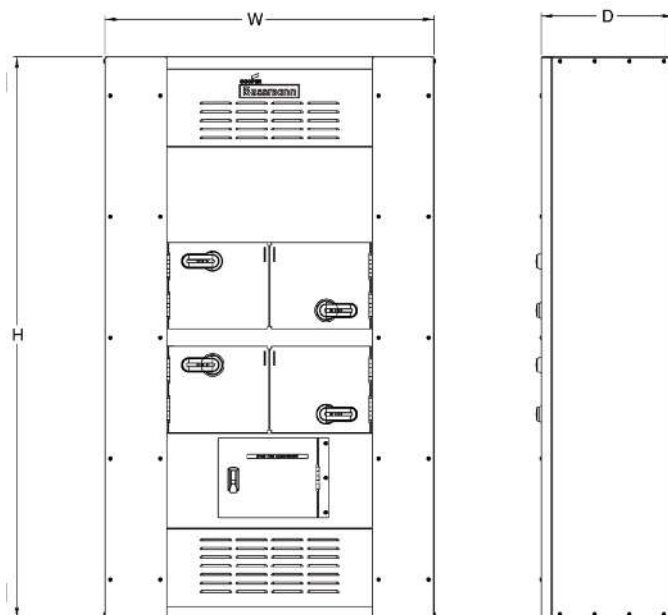
The QSCP is factory configured to the specific electrical system. Contact your Bussmann distributor or representative to place your order. Have all relevant electrical and circuit information on hand.

QuikShip – 10 Business Day Shipment

**Configuration and Dimension Chart**

| Panel Ampacity                        | Branch Configurations                   | Dimension (inches) |    |    |
|---------------------------------------|---|--------------------|----|----|
|                                       |   | H                  | W  | D  |
| 600A                                  | (18) 1-100A                             | 65                 | 27 | 15 |
|                                       | (18) 1-100A + 200A single               |                    |    |    |
|                                       | (18) 1-100A + 200A twin                 |                    |    |    |
|                                       | 200A single + 200A single               |                    |    |    |
|                                       | 200A single + 200A twin                 |                    |    |    |
|                                       | 200A twin + 200A twin                   |                    |    |    |
| 800A                                  | (2) 300A single                         | 89                 | 38 | 15 |
|                                       | (18) 1-100A + 200A single               |                    |    |    |
|                                       | (18) 1-100A + 200A twin                 |                    |    |    |
|                                       | (2) 200A twin                           | 89                 | 38 | 15 |
|                                       | (18) 1-100A + 400A single               |                    |    |    |
|                                       | 200A twin + 400A single                 |                    |    |    |
| 1200A                                 | (2) 400A single                         | 89                 | 38 | 15 |
|                                       | (18) 1-100A + 600A single               |                    |    |    |
|                                       | (3) 200A twin                           |                    |    |    |
|                                       | 200A twin + 600A single                 | 102                | 38 | 15 |
|                                       | (2) 200A twin + 400A single             |                    |    |    |
|                                       | (3) 400A single                         |                    |    |    |
|                                       | 600A single + 400A single + 200A single |                    |    |    |
| 600A single + 400A single + 200A twin |   |                    |    |    |
| (2) 600A single                       |   |                    |    |    |

Data Sheet: 1171



Quik-Spec™  
Electrical  
Gear

# Quik-Spec™ Power Module — All-in-one Elevator Disconnect

## PS & PMP

### Bussmann Quik-Spec Power Module

#### Specifications

**Description:** Fusible power switch or panel with shunt trip and fire safety interface to allow for single point tie in with fire alarm system.

#### Ratings:

- Volts: — 600Vac, 3Ø
- Amps: — 30-400A (PS)
  - 30-200A (PMP feeder switches)
  - 400-800A (PMP main switches\*)

#### Assembly

SCCR: — 200kA RMS

\*Contact Bussmann for applications greater than 800A.

**Agency Information:** Complies with NFPA 70 (NEC®; National Electrical Code®),

- Elevator Shutdown — ANSI/ASME A17.1, 2.8.3.3.2
  - NEC® 620.51(B) (Elevator Shutdown)
  - NEC® 240.12 (Orderly Shutdown)
- Shunt Trip Voltage Monitoring — NFPA 72, 6.16.4.4
- Selective Coordination — NEC® 620.62
- Auxiliary Contact (Hydraulic Elevator) — NEC® 620.91(C)
- Power Module Switch (PS); UL Listed (UL 98) Enclosed and Dead front switch Guide 96NK3917, File E182262, NEMA 1, UL 50 Listed enclosure\*\*, cUL per Canadian Standards C22.2, No. 0-M91-CAN/CSA C22.2, No. 4-M89 Enclosed switch.

\*\*NEMA 12, 3R, and 4 enclosures also available

- Power Module Panel (PMP); UL 98 Enclosed and Deadfront Switches.

#### Features and Benefits:

- Internally powered, relay activated shunt trip system
- Mechanically interlocked auxiliary contact
- Self-contained adherence to elevator consensus standards, NFPA 70 (NEC®). NFPA 72, ANSI/ASME 17.1
- Shunt trip capability
- Selective coordination
- Fire safety signal interface
- Shunt trip voltage monitoring
- Component protection via Bussmann Low-Peak™ Class J fuses
- UL 98 Listed for 200kA short-circuit current rating
- Lockable in the open position with three-lock capability
- Optional key-test switch and optional pilot light for easy inspection
- No annual calibration or testing of overcurrent protection required
- Padlockable for service-work safety and open-door “override” for troubleshooting

#### Typical Applications:

- Elevator Disconnects
- Computer Room Shunt Trip Disconnect
- Fire Safety Interface Relay

#### Accessories:

- For added safety, use the Bussmann SAMI™ fuse covers to improve maintenance personnel protection (OSHA 1910.333, paragraph C)

#### Ordering:

The Bussmann Quik-Spec™ Power Module Switch and Panel are factory configured to the specific application. Contact your Bussmann representative to place your order. Have all relevant electrical and circuit information on hand.

#### PS\*

The Quik-Spec™ Power Module Switch (PS) for single elevator applications.



#### PMP\*

Power Module™ Panel (PMP) for multiple elevator applications.



Scan this tag to get the latest videos for the Power Module.

\*Fused main disconnect requires Class J fuses, not supplied with switch.



# Quik-Spec™ Power Module — All-in-one Elevator Disconnect

## Hydraulic Elevators

Hydraulic elevators need battery backup to help prevent stranding passengers. To keep the elevator from moving when it's been manually shut down for maintenance, the NEC® requires battery backup be connected to the elevator disconnecting means through an auxillary contact.

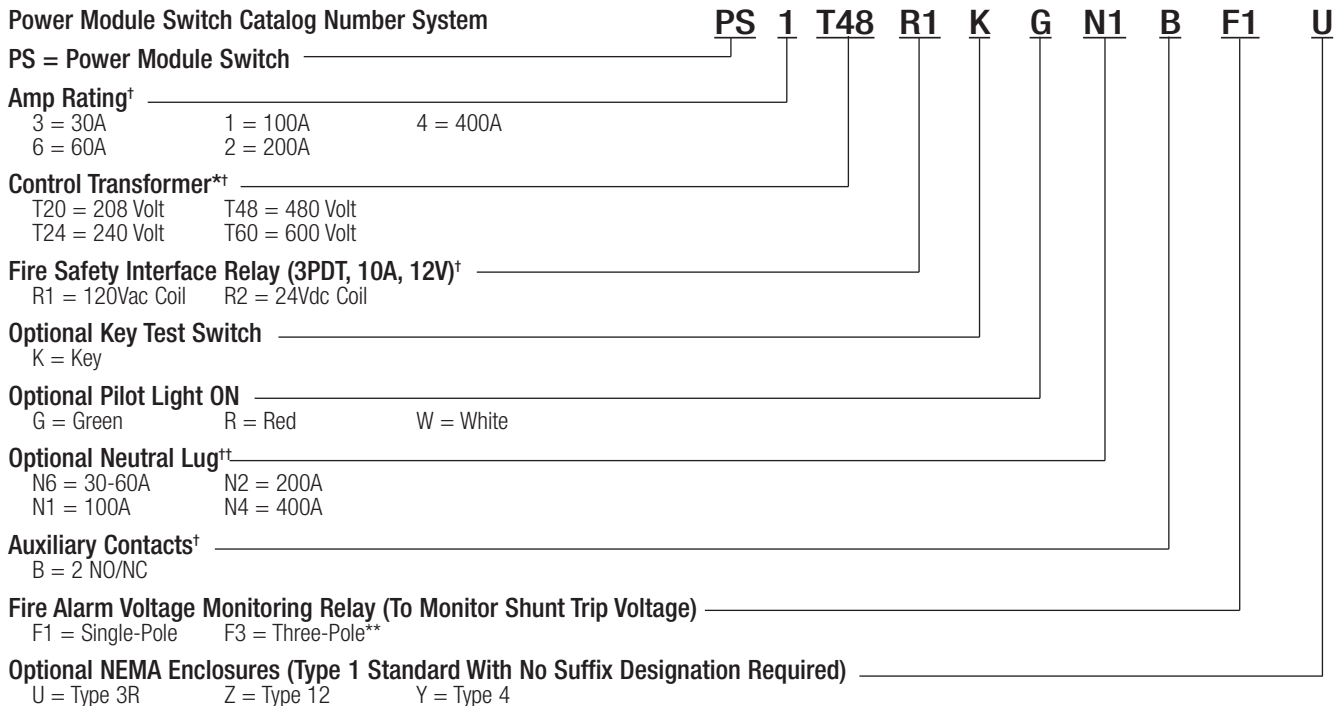
However, an unintended consequence can be passengers getting stranded because of devices that open automatically (circuit breakers and disconnects utilizing a

molded case switch with a trailing fuse block) will operate with a fault on their loadside. That operation also disables the battery backup and strands passengers. That's why the Power Module has a non-automatic fusible shunt trip switch. If the Power Module has a fault on its loadside, the fuses open and the battery stays enabled. Thus the Power Module ensures that battery power is enabled when the passengers need it to exit - and disabled to allow safe maintenance of the elevator and hoistway.

| Scenario                        | Battery Lowering Required | Reason   | Offered By Power Module™ | Offered By Other Elevator Disconnects |
|---------------------------------|---------------------------|--|--------------------------|---------------------------------------|
| Power failure                   | Yes                       | Need to lower elevator to allow passengers to exit.  | Yes                      | Yes                                   |
| Fire in shaft or machine room   | No                        | Recall is initiated by smoke detector and lowers elevator to a safe floor. Battery not needed. | Yes                      | Yes                                   |
| Disconnect manually opened      | No                        | Worker to perform maintenance. Elevator must remain stationary to prevent injury.              | Yes                      | Yes                                   |
| Fault on loadside of disconnect | Yes                       | Need to lower elevator to allow passengers to exit.  | Yes                      | No                                    |

## Quik-Spec™ Power Module Switch Catalog Numbering System

### Power Module Switch Catalog Number System



\* 100Va with Primary and Secondary fusing (120V Secondary)

\*\* Only for use with R1 option

† Required equipment.

†† Neutral lug rating should be equal to or greater than the switch amp rating.

### Quik-Ship Program: Switch - 3 Days, Panel - 10 Days!

Ship-direct service within three business days for Power Module Switches (PS\_) and 10 business days for Power Module Panels (PMP\_).

\* Three day PS\_ shipment requires ordering from catalog numbers shown.

\*\* 10 Day PMP\_ shipment covers NEMA 1 enclosures with the ampacities shown and all requirements for relay type (AC or DC), accessory options and number of switches. To order PMP\_, contact your Bussmann representative with all relevant electrical and circuit information, we do the rest.

| Power Module Switch* |      |       | Power Module Panel** |      |
|----------------------|------|-------|----------------------|------|
| Cat Numbers          | Amps | Volts | Cat. Numbers         | Amps |
| PS6T48R1KGBF3-X      | 60A  | 480V  | PMP-400-X            | 400A |
| PS1T48R1KGBF3-X      | 100A | 480V  | PMP-600-X            | 600A |
| PS1T20R1KGBF3-X      | 100A | 208V  | PMP-800-X            | 800A |
| PS2T48R1KGBF3-X      | 200A | 480V  |                      |      |
| PS2T20R1KGBF3-X      | 200A | 208V  |                      |      |

# Quik-Spec™ DC Safety Switch

Isolating DC Circuits Has Never Been Easier or Safer

- Flexibility of Application
- Enhanced Finger-Safe Design
- Meets UL and NEC® Requirements
- Flange Handle Operation
- Current-Limiting Fuses Reduce Arc Flash Hazard

**NEC 690.17 Compliant Label**

Warns that the switch terminals may be energized in the open position



**High Visibility Padlockable Handle**

Easy to operate with gloves and up to three padlocks to protect maintenance personnel

**Visible Switch Contacts**

Positive visual identification of switch state

**Door Interlock**

Prevents opening door while energized, but can be manually overridden for testing or inspection.

**Clear Polycarbonate Deadfront**

Covers energized parts to provide added protection against electrical hazards. Lineside stays in place during fuse servicing.

**Fused Version For Added Protection**

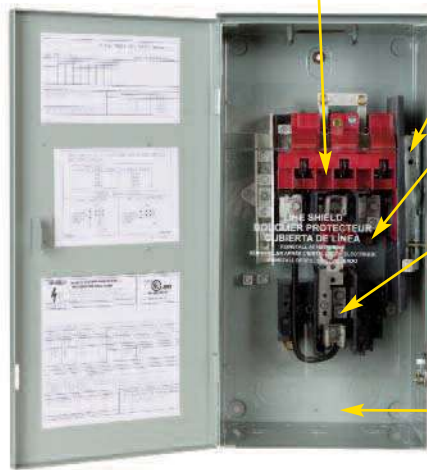
Fuse clips located on switch center pole to ensure both clips are de-energized in OFF position. Meets NEC® Article 690.16 that requires isolating the fuse from all potential supply sources. Cooper Bussmann recommends using the Limitron fast-acting, current limiting PVS-R Class RK5 fuse (order separately.)

**Conduit Knockouts**

For easy conductor installation

**NEMA 3R, 12 & 4X Enclosures**

Meet many application requirements. 3R and 4X stainless steel well suited for isolating outdoor solar power installations



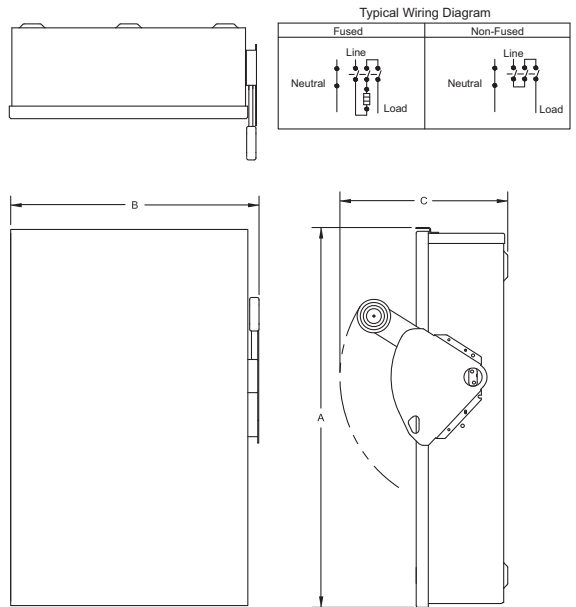
**Type 3R Dimensions**

| Amps | A     | B     | C     | Main Lug Capacity       | Neutral Lug Capacity   | I <sub>sc</sub> |
|------|-------|-------|-------|-------------------------|------------------------|-----------------|
| 30   | 16.35 | 8.87  | 9.89  | #2 AWG - #14 AWG Al/Cu  | #4 AWG - #14 AWG Al/Cu | 19.2            |
| 60   | 16.35 | 8.87  | 9.89  | #2 AWG - #14 AWG Al/Cu  | #4 AWG - #14 AWG Al/Cu | 38.4            |
| 100  | 22.15 | 11.84 | 9.89  | 1/0 AWG - #14 AWG Al/Cu | #4 AWG - #14 AWG Al/Cu | 64.0            |
| 200  | 28.27 | 16.66 | 11.26 | 250kcmil - #6 AWG Al/Cu | #2 AWG - #14 AWG Al/Cu | 128.0           |

**Type 12 & 4X Dimensions**

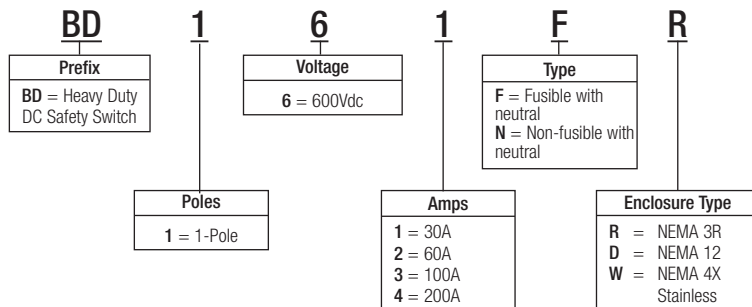
| Amps                | A     | B     | C     | Main Lug Capacity       | Neutral Lug Capacity   | I <sub>sc</sub> |
|---------------------|-------|-------|-------|-------------------------|------------------------|-----------------|
| 30 & 60 Non-fusible | 14.14 | 8.76  | 10.22 | #2 AWG - #14 AWG Al/Cu  | #4 AWG - #14 AWG Al/Cu | 19.2            |
| 30 & 60 Fusible     | 19.08 | 8.76  | 10.22 | #2 AWG - #14 AWG Al/Cu  | #4 AWG - #14 AWG Al/Cu | 19.2            |
| 100                 | 24.95 | 11.79 | 10.22 | 1/0 AWG - #14 AWG Al/Cu | #4 AWG - #14 AWG Al/Cu | 64.0            |
| 200                 | 35.38 | 16.95 | 11.63 | 250kcmil - #6 AWG Al/Cu | #2 AWG - #14 AWG Al/Cu | 128.0           |

**Dimensions - in**



**DC Safety Switch Catalog Numbering System**

Use this build-a-code to specify the exact Quik-Spec DC Safety Switch you need.



# Quik-Spec™ Safety Switch

## Bussmann Quik-Spec™ Safety Switch



### Specifications

**Description:** The Bussmann Quik-Spec™ Safety Switch equipped with finger-safe Low-Peak CUBEFuse provides superior safety and reliability for industrial customers.

Utilizing the Bussmann Class CF Low-Peak CUBEFuse, the Quik-Spec Safety Switch provides Class J fuse performance characteristics that can help mitigate incident energy and arc-flash hazard, and offers excellent component protection.

The Bussmann CUBEFuse requires no tools to install or replace.

### Agency Information:

- UL 98 standard for enclosed deadfront switches.
- UL 50 standard for enclosures for electrical equipment.
- NEMA KS 1.
- UL Listed, File E5239.
- cUL Listed to C22.2 No.4-M89.

### Standard Features:

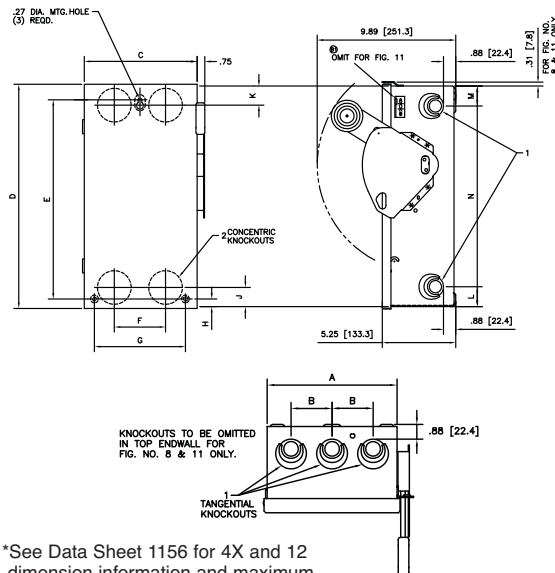
- Extended line terminal shield and finger-safe 30, 60, or 100A Bussmann CUBEFuse
- 200kA short-circuit current rating
- Visible double break quick-make, quick-break rotary blade mechanism
- Triple padlocking capability
- Mechanically interlocked door
- 600Vac/250Vdc maximum

### Optional Features:

- Viewing window for visible blades and open fuse indication
- NEMA 1, 3R, 12, 4X (stainless)
- Suitable for use as service equipment (with neutral kit)

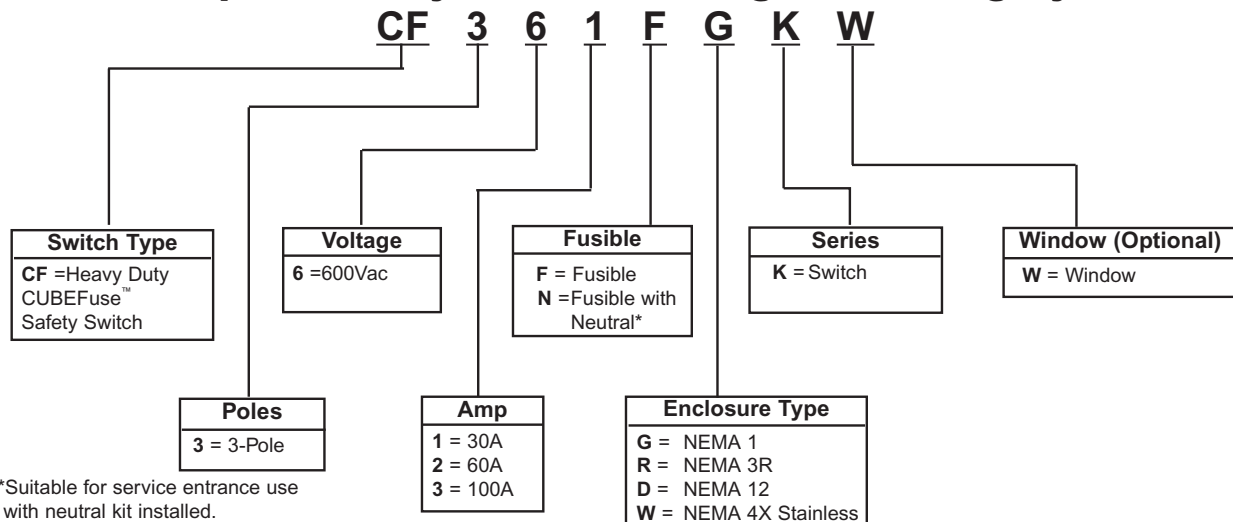
### Dimensions - inches (mm)\*

#### NEMA 1 & 3R



\*See Data Sheet 1156 for 4X and 12 dimension information and maximum horsepower ratings.

## Quik-Spec™ Safety Switch Catalog Numbering System



# A/C Disconnects — Fused and Non-fused

## Series B22\_\_

### Specifications

**Description:** Fused and non-fused rainproof pullout air conditioner units.

**Dimensions:** See Catalog Numbers table.

**Construction:** NEMA 3R metal housing with weather resistant coating.

**Wire Range:** 14-3 AWG, Al/Cu

### Ratings:

Phase: — Single, 2-wire

Volts: — 240Vac

Amps: — 30-60A

**Agency Information:** UL Listed to UL 1429, cUL Certified, UL Guide WGEW

### Features and Benefits

- A/C disconnects meet NEC® Code Requirements under articles 440.14. GFCI units meet NEC® Code Requirements under articles 210.63, 210.8, and 406.8(B)(1).
- NEMA 3R rainproof enclosures withstand outdoor environment.
- Padlockable with two-position pullout handle to lock safety shield when in the ON position. (Not available on GF or NA units.) For added safety, pullout handle can be stored in the compartment in the off position.

### Typical Applications

- Residential, light industrial/commercial A/C and heat pump service.
- Spas/whirlpools, swimming pools, pump houses.
- Suitable for service entrance equipment applications with field installable ground bar, kit number DPFG.



Metallic Fused Disconnect

Metallic Non-Fused Disconnect

Metallic Non-Fused Disconnect with Weather Resistant-Tamper Resistant GFCI Receptacle.



## Catalog Numbers

### Fused

| Catalog Numbers  | Description                     | Disconnect Rating | Max Hp Rating |      | Wire Range<br>60 or 75°C Cu/Al | Enclosure Type | Fuse Class | Approx. Dimensions (in) |       |       |
|------------------|---------------------------------|-------------------|---------------|------|--------------------------------|----------------|------------|-------------------------|-------|-------|
|                  |                                 |                   | 120V          | 240V |                                |                |            | Height                  | Width | Depth |
| B221-30F         | 30A, Pullout                    | 30A               | 1.5           | 3    | #14-3                          | NEMA 3R        | H or R     | 8 ¾                     | 5 ¾   | 2 ½   |
| B221-30FGF       | 30A, Pullout w/ GFCI            | 30A               | 1.5           | 3    | #14-3                          | NEMA 3R        | H or R     | 13                      | 7 ½   | 4 ¾   |
| B221-30FGFWRTR   | 30A, Pullout w/ WRTR-Rated GFCI | 30A               | 1.5           | 3    | #14-3                          | NEMA 3R        | H or R     | 13                      | 7 ½   | 4 ¾   |
| B222-60F         | 60A, Pullout                    | 60A               | 3             | 10   | #14-3                          | NEMA 3R        | H or R     | 8 ¾                     | 5 ¾   | 2 ½   |
| B222-60FGF       | 60A, Pullout w/ GFCI            | 60A               | 3             | 10   | #14-3                          | NEMA 3R        | H or R     | 13                      | 7 ½   | 4 ¾   |
| B222-60FGFWRTR   | 60A, Pullout w/ WRTR-Rated GFCI | 60A               | 3             | 10   | #14-3                          | NEMA 3R        | H or R     | 13                      | 7 ½   | 4 ¾   |
| <b>Non-Fused</b> |                                 |                   |               |      |                                |                |            |                         |       |       |
| B222-60NF        | 60A, Pullout                    | 60A               | 3             | 10   | #14-3                          | NEMA 3R        | *          | 8 ¾                     | 5 ¾   | 2 ½   |
| B222-60NFGF      | 60A, Pullout w/ GFCI            | 60A               | 3             | 10   | #14-3                          | NEMA 3R        | *          | 11 ¾                    | 6 ½   | 4 ½   |
| B222-60NFGFWRTR  | 60A, Pullout w/ WRTR-Rated GFCI | 60A               | 3             | 10   | #14-3                          | NEMA 3R        | *          | 11 ¾                    | 6 ½   | 4 ½   |
| B222-60NFNA      | 60A, Switch                     | 60A               | *             | 10   | #14-3                          | NEMA 3R        | *          | 8 ¾                     | 5 ¾   | 3 ½   |

30 and 60A pullout replacement handle: 96-3258-4.

\*Upstream overcurrent protective device (OPCD) not to exceed 60A.

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**RED indicates NEW information**

Fuse Holders & Blocks



# Global Modular Fuse Holders

## CH Series - 8x32, 10x38, 14x51, 22x58, Class CC

### Specifications

**Description:** The 'CH' line of modular fuse holders accommodates many fuses from around the world, including North American Class-CC, Midget, Class gR, aR HSF, and IEC Industrial Ferrule (Class gG and aM) in four physical sizes: 8x32, 10x38, 14x51 and 22x58mm.



### Agency Information: UL File E14853

Guide IZLT Listed, IZLT2 Recognized

CSA: File 47235, CHPV and CHM - Class 6225-30,

CHCC - Class 6225-01

### Ratings:

600V/30A (UL)

690V/32A (IEC)

### Wire Range:

#18 to #4 (0.8mm<sup>2</sup> to 21.1mm<sup>2</sup>)

### Torque Ratings:

30 Lb-In (3.4 N•m) maximum

### Flammability Ratings:

UL 94V0, self-extinguishing

### Storage & Operating Temperature Range:

-20°C to +90°C (indicating)

-20°C to +120°C (non-indicating)

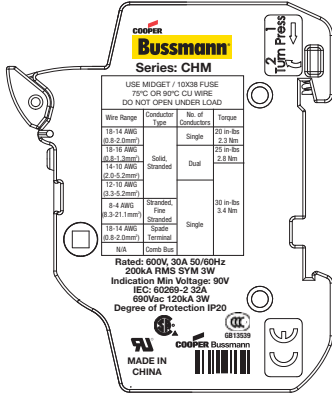
### Features/Benefits

- High SCCR rated, UL Listed Class CC holder with indicator option for 600Vac/dc and 48Vdc.
- UL Recognized midget and 10 x 38 holders with factory assembled neutral pole option.
- Agency ratings up to 1000Vdc for use with solar PV fuses.
- Available remote PLC indication with the CH-PLC module.
- Terminals rated for use with 75°C or 90°C wire, fine stranded wire, spade terminals and comb-bus bars. Use any higher temperature rated wire with appropriate derating.
- Complete range of UL Listed and high SCCR rated 1-phase and 3-phase finger-safe comb-bus bars and power feed lugs.

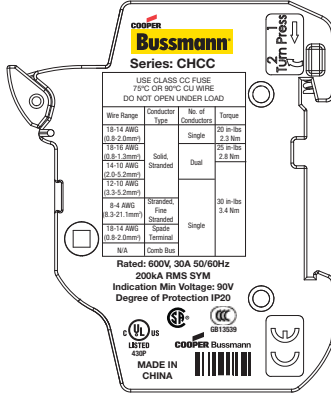
| Series & Size        | Catalog Number |                   | Voltage & Current           | Agency Markings                | Number of Poles | Terminal Rating  | SCCR Rating   | Cooper Bussmann Fuses  |
|----------------------|----------------|-------------------|-----------------------------|--------------------------------|-----------------|--|---------------|--|
|                      | With Indicator | Without Indicator |                             |                                |                 |  |               |  |
| CHM 10x38 and Midget | CHM1DIU        | CHM1DU            | UL 600V/30A; IEC 690V/32A   | cURus; IEC 60269-2             | 1               | Solid, Stranded, Fine Stranded, Spade Lug, Comb Bus Bar; Single and Dual Wire; 75°C and 90°C Cu wire | 100kA rms sym | FNQ, KLM, FNM, KTK, BAF, FWA, DCM, C10 SERIES, AGU, BAN, FWC |
|                      | CHM2DIU        | CHM2DU            |                             |                                | 2               |  |               |  |
|                      | CHM3DIU        | CHM3DU            |                             |                                | 3               |  |               |  |
|                      | CHM4DIU        | CHM4DU            |                             |                                | 4               |  |               |  |
|                      | CHM1DNIU       | CHM1DNU           | 60269-2                     | 1 pole + 1 neutral             |                 |  |               |  |
|                      | CHM3DNIU       | CHM3DNU           |                             | 3 poles + 1 neutral            |                 |  |               |  |
|                      | CHM1DI-48U     |                   | UL 48Vdc/30A; IEC 48Vdc/32A |                                | 1               |  |               |  |
|                      | CHM1DNXU       | IEC 690V/32A      | IEC60269-2                  | 1 neutral                      | n/a             | n/a  |               |  |
| CHPV                 | CHPV1IU        | CHPV1U            | UL & IEC; 1000Vdc/30A       | UR, CSA, UL4248-18, IEC60269-1 | 1               | 75°C and 90°C Cu wire  | 33kA rms sym  | Solar PV series  |
|                      | CHPV2IU        | CHPV2U            |                             |                                | 2               |  |               |  |
| CHCC Class CC        | CHCC1DIU       | CHCC1DU           | UL 600V/30A                 | cULus                          | 1               |  | 200kA rms sym | LP-CC, FNQ-R, KTK-R  |
|                      | CHCC2DIU       | CHCC2DU           |                             |                                | 2               |  |               |  |
|                      | CHCC3DIU       | CHCC3DU           |                             |                                | 3               |  |               |  |
|                      |                | CHCC1DI-48U       | UL 48Vdc/30A                | 1                              |                 |  |               |  |

# Rail Mount Fuse Blocks and Holders

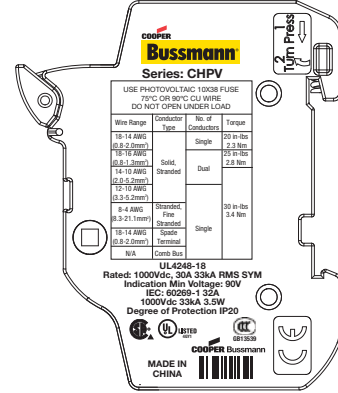
## CHM & CHMI



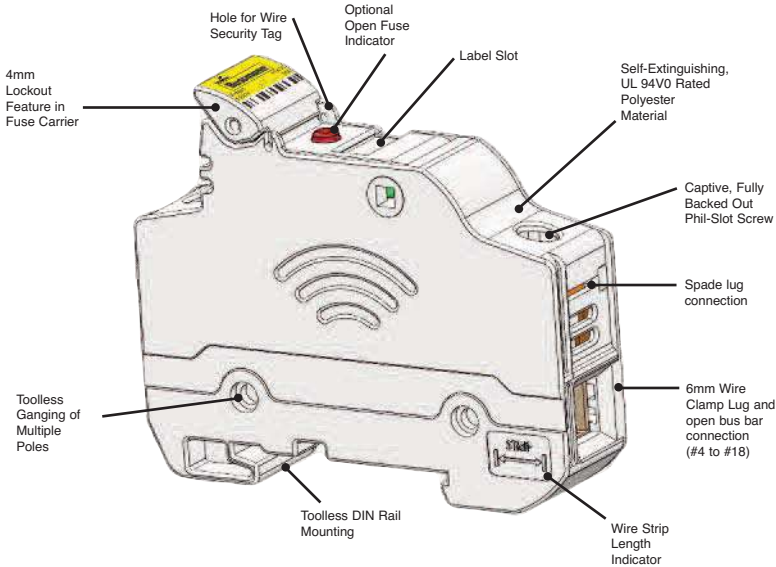
## CHCC & CHCCI



## CHPV & CHPVI

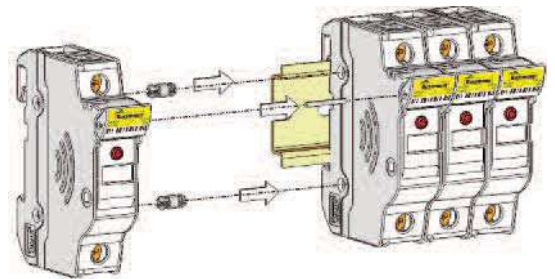


## Features



## Multi-Pole Ganging

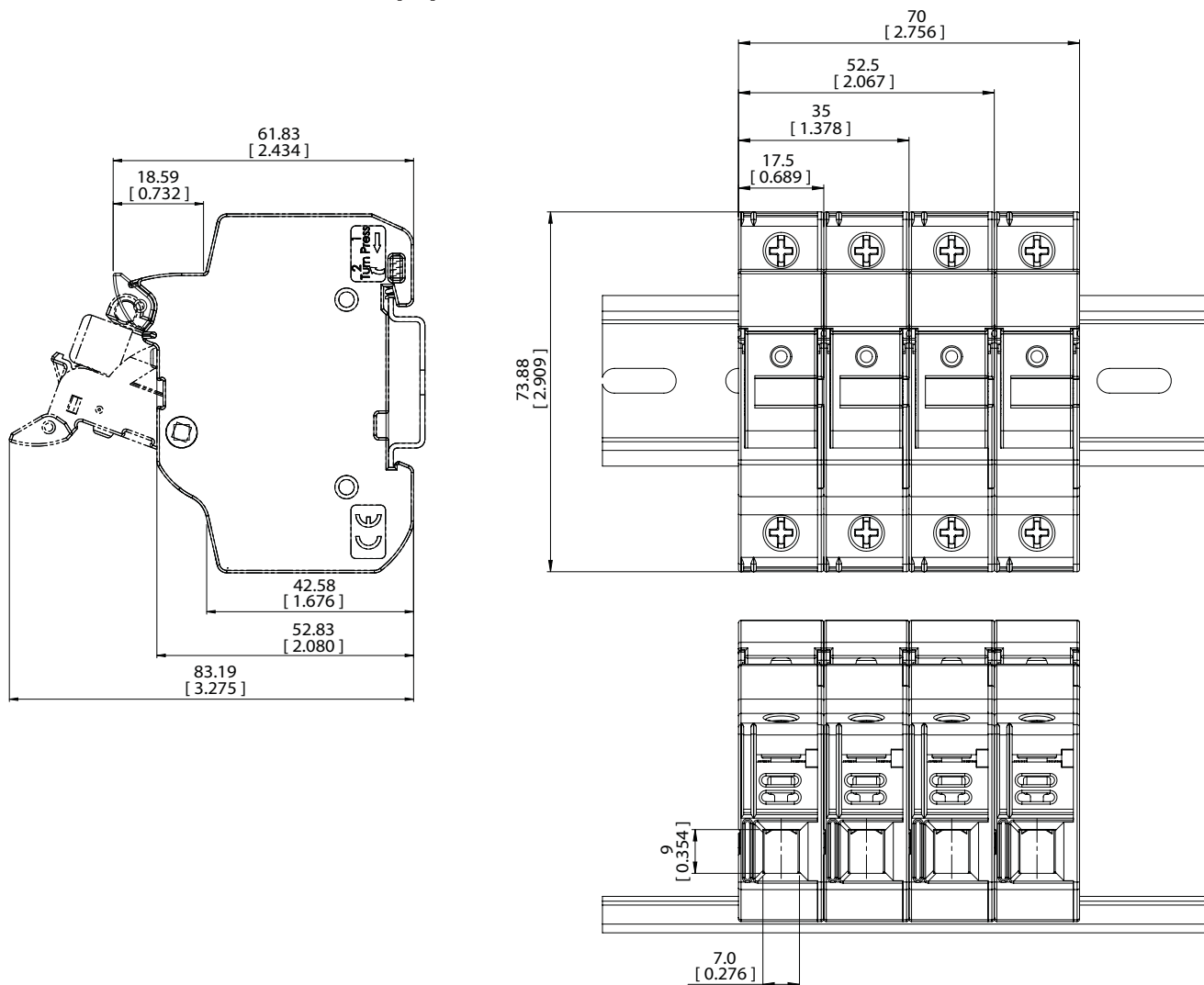
Use multi-pole connection kit part number JV-L to gang multiple poles together. One JV-L kit is sufficient to gang up to 4 poles.



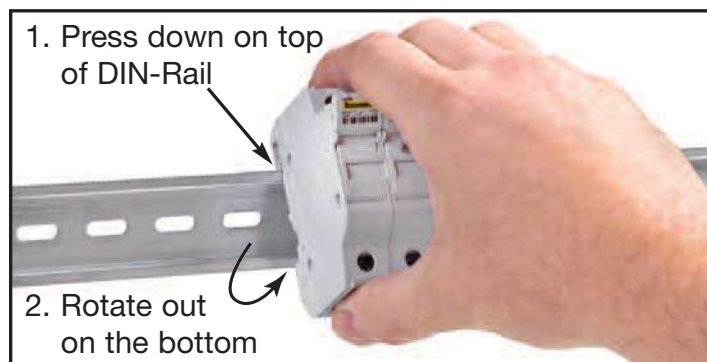
For additional information see reorder #3185

## Rail Mount Fuse Blocks and Holders

### Dimensional Data - mm (in)



### Removing Instructions



## Global Modular Fuse Holders



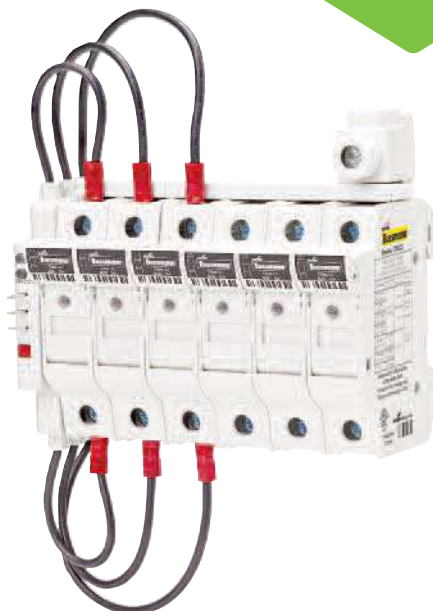
| Catalog Numbers                   |  |                                   |  |                               |                                    |                                |                       |                                  |                           |                                |                   |                                |                   |
|-----------------------------------|--|-----------------------------------|--|-------------------------------|------------------------------------|--------------------------------|-----------------------|----------------------------------|---------------------------|--------------------------------|-------------------|--------------------------------|-------------------|
| Without Indication                | With* Indication   | Size                              | Max Voltage & Current  | IEC                           | UL                                 | Phase Configuration            | No. of 17.5mm Modules | Wire Range                       | Maximum Torque            |                                |                   |                                |                   |
| CH081D                            | CH081DI  | CH08<br>8x32                      | IEC<br>400Vac<br>25A   | •                             |                                    | 1-pole                         | 1                     | 1-16mm <sup>2</sup> (18-8 AWG)   | 2.5 N•m (22LB-In)         |                                |                   |                                |                   |
| CH081DNX                          | -  |                                   |  | •                             |                                    | 1 Neutral Pole                 | 1                     |                                  |                           |                                |                   |                                |                   |
| CH081DNS                          | CH081DNSI  |                                   |  | •                             |                                    | 1-pole + Neutral               | 1                     | 1-10mm <sup>2</sup> (18-8 AWG)   | 2.0 N•m (17.5LB-In)       |                                |                   |                                |                   |
| CH081DN                           | CH081DNI   |                                   |  | •                             |                                    | 1-pole + Neutral               | 2                     | 1-16mm <sup>2</sup> (18-8 AWG)   | 2.5 N•m (22LB-In)         |                                |                   |                                |                   |
| CH082D                            | CH082DI  |                                   |  | •                             |                                    | 2-pole                         | 2                     |                                  |                           |                                |                   |                                |                   |
| CH083D                            | CH083DI  |                                   |  | •                             |                                    | 3-pole                         | 3                     |                                  |                           |                                |                   |                                |                   |
| CH083DNS                          | CH083DNSI  |                                   |  | •                             |                                    | 3-pole + Neutral               | 3                     |                                  |                           |                                |                   |                                |                   |
| CH083DN                           | CH083DNI   |                                   |  | •                             |                                    | 3-pole + Neutral               | 4                     |                                  |                           |                                |                   |                                |                   |
| CH084D                            | CH084DI  |                                   |  | •                             |                                    | 4-pole                         | 4                     |                                  |                           |                                |                   |                                |                   |
| CHM1DU                            | CHM1DIU  |                                   |  | CHM<br>10X38<br>and<br>Midget | UL<br>600V/30A;<br>IEC<br>690V/32A | •                              | *                     | 1-pole                           | 1                         | 1-21mm <sup>2</sup> (18-4 AWG) | 3.4 N•m (30LB-In) |                                |                   |
| CHM2DU                            | CHM2DIU  | •                                 | *  |                               |                                    | 2-pole                         | 2                     |                                  |                           |                                |                   |                                |                   |
| CHM3DU                            | CHM3DIU  | •                                 | *  |                               |                                    | 3-pole                         | 3                     |                                  |                           |                                |                   |                                |                   |
| CHM4DU                            | CHM4DIU  | •                                 | *  |                               |                                    | 4-pole                         | 4                     |                                  |                           |                                |                   |                                |                   |
| CHM1DNU                           | CHM1DNIU   | •                                 | *  |                               |                                    | 1-pole + Neutral               | 2                     |                                  |                           |                                |                   |                                |                   |
| CHM3DNU                           | CHM3DNIU   | •                                 | *  |                               |                                    | 3-pole + Neutral               | 4                     |                                  |                           |                                |                   |                                |                   |
| -                                 | CHM1DI-48U   | UL 48Vdc/30A;<br>IEC<br>48Vdc/32A | •  |                               |                                    | *                              | 1-pole                | 1                                |                           |                                |                   |                                |                   |
| CHM1DNXU                          | -  | IEC 690V/32A                      | •  |                               |                                    |                                | 1-pole + Neutral      | 2                                |                           |                                |                   |                                |                   |
| CHPV1U                            | CHPV1IU  | CHPV                              | UL & IEC;<br>1000Vdc/30A   |                               |                                    | •                              | †††                   | 1-pole                           | 1                         |                                |                   | 1-21mm <sup>2</sup> (18-4 AWG) | 3.4 N•m (30LB-In) |
| CHPV2U                            | CHPV2IU  |                                   |  |                               |                                    | •                              | †††                   | 2-pole                           | 2                         |                                |                   |                                |                   |
| CHCC1DU                           | CHCC1DIU   | CHCC<br>Class CC                  | UL<br>600V/30A   |                               | **                                 | 1-pole                         | 1                     | 1-21mm <sup>2</sup> (18-4 AWG)   | 3.4 N•m (30LB-In)         |                                |                   |                                |                   |
| CHCC2DU                           | CHCC2DIU   |                                   |  |                               | **                                 | 2-pole                         | 2                     |                                  |                           |                                |                   |                                |                   |
| CHCC3DU                           | CHCC3DIU   |                                   |  |                               | **                                 | 3-pole                         | 3                     |                                  |                           |                                |                   |                                |                   |
| CHCC1DI-48U                       | -  |                                   |  | UL 48Vdc/30A                  |                                    | **                             | 1-pole                |                                  |                           | 1                              |                   |                                |                   |
| CH141D                            | CH141DI  | CH14<br>14x51                     | UL<br>600Vac/dc<br>40A<br>(5 Watt)<br>IEC<br>690Vac,<br>50A      | •                             |                                    | 1-pole                         | 1.5                   | 2.5-16mm <sup>2</sup> (14-6 AWG) | 3.0 N•m (26LB-In)         |                                |                   |                                |                   |
| CH141DMS                          | -  |                                   |  | •                             |                                    | 1-pole + Microswitch           | 1.5                   |                                  |                           |                                |                   |                                |                   |
| CH141DNX                          | -  |                                   |  | •                             |                                    | 1 Neutral Pole                 | 1.5                   |                                  |                           |                                |                   |                                |                   |
| CH141DN                           | CH141DNI   |                                   |  | •                             |                                    | 1-pole + Neutral               | 3                     |                                  |                           |                                |                   |                                |                   |
| CH142D                            | CH142DI  |                                   |  | •                             | †                                  | 2-pole                         | 3                     |                                  |                           |                                |                   |                                |                   |
| CH143D                            | CH143DI  |                                   |  | •                             | †                                  | 3-pole                         | 4.5                   |                                  |                           |                                |                   |                                |                   |
| CH143DMS                          | -  |                                   |  | •                             |                                    | 3-pole + Microswitch           | 4.5                   |                                  |                           |                                |                   |                                |                   |
| CH143DN                           | CH143DNI   |                                   |  | •                             |                                    | 3-pole + Neutral               | 6                     |                                  |                           |                                |                   |                                |                   |
| CH143DNMS                         | -  |                                   |  | •                             |                                    | 3-pole + Neutral + Microswitch | 6                     |                                  |                           |                                |                   |                                |                   |
| CH144D                            | CH144DI  |                                   |  | •                             |                                    | 4-pole                         | 6                     |                                  |                           |                                |                   |                                |                   |
| CH221D                            | Not Available  | CH22<br>22x58                     | UL<br>600Vac/dc,<br>100A<br>(9.5 Watt)<br>IEC<br>690Vac,<br>125A | •                             | †                                  | 1-pole                         | 2                     | 2.5-50mm <sup>2</sup> (14-1 AWG) | 4.0 N•m (35LB-In)         |                                |                   |                                |                   |
| CH221DMS                          | Available with local neon indication (remote microswitch only) |                                   |  | •                             |                                    | 1-pole + Microswitch           | 2                     |                                  |                           |                                |                   |                                |                   |
| CH221DNX                          | -  |                                   |  | •                             |                                    | 1 Neutral Pole                 | 2                     |                                  |                           |                                |                   |                                |                   |
| CH221DN                           | -  |                                   |  | •                             |                                    | 1-pole + Neutral               | 4                     |                                  |                           |                                |                   |                                |                   |
| CH222D                            | -  |                                   |  | •                             | †                                  | 2-pole                         | 4                     |                                  |                           |                                |                   |                                |                   |
| CH223D                            | -  |                                   |  | •                             | †                                  | 3-pole                         | 6                     |                                  |                           |                                |                   |                                |                   |
| CH223DMS                          | -  |                                   |  | •                             |                                    | 3-pole + Microswitch           | 6                     |                                  |                           |                                |                   |                                |                   |
| CH223DN                           | -  |                                   |  | •                             |                                    | 3-pole + Neutral               | 8                     |                                  |                           |                                |                   |                                |                   |
| CH223DNMS                         | -  |                                   |  | •                             |                                    | 3-pole + Neutral + Microswitch | 8                     |                                  |                           |                                |                   |                                |                   |
| CH224D                            | -  |                                   |  | •                             |                                    | 4-pole                         | 8                     |                                  |                           |                                |                   |                                |                   |
| <b>Class J easyID™ Indication</b> | <b>Neon Indication</b>   |                                   |  |                               |                                    |                                |                       |                                  |                           |                                |                   |                                |                   |
| CH30J1                            | CH30J1I  | CH30J                             | UL/CSA<br>30A<br>600Vac  |                               | ††                                 | 1-pole                         | —                     | 1-50mm <sup>2</sup> (18-1 AWG)   | 1-8 AWG 4.0 N•m (35LB-In) |                                |                   |                                |                   |
| CH30J2                            | CH30J2I  | Class J                           |  |                               | ††                                 | 2-pole                         | —                     | 10-18 AWG 2.7N•m (24LB-In)       |                           |                                |                   |                                |                   |
| CH30J3                            | CH30J3I  | Class J                           |  |                               | ††                                 | 3-pole                         | —                     |                                  |                           |                                |                   |                                |                   |
| CH60J1                            | CH60J1I  | CH60J                             | UL/CSA<br>60A<br>600Vac  |                               | ††                                 | 1-pole                         | —                     | 1-50mm <sup>2</sup> (18-1 AWG)   | 1-8 AWG 4.0 N•m (35LB-In) |                                |                   |                                |                   |
| CH60J2                            | CH60J2I  | Class J                           |  |                               | ††                                 | 2-pole                         | —                     | 10-18 AWG 2.7N•m (24LB-In)       |                           |                                |                   |                                |                   |
| CH60J3                            | CH60J3I  | Class J                           |  |                               | ††                                 | 3-pole                         | —                     |                                  |                           |                                |                   |                                |                   |

† UL Recognized (cULus)    †† UL Listed (cULus)    ††† UL Recognized, Standard 4248-18, CSA  
 For further details see Data Sheets 2053 (CH08, CHM, CHCC, CH14 AND CH22) and 2144 (CHJ Class J)  
 \*90V minimum required for illumination  
 \*\*\*12V minimum required for illumination

For additional information see reorder #3185

## Global Modular Fuse Holders - Remote Fuse Monitoring Accessory CH-PLC

**Make it Simple with Bussmann resettable three-phase remote fuse monitor that integrates with a Programmable Logic Controller (PLC) or other monitoring and control equipment.**



### Specifications:

- **Power Input:** 24Vdc / 5mA
- **Sensing Voltage:** 600V/30mA
- **Output Signals:** Digital 0Vdc (Low), 24Vdc (High)
  - 0Vdc Low – Fuse is good
  - 24Vdc High – Fuse has opened
 When the fuse opens, the output signal is sent high and will remain high until the unit is reset
- **Rated Impulse Voltage:** 8kV
- **Local Indication:** Two distinct LEDs indicate unit power (green) and open fuse (red). Upon the replacement of the fuse, the actuation of the reset switch will reset the open fuse LED
- **Flammability Rating:** UL 94V0

### Wiring:

- For power, signal and ground connections use 22-24AWG (0.25mm<sup>2</sup>) 300V rated wire

### Emissions and Immunity Testing:

- Electrostatic Discharge IEC 61000-4-2
- Electrical Fast Transient/Burst IEC 6100-4-4
- Surge Immunity IEC61000-4-5

### Packaging:

- The CH-PLC is packaged individually
- A single unit monitors up to three phases
- Package includes 0.11" (2.8mm) quick connects for power, signal and ground connections

### Minimum Circuit Voltage:

- Minimum circuit voltage required across the CH holder is 100Vac for the remote indication device to operate

### Installation Technique:

- Mounts on the left side of the fuse holder and mechanically interlocks with the fuse holder switch handle with hardware provided

### IP20 Rating: Yes

### Environmental Data:

- Storage and Operating Temperature: -20°C to 75°C

### Agency Information:

- UL 508
- cULus to CSA Standard 22.2 No.14

### PLC Programming:

- The CH-PLC signal line is designed to provide a digital input to a PLC I/O card.
- Programmable Logic Control program must be written to properly interpret the input signal to the PLC.
- The PLC program should check for consecutive high signals before taking action on a critical process.

**De-energize all circuits before installing or removing any CH-PLC devices and follow all prescribed safety procedures.**

For additional information see reorder #3185



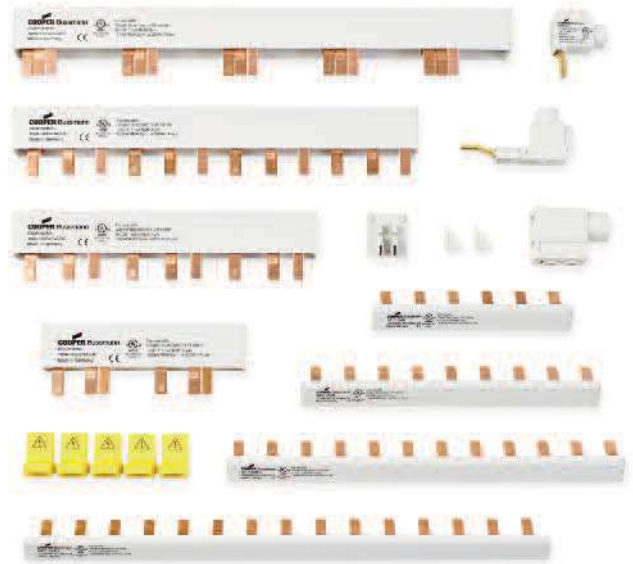
# Global Modular Fuse Holders - Comb-Bus Bar Specifications and Selection Guide

## Specifications

- Agency Information:** UL 508, File E195399
- Pitch:** 17.8mm
- SCCR:** 10kA (default)  
100kA (with upstream Class J 200A fuses)
- Max Current:** 100A (power feed from end;  
200A (power feed from center)
- Max Voltage:** 600Vac/dc (three phase)  
1000Vdc/600Vac (single phase)

## Features and Benefits

- Easily distribute power in single-phase or three-phase configurations
- Flexible cut-to-length solutions without compromising on the product's finger-safe features
- 100kA SCCR (Short-Circuit Current Rating) when protected by a 200A Class J fuse
- Single-phase bus bars rated to 1000Vdc and 100A in end-fed configuration (200A for center-fed configuration)
- Three-phase bus bars rated to 600Vac/dc and 100A in end-fed configuration (200A for center-fed configuration)
- Power feed terminals for single-phase and three-phase service



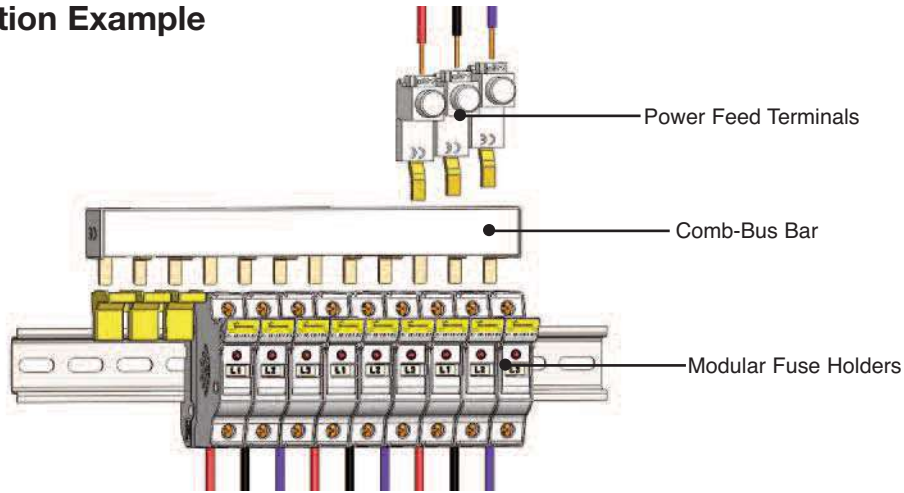
## Selection Guide

| Part Number | Description   |
|-------------|---|
| BB1P100M3   | Single-phase 1000Vdc busbar, 100A, 3 pins, assembled endcap                 |
| BB1P100M6   | Single-phase 1000Vdc busbar, 100A, 6 pins, assembled endcap                 |
| BB1P100M9   | Single-phase 1000Vdc busbar, 100A, 9 pins, assembled endcap                 |
| BB1P100M12  | Single-phase 1000Vdc busbar, 100A, 12 pins, assembled endcap                |
| BB1P100M15  | Single-phase 1000Vdc busbar, 100A, 15 pins, assembled endcap                |
| BB1P100M57  | Single-phase 1000Vdc cuttable busbar, 100A, 57 pins, without endcap         |
| BB3P100M6   | Three-phase 600V busbar, 100A, 6 pins, assembled endcap                     |
| BB3P100M9   | Three-phase 600V busbar, 100A, 9 pins, assembled endcap                     |
| BB3P100M12  | Three-phase 600V busbar, 100A, 12 pins, assembled endcap                    |
| BB3P100M15  | Three-phase 600V busbar, 100A, 15 pins, assembled endcap                    |
| BB3P100M57  | Three-phase 600V cuttable busbar, 100A, 57 pins, without endcap             |
| ECAP1P      | Single-phase busbar endcap  |
| ECAPMP      | Three-phase busbar endcap   |
| PWR35MM     | 35mm <sup>2</sup> feeder terminal for three-phase busbar (115A, 1000Vac/dc) |
| FSCVR       | Spare contact safety protection covers                                      |
| PWR1PLP     | Single-phase low-profile feeder terminal (115A, 1000Vac/dc)                 |
| PWR50MM     | 50mm <sup>2</sup> direct feed terminal (1000Vac/dc)                         |

For additional information see reorder #3185

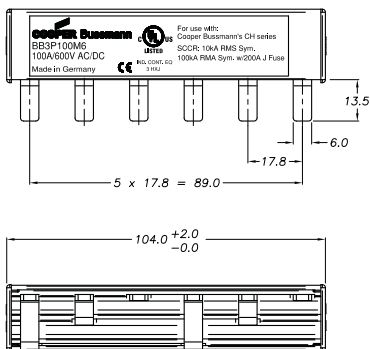
# Global Modular Fuse Holders - Comb-Bus Bar Features and Installation Guide

## Typical Installation Example

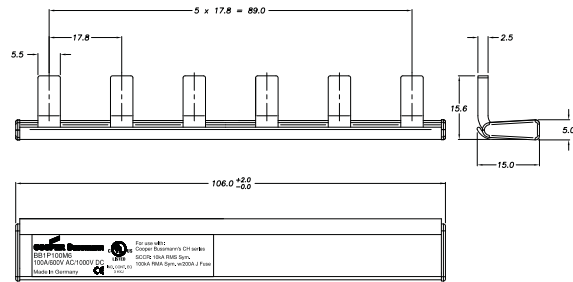


## Typical Dimensional Data

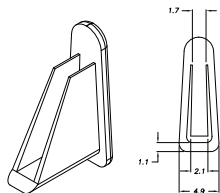
### Three-phase



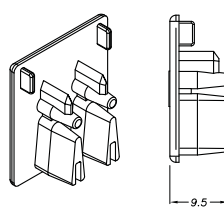
### Single-phase



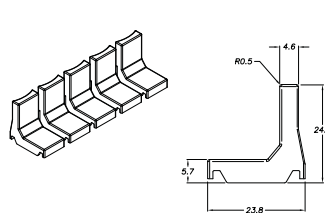
### ECAP1P



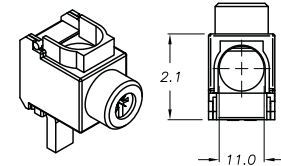
### ECAPMP



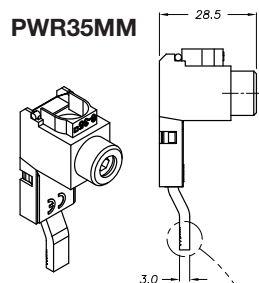
### FSCVR



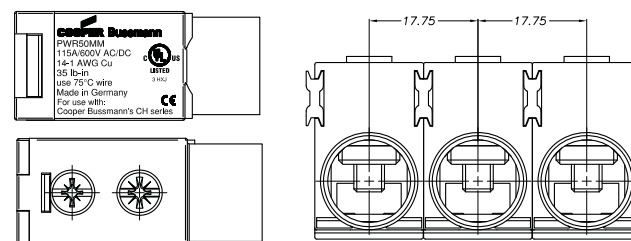
### PWR1PLP



### PWR35MM



### PWR50MM



For additional information see reorder #3185

# Class J Modular Fuse Holders

CH \_ \_ J \_

**Specifications**

**Description:** IP20 finger-safe, 1- to 3-pole Class J fuse holder with DIN-Rail or panel mounting.

**Ratings:**

Volts: — 600Vac/dc (or less)

Amps: — 30A (30A version)

— 60A (60A version)

SCCR: — 200kA

**Wire Range:** Cu solid and stranded conductors with single (1-18AWG) and dual (3-18AWG) wire ratings. See Catalog Numbers table for details.

**Torque Rating:**10-18AWG 24 lb-in.  
1-8AWG 35 lb-in.

**Poles:** 1-, 2- or 3-Pole.

**Storage & Operating Temperature Range\*:**

-20°C to 75°C.

**Agency Information:** CE, UL 4248/CSA 22.2 No. 4248.P

UL Listed, Guide IZLT, File E14853.

**Flammability Rating:** UL 94V0.

**Catalog Numbers**

See Catalog Numbers table below.

**Features and Benefits**

- Choice of local fuse indication; *easyID™* viewing window (for seeing indicator on LPJ-SPI indicating fuse) or neon lamp.
- Versatile 1-, 2- and 3-pole versions for 0-30A and 35-60A fuses with dual wire rated connections simplify wiring.
- Improved electrical safety with IP20 finger-safe construction with lock-out/tag-out feature. 3-phase fuse extraction assures all phases are opened for service work.
- Flexible panel/35mm DIN-Rail mounting options

\*For fuse selection on applications above or below 25°C, consult derating charts in Bussmann publication "Selecting Protective Devices" (SPD).



30 Amp Version

60 Amp Version

**Dimensions (mm):**

| Fuse Size | Poles | W   | D  | H   |
|-----------|-------|-----|----|-----|
| 0-30A     | 1     | 32  | 70 | 115 |
|           | 2     | 64  | 70 | 115 |
|           | 3     | 96  | 70 | 115 |
| 35-60A    | 1     | 40  | 83 | 125 |
|           | 2     | 80  | 83 | 125 |
|           | 3     | 120 | 83 | 125 |

**Catalog Numbers**

| Catalog Numbers | # of Poles | Local Indication | Amp Rating | Volts (AC/DC) | IP20 Finger-Safe | AWG Single Wire Range | Padlockable     | Mounting        |
|-----------------|------------|------------------|------------|---------------|------------------|-----------------------|-----------------|-----------------|
| CH30J1          | 1          | <i>easyID</i> ** | 30         | 600           | Yes              | 1-18                  | Yes             | 35mm DIN/ Panel |
| CH30J1I         | 1          | Neon Lamp***     |            |               |                  |                       |                 |                 |
| CH30J2          | 2          | <i>easyID</i> ** |            |               |                  |                       |                 |                 |
| CH30J2I         | 2          | Neon Lamp***     |            |               |                  |                       |                 |                 |
| CH30J3          | 3          | <i>easyID</i> ** |            |               |                  |                       |                 |                 |
| CH30J3I         | 3          | Neon Lamp***     |            |               |                  |                       |                 |                 |
| CH60J1          | 1          | <i>easyID</i> ** | 60         | 600           | Yes              | Yes                   | 35mm DIN/ Panel |                 |
| CH60J1I         | 1          | Neon Lamp***     |            |               |                  |                       |                 |                 |
| CH60J2          | 2          | <i>easyID</i> ** |            |               |                  |                       |                 |                 |
| CH60J2I         | 2          | Neon Lamp***     |            |               |                  |                       |                 |                 |
| CH60J3          | 3          | <i>easyID</i> ** |            |               |                  |                       |                 |                 |
| CH60J3I         | 3          | Neon Lamp***     |            |               |                  |                       |                 |                 |

\*\* *easyID™* viewing window, requires use of Bussmann LPJ\_SPI permanent indication fuses.

\*\*\* Indication non-fuse dependent, minimum voltage 90Vac/115Vdc.

Data Sheet: 2144

# Optima™ Fuse Holder Module and Disconnect Switch

## OPM-1038 With Disconnect Switch



### Catalog Number Build-A-Code

|          |                                      |                           |
|----------|--------------------------------------|---------------------------|
| Series   | Fuse Type                            | Communication             |
| OPM-1038 | Blank                                | SW                        |
|          | Blank = 10 x 38mm or 1 1/2" x 1 1/2" | C = Communication Feature |
|          | R = Class CC                         |                           |

### Specifications

**Description:** 3-pole load break modular fuse holder and disconnect switch for 1 1/2" x 1 1/2" (10 x 38mm) fuses.

**Dimensions:** See Dimensions illustration.

**Poles:** 3

**Agency Information:** CE, UL (see table), CSA Certified, C22.2 No. 39, Class 6225-01, File 47235, IEC (see table).

**Flammability Rating:** UL 94V0.

### Horsepower Rating of Switch

|         |       |     |     |     |
|---------|-------|-----|-----|-----|
| 3-Phase | Volts | 240 | 480 | 600 |
|         | HP    | 5   | 10  | 15  |

### Recommended Fuse Types

| Class CC | Midget (Non-Rejection) | European |
|----------|------------------------|----------|
| LP-CC    | KTK                    | C10M     |
| KTK-R    | FNM                    | C10G     |
| FNQ-R    | FNQ                    |          |

### Physical Characteristics

- Small size matches 45mm IEC starter width
- Accepts #8-18 AWG stranded, #10-18 AWG solid wire
- 3-pole
- Handle and shaft required for through the door operation

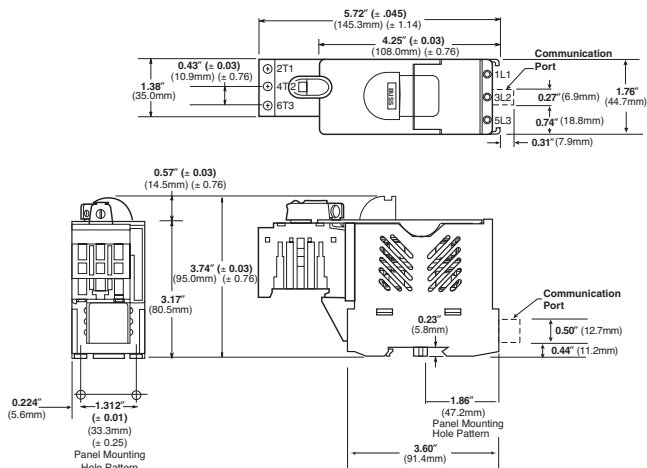
### Features/Benefits

- Padlockable with finger-safe terminals for safety. Qualified as IP20 per IEC 60529.
- Cam-action handle for easy module removal, offered with Class CC rejection clips or European 10 x 38mm clips to meet global needs
- Wire ready with 35mm DIN-Rail or screw panel mounting (#8 screw, 1 1/4" long) saves installation time
- Fuse indication lights with option for remote fuse status available. See Data Sheet for additional wiring details.

### Typical Applications

- Industrial Control
- Process Control Systems
- Automated Warehouse Systems
- Individual Control Circuits

### Dimensions



### Catalog Numbers

| Catalog Numbers | Electrical Rating  | SCCR** Rating | Clips                                     | Remote Open Fuse Indication | UL Information Std. | File    | Guide | IEC         | CE  |
|-----------------|--------------------|---------------|---|-----------------------------|---------------------|---------|-------|-------------|-----|
| OPM-1038SW      | 30A, 600Vac UL/CSA | *             | Non-rejection, 10x38mm or 1 1/2" x 1 1/2" | No                          | Recognized          | E161278 | NLRV2 | IEC 60947-3 | Yes |
|                 | 32A, 660Vac IEC    |               |   |                             |                     |         |       |             |     |
| OPM-1038RSW     | 30A, 600Vac UL/CSA | 100kA         | Rejection, Class CC                       | No                          | Listed<br>UL 508    | E161278 | NLRV  |             | Yes |
| OPM-1038SWC     | 30A, 600Vac UL/CSA | *             | Non-rejection, 10x38mm or 1 1/2" x 1 1/2" | Yes                         | Recognized          | E161278 | NLRV2 | IEC 60947-3 | No  |
|                 | 32A, 660Vac IEC    |               |   |                             |                     |         |       |             |     |
| OPM-1038RSWC    | 30A, 600Vac UL/CSA | 100kA         | Rejection, Class CC                       | Yes                         | Listed<br>UL 508    | E161278 | NLRV  |             | No  |

\*Rating varies depending on fuse used in module; 100kA maximum

\*\*Short-Circuit Current Rating

Data Sheet: 1103

# Optima™ Fuse Holder Module

## OPM-1038



### Catalog Number Build-A-Code

Series

O P M - 1 0 3 8

Fuse Type

Blank

Blank = 10 x 38mm or 1 1/2" x 1 1/2"

R = Class CC

Communication

C

C = Communication Feature

### Specifications

**Description:** 3-pole modular fuse holder for 1 1/2" x 1 1/2" (10 x 38mm) fuses.

**Dimensions:** See Dimensions illustration.

**Poles:** 3

**Agency Information:** CE, UL (see table), CSA Certified, C22.2 No. 4248, Class 6225-01, File 47235, IEC (see table).

**Flammability Rating:** UL 94V0.

### Recommended Fuse Types

| Class CC | Midget (Non-Rejection) | European |
|----------|------------------------|----------|
| LP-CC    | KTK                    | C10M     |
| KTK-R    | FNM                    | C10G     |
| FNQ-R    | FNQ                    |          |

### Physical Characteristics

- Small size matches 45mm IEC starter width
- Accepts #8-18 AWG stranded, #10-18 AWG solid wire
- 3-pole

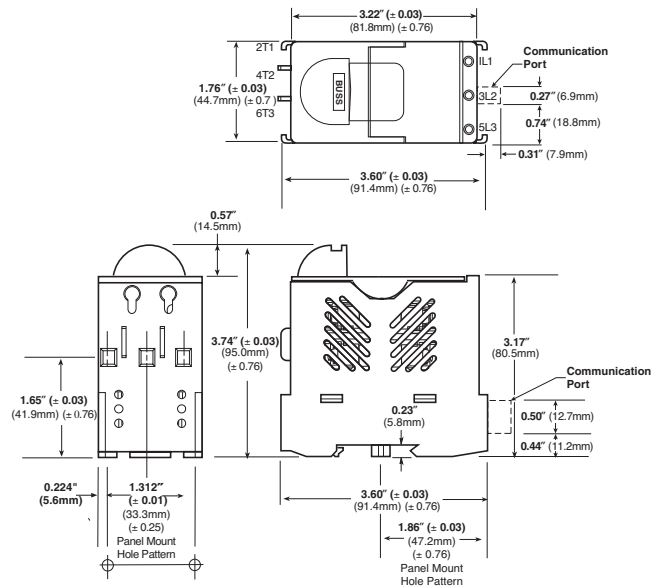
### Features/Benefits

- Padlockable with finger-safe terminals for safety. Qualified as IP20 per IEC 529.
- Cam-action handle for easy module removal.
- Offered with Class CC rejection clips or European 10 x 38mm clips to meet global needs
- Wire ready with 35mm DIN-Rail or screw panel mounting (#8 screw, 1 1/4" long) saves installation time
- Fuse indication lights with option for remote fuse status indication. See Data Sheet for additional wiring details.

### Typical Applications

- Industrial Control
- Process Control Systems
- Automated Warehouse Systems
- Individual Control Circuits

### Dimensions



### Catalog Numbers

| Catalog Numbers | Electrical Rating   | SCCR** Rating | Clips                                       | Remote Open Fuse Indication | UL Information Std. | File   | Guide | IEC           | CE  |
|-----------------|---|---------------|---|-----------------------------|---------------------|--------|-------|---------------|-----|
| OPM-1038        | 30A, 600Vac/dc UL/CSA (Max 3 Watts per fuse)<br>32A, 660V IEC | *             | Non-rejection, 10 x 38mm or 1 1/2" x 1 1/2" | No                          | Recognized UL 4248  | E14853 | IZLT2 | IEC 60269-2-1 | Yes |
| OPM-1038R       | 30A, 600Vac/dc UL/CSA   | 200kA         | Rejection, Class CC                         | No                          | Listed UL 4248      | E14853 | IZLT  |               | Yes |
| OPM-1038C       | 30A, 600Vac/dc UL/CSA (Max 3 Watts per fuse)<br>32A, 660V IEC | *             | Non-rejection, 10 x 38mm or 1 1/2" x 1 1/2" | Yes                         | Recognized UL 4248  | E14853 | IZLT2 | IEC 60269-2-1 | No  |
| OPM-1038RC      | 30A, 600Vac/dc UL/CSA   | 200kA         | Rejection, Class CC                         | Yes                         | Listed UL 4248      | E14853 | IZLT  |               | No  |

\*Rating varies depending on fuse used in module; 200kA maximum.

\*\*Short-Circuit Current Rating

Data Sheet: 1102



# Optima™ Three-pole Overcurrent Protection Module

## OPM-NG-



### Specifications

#### Description:

**OPM-NG-SC3:** 3-pole Class CC fuse holder for use with Class CC fuses (Bussmann Types LP-CC, FNQ-R, KTK-R).

**OPM-NG-SM3:** 3-pole fuse holder for use with 1½" x 1½" and 10.3 x 38mm fuses (Bussmann Types: 1½" x 1½"; KTK, FNQ, KLM, 10 x 38mm; FWA, FWC, C10G\_ , C10M\_ ).

#### Ratings:

- Volts: — OPM-NG-SC3: 600Vac (or less)  
 — OPM-NG-SM3: 600Vac (or less) UL and CSA 30A  
 — OPM-NG-SM3: 690Vac (or less) IEC 32A
- Amps: — OPM-NG-SC3: 0-30A  
 — OPM-NG-SM3: 0-30A
- SCCR: — OPM-NG-SC3: 200kA  
 — OPM-NG-SM3: Same as fuse IR, 200kA maximum

**Agency Information:** CE, UL; OPM-NG-SC3 UL Listed, UL 4248, File E14853, Guide IZLT. OPM-NG-SM3, UL Recognized, UL 4248, File E14853, Guide IZLT2. CSA Certified, C22.2 No. 4248, Class 6225-01, File 47235. IEC 60947-3 Utilization Category AC20B.

**Handling & Storage Temperature:** -10° to 65°C.

#### Features/Benefits

- 45mm width matches IEC starters
- 35mm DIN-Rail or panel mounting feature. Maximum screw size #8 (M4)
- Pressure plate terminations with dual-wire rated terminals (see Wire Table) and optional auxiliary contacts
- Integrated collapsible handle and fuse carrier cannot be removed from holder base
- Padlockable and IP20 finger-safe to IEC60529

#### Typical Applications

- Mass Produced Control Systems
- Process Control Systems
- Automated Warehouse Systems
- Individual Control Circuits

#### Fuse Holder Wire Range:

- 75°Cu Only
- #18-12 Single/Dual, torque 15lb-in
- #10-8 Single/Dual, torque 20lb-in
- Dual wire with same gauge and type

|          |  | 75° Cu Only |                    | Ⓢ<br>(N·m)/lb-in                       |
|----------|--|-------------|--------------------|--|
|          |  | AWG         | [mm <sup>2</sup> ] |  |
| Solid    |  | #18-8 x 1   | 1-6 x 1            | 18-12 Single/Dual<br>15lb-in (1.7 N·m) |
|          |  | #18-8 x 2   | 1-6 x 2            |  |
| Stranded |  | #18-8 x 1   | 1-6 x 1            | 10-8 Single/Dual                       |
|          |  | #18-8 x 2   | 1-6 x 2            |  |
| Ferrules |  |             | 1-4 x 1            | 20lb-in (2.5 N·m)                      |
|          |  |             | 1-4 x 2            |  |

#### Input Power Terminal Wire Range:

|                    |                    |  |
|--------------------|--------------------|--|
| Wiring             | Solid Conductor    | (1) #14 to #2 (1.5 to 25mm <sup>2</sup> ) conductor or<br>(2) #14 to #6 (1.5 to 10mm <sup>2</sup> ) conductors |
|                    | Stranded Conductor | (1) #14 to #2 (1.5 to 25mm <sup>2</sup> ) conductor or<br>(2) #12 to #6 (2.5 to 10mm <sup>2</sup> ) conductors |
| Tightening Torque: | Connector          | 20lb-in (2.2 N·m)  |
|                    | Screw Clamp        | 15lb-in (1.7 N·m)  |

#### Materials:

- **Housing:** Thermoplastic - ULV2
- **Clip:** Tin-plated copper alloy
- **Contact lubricant:** Fluoroether grease
- **Saddle screw:** Plated steel
- **DIN rail springs:** Stainless steel

#### Optional Accessories:

##### Comb Bar (Max current rating = 63A)

|            |                                     |
|------------|-------------------------------------|
| GV2G245A46 | 2 circuit, 45mm between same phases |
| GV2G254A46 | 2 circuit, 54mm between same phases |
| GV2G272A46 | 2 circuit, 72mm between same phases |
| GV2G345A46 | 3 circuit, 45mm between same phases |
| GV2G354A46 | 3 circuit, 54mm between same phases |
| GV2G445A46 | 4 circuit, 45mm between same phases |
| GV2G454A46 | 4 circuit, 54mm between same phases |
| GV2G472A46 | 4 circuit, 72mm between same phases |
| GV2G554A46 | 5 circuit, 54mm between same phases |

##### Input Terminal Block (Max current rating = 63A)

|        |   |
|--------|---|
| GV2G05 | Input/Feed Through Power Terminal, Supports feed through to another system, DIN-Rail mount only |
| GVG09  | Input Power Terminal  |

##### Cover

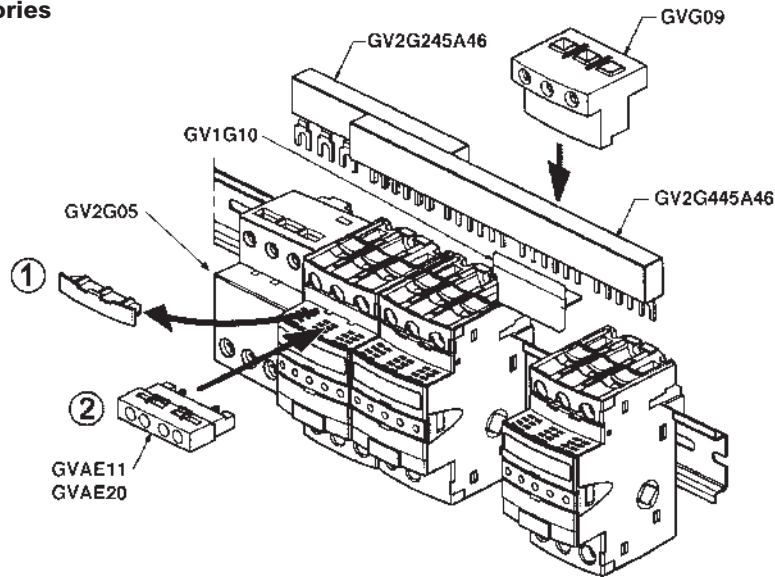
|        |   |
|--------|---|
| GV1G10 | Protective Cover for unused terminals on comb bar |
|--------|---|

##### Auxiliary Contacts

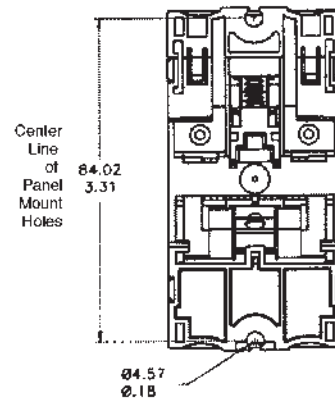
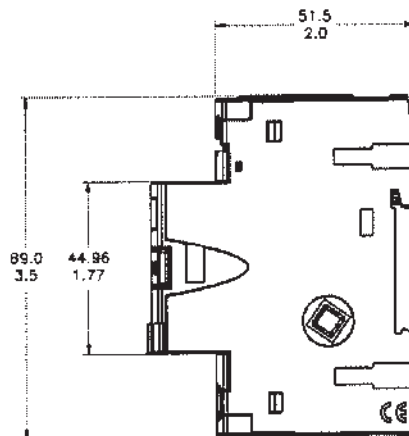
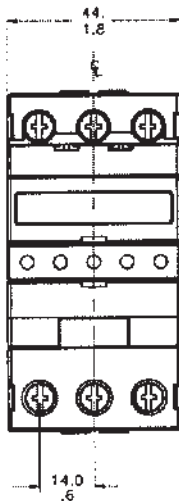
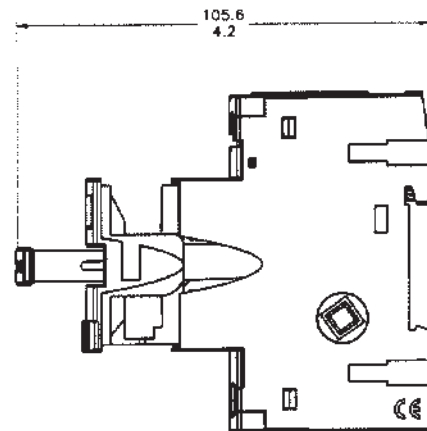
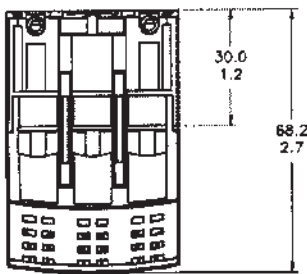
|        |       |
|--------|-------|
| GVAE11 | NO/NC |
| GVAE20 | NO/NO |

# Optima™ Three-pole Overcurrent Protection Module

## Optional Accessories



## Dimensions - mm (± 0.38) / in (± .015)



## Class J (Finger-safe) Fuse Holders

### Safety J™ — JT(N)60030 & JT(N)60060

#### Specifications

**Description:** Indicating and non-indicating finger-safe, DIN-Rail mount fuse holders for use with Class J fuses - (Bussmann LPJ, JKS).

**Dimensions:** See Dimensions illustrations.

#### Ratings:

Volts: — 600Vac

Amps: — 0-60A (JT(N)60060)

— 0-30A (JT(N)60030)

SCCR: — 200kA RMS Sym.

— 300kA self certified using Bussmann LPJ\_SP fuses

**Agency Information:** CE, Listed to UL 4248: Guide IZLT, File 14853, CSA Certified: Class 6225-01, File 47235. IP20 per IEC 60529.

**Flammability Rating:** UL 94V0.

**Indication:** Min voltage: 90Vac, 115Vdc; neon lamp “ON” when fuse opens, voltage source and current path are present.

**Terminations:** 30A dual port torque 20lb-in, 60A single port torque 45lb-in, terminal construction, tin-plated copper alloy.

**Wire Size:** JT(N)60030 - rated for 75°C, AWG#18-#8; Cu only, JT(N)60060 - rated for 75°C, AWG#14-#4; Cu only.

(Note: For JT(N)60030 use both stranded or solid, in a variety of dual wire combinations of same wire size and type.)

#### Features and Benefits

- Short-Circuit Current Rating of 300kA with Bussmann LPJ\_\_SP fuses.
- Rapid, flexible 35 mm DIN-Rail mounting.
- One piece interlocking design for assembling multiple pole blocks reduces inventory costs.
- Removable fuse carrier allows fuse replacement away from base while maintaining finger-safe rating.

#### Typical Applications

- Industrial Controls
- Process Controls
- Small HP VFDs

#### Catalog Numbers

| Catalog Numbers | Amps | Indication        |
|-----------------|------|-------------------|
| JT60030         | 30   | Non-indicating    |
| JT60060         | 60   | Non-indicating    |
| JTN60030        | 30   | Indicating (Neon) |
| JTN60060        | 60   | Indicating (Neon) |



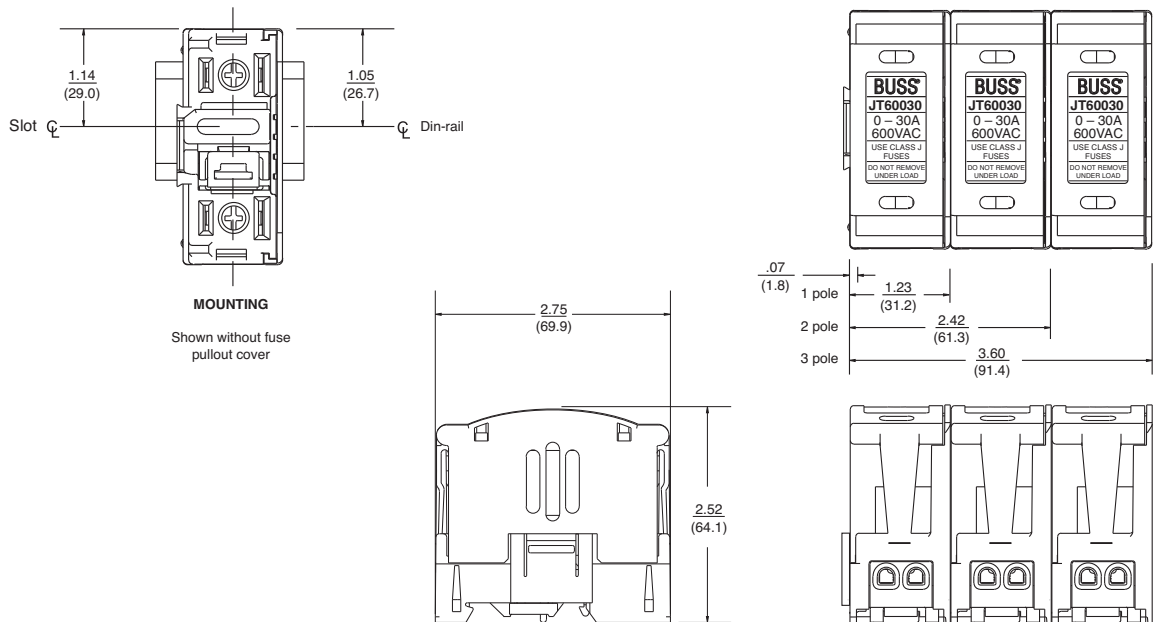
30 Amp Version



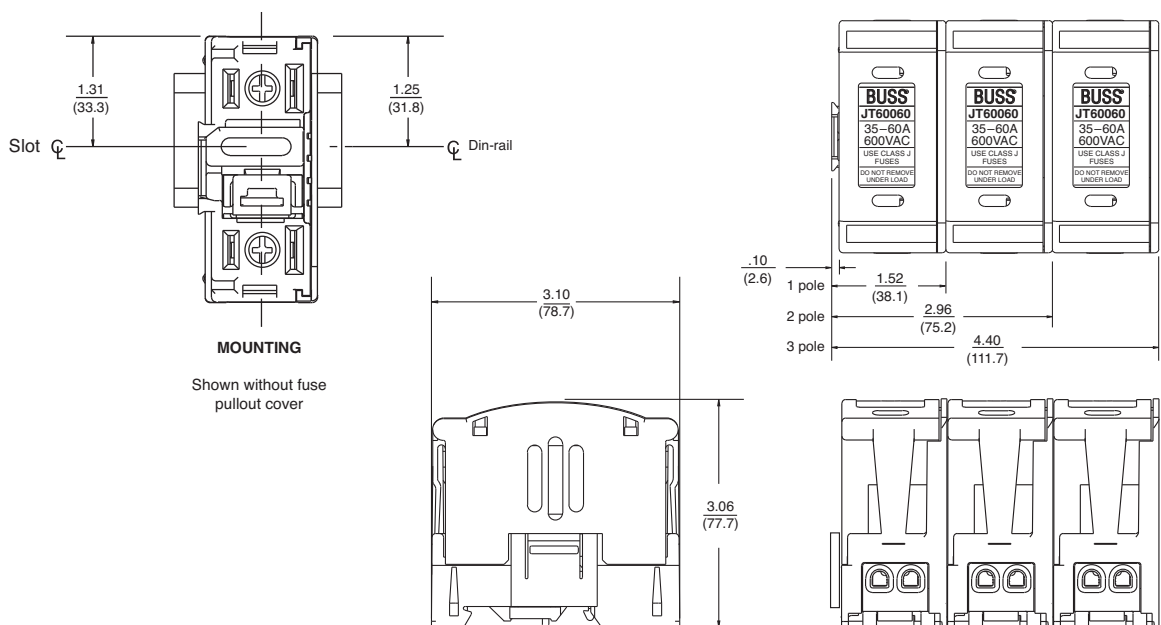
60 Amp Version

## Class J (Finger-safe) Fuse Holders

### Dimensions for JT60030 & JTN60030 — in (mm)



### Dimensions for JT60060 & JTN60060 — in (mm)



JT(N)600 Series fuse blocks can be dovetailed together within the same current rating to provide multiple pole block configurations.

NOTE: JT(N)60030 cannot be dovetailed to JT(N)60060.

Data Sheet: 1152

## SAMI™ Fuse Covers

### SAMI™ Series



#### Specifications

**Description:** Indicating and non-indicating fuse covers for Class J, RK1, RK5, H, K5, CC, G (0-30A) and midget-type fuses. Indicating feature requires a minimum of 90Vac or 115Vdc to illuminate lamp. One cover required for each pole.

**WARNING:** To avoid electrical shock, turn power off before installing, removing or servicing.

**Dimensions:** See Dimensions illustration.

#### Ratings:

Volts: — Non-Indicating - 0-600Vac/dc  
 — Indicating - 90 to 600Vac  
 -115 to 600Vdc

Amps: — 0-100A

**Agency Information:** CE, UL Listed; SAMI-1I through SAMI-6I, SAMI-8I and SAMI-9I, SAMI-1N through SAMI-6N, SAMI-8N and SAMI-9N, UL Recognized; Guide JDVS2, File E58836, SAMI-7I and SAMI-7N, CSA Certified, File LR47235-93C.

#### Catalog Numbers

| Catalog Numbers* | Description  | Dimensions - in |      |      |
|------------------|--|-----------------|------|------|
|                  |  | A               | B    | C    |
| SAMI-1_          | 600V, J (0-30A) and 600V, T (35-60A)**<br>250V, RK, K5, H (35-60A) | 5.02            | 1.03 | 1.94 |
| SAMI-2_          | 600V, RK, K5, H (0-30A)  | 7.03            | 1.30 | 2.07 |
| SAMI-3_          | 600V, J (65-100A)  | 7.03            | 1.30 | 2.33 |
| SAMI-4_          | 250V, RK, K5, H (65-100A)  | 8.20            | 1.30 | 2.18 |
| SAMI-5_          | 600V, RK, K5, H (35-60A)   | 8.20            | 1.30 | 2.18 |
| SAMI-6_          | 600V, J (35-60A)   | 4.98            | 1.17 | 2.14 |
| SAMI-7_          | 600V, Midget, Class CC, G (0-30A)                                  | 3.82            | 0.75 | 1.72 |
| SAMI-8†_         | 600V, RK††, K5, H (65-100A)  | 10.38           | 1.50 | 2.33 |
| SAMI-9_          | 250V, RK, K5, H (0-30A) and 600V,<br>T (0-30A)                     | 3.82            | 0.75 | 1.72 |

\*For indicating cover, add suffix "I", for non-indicating cover, add suffix "N".

Example: SAMI-7I = Indicating, SAMI-7N = Non-indicating.

\*\*Available in non-indicating only.

†SAMI-8A adapter available for small Fusetron™ body design. SAMI-8I and SAMI-8N come standard with adapter (SAMI-8A).

††Not for use with KTS-R fuses.

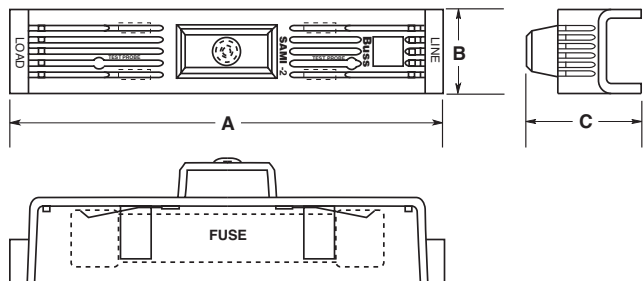
#### Features and Benefits

- Insulated cover allows field conversion of fuses mounted in open fuse blocks to dead front configuration.
- Optional open fuse indicating light aids in system troubleshooting.
- Units are re-usable.
- Allows visual marking of line and load side of fuses.

#### Typical Applications

- Class H, R and J fuse blocks up to 100A
- Class T fuse blocks up to 60A
- Class CC, G and Midget, 30A fuse blocks

#### Dimensions





## Modular Knifeblade Fuse Blocks

### Class R, H(K), & J Applications up to 600 Amps

#### Specifications

##### Ratings:

Volts: — 250V, 600V  
 Amps: — 70-600A  
 SCCR: — 200kA (Class R & J)  
 10kA (Class H & K)

##### Agency Information:

**Blocks:** UL - Listed cULus  
 E14853 – IZLT & IZLT7  
 CSA - Certified 47235 –  
 6225-01

**Covers:** UL - Listed UL  
 E58836 – JDVS2  
 CSA - Certified 47235 –  
 6225-01

##### Flammability Ratings:

**Blocks:** UL 94V0, self-extinguishing  
**Covers:** UL 94HB, self-extinguishing

##### Operating & Storage Temperature Range:

**Blocks** -40°C to 120°C  
**Covers** non-indicating covers -40°C to 120°C  
 indicating covers -20°C to 90°C

##### Materials:

Base – Thermoplastic  
 Box Lug – Tin-plated aluminum

##### Wire:\*

Cu/Al – 75°C/90°C (100 - 200A)  
 Cu/Al – 75°C only (400 - 600A)

\*Higher temperature rated wire can be used with appropriate derating.



#### Features and Benefits

- Integral dovetails allow snapping together multiple poles at point-of-use for greater application flexibility
- Factory assembled two- and three-pole configurations available
- Up to four mounting holes per pole increase installation flexibility
- Standard phase barriers between poles for additional safety
- Design meets UL creep and clearance requirements for Industrial Control Circuits (UL 508 and UL 845)
- 200 to 600A blocks meet the higher UL creep and clearance requirements for Industrial Power Distribution Standards (UL 98, UL 69, UL 489, UL 891 and UL 869A)
- Optional IP20 finger-safe covers available on entire knifeblade fuse block product line:
  - High-clarity see-through covers allow for inspecting wire terminations or thermography measurements without removing cover
  - Probe holes included for easy, safer testing and troubleshooting
  - Built-in lockout/tagout feature improves safety
- Standard fuse clip reinforcing springs enhance electrical contact

#### Typical Applications

- Critical power, factory automation, renewable energy, HVAC, building/elevator controls, building entrance, process industries

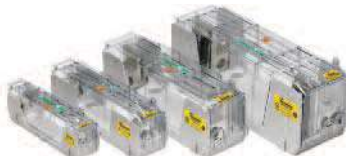


Scan this tag to get the latest product information for the Modular Knifeblade Fuse Blocks.

## Modular Knifeblade Fuse Blocks Part Number Table



250V Class R & H(K)



600V Class R & H(K)



Class J

| Catalog Number |             | Covers*        |               | Volts   | Fuse Range (amps) | Number of Poles    | Wire Range (solid and stranded)*** | Wire Range (fine stranded Cu) | Torque N•m (Lb-in) | Cooper Bussmann Fuses            |                                      |                    |                |
|----------------|-------------|----------------|---------------|---------|-------------------|--------------------|------------------------------------|-------------------------------|--------------------|----------------------------------|--------------------------------------|--------------------|----------------|
| Class H(K)     | Class R     | w/o Indication | w/ Indication |         |                   |                    |                                    |                               |                    |                                  |                                      |                    |                |
| HM25100-1CR    | RM25100-1CR | CVR-RH-25100   | CVRI-RH-25100 | 250     | 70-100            | 1                  | -                                  | 1-3 AWG                       | 6.2 (55)           | Class H(K):<br>NON               |                                      |                    |                |
| HM25100-2CR    | RM25100-2CR |                |               |         |                   | 2                  | 1/0-3 AWG; (2) Cu 4-6 AWG          | 4-6 AWG                       | 5.6 (50)           |                                  |                                      |                    |                |
| HM25100-3CR    | RM25100-3CR |                |               |         |                   | 3                  | 4-6 AWG; (2) Cu 8 AWG              | 8 AWG                         | 4.5 (40)           |                                  |                                      |                    |                |
| HM25200-1CR    | RM25200-1CR | CVR-RH-25200   | CVRI-RH-25200 |         | 110-200           | 1                  | 250 MCM-1 AWG                      | 3/0-1 AWG                     | 42 (375)           |                                  | Class R:<br>LPN-RK_SP<br>PN-RK_SPI** |                    |                |
| HM25200-2CR    | RM25200-2CR |                |               |         |                   | 2                  | 2-6 AWG; (2) Cu 2-6 AWG            | 2-6 AWG                       | 31 (275)           |                                  |                                      |                    |                |
| HM25200-3CR    | RM25200-3CR |                |               |         |                   |                    |                                    |                               |                    |                                  |                                      |                    |                |
| HM25400-1CR    | RM25400-1CR | CVR-RH-25400   | CVRI-RH-25400 |         | 250               | 225-400            | 1                                  | 600kcmil                      | N/A                |                                  |                                      | 57 (500)           | FRN-R<br>KTN-R |
| HM25400-2CR    | RM25400-2CR |                |               |         |                   |                    | 2                                  | 500kcmil-4 AWG                |                    |                                  |                                      | 51 (450)           |                |
| HM25400-3CR    | RM25400-3CR |                |               |         |                   |                    | 3                                  | (2) Cu 3/0 - 4 AWG            |                    |                                  |                                      | 57 (500)           |                |
| HM25600-1CR    | RM25600-1CR | CVR-RH-25600   | CVRI-RH-25600 | 450-600 |                   | 1                  | (2) 500kcmil-4 AWG                 | N/A                           | 51 (450)           |                                  |                                      |                    |                |
| HM25600-2CR    | RM25600-2CR |                |               |         |                   | 2                  |                                    |                               |                    |                                  |                                      |                    |                |
| HM25600-3CR    | RM25600-3CR |                |               |         |                   | 3                  |                                    |                               |                    |                                  |                                      |                    |                |
| HM60100-1CR    | RM60100-1CR | CVR-RH-60100   | CVRI-RH-60100 | 600     |                   | 70-100             | 1                                  | -                             | 1-3 AWG            |                                  | 6.2 (55)                             | Class H(K):<br>NOS |                |
| HM60100-2CR    | RM60100-2CR |                |               |         |                   |                    | 2                                  | 1/0-3 AWG; (2) Cu 4-6 AWG     | 4-6 AWG            |                                  | 5.6 (50)                             |                    |                |
| HM60100-3CR    | RM60100-3CR |                |               |         |                   |                    | 3                                  | 4-6 AWG; (2) Cu 8 AWG         | 8 AWG              |                                  | 4.5 (40)                             |                    |                |
| HM60200-1CR    | RM60200-1CR | CVR-RH-60200   | CVRI-RH-60200 |         | 110-200           | 1                  | 250 MCM-1 AWG                      | 3/0-1 AWG                     | 42 (375)           |                                  | Class R:<br>LPS-RK_SP<br>PS-RK_SPI** |                    |                |
| HM60200-2CR    | RM60200-2CR |                |               |         |                   | 2                  | 2-6 AWG; (2) Cu 2-6 AWG            | 2-6 AWG                       | 31 (275)           |                                  |                                      |                    |                |
| HM60200-3CR    | RM60200-3CR |                |               |         |                   |                    |                                    |                               |                    |                                  |                                      |                    |                |
| HM60400-1CR    | RM60400-1CR | CVR-RH-60400   | CVRI-RH-60400 |         | 225-400           | 1                  | 600kcmil                           | N/A                           | 57 (500)           | FRS-R<br>KTS-R<br>KWS-R<br>PVS-R |                                      |                    |                |
| HM60400-2CR    | RM60400-2CR |                |               |         |                   | 2                  | 500kcmil-4 AWG                     |                               | 51 (450)           |                                  |                                      |                    |                |
| HM60400-3CR    | RM60400-3CR |                |               |         |                   | 3                  | (2) Cu 3/0 - 4 AWG                 |                               | 57 (500)           |                                  |                                      |                    |                |
| HM60600-1CR    | RM60600-1CR | CVR-RH-60600   | CVRI-RH-60600 | 450-600 | 1                 | (2) 500kcmil-4 AWG | N/A                                | 51 (450)                      |                    |                                  |                                      |                    |                |
| HM60600-2CR    | RM60600-2CR |                |               |         | 2                 |                    |                                    |                               |                    |                                  |                                      |                    |                |
| HM60600-3CR    | RM60600-3CR |                |               |         | 3                 |                    |                                    |                               |                    |                                  |                                      |                    |                |

| Catalog Number | Covers*        |               | Volts   | Fuse Range (amps) | Number of Poles    | Wire Range (solid and stranded) | Wire Range (fine stranded) | Torque N•m (Lb-in) | Cooper Bussmann Fuses            |
|----------------|----------------|---------------|---------|-------------------|--------------------|---------------------------------|----------------------------|--------------------|----------------------------------|
| Class J        | w/o Indication | w/ Indication |         |                   |                    |                                 |                            |                    |                                  |
| JM60100-1CR    | CVR-J-60100    | CVRI-J-60100  | 600     | 70-100            | 1                  | -                               | 1-3 AWG                    | 6.2 (55)           | LPJ_SP<br>PJ_SPI**<br>JKS<br>DFJ |
| JM60100-2CR    |                |               |         |                   | 2                  | 1/0-3 AWG; (2) Cu 4-6 AWG       | 4-6 AWG                    | 5.6 (50)           |                                  |
| JM60100-3CR    |                |               |         |                   | 3                  | 4-6 AWG; (2) Cu 8 AWG           | 8 AWG                      | 4.5 (40)           |                                  |
| JM60200-1CR    | CVR-J-60200    | CVRI-J-60200  |         | 110-200           | 1                  | 250 MCM-1 AWG                   | 3/0-1 AWG                  | 42 (375)           |                                  |
| JM60200-2CR    |                |               |         |                   | 2                  | 2-6 AWG; (2) Cu 2-6 AWG         | 2-6 AWG                    | 31 (275)           |                                  |
| JM60200-3CR    |                |               |         |                   |                    |                                 |                            |                    |                                  |
| JM60400-1CR    | CVR-J-60400    | CVRI-J-60400  |         | 225-400           | 1                  | 600kcmil                        | N/A                        | 57 (500)           |                                  |
| JM60400-2CR    |                |               |         |                   | 2                  | 500kcmil-4 AWG                  |                            | 51 (450)           |                                  |
| JM60400-3CR    |                |               |         |                   | 3                  | (2) Cu 3/0 - 4 AWG              |                            | 57 (500)           |                                  |
| JM60600-1CR    | CVR-J-60600    | CVRI-J-60600  | 450-600 | 1                 | (2) 500kcmil-4 AWG | N/A                             | 51 (450)                   |                    |                                  |
| JM60600-2CR    |                |               |         | 2                 |                    |                                 |                            |                    |                                  |
| JM60600-3CR    |                |               |         | 3                 |                    |                                 |                            |                    |                                  |

\*Covers sold separately. Blown fuse indication requires 90 volts minimum and closed circuit to operate.

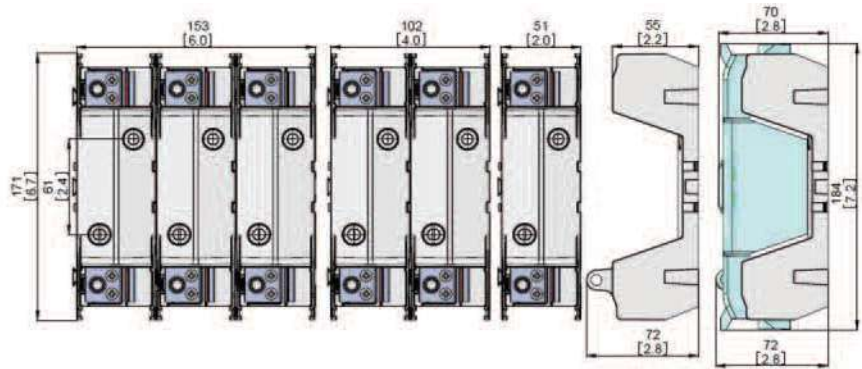
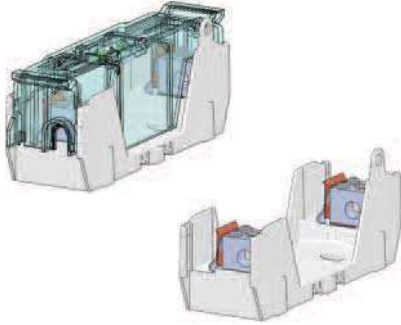
\*\*With *easyID™* blown fuse indication.

\*\*\*Ratings for copper and aluminum wire except where otherwise noted.

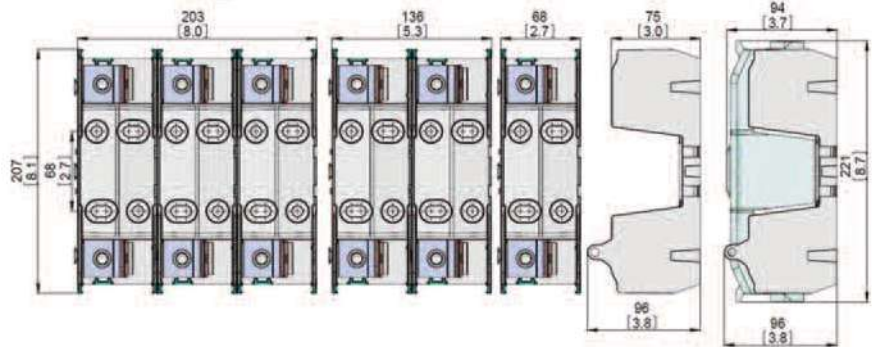
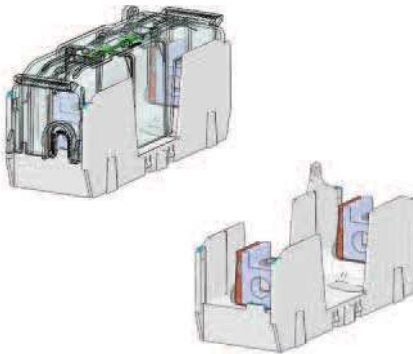
## 250V Class R & H(K) Dimensional Specifications

### Dimensions - mm (in)

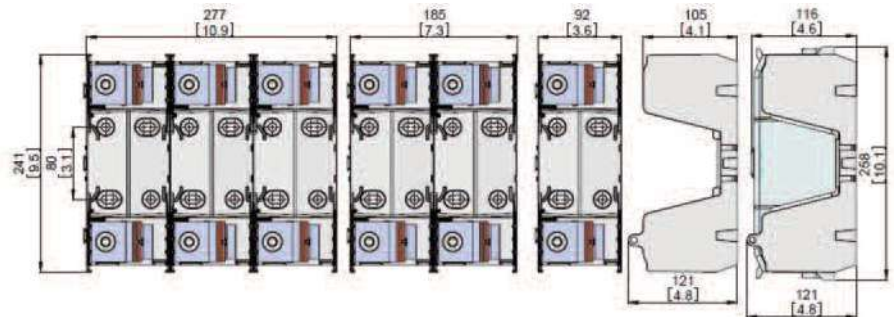
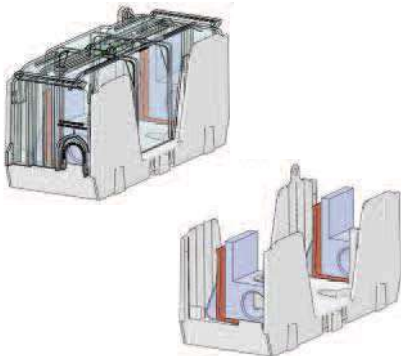
#### 70-100A



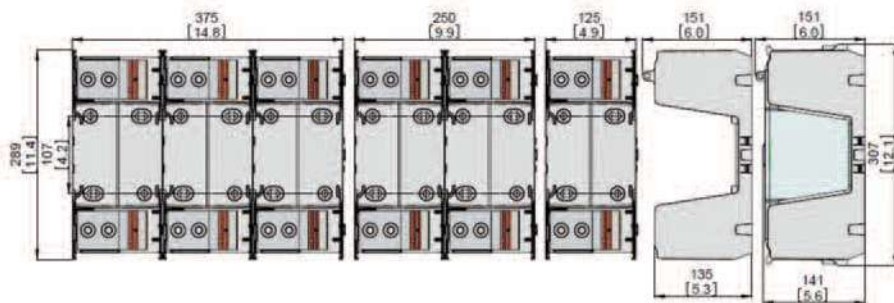
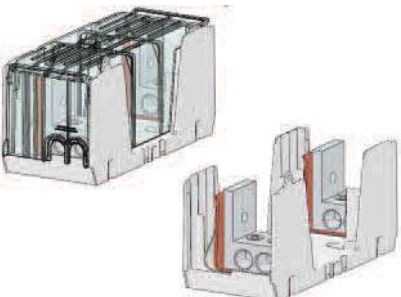
#### 110-200A



#### 225-400A



#### 450-600A

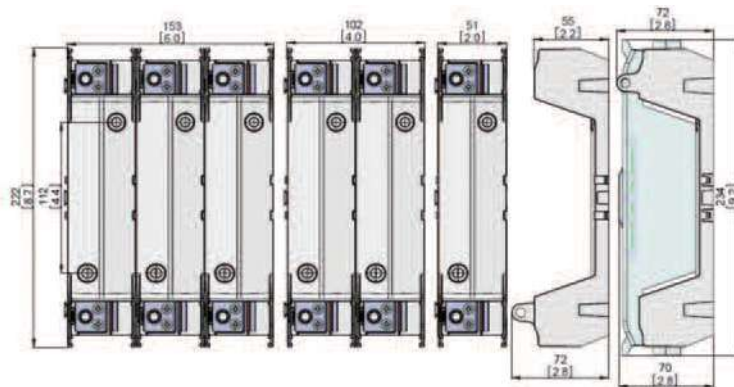
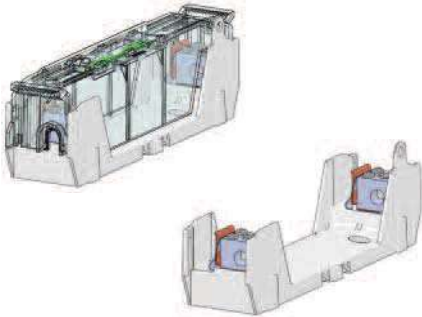




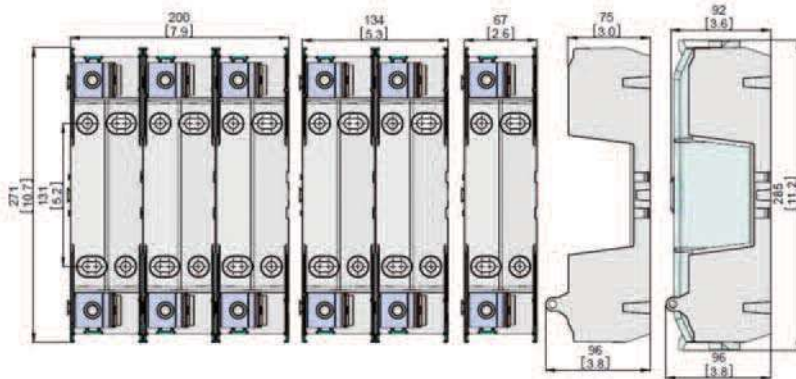
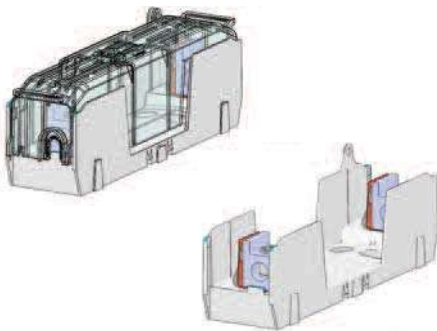
## 600V Class R & H(K) Dimensional Specifications

### Dimensions - mm (in)

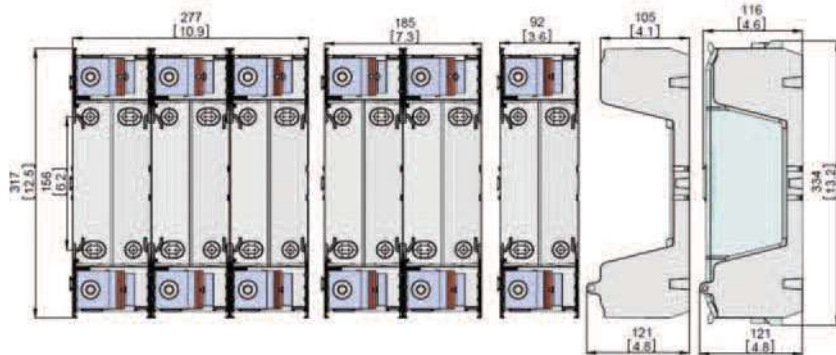
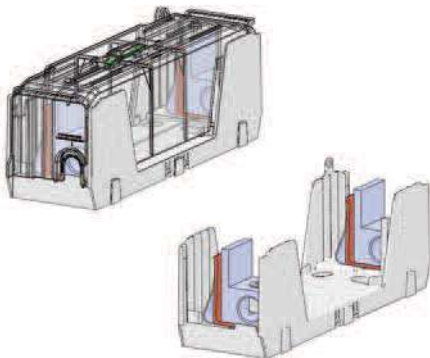
#### 70-100A



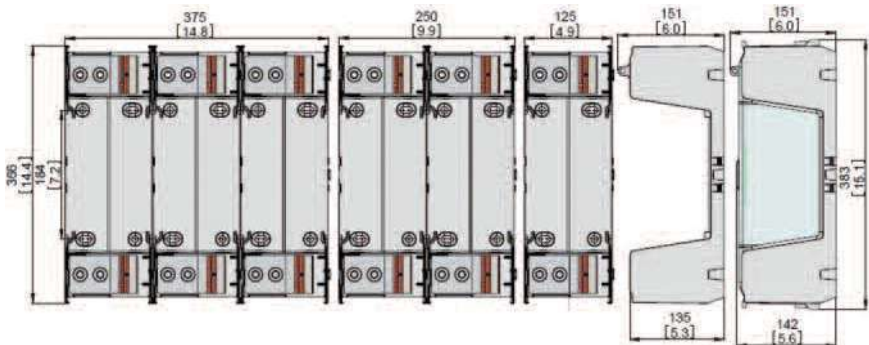
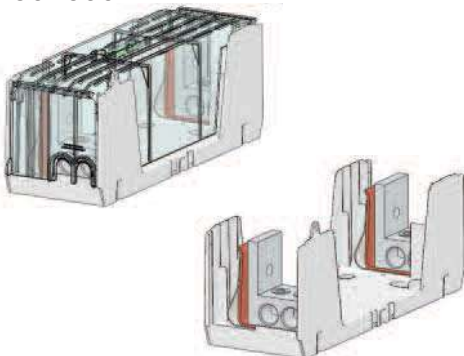
#### 110-200A



#### 225-400A



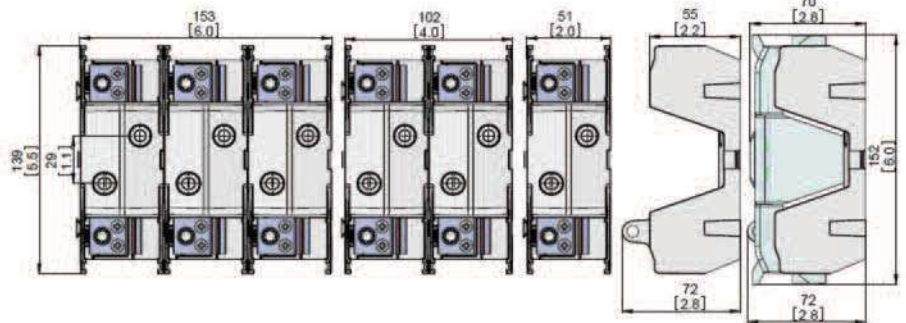
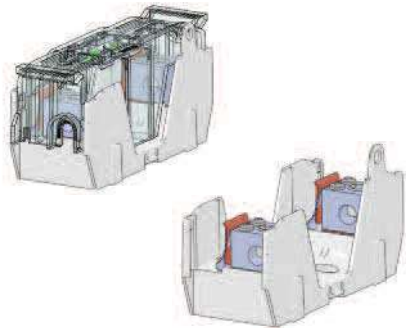
#### 450-600A



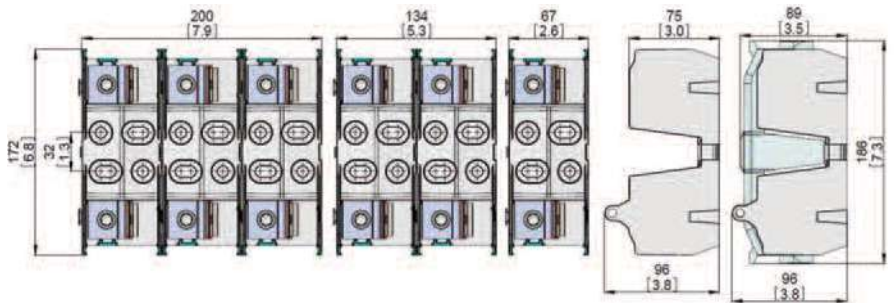
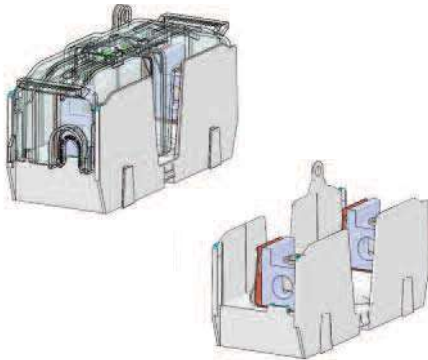
# Class J Dimensional Specifications

## Dimensions - mm (in)

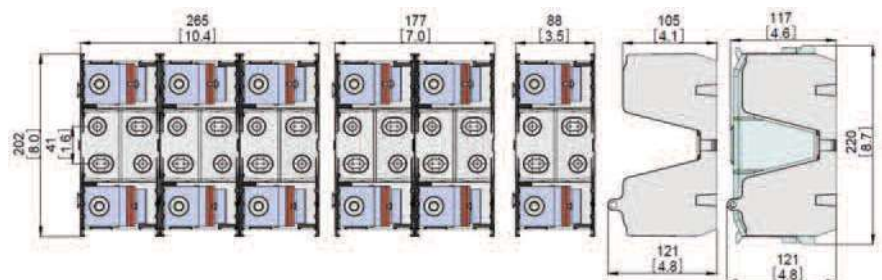
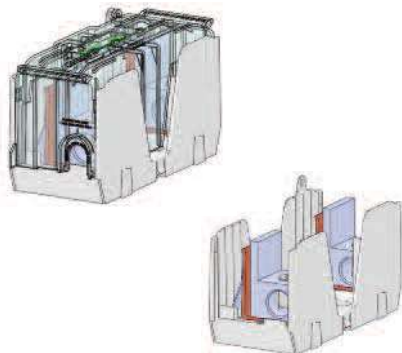
### 70-100A



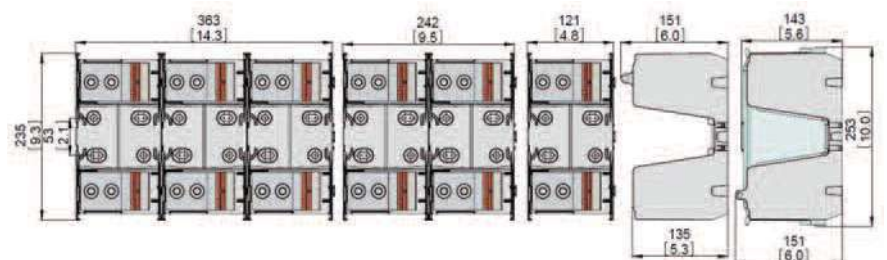
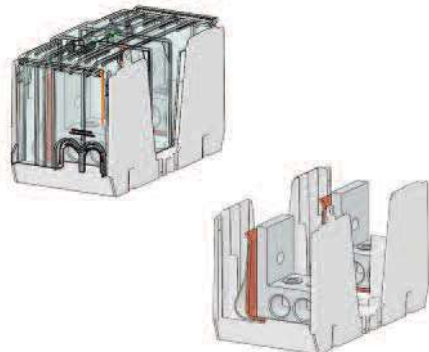
### 110-200A



### 225-400A



### 450-600A





# Class H(K) and R Fuse Blocks – 250V

## H250 & R250 Series

### Specifications

#### Descriptions:

**H250 Series:** 1-, 2- and 3-pole fuse blocks for use with Class H fuses.

**R250 Series:** 1-, 2- and 3-pole fuse blocks for use with Class R fuses (Bussmann LPN-RK and FRN-R and KTN-R fuses).

**Dimensions:** See Dimensions illustrations.

#### Ratings:

Volts: — 250Vac/dc (H250 & R250 Series)

Amps: — 1/10-100A

SCCR: — H250 Series; 10kA RMS Sym.

— R250 Series; 200kA RMS Sym.



**Agency Information:** CE, UL Listed UL 4248, Guide IZLT, File E14853; CSA Certified, Class 6225-01, File 47235.

**Flammability Rating:** UL 94V0.

#### Features and Benefits

- H250 fuse blocks provide one, two and three pole housing for Class H, K and R fuses at 250Vac.
- H250 fuse blocks are listed with a Short-Circuit Current Rating of 10kA RMS Sym.
- R250 fuse blocks provide 1-, 2- and 3-pole housing for Class R fuses at 250Vac.
- R250 fuse blocks are listed with a Short-Circuit Current Rating of 200kA RMS Sym.

#### Typical Applications

- 250Vac/dc or less Control Systems
- 250Vac/dc or less Industrial Control
- 250Vac/dc or less Industrial Control Circuits

**Recommended DIN-Rail adapters for the 1/10-30A series**

- see page 509.

### Class H Fuseblocks (250V) Catalog Data (for NON and REN Fuses)

| Amps       | Poles | Terminal Type (Suffix No.) |   |                             |                |  |            |                             |             |                     |   | Figure Number   | Wire Range |
|------------|-------|----------------------------|---|-----------------------------|----------------|--|------------|-----------------------------|-------------|---------------------|---|---|------------|
|            |       | Screw                      |   |                             |                |  | Box Lug w/ |                             |             |                     |   |   |            |
|            |       | Catalog Number             | — | Clip with Reinforced Spring | Pressure Plate | Pressure Plate & Clip with Reinforced Spring | —          | Clip with Reinforced Spring | Copper Only | 0.25" Quick Connect |   |   |            |
| 1/10 to 30 | 1     | H25030-1                   | S | SR                          | P              | PR   | C          | CR                          | —           | Q                   | 1 | C, CR #2-14 Cu, #2-12 Al<br>P, PR #10-18 Cu Only<br>Q N/A<br>S, SR #10-18 Cu Only |            |
|            | 2     | H25030-2                   | S | SR                          | P              | PR   | C          | CR                          | —           | —                   | 2 |   |            |
|            | 3     | H25030-3                   | S | SR                          | P              | PR   | C          | CR                          | —           | —                   | 3 |   |            |
| 31 to 60   | 1     | H25060-1                   | — | —                           | —              | —  | C          | CR                          | CO          | —                   | 4 | C, CR #2-14 Cu, #2-8 Al<br>CO #2-14 Cu Only                                       |            |
|            | 2     | H25060-2                   | — | —                           | —              | —  | C          | CR                          | CO          | —                   | 5 |   |            |
|            | 3     | H25060-3                   | — | —                           | —              | —  | C          | CR                          | CO          | —                   | 6 |   |            |
| 61 to 100  | 1     | H25100-1                   | — | SR                          | —              | —  | —          | CR                          | —           | —                   | 7 | CR #1/0-8 Cu/Al<br>SR #8W/ Ring Terminal  |            |
|            | 2     | H25100-2                   | — | SR                          | —              | —  | —          | CR                          | —           | —                   | 8 |   |            |
|            | 3     | H25100-3                   | — | SR                          | —              | —  | —          | CR                          | —           | —                   | 9 |   |            |

# Class H(K) and R Fuse Blocks – 250V

## Class R Fuseblocks (250V) Catalog Data (for LPN-RK, FRN-R and KTN-R Fuses)

| Amps       | Poles | Catalog Number | Terminal Type (Suffix No.) |             |            |              | 0.25" Quick-Connect | Fig. No. | Wire Range                                       |
|------------|-------|----------------|----------------------------|-------------|------------|--------------|---------------------|----------|--|
|            |       |                | Screw w/                   | Pres. Plate | Box Lug w/ | Clip Cu Only |                     |          |  |
| 1/40 to 30 | 1     | R25030-1       | SR                         | PR          | CR         | COR          | QR*                 | 1        | COR #6-14 Cu Only                                |
|            | 2     | R25030-2       | SR                         | PR          | CR         | COR          | —                   | 2        | CR #2-14 Cu, #2-12 Al                            |
|            | 3     | R25030-3       | SR                         | PR          | CR         | COR          | —                   | 3        | PR #10-18 Cu Only<br>QR N/A<br>SR #10-18 Cu Only |
| 31 to 60   | 1     | R25060-1       | —                          | —           | CR         | —            | —                   | 4        | CR #2-14 Cu, #2-8 Al                             |
|            | 2     | R25060-2       | —                          | —           | CR         | —            | —                   | 5        |  |
|            | 3     | R25060-3       | —                          | —           | CR         | —            | —                   | 6        |  |
| 61 to 100  | 1     | R25100-1       | —                          | —           | CR         | —            | —                   | 7        | CR 1/0-8 Cu/Al                                   |
|            | 2     | R25100-2       | —                          | —           | CR         | —            | —                   | 8        |  |
|            | 3     | R25100-3       | —                          | —           | CR         | —            | —                   | 9        |  |

### Dimensions - in 250V 1/40 to 30A



FIGURE 1.

FIGURE 2.

FIGURE 3.

### 250V, 31A to 60A

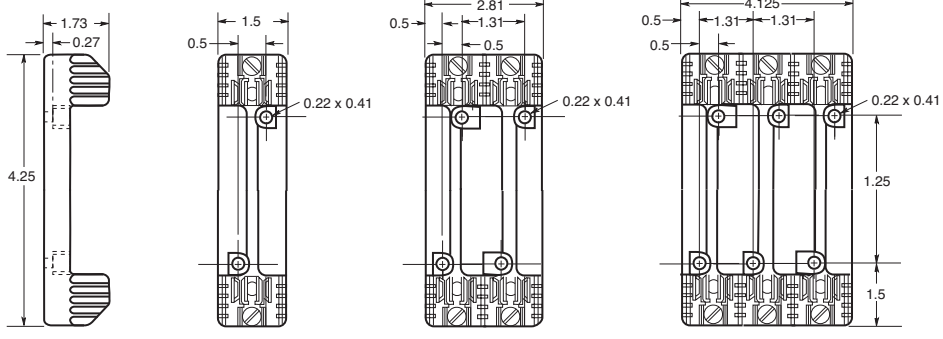


FIGURE 4.

FIGURE 5.

FIGURE 6.

### 250V, 61A to 100A

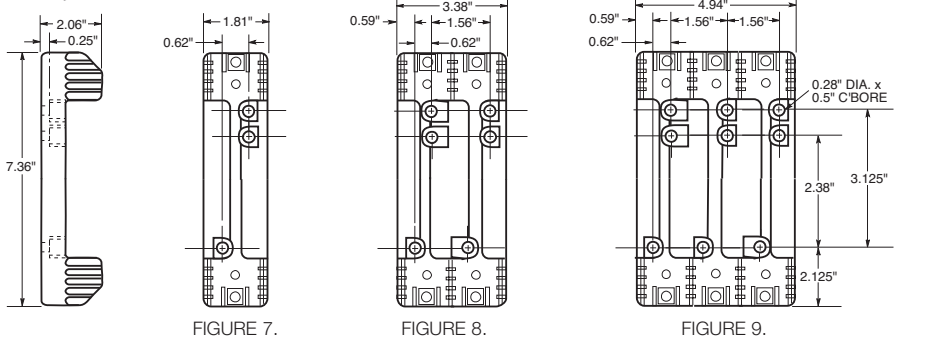


FIGURE 7.

FIGURE 8.

FIGURE 9.

Data Sheet: H250 Series, 1112; R250 Series, 1110

For product data sheets, visit [www.cooperbussmann.com/DatasheetsEle](http://www.cooperbussmann.com/DatasheetsEle)

# Class H(K) and R Fuse Blocks – 600V

## H600 & R600 Series

### Specifications

#### Descriptions:

**H600 Series:** fuse blocks for use with 1-, 2- and 3-pole Class H fuses.

**R600 Series:** fuse blocks for use with 1-, 2- and 3-pole Class R fuses (Bussmann LPS-RK, FRS-R, PVS-R and KTS-R fuses).

**Dimensions:** See Dimensions illustrations.

#### Ratings:

Volts: — 600Vac/dc (H600 & R600 Series)

Amps: — 1/10-100A

SCCR: — H600 Series; 10kA RMS Sym.

— R600 Series; 200kA RMS Sym.

**Agency Information:** CE, UL Listed UL 4248, Guide IZLT, File E14853; CSA Certified, Class 6225-01, File 47235.

**Flammability Rating:** UL 94V0.



H60030-3C



H60030-2PR

### Features and Benefits

- H600 fuse blocks provide one-, two- and three-pole housing for Class H, K and R fuses at 600Vac.
- H600 fuse blocks are listed with a Short-Circuit Current Rating of 10kA RMS Sym.
- R600 fuse blocks provide one-, two- and three-pole housing for Class R fuses at 600Vac.
- R600 fuse blocks are listed with a Short-Circuit Current Rating of 200kA RMS Sym.

### Typical Applications

- 600Vac/dc or less Control Systems
- 600Vac/dc or less Industrial Control
- 600Vac/dc or less Individual Control Circuits

## Class H Fuseblocks (600V) Catalog Data (for NOS and RES Fuses)

| Amps       | Poles | Catalog Number | Terminal Type (Suffix No.) |                             |                |            |                             |  | Figure Number | Wire Range  |
|------------|-------|----------------|----------------------------|-----------------------------|----------------|------------|-----------------------------|--|---------------|---|
|            |       |                | Screw                      |                             |                | Box Lug w/ |                             |  |               |   |
|            |       |                | —                          | Clip with Reinforced Spring | Pressure Plate | —          | Clip with Reinforced Spring | Pressure Plate & Clip with Reinforced Spring |               |   |
| 1/10 to 30 | 1     | H60030-1       | S                          | SR                          | P              | PR         | C                           | CR   | 1             | C, CR #2-14 Cu, #2-12 Al<br>P, PR, S, SR #10-18 Cu Only |
|            | 2     | H60030-2       | S                          | SR                          | P              | PR         | C                           | CR   | 2             |   |
|            | 3     | H60030-3       | S                          | SR                          | P              | PR         | C                           | CR   | 3             |   |
| 31 to 60   | 1     | H60060-1       | —                          | —                           | —              | —          | C                           | CR   | 4             | C, CR #2-14 Cu, #2-8 Al                                 |
|            | 2     | H60060-2       | —                          | —                           | —              | —          | C                           | CR   | 5             |   |
|            | 3     | H60060-3       | —                          | —                           | —              | —          | C                           | CR   | 6             |   |
| 61 to 100  | 1     | H60100-1       | —                          | —                           | —              | —          | —                           | CR   | 7             | CR #1/0-8 Cu/Al   |
|            | 2     | H60100-2       | —                          | —                           | —              | —          | —                           | CR   | 8             |   |
|            | 3     | H60100-3       | —                          | —                           | —              | —          | —                           | CR   | 9             |   |

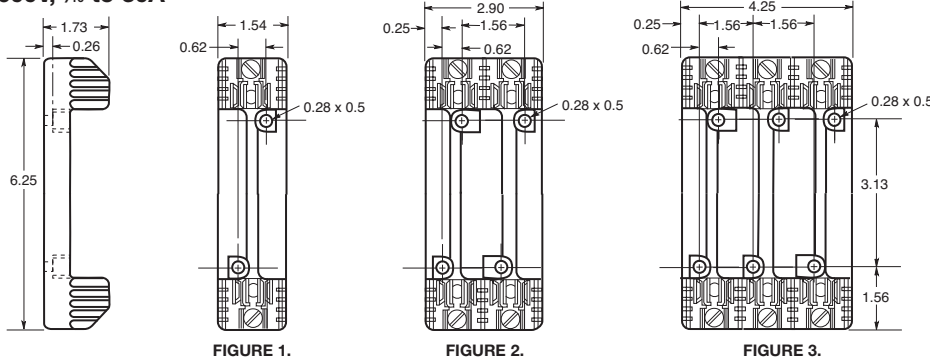
# Class H(K) and R Fuse Blocks – 600V

## Class R Fuseblocks (600V) Catalog Data (for LPS-RK, FRS-R, PVS-R and KTS-R Fuses)

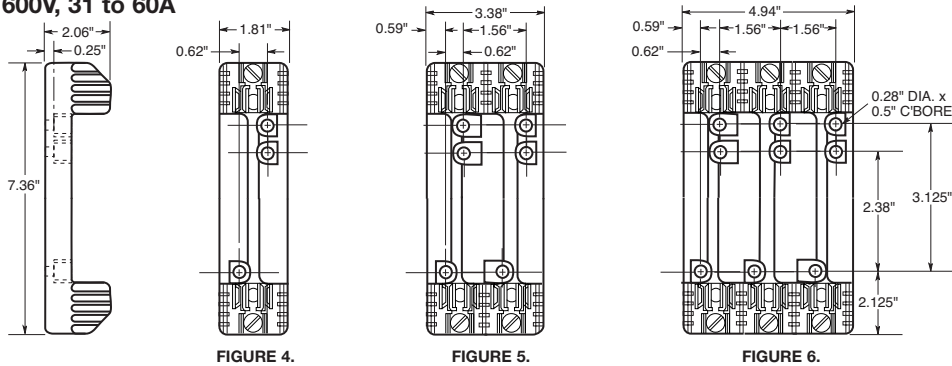
| Amps            | Poles | Catalog Number | Terminal Type (Suffix No.) |             |            |              | Fig. No. | Wire Range            |
|-----------------|-------|----------------|----------------------------|-------------|------------|--------------|----------|-----------------------|
|                 |       |                | Screw w/                   |             | Box Lug w/ |              |          |                       |
|                 |       |                | —                          | Pres. Plate | —          | Clip Cu Only |          |                       |
| 1/2<br>to<br>30 | 1     | R60030-1       | SR                         | PR          | CR         | —            | 1        | COR #6-14 Cu Only     |
|                 | 2     | R60030-2       | SR                         | PR          | CR         | COR          | 2        | CR #2-14 Cu, #2-12 Al |
|                 | 3     | R60030-3       | SR                         | PR          | CR         | COR          | 3        | PR, SR #10-18 Cu Only |
| 31<br>to<br>60  | 1     | R60060-1       | —                          | —           | CR         | —            | 4        | CR #2-14 Cu, #2-8 Al  |
|                 | 2     | R60060-2       | —                          | —           | CR         | —            | 5        |                       |
|                 | 3     | R60060-3       | —                          | —           | CR         | —            | 6        |                       |
| 61<br>to<br>100 | 1     | R60100-1       | —                          | —           | CR         | —            | 7        | CR, 1/0-8 Cu/Al       |
|                 | 2     | R60100-2       | —                          | —           | CR         | —            | 8        |                       |
|                 | 3     | R60100-3       | —                          | —           | CR         | —            | 9        |                       |

### Dimensionals – in

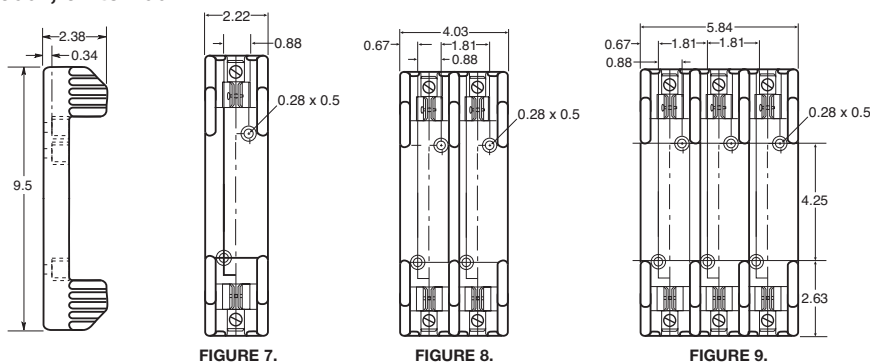
600V, 1/2 to 30A



### 600V, 31 to 60A



### 600V, 61 to 100A



Data Sheet: H600 Series, 1113; R600 Series, 1111

## Class J Fuse Blocks

### J600 Series

#### Specifications

**Description:** 1-, 2- or 3-pole fuse blocks for use with Class J fuses (Bussmann LPJ, DFJ and JKS).

**Dimensions:** See Dimensions illustrations.

**Construction:** Thermoplastic.

**Poles:** 1 to 3

#### Ratings:

Volts — 600Vac/dc

Amps — ½-100A

SCCR: — 200kA RMS Sym.

**Agency Information:** CE, UL Listed, UL 4248, Guide IZLT, File E14853, CSA Certified, C22.2 No. 4248, Class 6225-01, File 47235.

**Flammability Rating:** UL 94V0.

**Mounting:** Accepts DIN-Rail adapter DRA-1. See page 507.

#### Catalog Numbers



#### Features and Benefits

- J600 fuse blocks provide one-, two- and three-pole housing for Class J fuses at 600Vac.
- J600 fuse blocks are listed with a Short-Circuit Current Rating of 200kA RMS Sym.

#### Typical Applications

- 600Vac/dc or less Control Systems
- 600Vac/dc or less Industrial Control
- 600Vac/dc or less Individual Control Circuits

| Catalog Numbers |                 |           |                           |        |       |          |   |
|-----------------|-----------------|-----------|---------------------------|--------|-------|----------|---|
| Screw†          | Pressure Plate† | Box Lug   | Box Lug w/ Retaining Clip | Amps   | Poles | Fig. No. | Wire Range                              |
| J60030-1S*      | J60030-1P       | J60030-1C | J60030-1CR††              | ½-30   | 1     | 1        | C, CR #2-14 Cu, #2-8 Al                 |
| J60030-2S*      | J60030-2P       | J60030-2C | J60030-2CR††              |        | 2     | 2        | COR #2-14 Cu Only                       |
| J60030-3S*      | J60030-3P       | J60030-3C | J60030-3CR††              |        | 3     | 3        | P, PR, S, SR #10-14 Cu Only             |
| —               | —               | J60060-1C | J60060-1CR††              | 31-60  | 1     | 1        | C, CR, #2-14 Cu/Al<br>COR #4-14 Cu Only |
| —               | —               | J60060-2C | J60060-2CR††              |        | 2     | 2        |   |
| —               | —               | J60060-3C | J60060-3CR††              |        | 3     | 3        |   |
| —               | —               | —         | J60100-1CR                | 61-100 | 1     | 4        | COR 1/0-8 Cu Only                       |
| —               | —               | —         | J60100-3CR††              |        | 3     | 5        | CR, CRQ 1/0-8 Cu/Al                     |

†Clip reinforcing springs are standard on fuse blocks rated 100A and above. Available on 30A and 60A blocks by adding the letter "R" to the end of the part number.

††Copper only connections available by changing "CR" suffix to "COR".

\*No UL, No CSA Certification

#### Dimensions - in (±0.015)

##### ½ - 60A

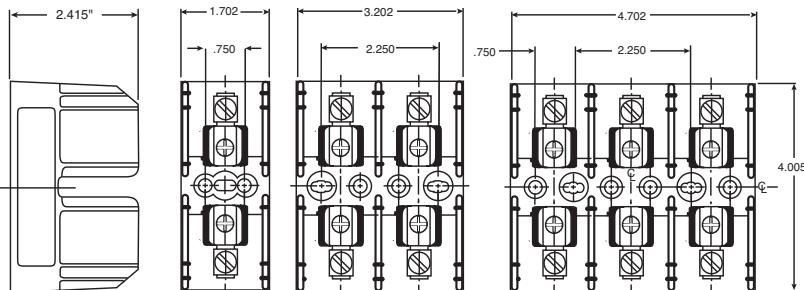


FIGURE 1.

FIGURE 2.

FIGURE 3.

##### 61-100A

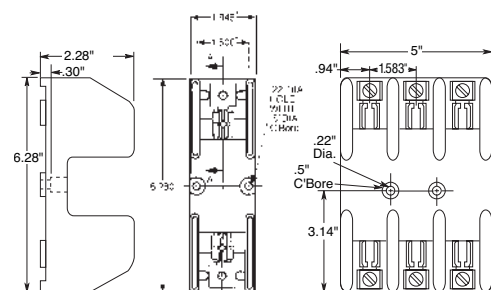


FIGURE 4.

FIGURE 5.



## Class J Fuse Blocks

### JP Series

#### Specifications

**Description:** Pyramid style 3-pole fuse block for use with Class J fuses (Bussmann LPJ, DFJ, JKS).

**Dimensions:** See Dimensions illustrations.

#### Ratings:

Volts: — 600Vac/dc

Amps: — 0-30A

SCCR: — 200kA RMS Sym.

**Agency Information:** CE, UL Listed, UL 4248, Guide IZLT, File E14853, CSA Certified, C22.2 No. 39, Class 4225-04, File 47235.

**Flammability Rating:** UL 94V0.

**Mounting:** Panel or 35mm DIN-Rail mount.

To order DIN-Rail: Part# NDNA 100 (1 meter) or NDNA 200 (2 meter).

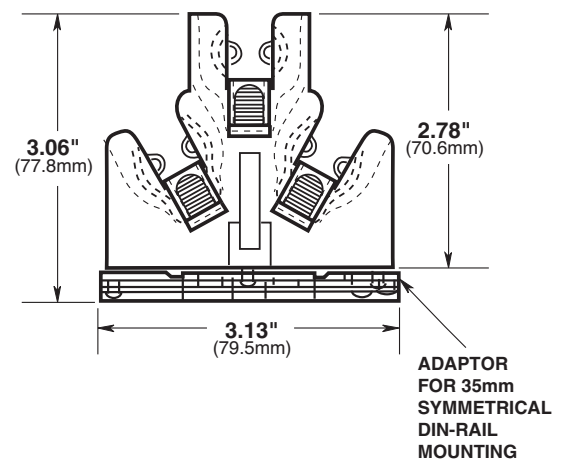
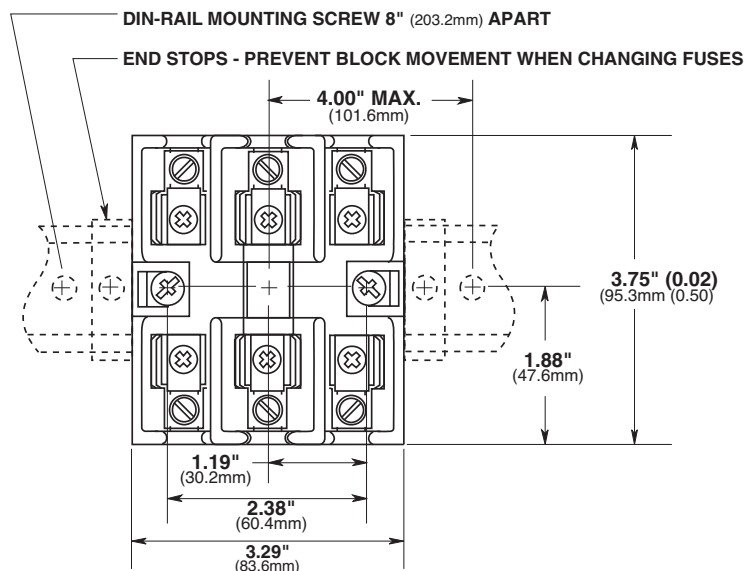
#### Catalog Numbers

| Catalog Numbers | Panel | With DIN Rail Adapter* | Mounting Screws with Pressure Plate | Box      |             |                |
|-----------------|-------|------------------------|-------------------------------------|----------|-------------|----------------|
|                 |       |                        |                                     | Aluminum | Copper Only | Wire Range     |
| JP60030-3PR     | X     |                        | X                                   |          |             | #10-14 Cu Only |
| JP60030-3CR     | X     |                        |                                     | X        |             | #2-14 Cu/Al    |
| JP60030-3COR    | X     |                        |                                     |          | X           | #2-14 Cu Only  |
| JP60030-3PRA    |       | X                      | X                                   |          |             | #10-14 Cu Only |
| JP60030-3CRA    |       | X                      |                                     | X        |             | #2-14 Cu/Al    |
| JP60030-3CORA   |       | X                      |                                     |          | X           | #2-14 Cu Only  |

\*Adapter only for DIN-Rail - Cat No. JPA-3.



#### Dimensions - in ± 0.015" (± 0.40mm)



# Class T Fuse Blocks – 300V

## T300

### Specifications

**Description:** T300 (300V) fuse blocks for use with Class T fuses (Bussmann JJJN).

**Dimensions:** See Dimensions illustrations.

**Poles:** 1 to 4

### Ratings:

Volts: — 300Vac/dc

Amps: — ½ - 600A

SCCR: — 200kA RMS Sym.

**Agency Information:** CE, UL Listed UL 4248, Guide IZLT, File E14853, CSA Certified, Class 6225-01, File 47235.

**Flammability Rating:** UL 94V0.

### Features and Benefits

- Provide 1-, 2- and 3-pole housing for 300Vac Class T fuses.
- Short-Circuit Current Rating of 200kA RMS Sym.
- Class T fuse blocks have a small foot print, providing substantial space savings in equipment

### Typical Applications

- 300Vac/dc or less Control Systems
- 300Vac/dc or less Individual Control Circuits



T30100-1CR

T30030-2CR

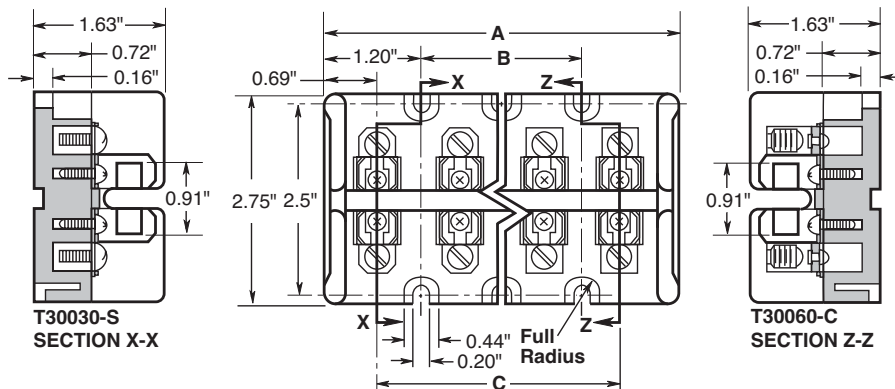


T30600-1C

### Catalog Numbers

| Catalog Numbers |            |         |       |          |                                     |
|-----------------|------------|---------|-------|----------|-------------------------------------|
| Screw           | Box Lug    | Amps    | Poles | Fig. No. | Wire Range                          |
| T30030-2SR      | T30030-2CR | ½-30    | 2     | 1        | SR #10-18 Cu<br>CR #6-14 Cu/Al      |
| T30030-3SR      | T30030-3CR |         | 3     |          |                                     |
| T30030-4SR      | T30030-4CR |         | 4     |          |                                     |
| T30060-2SR      | T30060-2CR | 31-60   | 2     | 1        | CR #2-14 Cu/Al<br>SR #10-18 Cu Only |
| T30060-3SR      | T30060-3CR |         | 3     |          |                                     |
| T30060-4SR      | T30060-4CR |         | 4     |          |                                     |
| —               | T30100-1CR | 61-100  | 1     | 2        | 1/0-8 Cu/Al                         |
| —               | T30100-2CR |         | 2     |          |                                     |
| —               | T30100-3CR |         | 3     |          |                                     |
| —               | T30200-1C  | 101-200 | 1     | 3        | 250kcmil-6 Cu/Al                    |
| —               | T30200-3C  |         | 3     | 4        |                                     |
| —               | T30400-1C  | 201-400 | 1     | 5        | 600kcmil-2/0 Cu/Al                  |
| —               | T30600-1C  | 401-600 | 1     | 6        | (2) 600kcmil-4/0 Cu/Al              |

### Dimensions - in Figure 1. ½-60A



| Catalog Number | Dimensions - in |      |      |
|----------------|-----------------|------|------|
|                | A               | B    | C    |
| T30030-2       | 2.41            | —    | 1.03 |
| T30060-2       | 2.41            | —    | 1.03 |
| T30030-3       | 3.44            | 1.03 | 2.06 |
| T30060-3       | 3.44            | 1.03 | 2.06 |
| T30030-4       | 4.47            | 2.06 | 3.09 |
| T30060-4       | 4.47            | 2.06 | 3.09 |

# Class T Fuse Blocks – 300V

Figure 2. 61 to 100A

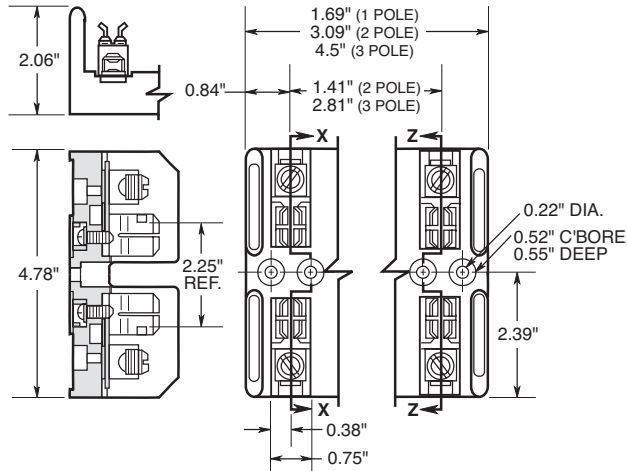


Figure 3. 101 to 200A

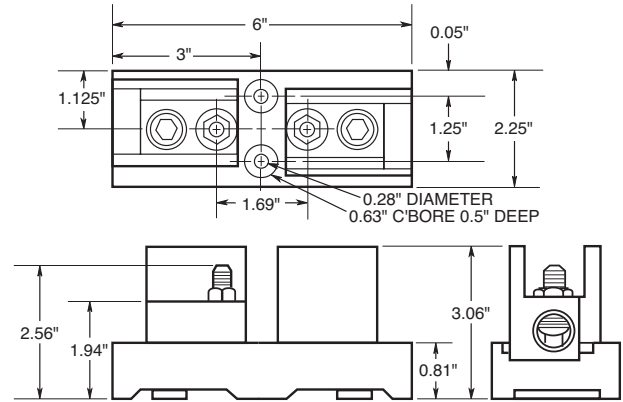


Figure 4. 200A

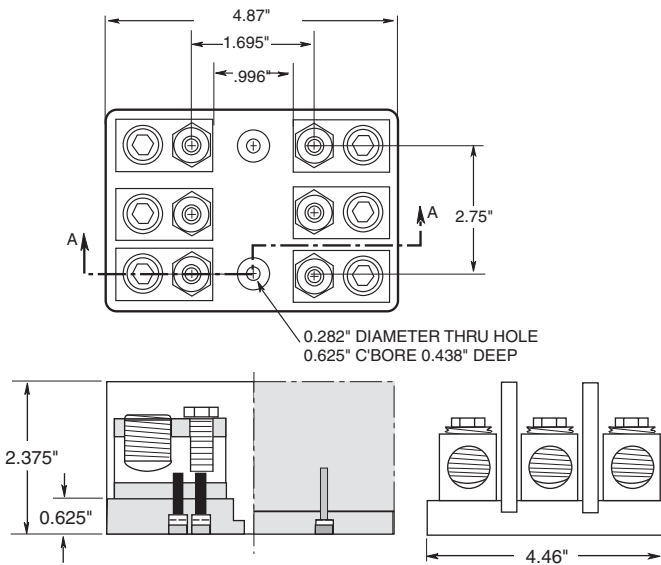


Figure 5. 201 to 400A

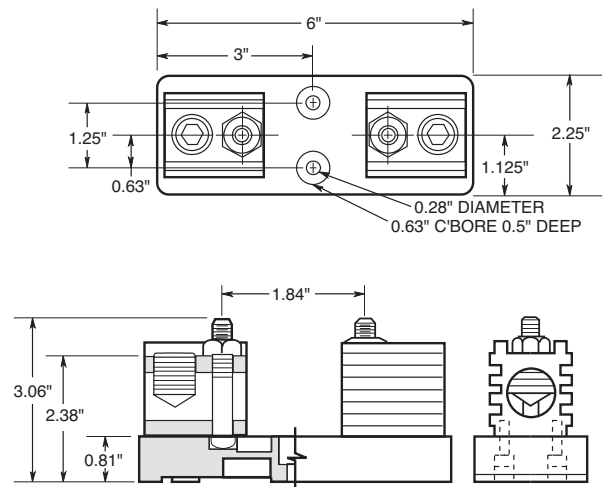
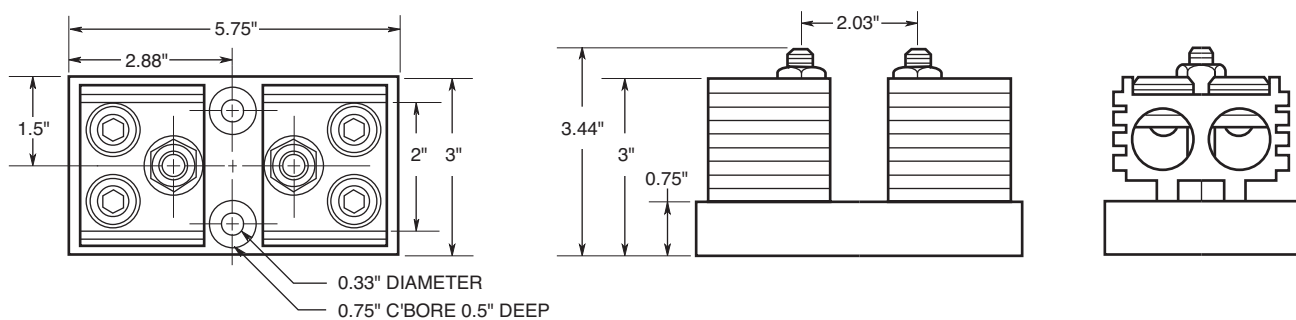


Figure 6. 401 to 600A



Data Sheet: 1115

# Class T Fuse Blocks – 600V

## T600

### Specifications

**Description:** T600 (600V) fuse blocks for use with Class T fuses (Bussmann JJS).

**Dimensions:** See Dimensions illustrations.

**Poles:** 1 to 3

### Ratings:

Volts: – 600Vac/dc

Amps: – ½ - 600A

SCCR: – 200kA RMS Sym.

**Agency Information:** CE, UL Listed UL 4248, Guide IZLT, File E14853, CSA Certified, Class 6225-01, File 47235.

**Flammability Rating:** UL 94V0.

### Features and Benefits

- Provide 1-, 2- and 3-pole housing for 600Vac Class T fuses.
- Short-Circuit Current Rating of 200kA RMS Sym.
- Class T fuse blocks have a small foot print, providing substantial space savings in equipment

### Typical Applications

- 600Vac/dc or less Control Systems
- 600Vac/dc or less Individual Control Circuits



T60600-1C

T30030-2CR

### Catalog Numbers

| Screw      | Box Lug    | Amps    | Fig. | Poles | No. | Wire Range                          |
|------------|------------|---------|------|-------|-----|-------------------------------------|
| T60030-1SR | T60030-1CR | ½-30    | 1    | 1     | 1   | SR #10-18 Cu<br>CR #2-14 Cu/Al      |
| T60030-2SR | T60030-2CR |         | 2    |       |     |                                     |
| T60030-3SR | T60030-3CR |         | 3    |       |     |                                     |
| T60060-1SR | T60060-1CR | 31-60   | 1    | 2     | 2   | CR #2-14 Cu/Al<br>SR #10-18 Cu Only |
| T60060-2SR | T60060-2CR |         | 2    |       |     |                                     |
| T60060-3SR | T60060-3CR |         | 3    |       |     |                                     |
| —          | T60100-1C  | 61-100  | 1    | 3     | 3   | 2/0-14 Cu/Al                        |
| —          | T60100-2C  |         | 2    |       |     |                                     |
| —          | T60100-3C  |         | 3    |       |     |                                     |
| —          | T60200-1C  | 101-200 | 1    | 4     | 4   | 250kcmil-6 Cu/Al                    |
| —          | 1B0089*    |         | 3    |       |     |                                     |
| —          | T60400-1C  | 201-400 | 1    | 5     | 5   | 600kcmil-2/0 Cu/Al                  |
| —          | T60600-1C  | 401-600 | 1    | 6     | 6   | (2) 600kcmil-4/0 Cu/Al              |

\* UL Listed, Guide IZLT, File E14853, CSA Certified Class 6225-01, File 21455M18

### Dimensions - in

Figure 1. ½ to 30A

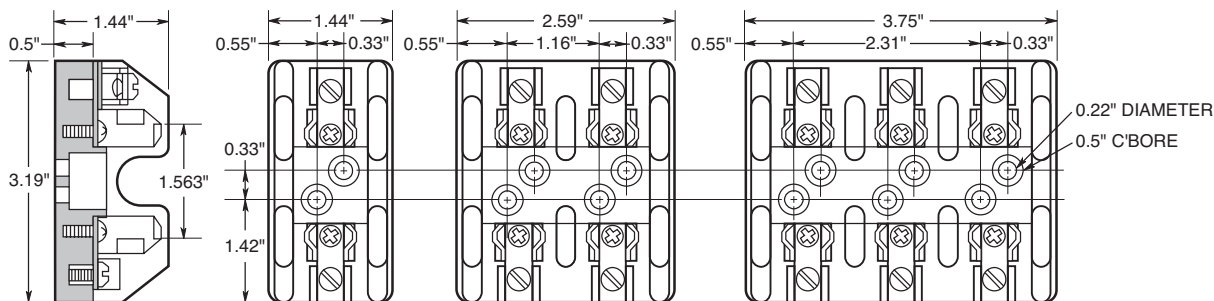
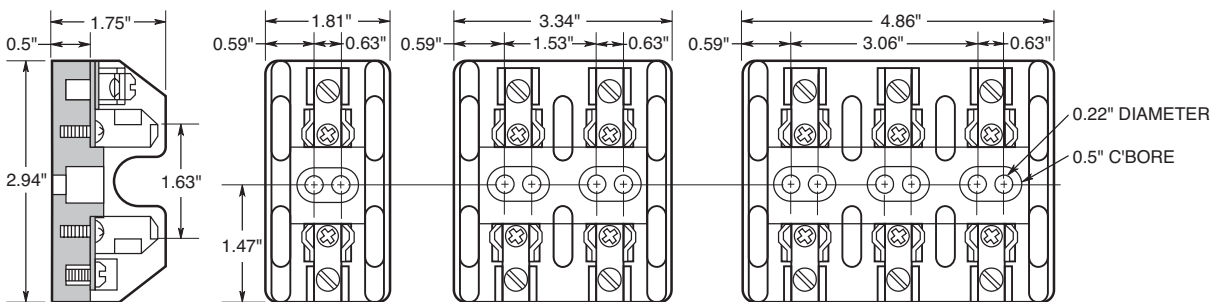


Figure 2. 31 to 60A



Data Sheet: 1116

# Class T Fuse Blocks – 600V

Figure 3. 61 to 100A

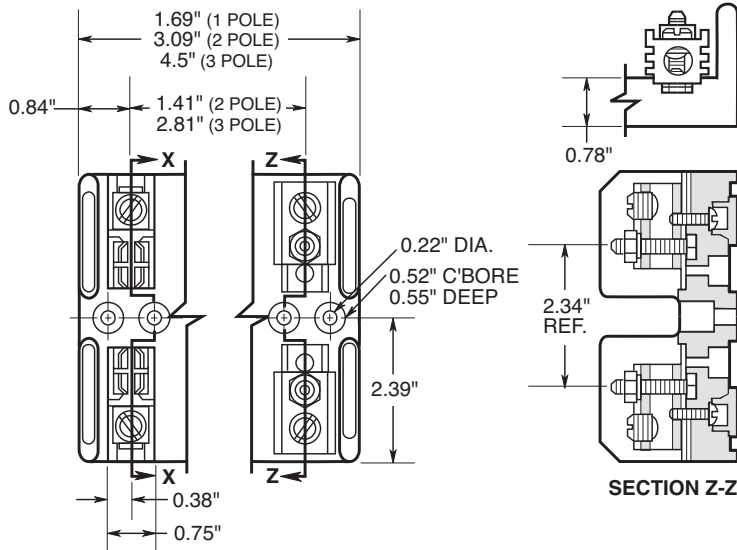


Figure 4. 101 to 200A

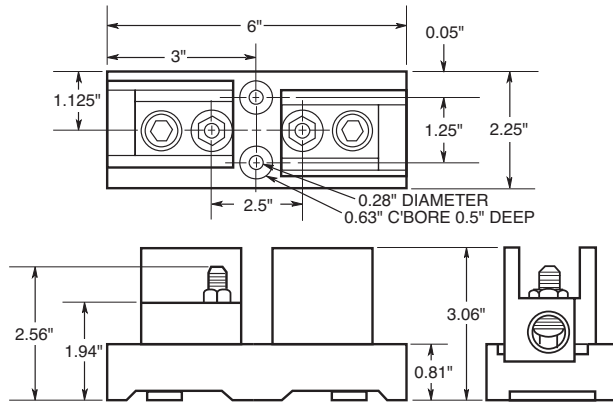


Figure 5. 201 to 400A

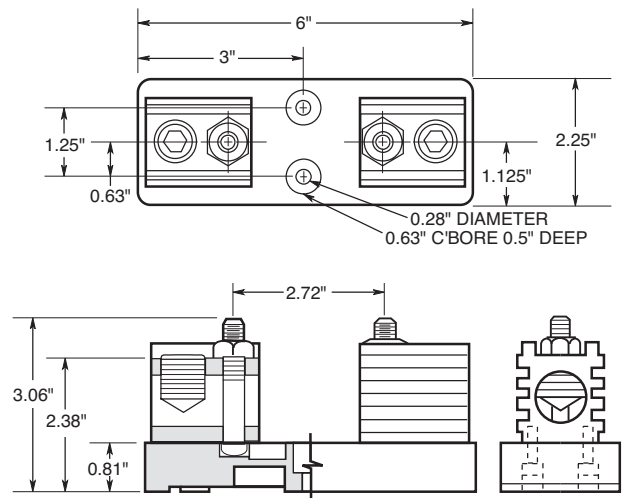
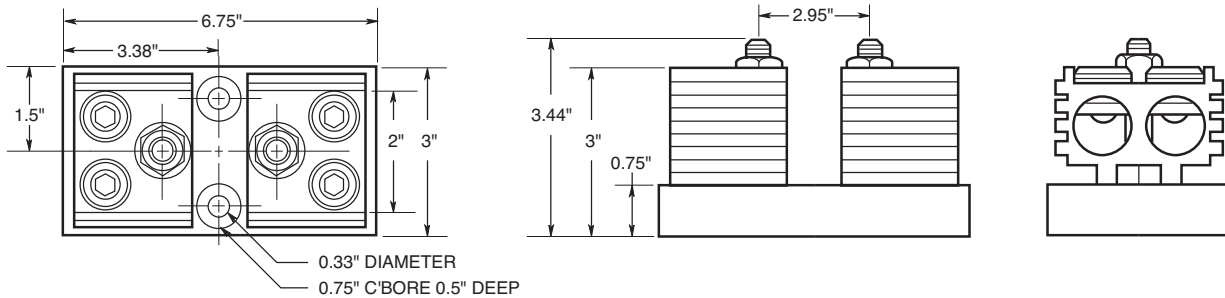


Figure 6. 401 to 600A





# Add-a-pole Fuse Blocks

## BCA Series - Class CC fuses BMA Series - 1 3/32" X 1 1/2" fuses

### Specifications

**Description:** 1-, 2 and 3-pole fuse blocks for use with Class CC fuses (BCA Series use Bussmann LP-CC, KTK-R, and FNQ-R), or with standard 1 3/32" x 1 1/2" fuses (BMA Series use Bussmann KTK, FNQ, PVN, FNM, BAF, PV and AGU) Both Series use an "adder block" to form multi-pole segmented blocks to achieve the desired number of poles.

**Dimensions:** See Dimensions illustration.

**Poles:** 1 to 3.

**Wire Range:** #10-#18 Cu only.

**Terminals:** Screw/quick connect\* or pressure plate/quick connect\*.

### Ratings:

Volts: — 600Vac/dc

Amps: — 1/0-30A

SCCR: — BCA Series:  
200kA RMS Sym.  
BMA Series:  
10kA RMS Sym.

### Agency Information:

**BCA Series:** CE, UL Listed, UL 4248, Guide IZLT, File E14853. CSA Certified, C22.2 No. 4248, Class 6225-01, File 47235.

**BMA Series:** CE, UL Recognized, UL 4248, Guide IZLT2, File E14853. CSA Certified, C22.2 No. 4248, Class 6225-01, File 47235.

**Flammability Rating:** UL 94V0

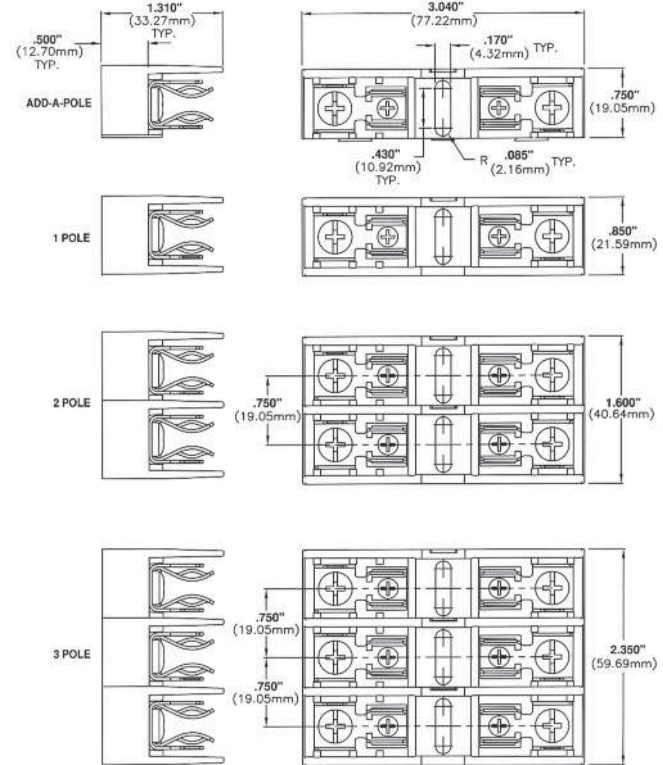
\*Quick connect rated for 20A maximum.

### Catalog Numbers

#### BCA Series

| Catalog Numbers | Poles       | Terminal Type                   |
|-----------------|-------------|---------------------------------|
| BCA603ASQ       | Adder Block | Screw w/ quick connect          |
| BCA6031SQ       | 1           | Screw w/ quick connect          |
| BCA6032SQ       | 2           | Screw w/ quick connect          |
| BCA6033SQ       | 3           | Screw w/ quick connect          |
| BCA603APQ       | Adder Block | Pressure plate w/ quick connect |
| BCA6031PQ       | 1           | Pressure plate w/ quick connect |
| BCA6032PQ       | 2           | Pressure plate w/ quick connect |
| BCA6033PQ       | 3           | Pressure plate w/ quick connect |

### Dimensions in ± 0.015" (0.38mm)



#### BMA Series

| Catalog Numbers | Poles       | Terminal Type                   |
|-----------------|-------------|---------------------------------|
| BMA603ASQ       | Adder Block | Screw w/ quick connect          |
| BMA6031SQ       | 1           | Screw w/ quick connect          |
| BMA6032SQ       | 2           | Screw w/ quick connect          |
| BMA6033SQ       | 3           | Screw w/ quick connect          |
| BMA603APQ       | Adder Block | Pressure plate w/ quick connect |
| BMA6031PQ       | 1           | Pressure plate w/ quick connect |
| BMA6032PQ       | 2           | Pressure plate w/ quick connect |
| BMA6033PQ       | 3           | Pressure plate w/ quick connect |

Data Sheets: BCA Series 1154, BMA Series 1155

# Class CC, Type M and Class G Fuse Blocks

## BC Series



### Specifications

**Description:** Class CC fuse blocks for use with Class CC fuses ( Bussmann LP-CC, KTK-R, and FNQ-R).

**Dimensions:** See Data Sheet 1105

**Poles:** 1 to 3

### Ratings:

Volts: — 600V  
Amps: — 1/0-30A  
SCCR:— 200kA RMS Sym.

**Agency Information:** CE, UL Listed (Guide IZLT, File E14853), CSA (Class 6225-01, File 47235)

**Flammability Rating:** UL 94V0

**DIN-Rail Adapters:** See page 413 for DRA-1 & DRA-2

### Catalog Numbers

| Screw   | Terminal Type             |                |                                  |         | Poles |
|---------|---------------------------|----------------|----------------------------------|---------|-------|
|         | Screw with Quick Connect* | Pressure Plate | Pressure Plate w/ Quick Connect* | Box Lug |       |
| BC6031S | BC6031SQ                  | BC6031P        | BC6031PQ                         | BC6031B | 1     |
| BC6032S | BC6032SQ                  | BC6032P        | BC6032PQ                         | BC6032B | 2     |
| BC6033S | BC6033SQ                  | BC6033P        | BC6033PQ                         | BC6033B | 3     |

Data Sheet: 1105

## BCCM Series

**Description:** 3-pole fuse block for use with (2) Class CC fuses and (1) 1/2" x 1 1/2" fuse

### Catalog Numbers

| Catalog Numbers | Terminal Type                   |
|-----------------|---------------------------------|
| BCCM6033SQ      | Screw with Quick-Connect*       |
| BCCM6033PQ      | Pressure Plate w/Quick-Connect* |

\*Quick-connect terminal rated for 20A max.

### Recommended Cover Puller

- PF1-WH (White)
- PF1-BK (Black)

## BM Series Type M



### Specifications

**Description:** Supplementary fuse blocks for use with any 1/2" x 1 1/2" fuses (Bussmann KTK, PVM, FNQ, FNM, BAF, PV, and AGU).

**Dimensions:** See Data Sheet 1104

**Poles:** 1 to 3

**DIN-Rail Adapters:** See page 413 for DRA-1 & DRA-2

### Ratings:

Volts: — 600Vac/dc  
Amps: — 1/0-30A  
SCCR:— 10kA RMS Sym.

**Agency Information:** CE, UL Recognized (Guide IZLT2, File E14853), CSA (Class 6225-01, File 47235).

**Flammability Rating:** UL 94V0.

### Catalog Numbers

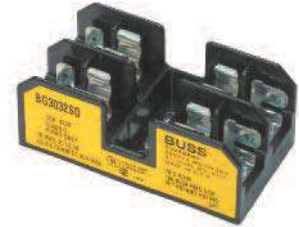
| Screw with Quick Connect* | Terminal Type                    |         |  | Poles |
|---------------------------|----------------------------------|---------|--|-------|
|                           | Pressure Plate w/ Quick Connect* | Box Lug |  |       |
| BM6031SQ                  | BM6031PQ                         | BM6031B |  | 1     |
| BM6032SQ                  | BM6032PQ                         | BM6032B |  | 2     |
| BM6033SQ                  | BM6033PQ                         | BM6033B |  | 3     |

### Recommended Cover Puller

- PF1-WH (White)
- PF1-BK (Black)

Data Sheet: 1104

## BG & G Series



### Specifications

**Description:** Class G fuse blocks for use with Class G fuses (Bussmann SC).

**Dimensions:** See Data Sheet 1106

**Poles:** 1 to 3

### Ratings:

Volts: — 600Vac/dc (0-20A)  
— 480Vac/dc (25-60A)  
Amps: — 1-60A (See Catalog Numbers table)

SCCR: — 100kA RMS Sym.

**Agency Information:** CE, UL Listed 35-60A (Guide IZLT, File E14853), UL Recognized 1-30A, (Guide IZLT2, File E14853), CSA (Class 6225-01, File 47235).

**DIN-Rail Adapters:** See page 413 for DRA-1 & DRA-2.

### Catalog Numbers

| Screw with Quick Connect* | Terminal Type                    |           |                          |   | Amps  | Poles |
|---------------------------|----------------------------------|-----------|--------------------------|---|-------|-------|
|                           | Pressure Plate w/ Quick Connect* | Box Lug   | Box Lug w/retaining clip |   |       |       |
| BG3011SQ                  | BG3011PQ                         | BG3011B   | —                        | — | 1     |       |
| BG3012SQ                  | BG3012PQ                         | BG3012B   | —                        | — | 1-15  |       |
| BG3013SQ                  | BG3013PQ                         | BG3013B   | —                        | — | 3     |       |
| BG3021SQ                  | BG3021PQ                         | BG3021B   | —                        | — | 1     |       |
| BG3022SQ                  | BG3022PQ                         | BG3022B   | —                        | — | 20    |       |
| BG3023SQ                  | BG3023PQ                         | BG3023B   | —                        | — | 3     |       |
| BG3031S                   | BG3031P                          | BG3031B   | —                        | — | 1     |       |
| BG3032S                   | BG3032P                          | BG3032B   | —                        | — | 25-30 |       |
| BG3033S                   | BG3033P                          | BG3033B   | —                        | — | 3     |       |
| —                         | —                                | —         | G30060-1CR               | — | 1     |       |
| —                         | —                                | —         | G30060-2CR               | — | 35-60 |       |
| —                         | —                                | G30060-3C | G30060-3CR               | — | 3     |       |

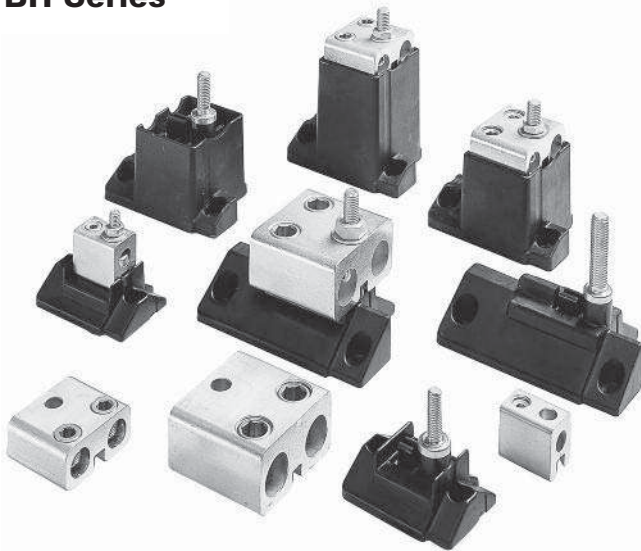
### Recommended Cover Puller

- PF1-WH (White)
- PF1-BK (Black)

Data Sheet: 1106

# Modular Fuse Blocks

## BH Series



### Specifications

**Description:** For use with Bussmann high speed fuses.

### Ratings:

SCCR: — 200kA RMS Sym. or fuse IR, whichever is lower.

**Agency Information:** CE, UL Recognized, Guide EZLT2, File No. E14853 up to 700V, CSA Certified, Class 6225-01, File No. 47235 up to 700V.

### BH Series Features and Benefits

- BH fuse blocks provide a wide range of mounting configurations for Bussmann high speed fuses.
- BH fuse blocks have a Short-Circuit Current Rating of any installed fuse up to 200kA RMS Sym.

### Typical Applications

- Solid State Control Circuits
- VFDs
- UPS Systems

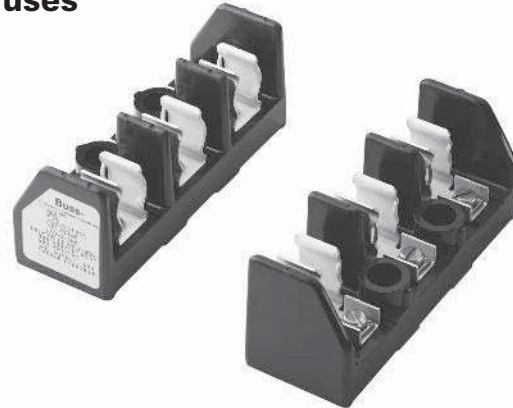
### Catalog Numbers

|         |         |         |         |
|---------|---------|---------|---------|
| BH-0001 | BH-0122 | BH-2001 | BH-3004 |
| BH-0002 | BH-1001 | BH-2002 | BH-3033 |
| BH-0003 | BH-1002 | BH-2003 | BH-3144 |
| BH-0111 | BH-1003 | BH-2031 | BH-3145 |
| BH-0112 | BH-1131 | BH-2032 |         |
| BH-0113 | BH-1132 | BH-2033 |         |
| BH-0121 | BH-1133 | BH-3003 |         |

Refer to the data sheet numbers below for the catalog code description information.

**Data Sheet: (BH-0) 1200; (BH-1) 1201; (BH-2) 1202; (BH-3) 1203**

## Modular Type Fuse blocks for Class H & J Fuses



### Specifications

**Description:** 3-Pole only, modular type fuse blocks for Class H & J fuses with standard reinforced retaining clips.

### Ratings:

- Volts: — 250V (0-60A See Catalog Numbers table)  
 — 600V (35-60A See Catalog Numbers table)
- Amps: — 0-60A @ 250Vac/dc (See Catalog Numbers table)  
 — 35-60A@600V (See Catalog Numbers table)
- SCCR: — Class J 200kA, Class H 10kA

**Agency Information:** CE, UL Recognized, Guide IZLT2, File E14853, CSA Certified, Class 6225-01, File 47235.

### Class H & J Features and Benefits

- H & J modular fuse blocks provide three pole 30 and 60 amp ratings for specific client requirements for separate line and load fuse clip configurations.

### Typical Applications

- Up to 60A, space confined, control circuits

| Catalog Numbers |                |            |       |      |          |
|-----------------|----------------|------------|-------|------|----------|
| Screw           | Pressure Plate | Fuse Class | Volts | Amps | Fig. No. |
| 11241-3SR*      | 11241-3PR*     | H          | 250   | 60   | 1        |
| 11242-3SR       | 11242-3PR      |            |       |      | 2        |
| 11241-3SR       | 11241-3PR      |            | 600   | 35   | 1        |
| 11242-3SR**     | 11242-3PR**    |            |       |      | 2        |
| 11239-3SR       | 11239-3PR      | J          | 600   | 60   | 1        |
| 11240-3SR**     | 11240-3PR**    |            |       |      | 2        |
| 11241-3SR       | 11241-3PR      |            | 60    | 35   | 1        |
| 11239-3SR*      | 11239-3PR*     |            |       |      | 60       |

Note: Order two blocks per fuse (matched or mixed.)  
 \*11239 and 11241 have wire terminals and mounting holes located under fuse. (Figure 1)  
 \*\*11240 and 11242 have wire terminals and mounting holes located at end of fuse. (Figure 2)

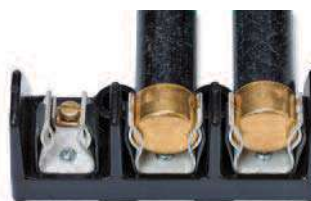


Figure 1



Figure 2

## Box Cover Units for Plug Fuses

**SOU, SRU, SSN, SSU, SOW, SRW, SSW, SOX, SRX, SSX, SOY, SRY, SSY, SSY-RL, SSY-L, STY, SCY & SOY-B**

### Specifications

**Description:** Box covers for standard electrical boxes that provide fused outlet, fused switch or circuit fuse protection.

### Ratings:

Volts: — 125V/250V (See Catalog Numbers table)

Amps: — 0-15A (See Catalog Numbers table)

**Agency Information:** CE, See Catalog Numbers table.

### Features/Benefits

- Bussmann Box Cover Units provide a low-cost method of controlling and protecting small motors when used with Bussmann Type T, Fusetron™, dual-element fuses.
- Provide low-cost supplementary protection and disconnection of 125V or less, single phase circuits.

### Typical Applications

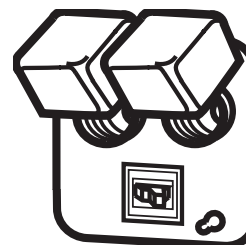
- Fractional Horsepower, 125 Volt Single-Phase Motor Circuits
- General 125 Volt Supplemental Circuits



SOU

SRU

SSU



STY



SSN

### Catalog Numbers

| Catalog Numbers  | Type Box      | Fuse holder <sup>3</sup> |        | Receptacle Outlet to Load |      | Switch Control <sup>1</sup> | Switch Light <sup>2</sup> | Motor Size (Max) | General Data            | Agency <sup>4</sup> Listing/Certification               |         |
|------------------|---------------|--------------------------|--------|---------------------------|------|-----------------------------|---------------------------|------------------|-------------------------|---|---------|
|                  |               | Single                   | Double | 125V                      | 250V |                             |                           |                  |                         |   |         |
| SOU              | 2 1/4" Handy  | X                        |        |                           |      |                             |                           | 3/4hp            | 125V, 15A               | UL, CSA   |         |
| SRU              |               | X                        |        | X                         |      |                             |                           | 1/2hp            | 125V, 15A               | UL  |         |
| SSU              |               | X                        |        |                           |      |                             | X                         |                  | 1/2hp                   | 125Vac, (do not use on dc), 15A                         | UL, CSA |
| SOW              | 2 3/4" Switch | X                        |        |                           |      |                             |                           | 3/4hp            | 125V, 15A               | UL, CSA   |         |
| SRW              |               | X                        |        | X                         |      |                             |                           | 1/2hp            | 125V, 15A               | UL  |         |
| SSW              |               | X                        |        |                           |      |                             | X                         |                  | 1/2HP                   | 125Vac, (do not use on dc), 15A                         | UL, CSA |
| SOX              | 4" Octagon    | X                        |        |                           |      |                             |                           | 3/4hp            | 125V, 15A               | UL, CSA   |         |
| SRX              |               | X                        |        | X                         |      |                             |                           | 1/2hp            | 125V, 15A               | UL  |         |
| SSX              |               | X                        |        |                           |      |                             | X                         |                  | 1/2hp                   | 125Vac, (do not use on dc), 15A                         | UL, CSA |
| SOY              | 4" Square     | X                        |        |                           |      |                             |                           | 3/4hp            | 125V, 15A               | UL, CSA   |         |
| SRY              |               | X                        |        | X                         |      |                             |                           | 1/2hp            | 125V, 15A               | UL  |         |
| SSY              |               | X                        |        |                           |      |                             | X                         |                  | 1/2hp                   | 125Vac, (do not use on dc), 15A                         | UL, CSA |
| SSY-RL           |               | X                        |        | X                         |      |                             | X                         | X                | 1/2hp                   | 125Vac, (do not use on dc), 15A                         | —       |
| STY <sup>3</sup> |               |                          | X      |                           |      |                             | X                         |                  | 1/2hp                   | 125Vac, (do not use on dc), 15A                         | UL      |
| SCY              |               |                          |        | X                         |      |                             | X(2)                      |                  | 1/2hp (2)               | 125Vac, (do not use on dc), can protect two motors, 15A | UL      |
| SOY-B            |               |                          |        | X                         |      |                             |                           |                  | 3/4hp                   | 125V, protects two motors, 15A                          | UL      |
| SSN              | Single Gang   | X                        |        | X                         |      | X                           |                           | 1/2hp            | Weatherproof model, 15A | UL  |         |

1 Switch turns power to fused load OFF or ON.

2 Switch light indicates power to load (dark when switch OFF or fuse open).

3 Double pole switch opens both sides of circuit. Can be used for two separate motors with common switch or a single motor (3/4Hp, 250Vac max.).

4 UL Guide JAMZ, File IE6491; CSA Class 6225-01, File 47235.



# In-line Fuse Holders for 1/4" x 7/8" to 1 1/4" Fuses

## HFB & HFB-10



### Specifications

**Description:** Water-resistant in-line fuse holder for 1/4" x 1 1/4" fuses.

**Dimensions:** See Dimensions illustration.

**Construction:** Thermoplastic rubber body with tin-plated, copper contacts.

### Ratings:

Volts: — 32V

Amps: — 30A max

### Catalog Numbers

| Catalog Numbers | Description                       |
|-----------------|-----------------------------------|
| HFB*            | Standard Pack (10-in)             |
| BK/HFB          | Bulk Pack (100-in)                |
| BK/1A2294       | HFB Replacement Contact Clip      |
| 1A2294-01       | HFB-10** Replacement Contact Clip |

\*HFB accepts #12 to #18 wire leads (not provided). See Data Sheet for recommended crimp tools.

\*\*HFB-10 accepts #10 wire leads (not provided). See Data Sheet for recommended crimp tools.

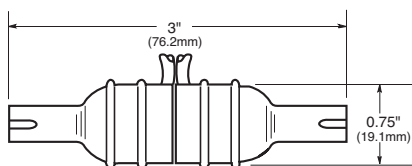
### Features/Benefits

- Simple assembly with one-piece thermoplastic (important information molded into body)
- High visibility yellow color for easy identification in dark or hard-to-access locations
- Ideal for shock and vibration environments; withstands many organic solvents; temperature range - 40/+150°C

### Typical Applications

- Supplemental, Low Voltage, Low Amperage Control Circuits

### Dimensions - in (mm)



Data Sheet: 2102

## HHB



### Specifications

**Description:** Universal in-line fuse holder for 1/4" x 7/8", 1" and 1 1/4" fuses.

**Dimensions:** See Dimensions illustration.

**Construction:** Nylon body with tin-plated, copper contacts.

### Ratings:

Volts: — 32V

Amps: — 30A max

**Flammability Rating:** UL 94V2.

**Pull Force:** 5lbs minimum to separate fuse holder housing with fuse installed.

### Features and Benefits

- HHB Universal in-line fuse holder for 1/4" x 7/8", 1" and 1 1/4" fuses.

### Typical Applications

- Supplemental, Low Voltage, Low Amperage Control Circuits

### Catalog Numbers

**Holder — without leads\* - RoHS compliant**

| Catalog Numbers | Description           |
|-----------------|-----------------------|
| HHB-R           | Standard Pack (10-in) |
| BK/HHB-R        | Bulk Pack (100-in)    |

\*Accepts #12 to #16 wire leads (not provided with basic fuse holder). See Data Sheet for recommended crimp tools.

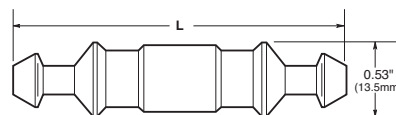
**Holder — with pre-attached #14 Insulated lead wires - Not RoHS compliant unless noted**

| Catalog Numbers | 19" Length    | 8" Length | Wire Color |
|-----------------|---------------|-----------|------------|
| BK/HHB-Y419     | BK/HHB-Y408   |           | Yellow     |
| BK/HHB-R419     | BK/HHB-R408** |           | Red        |
| BK/HHB-B419     | BK/HHB-B408   |           | Black      |

\*\*RoHS compliant.

### Dimensions - in (mm)

| Fuse Length       | Fuse Holder Length "L" |
|-------------------|------------------------|
| 7/8" (AGW)        | 2.100 Max              |
| 1" (AGX)          | 2.250 Max              |
| 1 1/4" (AGC, MDL) | 2.420 Max              |



Data Sheet: 2103

## HRK



### Specifications

**Description:** Universal in-line fuse holder for 1/4" x 7/8" to 1 1/4" fuses.

**Dimensions:** See Dimensions illustration.

**Construction:** 8" (203mm) #14 lead wires.

### Ratings:

Volts: — 32V

Amps: — 15A max

### Features and Benefits

- HRK Universal in-line fuse holder for 1/4" x 7/8", 1" and 1 1/4" fuses with #14 lead wires.
- RoHS compliant

### Typical Applications

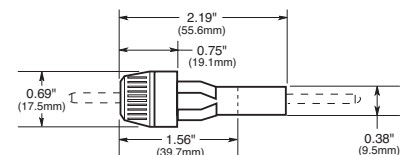
- Supplemental, Low Voltage, Low Amperage Control Circuits

### Catalog Number

| Catalog Number | Amp Rating | Fuse Description                          |
|----------------|------------|---|
| HRK-R*         | 15 32      | 1/4" diameter fuses of different lengths. |

\*Three springs furnished with fuse holder to accommodate different length 1/4" fuses.

### Dimensions - in (mm)



Data Sheet: 2111



# In-line Fuse Holders

## HR and HM Series

### Specifications

**Description:** In-line fuse holders for SFE and 1/4" dia. x various length fuses.

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 32V  
Amps: — 20A

### Features and Benefits

- HR and HM Universal in-line fuse holder for SFE and various length 1/4" diameter fuses with #14 lead wires.

### Typical Applications

- Supplemental, Low Voltage, Low Amperage Control Circuits

### Catalog Numbers

| Catalog Numbers | Includes Fuse | Wire Length & Size |
|-----------------|---------------|--------------------|
| HRJ*            | SFE-20        | 19" of #14         |
| HRI             | SFE-14        |                    |
| HRH             | SFE-9         |                    |
| HRE             | SFE-7½        |                    |
| HRG             | SFE-6         |                    |
| HRF             | SFE-4         |                    |
| HMJ**           | SFE-20        | 8" of #14          |
| HMI             | SFE-14        |                    |
| HMH             | SFE-9         |                    |
| HME             | SFE-7½        |                    |
| HMG             | SFE-6         |                    |
| HMF             | SFE-4         |                    |

\* Also available as in-line fuse holder only with lead wire contacts, HRJ-LESS-Fuse.

\*\* Also available as in-line fuse holder only with lead wire contacts, HMJ-LESS-Fuse.

HHJ-A For 1/4" x 1 1/4" fuse, no wire or fuse included, accepts #18 - #22 wire.

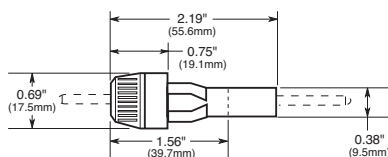
HHJ-B For 1/4" x 1 1/4" fuse, no wire or fuse included, accepts #12 - #16 wire.

HHI-B For 1/4" x 1 1/8" fuse, no wire or fuse included, accepts #12 - #16 wire.

### Replacement Contacts

| Catalog Number | Symbol |
|----------------|--------|
| 9838           | HHJ-A  |
| 9841           | HHJ-B  |

### Dimensions - in (mm)



Data Sheet: 2122

## HFA Series



### Specifications

**Description:** In-line water-resistant fuse holders for 1/4" x 1 1/4" fuses.

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 250V  
Amps: — 20A

Refer to data sheet for recommend crimp tools

### Catalog Numbers

| Catalog Numbers | Terminals          |
|-----------------|--------------------|
| HFA             | Crimp #12 - #16    |
| HFA-HH*         | 1/4" Quick Connect |

\*No UL Recognition.

Data Sheet: 2115

## HEG Series



### Specifications

**Description:** Single-pole, non-breakaway, in-line fuse holders for Type SC fuses, 480V (or less).

### Ratings:

Volts: — 600V  
Amps: — 0-15A

**Fuse Size:** 1 3/32" x 1.31"

### Catalog Number

HEG-AA

### Optional Boots:

|        |                  |
|--------|------------------|
| 2A0660 | Single Conductor |
| 2A0661 | Two Conductor    |

Data Sheet: 2124

## HHT Series



### Specifications

**Description:** In-line fuse holders for 5 x 15mm or 5 x 20mm fuses.

**Dimensions:** See Dimensions illustration.

**Construction:** Black thermoplastic body with brass contacts, wire: 16 AWG, red.

### Ratings:

Volts: — 32V  
Amps: — 5A (5 x 15mm)  
— 10A (5 x 20mm)

### Catalog Numbers

| Catalog Number | Fuse Size           |
|----------------|---------------------|
| HHT            | 5 x 15mm & 5 x 20mm |

Data Sheet: 2138

## HEH Series



### Specifications

**Description:** Single-pole, non-breakaway, in-line fuse holders for Type SC fuses (Also fuse types BBS & KTQ, nominal size 1 3/32" x 1 3/8").

### Ratings:

Volts: — 600V  
Amps: — 0-20A

**Agency Information:** CSA - 15A.

### Catalog Numbers

HEH-AA, HEH-AD

### Optional Boots:

|        |                  |
|--------|------------------|
| 2A0660 | Single Conductor |
| 2A0661 | Two Conductor    |

Data Sheet: 2124

## Tron™ In-line Fuse Holders

### HEC Series



#### Specifications

**Description:** Single-pole, non-breakaway, in-line fuse holders for Type SC-25, & SC-30 fuses, size  $\frac{1}{2}$ " x  $1 \frac{1}{2}$ ".

#### Ratings:

Volts: — 480V  
Amps: — 0-30A

#### Catalog Numbers

HEC-AA, HEC-RW-RLB-R

#### Optional Boots:

2A0660 Single Conductor  
2A0661 Two Conductor

Data Sheet: 2124

### HEJ Series



#### Specifications

**Description:** Single-pole, non-breakaway, in-line fuse holders for Type SC and Type HVW fuses, size  $\frac{1}{2}$ " x  $2 \frac{1}{4}$ ".

#### Ratings:

Volts: — 480V  
Amps: — 35-60A Type SC  
—  $\frac{1}{2}$ -6A Type HVW

#### Catalog Numbers

HEJ-AA, HEJ-AB, HEJ-AC, HEJ-BB, HEJ-JJ, HEJ-JK, HEJ-LL, HEJ-LLB, HEJ-CC, HEJ-DD, HEJ-WW, HEJ-PP, HEJ-QQ

#### Optional Boots:

2A0660 Single Conductor  
2A0661 Two Conductor

Data Sheet: 2123

### HEB Series



#### Specifications

**Description:** Single-pole in-line fuse holders for any  $\frac{1}{2}$ " x  $1 \frac{1}{2}$ " fuses (typically fuse types: BAF, FNM, FNQ, and KTK  $\frac{1}{10}$  - 30A).

#### Ratings:

Volts: — 600V  
Amps: — 0-30A

#### Catalog Numbers

See Page 311

#### Optional Boots:

2A0660 Single Conductor  
2A0661 Two Conductor

Data Sheet: 2127

### HEX Series



#### Specifications

**Description:** Double-pole in-line fuse holders for  $\frac{1}{2}$ " x  $1 \frac{1}{2}$ " fuses (typically fuse types BAF, FNM, FNQ, and KTK  $\frac{1}{10}$  - 30A).

#### Ratings:

Volts: — 600V  
Amps: — 0-30A

#### Catalog Numbers

HEX-AA, HEX-AB, HEX-AC, HEX-AD, HEX-AE, HEX-AW, HEX-AW-DRLC-A, HEX-AW-DRYC, HEX-AW-RLC-A, HEX-AW-RYC, HEX-AY, HEX-BB, HEX-CC, HEX-JJ, HEX-JK, HEX-JW-DRYC, HEX-KK

Data Sheet: 2126

### HEZ Series



#### Specifications

**Description:** Waterproof (IPX7), single-pole Class CC in-line fuse holders. Holds Bussmann fuse types: LP-CC, FNQ-R and KTK-R.

#### Ratings:

Volts: — 600V (or less)  
Amps: — Up to 30A\*

#### Conductors: Lineside & Loadside\*\*

#12 to #8 Crimp terminal  
#12 to #3 Setscrew terminal

\*Amp rating limited by conductor size and fuse sizing when used with insulating boots

\*\*See details in non-breakaway and breakaway specifications

Data Sheet: 2130

### HEY Series



#### Specifications

**Description:** Double-pole in-line fuse holders for KTK-R fuses with optional breakaway receptacle, polarized, and accepting Class CC branch circuit fuses (Bussmann KTK-R, FNQ-R & LP-CC; 600V or less, 200kA IR).

#### Ratings:

Volts: — 600V  
Amps: — 0-30A

#### Catalog Numbers

HEY-AA, HEY-AB, HEY-AC, HEY-AD, HEY-AE, HEY-AL, HEY-AW-DRLC-A, HEY-AW-DRLC-B, HEY-AW-DRYC, HEY-BB, HEY-JJ

Data Sheet: 2126

### HET Series



#### Specifications

**Description:** Single-pole in-line fuse holders for  $\frac{1}{2}$ " x  $1 \frac{1}{2}$ " fuses with a permanently solid neutral identified by white plastic coupling nut.

#### Catalog Numbers

HET-AA, HET-AB, HET-AW, HET-AW-RLC-A, HET-AW-RLC-B, HET-AW-RLC-C, HET-AW-RLC-J, HET-AW-RYC, HET-BB, HET-BW-RLC-B, HET-BW-RYC, HET-JJ, HET-JK, HET-JW, HET-JW-RLC-J, HET-JW-RYC, HET-KK

Data Sheet: 2125

## For HEB Holders Only

Directions: To select complete holder P/N, work from left to right starting with loadside terminal options and then lineside terminal options. Then determine breakaway or non-breakaway style.

| Loadside Terminal                     |                         |                           |            |               | Lineside Terminal                     |                         |                           |            |               | Available P/N's                           |   |
|---------------------------------------|-------------------------|---------------------------|------------|---------------|---------------------------------------|-------------------------|---------------------------|------------|---------------|---|---|
| Terminal Type                         | Wire Size               | No. of Wires per Terminal | Solid Wire | Stranded Wire | Terminal Type                         | Wire Size               | No. of Wires per Terminal | Solid Wire | Stranded Wire | Non-Breakaway P/N<br>(Boots not included) | Breakaway P/N<br>(Boots included)             |
| Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | HEB-AA <sup>(1)(2)</sup> <sub>(3)</sub>   | HEB-AW-RLC-A <sup>(1)(2)</sup> <sub>(3)</sub> |
| Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Crimp                          | #6<br>#10               | 1<br>2                    | Y<br>Y     | Y<br>Y        | HEB-AB <sup>(2)</sup>                     | HEB-AW-RLC-B                                  |
| Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Crimp <sup>(4)</sup>           | #4<br>#8                | 1<br>2                    | N<br>Y     | Y<br>Y        | HEB-AC <sup>(2)</sup>                     | HEB-AW-RLC-C <sup>(4)</sup>                   |
| Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Crimp                          | #2<br>#6                | 1<br>2                    | N<br>Y     | Y<br>Y        | HEB-AD <sup>(2)</sup>                     | N/A   |
| Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Crimp                          | 2/0<br>#3               | 1<br>2                    | N<br>N     | Y<br>Y        | HEB-AE <sup>(2)</sup>                     | N/A   |
| Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Setscrew                       | #12 to #3               | 1                         | Y          | Y             | HEB-AJ                                    | HEB-AW-RLC-J                                  |
| Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Setscrew                       | #12 to #3               | 2                         | Y          | Y             | HEB-AK                                    | HEB-AW-RYC                                    |
| Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | Aluminum Setscrew                     | #12 to #2               | 1                         | Y          | Y             | HEB-AL                                    | HEB-AW-RLA                                    |
| Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | Aluminum Setscrew                     | #12 to #2               | 2                         | Y          | Y             | HEB-AY                                    | HEB-AW-RYA                                    |
| Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | Aluminum Crimp                        | #1, #2                  | 1                         | N          | Y             | HEB-AR                                    | N/A   |
| Copper Crimp                          | #6<br>#10               | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | HEB-BA <sup>(2)</sup>                     | HEB-BW-RLC-A                                  |
| Copper Crimp                          | #6<br>#10               | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Crimp                          | #6<br>#10               | 1<br>2                    | Y<br>Y     | Y<br>Y        | HEB-BB <sup>(2)</sup>                     | HEB-BW-RLC-B                                  |
| Copper Crimp                          | #6<br>#10               | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Crimp                          | #4<br>#8                | 1<br>2                    | N<br>Y     | Y<br>Y        | HEB-BC <sup>(2)</sup>                     | N/A   |
| Copper Crimp                          | #6<br>#10               | 1<br>2                    | Y<br>Y     | Y<br>Y        | Copper Crimp                          | #2<br>#6                | 1<br>2                    | N<br>Y     | Y<br>Y        | HEB-BD <sup>(2)</sup>                     | N/A   |
| Copper Crimp                          | #4<br>#8                | 1<br>2                    | N<br>Y     | Y<br>Y        | Copper Crimp                          | #4<br>#8                | 1<br>2                    | N<br>Y     | Y<br>Y        | HEB-CC <sup>(2)</sup>                     | N/A   |
| Copper Crimp                          | #2<br>#6                | 1<br>2                    | N<br>Y     | Y<br>Y        | Copper Crimp                          | #2<br>#6                | 1<br>2                    | N<br>Y     | Y<br>Y        | HEB-DD <sup>(2)</sup>                     | N/A   |
| Copper Crimp                          | #20, #18                | 1                         | Y          | Y             | Copper Crimp                          | #12 to #8<br>#12        | 1<br>2                    | Y<br>Y     | Y<br>Y        | HEB-ZA                                    | N/A   |
| Copper Setscrew                       | #12 to #3               | 1                         | Y          | Y             | Copper Setscrew                       | #12 to #3               | 1                         | Y          | Y             | HEB-JJ                                    | HEB-JW-RLC-J                                  |
| Copper Setscrew                       | #12 to #3               | 1                         | Y          | Y             | Copper Setscrew                       | #12 to #3               | 2                         | Y          | Y             | HEB-JK                                    | HEB-JW-RYC                                    |
| Copper Setscrew                       | #12 to #3               | 1                         | Y          | Y             | Aluminum Setscrew                     | #12 to #2               | 1                         | Y          | Y             | HEB-JL                                    | N/A   |
| Copper Setscrew                       | #12 to #3               | 1                         | Y          | Y             | Aluminum Setscrew                     | #12 to #2               | 2                         | Y          | Y             | HEB-JY                                    | N/A   |
| Aluminum Setscrew                     | #12 to #2               | 1                         | Y          | Y             | Aluminum Setscrew                     | #12 to #2               | 1                         | Y          | Y             | HEB-LL                                    | HEB-LW-RLA                                    |
| Aluminum Crimp                        | #8<br>#6                | 1<br>1                    | N<br>Y     | Y<br>N        | Aluminum Crimp                        | #8<br>#6                | 1<br>1                    | N<br>Y     | Y<br>N        | HEB-NN                                    | N/A   |
| Aluminum Crimp                        | #6<br>#4                | 1<br>1                    | N<br>Y     | Y<br>N        | Aluminum Crimp                        | #6<br>#4                | 1<br>1                    | N<br>Y     | Y<br>N        | HEB-PP <sup>(2)</sup>                     | N/A   |
| Aluminum Crimp                        | #3, #4<br>#2            | 1<br>1                    | N<br>Y     | Y<br>N        | Aluminum Crimp                        | #3, #4<br>#2            | 1<br>1                    | N<br>Y     | Y<br>N        | HEB-QQ <sup>(2)</sup>                     | N/A   |
| Aluminum Crimp                        | #1, #2                  | 1                         | N          | Y             | Aluminum Crimp                        | #1, #2                  | 1                         | N          | Y             | HEB-RR <sup>(2)</sup>                     | N/A   |
| Aluminum Crimp                        | 1/0                     | 1                         | N          | Y             | Aluminum Crimp                        | 1/0                     | 1                         | N          | Y             | HEB-TT <sup>(2)</sup>                     | N/A   |
| Solid Terminal for aluminum connector | #8 to #12<br>#10 to #14 | 1<br>1                    | Y<br>N     | N<br>Y        | Solid Terminal for aluminum connector | #8 to #12<br>#10 to #14 | 1<br>1                    | Y<br>N     | N<br>Y        | HEB-SS                                    | N/A   |

(1) UL Recognized, Guide IZLT2, File E14853

(2) CSA Certified, Class 6225-01, File 47235

(3) CE

(4) HEB-AW-RLC-C is for (1) #4 stranded wire only.

Insulating boots for single conductor-2A0660  
Dual conductor-2A0661

Contact your local Bussmann representative for other possible terminations not listed.

## Panel Mounted Fuse Holders for 5 x 20mm Fuses

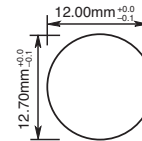
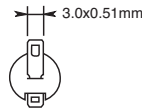
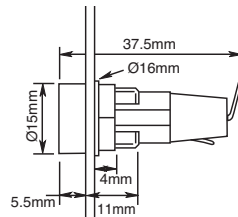
### HTC-35M

**Ratings:**

Volts: — 250Vac

Amps: — 10A UL, 6.3A VDE

**Fuse Access:** Threaded cap



**Data Sheet: 2110**

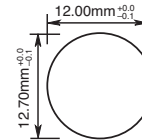
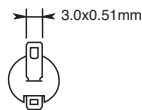
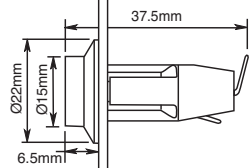
### HTC-40M

**Ratings:**

Volts: — 250Vac

Amps: — 10A UL, 6.3A VDE

**Fuse Access:** Screwdriver slot



**Data Sheet: 2110**

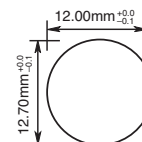
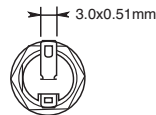
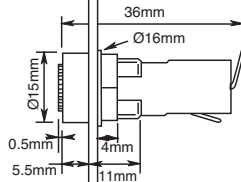
### HTC-55M

**Ratings:**

Volts: — 250Vac

Amps: — 10A UL, 6.3A VDE

**Fuse Carrier:** Bayonet type



**Data Sheet: 2110**

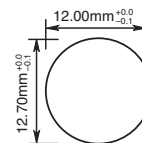
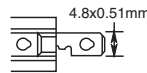
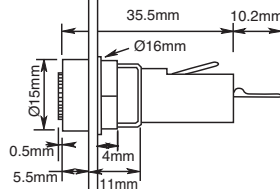
### HTC-70M

**Ratings:**

Volts: — 250Vac

Amps: — 10A UL, 6.3A VDE

**Fuse Carrier:** Bayonet type



**Data Sheet: 2110**

**Specifications**

**Terminals:** Tin-plated brass.

**Molded Materials:** High temperature thermoplastic that meets the flammability ratings of UL 94V0; Glow Wire Test: 960°C per IEC 60695-2-1.

**Solderability:** In accordance with IEC 68-2-20.

**Agency Information:** cURus, VDE

**Electrical:** Contact Resistance: ≤ 10 megohm; Insulation Resistance: ≥ 10MΩ; Dielectric Strength ≥ 2000Vac.

**Shock Safety:** PC2 (fuse holders).

**Packaging:** Standard Qty 10 (No Prefix), Bulk Qty 100 (Prefix Catalog Number with BK/).

# Panel Mounted Fuse Holders for 1/4" x 1 1/4" Fuses

## HKP, HKP-L, HKP-W



### Specifications

**Description:** Standard fuse holders.

**Dimensions:** See Dimensions illustration.

### Ratings:

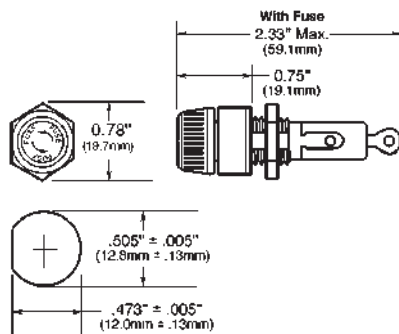
Volts: — 250V

Amps: — 30A

### Catalog Numbers

| Catalog Numbers | Fuse Description               |
|-----------------|--------------------------------|
| HKP             | —                              |
| HKP-L           | HKP w/ 2250V stand-off barrier |
| HKP-W           | HKP w/ drip-proof knob         |

### Dimensions - in (mm)



Data Sheet: 2106

## HKP-BBHH, HKP-HH and HKP-LW-HH



### Specifications

**Description:** Fuse holders with 1/4" quick-connects.

**Dimensions:** See Dimensions illustration.

### Ratings:

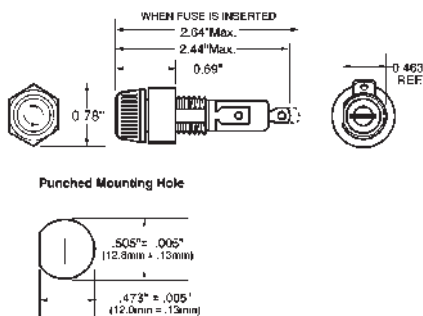
Volts: — 250V

Amps: — 15A

### Catalog Numbers

| Catalog Numbers | Fuse Description   |
|-----------------|--|
| HKP-BBHH        | HKP w/ 1/4" quick-connects, nut and washer assembled.                    |
| HKP-HH          | HKP w/ 1/4" quick-connect.   |
| HKP-LW-HH       | HKP w/ drip-proof knob, 2250V stand-off barrier and 1/4" quick-connects. |

### Dimensions - in (mm)



Data Sheet: 2106

## HKP-OO



### Specifications

**Description:** Snap-lock fuse holders.

**Dimensions:** See Dimensions illustration.

### Ratings:

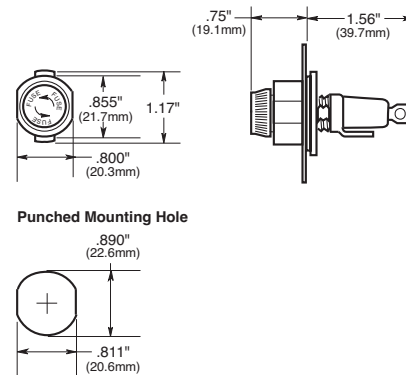
Volts: — 250V

Amps: — 30A

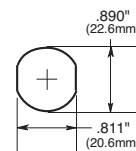
### Catalog Numbers

| Catalog Number | Fuse Description   |
|----------------|--------------------|
| HKP-OO         | HKP with snap-lock |

### Dimensions - in (mm)



### Punched Mounting Hole



Data Sheet: 2106

### Specifications

**Terminals:** Bayonet-type knob.  
Vibration resistant.

For panels up to 5/16" (7.9mm) thick.

**Agency Information:** CE (HKP, HKP-L, HKP-W, HKP-OO), UL Recognized — Guide IZLT2, File E14853, CSA Certified — Class 6225-01, File 47235

**Replacement Parts:** Cap: 9435-1/2  
Plastic Nut: BK/1A4287 (100 pieces minimum)  
Metal Nut: BK/1A4806-2 (100 pieces minimum)  
Washer: 9732



# Panel Mounted Fuse Holders for 5 x 20mm and 1/4" x 1 1/4" Fuses

## HTB Series

### Specifications

**Description:** Fuse holders with knob-type carriers.

**Dimensions:** See Dimensions illustrations.

**Construction:** High temperature, flame retardant thermoplastic; UL Component Recognized; UL 94V0; mounting nut, spacer-black polycarbonate. Terminals: tin-plated brass.

**Electrical Data:** Insulation resistance (per IEC #257) — 10,000 ohms @ 500Vdc; contact resistance (per IEC #257) — 0.005 ohms Max @ 1A; standoff voltage (per IEC #257) — 480V/Mil @ 0.125" thickness.

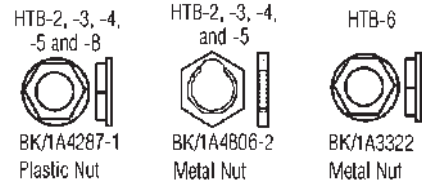
**Agency Information:** CE, UL Recognized — Guide IZLT2, File E14853, 1/4" dia fuse @ 20A, 5mm dia fuse @16A @ 250V, CSA — 16A @ 250V Class 6225-01 File 47235; VDE Certified: 136128, HTB-XXM, SEMKO Certification: Ref. #0146149/01, HTB-XXM.

**Mounting:** Withstands 15 to 20 Lb-In torque to mounting nut when mounting fuse holder to panel.

**Environmental:** Operating temperature range -55°C to 85°C.



### Replacement Parts



### Dimensional Data - in (mm)

| Knob Type Carrier | Maximum Panel Thickness | Terminal Options  |           |                    |           | Carrier Options                              |   |
|-------------------|-------------------------|---|-----------|--------------------|-----------|--|---|
|                   |                         | Solder/<br>3/16" Quick-Connect  |           | 1/4" Quick-Connect |           | 1/4" x 1 1/4"<br>("I" Equals Inches)<br>Knob | 5 x 20mm<br>("M" Equals Metric)<br>Knob |
|                   |                         | In-Line   | Rt. Angle | In-Line            | Rt. Angle |  |   |
|                   |                         | Common Dimensions:<br>Length (Knob Type) - 1.69"<br>(42.9mm) Plus In-Line Terminal<br>NOTE: Plus In-Line Terminal |           |                    |           |  |   |
|                   | 0.30"                   | HTB-22I-R   | HTB-24I-R | HTB-26I-R          | HTB-28I-R | X  |   |
|                   | 7.62mm                  | HTB-22M-R   | HTB-24M-R | HTB-26M-R          | HTB-28M-R |  | X                                       |
|                   | 0.125"                  | HTB-42I-R   | HTB-44I-R | HTB-46I-R          | HTB-48I-R | X  |   |
|                   | 3.18mm                  | HTB-42M-R   | HTB-44M-R | HTB-46M-R          | HTB-48M-R |  | X                                       |
|                   | 0.30"                   | HTB-62I-R   | HTB-64I-R | HTB-66I-R          | HTB-68I-R | X  |   |
|                   | 7.62mm                  | HTB-62M-R   | HTB-64M-R | HTB-66M-R          | HTB-68M-R |  | X                                       |
|                   | 0.125"                  | HTB-82I-R   | HTB-84I-R | HTB-86I-R          | HTB-88I-R | X  |   |
|                   | 3.18mm                  | HTB-82M-R   | HTB-84M-R | HTB-86M-R          | HTB-88M-R |  | X                                       |

Fuse holders and fuse carriers may be ordered separately.

Data Sheet: 2119

# Panel Mounted Fuse Holders for 5 x 20mm and 1/4" x 1 1/4" Fuses

## HTB Series



### Dimensional Data - in (mm)

| Screwdriver Type Carrier   | Maximum Panel Thickness | Terminal Options               |                  |                    |                   | Carrier Options                                     |  |
|--|-------------------------|--------------------------------|------------------|--------------------|-------------------|---|--|
|  |                         | Solder/<br>3/16" Quick-Connect |                  | 1/4" Quick-Connect |                   | 1/4" x 1 1/4"<br>("I" Equals Inches)<br>Screwdriver | 5 x 20mm<br>("M" Equals Metric)<br>Screwdriver |
|  |                         | In-Line                        | Rt. Angle        | In-Line            | Rt. Angle         |   |  |
| Common Dimensions:<br>(Screwdriver Slotted)<br>1.75" (44.5mm)<br>NOTE: Plus In-Line Terminal |                         |                                |                  |                    |                   |   |  |
|  |                         | 0.34"<br>(8.7mm)               | 0.33"<br>(8.3mm) | 0.47"<br>(11.9mm)  | 0.45"<br>(11.5mm) |   |  |
| <br>HTB-3  | 0.30"                   | HTB-32I-R                      | HTB-34I-R        | HTB-36I-R          | HTB-38I-R         | X   |  |
|  | 7.62mm                  | HTB-32M-R                      | HTB-34M-R        | HTB-36M-R          | HTB-38M-R         |   | X  |
| <br>HTB-5  | 0.125"                  | HTB-52I-R                      | HTB-54I-R        | HTB-56I-R          | HTB-58I-R         | X   |  |
|  | 3.18mm                  | HTB-52M-R                      | HTB-54M-R        | HTB-56M-R          | HTB-58M-R         |   | X  |
| <br>HTB-9  | 0.125"                  | HTB-92I-R                      | HTB-94I-R        | HTB-96I-R          | HTB-98I-R         | X   |  |
|  | 3.18mm                  | HTB-92M-R                      | HTB-94M-R        | HTB-96M-R          | HTB-98M-R         |   | X  |

### Catalog Number Build-A-Code

|   |                          |                       |  |                          |  |                       |   |                          |   |   |
|---|--------------------------|-----------------------|--|--------------------------|--|-----------------------|---|--------------------------|---|---|
| <input type="checkbox"/>  | <input type="checkbox"/> | HTB-                  | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   | S                     | P | FUSE CARRIER ONLY        |   |   |
| <b>Packing</b><br>Blank (Std.) – 10 fuse holders in a carton<br>BK – 100 fuse holders in a cardboard shelf package  |                          | <b>Product Symbol</b> | <b>Fuse Carrier</b><br>I – 1/4" x 1 1/4"<br>M – 5 x 20mm   |                          | <b>Splash Proof</b><br>Cap with O-Ring (Optional on Knob Holders Only) |                       |   | <input type="checkbox"/> | <input type="checkbox"/>                      | <input type="checkbox"/>  |
| <b>Body Configuration and Mounting</b><br><b>Knob Holders</b><br>2 – Low Profile (Rear Panel Hex-Nut)<br>4 – High Profile<br>6 – (Front Panel Hex-Nut)<br>8 – Low Profile (Snap-In)<br><b>Screwdriver Slotted Holders</b><br>3 – Low Profile<br>5 – High Profile<br>9 – Low Profile (Snap-In) |                          |                       | <b>Rear Terminal Configuration</b><br>2 – Solder / 3/16" Quick-Connect (In-Line)<br>4 – Solder / 3/16" Quick-Connect (Right Angle)<br>6 – 1/4" Quick-Connect (In-Line)<br>8 – 1/4" Quick-Connect (Right Angle) |                          | -R   | <b>RoHS Compliant</b> |   |                          | <b>Packaging (Blank) – Std.</b><br>BK/ – Bulk | <b>Product Symbol</b><br>FT – Knob Type (For 20, 40, 60, and 80 Series Only)<br>ST – Screwdriver Slotted (For 30, 50, and 90 Series Only) |

\*Profile varies with panel thickness. Holder installs through rear of panel.

# Panel Mounted Fuse Holders for Indicating Type Fuses

## HLD



### Specifications

**Description:** Pin indicating for ¼" x 1¼" fuses.

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 250V

Amps: — 15A

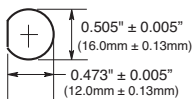
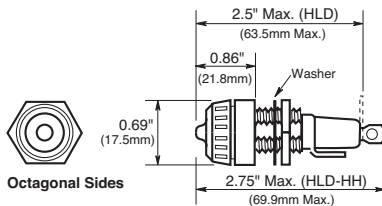
**Agency Information:** CE, UL Recognized, File E14853, Guide IZLT2.

### Catalog Numbers

| Catalog Numbers* | Terminals                  |
|------------------|----------------------------|
| HLD              | Solder terminals           |
| HLD-HH           | ¼" quick-connect terminals |

\*Use w/GBA, GLD Fuses.

### Dimensions - in (mm)



Punched Mounting Hole

## HJL



### Specifications

**Description:** Neon lamp indicating for ¼" x 1" fuses.

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 250V

Amps: — 15A

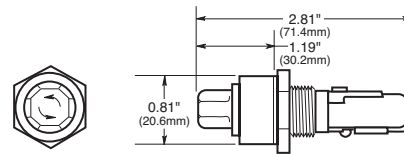
**Agency Information:** None

### Catalog Number

| Catalog Number* | Volts     | Lamp Color | Knob Type |
|-----------------|-----------|------------|-----------|
| HJL             | 90 to 250 | Clear      | Oct       |

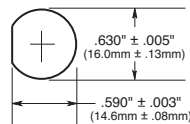
\*Use with AGX or MKB fuses, for panels up to ¼" thick.

### Dimensions - in (mm)



Octagonal Sides

### Punched Mounting Hole



## HK Series



### Specifications

**Description:** Neon and incandescent lamp indicating for ¼" x 1¼" fuses

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 250V

Amps: — 15A (HKL, HKL-X)

— 20A (HKR, HKT, HKU, HKX)

**Agency Information:** CE, UL

Recognized, (Guide IZLT2, File E14853), CSA Certified (Class 6225-01, File 47235).

### Catalog Numbers

| Catalog Numbers | Lamp Volts | Knob Color/Type |
|-----------------|------------|-----------------|
| HKL*            | 90-250     | Clear/Oct       |
| HKL-X*          | 90-250     | Clear/FS        |
| HKR**           | 22-30      | Amber/Oct       |
| HKT**           | 13-22      | Amber/Oct       |
| HKU**           | 4-6        | Red/Oct         |
| HKX**           | 22-33      | Amber/FS        |

\* Neon lamp — UL Recognized and CSA Certified.

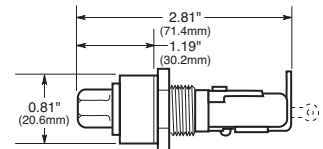
\*\* Incandescent lamp.



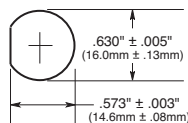
Flat-Sides



Octagonal Sides



### Punched Mounting Hole



# Panel Mounted Fuse Holders for 1 3/32" x 1 5/16" to 1 1/2" Fuses

## HPF



#10 wire max  
for solder connection

### Specifications

**Description:** Standard fuse holders with *screw-type knob* for 1 3/32" x 1 5/16" to 1 1/2" Fuses.

**Dimensions:** See Dimensions illustration.

**Agency Information:** CE, UL Recognized, Guide IZLT2, File E14853; CSA Certified, Class 6225-01, File 47235.

**Flammability Rating:** UL 94HB.

**Terminals:** Combination 1/4" quick-connect/solder terminals.

### Catalog Numbers

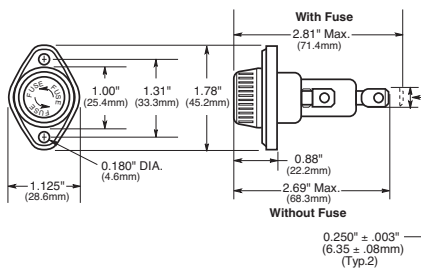
| Catalog Numbers     | Amp Ratings     | Volts AC         | Fuse Description                             |
|---------------------|-----------------|------------------|--|
| HPF                 | 30 <sup>2</sup> | 600              | 1 1/2" (38.1mm)                              |
| HPF-C               | 30 <sup>2</sup> | 600 <sup>2</sup> | 1 1/2" (38.1mm) clear knob.                  |
| HPF-L               | 5               | 600              | BBS, 1 3/32" x 1 3/8" fuses.                 |
| HPF-EE              | 15              | 600              | SC 0-15, 1 3/32" x 1 5/16" fuses.            |
| HPF-JJ              | 20              | 600              | SC 20, 1 3/32" x 1 5/16" fuses.              |
| HPF-FF <sup>1</sup> | 30 <sup>2</sup> | 480              | SC 25 & 30, 1 3/32" x 1 5/16" fuses.         |
| HPF-RR              | 30 <sup>2</sup> | 600              | KTK-R, LP-CC & FNQ-R Class CC fuses.         |
| HPF-WT              | 30 <sup>2</sup> | 600              | Splash-proof knob, 1 3/32" x 1 1/2" (38.1mm) |

<sup>1</sup> No CSA Certification

<sup>2</sup> 20A max when used with quick-connect terminals.

<sup>3</sup> HPF-C ratings for CSA-15A, 250V

### Dimensions - in (mm)



## HPS



### Specifications

**Description:** Standard fuse holders with *bayonet-type knob* for 1 3/32" x 1 5/16" to 1 1/2" fuses.

**Dimensions:** See Dimensions illustration.

**Agency Information:** CE, UL Recognized, Guide IZLT2, File E14853; CSA Certified, Class 6225-01, File 47235.

**Flammability Rating:** UL 94HB.

**Terminals:** Combination 1/4" quick-connect/solder terminals.

### Catalog Numbers

| Catalog Symbol        | Amp Ratings       | Volts AC | Fuse Description                                    |
|-----------------------|-------------------|----------|---|
| HPS                   | 30 <sup>2,3</sup> | 600      | 1 3/32" x 1 1/2"                                    |
| HPS-L                 | 5                 | 600      | BBS, 1 3/32" x 1 3/8" fuses.                        |
| HPS-EE <sup>1</sup>   | 15                | 600      | SC 0-15, 1 3/32" x 1 5/16" fuses.                   |
| HPS-JJ <sup>1</sup>   | 20                | 600      | SC 20, 1 3/32" x 1 5/16" fuses.                     |
| HPS-F-EE <sup>1</sup> | 15                | 600      | Sleeve on body, leaded for 1 3/32" x 1 5/16" fuses. |
| HPS-FF <sup>1*</sup>  | 30 <sup>2</sup>   | 480      | SC 25 & 30, 1 3/32" x 1 5/16" fuses.                |
| HPS-RR <sup>1*</sup>  | 30 <sup>2</sup>   | 600      | KTK-R, LP-CC, FNQ-R Class CC fuses.                 |

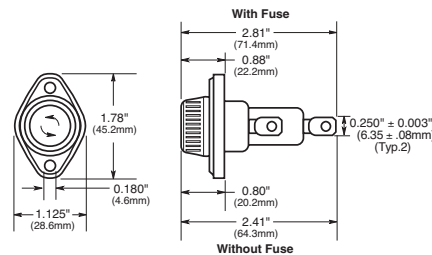
\*-EE, -JJ, -FF and -RR versions are UL Recognized for applications requiring branch circuit protection.

<sup>1</sup> No CSA Certification

<sup>2</sup> 20A max when used with quick-connect terminals.

<sup>3</sup> HPS rated at 250V for CSA

### Dimensions - in (mm)



## HPG



## HPD



### Specifications

**Description:** Standard fuse holders with *bayonet-type knob* for 1 3/32" x 1 1/2" fuses.

**Dimensions:** See Dimensions illustrations.

**Agency Information:** CE, UL Recognized, (Guide IZLT2, File E14853).

**Flammability Rating:** UL 94V0 - fuse holder body UL 94HB - Knob.

### Catalog Numbers

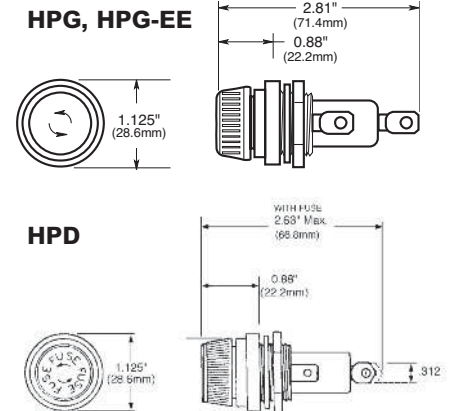
| Catalog Numbers     | Amp Ratings     | Volts AC | Fuse Description                  |
|---------------------|-----------------|----------|-----------------------------------|
| HPG <sup>*</sup>    | 30 <sup>1</sup> | 600      | 1 3/32" x 1 1/2" fuses            |
| HPG-EE <sup>*</sup> | 15              | 600      | SC 0-15, 1 3/32" x 1 5/16" fuses. |
| HPD <sup>**</sup>   | 30 <sup>1</sup> | 600      | 1 3/32" x 1 1/2" fuses            |

<sup>1</sup> 20A max when used with quick-connect terminals.

\*HPG and HPG-EE has combination 1/4" quick-connect/solder terminals on both side (load) and rear (line) terminals.

\*\*HPD has combination 1/4" quick-connect/solder terminal on side (load) terminal only. Rear (line) terminal is 3/16" shorter than HPG. Rear terminal solder only.

### Dimensions - in (mm)



# Panel Mounted Fuse Holders for 1 3/32" x 1 1/2" Fuses

## HPM



### Specifications

**Description:** Standard fuse holder with *screw-type knob* for 1 3/32" x 1 1/2" fuses.

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 600Vac/dc

Amps: — 30A<sup>1</sup>

<sup>1</sup> 20A max when used with quick-connect terminals.

**Agency Information:** CE, UL Recognized, Guide IZLT2, File E14853; CSA Certified, Class 6225-01, File 47235.

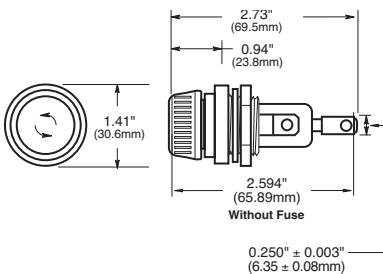
**Flammability Rating:** UL 94HB.

### Catalog Numbers

| Catalog Numbers | Description                        |
|-----------------|------------------------------------|
| HPM             | 1/4" quick-connect/solder          |
| HPM-D           | Splash-resistant knob <sup>2</sup> |

<sup>2</sup> HPM-D has 1/4" quick-connect/solder terminal on rear (load) terminal only. The side (line) terminal is 1/4" quick-connect only.

### Dimensions - in (mm)



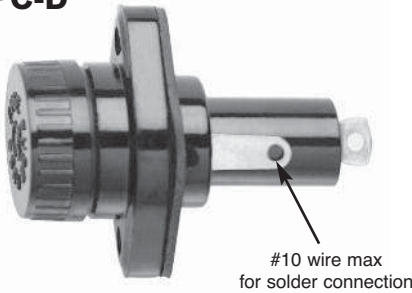
**Nut Torque:** 30 lb-in.

### Replacement Knob:

Catalog Number: BK/9789-Y2  
(50 pieces)

Data Sheet: 2112

## HPC-D



### Specifications

**Description:** Fuse holder with *screw-type knob* for 1 3/32" x 1 1/2" fuses. Supplied with O-ring and panel gasket.

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 600Vac/dc

Amps: — 30A<sup>1</sup>

<sup>1</sup> 20A max when used with quick-connect terminals.

**Agency Information:** CE, UL Recognized, Guide IZLT2, File E14853.

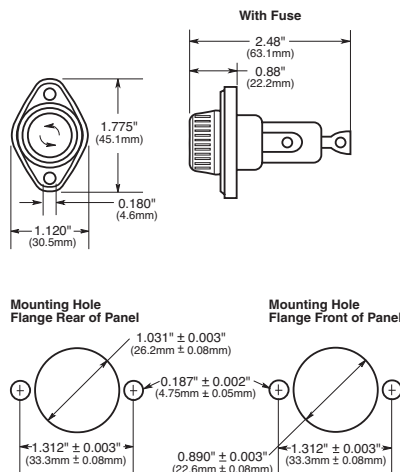
**Flammability Rating:** UL 94HB.

### Catalog Numbers

| Catalog Number | Description                       |
|----------------|-----------------------------------|
| HPC-D          | Mount in panels up to 1/4" thick. |

Replacement knob - BK/9987SA

### Dimensions - in (mm)



Data Sheet: 2109

## HPS2



### Specifications

**Description:** For fuse size 1 3/32" x 1 1/2", meeting UL 1598 requirement that both poles be removed simultaneously.

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 600V@30A

Amps: — 0-30A<sup>1</sup>

<sup>1</sup> 20A max when used with quick-connect terminals.

**Agency Information:** UL 4248 recognized, (Guide IZLT2, File E14853), CSA certified: (Class 6225-01, File 47235).

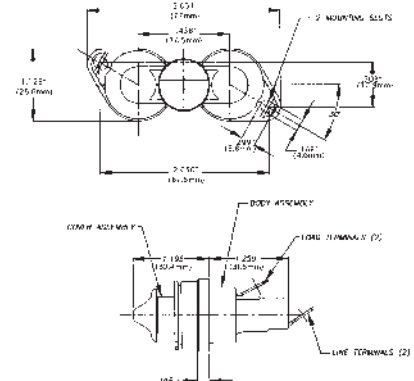
**Flammability Rating:** UL 94V0.

**Terminals:** 1/4" quick-connect/solder.

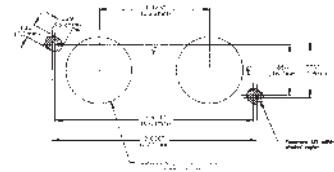
### Catalog Numbers

| Catalog Numbers | Description           |
|-----------------|-----------------------|
| HPS2            | Standard 10-in carton |
| BK/HPS2         | Bulk 100-in carton    |

### Dimensions - in (mm)



### Panel Mount Hole Dimensions



Data Sheet: 2140



# Fuse Blocks for 1/4" x 1 1/4" Fuses

## Series 8000



### Specifications

**Description:** Bolt-in and snap-in mounting for 1/4" x 1 1/4" fuses.

**Construction:** Blocks are molded flame retarded thermoplastic. Clips are spring-bronze.

### Ratings:

Volts: — 300V

Amps: — 25A (See Catalog Numbers table)

**Agency Information:** CE, UL Recognized ; File E14853, Guide IZLT2, CSA Certified Class 6225-01, File 47235.

**Anti-Rotation Pin:** Single-pole blocks may be ordered without the anti-rotational pin simply by adding an "X" to the number of poles (Example: BK/S-8000-1X).

**Carton Quantity:** 10; shelf package: 100.

**Bulk Carton:** Single-pole and 2-pole fuse blocks – 1,000; Multiple-pole fuse blocks – 3- to 8-pole: 200; 9- to 12-pole: 50. When ordering bulk quantities, prefix "BK/" to catalog number: (Example: BK/S-8001-1-SNP).

### Catalog Numbers

#### Bolt-in Mounting

| Basic Catalog Numbers | Series | Terminal            | Angle | Agency Maximums | Poles (Suffix) |
|-----------------------|--------|---------------------|-------|-----------------|----------------|
| S-8001-               | 8000   | Solder              | 0°    | UL 25A          | 1 - 12         |
| S-8002-               |        |                     | 40°   | CSA 21A         |                |
| S-8101-               | 8100   | 3/16" Quick Connect | 0°    | UL 20A          |                |
| S-8102-               |        |                     | 40°   | CSA 13A         |                |
| S-8201-               | 8200   | 1/4" Quick Connect  | 0°    | UL 20A          |                |
| S-8202-               |        |                     | 40°   | CSA 16A         |                |
| S-8203-               | 8300   | Screw               | —     | UL 30A          |                |
| S-8301-               |        |                     | —     | CSA 25A         |                |

#### Snap-in Mounting

| Catalog Numbers | Series | Terminal            | Angle | Agency Maximums | Poles (Suffix)                |
|-----------------|--------|---------------------|-------|-----------------|-------------------------------|
| S-8001-1-SNP    | 8000   | Solder              | 0°    | UL 25A          | Available only in single pole |
| S-8002-1-SNP    |        |                     | 40°   | CSA 21A         |                               |
| S-8101-1-SNP    | 8100   | 3/16" Quick Connect | 0°    | UL 20A          |                               |
| S-8102-1-SNP    |        |                     | 40°   | CSA 13A         |                               |
| S-8201-1-SNP    | 8200   | 1/4" Quick Connect  | 0°    | UL 20A          |                               |
| S-8203-1-SNP    |        |                     | Side  | CSA 16A         |                               |

### Catalog Number Build-A-Code



#### Catalog Code

BK/ S-8 0 00 -00

- Prefix for Bulk Packing
- Series 8000
- Product Line
- Type Terminal
  - "0" - Solder
  - "1" - 3/16" Quick Connect
  - "2" - 1/4" Quick Connect
  - "3" - Screw
- Terminal Angle
  - "01" - straight (0.)
  - "02" - 40
  - "03" - side\*
- Number of Poles (1-12)

Data Sheet: 2101

\*Available only in single pole

## Single-Pole Fuse Blocks

### Specifications

**Description:** Single-pole fuse block for 1/4" x 1 1/4" (6.4 x 31.8mm) size fuses.

**Dimensions:** See Dimensions illustrations.

**Construction:** Bakelite base width 1/2" (12.7mm); spring-bronze, bright tin-lead plate clips.

### Ratings:

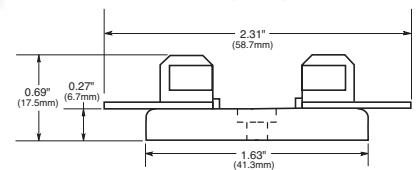
Volts: — 250V

Amps: — 30A



**4405 - 0° Solder terminals with integral terminal and clip**

### Dimensions - in (mm)

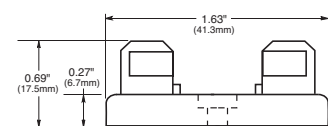


**4406 - Side solder terminal**



**4574 - Spare fuse block**

### Dimensions - in (mm)

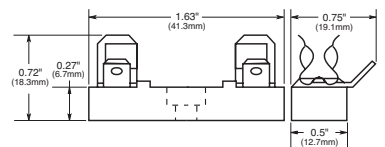


**2499 - Side quick-connect**

**Agency Information:** UL Recognized, Guide IZLT2, File E14853

**Terminals:** 1/4" (6.4mm); 15A, 250V

### Dimensions - in (mm)



Note: Mounting screw hole diameter is 0.147" (3.7mm). Counterbore diameter, 0.636" (8.0mm). Max Mounting Screw No. 6.

## Fuse Blocks for 1/4" x 1" Fuses

### 3828 Series



#### Specifications

**Description:** Fuse block for 1/4" x 1" (6.4 x 25.4mm) fuses with solder terminals.

**Dimensions:** See Dimensions illustration.

#### Ratings:

Volts — 250V

Amps — 30A

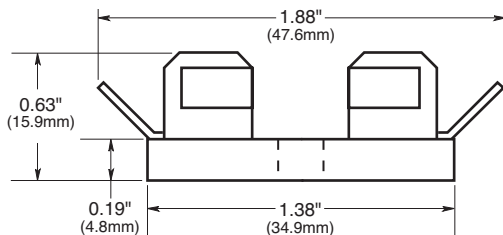
**Mounting:** Mounting screw hole diameter is 0.147" (3.7mm), diameter. Max mounting screw No. 6.

#### Catalog Numbers

| Catalog Numbers | Poles | *Base Length - in (mm) |
|-----------------|-------|------------------------|
| 3828-1          | 1     | 1/2 (12.7)             |
| 3828-2          | 2     | 1 1/8 (28.6)           |
| 3828-3          | 3     | 1 3/4 (44.5)           |
| 3828-4          | 4     | 2 3/8 (60.3)           |
| 3828-5          | 5     | 3 (76.2)               |
| 3828-6          | 6     | 3 3/8 (92.1)           |
| 3828-7          | 7     | 4 1/4 (108.0)          |
| 3828-8          | 8     | 4 7/8 (123.8)          |
| 3828-10         | 10    | 6 1/8 (155.6)          |
| 3828-12         | 12    | 7 3/8 (187.3)          |

\*Small phenolic base, base width 1 3/8" (34.9mm)

#### Dimensions - in (mm)



### 4520 and 4393



#### Specifications

**Description:** Single-pole fuse block for 1/4" x 1" fuses.

**Dimensions:** See Dimensions illustrations.

**Construction:** Bakelite with 1/2" (12.7mm) width base. Spring-bronze, bright tin-lead plated clips.

#### Ratings:

Volts — 250V

Amps — 30A

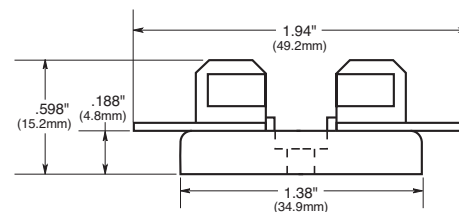
**Mounting:** Mounting screw hole diameter is 0.147" (3.7mm), counterbore 0.636" (8.0mm) diameter. Max mounting screw No. 6.

#### Catalog Numbers

| Catalog Numbers | Description                                 |
|-----------------|---|
| 4520            | Integral clip and straight solder terminals |
| 4393            | Spare fuse block                            |

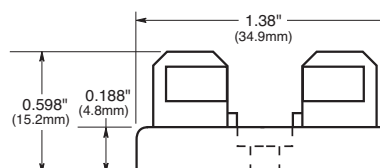
### No. 4520 - Integral clip and straight solder terminals

#### Dimensions - in (mm)



### No. 4393 - Spare fuse block

#### Dimensions - in (mm)



## Blocks for 1 3/32" X 1 1/2" Fuses

### 3743



#### Specifications

**Description:** Add-on fuse blocks for 1 3/32" X 1 1/2" (10.3 X 38.1mm) fuses. Single pole blocks lock into each other and can be added at any time. Each has a single end barrier.

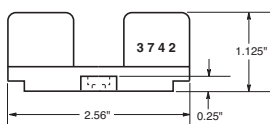
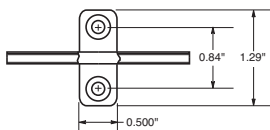
**Dimensions:** See Dimensions illustration.

#### Ratings:

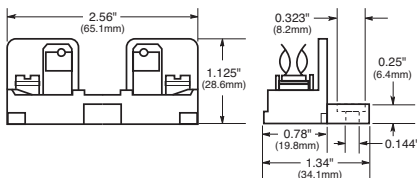
Volts: — 600Vac/dc

Amps: — 30A

**Agency Information:** CE, UL Recognized Guide IZLT2, File E14853.



#### 3742—End Barrier Only



#### 3723—Block and end barrier marking strip. Length is 9 3/8" (23.8cm).

Note: Mounting screw hole is 0.147" (3.7mm) dia. Counterbore, 0.636" (8mm) dia. Max. mounting screw No. 6.

Data Sheet: 2104

### 3835 Series



#### Specifications

**Description:** Multiple pole fuse blocks for 1 3/32" X 1 1/2" (10.3 X 38.1mm) fuses.

**Dimensions:** See Dimensions illustration.

#### Ratings:

Volts: — 250Vac/dc

Amps: — 30A

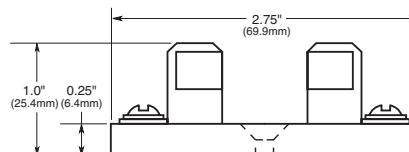
**Agency Information:** CE

#### Catalog Numbers

| Catalog Numbers | Poles | Base* Width In (mm) |
|-----------------|-------|---------------------|
| 3835-1          | 1     | 2 7/32 (21.4)       |
| 3835-2          | 2     | 1 1/16 (46.0)       |
| 3835-3          | 3     | 2 25/32 (70.6)      |
| 3835-4          | 4     | 3 3/4 (95.2)        |
| 3835-5          | 5     | 4 23/32 (119.9)     |
| 3835-6          | 6     | 5 11/16 (144.5)     |
| 3835-7          | 7     | 6 21/32 (169.0)     |
| 3835-8          | 8     | 7 5/8 (193.7)       |
| 3835-9          | 9     | 8 13/16 (218.8)     |
| 3835-10         | 10    | 9 9/16 (242.9)      |
| 3835-12         | 12    | 11 1/2 (292.1)      |

\*Base length: 2 3/4" (69.9mm)

#### Dimensions - in (mm)



Note: Mounting screw hole diameter is 0.148" (3.7mm). Countersink, 0.313" (7.9mm). Max. mounting screw No. 6.

### 4421 and 4515



#### Specifications

**Description:** Single pole fuse blocks for 1 3/32" X 1 1/2" (10.3 X 38.1mm) fuses.

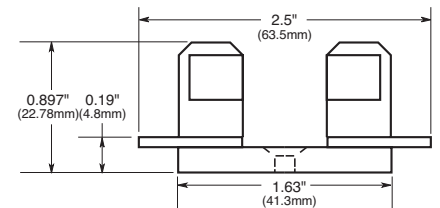
**Dimensions:** See Dimensions illustration.

#### Ratings:

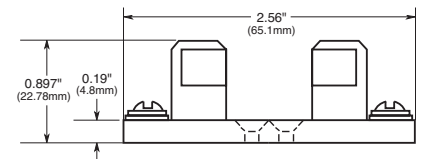
Volts: — 250Vac/dc (or less)

Amps: — 30A

**Agency Information:** CE



#### 4421—Solder Terminals Base width 5/8" (15.9mm)



#### 4515—Screw Terminals Base width 3/4" (19mm)

Note: Mounting screw hole diameter is 0.147" (3.7mm). Countersink, 0.312" (7.9mm). Max. mounting screw No. 6.

## Rail Mount Fuse Blocks and Holders

### NDNF1-WH

#### Specifications

**Description:** Fuse holding rail mount terminal block.

**Circuit Jumper:** JF1, 2 circuits

**Fuse Size:** 1<sup>3</sup>/<sub>32</sub>" X 1 1<sup>1</sup>/<sub>2</sub>"\* (KTK, FNQ, PVM).

**Poles:** 1

**Wire Range:** AWG #8-22 Cu.

#### Ratings:

Volts: — 600V

Amps: — 30A

**Mounting Options:** 35mm DIN-Rail, C-rail

**Fuse Pullers:** • PF1 (standard)  
• neon or incandescent bulb

\*LPF1 (lighted neon or incandescent bulb).

**Torque Rating:** 18 lb-in

**Operating Temperature:** 105°C

#### Catalog Numbers

Catalog

| Number   | Color |
|----------|-------|
| NDNF1-WH | White |

**Fuse Pullers (Optional):** PF1

**Lighted neon or incandescent lamp:**

Catalog

| Numbers    | Voltage |
|------------|---------|
| LPF1-24    | 24      |
| LPF1-120   | 120     |
| LPF1-120-C | 120     |
| LPF1-220   | 220     |
| LPF1-440   | 440     |



### NDNLF1-WH

#### Specifications

**Description:** Rail mount fuse holder.

**Circuit Jumper:** JF1, 2 circuits.

**Fuse Size:** 1/4" X 1 1/4" (Bussmann AGC, MDL or equivalent).

**Poles:** 1

**Wire Range:** AWG #8-22 Cu.

#### Ratings:

Volts: — 600V

Amps: — 30A (NDND1 non-fused)

— 15A (NDNFD1, 600V/CSA, fused)

— 15A (NDNLF1\*fused, indicating)

\*WH24 - 24V White, WH-90Vdc-600Vdc, 115Vac-600Vac White

**Agency Information:** CE

**Mounting Options:** 35mm DIN-Rail, C-rail

**Marking Tape:** MT12-1-2

**Torque Rating:** 18 lb-in

**Operating Temperature:** 105°C

**Agency Information:** CSA File 15364

#### Catalog Numbers

Catalog

| Number       | Color | Indicator                     |
|--------------|-------|-------------------------------|
| NDND1-WH     | White | NO                            |
| NDNFD1-WH    | White | NO                            |
| NDNLF1-WH    | White | 90Vdc-600Vdc<br>115Vac-600Vac |
| NDNLF1-WH 24 | White | 24V                           |



# Power Distribution & Terminal Blocks

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Scan this tag to get the latest product information for the Power Distribution Blocks.



# Selection Table for SCCR Power Distribution Blocks and Power Terminal Blocks

## Short-Circuit Current Rated Power Distribution Blocks

Bussmann offers three distinctly different styles of short-circuit current rated power distribution blocks (PDBs) and power terminal blocks (PTBs) to match different application needs. The differences are whether the power distribution blocks are enclosed or not, and whether they are UL 1953 Listed PDBs or UL 1059 Recognized PTBs, which have different minimum spacing requirements. The table on this page can assist in the selection of the right series for your application requirements.

### Why these are important?

Assembly short-circuit current ratings (SCCRs) are now required in the 2011 NEC® and UL 508A Listed Industrial

Control Panels. Marking the SCCR on Industrial Control Panels (NEC® 409.110), Industrial Machinery Electrical Panels (NEC® 607.3(A)), and HVAC equipment (NEC® 440.4(B)) is required by the National Electrical Code. PDBs or PTBs not marked with a SCCR, typically are the weakest link and may limit an assembly to no more than 10kA SCCR. The PDBFS and PDB Series have increased spacing required where used in feeder circuits in equipment listed to UL508A (UL1059 PTBs must be evaluated for proper spacings). Also, for building wiring systems, the PDBFS Series and PDB Series power distribution blocks can be used to meet the new 2013 NEC® requirements in section 376.56(B) for PDBs in wireways.

Selection Table

| Description  | Catalog Page | UL             | Enclosed | High SCCR* | Spacing**<br>1" Air<br>2" Surface | Industrial Control Panels<br>UL 508A<br>Branch Circuit | Industrial Control Panels<br>UL 508A<br>Feeder Circuit | HVAC<br>UL 1995 | Wireways<br>NEC®<br>376.56(B)<br>(Requires<br>UL 1953) |
|--------------|--------------|----------------|----------|------------|-----------------------------------|--|--|-----------------|--|
| Series PDBFS | 325          | UL 1953 Listed | Yes†     | Yes        | Yes                               | Yes  | Yes  | Yes             | Yes  |
| Series PDB   | 326          | UL 1953 Listed | No***    | Yes        | Yes                               | Yes  | Yes  | Yes             | Yes<br>w/optional<br>cover                             |

†IP20 Finger-safe under specific conditions, see datasheet 1149.

\*When protected by proper fuse class with maximum ampere rating specified or less.

\*\*See **PDB Spacing Requirements for Equipment** table below.

\*\*\*Optional covers are available. Not IP20, but provide a safety benefit.

\*\*\*\*No, except: Yes, if single pole units installed with proper spacings.

## PDB & PTB Minimum Spacing Requirements for Equipment

| UL Standard          | Spacing between live parts of opposite polarity |                    | Spacing between live parts and grounded parts or enclosure @600V |
|----------------------|---|--------------------|--|
|                      | Through air @600V                               | Over surface @600V |  |
| 508A Feeder Circuits | 1"  | 2"                 | 1"   |
| 508A Branch Circuits | 3/8"  | 1/2"               | 1/2"   |
| 1995 HVAC            | 3/8"  | 1/2"               | 1/2"   |

Note: Refer to Specific UL standards for complete spacing details.



Series PDBFS



Series PDB

# Series PDBFS of Power Distribution Blocks

### Feature/Benefits

- Enclosed, safer installation; IP20 finger-safe under specific conditions
- High short-circuit current ratings up to 200kA: PDBs do not have to be the weak link in achieving high SCCR for an industrial control panel
- Small footprint saves panel space
- Listed to UL 1953 which has minimum spacing requirements at 600V of at least 1" through air and 2" over surface required for feeders in UL 508A Industrial Control Panels
- For 2D CAD drawings visit [www.cooperbussmann.com](http://www.cooperbussmann.com)



### Electrical

- 600Vac/dc (UL 1953), 690Vac/dc (IEC)
- IP20 finger-safe under specific conditions
- Short-circuit current ratings up to 200kA, see table
- Ampacities up to 760 amps
- Cu wire range 14 AWG to 500 kcmil or 2.5 to 240 mm<sup>2</sup>

### Mechanical

- DIN-Rail or panel mount; PDBFS330 & PDBFS504 panel mount only
- Captive termination screws; screws do not get misplaced
- Wire ready: captive termination screws shipped backed out to save time on conductor installations
- Sliding DIN-Rail latch for easy mounting
- Single pole, gang mountable for multiple pole applications with interlocking dovetail accessory (optional)
- Flammability, UL 94V0
- Tin-plated Al connectors suitable for Cu conductors
- Elongated hole for panel mounting; easier mounting with greater flexibility in matching up with drilled panel holes
- Part 2A1279: Interlocking dovetail pin accessory  
One pin interlocks two units, two pins to interlock three units
- DIN-Rail end anchors required to prevent damage to block when torquing

### Agency/Standards

- UL Listed 1953, Guide QPQS, File E256146
- CSA Certified, Class 6228-01, File 47235
- IEC 60947-7-1
- IEC 60529, IP20 (finger-safe) under specific wiring conditions

### Series PDBFS

| Electrical   |      | Terminal Copper Conductor Capability           |  |   | Short-Circuit Current Rating Data |                                     |                                     |                         |                              |                                     |      |                                   |
|--|------|--|--|---|-----------------------------------|-------------------------------------|-------------------------------------|-------------------------|------------------------------|-------------------------------------|------|-----------------------------------|
|  |      | Line   | Load   | Configuration                                 | Conductors                        |                                     | Max Fuse Class & Amp**              |                         |                              |                                     | SCCR |                                   |
| Catalog Number<br><small>(All Single Pole)</small> | Amps | Wire Range                                     | Wire Range                                     | Openings per Pole<br><small>Line Load</small> |                                   | Line<br><small>AWG or kcmil</small> | Load<br><small>AWG or kcmil</small> | J<br><small>LPJ</small> | T<br><small>JJS JJJN</small> | RK1<br><small>LPS-RK LPN-RK</small> |      | RK5<br><small>FRS-R FRN-R</small> |
| PDBFS204   | 175A | 2/0 to 8 AWG<br>70 to 10 mm <sup>2</sup>       | 2/0 to 8 AWG<br>70 to 10 mm <sup>2</sup>       | ○   | ○                                 | 2/0 to 8                            | 2/0 to 8                            | 200                     | 200                          | 100                                 | 60   | 200kA                             |
| PDBFS220   | 175A | 2/0 to 8 AWG<br>70 to 10 mm <sup>2</sup>       | 4 to 14 AWG<br>25 to 2.5 mm <sup>2</sup>       | ○   | ○○                                | 2/0 to 8                            | 4 to 12                             | 200                     | 200                          | 100                                 | 60   | 200kA                             |
|  |      |  |  |   |                                   |                                     | 4 to 14                             | 175                     | 175                          | 100                                 | 30   | 100kA                             |
|  |      |  |  |   |                                   |                                     |                                     | 200                     | 200                          | 100                                 | 60   | 50kA                              |
| PDBFS303   | 310A | 350kcmil to 6 AWG<br>185 to 16 mm <sup>2</sup> | 350kcmil to 6 AWG<br>185 to 16 mm <sup>2</sup> | ○   | ○                                 | 350 to 6                            | 350 to 6                            | 400                     | 400                          | 200                                 | 100  | 200kA                             |
| PDBFS330   | 380A | 500kcmil to 6 AWG<br>240 to 16 mm <sup>2</sup> | 2 to 14 AWG<br>35 to 2.5 mm <sup>2</sup>       | ○   | ○○○                               | 500 to 6                            | 2 to 6                              | 400                     | 400                          | 200                                 | 100  | 200kA                             |
|  |      |  |  |   |                                   |                                     | 2 to 14                             | 200                     | 200                          | 100                                 | 60   | 50kA                              |
|  |      |  |  |   |                                   |                                     |                                     | 175                     | 175                          | 100                                 | 30   | 100kA                             |
| PDBFS377   | 570A | 300kcmil to 4 AWG<br>150 to 12 mm <sup>2</sup> | 4 to 14 AWG<br>25 to 2.5 mm <sup>2</sup>       | ○○  | ○○○○                              | 300                                 | 4 to 8                              | 600                     | 600                          | 400                                 | 200  | 200kA                             |
|  |      |  |  |   |                                   |                                     | 4                                   | 400                     | 400                          | 200                                 | 100  | 100kA                             |
|  |      |  |  |   |                                   | 300 to 4                            | 4 to 14                             | 200                     | 200                          | 100                                 | 60   | 50kA                              |
| PDBFS500   | 620A | 350kcmil to 4 AWG<br>185 to 12 mm <sup>2</sup> | 350kcmil to 4 AWG<br>185 to 12 mm <sup>2</sup> | ○○  | ○○                                | 350 to 4                            | 350 to 4                            | 600                     | 600                          | 400                                 | 200  | 200kA                             |
| PDBFS504   | 760A | 500kcmil to 6 AWG<br>240 to 16 mm <sup>2</sup> | 500kcmil to 6 AWG<br>240 to 16 mm <sup>2</sup> | ○○  | ○○                                | 500                                 | 500                                 | 600                     | 800*                         | 600                                 | 200  | 200kA                             |
|  |      |  |  |   |                                   | 500 to 6                            | 500 to 6                            | 600                     | 600                          | 400                                 | 200  | 100kA                             |

Ampacities 75C per NEC® Table 310.16 and UL508A Table 28.1

\*Class L 800A (KRP-C 800\_SP) or less fuses suitable for this particular SCCR case.

\*\* Class G 60A (SC-60) or less or Class CC 30A (LP-CC-30, FNQ-R-30, KTK-R-30) or less are suitable for all SCCRs in this table.

Data Sheet: 1049

# Series PDB of Power Distribution Blocks



### Electrical

- 600Vac/dc (UL 1953)
- Short-circuit current ratings up to 200kA, see table
- Wire range 14 AWG to 350 kcmil Cu
- Spacing between uninsulated opposite polarities or ground meets UL 1953 which requires at least 1" through air and 2" over surface
- Ratings available with circuit breakers

### Mechanical

- Panel mount
- Flammability, UL 94V0
- Tin-plated Al connectors suitable for Cu conductors

### Feature/Benefits

- High short-circuit current ratings up to 200kA. These PDBs do not have to be the weak link in achieving high SCCR for an industrial control panel
- Listed to UL 1953 which has minimum spacing requirements at 600V of at least 1" through air and 2" over surface required for feeder in UL 508A Industrial Control Panels
- For 2D CAD drawings visit [www.cooperbussmann.com](http://www.cooperbussmann.com)

### Optional covers

Covers are ordered for each individual pole, i.e., three 1-pole covers for 3-pole block, see table A.

Except PDB321 blocks have one cover for 1-, 2- or 3-pole versions, see table B.

Table A

| Block          | Cover    |
|----------------|----------|
| PDB2XX-(pole): | CPB162-1 |
| PDB3XX-(pole): | CPDB-1   |

Table B

| Block    | Cover  |
|----------|--------|
| PDB321-1 | CPDB-1 |
| PDB321-2 | CPDB-2 |
| PDB321-3 | CPDB-3 |

### Agency/Standards

- UL Listed 1953, Guide QPQS, File E256146

## Series PDB

| Catalog Number<br>- Pole         |      | Terminal Copper Conductor Capability |                              |                                | Short-Circuit Current Rating Data |                      |   |   |  |   |                         |       |
|----------------------------------|------|--------------------------------------|------------------------------|--------------------------------|-----------------------------------|----------------------|---|---|--|---|-------------------------|-------|
|                                  |      | Line                                 | Load                         | Configuration                  | Conductors                        |                      | Max Fuse Class & Amp*                       |   |  |   | SCCR                    |       |
|                                  |      | Wire Range                           | Wire Range                   | Openings per Pole<br>Line Load | Line<br>AWG or kcmil              | Load<br>AWG or kcmil | J<br>LPJ                                    | T<br>JJS<br>JJN                             | RK1<br>LPS-RK<br>LPN-RK                                  | RK5<br>FRS-R<br>FRN-R                                   |                         |       |
| PDB204-1<br>PDB204-3             | 175A | 2/0 - 8 AWG                          | 2/0 - 8 AWG                  |                                | 2/0 - 8                           | 2/0 - 8              | 200   | 200   | 200  | 60  |                         | 200kA |
| PDB220-1<br>PDB220-3             | 175A | 2/0 - 8 AWG                          | 4 - 14 AWG                   |                                | 2/0 - 8                           | 4 - 12<br>14         | 200<br>175 <sup>†</sup><br>200 <sup>†</sup> | 200<br>175 <sup>†</sup><br>200 <sup>†</sup> | 200 <sup>†</sup><br>100 <sup>†</sup><br>100 <sup>†</sup> | 60 <sup>†</sup><br>60 <sup>†</sup><br>60 <sup>†</sup>   | 200kA<br>100kA<br>50kA  |       |
| PDB280-1<br>PDB280-3             | 175A | 2/0 - 8 AWG                          | 1/4-20 X 3/4 STUD            |                                | 2/0 - 8                           | Stud                 | 200   | 200   | 100  | 60  | 200kA                   |       |
| PDB321-1<br>PDB321-2<br>PDB321-3 | 175A | 2/0 - 8 AWG                          | 4 - 14 AWG                   |                                | 2/0 - 8                           | 4 - 12<br>14         | 400<br>400 <sup>†</sup><br>175 <sup>†</sup> | 400<br>400 <sup>†</sup><br>175 <sup>†</sup> | 200 <sup>†</sup><br>400 <sup>†</sup><br>100 <sup>†</sup> | 100 <sup>†</sup><br>100 <sup>†</sup><br>60 <sup>†</sup> | 200kA<br>100kA<br>100kA |       |
| PDB323-1<br>PDB323-3             | 310A | 300kcmil - 4 AWG                     | 4 - 12 AWG                   |                                | 300 - 4                           | 4 - 8<br>10 - 12     | 400<br>400 <sup>†</sup><br>175 <sup>†</sup> | 400<br>400 <sup>†</sup><br>175 <sup>†</sup> | 200 <sup>†</sup><br>400 <sup>†</sup><br>100 <sup>†</sup> | 100 <sup>†</sup><br>100 <sup>†</sup><br>60 <sup>†</sup> | 200kA<br>100kA<br>100kA |       |
| PDB370-1<br>PDB370-3             | 310A | 350kcmil - 4 AWG                     | 4 - 14 AWG                   |                                | 350 - 4                           | 4 - 8<br>10 - 14     | 400<br>400 <sup>†</sup><br>175 <sup>†</sup> | 400<br>400 <sup>†</sup><br>175 <sup>†</sup> | 200 <sup>†</sup><br>400 <sup>†</sup><br>100 <sup>†</sup> | 100 <sup>†</sup><br>100 <sup>†</sup><br>60 <sup>†</sup> | 200kA<br>100kA<br>100kA |       |
| PDB371-1<br>PDB371-3             | 310A | 350kcmil - 4 AWG                     | (6) 2 - 12 AWG<br>(3) 1/0-12 |                                | 350 - 4                           | 1/0 - 6<br>8 - 12    | 400<br>400 <sup>†</sup><br>175 <sup>†</sup> | 400<br>400 <sup>†</sup><br>175 <sup>†</sup> | 200 <sup>†</sup><br>400 <sup>†</sup><br>100 <sup>†</sup> | 100 <sup>†</sup><br>100 <sup>†</sup><br>60 <sup>†</sup> | 200kA<br>100kA<br>100kA |       |

Ampacities 75°C per NEC® Table 310.16 and UL508A Table 28.1

\* Class G 60A (SC-60) or less or Class CC 30A (LP-CC-30, FNQ-R-30\_SP, KTK-R-30) or less are suitable for all these SCCR in this table.

† Higher SCCR may be available, check data sheet 1049.

Data Sheet: 1049

# Series 163 Power Terminal Blocks

## 163 Series

Replaces Bussmann 164 Series

### Specifications

**Description:** Power terminal block.

**Dimensions:** See Dimensions illustrations.

**Construction:** Tin-plated aluminum connectors.

**Poles:** 1- to 3-Poles, See Catalog Numbers table on the following page.

**Wire Range:** See Catalog Numbers table on the following page.

### Ratings:

Volts: — 600Vac/dc

Amps: — See catalog Numbers table on the following page.

SCCR: — 10kA per UL 508A table SB4.1 (except for select products noted in table)

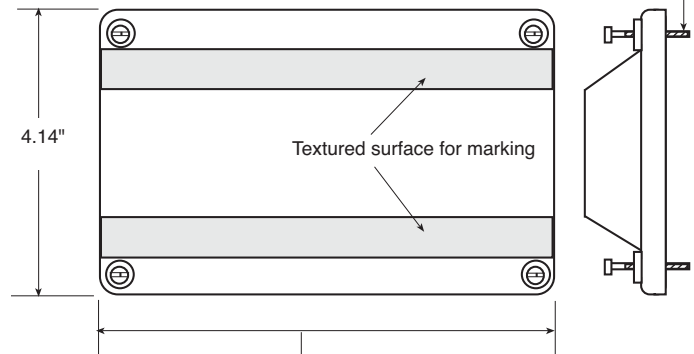
**Agency Information:** CE, UL Recognized: Guide XCFR2, UL E62622, General Industrial Class per UL1059, CSA Certified: CSA 053787

**Flammability Rating:** UL 94V0

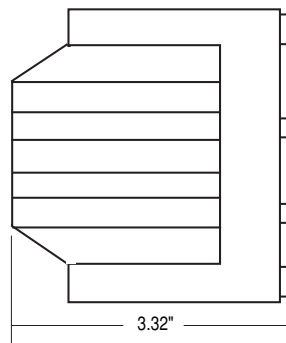
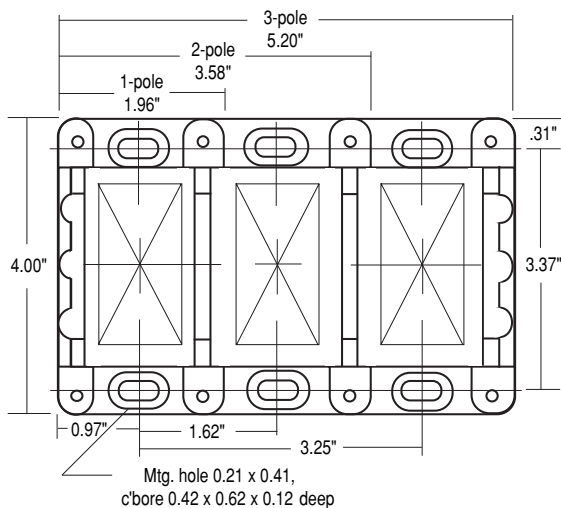


Power Distribution & Terminal Blocks

Supplied with (4) #4 thread-cutting screws assembled as shown



### Dimensions



(See Following Page for Ratings)

Data Sheet: 1049

## Series 163 Power Terminal Blocks

### Catalog Numbers

| Catalog Numbers | Wire Size (Poles) Lineside     | (Poles) Loadside   | Amps/ Pole | Line/Load |
|-----------------|--------------------------------|--|------------|-----------|
| 16301*          | 250kcmil-6 AWG Cu Only         | 250kcmil-6 AWG Cu Only   | 255        |           |
| 16303           | 350kcmil-6 AWG Cu-Al           | 350kcmil-6 AWG Cu-Al   | 310        |           |
| 16306           | 500kcmil-6 AWG Cu-Al           | 500kcmil-6 AWG Cu-Al   | 380        |           |
| 16321**         | 2/0-14 AWG CU, 2/0-8AI         | (6)4-14 AWG Cu, 4-8 AWG AI                                     | 175        |           |
| 16323**         | 350kcmil-6 AWG Cu-Al           | (6)4-14 AWG Cu, 4-12 AWG AI                                    | 310        |           |
| 16325           | (2)2/0-14 AWG Cu, 2/0-8 AWG AI | (6)4-14 AWG Cu, 4-8 AWG AI                                     | 350        |           |
| 16330           | 500kcmil-6 AWG Cu-Al           | (6) 2-14 AWG Cu, 2-12 AWG AI                                   | 380        |           |
| 16332           | 350kcmil-6 AWG Cu-Al           | (3) 2-14 AWG Cu, 2-8 AWG AI<br>(2) 1/0-14 AWG Cu, 1/0-8 AWG AI | 310        |           |
| 16335           | 500kcmil-6 AWG Cu-Al           | (3) 2-14 AWG Cu, 2-8 AWG AI<br>(2) 1/0-14 AWG Cu, 1/0-8 AWG AI | 380        |           |
| 16370**         | 350kcmil-6 AWG Cu-Al           | (12)4-14 AWG Cu, 4-12 AWG AI                                   | 310        |           |
| 16371**         | 350kcmil-6 AWG Cu-Al           | (6) 2-14 AWG Cu, 2-8 AWG AI<br>(3) 1/0-14 AWG Cu, 1/0-8 AWG AI | 310        |           |
| 16372           | 350kcmil-6 AWG Cu-Al           | (21) 10-14 AWG Cu, 10 AWG AI                                   | 310        |           |
| 16373           | 350kcmil-6 AWG Cu-Al           | (14) 10-14 AWG Cu, 10 AWG AI<br>(3) 1/0-14 AWG Cu-Al           | 310        |           |
| 16375           | 600kcmil-2 AWG Cu-Al           | (12)4-14 AWG Cu, 4-12 AWG AI                                   | 420        |           |
| 16376           | 600kcmil-2 AWG Cu-Al           | (6) 2-14 AWG Cu, 2-8 AWG AI<br>(3) 1/0-14 AWG Cu, 1/0-8 AWG AI | 420        |           |
| 16377           | (2)300kcmil-4 AWG Cu-Al        | (12)4-14 AWG Cu, 4-12 AWG AI                                   | 570        |           |
| 16378           | 500kcmil-6 AWG Cu-Al           | Stud Size (2) 1/4-20 x 1                                       | 380        |           |
| 16383           | 500kcmil-6 AWG Cu-Al           | Stud Size (1) 3/8-16 x 1                                       | 380        |           |
| 16390           | 3/8-16 x 1 1/8 Stud Size       | 3/8-16 x 1 1/8 Stud Size                                       | 250        |           |
| 16394           | 1/2-13 x 1 1/16 Stud Size      | 1/2-13 x 1 1/16 Stud Size                                      | 400        |           |
| 16395           | 3/8-16 x 1 1/16 Stud Size      | (2) 1/4-20 x 3/16 Stud Size                                    | 310        |           |

\*Copper connectors for use with copper wire only.

\*\*SCCR up to 200kA

### Ordering Information

163 Series blocks are available in 1-, 2- or 3-poles. To order: Basic Catalog Number + Number of poles.

Examples: 16301-1 = one-pole block  
16301-3 = three-pole block

Data Sheet: 1049



## Power Terminal Blocks

### Series 11675

#### Specifications

**Description:** Screw connection line side, (3) 0.250" quick-connect load side power terminal block.

**Poles:**

2- to 12-poles.

**Wire Range:**

8 – 14 AWG Cu.

**Ratings:**

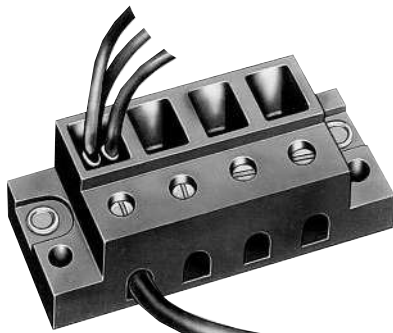
Volts: — 250Vac/dc

Amps: — Up to 40A

SCCR: — 10kA per UL 508A table SB4.1

**Agency Information:** CE, Guide XCFR2, UL E62622; CSA 47235.

**Torque Rating:** 9 lb-in max.



#### Catalog Numbers

| Catalog Numbers | Poles | Catalog Numbers | Poles |
|-----------------|-------|-----------------|-------|
| 11675-2         | 2     | 11675-8         | 8     |
| 11675-3         | 3     | 11675-9         | 9     |
| 11675-4         | 4     | 11675-10        | 10    |
| 11675-5         | 5     | 11675-11        | 11    |
| 11675-6         | 6     | 11675-12        | 12    |
| 11675-7         | 7     |                 |       |

### Series 11725

#### Specifications

**Description:** Screw connection line side, (4) 0.250" quick-connect load side power terminal block.

**Poles:** 2-, 3- or 4-poles.

**Wire Range:** 2 – 14 AWG Cu/8 AWG Al.

**Ratings:**

Volts: — 600Vac/dc

Amps: — Up to 70A

SCCR: — 10kA per UL 508A table SB4.1

**Agency Information:** CE, UL Guide XCFR2, E62622; CSA 47235.

**Torque Rating:** 45 lb-in max.



#### Catalog Numbers

| Catalog Numbers | Poles |
|-----------------|-------|
| 11725-2         | 2     |
| 11725-3         | 3     |
| 11725-4         | 4     |

### Series 160, 162, 163 & 165

#### Specifications

**Description:** Power terminal blocks.

**Construction:** Molded black thermoplastic.

**Wire Range:** See Catalog Numbers table.

**Poles:**

Series 160: 2-, 3- or 4-poles

Series 162, 163 and 165: 1-, 2- or 3-poles

**Ratings:**

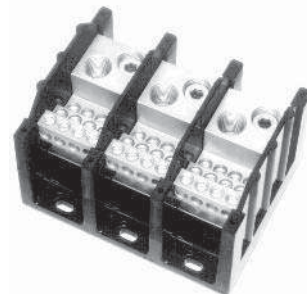
Volts: — 600Vac/dc

Amps: — Up to 1520A

SCCR: — 10kA per UL 508A table SB4.1 (except for select products noted in table)

**Agency Information:** CE, Guide XCFR2, UL E62622 General Industrial Class per UL 1059; CSA Class 6228-01, File 53787.

**Flammability Rating:** UL 94V0.



Power Distribution & Terminal Blocks

#### Catalog Numbers

| Catalog Numbers | Line Connection        | Load Connection        | Connector Material & Ampacity | Agency Information |
|-----------------|------------------------|------------------------|-------------------------------|--------------------|
| 16021*          | 2/0-#14Cu, 2/0-#8Al    | (6)#4-#14Cu, #4-#8Al   | 175A                          | UL/CSA             |
| 16023*          | 350kcmil-#6Cu/Al       | (6)#4-#14Cu, #4-#12Al  | 310A                          | UL/CSA             |
| 16220**         | 2/0-#14Cu, 2/0-#8Al    | (4)#4-#14Cu, #4-#8Al   | 175A                          | UL/CSA             |
| 16321**         | 2/0-#14Cu, 2/0-#8Al    | (6)#4-#14Cu, #4-#8Al   | 175A                          | UL/CSA             |
| 16323**         | 350kcmil-#6Cu/Al       | (6)#4-#14Cu, #4-#12Al  | 310A                          | UL/CSA             |
| 16325           | (2)2/0-#14Cu, 2/0-#8Al | (6)#4-#14Cu, #4-#8Al   | 350A                          | UL/CSA             |
| 16330           | 500kcmil-#6Cu/Al       | (6)#2-#14Cu, #2-#12Al  | 380A                          | UL/CSA             |
| 16332           | 350kcmil-#6Cu/Al       | (3)#2-#14Cu, #2-#8Al   | 310A                          | UL/CSA             |
| 16335           | 500kcmil-#6Cu/Al       | (2)1/0-#14Cu, 1/0-#8Al | 380A                          | UL/CSA             |
| 16370**         | 350kcmil-#6Cu/Al       | (12)#4-#14Cu, #4-#12Al | 310A                          | UL/CSA             |
| 16371**         | 350kcmil-#6Cu/Al       | (6)#2-#14Cu, #2-#8Al   | 310A                          | UL/CSA             |
| 16372           | 350kcmil-#6Cu/Al       | (3)1/0-#14Cu, 1/0-#8Al | 310A                          | UL/CSA             |
| 16373           | 350kcmil-#6Cu/Al       | (21)#10-#14Cu, #10Al   | 310A                          | UL/CSA             |
| 16375           | 600kcmil-#2Cu/Al       | (14)#10-#14Cu, #10Al   | 310A                          | UL/CSA             |
| 16376           | 600kcmil-#2Cu/Al       | (12)#4-#14Cu, #4-#12Al | 420A                          | UL/CSA             |
| 16377           | (2)300kcmil-#4Cu/Al    | (6)#2-#14Cu, #2-#8Al   | 420A                          | UL/CSA             |
| 16400           | (4)500kcmil-#6Cu/Al    | (3)1/0-#14Cu, 1/0-#8Al | 570A                          | UL/CSA             |
| 16528           | (2)600kcmil-#2Cu/Al    | (12)#4-#14Cu, #4-#12Al | 1520A                         | UL/CSA             |
| 16530           | (2)600kcmil-#2Cu/Al    | (22)#2-#14Cu/Al        | 840A                          | UL/CSA             |
| 16541           | (1)500kcmil-#6Cu/Al    | (4)#4-#14Cu/Al         | 760A                          | UL/CSA             |
| 16541           | (1)500kcmil-#6Cu/Al    | (21)#6-#14Cu/Al        | 380A                          | UL/CSA             |

\*160 Series Bases have mounting holes outside the barriers. Other bases (162 through 165) have mounting holes within barriers. See Data Sheet for dimensional drawings.

\*\*SCCR up to 200kA

#### How To Order

Catalog Number + # of Poles

Example: 16021 – 3 (complete part number)

#### Optional Covers:

160 Series: CPB160 - (pole)

162 Series: CPB162 - (pole)

163 Series: CPDB- (pole)

165 Series: CPDB165 (1 for each pole)

Data Sheets: 1117 (Series 160, 162, 165); 1148 (Series 163)

# Power Terminal Blocks: Stud & Splicer

## Series 162, 163 & 165

### Specifications

**Description:** Power stud terminal blocks.

**Construction:** Molded black thermoplastic.

**Poles:** 1-, 2- or 3-poles.

**Wire Range:** See Catalog Numbers table.

### Ratings:

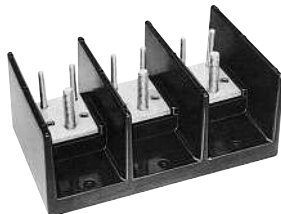
Volts: — 600Vac/dc

Amps: — Up to 760A

SCCR: — 10kA per UL 508A table SB4.1 (except where noted)

**Agency Information:** CE, Guide XCFR2, UL E62622 General Industrial Class per UL 1059; CSA Class 6228-01, File 53787.

**Flammability Rating:** UL 94V0.



## Series 160, 162, 163 & 165

### Specifications

**Description:** Power splicer terminal blocks.

**Construction:** Molded black thermoplastic.

**Wire Range:** See Catalog Numbers table.

**Poles:** Series 160: 2-, 3- or 4-poles

Series 162, 163 and 165: 1-, 2- or 3-poles

### Ratings:

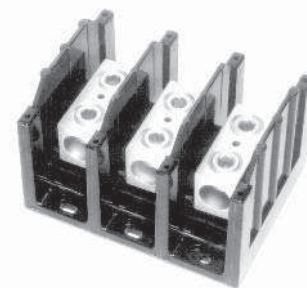
Volts: — 600Vac/dc

Amps: — Up to 760A

SCCR: — 10kA per UL 508A table SB4.1 (except for select products noted in table)

**Agency Information:** CE, Guide XCFR2, UL E62622 General Industrial Class per UL 1059; CSA Class 6228-01, File 53787.

**Flammability Rating:** UL 94V0.



### Stud Block Catalog Numbers

| Catalog Numbers          | Line Connection (Poles) | Load Connection (Poles) | Material & Ampacity | Connector Agency Information |
|--------------------------|-------------------------|-------------------------|---------------------|------------------------------|
| <b>Connector to Stud</b> |                         |                         |                     |                              |
| 16280*                   | 2/0-#14Cu-Al            | ¼-20 X ¾ Stud           | Al-175A             | UL —                         |
| 16281                    | 2/0-#14Cu-Al            | ¼-20 Tapped hole        | Al-175A             | UL —                         |
| 16378                    | 500kcmil-#6Cu-Al        | (2)¼-20 x 1 Stud        | Al-380A             | UL CSA                       |
| 16383                    | 500kcmil-#6Cu-Al        | (1)¼-16 x 1 Stud        | Al-380A             | UL CSA                       |
| 16582                    | (2)500kcmil-#6Cu-Al     | (2)¼-16 x 1¾ Stud       | Al-760A             | UL CSA                       |
| <b>Stud to Stud</b>      |                         |                         |                     |                              |
| 16290                    | ¼-20 x ¾ Stud           | ¼-20 x ¾ Stud           | Cu-175A             | UL —                         |
| 16390                    | ¼-16 x 1¾ Stud          | ¼-16 x 1¾ Stud          | Cu-250A             | UL CSA                       |
| 16394                    | ¼-13 x 1¾ Stud          | ¼-13 x 1¾ Stud          | Cu-400A             | UL CSA                       |
| 16395                    | ¼-16 x 1¾ Stud          | (2)¼-20 x ¾ Stud        | Cu-310A             | UL CSA                       |
| 16591                    | ¼-16 x 1¾ Stud          | (2)¼-16 x 1¾ Stud       | Cu-400A             | UL CSA                       |
| 16593**                  | ¼-13 X 1 Stud           | ¼-13 X 1 Stud           | Cu-600A             | UL CSA                       |

Nuts are not supplied with blocks

\*SCCR up to 200kA

\*\* 1-Pole not available

### How To Order

Catalog Number + # of Poles

Example: 16000 – 3 (complete part number)

### Optional Covers:

160 Series: CPB160 - (pole)

162 Series: CPB162 - (pole)

163 Series: CPDB - (pole)

165 Series: CPDB165 (1 for each pole) - new style

CPB165 - (pole) - old style

**For Short-circuit current rated stud power distribution blocks, go to the Series PDB and Series 162 & 163 with high SCCR.**

### Catalog Numbers

| Catalog Numbers | Line Connection     | Load Connection     | Material & Ampacity | Agency Information |
|-----------------|---------------------|---------------------|---------------------|--------------------|
| 16000*          | 2/0-#8Cu/Al         | 2/0-#8Cu/Al         | Al-175A             | UL                 |
| 16003*          | 250kcmil-#6Cu Only  | 250kcmil-#6Cu Only  | Cu-255A             | UL                 |
| 16005*          | 350kcmil-#6Cu/Al    | 350kcmil-#6Cu/Al    | Al-310A             | UL                 |
| 16200           | #2-#14Cu, #2-#8Al   | #2-#14Cu, #2-#8Al   | Al-115A             | UL                 |
| 16201           | 1/0-#14Cu Only      | 1/0-#14Cu Only      | Cu-150A             | UL                 |
| 16204**         | 2/0-#8Cu/Al         | 2/0-#8Cu/Al         | Al-175A             | UL                 |
| 16301           | 250kcmil-#6Cu Only  | 250kcmil-#6Cu Only  | Cu-255A             | UL/CSA             |
| 16303           | 350kcmil-#6Cu/Al    | 350kcmil-#6Cu/Al    | Al-310A             | UL/CSA             |
| 16306           | 500kcmil-#6Cu/Al    | 500kcmil-#6Cu/Al    | Al-380A             | UL/CSA             |
| 16500           | (2)350kcmil-#4Cu/Al | (2)350kcmil-#4Cu/Al | Al-620A             | UL/CSA             |
| 16504           | (2)500kcmil-#6Cu/Al | (2)500kcmil-#6Cu/Al | Al-760A             | UL/CSA             |

\*160 Series Bases have mounting holes outside the barriers. Other bases (162 through 165) have mounting holes within barriers. See Data Sheet for dimensional drawings.

\*\*SCCR up to 200kA

### How To Order

Catalog Number + # of Poles

Example: 16000 – 3 (complete part number)

### Optional Covers:

160 Series: CPB160 - (pole)

162 Series: CPB162 - (pole)

163 Series: CPDB - (pole)

165 Series: CPDB165 (1 for each pole) - new style

CPB165 - (pole) - old style

**For Short-circuit current rated and/or finger-safe splicer blocks, go to the Series PDBFS, Series PDB or Series 162 & 163 with high SCCR.**

## Power Terminal Blocks: Barrier & Dead Front

Power Distribution  
& Terminal Blocks

### Series 14002

#### Specifications

**Description:** Barrier terminal block.

**Poles:** 2- to 6-poles.

**Wire Range:** 2 – 14 AWG Cu/8 AWG Al.

#### Ratings:

Volts: — 600Vac/dc

Amps: — 115A

SCCR: — 10kA per  
UL 508A table SB4.1

**Agency Information:** CE, Guide XCFR2, UL E62622; CSA 47235.

**Torque Ratings\*:** 2-3, 50 lb-in; 4-6, 45 lb-in; 8, 40 lb-in; 10-14, 35 lb-in.

\*Consult factory for torque ratings for CP and Q options.

**Marking:** Marking strip optional, consult factory.

#### Options For Load Side Connector

CP: Sems pressure plate, rated 60A, 600V

Q: Quick-Connect, rated 50A, 600V

To order options, enter letter code in front of Catalog Number: i.e., CP14002-2.



#### Catalog Numbers

| Catalog Numbers | Poles | Catalog Numbers | Poles |
|-----------------|-------|-----------------|-------|
| 14002-2         | 2     | 14002-5         | 5     |
| 14002-3         | 3     | 14002-6         | 6     |
| 14002-4         | 4     |                 |       |

### Series 14004

#### Specifications

**Description:** Dead front terminal block.

**Poles:** 2- to 12-poles.

**Wire Range:**  
4 – 14 AWG Cu/  
8 AWG Al.

#### Ratings:

Volts: — 600Vac/dc

Amps: — 90A

SCCR: — 10kA per UL 508A table SB4.1

**Agency Information:** CE, Guide XCFR2, UL E62622; CSA 47235.

**Marking:** Marking strip optional, consult factory.

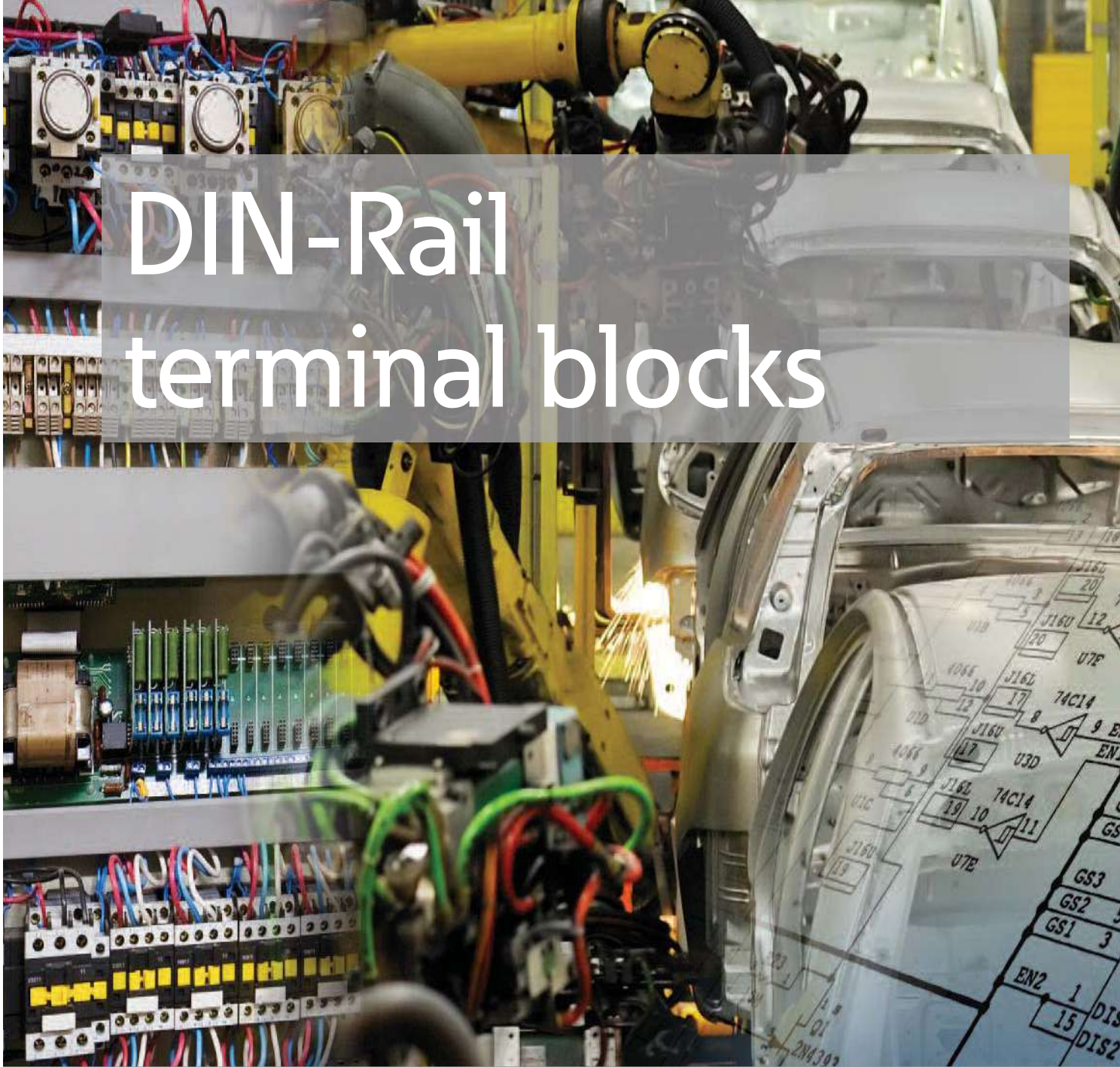


#### Catalog Numbers

| Catalog Numbers | Poles | Catalog Numbers | Poles |
|-----------------|-------|-----------------|-------|
| 14004-2         | 2     | 14004-8         | 8     |
| 14004-3         | 3     | 14004-9         | 9     |
| 14004-4         | 4     | 14004-10        | 10    |
| 14004-5         | 5     | 14004-11        | 11    |
| 14004-6         | 6     | 14004-12        | 12    |
| 14004-7         | 7     |                 |       |



# DIN-Rail terminal blocks

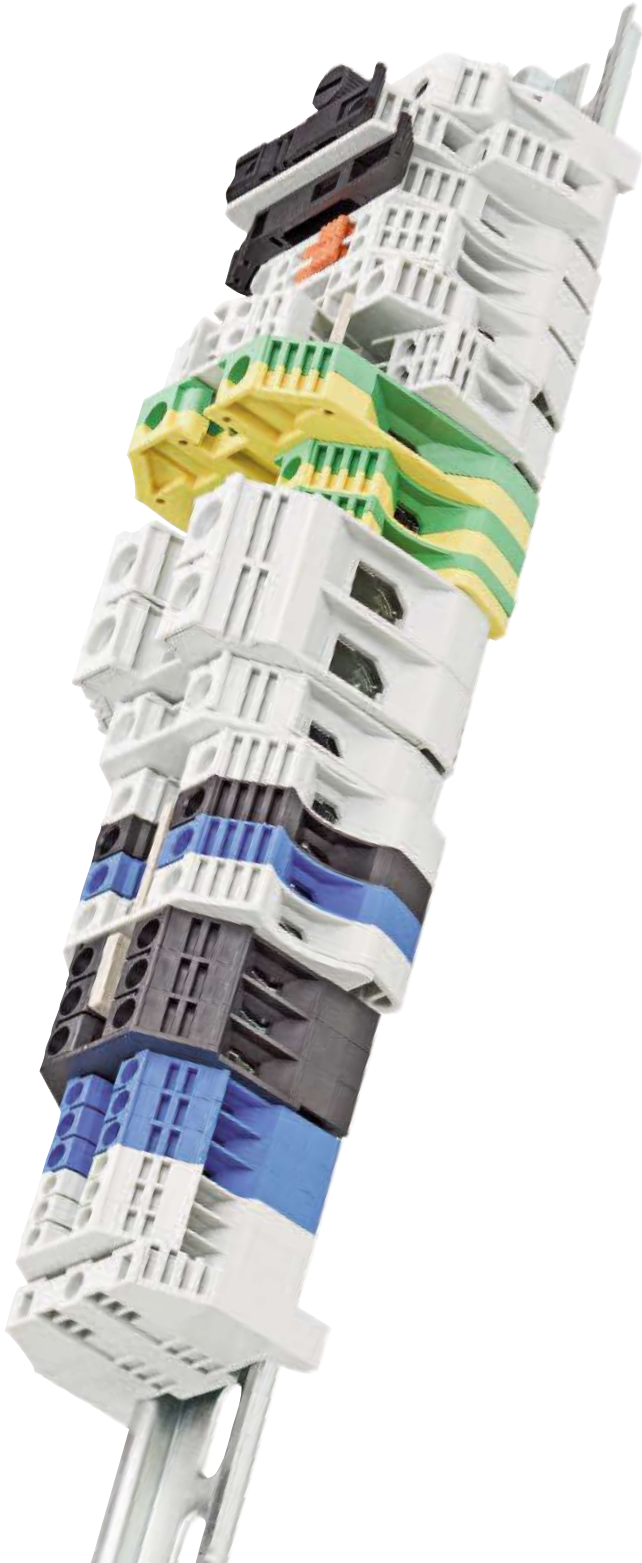


Ratings up to 200kA SCCR  
feature multiple bridging options  
for point of use configuration

**Bussmann**  
by **EATON**



Scan this tag to get the latest product information for the New Family of Terminal blocks and Accessories.



# Connectors

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|----------------|---------|
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|--|---------|
| Series TB100 2- to 36-Pole blocks                          | 366-367 |
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### Power feed through terminal blocks

|                                  |     |
|----------------------------------|-----|
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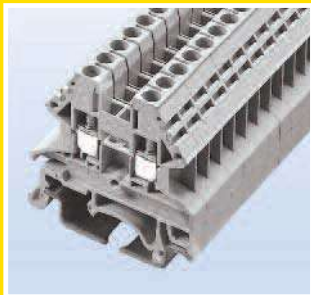
**RED** indicates **NEW** information



Scan this tag to get access to the Terminal Blocks Cross Reference Search.



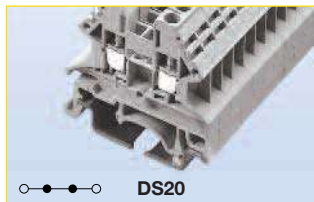
# Feed Through Blocks



## DS Series

The DS Series features a compact design that saves wiring space on the control panel. Accessories include marking labels, partition plates as well as side and top insertion bridges. Designed for 35mm DIN and 32mm G-Type rails.

IEC60947-7-1 & UL 1059 compliant.



| Approval  |                   |       |
|---|-------------------|-------|
| Technical Data  | UL                | IEC   |
| Rated voltage   | 600V              | 1000V |
| Rated current   | 20A               | 24A   |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 22~12 / 0.5~2.5   |       |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 22~12 / 0.5~2.5   |       |
| Rated impulse withstand voltage                         | 6kV               |       |
| Torque(N•m)   | 0.4               |       |
| Torque(lb-in)   | 3.5               |       |
| Screw   | M2.5              |       |
| Wire strip length(mm)                                   | 9~11              |       |
| WxHxD(mm)   | 5.1 x 39.6 x 40.5 |       |

| Colors   | Cat. No. |
|----------|----------|
| ● Grey   | DS20-GY  |
| ● Blue   | DS20-BU  |
| ● Black  | DS20-LK  |
| ● Red    | DS20-RD  |
| ● Orange | DS20-OR  |
| ● Yellow | DS20-YW  |
| ● Green  | DS20-GN  |

| Accessories | Cat. No.   |
|-------------|------------|
| ● Grey      | DS20-GY-ND |
| ● Blue      | DS20-BU-ND |
| ● Black     | DS20-LK-ND |
| ● Red       | DS20-RD-ND |
| ● Orange    | DS20-OR-ND |
| ● Yellow    | DS20-YW-ND |
| ● Green     | DS20-GN-ND |

| Accessories | Cat. No.    |
|-------------|-------------|
|             | DKNPS-001   |
| 2-pole      | DSS2-5N-02P |
| 3-pole      | DSS2-5N-03P |
| 4-pole      | DSS2-5N-04P |
| 10-pole     | DSS2-5N-10P |
| 2-pole      | CSC-2-502PN |
| 3-pole      | CSC-2-503PN |
| 4-pole      | CSC-2-504PN |
| 10-pole     | CSC-2-510PN |

| Accessories | Cat. No. |
|-------------|----------|
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |

| Accessories | Cat. No.  |
|-------------|-----------|
|             | TM26CB    |
|             | DRL32MMG  |
|             | DRL35MMHI |
|             | DRL35MML0 |



| Approval  |                   |       |
|---|-------------------|-------|
| Technical Data  | UL                | IEC   |
| Rated voltage   | 600V              | 1000V |
| Rated current   | 30A               | 32A   |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 22~10 / 0.5~4     |       |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 22~10 / 0.5~4     |       |
| Rated impulse withstand voltage                         | 6kV               |       |
| Torque(N•m)   | 0.6               |       |
| Torque(lb-in)   | 5.3               |       |
| Screw   | M3                |       |
| Wire strip length(mm)                                   | 9~11              |       |
| WxHxD(mm)   | 6.1 x 39.6 x 40.3 |       |

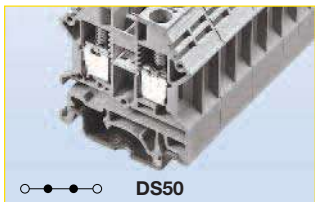
| Colors   | Cat. No. |
|----------|----------|
| ● Grey   | DS30-GY  |
| ● Blue   | DS30-BU  |
| ● Black  | DS30-LK  |
| ● Red    | DS30-RD  |
| ● Orange | DS30-OR  |
| ● Yellow | DS30-YW  |
| ● Green  | DS30-GN  |

| Accessories | Cat. No.   |
|-------------|------------|
| ● Grey      | DS20-GY-ND |
| ● Blue      | DS20-BU-ND |
| ● Black     | DS20-LK-ND |
| ● Red       | DS20-RD-ND |
| ● Orange    | DS20-OR-ND |
| ● Yellow    | DS20-YW-ND |
| ● Green     | DS20-GN-ND |

| Accessories | Cat. No.  |
|-------------|-----------|
|             | DKNPS-001 |
| 2-pole      | DSS4N-02P |
| 3-pole      | DSS4N-03P |
| 4-pole      | DSS4N-04P |
| 10-pole     | DSS4N-10P |
| 2-pole      | CSC-402PN |
| 3-pole      | CSC-403PN |
| 4-pole      | CSC-404PN |
| 10-pole     | CSC-410PN |

| Accessories | Cat. No. |
|-------------|----------|
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |

| Accessories | Cat. No.  |
|-------------|-----------|
|             | TM27CB    |
|             | DRL32MMG  |
|             | DRL35MMHI |
|             | DRL35MML0 |



| Approval  |               |       |
|---|---------------|-------|
| Technical Data  | UL            | IEC   |
| Rated voltage   | 600V          | 1000V |
| Rated current   | 50A           | 41A   |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 22~10 / 0.5~4 |       |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 20~8 / 0.5~6  |       |
| Rated impulse withstand voltage                         | 8kV           |       |
| Torque(N•m)   | 1.2           |       |
| Torque(lb-in)   | 10.6          |       |
| Screw   | M4            |       |
| Wire strip length(mm)                                   | 12~14         |       |
| WxHxD(mm)   | 8 x 45 x 41.7 |       |

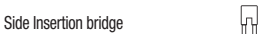
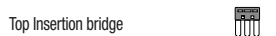
| Colors   | Cat. No. |
|----------|----------|
| ● Grey   | DS50-GY  |
| ● Blue   | DS50-BU  |
| ● Black  | DS50-LK  |
| ● Red    | DS50-RD  |
| ● Orange | DS50-OR  |
| ● Yellow | DS50-YW  |
| ● Green  | DS50-GN  |

| Accessories | Cat. No.   |
|-------------|------------|
| ● Grey      | DS50-GY-ND |
| ● Blue      | DS50-BU-ND |
| ● Black     | DS50-LK-ND |
| ● Red       | DS50-RD-ND |
| ● Orange    | DS50-OR-ND |
| ● Yellow    | DS50-YW-ND |
| ● Green     | DS50-GN-ND |

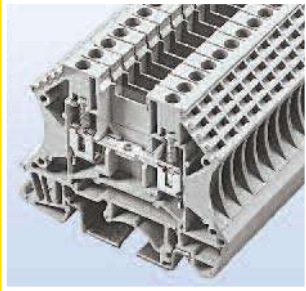
| Accessories | Cat. No.  |
|-------------|-----------|
|             | DKNPS-002 |
| 2-pole      | DSS6N-02P |
| 3-pole      | DSS6N-03P |
| 4-pole      | DSS6N-04P |
| 10-pole     | DSS6N-10P |
| 2-pole      | CSC-602PN |
| 3-pole      | CSC-603PN |
| 4-pole      | CSC-604PN |
| 10-pole     | CSC-610PN |

| Accessories | Cat. No. |
|-------------|----------|
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |

| Accessories | Cat. No.  |
|-------------|-----------|
|             | TM28CB    |
|             | DRL32MMG  |
|             | DRL35MMHI |
|             | DRL35MML0 |













# Feed Through Blocks

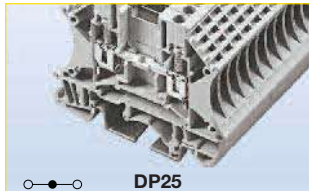


## DP Series

The DP Series features a generous design allowing for more wiring space and access. Additionally, this series features a larger wire contact area and larger conducting elements. Accessories include marking labels, partition plates, side insertion bridge and top screw-on bridge for improved reliability. Comes with matching shaped grounding blocks. Designed for 35mm DIN and 32mm G-Type rails.

IEC60947-7 and UL1059 compliant.

- Block 
- End cover 
- Partition 
- Small partition 
- Top Insertion bridge 
- Side Insertion bridge 
- Top Screw-on bridge 
- Marking label 
- Mounting Rail 
- Tool 



DP25

Approval 

| Technical Data  | UL                | IEC  |
|---|-------------------|------|
| Rated voltage   | 600V              | 630V |
| Rated current   | 25A               | 24A  |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 22-12 / 0.5-2.5   |      |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 22-12 / 0.5-2.5   |      |
| Rated impulse withstand voltage                         | 8kV               |      |
| Torque(N•m)   | 0.8               |      |
| Torque(lb-in)   | 7.1               |      |
| Screw   | M3                |      |
| Wire strip length(mm)                                   | 10-12             |      |
| WxHxD(mm)   | 5.1 x 47.6 x 58.9 |      |

Colors **Cat. No.**

|        |         |
|--------|---------|
| Grey   | DP25-GY |
| Blue   | DP25-BU |
| Black  | DP25-LK |
| Red    | DP25-RD |
| Orange | DP25-OR |
| Yellow | DP25-YW |
| Green  | DP25-GN |

Accessories **Cat. No.**

|        |            |
|--------|------------|
| Grey   | DP25-GY-ND |
| Blue   | DP25-BU-ND |
| Black  | DP25-LK-ND |
| Red    | DP25-RD-ND |
| Orange | DP25-OR-ND |
| Yellow | DP25-YW-ND |
| Green  | DP25-GN-ND |

|  |           |
|--|-----------|
|  | DKSPS-001 |
|  | DKSPS-002 |

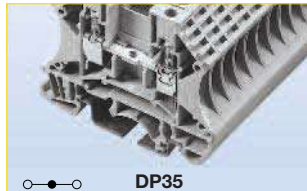
|         |     |
|---------|-----|
| 2-pole  | N/A |
| 3-pole  | N/A |
| 4-pole  | N/A |
| 10-pole | N/A |

|         |            |
|---------|------------|
| 2-pole  | CSC-2-502P |
| 3-pole  | CSC-2-503P |
| 4-pole  | CSC-2-504P |
| 10-pole | CSC-2-510P |

|         |           |
|---------|-----------|
| 2-pole  | DS2-5-02P |
| 3-pole  | DS2-5-03P |
| 4-pole  | DS2-5-04P |
| 10-pole | DS2-5-10P |

|  |            |
|--|------------|
|  | TM26CB     |
|  | DRL32MMG   |
|  | DRL35MMHI  |
|  | DRL35MMLLO |

|  |             |
|--|-------------|
|  | 0.4 x 2.5mm |
|--|-------------|



DP35

Approval 

| Technical Data  | UL                | IEC  |
|---|-------------------|------|
| Rated voltage   | 600V              | 630V |
| Rated current   | 35A               | 32A  |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 22-10 / 0.5-4     |      |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 22-10 / 0.5-4     |      |
| Rated impulse withstand voltage                         | 8kV               |      |
| Torque(N•m)   | 0.8               |      |
| Torque(lb-in)   | 7.1               |      |
| Screw   | M3                |      |
| Wire strip length(mm)                                   | 10-12             |      |
| WxHxD(mm)   | 6.1 x 47.6 x 58.9 |      |

Colors **Cat. No.**

|        |         |
|--------|---------|
| Grey   | DP35-GY |
| Blue   | DP35-BU |
| Black  | DP35-LK |
| Red    | DP35-RD |
| Orange | DP35-OR |
| Yellow | DP35-YW |
| Green  | DP35-GN |

Accessories **Cat. No.**

|        |            |
|--------|------------|
| Grey   | DP25-GY-ND |
| Blue   | DP25-BU-ND |
| Black  | DP25-LK-ND |
| Red    | DP25-RD-ND |
| Orange | DP25-OR-ND |
| Yellow | DP25-YW-ND |
| Green  | DP25-GN-ND |

|  |           |
|--|-----------|
|  | DKSPS-001 |
|  | DKSPS-002 |

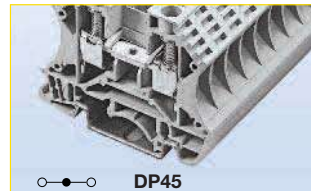
|         |     |
|---------|-----|
| 2-pole  | N/A |
| 3-pole  | N/A |
| 4-pole  | N/A |
| 10-pole | N/A |

|         |          |
|---------|----------|
| 2-pole  | CSC-402P |
| 3-pole  | CSC-303P |
| 4-pole  | CSC-404P |
| 10-pole | CSC-410P |

|         |         |
|---------|---------|
| 2-pole  | DS4-02P |
| 3-pole  | DS4-03P |
| 4-pole  | DS4-04P |
| 10-pole | DS4-10P |

|  |            |
|--|------------|
|  | TM27CB     |
|  | DRL32MMG   |
|  | DRL35MMHI  |
|  | DRL35MMLLO |

|  |           |
|--|-----------|
|  | 0.5 x 3mm |
|--|-----------|



DP45

Approval 

| Technical Data  | UL              | IEC  |
|---|-----------------|------|
| Rated voltage   | 600V            | 500V |
| Rated current   | 45A             | 41A  |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 20-8 / 0.5-6    |      |
| Conductor cross section, flexible(AWG/mm <sup>2</sup> ) | 20-8 / 0.5-6    |      |
| Rated impulse withstand voltage                         | 8kV             |      |
| Torque(N•m)   | 1.8             |      |
| Torque(lb-in)   | 15.9            |      |
| Screw   | M4              |      |
| Wire strip length(mm)                                   | 12-14           |      |
| WxHxD(mm)   | 8 x 47.6 x 58.9 |      |

Colors **Cat. No.**

|        |         |
|--------|---------|
| Grey   | DP45-GY |
| Blue   | DP45-BU |
| Black  | DP45-LK |
| Red    | DP45-RD |
| Orange | DP45-OR |
| Yellow | DP45-YW |
| Green  | DP45-GN |

Accessories **Cat. No.**

|        |            |
|--------|------------|
| Grey   | DP25-GY-ND |
| Blue   | DP25-BU-ND |
| Black  | DP25-LK-ND |
| Red    | DP25-RD-ND |
| Orange | DP25-OR-ND |
| Yellow | DP25-YW-ND |
| Green  | DP25-GN-ND |

|  |           |
|--|-----------|
|  | DKSPS-001 |
|  | DKSPS-002 |

|         |     |
|---------|-----|
| 2-pole  | N/A |
| 3-pole  | N/A |
| 4-pole  | N/A |
| 10-pole | N/A |

|         |          |
|---------|----------|
| 2-pole  | CSC-602P |
| 3-pole  | CSC-603P |
| 4-pole  | CSC-604P |
| 10-pole | CSC-610P |

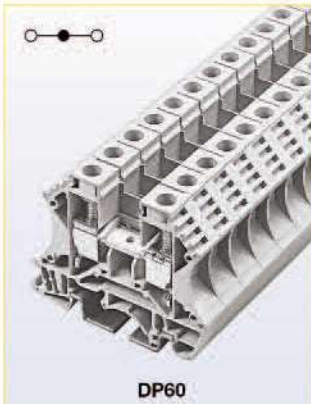
|         |         |
|---------|---------|
| 2-pole  | DS6-02P |
| 3-pole  | DS6-03P |
| 4-pole  | DS6-04P |
| 10-pole | DS6-10P |

|  |            |
|--|------------|
|  | TM28CB     |
|  | DRL32MMG   |
|  | DRL35MMHI  |
|  | DRL35MMLLO |

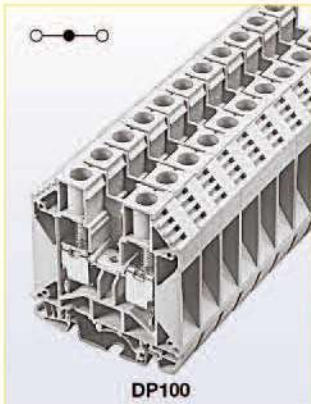
|  |           |
|--|-----------|
|  | 0.8 x 4mm |
|--|-----------|

Connectors

# Feed Through Blocks



DP60



DP100



DP150



DP230

Approval

| Technical Data   | UL               | IEC  |
|--|------------------|------|
| Rated voltage  | 600V             | 500V |
| Rated current  | 60A              | 57A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 20-6 / 1.5-10    |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 20-6 / 1.5-10    |      |
| Rated impulse withstand voltage                          | 8kV              |      |
| Torque(N•m)  | 1.8              |      |
| Torque(lb-in)  | 15.9             |      |
| Screw  | M4               |      |
| Wire strip length(mm)                                    | 12-14            |      |
| WxHxD(mm)  | 10 x 47.6 x 58.9 |      |

Colors **Cat. No.**

- Grey DP60-GY

Accessories **Cat. No.**

- Grey DP25-GY-ND

|           |  |
|-----------|--|
| DKSPS-001 |  |
| DKSPS-002 |  |

|         |           |
|---------|-----------|
| 2-pole  | N/A       |
| 3-pole  | N/A       |
| 4-pole  | N/A       |
| 10-pole | N/A       |
| 2-pole  | CSC-1002P |
| 3-pole  | CSC-1003P |
| 4-pole  | CSC-1004P |
| 10-pole | CSC-1010P |

|         |          |
|---------|----------|
| 2-pole  | DS10-02P |
| 3-pole  | DS10-03P |
| 4-pole  | DS10-04P |
| 10-pole | DS10-10P |

TM28CB

- DRL32MMG
- DRL35MMHI
- DRL35MML0

0.8 x 4mm

Approval

| Technical Data   | UL               | IEC   |
|--|------------------|-------|
| Rated voltage  | 600V             | 1000V |
| Rated current  | 100A             | 101A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 14-3 / 1.5-25    |       |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 14-3 / 1.5-25    |       |
| Rated impulse withstand voltage                          | 8kV              |       |
| Torque(N•m)  | 3.4              |       |
| Torque(lb-in)  | 30.1             |       |
| Screw  | M5               |       |
| Wire strip length(mm)                                    | 13-15            |       |
| WxHxD(mm)  | 12 x 52.2 x 46.7 |       |

Colors **Cat. No.**

- Grey DP100-GY

Accessories **Cat. No.**

- Grey DP100-GY-ND

|            |  |
|------------|--|
| DKNSPS-003 |  |
|------------|--|

|         |           |
|---------|-----------|
| 2-pole  | N/A       |
| 3-pole  | N/A       |
| 4-pole  | N/A       |
| 10-pole | N/A       |
| 2-pole  | CSC-1602P |
| 3-pole  | CSC-1603P |
| 4-pole  | CSC-1604P |
| 10-pole | CSC-1610P |

|         |          |
|---------|----------|
| 2-pole  | DS16-02P |
| 3-pole  | DS16-03P |
| 4-pole  | DS16-04P |
| 10-pole | DS16-10P |

TM28CB

- DRL32MMG
- DRL35MMHI
- DRL35MML0

1.0 x 5.5mm

Approval

| Technical Data   | UL              | IEC   |
|--|-----------------|-------|
| Rated voltage  | 600V            | 1000V |
| Rated current  | 150A            | 150A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 12-1/0 / 2.5-50 |       |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 12-1/0 / 2.5-50 |       |
| Rated impulse withstand voltage                          | 8kV             |       |
| Torque(N•m)  | 6.9             |       |
| Torque(lb-in)  | 61.1            |       |
| Screw  | M6              |       |
| Wire strip length(mm)                                    | 16-18           |       |
| WxHxD(mm)  | 16 x 61.2 x 52  |       |

Colors **Cat. No.**

- Grey DP150-GY
- Blue DP150-BU

Accessories **Cat. No.**

- DKNSPS-004

|            |  |
|------------|--|
| DKNSPS-004 |  |
|------------|--|

|         |           |
|---------|-----------|
| 2-pole  | N/A       |
| 3-pole  | N/A       |
| 4-pole  | N/A       |
| 10-pole | N/A       |
| 2-pole  | CSC-3502P |
| 3-pole  | CSC-3503P |
| 4-pole  | CSC-3504P |
| 10-pole | CSC-3510P |

|         |          |
|---------|----------|
| 2-pole  | DS35-02P |
| 3-pole  | DS35-03P |
| 4-pole  | DS35-04P |
| 10-pole | DS35-10P |

TM28CB

- DRL32MMG
- DRL35MMHI
- DRL35MML0

Approval

| Technical Data   | UL             | IEC   |
|--|----------------|-------|
| Rated voltage  | 600V           | 1000V |
| Rated current  | 230A           | 232A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 2 / 35         |       |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 2-4/0 / 35-95  |       |
| Rated impulse withstand voltage                          | 8kV            |       |
| Torque(N•m)  | 10.2           |       |
| Torque(lb-in)  | 90.3           |       |
| Screw  | M8             |       |
| Wire strip length(mm)                                    | 30-35          |       |
| WxHxD(mm)  | 25 x 88.5 x 80 |       |

Colors **Cat. No.**

- Grey DP230-GY
- Blue DP230-BU

Accessories **Cat. No.**

- DKNSPS-004

|            |  |
|------------|--|
| DKNSPS-004 |  |
|------------|--|

|         |           |
|---------|-----------|
| 2-pole  | N/A       |
| 3-pole  | N/A       |
| 4-pole  | N/A       |
| 10-pole | N/A       |
| 2-pole  | CSC-9502P |
| 3-pole  | CSC-9503P |
| 4-pole  | N/A       |
| 10-pole | N/A       |

|         |     |
|---------|-----|
| 2-pole  | N/A |
| 3-pole  | N/A |
| 4-pole  | N/A |
| 10-pole | N/A |

TM28CB

- DRL32MMG
- DRL35MMHI
- DRL35MML0



# Mini Feed Through Blocks



## DM Series

The DM Series is our low cost, miniature feed through terminal block design for 15mm DIN-Rail. Accessories include side insertion bridge and marking labels.



| Approval   |                 |      |
|--|-----------------|------|
| Technical Data   |                 |      |
| Rated voltage  | 300V            | 500V |
| Rated current  | 20A             | 24A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 22-12 / 0.5-2.5 |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-12 / 0.5-2.5 |      |
| Rated impulse withstand voltage                          | 5kV             |      |
| Torque(N•m)  | 0.4             |      |
| Torque(lb-in)  | 3.5             |      |
| Screw  | M2.5            |      |
| Wire strip length(mm)                                    | 7-9             |      |
| WxHxD(mm)  | 5.1 x 28 x 22   |      |

| Approval   |                 |      |
|--|-----------------|------|
| Technical Data   |                 |      |
| Rated voltage  | 300V            | 500V |
| Rated current  | 30A             | 32A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 22-10 / 0.5-4   |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-10 / 0.5-4   |      |
| Rated impulse withstand voltage                          | 5kV             |      |
| Torque(N•m)  | 0.6             |      |
| Torque(lb-in)  | 5.3             |      |
| Screw  | M3              |      |
| Wire strip length(mm)                                    | 7-9             |      |
| WxHxD(mm)  | 6.1 x 31.5 x 22 |      |

| Approval   |               |      |
|--|---------------|------|
| Technical Data   |               |      |
| Rated voltage  | 300V          | 500V |
| Rated current  | 50A           | 41A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 20-8 / 0.5-6  |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 20-8 / 0.5-6  |      |
| Rated impulse withstand voltage                          | 6kV           |      |
| Torque(N•m)  | 1.2           |      |
| Torque(lb-in)  | 10.6          |      |
| Screw  | M4            |      |
| Wire strip length(mm)                                    | 9-11          |      |
| WxHxD(mm)  | 8 x 37.4 x 30 |      |

| Colors  | Cat. No. |
|---------|----------|
| ● Grey  | DM20-GY  |
| ● Blue  | DM20-BU  |
| ● Black | DM20-LK  |

| Colors  | Cat. No. |
|---------|----------|
| ● Grey  | DM30-GY  |
| ● Blue  | DM30-BU  |
| ● Black | DM30-LK  |

| Colors  | Cat. No. |
|---------|----------|
| ● Grey  | DM50-GY  |
| ● Blue  | DM50-BU  |
| ● Black | DM50-LK  |

| Accessories | Cat. No.   |
|-------------|------------|
| ● Grey      | DM20-GY-ND |
| ● Blue      | DM20-BU-ND |
| ● Black     | DM20-LK-ND |

| Accessories | Cat. No.   |
|-------------|------------|
| ● Grey      | DM30-GY-ND |
| ● Blue      | DM30-BU-ND |
| ● Black     | DM30-LK-ND |

| Accessories | Cat. No.   |
|-------------|------------|
| ● Grey      | DM50-GY-ND |
| ● Blue      | DM50-BU-ND |
| ● Black     | DM50-LK-ND |

- Block
- End cover
- Partition
- Small partition
- Top Insertion bridge
- Side Insertion bridge
- Top Screw-on bridge
- Marking label
- Mounting Rail
- Tool

|         |             |
|---------|-------------|
| 2-pole  | N/A         |
| 3-pole  | N/A         |
| 4-pole  | N/A         |
| 10-pole | N/A         |
| 2-pole  | CSC-2-502PS |
| 3-pole  | CSC-2-503PS |
| 4-pole  | CSC-2-504PS |
| 10-pole | CSC-2-510PS |
| 2-pole  | N/A         |
| 3-pole  | N/A         |
| 4-pole  | N/A         |
| 10-pole | N/A         |
|         | TM20CB      |
|         | DRL15MM     |

|         |           |
|---------|-----------|
| 2-pole  | N/A       |
| 3-pole  | N/A       |
| 4-pole  | N/A       |
| 10-pole | N/A       |
| 2-pole  | CSC-402PS |
| 3-pole  | CSC-303PS |
| 4-pole  | CSC-404PS |
| 10-pole | CSC-410PS |
| 2-pole  | N/A       |
| 3-pole  | N/A       |
| 4-pole  | N/A       |
| 10-pole | N/A       |
|         | TM21CB    |
|         | DRL15MM   |

|         |           |
|---------|-----------|
| 2-pole  | N/A       |
| 3-pole  | N/A       |
| 4-pole  | N/A       |
| 10-pole | N/A       |
| 2-pole  | CSC-602PS |
| 3-pole  | CSC-603PS |
| 4-pole  | CSC-604PS |
| 10-pole | CSC-610PS |
| 2-pole  | N/A       |
| 3-pole  | N/A       |
| 4-pole  | N/A       |
| 10-pole | N/A       |
|         | TM22CB    |
|         | DRL15MM   |

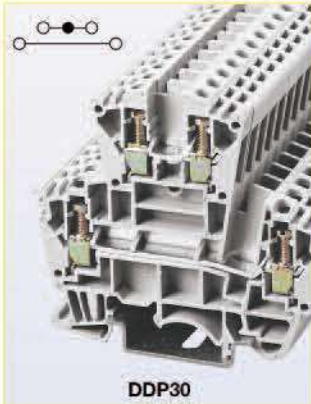
## Double Level Blocks

## Disconnect Blocks



### DDP Series

The DDP30 is a two-tier feed through terminal block for space constrained applications. It has two independent circuits, IEC60947-7 and UL1059 compliant. Marking system, side insertion bridge and top screw-on bridge are standard.



DDP30

| Approval   |  |                   |      |
|--|--|-------------------|------|
| Technical Data   |  | UL                | IEC  |
| Rated voltage  |  | 300V              | 400V |
| Rated current  |  | 30A               | 32A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    |  | 22~10 / 0.5~4     |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) |  | 22~10 / 0.5~4     |      |
| Rated impulse withstand voltage                          |  | 6kV               |      |
| Torque(N•m)  |  | 0.5               |      |
| Torque(lb-in)  |  | 4.4               |      |
| Screw  |  | M2.5              |      |
| Wire strip length(mm)                                    |  | 6                 |      |
| WxHxD(mm)  |  | 6.1 x 62.8 x 69.4 |      |
| Colors   |  | Cat. No.          |      |
| ● Grey   |  | DDP30-GY          |      |

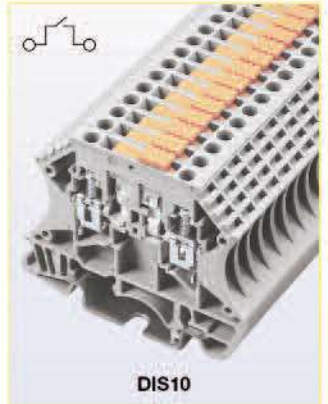
| Accessories   |  | Cat. No.                            |  |
|---------------|--|-------------------------------------|--|
| ● Grey        |  | DDP30-GY-ND                         |  |
|               |  |                                     |  |
|               |  |                                     |  |
|               |  |                                     |  |
| 2-pole        |  | N/A                                 |  |
| 3-pole        |  | N/A                                 |  |
| 4-pole        |  | N/A                                 |  |
| 10-pole       |  | N/A                                 |  |
| 2-pole        |  | CSC-402P                            |  |
| 3-pole        |  | CSC-403P                            |  |
| 4-pole        |  | CSC-404P                            |  |
| 10-pole       |  | CSC-410P                            |  |
| 2-pole        |  | DS4-02P                             |  |
| 3-pole        |  | DS4-03P                             |  |
| 4-pole        |  | DS4-04P                             |  |
| 10-pole       |  | DS4-10P                             |  |
| Marking label |  | TM21CB                              |  |
| Mounting Rail |  | DRL32MMG<br>DRL35MMHI<br>DRL35MMLLO |  |
| Tool          |  | 0.4 x 2.5mm                         |  |



### DIS Series

The DIS10 is a disconnect\* terminal block. Disconnect terminal blocks offer an easy means of circuit disconnect with just a flick of a screwdriver. IEC60947-7 and UL1059 compliant.

\* Not for use as a load break disconnect.



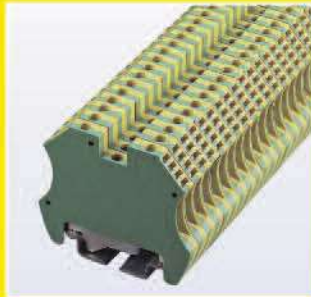
DIS10

| Approval   |  |                 |      |
|--|--|-----------------|------|
| Technical Data   |  | UL              | IEC  |
| Rated voltage  |  | 300V            | 800V |
| Rated current  |  | 10A             | 16A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    |  | 26~14 / 0.5~2.5 |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) |  | 26~14 / 0.5~2.5 |      |
| Rated impulse withstand voltage                          |  | 6kV             |      |
| Torque(N•m)  |  | 0.8             |      |
| Torque(lb-in)  |  | 7.1             |      |
| Screw  |  | M3              |      |
| Wire strip length(mm)                                    |  | 9~10            |      |
| WxHxD(mm)  |  | 5.1 x 46.7 x 59 |      |
| Colors   |  | Cat. No.        |      |
| ● Grey   |  | DIS10-GY        |      |

| Accessories   |  | Cat. No.                            |  |
|---------------|--|-------------------------------------|--|
| ● Grey        |  | DP25-GY-ND                          |  |
|               |  |                                     |  |
|               |  |                                     |  |
|               |  |                                     |  |
|               |  |                                     |  |
| 2-pole        |  | N/A                                 |  |
| 3-pole        |  | N/A                                 |  |
| 4-pole        |  | N/A                                 |  |
| 10-pole       |  | N/A                                 |  |
| 2-pole        |  | CSC-2-502P                          |  |
| 3-pole        |  | CSC-2-503P                          |  |
| 4-pole        |  | CSC-2-504P                          |  |
| 10-pole       |  | CSC-2-510P                          |  |
| 2-pole        |  | N/A                                 |  |
| 3-pole        |  | N/A                                 |  |
| 4-pole        |  | N/A                                 |  |
| 10-pole       |  | N/A                                 |  |
| Marking label |  | TM26CB                              |  |
| Mounting Rail |  | DRL32MMG<br>DRL35MMHI<br>DRL35MMLLO |  |
| Tool          |  | 0.5 x 3mm                           |  |

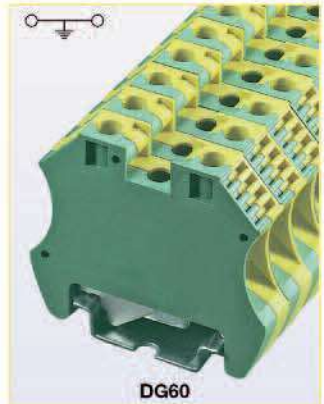
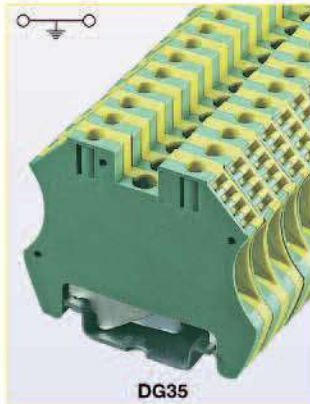
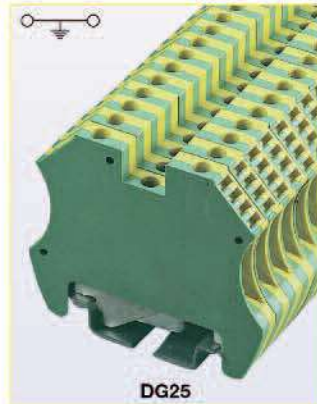


## Grounding Blocks



### DG Series

The DG Series grounding DIN-Rail Terminal blocks fit both standard 35mm DIN-Rail and 32mm G-Type rails. Compliant with IEC60947-7 and UL1059 standards for worldwide acceptance. These have the same general shape as the DP Series.



| Approval   |                 |      |
|--|-----------------|------|
| Technical Data   |                 |      |
| Rated voltage  | 600V            | 630V |
| Rated current  | 24A             |      |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 26-12 / 0.5-2.5 |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 26-12 / 0.5-2.5 |      |
| Rated impulse withstand voltage                          | 8kV             |      |
| Torque(N•m)  | 0.8             |      |
| Torque(lb-in)  | 7.1             |      |
| Screw  | M3              |      |
| Wire strip length(mm)                                    | 10-14           |      |
| WxHxD(mm)  | 5.7 x 46.4 x 56 |      |

| Colors         | Cat. No. |
|----------------|----------|
| ● Yellow-Green | DG25-YG  |

| Approval   |                 |      |
|--|-----------------|------|
| Technical Data   |                 |      |
| Rated voltage  | 600V            | 630V |
| Rated current  | 32A             |      |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 26-10 / 0.5-4   |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 26-10 / 0.5-4   |      |
| Rated impulse withstand voltage                          | 8kV             |      |
| Torque(N•m)  | 0.8             |      |
| Torque(lb-in)  | 7.1             |      |
| Screw  | M3              |      |
| Wire strip length(mm)                                    | 12-16           |      |
| WxHxD(mm)  | 6.6 x 46.4 x 56 |      |

| Colors         | Cat. No. |
|----------------|----------|
| ● Yellow-Green | DG35-YG  |

| Approval   |                  |      |
|--|------------------|------|
| Technical Data   |                  |      |
| Rated voltage  | 600V             | 500V |
| Rated current  | 57A              |      |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 16-8 / 1.5-10    |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 16-8 / 1.5-10    |      |
| Rated impulse withstand voltage                          | 8kV              |      |
| Torque(N•m)  | 1.8              |      |
| Torque(lb-in)  | 15.9             |      |
| Screw  | M4               |      |
| Wire strip length(mm)                                    | 12-16            |      |
| WxHxD(mm)  | 10.4 x 46.4 x 56 |      |

| Colors         | Cat. No. |
|----------------|----------|
| ● Yellow-Green | DG60-YG  |

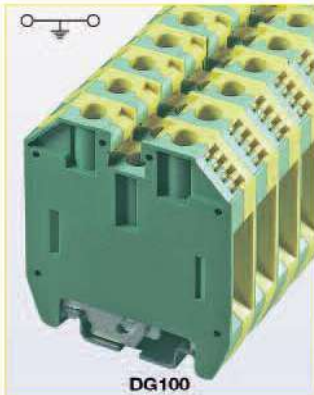
| Accessories   | Cat. No.                           |
|---------------|------------------------------------|
| 2-pole        | N/A                                |
| 3-pole        | N/A                                |
| 4-pole        | N/A                                |
| 10-pole       | N/A                                |
| 2-pole        | N/A                                |
| 3-pole        | N/A                                |
| 4-pole        | N/A                                |
| 10-pole       | N/A                                |
| 2-pole        | N/A                                |
| 3-pole        | N/A                                |
| 4-pole        | N/A                                |
| 10-pole       | N/A                                |
| Marking label | TM26CB                             |
| Mounting Rail | DRL32MMG<br>DRL35MMHI<br>DRL35MMLO |
| Tool          | 0.5 x 3mm                          |

| Accessories   | Cat. No.                           |
|---------------|------------------------------------|
| 2-pole        | N/A                                |
| 3-pole        | N/A                                |
| 4-pole        | N/A                                |
| 10-pole       | N/A                                |
| 2-pole        | N/A                                |
| 3-pole        | N/A                                |
| 4-pole        | N/A                                |
| 10-pole       | N/A                                |
| 2-pole        | N/A                                |
| 3-pole        | N/A                                |
| 4-pole        | N/A                                |
| 10-pole       | N/A                                |
| Marking label | TM27CB                             |
| Mounting Rail | DRL32MMG<br>DRL35MMHI<br>DRL35MMLO |
| Tool          | 0.5 x 3mm                          |

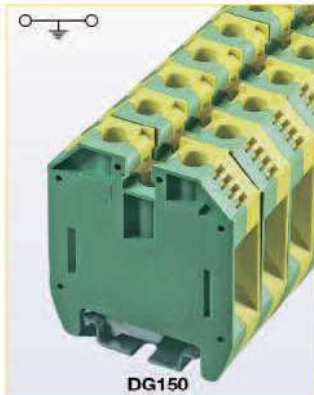
| Accessories   | Cat. No.                           |
|---------------|------------------------------------|
| 2-pole        | N/A                                |
| 3-pole        | N/A                                |
| 4-pole        | N/A                                |
| 10-pole       | N/A                                |
| 2-pole        | N/A                                |
| 3-pole        | N/A                                |
| 4-pole        | N/A                                |
| 10-pole       | N/A                                |
| 2-pole        | N/A                                |
| 3-pole        | N/A                                |
| 4-pole        | N/A                                |
| 10-pole       | N/A                                |
| Marking label | TM28CB                             |
| Mounting Rail | DRL32MMG<br>DRL35MMHI<br>DRL35MMLO |
| Tool          | 0.8 x 4mm                          |

- Block
- End cover
- Partition
- Small partition
- Top Insertion bridge
- Side Insertion bridge
- Top Screw-on bridge
- Marking label
- Mounting Rail
- Tool

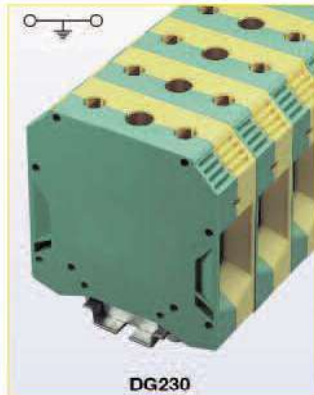
# Grounding Blocks





DG100








DG150



DG230

| Approval   |                |       |
|--|----------------|-------|
| Technical Data   | UL             | IEC   |
| Rated voltage  | 600V           | 1000V |
| Rated current  | 76A            |       |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )  | 14-6 / 2.5-16  |       |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )   | 14-6 / 2.5-16  |       |
| Rated impulse withstand voltage  | 8kV            |       |
| Torque(N•m)  | 3.4            |       |
| Torque(lb-in)  | 30.1           |       |
| Screw  | M5             |       |
| Wire strip length(mm)  | 14-18          |       |
| WxHxD(mm)  | 12 x 62.4 x 56 |       |
| Colors   | Cat. No.       |       |
|  Yellow-Green   | DG100-YG       |       |

| Approval   |                |       |
|--|----------------|-------|
| Technical Data   | UL             | IEC   |
| Rated voltage  | 600V           | 1000V |
| Rated current  | 125A           |       |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )  | 12-2 / 4-35    |       |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )   | 12-2 / 4-35    |       |
| Rated impulse withstand voltage  | 8kV            |       |
| Torque(N•m)  | 5.6            |       |
| Torque(lb-in)  | 49.6           |       |
| Screw  | M6             |       |
| Wire strip length(mm)  | 14-18          |       |
| WxHxD(mm)  | 16 x 62.4 x 56 |       |
| Colors   | Cat. No.       |       |
|  Yellow-Green   | DG150-YG       |       |

| Approval   |                 |       |
|--|-----------------|-------|
| Technical Data   | UL              | IEC   |
| Rated voltage  | 600V            | 1000V |
| Rated current  | 232A            |       |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )  | 2 / 35          |       |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )   | 2-4/0 / 35-95   |       |
| Rated impulse withstand voltage  | 8kV             |       |
| Torque(N•m)  | 18              |       |
| Torque(lb-in)  | 159.3           |       |
| Screw  | M8              |       |
| Wire strip length(mm)  | 20-25           |       |
| WxHxD(mm)  | 25 x 82.93 x 80 |       |
| Colors   | Cat. No.        |       |
|  Yellow-Green   | DG230-YG        |       |

| Accessories | Cat. No. |
|-------------|----------|
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |
| TM28CB      |          |
| DRL32MMG    |          |
| DRL35MMHI   |          |
| DRL35MML0   |          |
| 1.0 x 5.5mm |          |

| Accessories | Cat. No. |
|-------------|----------|
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |
| TM28CB      |          |
| DRL32MMG    |          |
| DRL35MMHI   |          |
| DRL35MML0   |          |
| 1.0 x 5.5mm |          |

| Accessories | Cat. No. |
|-------------|----------|
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |
| 2-pole      | N/A      |
| 3-pole      | N/A      |
| 4-pole      | N/A      |
| 10-pole     | N/A      |
| TM28CB      |          |
| DRL32MMG    |          |
| DRL35MMHI   |          |
| DRL35MML0   |          |
| 1.0 x 5.5mm |          |

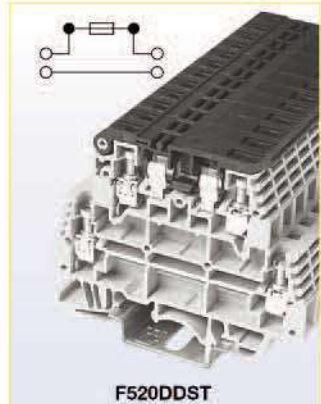
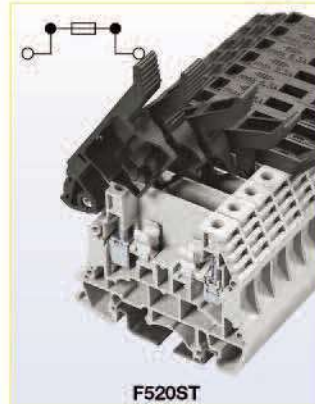


# Fuse Holder Blocks



## F520 Series

Fuse terminal blocks protect your sensors and relays. Available in lever and screw-cap style, with and without LED indication. Uses standard Bussmann 5 x 20 mm fuses.



| Approval   |               |        |
|--|---------------|--------|
| Technical Data   |               | UL IEC |
| Rated voltage  | 300V          | 300V   |
| Rated current  | 6.3A          | 6.3A   |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 24-12 / 0.5-4 |        |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 24-12 / 0.5-4 |        |
| Rated impulse withstand voltage                          | 6kV           |        |
| Torque(N•m)  | 0.8           |        |
| Torque(lb-in)  | 7.1           |        |
| Screw  | M3            |        |
| Wire strip length(mm)                                    | 10-12         |        |
| WxHxD(mm)  | 8 x 55.7 x 56 |        |

| Approval   |               |        |
|--|---------------|--------|
| Technical Data   |               | UL IEC |
| Rated voltage  | 300V          | 300V   |
| Rated current  | 6.3A          | 6.3A   |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 24-12 / 0.5-4 |        |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 24-12 / 0.5-4 |        |
| Rated impulse withstand voltage                          | 6kV           |        |
| Torque(N•m)  | 0.8           |        |
| Torque(lb-in)  | 7.1           |        |
| Screw  | M3            |        |
| Wire strip length(mm)                                    | 10-12         |        |
| WxHxD(mm)  | 8 x 55.7 x 56 |        |

| Approval   |                    |                   |
|--|--------------------|-------------------|
| Technical Data   |                    | UL IEC            |
| Rated voltage  | 300V <sup>1)</sup> | 300V              |
| Rated current  | 16A <sup>2)</sup>  | 16A <sup>3)</sup> |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 22-10 / 0.5-4      |                   |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-10 / 0.5-4      |                   |
| Rated impulse withstand voltage                          | 6kV                |                   |
| Torque(N•m)  | 0.67               |                   |
| Torque(lb-in)  | 5.9                |                   |
| Screw  | M3.5               |                   |
| Wire strip length(mm)                                    | 10-12              |                   |
| WxHxD(mm)  | 8 x 60.5 x 72.5    |                   |

| Colors | Cat. No.  |
|--------|-----------|
| ● Grey | F520ST-GY |

| Colors | Voltage | Cat. No.        |
|--------|---------|-----------------|
| ● Grey | 5V      | F520STLED5-GY   |
| ● Grey | 12V     | F520STLED12-GY  |
| ● Grey | 24V     | F520STLED24-GY  |
| ● Grey | 48V     | F520STLED48-GY  |
| ● Grey | 110V    | F520STLED110-GY |
| ● Grey | 220V    | F520STLED220-GY |
| ● Grey | 300V    | F520STLED300-GY |

| Colors | Cat. No.    |
|--------|-------------|
| ● Grey | F520DDST-GY |

1) UL 600V / 5A  
2) upper level 3) lower level

| Accessories | Cat. No.   |
|-------------|------------|
| ● Grey      | F520-GY-ND |

| Accessories | Cat. No.     |
|-------------|--------------|
| ● Grey      | F520DD-GY-ND |

|         | Cat. No.  |
|---------|-----------|
| 2-pole  | N/A       |
| 3-pole  | N/A       |
| 4-pole  | N/A       |
| 10-pole | N/A       |
| 2-pole  | CSC-602PN |
| 3-pole  | CSC-603PN |
| 4-pole  | CSC-604PN |
| 10-pole | CSC-610PN |
| 2-pole  | N/A       |
| 3-pole  | N/A       |
| 4-pole  | N/A       |
| 10-pole | N/A       |

| Accessories      | Cat. No.   |
|------------------|------------|
| ● Grey End Cover | F520-GY-ND |
| 2-pole           | CSC-602PN  |
| 3-pole           | CSC-603PN  |
| 4-pole           | CSC-604PN  |
| 10-pole          | CSC-610PN  |
| 2-pole           | N/A        |
| 3-pole           | N/A        |
| 4-pole           | N/A        |
| 10-pole          | N/A        |

|         |     |
|---------|-----|
| 2-pole  | N/A |
| 3-pole  | N/A |
| 4-pole  | N/A |
| 10-pole | N/A |
| 2-pole  | N/A |
| 3-pole  | N/A |
| 4-pole  | N/A |
| 10-pole | N/A |

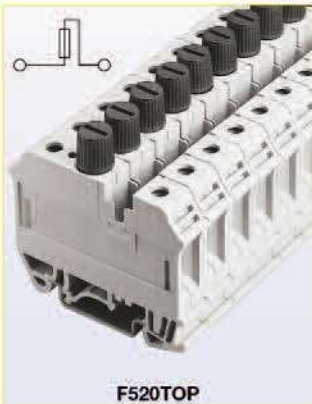
|               |                                    |
|---------------|------------------------------------|
| Marking label | TM28CB                             |
| Mounting Rail | DRL32MMG<br>DRL35MMHI<br>DRL35MMLO |
| Tool          | 0.5 x 3mm                          |

|               |                                    |
|---------------|------------------------------------|
| Marking label | TM28CB                             |
| Mounting Rail | DRL32MMG<br>DRL35MMHI<br>DRL35MMLO |
| Tool          | 0.5 x 3mm                          |

|               |                                    |
|---------------|------------------------------------|
| Marking label | TM28CB                             |
| Mounting Rail | DRL32MMG<br>DRL35MMHI<br>DRL35MMLO |
| Tool          | 0.5 x 3mm                          |

- Block
- End cover
- Partition
- Small partition
- Top Insertion bridge
- Side Insertion bridge
- Top Screw-on bridge
- Marking label
- Mounting Rail
- Tool

# Fuse Holder Blocks



F520TOP

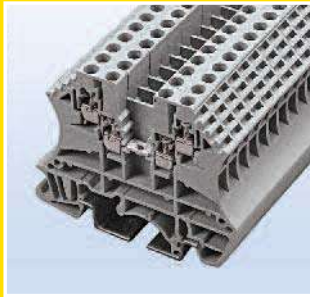
| Approval   | cULus            |      |
|--|------------------|------|
| <b>Technical Data</b>                                    | UL               | IEC  |
| Rated voltage  | 600V             | 660V |
| Rated current  | 6.3A             | 6.3A |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 22-6 / 1.5-10    |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-6 / 1.5-10    |      |
| Rated impulse withstand voltage                          | 6kV              |      |
| Torque(N•m)  | 1.8              |      |
| Torque(lb-in)  | 15.9             |      |
| Screw  | M4               |      |
| Wire strip length(mm)                                    | 12-16            |      |
| WxHxD(mm)  | 12 x 47.2 x 61.6 |      |
| <b>Colors</b>  | <b>Cat. No.</b>  |      |
| ● Grey   | F520TOP-GY       |      |

| Accessories | Cat. No.    |
|-------------|-------------|
| 2-pole      | N/A         |
| 3-pole      | N/A         |
| 4-pole      | N/A         |
| 10-pole     | N/A         |
| 2-pole      | N/A         |
| 3-pole      | N/A         |
| 4-pole      | N/A         |
| 10-pole     | N/A         |
| 2-pole      | N/A         |
| 3-pole      | N/A         |
| 4-pole      | N/A         |
| 10-pole     | N/A         |
|             | TM20CB      |
|             | DRL32MMG    |
|             | DRL35MMHI   |
|             | DRL35MMLO   |
|             | 0.6 x 3.5mm |



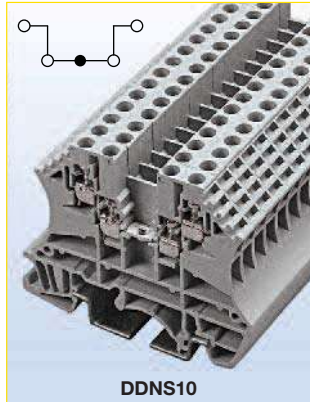
## Internally Jumpered Blocks

## Test Blocks



### DDNS Series

The DDNS10 is an internally jumpered terminal block. Internally jumpered double-level terminal blocks provide high-density power distribution in 3-in/1-out or 2-in/2-out or 1-in/3-out options with a single block. Add top and side insertion bridges to achieve any connection topology. IEC60947-7 and UL1059 compliant.



DDNS10

| Approval   |                   |       |
|--|-------------------|-------|
| Technical Data   |                   |       |
| Rated voltage  | 300V              | 630V  |
| Rated current  | 10A               | 17.5A |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 22~14 / 0.5~1.5   |       |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22~14 / 0.5~1.5   |       |
| Rated impulse withstand voltage                          | 8kV               |       |
| Torque(N•m)  | 0.4               |       |
| Torque(lb-in)  | 3.5               |       |
| Screw  | M2.5              |       |
| Wire strip length(mm)                                    | 6~7               |       |
| WxHxD(mm)  | 5.1 x 46.8 x 58.9 |       |

| Colors | Cat. No.  |
|--------|-----------|
| ● Grey | DDNS10-GY |

| Accessories |  | Cat. No.     |
|-------------|--|--------------|
| ● Grey      |  | DDNS10-GY-ND |

|         |            |
|---------|------------|
| 2-pole  | N/A        |
| 3-pole  | N/A        |
| 4-pole  | N/A        |
| 10-pole | N/A        |
| 2-pole  | CSC-2-502P |
| 3-pole  | CSC-2-503P |
| 4-pole  | CSC-2-504P |
| 10-pole | CSC-2-510P |
| 2-pole  | DS2-5-02P  |
| 3-pole  | DS2-5-03P  |
| 4-pole  | DS2-5-04P  |
| 10-pole | DS2-5-10P  |

|  |             |
|--|-------------|
|  | TM26CB      |
|  | DRL32MMG    |
|  | DRL35MMHI   |
|  | DRL35MMLD   |
|  | 0.4 x 2.5mm |

Block

End cover

Partition

Small partition

Top Insertion bridge

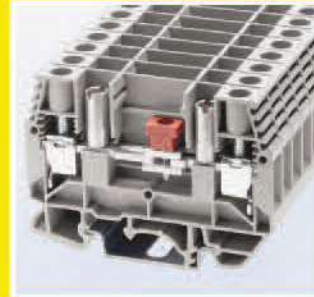
Side Insertion bridge

Top Screw-on bridge

Marking label

Mounting Rail

Tool



### DTST2 Series

#### Test Terminal Blocks

Test terminal blocks with convenient test sockets, plugs, jumpers and accessories to make your circuit troubleshooting easy.



DTST2

| Approval   |                 |      |
|--|-----------------|------|
| Technical Data   |                 |      |
| Rated voltage  | 300V/600V       | 660V |
| Rated current  | 48A/5A          | 41A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 20~8 / 0.5~6    |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 20~8 / 0.5~6    |      |
| Rated impulse withstand voltage                          | 6kV             |      |
| Torque(N•m)  | 2               |      |
| Torque(lb-in)  | 17.7            |      |
| Screw  | M4              |      |
| Wire strip length(mm)                                    | 8               |      |
| WxHxD(mm)  | 8 x 65.6 x 47.5 |      |

| Colors | Cat. No. |
|--------|----------|
| ● Grey | DTST2-GY |

| Accessories |  | Cat. No.   |
|-------------|--|------------|
| ● Grey      |  | DTST-GY-ND |

|        |        |
|--------|--------|
| 2-pole | DS6A02 |
| 3-pole | DS6A03 |

|  |              |
|--|--------------|
|  | C002-0101-BK |
|  | C002-0101-RD |

|  |          |
|--|----------|
|  | DS6S1-BK |
|  | DS6S1-OR |
|  | DS6S1-YW |
|  | DS6S1-RD |

|  |           |
|--|-----------|
|  | C002-0201 |
|  | C002-0301 |

|         |          |
|---------|----------|
| 2-pole  | CSC-602P |
| 3-pole  | CSC-603P |
| 4-pole  | CSC-604P |
| 10-pole | CSC-610P |

|         |         |
|---------|---------|
| 2-pole  | DS6-02P |
| 3-pole  | DS6-03P |
| 4-pole  | DS6-04P |
| 10-pole | DS6-10P |

|  |             |
|--|-------------|
|  | TM26CB      |
|  | DRL32MMG    |
|  | DRL35MMHI   |
|  | DRL35MMLD   |
|  | 0.6 x 3.5mm |

End cover

Partition

Jumper Slide

Test Plug

Screw

Connection Sleeve

Connection Socket

Side Insertion bridge

Top Screw-on bridge

Marking label

Mounting Rail

Tool



# Panel Mount Blocks



## Panel Mount Series

Flexible alternative to barrier strips with screw and spring-clamp wiring connections for feed through and one-to-two power distribution. Use side insertion bridge to achieve any connection topology.



P20S



P30S



P65S

| Approval   |                 |      |
|--|-----------------|------|
| Technical Data   | UL              | IEC  |
| Rated voltage  | 300V            | 500V |
| Rated current  | 20A             | 24A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 22-12 / 0.5-2.5 |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-12 / 0.5-2.5 |      |
| Rated impulse withstand voltage                          | 7kV             |      |
| Torque(N•m)  | 0.39            |      |
| Torque(lb-in)  | 3.5             |      |
| Screw  | M2.5            |      |
| Wire strip length(mm)                                    | 6-8             |      |
| WxHxD(mm)  | 5.1 x 20 x 22   |      |

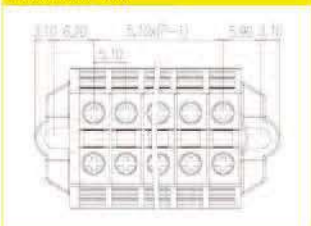
| Colors | Cat. No.   |
|--------|------------|
| ● Grey | P20S-GY-01 |

| Accessories | Cat. No.   |
|-------------|------------|
| ● Grey      | P20S-GY-ND |

|         |             |
|---------|-------------|
| 2-pole  | CSC-2-502PS |
| 3-pole  | CSC-2-503PS |
| 4-pole  | CSC-2-504PS |
| 10-pole | CSC-2-510PS |

| Marking label | Cat. No. |
|---------------|----------|
|               | TM20CB   |

Dimensions - mm



| Approval   |               |      |
|--|---------------|------|
| Technical Data   | UL            | IEC  |
| Rated voltage  | 300V          | 500V |
| Rated current  | 30A           | 32A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 22-10 / 0.5-4 |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-10 / 0.5-4 |      |
| Rated impulse withstand voltage                          | 7kV           |      |
| Torque(N•m)  | 0.49          |      |
| Torque(lb-in)  | 4.3           |      |
| Screw  | M3            |      |
| Wire strip length(mm)                                    | 6-8           |      |
| WxHxD(mm)  | 6.1 x 22 x 23 |      |

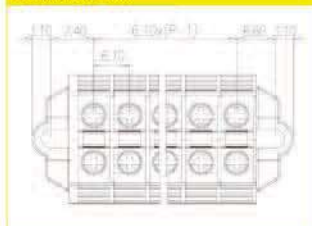
| Colors | Cat. No.   |
|--------|------------|
| ● Grey | P30S-GY-01 |

| Accessories | Cat. No.   |
|-------------|------------|
| ● Grey      | P30S-GY-ND |

|         |           |
|---------|-----------|
| 2-pole  | CSC-402PS |
| 3-pole  | CSC-403PS |
| 4-pole  | CSC-404PS |
| 10-pole | CSC-410PS |

| Marking label | Cat. No. |
|---------------|----------|
|               | TM21CB   |

Dimensions - mm



| Approval   |               |      |
|--|---------------|------|
| Technical Data   | UL            | IEC  |
| Rated voltage  | 300V          | 500V |
| Rated current  | 65A           | 41A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 20-6 / 1.5-10 |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 20-6 / 1.5-10 |      |
| Rated impulse withstand voltage                          | 8kV           |      |
| Torque(N•m)  | 1.18          |      |
| Torque(lb-in)  | 10.4          |      |
| Screw  | M4            |      |
| Wire strip length(mm)                                    | 9-11          |      |
| WxHxD(mm)  | 8 x 29.8 x 30 |      |

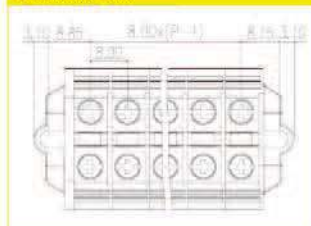
| Colors | Cat. No.   |
|--------|------------|
| ● Grey | P65S-GY-01 |

| Accessories | Cat. No.   |
|-------------|------------|
| ● Grey      | P65S-GY-ND |

|         |           |
|---------|-----------|
| 2-pole  | CSC-602PS |
| 3-pole  | CSC-603PS |
| 4-pole  | CSC-604PS |
| 10-pole | CSC-610PS |

| Marking label | Cat. No. |
|---------------|----------|
|               | TM22CB   |

Dimensions - mm



## Panel Mount Blocks



**P25G**



**2P25G**

| Approval   |                 |      |
|--|-----------------|------|
| Technical Data   | UL              | IEC  |
| Rated voltage  | 600V            | 660V |
| Rated current  | 25A             | 24A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 28-12 / 0.5-2.5 |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 14-12 / 0.5-2.5 |      |
| Rated impulse withstand voltage                          | 8kV             |      |
| Torque(N•m)  | Spring Clamp    |      |
| Torque(lb-in)  | Spring Clamp    |      |
| Screw  | N/A             |      |
| Wire strip length(mm)                                    | 7-8             |      |
| WxHxD(mm)  | 6 x 28 x 18     |      |
| Colors   | Cat. No.        |      |
| ● Grey   | P25G-GY-01      |      |

| Approval   |                 |      |
|--|-----------------|------|
| Technical Data   | UL              | IEC  |
| Rated voltage  | 600V            | 660V |
| Rated current  | 25A             | 24A  |
| Conductor cross-section, solid (AWG/mm <sup>2</sup> )    | 28-12 / 0.5-2.5 |      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 14-12 / 0.5-2.5 |      |
| Rated impulse withstand voltage                          | 8kV             |      |
| Torque(N•m)  | Spring Clamp    |      |
| Torque(lb-in)  | Spring Clamp    |      |
| Screw  | N/A             |      |
| Wire strip length(mm)                                    | 7-8             |      |
| WxHxD(mm)  | 10 x 28 x 18    |      |
| Colors   | Cat. No.        |      |
| ● Grey   | 2P25G-GY-01     |      |

| Accessories | Cat. No.    |
|-------------|-------------|
| ● Grey      | P25G-GY-ND  |
| 2-pole      | DS-204      |
| 3-pole      | N/A         |
| 4-pole      | N/A         |
| 10-pole     | N/A         |
|             | TM20CB      |
|             | 0.4 x 2.5mm |

| Accessories | Cat. No.    |
|-------------|-------------|
| ● Grey      | P25G-GY-ND  |
| 2-pole      | DS-204      |
| 3-pole      | N/A         |
| 4-pole      | N/A         |
| 10-pole     | N/A         |
|             | TM20CB      |
|             | 0.4 x 2.5mm |

## Short-Circuit Current Ratings (SCCRs)

| No. | Description     | Part Number* | Volts | Amps | Wire range for SCCR | SCCR Level | Fuse Class |     |      |     |    |    |
|-----|-----------------|--------------|-------|------|---------------------|------------|------------|-----|------|-----|----|----|
|     |                 |              |       |      |                     |            | RK5        | RK1 | J/CF | T   | G  | CC |
| 1   | Terminal Block  | DS20-XX      | 600   | 20   | 12-14               | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 1   | End Cover       | DS20-XX-ND   |       |      |                     |            |            |     |      |     |    |    |
| 2   | Terminal Block  | DS30-XX      | 600   | 30   | 10-18               | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 2   | End Cover       | DS20-XX-ND   |       |      |                     |            |            |     |      |     |    |    |
| 3   | Terminal Block  | DS50-XX      | 600   | 50   | 8 - 18              | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 3   | End Cover       | DS50-XX-ND   |       |      |                     |            |            |     |      |     |    |    |
| 4   | Terminal Block  | DM20-XX      | 300   | 20   | 12 - 16             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 4   | End Cover       | DM20-XX-ND   |       |      |                     |            |            |     |      |     |    |    |
| 5   | Terminal Block  | DM30-XX      | 300   | 30   | 10 - 16             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 5   | End Cover       | DM30-XX-ND   |       |      |                     |            |            |     |      |     |    |    |
| 6   | Terminal Block  | DM50-XX      | 300   | 50   | 8 - 16              | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 6   | End Cover       | DM50-XX-ND   |       |      |                     |            |            |     |      |     |    |    |
| 7   | Terminal Block  | DP25-XX      | 600   | 25   | 12 - 18             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 7   | End Cover       | DP25-XX-ND   |       |      |                     |            |            |     |      |     |    |    |
| 8   | Terminal Block  | DP35-XX      | 600   | 35   | 10 - 18             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 8   | End Cover       | DP25-XX-ND   |       |      |                     |            |            |     |      |     |    |    |
| 9   | Terminal Block  | DP45-XX      | 600   | 45   | 8 - 18              | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 9   | End Cover       | DP25-XX-ND   |       |      |                     |            |            |     |      |     |    |    |
| 10  | Terminal Block  | DP60-XX      | 600   | 60   | 6 - 18              | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 10  | End Cover       | DP25-XX-ND   |       |      |                     |            |            |     |      |     |    |    |
| 11  | Terminal Block  | DP100-XX     | 600   | 100  | 14-3                | 200kA      | 30         | 60  | 100  | 100 | 60 | 30 |
| 11  | End Cover       | DP100-XX-ND  |       |      |                     |            |            |     |      |     |    |    |
| 12  | Terminal Block  | DP150-XX     | 600   | 150  | 1/0 - 12            | 100kA      | 30         | 100 | 200  | 200 | 60 | 30 |
| 13  | Terminal Block  | DP230-XX     | 600   | 230  | 2-4/0               | 200kA      | 60         | 100 | 200  | 200 | 60 | 30 |
| 14  | Terminal Block  | DP370-XX     | 600   | 370  | 300 - 500kcmil      | 200kA      | 100        | 200 | 400  | 400 | 60 | 30 |
| 15  | Grounding Block | DG25-XX      | 600   |      | 12 - 18             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 16  | Grounding Block | DG35-XX      | 600   |      | 10 - 16             | 100kA      | 30         | 30  | 60   | 60  | 60 | 30 |
| 17  | Grounding Block | DG60-XX      | 600   |      | 16-8                | 200kA      | 30         | 60  | 100  | 100 | 60 | 30 |
| 18  | Grounding Block | DG100-XX     | 600   |      | 14-6                | 200kA      |            | 60  | 100  | 100 | 60 | 30 |
| 19  | Grounding Block | DG150-XX     | 600   |      | 12-2                | 200kA      | 30         | 60  | 100  | 100 | 60 | 30 |

\* The "XX" in part number indicates color.



## Short-Circuit Current Ratings (SCCRs)

| No. | Description         | Part Number*        | Volts   | Amps | Wire range for SCCR | SCCR Level | Fuse Class |     |      |     |    |    |
|-----|---------------------|---------------------|---------|------|---------------------|------------|------------|-----|------|-----|----|----|
|     |                     |                     |         |      |                     |            | RK5        | RK1 | J/CF | T   | G  | CC |
| 20  | Grounding Block     | DG230-XX            | 600     |      | 2-4/0               | 200kA      | 30         | 60  | 100  | 100 | 60 | 30 |
| 21A | Terminal Block      | DDP30-XX (upper)    | 300     | 30   | 10 - 18             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 21A | End Cover           | DDP30-XX-ND         |         |      |                     |            |            |     |      |     |    |    |
| 21B | Terminal Block      | DDP30-XX (lower)    | 300     | 30   | 10 - 18             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 21B | End Cover           | DDP30-XX-ND         |         |      |                     |            |            |     |      |     |    |    |
| 22  | Terminal Block      | DDNS10-XX           | 300     | 10   | 16 - 18             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 22  | End Cover           | DDNS10-XX-ND        |         |      |                     |            |            |     |      |     |    |    |
| 23  | Terminal Block      | DIS10-XX            | 300     | 10   | 16 - 16             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 23  | End Cover           | DIS10-XX-ND         |         |      |                     |            |            |     |      |     |    |    |
| 24  | Fuse terminal block | F520ST-XX           | 300     | 6.3  | 18 - 18             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 24  | End Cover           | F520-XX-ND          |         |      |                     |            |            |     |      |     |    |    |
| 25  | Fuse terminal block | F520STLED-XX        | 300     | 6.3  | 18 - 18             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 25  | End Cover           | F520-XX-ND          |         |      |                     |            |            |     |      |     |    |    |
| 26  | Fuse terminal block | F520DDST-XX (upper) | 300     | 16   | 10 - 18             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 26  | End Cover           | F520DD-XX-ND        |         |      |                     |            |            |     |      |     |    |    |
| 27  | Fuse terminal block | F520DDST-XX (lower) | 300     | 30   | 10 - 18             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 27  | End Cover           | F520DD-XX-ND        |         |      |                     |            |            |     |      |     |    |    |
| 28  | Fuse terminal block | F520TOP-XX          | 600     | 6.3  | 6 - 18              | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 29  | Terminal Block      | DTST2-XX            | 300/600 | 48/5 | 8 - 20              | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 29  | End Cover           | DTST-XX-ND          |         |      |                     |            |            |     |      |     |    |    |
| 30  | Terminal Block      | P20S-XX             | 300     | 20   | 12 - 16             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 30  | End Cover           | P20S-XX-ND          |         |      |                     |            |            |     |      |     |    |    |
| 31  | Terminal Block      | P30S-XX             | 300     | 30   | 10 - 16             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 31  | End Cover           | P30S-XX-ND          |         |      |                     |            |            |     |      |     |    |    |
| 32  | Terminal Block      | P65S-XX             | 300     | 65   | 6 - 16              | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 32  | End Cover           | P65S-XX-ND          |         |      |                     |            |            |     |      |     |    |    |
| 33  | Terminal Block      | P25G-XX             | 600     | 25   | 12 - 14             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 33  | End Cover           | P25G-XX-ND          |         |      |                     |            |            |     |      |     |    |    |
| 34  | Terminal Block      | 2P25G-XX            | 600     | 25   | 12 - 14             | 100kA      |            | 30  | 60   | 60  | 60 | 30 |
| 34  | End Cover           | P25G-XX-ND          |         |      |                     |            |            |     |      |     |    |    |

\* The "XX" in part number indicates color.

# Accessories

## Top Screw-On Bridges

**DS2-5-XXP**

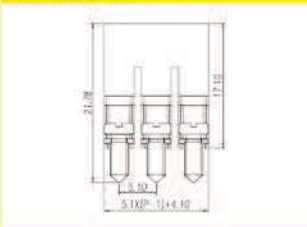


Use with DP25 DG25

DDNS10

Poles (XX) 02, 03, 04, 10

**Dimensions - mm**



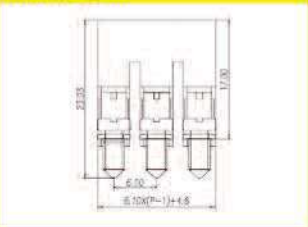
**DS4-XXP**



Use with DP35 DDP30

Poles (XX) 02, 03, 04, 10

**Dimensions - mm**



**DS6-XXP**

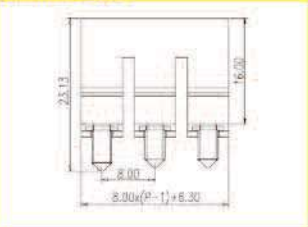


Use with DP45

DTST2

Poles (XX) 02, 03, 04, 10

**Dimensions - mm**



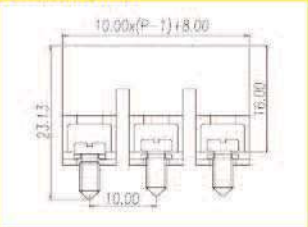
**DS10-XXP**



Use with DP60

Poles (XX) 02, 03, 04, 10

**Dimensions - mm**



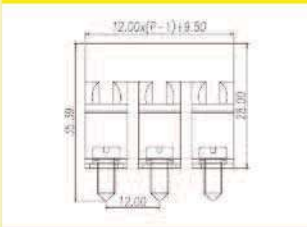
**DS16 - XXP**



Use with DP100

Poles (XX) 02, 03, 04, 10

**Dimensions - mm**



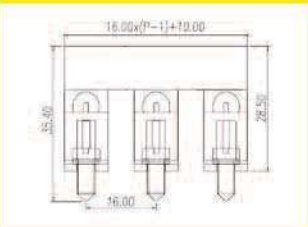
**DS35 - XXP**



Use with DP150

Poles (XX) 02, 03, 04, 10

**Dimensions - mm**





# Accessories

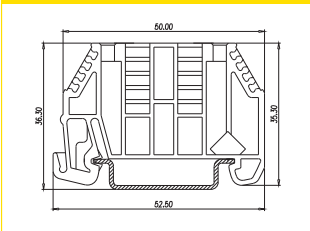
## End Brackets

**BRKT-ND**

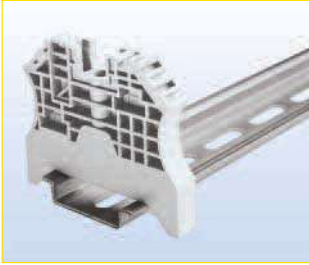


|               |                        |
|---------------|------------------------|
| Use with      | DRL35MMHI<br>DRL35MMLO |
| Torque(N•m)   | N/A                    |
| Torque(lb-in) | N/A                    |
| Screw         | N/A                    |

**Dimensions - mm**

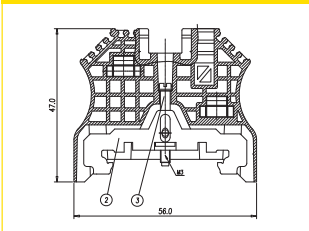


**BRKT-NDSCRW**



|               |                        |
|---------------|------------------------|
| Use with      | DRL35MMHI<br>DRL35MMLO |
| Torque(N•m)   | 0.5                    |
| Torque(lb-in) | 4.4                    |
| Screw         | M3                     |

**Dimensions - mm**

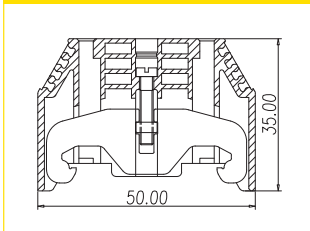


**BRKT-NDSCRW2**



|               |                        |
|---------------|------------------------|
| Use with      | DRL35MMHI<br>DRL35MMLO |
| Torque(N•m)   | 0.78                   |
| Torque(lb-in) | 6.9                    |
| Screw         | M3                     |

**Dimensions - mm**

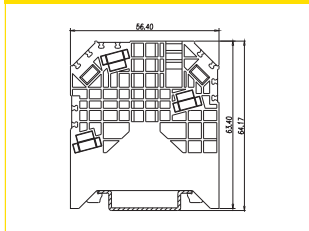


**BRKT-NDSCRW3**



|               |                        |
|---------------|------------------------|
| Use with      | DRL35MMHI<br>DRL35MMLO |
| Torque(N•m)   | 1.8                    |
| Torque(lb-in) | 15.9                   |
| Screw         | M4                     |

**Dimensions - mm**



## Partition Plates

**DKSPS-001**



|          |                        |
|----------|------------------------|
| Use with | DP25 DP35<br>DP45 DP60 |
|----------|------------------------|

**DKSPS-002**



|          |                                 |
|----------|---------------------------------|
| Use with | DP25 DP35<br>DP45 DP60<br>DIS10 |
|----------|---------------------------------|

**DKSPS-006**



|          |       |
|----------|-------|
| Use with | DTST2 |
|----------|-------|

**DKNPS-001**



|          |           |
|----------|-----------|
| Use with | DS20 DS30 |
|----------|-----------|

**DKNPS-002**



|          |      |
|----------|------|
| Use with | DS50 |
|----------|------|

**DKNPS-003**



|          |       |
|----------|-------|
| Use with | DP100 |
|----------|-------|



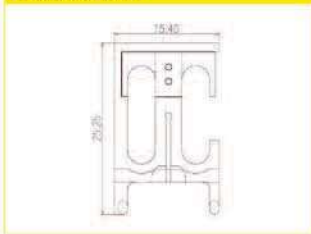
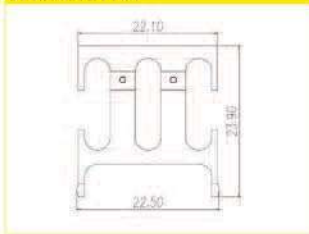
**DKNPS-004**






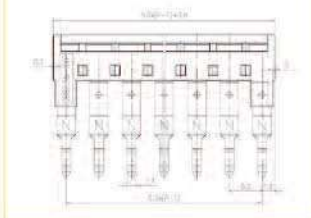
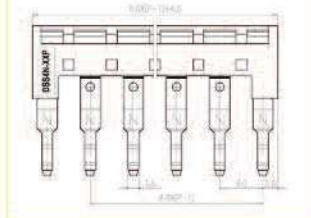
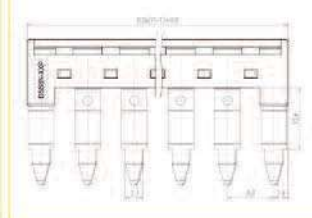
|          |       |
|----------|-------|
| Use with | DP150 |
|----------|-------|

# Accessories

## Jumper Slides





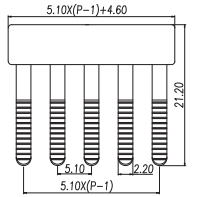
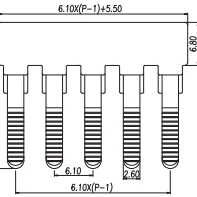
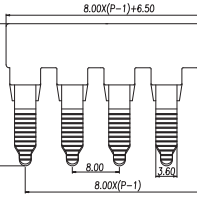
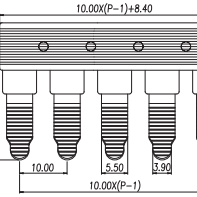




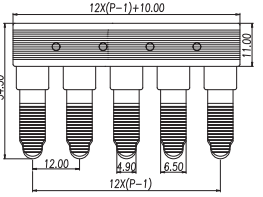
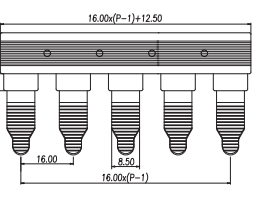
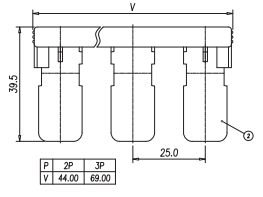
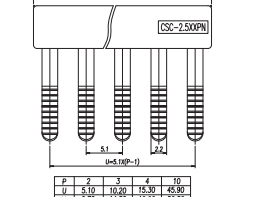
| DS6A02   |   | DS6A03          |       |
|--|---|-----------------|-------|
|  |  |                 |       |
| Use with   | DTST2   | Use with        | DTST2 |
| Poles  | 02  | Poles           | 03    |
| Dimensions - mm  |   | Dimensions - mm |       |
|  |  |                 |       |

## Top Insertion Bridges

| DSS2-5N-XXP  |   | DSS4N-XXP  |                | DSS6N-XXP       |                |
|--|---|--|----------------|-----------------|----------------|
|  |  |  |                |                 |                |
| Use with   | DS20  | Use with   | DS30           | Use with        | DS50           |
| Poles (XX)   | 02, 03, 04, 10  | Poles (XX)   | 02, 03, 04, 10 | Poles (XX)      | 02, 03, 04, 10 |
| Dimensions - mm  |   | Dimensions - mm  |                | Dimensions - mm |                |
|  |  |  |                |                 |                |

## Accessories

### Side Insertion Bridges

| CSC-2-5XXP  | CSC-4XXP  | CSC-6XXP   | CSC-10XXP   |
|---|---|--|---|
|    |    |    |    |
| Use with DP25<br>DIS10 P20S<br>DDNS10   | Use with DP35<br>DDP30  | Use with DTST2 DP45  | Use with DP60   |
| Poles (XX) 02, 03, 04, 10   | Poles (XX) 02, 03, 04, 10   | Poles (XX) 02, 03, 04, 10  | Poles (XX) 02, 03, 04, 10   |
| <b>Dimensions - mm</b>  | <b>Dimensions - mm</b>  | <b>Dimensions - mm</b>   | <b>Dimensions - mm</b>  |
|   |   |   |   |
| <b>CSC-16XXP</b>  | <b>CSC-35XXP</b>  | <b>CSC-95XXP</b>   | <b>CSC-2-5XXPN</b>  |
|  |  |  |  |
| Use with DP100  | Use with DP150  | Use with DP230   | Use with DS20   |
| Poles (XX) 02, 03, 04, 10   | Poles (XX) 02, 03, 04, 10   | Poles (XX) 02, 03, 04, 10  | Poles (XX) 02, 03, 04, 10   |
| <b>Dimensions - mm</b>  | <b>Dimensions - mm</b>  | <b>Dimensions - mm</b>   | <b>Dimensions - mm</b>  |
|  |  |  |  |

Connectors

# Accessories

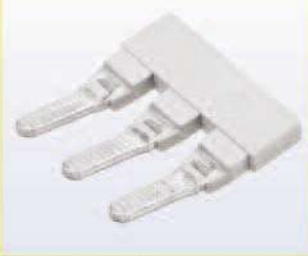
## Side Insertion Bridges

CSC-4XXPN



Use with DS30

CSC-6XXPN



Use with DS50

DS-204



Use with P25G  
2P25G

CSC-2-5XXPS



Use with DM20  
P20S

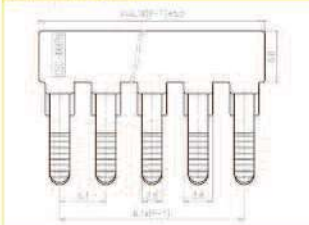
Poles (XX) 02, 03, 04, 10

Poles (XX) 02, 03, 04, 10

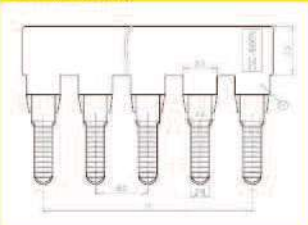
Poles 02

Poles (XX) 02, 03, 04, 10

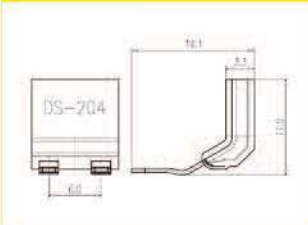
Dimensions - mm



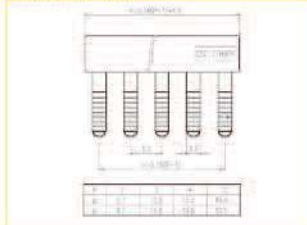
Dimensions - mm



Dimensions - mm



Dimensions - mm



CSC-4XXPS



Use with DM30  
P30S

CSC-6XXPS

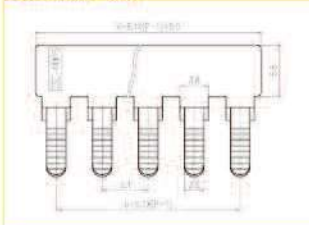


Use with DM50  
P65S

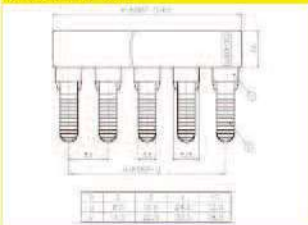
Poles (XX) 02, 03, 04, 10

Poles (XX) 02, 03, 04, 10

Dimensions - mm



Dimensions - mm



## Accessories

### Mounting Rails and Brackets

|  |   |   |   |
|--|---|---|---|
| <p><b>DRL15MM*</b><br/>(15mm DIN-Rail)</p>  | <p><b>DRL32MMG*</b><br/>(32mm G-Type)</p>  | <p><b>DRL35MMLO*</b><br/>(35mm DIN-Rail - Low Profile)</p>  | <p><b>DRL35MMHI*</b><br/>(35mm DIN-Rail - High Profile)</p>  |
| <p><b>NFTA Series**</b><br/>(C-Rail)</p>    | <p><b>NRA Series**</b><br/>(C-Rail)</p>    | <p><b>BRKT-ANGL</b><br/>(Angle Bracket)</p>                 | <p><b>BRKT-FLT</b><br/>(Flat Bracket)</p>                    |

\*Available in 1 meter lengths only.

\*\*Cut to length. Consult Bussmann for details.



## BussScribe Marking System

**DPLT-001SET**  
PLOTTER SET



**DPLT-SPLT**  
SUPPORT PLATE



**PLOTTER PENS**  
DPLT-PEN (Tip 0.25mm)  
DPLT-PEN2 (Tip 0.35mm)



### Description

- Pen is installed manually
- USB interface to PC
- 110-240Vac power supply
- WINDOWS® Operation System

System Kit Includes:

- Plotter Pens
- Support Plate
- Software
- Plotter
- Power Supplies
- USB Cable

### Description

Support plate adjustable to accommodate various sizes of marking labels. The support plate is universal and suitable for TM2xCB marking label series.

Each plotter set includes one support plate, additional plates are available separately.

### Description

Disposable black ink cartridge pen.  
Single pen per pack.

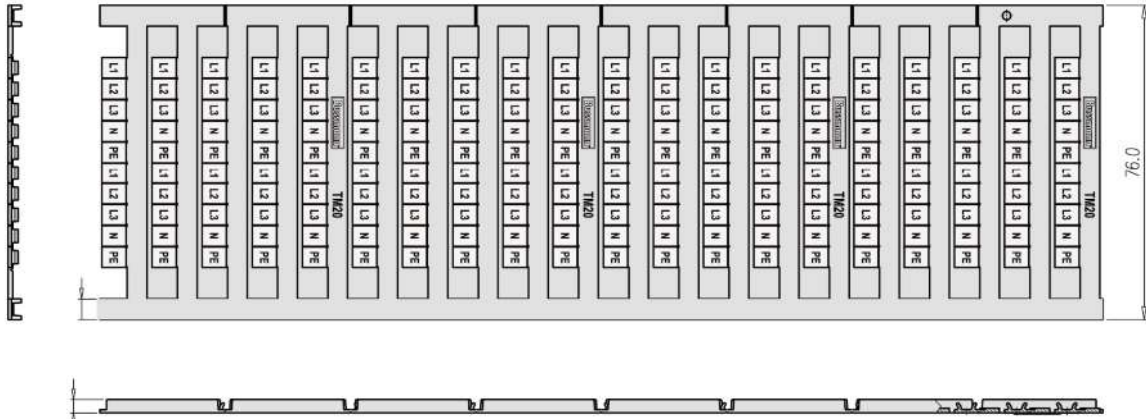
### Marking Label Selection Chart

| Part Number | Length (mm) | Width (mm) | Line x Row | Number of Tags | Applicable Block Part Numbers  |
|-------------|-------------|------------|------------|----------------|--|
| TM20CB      | 5.8         | 5.1        | 20 x 10    | 200            | F20TOP,<br>DM20,<br>P20S, P25G, 2P25G  |
| TM21CB      | 5.8         | 6.1        | 20 x 10    | 200            | DDP30,<br>DM30,<br>P30S  |
| TM22CB      | 5.8         | 8.0        | 20 x 8     | 160            | DM50,<br>P65S  |
| TM26CB      | 12          | 5.1        | 12 x 12    | 144            | DS20,<br>DP25,<br>DG25,<br>DDNS10,<br>DIS10  |
| TM27CB      | 12          | 6.1        | 12 x 10    | 120            | DS30,<br>DP35,<br>DG35   |
| TM28CB      | 12          | 8.0        | 12 x 7     | 84             | DS50,<br>DP45, DP60, DP100, DP150, DP230,<br>DG60, DG100, DG150, DG230,<br>F520ST, F520STLED, F520DDST,<br>DTST2 |

# Marking Label Ordering Method (typical)

Example: TM20CB–DH01, Horizontal Marking – L1, L2, L3, N, PE

## TM20CB Series - mm



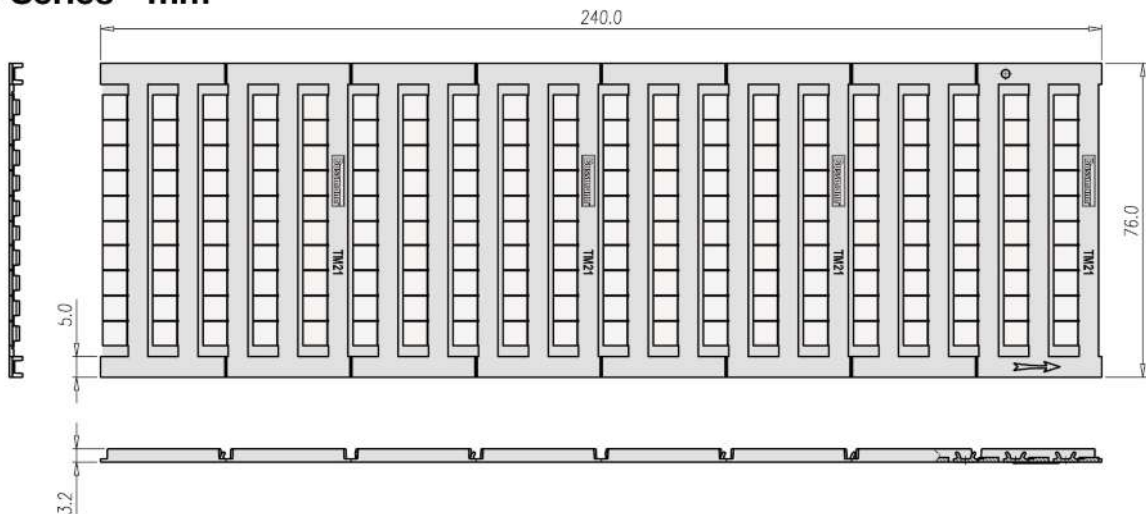
### TM20CB

| Part Numbers | Descriptions   |
|--------------|--|
| TM20CB       | Marking label, blank   |
| TM20CB-DH01  | Marking label, horizontal, (L1,L2,L3,N,PE) repeated 40 times |
| TM20CB-DH02  | Marking label, horizontal, (L1,L2,L3,N) repeated 40 times    |
| TM20CB-FH01  | Marking label, horizontal, 1 to 10, repeated in 20 lines     |
| TM20CB-FH02  | Marking label, horizontal, 11 to 20, repeated in 20 lines    |
| TM20CB-FH03  | Marking label, horizontal, 21 to 30, repeated in 20 lines    |
| TM20CB-FH04  | Marking label, horizontal, 31 to 40, repeated in 20 lines    |
| TM20CB-FH05  | Marking label, horizontal, 41 to 50, repeated in 20 lines    |
| TM20CB-EH01  | Marking label, horizontal, 1 to 50, repeated in 4 sets       |
| TM20CB-EH02  | Marking label, horizontal, 51 to 100, repeated in 4 sets     |
| TM20CB-DV01  | Marking label, vertical, (L1,L2,L3,N,PE) repeated 40 times   |
| TM20CB-DV02  | Marking label, vertical, (L1,L2,L3,N) repeated 40 times      |
| TM20CB-FV01  | Marking label, vertical, 1 to 10, repeated in 20 lines       |
| TM20CB-FV02  | Marking label, vertical, 11 to 20, repeated in 20 lines      |
| TM20CB-EV01  | Marking label, vertical, 1 to 50, repeated in 4 sets         |

### TM21CB

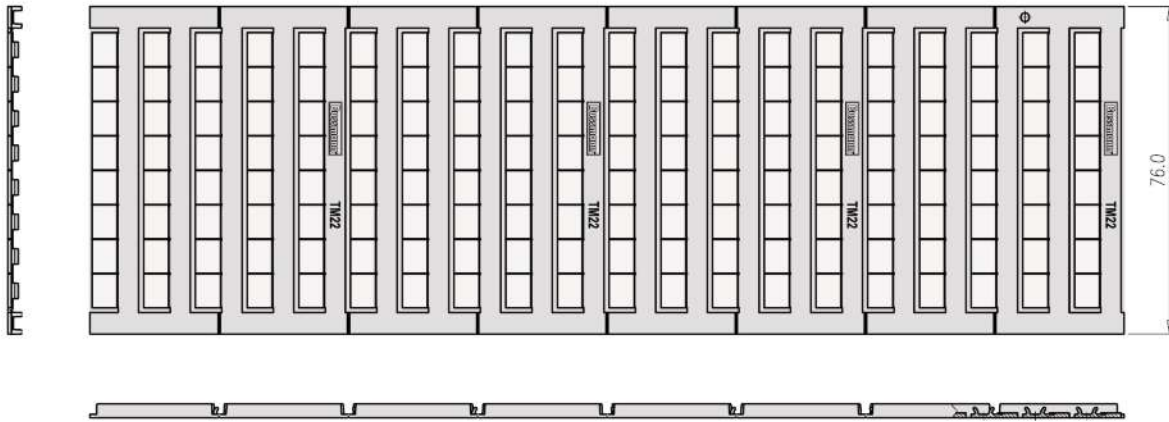
| Part Numbers | Descriptions   |
|--------------|--|
| TM21CB       | Marking label, blank   |
| TM21CB-DH01  | Marking label, horizontal, (L1,L2,L3,N,PE) repeated 40 times |
| TM21CB-DH02  | Marking label, horizontal, (L1,L2,L3,N) repeated 40 times    |
| TM21CB-FH01  | Marking label, horizontal, 1 to 10, repeated in 20 lines     |
| TM21CB-FH02  | Marking label, horizontal, 11 to 20, repeated in 20 lines    |
| TM21CB-FH03  | Marking label, horizontal, 21 to 30, repeated in 20 lines    |
| TM21CB-FH04  | Marking label, horizontal, 31 to 40, repeated in 20 lines    |
| TM21CB-FH05  | Marking label, horizontal, 41 to 50, repeated in 20 lines    |
| TM21CB-EH01  | Marking label, horizontal, 1 to 50, repeated in 4 sets       |
| TM21CB-EH02  | Marking label, horizontal, 51 to 100, repeated in 4 sets     |
| TM21CB-DV01  | Marking label, vertical, (L1,L2,L3,N,PE) repeated 40 times   |
| TM21CB-DV02  | Marking label, vertical, (L1,L2,L3,N) repeated 40 times      |
| TM21CB-FV01  | Marking label, vertical, 1 to 10, repeated in 20 lines       |
| TM21CB-FV02  | Marking label, vertical, 11 to 20, repeated in 20 lines      |
| TM21CB-EV01  | Marking label, vertical, 1 to 50, repeated in 4 sets         |

## TM21CB Series - mm



# Marking Label Ordering Method (typical)

## TM22CB Series - mm



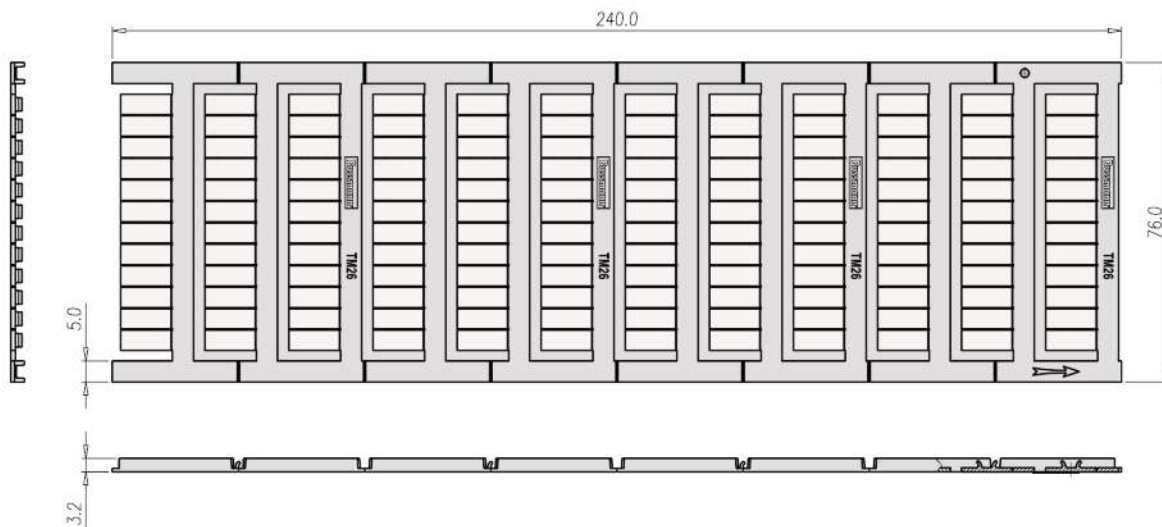
### TM22CB

| Part Numbers | Descriptions   |
|--------------|--|
| TM22CB       | Marking label, blank   |
| TM22CB-DH01  | Marking label, horizontal, (L1,L2,L3,N,PE) repeated 30 times |
| TM22CB-DH02  | Marking label, horizontal, (L1,L2,L3,N) repeated 40 times    |
| TM22CB-FH01  | Marking label, horizontal, 1 to 10, repeated in 16 lines     |
| TM22CB-FH02  | Marking label, horizontal, 11 to 20, repeated in 16 lines    |
| TM22CB-FH03  | Marking label, horizontal, 21 to 30, repeated in 16 lines    |
| TM22CB-FH04  | Marking label, horizontal, 31 to 40, repeated in 16 lines    |
| TM22CB-FH05  | Marking label, horizontal, 41 to 50, repeated in 16 lines    |
| TM22CB-EH01  | Marking label, horizontal, 1 to 50, repeated in 3 sets       |
| TM22CB-EH02  | Marking label, horizontal, 51 to 100, repeated in 3 sets     |
| TM22CB-DV01  | Marking label, vertical, (L1,L2,L3,N,PE) repeated 30 times   |
| TM22CB-DV02  | Marking label, vertical, (L1,L2,L3,N) repeated 40 times      |
| TM22CB-FV01  | Marking label, vertical, 1 to 10, repeated in 16 lines       |
| TM22CB-FV02  | Marking label, vertical, 11 to 20, repeated in 16 lines      |
| TM22CB-EV01  | Marking label, vertical, 1 to 50, repeated in 3 sets         |

### TM26CB

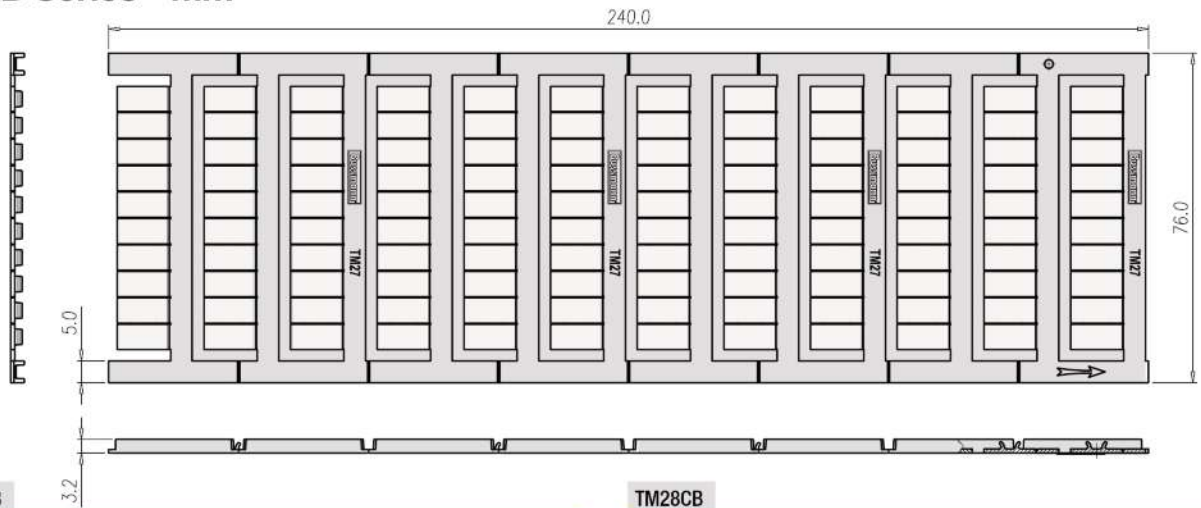
| Part Numbers | Descriptions   |
|--------------|--|
| TM26CB       | Marking label, blank   |
| TM26CB-DH01  | Marking label, horizontal, (L1,L2,L3,N,PE) repeated 24 times |
| TM26CB-DH02  | Marking label, horizontal, (L1,L2,L3,N) repeated 36 times    |
| TM26CB-FH01  | Marking label, horizontal, 1 to 10, repeated in 12 lines     |
| TM26CB-FH02  | Marking label, horizontal, 11 to 20, repeated in 12 lines    |
| TM26CB-FH03  | Marking label, horizontal, 21 to 30, repeated in 12 lines    |
| TM26CB-FH04  | Marking label, horizontal, 31 to 40, repeated in 12 lines    |
| TM26CB-FH05  | Marking label, horizontal, 41 to 50, repeated in 12 lines    |
| TM26CB-EH01  | Marking label, horizontal, 1 to 50, repeated in 2 sets       |
| TM26CB-EH02  | Marking label, horizontal, 51 to 100, repeated in 2 sets     |
| TM26CB-DV01  | Marking label, vertical, (L1,L2,L3,N,PE) repeated 24 times   |
| TM26CB-DV02  | Marking label, vertical, (L1,L2,L3,N) repeated 36 times      |
| TM26CB-FV01  | Marking label, vertical, 1 to 10, repeated in 12 lines       |
| TM26CB-FV02  | Marking label, vertical, 11 to 20, repeated in 12 lines      |
| TM26CB-EV01  | Marking label, vertical, 1 to 50, repeated in 2 sets         |

## TM26CB Series - mm



# Marking Label Ordering Method (typical)

## TM27CB Series - mm



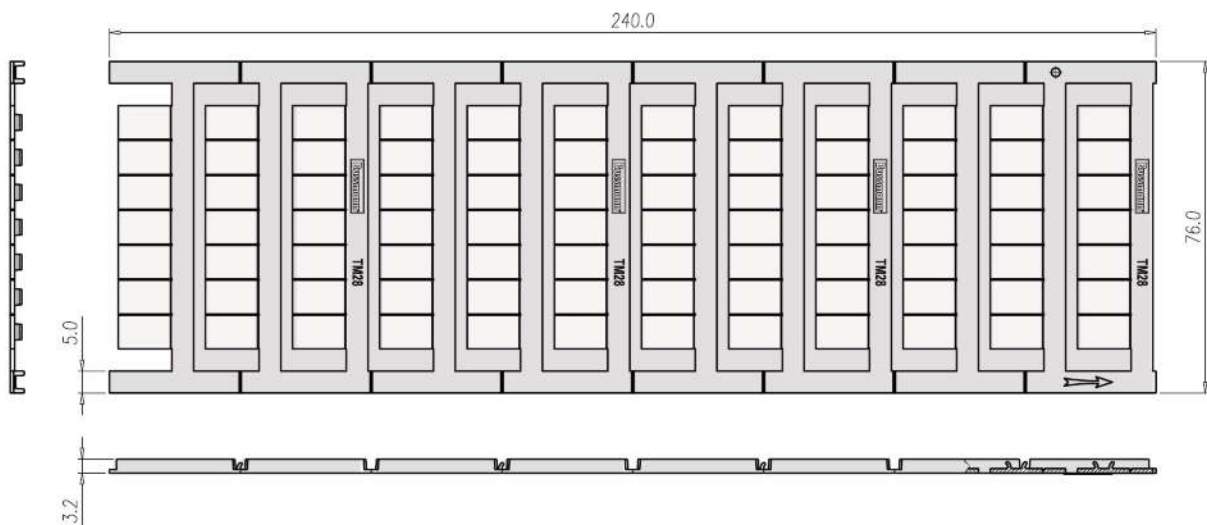
TM27CB

| Part Numbers | Descriptions   |
|--------------|--|
| TM27CB       | Marking label, blank   |
| TM27CB-DH01  | Marking label, horizontal, (L1,L2,L3,N,PE) repeated 40 times |
| TM27CB-DH02  | Marking label, horizontal, (L1,L2,L3,N) repeated 24 times    |
| TM27CB-FH01  | Marking label, horizontal, 1 to 10, repeated in 12 lines     |
| TM27CB-FH02  | Marking label, horizontal, 11 to 20, repeated in 12 lines    |
| TM27CB-FH03  | Marking label, horizontal, 21 to 30, repeated in 12 lines    |
| TM27CB-FH04  | Marking label, horizontal, 31 to 40, repeated in 12 lines    |
| TM27CB-FH05  | Marking label, horizontal, 41 to 50, repeated in 12 lines    |
| TM27CB-EH01  | Marking label, horizontal, 1 to 50, repeated in 2 sets       |
| TM27CB-EH02  | Marking label, horizontal, 1 to 50, repeated in 2 sets       |
| TM27CB-DV01  | Marking label, vertical, (L1,L2,L3,N,PE) repeated 24 times   |
| TM27CB-DV02  | Marking label, vertical, (L1,L2,L3,N) repeated 24 times      |
| TM27CB-FV01  | Marking label, vertical, 1 to 10, repeated in 12 lines       |
| TM27CB-FV02  | Marking label, vertical, 11 to 20, repeated in 12 lines      |
| TM27CB-EV01  | Marking label, vertical, 1 to 50, repeated in 2 sets         |

TM28CB

| Part Numbers | Descriptions   |
|--------------|--|
| TM28CB       | Marking label, blank   |
| TM28CB-DH01  | Marking label, horizontal, (L1,L2,L3,N,PE) repeated 12 times |
| TM28CB-DH02  | Marking label, horizontal, (L1,L2,L3,N) repeated 20 times    |
| TM28CB-FH01  | Marking label, horizontal, 1 to 10, repeated in 8 lines      |
| TM28CB-FH02  | Marking label, horizontal, 11 to 20, repeated in 8 lines     |
| TM28CB-FH03  | Marking label, horizontal, 21 to 30, repeated in 8 lines     |
| TM28CB-FH04  | Marking label, horizontal, 31 to 40, repeated in 8 lines     |
| TM28CB-FH05  | Marking label, horizontal, 41 to 50, repeated in 8 lines     |
| TM28CB-EH01  | Marking label, horizontal, 1 to 50, repeated in 1 sets       |
| TM28CB-EH02  | Marking label, horizontal, 51 to 100, repeated in 1 sets     |
| TM28CB-DV01  | Marking label, vertical, (L1,L2,L3,N,PE) repeated 12 times   |
| TM28CB-DV02  | Marking label, vertical, (L1,L2,L3,N) repeated 20 times      |
| TM28CB-FV01  | Marking label, vertical, 1 to 10, repeated in 8 lines        |
| TM28CB-FV02  | Marking label, vertical, 11 to 20, repeated in 8 lines       |
| TM28CB-EV01  | Marking label, vertical, 1 to 50, repeated in 1 sets         |

## TM28CB Series - mm





# NDN Series Feed Through Blocks



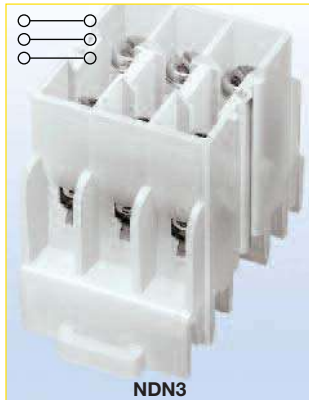
## NDN Series

The NDN Series features a compact line of rail-mounted terminal blocks suitable for both 35mm DIN-Rail or C-Rail applications. Products easily snap onto the mounting rail for a quick, simple, low-cost solution. Available accessories include jumpers and marking tape.

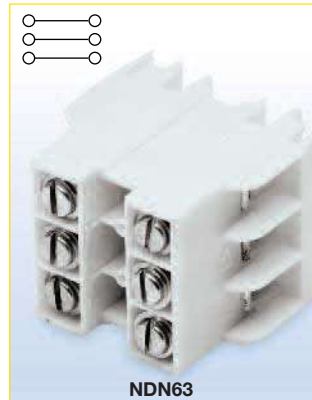
UL E62622  
CSA File 15364  
CSA File 47235 (NDN1, NDN111)





NDNV4



NDN3

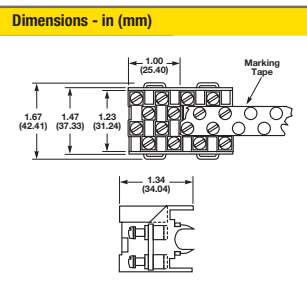




NDN63

| Approval   |                  |
|--|------------------|
| Technical Data   |                  |
| Rated voltage  | 600V             |
| Rated Current  | 30A              |
| Center spacing, in (mm)  | 0.25 / 6.35      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )   | 22~10 / 0.5~6    |
| Number of Poles  | 4                |
| Circuits per foot  | 48               |
| Torque(N•m)  | 2                |
| Torque(lb-in)  | 18               |
| Screw  | #6-32            |
| WxHxD(mm)  | 25.4 x 34 x 42.4 |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | NDNV4-WH |
| ● Black            | NDNV4-BK |
| ● Yellow           | NDNV4-YE |

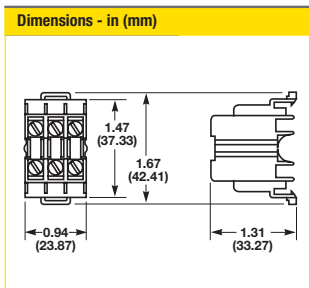
| Accessories          | Cat. No.               |
|----------------------|------------------------|
| 4 circuits           | JN4                    |
|                      | MTC6                   |
| 35mm DIN-Rail        | DRL35MML0<br>DRL35MMHI |
| C-Rail               | NFTA Series            |
| C-Rail (low profile) | NRA Series             |
| Modular Option       | N/A                    |





| Approval   |                    |
|---|--------------------|
| Technical Data  |                    |
| Rated voltage   | 600V               |
| Rated Current   | 30A                |
| Center spacing, in (mm)   | 0.3 / 7.62         |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )  | 22~10 / 0.5~6      |
| Number of Poles   | 3                  |
| Circuits per foot   | 38                 |
| Torque(N•m)   | 2                  |
| Torque(lb-in)   | 18                 |
| Screw   | #6-32              |
| WxHxD(mm)   | 23.9 x 33.3 x 42.4 |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | NDN3-WH  |
| ● Black            | NDN3-BK  |
| ● Blue             | NDN3-BL  |
| ● Yellow           | NDN3-YE  |
| ● Red              | NDN3-RE  |

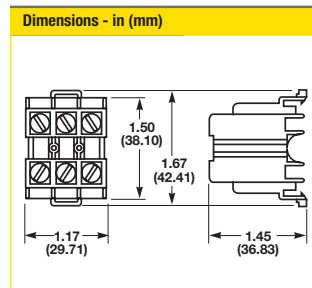
| Accessories          | Cat. No.               |
|----------------------|------------------------|
| 2 circuits           | JND3                   |
|                      | MT12-1-2               |
| 35mm DIN-Rail        | DRL35MML0<br>DRL35MMHI |
| C-Rail               | NFTA Series            |
| C-Rail (low profile) | NRA Series             |
| Modular Option       | N/A                    |



| Approval   |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 600V               |
| Rated Current  | 65A                |
| Center spacing, in (mm)  | 0.375 / 9.52       |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )   | 18~6 / 1~16        |
| Number of Poles  | 3                  |
| Circuits per foot  | 30                 |
| Torque(N•m)  | 4                  |
| Torque(lb-in)  | 35                 |
| Screw  | #10-32             |
| WxHxD(mm)  | 29.7 x 36.8 x 42.4 |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | NDN63-WH |
| ● Black            | NDN63-BK |
| ● Yellow           | NDN63-YE |

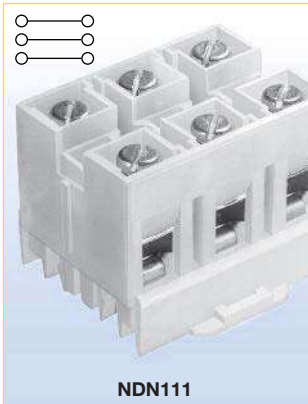
| Accessories          | Cat. No.               |
|----------------------|------------------------|
| 2 circuits           | JN3                    |
|                      | MT12-1-2               |
| 35mm DIN-Rail        | DRL35MML0<br>DRL35MMHI |
| C-Rail               | NFTA Series            |
| C-Rail (low profile) | NRA Series             |
| Modular Option       | N/A                    |



- Block 
- Jumper
- Marking Tape
- Mounting
- Modular Option



# NDN Series Feed Through Blocks



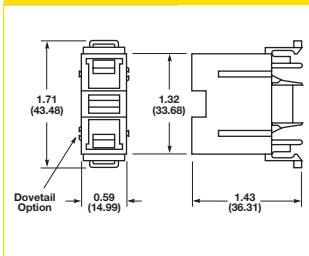
Approval

| Technical Data   |                  |
|--|------------------|
| Rated voltage  | 600V             |
| Rated Current  | 90A              |
| Center spacing in (mm)                                   | 0.635 / 16.31    |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 18~2 / 1~35      |
| Number of Poles  | 1                |
| Circuits per foot  | 18               |
| Torque(N•m)  | 3.6              |
| Torque(lb-in)  | 32               |
| Screw  | 1/4-28           |
| WxHxD(mm)  | 15 x 30.3 x 43.5 |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | NDN1-WH  |

| Accessories          | Cat. No.               |
|----------------------|------------------------|
|                      | MT12-1-2               |
| 35mm DIN-Rail        | DRL35MML0<br>DRL35MMHI |
| C-Rail               | NFTA Series            |
| C-Rail (low profile) | NRA Series             |
|                      | NDN1A-WH               |

Dimensions - in (mm)



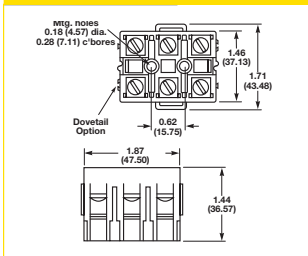
Approval

| Technical Data   |                    |
|--|--------------------|
| Rated voltage  | 600V               |
| Rated Current  | 90A                |
| Center spacing in (mm)                                   | 0.635 / 16.31      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 18~2 / 1~35        |
| Number of Poles  | 3                  |
| Circuits per foot  | 18                 |
| Torque(N•m)  | 3.6                |
| Torque(lb-in)  | 32                 |
| Screw  | 1/4-28             |
| WxHxD(mm)  | 47.5 x 36.6 x 43.5 |

| Colors             | Cat. No.  |
|--------------------|-----------|
| ○ White (Standard) | NDN111-WH |
| ● Black            | NDN111-BK |
| ● Blue             | NDN111-BL |
| ● Yellow           | NDN111-YE |
| ● Red              | NDN111-RE |

| Accessories          | Cat. No.                           |
|----------------------|------------------------------------|
| 2 circuits           | JN1                                |
|                      | MT12-1-2                           |
| 35mm DIN-Rail        | DRL35MML0<br>DRL35MMHI             |
| C-Rail               | NFTA Series                        |
| C-Rail (low profile) | NRA Series                         |
|                      | NDN111A-WH, NDN111A-BK, NDN111A-YE |

Dimensions - in (mm)



Connectors

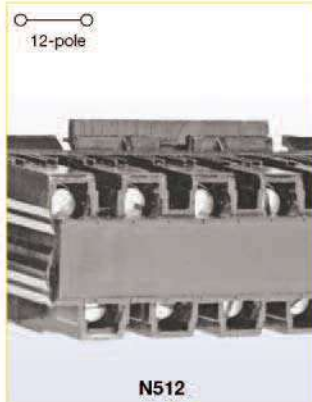
# C-Rail Feed Through Blocks



## C-Rail Series

C-Rail terminal blocks provide a low-profile, compact foot-print solution for various wire connection applications. Products feature an easy, snap-on installation method and an array of accessories including jumpers and marking strips.

UL E62622 (excluding N512)  
CSA File 15364  
CSA File 47235 (NFT3)



N512

| Approval   |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 300V 600V          |
| Rated current  | 20A 5A             |
| Center spacing in (mm)                                   | 0.197 / 5.0        |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-12 / 0.5-4      |
| Number of Poles  | 12                 |
| Circuits per foot  | 60                 |
| Torque(N•m)  | 1.4                |
| Torque(lb-in)  | 12                 |
| Screw  | #4-48              |
| WxHxD(mm)  | 61.0 x 27.7 x 22.4 |

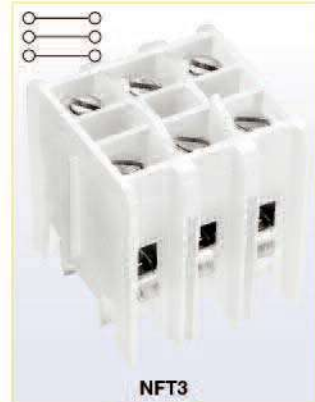
| Colors             | Cat. No. |
|--------------------|----------|
| ● Black (Standard) | N512-BK  |



NFT2

| Approval   |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 600V               |
| Rated Current  | 40A                |
| Center spacing in (mm)                                   | 0.28 / 7.13        |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-8 / 0.5-10      |
| Number of Poles  | 2                  |
| Circuits per foot  | 38                 |
| Torque(N•m)  | 2                  |
| Torque(lb-in)  | 18                 |
| Screw  | #8-32              |
| WxHxD(mm)  | 16.5 x 34.7 x 42.8 |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | NFT2-WH  |
| ● Black            | NFT2-BK  |
| ● Blue             | NFT2-BL  |
| ● Red              | NFT2-RE  |



NFT3

| Approval   |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 600V               |
| Rated Current  | 40A                |
| Center spacing in (mm)                                   | 0.39 / 9.91        |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-8 / 0.5-10      |
| Number of Poles  | 3                  |
| Circuits per foot  | 28                 |
| Torque(N•m)  | 2                  |
| Torque(lb-in)  | 18                 |
| Screw  | #8-32              |
| WxHxD(mm)  | 30.0 x 32.9 x 31.4 |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | NFT3-WH  |
| ● Black            | NFT3-BK  |
| ● Blue             | NFT3-BL  |
| ● Yellow           | NFT3-YE  |
| ● Red              | NFT3-RE  |

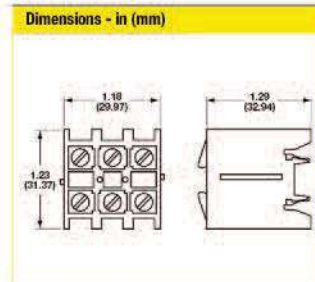
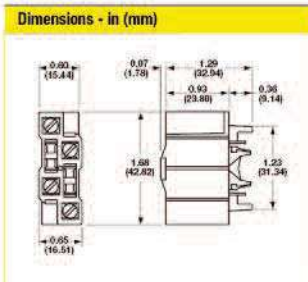
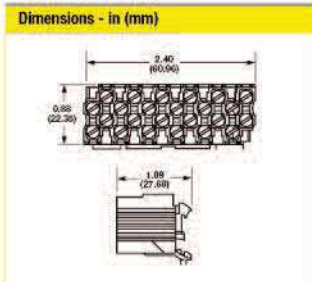


- Jumper
- Marking Tape
- Mounting

| Accessories          | Cat. No.    |
|----------------------|-------------|
| 12 circuits          | JN512       |
|                      | AT512       |
| 15mm DIN-Rail        | DRL15MM     |
| C-Rail               | NFTA Series |
| C-Rail (low profile) | NRA Series  |

| Accessories          | Cat. No.    |
|----------------------|-------------|
| 2 circuits           | JN2         |
|                      | MT12-1-2    |
| C-Rail               | NFTA Series |
| C-Rail (low profile) | NRA Series  |

| Accessories          | Cat. No.    |
|----------------------|-------------|
| 2 circuits           | JN3         |
|                      | MT12-1-2    |
| C-Rail               | NFTA Series |
| C-Rail (low profile) | NRA Series  |



# C-Rail Feed Through Blocks





NC3







NSE3



NSS3

| Approval   |                          |
|--|--------------------------|
| Technical Data   |                          |
| Rated voltage  | 600V                     |
| Rated Current  | 175A                     |
| Center spacing in (mm)   | 1.06 / 26.92             |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )   | 14-2/0 / 2.5-70<br>Cu/AL |
| Number of Poles  | 3                        |
| Circuits per foot  | 11                       |
| Torque(N•m)  | 5.1                      |
| Torque(lb-in)  | 45                       |
| Screw  | 5/16 - 24                |
| WxHxD(mm)  | 79.4 x 44.5 x 44.5       |
| Colors   | Cat. No.                 |
| ○ White (Standard)   | NC3-WH                   |
| ● Black  | NC3-BK                   |

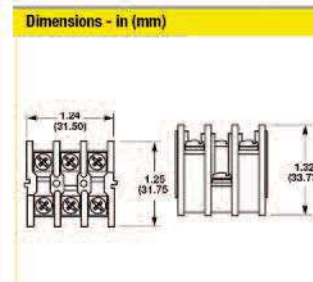
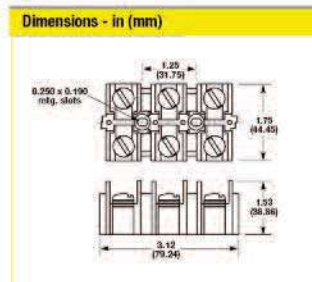
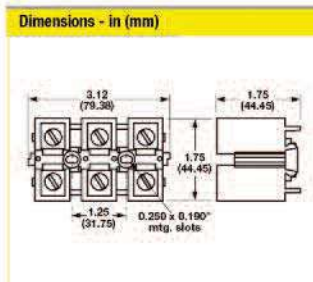
| Approval   |                        |
|--|------------------------|
| Technical Data   |                        |
| Rated voltage  | 600V                   |
| Rated Current  | 115A                   |
| Center spacing in (mm)   | 1.06 / 26.92           |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )   | Ring Terminals<br>Only |
| Number of Poles  | 3                      |
| Circuits per foot  | 11                     |
| Torque(N•m)  | 3.6                    |
| Torque(lb-in)  | 32                     |
| Screw  | 1/4 - 28               |
| WxHxD(mm)  | 79.2 x 38.9 x 44.5     |
| Colors   | Cat. No.               |
| ○ White (Standard)   | NSE3-WH                |

| Approval   |                        |
|---|------------------------|
| Technical Data  |                        |
| Rated voltage   | 600V                   |
| Rated Current   | 30A                    |
| Center spacing in (mm)  | 0.385 / 9.77           |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )  | Ring Terminals<br>Only |
| Number of Poles   | 3                      |
| Circuits per foot   | 28                     |
| Torque(N•m)   | 1.4                    |
| Torque(lb-in)   | 12                     |
| Screw   | #6-32                  |
| WxHxD(mm)   | 31.5 x 33.7 x 31.8     |
| Colors  | Cat. No.               |
| ○ White (Standard)  | NSS3-WH                |
| ● Black   | NSS3-BK                |

| Accessories                                   | Cat. No.                  |
|---|---------------------------|
|   | MT12-1-2                  |
| Panel Mount<br>C-Rail<br>C-Rail (low profile) | NFTA Series<br>NRA Series |

| Accessories                                   | Cat. No.                  |
|---|---------------------------|
| 2 circuits                                    | JNSE3                     |
|   | MT12-1-2                  |
| Panel Mount<br>C-Rail<br>C-Rail (low profile) | NFTA Series<br>NRA Series |

| Accessories                    | Cat. No.                  |
|--------------------------------|---------------------------|
| 2 circuits                     | JNSS3                     |
|                                | MT12-1-2                  |
| C-Rail<br>C-Rail (low profile) | NFTA Series<br>NRA Series |





# Depluggable Blocks

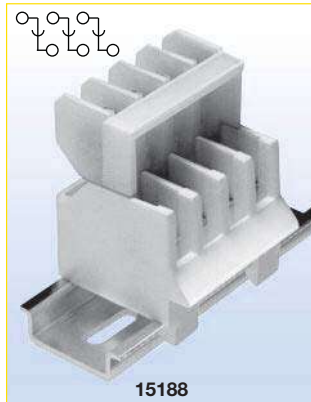


## Depluggable Blocks

Depluggable terminal blocks are available for both 35mm DIN-Rail and C-Rail applications. These blocks provide a simple depluggable\* option for panel wiring applications with the convenience of quick, easy, snap-on installation. Product accessories, such as jumpers and marking tape, are available for most products.

UL E62622  
CSA File 15364  
CSA File 47235 (15188 Series)

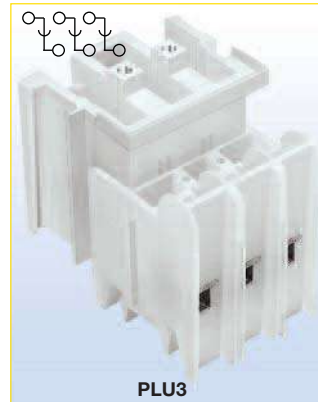
\*Not for use as a load break disconnect.



15188



15288



PLU3

| Approval   |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 600V               |
| Rated Current  | 30A                |
| Center spacing in (mm)                                   | 0.375 / 9.52       |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 16-12 / 1.5-4      |
| Number of Poles  | 3 or 4             |
| Circuits per foot  | 32                 |
| Torque(N•m)  | 1.4                |
| Torque(lb-in)  | 12                 |
| Screw  | #6-32              |
| WxHxD(mm)  |                    |
| 3-Pole   | 30.2 x 49.3 x 47.8 |
| 4-Pole   | 39.2 x 49.3 x 47.8 |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | 15188-3  |
| ○ White (Standard) | 15188-4  |

| Approval   |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 600V               |
| Rated Current  | 65A                |
| Center spacing in (mm)                                   | 0.54 / 13.7        |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 16-6 / 1.5-16      |
| Number of Poles  | 3                  |
| Circuits per foot  | 22                 |
| Torque(N•m)  | 2.3                |
| Torque(lb-in)  | 20                 |
| Screw  | #8-32              |
| WxHxD(mm)  |                    |
|  | 43.2 x 49.3 x 47.9 |
|  | N/A                |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | 15288    |

| Approval   |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 600V               |
| Rated Current  | 40A                |
| Center spacing in (mm)                                   | 0.39 / 9.91        |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-8 / 0.5-10      |
| Number of Poles  | 3                  |
| Circuits per foot  | 28                 |
| Torque(N•m)  | 2                  |
| Torque(lb-in)  | 18                 |
| Screw  | #8-32              |
| WxHxD(mm)  |                    |
|  | 31.8 x 47.0 x 45.6 |
|  | N/A                |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | PLU3-WH  |
| ● Black            | PLU3-BK  |
| ● Yellow           | PLU3-YE  |



| Accessories   | Cat. No.               |
|---------------|------------------------|
| 2 circuits    | 15188J-2-J             |
| 35mm DIN-Rail | DRL35MML0<br>DRL35MMHI |

| Accessories   | Cat. No.               |
|---------------|------------------------|
| 35mm DIN-Rail | DRL35MML0<br>DRL35MMHI |

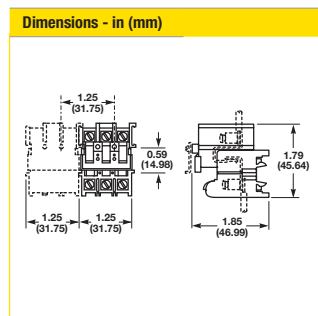
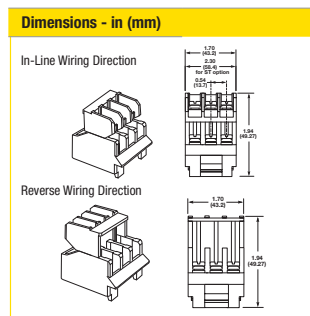
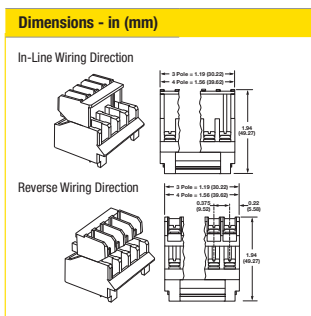
| Accessories          | Cat. No.    |
|----------------------|-------------|
| 2 circuits           | JN3         |
|                      | MT12-1-2    |
| C-Rail (AL)          | NFTA Series |
| C-Rail (low profile) | NRA Series  |

| Configurable Option | Option    | Cat. No. |
|---------------------|-----------|----------|
| Reverse Wiring      | 15188-_R  |          |
| Locking             | 15188-_S  |          |
| Reverse; Locking    | 15188-_RS |          |

Options offered for both pole lengths

| Configurable Option | Option   | Cat. No. |
|---------------------|----------|----------|
| Reverse Wiring      | 15288-R  |          |
| Screw Together      | 15288-ST |          |
| Locking             | 15288-S  |          |

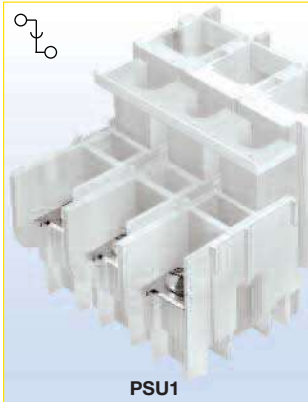
Options may be combined




# Depluggable Blocks



PLU1




PSU1

| Approval  |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 600V               |
| Rated Current  | 70A                |
| Center spacing in (mm)   | 0.625 / 15.88      |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )                                   | 18~4 / 1.0~25      |
| Number of Poles  | 1 - 3              |
| Circuits per foot  | 19                 |
| Torque(N•m)  | 3.6                |
| Torque(lb-in)  | 32                 |
| Screw  | 1/4 - 28           |
| WxHxD(mm)  |                    |
| 1-Pole   | 18.5 x 47.0 x 45.6 |
| 2-Pole   | 34.0 x 47.0 x 45.6 |
| 3-Pole   | 49.5 x 47.0 x 45.6 |

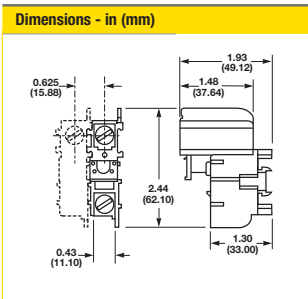
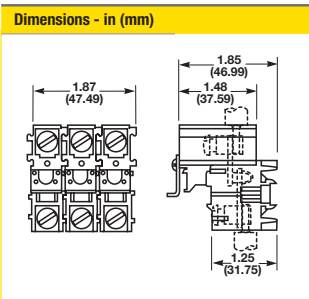
| Colors           | Cat. No.  |
|------------------|-----------|
| ○ White (1-Pole) | PLU1-WH   |
| ○ White (2-Pole) | PLU11-WH  |
| ○ White (3-Pole) | PLU111-WH |

| Accessories          | Cat. No.    |
|----------------------|-------------|
| 2 circuits           | JN1         |
|                      | MT12-1-2    |
| C-Rail (AL)          | NFTA Series |
| C-Rail (low profile) | NRA Series  |

| Approval  |                     |
|--|---------------------|
| Technical Data   |                     |
| Rated voltage  | 600V                |
| Rated Current  | 45A                 |
| Center spacing in (mm)   | 0.625 / 15.88       |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> )                                   | Ring Terminals Only |
| Number of Poles  | 1 - 3               |
| Circuits per foot  | 19                  |
| Torque(N•m)  | 2.7                 |
| Torque(lb-in)  | 24                  |
| Screw  | #10-32              |
| WxHxD(mm)  |                     |
| 1-Pole   | 18.5 x 49.1 x 62.1  |
| 2-Pole   | 34.4 x 49.1 x 62.1  |
| 3-Pole   | 50.3 x 49.1 x 62.1  |

| Colors           | Cat. No.  |
|------------------|-----------|
| ○ White (1-Pole) | PSU1-WH   |
| ○ White (2-Pole) | PSU11-WH  |
| ○ White (3-Pole) | PSU111-WH |

| Accessories          | Cat. No.    |
|----------------------|-------------|
|                      | MT12-1-2    |
| C-Rail (AL)          | NFTA Series |
| C-Rail (low profile) | NRA Series  |





# Multi-Pole Panel Mount Blocks



## Panel Mount Blocks

Multi-pole panel mount terminal blocks provide a compact, high density circuit connection solution without the necessity of a mounting rail. These products are designed to be nested together to form one string of circuit connections.

UL E62622  
CSA 15364 (excluding PLK3)

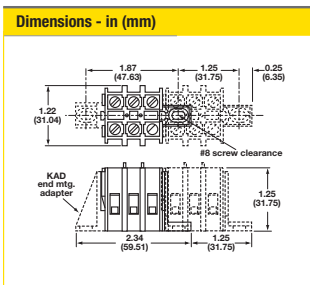


KT3

| Approval   |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 600V               |
| Rated Current  | 40A                |
| Center spacing in (mm)                                   | 0.39 / 9.91        |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-8 / 0.5-10      |
| Number of Poles  | 3                  |
| Circuits per foot  | 28                 |
| Torque(N•m)  | 2                  |
| Torque(lb-in)  | 18                 |
| Screw  | #8-32              |
| WxHxD(mm)  | 59.5 x 31.8 x 31.0 |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | KT3-WH   |
| ● Black            | KT3-BK   |
| ● Red              | KT3-RE   |

| Accessories   | Cat. No. |
|---------------|----------|
| 2 circuits    | JN3      |
| Marking Tape  | MT12-1-2 |
| Mounting Foot | KAD      |

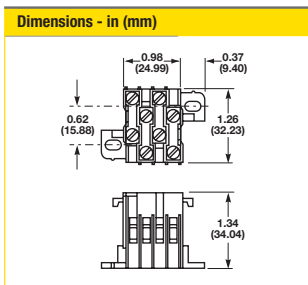


KT4

| Approval   |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 600V               |
| Rated Current  | 30A                |
| Center spacing in (mm)                                   | 0.25 / 6.35        |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-10 / 0.5-6      |
| Number of Poles  | 4                  |
| Circuits per foot  | 48                 |
| Torque(N•m)  | 2                  |
| Torque(lb-in)  | 18                 |
| Screw  | #6-32              |
| WxHxD(mm)  | 43.8 x 34.0 x 32.2 |

| Colors   | Cat. No. |
|----------|----------|
| ○ White* | KT4-WH-A |
| ○ White* | KT4-WH-B |
| ● Black  | KT4-BK   |

| Accessories   | Cat. No. |
|---------------|----------|
| 4 circuits    | JN4      |
| Marking Tape  | MTC6     |
| Mounting Foot | KAD      |

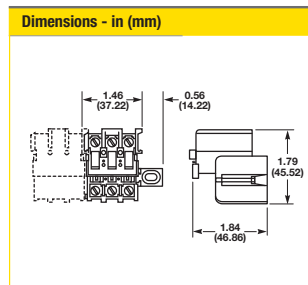


PLK3

| Approval   |                    |
|--|--------------------|
| Technical Data   |                    |
| Rated voltage  | 600V               |
| Rated Current  | 40A                |
| Center spacing in (mm)                                   | 0.39 / 9.91        |
| Conductor cross-section, flexible (AWG/mm <sup>2</sup> ) | 22-8 / 0.5-10      |
| Number of Poles  | 3                  |
| Circuits per foot  | 28                 |
| Torque(N•m)  | 2                  |
| Torque(lb-in)  | 18                 |
| Screw  | #8-32              |
| WxHxD(mm)  | 65.7 x 46.9 x 45.5 |

| Colors             | Cat. No. |
|--------------------|----------|
| ○ White (Standard) | PLK3-WH  |

| Accessories   | Cat. No. |
|---------------|----------|
| 2 circuits    | JN3      |
| Marking Tape  | MT12-1-2 |
| Mounting Foot | KAD      |



\*The KT4 products are designed to be nested together to form one string of circuit connections. When used in series, order



# Double Row Terminal Blocks

## Series TB100

### Specifications

**Rating:** 30A, 300V\*

**Center Spacing:** 0.375" or 3/8" (9.52mm)

**Wire Range:** #14 - 22 AWG Cu

**Screw Size:** #6-32 phillslot screws

**Torque Rating:** 9 lb-in

**Distance Between Barriers:** 0.30" (7.62mm)

**Mounting:** #6 screws

**Operating Temperature:** 130°C (266°F) max.,  
-40°C (-40°F) min.

**Materials:** Molded base: Black, UL rated 94V0 thermoplastic

Terminal plating: Tin over brass; Screws: Zinc-plated steel

**Breakdown Voltage:** 3600V

**Agency Information:** UL File E62622/CSA File 47235; IEC Compliance; CE Certified

\* Max rating shown; some options may be rated lower.



TB100-08



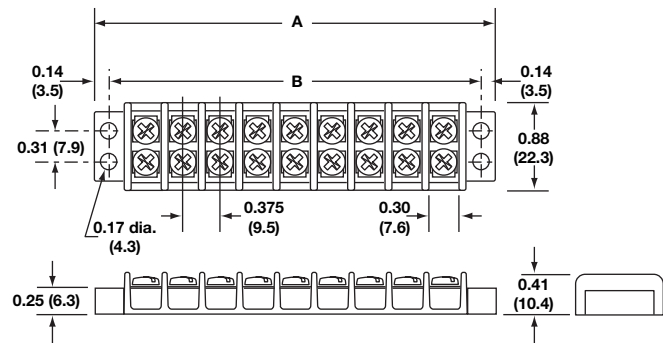
TB100-04SP

### Dimensions - in

| Poles | A    | B    | Poles | A     | B    | Poles | A     | B     |
|-------|------|------|-------|-------|------|-------|-------|-------|
| 02    | 1.40 | 1.12 | 14    | 5.90  | 5.62 | 26    | 10.40 | 10.12 |
| 03    | 1.78 | 1.50 | 15    | 6.28  | 6.00 | 27    | 10.78 | 10.50 |
| 04    | 2.16 | 1.88 | 16    | 6.66  | 6.38 | 28    | 11.16 | 10.88 |
| 05    | 2.53 | 2.25 | 17    | 7.03  | 6.75 | 29    | 11.53 | 11.25 |
| 06    | 2.90 | 2.62 | 18    | 7.40  | 7.12 | 30    | 11.90 | 11.62 |
| 07    | 3.28 | 3.00 | 19    | 7.78  | 7.50 | 31    | 12.28 | 12.00 |
| 08    | 3.66 | 3.38 | 20    | 8.16  | 7.88 | 32    | 12.66 | 12.38 |
| 09    | 4.03 | 3.75 | 21    | 8.53  | 8.25 | 33    | 13.03 | 12.75 |
| 10    | 4.40 | 4.12 | 22    | 8.90  | 8.62 | 34    | 13.40 | 13.12 |
| 11    | 4.78 | 4.50 | 23    | 9.28  | 9.00 | 35    | 13.78 | 13.50 |
| 12    | 5.16 | 4.88 | 24    | 9.66  | 9.38 | 36    | 14.16 | 13.88 |
| 13    | 5.53 | 5.25 | 25    | 10.03 | 9.75 |       |       |       |

1" = 25.4mm.

TB100- in (mm)



### Catalog Number Build-A-Code

| Series | Poles   | Screw Options  | Marking/Cover  | Hardware Options   |
|--------|---|--|--|--|
| TB100  | — <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>   |
|        | 02 to 36  | Blank - steel phillslot, zinc-plated<br>00 - screws shipped bulk<br>B - brass phillslot, nickel-plated<br>SP - steel Sems phillslot, zinc-plated | L1 to L6<br>Marking Options (See page 318)<br>Marker Strips (See page 319)<br>Special Markings (See page 319)<br>Covers (See page 318) | QC1 to QC20 - quick connects<br><br>Custom Options**<br>J101 - flat slip-on jumper (2 position only)<br>OJ2 - over barrier jumpers<br>OJ4 - over barrier jumpers |

\*\*Contact factory for pole configuration.

# Double Row Terminal Blocks

## Screw Options

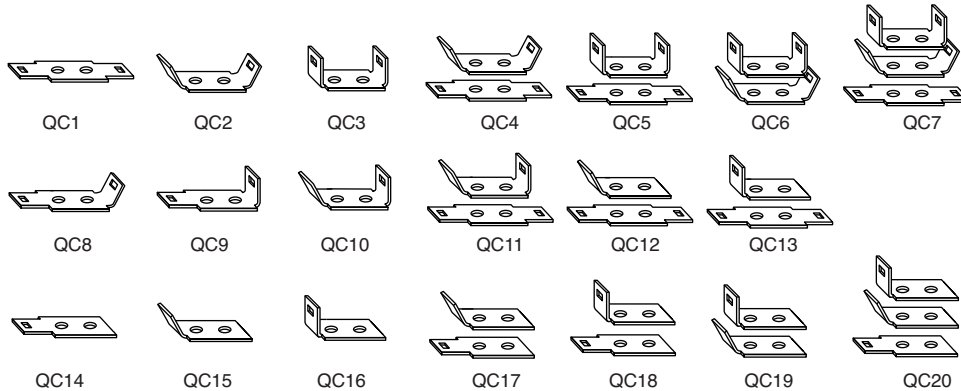


**B**  
Brass Philslot  
Nickel-Plated

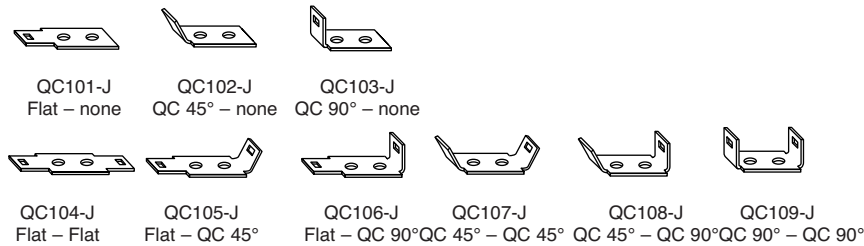
**SP**  
Steel SEMS  
Philslot Zinc-Plated

## Hardware Options

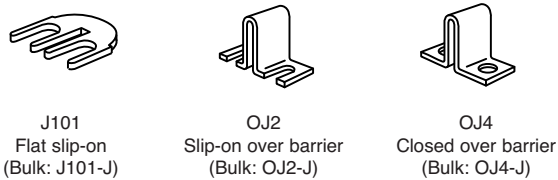
**Quick Connects – Assembled:** Terminals 0.187" x 0.020". Maximum current rating 13 amps. For other orientations, contact Bussmann.



**Quick Connects – Bulk:** minimum order per part number – 100 pieces.



**Jumpers – Bulk:** minimum order per part number – 100 pieces. Contact Bussmann for jumper assembly.



J101  
Flat slip-on  
(Bulk: J101-J)

OJ2  
Slip-on over barrier  
(Bulk: OJ2-J)







OJ4  
Closed over barrier  
(Bulk: OJ4-J)





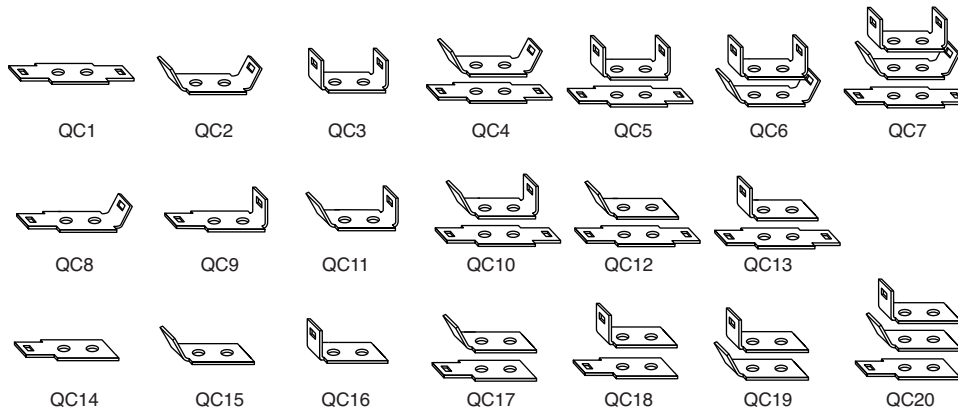
## Double Row Terminal Blocks

### Screw Options

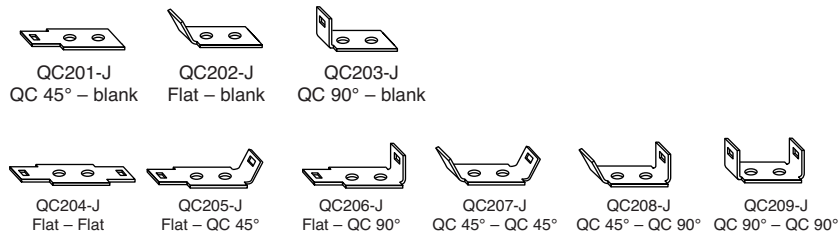
|   |   |   |   |  |   |
|---|---|---|---|--|---|
|  |  |  |  |  |  |
| <b>B</b><br>Brass Philslot<br>Nickel-Plated<br>Bulk: B001-7016-J                  | <b>BS</b><br>Brass SEMS<br>Philslot Nickel-Plated<br>B001-7019-J                  | <b>SP</b><br>Steel SEMS<br>Philslot Zinc-Plated<br>B001-7007-J                    | <b>P</b><br>Steel SEMS<br>(P-Style)<br>B001-7000-J                                | <b>ST</b><br>Stainless Steel<br>Philslot<br>F507-J                                 | <b>SS</b><br>Stainless Steel<br>SEMS Philslot<br>B001-7085-J                        |

### Hardware Options

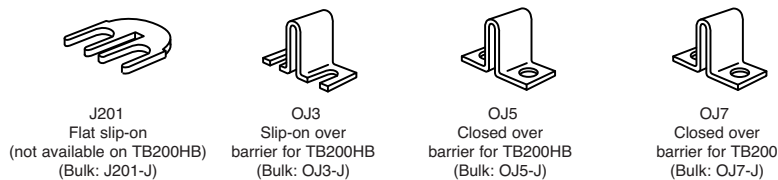
**Quick Connects – Assembled:** Terminals 0.25" x 0.031". Maximum current rating 20 amps. For other orientations, contact Bussmann.



**Quick Connects – Bulk:** minimum order per part no. – 100 pieces.



**Jumpers – Bulk:** minimum order per part no. – 100 pieces. Contact Bussmann for jumper assembly.



# Double Row Terminal Blocks

## Series TB300 & TB345

### Specifications

#### Ratings:

- Volts: — 600V\*
- Amps: — 30A\* (TB300)
- 45A (TB345)

**Center Spacing:** 0.562" or 9/16" (14.28mm)

**Wire Range:** #8 - 22 AWG Cu

**Screw Size:** TB300 – #8-32 philslot screws  
TB345 – #10-32 philslot screws

**Torque Rating:** #8 screws - 16 lb-in;  
#10 screws - 20 lb-in

**Distance Between Barriers:** 0.41" (10.5mm)

**Mounting:** TB300 – #8 screws; TB345 – #10 screws

**Operating Temperature:** 130°C (266°F) max., -40°C (-40°F) min.

**Material:** Molded base: Black, UL rated 94V0 thermoplastic  
Terminal plating: Tin over brass; Screws: Zinc-plated steel

**Breakdown Voltage:** 7500V

**Agency Information:** UL File E62622, CSA File 47235; IEC Compliance; CE Certified

\* Max rating shown; some options may be rated lower.

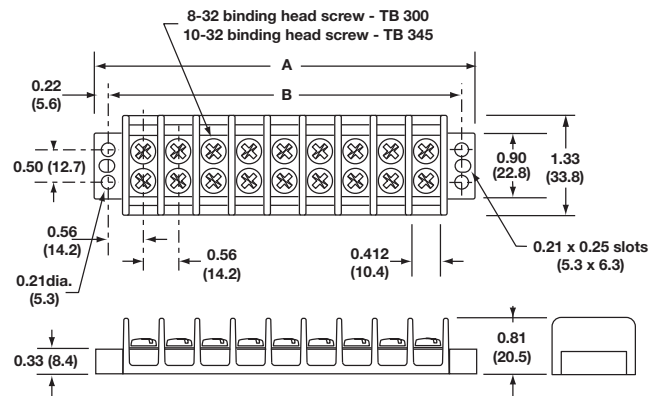
### Dimensions - in

| Poles | A    | B    | Poles | A     | B     | Poles | A     | B     |
|-------|------|------|-------|-------|-------|-------|-------|-------|
| 02    | 2.13 | 1.69 | 10    | 6.62  | 6.19  | 18    | 11.12 | 10.68 |
| 03    | 2.69 | 2.25 | 11    | 7.18  | 6.75  | 19    | 11.68 | 11.25 |
| 04    | 3.25 | 2.81 | 12    | 7.75  | 7.31  | 20    | 12.24 | 11.81 |
| 05    | 3.81 | 3.37 | 13    | 8.31  | 7.87  | 21    | 12.80 | 12.37 |
| 06    | 4.37 | 3.94 | 14    | 8.87  | 8.44  | 22    | 13.37 | 12.93 |
| 07    | 4.94 | 4.50 | 15    | 9.43  | 9.00  | 23    | 13.93 | 13.50 |
| 08    | 5.50 | 5.06 | 16    | 9.99  | 9.56  | 24    | 14.49 | 14.06 |
| 09    | 6.06 | 5.62 | 17    | 10.56 | 10.12 |       |       |       |

1" = 25.4mm.



TB300 & TB345 - in (mm)



### Catalog Number Build-A-Code

| Series  | Poles  | Screw Options  | Marking/Cover  | Hardware Options  |
|---|--|--|--|---|
| TB <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>     |
| 300 = 8-32 screw<br>345 = 10-32 screw   | 02 to 24   | Blank = Steel philslot, zinc-plated<br>00 = Screws shipped bulk<br>B = Brass philslot, nickel-plated<br>BS = Brass Sems philslot, nickel-plated (TB300 only)<br>SP = Steel Sems philslot, zinc-plated (TB300 only)<br>ST = Stainless steel, philslot | L1 to L6 Marking Options (pg 318)<br>Special Markings (pg 318)<br>Covers (pg 318)<br>Marking Strips (pg 319) | QC1 to QC20 = Quick connects (TB300 only)   |
|   |  |  |  | Custom Options<br>J301 = Flat slip-on jumper<br>OJ6 = Over barrier jumper<br>OJ11 = Over barrier jumper |

## Double Row Terminal Blocks

### Screw Options



**B**  
Brass Philslot  
Nickel-Plated  
B001-7018-J  
B500-023-028-J



**BS**  
Brass SEMS  
Philslot Nickel-Plated  
B001-7015-J



**SP**  
Steel SEMS  
Philslot Zinc-Plated  
B001-7017-J

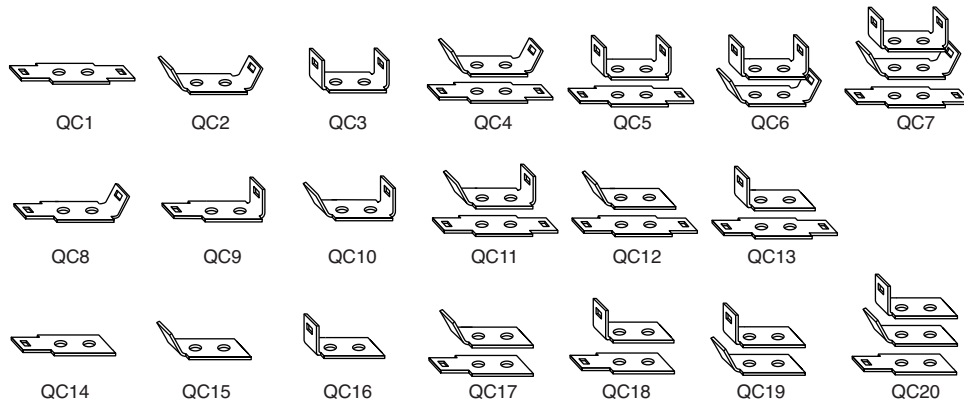


**ST**  
Stainless Steel  
Philslot  
B001-7063-J  
B001-7064-J

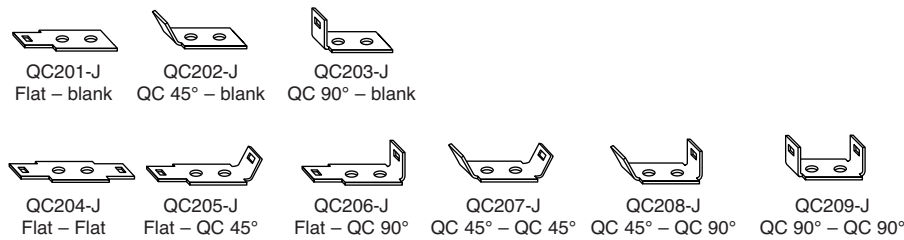
TB300 Blk:  
TB345 Blk:

### Hardware Options

**Quick Connects – Assembled:** TB300 only. Terminals 0.25" x 0.031". Maximum current rating 20 amps. For other orientations, contact Bussmann.



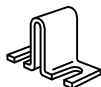
**Quick Connects – Bulk:** (\*TB300 only) minimum order per part number. – 100 pieces.



**Jumpers – Bulk:** minimum order per part number – 100 pieces. Contact Bussmann for jumper assembly.



**J301**  
Flat slip-on(TB300 only)  
(Bulk: J301-J)



**OJ6**  
Closed over barrier  
(Bulk: OJ6-J)



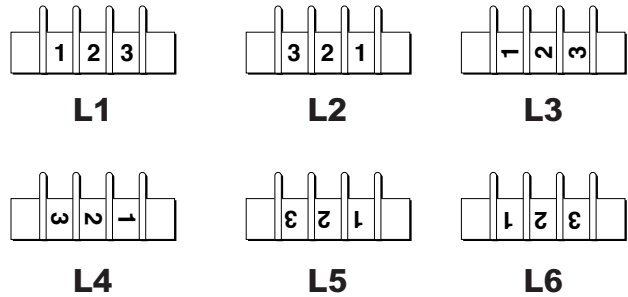
**OJ11**  
Slip-on over barrier  
(Bulk: OJ11-J)

# Marking Options and Covers for Double Row Terminal Blocks

## Standard Marking

Standard markings are applied directly to the side(s) of a block. The standard marking color is white. The standard numeral height is 0.125 inches (3.17mm).

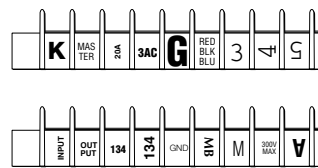
Note: Blocks marked on both sides require a different code for each side. Example: Style L1 on one side of the block requires Style L2 on the other side to ensure common terminal marking. To order, add appropriate suffix (L1, L2, L3, L4, L5 and/or L6) to block catalog number in the proper sequence.



## Special Marking

Special markings are available at an additional charge. Drawing(s) must be submitted to ensure accuracy of part required. Consult Bussmann for price and delivery.

Note: Marking is not available on TB400 Series

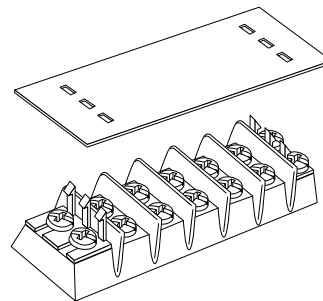


## Covers

Covers prevent personnel, screws and foreign items from contacting live terminals, and are available in white or clear plastic. Two cover clips are supplied with each cover. The cover width is 1.31 inches (33.3mm).

All covers must be ordered separately.

Example: 10 position cover, white, TB100 Series = Catalog Number **X12010**.



## Catalog Number Build-A-Code

| Series | Cover Strip  | Poles  | High Barrier Option Only                          |
|--------|--|--|---|
| X      | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>                      | <input type="checkbox"/> <input type="checkbox"/> |
|        | 120 - TB100/white<br>119 - TB100/clear<br>220 - TB200/TB200HB - white<br>219 - TB200/TB200HB - clear<br>320 - TB300 & TB345 - white<br>319 - TB300 & TB345 - clear | 02 to 36 (TB100)<br>02 to 30 (TB200/TB200HB)<br>02 to 24 (TB300/TB345) | HB = High Barrier                                 |

Note: Covers are not available on TB400 Series.

### Cover Clips – Bulk

#### Part Number

- DD1-J – TB100 Series
- DD2-J – TB200 Series
- DD2HB-J – TB200HB Series
- DD3-J – TB300 Series

# Top & Bottom Marking Strips for Double Row Terminal Blocks

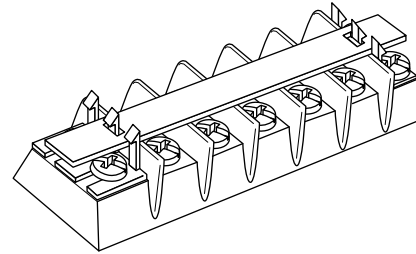
## Top Marker Strips

Top mounting marker strips are available in white (opaque) plastic. Two cover clips are supplied with each marker strip.

All top marker strips must be ordered separately.

Example: 12 position cover, TB200, 0.032" x 0.312" = Catalog Number **X20312**.

Example: 12 position cover, TB200HB, 0.06" x 0.50" = Catalog Number **X23312HB**.



### Catalog Number Build-A-Code

| Series | Top Marker Strip   | Poles   | High Barrier Option Only                          |
|--------|--|---|---|
| X      | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> |
|        | 133 - TB100 (0.060 thk x 0.500 w)  | 02 to 36 (TB100)                                  | HB = High Barrier                                 |
|        | 103 - TB100 (0.032 thk x 0.312 w)  | 02 to 30 (TB200/TB200HB)                          |   |
|        | 233 - TB200/TB200HB (0.060 thk x 0.500 w)                                  | 02 to 24 (TB300/TB345)                            |   |
|        | 203 - TB200/TB200HB (0.032 thk x 0.312 w)                                  |   |   |
|        | 333 - TB300 & TB345 (0.060 thk x 0.500 w)                                  |   |   |
|        | 303 - TB300 & TB345 (0.032 thk x 0.380 w)                                  |   |   |

Note: Marking Strips are not available on TB400 Series

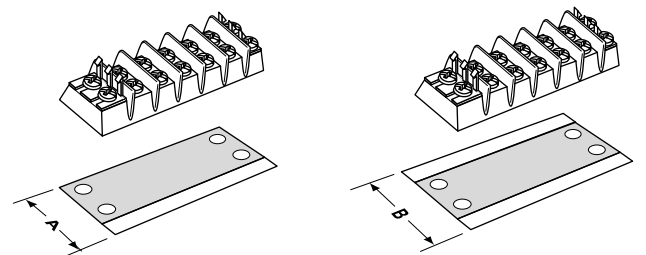
## Bottom Marker Strips

Bottom mounting marker strips are made of black PVC, 0.030" thick. Space is available to handle most marking situations. All marker strips must be ordered separately.

To order, specify part number and required marking orientation: (BF) bottom forward, (BR) bottom reverse, (TF) top forward, or (TR) top reverse. Consult factory for specials.

Example: 13 position strip, TB100 with no markings, space for marking one side = Catalog Number **X10513**.

Standard numeral height is 0.125". Standard markings are 0-99. Special markings are available on special order. Drawing(s) must be submitted to ensure accuracy of part required.



Space for marking one side      Space for marking two sides

### Dimensions (in)

| Dim. | TB100 | TB200 | TB200HB | TB300 | TB345 | TB400 |
|------|-------|-------|---------|-------|-------|-------|
| A    | 1.13  | 1.37  | 1.62    | 1.58  | 1.58  | N/A   |
| B    | 1.38  | 1.62  | 1.81    | 1.81  | 1.81  | N/A   |

### Catalog Number Build-A-Code

| Series | Bottom Marker Strip  | Poles   | Orientation                                       |
|--------|--|---|---|
| X      | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> |
|        | 105 = TB100/markings one side  | 02 to 36 (TB100)                                  | BF = Bottom forward                               |
|        | 101 = TB100/markings both sides  | 02 to 30 (TB200/TB200HB)                          | BR = Bottom reverse                               |
|        | 205 = TB200/markings one side  | 02 to 24 (TB300/TB345)                            | TF = Top forward                                  |
|        | 201 = TB200/markings both sides  |   | TR = Top reverse                                  |
|        | 295 = TB200HB/markings one side  |   |   |
|        | 291 = TB200HB/markings both sides  |   |   |
|        | 305 = TB300 & TB345/markings one side                                      |   |   |
|        | 301 = TB300 & TB345/markings both sides                                    |   |   |

Note: Marking Strips are not available on TB400 Series.



# Double Row Terminal Blocks

## Series TB400

### Specifications

#### Ratings:

Volts: — 600V

Amps: — 75A

Center Spacing: 0.687" or 11/16" (17.45mm)

Wire Range: #6-14 AWG Cu

Screw Size: #10-32 philslot screws

Torque Rating: 20 lb-in

Distance Between Barriers: 0.56" (14.3mm)

Mounting: #10 screws

Operating Temperature: 130°C (266°F) max.,  
-40°C (-40°F) min.

Material: Molded base: Black, UL rated 94V0 thermoplastic  
Terminal plating: Tin over brass; Screws: Zinc-plated steel

Breakdown Voltage: 7500V

Agency Information: UL File E62622, CSA File 47235; IEC  
Compliance; CE Certified

### Dimensions - in

| Poles | A    | B    | Poles | A    | B    | Poles | A    | B    |
|-------|------|------|-------|------|------|-------|------|------|
| 02    | 2.51 | 2.06 | 06    | 5.26 | 4.81 | 10    | 8.01 | 7.56 |
| 03    | 3.20 | 2.75 | 07    | 5.95 | 5.50 | 11    | 8.70 | 8.25 |
| 04    | 3.89 | 3.44 | 08    | 6.64 | 6.19 | 12    | 9.39 | 8.94 |
| 05    | 4.58 | 4.13 | 09    | 7.33 | 6.88 |       |      |      |

1" = 25.4mm.

### Screw Options



B

Brass Philslot  
Nickel-Plated

Bulk: B500-023-028-J

ST

Stainless Steel  
Philslot

Bulk: B001-7064-J

### Hardware Options



OJ14: Closed over barrier  
(Bulk: OJ14-J)

### Catalog Number Build-A-Code

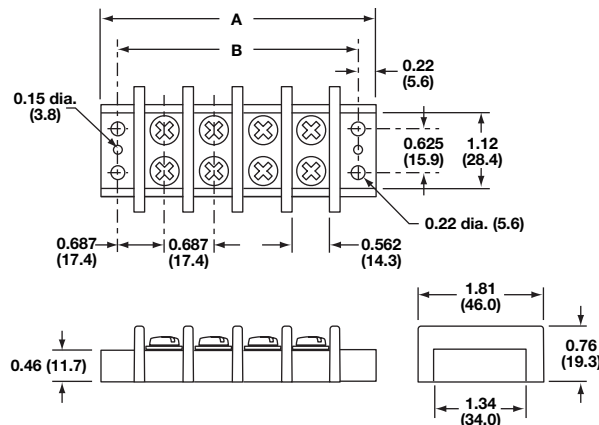
| Series | Poles   | Screw Options  | Marking       | Custom Options              |
|--------|---|--|---------------|-----------------------------|
| TB400  | — <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>   |               |                             |
|        | 02 to 12  | Blank = Steel philslot, zinc-plated<br>00 = Screws shipped bulk<br>B = Brass philslot, nickel-plated<br>ST = Stainless steel, philslot | Not available | OJ14* - Jumper over barrier |

\*Contact factory for pole configuration.



TB400-05

TB400 - in (mm)



# Double Row Terminal Blocks

## Series KU

### Specifications

#### Ratings:

Volts: — 600V

Amps: — 60A\*

Center Spacing: 0.625" (15.88mm)

Number of Poles: 2- to 12-poles\*\*

Wire Range: #6-22 AWG Cu

Screw Size: #10-32

Torque Rating: 20 lb-in

Distance Between Barriers: 0.437" (11.09mm)

Mounting: Panel Mount

Material: Molded base: Black, UL rated 94V1 Noryl

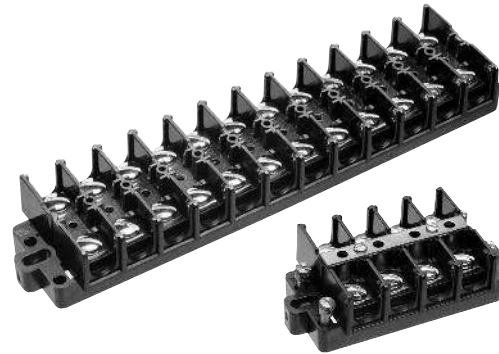
Terminal plating: Nickel over brass

Operating Temperature: 105°C max.

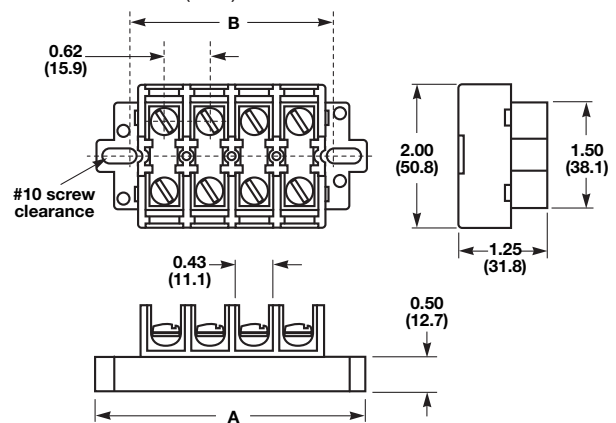
Agency Information: UL File E62622, CSA File 47235

\* 60A rating achieved with #6 copper wire crimped to ring terminal.

\*\* Only even number pole configurations (3-pole = exception).



Series KU - in (mm)

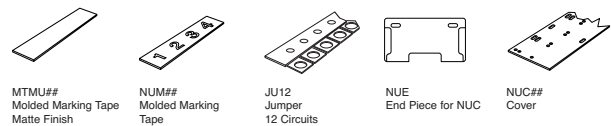


### Dimensions - in

| Poles | KU   |      | KUX Only |
|-------|------|------|----------|
|       | A    | B    | A        |
| 02    | 2.50 | 1.62 | 2.00     |
| 03    | 3.12 | 2.25 | 2.62     |
| 04    | 3.75 | 2.87 | 3.25     |
| 06    | 5.00 | 4.12 | 4.50     |
| 08    | 6.25 | 5.37 | 5.75     |
| 10    | 7.50 | 6.62 | 7.00     |
| 12    | 8.75 | 7.87 | 8.25     |

1" = 25.4mm.

### Accessories\*\*\*



\*\*\*Accessories must be ordered separately.

### Catalog Number Build-A-Code - KU Series

| Series                                      | Poles           | Screw Options                                       | Covers                               | Marking Strip                            |
|---|-----------------|---|--------------------------------------|--|
| □ □ □ □ □                                   | □ □ - □ □       |   | □ □                                  | □ □ □                                    |
| <b>KU</b> = Standard block                  | <b>02 to 12</b> | <b>00</b> = Screws shipped bulk                     | <b>WC</b> = Top cover & 2 end plates | <b>MT</b> = Matte finish                 |
| <b>KUX</b> = Short block                    |                 | <b>W</b> = Brass washer head, nickel-plated         |                                      | <b>NU</b> = Numbered 1 to 12, horizontal |
| <b>KURL</b> = Standard w/removable link     |                 | <b>P</b> = Steel screw w/pressure plate zinc-plated |                                      | <b>NUV</b> = Numbered 1 to 12, vertical  |
| <b>KUXRL</b> = Short block w/removable link |                 | <b>BP</b> = Brass phillslot, nickel-plated          |                                      | <b>PT†</b> = Marker strip for cover      |

### Catalog Number Build-A-Code - KU\_SC Series

| Series  | Poles           | Screw Options                                       | Covers                               | Marking Strip                       |
|---|-----------------|---|--------------------------------------|-------------------------------------|
| □ □ □ □ □   | □ □ - □ □       |   | □ □                                  | □ □ □                               |
| <b>KUSC</b> = Standard w/shorting strap & 4 shorting screws     | <b>02 to 12</b> | <b>00</b> = Screws shipped bulk                     | <b>WC</b> = Top cover & 2 end plates | <b>PT†</b> = Marker strip for cover |
| <b>KUXSC</b> = Short block w/shorting strap & 4 Shorting screws |                 | <b>W</b> = Brass washer head, nickel-plated         |                                      |                                     |
|   |                 | <b>P</b> = Steel screw w/pressure plate zinc-plated |                                      |                                     |
|   |                 | <b>BP</b> = Brass phillslot, nickel-plated          |                                      |                                     |

†Requires WC cover option

# Power Feed Through Terminal Blocks

## Series C7021

### Specifications

**Description:** Power feed through terminal block with two rows 1/4-20 studs capable of accommodating the industry standard two-hole compression lugs on both studs in parallel.



### Ratings:

Volts: — 300V  
 Amps: — 115/175A\* per pole  
**Center Spacing:** 0.690" (17.5mm).  
**Wire Range:** AWG #3/0-8.

**Poles:** 1- to 6-poles.

**Bolt Hole Spacing:** 0.625" or 5/8" (15.88mm).

**Stud:** Standard 1/4-20 stud (tin-plated brass) or optional M6 stud.

**Mounting:** #6 thread cutting screws (not included) or optional mounting ears.

**Torque Rating:** 36 lb-in.

**Operating Temperature:** 130°C.

**Agency Information:** UL/CSA; CE Certified.

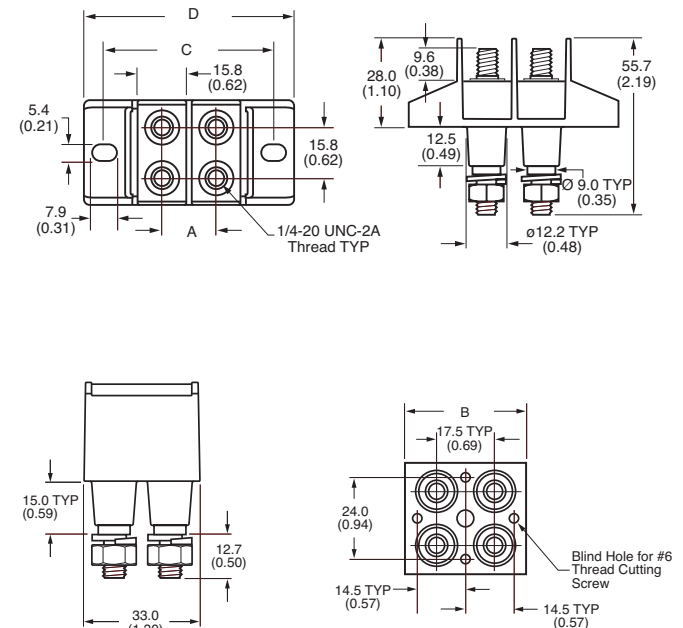
\*175 achieved using both studs in parallel, 115A using a single stud per line.

### Typical Applications

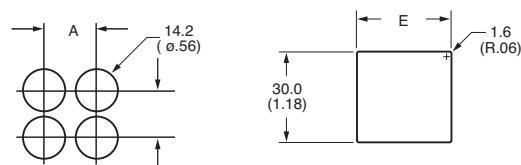
- Applications requiring up to 175A utilizing a 2-hole compression lug on 5/8" centers
- Input/output block for telecommunications power panels
- Use to eliminate busbars

### Dimensions - mm (in)

| Catalog Numbers | A           | B            | C            | D            | E            |
|-----------------|-------------|--------------|--------------|--------------|--------------|
| C7021-01-X      | -           | -            | -            | -            | -            |
| C7021-02-X      | 17.5 (0.69) | -            | 54.4 (2.14)  | 67.3 (2.65)  | 31.8 (1.25)  |
| C7021-03-X      | 34.9 (1.37) | -            | 70.9 (2.83)  | 84.8 (3.34)  | 49.2 (1.94)  |
| C7021-04-X      | 52.3 (2.06) | -            | 89.3 (3.52)  | 102.2 (4.02) | 66.7 (2.63)  |
| C7021-05-X      | 69.8 (2.75) | -            | 106.8 (4.20) | 119.7 (4.71) | 84.2 (3.31)  |
| C7021-06-X      | 87.2 (3.44) | -            | 124.2 (4.89) | 134.1 (5.40) | 101.7 (4.00) |
| C7021-01N-X     | -           | -            | -            | -            | -            |
| C7021-02N-X     | 17.5 (0.69) | 36.1 (1.42)  | -            | -            | 31.8 (1.25)  |
| C7021-03N-X     | 34.9 (0.69) | 53.5 (2.11)  | -            | -            | 49.2 (1.94)  |
| C7021-04N-X     | 52.3 (2.06) | 71.0 (2.80)  | -            | -            | 66.7 (2.63)  |
| C7021-05N-X     | 69.8 (2.75) | 88.4 (3.48)  | -            | -            | 84.2 (3.31)  |
| C7021-06N-X     | 87.2 (3.44) | 105.9 (4.17) | -            | -            | 101.7 (4.00) |



### Panel Cutouts



### Catalog Number Build-A-Code

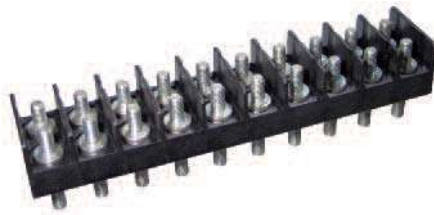
| Series | Poles  | Mount Ends                              | Studs                             | Hardware  |
|--------|--|---|-----------------------------------|---|
| C7021  | - □ □  | □                                       | □ □                               | - □   |
|        | 01 = 1-Pole (2 studs)<br>02 = 2-Pole (4 studs)<br>03 = 3-Pole (6 studs)<br>04 = 4-Pole (8 studs)<br>05 = 5-Pole (10 studs)<br>06 = 6-Pole (12 studs) | Blank = Mount ends<br>N = No mount ends | Blank = Standard<br>M6 = M6 Studs | Blank = No hardware<br>0 = Bulk pack, one set<br>1 = Bulk pack, two sets<br>2 = Assembled, bottom<br>3 = Assembled, top<br>4 = Assembled, both sets |

# Power Feed Through Terminal Blocks

## Series C7024

### Specifications

**Description:** A power feed through terminal block with two rows of ¼-28 studs capable of accommodating the industry standard two-hole compression lugs on ¾" centers.



### Ratings:

- Volts: — 600V
- Amps: — 115A per pole
- Center Spacing:** 0.75" (19.1mm).
- Wire Range:** #2-8 AWG.
- Poles:** 1 to 12.
- Bolt Hole Spacing:** 0.75" (19.1mm).
- Stud:** Standard ¼-28 stud (tin-plated bronze).
- Torque Rating:** 36 lb-in.
- Operating Temperature:** 130°C.
- Agency Information:** UL/C-UL, CSA; CE Certified.
- Flammability Rating:** UL 94V0.

### Catalog Numbers

| Catalog Number | Poles | "A" Dimension- mm (in)<br>±0.4 (±0.02) | "B" Dimension- mm (in)      |
|----------------|-------|--|-----------------------------|
| C7024-01       | 01    | 21.6 (0.85)                            | -                           |
| C7024-02       | 02    | 40.6 (1.60)                            | 19.05 ±0.08 (0.750 ±0.003)  |
| C7024-03       | 03    | 59.7 (2.35)                            | 38.10 (1.500)               |
| C7024-04       | 04    | 78.7 (3.10)                            | 57.15 ±0.26 (2.250 ±0.010)  |
| C7024-05       | 05    | 97.8 (3.85)                            | 76.2 (3.00)                 |
| C7024-06       | 06    | 116.8 (4.60)                           | 95.25 ±0.26 (3.750 ±0.010)  |
| C7024-07       | 07    | 135.9 (5.35)                           | 114.30 ±0.38 (5.250 ±0.015) |
| C7024-08       | 08    | 154.9 (6.10)                           | 133.35 ±0.38 (5.25 ±0.015)  |
| C7024-09       | 09    | 174.0 (6.85)                           | 152.40 ±0.38 (6.00 ±0.015)  |
| C7024-10       | 10    | 193.0 (7.60)                           | 171.45 ±0.38 (6.750 ±0.015) |
| C7024-11       | 11    | 212.1 (8.35)                           | 190.50 ±0.38 (7.500 ±0.015) |
| C7024-12       | 12    | 231.1 (9.10)                           | 209.55 ±0.38 (8.250 ±0.015) |

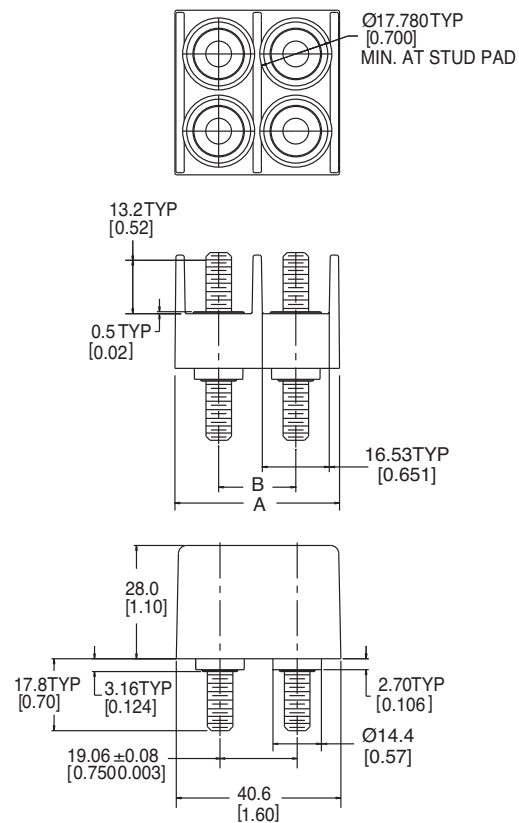
### Catalog Number Build-A-Code

Series Poles  
 C7024 -    
 01-12

### Typical Applications

- Applications requiring up to 115A utilizing a 2-hole compression lug on ¾" centers
- Ideal as an input/output block for telecommunications power panels
- Use to eliminate busbars

### Dimensions - mm (in)



Connectors



# Open and enclosed disconnect switches



Full range of disconnect switches with versatile options and accessories that ship within 24 hours

**Bussmann**  
by **EAT•N**





Scan this tag to get the latest product information for the New Family of Disconnect Switches and Accessories.



# Disconnect Switches

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# Compact Circuit Protector (CCP) Disconnect Switch—30A

## 1-, 2- & 3-Pole, Class CC, UL Midget & 10x38mm IEC



| Switch     |            |                 |         |        |                       |         |         |         |                           |            |             |
|------------|------------|-----------------|---------|--------|-----------------------|---------|---------|---------|---------------------------|------------|-------------|
| Amp Rating | Fuse Class | Number of Poles | Volts   | SCCR   | Max Horsepower Rating |         |         |         | Wire Size                 | Wire Type* | Part Number |
|            |            |                 |         |        | 120 Vac               | 240 Vac | 480 Vac | 600 Vac |                           |            |             |
| 30         | CC         | 1               | 600Vac  | 200kA  | 0.5                   | —       | —       | —       | Single/Dual #18-6 Sol/Str | 75°C Cu    | CCP-1-30CC  |
| 30         | CC         | 2               | 600Vac  | 200kA  | —                     | 2       | —       | —       |                           | 75°C Cu    | CCP-2-30CC  |
| 30         | CC         | 3               | 600Vac  | 200kA  | —                     | 3       | 4       | 7.5     |                           | 75°C Cu    | CCP-3-30CC  |
| 30         | UL Midget  | 1               | 240Vac† | 10kA†  | —                     | —       | —       | —       | Single #4 Sol/Str         | 75°C Cu    | CCP-1-30M   |
| 32**       | 10x38 IEC  |                 | 400Vac† | 120kA† |                       |         |         |         |                           |            |             |
| 30         | UL Midget  | 2               | 240Vac† | 10kA†  | —                     | —       | —       | —       | 75°C Cu                   | CCP-2-30M  |             |
| 32**       | 10x38 IEC  |                 | 400Vac† | 120kA† |                       |         |         |         |                           |            |             |
| 30         | UL Midget  | 3               | 240Vac† | 10kA†  | —                     | —       | —       | —       | 75°C Cu                   | CCP-3-30M  |             |
| 32**       | 10x38 IEC  |                 | 400Vac† | 120kA† |                       |         |         |         |                           |            |             |
| 30         | CC         | 1               | 80Vdc†  | 20kA†  | —                     | —       | —       | —       | Spade Terminal††          | 75°C Cu    | CCP-1-30DCC |
| 30         | CC         | 1               | 80Vdc†  | 10kA†  | —                     | —       | —       | —       |                           | 75°C Cu    | CCP-1-30DCM |
| 32**       | 10x38 IEC  |                 |         |        |                       |         |         |         |                           |            |             |

\* 75°C or higher.  
 \*\* 32A Class aM, 25A Class gG.  
 † SCCR May be lower, refer to installed fuse data sheets.  
 †† Spade terminal, 30A max, insulated flange, wire size #12-10 for #8 stud.

### Specifications

#### Agency Information

- CE Compliant
- RoHS Compliant
- For **Class CC** fuse version
  - UL 98 Listed, File E302370, Guide WHTY
  - cULus to CSA Standard 22.2 No. 4-04, File 302370, Guide WHTY7
- For **UL Midget and 10X38 IEC** fuse version
  - UL 508 Listed, File E161278, Guide 8R29
  - cULus Certified 22.2 No. 14-05
  - IEC 60947-3 AC23A
  - IEC 60947-3 DC23A

#### Terminals

- Single/dual conductor box lug or spade terminal suitable for line, load or accessory connection
- Torque: - #18-10 20Lb-In  
 - #8-4 35Lb-In

#### Storage and Operating Temperature

- -20°C to 75°C\*
- \* For fuse performance under or above 25°C, consult fuse performance derating charts in the Bussmann publication titled *Selecting Protective Devices (SPD)*, reorder #3002.

#### Flammability Rating UL 94V0

#### Lockout/Tagout Provisions

- 4mm shank lock or standard pin-out devices

#### Mounting

- 35mm DIN-Rail

#### Local Open Fuse Indication Minimum Voltage\*\*

- 90Vac for AC versions
- 12Vdc for DC versions

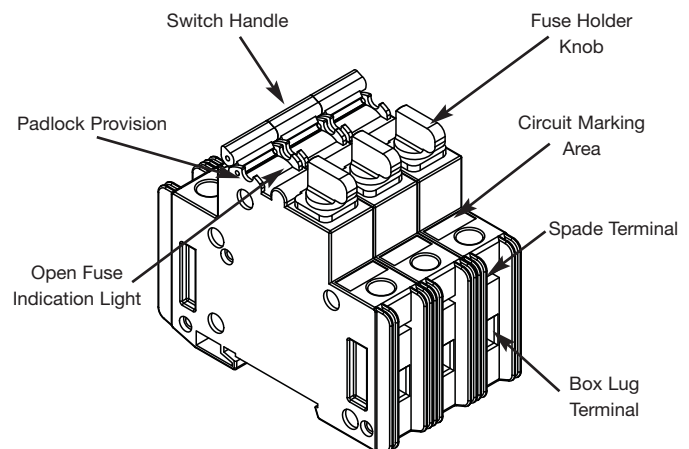
\*\* Circuit must be closed for indication light to illuminate.

### Features

- IP20 Finger-safe construction with #10 or larger wire
- Switch interlock prohibits removing the fuse under load

### Accessories

- Auxiliary contacts
- PLC Wired remote fuse indication



### Available Bussmann Fuses

| Class | Type                               | Data Sheet # |
|-------|------------------------------------|--------------|
| CC    | LP-CC Time-Delay, Current Limiting | 1023         |
| CC    | FNQ-R Time-Delay                   | 1014         |
| CC    | KTK-R Fast-Acting                  | 1015         |
| M     | FNM Time-Delay                     | 2028         |
| M     | FNQ Time-Delay                     | 1012         |
| M     | KTK Fast-Acting                    | 1011         |
| M     | BAF Fast-Acting                    | 2011         |
| M     | KLM Fast-Acting 600Vac/dc          | 2020         |

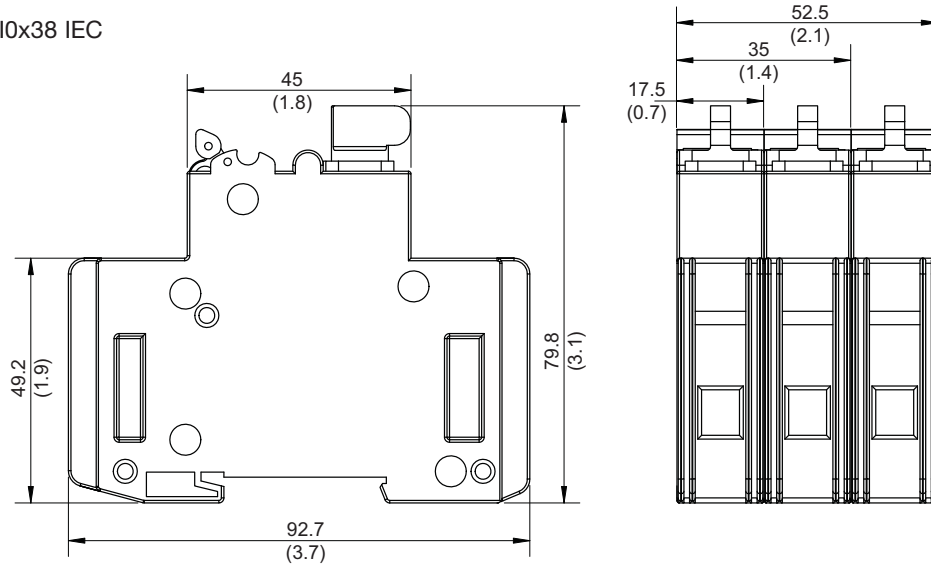
Data Sheet: 1157

# Compact Circuit Protector (CCP) Disconnect Switch—30A

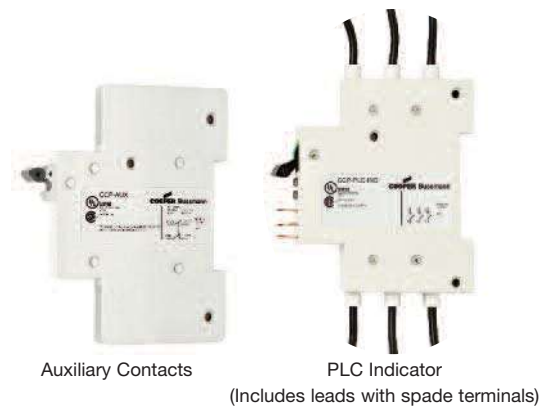
## 1-, 2- & 3-Pole, Class CC, UL Midget & 10x38mm IEC

### Dimensions – mm (in)

Class CC, UL Midget & 10x38 IEC



Disconnect  
Switches



Auxiliary Contacts

PLC Indicator  
(Includes leads with spade terminals)

| CCP-30 Accessories                                |               |               |                         |   |              |
|---|---------------|---------------|-------------------------|---|--------------|
| Description                                       | Configuration | Signal Output | Minimum Circuit Voltage | Agency Information  | Part Number  |
| Auxiliary Contacts NO+NC for Switch Status        | 1 per CCP     | 5A/240Vac     | –                       | UL 98 Recognized, cURus 22.2 No. 4-04, IEC 60947-5-1 AC15 | CCP-AUX*     |
| Wired Remote Fuse Indication for PLC Applications | 1 per CCP     | 24Vdc         | 100Vac                  | UL 98 Recognized, cURus 22.2 No. 4-04                     | CCP-PLC-IND* |
| * Refer to Data Sheet # 1157 for details.         |               |               |                         |   |              |

## Compact Circuit Protector (CCP) Disconnect Switch—30, 60 & 100A 1-, 2- & 3-Pole, Class CF CUBEFuse™



| Switch     |            |                 |                  |       |                       |         |         |         |                              |                         |             |
|------------|------------|-----------------|------------------|-------|-----------------------|---------|---------|---------|------------------------------|-------------------------|-------------|
| Amp Rating | Fuse Class | Number of Poles | Volts            | SCCR  | Max Horsepower Rating |         |         |         | Wire Size                    | Wire Type*              | Part Number |
|            |            |                 |                  |       | 120 Vac               | 240 Vac | 480 Vac | 600 Vac |                              |                         |             |
| 30         | CF         | 1               | 600Vac<br>125Vdc | 200kA | 1.5                   | —       | —       | —       | Single/Dual<br>#18-6 Sol/Str | 75°C Cu                 | CCP-1-30CF  |
| 30         | CF         | 2               | 600Vac<br>125Vdc | 200kA | —                     | 3       | —       | —       |                              | 75°C Cu                 | CCP-2-30CF  |
| 30         | CF         | 3               | 600Vac<br>125Vdc | 200kA | —                     | 5       | 15      | 10      | Single<br>#4 Sol/Str         | 75°C Cu                 | CCP-3-30CF  |
| 60         | CF         | 1               | 600Vac<br>125Vdc | 200kA | 3                     | —       | —       | —       |                              | Spade<br>Terminal**     | 75°C Cu     |
| 60         | CF         | 2               | 600Vac<br>125Vdc | 200kA | —                     | 7.5     | —       | —       | 75°C Cu                      |                         | CCP-2-60CF  |
| 60         | CF         | 3               | 600Vac<br>125Vdc | 200kA | —                     | 7.5     | 20      | 10      | 75°C Cu                      |                         | CCP-3-60CF  |
| 100        | CF         | 1               | 600Vac           | 200kA | 5                     | —       | —       | —       | Single<br>#8-10 Sol/Str      | 75°C Cu                 | CCP-1-100CF |
| 100        | CF         | 2               | 600Vac           | 200kA | —                     | 10      | —       | —       |                              | #8-1 Str<br>Dual #6 Str | 75°C Cu     |
| 100        | CF         | 3               | 600Vac           | 200kA | —                     | 20      | 50      | 50      | Spade<br>Terminal**          |                         | 75°C Cu     |

\* 75°C or higher.  
\*\* Spade terminal, 30A max, insulated flange, wire size #12-10 for #8 stud.

### Specifications

#### Agency Information

- CE Compliant
- RoHS Compliant
- UL 98 Listed, File E302370, Guide WHTY
- cULus to CSA Standard 22.2 No. 4-04, File 302370, Guide WHTY7

#### Terminals

- Single/dual conductor box lug or spade terminal suitable for line, load or accessory connection
- Torque: 0-60A: - #18-10 20Lb-In  
- #8-4 35Lb-In  
70-100A: - #18-10 Single 25Lb-In  
- #8-2 Single 35Lb-In  
- #1 Single 40Lb-In  
- #6 Dual 45Lb-In

#### Fuses

- Uses finger-safe Class CF CUBEFuse™ with Class J performance
  - Low-Peak™ dual-element, time-delay\*
  - Non-indicating 1-100A
  - Indicating 6-100A
  - Fast-Acting\*\* 1-100A

\* See Data Sheet # 9000

\*\* See Data sheet # 2147

#### Storage and Operating Temperature

- -20°C to 75°C\*\*\*

\*\*\* For fuse performance under or above 25°C, consult fuse performance derating charts in the Bussmann publication titled *Selecting Protective Devices (SPD)* reorder #3002.

#### Flammability Rating UL 94V0

#### Lockout/Tagout Provisions

- 4mm shank lock or standard pin-out devices

Data Sheet: 1157

#### Mounting

- 35mm DIN-Rail

#### Local Open Fuse Indication Minimum Voltage†

- 90Vac/115Vdc

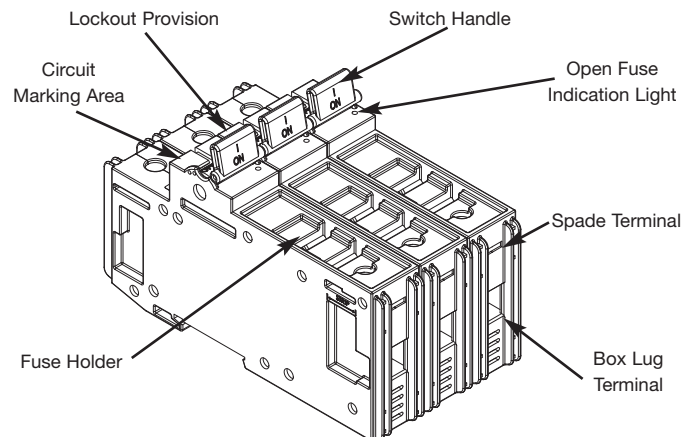
† Circuit must be closed for indication light to illuminate.

#### Features

- Ampacity rejecting disconnects will not accept CUBEFuse amp ratings greater than switch rating
- IP20 Finger-safe construction with #10 or larger wire
- Switch interlock prohibits removing the fuse under load

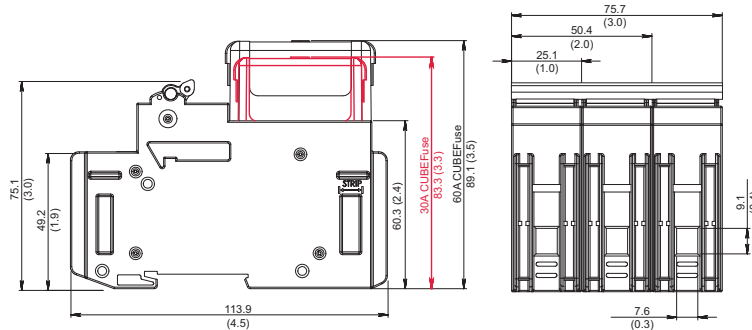
#### Accessories

- Auxiliary contacts
- PLC Wired remote fuse indication (up to 60A)

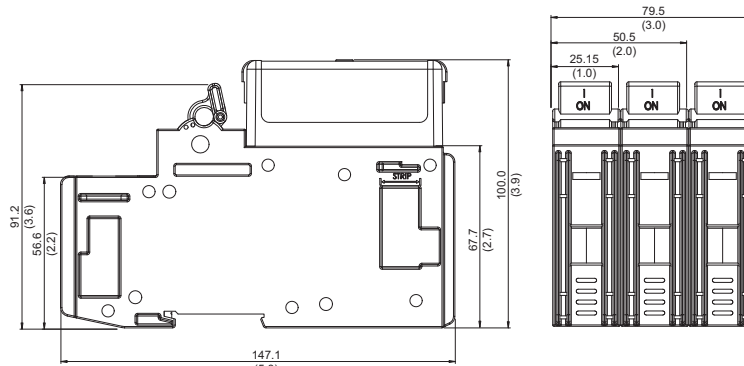


# Compact Circuit Protector (CCP) Disconnect Switch—30, 60 & 100A 1-, 2- & 3-Pole, Class CF CUBEFuse™

Dimensions – mm (in)  
30 and 60 Amp



100 Amp



Auxiliary Contacts

PLC Indicator

(Includes leads with spade terminals)

| CCP- _ _ CF Accessories                                     |               |               |                         |   |              |
|---|---------------|---------------|-------------------------|---|--------------|
| Description   | Configuration | Signal Output | Minimum Circuit Voltage | Agency Information  | Part Number  |
| Auxiliary Contacts NO+NC for Switch Status up to 60A        | 1 per CCP     | 5A/240Vac     | –                       | UL 98 Recognized, cURus 22.2 No. 4-04, IEC 60947-5-1 AC15 | CCP-AUX*     |
| Auxiliary Contacts NO+NC for Switch Status 70 to 100A       | 1 per CCP     | 5A/240Vac     | –                       | UL 98 Recognized, CSA C22.2 No. 4                         | CCP-AUX-100* |
| Wired Remote Fuse Indication for PLC Applications           | 1 per CCP     | 24Vdc         | 100Vac                  | UL 98 Recognized, cURus 22.2 No. 4-04                     | CCP-PLC-IND* |
| Wired Remote Fuse Indication for PLC Applications up to 60A | 1 per CCP     | 8A/24Vdc      | 100Vac                  | UL 98 Recognized, CSA C22.2 No. 4                         | CCP-PLC-100* |

\* Refer to Data Sheet # 1157 for details.

Disconnect  
Switches



## Compact Circuit Protector Base (CCPB) CUBEFuse™



The revolutionary Bussmann CCPB with CUBEFuse™ is designed as a fused branch circuit disconnect with fuse holder for the Bussmann Quik-Spec™ Coordination Panelboard. The CCPB with CUBEFuse simplifies selective coordination and allows for isolation of individual branch circuit loads for safe work practices.

### Product Features and Benefits

- Uses finger-safe Class CF Low-Peak™ CUBEFuse with current-limiting, time-delay Class J performance\*
- High Short-Circuit Current Ratings at 200kA
- Disconnect rated to provide means for load isolation
- Full voltage rated at 600Vac
- UL 98 Listed and suitable for branch circuit disconnect and branch circuit protection
- 1-, 2- and 3-pole versions are horsepower rated
- Patented rejection feature helps prevent overfusing
- Complies with UL and cULus
- Open fuse indication light per pole
- Additional open fuse indication can be provided by using the indicating CUBEFuse version
- Built-in switch/fuse interlock prohibits removing the fuse while energized
- Permanent lockout/tagout provisions
- Lock-ON provision

\*See data sheet 9000 for CUBEFuse specifications.

\*\*For fuse performance under or above 25°C, consult fuse performance derating charts.

### Specifications:

- CCPB Ampacity rejection breaks: 15A, 20A, 30A, 40A, 50A, 60A, 70A, 90A and 100A.
- 1-, 2- and 3-Pole versions
- For systems 600Vac (or less)
- Box lug loadside terminal:
  - 18-6AWG single & dual rated, solid or stranded – 75°C, Cu only
  - 4AWG single – 75°C, Cu only
- Box lug loadside terminal torque: 18-10AWG 20 Lb-In (2.2 N•m), 8-4AWG 35 Lb-In (3.9 N•m)
- Spade terminal load connection: Max. 30A suitable for use with #8-32UNC screw
- Bolt-on style bus connector, #10-32-UNC Hex flange Phillips screw, torque to 25 Lb-In (2.8N•m)
- Lockout/tagout: 4mm shank lock
- Bolt-mounted design into Quik-Spec Coordination Panelboard bus
- Local indication: illumination requires closed circuit and minimum 90Vac operating voltage
- RoHS compliant

### Agency Information:

UL 98 Listed, File E302370, Guide WHTY  
cULus to CSA Standard 22.2 No. 4, File E302370, Guide WHTY7  
CE Compliant

**Shipping Weight:** 2.03 lbs per carton

**Carton quantity:** 6 poles

### Environmental Data

Storage and operating temperature: -20°C to 75°C\*\*

# Compact Circuit Protector Base (CCPB) CUBEFuse™

## Technical Ratings

| CCPB Part Numbers | Poles | Voltage Rating | CUBEFuse™<br>(Class J performance)       |                        |  | Max. Fuse** Ampacity | SCCR  | Hp Ratings***                        |
|-------------------|-------|----------------|--|------------------------|--|----------------------|-------|--------------------------------------|
|                   |       |                | Time-Delay Non-Indicating                | Time-Delay Indicating* | Fast-Acting Non-Indicating               |                      |       |                                      |
| CCPB-1-15CF       | 1     | 600Vac         | TCF1RN, TCF3RN, TCF6RN, TCF10RN, TCF15RN | TCF6, TCF10, TCF15     | FCF1RN, FCF3RN, FCF6RN, FCF10RN, FCF15RN | 15A                  | 200kA | 0.5Hp@120V                           |
| CCPB-2-15CF       | 2     |                |  |                        |  |                      |       | 1.5Hp@240V                           |
| CCPB-3-15CF       | 3     |                |  |                        |  |                      |       | 3Hp@240V<br>5Hp@480V<br>7.5Hp@600V   |
| CCPB-1-20CF       | 1     | 600Vac         | TCF17-1/2RN, TCF20RN                     | TCF17-1/2, TCF20       | FCF20RN                                  | 20A                  | 200kA | 0.75Hp@120V                          |
| CCPB-2-20CF       | 2     |                |  |                        |  |                      |       | 2Hp@240V                             |
| CCPB-3-20CF       | 3     |                |  |                        |  |                      |       | 3Hp@240V<br>7.5Hp@480V<br>10Hp@600V  |
| CCPB-1-30CF       | 1     | 600Vac         | TCF25RN, TCF30RN                         | TCF25, TCF30           | FCF25RN, FCF30RN                         | 30A                  | 200kA | 1.5Hp@120V                           |
| CCPB-2-30CF       | 2     |                |  |                        |  |                      |       | 3Hp@240V                             |
| CCPB-3-30CF       | 3     |                |  |                        |  |                      |       | 5Hp@240V<br>15Hp@480V<br>10Hp@600V   |
| CCPB-1-40CF       | 1     | 600Vac         | TCF35RN, TCF40RN                         | TCF35, TCF40           | FCF35RN, FCF40RN                         | 40A                  | 200kA | 2.0Hp@120V                           |
| CCPB-2-40CF       | 2     |                |  |                        |  |                      |       | 3Hp@240V                             |
| CCPB-3-40CF       | 3     |                |  |                        |  |                      |       | 7.5Hp@240V<br>20Hp@480V<br>10Hp@600V |
| CCPB-1-50CF       | 1     | 600Vac         | TCF45RN, TCF50RN                         | TCF45, TCF50           | FCF45RN, FCF50RN                         | 50A                  | 200kA | 3.0Hp@120V                           |
| CCPB-2-50CF       | 2     |                |  |                        |  |                      |       | 5Hp@240V                             |
| CCPB-3-50CF       | 3     |                |  |                        |  |                      |       | 7.5Hp@240V<br>20Hp@480V<br>10Hp@600V |
| CCPB-1-60CF       | 1     | 600Vac         | TCF60RN                                  | TCF60                  | FCF60RN                                  | 60A                  | 200kA | 3.0Hp@120V                           |
| CCPB-2-60CF       | 2     |                |  |                        |  |                      |       | 7.5Hp@240V                           |
| CCPB-3-60CF       | 3     |                |  |                        |  |                      |       | 7.5Hp@240V<br>20Hp@480V<br>10Hp@600V |
| CCPB-1-70CF       | 1     | 600Vac         | TCF70RN                                  | TCF70                  | FCF70RN                                  | 70A                  | 200kA | 3.0Hp@120V                           |
| CCPB-2-70CF       | 2     |                |  |                        |  |                      |       | 7.5Hp@240V                           |
| CCPB-3-70CF       | 3     |                |  |                        |  |                      |       | 15Hp@240V<br>30Hp@480V               |
| CCPB-1-90CF       | 1     | 600Vac         | TCF90RN                                  | TCF90                  | FCF80RN, FCF90RN                         | 90A                  | 200kA | 5.0Hp@120V                           |
| CCPB-2-90CF       | 2     |                |  |                        |  |                      |       | 10Hp@240V                            |
| CCPB-3-90CF       | 3     |                |  |                        |  |                      |       | 20Hp@240V<br>40Hp@480V               |
| CCPB-1-100CF      | 1     | 600Vac         | TCF100RN                                 | TCF100                 | FCF100RN                                 | 100A                 | 200kA | 5.0Hp@120V                           |
| CCPB-2-100CF      | 2     |                |  |                        |  |                      |       | 10Hp@240V                            |
| CCPB-3-100CF      | 3     |                |  |                        |  |                      |       | 20Hp@240V<br>50Hp@480V               |

\*1A and 3A indicating CUBEFuse not available. Correct fit with CCPB disconnect requires indicating CUBEFuse with date code R38 or later.

\*\*Any fuse with an amp rating less than or equal to the max fuse rating may be used. Example: TCF15 may be used with CCPB-1-20CF.

\*\*\*Do not use UPS/Critical Application fast-acting CF with motors.

Disconnect Switches

# UL 98 Fused Rotary Disconnect Switches—30 to 800A

## Description

Bussmann UL 98 and UL 489 fused disconnect switches “break” and “make” power circuits ON and OFF load.

The switches employ double break contacts per pole that help ensure complete isolation of the fuse when the switch is in the “OFF” position.

## Features

- Make and break power under load
- Double break by pole
- DIN-Rail or panel mount (30-100A)
- Up to 200kA Short-Circuit Current Rating
- Finger-safe covers
- Compact footprints available
- Defeatable handles automatically re-latch when the panel door is closed
- Most disconnect switches are front, right side, flange or direct handle operable
- NFPA 79 Compliant handle kits

## Agency Information

- UL 98, Guide WHTY, File E155130
- UL 489, Guide WJAZ, File E359801
- CSA 22.2 No. 4, File 257020
- Conforms with IEC 60947-3
- NFPA 79 (2002 Edition)

## Online Resources

Visit [www.cooperbussmann.com/Disconnects](http://www.cooperbussmann.com/Disconnects) for:

- CAD Drawings
- Instruction Sheets
- UL Information








QuikShip Everyday Service ships the most common part numbers within 24 hours. Contact your Bussmann representative for details.

### Available Bussmann Fuses

| Class | Type                               | Data Sheet #   |
|-------|------------------------------------|----------------|
| CC    | LP-CC Time-Delay, Current Limiting | 1023           |
| CC    | FNQ-R Time-Delay                   | 1014           |
| CC    | KTK-R Fast-Acting                  | 1015           |
| J     | LPJ Time-Delay, Current Limiting   | 1006 (0-60A)   |
| J     |                                    | 1007 (70-600A) |
| J     | With easyID™ open fuse indication  | 1062 (6-60A)   |
| J     |                                    | 1063 (70-600A) |
| J     | JKS Fast-Acting Fuses              | 1026 (0-60A)   |
| J     |                                    | 1027 (70-600A) |
| J     | DFJ High Speed Drive Fuse          | 1048 (0-600A)  |
| L     | KRP-C Time-Delay, Current Limiting | 1008           |
| L     | KTU Fast-Acting                    | 1010           |
| L     | KLU Time-Delay                     | 1013           |

# UL 98 Fused Rotary Disconnect Switches—30 to 800A

## Specifications

|                                   |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|
|                                   | RDF30CC-3   | RDF30J-3 / RDF60J-3-COMP  | RDF60J-3  | RDF200J-3   | RDF600J-3   |
| <b>Part Number</b>                |   |   |   |   |   |
| <b>2-Pole</b>                     | —   | —   | RDF30J-2  | RDF60J-2-COMP   | RDF60J-2  |
| <b>3-Pole</b>                     | RDF30CC-3   | RDF30J-3-COMP   | RDF30J-3  | RDF60J-3-COMP   | RDF60J-3  |
| <b>3-Pole + Neutral</b>           | RDF30CC-3N  | RDF30J-3N-COMP  | —   | —   | —   |
| <b>4-Pole</b>                     | —   | —   | RDF30J-4  | RDF60J-4-COMP   | RDF60J-4  |
| UL Standard                       | UL 489  | UL 489  | UL 98   | UL 98   | UL 98   |
| Fuse Class                        | CC  | J   | J   | J   | J   |
| Max Fuse/Ampacity                 | 30  | 30  | 30  | 60  | 60  |
| Switch Type                       | Compact   | Compact   | Standard  | Standard  | Standard  |
| Handle Operation                  | Front   | Front   | Front/Side<br>Flange  | Front/Side<br>Flange  | Front/Side<br>Flange  |
| <b>UL Electrical Ratings</b>      |   |   |   |   |   |
| Max AC Volts                      | 600Vac  | 600Vac  | 600Vac  | 600Vac  | 600Vac  |
| Max DC Volts*                     | —   | —   | 250Vdc  | 250Vdc  | 250Vdc  |
| Std AC Horsepower Ratings         |   |   |   |   |   |
| 1-Phase, 240Vac                   | —   | —   | 3   | 10  | 10  |
| 3-Phase, 240Vac                   | 3   | 3   | 3   | 7.5   | 15  |
| 3-Phase, 480Vac                   | 5.0   | 5.0   | 5.0   | 15  | 25  |
| 3-Phase, 600Vac                   | 7.5   | 7.5   | 7.5   | 15  | 30  |
| Max AC Horsepower Ratings         |   |   |   |   |   |
| 3-Phase, 240Vac                   | 7.5   | 7.5   | 7.5   | 15  | 30  |
| 3-Phase, 480Vac                   | 15  | 15  | 15  | 30  | 60  |
| 3-Phase, 600Vac                   | 20  | 20  | 20  | 50  | 75  |
| DC Horsepower Ratings             |   |   |   |   |   |
| 125Vdc                            | —   | —   | 3   | 5   | 7.5   |
| 250Vdc                            | —   | —   | 5   | 10  | 20  |
| <b>Electrical Characteristics</b> |   |   |   |   |   |
| SCCR                              | 100kA   | 100kA   | 200kA   | 100kA   | 200kA   |
| Terminal Lugs/Kits                | Integral  | Integral  | Integral  | Integral  | Integral  |
| Mounting Torque - Lb-In (N·m)     | —   | —   | —   | —   | 160 (18)  |
| Wire Type                         | 75°C Cu   | 75°C Cu   | 75°C Cu   | 75°C Cu   | 75°C Cu/Al  |
| Wire Range & Torque - Lb-In (N·m) |   |   |   |   |   |
| Solid                             | #14-10<br>27 (3.1)  | #14-10<br>27 (3.1)  | #14-10<br>31 (3.5)  | #14-10<br>31 (3.5)  | #12-10<br>35.4 (4)  |
| Stranded                          | #14-10<br>27 (3.1)  | #14-10<br>27 (3.1)  | #14-6<br>31 (3.5)   | #14-6<br>31 (3.5)   | #12-1<br>35.4 (4)   |
|                                   |   |   |   |   | #6-300MCM<br>275 (31)   |
|                                   |   |   |   |   | #4-600MCM<br>550 (62)   |
|                                   |   |   |   |   | (2) #2-600MCM<br>375 (42.4)   |
|                                   |   |   |   |   | (2) #2-600MCM<br>375 (42.4)   |
| <b>Mechanical Characteristics</b> |   |   |   |   |   |
| Endurances/Cycles                 | 10,000  | 10,000  | 10,000  | 10,000  | 10,000  |
| <b>Physical Characteristics</b>   |   |   |   |   |   |
| Dimensions                        |   |   |   |   |   |
| See drawings on product pages     |   |   |   |   |   |
| Weight - Lbs (KG)                 |   |   |   |   |   |
| 2-Pole                            | —   | —   | 3.0 (1.3)   | 3.1 (1.4)   | 4.0 (1.8)   |
| 3-Pole                            | 1.3 (0.6)   | 1.4 (0.6)   | 3.8 (1.7)   | 4.1 (1.8)   | 5.3 (2.4)   |
| 3-Pole + Neutral                  | 1.4 (0.6)   | 1.5 (0.7)   | —   | —   | —   |
| 4-Pole                            | —   | —   | 4.7 (2.1)   | 4.8 (2.2)   | X.X (2.9)   |
| <b>Environmental</b>              |   |   |   |   |   |
| Operating Temp. Range             | -20°C to 70°C   | -20°C to 70°C   | -20°C to 70°C   | -20°C to 70°C   | -20°C to 70°C   |
| Flammability Rating               | UL 94-V0  | UL 94-V0  | UL 94-V0  | UL 94-V0  | UL 94-V0  |
| <b>Accessories</b>                |   |   |   |   |   |
| Lug Kit                           | Integral  | Integral  | Integral  | Integral  | Integral  |
| Handles                           |   |   |   |   |   |
| Direct                            | •   | •   | •   | •   | •   |
| Front Selector                    | •   | •   | —   | —   | —   |
| Front Pistol                      | •   | •   | •   | •   | •   |
| Side Pistol                       | —   | —   | •   | •   | •   |
| Flange                            |   |   |   |   |   |
| Cable                             | —   | —   | •   | •   | •   |
| Shaft                             | —   | —   | •   | •   | •   |
| NFPA Through Door Handle          | •   | •   | •   | •   | •   |
| Shafts c/s - mm                   | 5x5   | 5x5   | 10x10   | 10x10   | 10x10   |
| Terminal Shrouds                  | Not Required  | Not Required  | Not Required  | Not Required  | Not Required  |
| Auxiliary Contacts                |   |   |   |   |   |
| (1) NO                            | •   | •   | •   | •   | •   |
| (1) NC                            | •   | •   | •   | •   | •   |
| AC Ratings                        |   |   |   |   |   |
| Volts                             | 600   | 600   | 600   | 600   | 600   |
| Amps                              | 10  | 10  | 10  | 10  | 10  |

Disconnect  
Switches

• Available, see product page for details and part numbers.  
— Not available.  
\* General purpose only, not photovoltaic rated.

# UL 98 Fused Rotary Disconnect Switches—30A

## Compact Class CC & Class J

For a Complete Assembly, Please Select:

| SELECT FOR STANDARD APPLICATIONS   | SWITCH   |    | <b>Switch</b>   |   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|--|--|---|---|---|-----------------------|--|--|----------------------|------------------|----------------------|----------------|----------------------|-----------------------------|---|------------------|----------------------|---------------------------|-------------|------------------|---------|---|----|----------------------|--------------------------|------------------|------------|----|--|-------|----------------------------|------------------|-------|----------------|---------|------------|----------|------------------|------------|-------|-----|----|----------|----------------|---------|---------------|----|---|-----------|-------|-----|----|----|----------------|---------|----------------|
|  |  | <table border="1"> <thead> <tr> <th rowspan="2">Amp Rating</th> <th rowspan="2">Fuse Class</th> <th rowspan="2">Number of Poles</th> <th rowspan="2">SCCR</th> <th colspan="3">Max Horsepower Rating, 3-Ph</th> <th rowspan="2">Wire Size</th> <th rowspan="2">Wire Type</th> <th rowspan="2">Part Number</th> </tr> <tr> <th>220/240Vac</th> <th>440/480Vac</th> <th>600 Vac</th> </tr> </thead> <tbody> <tr> <td>30</td> <td>CC</td> <td>3</td> <td>100kA</td> <td>7.5</td> <td>15</td> <td>20</td> <td>#14-10 Sol/Str</td> <td>75°C Cu</td> <td>RDF30CC-3</td> </tr> <tr> <td>30</td> <td>CC</td> <td>3 + Ntrl*</td> <td>100kA</td> <td>7.5</td> <td>15</td> <td>20</td> <td>#14-10 Sol/Str</td> <td>75°C Cu</td> <td>RDF30CC-3N</td> </tr> <tr> <td>30</td> <td>J</td> <td>3</td> <td>100kA</td> <td>7.5</td> <td>15</td> <td>20</td> <td>#14-10 Sol/Str</td> <td>75°C Cu</td> <td>RDF30J-3-COMP</td> </tr> <tr> <td>30</td> <td>J</td> <td>3 + Ntrl*</td> <td>100kA</td> <td>7.5</td> <td>15</td> <td>20</td> <td>#14-10 Sol/Str</td> <td>75°C Cu</td> <td>RDF30J-3N-COMP</td> </tr> </tbody> </table> | Amp Rating  | Fuse Class  | Number of Poles       | SCCR   | Max Horsepower Rating, 3-Ph  |                      |                  | Wire Size            | Wire Type      | Part Number          | 220/240Vac                  | 440/480Vac                                    | 600 Vac          | 30                   | CC                        | 3           | 100kA            | 7.5     | 15  | 20 | #14-10 Sol/Str       | 75°C Cu                  | RDF30CC-3        | 30         | CC | 3 + Ntrl*                                    | 100kA | 7.5                        | 15               | 20    | #14-10 Sol/Str | 75°C Cu | RDF30CC-3N | 30       | J                | 3          | 100kA | 7.5 | 15 | 20       | #14-10 Sol/Str | 75°C Cu | RDF30J-3-COMP | 30 | J | 3 + Ntrl* | 100kA | 7.5 | 15 | 20 | #14-10 Sol/Str | 75°C Cu | RDF30J-3N-COMP |
|  |  | Amp Rating  |   |   |                       |  | Fuse Class   | Number of Poles      | SCCR             |                      |                |                      | Max Horsepower Rating, 3-Ph |   |                  | Wire Size            | Wire Type                 | Part Number |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  |   | 220/240Vac  | 440/480Vac  | 600 Vac               |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | 30  | CC  | 3   | 100kA                 | 7.5  | 15   | 20                   | #14-10 Sol/Str   | 75°C Cu              | RDF30CC-3      |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | 30  | CC  | 3 + Ntrl*   | 100kA                 | 7.5  | 15   | 20                   | #14-10 Sol/Str   | 75°C Cu              | RDF30CC-3N     |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | 30  | J   | 3   | 100kA                 | 7.5  | 15   | 20                   | #14-10 Sol/Str   | 75°C Cu              | RDF30J-3-COMP  |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | 30  | J   | 3 + Ntrl*   | 100kA                 | 7.5  | 15   | 20                   | #14-10 Sol/Str   | 75°C Cu              | RDF30J-3N-COMP |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | * Neutral is switched.  |   |   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | +   |   |   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| HANDLE   | SELECT FOR STANDARD APPLICATIONS   |    | <b>Direct Mount Handle - mounts directly to switch, no shaft required</b> |   |                       |  |  |                      |                  | <b>Part Number</b>   |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
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|  |  | For Switch Part Number  | Color   | Test Function                                     | Padlockable           |  |  | Part Number          |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | RDF30CC- <u>    </u>  | Black   | Y   | Y                     |  |  | DIR-05               |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | RDF30J- <u>    </u> -COMP   | Black   | Y   | Y                     |  |  | DIR-06               |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | OR  |   |   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  |    | <b>External Front Operated Selector Handle - shaft required</b>           |   |                       |  |  |                      |                  | <b>Part Number</b>   |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
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|  |  | NEMA Type   | Color   | Test Function                                     | Padlockable           | Defeatable   | Part Number  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | 1, 3R, 4, 4X, 12  | Black   | N   | Y                     | Y  | H4X-04B  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 1, 3R, 4, 4X, 12   | Red/Yellow   | N   | Y   | Y   | H4X-04R               |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|    | <b>Shafts for Selector Handles</b>   |   |   |   |                       |  |  | <b>Part Number</b>   |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
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| Length in (mm)   | Mounting Depth (X) in (mm)   |   |   | Part Number                                       |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 7.9 (200)  | 4.02~9.65 (102~245)  |   |   | SH1-200   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 12.6 (320)   | 4.02~14.37 (102~365)   |   |   | SH1-320   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 15.7 (400)   | 4.02~17.52 (102~445)   |   |   | SH1-400   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| OR   |  |   |   |   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|   | <b>External Front Operated Pistol Handles - shaft required</b>                                   |   |   |   |                       |  |  | <b>Part Number</b>   |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
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| NEMA Type  | Color  | Test Function   | Padlockable   | Defeatable  | Part Number           |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 1, 3R, 12  | Black  | N   | Y   | Y   | H12-05B               |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 1, 3R, 12  | Red/Yellow   | N   | Y   | Y   | H12-05R               |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 1, 3R, 4, 4X, 12   | Black  | N   | Y   | Y   | H4X-05B               |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 1, 3R, 4, 4X, 12   | Red/Yellow   | N   | Y   | Y   | H4X-05R               |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 1, 3R, 4, 4X, 12   | Black  | Y   | Y   | Y   | H4X-05TB              |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 1, 3R, 4, 4X, 12   | Red/Yellow   | Y   | Y   | Y   | H4X-05TR              |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|   | <b>Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required</b>        |   |   |   |                       |  |  | <b>Part Number</b>   |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
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| NEMA Type  | Color  | Test Function   | Padlockable   | Defeatable  | Part Number           |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 1, 3R, 4, 4X, 12   | Black  | N   | Y   | Y   | H4X-05BHD             |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 1, 3R, 4, 4X, 12   | Red/Yellow   | N   | Y   | Y   | H4X-05RHD             |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|   | <b>Shafts for Pistol Handles</b>   |   |   |   |                       |  |  | <b>Part Number</b>   |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
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| Length in (mm)   | Mounting Depth (X) in (mm)   |   |   | Part Number                                       |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 7.9 (200)  | 4.02~9.65 (102~245)  |   |   | SH2-200   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 12.6 (320)   | 4.02~14.37 (102~365)   |   |   | SH2-320   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| 15.7 (400)   | 4.02~17.52 (102~445)   |   |   | SH2-400   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| OR   |  |   |   |   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|   | <b>NFPA Through the Door Handle Kit - to be used with selector handle or front pistol handle</b> |   |   |   |                       |  |  | <b>Part Number</b>   |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
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| Color  | Test Function  | Padlockable   | Defeatable  | Part Number                                       |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| Red  | N  | Y   | N   | H79-1   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| and...   |  |   |   |   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| ACCESSORIES  | AUXILIARY CONTACTS   |    | <b>Auxiliary Contacts</b>   |   |                       |  |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
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|  |  | Contact Type  | Number of Contacts  | Continuous Amp Rating                             | Voltage Rating        | Maximum Number of Auxiliary Contacts per Disconnect Switch Part Number |  | Part Number          |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
|  |  | NO  | 1   | 10A   | 600Vac                | RDF30CC- <u>    </u> : 4 / 8 with BAC-HOLDER2                          |  | BAC05 <sup>(1)</sup> |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| NC   | 1  | 10A   | 600Vac  | RDF30J- <u>    </u> -COMP: 2 / 6 with BAC-HOLDER2 |                       | BAC06 <sup>(1)</sup>   |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |
| Auxiliary Contact Holder   |  |   |   | Accepts 4 Auxiliary Contacts: BAC05 or BAC06      |                       | BAC-HOLDER2 <sup>(2)</sup>   |  |                      |                  |                      |                |                      |                             |   |                  |                      |                           |             |                  |         |   |    |                      |                          |                  |            |    |  |       |                            |                  |       |                |         |            |          |                  |            |       |     |    |          |                |         |               |    |   |           |       |     |    |    |                |         |                |

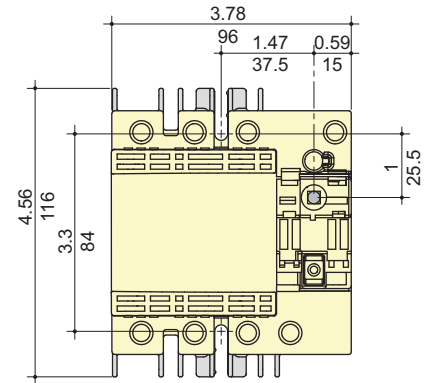
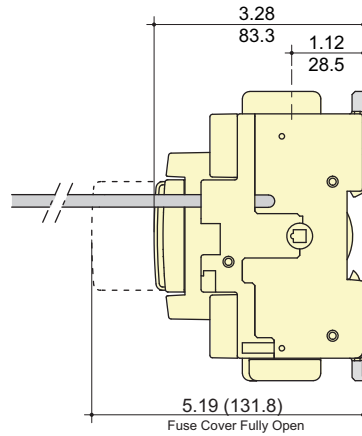


# UL 98 Fused Rotary Disconnect Switches—30A

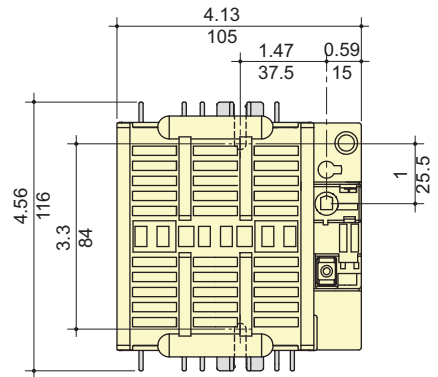
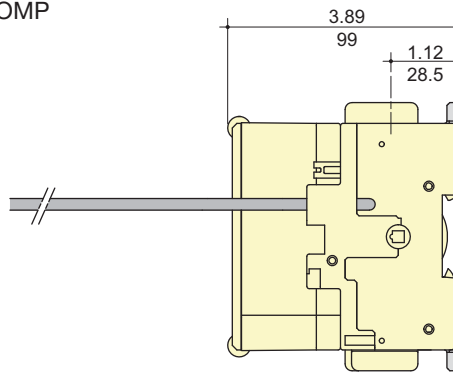
## Compact Class CC & Class J

### Dimensions – in (mm)

- RDF30CC-<sub>-</sub>



- RDF30J-<sub>-</sub>COMP



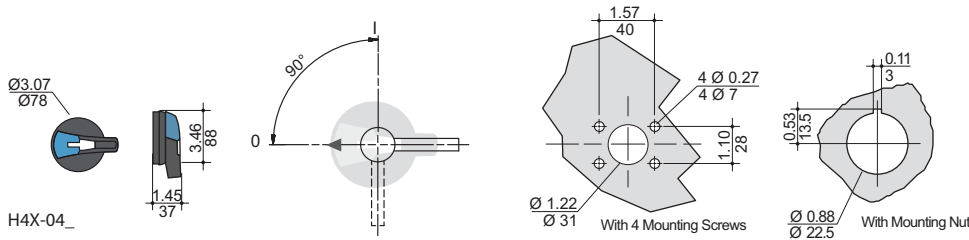
Disconnect  
Switches

### External Front Selector Handle

Selector Handle Type

Direction of Front Operation

Door Drilling Layout

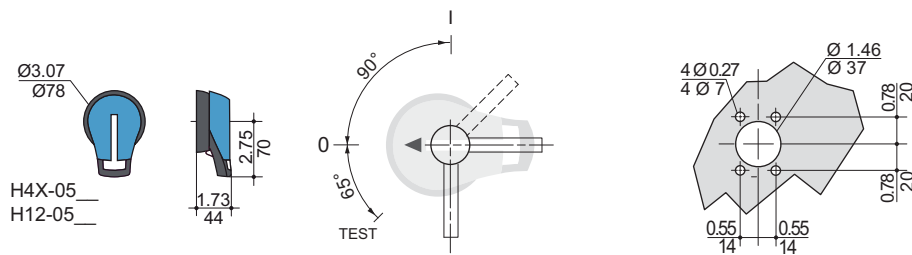


### External Front Pistol Handles

Pistol Handle Type

Direction of Front Operation

Door Drilling Layout



# UL 98 Fused Rotary Disconnect Switches—30A


## Standard Class J

For a Complete Assembly, Please Select:

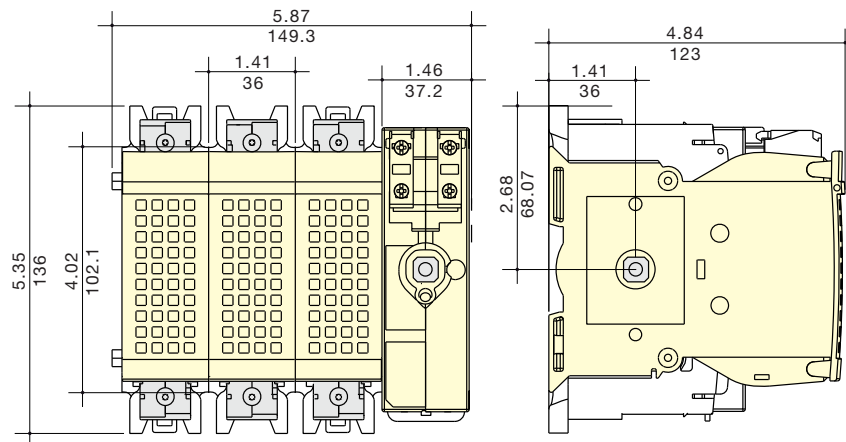
|   |  |   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|---|--|---|---|----------------------|----------------------|------------------------------|---------------------------|-------------------|--------------------|--------------------|--------------------|-------------------------|--------------------|----------|
| SWITCH  |                               | <b>Switch</b>   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   |  | <b>Amp Rating</b>   | <b>Fuse Class</b>   | <b>No. of Poles</b>  | <b>SCCR</b>          | <b>Max Horsepower Rating</b> |                           |                   |                    |                    | <b>Wire Size</b>   | <b>Wire Type</b>        | <b>Part Number</b> |          |
|   |  |   |   |                      |                      | <b>1-Phase 220/240Vac</b>    | <b>3-Phase 220/240Vac</b> | <b>440/480Vac</b> | <b>600 Vac</b>     | <b>DC*</b>         |                    |                         |                    |          |
|   |  |   |   |                      |                      |                              |                           |                   |                    | <b>125 Vdc</b>     | <b>250 Vdc</b>     |                         |                    |          |
|   |  | 30  | J   | 2                    | 200kA                | 3                            | -                         | -                 | -                  | 3                  | 5                  | #14-10 Sol<br>#14-6 Str | 75°C Cu            | RDF30J-2 |
|   |  | 30  | J   | 3                    | 200kA                | -                            | 7.5                       | 15                | 20                 | 3                  | 5                  | #14-10 Sol<br>#14-6 Str | 75°C Cu            | RDF30J-3 |
|   |  | 30  | J   | 4                    | 200kA                | -                            | 7.5                       | 15                | 20                 | 3                  | 5                  | #14-10 Sol<br>#14-6 Str | 75°C Cu            | RDF30J-4 |
|   |  | * DC Ratings use two poles in series.   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   |  | +   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   | HANDLE   |          | <b>Direct Mount Handle - mounts directly to switch, no shaft required</b> |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   |  | <b>For Switch Part Number</b>   |   | <b>Color</b>         | <b>Test Function</b> | <b>Padlockable</b>           |                           |                   |                    |                    |                    | <b>Part Number</b>      |                    |          |
|   |  | All Switches  |   | Black                | Y                    | Y - On Switch                |                           |                   |                    |                    |                    | DIR-07                  |                    |          |
|   |  | or  |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|    |  | <b>External Front Operated Pistol Handles - shaft required</b>                            |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   |  | <b>NEMA Type</b>  | <b>Color</b>  | <b>Test Function</b> | <b>Padlockable</b>   | <b>Defeatable</b>            |                           |                   |                    |                    |                    | <b>Part Number</b>      |                    |          |
|   |  | 1, 3R, 12   | Black   | N                    | Y                    | Y                            |                           |                   |                    |                    |                    | H12-05B                 |                    |          |
|   |  | 1, 3R, 12   | Red/Yellow  | N                    | Y                    | Y                            |                           |                   |                    |                    |                    | H12-05R                 |                    |          |
|   |  | 1, 3R, 4, 4X, 12  | Black   | N                    | Y                    | Y                            |                           |                   |                    |                    |                    | H4X-05B                 |                    |          |
|   |  | 1, 3R, 4, 4X, 12  | Red/Yellow  | N                    | Y                    | Y                            |                           |                   |                    |                    |                    | H4X-05R                 |                    |          |
|   | 1, 3R, 4, 4X, 12   | Black   | Y   | Y                    | Y                    |                              |                           |                   |                    |                    | H4X-05TB           |                         |                    |          |
|   | 1, 3R, 4, 4X, 12   | Red/Yellow  | Y   | Y                    | Y                    |                              |                           |                   |                    |                    | H4X-05TR           |                         |                    |          |
| or  |                             | <b>Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required</b> |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   | <b>NEMA Type</b>   | <b>Color</b>  | <b>Test Function</b>  | <b>Padlockable</b>   | <b>Defeatable</b>    |                              |                           |                   |                    |                    | <b>Part Number</b> |                         |                    |          |
|   | 1, 3R, 4, 4X, 12   | Black   | N   | Y                    | Y                    |                              |                           |                   |                    |                    | H4X-05BHD          |                         |                    |          |
|   | 1, 3R, 4, 4X, 12   | Red/Yellow  | N   | Y                    | Y                    |                              |                           |                   |                    |                    | H4X-05RHD          |                         |                    |          |
|   | <b>External Right Side Operated Pistol Handles - shaft required</b>  |   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   | <b>NEMA Type</b>   | <b>Color</b>  | <b>Test Function</b>  | <b>Padlockable</b>   | <b>Defeatable</b>    |                              |                           |                   |                    |                    | <b>Part Number</b> |                         |                    |          |
|   | 1, 3R, 4, 4X, 12   | Black   | N   | Y                    | N/A                  |                              |                           |                   |                    |                    | H4X-05SB           |                         |                    |          |
|   | 1, 3R, 4, 4X, 12   | Red/Yellow  | N   | Y                    | N/A                  |                              |                           |                   |                    |                    | H4X-05SR           |                         |                    |          |
|   | <b>Shafts for Pistol Handles</b>   |   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   | <b>Length in (mm)</b>  | <b>Mounting Depth (X) in (mm)</b>   |   |                      |                      |                              |                           |                   | <b>Part Number</b> |                    |                    |                         |                    |          |
|   | 7.9 (200)  | 5.30~9.06 (135~230)   |   |                      |                      |                              |                           |                   | SH5-200            |                    |                    |                         |                    |          |
|   | 12.6 (320)   | 5.30~13.78 (135~350)  |   |                      |                      |                              |                           |                   | SH5-320            |                    |                    |                         |                    |          |
|   | 15.7 (400)   | 5.30~16.93 (135~430)  |   |                      |                      |                              |                           |                   | SH5-400            |                    |                    |                         |                    |          |
|   | or   |   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|  | <b>Flange Handle<sup>(1)</sup> - requires shaft operated mechanism or cable operated mechanism + cable</b>     |   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   | <b>NEMA Type</b>   | <b>Flange Style</b>   | <b>Test Function</b>  | <b>Padlockable</b>   | <b>Defeatable</b>    |                              |                           |                   |                    |                    | <b>Part Number</b> |                         |                    |          |
|   | 1, 3R, 4, 12   | Standard  | N   | Y                    | Y                    |                              |                           |                   |                    |                    | FLH1               |                         |                    |          |
|   | 1, 3R, 4, 4X, 12   | Chrome Plated   | N   | Y                    | Y                    |                              |                           |                   |                    |                    | FLH2               |                         |                    |          |
|   | <b>Shaft Operated Flange Mechanism<sup>(2)</sup> - includes shaft</b>  |   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   | <b>For Enclosure Depth - in (mm)</b>   |   |   |                      |                      |                              |                           |                   |                    | <b>Part Number</b> |                    |                         |                    |          |
|   | 6~24 (152~613)   |   |   |                      |                      |                              |                           |                   |                    | FLRM               |                    |                         |                    |          |
|   | <b>Cable Operated Flange Mechanism and Cable - must select Mechanism<sup>(3)</sup> and Cable<sup>(4)</sup></b> |   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   | <b>Item / Length</b>   |   |   |                      |                      |                              |                           |                   |                    | <b>Part Number</b> |                    |                         |                    |          |
|   | Cable Mechanism  |   |   |                      |                      |                              |                           |                   |                    | FLCM               |                    |                         |                    |          |
|   | 36" (900mm) Cable  |   |   |                      |                      |                              |                           |                   |                    | FLC36              |                    |                         |                    |          |
|   | 60" (1500mm) Cable   |   |   |                      |                      |                              |                           |                   |                    | FLC60              |                    |                         |                    |          |
|   | 120" (3000mm) Cable  |   |   |                      |                      |                              |                           |                   |                    | FLC120             |                    |                         |                    |          |
|   | or   |   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|  | <b>NFPA Through the Door Handle Kit - to be used with selector handle or front pistol handle</b>               |   |   |                      |                      |                              |                           |                   |                    |                    |                    |                         |                    |          |
|   | <b>Color</b>   | <b>Test Function</b>  | <b>Padlockable</b>  | <b>Defeatable</b>    |                      |                              |                           |                   |                    |                    |                    | <b>Part Number</b>      |                    |          |
|   | Red  | N   | Y   | N                    |                      |                              |                           |                   |                    |                    |                    | H79-2                   |                    |          |

# UL 98 Fused Rotary Disconnect Switches—30A Standard Class J

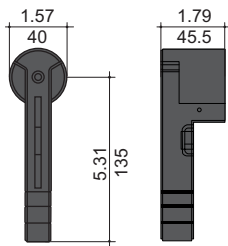
and ...

| ACC.<br>AUX CONTACTS |  | Auxiliary Contacts |                       |                          |                   | Max Number of Aux<br>Contacts per Switch | Part<br>Number |
|----------------------|---|--------------------|-----------------------|--------------------------|-------------------|--|----------------|
|                      |   | Contact<br>Type    | Number of<br>Contacts | Continuous<br>Amp Rating | Voltage<br>Rating |  |                |
|                      |   | NO                 | 1                     | 10A                      | 600Vac            | 4  | BAC05          |
|                      |   | NC                 | 1                     | 10A                      | 600Vac            | 4  | BAC06          |

## Dimensions – in (mm)

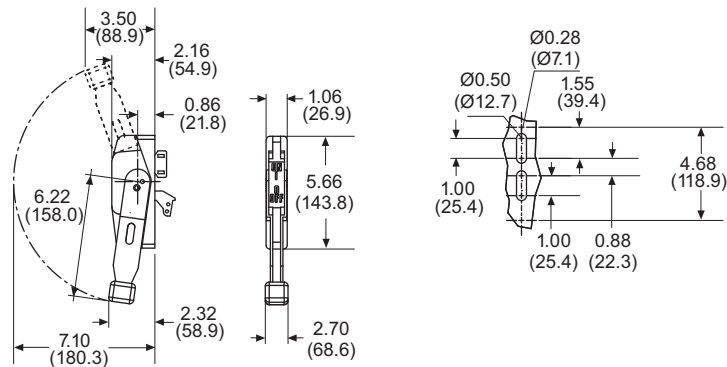


## Direct Mount Handle



DIR-07

## Flange Handle



FLH\_

## External Front & Right Side Pistol Handle

Handle Type

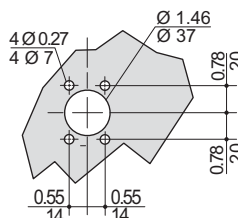
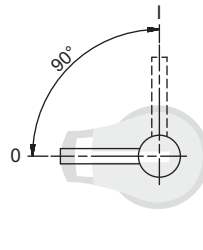
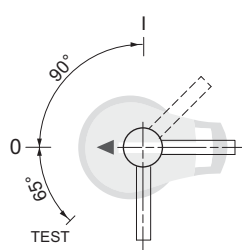
Direction of Front Operation

Direction of Right Side Operation

Door Drilling Layout





H4X-05  
H12-05



# UL 98 Fused Rotary Disconnect Switches—60A

## Compact Class J

For a Complete Assembly, Please Select:

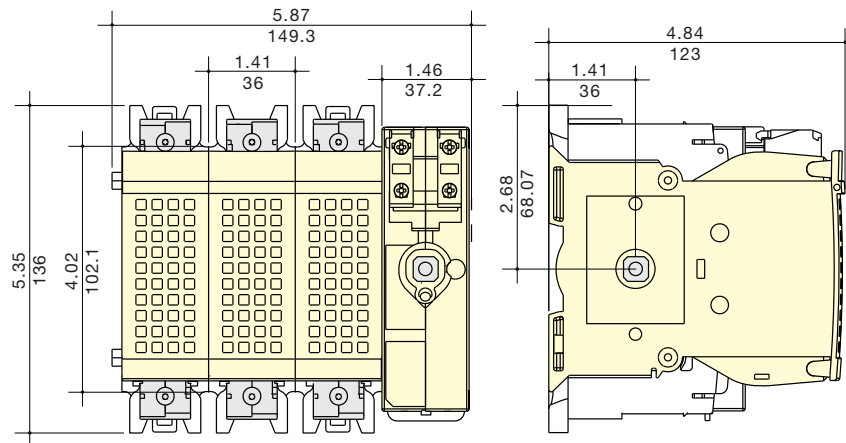
|   |  |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|---|--|---|---|------------------------|----------------------|------------------------------|---------------------------|--------------------|--------------------|--------------------|-------------------------|-------------------------|------------------|--------------------|
| SWITCH  |                               | <b>Switch</b>   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|   |  | <b>Amp Rating</b>   | <b>Fuse Class</b>   | <b>Number of Poles</b> | <b>SCCR</b>          | <b>Max Horsepower Rating</b> |                           |                    |                    |                    |                         | <b>Wire Size</b>        | <b>Wire Type</b> | <b>Part Number</b> |
|   |  |   |   |                        |                      | <b>1-Phase 220/240Vac</b>    | <b>3-Phase 220/240Vac</b> | <b>440/480Vac</b>  | <b>600 Vac</b>     | <b>DC*</b>         |                         |                         |                  |                    |
|   |  | 60  | J   | 2                      | 100kA                | 10                           | -                         | -                  | -                  | 5                  | 10                      | #14-10 Sol<br>#14-6 Str | 75°C Cu          | RDF60J-2-COMP      |
|   | 60   | J   | 3   | 100kA                  | -                    | 15                           | 30                        | 50                 | 5                  | 10                 | #14-10 Sol<br>#14-6 Str | 75°C Cu                 | RDF60J-3-COMP    |                    |
|   | 60   | J   | 4   | 100kA                  | -                    | 15                           | 30                        | 50                 | 5                  | 10                 | #14-10 Sol<br>#14-6 Str | 75°C Cu                 | RDF60J-4-COMP    |                    |
|   | * DC Ratings use two poles in series.  |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|   | +  |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|   | HANDLE   |  | <b>Direct Mount Handle - mounts directly to switch, no shaft required</b> |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|   |  |   | <b>For Switch Part Number</b>   | <b>Color</b>           | <b>Test Function</b> | <b>Padlockable</b>           |                           |                    |                    | <b>Part Number</b> |                         |                         |                  |                    |
| All Switches  |  | Black   | Y   | Y - On Switch          |                      |                              |                           | DIR-07             |                    |                    |                         |                         |                  |                    |
| or  |  |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
| <br>or<br><br>+<br> |  | <b>External Front Operated Pistol Handles - shaft required</b>                    |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|   |  | <b>NEMA Type</b>  | <b>Color</b>  | <b>Test Function</b>   | <b>Padlockable</b>   | <b>Defeatable</b>            |                           |                    |                    | <b>Part Number</b> |                         |                         |                  |                    |
|   |  | 1, 3R, 12   | Black   | N                      | Y                    | Y                            |                           |                    |                    | H12-05B            |                         |                         |                  |                    |
|   |  | 1, 3R, 12   | Red/Yellow  | N                      | Y                    | Y                            |                           |                    |                    | H12-05R            |                         |                         |                  |                    |
|   |  | 1, 3R, 4, 4X, 12  | Black   | N                      | Y                    | Y                            |                           |                    |                    | H4X-05B            |                         |                         |                  |                    |
|   |  | 1, 3R, 4, 4X, 12  | Red/Yellow  | N                      | Y                    | Y                            |                           |                    |                    | H4X-05R            |                         |                         |                  |                    |
|   | 1, 3R, 4, 4X, 12   | Black   | Y   | Y                      | Y                    |                              |                           |                    | H4X-05TB           |                    |                         |                         |                  |                    |
|   | 1, 3R, 4, 4X, 12   | Red/Yellow  | Y   | Y                      | Y                    |                              |                           |                    | H4X-05TR           |                    |                         |                         |                  |                    |
|   | <b>Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required</b>                      |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|   | <b>NEMA Type</b>   | <b>Color</b>  | <b>Test Function</b>  | <b>Padlockable</b>     | <b>Defeatable</b>    |                              |                           |                    | <b>Part Number</b> |                    |                         |                         |                  |                    |
| 1, 3R, 4, 4X, 12  | Black  | N   | Y   | Y                      |                      |                              |                           | H4X-05BHD          |                    |                    |                         |                         |                  |                    |
| 1, 3R, 4, 4X, 12  | Red/Yellow   | N   | Y   | Y                      |                      |                              |                           | H4X-05RHD          |                    |                    |                         |                         |                  |                    |
| <b>External Right Side Operated Pistol Handles - shaft required</b>   |  |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
| <b>NEMA Type</b>  | <b>Color</b>   | <b>Test Function</b>  | <b>Padlockable</b>  | <b>Defeatable</b>      |                      |                              |                           | <b>Part Number</b> |                    |                    |                         |                         |                  |                    |
| 1, 3R, 4, 4X, 12  | Black  | N   | Y   | N/A                    |                      |                              |                           | H4X-05SB           |                    |                    |                         |                         |                  |                    |
| 1, 3R, 4, 4X, 12  | Red/Yellow   | N   | Y   | N/A                    |                      |                              |                           | H4X-05SR           |                    |                    |                         |                         |                  |                    |
| <b>Shafts for Pistol Handles</b>  |  |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
| <b>Length in (mm)</b>   | <b>Mounting Depth (X) in (mm)</b>  |   |   |                        |                      |                              |                           | <b>Part Number</b> |                    |                    |                         |                         |                  |                    |
| 7.9 (200)   | 5.30~9.06 (135~230)  |   |   |                        |                      |                              |                           | SH5-200            |                    |                    |                         |                         |                  |                    |
| 12.6 (320)  | 5.30~13.78 (135~350)   |   |   |                        |                      |                              |                           | SH5-320            |                    |                    |                         |                         |                  |                    |
| 15.7 (400)  | 5.30~16.93 (135~430)   |   |   |                        |                      |                              |                           | SH5-400            |                    |                    |                         |                         |                  |                    |
| or  |  |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|    | <b>Flange Handle<sup>(1)</sup> - requires shaft operated mechanism or cable operated mechanism + cable</b>     |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|   | <b>NEMA Type</b>   | <b>Flange Style</b>   | <b>Test Function</b>  | <b>Padlockable</b>     | <b>Defeatable</b>    |                              |                           |                    | <b>Part Number</b> |                    |                         |                         |                  |                    |
|   | 1, 3R, 4, 12   | Standard  | N   | Y                      | Y                    |                              |                           |                    | FLH1               |                    |                         |                         |                  |                    |
|   | 1, 3R, 4, 4X, 12   | Chrome Plated   | N   | Y                      | Y                    |                              |                           |                    | FLH2               |                    |                         |                         |                  |                    |
|   | <b>Shaft Operated Flange Mechanism<sup>(2)</sup> - includes shaft</b>  |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|   | <b>For Enclosure Depth - in (mm)</b>   |   |   |                        |                      |                              |                           |                    | <b>Part Number</b> |                    |                         |                         |                  |                    |
|   | 6-24 (152~613)   |   |   |                        |                      |                              |                           |                    | FLRM               |                    |                         |                         |                  |                    |
|   | <b>Cable Operated Flange Mechanism and Cable - must select Mechanism<sup>(3)</sup> and Cable<sup>(4)</sup></b> |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|   | <b>Item / Length</b>   |   |   |                        |                      |                              |                           |                    | <b>Part Number</b> |                    |                         |                         |                  |                    |
|   | Cable Mechanism  |   |   |                        |                      |                              |                           |                    | FLCM               |                    |                         |                         |                  |                    |
| 36" (900mm) Cable   |  |   |   |                        |                      |                              |                           | FLC36              |                    |                    |                         |                         |                  |                    |
| 60" (1500mm) Cable  |  |   |   |                        |                      |                              |                           | FLC60              |                    |                    |                         |                         |                  |                    |
| 120" (3000mm) Cable   |  |   |   |                        |                      |                              |                           | FLC120             |                    |                    |                         |                         |                  |                    |
| or  |  |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|    | <b>NFPA Through the Door Handle Kit - to be used with selector handle or front pistol handle</b>               |   |   |                        |                      |                              |                           |                    |                    |                    |                         |                         |                  |                    |
|   | <b>Color</b>   | <b>Test Function</b>  | <b>Padlockable</b>  | <b>Defeatable</b>      |                      |                              |                           | <b>Part Number</b> |                    |                    |                         |                         |                  |                    |
| Red   | N  | Y   | N   |                        |                      |                              | H79-2                     |                    |                    |                    |                         |                         |                  |                    |

# UL 98 Fused Rotary Disconnect Switches—60A

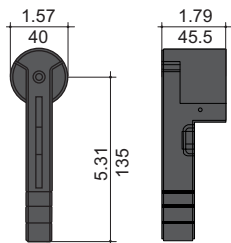
## Compact Class J

|      |              | and ...            |                    |                       |                |             |       |
|------|--------------|--------------------|--------------------|-----------------------|----------------|-------------|-------|
| Acc. | AUX CONTACTS | Auxillary Contacts |                    |                       |                | Part Number |       |
|      |              | Contact Type       | Number of Contacts | Continuous Amp Rating | Voltage Rating |             |       |
|      |              | NO                 | 1                  | 10A                   | 600Vac         |             | 4     |
|      |              | NC                 | 1                  | 10A                   | 600Vac         | 4           | BAC06 |

### Dimensions – in (mm)

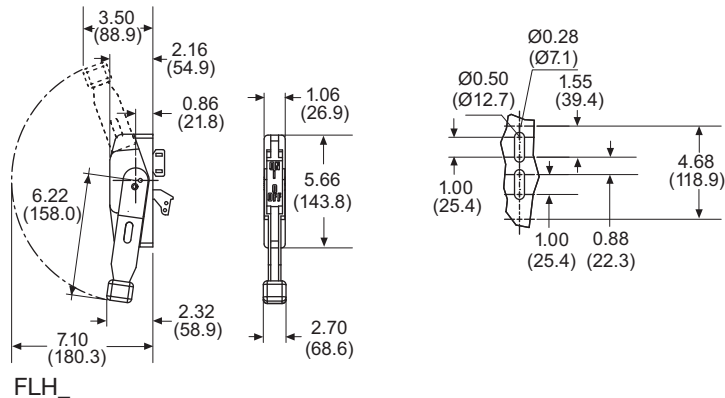


### Direct Mount Handle



DIR-07

### Flange Handle



FLH\_

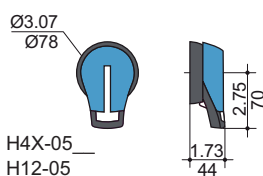
### External Front & Right Side Pistol Handle

Handle Type

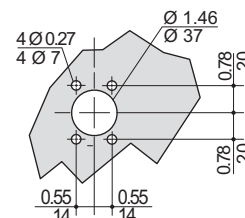
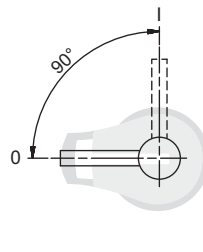
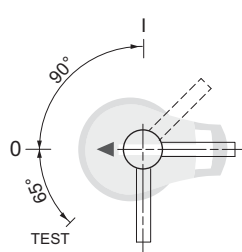
Direction of Front Operation

Direction of Right Side Operation

Door Drilling Layout



H4X-05  
H12-05










# UL 98 Fused Rotary Disconnect Switches—60A



## Standard Class J

For a Complete Assembly, Please Select:

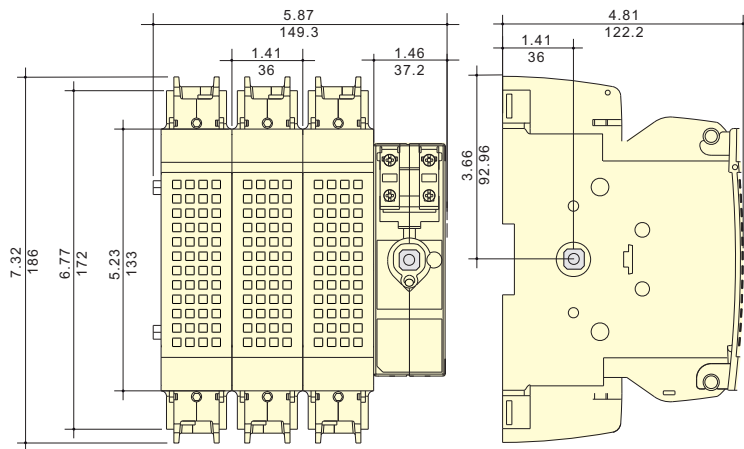
|   |  |   |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
|---|--|---|---------------|-----------------|-------------|-----------------------|--------------------|------------|---------|-------------------------|-------------|-------------------------|-------------|-------------|
| SWITCH  |   | <b>Switch</b>   |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
|   |  | Amp Rating  | Fuse Class    | Number of Poles | SCCR        | Max Horsepower Rating |                    |            |         |                         |             | Wire Size               | Wire Type   | Part Number |
|   |  |   |               |                 |             | 1-Phase 220/240Vac    | 3-Phase 220/240Vac | 440/480Vac | 600 Vac | DC* 125 Vdc             | 250 Vdc     |                         |             |             |
|   |  | 60  | J             | 2               | 200kA       | 10                    | -                  | -          | -       | 5                       | 10          | #12-10 Sol<br>#12-1 Str | 75°C Cu     | RDF60J-2    |
| 60  | J  | 3   | 200kA         | -               | 15          | 30                    | 50                 | 5          | 10      | #12-10 Sol<br>#12-1 Str | 75°C Cu     | RDF60J-3                |             |             |
| 60  | J  | 4   | 200kA         | -               | 15          | 30                    | 50                 | 5          | 10      | #12-10 Sol<br>#12-1 Str | 75°C Cu     | RDF60J-4                |             |             |
| * DC Ratings use two poles in series.   |  |   |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
| +   |  |   |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
| HANDLE  |   | <b>Direct Mount Handle</b> - mounts directly to switch, no shaft required                 |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
|   |  | For Switch Part Number  | Color         | Test Function   | Padlockable |                       |                    |            |         |                         |             | Part Number             |             |             |
|   |  | All Switches  | Black         | Y               | Y           |                       |                    |            |         |                         |             | DIR-07                  |             |             |
| OR  |  |   |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
| Select for Standard Applications  | <br>or<br> | <b>External Front Operated Pistol Handles</b> - shaft required                            |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
|   |  | NEMA Type   | Color         | Test Function   | Padlockable | Defeatable            |                    |            |         |                         |             |                         | Part Number |             |
|   |  | 1, 3R, 12   | Black         | N               | Y           | Y                     |                    |            |         |                         |             |                         | H12-03B     |             |
|   |  | 1, 3R, 12   | Red/Yellow    | N               | Y           | Y                     |                    |            |         |                         |             |                         | H12-03R     |             |
|   |  | 1, 3R, 4, 4X, 12  | Black         | N               | Y           | Y                     |                    |            |         |                         |             |                         | H4X-06B     |             |
|   |  | 1, 3R, 4, 4X, 12  | Red/Yellow    | N               | Y           | Y                     |                    |            |         |                         |             |                         | H4X-06R     |             |
|   |  | 1, 3R, 4, 4X, 12  | Black         | Y               | Y           | Y                     |                    |            |         |                         |             |                         | H4X-06TB    |             |
|   |  | 1, 3R, 4, 4X, 12  | Red/Yellow    | Y               | Y           | Y                     |                    |            |         |                         |             |                         | H4X-06TR    |             |
|   |  | <b>Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles</b> - shaft required |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
|   |  | NEMA Type   | Color         | Test Function   | Padlockable | Defeatable            |                    |            |         |                         |             |                         | Part Number |             |
|   |  | 1, 3R, 4, 4X, 12  | Black         | N               | Y           | Y                     |                    |            |         |                         |             |                         | H4X-06BHD   |             |
|   |  | 1, 3R, 4, 4X, 12  | Red/Yellow    | N               | Y           | Y                     |                    |            |         |                         |             |                         | H4X-06RHD   |             |
|   |  | <b>External Right Side Operated Pistol Handles</b> - shaft required                       |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
|   |  | NEMA Type   | Color         | Test Function   | Padlockable | Defeatable            |                    |            |         |                         |             |                         | Part Number |             |
|   |  | 1, 3R, 4, 4X, 12  | Black         | N               | Y           | N/A                   |                    |            |         |                         |             |                         | H4X-06SB    |             |
| 1, 3R, 4, 4X, 12  | Red/Yellow   | N   | Y             | N/A             |             |                       |                    |            |         |                         | H4X-06SR    |                         |             |             |
| <b>Shafts for Pistol Handles</b>  |  |   |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
| Length in (mm)  | Mounting Depth (X) in (mm)   |   |               |                 |             |                       |                    |            |         |                         | Part Number |                         |             |             |
| 7.9 (200)   | 5.30~9.06 (135~230)  |   |               |                 |             |                       |                    |            |         |                         | SH5-200     |                         |             |             |
| 12.6 (320)  | 5.30~13.78 (135~350)   |   |               |                 |             |                       |                    |            |         |                         | SH5-320     |                         |             |             |
| 15.7 (400)  | 5.30~16.93 (135~430)   |   |               |                 |             |                       |                    |            |         |                         | SH5-400     |                         |             |             |
| OR  |  |   |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
|  | <b>Flange Handle<sup>(1)</sup></b> - requires shaft operated mechanism or cable operated mechanism + cable   |   |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
|   | NEMA Type  | Flange Style  | Test Function | Padlockable     | Defeatable  |                       |                    |            |         |                         |             | Part Number             |             |             |
|   | 1, 3R, 4, 12   | Standard  | N             | Y               | Y           |                       |                    |            |         |                         |             | FLH1                    |             |             |
|   | 1, 3R, 4, 4X, 12   | Chrome Plated   | N             | Y               | Y           |                       |                    |            |         |                         |             | FLH2                    |             |             |
|   | <b>Shaft Operated Flange Mechanism<sup>(2)</sup></b> - includes shaft  |   |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
|   | For Enclosure Depth in (mm)  |   |               |                 |             |                       |                    |            |         |                         |             | Part Number             |             |             |
|   | 6~24 (152~613)   |   |               |                 |             |                       |                    |            |         |                         |             | FLRM                    |             |             |
|   | <b>Cable Operated Flange Mechanism and Cable</b> - must select Mechanism <sup>(3)</sup> and Cable <sup>(4)</sup>   |   |               |                 |             |                       |                    |            |         |                         |             |                         |             |             |
|   | Item / Length  |   |               |                 |             |                       |                    |            |         |                         |             | Part Number             |             |             |
|   | Cable Mechanism  |   |               |                 |             |                       |                    |            |         |                         |             | FLCM                    |             |             |
| 36" (900mm) Cable   |  |   |               |                 |             |                       |                    |            |         |                         | FLC36       |                         |             |             |
| 60" (1500mm) Cable  |  |   |               |                 |             |                       |                    |            |         |                         | FLC60       |                         |             |             |
| 120" (3000mm) Cable   |  |   |               |                 |             |                       |                    |            |         |                         | FLC120      |                         |             |             |

# UL 98 Fused Rotary Disconnect Switches—60A

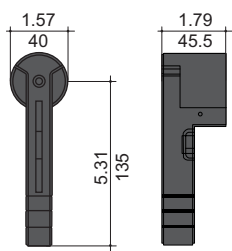
## Standard Class J

| Select | NFPA HANDLE   | or   |                           |                              |                       |  |                    |
|--------|---|--|---------------------------|------------------------------|-----------------------|--|--------------------|
|        |   | NFPA Through the Door Handle Kit - to be used with front pistol handle |                           |                              |                       |  |                    |
| Acc.   | AUX CONTACTS  | and ...  |                           |                              |                       |  |                    |
|        |   | Auxiliary Contacts   |                           |                              |                       |  |                    |
|        |  | <b>Color</b>   |                           | <b>Test Function</b>         | <b>Padlockable</b>    | <b>Defeatable</b>                            | <b>Part Number</b> |
|        |   | Red  |                           | N                            | Y                     | N  | H79-2              |
|        |  | <b>Contact Type</b>  | <b>Number of Contacts</b> | <b>Continuous Amp Rating</b> | <b>Voltage Rating</b> | <b>Max Number of Aux Contacts per Switch</b> | <b>Part Number</b> |
|        |   | NO   | 1                         | 10A                          | 600Vac                | 4  | BAC05              |
|        |   | NC   | 1                         | 10A                          | 600Vac                | 4  | BAC06              |

### Dimensions – in (mm)

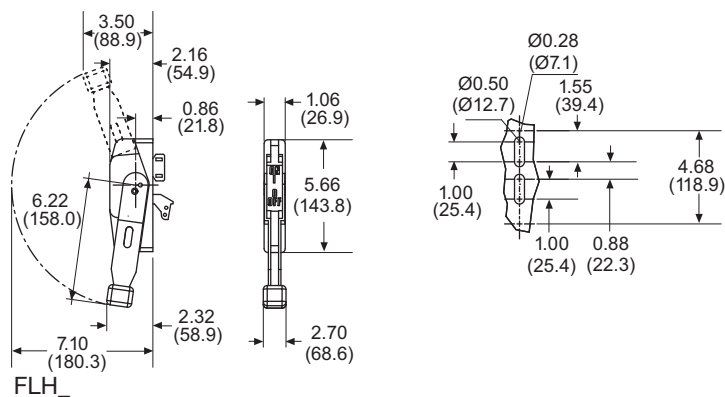


### Direct Mount Handle



DIR-07

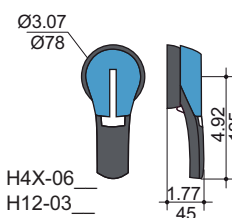
### Flange Handle



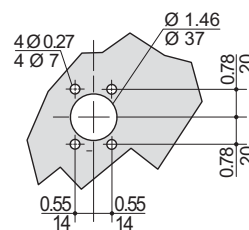
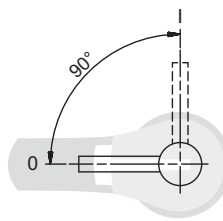
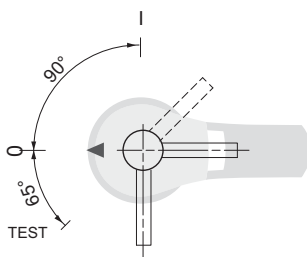
FLH\_

### External Front and Right Side Pistol Handle

Handle Type      Direction of Front Operation      Direction of Right Side Operation      Door Drilling Layout



H4X-06  
H12-03



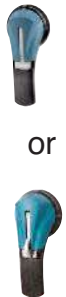
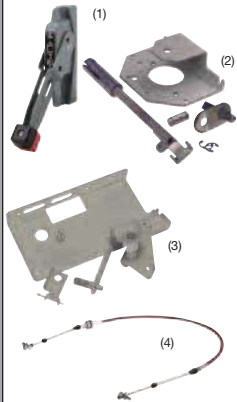


Disconnect  
Switches



# UL 98 Fused Rotary Disconnect Switches—100A

## Standard Class J

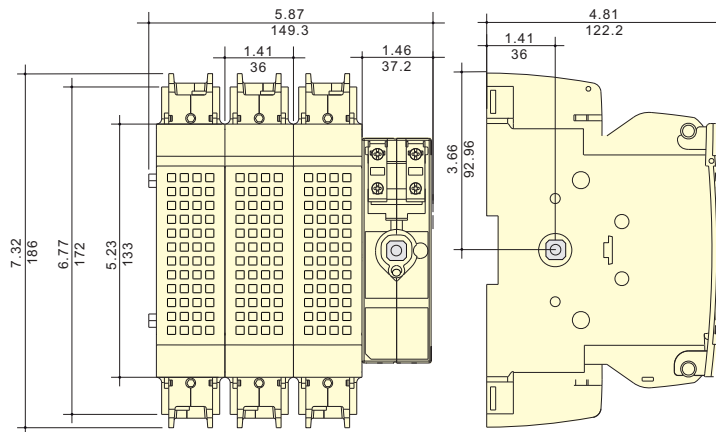
For a Complete Assembly, Please Select:

|   |  |   |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
|---|--|---|----------------------|------------------------|--------------------|------------------------------|-------------------|-------------------|----------------|-------------------------|--------------------|-------------------------|--------------------|--------------------|
| SWITCH  |                               | <b>Switch</b>   |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
|   |  | <b>Amp Rating</b>   | <b>Fuse Class</b>    | <b>Number of Poles</b> | <b>SCCR</b>        | <b>Max Horsepower Rating</b> |                   |                   |                |                         |                    | <b>Wire Size</b>        | <b>Wire Type</b>   | <b>Part Number</b> |
|   |  |   |                      |                        |                    | <b>1-Phase 220/240Vac</b>    | <b>220/240Vac</b> | <b>440/480Vac</b> | <b>600 Vac</b> | <b>DC*</b>              |                    |                         |                    |                    |
|   |  | 100   | J                    | 2                      | 200kA              | 10                           | -                 | -                 | -              | 7.5                     | 20                 | #12-10 Sol<br>#12-1 Str | 75°C Cu            | RDF100J-2          |
| 100   | J  | 3   | 200kA                | -                      | 30                 | 60                           | 75                | 7.5               | 20             | #12-10 Sol<br>#12-1 Str | 75°C Cu            | RDF100J-3               |                    |                    |
| 100   | J  | 4   | 200kA                | -                      | 30                 | 60                           | 75                | 7.5               | 20             | #12-10 Sol<br>#12-1 Str | 75°C Cu            | RDF100J-4               |                    |                    |
| * DC Ratings use two poles in series.   |  |   |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
| +   |  |   |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
| HANDLE  |                               | <b>Direct Mount Handle - mounts directly to switch, no shaft required</b>                 |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
|   |  | <b>For Switch Part Number</b>   | <b>Color</b>         | <b>Test Function</b>   | <b>Padlockable</b> |                              |                   |                   |                |                         |                    | <b>Part Number</b>      |                    |                    |
|   |  | All Switches  | Black                | Y                      | Y                  |                              |                   |                   |                |                         |                    | DIR-07                  |                    |                    |
| or  |  |   |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
| Select for Standard Applications  |                              | <b>External Front Operated Pistol Handles - shaft required</b>                            |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
|   |  | <b>NEMA Type</b>  | <b>Color</b>         | <b>Test Function</b>   | <b>Padlockable</b> | <b>Defeatable</b>            |                   |                   |                |                         |                    |                         | <b>Part Number</b> |                    |
|   |  | 1, 3R, 12   | Black                | N                      | Y                  | Y                            |                   |                   |                |                         |                    |                         | H12-03B            |                    |
|   |  | 1, 3R, 12   | Red/Yellow           | N                      | Y                  | Y                            |                   |                   |                |                         |                    |                         | H12-03R            |                    |
|   |  | 1, 3R, 4, 4X, 12  | Black                | N                      | Y                  | Y                            |                   |                   |                |                         |                    |                         | H4X-06B            |                    |
|   |  | 1, 3R, 4, 4X, 12  | Red/Yellow           | N                      | Y                  | Y                            |                   |                   |                |                         |                    |                         | H4X-06R            |                    |
|   |  | 1, 3R, 4, 4X, 12  | Black                | Y                      | Y                  | Y                            |                   |                   |                |                         |                    |                         | H4X-06TB           |                    |
|   |  | 1, 3R, 4, 4X, 12  | Red/Yellow           | Y                      | Y                  | Y                            |                   |                   |                |                         |                    |                         | H4X-06TR           |                    |
|   |  | <b>Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required</b> |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
|   |  | <b>NEMA Type</b>  | <b>Color</b>         | <b>Test Function</b>   | <b>Padlockable</b> | <b>Defeatable</b>            |                   |                   |                |                         |                    |                         | <b>Part Number</b> |                    |
|   |  | 1, 3R, 4, 4X, 12  | Black                | N                      | Y                  | Y                            |                   |                   |                |                         |                    |                         | H4X-06BHD          |                    |
|   |  | 1, 3R, 4, 4X, 12  | Red/Yellow           | N                      | Y                  | Y                            |                   |                   |                |                         |                    |                         | H4X-06RHD          |                    |
|   |  | <b>External Right Side Operated Pistol Handles - shaft required</b>                       |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
|   |  | <b>NEMA Type</b>  | <b>Color</b>         | <b>Test Function</b>   | <b>Padlockable</b> | <b>Defeatable</b>            |                   |                   |                |                         |                    |                         | <b>Part Number</b> |                    |
|   |  | 1, 3R, 4, 4X, 12  | Black                | N                      | Y                  | N/A                          |                   |                   |                |                         |                    |                         | H4X-06SB           |                    |
| 1, 3R, 4, 4X, 12  | Red/Yellow   | N   | Y                    | N/A                    |                    |                              |                   |                   |                |                         | H4X-06SR           |                         |                    |                    |
| <b>Shafts for Pistol Handles</b>  |  |   |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
| <b>Length in (mm)</b>   | <b>Mounting Depth (X) in (mm)</b>  |   |                      |                        |                    |                              |                   |                   |                |                         | <b>Part Number</b> |                         |                    |                    |
| 7.9 (200)   | 5.30~9.06 (135~230)  |   |                      |                        |                    |                              |                   |                   |                |                         | SH5-200            |                         |                    |                    |
| 12.6 (320)  | 5.30~13.78 (135~350)   |   |                      |                        |                    |                              |                   |                   |                |                         | SH5-320            |                         |                    |                    |
| 15.7 (400)  | 5.30~16.93 (135~430)   |   |                      |                        |                    |                              |                   |                   |                |                         | SH5-400            |                         |                    |                    |
| or  |  |   |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
|  | <b>Flange Handle<sup>(1)</sup> - requires shaft operated mechanism or cable operated mechanism + cable</b>     |   |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
|   | <b>NEMA Type</b>   | <b>Flange Style</b>   | <b>Test Function</b> | <b>Padlockable</b>     | <b>Defeatable</b>  |                              |                   |                   |                |                         |                    | <b>Part Number</b>      |                    |                    |
|   | 1, 3R, 4, 12   | Standard  | N                    | Y                      | Y                  |                              |                   |                   |                |                         |                    | FLH1                    |                    |                    |
|   | 1, 3R, 4, 4X, 12   | Chrome Plated   | N                    | Y                      | Y                  |                              |                   |                   |                |                         |                    | FLH2                    |                    |                    |
|   | <b>Shaft Operated Flange Mechanism<sup>(2)</sup> - includes shaft</b>  |   |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
|   | <b>For Enclosure Depth in (mm)</b>   |   |                      |                        |                    |                              |                   |                   |                |                         | <b>Part Number</b> |                         |                    |                    |
|   | 6~24 (152~613)   |   |                      |                        |                    |                              |                   |                   |                |                         | FLRM               |                         |                    |                    |
|   | <b>Cable Operated Flange Mechanism and Cable - must select Mechanism<sup>(3)</sup> and Cable<sup>(4)</sup></b> |   |                      |                        |                    |                              |                   |                   |                |                         |                    |                         |                    |                    |
|   | <b>Item / Length</b>   |   |                      |                        |                    |                              |                   |                   |                |                         | <b>Part Number</b> |                         |                    |                    |
|   | Cable Mechanism  |   |                      |                        |                    |                              |                   |                   |                |                         | FLCM               |                         |                    |                    |
| 36" (900mm) Cable   |  |   |                      |                        |                    |                              |                   |                   |                | FLC36                   |                    |                         |                    |                    |
| 60" (1500mm) Cable  |  |   |                      |                        |                    |                              |                   |                   |                | FLC60                   |                    |                         |                    |                    |
| 120" (3000mm) Cable   |  |   |                      |                        |                    |                              |                   |                   |                | FLC120                  |                    |                         |                    |                    |

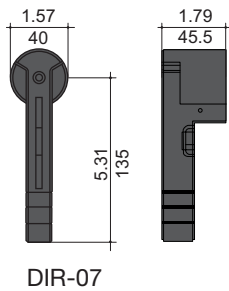
# UL 98 Fused Rotary Disconnect Switches—100A Standard Class J

| Select       |   | or   |                    |                       |                |                                       |             |
|--------------|---|--|--------------------|-----------------------|----------------|---------------------------------------|-------------|
|              |   | NFPA Through the Door Handle Kit - to be used with front pistol handle |                    |                       |                |                                       |             |
| NFPA HANDLE  |  | Color  | Test Function      | Padlockable           | Defeatable     | Part Number                           |             |
|              |   | Red  | N                  | Y                     | N              | H79-2                                 |             |
| Acc.         |   | and ...  |                    |                       |                |                                       |             |
|              |   | Auxiliary Contacts   |                    |                       |                |                                       |             |
| AUX CONTACTS |  | Contact Type   | Number of Contacts | Continuous Amp Rating | Voltage Rating | Max Number of Aux Contacts per Switch | Part Number |
|              |   | NO   | 1                  | 10A                   | 600Vac         | 4                                     | BAC05       |
|              |   | NC   | 1                  | 10A                   | 600Vac         | 4                                     | BAC06       |

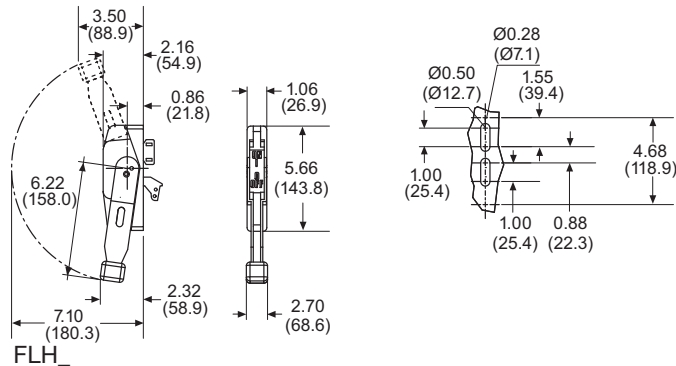
## Dimensions – in (mm)



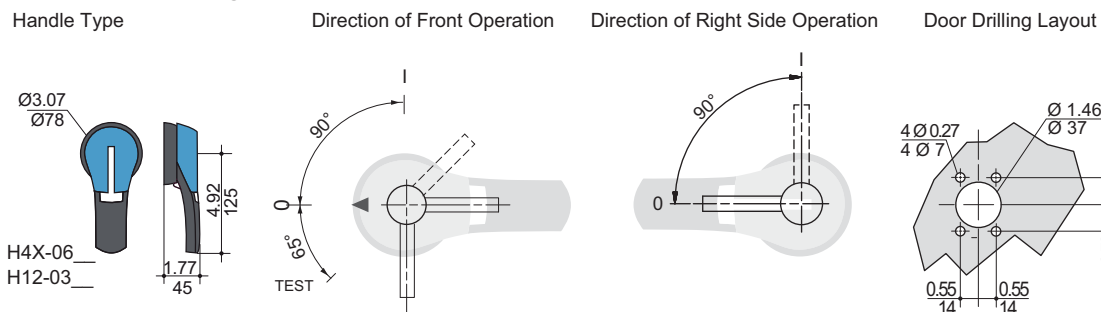
### Direct Mount Handle



### Flange Handle



### External Front & Right Side Pistol Handle



Disconnect Switches

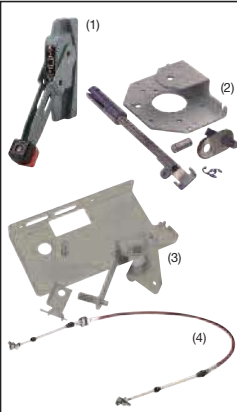



# UL 98 Fused Rotary Disconnect Switches—200 & 400A Standard Class J

For a Complete Assembly, Please Select:

|  |  |   |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
|--|--|---|---|------------------------|--------------------|------------------------------|-------------------|---------------------------|--------------------|--------------------|--------------------|--------------------|
| SWITCH + LUGS  | <br>+<br>  | <b>Switch</b>   |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
|  |  | <b>Amp Rating</b>   | <b>Fuse Class</b>   | <b>Number of Poles</b> | <b>SCCR</b>        | <b>Max Horsepower Rating</b> |                   |                           |                    | <b>DC*</b>         |                    | <b>Part Number</b> |
|  |  |   |   |                        |                    | <b>1-Phase 220/240Vac</b>    | <b>220/240Vac</b> | <b>3-Phase 440/480Vac</b> | <b>600 Vac</b>     | <b>125 Vdc</b>     | <b>250 Vdc</b>     |                    |
|  |  | 200   | J   | 2                      | 200kA              | 10                           | -                 | -                         | -                  | -                  | -                  | RDF200J-2          |
|  |  | 200   | J   | 3                      | 200kA              | -                            | 60                | 125                       | 150                | -                  | -                  | RDF200J-3          |
|  |  | 200   | J   | 4                      | 200kA              | -                            | 60                | 125                       | 150                | -                  | -                  | RDF200J-4          |
|  |  | 400   | J   | 2                      | 200kA              | 10                           | -                 | -                         | -                  | 20                 | 50                 | RDF400J-2          |
|  |  | 400   | J   | 3                      | 200kA              | -                            | 125               | 250                       | 350                | 20                 | 50                 | RDF400J-3          |
|  |  | 400   | J   | 4                      | 200kA              | -                            | 125               | 250                       | 350                | 20                 | 50                 | RDF400J-4          |
|  |  | * DC Ratings use two poles in series.   |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
| <b>Terminal Lug Kit</b>  |  |   |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
| <b>Switch Amp Rating</b>   | <b>Number of Poles</b>   | <b>Lugs Per Kit</b>   | <b>Wire Range</b>   |                        |                    | <b>Wire Type</b>             |                   | <b>Part Number</b>        |                    |                    |                    |                    |
|  |  |   |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
| 200  | 2  | 2   | #6-300MCM   |                        |                    | 75°C Cu/Al                   |                   | LUG1-2                    |                    |                    |                    |                    |
| 200  | 3  | 3   | #6-300MCM   |                        |                    | 75°C Cu/Al                   |                   | LUG1-3                    |                    |                    |                    |                    |
| 200  | 4  | 4   | #6-300MCM   |                        |                    | 75°C Cu/Al                   |                   | LUG1-4                    |                    |                    |                    |                    |
| 400  | 2  | 2   | #4-600MCM or Dual 1/0-250MCM  |                        |                    | 75°C Cu/Al                   |                   | LUG2-2                    |                    |                    |                    |                    |
| 400  | 3  | 3   | #4-600MCM or Dual 1/0-250MCM  |                        |                    | 75°C Cu/Al                   |                   | LUG2-3                    |                    |                    |                    |                    |
| 400  | 4  | 4   | #4-600MCM or Dual 1/0-250MCM  |                        |                    | 75°C Cu/Al                   |                   | LUG2-4                    |                    |                    |                    |                    |
| +  |  |   |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
|  | <b>Direct Mount Handle - mounts directly to switch, no shaft required</b>  |   |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
|  | <b>For Switch Part Number</b>  | <b>Color</b>  | <b>Test Function</b>  | <b>Padlockable</b>     |                    |                              |                   |                           |                    | <b>Part Number</b> |                    |                    |
|  | All Switches   | Black   | Y   | Y                      |                    |                              |                   |                           |                    | DIR-07             |                    |                    |
| OR   |  |   |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
| HANDLE   | <br>or<br><br>+<br> | <b>External Front Operated Pistol Handles - shaft required</b>                            |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
|  |  | <b>NEMA Type</b>  | <b>Color</b>  | <b>Test Function</b>   | <b>Padlockable</b> | <b>Defeatable</b>            |                   |                           |                    |                    | <b>Part Number</b> |                    |
|  |  | 1, 3R, 12   | Black   | N                      | Y                  | Y                            |                   |                           |                    |                    | H12-03B            |                    |
|  |  | 1, 3R, 12   | Red/Yellow  | N                      | Y                  | Y                            |                   |                           |                    |                    | H12-03R            |                    |
|  |  | 1, 3R, 4, 4X, 12  | Black   | N                      | Y                  | Y                            |                   |                           |                    |                    | H4X-06B            |                    |
|  |  | 1, 3R, 4, 4X, 12  | Red/Yellow  | N                      | Y                  | Y                            |                   |                           |                    |                    | H4X-06R            |                    |
|  |  | 1, 3R, 4, 4X, 12  | Black   | Y                      | Y                  | Y                            |                   |                           |                    |                    | H4X-06TB           |                    |
|  |  | 1, 3R, 4, 4X, 12  | Red/Yellow  | Y                      | Y                  | Y                            |                   |                           |                    |                    | H4X-06TR           |                    |
|  |  | <b>Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required</b> |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
|  |  | <b>NEMA Type</b>  | <b>Color</b>  | <b>Test Function</b>   | <b>Padlockable</b> | <b>Defeatable</b>            |                   |                           |                    |                    | <b>Part Number</b> |                    |
| 1, 3R, 4, 4X, 12   | Black  | N   | Y   | Y                      |                    |                              |                   |                           | H4X-06BHD          |                    |                    |                    |
| 1, 3R, 4, 4X, 12   | Red/Yellow   | N   | Y   | Y                      |                    |                              |                   |                           | H4X-06RHD          |                    |                    |                    |
| <b>External Right Side Operated Pistol Handles - shaft required</b>                |  |   |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
| <b>NEMA Type</b>   | <b>Color</b>   | <b>Test Function</b>  | <b>Padlockable</b>  | <b>Defeatable</b>      |                    |                              |                   |                           | <b>Part Number</b> |                    |                    |                    |
| 1, 3R, 4, 4X, 12   | Black  | N   | Y   | N/A                    |                    |                              |                   |                           | H4X-06SB           |                    |                    |                    |
| 1, 3R, 4, 4X, 12   | Red/Yellow   | N   | Y   | N/A                    |                    |                              |                   |                           | H4X-06SR           |                    |                    |                    |
| <b>Shafts for Pistol Handles</b>   |  |   |   |                        |                    |                              |                   |                           |                    |                    |                    |                    |
| <b>Length in (mm)</b>  | <b>Mounting Depth (X) in (mm)</b>  |   |   |                        |                    |                              |                   |                           | <b>Part Number</b> |                    |                    |                    |
| 7.9 (200)  | 200A: 5.70-9.06 (145-230)<br>400A: 7.87-10.24 (200-260)  |   |  |                        |                    |                              |                   |                           | SH5-200            |                    |                    |                    |
| 12.6 (320)   | 200A: 5.70-13.78 (145-350)<br>400A: 7.87-16.93 (200-380)   |   |   |                        |                    |                              |                   |                           | SH5-320            |                    |                    |                    |
| 15.7 (400)   | 200A: 5.70-16.93 (145-430)<br>400A: 7.87-18.10 (200-460)   |   |   |                        |                    |                              |                   |                           | SH5-400            |                    |                    |                    |



# UL 98 Fused Rotary Disconnect Switches—200 & 400A Standard Class J

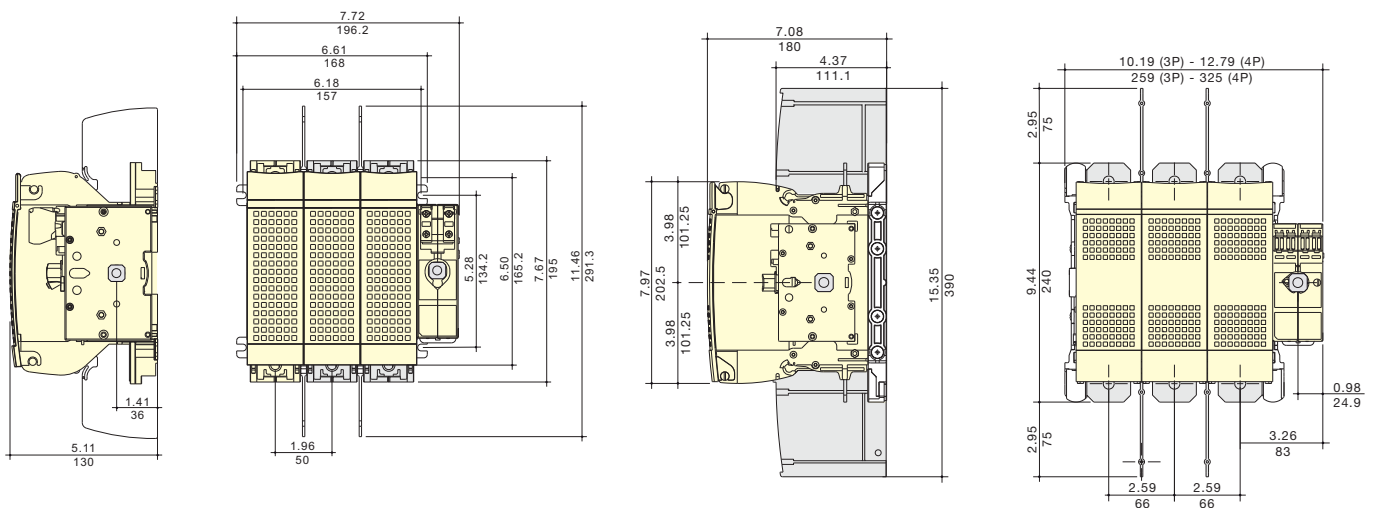
| <b>Select for Standard Applications</b>   |    | or  |                    |                       |                |                                       |             |
|---|---|---|--------------------|-----------------------|----------------|---------------------------------------|-------------|
|   |   | <b>Flange Handle<sup>(1)</sup> 200A Only</b> - requires shaft operated mechanism <i>or</i> cable operated mechanism + cable |                    |                       |                |                                       |             |
|   |   | NEMA Type   | Flange Style       | Test Function         | Padlockable    | Defeatable                            | Part Number |
|   |   | 1, 3R, 4, 12  | Standard           | N                     | Y              | Y                                     | FLH1        |
| 1, 3R, 4, 4X, 12  | Chrome Plated   | N   | Y                  | Y                     | FLH2           |                                       |             |
| <b>Shaft Operated Flange Mechanism<sup>(2)</sup> 200A Only</b> - includes shaft   |   |   |                    |                       |                |                                       |             |
| For Enclosure Depth in (mm)   |   |   |                    |                       | Part Number    |                                       |             |
| 6-24 (152-613)  |   |   |                    |                       | FLRM           |                                       |             |
| <b>Cable Operated Flange Mechanism and Cable 200A Only</b> - must select Mechanism <sup>(3)</sup> <i>and</i> Cable <sup>(4)</sup> |   |   |                    |                       |                |                                       |             |
| Item  |   |   |                    |                       | Part Number    |                                       |             |
| Cable Mechanism   |   |   |                    |                       | FLCM           |                                       |             |
| 36" (900mm) Cable   |   |   |                    |                       | FLC36          |                                       |             |
| 60" (1500mm) Cable  |   |   |                    |                       | FLC60          |                                       |             |
| 120" (3000mm) Cable   |   |   |                    |                       | FLC120         |                                       |             |
| <b>Accessories</b>  |    | or  |                    |                       |                |                                       |             |
|   |   | <b>NFPA Through the Door Handle Kit</b> - to be used with front pistol handle   |                    |                       |                |                                       |             |
|   |   | Switch  | Color              | Test Function         | Padlockable    | Defeatable                            | Part Number |
|   |   | RDF200J-__  | Red                | N                     | Y              | N                                     | H79-2       |
| RDF400J-__  | Red   | N   | Y                  | N                     | H79-3          |                                       |             |
| and ...   |   |   |                    |                       |                |                                       |             |
| <b>Accessories</b>  |   | <b>Auxiliary Contacts</b>   |                    |                       |                |                                       | Part Number |
|   |   | Contact Type  | Number of Contacts | Continuous Amp Rating | Voltage Rating | Max Number of Aux Contacts per Switch | Part Number |
|   |   | NO  | 1                  | 10A                   | 600Vac         | RDF200J-__: 4                         | BAC05       |
|   |   | NC  | 1                  | 10A                   | 600Vac         | RDF400J-__: 8                         | BAC06       |
| and ...   |   |   |                    |                       |                |                                       |             |
| <b>Accessories</b>  |  | <b>Terminal Shrouds</b> - includes terminal shroud for lineside or loadside   |                    |                       |                |                                       | Part Number |
|   |   | Switch Amp Rating   | Number of Poles    |                       |                |                                       | Part Number |
|   |   | 200   | 2                  |                       |                |                                       | TSH8-2TB    |
|   |   | 200   | 3                  |                       |                |                                       | TSH8-3TB    |
|   |   | 200   | 4                  |                       |                |                                       | TSH8-4TB    |
|   |   | 400   | 2                  |                       |                |                                       | TSH9-2TB    |
|   |   | 400   | 3                  |                       |                |                                       | TSH9-3TB    |
| 400   | 4   |   |                    |                       | TSH9-4TB       |                                       |             |

Disconnect Switches

**Dimensions – in (mm)**

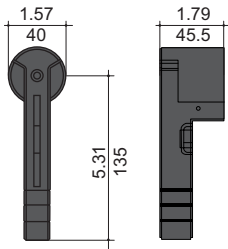
• RDF200J-3

• RDF400J-3



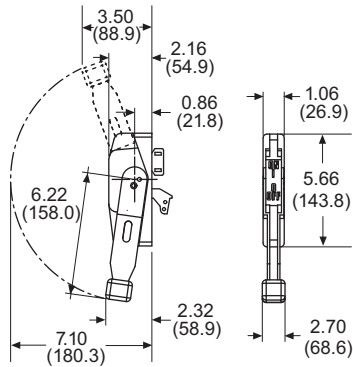
# UL 98 Fused Rotary Disconnect Switches—200 & 400A Standard Class J

## Direct Mount Handle

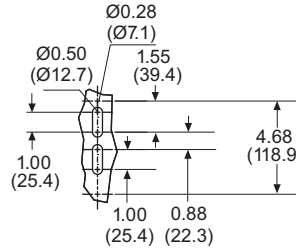


DIR-07

## Flange Handle



FLH\_



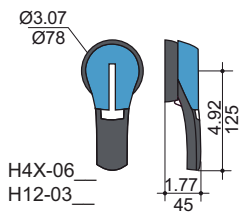
## External Front & Right Side Pistol Handle

Handle Type

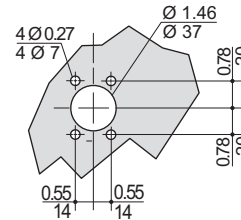
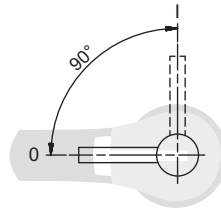
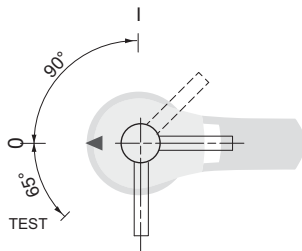
Direction of Front Operation

Direction of Right Side Operation

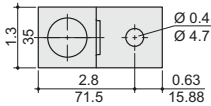
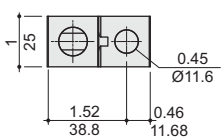
Door Drilling Layout



H4X-06  
H12-03



## Terminal Lugs



200A

LUG1-\_\_



400A

LUG2-\_\_



Disconnect  
Switches

## Open & Enclosed Rotary Disconnect Switches In-Stock and Ship Within 24 Hours

The Bussmann QuikShip Everyday Service ensures the most common open and enclosed rotary disconnect switches ship within 24 hours to help you meet project timelines.

Contact your Bussmann representative for details.



**QuikShip**   
Everyday

[www.cooperbussmann.com/Disconnects](http://www.cooperbussmann.com/Disconnects)



# UL 98 Fused Rotary Disconnect Switches—600 & 800A

## Standard Class J & Class L

For a Complete Assembly, Please Select:

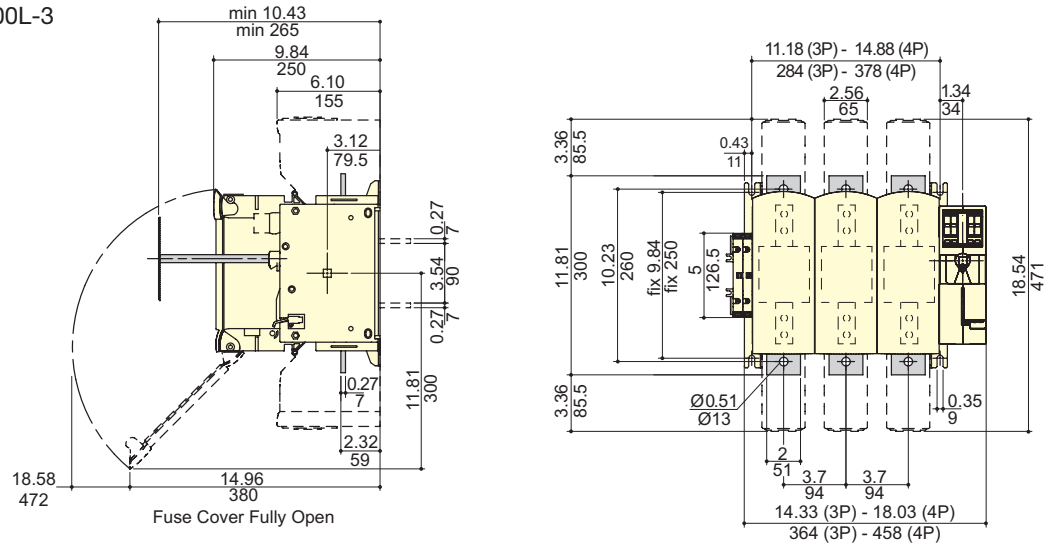
|                                  |   |   |   |   |                       |  |                    |                    |                    |
|----------------------------------|---|---|---|---|-----------------------|--|--------------------|--------------------|--------------------|
| Select for Standard Applications |    | <b>Switch</b>   |   |   |                       |  |                    |                    |                    |
|                                  |   | <b>Amp Rating</b>   | <b>Fuse Class</b>   | <b>Number of Poles</b>  | <b>SCCR</b>           | <b>Max Horsepower Rating, 3-Phase</b>        |                    |                    | <b>Part Number</b> |
|                                  |   |   |   |   |                       | <b>220/240Vac</b>                            | <b>440/480Vac</b>  | <b>600Vac</b>      |                    |
|                                  |   | 600   | J   | 2   | 200kA                 | -  | -                  | -                  | RDF600J-2          |
|                                  |   | 600   | J   | 3   | 200kA                 | 200  | 400                | 500                | RDF600J-3          |
|                                  |   | 600   | J   | 4   | 200kA                 | 200  | 400                | 500                | RDF600J-4          |
|                                  |   | 800   | L   | 2   | 200kA                 | -  | -                  | -                  | RDF800L-2          |
|                                  |   | 800   | L   | 3   | 200kA                 | 200  | 500                | 500                | RDF800L-3          |
|                                  |   | 800   | L   | 4   | 200kA                 | 200  | 500                | 500                | RDF800L-4          |
|                                  |   | <b>Terminal Lug Kit</b>   |   |   |                       |  |                    |                    |                    |
| <b>Switch Amp Rating</b>         | <b>Number of Poles</b>  | <b>Lugs Per Kit</b>   | <b>Wire Range</b>   |   |                       | <b>Wire Type</b>                             | <b>Part Number</b> |                    |                    |
| 600-800                          | 2   | 2   | (2) #2-600MCM   |   |                       | 75°C Cu/Al                                   | LUG5-2             |                    |                    |
| 600-800                          | 3   | 3   | (2) #2-600MCM   |   |                       | 75°C Cu/Al                                   | LUG5-3             |                    |                    |
| 600-800                          | 4   | 4   | (2) #2-600MCM   |   |                       | 75°C Cu/Al                                   | LUG5-4             |                    |                    |
| +                                |   |   |   |   |                       |  |                    |                    |                    |
| Accessories                      |   | <b>Direct Mount Handle - mounts directly to switch, no shaft required</b>                 |   |   |                       |  |                    |                    |                    |
|                                  |   | <b>For Switch Part Number</b>   | <b>Color</b>  | <b>Test Function</b>  | <b>Padlockable</b>    | <b>Part Number</b>                           |                    |                    |                    |
|                                  |   | All Switches  | Black   | Y   | Y                     | DIR-08                                       |                    |                    |                    |
|                                  |   | OR  |   |   |                       |  |                    |                    |                    |
|                                  |   | <b>External Front Operated Pistol Handles - shaft required</b>                            |   |   |                       |  |                    |                    |                    |
|                                  |   | <b>NEMA Type</b>  | <b>Color</b>  | <b>Test Function</b>  | <b>Padlockable</b>    | <b>Defeatable</b>                            | <b>Part Number</b> |                    |                    |
|                                  |   | 1, 3R, 4, 4X, 12  | Black   | N   | Y                     | Y  | H4X-07B            |                    |                    |
|                                  |   | 1, 3R, 4, 4X, 12  | Red/Yellow  | N   | Y                     | Y  | H4X-07R            |                    |                    |
|                                  |   | <b>Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required</b> |   |   |                       |  |                    |                    |                    |
|                                  |   | <b>NEMA Type</b>  | <b>Color</b>  | <b>Test Function</b>  | <b>Padlockable</b>    | <b>Defeatable</b>                            | <b>Part Number</b> |                    |                    |
| 1, 3R, 4, 4X, 12                 | Black   | N   | Y   | Y   | H4X-07BHD             |  |                    |                    |                    |
| 1, 3R, 4, 4X, 12                 | Red/Yellow  | N   | Y   | Y   | H4X-07RHD             |  |                    |                    |                    |
| <b>Shafts for Pistol Handles</b> |   |   |   |   |                       |  |                    |                    |                    |
| <b>Length in (mm)</b>            | <b>Mounting Depth (X) in (mm)</b>   |   |   |   |                       | <b>Part Number</b>                           |                    |                    |                    |
| 7.9 (200)                        | 10.63~11.97 (270~304)   |   |  |   |                       | SH7-200                                      |                    |                    |                    |
| 12.6 (320)                       | 10.63~16.69 (270~424)   |   |   |   |                       | SH7-320                                      |                    |                    |                    |
| 15.7 (400)                       | 10.63~19.84 (270~504)   |   |   |   |                       | SH7-400                                      |                    |                    |                    |
| OR                               |   |   |   |   |                       |  |                    |                    |                    |
| Accessories                      |  | <b>NFPA Through the Door Handle Kit - to be used with front pistol handle</b>             |   |   |                       |  |                    |                    |                    |
|                                  |   | <b>For Switch Part Number</b>   | <b>Color</b>  | <b>Test Function</b>  | <b>Padlockable</b>    | <b>Defeatable</b>                            | <b>Part Number</b> |                    |                    |
|                                  |   | All Switches  | Red   | N   | Y                     | N  | H79-4              |                    |                    |
|                                  |   | and ...   |   |   |                       |  |                    |                    |                    |
|                                  |   | <b>Auxiliary Contacts</b>   |   |   |                       |  |                    |                    |                    |
|                                  |   | <b>Contact Type</b>   | <b>Number of Contacts</b>   | <b>Continuous Amp Rating</b>  | <b>Voltage Rating</b> | <b>Max Number of Aux Contacts per Switch</b> |                    | <b>Part Number</b> |                    |
|                                  |   | NO  | 1   | 10A   | 600Vac                | 8  |                    | BAC05              |                    |
|                                  |   | NC  | 1   | 10A   | 600Vac                | 8  |                    | BAC06              |                    |
|                                  |   | and ...   |   |   |                       |  |                    |                    |                    |
|                                  |   | Accessories   |  | <b>Terminal Shrouds - includes terminal shroud for lineside or loadside</b> |                       |  |                    |                    |                    |
| <b>Switch Amp Rating</b>         | <b>Number of Poles</b>  |   |   |   |                       |  |                    | <b>Part Number</b> |                    |
| 600-800                          | 2   |   |   |   |                       |  |                    | TSH10-2TB          |                    |
| 600-800                          | 3   |   |   |   |                       |  |                    | TSH10-3TB          |                    |
| 600-800                          | 4   |   |   |   |                       |  |                    | TSH10-4TB          |                    |

# UL 98 Fused Rotary Disconnect Switches—600 & 800A

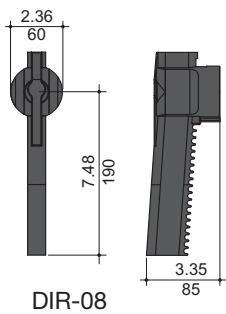
## Standard Class J & Class L

### Dimensions – in (mm)

- RDF600J-3 • RDF800L-3

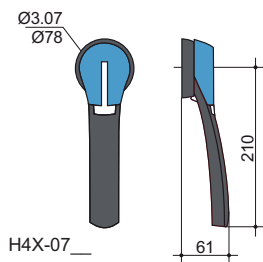


### Direct Mount Handle

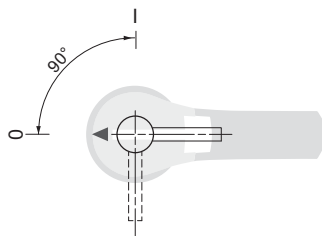


### External Front Pistol Handle

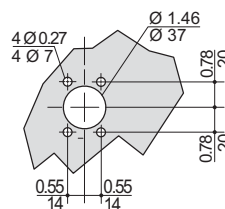
#### Handle Type



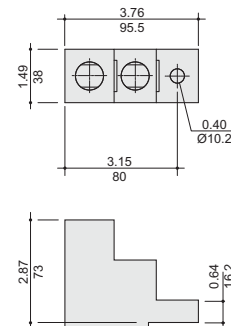
#### Direction of Front Operation



#### Door Drilling Layout



### Terminal Lugs



600 to 800A

LUG5-\_\_

Disconnect Switches



## UL 98 Non-Fused Rotary Disconnect Switches—30 to 1200A

### Description

Bussmann UL 98 non-fused rotary disconnect switches are versatile switches that “break” and “make” power circuits ON and OFF load.

### Features

- Make and break power under load
- Up to 200kA SCCR
- DIN-Rail or panel mount (30-100A)
- Disconnect switches are front, right side and direct handle operable (30-100A)
- Finger-safe (30-100A)
- Fully visualized breaking (100-1200A)

### Agency Information

- UL98, Guide WHTY, File E155130
- CSA 22.2 No. 4, File 257020
- Conforms with IEC 60947-3

### Online Resources

Visit [www.cooperbussmann.com/Disconnects](http://www.cooperbussmann.com/Disconnects) for:

- CAD Drawings
- Instruction Sheets
- UL Information



QuikShip Everyday Service ships the most common part numbers within 24 hours. Contact your Bussmann representative for details.

### Related Cooper Bussmann Products

| Fuse Blocks                              | Data Sheet # |
|--|--------------|
| Modular Knifeblade Fuse Blocks 100-600A  | 3192         |
| Fuses Holders                            |              |
| CH Series Class CC, Midget & 10x38 0-30A | 3185         |
| Finger-Safe Optima Series 0-30A          | 1102         |
| Optima™ Protection Modules 0-30A         | 1109         |
| CH Series Class J 0-60A                  | 2144         |

### IEC Electrical Specifications



| Part Number  | RD30-3           | RD60-3           | RD100-3          | RD100-3-SCCR | RD200-3 | RD400-3 | RD600-3          | RD800-3          | RD1000-3         | RD1200-3         |
|--|------------------|------------------|------------------|--------------|---------|---------|------------------|------------------|------------------|------------------|
| 3-Pole   | RD30-3           | RD60-3           | RD100-3          | RD100-3-SCCR | RD200-3 | RD400-3 | RD600-3          | RD800-3          | RD1000-3         | RD1200-3         |
| 4-Pole   | —                | —                | —                | —            | RD200-4 | RD400-4 | RD600-4          | RD800-4          | RD1000-4         | RD1200-4         |
| Thermal Current $I_{th}$ @ 40°C (A)                                | 30               | 60               | 100              | —            | —       | —       | —                | —                | —                | —                |
| Rated insulation voltage $U_i$ (V)                                 | 800              | 800              | 800              | —            | —       | —       | 1000             | 1000             | 1000             | 1000             |
| Rated impulse withstand voltage $U_{imp}$ (kV)                     | 8                | 8                | 8                | —            | —       | —       | 12               | 12               | 12               | 12               |
| <b>Rated Operation Currents <math>I_e</math> (A)</b>               |                  |                  |                  |              |         |         |                  |                  |                  |                  |
| Load Duty Category   | A <sup>(1)</sup> | A <sup>(1)</sup> | A <sup>(1)</sup> | —            | —       | —       | A <sup>(1)</sup> | A <sup>(1)</sup> | A <sup>(1)</sup> | A <sup>(1)</sup> |
| Rated Voltage  | —                | —                | —                | —            | —       | —       | —                | —                | —                | —                |
| 400Vac AC-22 A   | 32               | 63               | 100              | —            | —       | —       | 630              | 800              | 1000             | 1200             |
| 400Vac AC-23 A   | 32               | 63               | 100              | —            | —       | —       | 630              | 800              | 1000             | 1000             |
| 690Vac AC-22 A   | 32               | 63               | 80               | —            | —       | —       | 500              | 630              | 630              | 630              |
| 690Vac AC-23 A   | 32               | 63               | 63               | —            | —       | —       | 200              | 400              | 400              | 400              |
| <b>Operational Power (Vac) in AC-23 (kW)</b>                       |                  |                  |                  |              |         |         |                  |                  |                  |                  |
| 400V w/o prebreak AC <sup>(1)(2)</sup>                             | 15               | 30               | 45               | —            | —       | —       | 355              | 450              | 560              | 560              |
| 500V w/o prebreak AC <sup>(1)(2)</sup>                             | 15               | 30               | 45               | —            | —       | —       | 450              | 560              | 560              | 560              |
| 690V w/o prebreak AC <sup>(1)(2)</sup>                             | 18.5             | 30               | 45               | —            | —       | —       | 185              | 400              | 400              | 400              |
| <b>Overload Capacity (<math>U_e</math> 415Vac)</b>                 |                  |                  |                  |              |         |         |                  |                  |                  |                  |
| Rated short-time making capacity $I_{cm}$ (kA peak) <sup>(3)</sup> | 12               | 12               | 12               | —            | —       | —       | 48               | 75               | 48               | 75               |
| <b>Fuse Protected Short-Circuit Withstand (kA rms prospective)</b> |                  |                  |                  |              |         |         |                  |                  |                  |                  |
| Short-Circuit Current (kA) <sup>(3)</sup>                          | 50               | 50               | 25               | —            | —       | —       | 100              | 100              | 100              | 100              |
| Associated Fuse Rating (A) <sup>(3)</sup>                          | 32               | 63               | 100              | —            | —       | —       | 630              | 800              | 1000             | 1250             |
| <b>Connection</b>  |                  |                  |                  |              |         |         |                  |                  |                  |                  |
| Minimum Cu cable cross section (mm <sup>2</sup> )                  | 2.5              | 2.5              | 10               | —            | —       | —       | 2x150            | 2x185            | 2x240            | —                |
| Minimum Cu busbar section (mm <sup>2</sup> )                       | —                | —                | —                | —            | —       | —       | 2x30x5           | 2x40x5           | 2x50x5           | 2x60x5           |
| Maximum Cu cable section (mm <sup>2</sup> )                        | 70               | 70               | 70               | —            | —       | —       | —                | —                | —                | —                |

(1) A/B: Category with index A = frequent operation; category with index B = infrequent operation.

(2) The power value is given for information only; the current values vary from one manufacturer to another.

(3) For a rated operating voltage,  $U_e = 400$ Vac.

# UL 98 Non-Fused Rotary Disconnect Switches—30 to 1200A

## Specifications



RD30-3



RD200-3



RD600-3



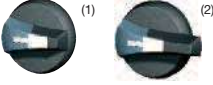
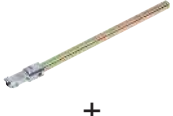




| Part Number                       | RD30-3  | RD60-3  | RD100-3   | RD100-3-SCCR          | RD200-3               | RD400-3   | RD600-3                     | RD800-3                     | RD1000-3                    | RD1200-3                    |
|-----------------------------------|---|---|---|-----------------------|-----------------------|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>3-Pole</b>                     | —   | —   | —   | —                     | —                     | —   | —                           | —                           | —                           | —                           |
| <b>4-Pole</b>                     | —   | —   | —   | —                     | —                     | —   | —                           | —                           | —                           | —                           |
| UL Standard                       | UL 98   | UL 98   | UL 98   | UL 98                 | UL 98                 | UL 98   | UL 98                       | UL 98                       | UL 98                       | UL 98                       |
| Max Ampacity                      | 30A   | 60A   | 100A  | 100A                  | 200A                  | 400A  | 600A                        | 800A                        | 1000A                       | 1200A                       |
| Switch Type                       | Compact   | Compact   | Compact   | Standard              | Standard              | Standard  | Standard                    | Standard                    | Standard                    | Standard                    |
| Handle Operation                  | Front/Side  | Front/Side  | Front/Side  | Front                 | Front                 | Front   | Front                       | Front                       | Front                       | Front                       |
| <b>UL Electrical Ratings</b>      |   |   |   |                       |                       |   |                             |                             |                             |                             |
| Max Voltage (AC)                  | 600Vac  | 600Vac  | 600Vac  | 600Vac                | 600Vac                | 600Vac  | 600Vac                      | 600Vac                      | 600Vac                      | 600Vac                      |
| Max Voltage (DC)                  | —   | —   | —   | 250Vdc                | 250Vdc                | —   | 250Vdc                      | —                           | —                           | —                           |
| Maximum AC Horsepower Ratings     |   |   |   |                       |                       |   |                             |                             |                             |                             |
| 1-Phase, 120Vac                   | 2   | 3   | 5   | —                     | —                     | —   | —                           | —                           | —                           | —                           |
| 1-Phase, 240Vac                   | 5   | 10  | 10  | 10                    | 10                    | —   | —                           | —                           | —                           | —                           |
| 3-Phase, 240Vac                   | 10  | 20  | 20  | 30                    | 75                    | 125   | 200                         | 200                         | 200                         | 200                         |
| 3-Phase, 480Vac                   | 20  | 40  | 50  | 75                    | 150                   | 250   | 400                         | 500                         | 500                         | 500                         |
| 3-Phase, 600Vac                   | 25  | 50  | 50  | 100                   | 200                   | 350   | 350                         | 500                         | 500                         | 500                         |
| DC Horsepower Ratings             |   |   |   |                       |                       |   |                             |                             |                             |                             |
| 125Vdc                            | —   | —   | —   | —                     | —                     | —   | 20                          | —                           | —                           | —                           |
| 250Vdc                            | —   | —   | —   | —                     | —                     | —   | 50                          | —                           | —                           | —                           |
| <b>Electrical Characteristics</b> |   |   |   |                       |                       |   |                             |                             |                             |                             |
| SCCR with Fuse                    | 100kA   | 100kA   | 25kA/100kA*   | 200kA                 | 200kA                 | 200kA   | 200kA                       | 100kA                       | 100kA                       | 100kA                       |
| Fuse Class                        | J   | J   | J   | J                     | J                     | J   | J                           | L                           | L                           | L                           |
| Max. Fuse Rating                  | 30A   | 60A   | 100A  | 100A                  | 200A                  | 400A  | 600A                        | 800A                        | 1000A                       | 1200A                       |
| Terminal Lugs/Kits                | Integral  | Integral  | Integral  | •                     | •                     | •   | •                           | •                           | •                           | •                           |
| Lug Mounting Torque - Lb-In (N•m) | -   | -   | -   | 160 (18)              | 160 (18)              | LUG2-... 310 (35)<br>LUG3-... 398 (45)  | 310 (35)                    | 310 (35)                    | 310 (35)                    | 310 (35)                    |
| Wire Type                         | 75°C Cu   | 75°C Cu   | 75°C Cu   | 75°C Cu/Al            | 75°C Cu/Al            | 75°C Cu/Al  | 75°C Cu/Al                  | 75°C Cu/Al                  | 75°C Cu/Al                  | 75°C Cu/Al                  |
| Wire Range & Torque - Lb-In (N•m) |   |   |   |                       |                       |   |                             |                             |                             |                             |
| Solid                             | #12-10<br>35.4 (4)  | #12-10<br>35.4 (4)  | #12-10<br>35.4 (4)  | —                     | —                     | —   | —                           | —                           | —                           | —                           |
| Stranded                          | #10-1<br>35.4 (4)<br>1/0<br>39.8 (4.5)<br>2/0<br>44.3 (5) | #10-1<br>35.4 (4)<br>1/0<br>39.8 (4.5)<br>2/0<br>44.3 (5) | #10-1<br>35.4 (4)<br>1/0<br>39.8 (4.5)<br>2/0<br>44.3 (5) | #6-300MCM<br>275 (31) | #6-300MCM<br>275 (31) | LUG2-... #4-600MCM<br>550 (62)<br>Dual 1/0-250MCM<br>550 (62)<br>LUG3-... (2) #6-2<br>200 (22.6)<br>(2) #1-350MCM<br>375 (42.4) | (2) #2-600MCM<br>375 (42.4) | (4) #2-600MCM<br>375 (42.4) | (4) #2-600MCM<br>375 (42.4) | (4) #2-600MCM<br>375 (42.4) |
| <b>Mechanical Characteristics</b> |   |   |   |                       |                       |   |                             |                             |                             |                             |
| Endurances/Cycles                 | 10,000  | 10,000  | 10,000  | 10,000                | 8000                  | 6000  | 6000                        | 3500                        | 3500                        | 3500                        |
| <b>Physical Characteristics</b>   |   |   |   |                       |                       |   |                             |                             |                             |                             |
| Dimensions                        | See drawings on product pages                             |   |   |                       |                       |   |                             |                             |                             |                             |
| Weight - Lbs (KG)                 |   |   |   |                       |                       |   |                             |                             |                             |                             |
| 3-Pole                            | 1.3 (0.6)   | 1.3 (0.6)   | 1.3 (0.6)   | 4.2 (1.91)            | 4.2 (1.91)            | 10.0 (4.6)  | 18.1 (8.2)                  | 19.6 (8.9)                  | 19.6 (8.9)                  | 19.6 (8.9)                  |
| 4-Pole                            | —   | —   | —   | —                     | 5.0 (2.3)             | 12.3 (5.6)  | 23.9 (10.9)                 | 25.3 (11.5)                 | 25.3 (11.5)                 | 25.3 (11.5)                 |
| <b>Environmental</b>              |   |   |   |                       |                       |   |                             |                             |                             |                             |
| Operating Temperature             | -20°C to 70°C   | -20°C to 70°C   | -20°C to 70°C   | -20°C to 70°C         | -20°C to 70°C         | -20°C to 70°C   | -20°C to 70°C               | -20°C to 70°C               | -20°C to 70°C               | -20°C to 70°C               |
| Flammability Rating               | UL 94-V0  | UL 94-V0  | UL 94-V0  | UL 94-V0              | UL 94-V0              | UL 94-V0  | UL 94-V0                    | UL 94-V0                    | UL 94-V0                    | UL 94-V0                    |
| <b>Accessories</b>                |   |   |   |                       |                       |   |                             |                             |                             |                             |
| Lug Kit Part #                    |   |   |   |                       |                       |   |                             |                             |                             |                             |
| 3-Pole                            | Integral  | Integral  | Integral  | •                     | •                     | •   | •                           | •                           | •                           | •                           |
| 4-Pole                            | —   | —   | —   | —                     | —                     | —   | —                           | —                           | —                           | —                           |
| Handles                           |   |   |   |                       |                       |   |                             |                             |                             |                             |
| NEMA 1, 3R, 12                    | •   | •   | •   | •                     | •                     | •   | —                           | —                           | —                           | —                           |
| NEMA 1, 3R, 4, 4X, 12             | •   | •   | •   | •                     | •                     | •   | •                           | •                           | •                           | •                           |
| Direct                            | •   | •   | •   | •                     | •                     | •   | •                           | •                           | •                           | •                           |
| Front Pistol                      | —   | —   | —   | •                     | •                     | •   | •                           | •                           | •                           | •                           |
| Front or Side Selector            | •   | •   | •   | —                     | —                     | —   | —                           | —                           | —                           | —                           |
| Shaft c/s - mm                    | 5x5   | 5x5   | 5x5   | 10x10                 | 10x10                 | 10x10   | 12x12                       | 12x12                       | 12x12                       | 12x12                       |
| Shaft Guide                       | •   | •   | •   | •                     | •                     | •   | •                           | •                           | •                           | •                           |
| Shrouds                           | •   | •   | •   | •                     | •                     | •   | •                           | •                           | •                           | •                           |
| Additional Pole Accessory         | •   | •   | •   | —                     | —                     | —   | —                           | —                           | —                           | —                           |
| Auxiliary Contacts                |   |   |   |                       |                       |   |                             |                             |                             |                             |
| NO + NC                           | •   | •   | •   | •                     | •                     | •   | •                           | •                           | •                           | •                           |
| (2) NO                            | •   | •   | •   | —                     | —                     | —   | —                           | —                           | —                           | —                           |

Disconnect Switches

• Available, see product page for details and part numbers.  
 — Not available.  
 \* 25kA @ 600Vac, 100kA @ 480Vac.

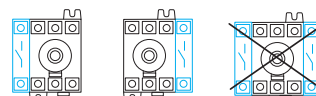
## UL 98 Non-Fused Rotary Disconnect Switches—30, 60 and Compact 100A

For a Complete Assembly, Please Select:

|                                  |   |   |   |   |                |                                       |             |                        |                           |             |             |             |             |
|----------------------------------|---|---|---|---|----------------|---------------------------------------|-------------|------------------------|---------------------------|-------------|-------------|-------------|-------------|
| Select for Standard Applications | SWITCH  |  | <b>Switch</b>   |   |                |                                       |             |                        |                           |             |             |             |             |
|                                  |   |   | Switch Amp Rating   | No. of Poles  | SCCR           | Max Horsepower Rating                 |             |                        |                           |             | Wire Size   | Wire Type   | Part Number |
|                                  |   |   |   |   |                | 1-Phase                               |             | 3-Phase                |                           |             |             |             |             |
|                                  |   |   |   |   |                | 120 Vac                               | 220/240Vac  | 220/240Vac             | 440/480Vac                | 600 Vac     |             |             |             |
|                                  | 30  | 3   | 100kA   | 2   | 5              | 10                                    | 20          | 25                     | #10-2/0 Str<br>#12-10 Sol | 75°C Cu     | RD30-3      |             |             |
|                                  | 60  | 3   | 100kA   | 3   | 10             | 20                                    | 40          | 50                     | #10-2/0 Str<br>#12-10 Sol | 75°C Cu     | RD60-3      |             |             |
|                                  | 100   | 3   | 25/100kA*   | 5   | 10             | 20                                    | 50          | 50                     | #10-2/0 Str<br>#12-10 Sol | 75°C Cu     | RD100-3     |             |             |
|                                  | * 100kA @480Vac, 25kA @ 600Vac.   |   |   |   |                |                                       |             |                        |                           |             |             |             |             |
|                                  | +   |   |   |   |                |                                       |             |                        |                           |             |             |             |             |
|                                  | Accessories   | HANDLES   |  | <b>Direct Mount Handle - mounts directly to switch, no shaft required</b> |                |                                       |             |                        |                           |             |             | Part Number |             |
| For Switch Part Number           |   |   |   | Color   |                | Test Function                         | Padlockable |                        |                           |             |             |             |             |
| All Switches                     |   | Black   |   | N   | Y - On Switch  |                                       |             |                        | DIR-02                    |             |             |             |             |
| OR                               |   |   |   |   |                |                                       |             |                        |                           |             |             |             |             |
| HANDLES                          |   |  | <b>External Front or Right Side Operated Selector Handles - shaft required</b>    |   |                |                                       |             |                        |                           |             | Part Number |             |             |
|                                  |   |   | NEMA Type   | Color   | Handle Length  | Test Function                         | Padlockable | Defeatable             |                           |             |             |             |             |
| 1, 3R, 4, 4X, 12                 |   | Black   | Short   | N   | Y              | Y                                     |             | H4X-01B <sup>(1)</sup> |                           |             |             |             |             |
| 1, 3R, 4, 4X, 12                 |   | Red/Yellow  | Short   | N   | Y              | Y                                     |             | H4X-01R <sup>(1)</sup> |                           |             |             |             |             |
| 1, 3R, 4, 4X, 12                 |   | Black   | Long  | N   | Y              | Y                                     |             | H4X-02B <sup>(2)</sup> |                           |             |             |             |             |
| 1, 3R, 4, 4X, 12                 |   | Red/Yellow  | Long  | N   | Y              | Y                                     |             | H4X-02R <sup>(2)</sup> |                           |             |             |             |             |
| +                                |   |   |   |   |                |                                       |             |                        |                           |             |             |             |             |
| HANDLES                          |  | <b>Shafts for Selector Handles</b>  |   |   |                |                                       |             |                        |                           | Part Number |             |             |             |
|                                  |   | Length in (mm)  | Mounting Depth (X) in (mm)  |   |                |                                       |             |                        |                           |             |             |             |             |
|                                  |   | 5.9 (150)   | 3.50~7.60 (89~193)  |   |                |                                       |             |                        | SH4-150                   |             |             |             |             |
|                                  |   | 7.9 (200)   | 3.50~9.50 (89~241)  |   |                |                                       |             |                        | SH4-200                   |             |             |             |             |
| 12.6 (320)                       | 3.50~14.9 (89~378)  |   |   |   |                |                                       | SH4-320     |                        |                           |             |             |             |             |
| +                                |   |   |   |   |                |                                       |             |                        |                           |             |             |             |             |
| HANDLES                          |  | <b>Shaft Guide</b>  |   |   |                |                                       |             |                        |                           | Part Number |             |             |             |
|                                  |   | Required for 12.6" (320mm) long shafts, optional for other lengths                |   |   |                |                                       |             |                        |                           |             |             |             |             |
| and ...                          |   |   |   |   |                |                                       |             |                        |                           |             |             |             |             |
| AUX CONTACTS                     |  | <b>Auxiliary Contacts</b>   |   |   |                |                                       |             |                        |                           |             |             |             |             |
|                                  |   | Contact Type  | Number of Contacts  | Continuous Amp Rating   | Voltage Rating | Max Number of Aux Contacts per Switch | Part Number |                        |                           |             |             |             |             |
|                                  |   | NO + NC   | 1 of each   | 10A   | 240Vac         | 4                                     | BAC01       |                        |                           |             |             |             |             |
|                                  |   | NO  | 2   | 10A   | 240Vac         | 4                                     | BAC02       |                        |                           |             |             |             |             |
| and ...                          |   |   |   |   |                |                                       |             |                        |                           |             |             |             |             |
| SHROUDS                          |  | <b>Terminal Shrouds - includes terminal shroud for both lineside and loadside</b> |   |   |                |                                       |             |                        |                           |             |             |             |             |
|                                  |   | Switch Amp Rating   |   | Number of Poles   |                | Location on Switch                    | Part Number |                        |                           |             |             |             |             |
|                                  |   | All Switches  |   | 1 (for switched 4 <sup>th</sup> pole)                                     |                | Lineside and Loadside                 | TSH3-1TB    |                        |                           |             |             |             |             |
|                                  |   | All Switches  |   | 3   |                | Lineside and Loadside                 | TSH3-3TB    |                        |                           |             |             |             |             |
| and ...                          |   |   |   |   |                |                                       |             |                        |                           |             |             |             |             |
| SW. 4 <sup>TH</sup> POLE         |  | <b>Switched 4<sup>th</sup> Pole - converts 3-pole switch to 4-pole</b>            |   |   |                |                                       |             |                        |                           |             |             |             |             |
|                                  |   | Switch Amp Rating   |   |   |                |                                       |             |                        |                           | Part Number |             |             |             |
|                                  |   | 30  |   |   |                |                                       |             |                        |                           | POLE98-30   |             |             |             |
|                                  |   | 60  |   |   |                |                                       |             |                        |                           | POLE98-60   |             |             |             |
|                                  |   | 100   |   |   |                |                                       |             |                        | POLE98-100                |             |             |             |             |



Auxiliary Contact Configurations

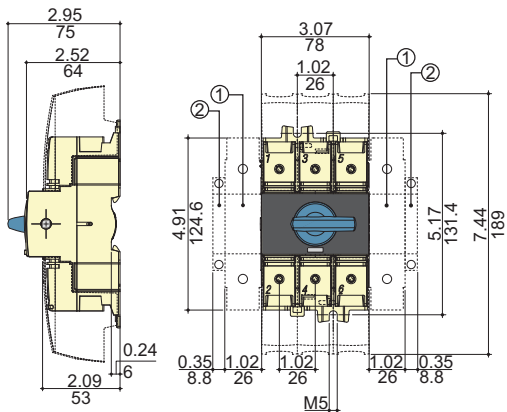


Possible 4<sup>th</sup> Pole Configurations

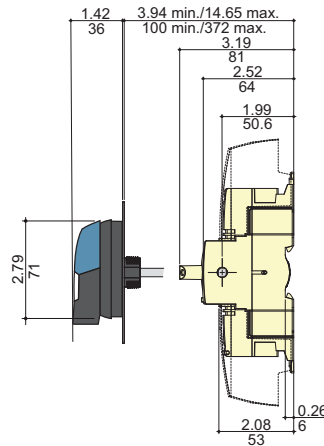
# UL 98 Non-Fused Rotary Disconnect Switches—30, 60 and Compact 100A

## Dimensions - in (mm)

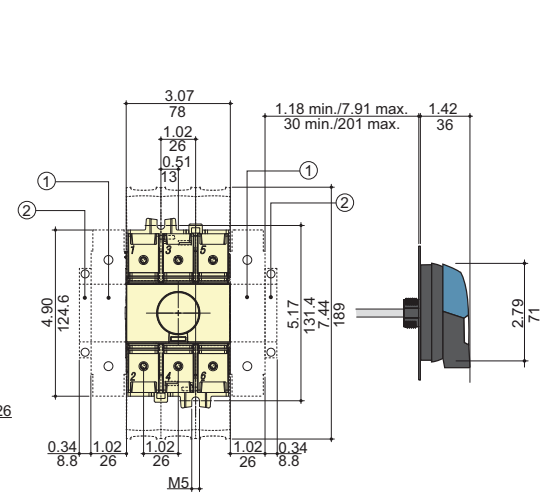
### Direct Handle Operation



### External Front Operation



### External Right Side Operation



1. Position for 1 switched 4<sup>th</sup> pole (1 per device max.) or 1 auxiliary contact.
  2. Position for 1 auxiliary contact only.
- Note: Maximum of 4 auxiliary contacts, or 3 auxiliary contacts + one switched 4<sup>th</sup> pole.

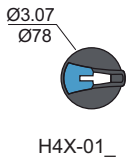
Disconnect  
Switches

## External Front or Right Side Operated Selector Handle

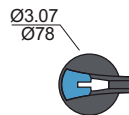
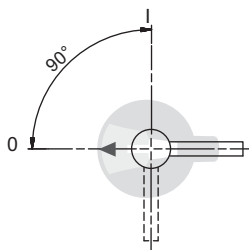
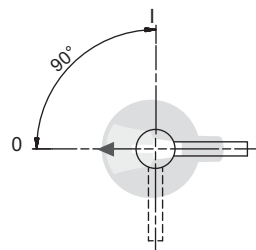
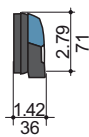
Handle Type

Direction of Front Operation    Direction of Right Side Operation

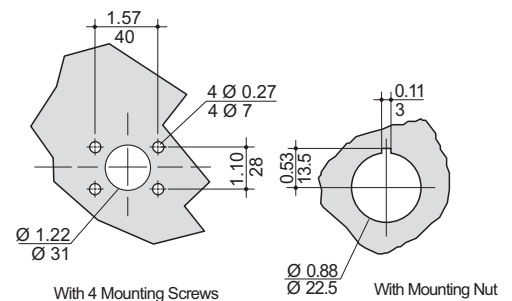
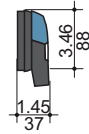
Door Drilling Layouts



H4X-01\_







H4X-02\_



## UL 98 Non-Fused Rotary Disconnect Switches—100, 200 and 400A


For a Complete Assembly, Please Select:

|  |  |                                   |                              |   |  |                    |                           |                  |                    |
|--|--|-----------------------------------|------------------------------|---|--|--------------------|---------------------------|------------------|--------------------|
| SWITCH + LUGS<br><br><br><br><br><br><br><br><br><br><br><br><br>Select for Standard Applications<br><br><br><br><br><br><br><br><br><br><br><br><br>HANDLE<br><br><br><br><br><br><br><br><br><br><br><br><br>Accessories<br>AUX CONTACTS |         | <b>Switch</b>                     |                              |   |  |                    |                           |                  |                    |
|  |  | <b>Switch Amp Rating</b>          | <b>No. of Poles</b>          | <b>SCCR</b>   | <b>Max Horsepower Rating</b>                 |                    |                           |                  | <b>Part Number</b> |
|  |  |                                   |                              |   | <b>1-Phase 220/240Vac</b>                    | <b>220/240Vac</b>  | <b>3-Phase 440/480Vac</b> |                  |                    |
|  |  |                                   |                              |   |  | <b>600 Vac</b>     |                           |                  |                    |
|  |  | 100                               | 3                            | 200kA   | 10   | 30                 | 75                        | 100              | RD100-3-SCCR       |
|  |  | 200                               | 3                            | 200kA   | 10   | 75                 | 150                       | 200              | RD200-3            |
|  |  | 200                               | 4                            | 200kA   | 10   | 75                 | 150                       | 200              | RD200-4            |
|  |  | 400                               | 3                            | 200kA   | -  | 125                | 250                       | 350              | RD400-3            |
|  |  | 400                               | 4                            | 200kA   | -  | 125                | 250                       | 350              | RD400-4            |
|  |  | <b>Terminal Lug Kit</b>           |                              |   |  |                    |                           |                  |                    |
|  |  | <b>Switch Amp Rating</b>          | <b>No. of Poles</b>          | <b>Lugs Per Kit</b>   | <b>Wire Range</b>                            |                    |                           | <b>Wire Type</b> | <b>Part Number</b> |
|  |  | 100-200                           | 2                            | 2   | #6-300MCM                                    |                    |                           | 75°C Cu/Al       | LUG1-2             |
|  |  | 100-200                           | 3                            | 3   | #6-300MCM                                    |                    |                           | 75°C Cu/Al       | LUG1-3             |
| 100-200  | 4  | 4                                 | #6-300MCM                    |   |  | 75°C Cu/Al         | LUG1-4                    |                  |                    |
| 400  | 2  | 2                                 | #4-600MCM or Dual 1/0-250MCM |   |  | 75°C Cu/Al         | LUG2-2                    |                  |                    |
| 400  | 3  | 3                                 | #4-600MCM or Dual 1/0-250MCM |   |  | 75°C Cu/Al         | LUG2-3                    |                  |                    |
| 400  | 4  | 4                                 | #4-600MCM or Dual 1/0-250MCM |   |  | 75°C Cu/Al         | LUG2-4                    |                  |                    |
| 400  | 2  | 2                                 | (2) #6-350MCM                |   |  | 75°C Cu/Al         | LUG3-2                    |                  |                    |
| 400  | 3  | 3                                 | (2) #6-350MCM                |   |  | 75°C Cu/Al         | LUG3-3                    |                  |                    |
| 400  | 4  | 4                                 | (2) #6-350MCM                |   |  | 75°C Cu/Al         | LUG3-4                    |                  |                    |
| +  |  |                                   |                              |   |  |                    |                           |                  |                    |
|    | <b>Direct Mount Handle - mounts directly to switch, no shaft required</b>                |                                   |                              |   |  |                    |                           |                  |                    |
|  | <b>For Switch Part Number</b>  | <b>Color</b>                      | <b>Test Function</b>         | <b>Padlockable</b>  | <b>Part Number</b>                           |                    |                           |                  |                    |
| All Switches   | Black  | N                                 | Y                            | DIR-03  |  |                    |                           |                  |                    |
| OR   |  |                                   |                              |   |  |                    |                           |                  |                    |
|   | <b>External Front Operated Pistol Handles - shaft required</b>                           |                                   |                              |   |  |                    |                           |                  |                    |
|  | <b>NEMA Type</b>   | <b>Color</b>                      | <b>Test Function</b>         | <b>Padlockable</b>  | <b>Defeatable</b>                            | <b>Part Number</b> |                           |                  |                    |
|  | 1, 3R, 12  | Black                             | N                            | Y   | Y  | H12-03B            |                           |                  |                    |
|  | 1, 3R, 12  | Red/Yellow                        | N                            | Y   | Y  | H12-03R            |                           |                  |                    |
|  | 1, 3R, 4, 4X, 12   | Black                             | N                            | Y   | Y  | H4X-06B            |                           |                  |                    |
|  | 1, 3R, 4, 4X, 12   | Red/Yellow                        | N                            | Y   | Y  | H4X-06R            |                           |                  |                    |
|  | <b>Metalic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required</b> |                                   |                              |   |  |                    |                           |                  |                    |
|  | <b>NEMA Type</b>   | <b>Color</b>                      | <b>Test Function</b>         | <b>Padlockable</b>  | <b>Defeatable</b>                            | <b>Part Number</b> |                           |                  |                    |
|  | 1, 3R, 4, 4X, 12   | Black                             | N                            | Y   | Y  | H4X-06BHD          |                           |                  |                    |
|  | 1, 3R, 4, 4X, 12   | Red/Yellow                        | N                            | Y   | Y  | H4X-06RHD          |                           |                  |                    |
|  | <b>Shafts for Pistol Handles</b>   |                                   |                              |   |  |                    |                           |                  |                    |
|  | <b>Length in (mm)</b>  | <b>Mounting Depth (X) in (mm)</b> |                              |  |  |                    | <b>Part Number</b>        |                  |                    |
|  | 7.9 (200)  | 5.31~10.43 (135~265)              |                              |   |  |                    | SH5-200                   |                  |                    |
| 12.6 (320)   | 5.31~15.16 (135~385)   |                                   | SH5-320                      |   |  |                    |                           |                  |                    |
| 15.7 (400)   | 5.31~18.31 (135~465)   |                                   | SH5-400                      |   |  |                    |                           |                  |                    |
| <b>Shaft Guide</b>   |  |                                   |                              |   |  |                    |                           |                  |                    |
| Required for 15.7" (400mm) long shafts, optional for other lengths   |  |                                   |                              |   |  | <b>Part Number</b> |                           |                  |                    |
| SH-GUIDE2  |  |                                   |                              |   |  |                    |                           |                  |                    |
| and ...  |  |                                   |                              |   |  |                    |                           |                  |                    |
|   | <b>Auxiliary Contacts</b>  |                                   |                              |   |  |                    |                           |                  |                    |
|  | <b>Contact Type</b>  | <b>Number of Contacts</b>         | <b>Continuous Amp Rating</b> | <b>Voltage Rating</b>   | <b>Max Number of Aux Contacts per Switch</b> | <b>Part Number</b> |                           |                  |                    |
|  | NO + NC  | 1 of each                         | 10.1A                        | 125-250Vac  | 2  | BAC03*             |                           |                  |                    |
|  | NO + NC  | 1 of each                         | 10.1A                        | 125-250Vac  | 2  | BAC04*             |                           |                  |                    |
|  | NO + NC  | 1 of each                         | 1A                           | 125Vac  | 2  | BAC11*             |                           |                  |                    |
|  | NO + NC  | 1 of each                         | 1A                           | 125Vac  | 2  | BAC12*             |                           |                  |                    |
| * For one auxiliary contact, install either BAC03 or BAC11. For two auxiliary contacts, install BAC03 + BAC04, or BAC11 + BAC12.   |  |                                   |                              |   |  |                    |                           |                  |                    |

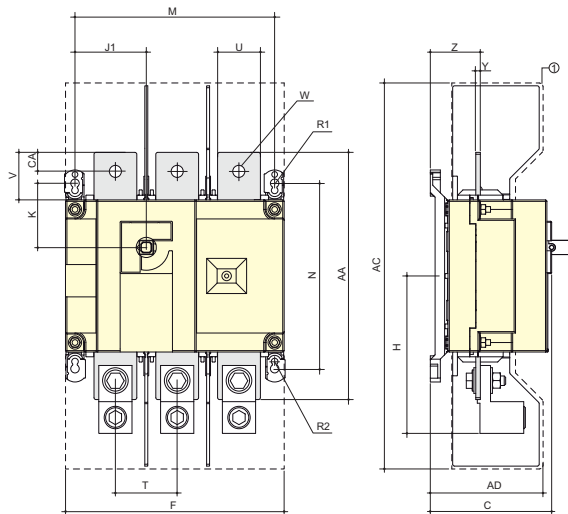


# UL 98 Non-Fused Rotary Disconnect Switches—100, 200 and 400A

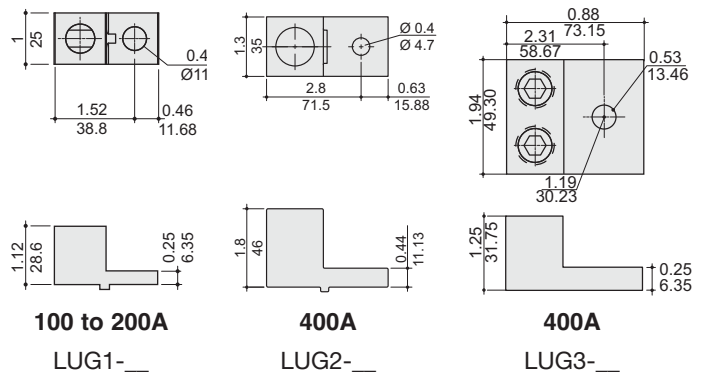
and ...

| Accessories<br>SHROUDS |  | Terminal Shrouds - includes terminal shroud for lineside or loadside |                 |                      |             |
|------------------------|---|--|-----------------|----------------------|-------------|
|                        |   | Switch Amp Rating  | Number of Poles | Location on Switch   | Part Number |
|                        |   | 100-200A   | 3               | Lineside             | TSH4-3T     |
|                        |   | 100-200A   | 3               | Loadside             | TSH4-3B     |
|                        |   | 100-200A   | 4               | Lineside or Loadside | TSH4-4TB    |
|                        |   | 400A   | 3               | Lineside             | TSH5-3T     |
|                        |   | 400A   | 3               | Loadside             | TSH5-3B     |
|                        |   | 400A   | 4               | Lineside or Loadside | TSH5-4TB    |

## Dimensions - in (mm)



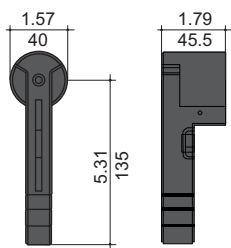
### Terminal Lugs



Disconnect Switches

| Switch Rating (A) | Overall Dimen. C | Terminal Shrouds |             | Switch Body |            |            |           |            |             | Switch Mounting |            |            |          | Connection |           |           |           |           |            |             |            |          |
|-------------------|------------------|------------------|-------------|-------------|------------|------------|-----------|------------|-------------|-----------------|------------|------------|----------|------------|-----------|-----------|-----------|-----------|------------|-------------|------------|----------|
|                   |                  | AC               | AD          | F 3p.       | F 4p.      | H          | J1 3p.    | J1 4p.     | K           | M 3p.           | M 4p.      | N          | R1       | R2         | T         | U         | V         | W         | Y          | Z           | AA         | AC       |
| 100               | 3.72 (94.6)      | 10.1 (256)       | 3.05 (77.5) | 7.09 (180)  | 9.06 (230) | 4.22 (107) | 2.17 (55) | 4.13 (105) | 1.8 (45.6)  | 6.3 (160)       | 8.27 (210) | 5.31 (135) | 0.35 (9) | 0.27 (7)   | 1.97 (50) | 0.98 (25) | 1.18 (30) | 0.43 (11) | 0.14 (3.5) | 1.35 (34.4) | 6.3 (160)  | 0.6 (15) |
| 200               | 3.72 (94.6)      | 10.1 (256)       | 3.05 (77.5) | 7.09 (180)  | 9.06 (230) | 4.22 (107) | 2.17 (55) | 4.13 (105) | 1.8 (45.6)  | 6.3 (160)       | 8.27 (210) | 5.31 (135) | 0.35 (9) | 0.27 (7)   | 1.97 (50) | 0.98 (25) | 1.18 (30) | 0.43 (11) | 0.14 (3.5) | 1.35 (34.4) | 6.3 (160)  | 0.6 (15) |
| 400               | 4.92 (128)       | 16 (406)         | 4.15 (115)  | 9.05 (230)  | 11.4 (290) | 6.53 (166) | 2.95 (75) | 5.31 (135) | 2.65 (67.5) | 8.26 (210)      | 10.6 (270) | 7.67 (195) | 0.35 (9) | 0.27 (7)   | 2.56 (65) | 1.77 (45) | 1.97 (50) | 0.43 (13) | 0.2 (5)    | 2.08 (53)   | 10.2 (260) | 0.8 (20) |

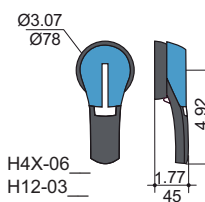
### Direct Mount Handle



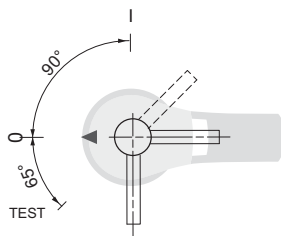
DIR-03

### External Front Handle

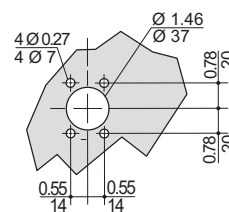
Handle Type



Direction of Front Operation



Door Drilling Layout




## UL 98 Non-Fused Rotary Disconnect Switches—600, 800, 1000 and 1200A

For a Complete Assembly, Please Select:

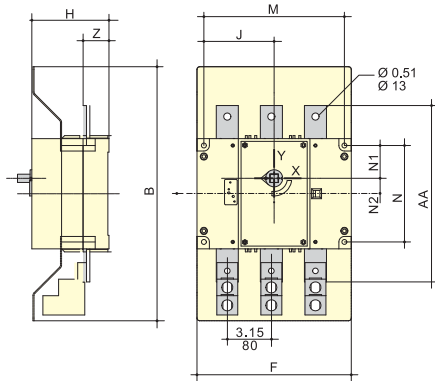
|  |  |   |                        |                                       |                          |             |                        |          |             |          |
|--|--|---|------------------------|---------------------------------------|--------------------------|-------------|------------------------|----------|-------------|----------|
| Select for Standard Applications   |   | <b>Switch</b>   |                        |                                       |                          |             |                        |          |             |          |
|  |  | Switch Amp Rating   | No. of Poles           | SCCR                                  | Max Horsepower Rating    |             |                        |          | Part Number |          |
|  |  |   |                        |                                       | 3-Phase                  |             | DC*                    |          |             |          |
|  |  |   |                        |                                       | 220/240Vac               | 440/480Vac  | 600 Vac                | 125 Vdc  | 250 Vdc     |          |
|  |  | 600A  | 3                      | 200kA                                 | 240                      | 400         | 350                    | 20       | 50          | RD600-3  |
|  |  | 600A  | 4                      | 200kA                                 | 240                      | 400         | 350                    | 20       | 50          | RD600-4  |
|  |  | 800A  | 3                      | 100kA                                 | 200                      | 500         | 500                    | -        | -           | RD800-3  |
|  |  | 800A  | 4                      | 100kA                                 | 200                      | 500         | 500                    | -        | -           | RD800-4  |
|  |  | 1000A   | 3                      | 100kA                                 | 200                      | 500         | 500                    | -        | -           | RD1000-3 |
|  |  | 1000A   | 4                      | 100kA                                 | 200                      | 500         | 500                    | -        | -           | RD1000-4 |
| 1200A  | 3  | 100kA   | 200                    | 500                                   | 500                      | -           | -                      | RD1200-3 |             |          |
| 1200A  | 4  | 100kA   | 200                    | 500                                   | 500                      | -           | -                      | RD1200-4 |             |          |
| * DC Ratings use two poles in series.  |  |   |                        |                                       |                          |             |                        |          |             |          |
| <b>Terminal Lug Kit</b>  |  |   |                        |                                       |                          |             |                        |          |             |          |
| Switch Amp Rating  | No. of Poles   | Lugs Per Kit  | Lugs Required per Pole | Wire Range                            | Wire Type                | Part Number |                        |          |             |          |
| 600  | 3  | 3   | 1                      | (2) #2-600MCM                         | 75°C Cu/Al               | LUG5-3      |                        |          |             |          |
| 600  | 4  | 4   | 1                      | (2) #2-600MCM                         | 75°C Cu/Al               | LUG5-4      |                        |          |             |          |
| 800-1200   | 3  | 6   | 2                      | (4) #2-600MCM                         | 75°C Cu/Al               | LUG6-6      |                        |          |             |          |
| 800-1200   | 4  | 8   | 2                      | (4) #2-600MCM                         | 75°C Cu/Al               | LUG6-8      |                        |          |             |          |
| Accessories  |  | <b>Direct Mount Handle - mounts directly to switch, no shaft required</b> |                        |                                       |                          |             |                        |          |             |          |
|  |  | For Switch Part Number  | Color                  | Test Function                         | Padlockable              | Part Number |                        |          |             |          |
|  |  | All Switches  | Black                  | N                                     | Y                        | DIR-04      |                        |          |             |          |
|  |  | or  |                        |                                       |                          |             |                        |          |             |          |
|  |  | <b>External Front Operated Pistol Handles - shaft required</b>            |                        |                                       |                          |             |                        |          |             |          |
|  |  | NEMA Type   | Color                  | Test Function                         | Padlockable              | Defeatable  | Part Number            |          |             |          |
|  |  | 1, 3R, 4, 4X, 12  | Black                  | N                                     | Y                        | Y           | H4X-07B <sup>(1)</sup> |          |             |          |
|  |  | 1, 3R, 4, 4X, 12  | Red/Yellow             | N                                     | Y                        | Y           | H4X-07R <sup>(1)</sup> |          |             |          |
|  |  | 1, 3R, 4, 4X, 12  | Black                  | N                                     | Y                        | Y           | H4X-08B <sup>(2)</sup> |          |             |          |
|  |  | 1, 3R, 4, 4X, 12  | Red/Yellow             | N                                     | Y                        | Y           | H4X-08R <sup>(2)</sup> |          |             |          |
| <b>Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required</b>  |  |   |                        |                                       |                          |             |                        |          |             |          |
| NEMA Type  | Color  | Test Function   | Padlockable            | Defeatable                            | Part Number              |             |                        |          |             |          |
| 1, 3R, 4, 4X, 12   | Black  | N   | Y                      | Y                                     | H4X-07BHD <sup>(3)</sup> |             |                        |          |             |          |
| 1, 3R, 4, 4X, 12   | Red/Yellow   | N   | Y                      | Y                                     | H4X-07RHD <sup>(3)</sup> |             |                        |          |             |          |
| 1, 3R, 4, 4X, 12   | Black  | N   | Y                      | Y                                     | H4X-08BHD <sup>(4)</sup> |             |                        |          |             |          |
| 1, 3R, 4, 4X, 12   | Red/Yellow   | N   | Y                      | Y                                     | H4X-08RHD <sup>(4)</sup> |             |                        |          |             |          |
| <b>Shafts for Pistol Handles</b>   |  |   |                        |                                       |                          |             |                        |          |             |          |
| Length in (mm)   | Mounting Depth (X) in (mm)   | Part Number   |                        |                                       |                          |             |                        |          |             |          |
| 7.9 (200)  | 8.70~13.50 (221~343)   | SH6-200   |                        |                                       |                          |             |                        |          |             |          |
| 12.6 (320)   | 8.70~18.23 (221~463)   | SH6-320   |                        |                                       |                          |             |                        |          |             |          |
| 15.7 (400)   | 8.70~21.38 (221~543)   | SH6-400   |                        |                                       |                          |             |                        |          |             |          |
| <b>Shaft Guide</b>   |  |   |                        |                                       |                          |             |                        |          |             |          |
| Required for 15.7" (400mm) long shafts, optional for other lengths   |  |   |                        |                                       |                          |             | Part Number            |          |             |          |
|  |  |   |                        |                                       |                          |             | SH-GUIDE2              |          |             |          |
| and ...  |  |   |                        |                                       |                          |             |                        |          |             |          |
| <b>Auxiliary Contacts</b>  |  |   |                        |                                       |                          |             |                        |          |             |          |
| Contact Type   | Number of Contacts   | Continuous Amp Rating   | Voltage Rating         | Max Number of Aux Contacts per Switch | Part Number              |             |                        |          |             |          |
| NO + NC  | 1 of each  | 10.1A   | 125-250Vac             | 2                                     | BAC03*                   |             |                        |          |             |          |
| NO + NC  | 1 of each  | 10.1A   | 125-250Vac             | 2                                     | BAC04*                   |             |                        |          |             |          |
| NO + NC  | 1 of each  | 1A  | 125Vac                 | 2                                     | BAC11*                   |             |                        |          |             |          |
| NO + NC  | 1 of each  | 1A  | 125Vac                 | 2                                     | BAC12*                   |             |                        |          |             |          |
| * For one auxiliary contact, install either BAC03 or BAC11. For two auxiliary contacts, install BAC03 + BAC04, or BAC11 + BAC12. |  |   |                        |                                       |                          |             |                        |          |             |          |

# UL 98 Non-Fused Rotary Disconnect Switches—600, 800, 1000 and 1200A

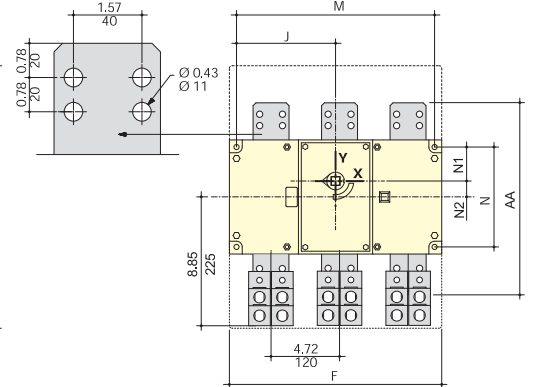
| Accessories |   | Terminal Shrouds* - includes terminal shroud for lineside or loadside |                 |                      |             |
|-------------|---|---|-----------------|----------------------|-------------|
|             |   | Switch Amp Rating   | Number of Poles | Location on Switch   | Part Number |
| SHROUDS     |  | 600A  | 3               | Lineside or Loadside | TSH6-3TB    |
|             |   | 600A  | 4               | Lineside or Loadside | TSH6-4TB    |
|             |   | 800-1200A   | 3               | Lineside or Loadside | TSH7-3TB    |
|             |   | 800-1200A   | 4               | Lineside or Loadside | TSH7-4TB    |

\* Shroud for lineside included with switch.

## Dimensions - in (mm) 600A



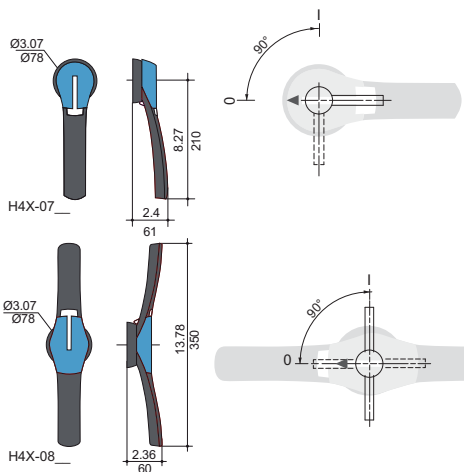
## 800 to 1200A



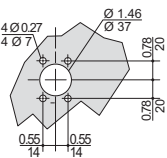
| Switch Rating (A) | Terminal Shrouds B | Switch Body |             |           |              | Switch Mounting |             |             |            |             | Connection |            |           |
|-------------------|--------------------|-------------|-------------|-----------|--------------|-----------------|-------------|-------------|------------|-------------|------------|------------|-----------|
|                   |                    | F 3p.       | F 4p.       | H         | J 3p.        | J 4p.           | M 3p.       | M 4p.       | N          | N1          | N2         | AA         | Z         |
| 600               | 18.12 (460)        | 11 (280)    | 14.17 (360) | 5.5 (140) | 5 (127.5)    | 6.59 (167.5)    | 10.03 (255) | 13.19 (335) | 6.88 (175) | 2.34 (59.5) | 1.10 (28)  | 12.6 (320) | 1.85 (47) |
| 800               | 18.12 (460)        | 14.64 (372) | 19.37 (492) | 5.5 (140) | 6.83 (173.5) | 9.19 (233.5)    | 13.66 (347) | 18.38 (467) | 6.88 (175) | 2.34 (59.5) | 1.10 (28)  | 13 (330)   | 1.85 (47) |
| 1000              | 18.12 (460)        | 14.64 (372) | 19.37 (492) | 5.5 (140) | 6.83 (173.5) | 9.19 (233.5)    | 13.66 (347) | 18.38 (467) | 6.88 (175) | 2.34 (59.5) | 1.10 (28)  | 13 (330)   | 1.85 (47) |
| 1200              | 18.12 (460)        | 14.64 (372) | 19.37 (492) | 5.5 (140) | 6.83 (173.5) | 9.19 (233.5)    | 13.66 (347) | 18.38 (467) | 6.88 (175) | 2.34 (59.5) | 1.10 (28)  | 13 (330)   | 1.85 (47) |

## External Front Pistol Handles

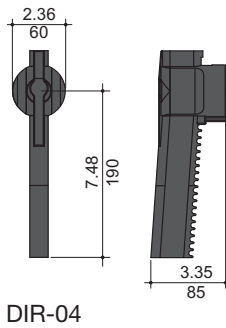
Handle Type      Direction of Front Operation



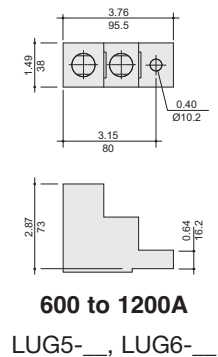
Door Drilling Layout



## Direct Mount Handle



## Terminal Lugs



## UL 508 Non-Fused Rotary Disconnect Switches—16 to 80A

### Description

Bussmann UL 508 load break disconnect switches allow safe control and safe disconnection of any motor application or to isolate a circuit within the panel.

These disconnect switches are compact and offer a wide variety of accessories like 4<sup>th</sup> poles, auxiliary contacts, door mounting and 6/8-Pole kits.

### Features

- Suitable as motor disconnect
- DIN-Rail or panel mount
- Door mount option
- Disconnect switches are front, right side or direct handle operable
- Finger-safe

### Agency Information

- UL508, Guide NLRV, File E155129
- CSA C22.2 No. 14, File 257020
- Conforms with IEC 60947-3

### Online Resources

Visit [www.cooperbussmann.com/Disconnects](http://www.cooperbussmann.com/Disconnects) for:

- CAD Drawings
- Instruction Sheets
- UL Information



QuikShip Everyday Service ships the most common part numbers within 24 hours. Contact your Bussmann representative for details.

| Related Cooper Bussmann Products         |              |
|--|--------------|
| Product                                  | Data Sheet # |
| <b>Fuses Blocks</b>                      |              |
| Modular Knifeblade Fuse Blocks 100-600A  | 3192         |
| <b>Fuses Holders</b>                     |              |
| CH Series Class CC, Midget & 10x38 0-30A | 3185         |
| Finger-Safe Optima Series 0-30A          | 1102         |
| Optima™ Protection Modules 0-30A         | 1109         |
| CH Series Class J 0-60A                  | 2144         |

### IEC Electrical Specifications



RD16-3-508



RD16-3-508 with 6-Pole Conversion Kit

| Part Number  | RD16-3-508      | RD25-3-508 | RD40-3-508 | RD63-3-508 | RD80-3-508 |
|--|-----------------|------------|------------|------------|------------|
| Thermal Current $I_{th}$ at 40°C (A)                               | 16              | 25         | 40         | 63         | 80         |
| Rated insulation voltage $U_i$ (V)                                 | 800             | 800        | 800        | 800        | 800        |
| Rated impulse withstand voltage $U_{imp}$ (kV)                     | 8               | 8          | 8          | 8          | 8          |
| <b>Rated Operation Currents <math>I_o</math> (A)</b>               |                 |            |            |            |            |
| Load Duty Category   | A/B (1)         |            | A/B (1)    |            | A/B (1)    |
| Rated Voltage  | A/B (1)         |            | A/B (1)    |            | A/B (1)    |
| 500Vac   | AC-22 A/AC-22 B | 25/25      | 40/40      | 63/63      | 80/80      |
| 500Vac   | AC-23 A/AC-23 B | 25/25      | 25/25      | 63/63      | 63/63      |
| 690Vac   | AC-21 A/AC-21 B | 25/25      | 40/40      | 63/63      | 80/80      |
| 690Vac   | AC-22 A/AC-22 B | 25/25      | 32/40      | 40/63      | 63/80      |
| 690Vac   | AC-23 A/AC-23 B | 25/25      | 25/25      | 40/40      | 40/40      |
| <b>Operational Power in AC-23 (kW)</b>                             |                 |            |            |            |            |
| 400Vac without prebreak AC (1)(2)                                  | 7.5             | 11         | 18.5       | 30         | 37         |
| 500Vac without prebreak AC (1)(2)                                  | 7.5             | 11         | 15         | 30         | 37         |
| 690Vac without prebreak AC (1)(2)                                  | 7.5             | 15         | 18.5       | 30         | 37         |
| <b>Overload Capacity (<math>U_o</math> 415 Vac)</b>                |                 |            |            |            |            |
| Rated short-time withstand current 0.3 s. $I_{cw}$ (kA rms) (3)    | 2.5             | 2.5        | 2.5        | 3          | 3          |
| Rated short-time making capacity $I_{cm}$ (kA peak) (3)            | 6               | 6          | 6          | 9          | 9          |
| <b>Fuse Protected Short-Circuit Withstand (kA rms Prospective)</b> |                 |            |            |            |            |
| Prospective short-circuit current (kA rms) (3)                     | 50              | 50         | 50         | 50         | 50         |
| Associated fuse rating (A) (3)                                     | 16              | 25         | 40         | 63         | 80         |
| <b>Connection</b>  |                 |            |            |            |            |
| Minimum Cu cable cross section (mm <sup>2</sup> )                  | 1.5             | 1.5        | 1.5        | 2.5        | 2.5        |
| Maximum Cu cable section (mm <sup>2</sup> )                        | 16              | 16         | 16         | 35         | 35         |
| Tightening torque min/max (N·m)                                    | 2/2.2           | 2/2.2      | 2/2.2      | 3.5/3.85   | 3.5/3.85   |

(1) A/B: Category with index A = frequent operation; category with index B = infrequent operation.

(2) The power value is given for information only; the current values vary from one manufacturer to another.

(3) For a rated operating voltage,  $U_o = 400$ Vac.

# UL 508 Non-Fused Rotary Disconnect Switches—16 to 80A

## Specifications



RD16-3-508



RD16-3-508 with 6-Pole Conversion Kit



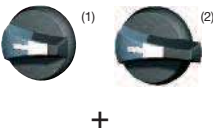

| Part Number   | RD16-3-508         | RD25-3-508         | RD40-3-508         | RD63-3-508           | RD80-3-508           |
|---|--------------------|--------------------|--------------------|----------------------|----------------------|
| UL Standard   | UL 508             | UL 508             | UL 508             | UL 508               | UL 508               |
| Max Ampacity  | 16A                | 25A                | 40A                | 63A                  | 80A                  |
| Handle Operation                                      | Front/Side         | Front/Side         | Front/Side         | Front/Side           | Front/Side           |
| <b>UL Electrical Ratings</b>                          |                    |                    |                    |                      |                      |
| Max Voltage (AC)                                      | 600Vac             | 600Vac             | 600Vac             | 600Vac               | 600Vac               |
| Maximum Horsepower Ratings                            |                    |                    |                    |                      |                      |
| 3-Phase, 208Vac                                       | 3                  | 7.5                | 7.5                | 15                   | 15                   |
| 3-Phase, 240Vac                                       | 5                  | 7.5                | 7.5                | 20                   | 20                   |
| 3-Phase, 480Vac                                       | 10                 | 15                 | 20                 | 40                   | 40                   |
| 3-Phase, 600Vac                                       | 10                 | 20                 | 25                 | 40                   | 40                   |
| <b>Electrical Characteristics</b>                     |                    |                    |                    |                      |                      |
| SCCR with Fuse  | 65kA               | 65kA               | 10/65kA            | 50/65kA              | 50/65kA              |
| Recommended Upstream Fuse Class                       | J                  | J                  | J                  | J                    | J                    |
| Max. Fuse Rating                                      | 30A                | 30A                | 60/30A             | 100/60A              | 100/60A              |
| Terminals   | Integral           | Integral           | Integral           | Integral             | Integral             |
| Wire Type   | 75°C Cu            | 75°C Cu            | 75°C Cu            | 75°C Cu              | 75°C Cu              |
| Wire Range & Torque - Lb-IN (N·m)                     |                    |                    |                    |                      |                      |
| Solid   |                    |                    |                    |                      |                      |
| Single  | #14-10<br>26.5 (3) | #14-10<br>26.5 (3) | #14-10<br>26.5 (3) | #14-10<br>31.1 (3.5) | #14-10<br>31.1 (3.5) |
| Dual  | #12<br>26.5 (3)    | #12<br>26.5 (3)    | #12<br>26.5 (3)    | #12<br>31.1 (3.5)    | #12<br>31.1 (3.5)    |
| Stranded  |                    |                    |                    |                      |                      |
| Single  | #14-4<br>26.5 (3)  | #14-4<br>26.5 (3)  | #14-4<br>26.5 (3)  | #14-1<br>31.1 (3.5)  | #14-1<br>31.1 (3.5)  |
| Dual  | #14-12<br>26.5 (3) | #14-12<br>26.5 (3) | #14-12<br>26.5 (3) | #10-6<br>31.1 (3.5)  | #10-6<br>31.1 (3.5)  |
| <b>Mechanical Characteristics</b>                     |                    |                    |                    |                      |                      |
| Endurances/Cycles                                     | 10,000             | 10,000             | 10,000             | 10,000               | 10,000               |
| <b>Physical Characteristics</b>                       |                    |                    |                    |                      |                      |
| Dimensions - See drawings on product pages            |                    |                    |                    |                      |                      |
| Weight - Lb (KG)                                      | 0.5 (0.2)          | 0.5 (0.2)          | 0.5 (0.2)          | 0.7 (0.32)           | 0.7 (0.32)           |
| <b>Environmental</b>                                  |                    |                    |                    |                      |                      |
| Operating Temperature                                 | -20°C to 70°C      | -20°C to 70°C      | -20°C to 70°C      | -20°C to 70°C        | -20°C to 70°C        |
| Flammability Rating                                   | UL 94-V0           | UL 94-V0           | UL 94-V0           | UL 94-V0             | UL 94-V0             |
| <b>Accessories</b>                                    |                    |                    |                    |                      |                      |
| Handles   |                    |                    |                    |                      |                      |
| Direct  | DIR-01             | DIR-01             | DIR-01             | DIR-01               | DIR-01               |
| Short Selector/NEMA 1, 3R, 4, 4X, 12                  | H4X-01B<br>H4X-01R | H4X-01B<br>H4X-01R | H4X-01B<br>H4X-01R | H4X-01B<br>H4X-01R   | H4X-01B<br>H4X-01R   |
| Long Selector/NEMA 1, 3R, 4, 4X, 12                   | H4X-02B<br>H4X-02R | H4X-02B<br>H4X-02R | H4X-02B<br>H4X-02R | H4X-02B<br>H4X-02R   | H4X-02B<br>H4X-02R   |
| Shafts - 5x5mm  |                    |                    |                    |                      |                      |
| 5.9"/150mm  | SH4-150            | SH4-150            | SH4-150            | SH4-150              | SH4-150              |
| 7.9"/200mm  | SH4-200            | SH4-200            | SH4-200            | SH4-200              | SH4-200              |
| 12.6"/320mm   | SH4-320            | SH4-320            | SH4-320            | SH4-320              | SH4-320              |
| Shaft Guide   | SH-GUIDE1          | SH-GUIDE1          | SH-GUIDE1          | SH-GUIDE1            | SH-GUIDE1            |
| Door Mount Kit  | DOOR-508           | DOOR-508           | DOOR-508           | DOOR-508             | DOOR-508             |
| Shrouds/Switch Amps                                   |                    |                    |                    |                      |                      |
| 1-Pole  | TSH1-1TB           | TSH1-1TB           | TSH1-1TB           | TSH2-3TB             | TSH2-3TB             |
| 3-Pole (Loadside and Lineside)                        | TSH1-3TB           | TSH1-3TB           | TSH1-3TB           | —                    | —                    |
| Switched 4 <sup>th</sup> Pole/Switch Amps             | POLE-16            | POLE-25            | POLE-40            | —                    | —                    |
| Auxiliary Contacts                                    |                    |                    |                    |                      |                      |
| NO + NC (1 ea.)                                       | BAC01              | BAC01              | BAC01              | BAC01                | BAC01                |
| (2) NO  | BAC02              | BAC02              | BAC02              | BAC02                | BAC02                |
| AC Ratings  |                    |                    |                    |                      |                      |
| Volts   | 240Vac             | 240Vac             | 240Vac             | 240Vac               | 240Vac               |
| Amps  | 10A                | 10A                | 10A                | 10A                  | 10A                  |
| 6-/8-Pole Conversion Kit                              |                    |                    |                    |                      |                      |
| Gangs two switches of same rating, 16-80A switch amps | KIT-6POLE          | KIT-6POLE          | KIT-6POLE          | KIT-6POLE            | KIT-6POLE            |
| — Not available.                                      |                    |                    |                    |                      |                      |

Disconnect Switches



# UL 508 Non-Fused Rotary Disconnect Switches—16, 25, 40, 63 and 80A




For a Complete Assembly, Please Select:

| SWITCH     |    | Switch  |                            |                       |                  |                                       |             |  |             |   |           |             |
|------------|---|---|----------------------------|-----------------------|------------------|---------------------------------------|-------------|--|-------------|---|-----------|-------------|
|            |   | Switch Amp Rating   | No. of Poles               | SCCR @600V            | Max Class J Fuse | Max Horsepower Rating, 3-Ph           |             |  |             | Wire Size   | Wire Type | Part Number |
|            |   |   |                            |                       |                  | 208 Vac                               | 220/240Vac  | 440/480Vac   | 600 Vac     |   |           |             |
|            |   | 16  | 3                          | 65kA                  | 30A              | 3                                     | 5           | 10   | 10          | #14-#10 Sol<br>Dual #12 Sol<br>#14-#4 Str<br>Dual #14-#12 Str | 75°C Cu   | RD16-3-508  |
|            |   | 25  | 3                          | 65kA                  | 30A              | 7.5                                   | 7.5         | 15   | 20          | #14-#10 Sol<br>Dual #12 Sol<br>#14-#4 Str<br>Dual #14-#12 Str | 75°C Cu   | RD25-3-508  |
|            |   | 40  | 3                          | 10kA<br>65kA          | 60A<br>30A       | 7.5                                   | 7.5         | 20   | 25          | #14-#10 Sol<br>Dual #12 Sol<br>#14-#4 Str<br>Dual #14-#12 Str | 75°C Cu   | RD40-3-508  |
| 63         | 3   | 50kA<br>65kA  | 100A<br>60A                | 15                    | 20               | 40                                    | 40          | #14-#10 Sol<br>Dual #12 Sol<br>#14-#1 Str<br>Dual #10-#6 Str | 75°C Cu     | RD63-3-508  |           |             |
| 80         | 3   | 50kA<br>65kA  | 100A<br>60A                | 15                    | 20               | 40                                    | 40          | #14-#10 Sol<br>Dual #12 Sol<br>#14-#1 Str<br>Dual #10-#6 Str | 75°C Cu     | RD80-3-508  |           |             |
| +          |   |   |                            |                       |                  |                                       |             |  |             |   |           |             |
| HANDLE     |   | Direct Mount Handle - mounts directly to switch, no shaft required  |                            |                       |                  |                                       |             |  |             |   |           |             |
|            |   | For Switch Part Number  | Color                      | Test Function         | Padlockable      | Part Number                           |             |  |             |   |           |             |
|            |   | All Switches  | Black                      | N                     | Y - On Switch    | DIR-01                                |             |  |             |   |           |             |
| OR         |   |   |                            |                       |                  |                                       |             |  |             |   |           |             |
| HANDLE     |  | External Front or Right Side Operated Selector Handles - shaft required   |                            |                       |                  |                                       |             |  |             |   |           |             |
|            |   | NEMA Type   | Color                      | Handle Length         | Test Function    | Padlockable                           | Defeatable  | Part Number  |             |   |           |             |
|            |   | 1, 3R, 4, 4X, 12  | Black                      | Short                 | N                | Y                                     | Y           | H4X-01B <sup>(1)</sup>                                       |             |   |           |             |
|            |   | 1, 3R, 4, 4X, 12  | Red/Yellow                 | Short                 | N                | Y                                     | Y           | H4X-01R <sup>(1)</sup>                                       |             |   |           |             |
|            |   | 1, 3R, 4, 4X, 12  | Black                      | Long                  | N                | Y                                     | Y           | H4X-02B <sup>(2)</sup>                                       |             |   |           |             |
|            |   | 1, 3R, 4, 4X, 12  | Red/Yellow                 | Long                  | N                | Y                                     | Y           | H4X-02R <sup>(2)</sup>                                       |             |   |           |             |
|            |   | Shafts for Selector Handles - required for 12.6" (320mm) shafts   |                            |                       |                  |                                       |             |  | Part Number |   |           |             |
|            |   | Length in (mm)  | Mounting Depth (X) in (mm) |                       |                  |                                       |             |  |             |   |           |             |
|            |   | 5.9 (150)   | 3.50-7.60 (89-193)         |                       |                  |                                       |             | SH4-150  |             |   |           |             |
|            |   | 7.9 (200)   | 3.50-9.50 (89-241)         |                       |                  |                                       |             | SH4-200  |             |   |           |             |
| 12.6 (320) | 3.50-14.9 (89-378)  |   |                            |                       |                  | SH4-320                               |             |  |             |   |           |             |
|            |   |   |                            |                       |                  |                                       |             |  |             |   |           |             |
|            |   | Shaft Guide   |                            |                       |                  |                                       |             |  | Part Number |   |           |             |
|            |   | Required for 12.6" (320mm) long shafts, optional for other lengths.   |                            |                       |                  |                                       |             |  | SH-GUIDE1   |   |           |             |
|            |   | Door Mount Kit - for mounting switch on the right side of the enclosure or directly on the enclosure door using switch side operation shaft location. Kit includes a shaft. <i>Order switch and selector handle separately.</i> |                            |                       |                  |                                       |             |  |             |   |           |             |
|            |   | Switch Rating   | Part Number                |                       |                  |                                       |             |  |             |   |           |             |
|            |   | All Switches - kit includes shaft   | DOOR-508                   |                       |                  |                                       |             |  |             |   |           |             |
| and ...    |   |   |                            |                       |                  |                                       |             |  |             |   |           |             |
| Acc.       |  | Auxiliary Contacts  |                            |                       |                  |                                       |             |  |             |   |           |             |
|            |   | Contact Type  | Number of Contacts         | Continuous Amp Rating | Voltage Rating   | Max Number of Aux Contacts per Switch | Part Number |  |             |   |           |             |
|            |   | NO + NC   | 1 Ea                       | 10A                   | 240Vac           | 4                                     | BAC01       |  |             |   |           |             |
|            |   | NO  | 2                          | 10A                   | 240Vac           | 4                                     | BAC02       |  |             |   |           |             |

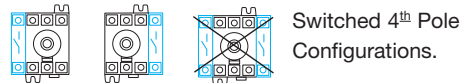


Auxiliary Contact Configurations

# UL 508 Non-Fused Rotary Disconnect Switches—16, 25, 40, 63 and 80A

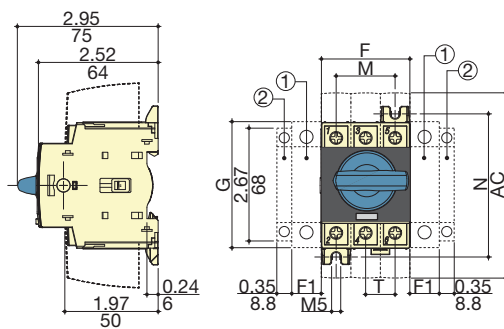
|             |   | and ...   |                                       |                           |
|-------------|---|---|---------------------------------------|---------------------------|
| SHROUDS     |                              | <b>Terminal Shrouds</b> - includes terminal shroud for both lineside <i>and</i> loadside  |                                       |                           |
|             |   | <b>Switch Amp Rating</b>  | <b>Number of Poles</b>                | <b>Location on Switch</b> |
|             |   | 16-40A  | 1 (for switched 4 <sup>th</sup> pole) | Lineside and Loadside     |
|             |   | 16-40A  | 3                                     | Lineside and Loadside     |
|             |   | 63-80A  | 3                                     | Lineside and Loadside     |
|             |   |   |                                       | <b>Part Number</b>        |
|             |   |   |                                       | TSH1-1TB                  |
|             |   |   |                                       | TSH1-3TB                  |
|             |   |   |                                       | TSH2-3TB                  |
|             |   | and ...   |                                       |                           |
| Accessories | SW. 4 <sup>TH</sup> POLE<br> | <b>Switched 4<sup>th</sup> Pole</b> - converts 3-pole switch to 4-pole switch   |                                       |                           |
|             |   | <b>Switch Amp Rating</b>  |                                       | <b>Part Number</b>        |
|             |   | 16  |                                       | POLE-16                   |
|             |   | 25  |                                       | POLE-25                   |
|             |   | 40  |                                       | POLE-40                   |
|             |   | and ...   |                                       |                           |
| 6-POLE KIT  |                              | <b>6-Pole Conversion Kit</b> - creates a 6-pole switch by ganging two 3-pole switches of equal rating   |                                       |                           |
|             |   | <b>Switch Amp Rating</b>  |                                       | <b>Part Number</b>        |
|             |   | All Switches  |                                       | KIT-6POLE*                |
|             | Order switches separately.  | * Kit ships with a direct handle. If external handle is needed order a selector handle <i>and</i> shaft for the UL 508 Rotary Disconnect Switches.<br>Note: To create an 8-pole switch from 16 to 40 amp switches, use two 3-pole switches of equal ratings plus two switched 4 <sup>th</sup> poles (part # POLE-). |                                       |                           |

Disconnect Switches



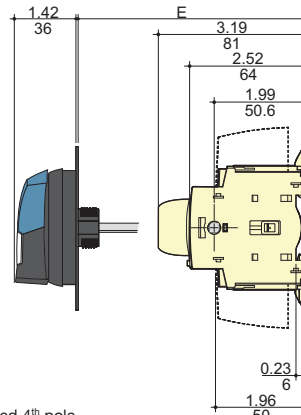
## Dimensions – in (mm)

### Direct Handle Operation

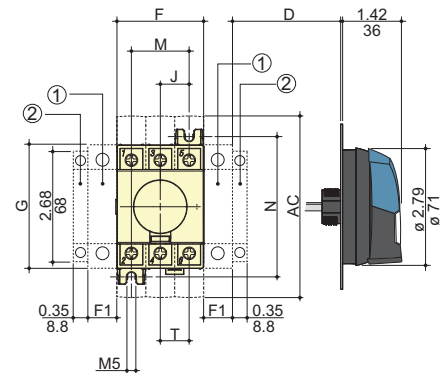


1. Position for 1 switched 4<sup>th</sup> pole (1 per device max.) or 1 auxiliary contact.
  2. Position for 1 auxiliary contact only.
- Note: Maximum of 4 auxiliary contacts, or 3 auxiliary contacts + one switched 4<sup>th</sup> pole.

### External Front Operation



### External Side Operation

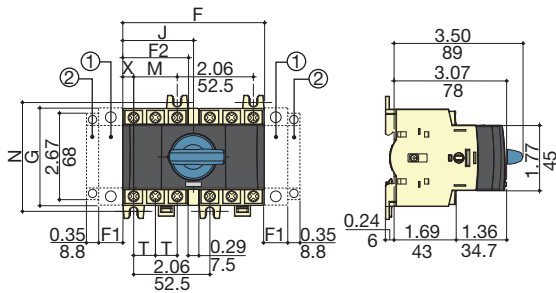


| Switch Rating (A) | Overall Dimensions |               |               |                | Terminal Shroud AC | Switch Body    |                |              |                | Switch Mounting |              | Connection T   |
|-------------------|--------------------|---------------|---------------|----------------|--------------------|----------------|----------------|--------------|----------------|-----------------|--------------|----------------|
|                   | D min              | D max         | E min         | E max          |                    | F              | F1             | G            | J              | M               | N            |                |
| 16 to 40          | 1.18<br>(30)       | 9.25<br>(235) | 3.94<br>(100) | 14.64<br>(372) | 4.33<br>(110)      | 1.77<br>(45)   | 0.59<br>(15)   | 2.67<br>(68) | 0.59<br>(15)   | 1.18<br>(30)    | 2.95<br>(75) | 0.59<br>(15)   |
| 63 to 80          | 1.18<br>(30)       | 9.25<br>(235) | 3.93<br>(100) | 14.64<br>(372) | 4.33<br>(110)      | 2.06<br>(52.5) | 0.69<br>(17.5) | 2.99<br>(76) | 0.69<br>(17.5) | 1.38<br>(35)    | 3.35<br>(85) | 0.69<br>(17.5) |

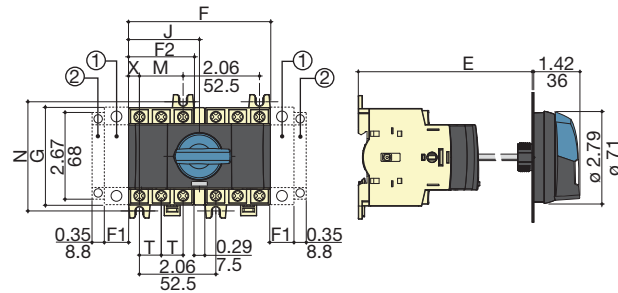
# UL 508 Non-Fused Rotary Disconnect Switches—16, 25, 40, 63 and 80A

## Dimensions – in (mm)

### Direct Front Operation for 6/8-Pole Disconnects



### External Front Operation for 6/8-Pole Disconnects

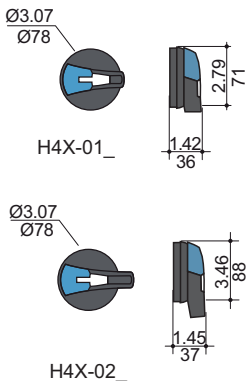


- 1. Position for 1 switched 4<sup>th</sup> pole (1 per device max.) or 1 auxiliary contact.
  - 2. Position for 1 auxiliary contact only.
- Note: Maximum of 4 auxiliary contacts, or 3 auxiliary contacts + one switched 4<sup>th</sup> pole.

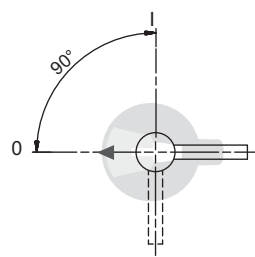
| Switch Rating (A) | Overall Dimensions |             |             | Switch Body |             |           |              | Switch Mounting |           | Connection  |             |
|-------------------|--------------------|-------------|-------------|-------------|-------------|-----------|--------------|-----------------|-----------|-------------|-------------|
|                   | E min              | E max       | F           | F1          | F2          | G         | J            | M               | N         | T           | X           |
| 16 to 40          | 4.13 (105)         | 14.64 (372) | 3.83 (97.5) | 0.59 (15)   | 1.77 (45)   | 2.67 (68) | 1.92 (48.75) | 1.18 (30)       | 2.95 (75) | 0.59 (15)   | 0.29 (7.5)  |
| 63 to 80          | 4.13 (105)         | 14.65 (372) | 4.13 (105)  | 0.69 (17.5) | 2.06 (52.5) | 2.99 (76) | 2.06 (52.5)  | 1.38 (35)       | 3.35 (85) | 0.69 (17.5) | 0.34 (8.75) |

## External Selector Handles

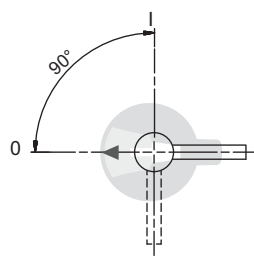
### Handle Type



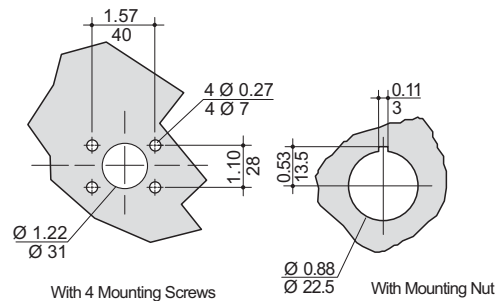
### Direction of Front Operation



### Direction of Right Side Operation



### Door Drilling Layouts



# UL 98 & UL 508 Enclosed Disconnect Switches

## Description

Fused and non-fused enclosed Rotary Disconnect Switches from 16 to 1200A in NEMA 1, 3R, 4, 4X, 12 enclosures.

## Features

- UL 98 Listed for general purpose, main disconnect, or branch circuit protection up to 600Vac/dc
- UL 508 Listed for motor disconnect applications up to 600Vac
- Multiple field installed accessories enhance the enclosed disconnect switches to fit the desired application
- Lockout/tagout: Up to three 1/4" shank padlocks can be installed on external handles

## Ratings:

- Volts: 600Vac  
250-600Vdc\*
- Amps: 16-1200A
- Short-Circuit Current Ratings: UL 98: 25kA-200kA  
UL 508: 10kA-65kA

\*Some non-fused disconnect switches are not rated for DC applications.

## Specifications

- Operating temperature: -20°C to 70°C
- 4X Plastic Enclosure Flammability Rating:  
Polycarbonate UL 94-5VA-0  
Fiberglass UL 94-5V

## Agency Information

- UL 98 Listed: File E182262, Guide WIAX, WIAX7
- UL 508 Listed: File E155129, Guide NLRV, NLRV7
- cULus Listed to CSA Standard 22.2, No. 14
- cULus Listed to CSA Standard 22.2, No. 4
- Conforms with IEC 60947-3
- CE Compliant
- RoHS Compliant

## Field Installed Accessories

- Auxiliary contacts
- Terminal shrouds

## Online Resources

Visit [www.cooperbussmann.com/Disconnects](http://www.cooperbussmann.com/Disconnects) for:

- CAD Drawings
- Instruction Sheets
- UL Information



NEMA 1, 3R, 4 & 12



NEMA 4X  
Stainless Steel



NEMA 4X  
Polycarbonate  
or Fiberglass

**QuikShip**   
Everyday

QuikShip Everyday Service ships the most common part numbers within 24 hours. Contact your Bussmann representative for details.

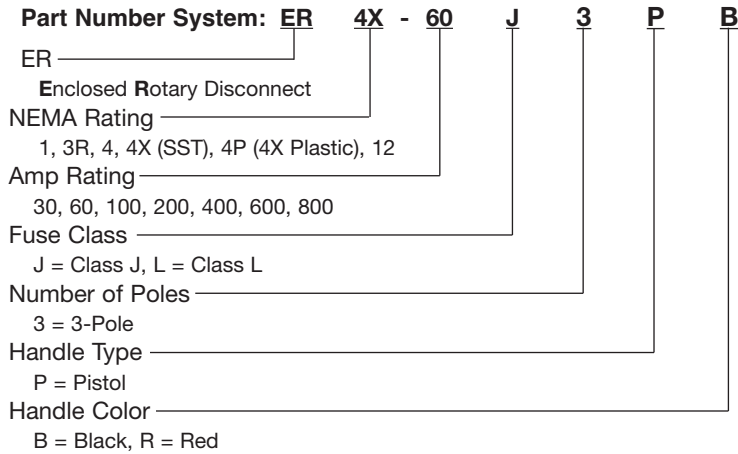
Disconnect  
Switches

### Available Bussmann Fuses

| Class | Type                               | Data Sheet #   |
|-------|------------------------------------|----------------|
| CC    | LP-CC Time-Delay, Current Limiting | 1023           |
| CC    | FNQ-R Time-Delay                   | 1014           |
| CC    | KTK-R Fast-Acting                  | 1015           |
| J     | LPJ Time-Delay, Current Limiting   | 1006 (0-60A)   |
| J     |                                    | 1007 (70-600A) |
| J     | With easyID™ open fuse indication  | 1062 (6-60A)   |
| J     |                                    | 1063 (70-600A) |
| J     | JKS Fast-Acting Fuses              | 1026 (0-60A)   |
| J     |                                    | 1027 (70-600A) |
| J     | DFJ High Speed Drive Fuse          | 1048 (0-600A)  |
| L     | KRP-C Time-Delay, Current Limiting | 1008           |
| L     | KTU Fast-Acting                    | 1010           |
| L     | KLU Time-Delay                     | 1013           |

## UL 98 Enclosed Fused Disconnects—30 to 800A

### 3-Pole UL 98 600Vac



**Part Numbers** - All part numbers provided with integral or installed lugs and a black selector handle. Order red/yellow handle by changing the suffix “B” to “R.”

| UL General Purpose Amp Rating | Fuse Type | NEMA Enclosure Type & Part Number |              |             |                           |              |              |
|-------------------------------|-----------|-----------------------------------|--------------|-------------|---------------------------|--------------|--------------|
|                               |           | 1                                 | 3R           | 4           | 4X Plastic <sup>(1)</sup> | 4X Stainless | 12           |
| 30                            | J         | ER1-30J3PB                        | ER3R-30J3PB  | ER4-30J3PB  | ER4P-30J3PB               | ER4X-30J3PB  | ER12-30J3PB  |
| 60                            | J         | ER1-60J3PB                        | ER3R-60J3PB  | ER4-60J3PB  | ER4P-60J3PB               | ER4X-60J3PB  | ER12-60J3PB  |
| 100                           | J         | ER1-100J3PB                       | ER3R-100J3PB | ER4-100J3PB | ER4P-100J3PB              | ER4X-100J3PB | ER12-100J3PB |
| 200                           | J         | ER1-200J3PB                       | ER3R-200J3PB | ER4-200J3PB | ER4P-200J3PB              | ER4X-200J3PB | ER12-200J3PB |
| 400                           | J         | ER1-400J3PB                       | ER3R-400J3PB | ER4-400J3PB | ER4P-400J3PB              | ER4X-400J3PB | ER12-400J3PB |
| 600                           | J         | ER1-600J3PB                       | ER3R-600J3PB | ER4-600J3PB | ER4P-600J3PB              | ER4X-600J3PB | ER12-600J3PB |
| 800                           | L         | ER1-800L3PB                       | ER3R-800L3PB | ER4-800L3PB | ER4P-800L3PB              | ER4X-800L3PB | ER12-800L3PB |

(1) Enclosures ≤100A are polycarbonate, flammability rating UL 94-5VA-V0, ≥200A are fiberglass, flammability rating UL 94-5V.

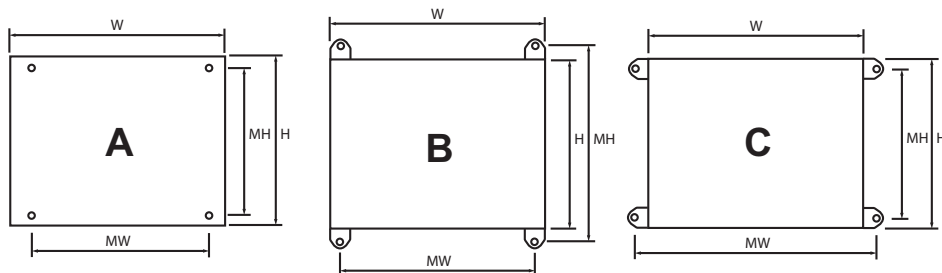
**Switch Ratings** - for wire types, ranges and tightening torques, see table on page 387

| Switch Amp Rating | Disconnect Switch | Fuse Type | No. of Poles | Voltage |     | SCCR @ Vac | Max Hp Rating @ 600Vac |
|-------------------|-------------------|-----------|--------------|---------|-----|------------|------------------------|
|                   |                   |           |              | Vac     | Vdc |            |                        |
| 30                | RDF30J-3          | J         | 3            | 600     | 250 | 200kA      | 20                     |
| 60                | RDF60J-3          | J         |              |         |     |            | 50                     |
| 100               | RDF100J-3         | J         |              |         |     |            | 75                     |
| 200               | RDF200J-3         | J         |              |         |     |            | 150                    |
| 400               | RDF400J-3         | J         |              |         |     |            | 350                    |
| 600               | RDF600J-3         | J         |              | 500     |     |            |                        |
| 800               | RDF800L-3         | L         |              | 600     |     |            |                        |



# UL 98 Enclosed Fused Disconnects—30 to 800A

## Enclosure Weights - Lbs & Dimensions - in





| Part Number Family | Amp Rating | Fuse Type | NEMA Enclosure Type       | H x W x D | Mounting Centers H x W |           |            | Weight Lbs |
|--------------------|------------|-----------|---------------------------|-----------|------------------------|-----------|------------|------------|
|                    |            |           |                           |           | A                      | B         | C          |            |
| ER_-30J            | 30         | J         | 1, 3R, 4, 12              | 10x10x6   | 8.3x8.3                |           |            | 15         |
|                    |            |           | 4X-SST                    | 10x10x6   |                        | 9.5x8.3   | 8.3x9.5    | 15         |
|                    |            |           | 4X-Plastic <sup>(1)</sup> | 12x10x6   |                        | 12x5.6    | 7.64x10    | 8          |
| ER_-60J            | 60         | J         | 1, 3R, 4, 12              | 12x10x6   | 10.3x8.3               |           |            | 19         |
|                    |            |           | 4X-SST                    | 12x10x6   |                        | 11.5x8.3  | 10.3x9.5   | 19         |
|                    |            |           | 4X-Plastic <sup>(1)</sup> | 13x13x6   |                        | 14x7.6    | 9.6x12     | 11         |
| ER_-100J           | 100        | J         | 1, 3R, 4, 12              | 14x12x6   | 12.3x10.3              |           |            | 21         |
|                    |            |           | 4X-SST                    | 14x12x6   |                        | 13.5x10.3 | 12.3x11.5  | 21         |
|                    |            |           | 4X-Plastic <sup>(1)</sup> | 13x13x6   |                        | 14x7.6    | 9.6x12     | 12         |
| ER_-200J           | 200        | J         | 1, 3R, 4, 12              | 24x20x8   | 22x18.1                |           |            | 55         |
|                    |            |           | 4X-SST                    | 24x20x8   |                        | 23.2x18.1 | 22x19.3    | 55         |
|                    |            |           | 4X-Plastic <sup>(1)</sup> | 27x21x10  |                        | 25.75x14  |            | 39         |
| ER_-400J           | 400        | J         | 1, 3R, 4, 12              | 48x36x12  | 45.75x34.9             |           |            | 188        |
|                    |            |           | 4X-SST                    | 48x36x12  |                        | 46.9x34.9 | 45.75x36.1 | 188        |
|                    |            |           | 4X-Plastic <sup>(1)</sup> | 51x37x14  |                        | 50.1x28.5 |            | 186        |
| ER_-600J           | 600        | J         | 1, 3R, 4, 12              | 48x36x12  | 45.75x34.9             |           |            | 216        |
|                    |            |           | 4X-SST                    | 48x36x12  |                        | 46.9x34.9 | 45.75x36.1 | 216        |
|                    |            |           | 4X-Plastic <sup>(1)</sup> | 51x37x14  |                        | 50.1x28.5 |            | 214        |
| ER_-800L           | 800        | L         | 1, 3R, 4, 12              | 48x36x12  | 45.75x34.9             |           |            | 216        |
|                    |            |           | 4X-SST                    | 48x36x12  |                        | 46.9x34.9 | 45.75x36.1 | 216        |
|                    |            |           | 4X-Plastic <sup>(1)</sup> | 51x37x14  |                        | 50.1x28.5 |            | 214        |

(1) Enclosures ≤100A are polycarbonate, flammability rating UL 94-5VA-V0, ≥200A are fiberglass, flammability rating UL 94-5V.

Disconnect Switches

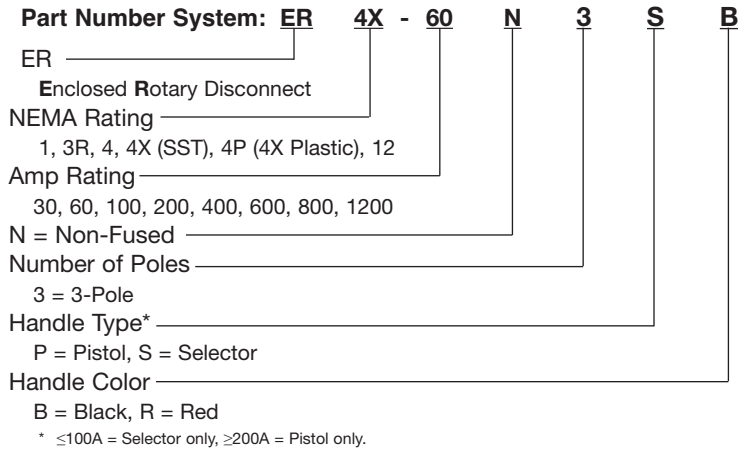
## Available Field-Installed Accessories - Order Separately

|  | Auxiliary Contacts - for 30 to 800 Amp Switches |                    |                       |                |                                       |             |
|---|---|--------------------|-----------------------|----------------|---------------------------------------|-------------|
|   | Contact Type                                    | Number of Contacts | Continuous Amp Rating | Voltage Rating | Max Number of Aux Contacts per Switch | Part Number |
|   | NO  | 1                  | 10A                   | 600Vac         | 30 to 200A: 4<br>400 to 800A: 8       | BAC05       |
|   | NC  | 1                  | 10A                   | 600Vac         |                                       | BAC06       |

|  | Terminal Shrouds - for 200 to 800 Amp Switches - includes terminal shroud for lineside or loadside |                 |  | Part Number |
|---|--|-----------------|--|-------------|
|   | Switch Amp Rating  | Number of Poles |  |             |
|   | 200  | 3               |  | TSH8-3TB    |
|   | 400  | 3               |  | TSH9-3TB    |
|   | 600-800  | 3               |  | TSH10-3TB   |

## UL 98 Enclosed Non-Fused Disconnects—30 to 1200A

### 3-Pole UL 98 600Vac



### 30-100A



NEMA 1, 3R, 4 & 12

NEMA 4X

NEMA 4X Stainless

### 200-1200A



NEMA 1, 3R, 4 & 12

NEMA 4X

NEMA 4X Stainless

**Part Numbers** - All part numbers provided with integral or installed lugs and a black selector handle. Order red/yellow handle by changing the suffix "B" to "R."

| UL General Purpose Amp Rating | NEMA Enclosure Type & Part Number |               |              |                           |               |               |
|-------------------------------|-----------------------------------|---------------|--------------|---------------------------|---------------|---------------|
|                               | 1                                 | 3R            | 4            | 4X Plastic <sup>(1)</sup> | 4X Stainless  | 12            |
| 30                            | ER1-30N3SB                        | ER3R-30N3SB   | ER4-30N3SB   | ER4P-30N3SB               | ER4X-30N3SB   | ER12-30N3SB   |
| 60                            | ER1-60N3SB                        | ER3R-60N3SB   | ER4-60N3SB   | ER4P-60N3SB               | ER4X-60N3SB   | ER12-60N3SB   |
| 100                           | ER1-100N3SB                       | ER3R-100N3SB  | ER4-100N3SB  | ER4P-100N3SB              | ER4X-100N3SB  | ER12-100N3SB  |
| 200                           | ER1-200N3PB                       | ER3R-200N3PB  | ER4-200N3PB  | ER4P-200N3PB              | ER4X-200N3PB  | ER12-200N3PB  |
| 400                           | ER1-400N3PB                       | ER3R-400N3PB  | ER4-400N3PB  | ER4P-400N3PB              | ER4X-400N3PB  | ER12-400N3PB  |
| 600                           | ER1-600N3PB                       | ER3R-600N3PB  | ER4-600N3PB  | ER4P-600N3PB              | ER4X-600N3PB  | ER12-600N3PB  |
| 800                           | ER1-800N3PB                       | ER3R-800N3PB  | ER4-800N3PB  | ER4P-800N3PB              | ER4X-800N3PB  | ER12-800N3PB  |
| 1200                          | ER1-1200N3PB                      | ER3R-1200N3PB | ER4-1200N3PB | N/A                       | ER4X-1200N3PB | ER12-1200N3PB |

(1) Enclosures ≤100A are polycarbonate, flammability rating UL 94-5VA-V0, ≥200A are fiberglass, flammability rating UL 94-5V.

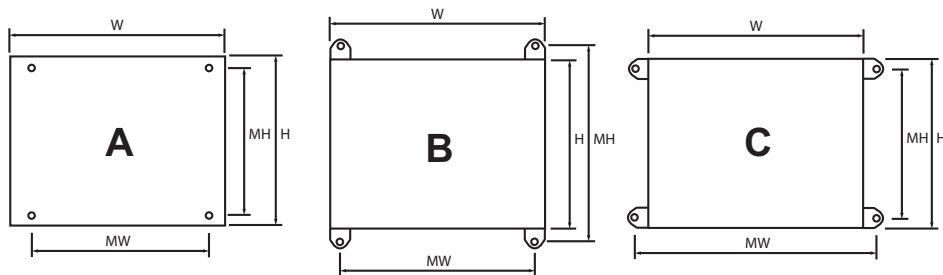
**Switch Ratings** - for wire types, ranges and tightening torques, see table on page 405

| Switch Amp Rating | Disconnect Switch | No. of Poles | Voltage |     | SCCR @ Vac | Max Hp Rating @ 600Vac |             |    |
|-------------------|-------------------|--------------|---------|-----|------------|------------------------|-------------|----|
|                   |                   |              | Vac     | Vdc |            |                        |             |    |
| 30                | RD30-3            | 3            | 600     | 250 | 100kA      | 25                     |             |    |
| 60                | RD60-3            |              |         |     |            |                        | 25kA/100kA* | 50 |
| 100               | RD100-3           |              |         |     |            |                        |             |    |
| 200               | RD200-3           |              |         |     | 200        |                        |             |    |
| 400               | RD400-3           |              |         |     |            |                        |             |    |
| 600               | RD600-3           |              |         |     | 350        |                        |             |    |
| 800               | RD800-3           |              |         |     |            |                        |             |    |
| 1200              | RD1200-3          | N/A          | 100kA   | 500 |            |                        |             |    |

\* 25kA @ 600Vac, 100kA @ 480Vac.

# UL 98 Enclosed Non-Fused Disconnects—30 to 1200A

## Enclosure Weights - Lbs & Dimensions - in



| Part Number Family | Amp Rating | NEMA Enclosure Type       | H x W x D | Mounting Centers H x W |           |           | Weight Lbs |
|--------------------|------------|---------------------------|-----------|------------------------|-----------|-----------|------------|
|                    |            |                           |           | A                      | B         | C         |            |
| ER_-30             | 30         | 1, 3R, 4, 12              | 10x8x6    | 8.3x6.3                |           |           | 11         |
|                    |            | 4X-SST                    | 10x8x6    |                        | 9.5x6.3   | 8.3x7.5   | 11         |
|                    |            | 4X-Plastic <sup>(1)</sup> | 9x9x6     |                        | 10x3.6    | 5.6x8     | 5          |
| ER_-60             | 60         | 1, 3R, 4, 12              | 10x8x6    | 8.3x6.3                |           |           | 12         |
|                    |            | 4X-SST                    | 10x8x6    |                        | 9.5x6.3   | 8.3x7.5   | 12         |
|                    |            | 4X-Plastic <sup>(1)</sup> | 9x9x6     |                        | 10x3.6    | 5.6x8     | 5          |
| ER_-100            | 100        | 1, 3R, 4, 12              | 12x10x6   | 10.3x8.3               |           |           | 12         |
|                    |            | 4X-SST                    | 12x10x6   |                        | 11.5x8.3  | 0.3x9.5   | 12         |
|                    |            | 4X-Plastic <sup>(1)</sup> | 13x13x6   |                        | 14x7.6    | 9.6x12    | 8          |
| ER_-200            | 200        | 1, 3R, 4, 12              | 20x16x8   | 18.1x14.2              |           |           | 39         |
|                    |            | 4X-SST                    | 20x16x8   |                        | 19.3x14.2 | 18.1x15.4 | 39         |
|                    |            | 4X-Plastic <sup>(1)</sup> | 23x17x12  |                        | 21.5x10.1 |           | 31         |
| ER_-400            | 400        | 1, 3R, 4, 12              | 36x30x8   | 33.9x28.3              |           |           | 122        |
|                    |            | 4X-SST                    | 36x30x8   |                        | 35.1x28.3 | 33.9x29.5 | 122        |
|                    |            | 4X-Plastic <sup>(1)</sup> | 40x32x14  |                        | 38.1x23.9 |           | 103        |
| ER_-600            | 600        | 1, 3R, 4, 12              | 48x36x12  | 45.8x34.9              |           |           | 209        |
|                    |            | 4X-SST                    | 48x36x12  |                        | 47x34.9   | 45.8x36.1 | 209        |
|                    |            | 4X-Plastic <sup>(1)</sup> | 51x37x 14 |                        | 50.1x28.5 |           | 187        |
| ER_-800            | 800        | 1, 3R, 4, 12              | 48x36x12  | 45.8x34.9              |           |           | 211        |
|                    |            | 4X-SST                    | 48x36x12  |                        | 47x34.9   | 45.8x36.1 | 211        |
|                    |            | 4X-Plastic <sup>(1)</sup> | 51x37x 14 |                        | 50.1x28.5 |           | 189        |
| ER_-1200           | 1200       | 1, 3R, 4, 12              | 60x36x16  | 57.5x33.9              |           |           | 268        |
|                    |            | 4X-SST                    | 60x36x16  |                        | 58.7x33.9 | 57.5x35.1 | 268        |

(1) Enclosures ≤100A are polycarbonate, flammability rating UL 94-5VA-V0, ≥200A are fiberglass, flammability rating UL 94-5V.

## Available Field-Installed Accessories - Order Separately

| Switch Amp Rating | Auxiliary Contacts - for 30 to 1200 Amp Switches |                    |                       |                |                                       |             |  |
|-------------------|--|--------------------|-----------------------|----------------|---------------------------------------|-------------|--|
|                   | Contact Type                                     | Number of Contacts | Continuous Amp Rating | Voltage Rating | Max Number of Aux Contacts per Switch | Part Number |  |
| 30-100            | NO + NC  | 1 of each          | 10A                   | 240Vac         | 4                                     | BAC01       |  |
| 30-100            | NC   | 2                  | 10A                   | 240Vac         | 4                                     | BAC02       |  |
| 100-1200          | NO + NC  | 1 of each          | 10.1A                 | 125-250Vac     | 2                                     | BAC03*      |  |
| 100-1200          | NO + NC  | 1 of each          | 10.1A                 | 125-250Vac     | 2                                     | BAC04*      |  |
| 100-1200          | NO + NC  | 1 of each          | 1A                    | 125Vac         | 2                                     | BAC11*      |  |
| 100-1200          | NO + NC  | 1 of each          | 1A                    | 125Vac         | 2                                     | BAC12*      |  |

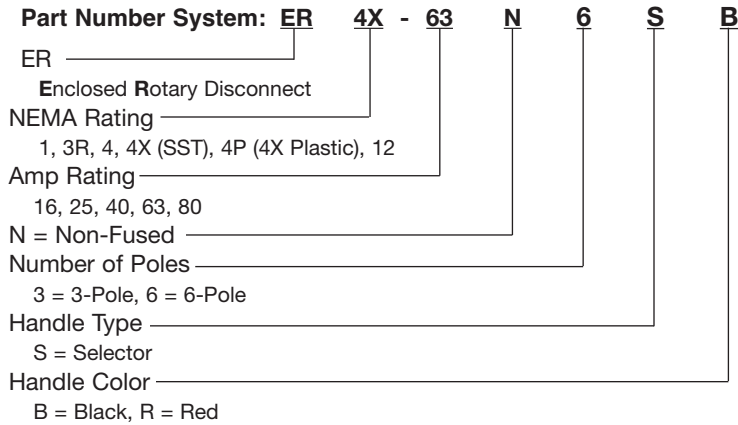
\* For one auxiliary contact, install either BAC03 or BAC11. For two auxiliary contacts, install BAC03 + BAC04, or BAC11 + BAC12.

| Switch Amp Rating | Terminal Shrouds - for 200 to 800 Amp Switches |                       |             |  |
|-------------------|--|-----------------------|-------------|--|
|                   | Number of Poles                                | Location on Switch    | Part Number |  |
| 30-100            | 3  | Lineside and Loadside | TSH3-3TB    |  |
| 200A              | 3  | Lineside              | TSH4-3T     |  |
| 200A              | 3  | Loadside              | TSH4-3B     |  |
| 400A              | 3  | Lineside              | TSH5-3T     |  |
| 400A              | 3  | Loadside              | TSH5-3B     |  |
| 600A              | 3  | Lineside or Loadside  | TSH6-3TB    |  |
| 800-1200A         | 3  | Lineside or Loadside  | TSH7-3TB    |  |

Disconnect Switches

# UL 508 Enclosed Non-Fused Disconnects—16 to 80A

## 3-/6-Pole UL 508 600Vac



**Part Numbers** - All part numbers provided with a black selector handle. Order red/yellow handle by changing the suffix “B” to “R.”

| UL General Purpose Amp Rating | No. of Poles | NEMA Enclosure Type & Part Number |             |            |                           |              |             |
|-------------------------------|--------------|-----------------------------------|-------------|------------|---------------------------|--------------|-------------|
|                               |              | 1                                 | 3R          | 4          | 4X Plastic <sup>(1)</sup> | 4X Stainless | 12          |
| 16                            | 3            | ER1-16N3SB                        | ER3R-16N3SB | ER4-16N3SB | ER4P-16N3SB               | ER4X-16N3SB  | ER12-16N3SB |
|                               | 6            | ER1-16N6SB                        | ER3R-16N6SB | ER4-16N6SB | ER4P-16N6SB               | ER4X-16N6SB  | ER12-16N6SB |
| 25                            | 3            | ER1-25N3SB                        | ER3R-25N3SB | ER4-25N3SB | ER4P-25N3SB               | ER4X-25N3SB  | ER12-25N3SB |
|                               | 6            | ER1-25N6SB                        | ER3R-25N6SB | ER4-25N6SB | ER4P-25N6SB               | ER4X-25N6SB  | ER12-25N6SB |
| 40                            | 3            | ER1-40N3SB                        | ER3R-40N3SB | ER4-40N3SB | ER4P-40N3SB               | ER4X-40N3SB  | ER12-40N3SB |
|                               | 6            | ER1-40N6SB                        | ER3R-40N6SB | ER4-40N6SB | ER4P-40N6SB               | ER4X-40N6SB  | ER12-40N6SB |
| 63                            | 3            | ER1-63N3SB                        | ER3R-63N3SB | ER4-63N3SB | ER4P-63N3SB               | ER4X-63N3SB  | ER12-63N3SB |
|                               | 6            | ER1-63N6SB                        | ER3R-63N6SB | ER4-63N6SB | ER4P-63N6SB               | ER4X-63N6SB  | ER12-63N6SB |
| 80                            | 3            | ER1-80N3SB                        | ER3R-80N3SB | ER4-80N3SB | ER4P-80N3SB               | ER4X-80N3SB  | ER12-80N3SB |
|                               | 6            | ER1-80N6SB                        | ER3R-80N6SB | ER4-80N6SB | ER4P-80N6SB               | ER4X-80N6SB  | ER12-80N6SB |

(1) Polycarbonate enclosure flammability rating UL 94-5VA-V0.

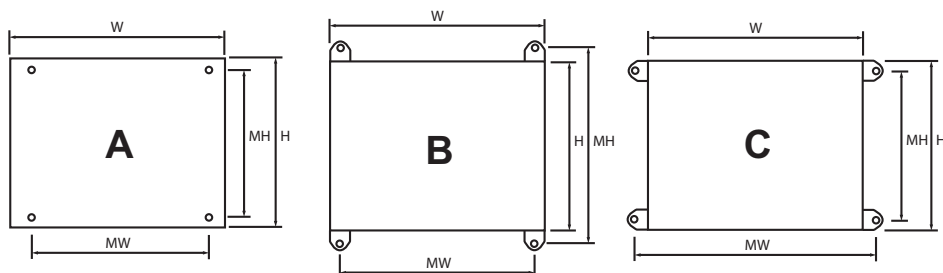
**Switch Ratings** - for wire types, ranges and tightening torques, see table on page 413

| Switch Amp Rating | Disconnect Switch | Voltage |     | SCCR with Max Upstream Class J Fuse | Max Hp Rating @ 600Vac |
|-------------------|-------------------|---------|-----|-------------------------------------|------------------------|
|                   |                   | Vac     | Vdc |                                     |                        |
| 16                | RD16-3-508        | 600     | N/A | 65kA / 30A                          | 10                     |
| 25                | RD25-3-508        |         |     | 65kA / 30A                          | 20                     |
| 40                | RD40-3-508        |         |     | 65kA / 30A — 10kA / 60A             | 25                     |
| 63                | RD63-3-508        |         |     | 65kA / 60A — 50kA / 100A            | 40                     |
| 80                | RD80-3-508        |         |     | 65kA / 60A — 50kA / 100A            | 40                     |

Note: Voltage, SCCR and Horsepower ratings are the same for 3- and 6-pole UL 508 non-fused disconnect switches.

# UL 508 Enclosed Non-Fused Disconnects—16 to 80A

## Enclosure Weights - Lbs & Dimensions - in




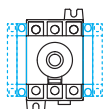
| NEMA Enclosure Type       | No. of Poles | Switch Amp Ratings | H x W x D     | Mounting Centers H x W |         |         | Weight Lbs |
|---------------------------|--------------|--------------------|---------------|------------------------|---------|---------|------------|
|                           |              |                    |               | A                      | B       | C       |            |
| 1, 3R, 4, 12              | 3            | 16-80A             | 8x6x6         | 6.3x4.3                |         |         | 8          |
|                           | 6            | 16-80A             | 10x8x6        | 8.3x6.3                |         |         | 11         |
| 4X-SST                    | 3            | 16-80A             | 8x6x6         |                        | 7.5x4.3 | 6.3x5.5 | 8          |
|                           | 6            | 16-80A             | 10x8x6        |                        | 9.5x6.3 | 8.3x7.5 | 11         |
| 4X-Plastic <sup>(1)</sup> | 3            | 16-63A             | 7.4x8.7x5.8   |                        | 8x3.6   | 3.6x8   | 4          |
|                           |              | 80A                | 9.4x8.7x5.9   |                        | 10x3.6  | 5.6x8   | 5          |
|                           | 6            | 16-80A             | 11.4x10.7x6.3 |                        | 12x5.6  | 7.64x10 | 6          |

(1) Polycarbonate.


Disconnect Switches


## Available Field-Installed Accessories - Order Separately

|  | Auxiliary Contacts |                    |                       |                |                                       |             |
|---|--------------------|--------------------|-----------------------|----------------|---------------------------------------|-------------|
|   | Contact Type       | Number of Contacts | Continuous Amp Rating | Voltage Rating | Max Number of Aux Contacts per Switch | Part Number |
|   | NO + NC            | 1 Ea               | 10A                   | 240Vac         | 4                                     | BAC01       |
| NO  | 2                  | 10A                | 240Vac                | 4              | BAC02                                 |             |



Auxiliary Contact Configurations

|  | Terminal Shrouds - includes terminal shroud for both lineside <i>and</i> loadside |                 |                       |                       |             |
|---|---|-----------------|-----------------------|-----------------------|-------------|
|   | Switch Amp Rating   | Number of Poles |                       | Location on Switch    | Part Number |
|   | 16-40A  | 3               |                       | Lineside and Loadside | TSH1-3TB    |
| 63-80A  | 3   |                 | Lineside and Loadside | TSH2-3TB              |             |

|  | Switched 4 <sup>th</sup> Pole - converts 3-pole switch to 4-pole switch |             |
|---|---|-------------|
|   | Switch Amp Rating   | Part Number |
|   | 16  | POLE-16     |
|   | 25  | POLE-25     |
| 40  | POLE-40   |             |



## Fused, Dead Front Disconnect Switches

### 15149 Series

#### Specifications

**Description:** Fused, dead front disconnect switches

#### Ratings:

Volts: — 600Vac

Amps: — 0-30A

SCCR: — 200kA RMS Sym.

**Dielectric SCCR:** 2200V

**Motor Rating:** 5Hp

**Poles:** 2 to 3

**Agency Information:** UL Recognized, file E120756 for General Industrial installations. Guide WGEU2. CSA certified, file LR37129-6. Examined under the new proposed standard UL 1429 which imparts a stricter set of test conditions than the former program that combined the applicable portions for UL 512 (Fuse Holders) and UL 98 (Enclosed Switches).



#### Features and Benefits

- Fuse holders in the pull-out head eliminate possibility of electric shock while changing fuse.
- Accepts Class J fuses

#### Ordering Information

To order, specify: 15149 + number of poles.

Example: 15149-2 = 2-pole device.



## Flexibility and Convenience Make Point-of-Use Configuration Easy



Full range of open disconnect switches with versatile options and accessories that ship within 24 hours

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# Telecom Protection Products

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| <b>15087 Fuse holders . . . . .</b>                        | <b>436</b> |
| <b>HLS, HLT &amp; PCT fuse holders . . . . .</b>           | <b>437</b> |
| <b>GMT Fast acting fuses . . . . .</b>                     | <b>437</b> |
| <b>GMT-A Fast acting fuse . . . . .</b>                    | <b>437</b> |
| <b>Telpower specialty fuses</b>                            |            |
| 7 Type Fuses . . . . .                                     | 438        |
| 11 Type Fuse . . . . .                                     | 438        |
| 24 & WER Type non-indicating, visible link fuses . . . . . | 438        |
| 74 Type Fast acting fuses . . . . .                        | 438        |
| 75 Type Cylindrical fuses with leads . . . . .             | 439        |
| 76 Type Cylindrical fuses with leads . . . . .             | 439        |
| 80 Type visual indicating fuses . . . . .                  | 439        |



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# Telepower Compact Fused Disconnect Switches

## TPC & TPCDS

### Specifications

#### Descriptions:

— **TPC:** Telepower compact current-limiting fuses.

#### — **TPCDS:**

Telepower compact fused disconnect switch available in two disconnect switch profiles in addition to a variety of terminal styles. Recommended 0.75" center-to-center product spacing.

**Dimensions:** See Data Sheet 5023.

#### Ratings:

- Volts: — 80Vdc
- Amps: — 3-125A (See Catalog Numbers table for details)
- IR: — 100kA

**Agency Information:** CE, UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse pullout. Recognized to US and Canadian requirements under the component recognition program of Underwriters Laboratories Inc. Files E219046 and E56412.

**Flammability Ratings:** Fuse UL 94V0, 170°C RTI, Housing UL 94V0, 120°C RTI.

#### Features and Benefits

- Highest interrupting rating (100kA) available and complete system coordination for DC circuit protection for compact footprint providing a superior protection solution for replacement of existing DC telecom circuit breakers
- AmpColor ID™ System makes fuse replacement easy
- Local and remote open fuse indication. Local alarm indication provided by LED on TPC fuse
- Remote alarm terminal available in three positions common to DC circuit protection devices

#### Typical Applications

- Telecommunications DC power circuit protection
- Replacement of DC telecom circuit breakers
- Applications where venting of arc or molten metals and gases during opening would pose a problem to surrounding devices



### Catalog Numbers

| TPCS disconnect switch |           | TPC Current-Limiting Fuse |            |
|------------------------|-----------|---------------------------|------------|
| Catalog Numbers        | Amp Range | Catalog Numbers           | Amp Rating |
| TPCDS-BBE-1            | 3-125     | TPC-3                     | 3          |
| TPCDS-BBE-2            | 3-125     | TPC-4                     | 4          |
| TPCDS-BBE-3            | 3-125     | TPC-5                     | 5          |
| TPCDS-BBM-1            | 3-125     | TPC-6                     | 6          |
| TPCDS-BBM-2            | 3-125     | TPC-7                     | 7          |
| TPCDS-BBM-3            | 3-125     | TPC-8                     | 8          |
| TPCDS-BSE-1            | 3-125     | TPC-10                    | 10         |
| TPCDS-BSE-2            | 3-125     | TPC-12                    | 12         |
| TPCDS-BSE-3            | 3-125     | TPC-15                    | 15         |
| TPCDS-BSM-1            | 3-125     | TPC-20                    | 20         |
| TPCDS-BSM-2            | 3-125     | TPC-25                    | 25         |
| TPCDS-BSM-3            | 3-125     | TPC-30                    | 30         |
| TPCDS-SSE-1            | 3-125     | TPC-40                    | 40         |
| TPCDS-SSE-2            | 3-125     | TPC-50                    | 50         |
| TPCDS-SSE-3            | 3-125     | TPC-60                    | 60         |
| TPCDS-SSM-1            | 3-125     | TPC-75                    | 75         |
| TPCDS-SSM-2            | 3-125     | TPC-90                    | 90         |
| TPCDS-SSM-3            | 3-125     | TPC-100                   | 100        |
| TPCDS-D-BC1*           | 3-125     | TPC-125                   | 125        |
| TPCDS-D-BC2*           | 3-125     |                           |            |
| TPCDS-D-CC1*           | 3-125     |                           |            |
| TPCDS-D-SEC1*          | 3-125     |                           |            |
| TPCDS-D-SEC2*          | 3-125     |                           |            |
| TPCDS-D-SMC1*          | 3-125     |                           |            |
| TPCDS-D-SMC2*          | 3-125     |                           |            |

\*Not investigated to Canadian Requirements.



# Telepower Miniature Fused Disconnect Switches

## TPM & TPMDS

### Specifications Description:

#### — TPM:

Telepower miniature current-limiting fuses.

#### — TPMDS:

Telepower miniature fused disconnect switch.



**Dimensions:** See Data Sheet 5022.

### Ratings:

- Volts: — 80Vdc
- Amps: — 3-30A
- IR: — 20kA

**Agency Information:** CE, UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse pullout. Recognized to US and Canadian requirements under the component recognition program of Underwriters Laboratories Inc. Files E219046 and E56412.

**Flammability Ratings:** Fuse UL 94V0, 170°C RTI; Switch UL 94V0, 140°C RTI.

### Features and Benefits

- Smallest and most versatile fused disconnect switch available allowing for assembly into 1 U (1.75"/44.5mm) panel. Easy to connect; Load: 1/4" quick-connect or bolted connection with 10-32 (M5) captive nut, Line: 1/4" quick-connect or screw connection with clearance hole for #10 (M5) bolt.
- AmpColor ID™ System makes fuse replacement easy
- Switch design provides for easy panel mounting by single captive 4-40 (M3) nut and panel notch integral to switch footprint.
- Complete system coordination capability with local and remote open fuse indication. Local alarm indication provided by LED on TPM fuse (maximum alarm circuit current: 20mA)

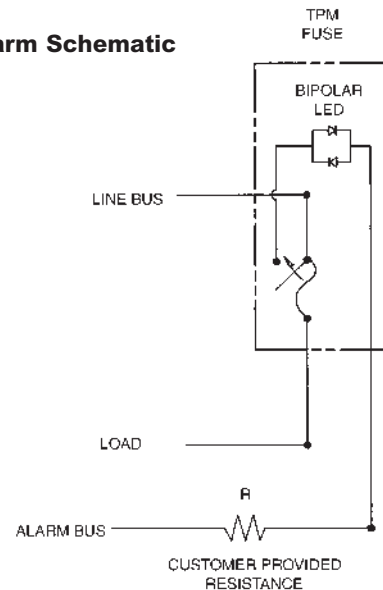
### Typical Applications

- Telecommunications DC power circuit protection
- Applications with restricted space, or mounting in 1 U panels

### Catalog Numbers

| Catalog Numbers | Description                  | Amp Rating |
|-----------------|------------------------------|------------|
| TPM-3           | Fuse                         | 3          |
| TPM-4           | Fuse                         | 4          |
| TPM-5           | Fuse                         | 5          |
| TPM-6           | Fuse                         | 6          |
| TPM-7           | Fuse                         | 7          |
| TPM-8           | Fuse                         | 8          |
| TPM-10          | Fuse                         | 10         |
| TPM-12          | Fuse                         | 12         |
| TPM-15          | Fuse                         | 15         |
| TPM-20          | Fuse                         | 20         |
| TPM-25          | Fuse                         | 25         |
| TPM-30          | Fuse                         | 30         |
| TPMDS-E         | Disconnect, English hardware | 3-30       |
| TPMDS-M         | Disconnect, Metric hardware  | 3-30       |

### TPM Alarm Schematic



### NOTES:

1. The resistance, R, must be provided by the end-user to limit the alarm output current to a maximum of 20mA. The value, R, should be calculated using the system voltage value.
  - If remote alarm functionality is not required, the END-USER CIRCUITRY must still be supplied to provide a resistive path to the return for the local alarm to properly function.
2. The fuse is polarized to maintain proper orientation with the switch housing. The line and load terminals are identified on the switch housing.

# Fused Disconnect Switches for TPA Fuses

## TP15914

### Specifications

#### Description:

Modular 4-pole disconnect switch for TPA Series fuses — 4-poles per module up to four modules ganged together. Features open fuse indication and fuse presence indication along with fuse orientation rejection feature.

**Dimensions:** See Dimensions illustrations.

#### Ratings:

Volts: — 145Vdc  
Amps: — 50A per pole

**Agency Information:** CE, UL Recognized as a disconnect switch for interruption of load current by means of withdrawing the fuse carrier. UL Recognized as a component for telecommunication power distribution equipment (UL category QPQYZ), UL Recognized fuses for branch circuit protection, CSA component acceptance for the system. UL Recognized, Guide JFHR2, File E56412., CSA Certified, Class 1422-30, File 53787.

**Flammability Rating:** UL 94V0, 140°C.

#### Features and Benefits

- Totally enclosed module directly connects to busbar for reduced external wiring—per pole and easy installation with front access load and line connection standard—double lug load connections 8 AWG wire
- LED alarm signaling (LED current 30mA max)
- Remote alarm with alarm test probe point to allow on-site checking of alarm circuitry
- Bi-polar LED provides capability for both –48Vdc and +24Vdc applications

#### Typical Applications

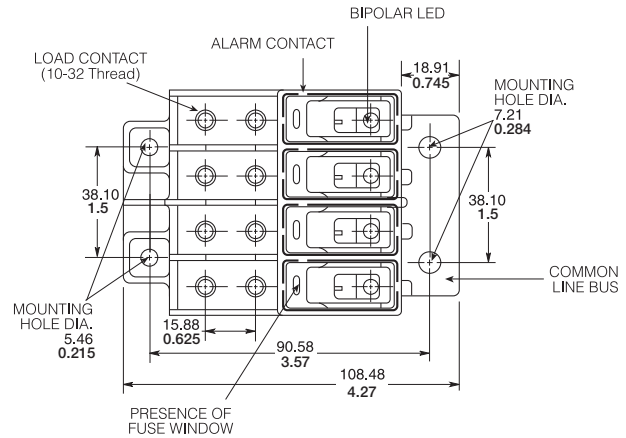
- Telecommunications DC power circuit protection

#### Catalog Numbers

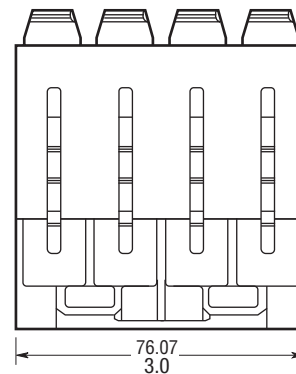
| Catalog Numbers | Hardware |
|-----------------|----------|
| TP15914         | English  |
| TP15914-1       | Metric   |



### Dimensions mm - (in)



#### TOP



#### Accessories

- Spare fuse holders: Catalog Numbers 5TPH and TPSFH-A



# Fused Disconnect Switches for TPA Fuses

## TP15900-4

### Specifications

**Description:** 4-pole disconnect switch for use with Telepower fuses Type TPA & TPA-B.

**Dimensions:** See Dimensions illustrations.

### Ratings:

- Volts: — 145Vdc (40A)
- 80Vdc (50A)
- Amps: — 40A@145Vdc
- 50A@80Vdc

**Agency Information:** CE, UL Recognized File E97649 as a disconnect switch for interruption of load current by means of withdrawing the fuse carrier. UL Recognized as a component for telecommunication power distribution equipment (UL category QPQY2). UL Recognized fuses for branch circuit protection. CSA Component Acceptance for the system.

**Flammability Rating:** UL 94V0, 140°C.

### Features and Benefits

- Ease of installation - connection directly to busbar, reduces external wiring per pole. Rear accessibility for line and load terminations
- LED alarm signaling (LED current 30mA max)
- Local and remote open-fuse indication along with fuse orientation rejection feature and fuse presence indication
- Alarm test probe point, to allow on-site checking of alarm circuitry

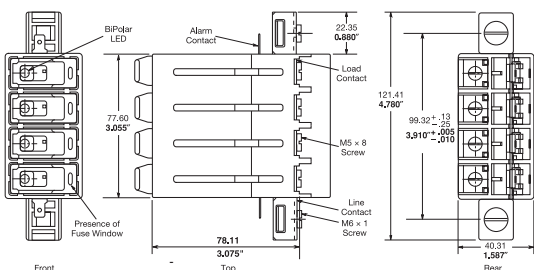
### Typical Applications

- Telecommunications DC power circuit protection

### Catalog Numbers

| Catalog Numbers | Description  |
|-----------------|--|
| TP15900-4       | 4-Pole common disconnect switch                            |
| TP15900-41      | 4-Pole common disconnect switch w/ Split Alarm, Split Line |

### Dimensions - mm (in)



### Accessories

- Spare fuse holders: Catalog Numbers 5TPH and TPSFH-AS.

Data Sheet: 5001

## TPA & TPA-B

### Specifications

**Description:** DC power distribution indicating fuses.

**Dimensions:** See Dimensions illustration.

### Ratings:

- Volts: — 170Vdc TPA
- 65Vdc TPA-B
- Amps: — 3-50A TPA
- 20-30A TPA-B
- IR: — 100kA TPA
- 20kA TPA-B

**Agency Information:** CE, UL Recognized, Guide JFHR2, File E56412, CSA Certified, Class 1422-30, File 53787.

### Features and Benefits

- Indication pin provides for local and remote indication when used with Bussmann TP15900-4 and TP15914 disconnect switches
- Patented "orange ring" fuse orientation features assures correct fuse position
- The UL Recognized ratings and current-limiting capability make this fuse ideal for cable protection on existing DC power distribution systems
- A unique blue label is used on all Telepower fuses to designate their DC capability

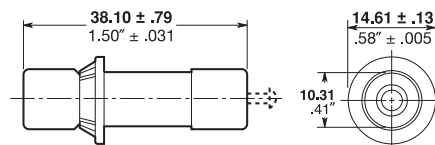
### Typical Applications

- Telecommunications DC power circuit protection

### Catalog Numbers (Amps)

| Catalog Numbers | Amp Rating | Catalog Numbers | Amp Rating |
|-----------------|------------|-----------------|------------|
| TPA-3           | 3          | TPA-30          | 30         |
| TPA-5           | 5          | TPA-40          | 40         |
| TPA-10          | 10         | TPA-50          | 50         |
| TPA-15          | 15         | TPA-B-20        | 20         |
| TPA-20          | 20         | TPA-B-25        | 25         |
| TPA-25          | 25         | TPA-B-30        | 30         |

### Dimensions - mm (in)



### Accessories

- Spare fuse holders: 5 position holder; 5TPH; 6 position holder; TPSFH-AS
- Use with fused disconnect switches TP15900-4, TP15914

Data Sheet: 5012



# Fused Disconnect Switches for TPS Fuses

## 15800

### Specifications

#### Description:

Fused disconnect switch for use only with the following fuses; Main: Telepower TPS 3 to 70 Amp, Alarm: Bussmann GMT-A only (page 399). Recommend GMT-X Cover (page 437).



**Dimensions:** See Dimensions illustration.

#### Ratings:

Volts: — 60Vdc  
Amps: — 3-70A  
SCCR: — 100kA

**Agency Information:** CE, UL Recognized, Guide QPQY2, File E97649.

**Flammability Rating:** UL 94V0, 150°C.

### Features and Benefits

- Alarm output with wire wrap terminal or connection to 0.063" thick common alarm bus
- Spare alarm and power fuse compartment
- Mounting hardware included

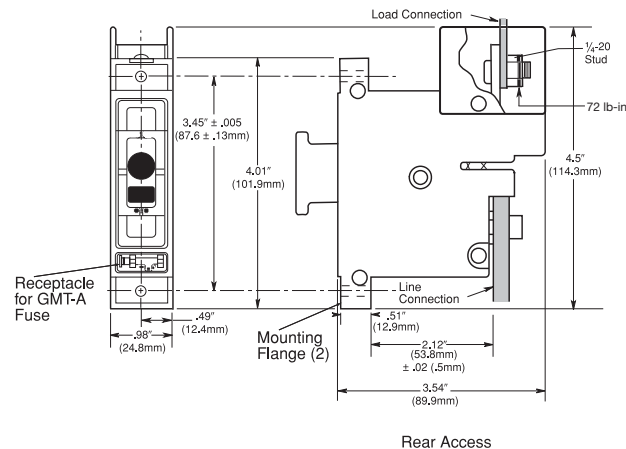
### Typical Applications:

- Telecommunications DC power circuit protection

### Catalog Numbers

| Catalog Numbers | Access Panel Mounting |
|-----------------|-----------------------|
| 15800-R-200     | Rear                  |
| 15800-F-200     | Front                 |

### Dimensions - in (mm)



### Accessories

- Spare fuse holders: Catalog Numbers TPSFH-AS (TPS fuses) and TPSFH-T (GMT fuses).

Data Sheet: 5002

## TPS

### Specifications

#### Description:

DC power distribution non-indicating fuses specifically designed to meet the unique needs of DC power distribution systems. For use with Bussmann fused disconnect switch 15800.



**Dimensions:** See Dimensions illustration.

#### Ratings:

Volts: — 170Vdc  
Amps: — 1-70A  
IR: — 100kA

**Agency Information:** CE, UL Recognized, Guide JFHR2, File E56412.

### Features/Benefits

- The UL Recognized ratings and current-limiting capability make this fuse ideal for cable protection on existing DC power distribution systems
- A unique blue label is used on all Telepower fuses to designate their DC capability
- Printed circuit board variations available

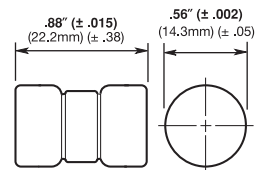
### Typical Applications

- Telecommunications DC power circuit protection
- Applications requiring printed circuit board mounting

### Catalog Numbers (Amps)

|        |         |         |          |
|--------|---------|---------|----------|
| TPS-1  | TPS-6L  | TPS-30  | TPS-50V  |
| TPS-1L | TPS-10  | TPS-30L | TPS-60   |
| TPS-2  | TPS-10L | TPS-35  | TPS-60L  |
| TPS-2L | TPS-15  | TPS-35L | TPS-70   |
| TPS-3  | TPS-15L | TPS-40  | TPS-70L  |
| TPS-3L | TPS-20  | TPS-40L | TPS-70LB |
| TPS-5  | TPS-20L | TPS-40V |          |
| TPS-5L | TPS-25  | TPS-50  |          |
| TPS-6  | TPS-25L | TPS-50L |          |

### Dimensions - in (mm)



### Accessories

- Spare fuse holder: TPSFH-AS, see page 510.

Data Sheet: 5009

# Fused Disconnect Switches

## TP158HC

### Specifications

**Description:** Panel mount, rear access high amp version of Bussmann 15800 series fused disconnect switch for use only with the following fuses; Main: Telepower TPL-B 70-250 Amps, Alarm: Bussmann GMT-A.

**Dimensions:** See Data Sheet 5021.

### Ratings:

Volts: — 80Vdc  
Amps: — 70-250A  
SCCR: — 100kA

**Agency Information:** UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse pullout. Guide QPQY2, File E97649.

**Flammability Rating:** UL 94V0, 150°C.

### Features and Benefits

- Similar profile, mounting method, and backplane configuration as 15800 Series. The TP158HC can be installed into existing 15800 Series panels using the space of two 15800 disconnects
- Innovative new fuse pullout design eliminates need for tools to replace the Telepower type TPL-B fuse
- Alarm output with wire wrap terminal or connection to 0.063 inch (1.6mm) thick common alarm bus
- Hardware included: Load: washer, split lockwasher, and 5/16 - 18 nut (metric-M8 x 1.25)

### Typical Applications:

- Telecommunications DC power circuit protection

### Catalog Numbers

| Catalog Numbers | Hardware |
|-----------------|----------|
| TP158HC         | English  |
| TP158HC-M       | Metric   |

### Accessories

- Spare fuse holders: TPSFH-LB (TPL-B fuses) and TPSFH-T (GMT fuses).



### Application Notes

- The line connection uses a 1/4-20 bolt (metric – M6X1) that threads into the line terminal. The line terminal is designed with a float of ±0.02" (±0.50mm) to allow for variation in the distance between the TP158HC mounting flange and the line busbar (see Dimensions). Equipment should be designed to eliminate any relative movement between the TP158HC mounting flange and the line busbar.
- The alarm circuit is not intended for precharging of capacitive circuits. Alarm circuit current 1A maximum.



Easy Fuse Replacement



# Fused Disconnect Switches

## 15100

### Specifications

**Description:** Fused disconnect system for use with Telepower fuses Type TPL.

**Dimensions:** See Dimensions illustrations.

### Ratings:

- Volts: — 60Vdc
- Amps: — 70-800A
- SCCR: — 100kA

**Agency Information:** CE, UL Recognized, Guide QPQY2, File E97649.

### Features and Benefits

- Single-pole fusible disconnect switch for primary DC power distribution
- Robust housing and terminal construction for demanding applications
- Panel mounting
- Easily connected to line or load bus

### Typical Applications

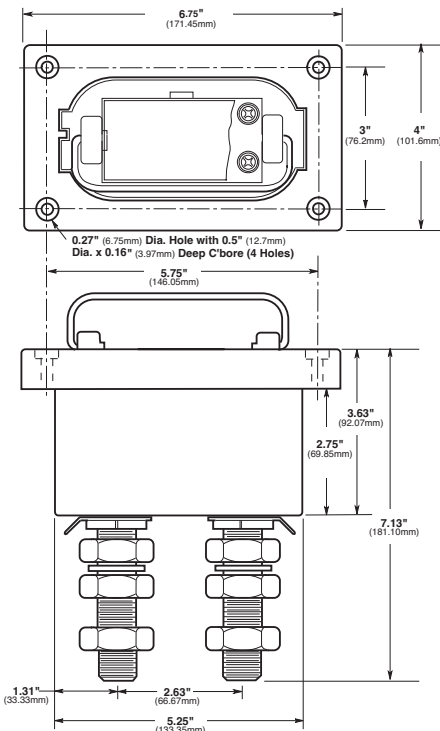
- Telecommunications DC power circuit protection

### Catalog Numbers

| Catalog Numbers | For Use With TPL Series Fuses |
|-----------------|-------------------------------|
| 15100-401       | 70-400A                       |
| 15100-601       | 300-800A                      |



### Dimensions - in (mm)



Data Sheet: 5003

# Telpower High-current Switch

## TPHCS

### Specifications

**Description:** High current switch for use with Telpower fuses Type TPL-B, TPL-C and TPH.

Available as complete switch or pullout. Base may be purchased separately.

**Dimensions:** See Dimensions illustrations.

### Construction:

### Ratings:

- Volts: — 80Vdc
- Amps: — 70-800A
- SCCR: — 100kA

**Agency Information:** UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse carrier. UL Recognized to meet the requirements for Canadian Standards.

### Features and Benefits

- Innovative design eliminates need for tools to replace the Telpower™ Type TPL-B, TPL-C or TPH fuse
- Easy to install—captive fasteners allow for direct busbar mounting (bolts not included). Standard 1/4" male quick-connect terminal for effortless remote alarm connection.
- Optional new electronic alarm eliminates need for parallel indicating fuses while providing local and remote open-fuse indications (maximum remote alarm current: 20mA); Bipolar alarm: designed for both Central Office and Radio applications, Local LED alarm indication for ease-of-viewing.
- Fuse presence window allows for easy viewing of installed fuse amp rating

### Typical Applications

- Telecommunications DC power circuit protection
- Compact design is ideal for today's high power, high-density cabinets



TPCHS800-MAV (shown)

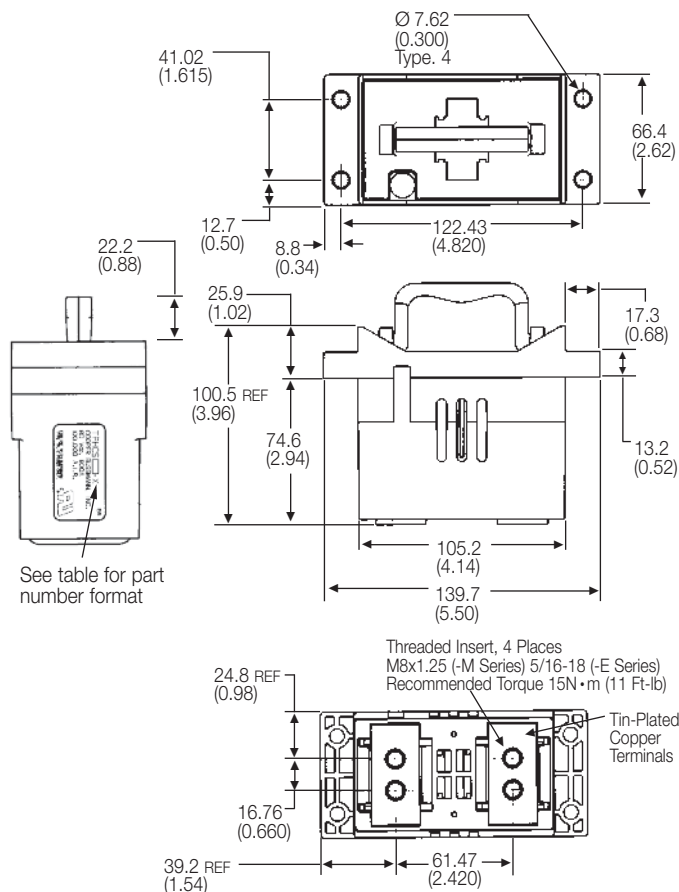
### Catalog Numbers – Switches (Pullout and Base)

| Catalog Numbers | Hardware/Option | Fuse Series  | Amp Rating |
|-----------------|-----------------|--------------|------------|
| TPHCS250-M      | Metric          | TPL-B        | 70-250     |
| TPHCS250-E      | English         | TPL-B        | 70-250     |
| TPHCS250-ML     | Metric, LED     | TPL-B        | 70-250     |
| TPHCS250-EL     | English, LED    | TPL-B        | 70-250     |
| TPHCS250-MAV    | Metric, Alarm   | TPL-B        | 70-250     |
| TPHCS250-EAV    | English, Alarm  | TPL-B        | 70-250     |
| TPHCS800-M      | Metric          | TPL-C or TPH | 300-800    |
| TPHCS800-E      | English         | TPL-C or TPH | 300-800    |
| TPHCS800-ML     | Metric, LED     | TPL-C or TPH | 300-800    |
| TPHCS800-EL     | English, LED    | TPL-C or TPH | 300-800    |
| TPHCS800-MAV    | Metric, Alarm   | TPL-C or TPH | 300-800    |
| TPHCS800-EAV    | English, Alarm  | TPL-C or TPH | 300-800    |

### Catalog Numbers – Components

| Catalog Numbers | Description Rating/Hardware/Option | Fuse Series  | Amp Rating |
|-----------------|------------------------------------|--------------|------------|
| TPHCS250-P      | Pullout only – 250A                | TPL-B        | 70-250     |
| TPHCS800-P      | Pullout only – 800A                | TPL-C or TPH | 300-800    |
| TPHCS-B-M       | Base only, Metric                  | —            | 800 Max    |
| TPHCS-B-E       | Base only, English                 | —            | 800 Max    |
| TPHCS-B-ML      | Base only, Metric, LED             | —            | 800 Max    |
| TPHCS-B-EL      | Base only, English, LED            | —            | 800 Max    |
| TPHCS-B-MAV     | Base only, Metric, Alarm           | —            | 800 Max    |
| TPHCS-B-EAV     | Base only, English, Alarm          | —            | 800 Max    |

### Dimensions - mm (in)



### NOTES:

1. TPHCS250 and TPHCS800 pullouts and bases are the same with exception to the type of fuse, TPL-B, TPL-C or TPH the pullout will carry.
2. Plastic rated UL 94V0, 140°C RTI.



# Telpower 70-600A: 170Vdc Fuses

## TPL

### Specifications

**Description:** DC power distribution fuses for use with Telepower 15100, 15200, TP158HC and TPHCS disconnect systems. For replacement of Bussmann UBO fuses a TPL-TA adapter kit is necessary.

**Dimensions:** See Dimensions illustrations.

### Ratings:

- Volts: — 170Vdc
- Amps: — 70-800A
- IR: — 100kA

**Agency Information:** CE, UL Recognized Guide JFHR2, File E56412 Bellcore.

### Features and Benefits

- Current-limiting capability designed for DC power distribution systems
- Recognized branch circuit protection
- Complete system coordination capability
- Energy savings with low watts loss, low operating temperatures, and minimum I<sup>2</sup>t levels

### Typical Applications

- Telecommunications power circuit protection

### Catalog Numbers

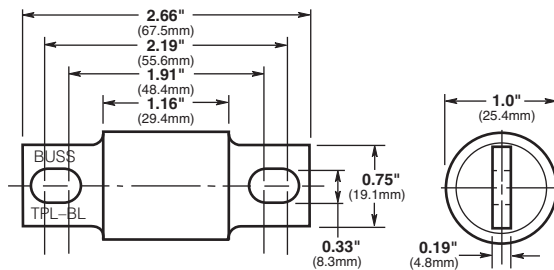
| Catalog Numbers | Amp Rating |
|-----------------|------------|
| TPL-BA          | 70         |
| TPL-BB          | 80         |
| TPL-BC          | 90         |
| TPL-BD          | 100        |
| TPL-BE          | 125        |
| TPL-BF          | 150        |
| TPL-BG          | 175        |
| TPL-BH          | 200        |
| TPL-BK          | 225        |
| TPL-BL          | 250        |
| TPL-CN          | 300        |
| TPL-CO          | 350        |
| TPL-CR          | 400        |
| TPL-CU          | 450        |
| TPL-CV          | 500        |
| TPL-CZ          | 600        |
| TPL-CZH         | 800        |

### Accessories

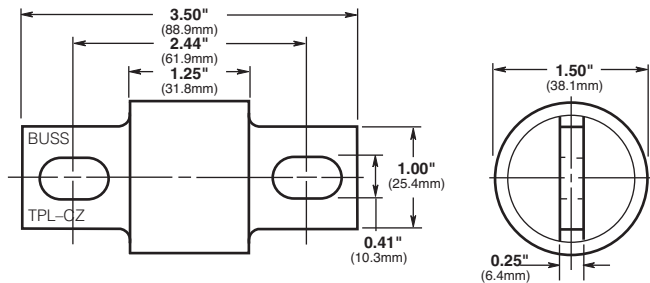
- Spare fuse holders: TPSFH-LB (for TPL-B fuses)  
TPSFH-LC (for TPL-C fuses)



### Dimensions - in (mm)



TPL-BA, TPL-BD, TPL-BF, TPL-BH, TPL-BK, and TPL-BL



TPL-CN, TPL-CR, TPL-CV and TPL-CZ

# Telpower 1-600A, 170Vdc Fuses

## TPN

### Specifications

**Description:** Current-limiting DC power distribution fuses. The TPN fuse series is dimensionally similar to Class R fuses making it easy to use standard Class R fuse blocks.



**Dimensions:** See Dimensions illustrations.

### Ratings:

- Volts: — 170Vdc
- Amps: — 1-600A
- IR: — 100kA

**Agency Information:** UL Recognized, Guide JFHR2, File E56412.

### Features/Benefits

- Current-limiting capability designed for DC power distribution systems
- Recognized branch circuit protection
- Complete system coordination capability
- Energy savings with low watts loss, low operating temperatures, and minimum I<sup>2</sup>t levels

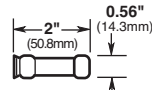
### Typical Applications

- Telecommunications power circuit protection

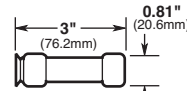
### Catalog Numbers (Amps)

|        |         |         |
|--------|---------|---------|
| TPN-1  | TPN-45  | TPN-200 |
| TPN-3  | TPN-50  | TPN-225 |
| TPN-5  | TPN-60  | TPN-250 |
| TPN-6  | TPN-70  | TPN-300 |
| TPN-10 | TPN-80  | TPN-350 |
| TPN-15 | TPN-90  | TPN-400 |
| TPN-20 | TPN-100 | TPN-450 |
| TPN-25 | TPN-110 | TPN-500 |
| TPN-30 | TPN-125 | TPN-600 |
| TPN-35 | TPN-150 |         |
| TPN-40 | TPN-175 |         |

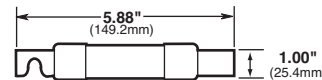
### Dimensions - in (mm)



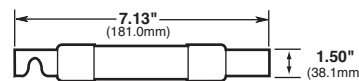
1A to 30A



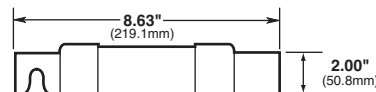
35A to 60A



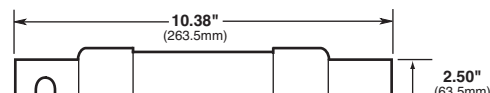
70A to 100A



110A to 200A



225A to 400A



450A to 600A

### Accessories

- Spare fuse holders:TPSFH-N30 (for TPN 1-30) TPSFH-N60 (for TPN 35-60)

### Recommended Class R Fuse Blocks

| Amps    | Poles | Catalog Number |
|---------|-------|----------------|
| 1-30    | 1     | R25030-1CR     |
| 1-30    | 2     | R25030-2CR     |
| 1-30    | 3     | R25030-3CR     |
| 35-60   | 1     | R25060-1CR     |
| 35-60   | 2     | R25060-2CR     |
| 35-60   | 3     | R25060-3CR     |
| 70-100  | 1     | R25100-1CR     |
| 70-100  | 2     | R25100-2CR     |
| 70-100  | 3     | R25100-3CR     |
| 110-200 | 1     | R25200-1CR     |
| 110-200 | 3     | R25200-3CR     |
| 225-400 | 1     | R25400-1CR     |
| 225-400 | 3     | R25400-3CR     |
| 450-600 | 1     | R25600-1CR     |
| 450-600 | 3     | R25600-3CR     |

# Indicating Fuses and Holders

## 70 Series Fuses

### Specifications

**Description:** Indicating type fuse.

### Ratings:

Volts: — 125Vac/300Vdc

Amps: — 1/10-10A

IR: — 1kA @ 300Vdc

**Agency Information:** CE, UL Recognized, Guide JDYX2, File E19180 Bellcore.

### Catalog Numbers

| Catalog Numbers  | Amp Rating | Color Code | Lucent Comcode Ref. No. | Code/ List No. |
|------------------|------------|------------|-------------------------|----------------|
| 70P-1/10A*       | 1/10       | Gray/Wh    | 100203413               | KS23751-L10    |
| 70R-1/100A*      | 1/100      | Red/Wh     | 101384550               | KS23751-L11    |
| 70E-1/100A*      | 1/100      | Yellow     | 100203363               | KS23751-L5     |
| 70X-2/10A        | 2/10       | Black      | —                       | —              |
| 70F-1/4A*        | 1/4        | Violet     | 100203371               | KS23751-L6     |
| 70K-1/4A*        | 1/4        | Violet/Wh  | 100203405               | KS23751-L9     |
| 70G-1/2A*        | 1/2        | Red        | 100203389               | KS23751-L7     |
| 70H-3/4A*        | 3/4        | Brown      | 100203397               | KS23751-L8     |
| 70I-1A           | 1          | Pink       | —                       | —              |
| 70A-1 1/2A*†     | 1 1/2      | White      | 100203322               | KS23751-L1     |
| 70B-2A*          | 2          | Orange     | 100203330               | KS23751-L2     |
| 70C-3A*          | 3          | Blue       | 100203348               | KS23751-L3     |
| 70J-3 1/2A       | 3 1/2      | Black/Wh   | —                       | —              |
| 70D-5A*          | 5          | Grn/Blk    | 100203355               | KS23751-L4     |
| 70L-6A           | 6          | Grn/Wh     | —                       | —              |
| 70M-8A           | 8          | Brown/Wh   | —                       | —              |
| 70N-10A          | 10         | Violet/Yel | —                       | —              |
| GKB-10A          | 10         | Violet/Yel | —                       | —              |
| 72A Plastic Case | Dummy      | —          | 100203421               | —              |
| 72B Blister Pack | Dummy      | —          | 103757977               | —              |

\*Product designed to comply with Bellcore Technical Reference TR-TSY-000799 Issue 1, December 1988.

†No longer UL Recognized.



## 15087 Fuse Holder

### Specifications

**Description:** Fuse holder for 70 Series fuses.

### Ratings:

Volts: — 300Vdc

Amps: — 12A

**Agency Information:** CE, UL Recognized, Guide IZLT2, File E14853.

**Flammability Rating:** UL 94V0.

### Features and Benefits

- Panel mount fuse holder for 70 Type fuses supplied with two screws
- Remote alarm capability

### Typical Applications

- Telecommunications DC power circuit protection

### Catalog Number — 15087

### Accessories

**Description:** Optional color code eyelets used with fuse holder to indicate fuse amp rating.

### Eyelet Catalog Numbers

| Catalog Numbers | Amp Indication | Color Code    |
|-----------------|----------------|---------------|
| 1A1706-01       | 1/100          | Yellow        |
| 1A1706-02       | 2/10           | Black         |
| 1A1706-03       | 1/4            | Violet        |
| 1A1706-04       | 1/4            | Violet/White  |
| 1A1706-05       | 1/2            | Red           |
| 1A1706-06       | 3/4            | Brown         |
| 1A1706-07       | 1              | Pink          |
| 1A1706-08       | 1 1/2          | White         |
| 1A1706-09       | 2              | Orange        |
| 1A1706-10       | 3              | Blue          |
| 1A1706-11       | 5              | Green/Black   |
| 1A1706-12       | 6              | Green/White   |
| 1A1706-13       | 8              | Brown/White   |
| 1A1706-14       | 10             | Violet/Yellow |
| 1A1706-15       | 1/10           | Gray/White    |
| 1A1706-16       | 3 1/2          | Black/White   |
| 1A1706-17       | 1/100          | Red/White     |



# Indicating Fuses and Holders

## HLS, HLT, PCT

### Specifications

**Description:** Fuse holders for GMT Type indicating fuses.

**Poles:** 01 to 25.

### Ratings:

Volts: — 60Vdc/125Vac

### Agency Information:

CE, UL Recognized, Guide IZLT2, File E14853, 15A (60Vdc).

### Flammability Rating:

UL 94V0.

### Features and Benefits

- Multiple configurations provide application flexibility
- Compact size saves space

### Typical Applications

- Telecommunications DC power circuit protection

### Catalog Numbers

| Catalog Numbers | Poles            |
|-----------------|------------------|
| PCT             | 1                |
| HLS             | See Build-A-Code |
| HLT             | See Build-A-Code |



## GMT

### Specifications

**Description:** Fast-acting fuses for use in HLT, HLS, and PCT fuse holders.

### Ratings:

Volts: — 60Vdc/125Vac

Amps: — 1<sup>8</sup>/<sub>100</sub>-15A

IR: — 450A@60Vdc

— 300A@125Vac

**Agency Information:** CE, UL Recognized, Guide JFHR2, File E56412.

**Flammability Rating:** UL 94V0.

### Features and Benefits

- Local and remote indication capability
- Color coded for easy amp rating identification

### Typical Applications

- Telecommunications DC power circuit protection

### Catalog Numbers

| Catalog Numbers                       | Color Code   | Catalog Numbers | Color Code   |
|---------------------------------------|--------------|-----------------|--------------|
| GMT-1 <sup>8</sup> / <sub>100</sub> A | Yellow       | GMT-3-1/2A      | White/Blue   |
| GMT-1/4A                              | Violet       | GMT-4A          | White/Brown  |
| GMT-3/8A                              | Green/Gray   | GMT-5A          | Green        |
| GMT-1/2A                              | Red          | GMT-7-1/2A      | Black/White  |
| GMT-6 <sup>5</sup> / <sub>100</sub> A | Black        | GMT-10A         | Red/White    |
| GMT-3/4A                              | Brown        | GMT-12A         | Yellow/Green |
| GMT-1A                                | Gray         | GMT-15A         | Red/Blue     |
| GMT-1-1/2A                            | White        | GMT-Dummy       | Gray Body    |
| GMT-1-1/2A                            | White/Yellow | GMT-X           | Clear Cover  |
| GMT-2A                                | Orange       | GMT-Y           | Clear Cover  |
| GMT-3A                                | Blue         |                 |              |

Some GMT sizes may be sold in bulk pack only.

### Accessories

- Spare fuse holder: Catalog Number TPSFH-T

## GMT-A

### Specifications

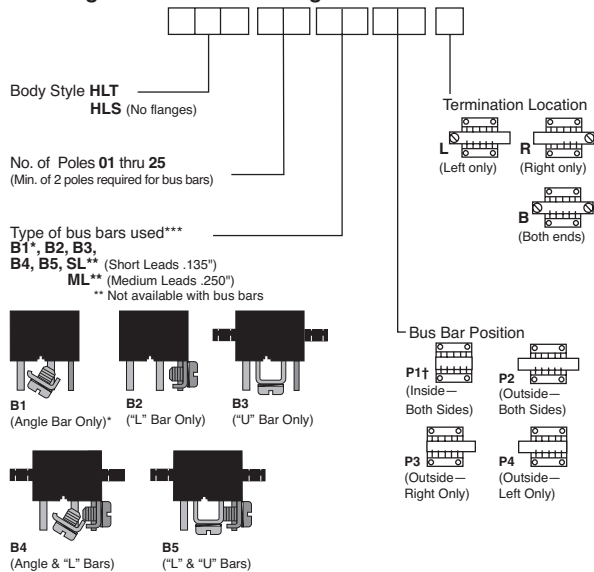
**Description:** Fast-acting fuse designed specifically for use in the Telepower series 15800 fused disconnect switch (page 430).

**Agency Information:** The GMT-A has the same ratings and agency approvals as the standard GMT fuses as shown above.

### Catalog Numbers

| Catalog Number | Color Code |
|----------------|------------|
| GMT-A          | Yellow     |

### Multiple Fuse holders with bus bars Ordering Information— Catalog No.



\*Angle Bar mounts on common or center terminals only.  
 \*\*SL Version is not available with bus bars.  
 †Minimum of 4 Poles Required.  
 \*\*\*.38 max. leads if not specified.

# Telpower Specialty Fuses

## 7 Type



### Specifications

**Description:** Fiber tube, threaded ends. Typically used on wall type main distribution frames and central battery substations.

**Dimensions:** See Catalog Numbers table and Dimensions illustration.

### Ratings:

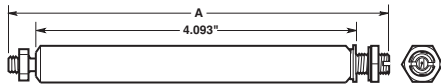
Amps: — 7A

**Agency Information:** CE

### Catalog Numbers

| Catalog Numbers | Amp Rating | Lucent Comcode Ref. No. | Dimension A Length (in) |
|-----------------|------------|-------------------------|-------------------------|
| 7A-7            | 7          | 100863737               | 4.562                   |
| 7T-7            | 7          | 100202753               | 4.828                   |

### Dimensions - in



## 11 Type



### Specifications

**Description:** Fiber tube, threaded ends, identical to 7 Type except for vent slots in fiber tube.

**Dimensions:** See Dimensions illustration.

### Ratings:

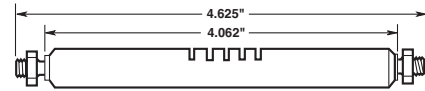
Amps: — 7A

**Agency Information:** CE

### Catalog Number

| Catalog Number | Amp Rating | Lucent Comcode Ref. No. |
|----------------|------------|-------------------------|
| 11C-7          | 7          | 100863745               |

### Dimensions - in



## 24 and WER Type

### Specifications

**Description:** Flat, non-indicating visible link element mounted on 1 inch centers using either No. 6 or No. 10 screws.

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 32Vdc (¼, 1, 3 ½, 8, 10A)

— 60Vdc (½, ¾, 1 ½, 2, 3, 4, 5A)

Amps: — ¼-10A

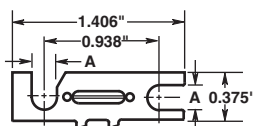
**Agency Information:** CE, UL Recognized File E56412.

### Catalog Numbers

| Catalog Numbers | Amp Rating | DC Volts | Color Code | Lucent Comcode Ref. No. | A Length Inches |
|-----------------|------------|----------|------------|-------------------------|-----------------|
| WER-¼           | ¼          | 32       | —          | —                       | —               |
| 24E-½*          | ½          | 60       | Red        | 100202894               | 0.20            |
| 24D-¾*          | ¾          | 60       | Black      | 100202886               | 0.15            |
| WER-1           | 1          | 32       | —          | —                       | —               |
| 24G-1-½*        | 1 ½        | 60       | White      | 100202910               | 0.20            |
| 24C-2*          | 2          | 60       | Orange     | 100202878               | 0.20            |
| 24B-3*          | 3          | 60       | Blue       | 100202852               | 0.15            |
| WER-3-½         | 3 ½        | 32       | —          | —                       | —               |
| 24B-4*          | 4          | 60       | Yellow     | 100202860               | 0.15            |
| 24F-5*          | 5          | 60       | Green      | 100202902               | 0.15            |
| WER-8           | 8          | 32       | —          | —                       | —               |
| WER-10          | 10         | 32       | —          | —                       | —               |

\*Designed to comply with Bellcore Technical Reference TR-TSY-000799 Issue 1, Dec. 1988.

### Dimensions - in



## 74 Type



### Specifications

**Description:** Fast-acting 0.281" x 1.25" cylindrical fuse designed to comply with Lucent specification KS23753. High current companion to 70 Type Fuse.

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 60Vdc

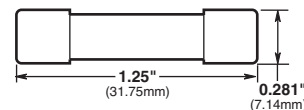
Amps: — 1 ¼-20A

**Agency Information:** CE, UL Recognized File E19180.

### Catalog Numbers

| Catalog Numbers | Amp Rating | Lucent Comcode Ref. No. | Code/List No. |
|-----------------|------------|-------------------------|---------------|
| 74A-1-¼         | 1 ¼        | 102630290               | KS23753-L1    |
| 74G-2           | 2          | 103064952               | KS23753-L7    |
| 74B-3           | 3          | 102630308               | KS23753-L2    |
| 74H-4           | 4          | 103264669               | KS23753-L8    |
| 74C-5           | 5          | 102630316               | KS23753-L3    |
| 74J-7-½         | 7 ½        | 103228425               | KS23753-L9    |
| 74D-10          | 10         | 102630324               | KS23753-L4    |
| 74E-15          | 15         | 102630332               | KS23753-L5    |
| 74F-20          | 20         | 102630340               | KS23753-L6    |

### Dimensions - in (mm)





# Telpower Specialty Fuses

## 75 Type

### Specifications

**Description:** Cylindrical with leads, designed to provide protection against currents resulting from the application of foreign voltages. Application for data sets and telephones.

**Dimensions:** See Dimensions illustration.

### Ratings:

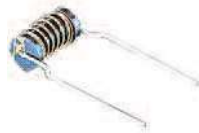
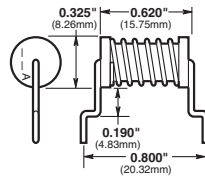
Volts: — 135Vac/220Vdc (440Vdc@0.007A)

Amps: — 0.007-0.230A

**Agency Information:** CE

### Catalog Numbers

| Catalog Numbers | Amp Rating | Lucent Comcode Ref. No. | Code/ List No. |
|-----------------|------------|-------------------------|----------------|
| 75C             | 0.007      | 103260816               | KS23825-L3     |
| 75F             | 0.063      | 104172861               | KS23825-L6     |
| 75B             | 0.115      | 102732112               | KS23825-L2     |
| 75D             | 0.129      | 104013180               | KS23825-L4     |
| 75A             | 0.200      | 102660008               | KS23825-L1     |



## 76 Type

### Specifications

**Description:** Cylindrical with leads, designed to provide protection against currents resulting from the application of foreign voltages. Application for data sets and telephones.

**Dimensions:** See Dimensions illustration.

### Ratings:

Volts: — 135Vac/440Vdc

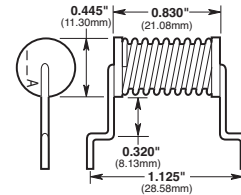
Amps: — 0.012-0.412A

**Agency Information:** CE

### Catalog Numbers

| Catalog Numbers | Amp Rating | Lucent Comcode Ref. No. | Code/ List No. |
|-----------------|------------|-------------------------|----------------|
| 76D             | 0.012      | 103798245               | KS23825-L10    |
| 76B             | 0.191      | 102965688               | KS23825-L8     |
| 76A             | 0.231      | 102810181               | KS23825-L7     |
| 76C             | 0.412      | 103656625               | KS23825-L9     |

### Dimensions - in (mm)



## 80 Type

### Specifications

**Description:** A fuse designed for high reliability applications where high ambient temperatures, low circuit voltages, low power dissipation and low contact resistance are prime considerations. The 80 Type is a visual indicating fuse with remote electrical alarm capability. UL Recognized, Guide JDYX2, File E19180.

**Dimensions:** See Dimensions illustrations.

### Ratings:

Volts: — 160Vdc

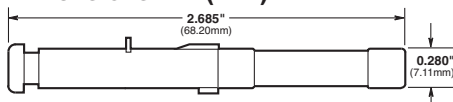
Amps: — ½-5A

**Agency Information:** CE, UL Recognized File E19180.

### Catalog Numbers

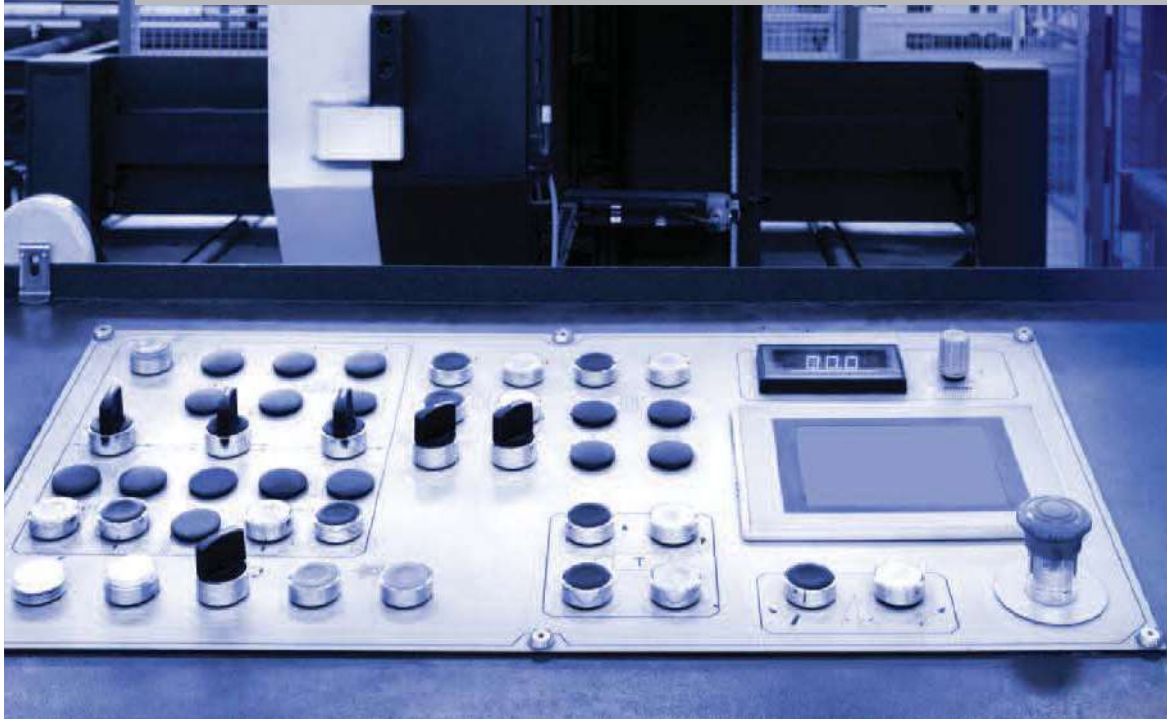
| Catalog Numbers | Amp Rating | Color Code | Lucent Comcode Ref. No. | Code/ List No. |
|-----------------|------------|------------|-------------------------|----------------|
| 80G-½           | ½          | Red        | 103839916               | KS23824-L6     |
| 80M-1-½         | 1½         | White      | 408078657               | KS23824-L8     |
| 80B-2           | 2          | Orange     | 103752150               | KS23824-L2     |
| 80C-3           | 3          | Blue       | 103752168               | KS23824-L3     |
| 80D-5           | 5          | Green      | 103800637               | KS23824-L4     |

### Dimensions - in (mm)



# Surge Protection Made Simple™

UL 508A Applications



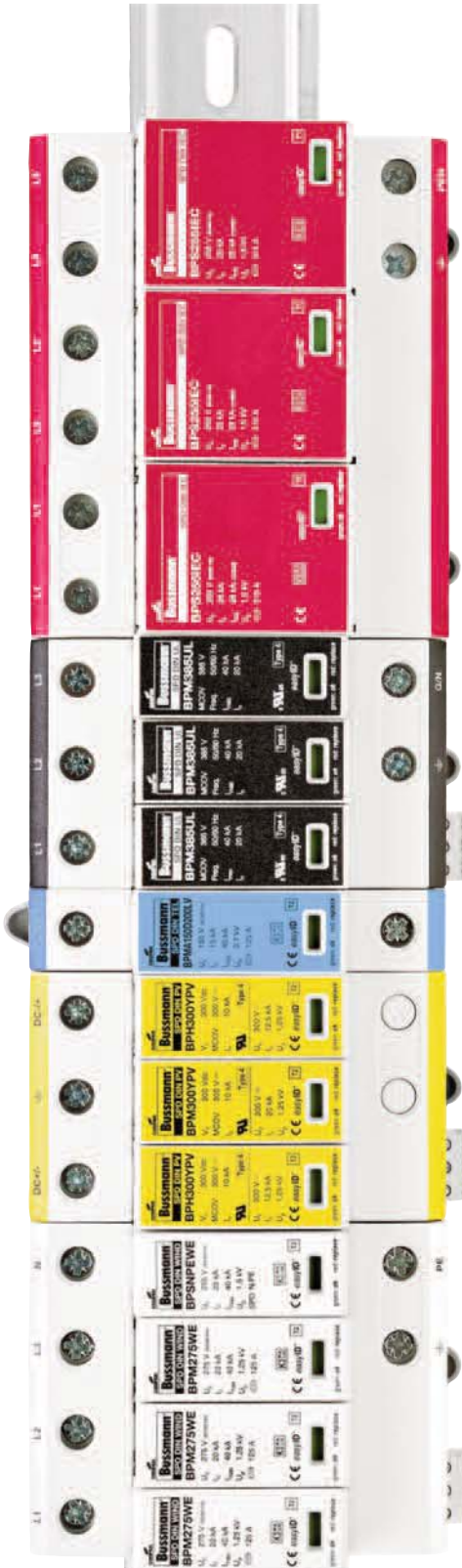
Comprehensive UL 1449 3<sup>rd</sup> Edition recognized surge protection solutions for North American applications.

**Bussmann**  
by **EAT•N**



Scan this tag to get product information about the New Bussmann Surge Protection products for UL, PV, IEC, Wind Power and Telecom applications.

**RED** indicates **NEW** information



# Overvoltage Protective Devices

## Surge Protective Devices

### UL Type 1 NEMA 4X SPDs

|   |         |
|---|---------|
| SurgePOD HEAVY DUTY (Black Label) ..... | 442-445 |
| SurgePOD PRO (Grey Label) .....         | 446-448 |

### UL DIN-Rail

#### High SCCR SPDs

|               |                    |         |
|---------------|--------------------|---------|
| 1-Pole Type 2 | BSPM_S2G .....     | 449-450 |
| 2-Pole Type 2 | BSPM_S3G .....     | 451-452 |
| 3-Pole Type 2 | BSPM_WYG/DLG.....  | 453-454 |
| 4-Pole Type 2 | BSPM_WYNG/HLG..... | 455-456 |

#### Low Voltage AC/DC Power

|               |              |         |
|---------------|--------------|---------|
| 1-Pole Type 2 | BSPM_LV..... | 457-458 |
|---------------|--------------|---------|

#### Low-Voltage AC/DC Control

|               |                |         |
|---------------|----------------|---------|
| 2-Pole Type 3 | BSPH2A_LV..... | 459-460 |
|---------------|----------------|---------|

### IEC DIN-Rail

#### Class I

|                |                   |         |
|----------------|-------------------|---------|
| 2-Pole Class I | BSPS_TN/TT .....  | 461-462 |
| 3-Pole Class I | BSPS_TNC .....    | 463-464 |
| 4-Pole Class I | BSPS_TNS/TT ..... | 465-466 |

#### Class II

|                 |                          |         |
|-----------------|--------------------------|---------|
| 1-Pole Class II | BSPM_TN / BSPG_NPE.....  | 467-468 |
| 2-Pole Class II | BSPM_TN / BSPH_TT .....  | 469-470 |
| 3-Pole Class II | BSPM_TNC .....           | 471-472 |
| 4-Pole Class II | BSPM_TNS / BSPH_TT ..... | 473-474 |

### Solar Power Photovoltaic (PV) DIN-Rail

#### Lightning Arrester

|  |         |
|--|---------|
| 1-Pole PV Advance Lightning Arrester / BSPS_PV ..... | 475-476 |
|--|---------|

#### Overvoltage Surge Protective Devices

|   |         |
|---|---------|
| 2-Module PV HEAVY DUTY SPD / BSPH2_PV ..... | 477-478 |
| 3-Module PV HEAVY DUTY SPD / BSPH_YPV ..... | 479-480 |
| 3-Module PV PRO SPD / BSP_PYPV.....         | 481-482 |

### Wind Power IEC DIN-Rail

#### Class I

|                |              |         |
|----------------|--------------|---------|
| 1-pole Class I | BSPS_WE..... | 483-484 |
|----------------|--------------|---------|

#### Class II

|                 |                         |         |
|-----------------|-------------------------|---------|
| 1-Pole Class II | BSPM_WE / BSPS_WE.....  | 485-486 |
| 2-Pole Class II | BSPM_WE / BSPH_WE ..... | 487-488 |
| 3-Pole Class II | BSPM_WE.....            | 489-490 |
| 4-Pole Class II | BSPM_WE / BSPH_WE ..... | 491-492 |

### UL 4978 Data Signal SPDs

|                              |                  |         |
|------------------------------|------------------|---------|
| DIN-Rail BNC/Coaxial Cable   | BSPD5BNCD_ ..... | 493-494 |
| In-Line BNC/Coaxial Cable    | BSPD5BNCSI ..... | 495-496 |
| DIN-Rail RJ45/Ethernet Cable | BSPD48RJ45 ..... | 497-498 |
| DIN-Rail Universal 4 Wire    | BSPD_DIN.....    | 499-501 |

### Surge Protective Overvoltage Device Modules

|  |         |
|--|---------|
| SurgePod™ Series, 150 to 550Vac MCOV ..... | 502-503 |
| DIN-Rail TVS Series with Holder .....      | 504     |



Scan this tag to get access to the Surge Protective Devices Cross Reference Search.

**SURGE PROTECTION MADE SIMPLE™ FOR COMMERCIAL & INDUSTRIAL APPLICATIONS**  
**SURGEPOD™ HEAVY DUTY SPD FOR UL 1449 3<sup>rd</sup> Edition Listed Loadside and Lineside Protection**

**Description**

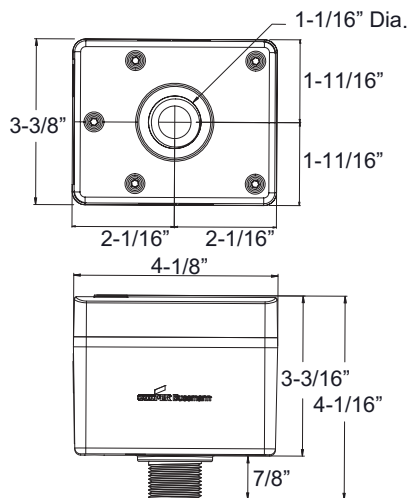
The Bussmann SurgePOD™ HEAVY DUTY is a Type 1 UL Listed 1449 3<sup>rd</sup> Edition surge protective device suitable for installation on both the loadside or lineside of the service entrance overcurrent protective device.

Available in voltage and system specific versions to match electrical system and equipment requirements. The SurgePOD HEAVY DUTY delivers optimum surge protection using advanced patent pending SurgePOD™ module featuring thermal disconnect technology that eliminates the need for additional overcurrent protection.

Parallel connection to the electrical system permits the SurgePOD HEAVY DUTY SPD to be installed on **any** ampacity panel.

- Type 1 UL 1449 3<sup>rd</sup> Edition Listed SPDs are easily selected and installed on the loadside or lineside of the service entrance overcurrent protective device
- Patented Bussmann SurgePOD module technology eliminates the need for additional fusing
- Voltage specific models precisely match and protect electrical systems and equipment up to 600Vac
- Compact UV resistant NEMA 4X for indoor or outdoor applications
- easyID™ LED status indicator provides surge protection status at a glance

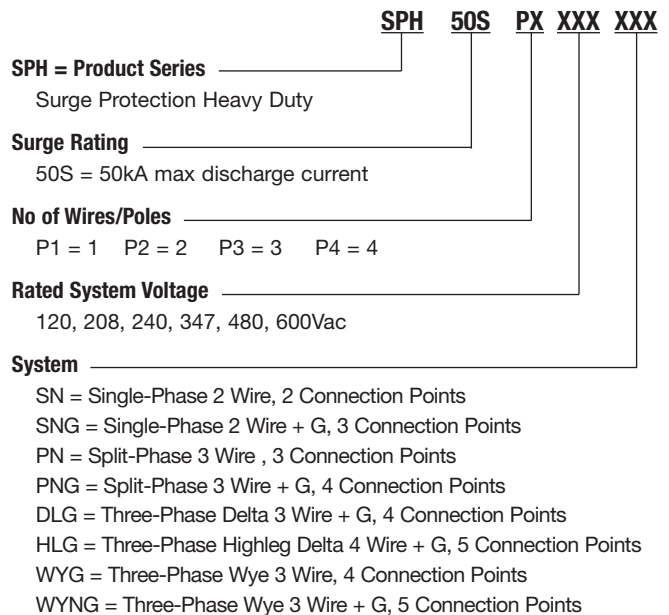
**Dimensions - in**



|                |                |                 |
|----------------|----------------|-----------------|
| SPH50SP1120SN  | SPH50SP2480PN  | SPH50SP3208WYG  |
| SPH50SP1240SN  | SPH50SP3240PNG | SPH50SP3480WYG  |
| SPH50SP1347SN  | SPH50SP3480PNG | SPH50SP3600WYG  |
| SPH50SP2120SNG | SPH50SP3240DLG | SPH50SP4208WYNG |
| SPH50SP2240SNG | SPH50SP3480DLG | SPH50SP4480WYNG |
| SPH50SP2347SNG | SPH50SP4240HLG | SPH50SP4600WYNG |
| SPH50SP2240PN  | SPH50SP4480HLG |                 |

**NEMA 4X Rated Heavy Duty  
Type 1 UL Listed SPD**

**Type 1 SPD Part Number System**





## SurgePOD™ HEAVY DUTY Technical Information

| Catalog Number   | Nominal System Voltage | Max. Continuous Operating AC Voltage (MCOV) (V <sub>C</sub> ) | System Type                          | Connection Points |
|------------------|------------------------|---|--------------------------------------|-------------------|
| SPH50SP1120SN    | 120V                   | 150V  | Single-Phase 2 Wire                  | 2                 |
| SPH50SP1240SN    | 240V                   | 320V  | Single-Phase 2 Wire                  | 2                 |
| SPH50SP1347SN    | 347V                   | 420V  | Single-Phase 2 Wire                  | 2                 |
| SPH50SP2120SNG   | 120V                   | 150V  | Single-Phase 2 Wire + G              | 3                 |
| SPH50SP2240SNG   | 240V                   | 320V  | Single-Phase 2 Wire + G              | 3                 |
| SPH50SP2347SNG   | 347V                   | 420V  | Single-Phase 2 Wire + G              | 3                 |
| SPH50SP2240PN    | 120/240V               | 150V  | Split-Phase 3 Wire                   | 3                 |
| SPH50SP2480PN    | 240/480V               | 320V  | Split-Phase 3 Wire                   | 3                 |
| SPH50SP3240PNG   | 120/240V               | 150V  | Split-Phase 3 Wire + G               | 4                 |
| SPH50SP3480PNG   | 240/480V               | 320V  | Split-Phase 3 Wire + G               | 4                 |
| SPH50SP3240DLG   | 240V                   | 320V  | Three-Phase Delta 3 Wire + G         | 4                 |
| SPH50SP3480DLG   | 480V                   | 550V  | Three-Phase Delta 3 Wire + G         | 4                 |
| SPH50SP4240HLG   | 120/240V               | 150/320V  | Three-Phase Highleg Delta 4 Wire + G | 5                 |
| SPH50SP4480HLG   | 240/480V               | 320/550V  | Three-Phase Highleg Delta 4 Wire + G | 5                 |
| SPH50SP3208WYG   | 208V                   | 150V  | Three-Phase Wye 3 Wire + G           | 4                 |
| SPH50SP3480WYG   | 480V                   | 320V  | Three-Phase Wye 3 Wire + G           | 4                 |
| SPH50SP3600WYG†  | 600V                   | 420V  | Three-Phase Wye 3 Wire + G           | 4                 |
| SPH50SP4208WYNG  | 208Y/120V              | 150V  | Three-Phase Wye 4 Wire + G           | 5                 |
| SPH50SP4480WYNG  | 480Y/277V              | 320V  | Three-Phase Wye 4 Wire + G           | 5                 |
| SPH50SP4600WYNG† | 600Y/347V              | 420V  | Three-Phase Wye 4 Wire + G           | 5                 |

† 600V Wye versions are not CSA Certified.

## SurgePOD™ HEAVY DUTY Technical Information

| Specifications (for all SurgePOD HD units)        | Values   |
|---|--|
| Short Circuit Current Rating (SCCR)               | 200kA  |
| Nominal Discharge Current (8x20µs) I <sub>n</sub> | 20kA   |
| Max. Discharge Current (8x20µs) I <sub>max</sub>  | 50kA   |
| Response Time t <sub>A</sub>                      | <25ns  |
| Frequency   | 50/60Hz  |
| Operating State/Fault Indication                  | Bi-Color LED - Green (good) / Red (replace)                            |
| Conductor Length / Gauge                          | 18 inches, 10 AWG Stranded Tinned Copper                               |
| Mounting  | Chase Nipple / Bracket*  |
| Enclosure / Flammability Ratings                  | NEMA 4X - UL 94-5VA  |
| Degree of Protection (Installed State)            | IP20 (finger-safe)   |
| SPD Install Location                              | Indoor/Outdoor   |
| Circuit Location                                  | Lineside or Loadside of service entrance overcurrent protective device |
| Standard  | UL 1449 3 <sup>rd</sup> Edition Type 1 Listed SPD                      |
| Agency Information                                | cULus, CSA**, RoHS Compliant   |
| Product Warranty                                  | 5 Years***   |
| Operating Temperature                             | -40°C to +85°C   |
| Maximum Operating Altitude                        | 16,000FT   |

\* Customer-supplied bracket.

\*\* 600V Wye versions not CSA Certified.

\*\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/Surge](http://www.cooperbussmann.com/Surge).



## Voltage Protection Ratings (VPRs)

| Catalog Number   | Rated System Voltage (V <sub>o</sub> ) | MCOV (V <sub>C</sub> ) | Voltage Protection Ratings (VPRs) |           |           |           |
|------------------|--|------------------------|-----------------------------------|-----------|-----------|-----------|
|                  |  |                        | L-N                               | L-L       | L-G       | N-G       |
| SPH50SP1120SN    | 120V                                   | 150V                   | 700                               | —         | —         | —         |
| SPH50SP1240SN    | 240V                                   | 320V                   | 1200                              | —         | —         | —         |
| SPH50SP1347SN    | 347V                                   | 420V                   | 1500                              | —         | —         | —         |
| SPH50SP2120SNG   | 120V                                   | 150V                   | 700                               | —         | 1200      | 700       |
| SPH50SP2240SNG   | 240V                                   | 320V                   | 1200                              | —         | 2500      | 1200      |
| SPH50SP2347SNG   | 347V                                   | 420V                   | 1500                              | —         | 2500      | 1500      |
| SPH50SP2240PN    | 120V/240V                              | 150V                   | 700                               | 1200      | —         | —         |
| SPH50SP2480PN    | 240V/480V                              | 320V                   | 1200                              | 2500      | —         | —         |
| SPH50SP3240PNG   | 120V/240V                              | 150V                   | 700                               | 1200      | 1200      | 700       |
| SPH50SP3480PNG   | 240V/480V                              | 320V                   | 1200                              | 2500      | 2500      | 1200      |
| SPH50SP3240DLG   | 240V                                   | 320V                   | —                                 | 2500      | 1200      | —         |
| SPH50SP3480DLG   | 480V                                   | 550V                   | —                                 | 3000      | 1800      | —         |
| SPH50SP4240HLG   | 120/240V                               | 150V/320V              | 700/1200                          | 1200/2500 | 1200/2500 | 700/1200  |
| SPH50SP4480HLG   | 240/480V                               | 320V/550V              | 1200/1800                         | 2500/3000 | 2500/3000 | 1200/1800 |
| SPH50SP3208WYG   | 208V                                   | 150V                   | —                                 | 1200      | 700       | —         |
| SPH50SP3480WYG   | 480V                                   | 320V                   | —                                 | 2500      | 1200      | —         |
| SPH50SP3600WYG†  | 600V                                   | 420V                   | —                                 | 2500      | 1500      | —         |
| SPH50SP4208WYNG  | 208Y/120V                              | 150V                   | 700                               | 1200      | 1200      | 700       |
| SPH50SP4480WYNG  | 480Y/277V                              | 320V                   | 1200                              | 2500      | 2500      | 1200      |
| SPH50SP4600WYNG† | 600Y/347V                              | 420V                   | 1500                              | 2500      | 2500      | 1500      |

† 600V Wye versions are not CSA Certified.

## easyID™ LED Status Indicator

The easyID™ LED status indicator will illuminate when the unit is properly installed and the system or equipment being protected is energized. The following LED color/status indicates:



### GREEN LED = Good

The circuit is energized and *protected*.



### RED LED = Replace

The circuit is *energized and unprotected*.

The unit **needs** replacing.



### LED is Out / Unlit:

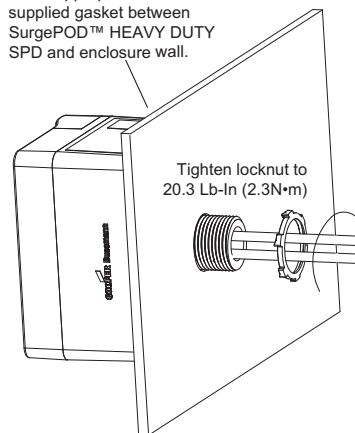
- The circuit is most likely deenergized
- The unit's leads are disconnected
- The unit is damaged

Authorized personnel should follow all prescribed lockout/tagout and safety procedures in troubleshooting the cause for the above conditions. Opening SurgePOD HEAVY DUTY enclosure will void UL listing and warranty.

## Mounting

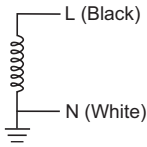
SurgePOD HEAVY DUTY is a panel mount device. It may also be mounted using a customer supplied bracket or directly onto a female threaded conduit fitting.

For NEMA 4X installation, install appropriate customer supplied gasket between SurgePOD™ HEAVY DUTY SPD and enclosure wall.



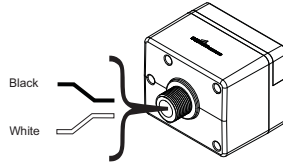
## Wiring Connections

### Single-Phase



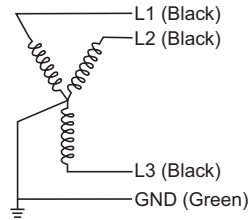
120, 240, 347V (L-N)  
2 Wire

Must be installed within 10 feet (3m) of a bonded neutral-ground connection per IEEE C62.41-1991

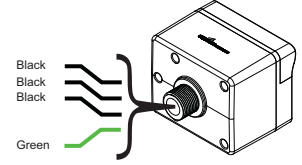


**SPH50SP1120SN,**  
**SPH50SP1240SN,**  
**SPH50SP1347SN**

### Wye + Ground

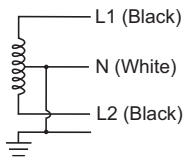


208, 480, 600V (L-L)  
3 Wire Wye + Ground



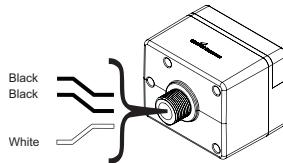
**SPH50SP3208WYG,**  
**SPH50SP3480WYG,**  
**SPH50SP3600WYG**

### Two-Pole with Neutral



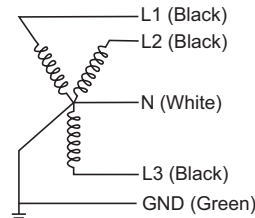
120V (L-N) / 240V (L1-L2),  
240V (L-N) / 480V (L1-L2)  
Single Phase (Split) Center Tap

For installations at or less than 10 feet (3m) from the transformer.

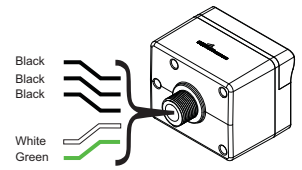


**SPH50SP2240PN,**  
**SPH50SP2480PN**

### Wye with Neutral + Ground

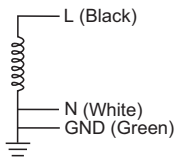


120V (L-N) / 208V (L-L),  
127V (L-N) / 220V (L-L),  
277V (L-N) / 480V (L-L),  
347V (L-N) / 600V (L-L)  
4 Wire Wye + Ground



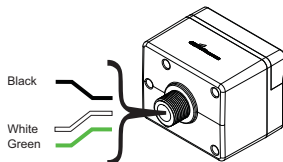
**SPH50SP4208WYNG,**  
**SPH50SP4480WYNG,**  
**SPH50SP4600WYNG**

### Single-Phase + Ground



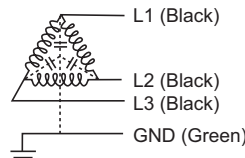
120, 240, 347V (L-N)  
2 Wire + Ground

For installation when located greater than 10 feet (3m) of a bonded neutral-ground connection.

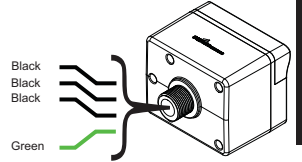


**SPH50SP2120SNG,**  
**SPH50SP2240SNG,**  
**SPH50SP2347SNG**

### Delta + Ground

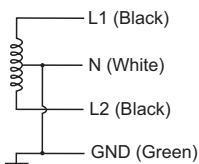


240, 480V (L-L)  
3 Wire Delta + Ground



**SPH50SP3240DLG,**  
**SPH50SP3480DLG**

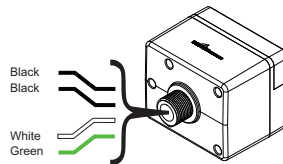
### Two-Pole with Neutral + Ground



120V (L-N) / 240V (L1-L2),  
240V (L-N) / 480V (L1-L2)

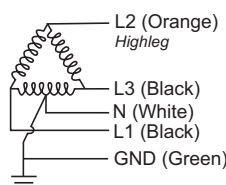
Single Phase (Split) Center Tap + Ground

For installation when located greater than 10 feet (3m) of a bonded neutral-ground connection.

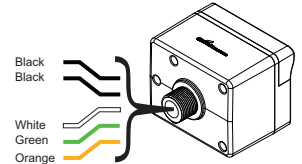


**SPH50SP3240PNG,**  
**SPH50SP3480PNG**

### Highleg Delta



120V (L1 / L3-N) / 240V (L-L),  
240V (L1 / L3-N) / 480V (L-L)  
4 Wire Highleg Delta + Ground



**SPH50SP4240HLG,**  
**SPH50SP4480HLG**

## SURGE PROTECTION MADE SIMPLE™ FOR LIGHT COMMERCIAL & RESIDENTIAL APPLICATIONS

### SURGEPOD™ PRO SPD FOR UL 1449 3<sup>rd</sup> Edition Listed Loadside and Lineside Protection



#### Description

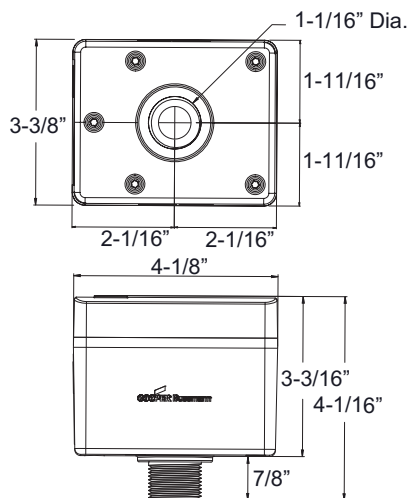
The Bussmann SurgePOD™ PRO is a Type 1 UL Listed 1449 3<sup>rd</sup> Edition surge protective device suitable for installation on both the loadside or lineside of the service entrance overcurrent protective device.

Available in popular voltage and system specific versions to match common residential and light commercial electrical system and equipment requirements. The SurgePOD PRO delivers superior surge protection using MOV thermal disconnect technology that eliminates the need for additional overcurrent protection.

Parallel connection to the electrical system permits the SurgePOD PRO SPD to be installed on **any** ampacity panel.

- Type 1 UL 1449 3<sup>rd</sup> Edition Listed SPDs are easily selected and installed on the loadside or lineside of the service entrance overcurrent protective device
- Voltage specific models precisely match and protect electrical systems and equipment better than “one-size-fits-all” SPDs
- Thermal disconnect technology eliminates the need for additional fusing
- Compact UV resistant NEMA 4X enclosure for indoor or outdoor applications
- easyID™ LED status indicator provides surge protection status at a glance

#### Dimensions - in



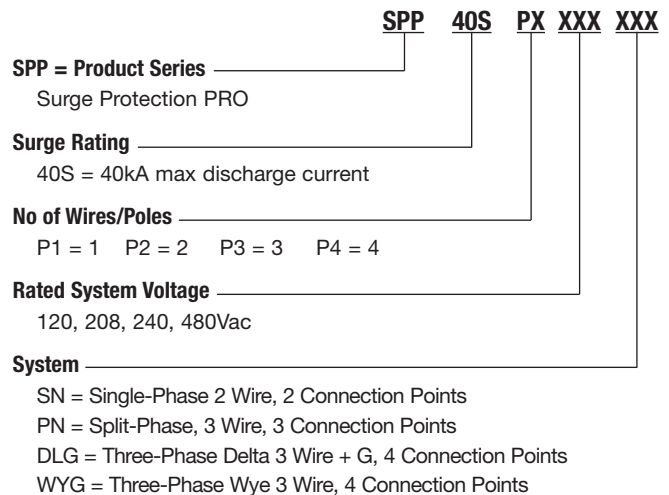
SPP40SP1120SN  
SPP40SP2240PN

SPP40SP3240DLG  
SPP40SP3480DLG

SPP40SP3208WYG  
SPP40SP3480WYG

## NEMA 4X Rated Pro Type 1 UL Listed SPD

#### Type 1 SPD Part Number System



## SurgePOD™ PRO Technical Information

| Catalog Number | Nominal System Voltage | Max. Continuous Operating AC Voltage (MCOV) (V <sub>C</sub> ) | System Type                  | Connection Points |
|----------------|------------------------|---|------------------------------|-------------------|
| SPP40SP1120SN  | 120V                   | 150V  | Single-Phase 2 Wire          | 2                 |
| SPP40SP2240PN  | 120/240V               | 150V  | Split Phase 3 Wire           | 3                 |
| SPP40SP3240DLG | 240V                   | 320V  | Three-Phase Delta 3 Wire + G | 4                 |
| SPP40SP3480DLG | 480V                   | 550V  | Three-Phase Delta 3 Wire + G | 4                 |
| SPP40SP3208WYG | 208V                   | 150V  | Three-Phase Wye 3 Wire + G   | 4                 |
| SPP40SP3480WYG | 480V                   | 320V  | Three-Phase Wye 3 Wire + G   | 4                 |

| Specifications (for all SurgePOD PRO units)       | Values   |
|---|--|
| Short Circuit Current Rating (SCCR)               | 200kA  |
| Nominal Discharge Current (8x20μs) I <sub>n</sub> | 10kA   |
| Max. Discharge Current (8x20μs) I <sub>max</sub>  | 40kA   |
| Response Time (ns) t <sub>A</sub>                 | <25ns  |
| Frequency   | 50/60Hz  |
| Operating State/Fault Indication                  | Bi-Color LED - Green (good) / Red (replace)                            |
| Conductor Length / Gauge                          | 18 inches, 10 AWG Stranded Tinned Copper                               |
| Mounting  | Chase Nipple / Bracket*  |
| Enclosure / Flammability Ratings                  | NEMA 4X - UL 94-5VA  |
| Degree of Protection (Installed State)            | IP20 (finger-safe)   |
| SPD Install Location                              | Indoor/Outdoor   |
| Circuit Location                                  | Lineside or Loadside of service entrance overcurrent protective device |
| Standard  | UL 1449 3 <sup>rd</sup> Edition Type 1 Listed SPD                      |
| Agency Information                                | cULus, RoHS Compliant  |
| Product Warranty                                  | 2 Years**  |
| Operating Temperature                             | -40°C to +65°C   |
| Maximum Operating Altitude                        | 12000FT  |

\* Customer-supplied bracket.

\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/Surge](http://www.cooperbussmann.com/Surge).

## Voltage Protection Ratings (VPRs)

| Catalog Number | Nominal System Voltage | MCOV (V <sub>C</sub> ) | Voltage Protection Ratings (VPRs) |      |      |
|----------------|------------------------|------------------------|-----------------------------------|------|------|
|                |                        |                        | L-N                               | L-L  | L-G  |
| SPP40SP1120SN  | 120V                   | 150V                   | 700                               | —    | —    |
| SPP40SP2240PN  | 120V/240V              | 150V                   | 700                               | 1200 | —    |
| SPP40SP3240DLG | 240V                   | 320V                   | —                                 | 2500 | 1200 |
| SPP40SP3480DLG | 480V                   | 550V                   | —                                 | 3000 | 1800 |
| SPP40SP3208WYG | 208V                   | 150V                   | —                                 | 1200 | 700  |
| SPP40SP3480WYG | 480V                   | 320V                   | —                                 | 2500 | 1200 |

## easyID™ LED Status Indicator

The easyID™ LED status indicator will illuminate when the unit is properly installed and the system or equipment being protected is energized. The following LED color/status indicates:



### GREEN LED = Good

The circuit is energized and *protected*.



### RED LED = Replace

The circuit is *energized and unprotected*.

The unit **needs** replacing.



### LED is Out / Unlit:

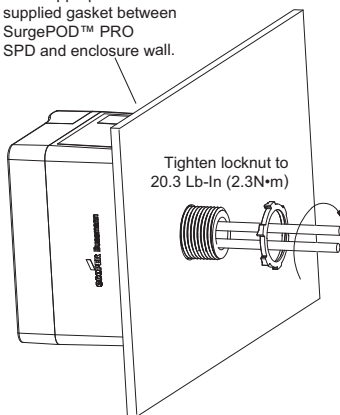
- The circuit is most likely deenergized
- The unit's leads are disconnected
- The unit is damaged

Authorized personnel should follow all prescribed lockout/tagout and safety procedures in troubleshooting the cause for the above conditions. Opening SurgePOD PRO enclosure will void UL listing and warranty.

## Mounting

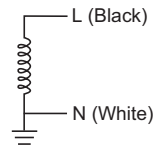
SurgePOD PRO is a panel mount device. It may also be mounted using a customer supplied bracket or directly onto a female threaded conduit fitting.

For NEMA 4X installation, install appropriate customer supplied gasket between SurgePOD™ PRO SPD and enclosure wall.



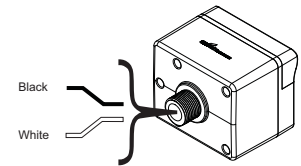
## Wiring Connections

### Single-Phase



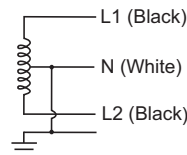
120V (L-N)  
2 Wire

Must be installed within 10 feet (3m) of a bonded neutral-ground connection per IEEE C62.41-1991



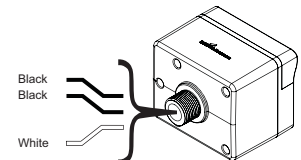
**SPP40SP1120SN**

### Two-Pole with Neutral



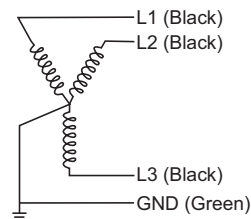
120V (L-N) / 240V (L1-L2),  
Single Phase (Split) Center Tap

For installations at or less than 10 feet (3m) from the transformer.

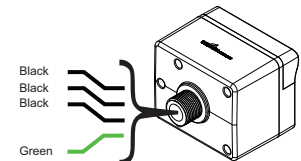


**SPP40SP2240PN,**

### Wye + Ground

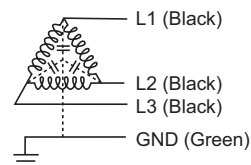


208, 480V (L-L)  
3 Wire Wye + Ground

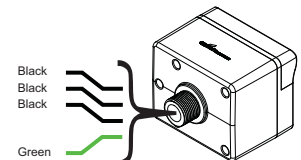


**SPP40SP3208WYG,  
SPP40SP3480WYG**

### Delta + Ground



240, 480V (L-L)  
3 Wire Delta + Ground



**SPP40SP3240DLG,  
SPP40SP3480DLG**



# UL DIN-Rail SPD - High SCCR

BSPM\_\_ \_ \_S2G

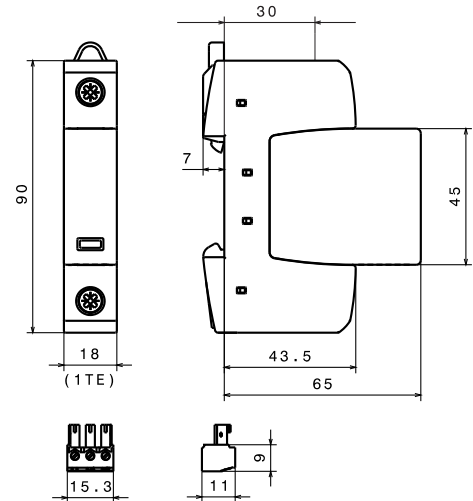
Dimensions - mm



**easyID™**  
Visual Status Indication



Remote Signal  
Contact Available



Shown with optional remote contact signaling

## Specifications

### Description

The Bussmann single pole UL modular surge arresters for 120, 240 and 347Vac single-phase systems feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

### Features

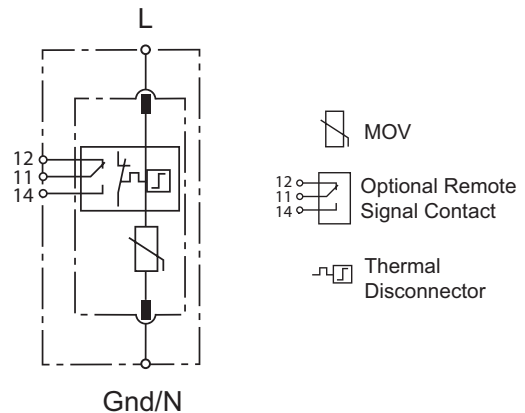
- Surge arrester according to UL 1449 3<sup>rd</sup> Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty zinc oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button makes module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) makes higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules makes status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

### Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

Data Sheet: 2149

## Circuit Diagram



**BSPM1120S2G, BSPM1240S2G, BSPM1347S2G\***

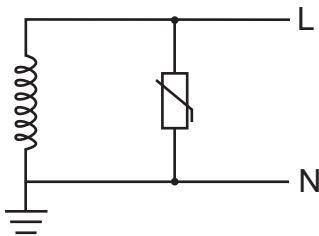
Shown with optional remote contact signaling

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPM1347S2GR

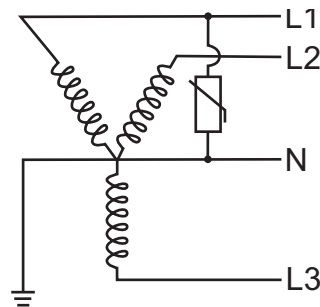
# UL DIN-Rail SPD - High SCCR

| ORDERING INFORMATION   |                          |   |              |              |
|--|--------------------------|---|--------------|--------------|
| Nominal System Voltage   | 120Vac                   | 240, 277 or 240 & 277Vac                              | 347Vac       |              |
| Max. Continuous Operating AC Voltage (MCOV) [V <sub>C</sub> ]                  | 275Vac                   | 385Vac  | 600Vac       |              |
| Catalog Numbers:   | Without Remote Signaling | BSPM1120S2G   | BSPM1240S2G  | BSPM1347S2G  |
|  | With Remote Signaling    | BSPM1120S2GR  | BSPM1240S2GR | BSPM1347S2GR |
| Replacement Module   | MOV Technology           | BPM275UL  | BPM385UL     | BPM600UL     |
| SPECIFICATIONS   |                          |   |              |              |
| Rated Voltage  | 120-127Vac               | 240-277Vac  | 347Vac       |              |
| Voltage Protection Rating V <sub>PR</sub>                                      | 1kV                      | 1.5kV   | 2kV          |              |
| SCCR   | 200kA                    | 200kA   | 125kA        |              |
| Nominal Discharge Current I <sub>n</sub> (kA)                                  |                          | 20kA  |              |              |
| Max. Discharge Current I <sub>max</sub> (kA)                                   |                          | 40kA  |              |              |
| Response Time t <sub>A</sub>   |                          | ≤25 ns  |              |              |
| Frequency  |                          | 50/60Hz   |              |              |
| Number of Poles  |                          | 1   |              |              |
| Number of Wires/Connection Points  |                          | 2 Wires / 2 Connection Points                         |              |              |
| Operating State/Fault Indication   |                          | Green (good) / Red (replace)                          |              |              |
| Cross-Sectional Area (min.)  |                          | 14AWG - Cu Stranded, Solid or Fine                    |              |              |
| Cross-Sectional Area (max.)  |                          | 2AWG - Cu Solid or Stranded / 4AWG - Cu Fine          |              |              |
| Terminal Torque  |                          | 45 lb-in  |              |              |
| For Mounting On  |                          | 35mm DIN Rail per to EN 60715                         |              |              |
| Enclosure Material   |                          | Thermoplastic, UL 94V0                                |              |              |
| Degree of Protection   |                          | IP20 (finger-safe)                                    |              |              |
| Location Category  |                          | Indoor  |              |              |
| Capacity   |                          | 1 Mods, DIN 43880                                     |              |              |
| Application  |                          | UL Type 2 Component Assembly                          |              |              |
| Standard   |                          | UL 1449, 3 <sup>rd</sup> Edition                      |              |              |
| Agency Information   |                          | cURus, CSA, RoHS Compliant                            |              |              |
| Product Warranty   |                          | Five Years*   |              |              |
| REMOTE CONTACT SIGNALING   |                          |   |              |              |
| Remote Contact Signaling Type  |                          | Changeover Contact                                    |              |              |
| AC Switching Capacity (Volts/Amps)   |                          | 250V/0.5A   |              |              |
| DC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A; 125V/0.2A; 75V/0.5A                        |              |              |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals |                          | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible |              |              |
| Ordering Information   |                          | Order from Catalog Numbers Above                      |              |              |

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).



120, 240, 347Vac 2 Wire Systems



120, 277, 347Vac 2 Wire Wye Systems

Part Numbers for all systems BSPM1120S2G, BSPM1240S2G, BSPM1347S2G

# UL DIN-Rail SPD - High SCCR

BSPM\_ \_ \_ S3G

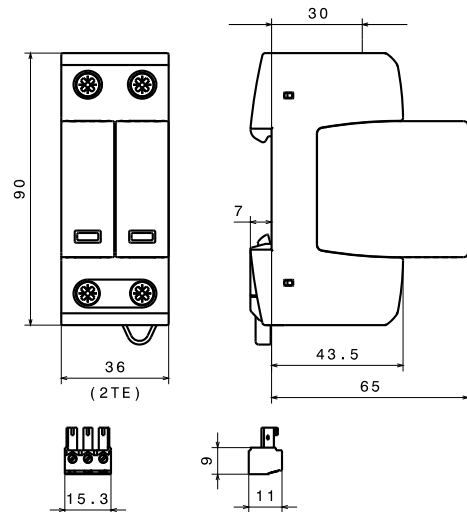
Dimensions - mm



**easyID™**  
Visual Status Indication



Remote Signal  
Contact Available



Shown with optional remote contact signaling

## Description

The Bussmann 2-pole UL modular surge arresters for 120/240, 120/208, 127/254, 240, 240/480, 277/480 and 480Vac (split-phase) systems feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

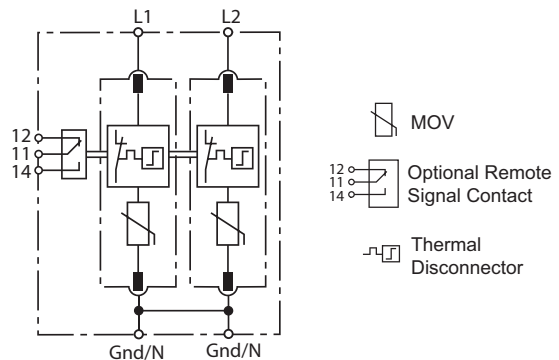
## Features

- Surge arrester according to UL 1449 3<sup>rd</sup> Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty zinc oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) make higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

## Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

## Circuit Diagram



**BSPM2240S3G, BSPM2480S3G\***

Shown with optional remote contact signaling

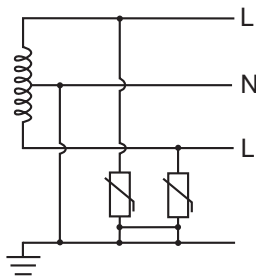
\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPM2480S3GR

Data Sheet: 2150

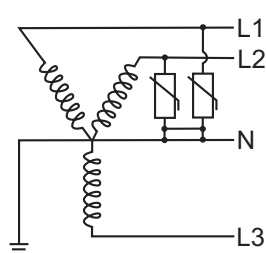
# UL DIN-Rail SPD - High SCCR

| ORDERING INFORMATION   |                          |   |
|--|--------------------------|---|
| Nominal System Voltage   |                          | 120/240, 240Vac                                       |
| Max. Continuous Operating Voltage MCOV [L-G/L-L]                               |                          | 275/550Vac  |
| Catalog Numbers:   | Without Remote Signaling | BSPM2240S3G   |
|  | With Remote Signaling    | BSPM2240S3GR  |
| Replacement Module   | MOV Technology           | BPM275UL  |
|  |                          | BPM385UL  |
| SPECIFICATIONS   |                          |   |
| Rated Voltage  |                          | 120-127Vac<br>240-254Vac<br>240Vac                    |
| Voltage Protection Rating $V_{PR}$ [L-G/L-L]                                   |                          | 1kV/1.8kV   |
| Nominal Discharge Current $I_n$ (kA)   |                          | 20kA  |
| Max. Discharge Current $I_{max}$ (kA)  |                          | 40kA  |
| Response Time $t_A$  |                          | ≤25 ns  |
| SCCR   |                          | 200kA   |
| Frequency  |                          | 50/60Hz   |
| Number of Poles  |                          | 2   |
| Number of Wires/Connection Points  |                          | 2 Wires or 3 Wires / 3 Connection Points              |
| Operating State/Fault Indication   |                          | Green (good) / Red (replace)                          |
| Cross-Sectional Area (min.)  |                          | 14AWG - Cu Stranded, Solid or Fine                    |
| Cross-Sectional Area (max.)  |                          | 2AWG - Cu Solid or Stranded, 4AWG - Cu Fine           |
| Terminal Torque  |                          | 45 lb-in  |
| For Mounting On  |                          | 35mm DIN-Rail per EN 60715                            |
| Enclosure Material   |                          | Thermoplastic, UL 94V0                                |
| Degree of Protection   |                          | IP20 (finger-safe)                                    |
| Location Category  |                          | Indoor  |
| Capacity   |                          | 2 mods, DIN 43880                                     |
| Application  |                          | UL Type 2 Component Assembly                          |
| Standard   |                          | UL 1449, 3 <sup>rd</sup> Edition                      |
| Agency Information   |                          | cURus, CSA, RoHS Compliant                            |
| Product Warranty   |                          | Five Years*   |
| REMOTE CONTACT SIGNALING   |                          |   |
| Remote Contact Signaling Type  |                          | Changeover Contact                                    |
| AC Switching Capacity (Volts/Amps)   |                          | 250V/0.5A   |
| DC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A; 125V/0.2A; 75V/0.5A                        |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals |                          | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible |
| Ordering Information   |                          | Order from Catalog Numbers Above                      |

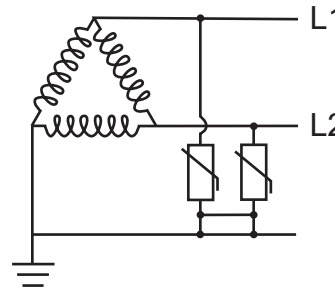
\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).



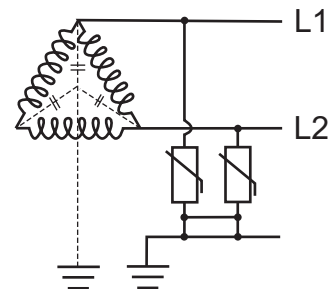
120/240V, 240/480Vac  
Single Phase (Split) Center Tap  
BSPM2240S3G, BSPM2480S3G



120/208V, 277/480Vac  
3 Wire Wye System  
BSPM2240S3G, BSPM2480S3G



2 Wire Corner Grounded Delta

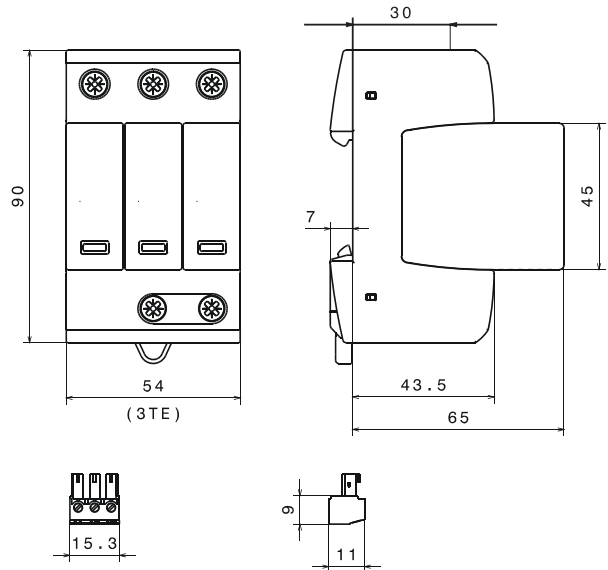


240, 480Vac  
2 Wire Ungrounded Delta  
BSPM2440S3G, BSPM2480S3G

# UL DIN-Rail SPD - High SCCR

BSPM\_\_\_WYG, BSPM\_\_\_DLG

Dimensions - mm



Shown with optional remote contact signaling

## Description

The Bussmann 3-pole UL modular surge arresters for 240 and 480 3-phase Delta, and 120/208, 277/480 and 347/600Vac 3-phase Wye systems feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

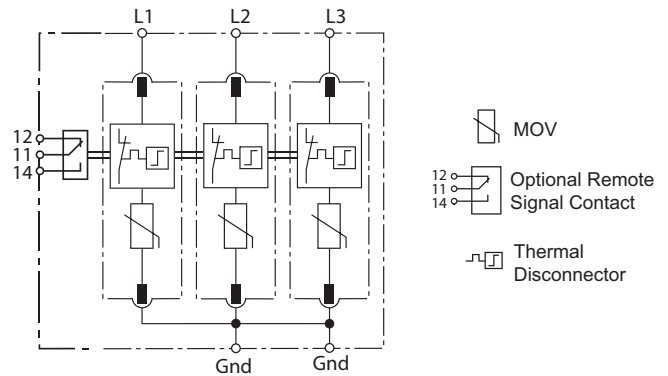
## Features

- Surge arrester according to UL 1449 3<sup>rd</sup> Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty zinc oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) make higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

## Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

## Circuit Diagrams



**BSPM3208WYG, BSPM3480WYG), BSPM3600WYG, BSPM3240DLG, BSPM3480DLG\***

Shown with optional remote contact signaling

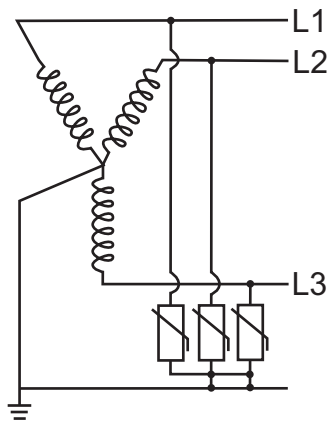
\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPM3480DLGR



# UL DIN-Rail SPD - High SCCR

| ORDERING INFORMATION   |   |              |              |              |              |
|--|---|--------------|--------------|--------------|--------------|
| Nominal System Voltage   | 120/208Vac  | 240Vac       | 277/480Vac   | 480Vac       | 347/600Vac   |
| Max. Continuous Operating AC Voltage MCOV [L-G/L-L]                            | 275/550Vac  | 275/550Vac   | 385/770Vac   | 600/1200Vac  | 600/1200Vac  |
| Catalog Numbers:   | Without Remote Signaling                              | BSPM3208WYG  | BSPM3240DLG  | BSPM3480WYG  | BSPM3480DLG  |
|  | With Remote Signaling                                 | BSPM3208WYGR | BSPM3240DLGR | BSPM3480WYGR | BSPM3480DLGR |
| Replacement Module   | MOV Technology  | BPM275UL     | BPM275UL     | BPM385UL     | BPM600UL     |
| SPECIFICATIONS   |   |              |              |              |              |
| Rated Voltage  | 120-127Vac,<br>208-220Vac                             | 240Vac       | 277/480Vac   | 480Vac       | 347/600Vac   |
| Voltage Protection Rating $V_{PR}$ [L-G/L-L]                                   | 1kV/1.8kV   | 1kV/1.8kV    | 1.5kV/2.5kV  | 2kV/4kV      | 2kV/4kV      |
| SCCR   | 200kA   | 200kA        | 200kA        | 125kA        | 125kA        |
| Nominal Discharge Current $I_n$ (kA)   | 20kA  |              |              |              |              |
| Max. Discharge Current $I_{max}$ (kA)  | 40kA  |              |              |              |              |
| Response Time $t_A$  | $\leq 25$ ns  |              |              |              |              |
| Frequency  | 50/60Hz   |              |              |              |              |
| Number of Poles  | 3   |              |              |              |              |
| Number of Wires/Connection Points  | 3 Wires / 4 Connection Points                         |              |              |              |              |
| Operating State/Fault Indication   | Green (good) / Red (replace)                          |              |              |              |              |
| Cross-Sectional Area (min.)  | 14AWG - Cu Stranded, Solid or Fine                    |              |              |              |              |
| Cross-Sectional Area (max.)  | 2AWG - Cu Solid or Stranded, 4AWG - Cu Fine           |              |              |              |              |
| Terminal Torque  | 45 lb-in  |              |              |              |              |
| For Mounting On  | 35mm DIN-Rail per to EN 60715                         |              |              |              |              |
| Enclosure Material   | Thermoplastic, UL 94V0                                |              |              |              |              |
| Degree of Protection   | IP20 (finger-safe)                                    |              |              |              |              |
| Location Category  | Indoor  |              |              |              |              |
| Capacity   | 3 Mods, DIN 43880                                     |              |              |              |              |
| Application  | UL Type 2 Component Assembly                          |              |              |              |              |
| Standard   | UL 1449, 3 <sup>rd</sup> Edition                      |              |              |              |              |
| Agency Information   | cURus, CSA, RoHS Compliant                            |              |              |              |              |
| Product Warranty   | Five Years*   |              |              |              |              |
| REMOTE CONTACT SIGNALING   |   |              |              |              |              |
| Remote Contact Signaling Type  | Changeover Contact                                    |              |              |              |              |
| AC Switching Capacity (Volts/Amps)   | 250V/0.5A   |              |              |              |              |
| DC Switching Capacity (Volts/Amps)   | 250V/0.1A; 125V/0.2A; 75V/0.5A                        |              |              |              |              |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible |              |              |              |              |
| Ordering Information   | Order from Catalog Numbers Above                      |              |              |              |              |

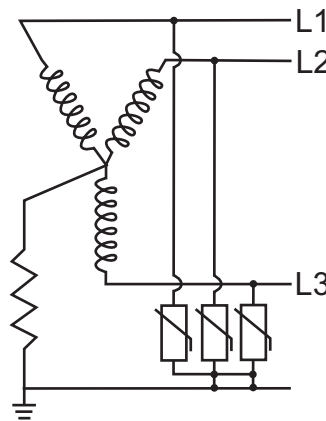
\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).



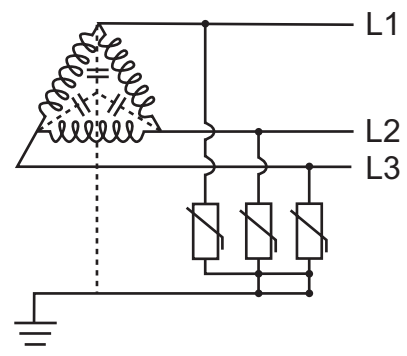
208, 480, 600Vac

Wye 3-Phase, 3 Wire + Ground

BSPM3208WYG, BSPM3480WYG, BSPM3600WYG



208V, 480V, 600Vac



240, 480Vac

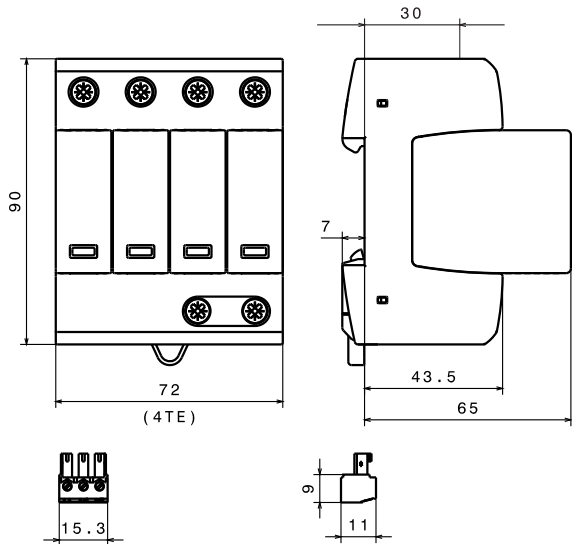
Delta 3-Phase, 3 Wire + Ground

BSPM3240DLG, BSPM3480DLG

# UL DIN-Rail SPD - High SCCR

BSPM\_ \_ \_ WYNG, BSPM\_ \_ \_ HLG

Dimensions - mm



Shown with optional remote contact signaling

## Description

The Bussmann 4-pole UL modular surge arresters for 120/240, 240/480Vac 3-phase Highleg Delta and 120/208, 127/220, 277/480 and 347/600Vac 3-phase 4 wire Wye systems feature local, easyID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

## Features

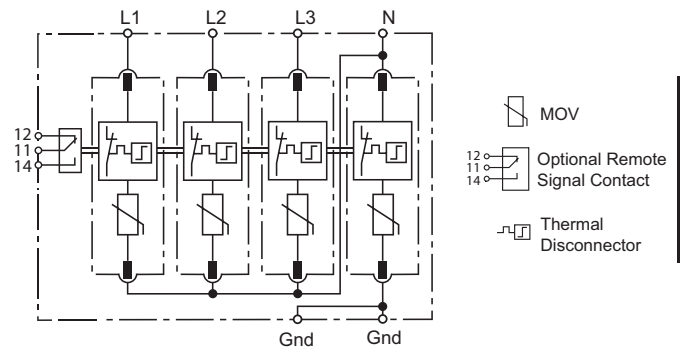
- Surge arrester according to UL 1449 3<sup>rd</sup> Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty zinc oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) make higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

## Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

Data Sheet: 2152

## Circuit Diagram



**BSPM4208WYNG, BSPM4480WYNG, BSPM4600WYNG, BSPM4240HLG, BSPM4480HLG\***

Shown with optional remote contact signaling

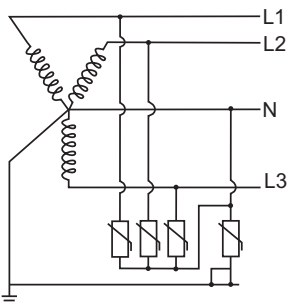
\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPM4480HLGR

Surge Protection  
Devices

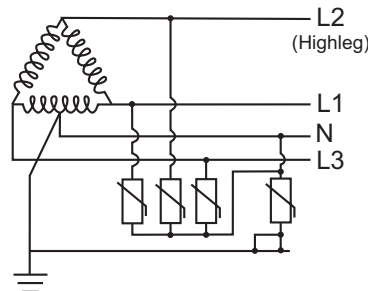
# UL DIN-Rail SPD - High SCCR

| ORDERING INFORMATION   |                          |                           |              |   |               |               |
|--|--------------------------|---------------------------|--------------|---|---------------|---------------|
| Nominal System Voltage   |                          | 120/208Vac,<br>127/220Vac | 120/240Vac   | 240/480Vac  | 277/480Vac    | 347/600Vac    |
| Max. continuous operating AC voltage MCOV                                      | [L-N]/[L-G]              | 275/550Vac                | 275/550Vac   | 385/770Vac  | 385/660Vac    | 600/875Vac    |
|  | [N-G]/[L-L]              | 275/550Vac                | 275/550Vac   | 385/770Vac  | 275/770Vac    | 275/1200Vac   |
|  | [H-N]/[H-G]              | --                        | 275/550Vac   | 600/985Vac  | --            | --            |
|  | [H-L]                    | --                        | 550Vac       | 985Vac  | --            | --            |
| Catalog Numbers:   | Without Remote Signaling | BSPM4208WYNG              | BSPM4240HLG  | BSPM4480HLG   | BSPM4480WYNG  | BSPM4600WYNG  |
|  | With Remote Signaling    | BSPM4208WYNGR             | BSPM4240HLGR | BSPM4480HLGR  | BSPM4480WYNGR | BSPM4600WYNGR |
| Replacement Modules  | Module Positions         | L1 or L3                  | BPM275UL     | BPM275UL  | BPM385UL      | BPM385UL      |
| MOV Technology   |                          | L2                        | BPM275UL     | BPM275UL  | BPM600UL      | BPM385UL      |
| Four (4) Total Required  |                          | N                         | BPM275UL     | BPM275UL  | BPM385UL      | BPM275UL      |
| SPECIFICATIONS   |                          |                           |              |   |               |               |
| Rated Voltage  |                          | 120/208Vac,<br>127/220Vac | 120/240Vac   | 240/480Vac  | 277/480Vac    | 347/600Vac    |
| Voltage Protection Rating $V_{PR}$   | [L-N/L-G]                | 1kV/1.8kV                 | 1kV/1.8kV    | 1.5kV/2.5kV   | 1.5kV/2.5kV   | 2kV/3kV       |
|  | [N-G/L-L]                | 1kV/1.8kV                 | 1kV/1.8kV    | 1.5kV/2.5kV   | 1kV/2.5kV     | 1kV/4kV       |
|  | [H-N/H-G]                | --                        | 1kV/1.8kV    | 2kV/3kV   | --            | --            |
|  | [H-L]                    | --                        | 1.8kV        | 3kV   | --            | --            |
| SCCR   |                          | 200kA                     | 200kA        | 125kA   | 200kA         | 125kA         |
| Nominal Discharge Current $I_n$ (kA)   |                          |                           |              | 20kA  |               |               |
| Max. Discharge Current $I_{max}$ (kA)  |                          |                           |              | 40kA  |               |               |
| Response Time $t_A$  |                          |                           |              | ≤ 25 ns   |               |               |
| Frequency  |                          |                           |              | 50/60Hz   |               |               |
| Number of Poles  |                          |                           |              | 4   |               |               |
| Number of Wires/Connection Points  |                          |                           |              | 4 Wires / 5 Connection Points                         |               |               |
| Operating State/Fault Indication   |                          |                           |              | Green (good) / Red (replace)                          |               |               |
| Cross-Sectional Area (min.)  |                          |                           |              | 14AWG - Cu Stranded, Solid or Fine                    |               |               |
| Cross-Sectional Area (max.)  |                          |                           |              | 2AWG - Cu Solid or Stranded, 4AWG - Cu Fine           |               |               |
| Terminal Torque  |                          |                           |              | 45 lb-in  |               |               |
| For Mounting On  |                          |                           |              | 35mm DIN-Rail per to EN 60715                         |               |               |
| Enclosure Material   |                          |                           |              | Thermoplastic, UL 94V0                                |               |               |
| Degree of Protection   |                          |                           |              | IP20 (finger-safe)                                    |               |               |
| Location Category  |                          |                           |              | Indoor  |               |               |
| Capacity   |                          |                           |              | 4 Mods, DIN 43880                                     |               |               |
| Application  |                          |                           |              | UL Type 2 Component Assembly                          |               |               |
| Standard   |                          |                           |              | UL 1449, 3 <sup>rd</sup> edition                      |               |               |
| Agency Information   |                          |                           |              | cURus, CSA, RoHS Compliant                            |               |               |
| Product Warranty   |                          |                           |              | Five Years*   |               |               |
| REMOTE CONTACT SIGNALING   |                          |                           |              |   |               |               |
| Remote Contact Signaling Type  |                          |                           |              | Changeover Contact                                    |               |               |
| AC Switching Capacity (Volts/Amps)   |                          |                           |              | 250V/0.5A   |               |               |
| DC Switching Capacity (Volts/Amps)   |                          |                           |              | 250V/0.1A; 125V/0.2A; 75V/0.5A                        |               |               |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals |                          |                           |              | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible |               |               |
| Ordering Information   |                          |                           |              | Order from Catalog Numbers Above                      |               |               |

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).



120/208V, 127/220V, 277/480V, 347/600Vac  
Wye 3-Phase, 4 Wire + Ground  
**BSPM4208WYNG, BSPM4480WYNG,  
BSPM4600WYNG**



120/240V, 240/480Vac  
Highleg Delta, 3-Phase, 4 Wire + Ground  
**BSPM4240HLG, BSPM4480HLG**

Data Sheet: 2152

# UL DIN-Rail SPD - Low Voltage AC/DC Power

BSPM1A\_ \_ \_ LV



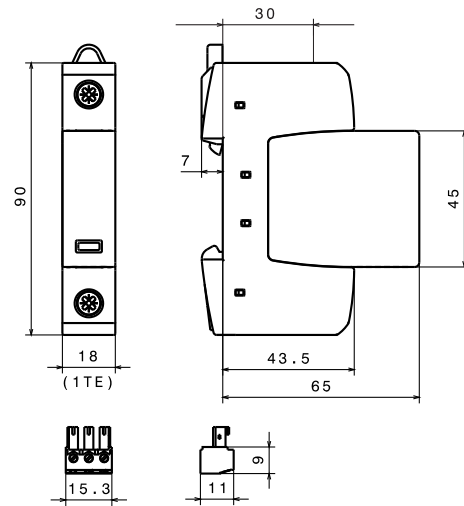
**easyID™**  
Visual Status Indication



Remote Signal Contact Available



Dimensions - mm



Shown with optional remote contact signaling

## Description

The Bussmann UL Type 2 48Vac/60Vdc, 75Vac/100Vdc, 120Vac/200Vdc, 275Vac/350Vdc, 320Vac/420Vdc, 385Vac/500Vdc, 440Vac/585Vdc and 600Vac/dc single pole, modular surge arresters feature local, **easyID™** visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

## LV Power System Arresters

The features of these single-pole devices are for use as a single device or in combination with other devices for AC and DC voltage systems.

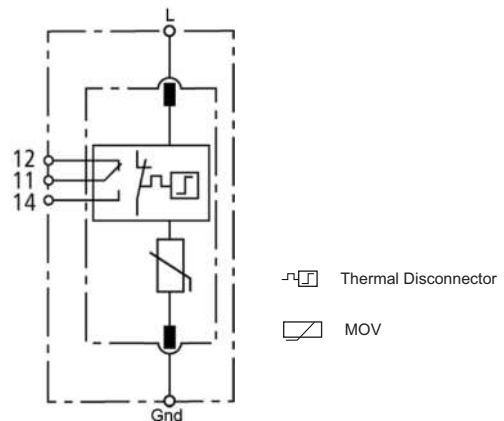
- Surge arrester according to UL 1449 3<sup>rd</sup> Edition, Type 2 Component Assembly helps meet UL 508A requirements\*
- Proven MOV technology for reliable surge protection
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

## Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

\* Except as noted in data sheets.

## Module Circuit Diagrams - Shown with optional remote contact signaling



**BSPM1A48D60LV, BSPM1A75D100LV,  
BSPM1A150D200LV,  
BSPM1A275D350LV, BSPM1A320D420LV,  
BSPM1A385D500LV, BSPM1A440D585LV,  
BSPM1A600D600LV\***

Shown with optional remote contact signaling

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPM1A150D200LVR

Surge Protection Devices

## UL DIN-Rail SPD - Low Voltage AC/DC Power

| Ordering Information - 48Vac/60Vdc to 275Vac/350Vdc    |                          |                |                        |                        |                        |
|--|--------------------------|----------------|------------------------|------------------------|------------------------|
| System Voltage   |                          | 48Vac/60Vdc    | 75Vac/100Vdc           | 120Vac/200Vdc          | 275Vac/350Vdc          |
| Catalog Numbers:<br>(Base + Modules)                   | Without Remote Signaling | BSPM1A48D60LV  | BSPM1A75D100LV         | BSPM1A150D200LV        | BSPM1A275D350LV        |
|  | With Remote Signaling    | BSPM1A48D60LVR | BSPM1A75D100LVR        | BSPM1A150D200LVR       | BSPM1A275D350LVR       |
| Replacement Modules                                    |                          | BPMA48D60LV    | BPMA75D100LV           | BPMA150D200LV          | BPMA275D350LV          |
| Specifications   |                          |                |                        |                        |                        |
| Max. continuous operating AC voltage [V <sub>C</sub> ] |                          | 48Vac          | 75Vac                  | 150Vac                 | 275Vac                 |
| Max. continuous operating DC voltage [V <sub>C</sub> ] |                          | 60Vdc          | 100Vdc                 | 200Vdc                 | 350Vdc                 |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]  |                          | 10kA           | 10kA                   | 15kA                   | 20kA                   |
| Max. discharge current (8/20 μs) [I <sub>max</sub> ]   |                          | 25kA           | 40kA                   | 40kA                   | 40kA                   |
| Voltage protection level [V <sub>PR</sub> ]            |                          | ≤ 0.3 kV       | ≤ 0.4kV                | ≤ 0.7kV                | ≤ 1.25kV               |
| Voltage protection level at 5 kA [V <sub>PR</sub> ]    |                          | ≤ 0.25kV       | ≤ 0.35kV               | ≤ 0.55kV               | ≤ 1kV                  |
| Temporary overvoltage (TOV)                            |                          | 70V / 5 sec.   | 90V / 5 sec.           | 175V / 5 sec.          | 335V / 5 sec           |
| Agency Information*                                    |                          | --             | UL / cUL,<br>CSA, KEMA | UL / cUL,<br>CSA, KEMA | UL / cUL,<br>CSA, KEMA |

| Ordering Information - 320Vac/420Vdc to 600Vac/dc      |                          |                        |                        |                        |                        |
|--|--------------------------|------------------------|------------------------|------------------------|------------------------|
| System Voltage   |                          | 320Vac/420Vdc          | 385Vac/500Vdc          | 440Vac/585Vdc          | 600Vac/600Vdc          |
| Catalog Numbers:<br>(Base + Modules)                   | Without Remote Signaling | BSPM1A320D420LV        | BSPM1A385D500LV        | BSPM1A440D585LV        | BSPM1A600D600LV        |
|  | With Remote Signaling    | BSPM1A320D420LVR       | BSPM1A385D500LVR       | BSPM1A440D585LVR       | BSPM1A600D600LVR       |
| Replacement Modules                                    |                          | BPMA320D420LV          | BPMA385D500LV          | BPMA440D585LV          | BPMA600D600LV          |
| Specifications   |                          |                        |                        |                        |                        |
| Max. continuous operating AC voltage [V <sub>C</sub> ] |                          | 320Vac                 | 385Vac                 | 440Vac                 | 600Vac                 |
| Max. continuous operating DC voltage [V <sub>C</sub> ] |                          | 420Vdc                 | 500Vdc                 | 585Vdc                 | 600Vdc                 |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]  |                          | 20kA                   | 20kA                   | 20kA                   | 15kA                   |
| Max. discharge current (8/20 μs) [I <sub>max</sub> ]   |                          | 40kA                   | 40kA                   | 40kA                   | 30kA                   |
| Voltage protection level [V <sub>PR</sub> ]            |                          | ≤ 1.5kV                | ≤ 1.75kV               | ≤ 2kV                  | ≤ 2.5kV                |
| Voltage protection level at 5 kA [V <sub>PR</sub> ]    |                          | ≤ 1.2kV                | ≤ 1.35kV               | ≤ 1.7kV                | ≤ 2kV                  |
| Temporary overvoltage (TOV)                            |                          | 335V / 5 sec.          | 385V / 5 sec.          | 580V / 5 sec.          | 600V / 5 sec.          |
| Agency Information*                                    |                          | UL / cUL,<br>CSA, KEMA | UL / cUL,<br>CSA, KEMA | UL / cUL,<br>CSA, KEMA | UL / cUL,<br>CSA, KEMA |

| Ordering Information - All Models  |   |
|--|---|
| SPD according to EN 61643-11   | Type 2  |
| SPD according to IEC 61643-1   | Class II  |
| Response time [t <sub>A</sub> ]  | ≤ 25 ns   |
| TOV characteristics  | Withstand   |
| Operating temperature range [T <sub>U</sub> ]                                  | -40°C to +80°C  |
| Operating state/fault indication   | Green (good) / Red (replace)                                      |
| Number of ports  | 1   |
| Cross-sectional area (min.)  | 1.5mm <sup>2</sup> /14AWG solid/flexible                          |
| Cross-sectional area (max.)  | 35mm <sup>2</sup> /1AWG stranded/25mm <sup>2</sup> /2AWG flexible |
| For mounting on  | 35mm DIN-Rail per EN 60715  |
| Enclosure material   | Thermoplastic, UL 94V0  |
| Location category  | Indoor  |
| Degree of protection   | IP20  |
| Capacity   | 1 Mod., DIN 43880   |
| Product Warranty   | Five Years**  |
| Remote Contact Signaling   |   |
| Remote Contact Signaling Type  | Changeover Contact  |
| AC Switching Capacity (Volts/Amps)   | 250V/0.5A   |
| DC Switching Capacity (Volts/Amps)   | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |
| Ordering Information   | Order from Catalog Numbers Above                                  |

\* Standards information not applicable to DC ratings.

\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).



# UL DIN-Rail SPD - Low Voltage AC/DC Control

BSPH2A\_\_LV(R)



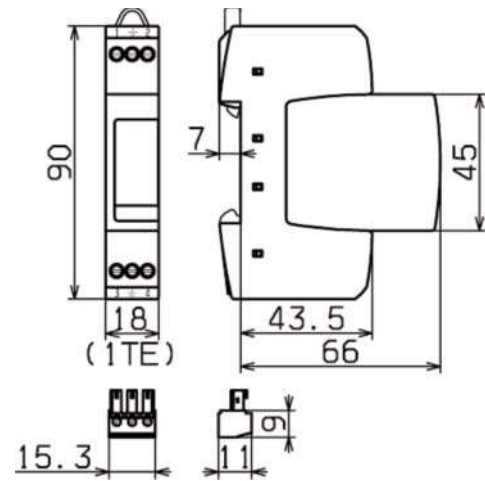
**easyID™**  
Visual Status Indication



Remote Signal  
Contact Available



Dimensions - mm



Shown with optional remote contact signaling

## Specifications

### Description

The Bussmann UL Type 3 24Vac/dc, 48Vac/dc, 60Vac/dc, 120Vac/dc and 230Vac/dc, two-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

### LV System Arresters

The features of these two-pole devices are for use in coordination with other upstream SPDs in UL 508A Applications\*.

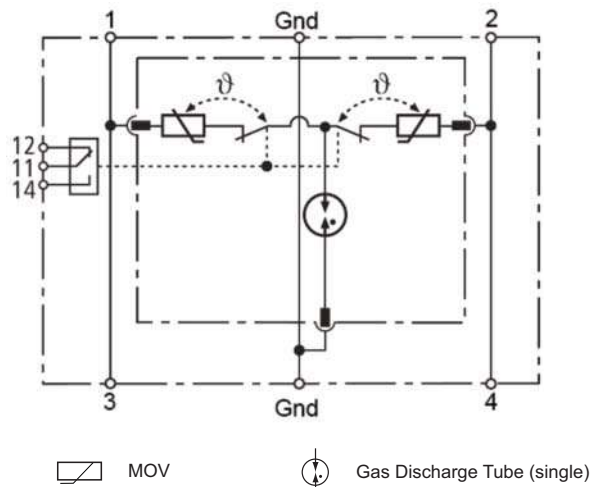
- Surge arrester according to UL 1449 3<sup>rd</sup> Edition, Type 3 Component Assembly helps meet UL 508A requirements
- Proven MOV and GDT hybrid technology for reliable surge protection
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

### Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

\* UL 1449 3<sup>rd</sup> Edition not applicable to DC voltages.

## Module Circuit Diagrams



**BPH2A24D24LV    BPH2A48D48LV    BPH2A60D60LV**  
**BPH2A150D150LV    BPH2A230D230LV**

Shown with optional remote contact signaling

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPH2A230D230LVR

Surge Protection  
Devices

## UL DIN-Rail SPD - Low Voltage AC/DC Power

| Ordering Information   |  |                |                |                |                             |                  |
|--|--|----------------|----------------|----------------|-----------------------------|------------------|
| System Voltage   | 24Vac/dc   | 48Vac/dc       | 60Vac/dc       | 120Vac/dc      | 230Vac/dc                   |                  |
| Max. Continuous operating AC voltage (MCOV) [V <sub>C</sub> ]                  | 30Vac/dc   | 60Vac/dc       | 75Vac/dc       | 150Vac/dc      | 255Vac/dc                   |                  |
| Catalog Numbers:<br>(Base + Modules)   | Without Remote Signaling   | BSPH2A24D24LV  | BSPH2A48D48LV  | BSPH2A60D60LV  | BSPH2A150D150LV             | BSPH2A230D230LV  |
|  | With Remote Signaling  | BSPH2A24D24LVR | BSPH2A48D48LVR | BSPH2A60D60LVR | BSPH2A150D150LVR            | BSPH2A230D230LVR |
| Replacement Modules  | BPHA24D24LV  | BPHA48D48LV    | BPHA60D60LV    | BPHA150D150LV  | BPHA230D230LV               |                  |
| Specifications   |  |                |                |                |                             |                  |
| Nominal AC voltage [V <sub>0</sub> ]   | 24V  | 48V            | 60V            | 120V           | 230V                        |                  |
| Max. continuous operating AC voltage [V <sub>C</sub> ]                         | 30V  | 60V            | 75V            | 150V           | 255V                        |                  |
| Max. continuous operating DC voltage [V <sub>C</sub> ]                         | 30V  | 60V            | 75V            | 150V           | 255V                        |                  |
| Nominal load current AC [I <sub>N</sub> ]                                      | 25A  | 25A            | 25A            | 25A            | 25A                         |                  |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]                          | 1kA  | 1kA            | 2kA            | 2kA            | 3kA                         |                  |
| Total discharge current (8/20 μs) [L+N-Gnd] [I <sub>total</sub> ]              | 2kA  | 2kA            | 4kA            | 4kA            | 5kA                         |                  |
| Combined impulse [U <sub>OC</sub> ]  | 2kV  | 2kV            | 4kV            | 4kV            | 6kV                         |                  |
| Combined impulse [L+N-Gnd] [U <sub>OC</sub> total]                             | 4kV  | 4kV            | 8kV            | 8kV            | 10kV                        |                  |
| Voltage protection level [L-N] [V <sub>PR</sub> ]                              | ≤ 180V   | ≤ 350V         | ≤ 400V         | ≤ 640V         | ≤ 1250V                     |                  |
| Voltage protection level [L/N-Gnd] [V <sub>PR</sub> ]                          | ≤ 630V   | ≤ 730V         | ≤ 730V         | ≤ 800V         | ≤ 1500V                     |                  |
| Temporary overvoltage (TOV) [L-N]  | --   | --             | --             | --             | 335V / 5 sec.               |                  |
| Temporary overvoltage (TOV) [L/N-Gnd]  | --   | --             | --             | --             | 400V / 5 sec.               |                  |
| Temporary overvoltage (TOV) [L+N-Gnd]  | --   | --             | --             | --             | 1200V + V <sub>0</sub> / 20 |                  |
| TOV characteristics [L-N]  | --   | --             | --             | --             | Withstand                   |                  |
| TOV characteristics [L/N-Gnd]  | --   | --             | --             | --             | Withstand                   |                  |
| TOV characteristics [L+N-Gnd]  | --   | --             | --             | --             | Failure                     |                  |
| SPD according to EN 61643-11   | Type 3   |                |                |                |                             |                  |
| SPD according to IEC 61643-1   | Class III  |                |                |                |                             |                  |
| Response time [L-N] [t <sub>A</sub> ]  | ≤ 25 ns  |                |                |                |                             |                  |
| Response time [L/N-Gnd] [t <sub>A</sub> ]                                      | ≤ 100 ns   |                |                |                |                             |                  |
| Operating temperature range [T <sub>U</sub> ]                                  | -40°C to +80°C   |                |                |                |                             |                  |
| Operating state/fault indication   | Green (good) / Red (replace)                                     |                |                |                |                             |                  |
| Number of ports  | 1  |                |                |                |                             |                  |
| Cross-sectional area (min.)  | 0.5mm <sup>2</sup> /18AWG solid/flexible                         |                |                |                |                             |                  |
| Cross-sectional area (max.)  | 4mm <sup>2</sup> /10AWG solid/2.5mm <sup>2</sup> /12AWG flexible |                |                |                |                             |                  |
| For mounting on  | 35mm DIN rail per EN 60715                                       |                |                |                |                             |                  |
| Enclosure material   | Thermoplastic, UL 94V0   |                |                |                |                             |                  |
| Location category  | Indoor   |                |                |                |                             |                  |
| Degree of protection   | IP20   |                |                |                |                             |                  |
| Capacity   | 1 Mod., DIN 43880  |                |                |                |                             |                  |
| Agency Information*  | UL / cUL, CSA, KEMA  |                |                |                |                             |                  |
| Product Warranty   | Five Years**   |                |                |                |                             |                  |
| Remote Contact Signaling   |  |                |                |                |                             |                  |
| Remote Contact Signaling Type  | Changeover Contact   |                |                |                |                             |                  |
| AC Switching Capacity (Volts/Amps)   | 250V/0.5A  |                |                |                |                             |                  |
| DC Switching Capacity (Volts/Amps)   | 250V/0.1A; 125V/0.2A; 75V/0.5A                                   |                |                |                |                             |                  |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible            |                |                |                |                             |                  |
| Ordering Information   | Order from Catalog Numbers Above                                 |                |                |                |                             |                  |

\* Standards information not applicable to DC ratings.

\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

# IEC Class I DIN-Rail SPD

BSPS \_\_\_ TN, BSPS \_\_\_ TT



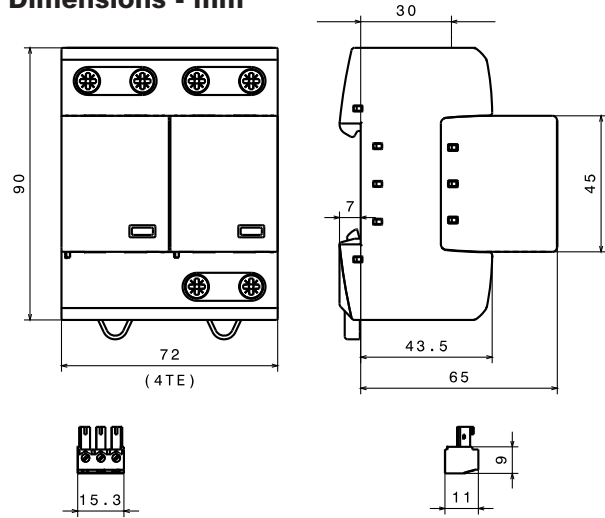
**easyID™**  
Visual Status Indication



Remote Signal Contact Available



## Dimensions - mm



Shown with optional remote contact signaling

## Description

The Bussmann IEC Class I 230V, two-pole, modular combined lightning, current and surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module. 230V models are offered with MCOV rating of 255V.

### TN System Arresters

The features of these two-pole devices are for use as a modular combined lightning and current arrester and surge arrester for use in single TN- systems ("2-0" circuit).



### TT System Arrester

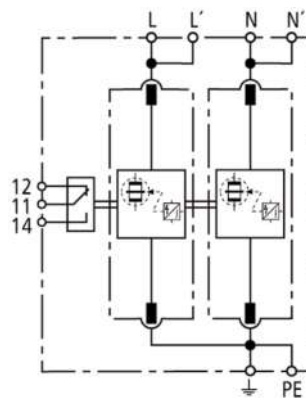
Provides a current arresting means for use in single TT- systems ("1-1" circuit).

### Remote Signaling Contact

The three-terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

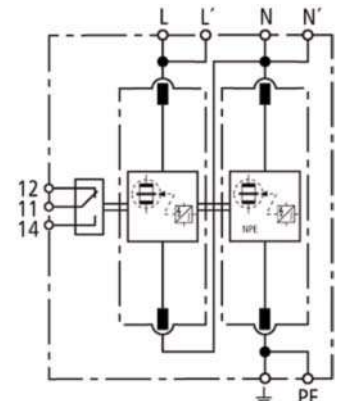
## Circuit Diagrams

-  Creepage Discharge Spark Gap
-  Spark Gap Trigger



**BSPS2255TN**

Shown with optional remote contact signaling



**BSPS2255TT**

Shown with optional remote contact signaling

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPS2255TNR

# IEC Class I DIN-Rail SPD

| Ordering Information  |                          |   |
|---|--------------------------|---|
| System Voltage/Poles  |                          | 230V/2  |
| Max. Continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                     |                          | 255V  |
| Catalog Numbers:  | Without Remote Signaling | BSPS2255TN  |
|   | With Remote Signaling    | BSPS2255TNR   |
| Replacement Modules:  | MOV technology           | (2X) BPS255IEC  |
|   | Spark Gap technology     | - - (1X) BPS50NPEIEC*   |
| Specifications  |                          |   |
| Specific energy [L+N-PE] [W/R]  |                          | 625.00 kJ/ohms  |
| Lightning impulse current (10/350 μs) [L, N-PE] [I <sub>imp</sub> ]               |                          | 25kA  |
| Specific energy [L,N-PE] [W/R]  |                          | 156.25 kJ/ohms  |
| Voltage protection level [L-PE]/[N-PE] [U <sub>P</sub> ]                          |                          | ≤ 1.5 kV/≤ 1.5 kV   |
| Voltage protection level [L-N]/[N-PE] [U <sub>P</sub> ]                           |                          | - - ≤ 1.5kV/≤ 1.5kV   |
| Follow current extinguishing capability AC [I <sub>ff</sub> ]                     |                          | 50kA rms  |
| Follow current extinguishing capability [L-N]/[N-PE] [I <sub>ff</sub> ]           |                          | - - 50kA rms/100A rms   |
| Temporary overvoltage (TOV) [N-PE] [U <sub>T</sub> ]                              |                          | - - 1200V/200 ms  |
| SPD according to EN 61643-11/... IEC 61643-1                                      |                          | Type 1/Class I  |
| Energy-coordinated protection effect with regard to the terminal equipment        |                          | Type 1 + Type 2   |
| Energy-coordinated protection effect with regard to the terminal equipment (≤ 5m) |                          | Type 1 + Type 2 + Type 3  |
| Nominal AC voltage [U <sub>N</sub> ]  |                          | 230V  |
| Lightning impulse current (10/350 μs) [L+N-PE] [I <sub>total</sub> ]              |                          | 50kA  |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]                             |                          | 25/50kA   |
| Follow current limitation/Selectivity   |                          | no tripping of a 20A gL/gG fuse up to 50kA rms (prosp.)           |
| Response time [t <sub>A</sub> ]   |                          | ≤ 100 ns  |
| Max. Backup fuse (L) up to I <sub>k</sub> ≤ 50kA rms                              |                          | 315A gL/gG  |
| Max. Backup fuse (L) for I <sub>k</sub> > 50kA rms                                |                          | 200A gL/gG  |
| Max. Backup fuse (L-L)  |                          | 125A gL/gG  |
| Temporary overvoltage (TOV) [L-N] [U <sub>T</sub> ]                               |                          | 440V/5 sec.   |
| TOV characteristics   |                          | withstand   |
| Operating temperature range (parallel connection) [T <sub>UP</sub> ]              |                          | -40°C to +80°C  |
| Operating temperature range (series connection) [T <sub>US</sub> ]                |                          | -40°C to +60°C  |
| Operating temperature range [parallel]/[continuity] [T <sub>U</sub> ]             |                          | -40°C to +80°C/-40°C to +60°C                                     |
| Operating state/fault indication  |                          | green (good)/red (replace)  |
| Number of ports   |                          | 1   |
| Cross-sectional area (L, L, N, N, PE, ⊥) [min.]                                   |                          | 10mm <sup>2</sup> solid/flexible                                  |
| Cross-sectional area (L, N, PE) [max.]  |                          | 50mm <sup>2</sup> /1AWG stranded-35mm <sup>2</sup> /2AWG flexible |
| Cross-sectional area (L, N, ⊥) [max.]   |                          | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |
| For mounting on   |                          | 35mm DIN Rail per EN 60715  |
| Enclosure material  |                          | Thermoplastic, UL 94V0  |
| Location category   |                          | Indoor  |
| Degree of protection  |                          | IP20  |
| Capacity  |                          | 4 mods., DIN 43880  |
| Standards Information   |                          | KEMA  |
| Product Warranty  |                          | Five Years**  |
| Remote Contact Signaling  |                          |   |
| Remote Contact Signaling Type   |                          | Changeover Contact  |
| AC Switching Capacity (Volts/Amps)  |                          | 250V/0.1A   |
| DC Switching Capacity (Volts/Amps)  |                          | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals    |                          | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |
| Ordering Information  |                          | Order from Catalog Numbers Above                                  |

| Recommended Bussmann NH DIN Size Back Up Fuses |                                       |      |  |
|--|---------------------------------------|------|--|
| Size   | NH Fuse Part Number                   | Size | NH Fuse Part Number                    |
| 00   | 125NHG00B (max L-L)                   | 02   | 125NHG02B (max L-L)                    |
| 0  | 125NHG0B (max L-L)                    | 02   | 200NHG02B (max L I <sub>k</sub> >50kA) |
| 01   | 125NHG01B (max L-L)                   | 2    | 315NHG2B (max L ≤50kA)                 |
| 1  | 200NHG1B (max L I <sub>k</sub> >50kA) | 03   | 315NHG03B (max L ≤50kA)                |

\* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

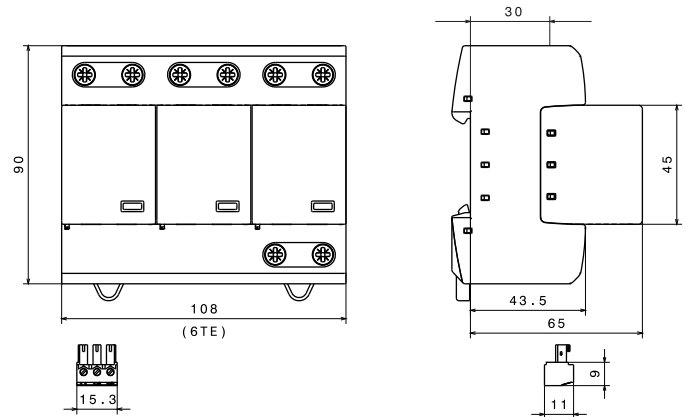
\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

# IEC Class I DIN-Rail SPD

BSPS\_ \_ \_ TNC

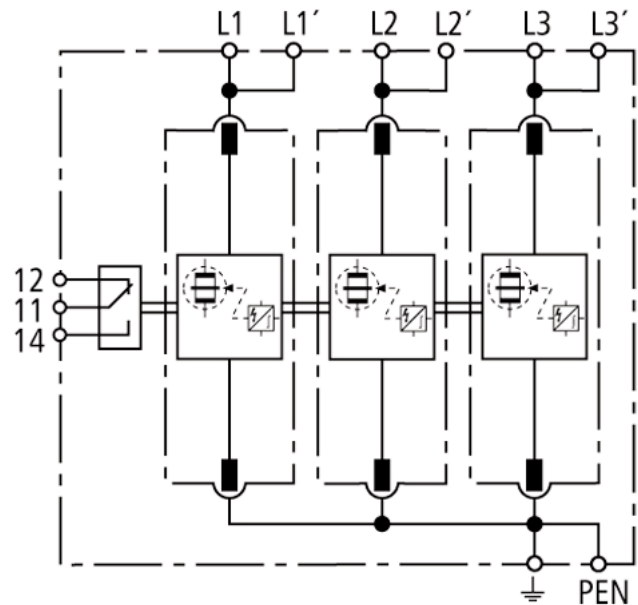


## Dimensions - mm



Shown with optional remote contact signaling

## Circuit Diagrams



**BSPS3255TNC**

Shown with optional remote contact signaling

### Description

The Bussmann IEC Class I 230V, three-pole, modular combined lightning, current and surge arresters feature local, easyID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

230V models are offered with a MCOV rating of 255V.

### TNC System Arrester

The features of these three-pole devices are for use in TN-C 230/400V systems ("3-0" circuit) against surges.

### Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPS3255TNCR



## IEC Class I DIN-Rail SPD

| Ordering Information  |   |
|---|---|
| System Voltage/Poles  | 230/400V/3  |
| Max. Continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                     | 255V  |
| Catalog Numbers:  | Without Remote Signaling<br>BSPS3255TNC                           |
|   | With Remote Signaling<br>BSPS3255TNCR                             |
| Replacement Module  | MOV technology<br>BPS255IEC                                       |
| Specifications  |   |
| SPD according to EN 61643-11/... IEC 61643-1                                      | Type 1/Class I  |
| Energy-coordinated protection effect with regard to the terminal equipment        | Type 1 + Type 2   |
| Energy-coordinated protection effect with regard to the terminal equipment (≤ 5m) | Type 1 + Type 2 + Type 3  |
| Nominal AC voltage [U <sub>N</sub> ]  | 230/400V  |
| Lightning impulse current (10/350 μs) [L1+L2+L3-PEN] [I <sub>total</sub> ]        | 75kA  |
| Specific energy [L1+L2+L3-PEN] [W/R]  | 1.40 MJ/ohms  |
| Lightning impulse current (10/350 μs) [L-PEN] [I <sub>imp</sub> ]                 | 25kA  |
| Specific energy [L-PEN] [W/R]   | 156.25kJ/ohms   |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]                             | 25/75kA   |
| Voltage protection level [U <sub>p</sub> ]  | ≤ 1.5kV   |
| Follow current extinguishing capability AC [I <sub>fi</sub> ]                     | 50kA rms  |
| Follow current limitation/Selectivity   | no tripping of a 20A gL/gG fuse up to 50kA rms (prosp.)           |
| Response time [t <sub>A</sub> ]   | ≤ 100 ns  |
| Max. Backup fuse (L) up to I <sub>k</sub> = 50kA rms                              | 315A gL/gG  |
| Max. Backup fuse (L) for I <sub>k</sub> > 50kA rms                                | 200A gL/gG  |
| Max. Backup fuse (L-L)  | 125A gL/gG  |
| Temporary overvoltage (TOV) [U <sub>T</sub> ]                                     | 440V/5 sec.   |
| TOV characteristics   | withstand   |
| Operating temperature range [parallel]/[continuity] [T <sub>U</sub> ]             | -40°C to +80°C/-40°C to +60°C                                     |
| Operating state/fault indication  | green (good)/red (replace)  |
| Number of ports   | 1   |
| Cross-sectional area (L1, L1, L2, L2, L3, L3, PEN, $\frac{1}{2}$ ) [min.]         | 10mm <sup>2</sup> solid/flexible                                  |
| Cross-sectional area (L1, L2, L3, PEN) [max.]                                     | 50mm <sup>2</sup> /1AWG stranded-35mm <sup>2</sup> /2AWG flexible |
| Cross-sectional area (L1, L2, L3, $\frac{1}{2}$ ) [max.]                          | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |
| Mounting  | 35mm DIN rail per to EN 60715                                     |
| Enclosure material  | Thermoplastic, UL 94V0  |
| Location category   | Indoor  |
| Degree of protection  | IP20  |
| Capacity  | 6 mods., DIN 43880  |
| Standards Information   | KEMA  |
| Product Warranty  | Five Years*   |
| Remote Contact Signaling  |   |
| Remote Contact Signaling Type   | Changeover Contact  |
| AC Switching Capacity (Volts/Amps)  | 250V/0.1A   |
| DC Switching Capacity (Volts/Amps)  | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals    | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |
| Ordering Information  | Order from Catalog Numbers Above                                  |

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

| Recommended Bussmann NH DIN Size Back Up Fuses |                                       |      |  |
|--|---------------------------------------|------|--|
| Size   | NH Fuse Part Number                   | Size | NH Fuse Part Number                    |
| 00   | 125NHG00B (max L-L)                   | 02   | 125NHG02B (max L-L)                    |
| 0  | 125NHG0B (max L-L)                    | 02   | 200NHG02B (max L I <sub>k</sub> >50kA) |
| 01   | 125NHG01B (max L-L)                   | 2    | 315NHG2B (max L ≤50kA)                 |
| 1  | 200NHG1B (max L I <sub>k</sub> >50kA) | 03   | 315NHG03B (max L ≤50kA)                |

# IEC Class I DIN-Rail SPD

BSPS \_\_\_ TNS, BSBS \_\_\_ TT



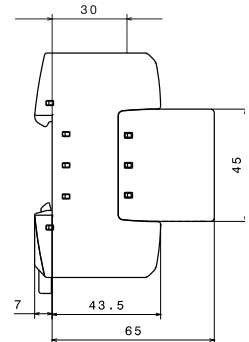
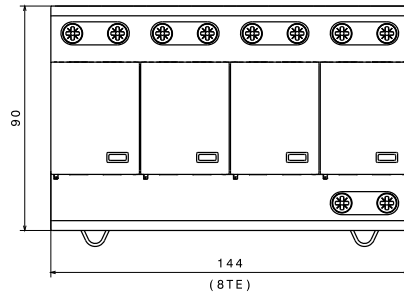
**easyID™**  
Visual Status Indication



Remote Signal  
Contact Available



## Dimensions - mm



Shown with optional remote contact signaling

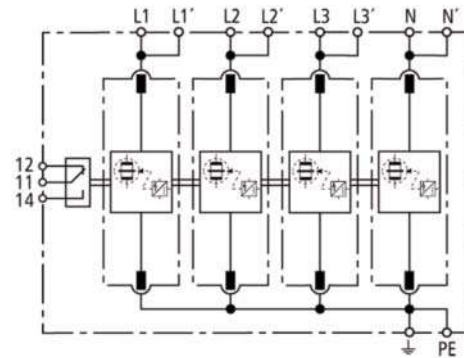
## Circuit Diagrams



Creepage Discharge Spark Gap

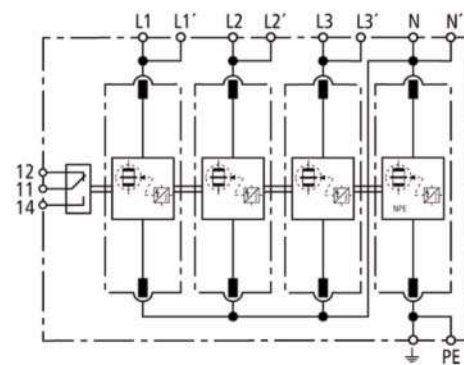


Spark Gap Trigger



**BSBS4255TNS**

Shown with optional  
remote contact signaling



**BSBS4255TT**

Shown with optional  
remote contact signaling

### Description

The Bussmann IEC Class I 230V, four-pole, modular combined lightning, current and surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

230V models are offered with MCOV ratings of 255V.

### TNS System Arresters

The features of these four-pole devices are for use in TNS 230/400V systems ("4-0" circuit) against surges.

### TT System Arrester

Provides a current arresting means between neutral conductor and protective conductor in TT 230/400V systems ("3+1" circuit) against surges.

### Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

## IEC Class I DIN-Rail SPD

| Ordering Information   |                          |   |
|--|--------------------------|---|
| System Voltage/Poles   |                          | 230/400V/4  |
| Max. Continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                          |                          | 255V  |
| Catalog Numbers:   | Without Remote Signaling | BSPS4255TNS   |
|  | With Remote Signaling    | BSPS4255TNSR  |
| Replacement Modules:   | MOV technology           | BPS255IEC   |
|  | Spark Gap technology     | - -   |
|  |                          | BPS100NPEIC*  |
| Specifications   |                          |   |
| SPD according to EN 61643-11/... IEC 61643-1   |                          | Type 1/Class I  |
| Energy-coordinated protection effect with regard to the terminal equipment             |                          | Type 1 + Type 2   |
| Energy-coordinated protection effect with regard to the terminal equipment (≤ 5m)      |                          | Type 1 + Type 2 + Type 3  |
| Nominal AC voltage [U <sub>N</sub> ]   |                          | 230/400V  |
| Lightning impulse current (10/350 μs) [L1+L2+L3+N-PE] [I <sub>total</sub> ]            |                          | 100kA   |
| Specific energy [L1+L2+L3+N-PE] [W/R]  |                          | 2.50MJ/ohms   |
| Lightning impulse current (10/350 μs) [L, N-PE] [I <sub>imp</sub> ]                    |                          | 25kA  |
| TNS system specific energy [L,N-PE] [W/R]  |                          | 156.25kJ/ohms   |
| TT system specific energy [L-N]/[N-PE] [W/R]   |                          | 156.25kJ/ohms/2.50kJ/ohms   |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]                                  |                          | 25/100kA  |
| Voltage protection level [L-PE]/[N-PE] [U <sub>p</sub> ]                               |                          | ≤ 1.5kV/≤ 1.5kV   |
| TNS system follow current extinguishing capability AC [I <sub>ff</sub> ]               |                          | 50kA rms  |
| TT system follow current extinguishing capability AC [I <sub>ff</sub> ]                |                          | 50kA rms/100A rms   |
| Follow current limitation/Selectivity  |                          | No tripping of a 20A gL/gG fuse up to 50kA rms (prosp.)           |
| Response time [t <sub>A</sub> ]  |                          | ≤ 100 ns  |
| Max. Backup fuse (L) up to I <sub>K</sub> ≤ 50kA rms                                   |                          | 315A gL/gG  |
| Max. Backup fuse (L) for I <sub>K</sub> > 50kA rms                                     |                          | 200A gL/gG  |
| Max. Backup fuse (L-L)   |                          | 125A gL/gG  |
| Temporary overvoltage (TOV) [L-N] [U <sub>T</sub> ]                                    |                          | 440V/5 sec.   |
| Temporary overvoltage (TOV) [N-PE] [U <sub>T</sub> ]                                   |                          | 1200V/200mS   |
| TOV characteristics  |                          | Withstand   |
| Operating temperature range [parallel]/[continuity] [T <sub>ij</sub> ]                 |                          | -40°C to +80°C/-40°C to +60°C                                     |
| Operating state/fault indication   |                          | green (good)/red (replace)  |
| Number of ports  |                          | 1   |
| Cross-sectional area (L1, L1, L2, L2, L3, L3, N, N, PE, $\frac{\perp}{\perp}$ ) [min.] |                          | 10mm <sup>2</sup> solid/flexible                                  |
| Cross-sectional area (L1, L2, L3, N, PE) [max.]  |                          | 50mm <sup>2</sup> /1AWG stranded-35mm <sup>2</sup> /2AWG flexible |
| Cross-sectional area (L1, L2, L3, N, $\frac{\perp}{\perp}$ ) [max.]                    |                          | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |
| Mounting   |                          | 35mm DIN Rail per EN 60715  |
| Enclosure material   |                          | Thermoplastic, UL 94V0  |
| Location category  |                          | Indoor  |
| Degree of protection   |                          | IP20  |
| Capacity   |                          | 8 mods., DIN 43880  |
| Agency Information   |                          | KEMA  |
| Product Warranty   |                          | Five Years**  |
| Remote Contact Signaling   |                          |   |
| Remote Contact Signaling Type  |                          | Changeover Contact  |
| AC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A   |
| DC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals         |                          | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |
| Ordering Information   |                          | Order from Catalog Numbers Above                                  |

\* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

| Recommended Bussmann NH DIN Size Back Up Fuses |                           |      |                            |
|--|---------------------------|------|----------------------------|
| Size   | NH Fuse Part Number       | Size | NH Fuse Part Number        |
| 00   | 125NHG00B (max L-L)       | 02   | 125NHG02B (max L-L)        |
| 0  | 125NHG0B (max L-L)        | 02   | 200NHG02B (max L Ik >50kA) |
| 01   | 125NHG01B (max L-L)       | 2    | 315NHG2B (max L ≤50kA)     |
| 1  | 200NHG1B (max L Ik >50kA) | 03   | 315NHG03B (max L ≤50kA)    |

# IEC Class II DIN-Rail SPD

BSPM \_\_\_ TN, BSPG \_\_\_ NPE



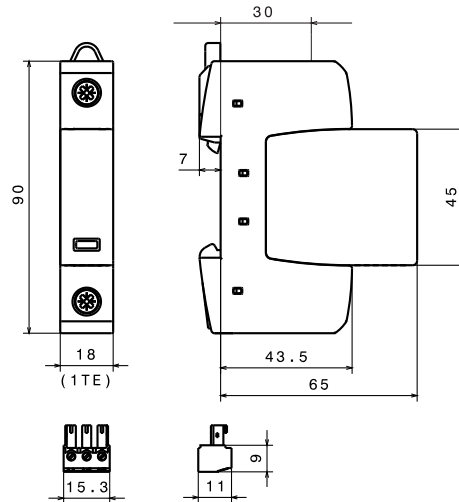
**easyID™**  
Visual Status Indication



Remote Signal Contact Available



## Dimensions - mm



Shown with optional remote contact signaling

### Description

The Bussmann IEC Class II 275, 320, 385, 440 and 600V, one-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module. Class II single-pole surge arrester models are offered with MCOV ratings of 255, 275, 320, 385, 440 and 600V.

### TN System Arresters

The features of these single-pole devices are for use as a single device or in combination with other devices.

### TT System Arrester

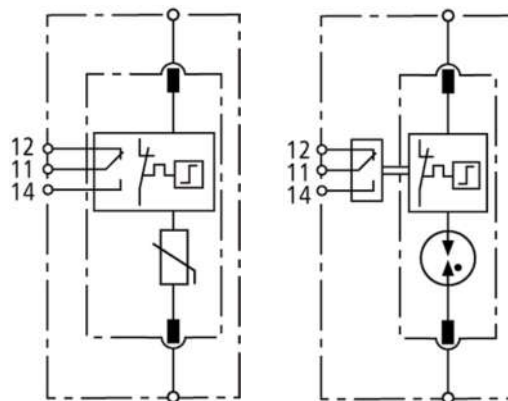
Provides a current arresting means between neutral conductor and protective conductor in TT systems, this device helps ensure fulfilling the requirements for protection of personnel and equipment in “3+1” and “1+1” circuits.

### Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

### Module Circuit Diagrams -

Shown with optional remote contact signaling



- MOV
- Thermal Disconnecter
- Gas Discharge Tube (single)

**BSPM1275TN**  
**BSPM1320TN**  
**BSPM1385TN**  
**BSPM1440TN**  
**BSPM1600TN**

**BSPG1255NPE(R)**

\*For remote signaling contact, add “R” suffix to the part number, E.g., BSPM1275TNR

## IEC Class II DIN-Rail SPD

| Ordering Information   |   |                     |                     |                     |                     |                     |              |
|--|---|---------------------|---------------------|---------------------|---------------------|---------------------|--------------|
| System Voltage/Poles   | 230V/1  | 230V/1              | 230V/1              | 400V/1              | 600V/1              | 230V/1*             |              |
| Max. Continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                  | 275V  | 320V                | 385V                | 440V                | 600V                | 255V                |              |
| Catalog Numbers:   | Without Remote Signaling  | BSPM1275TN          | BSPM1320TN          | BSPM1385TN          | BSPM1440TN          | BSPM1600TN          | BSPG1255NPE  |
| (Base + Modules)   | With Remote Signaling   | BSPM1275TNR         | BSPM1320TNR         | BSPM1385TNR         | BSPM1440TNR         | BSPM1600TNR         | BSPG1255NPER |
| Replacement Modules  |   | BPM275IEC           | BPM320IEC           | BPM385IEC           | BPM440IEC           | BPM600IEC           | BPG255NPE    |
| Specifications   |   |                     |                     |                     |                     |                     |              |
| Line system type   | TN / TT   | TN / TT             | TN / TT             | TN                  | TN                  | TT                  |              |
| Max. Continuous operating DC voltage [U <sub>C</sub> ]                         | 350V  | 420V                | 500V                | 585V                | 600V                | --                  |              |
| Voltage protection level [U <sub>p</sub> ]                                     | ≤ 1.25kV  | ≤ 1.5kV             | ≤ 1.75kV            | ≤ 2kV               | ≤ 2.5kV             | ≤ 1.5kV             |              |
| Voltage protection level at 5kA [U <sub>p</sub> ]                              | ≤ 1kV   | ≤ 1.2kV             | ≤ 1.35kV            | ≤ 1.7kV             | ≤ 2kV               | --                  |              |
| Max. mains-side overcurrent protection   | 125A gL/gG  | 125A gL/gG          | 125A gL/gG          | 125A gL/gG          | 100A gL-gG          | --                  |              |
| Short-circuit withstand capability for max. mains-side overcurrent protection  | 50kA <sub>Rms</sub>   | 25kA <sub>Rms</sub> | 25kA <sub>Rms</sub> | 25kA <sub>Rms</sub> | 25kA <sub>Rms</sub> | --                  |              |
| Temporary overvoltage (TOV) [U <sub>T</sub> ]                                  | 335V/5 sec.   | 335V/5 sec.         | 385V/5 sec.         | 580V/5 sec.         | 600V/5 sec.         | 1200V/200 ms        |              |
| Response time [t <sub>A</sub> ]  | ≤ 25 ns   | ≤ 25 ns             | ≤ 25 ns             | ≤ 25 ns             | ≤ 25 ns             | ≤ 100 ns            |              |
| Follow current extinguishing capability [I <sub>f</sub> ]                      | --  | --                  | --                  | --                  | --                  | 100A <sub>Rms</sub> |              |
| Lightning impulse current (10/350 μs) [I <sub>imp</sub> ]                      | --  | --                  | --                  | --                  | --                  | 12kA                |              |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]                          | 20kA  | 20kA                | 20kA                | 20kA                | 15kA                | 20kA                |              |
| Max. Discharge current (8/20 μs) [I <sub>max</sub> ]                           | 40kA  | 40kA                | 40kA                | 40kA                | 30kA                | 40kA                |              |
| Standards Information  | KEMA  | KEMA, CSA           | KEMA, CSA           | KEMA, CSA           | KEMA, CSA           | KEMA                |              |
| Capacity   | 1 mod., DIN 43880   |                     |                     |                     |                     |                     |              |
| SPD according to EN 61643-11   | Type 2  |                     |                     |                     |                     |                     |              |
| SPD according to IEC 61643-1   | Class II  |                     |                     |                     |                     |                     |              |
| TOV characteristics  | Withstand   |                     |                     |                     |                     |                     |              |
| Operating temperature range [T <sub>o</sub> ]                                  | -40°C to +80°C  |                     |                     |                     |                     |                     |              |
| Operating state/fault indication   | Green (good) / Red (replace)                                      |                     |                     |                     |                     |                     |              |
| Number of ports  | 1   |                     |                     |                     |                     |                     |              |
| Cross-sectional area (min.)  | 1.5mm <sup>2</sup> /14AWG solid/flexible                          |                     |                     |                     |                     |                     |              |
| Cross-sectional area (max.)  | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |                     |                     |                     |                     |                     |              |
| Mounting   | 35mm DIN Rail per EN 60715  |                     |                     |                     |                     |                     |              |
| Enclosure material   | Thermoplastic, UL 94V0  |                     |                     |                     |                     |                     |              |
| Location category  | Indoor  |                     |                     |                     |                     |                     |              |
| Degree of protection   | IP20  |                     |                     |                     |                     |                     |              |
| Product Warranty   | Five Years**  |                     |                     |                     |                     |                     |              |
| Remote Contact Signaling   |   |                     |                     |                     |                     |                     |              |
| Remote Contact Signaling Type  | Changeover Contact  |                     |                     |                     |                     |                     |              |
| AC Switching Capacity (Volts/Amps)   | 250V/0.1A   |                     |                     |                     |                     |                     |              |
| DC Switching Capacity (Volts/Amps)   | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |                     |                     |                     |                     |                     |              |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |                     |                     |                     |                     |                     |              |
| Ordering Information   | Order from Catalog Numbers Above                                  |                     |                     |                     |                     |                     |              |

\* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

| Recommended Bussmann Back Up Fuses |                                     |               |
|------------------------------------|-------------------------------------|---------------|
| DIN Fuse Size                      | TT / TN System NH Fuse Part Numbers |               |
|                                    | 275, 320, 385, 440V                 | 600V          |
| 00                                 | 125NHG00B                           | 100NHG00B-690 |
| 0                                  | 125NHG0B                            | 100NHG0B-690  |
| 01                                 | 125NHG01B                           | --            |
| 1                                  | --                                  | 100NHG1B-690  |
| 02                                 | 125NHG02B                           | --            |
| 2                                  | --                                  | 100NHG2B-690  |



# IEC Class II DIN-Rail SPD

BSPM\_ \_ \_ \_ TN, BSPH\_ \_ \_ \_ TT



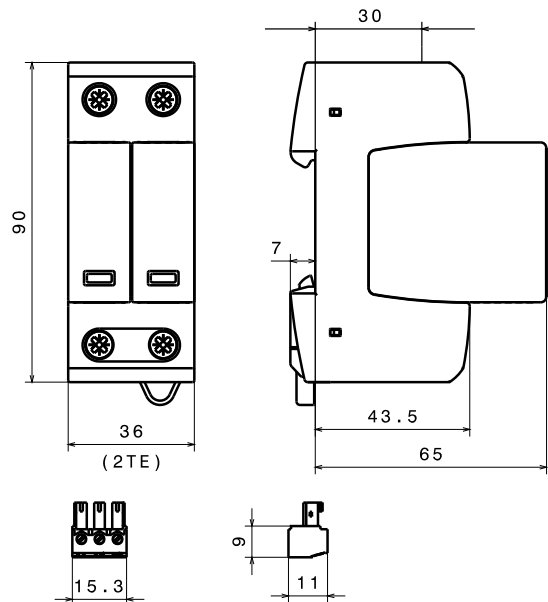
**easyID™**  
Visual Status Indication



Remote Signal  
Contact Available



## Dimensions - mm



Shown with optional remote contact signaling

## Description

The Bussmann IEC Class II 230V, two-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module. 230V models are offered with MCOV ratings of 255 and 275V.

### TN System Arresters

The features of these single-pole devices are for use in single-phase 230V TN systems ("2-0" circuit).

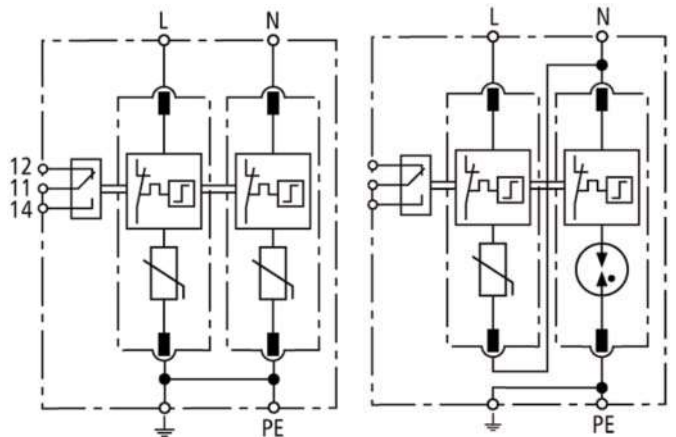
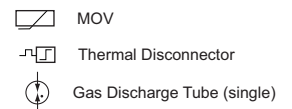
### TT System Arrester

The features of these single-pole devices are for use in single-phase 230V TT and TNS systems ("1-1" circuit).

### Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

## Circuit Diagrams



**BSPM2275TN**

Shown with optional remote contact signaling

**BSPH2275TT**

Shown with optional remote contact signaling

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPM2275TNR

Surge Protection Devices

## IEC Class II DIN-Rail SPD

| Ordering Information   |                          |   |
|--|--------------------------|---|
| System Voltage/Poles   | 230V/2                   | 230V/2  |
| Max. continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                  | 275V                     | --  |
| Max. Continuous operating AC voltage (MCOV) [L-N] [U <sub>C</sub> ]            | --                       | 275V  |
| Max. Continuous operating AC voltage (MCOV) [N-PE] [U <sub>C</sub> ]           | --                       | 255V  |
| Catalog Numbers:   | Without Remote Signaling | BSPM2275TN  |
|  | With Remote Signaling    | BSPM2275TNR   |
| Replacement Modules:   | MOV Technology           | BPM275IEC   |
|  | Spark Gap technology     | --  |
|  |                          | BSPH2275TT  |
|  |                          | BSPH2275TTR   |
|  |                          | BPM275IEC   |
|  |                          | BPSNPEIEC*  |
| Specifications   |                          |   |
| Lightning impulse current (10/350 μs) [N-PE] [I <sub>imp</sub> ]               | --                       | 12kA  |
| Voltage protection level [U <sub>p</sub> ]                                     | ≤ 1.25kV                 | --  |
| Voltage protection level at 5kA [U <sub>p</sub> ]                              | ≤ 1kV                    | --  |
| Voltage protection level [L-N] [U <sub>p</sub> ]                               | --                       | ≤ 1.25kV  |
| Voltage protection level [L-N] at 5kA [U <sub>p</sub> ]                        | --                       | ≤ 1kV   |
| Voltage protection level [N-PE] [U <sub>p</sub> ]                              | --                       | ≤ 1.5kV   |
| Follow current extinguishing capability [N-PE] [I <sub>ff</sub> ]              | --                       | 100A rms  |
| Response time [t <sub>A</sub> ]  | ≤ 25 ns                  | --  |
| Response time [L-N] [t <sub>A</sub> ]  | --                       | ≤ 25 ns   |
| Response time [N-PE] [t <sub>A</sub> ]   | --                       | ≤ 100 ns  |
| Temporary overvoltage (TOV) [U <sub>T</sub> ]                                  | 335V/5 sec.              | --  |
| Temporary overvoltage (TOV) [L-N] [U <sub>T</sub> ]                            | --                       | 335V/5 sec.   |
| Temporary overvoltage (TOV) [N-PE] [U <sub>T</sub> ]                           | --                       | 1200V/200 ms  |
| SPD according to EN 61643-11   |                          | Type 2  |
| SPD according to IEC 61643-1   |                          | Class II  |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]                          |                          | 20kA  |
| Max. discharge current (8/20 μs) [I <sub>max</sub> ]                           |                          | 40kA  |
| Max. mains-side overcurrent protection   |                          | 125A gL/gG  |
| Short-circuit withstand capability for max. mains-side overcurrent protection  |                          | 50kA rms  |
| Nominal AC voltage [U <sub>N</sub> ]   |                          | 230V  |
| TOV characteristics  |                          | withstand   |
| Operating temperature range [T <sub>ij</sub> ]                                 |                          | -40°C to +80°C  |
| Operating state/fault indication   |                          | green (good)/red (replace)  |
| Number of ports  |                          | 1   |
| Cross-sectional area (min.)  |                          | 1.5mm <sup>2</sup> /14AWG solid/flexible                          |
| Cross-sectional area (max.)  |                          | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |
| Mounting   |                          | 35mm DIN rail per EN 60715  |
| Enclosure material   |                          | Thermoplastic, UL 94V0  |
| Location category  |                          | Indoor  |
| Degree of protection   |                          | IP20  |
| Capacity   |                          | 2 mods., DIN 43880  |
| Standards Information  |                          | KEMA  |
| Product Warranty   |                          | Five Years**  |
| Remote Contact Signaling   |                          |   |
| Remote Contact Signaling Type  |                          | Changeover Contact  |
| AC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A   |
| DC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals |                          | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |
| Ordering Information   |                          | Order from Catalog Numbers Above                                  |

\* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

| Recommended Bussmann Back Up Fuses |                     |
|------------------------------------|---------------------|
| DIN Fuse Size                      | NH Fuse Part Number |
| 00                                 | 125NHG00B           |
| 0                                  | 125NHG0B            |
| 01                                 | 125NHG01B           |
| 02                                 | 125NHG02B           |

Data Sheet: 1167

# IEC Class II DIN-Rail SPD

BSPM\_\_\_TNC



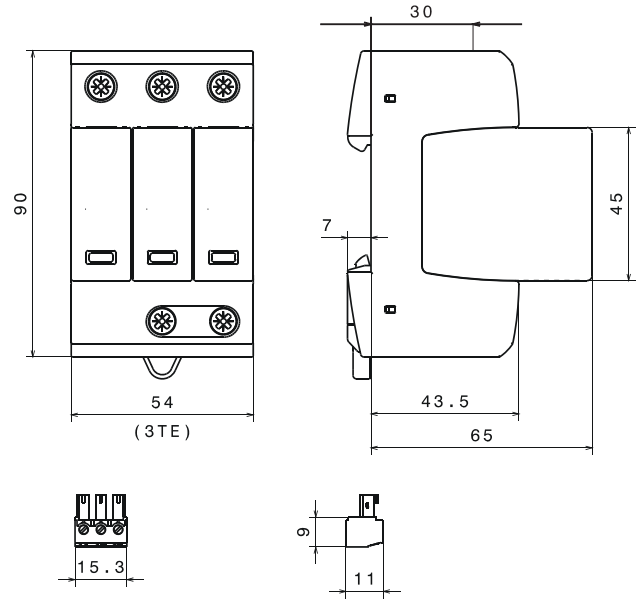
**easyID™**  
Visual Status Indication



Remote Signal  
Contact Available



## Dimensions - mm



Shown with optional remote contact signaling

## Description

The Bussmann IEC Class II 120/240V and 230/400V, three-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module. 120V models are offered with a MCOV rating of 150V. 230V models are offered with a MCOV rating of 275 or 385V.

## TNC System Arresters

The features of these three-pole devices are for use in TN-C 120/240V or 230/400V systems ("3-0" circuit) against surges.

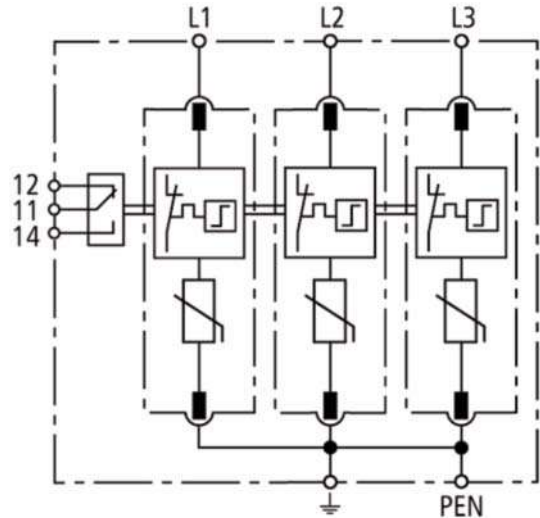
## Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

## Circuit Diagrams

MOV

Thermal Disconnector



## BSPM3150TNC, BSPM3275TNC, BSPM3385TNC

Shown with optional remote contact signaling

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPM3150TNCR

Surge Protection  
Devices

## IEC Class II DIN-Rail SPD

| ORDERING INFORMATION   |                          |   |                     |
|--|--------------------------|---|---------------------|
| System Voltage/Poles   | 120V/3                   | 230V/3  | 230V/3              |
| Max. Continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                  | 150V                     | 275V  | 385V                |
| Catalog Numbers:   | Without Remote Signaling | BSPM3150TNC   | BSPM3275TNC         |
|  | With Remote Signaling    | BSPM3150TNCR  | BSPM3275TNCR        |
| Replacement Module   | MOV technology           | BPM150IEC   | BPM275IEC           |
|  |                          |   | BPM385IEC           |
| SPECIFICATIONS   |                          |   |                     |
| Nominal AC voltage [U <sub>N</sub> ]   | 120/240V                 | 230/400V  | 230/400V            |
| Voltage protection level [U <sub>p</sub> ]                                     | ≤ 0.7kV                  | ≤ 1.25kV  | ≤ 1.75kV            |
| Voltage protection level at 5kA [U <sub>p</sub> ]                              | ≤ 0.55kV                 | ≤ 1kV   | ≤ 1.35kV            |
| Short-circuit withstand capability for max. mains-side overcurrent protection  | 50kA <sub>rms</sub>      | 50kA <sub>rms</sub>   | 25kA <sub>rms</sub> |
| Temporary overvoltage (TOV) [U <sub>T</sub> ]                                  | 175V/5 sec               | 335V/5 sec.   | 385V/5 sec          |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]                          | 15kA                     | 20kA  | 20kA                |
| Max. Discharge current (8/20 μs) [I <sub>max</sub> ]                           |                          | 40kA  |                     |
| SPD according to EN 61643-11   |                          | Type 2  |                     |
| SPD according to IEC 61643-1   |                          | Class II  |                     |
| Response time [t <sub>A</sub> ]  |                          | ≤ 25 ns   |                     |
| Max. mains-side overcurrent protection   |                          | 125A gL/gG  |                     |
| TOV characteristics  |                          | withstand   |                     |
| Operating temperature range [T <sub>U</sub> ]                                  |                          | -40°C to +80°C  |                     |
| Operating state/fault indication   |                          | Green (good)/Red (replace)  |                     |
| Number of ports  |                          | 1   |                     |
| Cross-sectional area (min.)  |                          | 1.5mm <sup>2</sup> /14AWG solid/flexible                          |                     |
| Cross-sectional area (max.)  |                          | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |                     |
| Mounting   |                          | 35mm DIN rail per EN 60715  |                     |
| Enclosure material   |                          | Thermoplastic, UL 94V0  |                     |
| Location category  |                          | Indoor  |                     |
| Degree of protection   |                          | IP20  |                     |
| Capacity   |                          | 3 mods., DIN 43880  |                     |
| Standards Information  |                          | KEMA  |                     |
| Product Warranty   |                          | Five Years*   |                     |
| REMOTE CONTACT SIGNALING   |                          |   |                     |
| Remote Contact Signaling Type  |                          | Changeover Contact  |                     |
| AC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A   |                     |
| DC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |                     |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals |                          | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |                     |
| Ordering Information   |                          | Order from Catalog Numbers Above                                  |                     |

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

| Recommended Bussmann Back Up Fuses |                     |
|------------------------------------|---------------------|
| DIN Fuse Size                      | NH Fuse Part Number |
| 00                                 | 125NHG00B           |
| 0                                  | 125NHG0B            |
| 01                                 | 125NHG01B           |
| 02                                 | 125NHG02B           |

# IEC Class II DIN-Rail SPD

BSPH\_TNS, BSPH\_TT



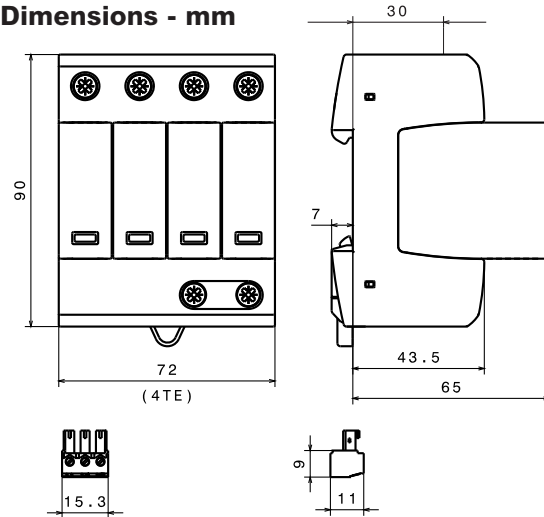
**easyID™**  
Visual Status Indication



Remote Signal  
Contact Available

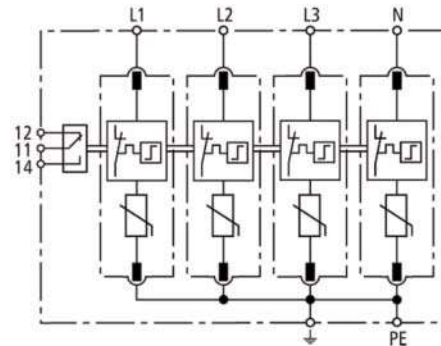
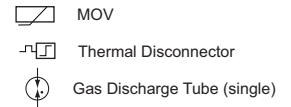


Dimensions - mm



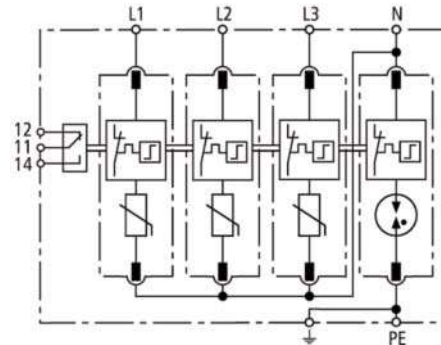
Shown with optional remote contact signaling

Circuit Diagrams



**BSPM4275TNS**

Shown with optional remote contact signaling



**BSPH4275TT, BSPH4320TT  
BSPH4385TT**

Shown with optional remote contact signaling

**Description**

The Bussmann IEC Class II 230/400V, four-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

These 230V models are offered with MCOV ratings of 275, 320 or 385V.

**TNS System Arrester**

The features of these four-pole devices are for use in TNS 230/400V systems (“4-0” circuit) against surges.

**TT System Arrester**

The features of these four-pole devices are for use in TT and TN-S 230/400V systems (“3+1” circuit) against surges.

**Remote Signaling Contact**

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Data Sheet: 1169

\*For remote signaling contact, add “R” suffix to the part number, E.g., BSPH4275TTR

Surge Protection  
Devices



## IEC Class II DIN-Rail SPD

| ORDERING INFORMATION   |                          |   |                     |                     |                     |
|--|--------------------------|---|---------------------|---------------------|---------------------|
| System Voltage/Poles   |                          | 230V/4  | 230V/4              | 230V/4              | 230V/4              |
| Max. continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                  |                          | 275V  | --                  | --                  | --                  |
| Max. continuous operating AC voltage (MCOV) [L-N] [U <sub>C</sub> ]            |                          | --  | 275V                | 320V                | 385V                |
| Max. continuous operating AC voltage [N-PE] [U <sub>C</sub> ]                  |                          | --  | 255V                | 255V                | 255V                |
| Catalog Numbers:   | Without Remote Signaling | BSPM4275TNS   | BSPH4275TT          | BSPH4320TT          | BSPH4385TT          |
|  | With Remote Signaling    | BSPM4275TNSR  | BSPH4275TTR         | BSPH4320TTR         | BSPH4385TTR         |
| Replacement Modules:   | MOV technology           | BPM275IEC   | BPM275IEC           | BPM320IEC           | BPM385IEC           |
|  | Spark Gap technology     | --  | BPSNPEIEC*          | BPSNPEIEC*          | BPSNPEIEC*          |
| SPECIFICATIONS   |                          |   |                     |                     |                     |
| Lightning impulse current (10/350 μs) [N-PE] [I <sub>imp</sub> ]               |                          | --  | 12kA                | 12kA                | 12kA                |
| Voltage protection level [U <sub>p</sub> ]                                     |                          | ≤ 1.25kV  | --                  | --                  | --                  |
| Voltage protection level at 5kA [U <sub>p</sub> ]                              |                          | ≤ 1kV   | --                  | --                  | --                  |
| Voltage protection level [L-N] [U <sub>p</sub> ]                               |                          | --  | ≤ 1.25kV            | ≤ 1.5kV             | ≤ 1.75kV            |
| Voltage protection level [L-N] at 5kA [U <sub>p</sub> ]                        |                          | --  | ≤ 1kV               | ≤ 1.2kV             | ≤ 1.35kV            |
| Voltage protection level [N-PE] [U <sub>p</sub> ]                              |                          | --  | ≤ 1.5kV             | ≤ 1.5kV             | ≤ 1.5kV             |
| Follow current extinguishing capability [N-PE] [I <sub>fj</sub> ]              |                          | --  | 100A <sub>rms</sub> | 100A <sub>rms</sub> | 100A <sub>rms</sub> |
| Response time [t <sub>A</sub> ]  |                          | ≤ 25 ns   | --                  | --                  | --                  |
| Response time [L-N] [t <sub>A</sub> ]  |                          | --  | ≤ 25 ns             | ≤ 25 ns             | ≤ 25 ns             |
| Response time [N-PE] [t <sub>A</sub> ]   |                          | --  | ≤ 100 ns            | ≤ 100 ns            | ≤ 100 ns            |
| Temporary overvoltage (TOV) [U <sub>T</sub> ]                                  |                          | 335V/5 sec.   | --                  | --                  | --                  |
| Temporary overvoltage (TOV) [L-N] [U <sub>T</sub> ]                            |                          | --  | 335V/5 sec.         | 335V/5 sec.         | 385V/5 sec.         |
| Temporary overvoltage (TOV) [N-PE] [U <sub>T</sub> ]                           |                          | --  | 1200V/200 ms        | 1200V/200 ms        | 1200V/200 ms        |
| Short-circuit withstand capability for max. mains-side overcurrent protection  |                          | 50kA <sub>rms</sub>   | 50kA <sub>rms</sub> | 25kA <sub>rms</sub> | 25kA <sub>rms</sub> |
| SPD according to EN 61643-11   |                          | Type 2  |                     |                     |                     |
| SPD according to IEC 61643-1   |                          | Class II  |                     |                     |                     |
| Nominal AC voltage [U <sub>N</sub> ]   |                          | 230/400V  |                     |                     |                     |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]                          |                          | 20kA  |                     |                     |                     |
| Max. discharge current (8/20 μs) [I <sub>max</sub> ]                           |                          | 40kA  |                     |                     |                     |
| Max. mains-side overcurrent protection   |                          | 125A gL/gG  |                     |                     |                     |
| TOV characteristics  |                          | withstand   |                     |                     |                     |
| Operating temperature range [T <sub>U</sub> ]                                  |                          | -40°C to +80°C  |                     |                     |                     |
| Operating state/fault indication   |                          | green (good)/red (replace)  |                     |                     |                     |
| Number of ports  |                          | 1   |                     |                     |                     |
| Cross-sectional area (min.)  |                          | 1.5mm <sup>2</sup> /14AWG solid/flexible                          |                     |                     |                     |
| Cross-sectional area (max.)  |                          | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |                     |                     |                     |
| Mounting   |                          | 35mm DIN rail per EN 60715  |                     |                     |                     |
| Enclosure material   |                          | Thermoplastic, UL 94V0  |                     |                     |                     |
| Location category  |                          | Indoor  |                     |                     |                     |
| Degree of protection   |                          | IP20  |                     |                     |                     |
| Capacity   |                          | 4 mods., DIN 43880  |                     |                     |                     |
| Standards Information  |                          | KEMA  |                     |                     |                     |
| Product Warranty   |                          | Five Years**  |                     |                     |                     |
| REMOTE CONTACT SIGNALING   |                          |   |                     |                     |                     |
| Remote Contact Signaling Type  |                          | Changeover Contact  |                     |                     |                     |
| AC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A   |                     |                     |                     |
| DC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |                     |                     |                     |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals |                          | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |                     |                     |                     |
| Ordering Information   |                          | Order from Catalog Numbers Above                                  |                     |                     |                     |

\* N-PE Surge arrester module for location between neutral conductor and protective conductor in TT systems.

\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

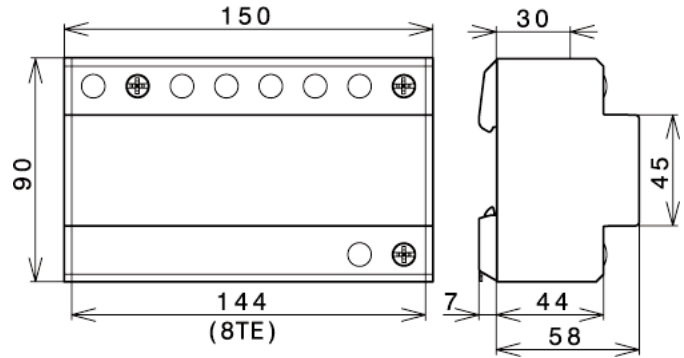
| Recommended Bussmann Back Up Fuses |                     |
|------------------------------------|---------------------|
| DIN Fuse Size                      | NH Fuse Part Number |
| 00                                 | 125NHG00B           |
| 0                                  | 125NHG0B            |
| 01                                 | 125NHG01B           |
| 02                                 | 125NHG02B           |

# Photovoltaic DIN-Rail Lightning SPD

BSPS \_\_\_ PV



Dimensions - mm

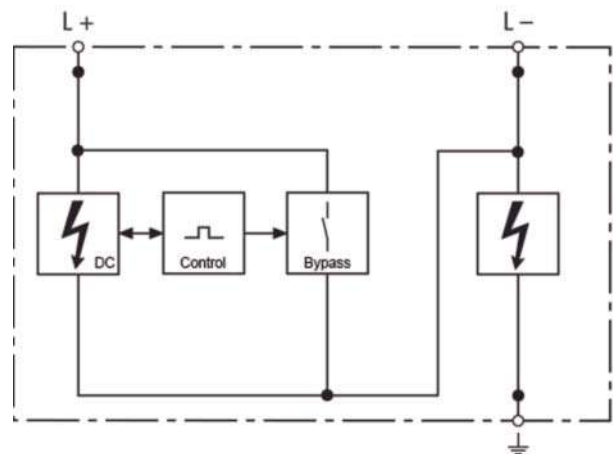


## Description

The Bussmann combined lightning current and surge arrester (SPD Class I according to IEC 61643-1) is for use in photovoltaic power supply systems.

- Prewired combined lightning current and surge arrester for use in photovoltaic generator circuits
- For use in photovoltaic installations up to 1000V  $U_{CPV}$
- High lightning current discharge capacity using spark gap technology
- Maximum system availability due to spark gap technology with DC current extinction

## Module Circuit Diagrams

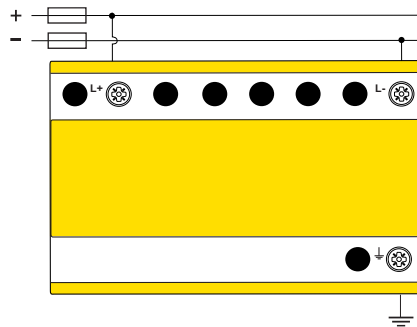


Surge Protection  
Devices

# Photovoltaic DIN-Rail Lightning SPD

| Ordering Information  |  |
|---|--|
| Max. PV System Voltage  | 1000Vdc  |
| Catalog Number:   | BSPS31000PV  |
| Specifications  |  |
| SPD Classification according to EN 61643-11                             | Type 1   |
| SPD Classification according to IEC 61643-1                             | Class I  |
| Max. PV voltage [U <sub>CPV</sub> ] of the PV generator                 | 1000V  |
| Max. Continuous operating DC voltage [U <sub>max DC</sub> ]             | 1000V  |
| Min. Continuous operating DC voltage [U <sub>min DC</sub> ]             | 100V   |
| Follow current extinguishing capability DC [I <sub>f</sub> DC]          | 100A   |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]                   | 100kA  |
| Lightning impulse current (10/350 μs) [L+/L- -> PE] [I <sub>imp</sub> ] | 50kA   |
| Specific energy [L+/L- -> PE] [W/R]                                     | 625.00 kJ/ohms   |
| Lightning impulse current (10/350 μs) [L+ -> L-] [I <sub>imp</sub> ]    | 25kA   |
| Specific energy [L+ -> L-] [W/R]  | 156.25 kJ/ohms   |
| Voltage protection level [L+ -> L-] [U <sub>p</sub> ]                   | ≤ 3.3kV  |
| Voltage protection level [(L+/L-) -> PE] [U <sub>p</sub> ]              | ≤ 4kV  |
| Operating current [I <sub>N DC</sub> ]                                  | ≤ 5mA  |
| Response time [L+ -> L-] [t <sub>A</sub> ]                              | ≤ 20 ns  |
| Protective conductor current [I <sub>PE</sub> ]                         | ≤ 1μA  |
| Operating temperature range [T <sub>o</sub> ]                           | -40°C to +60°C   |
| Number of ports   | 1  |
| Cross-sectional area (min.)   | 10mm <sup>2</sup> /6AWG solid/flexible                             |
| Cross-sectional area (max.)   | 50mm <sup>2</sup> /2AWG stranded/ 35mm <sup>2</sup> /1AWG flexible |
| Mounting  | 35mm DIN rail per EN 60715   |
| Enclosure material  | Thermoplastic, UL 94V0   |
| Place of installation   | Indoor   |
| Degree of protection  | IP-20  |
| Capacity  | 8 Mods., DIN 4   |
| Product Warranty  | Five Years*  |

\* See Bussmann document 3A1502 on the web at [www.cooperbussmann.com](http://www.cooperbussmann.com).



# Photovoltaic DIN-Rail SPD

BSPH2\_ \_ \_ PV



Type 4



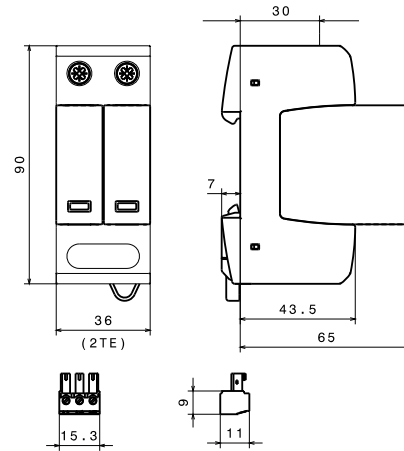
**easyID™**  
Visual Status Indication



Remote Signal Contact Available



Dimensions - mm



Shown with optional remote contact signaling

## Description

The Bussmann modular Surge Protective Device (SPD) (with two-step DC switching device) features *easyID™* visual indication and optional remote contact signaling (floating changeover contact) for use in photovoltaic systems.

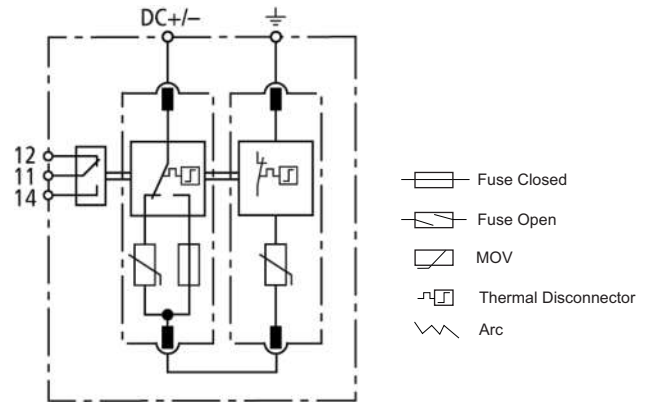
This complete surge protective device is suitable for all PV systems in accordance with UL 1449 3<sup>rd</sup> Edition and IEC 60364-7-712. Includes a five year limited warranty.

This prewired solution consist of a base and locking modules that feature a combined disconnection and short-circuiting (shunting) device with safe electrical isolation to prevent fire damage due to DC arcs. An integrated DC fuse allows safe module replacement without arc formation.

In case of insulation faults in the generator circuit, a reliable and tested fault-resistant circuit prevents damage to the surge protective devices.

The green and red visual indicator flags show the module protective status (green = good, red = replace). Apart from this visual indication, the remote signaling option features a three terminal floating changeover contact that can be used as a make or break contact depending on the particular monitoring system design employed.

## Module Circuit Diagrams



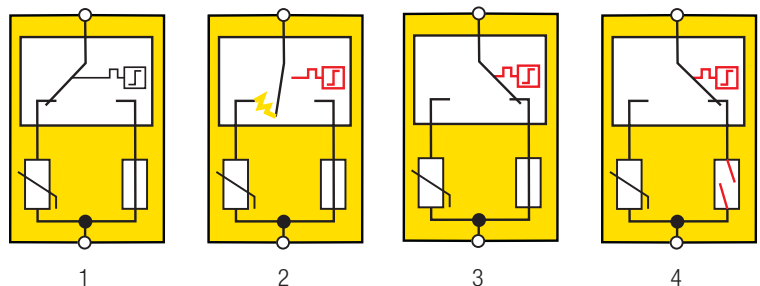
**BSPH2600PV\***

Shown with optional remote contact signaling

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPH2600PVR

## Short-Circuit Interrupting (SCI) Technology

1. Original State
2. Disconnection Device Response
3. Arc Extinguishes
4. Safe Electrical Isolation



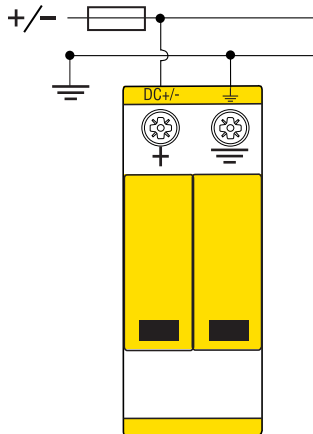
Data Sheet: 2145

# Photovoltaic DIN-Rail SPD

| Ordering Information   |                          |   |
|--|--------------------------|---|
| Nominal PV System Voltage  |                          | 600Vdc  |
| Catalog Numbers:<br>(Base + Modules)   | Without Remote Signaling | BSPH2600PV  |
|  | With Remote Signaling    | BSPH2600PVR   |
| Replacement Modules:   | Left                     | BPH300YPV   |
|  | Right                    | BPM300YPV   |
| Specifications   |                          |   |
| Conformity with prEN 50539-11  |                          | Yes   |
| SPD Classification per EN 61643-11   |                          | Type 2  |
| SPD Classification per IEC 61643-1   |                          | Class II  |
| Max. PV voltage [U <sub>CPV</sub> ]  |                          | ≤ 600V  |
| Short-circuit withstand capacity [I <sub>SCWPV</sub> ]                         |                          | 1000A   |
| MCOV [U <sub>CPV</sub> ]   |                          | 700Vdc  |
| Nominal discharge current (8/20 μs) [(DC+/DC-) --> PE] [I <sub>n</sub> ]       |                          | 12.5kA  |
| Max. Discharge current (8/20 μs) [(DC+/DC-) --> PE] [I <sub>max</sub> ]        |                          | 25kA  |
| Voltage protection level [U <sub>p</sub> ]                                     |                          | ≤ 2.5kV   |
| Voltage protection level at 5kA [U <sub>p</sub> ]                              |                          | ≤ 2kV   |
| Response time [t <sub>A</sub> ]  |                          | ≤ 25 ns   |
| Operating temperature range [T <sub>U</sub> ]                                  |                          | -40°C to +80°C  |
| Operating state/fault indication   |                          | Green (good) / Red (replace)  |
| Number of ports  |                          | 1   |
| Cross-sectional area (min.)  |                          | 60/75°C 1.5mm <sup>2</sup> /14AWG Solid/Flexible                          |
| Cross-sectional area (max.)  |                          | 60/75°C 35mm <sup>2</sup> /2AWG Stranded/25mm <sup>2</sup> /4AWG Flexible |
| For mounting on  |                          | 35 mm DIN rail per EN 60715   |
| Enclosure material   |                          | Thermoplastic, UL 94V0  |
| Place of installation  |                          | Indoor  |
| Degree of protection   |                          | IP20  |
| Capacity   |                          | 2 Modules, DIN 43880  |
| Standards Information  |                          | UL  |
| Product Warranty   |                          | Five Years*   |
| Remote Contact Signaling   |                          |   |
| Remote Contact Signaling Type  |                          | Changeover Contact  |
| AC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A   |
| DC Switching Capacity (Volts/Amps)   |                          | 250V/0.1A; 125V/0.2A; 75V/0.5A  |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals |                          | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible                     |
| Ordering Information   |                          | Order from Catalog Numbers Above  |

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

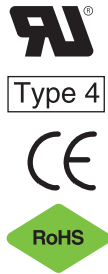
## Typical Application Schematic



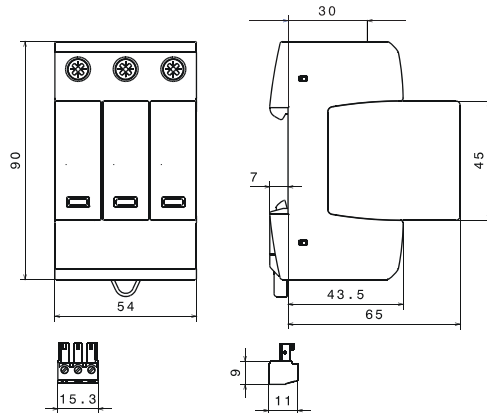


# Photovoltaic DIN-Rail SPD

BSPH\_\_\_YPV



Dimensions - mm



Shown with optional remote contact signaling

## Description

The Bussmann three-module photovoltaic Surge Protective Device (SPD) (with three-step DC switching device) features *easyID™* visual indication and optional remote contact signaling (floating changeover contact) for use in PV systems.

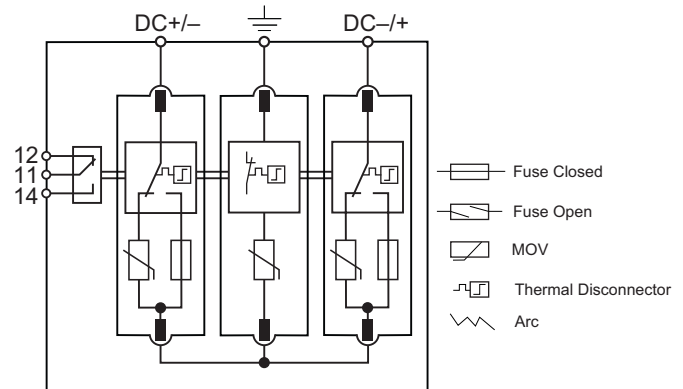
These complete surge protective devices are suitable for all PV systems in accordance with UL 1449 3rd Edition and IEC 60364-7-712. Includes a five year limited warranty.

These prewired solutions consist of a base and locking modules that feature a combined disconnection and short-circuiting (shunting) device with safe electrical isolation to prevent fire damage due to DC arcs. An integrated DC fuse allows safe module replacement without arc formation.

In case of insulation faults in the generator circuit, a reliable and tested fault-resistant Y circuit prevents damage to the surge protective devices.

The green and red visual indicator flags show the module protective status (green = good, red = replace). Apart from this visual indication, the remote signaling option features a three terminal floating changeover contact that can be used as a make or break contact depending on the particular monitoring system design employed.

## Module Circuit Diagrams

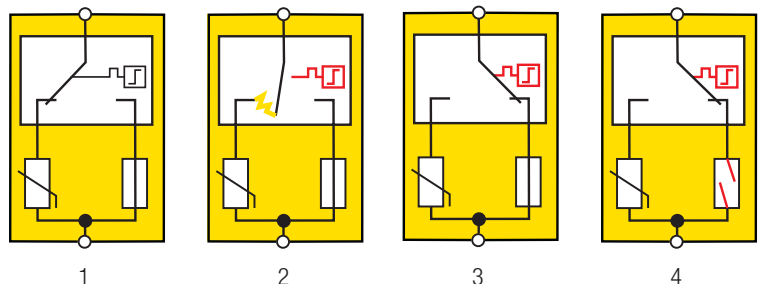


Shown with optional remote contact signaling

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPH\_\_\_YPVR

## Short-Circuit Interrupting (SCI) Technology

1. Original State
2. Disconnection Device Response
3. Arc Extinguishes
4. Safe Electrical Isolation



Data Sheet: 2055

Surge Protection Devices

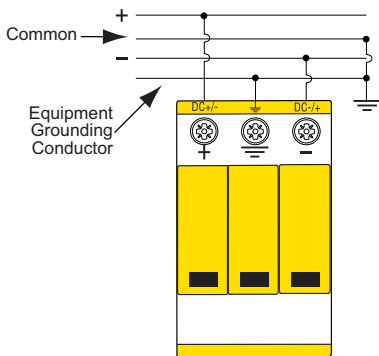
# Photovoltaic DIN-Rail SPD

| Ordering Information   |                                  |   |                |                |
|--|----------------------------------|---|----------------|----------------|
| Nominal PV System Voltage  |                                  | 600Vdc  | 1000Vdc        | 1200Vdc        |
| Catalog Numbers:<br>(Base + Modules)   | Without Remote Contact Signaling | BSPH3600YPV   | BSPH31000YPV   | BSPH31200YPV   |
|  | With Remote Contact Signaling    | BSPH3600YPVR  | BSPH31000YPVR  | BSPH31200YPVR  |
| Replacement Modules:   | Outer (2 modules installed)      | BPH300YPV   | BPH500YPV      | BPH600YPV      |
|  | Center (1 module installed)      | BPM300YPV   | BPM500YPV      | BPM600YPV      |
| Specifications   |                                  |   |                |                |
| Nominal PV System Voltage  |                                  | 600V  | 1000V          | 1200V          |
| MCOV [ $U_{CPV}$ ]   |                                  | 700Vdc  | 1170Vdc        | 1200Vdc        |
| Max System Discharge Current (8/20 $\mu$ s) [ $I_{max}$ ]                      |                                  | 40kA  | 40kA           | 30kA           |
| Voltage Protection Level [ $U_p$ ]   |                                  | $\leq 2.5kV$  | $\leq 4.0kV$   | $\leq 4.5kV$   |
| Voltage Protection Level at 5kA [ $U_p$ ]                                      |                                  | $\leq 2.0kV$  | $\leq 3.5kV$   | $\leq 4.0kV$   |
| Integrated Fuse Breaking Capacity/Interrupting Rating                          |                                  | 30kA / 1000Vdc  | 30kA / 1000Vdc | 30kA / 1200Vdc |
| Technology   |                                  | Short-Circuit Interruption (SCI) Overcurrent Protection                       |                |                |
| Operating Temperature Range [ $T_{1j}$ ]                                       |                                  | -40°C to +80°C  |                |                |
| Nominal Discharge Current (8/20 $\mu$ s) [(DC+/DC-) --> PE] [ $I_n$ ]          |                                  | 12.5kA  |                |                |
| Response Time [ $t_A$ ]  |                                  | $\leq 25ns$   |                |                |
| Operating State/Fault Indication   |                                  | Green (good) / Red (replace)  |                |                |
| Conductor Ratings and Cross-Sectional Area: Minimum                            |                                  | 60/75°C 1.5mm <sup>2</sup> / 14AWG Solid/Flexible                             |                |                |
|  | Maximum                          | 60/75°C 35mm <sup>2</sup> / 2AWG Stranded / 25mm <sup>2</sup> / 4AWG Flexible |                |                |
| Mounting   |                                  | 35mm DIN Rail per EN 60715  |                |                |
| Enclosure Material   |                                  | UL 94V0 Thermoplastic   |                |                |
| Degree of Protection   |                                  | IP20  |                |                |
| Capacity   |                                  | 3 Modules, DIN 43880  |                |                |
| Standards Information:   | UL                               | UL 1449 3 <sup>rd</sup> Edition (Type 2)*                                     |                |                |
|  | IEC                              | IEC 61643-11 Type 2, IEC 61643-1 Class II                                     |                |                |
| Product Warranty   |                                  | Five Years**  |                |                |
| Remote Contact Signaling   |                                  |   |                |                |
| Remote Contact Signaling Type  |                                  | Changeover Contact  |                |                |
| AC Switching Capacity (Volts/Amps)   |                                  | 250V / 0.1A   |                |                |
| DC Switching Capacity (Volts/Amps)   |                                  | 250V / 0.1A; 125V / 0.2A; 75V / 0.5A  |                |                |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals |                                  | 60/75°C Max. 1.5mm <sup>2</sup> / 14AWG Solid/Flexible                        |                |                |
| Ordering Information   |                                  | Order from Catalog Numbers Above  |                |                |

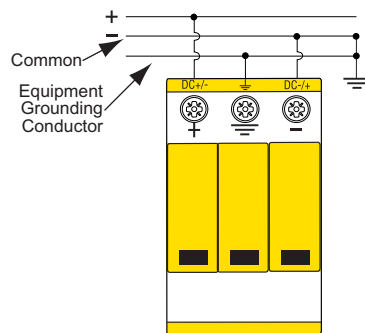
\* Does not apply to 1200Vdc.

\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

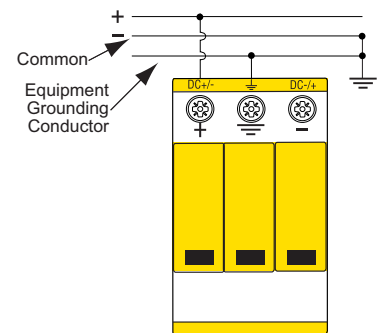
## Typical Application Schematics



Application A  
Two energized poles/modes  
600, 1000 & 1200Vdc systems



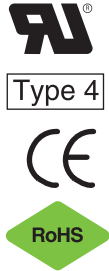
Application B  
One energized pole/mode  
600Vdc & 1000Vdc systems only



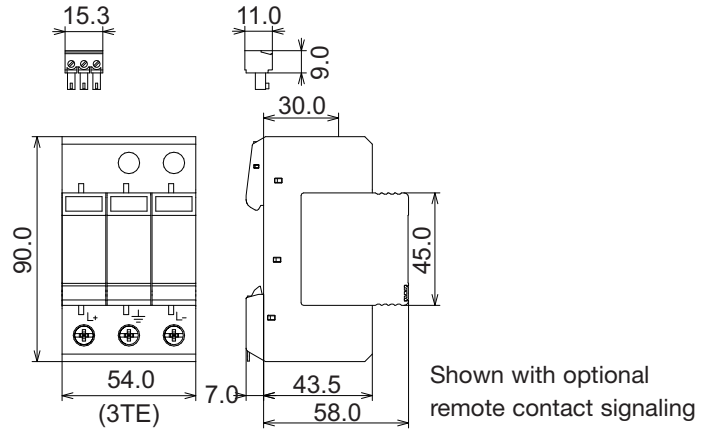
Application C  
One energized pole/mode  
600Vdc & 1000Vdc systems only  
(Max. system discharge current  
(8/20  $\mu$ s) [ $I_{max}$ ] 25kA)

# Photovoltaic DIN-Rail SPD

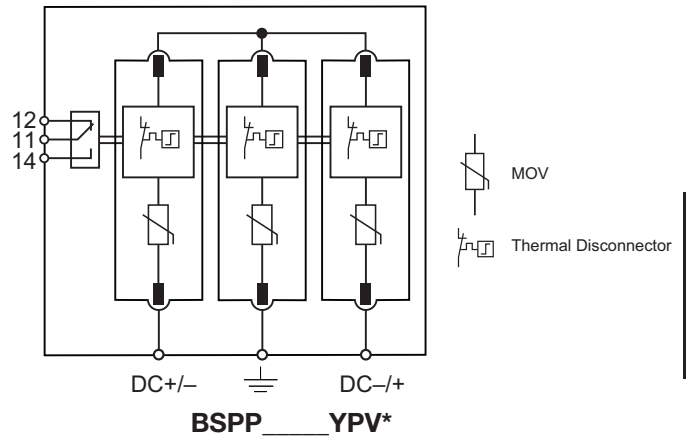
BSPP\_\_\_YPV(R)



Dimensions - mm



Module Circuit Diagrams



BSPP\_\_\_YPV\*

Shown with optional remote contact signaling  
\* For remote signaling contact, add "R" suffix to the part number.  
E.g., BSPP3600YPVR

## Description

The Bussmann three-module photovoltaic Surge Protective Device (SPD) features *easyID™* visual indication and optional remote contact signaling (floating changeover contact) for use in PV systems.

These complete surge protective devices are suitable for all PV systems in accordance with UL 1449 3<sup>rd</sup> Edition, EN 50539-11 and IEC 60364-7-712. Includes a two year limited warranty.

These prewired solutions consist of a base and modules that feature a disconnection device in the event of an overload.

In case of insulation faults in the generator circuit, a reliable and tested fault-resistant Y circuit prevents damage to the surge protective devices.

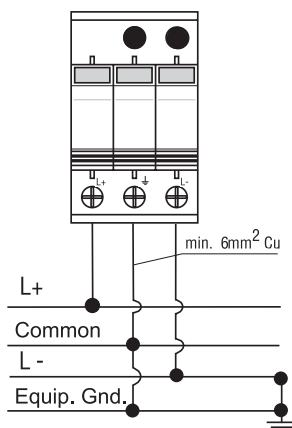
The green and red visual indicator flags show the module protective status (green = good, red = replace). Apart from this visual indication, the remote signaling option features a three terminal floating changeover contact that can be used as a make or break contact depending on the particular monitoring system design employed.

Surge Protection Devices

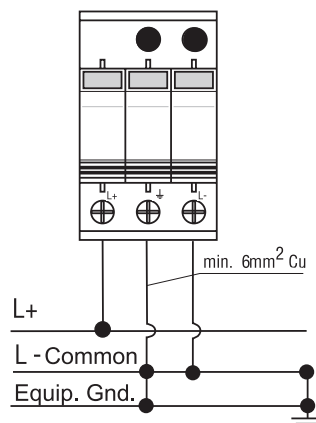
# Wind IEC Class I DIN-Rail SPD

| Ordering Information  |                                  |   |               |
|---|----------------------------------|---|---------------|
| Nominal PV System Voltage   |                                  | 600Vdc  | 1000Vdc       |
| Catalog Numbers:<br>(Base + Modules)  | Without Remote Contact Signaling | BSPP3600YPV   | BSPP31000YPV  |
|   | With Remote Contact Signaling    | BSPP3600YPVR  | BSPP31000YPVR |
| Replacement Modules:  |                                  | BPP300SYPV  | BPP500SYPV    |
| Specifications  |                                  |   |               |
| Nominal PV System Voltage [U <sub>CPV</sub> ]                                   |                                  | 600V  | 1000V         |
| MCOV [U <sub>CPV</sub> ]  |                                  | 600Vdc  | 1000Vdc       |
| Max System Discharge Current (8/20μs) [I <sub>max</sub> ]                       |                                  | 40kA  | 40kA          |
| Voltage Protection Level [U <sub>p</sub> ]                                      |                                  | ≤2.5kV  | ≤4.0kV        |
| Voltage Protection Level at 5kA [U <sub>p</sub> ]                               |                                  | ≤2.0kV  | ≤3.5kV        |
| Short-Circuit Withstand Capability [I <sub>SCPV</sub> ]                         |                                  | 125A  |               |
| Technology  |                                  | Fault Resistant Y MOV Circuit   |               |
| Operating Temperature Range [T <sub>U</sub> ]                                   |                                  | -40°C to +80°C  |               |
| Nominal Discharge Current (8/20μs) (DC+ → DC-) (DC+/DC- → PE) [I <sub>n</sub> ] |                                  | 20kA  |               |
| Response Time [t <sub>A</sub> ]   |                                  | ≤25ns   |               |
| Operating State/Fault Indication  |                                  | Green (good) / Red (replace)  |               |
| Conductor Ratings and Cross-Sectional Area:                                     | Minimum                          | 60/75°C 1.5mm <sup>2</sup> / 14AWG Solid/Flexible                             |               |
|   | Maximum                          | 60/75°C 35mm <sup>2</sup> / 2AWG Stranded / 25mm <sup>2</sup> / 4AWG Flexible |               |
| Mounting  |                                  | 35mm DIN-Rail per EN 60715  |               |
| Enclosure Material  |                                  | UL 94V0 Thermoplastic   |               |
| Degree of Protection  |                                  | IP20  |               |
| Capacity  |                                  | 3 Modules, DIN 43880  |               |
| Standards Information:  | UL                               | UL 1449 3 <sup>rd</sup> Edition (Type 2)                                      |               |
|   | IEC                              | EN 50539-11, IEC 61643-11 Type 2, IEC 61643-1 Class II                        |               |
| Product Warranty  |                                  | Two Years*  |               |
| Remote Contact Signaling  |                                  |   |               |
| Remote Contact Signaling Type   |                                  | Changeover Contact  |               |
| AC Switching Capacity (Volts/Amps)  |                                  | 250V / 0.1A   |               |
| DC Switching Capacity (Volts/Amps)  |                                  | 250V / 0.1A; 125V / 0.2A; 75V / 0.5A  |               |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals  |                                  | 60/75°C Max. 1.5mm <sup>2</sup> / 14AWG Solid/Flexible                        |               |
| Ordering Information  |                                  | Order from Catalog Numbers Above  |               |

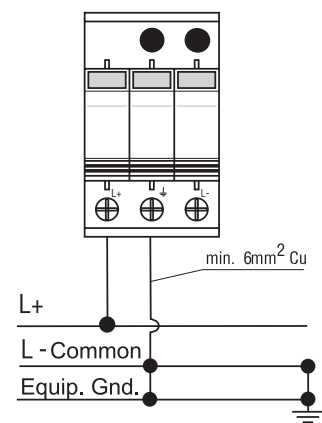
## Typical Application Schematics



**Application A**  
Two energized poles/modes  
600 & 1000Vdc systems



**Application B**  
One energized pole/mode  
600Vdc & 1000Vdc systems only



**Application C**  
One energized pole/mode  
600Vdc & 1000Vdc\*\* systems

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

\*\* BSPP31000YPV(R) 1000Vdc one energized pole/mode requires the following:

1. Use a suitable electrical insulator to keep a 10mm min. safety distance from the PV-SPD and other grounded parts in the housing.
2. No metal covers are in the area of the module release buttons as shown.

# Wind IEC Class I DIN-Rail SPD

BSPS\_ \_ \_ \_ WE



easyID™

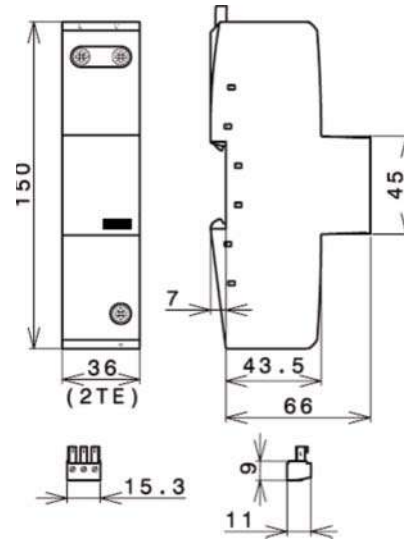
Visual Status Indication



Remote Signal Contact Available



Dimensions - mm



Shown with optional remote contact signaling

### Description

The Bussmann IEC Class I 400 and 690V, one-pole lightning current arresters feature local, easyID™ visual indication and optional remote contact signaling.

440V and 760V maximum continuous operating voltage arresters protect installations against surges and direct lightning strikes.

### System & Application

TNC 400V/690V: 3x BSPS1400WE(R)

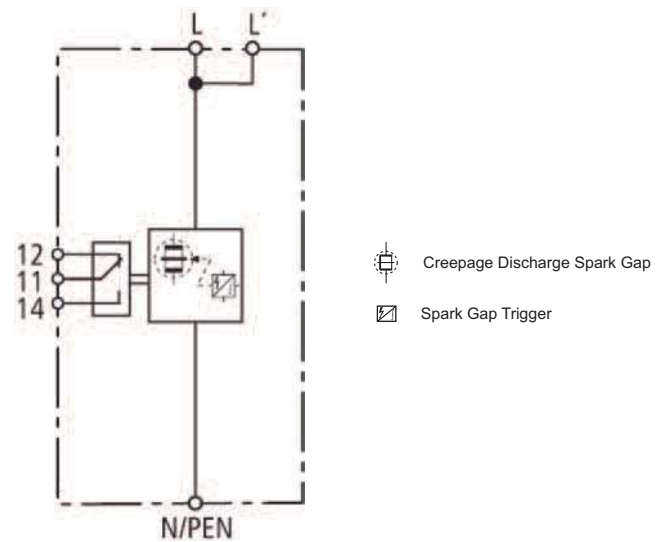
TNS 400/690V: 4x BSPS1400WE(R)

IT 690V: 3x BSPS1690WER

### Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

### Circuit Diagrams - Shown with optional remote contact signaling



**BSPS1400WE\***  
**BSPS1690WE**

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPS1400WER

Surge Protection Devices



## Wind IEC Class I DIN-Rail SPD

| Ordering Information   |  |  |
|--|--|--|
| System Voltage/Poles   | 400V/1   | 690V/1   |
| Max. Continuous Operating AC voltage (MCOV) [U <sub>C</sub> ]                            | 440V   | 760V   |
| Catalog Numbers:   | Without Remote Signaling   | BSPS1400WE   |
|  | With Remote Signaling  | BSPS1400WER  |
|  |  | BSPS1690WER  |
| Specifications   |  |  |
| Line System Type   | TNC, TNS, IT   | TNC, TNS, IT   |
| Lightning impulse current (10/350 μs) [I <sub>imp</sub> ]                                | 35kA   | 25kA   |
| Specific Energy [W/R]  | 306.25kJ/ohms  | 156.25kJ/ohms  |
| Nominal Discharge Current (8/20 μs) [I <sub>n</sub> ]                                    | 35kA   | 25kA   |
| Voltage Protection Level [U <sub>p</sub> ]   | ≤ 2.5kV  | ≤ 4kV  |
| Follow Current Extinguishing Capability AC [I <sub>ff</sub> ]                            | 50kA <sub>rms</sub>  | 25kA <sub>rms</sub>  |
| Follow Current Limitation / Selectivity  | no tripping of a 32 A gL/gG fuse up to 50 kA <sub>rms</sub> (prosp.) | no tripping of a 32 A gL/gG fuse up to 25 kA <sub>rms</sub> (prosp.) |
| Response Time [t <sub>A</sub> ]  | ≤ 100 ns   | ≤ 100 ns   |
| Max. Backup Fuse (L) up to I <sub>K</sub> = 25kA <sub>rms</sub> (t <sub>a</sub> ≤ 5 s)   | --   | 250A gL/gG   |
| Max. Backup Fuse (L) up to I <sub>K</sub> > 25kA <sub>rms</sub>                          | --   | 100A gL/gG   |
| Max. Backup Fuse (L) up to I <sub>K</sub> = 50kA <sub>rms</sub> (t <sub>a</sub> ≤ 0.2 s) | 500A gL/gG   | --   |
| Max. Backup Fuse (L) up to I <sub>K</sub> = 50kA <sub>rms</sub> (t <sub>a</sub> ≤ 5 s)   | 250A gL/gG   | --   |
| Max. Backup Fuse (L) for I <sub>K</sub> > 50kA <sub>rms</sub>                            | 160A gL/gG   | --   |
| Max. Backup Fuse (L-L)   | 125A gL/gG   | 125A gL/gG   |
| Short-Circuit Withstand Capability for Max. Mains-Side Overcurrent Protection            | 50kA <sub>rms</sub>  | 25kA <sub>rms</sub>  |
| Temporary Overvoltage (TOV) [U <sub>T</sub> ]  | 690V / 5 sec.  | 1000V / 5 sec.   |
| Cross-Sectional Area (L, L, $\frac{1}{2}$ ) [min.]                                       | --   | 10mm <sup>2</sup> solid/flexible                                     |
| Cross-Sectional Area (L, L, N/PEN) [min.]  | 10mm <sup>2</sup> solid/flexible                                     | --   |
| Cross-Sectional Area (L, N/PEN) [max.]   | 50mm <sup>2</sup> /1AWG stranded/35mm <sup>2</sup> /2AWG flexible    | --   |
| Cross-Sectional Area (L, $\frac{1}{2}$ ) [max.]  | --   | 50mm <sup>2</sup> /1AWG stranded/35 mm <sup>2</sup> /2AWG flexible   |
| Cross-Sectional Area (L) [max.]  | 35mm <sup>2</sup> /2AWG stranded/25mm <sup>2</sup> /4AWG flexible    | 35mm <sup>2</sup> /2AWG stranded/25mm <sup>2</sup> /4AWG flexible    |
| SPD According to EN 61643-11   |  | Type 1   |
| SPD According to IEC 61643-1   |  | Class I  |
| TOV Characteristics  |  | Withstand  |
| Operating Temperature Range (parallel connection) [T <sub>UP</sub> ]                     |  | -40°C to +80°C   |
| Operating Temperature Range (series connection) [T <sub>US</sub> ]                       |  | -40°C to +60°C   |
| Operating State/Fault Indication   |  | Green (good) / Red (replace)   |
| Number of Ports  |  | 1  |
| Mounting   |  | 35mm DIN rail per EN 60715   |
| Enclosure Material   |  | Thermoplastic, UL 94V0   |
| Place of Installation  |  | Indoor   |
| Degree of Protection   |  | IP20   |
| Capacity   |  | 2 Mods., DIN 43880   |
| Product Warranty   |  | Five Years*  |
| Remote Contact Signaling   |  |  |
| Remote Contact Signaling Type  |  | Changeover Contact   |
| AC Switching Capacity (Volts/Amps)   |  | 250V/0.5A  |
| DC Switching Capacity (Volts/Amps)   |  | 250V/0.1A; 125V/0.2A; 75V/0.5A                                       |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals           |  | 60/75°C Max. 1.5mm <sup>2</sup> /<br>14AWG Solid/Flexible            |
| Ordering Information   |  | Order from Catalog Numbers Above                                     |

| Recommended Bussmann NH DIN Size Back Up Fuses |  |
|--|--|
| Size   | NH Fuse Part Number  |
| 000  | 100NHG000B-690 (max L) up to I <sub>K</sub> > 25kA <sub>rms</sub>                        |
| 00   | 125NHG000B-690 (max L-L)   |
| 01   | 160NHG01B-690 (max L) for I <sub>K</sub> > 50kA <sub>rms</sub>                           |
| 02   | 250NHG02B-690 (max L) up to I <sub>K</sub> = 25kA <sub>rms</sub> (t <sub>a</sub> ≤ 5 s)  |
| 02   | 250NHG02B-690 (max L) up to I <sub>K</sub> = 50kA <sub>rms</sub> (t <sub>a</sub> ≤ 5 s)  |
| 3  | 500NHG3B-690 (max L) up to I <sub>K</sub> = 50kA <sub>rms</sub> (t <sub>a</sub> ≤ 0.2 s) |

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

# Wind IEC Class II DIN-Rail SPD

BSPM\_ \_ \_ WE, BSPS\_ \_ \_ WE



easyID™

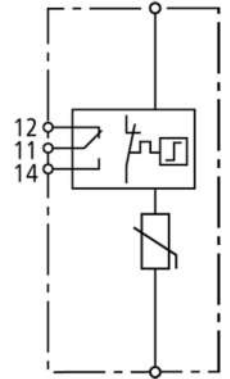
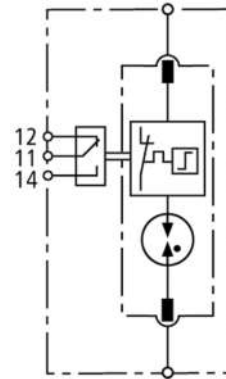
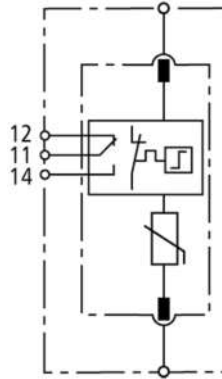
Visual Status Indication



Remote Signal Contact Available



Module Circuit Diagrams - Shown with optional remote contact signaling



BSPM175WE\*  
BSPM1400WE  
BSPM1690WE

BSPG1230WE\*

BSPM11000WE\*



MOV



Thermal Disconnect



Gas Discharge Tube (single)

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPM175WER

## Description

The Bussmann IEC Class II 75, 230, 400, 690 and 1000V, one-pole, modular surge arresters feature local, easyID™ visual indication and optional remote contact signaling. The unique module locking system on the 75 to 690V arresters fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

### TN System Arresters (also 1-Phase TT systems)

The features of these single-pole devices are for use as a single device or in combination with other devices.

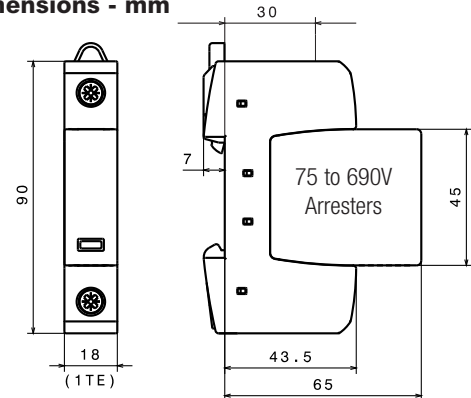
### TT System Arrester

Provides a current arresting means between neutral conductor and protective conductor in TT systems, this device helps ensure fulfilling the requirements for protection of personnel and equipment in "3+1" and "1+1" circuits.

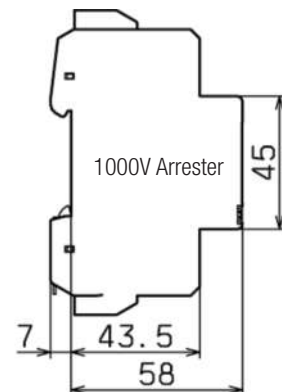
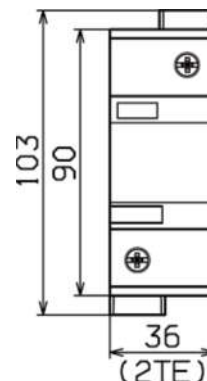
### Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

## Dimensions - mm



Shown with optional remote contact signaling



Surge Protection Devices

## Wind IEC Class II DIN-Rail SPD

| Ordering Information   |   |                      |                     |                     |                     |              |
|--|---|----------------------|---------------------|---------------------|---------------------|--------------|
| System Voltage/Poles   | 75V/1   | 230V/1               | 400V/1              | 690V/1              | 1000V/1             |              |
| Max. Continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                  | 75V   | 255V                 | 440V                | 600V                | 1000V               |              |
| Catalog Numbers:   | Without Remote Signaling  | BSPM175WE            | BSPG1230WE          | BSPM1400WE          | BSPM1690WE          | BSPM11000WE  |
| (Base + Modules)   | With Remote Signaling   | BSPM175WER           | BSPG1230WER         | BSPM1400WER         | BSPM1690WER         | BSPM11000WER |
| Replacement Modules  |   | BPM75WE              | BPG255NPEWE*        | BPM440WE            | BPM750WE            | N/A          |
| Specifications   |   |                      |                     |                     |                     |              |
| Line System Type   | TN / TT   | TT                   | TN / TT             | TN / TT             | TN / TT             |              |
| Max. Continuous Operating DC Voltage [U <sub>C</sub> ]                         | 100V  | --                   | 585                 | 600V                | 1000V               |              |
| Rated Varistor Voltage AC [U <sub>MOV</sub> ]                                  | --  | --                   | --                  | 750V                | 1000V               |              |
| Nominal Discharge Current (8/20 μs) [I <sub>n</sub> ]                          | 10kA  | 20kA                 | 20kA                | 15kA                | 15kA                |              |
| Max. Discharge Current (8/20 μs) [I <sub>max</sub> ]                           | 40kA  | 40kA                 | 40kA                | 25kA                | 30kA                |              |
| Follow Current Extinguishing Capability [I <sub>fi</sub> ]                     | --  | 100 A <sub>rms</sub> | --                  | --                  | --                  |              |
| Lightning Impulse Current (10/350 μs) [I <sub>imp</sub> ]                      | --  | 12kA                 | --                  | --                  | --                  |              |
| Voltage Protection Level [U <sub>p</sub> ]                                     | ≤ 0.4kV   | ≤ 1.5kV              | ≤ 2.0kV             | ≤ 3kV               | ≤ 4.2kV             |              |
| Voltage Protection Level at 5kA [U <sub>p</sub> ]                              | ≤ 0.35kV  | --                   | ≤ 1.7kV             | ≤ 2.5kV             | ≤ 3.5kV             |              |
| Response Time [t <sub>A</sub> ]  | ≤ 25 ns   | ≤ 100 ns             | ≤ 25 ns             | ≤ 25 ns             | ≤ 25 ns             |              |
| Max. Mains-side Overcurrent Protection   | 125A gL/gG  | --                   | 125A gL/gG          | 100A gL/gG          | 100A aM**           |              |
| Short-Circuit Withstand Capability for Max. Mains-side Overcurrent Protection  | 50kA <sub>rms</sub>   | --                   | 25kA <sub>rms</sub> | 25kA <sub>rms</sub> | 25kA <sub>rms</sub> |              |
| Temporary Overvoltage (TOV) [U <sub>T</sub> ]                                  | 90V / 5 sec.  | 1200V / 200ms        | 580V / 5 sec.       | 900V / 5 sec.       | 1000V / 5 sec.      |              |
| Standards Information  | KEMA, CSA   | KEMA                 | KEMA, CSA           | KEMA, CSA           | --                  |              |
| Capacity   | 1 Mod., DIN 43880   | 1 Mod., DIN 43880    | 1 Mod., DIN 43880   | 1 Mod., DIN 43880   | 2 Mod., DIN 43880   |              |
| SPD According to EN 61643-11   | Type 2  |                      |                     |                     |                     |              |
| SPD According to IEC 61643-1   | Class II  |                      |                     |                     |                     |              |
| TOV Characteristics  | Withstand   |                      |                     |                     |                     |              |
| Operating Temperature Range [T <sub>U</sub> ]                                  | -40°C to +80°C  |                      |                     |                     |                     |              |
| Operating State/Fault Indication   | Green (good) / Red (replace)                                      |                      |                     |                     |                     |              |
| Number of Ports  | 1   |                      |                     |                     |                     |              |
| Cross-Sectional Area (min.)  | 1.5mm <sup>2</sup> /14AWG solid/flexible                          |                      |                     |                     |                     |              |
| Cross-Sectional Area (max.)  | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |                      |                     |                     |                     |              |
| Mounting   | 35mm DIN rail per EN 60715  |                      |                     |                     |                     |              |
| Enclosure Material   | Thermoplastic, UL 94V0  |                      |                     |                     |                     |              |
| Location Category  | Indoor  |                      |                     |                     |                     |              |
| Degree of Protection   | IP20  |                      |                     |                     |                     |              |
| Product Warranty   | Five Years***   |                      |                     |                     |                     |              |
| Remote Contact Signaling   |   |                      |                     |                     |                     |              |
| Remote Contact Signaling Type  | Changeover Contact  |                      |                     |                     |                     |              |
| AC Switching Capacity (Volts/Amps)   | 250V/0.5A   |                      |                     |                     |                     |              |
| DC Switching Capacity (Volts/Amps)   | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |                      |                     |                     |                     |              |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |                      |                     |                     |                     |              |
| Ordering Information   | Order from Catalog Numbers Above                                  |                      |                     |                     |                     |              |

\* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

\*\* 125A gL/gG @ 690Vac.

\*\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

| Recommended Bussmann Back Up Fuses |                     |
|------------------------------------|---------------------|
| DIN Fuse Size                      | NH Fuse Part Number |
| 00                                 | 100NHG00B-690       |
| 00                                 | 125NHG00B-690       |

# Wind IEC Class II DIN-Rail SPD

BSPM\_\_\_\_WE, BSPH\_\_\_\_WE



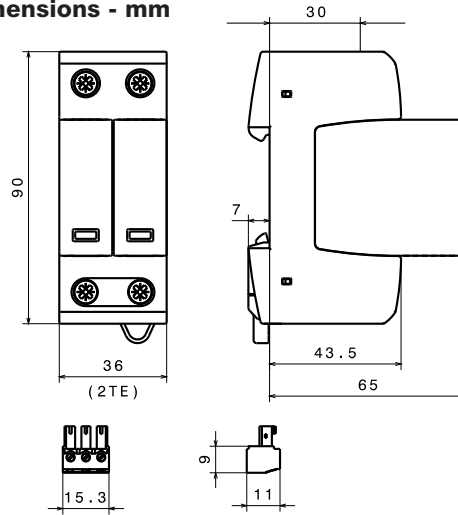
**easyID™**  
Visual Status Indication



Remote Signal  
Contact Available



Dimensions - mm



Shown with optional remote contact signaling

## Description

The Bussmann IEC Class II 230V, two-pole, modular surge arresters feature local, **easyID™** visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

### TN System Arrester

The features of these two-pole device are for use as a single device.

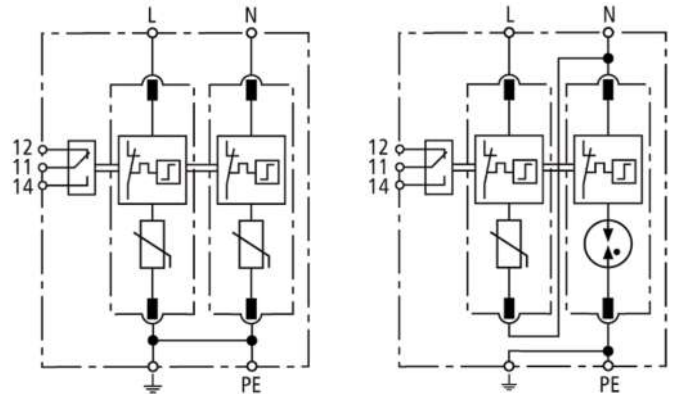
### TT System Arrester

For use as a single device in a 1-phase TT system.

### Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

**Module Circuit Diagrams** - Shown with optional remote contact signaling



**BSPM2230WE\***

**BSPH2230WE\***

MOV  
 Thermal Disconnector

Gas Discharge Tube (single)

\*For remote signaling contact, add "R" suffix to the part number, E.g., BSPM2230WER

Surge Protection  
Devices

## Wind IEC Class II DIN-Rail SPD

| Ordering Information   |   |                     |
|--|---|---------------------|
| System Voltage/Poles   | 230V/2  | 230V/2              |
| Max. Continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                  | 275V  | 275 / 255V          |
| Catalog Numbers:   |   |                     |
| Without Remote Signaling   | BSPM2230WE  | BSPH2230WE          |
| (Base + Modules) With Remote Signaling   | BSPM2230WER   | BSPH2230WER         |
| Replacement Modules  |   |                     |
| MOV  | BPM275WE  | BPM275WE            |
| Spark Gap  | --  | BPSNPEWE*           |
| Specifications   |   |                     |
| Line System Type   | TN  | TT                  |
| Max. Continuous Operating AC Voltage [L-N] [U <sub>C</sub> ]                   | --  | 275V                |
| Max. Continuous Operating AC Voltage [N-PE] [U <sub>C</sub> ]                  | --  | 255V                |
| Nominal Discharge Current (8/20 μs)[I <sub>n</sub> ]                           | 20kA  | 20kA                |
| Max. Discharge Current (8/20 μs)[I <sub>max</sub> ]                            | 40kA  | 40kA                |
| Lightning Impulse Current (10/350 μs) [N-PE] [I <sub>imp</sub> ]               | --  | 12kA                |
| Voltage Protection Level [U <sub>p</sub> ]                                     | ≤ 1.25kV  | --                  |
| Voltage Protection Level at 5kA [U <sub>p</sub> ]                              | ≤ 1kV   | --                  |
| Voltage Protection Level [L-N] [U <sub>p</sub> ]                               | --  | ≤ 1.25kV            |
| Voltage Protection Level [L-N] at 5kA [U <sub>p</sub> ]                        | --  | ≤ 1kV               |
| Voltage Protection Level [N-PE] [U <sub>p</sub> ]                              | --  | ≤ 1.5kV             |
| Follow Current Extinguishing Capability [N-PE] [I <sub>f</sub> ]               | --  | 100A <sub>rms</sub> |
| Response Time [L-N] [t <sub>A</sub> ]  | --  | ≤ 25 ns             |
| Response Time [N-PE] [t <sub>A</sub> ]   | --  | ≤ 100 ns            |
| Response Time [t <sub>A</sub> ]  | ≤ 25 ns   | --                  |
| Max. Mains-side Overcurrent Protection   | 125A gL/gG  | 125A gL/gG          |
| Short-circuit Withstand Capability for Max. Mains-side Overcurrent Protection  | 50kA <sub>rms</sub>   | 50kA <sub>rms</sub> |
| Temporary Overvoltage (TOV) [U <sub>T</sub> ]                                  | 335 V / 5 sec.  | --                  |
| Temporary Overvoltage (TOV) [L-N] [U <sub>T</sub> ]                            | --  | 335V / 5 sec.       |
| Temporary Overvoltage (TOV) [N-PE] [U <sub>T</sub> ]                           | --  | 1200V / 200 ms      |
| SPD According to EN 61643-11   | Type 2  |                     |
| SPD According to IEC 61643-1   | Class II  |                     |
| TOV Characteristics  | Withstand   |                     |
| Operating Temperature Range [T <sub>U</sub> ]                                  | -40°C to +80°C  |                     |
| Operating State/Fault Indication   | Green (good) / Red (replace)                                      |                     |
| Number of Ports  | 1   |                     |
| Cross-sectional Area (min.)  | 1.5mm <sup>2</sup> /14AWG solid/flexible                          |                     |
| Cross-sectional Area (max.)  | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |                     |
| Mounting   | 35mm DIN rail per EN 60715  |                     |
| Enclosure Material   | Thermoplastic, UL 94V0  |                     |
| Location Category  | Indoor  |                     |
| Degree of Protection   | IP20  |                     |
| Capacity   | 2 Mods., DIN 43880  |                     |
| Standards Information  | KEMA  |                     |
| Product Warranty   | Five Years**  |                     |
| Remote Contact Signaling   |   |                     |
| Remote Contact Signaling Type  | Changeover Contact  |                     |
| AC Switching Capacity (Volts/Amps)   | 250V/0.5A   |                     |
| DC Switching Capacity (Volts/Amps)   | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |                     |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals | 60/75°C Max. 1.5mm <sup>2</sup> /<br>14AWG Solid/Flexible         |                     |
| Ordering Information   | Order from Catalog Numbers Above                                  |                     |

\* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

\*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

| Recommended Bussmann Back Up Fuse |                     |
|-----------------------------------|---------------------|
| DIN Fuse Size                     | NH Fuse Part Number |
| 00                                | 125NHG00B           |



# Wind IEC Class II DIN-Rail SPD

BSPM\_\_\_WE



**easyID™**

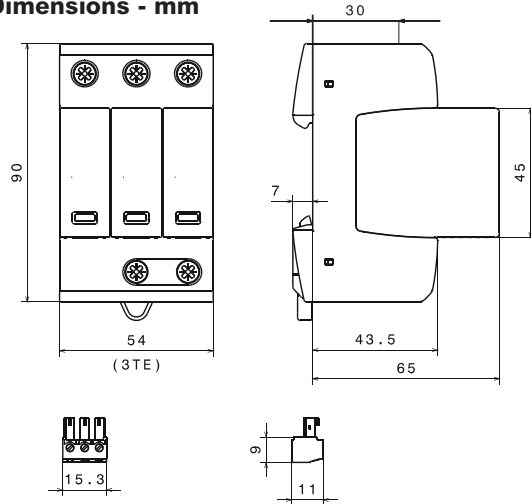
Visual Status Indication



Remote Signal Contact Available

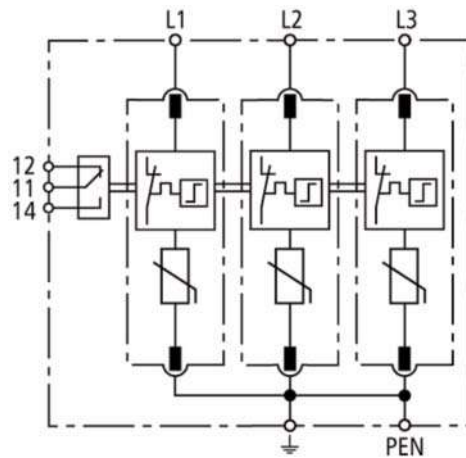


Dimensions - mm



Shown with optional remote contact signaling

**Module Circuit Diagrams** - Shown with optional remote contact signaling



**BSPM3230WE**  
**BSPM3400WE**  
**BSPM3690WE**

- MOV
- Thermal Disconnecter

## Specifications Description

The Bussmann IEC Class II 230, 400 and 690V three-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

### TNC System Arresters

The features of these three-pole devices are for use as a single device.

### Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

## Wind IEC Class II DIN-Rail SPD

| Ordering Information   |   |                     |                     |
|--|---|---------------------|---------------------|
| System Voltage/Poles   | 230V/3  | 400V/3              | 690V/3              |
| Max. Continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                  | 275V  | 440V                | 600V                |
| Catalog Numbers:   |   |                     |                     |
| (Base + Modules) Without Remote Signaling                                      | BSPM3230WE  | BSPM3400WE          | BSPM3690WE          |
| With Remote Signaling  | BSPM3230WER   | BSPM3400WER         | BSPM3690WER         |
| Replacement Modules  | BPM275WE  | BPM440WE            | BPM750WE            |
| Specifications   |   |                     |                     |
| Line System Type   | TNC   | TNC                 | TNC                 |
| Nominal AC Voltage [U <sub>N</sub> ]   | 230/400V  | 400/690V            | 600V                |
| Rated Varistor Voltage [U <sub>MOV</sub> ]                                     | 275V  | 440V                | 750V                |
| Nominal Discharge Current (8/20 μs) [I <sub>n</sub> ]                          | 20kA  | 20kA                | 15kA                |
| Max. Discharge Current (8/20 μs) [I <sub>max</sub> ]                           | 40kA  | 40kA                | 25kA                |
| Voltage Protection Level [U <sub>p</sub> ]                                     | ≤1.25kV   | ≤ 2kV               | ≤3kV                |
| Voltage Protection Level at 5kA [U <sub>p</sub> ]                              | ≤1kV  | ≤ 1.7kV             | ≤2.5kV              |
| Response Time [t <sub>A</sub> ]  | ≤25 ns  | ≤ 25 ns             | ≤25 ns              |
| Max. Mains-side Overcurrent Protection   | 125A gL/gG  | 125A gL/gG          | 100A gL/gG          |
| Short-circuit Withstand Capability for Max. Mains-side Overcurrent Protection  | 50kA <sub>rms</sub>   | 25kA <sub>rms</sub> | 25kA <sub>rms</sub> |
| Temporary Overvoltage (TOV) [U <sub>T</sub> ]                                  | 335V / 5 sec.   | 580V / 5 sec.       | 900V / 5 sec.       |
| SPD According to EN 61643-11   | Type 2  |                     |                     |
| SPD According to IEC 61643-1   | Class II  |                     |                     |
| TOV Characteristics  | Withstand   |                     |                     |
| Operating Temperature Range [T <sub>U</sub> ]                                  | -40°C to +80°C  |                     |                     |
| Operating State/Fault Indication   | Green (good) / Red (replace)                                      |                     |                     |
| Number of Ports  | 1   |                     |                     |
| Cross-Sectional Area (min.)  | 1.5mm <sup>2</sup> /14AWG solid/flexible                          |                     |                     |
| Cross-Sectional Area (max.)  | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |                     |                     |
| Mounting   | 35mm DIN rail per EN 60715  |                     |                     |
| Enclosure Material   | Thermoplastic, UL 94V0  |                     |                     |
| Location Category  | Indoor  |                     |                     |
| Degree of Protection   | IP20  |                     |                     |
| Capacity   | 3 Mods., DIN 43880  |                     |                     |
| Standards Information  | KEMA  |                     |                     |
| Product Warranty   | Five Years*   |                     |                     |
| Remote Contact Signaling   |   |                     |                     |
| Remote Contact Signaling Type  | Changeover Contact  |                     |                     |
| AC Switching Capacity (Volts/Amps)   | 250V/0.5A   |                     |                     |
| DC Switching Capacity (Volts/Amps)   | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |                     |                     |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |                     |                     |
| Ordering Information   | Order from Catalog Numbers Above                                  |                     |                     |

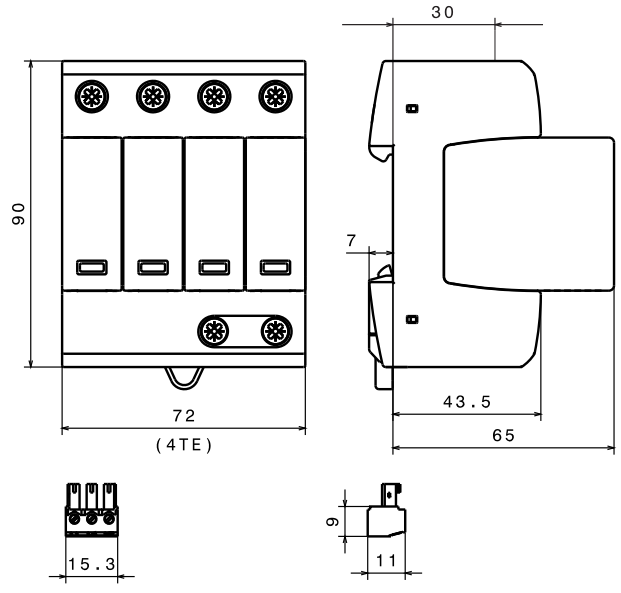
\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

| Recommended Bussmann Back Up Fuse |                     |
|-----------------------------------|---------------------|
| DIN Fuse Size                     | NH Fuse Part Number |
| 00                                | 100NHG00B-690       |
|                                   | 125NHG00B-690       |

# Wind IEC Class II DIN-Rail SPD

BSPM\_\_\_\_WE, BSPH\_\_\_\_WE

Dimensions - mm



Shown with optional remote contact signaling

## Specifications Description

The Bussmann IEC Class II 230/400V, four-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

These 230V models are offered with MCOV ratings of 275V.

### TNS System Arrester

The features of these four-pole devices are for use in TNS 230/400V systems ("4-0" circuit) against surges.

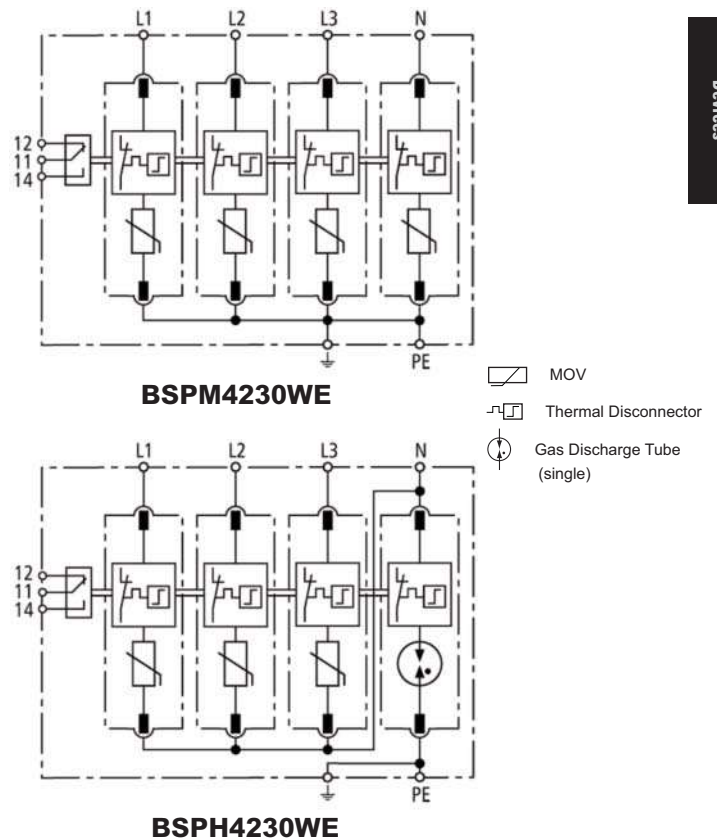
### TT System Arrester

The features of these four-pole devices are for use in TT and TN-S 230/400V systems ("3+1" circuit) against surges.

### Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

## Circuit Diagrams - Shown with optional remote contact signaling



Surge Protection Devices

## Wind IEC Class II DIN-Rail SPD

| ORDERING INFORMATION   |   |                     |             |
|--|---|---------------------|-------------|
| System Voltage/Poles   | 230/400V/4  | 230/400V/4          |             |
| Max. continuous operating AC voltage (MCOV) [U <sub>C</sub> ]                  | 275V  | --                  |             |
| Max. continuous operating AC voltage (MCOV) [L-N] [U <sub>C</sub> ]            | --  | 275V                |             |
| Max. continuous operating AC voltage [N-PE] [U <sub>C</sub> ]                  | --  | 255V                |             |
| Catalog Numbers:   | Without Remote Signaling  | BSPM4230WE          | BSPH4230WE  |
|  | With Remote Signaling   | BSPM4230WER         | BSPH4230WER |
| Replacement Modules:   | MOV technology  | BPM275WE            | BPM275WE    |
|  | Spark Gap technology  | --                  | BPSNPEWE*   |
| SPECIFICATIONS   |   |                     |             |
| Line System Type   | TNS   | TT / TNS            |             |
| Nominal AC voltage [U <sub>N</sub> ]   | 230/400V  | 230/400V            |             |
| Lightning impulse current (10/350 μs) [N-PE] [I <sub>imp</sub> ]               | --  | 12kA                |             |
| Voltage protection level [U <sub>p</sub> ]                                     | ≤ 1.25kV  | --                  |             |
| Voltage protection level at 5kA [U <sub>p</sub> ]                              | ≤ 1kV   | --                  |             |
| Voltage protection level [L-N] [U <sub>p</sub> ]                               | --  | ≤ 1.25kV            |             |
| Voltage protection level [L-N] at 5kA [U <sub>p</sub> ]                        | --  | ≤ 1kV               |             |
| Voltage protection level [N-PE] [U <sub>p</sub> ]                              | --  | ≤ 1.5kV             |             |
| Follow current extinguishing capability [N-PE] [I <sub>ff</sub> ]              | --  | 100A <sub>rms</sub> |             |
| Response time [t <sub>A</sub> ]  | ≤ 25 ns   | --                  |             |
| Response time [L-N] [t <sub>A</sub> ]  | --  | ≤ 25 ns             |             |
| Response time [N-PE] [t <sub>A</sub> ]   | --  | ≤ 100 ns            |             |
| Temporary overvoltage (TOV) [U <sub>T</sub> ]                                  | 335V / 5 sec.   | --                  |             |
| Temporary overvoltage (TOV) [L-N] [U <sub>T</sub> ]                            | --  | 335V / 5 sec.       |             |
| Temporary overvoltage (TOV) [N-PE] [U <sub>T</sub> ]                           | --  | 1200V / 200 ms      |             |
| SPD according to EN 61643-11   | Type 2  |                     |             |
| SPD according to IEC 61643-1   | Class II  |                     |             |
| Nominal discharge current (8/20 μs) [I <sub>n</sub> ]                          | 20kA  |                     |             |
| Max. discharge current (8/20 μs) [I <sub>max</sub> ]                           | 40kA  |                     |             |
| Max. mains-side overcurrent protection   | 125A gL/gG  |                     |             |
| Short-circuit withstand capability for max. mains-side overcurrent protection  | 50kA rms  |                     |             |
| TOV characteristics  | withstand   |                     |             |
| Operating temperature range [T <sub>0</sub> ]                                  | -40°C to +80°C  |                     |             |
| Operating state/fault indication   | green (good)/red (replace)  |                     |             |
| Number of ports  | 1   |                     |             |
| Cross-sectional area (min.)  | 1.5mm <sup>2</sup> /14AWG solid/flexible                          |                     |             |
| Cross-sectional area (max.)  | 35mm <sup>2</sup> /2AWG stranded-25mm <sup>2</sup> /4AWG flexible |                     |             |
| Mounting   | 35mm DIN rail per EN 60715  |                     |             |
| Enclosure material   | Thermoplastic, UL 94V0  |                     |             |
| Location category  | Indoor  |                     |             |
| Degree of protection   | IP20  |                     |             |
| Capacity   | 4 Mods., DIN 43880  |                     |             |
| Standards Information  | KEMA  |                     |             |
| Product Warranty   | Five Years**  |                     |             |
| REMOTE CONTACT SIGNALING   |   |                     |             |
| Remote Contact Signaling Type  | Changeover Contact  |                     |             |
| AC Switching Capacity (Volts/Amps)   | 250V/0.1A   |                     |             |
| DC Switching Capacity (Volts/Amps)   | 250V/0.1A; 125V/0.2A; 75V/0.5A                                    |                     |             |
| Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals | 60/75°C Max. 1.5mm <sup>2</sup> /14AWG Solid/Flexible             |                     |             |
| Ordering Information   | Order from Catalog Numbers Above                                  |                     |             |

| Recommended Bussmann Back Up Fuse |                     |
|-----------------------------------|---------------------|
| DIN Fuse Size                     | NH Fuse Part Number |
| 00                                | 125NHG00B           |

\* N-PE Surge arrester module for location between neutral conductor and protective conductor in TT systems.  
 \*\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

## Surge Protection Made Simple™ for Coaxial Data Cables

### UL Listed 497B DIN-Rail Mount Surge Protective Device for BNC Connector Cable Systems



#### Description

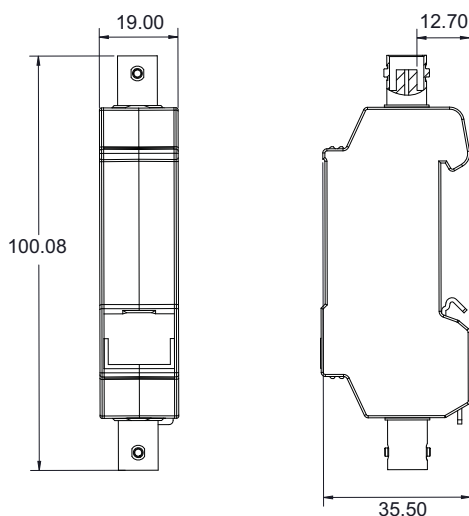
The Bussmann BSPD5BNCDD and BSPD5BNCDI two-stage DIN-Rail mounted surge arresters are for protecting coaxial cable-connected systems (such as video and camera systems) from potential damage. The BSPD5BNCDD features direct (VCD) shield connection while the BSPD5BNCDI features indirect shield connection (VCID) to prevent leakage pickups.

The BSPD5BNCDD and BSPD5BNCDI shielded surge arresters are mounted on the supplied bracket with cable lug or mounted on a rack mounted DIN-Rail with suitable grounding. BNC connector terminated data or video signal cables are plugged into surge arrester with the equipment plugged into the protected side.

Common applications include protecting outdoor video surveillance systems or video control centers or coaxial data lines. For BSPD5BNCDI, the cable shield is indirectly grounded via a gas discharge tube to avoid being influenced by leakage pickups.

- UL 497B Listed
- Plug-in surge protective device for easy retrofitting
- The space-saving surge arrester with BNC socket is mounted on supplied rail terminal lug or standard 35mm DIN-Rail
- Integrated direct or indirect shield grounding avoids leakage pickups
- Easily adaptable due to BNC sockets

#### Dimensions-mm

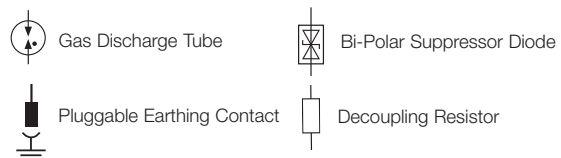
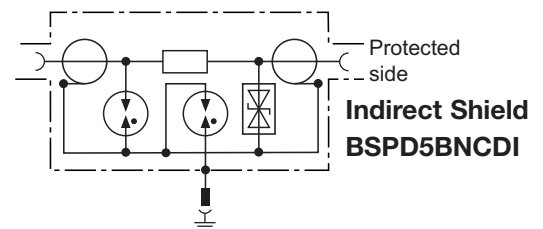
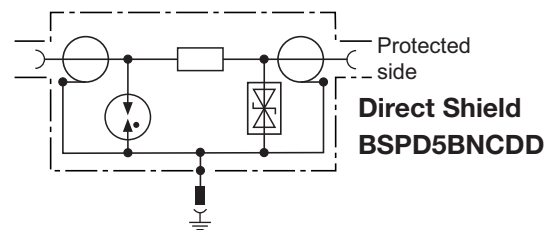


**BSPD5BNCDD**  
**BSPD5BNCDI**



### DIN-Rail Mount SPD for BNC Coax

#### Circuit Diagrams

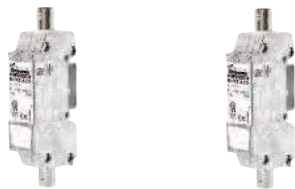


Surge Protection  
Devices



| Technical Data   |   |            |
|--|---|------------|
| Catalog Number   | BSPD5BNCDD                                | BSPD5BNCDI |
| Return loss at 300MHz  | ≥8dB                                      | ≥10dB      |
| Capacitance shield-PG (C)  | —   | ≤20pF      |
| Voltage protection level shield-PG for I <sub>n</sub> C2 (U <sub>p</sub> )   | —   | ≤650V      |
| Voltage protection level shield-PG at 1kV/μs C3 (U <sub>p</sub> )            | —   | ≤600V      |
| Nominal voltage (U <sub>N</sub> )  | 5V  |            |
| Max. continuous operating DC voltage (U <sub>C</sub> )                       | 6.4V                                      |            |
| Nominal current (I <sub>N</sub> )  | 0.1A                                      |            |
| C2 Nominal discharge current (8/20μs) shield-PG (I <sub>n</sub> )            | 10kA                                      |            |
| C2 Nominal discharge current (8/20μs) line-shield (I <sub>n</sub> )          | 5kA                                       |            |
| Voltage protection level line-shield for I <sub>n</sub> C2 (U <sub>p</sub> ) | ≤35V                                      |            |
| Voltage protection level line-shield at 1kV/μs C3 (U <sub>p</sub> )          | ≤13V                                      |            |
| Frequency range  | 0-300MHz                                  |            |
| Insertion loss at 160MHz   | ≤0.4dB                                    |            |
| Insertion loss at 300MHz   | ≤3dB                                      |            |
| Return loss at 130MHz  | ≥20dB                                     |            |
| Impedance (Z)  | 50Ω                                       |            |
| Series impedance per line  | 4.7Ω                                      |            |
| Capacitance line-shield (C)  | ≤25pF                                     |            |
| Operating temperature range  | -40°C to +80°C                            |            |
| Degree of protection   | IP10                                      |            |
| For mounting on  | 35mm DIN-Rails per EN 60715               |            |
| Connection (input / output)  | BNC Socket (female) / BNC Socket (female) |            |
| Grounding  | Via 35mm DIN-Rail per EN 60715            |            |
| Enclosure material   | Zinc die casting                          |            |
| Color  | Bare surface                              |            |
| Test standards   | IEC 61643-21 / EN 61643-21                |            |
| Agency Information   | UL 497B                                   |            |
| Warranty   | 5 Years*                                  |            |

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/Surge](http://www.cooperbussmann.com/Surge).

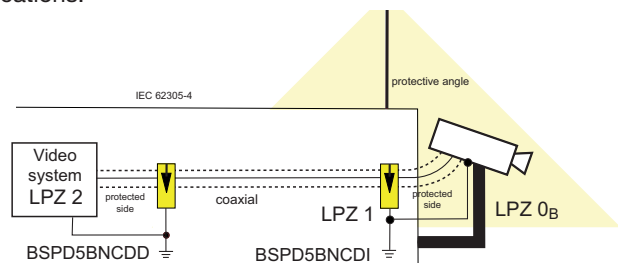


## DIN-Rail BNC SPD Applications

| Part Numbers                                      | BSPD5BNCDD | BSPD5BNCDI |
|---|------------|------------|
| Bus Systems and Measuring, and Control Technology |            |            |
| Control Net                                       | X          | X          |
| Melsec Net 2                                      | X          | X          |
| N1 LAN  | X          | X          |
| Data Networks                                     |            |            |
| Arcnet  | X          | X          |
| Video Systems                                     |            |            |
| Video (coax)                                      | X          | X          |

## Direct vs. Indirect Shielding - Application Example

Apply the BSPD5BNCDD (direct shield) at the equipment location and apply the BSPD5BNCDI (indirect shield) near exterior protected equipment. The indirect shield grounding at the exterior device will help avoid picking up leakage currents that can degrade signal quality while providing surge protection when needed. See illustration below for installation locations.



# Surge Protection Made Simple™ for Coaxial Data Cables

## UL Listed 497B In-line Surge Protective Device for BNC Connector Cable Systems



### Description

The Bussmann BSPD5BNCSI two-stage in-line surge arrester is for protecting coaxial cable-connected systems (such as video and camera systems) from potential damage.

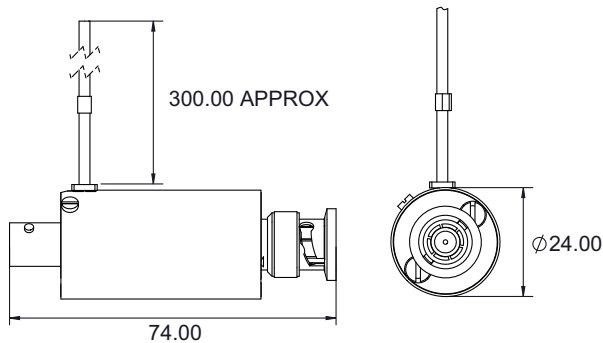
The BSPD5BNCSI shielded surge arrester is plugged into coaxial terminal equipment or connections. Common applications include protecting outdoor video surveillance systems or video control centers. The cable shield is indirectly grounded via a gas discharge tube to avoid being influenced by leakage pickups. The arrester input is used as a socket and the protected output as a plug.

- UL 497B Listed
- Plug-in surge protective device for easy retrofitting
- Directly plugs into terminal equipment with BNC coaxial connections
- Integrated indirect shield grounding avoids leakage pickups

BSPD5BNCSI

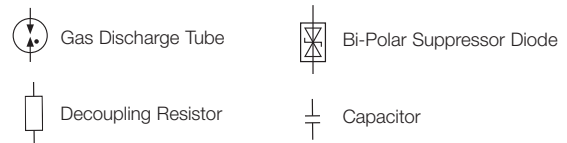
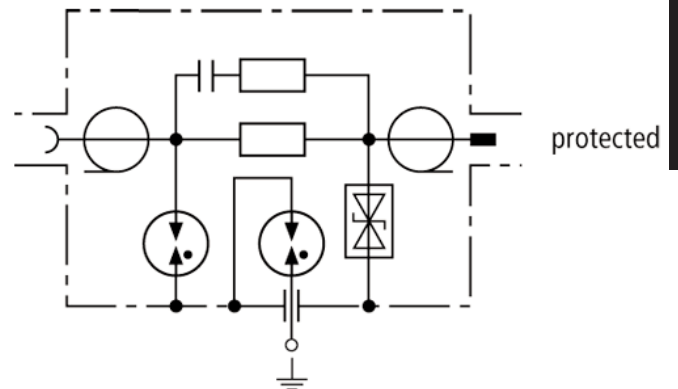


### Dimensions-mm



## In-line SPD for BNC Coax

### Circuit Diagram



Surge Protection Devices

| TECHNICAL DATA  |   |
|---|---|
| Catalog Number  | BSPD5BNCSI  |
| Nominal voltage ( $U_N$ )   | 5V  |
| Max. continuous operating DC voltage ( $U_C$ )                    | 8V  |
| C2 Nominal discharge current (8/20 $\mu$ s) per line ( $I_n$ )    | 2.5kA   |
| C2 Nominal discharge current (8/20 $\mu$ s) shield-PG ( $I_n$ )   | 10kA  |
| Voltage protection level line-shield for $I_n$ C2 ( $U_p$ )       | $\leq 25V$  |
| Voltage protection level line-shield at 1kV/ $\mu$ s C3 ( $U_p$ ) | $\leq 15V$  |
| Voltage protection level shield-PG at 1kV/ $\mu$ s C3 ( $U_p$ )   | $\leq 600V$   |
| Insertion loss at 265MHz  | $\leq 3dB$  |
| Return loss at 40MHz  | $\geq 20dB$   |
| Impedance ( $Z$ )   | 75 $\Omega$   |
| Series impedance per line   | 10 $\Omega$   |
| Capacitance line-shield (C)                                       | $\leq 50pF$   |
| Operating temperature range                                       | -40°C to +80°C  |
| Connection (input / output)                                       | BNC Socket (female) / BNC Plug (male)                     |
| Grounding   | Via outgoing earth conductor 18AWG (0.75mm <sup>2</sup> ) |
| Shield grounding  | Indirectly via an integrated spark gap element            |
| Test standards  | IEC 61643-21 / EN 61643-21                                |
| Agency information  | UL 497B   |
| Warranty  | 5 Years*  |

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/Surge](http://www.cooperbussmann.com/Surge).

## In-line BNC SPD Applications

| Part Number                                    | BSPD5BNCSI |
|--|------------|
| Bus Systems and Measuring & Control Technology |            |
| Control Net                                    | X          |
| Melsec Net 2                                   | X          |
| Data Networks                                  |            |
| Arcnet   | X          |
| Video Systems                                  |            |
| Video (coax)                                   | X          |



## Surge Protection Made Simple™ for Ethernet Data Cables

### UL Listed 497B Universal DIN-Rail Mount Surge Protective Device for RJ45/Ethernet Cable Systems



#### Description

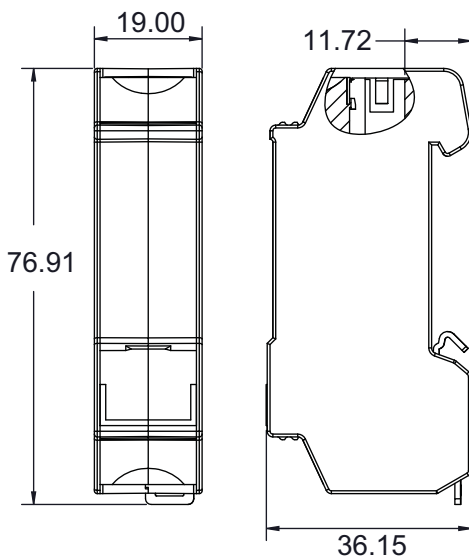
The Bussmann DIN-Rail mount BSPD48RJ45 Surge Protective Device (SPD) for Ethernet cable systems with RJ connectors is easy to install in new, or retrofitting into existing, installations.

The BSPD48RJ45 is installed between the patch panel and the active component (a switch for example). The snap-in mechanism of the supporting foot allows the SPD to be safely grounded via the DIN-Rail. For single applications, the BSPD48RJ45 comes with a supplied mounting bracket with cable lug.

Fulfilling the requirements of Category 6, the BSPD48RJ45 can be universally used for all data services up to nominal voltages of 48V. It is well suited for existing services such as Gigabit Ethernet, ATM, ISDN, Voice over IP and Power over Ethernet (PoE+ acc. to IEEE 802.3at up to 57V) and similar applications in structured cabling systems according to Class E up to 250MHz. Protection of all pairs by means of powerful gas discharge tubes and one adapter filter matrix per pair.

- UL 497B Listed
- Easy to install or retrofit for protection of all lines
- CAT 6 according to ISO/IEC 11801
- CAT 6 in the channel (Class E)
- Power over Ethernet (PoE+ according to IEEE 802.3at)

#### Dimensions -mm

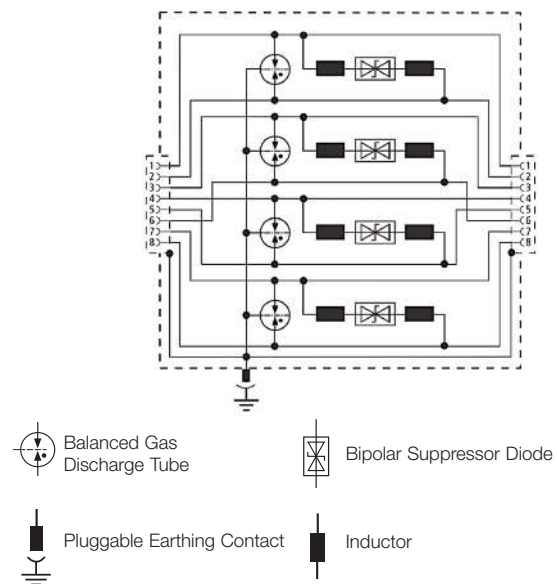


BSPD48RJ45



### DIN-Rail Mount SPD for RJ45 / Ethernet Connection

#### Circuit Diagram



Surge Protection  
Devices

| TECHNICAL DATA   |                                 |
|--|---------------------------------|
| Catalog Number   | BSPD48RJ45                      |
| Nominal voltage (U <sub>N</sub> )  | 48V                             |
| Max. continuous operating DC voltage (U <sub>C</sub> )                           | 48V                             |
| Max. continuous operating AC voltage (U <sub>C</sub> )                           | 34V                             |
| Max. continuous DC voltage pair-pair (PoE) (U <sub>C</sub> )                     | 57V                             |
| Nominal current (I <sub>N</sub> )  | 1A                              |
| C2 Nominal discharge current (8/20μs) line-line (I <sub>n</sub> )                | 150A                            |
| C2 Nominal discharge current (8/20μs) line-PG (I <sub>n</sub> )                  | 2.5kA                           |
| C2 Total nominal discharge current (8/20μs) line-PG (I <sub>n</sub> )            | 10kA                            |
| C2 nominal discharge current (8/20μs) pair-pair (PoE) (I <sub>n</sub> )          | 150A                            |
| Voltage protection level line-line for I <sub>n</sub> C2 (U <sub>P</sub> )       | ≤190V                           |
| Voltage protection level line-PG for I <sub>n</sub> C2 (U <sub>P</sub> )         | ≤600V                           |
| Voltage protection level line-line for I <sub>n</sub> C2 (PoE) (U <sub>P</sub> ) | ≤600V                           |
| Voltage protection level line-line at 1kV/μs C3 (U <sub>P</sub> )                | ≤180V                           |
| Voltage protection level line-PG at 1kV/μs C3 (U <sub>P</sub> )                  | ≤500V                           |
| Voltage protection level pair-pair at 1kV/μs C3 (PoE) (U <sub>P</sub> )          | ≤600V                           |
| Insertion loss at 250MHz   | ≤3dB                            |
| Capacitance line-line (C)  | ≤30pF                           |
| Capacitance line-PG (C)  | ≤25pF                           |
| Operating temperature range  | -40°C to +80°C                  |
| Degree of protection   | IP10                            |
| For mounting on  | 35mm DIN-Rails per EN 60715     |
| Connection (input / output)  | RJ45 socket / RJ45 socket       |
| Pinning  | 1 / 2, 3 / 6, 4 / 5, 7 / 8      |
| Grounding  | Via 35mm DIN-Rails per EN 60715 |
| Enclosure material   | Zinc die casting                |
| Color  | Bare surface                    |
| Test standards   | IEC 61643-21 / EN 61643-21      |
| Agency information   | UL 497B                         |
| Warranty   | 5 Years*                        |

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/Surge](http://www.cooperbussmann.com/Surge).

## DIN-Rail RJ45 SPDs Applications

| Part Number                                       | BSPD48RJ45 |
|---|------------|
| Bus systems and Measuring, and Control Technology |            |
| Industrial Ethernet                               | X          |
| Data Networks                                     |            |
| ATM   | X          |
| Ethernet 10/100/1000                              | X          |
| FDDI, CDDI  | X          |
| Industrial Ethernet                               | X          |
| Power over Ethernet (PoE)                         | X          |
| Token Ring  | X          |
| VG Any LAN  | X          |
| Video Systems                                     |            |
| Video (2 wire)                                    | X          |





## Surge Protection Made Simple™ for Twisted Pair Data Cables UL Listed 497B DIN-Rail Mount Universal Surge Protective Device for Measuring and Control Circuits, and Bus Systems



### Description

The Bussmann universal four-pole, DIN-Rail mounted surge arresters provide effective protection with minimum space requirements and are designed for stringent requirements on the availability of measuring and control circuits, and bus systems.

To ensure safe operation, the arresters provide protection against vibration and shock up to a 30-fold acceleration of gravity. The function-optimized design of the devices allows quick and easy removal of protection modules via “make-before-break” terminals that assure continuity of data signals in the protected and unprotected state.

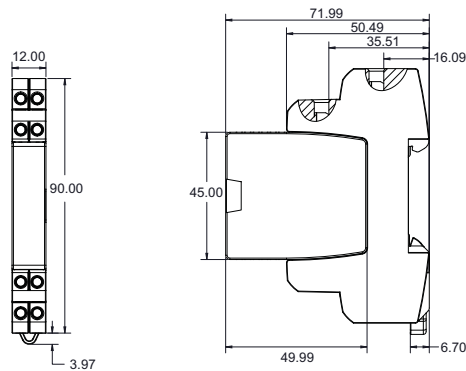
*For IEC Applications* - Instruction for Surge Protective Device Use In Zone 2 Explosive Atmospheres per ATEX.

- When installed in potentially explosive atmospheres, the Data Signal DIN Series shall be installed into an enclosure which meets the requirements of a recognized type of protection, in accordance with EN 60079-0.
- The Data Signal DIN Series as transient suppressor. This approval applies to the following equipment types:
  - BSPD5DING      • BSPD12DING      • BSPD24DING
  - BSPD48DING    • BSPD5DINLHF      • BSPD24DINLHF

### Ambient and Temperature Class

- -40°C to +80°C, T4:  
DEKRA 12ATEX0254 X: II 3 G Ex nA IIC T4 Gc
- Standards used for:  
ATEX: EN60079-0: 2009, EN 60079-15: 2005
- UL 497B Listed
- Function-optimized design for safe use and easy installation
- Four-pole and base mounts on grounded 35mm DIN-Rail
- Module removal without signal interruption via “make-before-break” circuitry
- 0-180V BSPD0180DINL automatically adjusts to system operating voltage and can protect data circuits of different voltages up to 100mA load current.

### Dimensions-mm

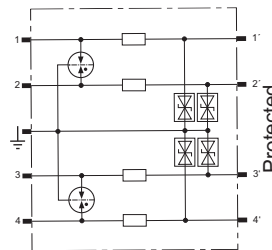


- BSPD5DING**
- BSPD12DING**
- BSPD24DING**
- BSPD48DING**
- BSPD5DINLHF**
- BSPD24DINLHF**
- BSPD0180DINL**

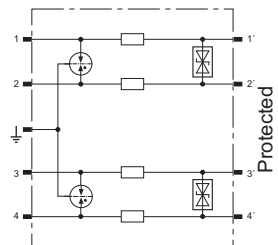


## Four-Pole DIN-Rail Mount Universal SPD for Data Signal Applications

### Circuit Diagrams



**BSPD5DING**  
**BSPD12DING**  
**BSPD24DING**  
**BSPD48DING**



**BSPD5DINLHF**  
**BSPD24DINLHF**

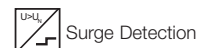
**BSPD0180DINL**



Decoupling Resistor



Transient Blocking Unit



Surge Protection  
Devices

| TECHNICAL DATA  |                                     |                                     |           |           |            |             |               |
|---|-------------------------------------|-------------------------------------|-----------|-----------|------------|-------------|---------------|
| Catalog number — Prefix: BSPD...  | ...5DING                            | ...12DING                           | ...24DING | ...48DING | ...5DINLHF | ...24DINLHF | ...0180DINL   |
| Nominal voltage ( $U_N$ )   | 5V                                  | 12V                                 | 24V       | 48V       | 5V         | 24V         | 0-180V        |
| Nominal current at 45°C ( $I_L$ )   | 1.0A                                | 0.75A                               | 0.75A     | 0.75A     | 1.0A       | 1.0A        | ≤0.1A@80°C    |
| VPL line-line for $I_{imp}$ D1 ( $U_p$ )  | ≤29V                                | ≤50V                                | ≤102V     | ≤160V     | ≤25V       | ≤65V        | ≤ $U_N + 53V$ |
| VPL line-PG for $I_{imp}$ D1 ( $U_p$ )  | ≤27V                                | ≤37V                                | ≤66V      | ≤95V      | ≤550V      | ≤550V       | -             |
| VPL line-line at 1kV/μs C3 ( $U_p$ )  | ≤18V                                | ≤38V                                | ≤90V      | ≤140V     | ≤11V       | ≤47V        | see Note 1    |
| VPL line-PG at 1kV/μs C3 ( $U_p$ )  | ≤9V                                 | ≤19V                                | ≤45V      | ≤70V      | ≤550V      | ≤550V       | -             |
| VPL line-line for $I_n$ C2 ( $U_p$ )  | -                                   | -                                   | -         | -         | -          | -           | see Note 2    |
| VPL line-PG for C2 / C3 / D1  | -                                   | -                                   | -         | -         | -          | -           | ≤ 550V        |
| D1 Total lightning impulse current (10/350μs) ( $I_{imp}$ )                     | 10kA                                | 10kA                                | 10kA      | 10kA      | 10kA       | 10kA        | 10kA          |
| D1 Lightning impulse current (10/350μs) per line ( $I_{imp}$ )                  | 2.5kA                               | 2.5kA                               | 2.5kA     | 2.5kA     | 2.5kA      | 2.5kA       | 2.5kA         |
| C2 Total nominal discharge current (8/20μs) ( $I_n$ )                           | 20kA                                | 20kA                                | 20kA      | 20kA      | 20kA       | 20kA        | 20kA          |
| C2 Nominal discharge current (8/20μs) per line ( $I_n$ )                        | 10kA                                | 10kA                                | 10kA      | 10kA      | 10kA       | 10kA        | 10kA          |
| Series impedance per line   | 1.0Ω                                | 1.8Ω                                | 1.8Ω      | 1.8Ω      | 1.0Ω       | 1.0Ω        | 10Ω/7.5Ω typ  |
| Frequency of the operating voltage ( $f_{U_N}$ )                                | -                                   | -                                   | -         | -         | -          | -           | 0-400Hz       |
| Max. continuous operating DC voltage ( $U_C$ )                                  | 6V                                  | 15V                                 | 33V       | 54V       | 6V         | 33V         | 180V          |
| Max. continuous operating AC voltage ( $U_C$ )                                  | 4.2V                                | 10.6V                               | 23.3V     | 38.1V     | 4.2V       | 23.3V       | 127V          |
| Permissible superimposed signal voltage ( $U_{Signal}$ )                        |                                     |                                     |           |           |            |             | ± 5V          |
| "Nominal current at 80°C ( $I_L$ ) (corresponds to max. short-circuit current)" | -                                   | -                                   | -         | -         | -          | -           | 100mA         |
| Cut-off frequency line-PG ( $f_G$ )   | 1.0MHz                              | 2.7MHz                              | 6.8MHz    | 8.7MHz    | 100MHz     | 100MHz      | -             |
| Cut-off frequency line-line ( $U_{Signal}$ , balanced 100Ω) ( $f_G$ )           | -                                   | -                                   | -         | -         | -          | -           | 50MHz         |
| Capacitance line-line (C)   | ≤2.7nF                              | ≤1.0nF                              | ≤0.5nF    | ≤0.35nF   | ≤25pF      | ≤25pF       | ≤80pF         |
| Capacitance line-PG (C)   | ≤5.4nF                              | ≤2.0nF                              | ≤1.0nF    | ≤0.7nF    | ≤16pF      | ≤16pF       | ≤16pF         |
| ATEX Approvals  | †                                   | †                                   | †         | †         | †          | †           | -             |
| Agency information  | ††                                  | ††                                  | ††        | ††        | ††         | ††          | ‡             |
| IEC 61643-21 Test category  | D1, C2, C3                          |                                     |           |           |            |             |               |
| Operating temperature range   | -40°C to +80°C                      |                                     |           |           |            |             |               |
| Degree of protection  | IP20                                |                                     |           |           |            |             |               |
| For mounting on   | 35mm DIN-Rails per EN 60715         |                                     |           |           |            |             |               |
| Grounding   | Via base part                       |                                     |           |           |            |             |               |
| Color / enclosure material  | Grey / Polyamide PA 6.6             |                                     |           |           |            |             |               |
| Test standards  | IEC 61643-21 / EN 61643-21, UL 497B |                                     |           |           |            |             |               |
| Connection (input / output)   | Screw terminal                      |                                     |           |           |            |             |               |
| Conductors  | Solid                               | 12-28AWG (4-0.08mm <sup>2</sup> )   |           |           |            |             |               |
|   | Flexible                            | 14-28AWG (2.5-0.08mm <sup>2</sup> ) |           |           |            |             |               |
| Terminal torque   | 3.5 Lb-In (0.4 N•m)                 |                                     |           |           |            |             |               |
| Warranty  | 5 Years*                            |                                     |           |           |            |             |               |

\* See Bussmann SPD Limited Warranty Statement (3A1502) for details at [www.cooperbussmann.com/surge](http://www.cooperbussmann.com/surge).

## 0-180V SPD Application and Mode of Operation

The BSPD0180DINL surge protective device automatically adjusts to the operating voltage (from 0 to 180 volts) of the protected device.

When an overvoltage event occurs, the SPD voltage protection level adjusts itself based upon the output terminal operating voltage of the base.

Note 1 - See Diagram 1 - VPL line-line graph line C3.

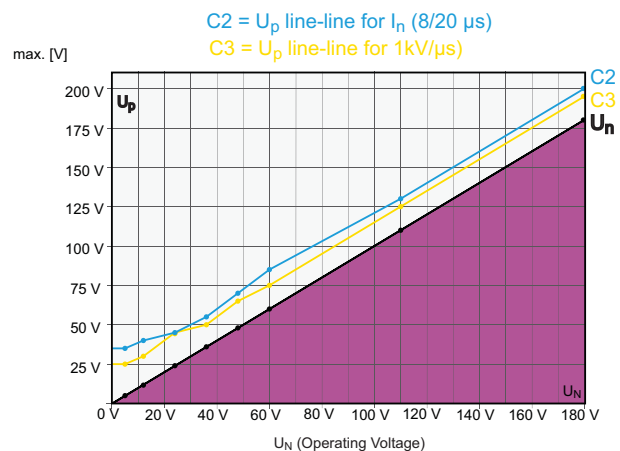
Note 2 - See Diagram 1 - VPL line-line graph line C2.

† DEKRA 12ATEX0254 X: II 3 G Ex nA IIC T4 Gc

†† ATEX, UL, CSA

‡ UL 497B

**Diagram 1: Voltage Protection Level  $U_p$  (V) (Line - Line)**



## DIN-Rail Universal 4 Wire Data Signal SPDs and Applications

Universal 4 wire data signal SPD products are specified by communication technology. The table below contains the specific SPD product, by part number, and the applications to which they are suited to be used.



| Part Numbers  | BSPD5DING | BSPD12DING | BSPD24DING | BSPD48DING | BSPD5DINLHF | BSPD24DINLHF    | BSPD0180DINL |
|---|-----------|------------|------------|------------|-------------|-----------------|--------------|
| BUS SYSTEMS AND MEASURING, AND CONTROL TECHNOLOGY   |           |            |            |            |             |                 |              |
| 0-20 mA, 4-20 mA Signals  |           |            | X          |            |             | X (4-20mA only) | X            |
| Binary Signals  | X         | X          | X          | X          |             |                 |              |
| CAN-Bus (data line only)  |           |            |            |            | X           |                 | X            |
| C-Bus (Honeywell)   |           |            |            |            | X           |                 | X            |
| Data Highway Plus   |           |            |            |            |             |                 | X            |
| Device Net (data line only)   |           |            |            |            | X           |                 | X            |
| Dupline   |           |            |            |            |             |                 | X            |
| E-Bus (Honeywell)   |           |            |            |            |             |                 | X            |
| Fieldbus Foundation   |           |            |            |            |             | X               | X            |
| FIPIO / FIPWAY  |           |            |            |            |             | X               |              |
| FSK   |           |            |            |            | X           |                 | X            |
| IEC-Bus (RS485)   |           |            |            |            | X           |                 | X            |
| Interbus INLINE (I/O)   |           |            |            |            |             |                 | X            |
| Interbus INLINE,<br>Long-distance bus   |           |            |            |            | X           |                 | X            |
| K Bus   |           |            |            |            |             | X               |              |
| LON - TP/XF 78  |           |            |            |            | X           |                 |              |
| LUXMATE Bus   |           |            |            |            |             | X               | X            |
| M Bus   |           |            |            |            |             |                 | X            |
| MODBUS  |           |            |            |            | X           |                 | X            |
| MPI Bus   |           |            |            |            | X           |                 | X            |
| Procontic CS31 (RS232)  |           | X          |            |            |             |                 |              |
| Procontic T200 (RS422)  |           |            |            |            | X           |                 | X            |
| PROFIBUS DP/FMS   |           |            |            |            | X           |                 | X            |
| PROFIBUS PA   |           |            |            |            |             | X               | X            |
| PROFIBUS SIMATIC NET  |           |            |            |            | X           |                 | X            |
| PSM EG RS422 & RS485  |           |            |            |            | X           |                 | X            |
| Rackbus (RS485)   |           |            |            |            | X           |                 | X            |
| R Bus   |           |            |            |            | X           |                 | X            |
| RS 485  |           |            |            |            | X           |                 | X            |
| RS422, V11  |           |            |            |            | X           |                 | X            |
| SafetyBUS p   |           |            |            |            | X           |                 | X            |
| Securilan LON Bus   |           |            |            |            | X           |                 |              |
| SIGMASYS  |           |            |            | X          |             |                 |              |
| SS97 SIN/X (RS 232)   |           | X          |            |            |             |                 |              |
| SUCONET   |           |            |            |            | X           |                 | X            |
| Resistance Temp. Measuring<br>Ni1000, PT100, PT1000 Wire<br>NTC & PTC Thermistors         |           | X          |            |            |             |                 |              |
| TTL   |           | X          |            |            |             |                 |              |
| TTY 4-20mA  |           |            | X          |            |             |                 |              |
| TELECOMMUNICATION, TELEPHONY  |           |            |            |            |             |                 |              |
| a/b Wires   |           |            |            |            |             |                 | X            |
| ADSL, ADSL 2+   |           |            |            |            |             |                 | X            |
| ISDN S <sub>0</sub> , S <sub>2m</sub> /U <sub>2m</sub> , U <sub>KO</sub> /U <sub>PO</sub> |           |            |            |            |             |                 | X            |
| Modem M1  |           | X          |            |            |             |                 |              |
| SDSL, SHDSL   |           |            |            |            |             | X               | X            |
| Telephony Systems<br>(e.g., Siemens, HICOM, Alcatel)                                      |           |            |            |            |             |                 | X            |
| T-DSL   |           |            |            |            |             |                 | X            |
| Telecommunication Systems<br>(e.g., Siemens, HICOM, Alcatel)                              |           |            |            |            |             |                 | X            |
| VDSL  |           |            |            |            |             |                 | X            |
| DATA NETWORKS   |           |            |            |            |             |                 |              |
| V 24 (RS232 C)  |           | X          |            |            |             |                 |              |

# SurgePOD™ Series

## Surge Protective Overvoltage Device Modules



### Description

Bussmann SurgePOD surge protective overvoltage device modules are board-mounted. Upon an overvoltage condition, their voltage clamping feature becomes conductive, safely shunting the surge to ground.

All SurgePOD devices are UL 1449 3<sup>rd</sup> Edition Recognized Type 1 SPD and contain an internal element that safely disconnects the device upon reaching an overvoltage breakdown condition.

*Remote contact signaling* is accomplished with an optional *Normally Open* microswitch that closes upon reaching an overvoltage breakdown condition.

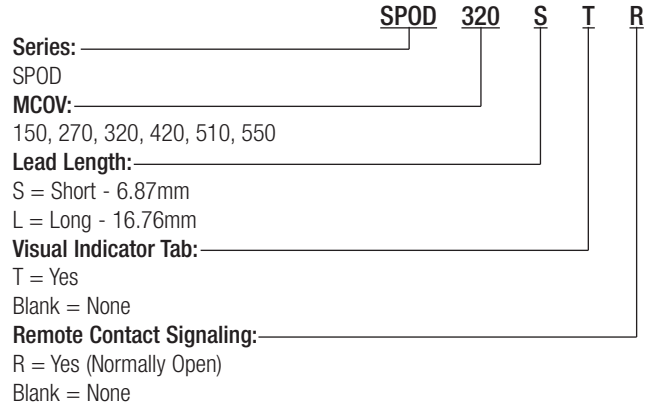
*Local visual indication* is accomplished with optional visual indicating tabs that protrude through the device's top upon reaching an overvoltage breakdown condition.

The SurgePOD's MOV substrate material may be damaged by excessive shock or rough handling. To ensure integrity of finished device, do NOT install any SurgePOD devices that are dropped or abused during assembly.

Suitability of SurgePOD devices for application to be determined by end user.



### Catalog Number System:



### Agency Information

UL 1449 3<sup>rd</sup> Edition Recognized Type 1 Surge Protective Device; File E340782.

### Electrical Specifications

|   |                  |
|---|------------------|
| Maximum Continuous Operating Voltage (MCOV)             | 150Vac to 550Vac |
| Short-Circuit Current Rating (SCCR)                     | 200kA            |
| Nominal Discharge Current (I <sub>n</sub> ) 8/20ms      | 20kA             |
| Max Discharge Current Rating (I <sub>max</sub> ) 8/20ms | 50kA             |
| Remote Contact Signaling Microswitch                    | 20mA@15Vdc       |



| SurgePOD Specifications    | Voltage / Color Code |       |       |       |       |       |
|----------------------------|----------------------|-------|-------|-------|-------|-------|
|                            | 150V                 | 270V  | 320V  | 420V  | 510V  | 550V  |
| I <sub>n</sub>             | 20kA                 | 20kA  | 20kA  | 20kA  | 20kA  | 20kA  |
| I <sub>max</sub>           | 50kA                 | 50kA  | 50kA  | 50kA  | 50kA  | 50kA  |
| SCCR                       | 200kA                | 200kA | 200kA | 200kA | 200kA | 200kA |
| MCOV (V <sub>rms</sub> )   | 150V                 | 270V  | 320V  | 420V  | 510V  | 550V  |
| VPR                        | 600V                 | 900V  | 1200V | 1500V | 1500V | 1500V |
| Nominal V <sub>rms</sub> * | 120V                 | 220V  | 277V  | 347V  | 480V  | 480V  |

\* Nominal V<sub>rms</sub> @ 50/60Hz.

Data Sheet: 1170

# SurgePOD™ Series

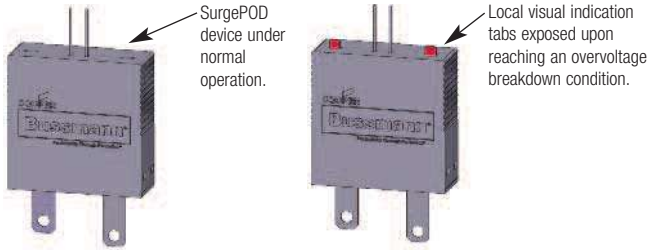
## Mechanical Specifications

All components are rated IP20 finger-safe in the installed state.

## Environmental Specifications

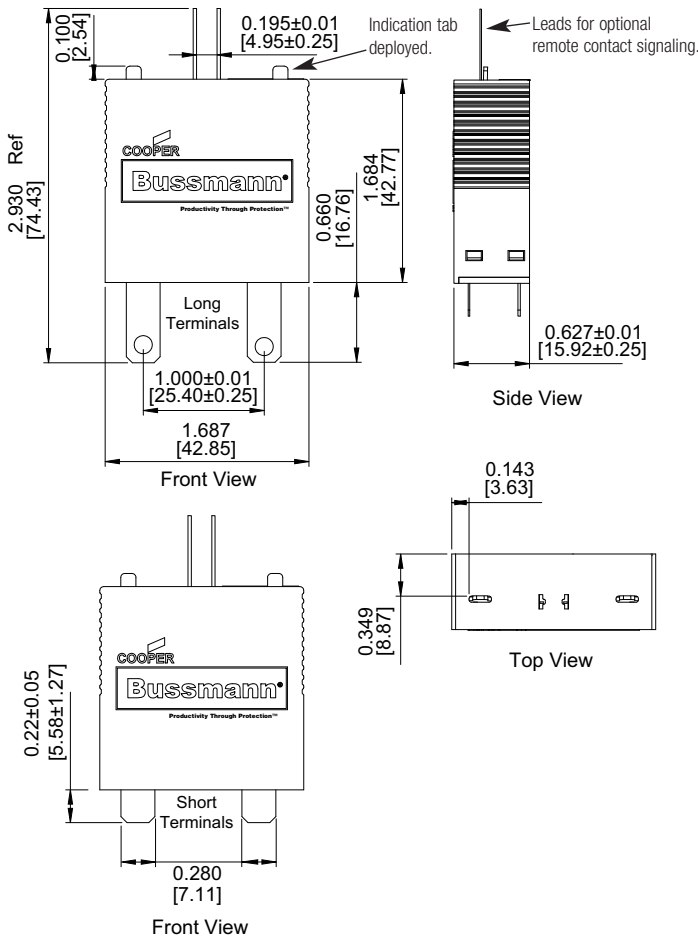
- Plastic Material: Polybutylene Terephthalate
- Flammability Rating: UL 94V0
- Storage Temperature: -25°C to 85°C
- Operating Temperature: -25°C to 85°C

## Local Visual Indication Tabs (Optional)

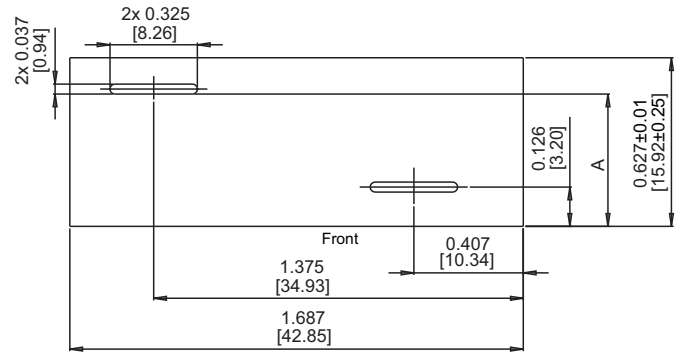


## Dimensions - in [mm]

Tolerance is ± 0.005" [0.13mm] unless otherwise stated.



## Terminal Dimensions / Pad Layout - in [mm]

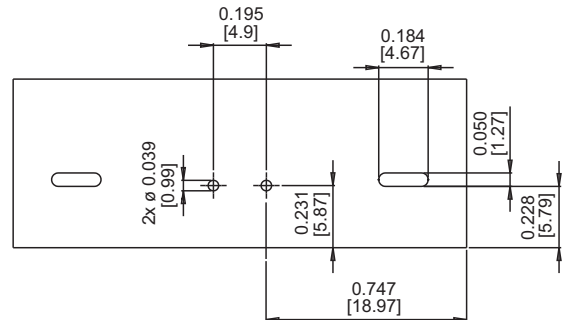


| Dimension A   |        |       |
|---------------|--------|-------|
| MCOV Rating   | Inches | mm    |
| 150           | 0.431  | 10.95 |
| 270, 320      | 0.479  | 12.17 |
| 420, 510, 550 | 0.526  | 13.36 |

## Terminal Information and Mounting

The SurgePOD surge protective overvoltage devices have nickel-plated copper terminals for easy solder connection to printed circuit boards.

## Recommended Pad Layout for Remote Contact Signaling - in [mm]

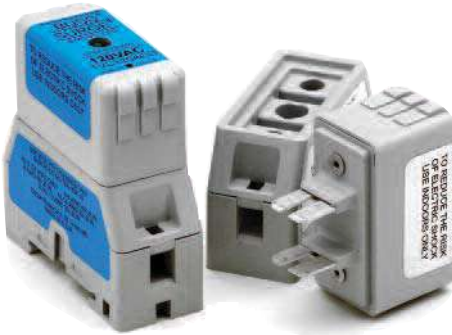


## Packaging Information

- 200 units per master pack

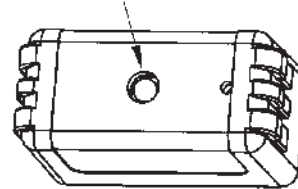


# DIN-Rail TVS Series



### Status LED

OFF - Suppressor Non-Operational (power may be on)  
GREEN - Suppressor Operational (power on)



### Specifications

**Description:** DIN-Rail mount voltage surge protection system for AC or DC voltage using diode or MOV technology.

### Construction:

**Suppressor:** Case: 20% glass filled PES (Polyethersulfone)  
Terminals: 110 Copper  
Terminal Plating: Electroless tin

**Holder:** Case: 15% glass filled PBT (Polybutylene Terephthalate)  
Interface Clips: CDA 7025  
Interface Clip Plating: Electroless tin  
Contact Lubricant: Fluoroether grease  
Box Lug: Copper  
DIN-Rail Springs: Stainless steel

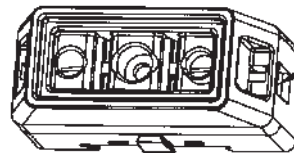
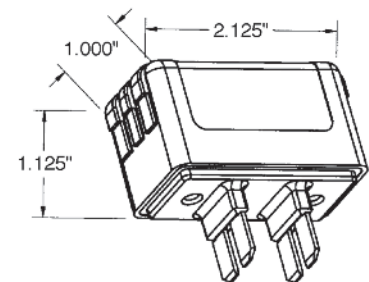
### Ratings\*:

- Volts: — 12Vdc (2kA surge current)
- 24Vdc (2kA surge current)
- 48Vdc (2kA surge current)
- 120Vac (7kA-18kA surge current)
- 240Vac (7kA-18kA surge current)

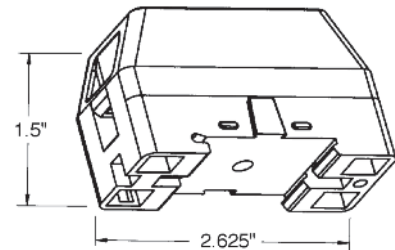
\* See Catalog Numbers table for all specifications pertaining to specific voltage ratings.

**Agency Information:** UL Recognized (UL 1449) for AC products, (UL 497B) for DC products, CSA Approved.

### Dimensions - in



Power Terminals  
14AWG - 4AWG  
Dual 10AWG



### Product Specifications:

1. All TVS devices have non-polarized electrical connections as shown.
2. Suppressor voltage characteristics per chart.
3. Suppressor to provide non-interrupted service.
4. Enclosure material is 94V0 flame and explosion resistant.
5. Product markings show manufacturer, part number and safety warnings as required.
6. Mechanical dimensions as noted.
7. Suppressor Status LED as shown.
8. AC units operate on either 50 or 60Hz.

### Catalog Numbers

| Catalog Numbers | Voltage Application | MCOV   | Technology | SVR 500A, 8x20µs | Surge Current Rating | Agency Information | Label Color |
|-----------------|---------------------|--------|------------|------------------|----------------------|--------------------|-------------|
| TVS12DCD        | 12Vdc               | 14Vdc  | SASD       | 36Vdc            | 2kA                  | UL 497B            | Red         |
| TVS24DCD        | 24Vdc               | 28Vdc  | SASD       | 58Vdc            | 2kA                  | UL 497B            | White       |
| TVS48DCD        | 48Vdc               | 57Vdc  | SASD       | 90Vdc            | 2kA                  | UL 497B            | Black       |
| TVS120ACD       | 120Vac              | 140Vac | SASD       | 330Vac           | 7kA                  | UL 1449            | Blue        |
| TVS120ACM       | 120Vac              | 140Vac | MOV        | 500Vac           | 18kA                 | UL 1449            | Grey        |
| TVS240ACD       | 240Vac              | 280Vac | SASD       | 600Vac           | 7kA                  | UL 1449            | Blue        |
| TVS240ACM       | 240Vac              | 280Vac | MOV        | 800Vac           | 18kA                 | UL 1449            | Grey        |

Data Sheet: 9006

# Reduce Downtime With Quick Access to the Right Replacement Fuse

| Section Contents   | Page       |
|--|------------|
| <b>Fuse Service Kits</b>   |            |
| Supplemental .....   | 506-507    |
| Branch circuit .....   | 506-507    |
| Premium branch circuit .....                                       | 506-507    |
| Large electronic .....   | 508        |
| Small electronic .....   | 508        |
| Electrical & electronic .....                                      | 508        |
| <b>Clips clamps &amp; rail adapters (DIN &amp; American) .....</b> | <b>509</b> |
| <b>Spare fuse holders, pullers, testers &amp; cabinets</b>         |            |
| Telepower spare fuse holders .....                                 | 510        |
| 5TPH .....   | 510        |
| <b>Fuse pullers .....</b>  | <b>510</b> |
| FT-2 & FT-3 fuse testers .....                                     | 510        |
| SFC spare fuse cabinet .....                                       | 510        |
| <b>Fuse reducers &amp; dummy "neutrals"</b>                        |            |
| Class J fuses - LPJ, JKS .....                                     | 511        |
| Class R fuses - FRN-R, LPN-RK, FRS-R<br>& LPS-RK .....             | 511        |
| Class H & K fuses - NON, REN, NOS & RES .....                      | 511        |
| Dummy fuse "neutrals" .....  | 511        |



# Fuse Service Kits

## Save Time and Money with These Fuse Service Kits

### Selection

These service kits are filled with the most common fuse types and sizes for the most common applications – no need to search for the right fuse, it's in the kit.

### Organization

The compact and sturdy carrying case allows organizing and modifying the fuses needed to assure a proper supply is kept on hand.

### Accessories

All kits come with a fuse puller for the fuses it contains. As a bonus, all kits on this page include a free wire stripper or lineman's pliers.

### Supplemental



#### Glass Fuse Kit

Catalog Number: GSK-260

##### Kit Contents

- |               |            |             |
|---------------|------------|-------------|
| (5) GMA-500mA | (5) MDL-6  | (5) AGC-10  |
| (5) GMA-1A    | (5) MDL-7  | (5) AGC-15  |
| (5) GMA-2A    | (5) MDL-8  | (5) AGC-20  |
| (5) GMA-3A    | (5) MDL-10 | (5) GMC-2A  |
| (5) GMA-4A    | (5) MDL-15 | (5) GMC-5A  |
| (5) GMA-5A    | (5) MDL-20 | (5) GMC-10A |
| (5) GMA-6A    | (5) AGC-¼  | (5) MDA-5   |
| (5) GMA-10A   | (5) AGC-½  | (5) MDA-10  |
| (5) GMA-15A   | (5) AGC-1  | (5) MDA-12  |
| (5) MDL-¼     | (5) AGC-1½ | (5) MDA-15  |
| (5) MDL-½     | (5) AGC-2  | (5) MDA-20  |
| (5) MDL-1     | (5) AGC-2½ | (5) ABC-5   |
| (5) MDL-1½    | (5) AGC-3  | (5) ABC-10  |
| (5) MDL-2     | (5) AGC-4  | (5) ABC-12  |
| (5) MDL-2½    | (5) AGC-5  | (5) ABC-15  |
| (5) MDL-3     | (5) AGC-6  | (5) ABC-20  |
| (5) MDL-4     | (5) AGC-7  |             |
| (5) MDL-5     | (5) AGC-8  |             |
- (1) FT-3 Fuse tester/puller  
(1) 6-inch Crescent® wire stripper



#### Midget Fuse Kit

Catalog Number: MSK-45

##### Kit Contents

- |            |                             |
|------------|-----------------------------|
| (3) FNM-1  | (3) KTK-20                  |
| (3) FNM-2  | (3) KTK-30                  |
| (3) FNM-5  | (3) FNQ-5                   |
| (3) FNM-10 | (3) FNQ-10                  |
| (3) FNM-15 | (3) FNQ-15                  |
| (3) KTK-5  | (3) FNQ-20                  |
| (3) KTK-10 | (3) FNQ-30                  |
| (3) KTK-15 | (1) FT-3 Fuse tester/puller |
- (1) 6-inch Crescent® wire stripper

### Branch Circuit



#### Class CC Fuse Kit

Catalog Number: CCSK-45

##### Kit Contents

- |              |              |
|--------------|--------------|
| (3) LP-CC-5  | (3) KTK-R-15 |
| (3) LP-CC-10 | (3) KTK-R-20 |
| (3) LP-CC-15 | (3) KTK-R-30 |
| (3) LP-CC-20 | (3) FNQ-R-½  |
| (3) LP-CC-30 | (3) FNQ-R-3  |
| (3) KTK-R-5  | (3) FNQ-R-5  |
| (3) KTK-R-10 | (3) FNQ-R-10 |
- (1) FT-3 Fuse tester/puller  
(1) 6-inch Crescent® wire stripper



#### Fusetron™ Class RK5 250/600V Fuse Kit

Catalog Number: RK5SK-39

##### Kit Contents

- |               |                      |
|---------------|----------------------|
| (3) FRN-R-10  | (3) FRS-R-10         |
| (3) FRN-R-15  | (3) FRS-R-15         |
| (3) FRN-R-20  | (3) FRS-R-20         |
| (3) FRN-R-25  | (3) FRS-R-30         |
| (3) FRN-R-30  | (3) FRS-R-60         |
| (3) FRN-R-60  | (3) FRS-R-100        |
| (3) FRN-R-100 | (1) FP-2 Fuse puller |
- (1) NO.263-R (60 to 30A fuse reducer)  
(1) NO.663-R (60 to 30A fuse reducer)  
(1) 6-inch Crescent® wire stripper

### Premium Branch Circuit



#### Low-Peak™ Class RK1 250/600V Fuse Kit

Catalog Number: RK1SK-39

##### Kit Contents

- |                 |                  |
|-----------------|------------------|
| (3) LPN-RK-10SP | (3) LPS-RK-10SP  |
| (3) LPN-RK-15SP | (3) LPS-RK-15SP  |
| (3) LPN-RK-20SP | (3) LPS-RK-20SP  |
| (3) LPN-RK-25SP | (3) LPS-RK-30SP  |
| (3) LPN-RK-30SP | (3) LPS-RK-60SP  |
| (3) LPN-RK-60SP | (3) LPS-RK-100SP |
- (3) LPN-RK-100SP  
(1) NO.263-R (60 to 30A fuse reducer)  
(1) NO.663-R (60 to 30A fuse reducer)  
(1) FP-2 Fuse puller  
(1) 8½-inch Crescent® lineman's pliers



#### Low-Peak™ Class J Fuse Kit

Catalog Number: JSK-36

##### Kit Contents

- |              |               |
|--------------|---------------|
| (3) LPJ-3SP  | (3) LPJ-25SP  |
| (3) LPJ-5SP  | (3) LPJ-30SP  |
| (3) LPJ-6SP  | (3) LPJ-40SP  |
| (3) LPJ-10SP | (3) LPJ-50SP  |
| (3) LPJ-15SP | (3) LPJ-60SP  |
| (3) LPJ-20SP | (3) LPJ-100SP |
- (1) FP-2 Fuse puller  
(1) 8½-inch Crescent® lineman's pliers

## Fuse Service Kits

### Supplemental/Branch Circuit



#### Class CC / Midget Fuse Kit

Emergency fuse kit for replacement of 1<sup>3</sup>/<sub>32</sub>" x 1<sup>1</sup>/<sub>2</sub>" (Class CC and midget) fuses in a sturdy nylon box. Cross reference makes it easy to install the correct fuse in any Class CC or midget application.

**Kit Size:** 10<sup>7</sup>/<sub>16</sub>" W x 6<sup>5</sup>/<sub>16</sub>" D x 1<sup>3</sup>/<sub>4</sub>" H

**Catalog Number:** NO.36

#### Emergency Kit Contents

- |  |              |
|--|--------------|
| (2) FNQ-R- <sup>1</sup> / <sub>2</sub> | (2) KTK-R-1  |
| (2) FNQ-R-1                            | (2) KTK-R-2  |
| (2) FNQ-R-2                            | (2) KTK-R-3  |
| (2) FNQ-R-3                            | (2) KTK-R-5  |
| (2) FNQ-R-4                            | (2) KTK-R-6  |
| (2) FNQ-R-5                            | (2) KTK-R-10 |
| (2) FNQ-10                             | (2) KTK-R-15 |
| (2) FNQ-15                             | (2) KTK-R-20 |
| (2) FNQ-20                             | (2) KTK-R-30 |
| (1) FP-2 Fuse puller                   |              |

### Branch Circuit



#### Fusetron™ Class RK5 250V Fuse Kit

Compact kit in a sturdy nylon box rugged enough to withstand field use. Extra spaces and changeable compartments make it easy to customize for your particular need.

**Catalog Number:** ERK-28

#### Service Kit Contents

- |   |                       |
|---|-----------------------|
| (2) FRN-R-3- <sup>7</sup> / <sub>10</sub> | (2) FRN-R-40          |
| (2) FRN-R-6- <sup>1</sup> / <sub>4</sub>  | (2) FRN-R-50          |
| (2) FRN-R-10                              | (3) FRN-R-60          |
| (2) FRN-R-15                              | (2) FRN-R-100         |
| (3) FRN-R-20                              | (2) NO.263-R Reducers |
| (2) FRN-R-25                              | (2) NO.1 Clip Clamps  |
| (4) FRN-R-30                              | (2) NO.2 Clip Clamps  |
| (2) FRN-R-35                              |                       |

### Premium Branch Circuit



#### Low-Peak™ Class RK1 250V Fuse Kit

Compact kit in a sturdy nylon box rugged enough to withstand field use. Extra spaces and changeable compartments make it easy to customize for your particular need.

**Catalog Number:** LPRK-28

#### Service Kit Contents

- |   |                       |
|---|-----------------------|
| (2) LPN-RK-3- <sup>7</sup> / <sub>10</sub> SP | (2) LPN-RK-40SP       |
| (2) LPN-RK-6- <sup>1</sup> / <sub>4</sub> SP  | (2) LPN-RK-50SP       |
| (2) LPN-RK-10SP                               | (3) LPN-RK-60SP       |
| (2) LPN-RK-15SP                               | (2) LPN-RK-100SP      |
| (3) LPN-RK-20SP                               | (2) NO.263-R Reducers |
| (2) LPN-RK-25SP                               | (2) NO.1 Clip Clamps  |
| (4) LPN-RK-30SP                               | (2) NO.2 Clip Clamps  |
| (2) LPN-RK-35SP                               | (1) FP-2 Fuse puller  |



## Fuse Service Kits

### Large Electronic Fuse Kit



#### Fuse Kit 270

Small dimension fuse assortment with 270 fuses, fuse holders, fuse blocks and fuse clips to fit most electronic equipment.

**Ratings:**

Volts: — 125V/250V

**Catalog Number: NO.270**

**Assortment Contents**

- |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|
| (5) MDL- $\frac{1}{4}$   | (5) AGC- $\frac{1}{2}$   | (5) GMA-1A               |
| (5) MDL- $\frac{1}{2}$   | (5) AGC- $\frac{3}{4}$   | (5) GMA-2A               |
| (5) MDL- $\frac{3}{4}$   | (5) AGC-1                | (5) GMA-3A               |
| (5) MDL-1                | (5) AGC-1- $\frac{1}{2}$ | (5) GMA-4A               |
| (5) MDL-1- $\frac{1}{2}$ | (5) AGC-2                | (5) GMA-6A               |
| (5) MDL-2                | (5) AGC-2- $\frac{1}{2}$ | (5) GMC-1A               |
| (5) MDL-3                | (5) AGC-3                | (5) GMC-2A               |
| (5) MDL-4                | (5) AGC-4                | (5) GMC-3A               |
| (5) MDL-5                | (5) AGC-5                | (5) GMC-4A               |
| (5) MDL-6                | (5) AGC-6                | (5) GMC-6A               |
| (5) MDA-8                | (5) AGC-7                | (4) AGC-V- $\frac{1}{2}$ |
| (5) MDA-10               | (5) AGC-8                | (4) AGC-V-1              |
| (5) MDA-15               | (5) ABC-10               | (4) AGC-V-2              |
| (5) MDA-20               | (5) ABC-15               | (4) AGC-V-3              |
| (5) MDA-30               | (5) ABC-20               | (4) MDL-V- $\frac{1}{2}$ |
| (5) AGC- $\frac{1}{4}$   | (5) ABC-30               | (4) MDL-V-1              |
| (5) AGC- $\frac{1}{2}$   | (5) GMA-250mA            | (4) MDL-V-2              |
| (5) AGC- $\frac{3}{4}$   | (5) GMA-500mA            | (4) MDL-V-3              |
- (2) Pr. 4121 Fuse clips  
 (2) HHB Inline fuse holder  
 (1) HTB-26I panel mount fuse holder  
 (1) HTB-28M panel mount fuse holder  
 (1) S-8202-2 Two-pole fuse block

### Small Electronic Fuse Kit



#### Fuse Kit 140

Small dimension fuse kit with 140 fuses, fuse holders, fuse blocks and fuse clips to fit most electronic equipment.

**Ratings:**

Volts: — 125V/250V

**Catalog Number: NO.140**

**Assortment Contents**

- |                          |                            |
|--------------------------|----------------------------|
| (5) MDL- $\frac{1}{2}$   | (5) AGC-1- $\frac{1}{2}$   |
| (5) MDL-1                | (5) AGC-2                  |
| (5) MDL-1- $\frac{1}{2}$ | (5) AGC-3                  |
| (5) MDQ-2                | (5) MTH-4                  |
| (5) MDQ-3                | (5) MTH-5                  |
| (5) MDQ-4                | (5) MTH-6                  |
| (5) MDQ-5                | (5) MTH-7                  |
| (5) MDQ-6                | (5) MTH-8                  |
| (5) MDA-8                | (5) ABC-10                 |
| (5) MDA-10               | (5) ABC-15                 |
| (5) MDA-15               | (5) ABC-20                 |
| (5) MDA-20               | (5) ABC-30                 |
| (5) MDA-30               | (2) Pr. #4121 Fuse clips   |
| (5) AGC- $\frac{1}{4}$   | (2) HHB Inline fuse holder |
| (5) AGC- $\frac{1}{2}$   | (1) FP-A3 Fuse puller      |
| (5) AGC-1                |                            |

### Electrical and Electronic Fuse Kit



#### 5 x 20mm Fuse Kit 220

A complete assortment of 125V and 250V 5 x 20mm fuses for the repair of both electrical and electronic devices.

**Ratings:**

Volts: — 125V/250V

**Catalog Number: NO.220**

**Assortment Contents**

- |               |               |               |
|---------------|---------------|---------------|
| (5) GMA-250mA | (5) GDA-6.3   | (5) GMD-200mA |
| (5) GMA-500mA | (5) GDB-630mA | (5) GMD-500mA |
| (5) GMA-1     | (5) GDB-2     | (5) GMD-1     |
| (5) GMA-1.5   | (5) GDB-3.15  | (5) GMD-1.6   |
| (5) GMA-2     | (5) GDB-4     | (5) GMD-2     |
| (5) GMA-2.5   | (5) GMC-500mA | (5) GMD-3     |
| (5) GMA-3     | (5) GMC-750mA | (5) GDC-250mA |
| (5) GMA-4     | (5) GMC-1     | (5) GDC-500mA |
| (5) GMA-5     | (5) GMC-2     | (5) GDC-1     |
| (5) GMA-10    | (5) GMC-2.5   | (5) GDC-1.6   |
| (5) GDA-630mA | (5) GMC-3     | (5) GDC-2     |
| (5) GDA-1     | (5) GMC-3.15  | (5) GDC-3.15  |
| (5) GDA-2     | (5) GMC-4     | (5) GDC-4     |
| (5) GDA-3.15  | (5) GMC-5     | (5) GDC-5     |
| (5) GDA-5     | (5) GMC-6.3   |               |
- (1) HTB-28M panel mount fuse holder  
 (1) FP-A3 Fuse puller



## Clip Clamps and Rail Adapters (DIN & American)

### TRON™ Clip-Clamps

**Specifications**

**Description:** Clamps for ferrule and blade-type cartridge fuse clips. Provide tight contacts between fuse holder clips and fuse ferrules/blades.

**Construction:** Phenolic knob and plated-steel jaws.



**Catalog Numbers**

| Catalog Numbers | Clamp Size Volts | Amps    |
|-----------------|------------------|---------|
| NO.1            | 250              | 0-30    |
| NO.2            | 250              | 35-60   |
| NO.2            | 600              | 0-30    |
| NO.4            | 600              | 35-60   |
| NO.5            | 250/600          | 70-100  |
| NO.6            | 250/600          | 110-200 |
| NO.7            | 250/600          | 225-400 |
| NO.8            | 250/600          | 450-600 |

### Adapters for DIN and American Rails

**Specifications**

**Description:**

Bussmann DIN-Rail adapters permit secure, positive snap-on mounting of Bussmann 0-30A fuse blocks (one-, two-, or three-pole) onto various size rails to eliminate costly and time consuming drilling, tapping, and screw mounting. Adapters mechanically lock into mounting holes of fuse blocks in seconds to become an integral part of the block.

One adapter is required for one- and two-pole Bussmann blocks. Two adapters are required for three-pole blocks.

With the exception of the 32mm DIN-Rail, all blocks with adapters can be removed from a rail simply by pulling up its release tab.

Use of rail end-stops on both sides of adapters is recommended.

**Construction:** Molded from “Lexan™ 241” for high strength and flexibility.



**Catalog Numbers (For 0-30A Fuse Blocks)**

| Catalog Numbers | Fuse Block Class | Rail Type | Size            | Adapter Color |
|-----------------|------------------|-----------|-----------------|---------------|
| DRA-1           | CC               | DIN       | 15mm (Sym.)     | Black         |
|                 | G                |           | 32mm (Asym.)    |               |
|                 | *H (250V)        |           | 35mm (Sym.)     |               |
| DRA-2           | *R (250)         | American  | 1/8" (Sym.)     | Gray          |
|                 | M Type           |           | (also 35mm DIN) |               |

Package Quantities: standard—10; bulk—100 (Cat. No. BK/DRA-1 or BK/DRA-2.)

\*Mounting on 15mm rails is not recommended.

NOTE—Newer Bussmann fuse blocks have elongated block-to-adapter mounting holes (old style fuse blocks will not accept the rail adapters).

# Spare Fuse Holders, Pullers, Testers and Cabinets

## Spare Fuse Holders



### Specifications

**Description:** Spare fuse holders durably constructed using black thermoplastic with common mounting using #6 screws or bolts on 5-inch centers. Dovetailed interlocking between fuse holders simplifies installation and reduces needed hardware. Common footprint allows for any combination of fuse holders to be mounted together. Built-in retaining clips secure fuses.

**Flammability Rating:** UL 94V0.

### Catalog Numbers

| Catalog Numbers | Capacity    | For Use With:        |
|-----------------|-------------|----------------------|
| TPSFH-CW        | 4-position  | TPC and/or TPW fuses |
| TPSFH-M         | 4-position  | TPM fuses            |
| TPSFH-LC        | 1-position  | TPL-C series fuses   |
| TPSFH-LB        | 1-position  | TPL-B series fuses   |
| TPSFH-N60       | 1-position  | TPN (35-60A) fuses   |
| TPSFH-N30       | 4-position  | TPN (1-30A) fuses    |
| TPSFH-AS        | 6-position  | TPA & TPS fuses      |
| TPSFH-T         | 10-position | GMT fuses            |

## 5TPH



### Specifications

**Description:** 5-position spare fuse holder for midsize and Class CC fuses (1 3/8" diameter) fuses. Constructed of thermoplastic with adhesive tape on back for easy mounting on cabinet doors.

**Size:** 2.98" W x 1.03" H x 0.63" D

**Catalog Number:** 5TPH

**Data Sheet:** 5014

## Fuse Pullers



### Specifications

**Description:** Fuse pullers in various sizes to safely and easily extract fuses from blocks and holders.

### Catalog Numbers

| Catalog Numbers | Application                 |
|-----------------|-----------------------------|
| FP-2            | 1/2" to 3/8" dia. fuses     |
| FP-3            | 1" to 1 1/2" dia. fuses     |
| FP-4            | 1 1/2" to 2 1/2" dia. fuses |
| FP-6            | 0-60A T-Tron fuses          |
| FP-A3           | Glass Tube & ATC fuses      |
| CFP-30          | CUBEFuse 1-30A              |
| CFP-60          | CUBEFuse 35-60A             |
| CFP-100         | CUBEFuse 70-100A            |

Fuse pullers are only to be used when the associated circuit has been de-energized.

## FT-2 Fuse Tester



### Specifications

**Description:** Fuse tester for automotive, glass tube and ferrule fuses up to 1 1/8" length. Probe slides to appropriate fuse length. Batteries are included and replaceable.

**WARNING: DO NOT** test electrical fuses in the fuse panel.

**Catalog Number:** FT-2

**Replacement Battery:**  
Rayovac 364

## SFC Spare Fuse Cabinet



### Specifications

**Description:** Spare fuse cabinet with five cubic feet of storage space. Constructed of heavy gauge steel with durable baked ASA 61 grey enamel finish. Cabinet door is equipped with locking handle for security. Mounting holes are 16 inches on center with key slots.

**Size:** 24" W x 30" H x 12" D

**Material:** 0.062 sheet steel

### Catalog Numbers:

SFC-FUSE-CAB

SFC-SHELF\*

\*Extra shelf for fuse cabinet.

**Data Sheet:** 1119

## FT-3 Fuse Tester



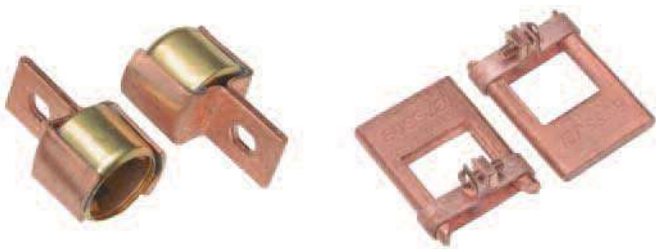
### Specifications

**Description:** Fuse tester for automotive, glass tube and ferrule fuses up to 1 1/8" length. Probe slides to appropriate fuse length. Batteries are included and replaceable.

**WARNING: DO NOT** test electrical fuses in the fuse panel.

**Catalog Number:** FT-3

## Fuse Reducers and Dummy "Neutrals"



### Fuse Reducers for Class J Fuses: LPJ, DFJ, JKS

#### Catalog Numbers

| Catalog Numbers (Pair)<br>Reducer No. | Fuse<br>Amp Size Range | Equipment/Fuseblock<br>Amp Size |
|---------------------------------------|------------------------|---------------------------------|
| J-63                                  | 1-30                   | 60                              |
| J-13                                  | 1-30                   | 100                             |
| J-16                                  | 35-60                  | 100                             |
| J-26                                  | 35-60                  | 200†                            |
| J-21                                  | 70-100                 | 200†                            |
| J-41                                  | 70-100                 | 400†                            |
| J-42                                  | 110-200                | 400†                            |
| J-62                                  | 110-200                | 600†                            |
| J-64                                  | 225-400                | 600†                            |

†Not for Bolt-on Applications.

### Fuse Reducers for Class R Fuses: FRN-R, LPN-RK, FRS-R, LPS-RK KTN-R, KTS-R

UL Listed File E12853

#### Catalog Numbers

| Catalog Numbers (Pairs)<br>Voltages |             | Fuse<br>Amp Size Range | Equipment/Fuseblock<br>Amp Size |
|-------------------------------------|-------------|------------------------|---------------------------------|
| 250V                                | 600V        |                        |                                 |
| NO.263-R                            | NO.663-R    | 1-30                   | 60                              |
| NO.213-R                            | NO.216-R    | 1-30                   | 100                             |
| NO.216-R                            | NO.616-R    | 35-60                  | 100                             |
| NO.226-R                            | NO.626-R    | 35-60                  | 200                             |
| NO.2621-R                           | NO.2621-R   | 70-100                 | 200                             |
| NO.2641-R                           | NO.2641-R   | 70-100                 | 400                             |
| NO.242-R                            | NO.642-R    | 110-200                | 400                             |
| NO.2661-R                           | NO.2661-R   | 70-100                 | 600                             |
| NO.2662-R                           | NO.2662-R   | 110-200                | 600                             |
| NO.2664-R**                         | NO.2664-R** | 225-400                | 600                             |

\*\*Single reducer only (pair not required).

### Fuse Reducers for Class H & K Fuses: NON, REN, NOS, RES

UL Listed File E12853

#### Catalog Numbers

| Catalog Numbers. (Pairs) |                 | Fuse<br>Amp Size Range | Equipment/<br>Fuseblock<br>Amp Size |
|--------------------------|-----------------|------------------------|-------------------------------------|
| 250V<br>Reducer          | 600V<br>Reducer |                        |                                     |
| NO.263                   | NO.663          | 1-30                   | 60                                  |
| NO.213                   | NO.216          | 1-30                   | 100                                 |
| NO.216                   | NO.616          | 35-60                  | 100                                 |
| NO.226                   | NO.626          | 35-60                  | 200                                 |
| NO.2621                  | NO.2621         | 70-100                 | 200                                 |
| NO.2641                  | NO.2641         | 70-100                 | 400                                 |
| NO.2642                  | NO.2642         | 110-200                | 400                                 |
| No. 2661                 | No. 2661        | 70-100                 | 600                                 |

Data Sheet: 1118



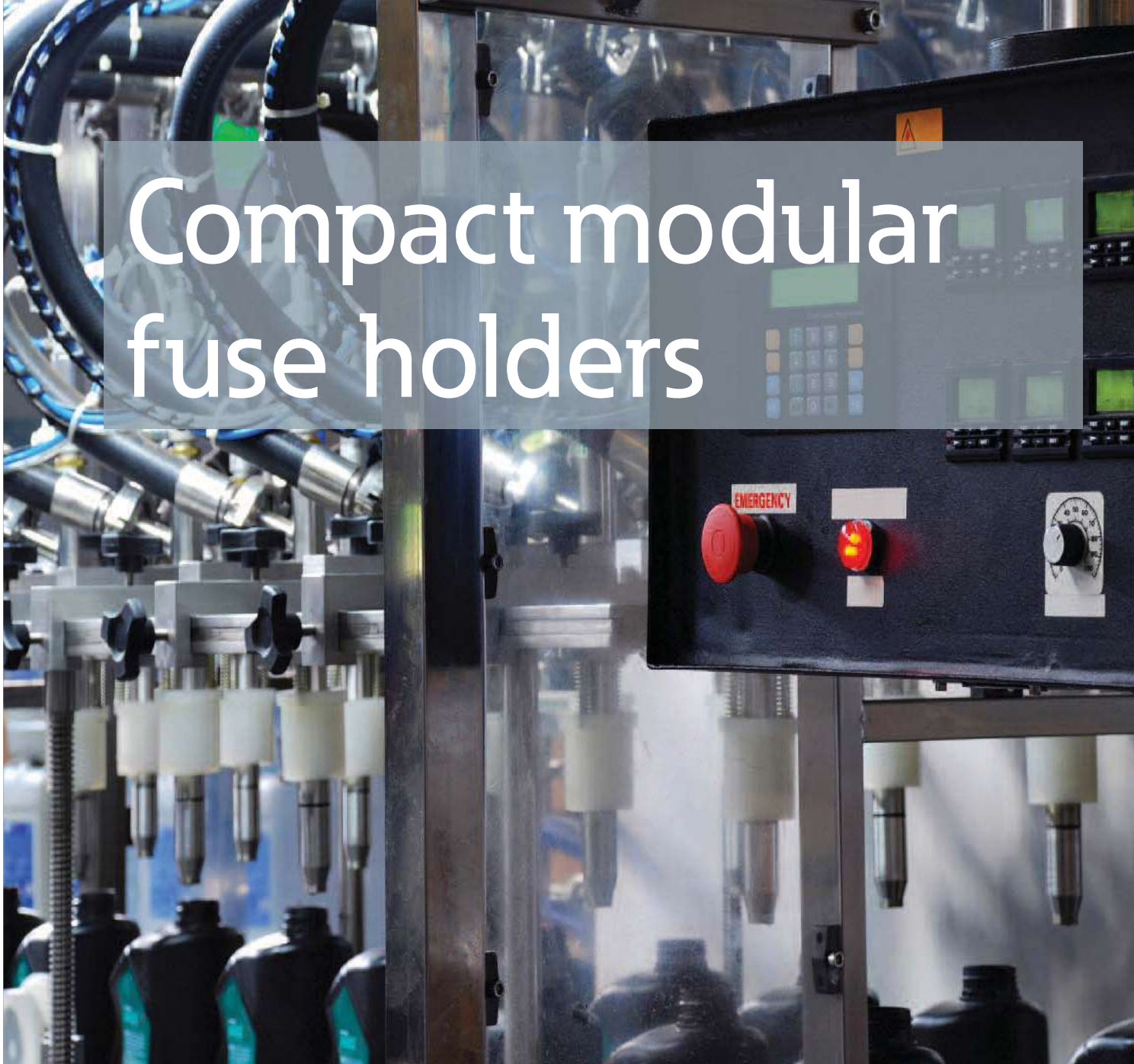
### Dummy Fuse "Neutrals" (These are not fuses)

#### Catalog Numbers

| Catalog<br>Numbers | Fuse Equivalent |  |                        |
|--------------------|-----------------|--|------------------------|
|                    | Voltage         | Dimension  | Fuse<br>Amp Size Range |
| NNB                | —               | 1 <sup>3</sup> / <sub>16</sub> " x 1 <sup>1</sup> / <sub>2</sub> " | —                      |
| NNB-R              | —               | Class CC   | —                      |
| NNC                | —               | 1/4" x 1/4"  | —                      |
| NTN-R-30           | 250             | R/H  | 1-30                   |
| NTN-R-60           | 250             | R/H  | 35-60                  |
| NTN-R-100          | 250             | R/H  | 70-100                 |
| NTN-R-200          | 250             | R/H  | 110-200                |
| NTN-R-400          | 250             | R/H  | 225-400                |
| NTS-R-30           | 600             | R/H  | 1-30                   |
| NTS-R-60           | 600             | R/H  | 35-60                  |
| NTS-R-100          | 600             | R/H  | 70-100                 |
| NTS-R-200          | 600             | R/H  | 110-200                |
| NTS-R-400          | 600             | R/H  | 225-400                |
| NTS-R-600          | 600             | R/H  | 450-600                |



# Compact modular fuse holders



Finger-safe DIN-Rail mount fuse holders protect your electrical system & simplify installation

**Bussmann**  
by **EAT•N**

# Bussmann Services & Application Guide

## Downtime Reduction, Workplace Safety & Code Compliance

Services to Increase Your Productivity Through Protection

### Section Contents

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**RED indicates NEW information**



# Testing



## Performance and Compliance Certification for Components and Assemblies

The Bussmann Paul P. Gubany Center for High Power Technology at Bussmann is the electrical industry's most comprehensive facility for testing and certifying electrical components and assemblies.

OEM customers make the Gubany Center their first choice in testing equipment such as:

- Drives, both AC and DC
- Circuit breakers
- Motor control centers
- Soft starters
- Fuses
- Power distribution panels
- Surge suppressors
- Cables

### Wide Range of Capability

Built to exceed the short circuit capacity of today's high power electrical distribution systems, the Gubany Center performs:

- Ultra-high power testing from 200kA to 300kA at 600Vac, three-phase
- Medium power testing from 5kA to 200kA at 600Vac, single- and three-phase; to 100kA at 1450Vac single-phase; to 100kA at 1000Vdc
- Low power testing up to 5kA at 600Vac, single-phase.

Our technicians conduct tests to many global agency standards including:

- ANCE
- ANSI
- CE
- CSA
- ETL
- IEC, and
- Underwriters Laboratories

### To Order:

To find out more contact your local Bussmann representative, or visit us online at [www.cooperbussmann.com/services](http://www.cooperbussmann.com/services).



| Testing Catalog Numbers |             |                |
|-------------------------|-------------|----------------|
| Description             |             | Catalog Number |
| High Power Testing      | Hourly Rate | CBSV-ES-TEHP   |
| Medium Power Testing    | Hourly Rate | CBSV-ES-TEMP   |
| Low Power Testing       | Hourly Rate | CBSV-ES-TELP   |

## Custom Products

### Creating the Right Answers to Unique or Demanding Needs

When you wish to gain a competitive edge or improve your product's performance, have Bussmann provide a custom product that can:

- Improve functionality and utility
- Fit unique design needs
- Reduce labor and component costs

### Our Expertise Is Your Advantage

For almost 100 years, Bussmann has designed and manufactured products that improve electrical safety and performance. Whether it's modifying an existing product or creating a new one, our experience effectively brings together the skills to design, prototype, test, manufacture and secure agency approvals to deliver a single component, sub-assembly or finished product.

Bussmann can design and manufacture products that integrate:

- Fuses - with the right size and performance characteristics
- Fuse holders and blocks - with the requisite terminations, mounting options and safety features
- Wire connection products - that make wiring simpler, safer and faster
- Molded products - that give the unique shape your product needs
- Power distribution products - that meet prevailing agency and Code requirements

### In-House Testing

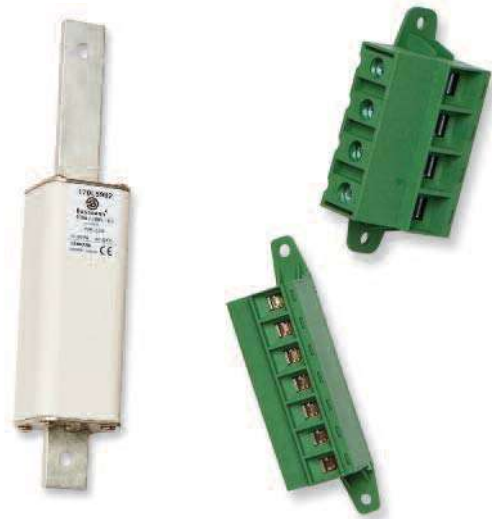
All electrical performance testing of your custom products can be performed at the Bussmann Paul P. Gubany Center for High Power Technology, an ASTA and CSA accredited, and an ANCE Designated facility.

We're able to conduct electrical performance testing that replicates any power system to be encountered in any country, covering:

- Up to 300kA and 600Vac
- Up to 100kA and 1000Vdc

And our technicians conduct tests to many global agency standards including:

- ANCE
- ANSI
- CE
- CSA
- ETL
- IEC, and
- Underwriters Laboratories



### To Find Out More:

If you need a custom solution to a product problem, submit a Request for Quotation to your local authorized Bussmann distributor or sales representative.

# Fuse Technology

## Circuit Protection

The following is a basic introduction to overcurrent protection and fuse technology. In depth information on the selection and application of overcurrent protective devices is available in the Bussmann publication “Selecting Protective Devices” (SPD). This publication is available free of charge as a PDF download at [www.cooperbussmann.com/spd](http://www.cooperbussmann.com/spd).

Electrical distribution systems are often quite complicated. They cannot be absolutely fail-safe. Circuits are subject to destructive overcurrents. Harsh environments, general deterioration, accidental damage, damage from natural causes, excessive expansion, and/or overloading of the electrical distribution system are factors which contribute to the occurrence of such overcurrents. Reliable protective devices prevent or minimize costly damage to transformers, conductors, motors, and the other many components and loads that make up the complete distribution system. Reliable circuit protection is essential to avoid the severe monetary losses which can result from power blackouts and prolonged downtime of facilities. It is the need for reliable protection, safety, and freedom from fire hazards that has made the fuse a widely used protective device.

## Overcurrents

An overcurrent is either an overload current or a short-circuit current. The overload current is an excessive current relative to normal operating current, but one which is confined to the normal conductive paths provided by the conductors and other components and loads of the distribution system. As the name implies, a short-circuit current is one which flows outside the normal conducting paths.

## Overloads

Overloads are most often between one and six times the normal current level. Usually, they are caused by harmless temporary surge currents that occur when motors are started-up or transformers are energized. Such overload currents, or transients, are normal occurrences. Since they are of brief duration, any temperature rise is trivial and has no harmful effect on the circuit components. (It is important that protective devices do not react to them.)

Continuous overloads can result from defective motors (such as worn motor bearings), overloaded equipment, or too many loads on one circuit. Such sustained overloads are destructive and must be cut off by protective devices before they damage the distribution system or system loads. However, since they are of relatively low magnitude compared to short-circuit currents, removal of the overload current within minutes will generally prevent equipment damage. A sustained overload current results in overheating of conductors and other components and will cause deterioration of insulation, which may eventually result in severe damage and short-circuits if not interrupted.

## Short-Circuits

Whereas overload currents occur at rather modest levels, the short-circuit or fault current can be many hundred times larger than the normal operating current. A high level fault may be

50,000A (or larger). If not cut off within a matter of a few thousandths of a second, damage and destruction can become rampant—there can be severe insulation damage, melting of conductors, vaporization of metal, ionization of gases, arcing, and fires. Simultaneously, high level short-circuit currents can develop huge magnetic-field stresses. The magnetic forces between bus bars and other conductors can be many hundreds of pounds per linear foot; even heavy bracing may not be adequate to keep them from being warped or distorted beyond repair.

## Fuses

The fuse is a reliable overcurrent protective device. A “fusible” link or links encapsulated in a tube and connected to contact terminals comprise the fundamental elements of the basic fuse. Electrical resistance of the link is so low that it simply acts as a conductor. However, when destructive currents occur, the link very quickly melts and opens the circuit to protect conductors, and other circuit components and loads. Fuse characteristics are stable. Fuses do not require periodic maintenance or testing. Fuses have three unique performance characteristics:

1. *Modern fuses have an extremely “high interrupting rating”—can withstand very high fault currents without rupturing.*
2. *Properly applied, fuses prevent “blackouts.” Only the fuse nearest a fault opens without upstream fuses (feeders or mains) being affected—fuses thus provide “selective coordination.” (These terms are precisely defined in subsequent pages.)*
3. *Fuses provide optimum component protection by keeping fault currents to a low value...They are said to be “current limiting.”*

## Voltage Rating

The voltage rating of a fuse must be at least equal to or greater than the circuit voltage. It can be higher but never lower. For instance, a 600V fuse can be used in a 208V circuit.

The voltage rating of a fuse is a function of its capability to open a circuit under an overcurrent condition. Specifically, the voltage rating determines the ability of the fuse to suppress the internal arcing that occurs after a fuse link melts and an arc is produced. If a fuse is used with a voltage rating lower than the circuit voltage, arc suppression will be impaired and, under some fault current conditions, the fuse may not clear the overcurrent safely. Special consideration is necessary for semiconductor fuse and medium voltage fuse applications, where a fuse of a certain voltage rating is used on a lower voltage circuit.

## Amp Rating

Every fuse has a specific amp rating. In selecting the amp rating of a fuse, consideration must be given to the type of load and code requirements. The amp rating of a fuse normally should not exceed the current carrying capacity of the circuit. For instance, a continuous load current of 16 amperes typically requires a conductor rated to carry 20A and a 20A fuse is the largest that should be used. However, there are some specific circumstances in which the amp rating is permitted to be greater than the current carrying capacity of the circuit.



# Fuse Technology

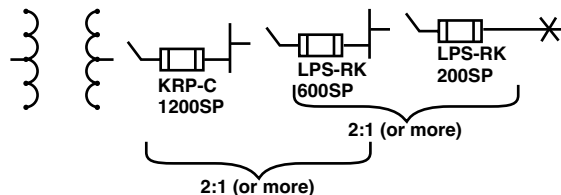
A typical example is the motor circuit; dual-element fuses generally are permitted to be sized up to 175% and non-time-delay fuses up to 300% of the motor full-load amps. As a rule, the amp rating of a fuse and switch combination should be selected at 125% of the continuous load current (this usually corresponds to the circuit capacity, which is also selected at 125% of the load current). There are exceptions, such as when the fuse-switch combination is approved for continuous operation in an assembly at 100% of its rating.

## Interrupting Rating

A protective device must be able to withstand the destructive energy of short-circuit currents. If a fault current exceeds the capability of the protective device, the device may actually rupture, causing additional damage. Thus, it is important when applying a fuse or circuit breaker to use one which can sustain the largest potential short-circuit currents. The rating which defines the capacity of a protective device to maintain its integrity when reacting to fault currents is termed its “interrupting rating”. The interrupting rating of most branch-circuit, molded case, circuit breakers typically used in residential service entrance panels is 10,000A. Larger, more expensive circuit breakers may have interrupting ratings of 14,000A or higher. In contrast, most modern, current-limiting fuses have an interrupting rating of 200,000 or 300,000A and are commonly used to protect the lower rated circuit breakers. The National Electrical Code, Section 110-9, and §OSHA 29 CFR 1910.303(b)(4) require equipment intended to break current at fault levels to have an interrupting rating sufficient for the current that must be interrupted.

## Selective Coordination – Prevention of Blackouts

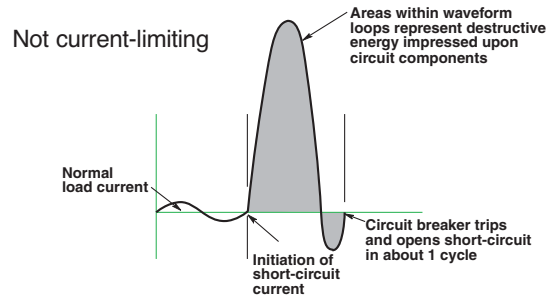
Coordination is isolation of an overloaded or faulted circuit by the opening of only the nearest upstream protective device for a specific overcurrent value. When only the nearest upstream protective device of an overloaded or faulted circuit opens and larger upstream fuses remain closed for the full range of overcurrents on a system, the protective devices are “selectively” coordinated (they discriminate). Selective coordination of protective devices prevents unnecessary system power outages or blackouts caused by overcurrent conditions.



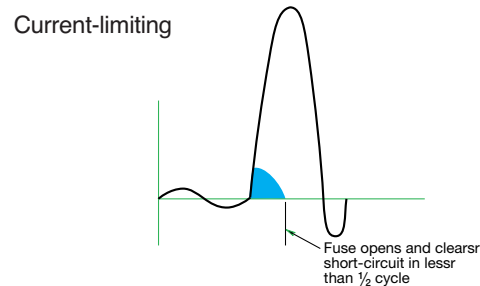
This diagram shows the minimum ratios of amp ratings of Low-Peak Yellow fuses that are required to provide “selective coordination” (discrimination) of upstream and downstream fuses.

It is a simple matter to selectively coordinate modern current-limiting fuses. By maintaining a minimum ratio of fuse-amp ratings between an upstream and downstream fuse, selective coordination is assured.

## Current Limitation – Component Protection



A non-current-limiting protective device, by permitting a short-circuit current to build up to its full value, can let an immense amount of destructive short-circuit heat energy through before opening the circuit.



A current-limiting fuse has such a high speed of response that it cuts off a short-circuit long before it can build up to its full peak value, when the fault current is within the current-limiting range of a fuse.

If a protective device cuts off a short-circuit current in less than one-half cycle, before it reaches its total available (and highly destructive) value, the device is a “current-limiting” device. Most modern fuses are current-limiting. They restrict fault currents to such low values that a high degree of protection is given to circuit components against even very high short-circuit currents. They permit breakers with lower interrupting ratings to be used when series rated. They can reduce bracing of bus structures. They minimize the need of other components to have high short-circuit current “withstand” ratings. If not limited, short-circuit currents can reach levels of 30,000 or 40,000A or higher in the first half cycle (.008 seconds, 60Hz) after the start of a short-circuit. The heat that can be produced in circuit components by the immense energy of short-circuit currents can cause severe insulation damage or even explosion. At the same time, huge magnetic forces developed between conductors can crack insulators and distort and destroy bracing structures. Thus, it is important that a protective device limit fault currents before they reach their full potential level.

## Fuse Technology

### Operating Principles of Bussmann Fuses

The principles of operation of the modern, current-limiting fuses are covered in the following paragraphs.

#### Non-Time-Delay Fuses

The basic component of a fuse is the link. Depending upon the amp rating of the fuse, the single-element fuse may have one or more links. They are electrically connected to the end blades (or ferrules) (see Figure 1) and enclosed in a tube or cartridge surrounded by an arc quenching filler material. Bussmann Limitron™ and T-Tron™ fuses are both single-element fuses.

Under normal operation, when the fuse is operating at or near its amp rating, it simply functions as a conductor. However, as illustrated in Figure 2, if an overload current occurs and persists for more than a short interval of time, the temperature of the link eventually reaches a level which causes a restricted segment of the link to melt. As a result, a gap is formed and an electric arc established. However, as the arc causes the link metal to burn back, the gap becomes progressively larger. Electrical resistance of the arc quickly reaches such a high level that the arc cannot be sustained and is extinguished. The fuse will have then completely cut off all current flow in the circuit. Suppression or quenching of the arc is accelerated by the filler material. (See Figure 3.)

Single-element fuses of present day design have a very high speed of response to overcurrents. They provide excellent short-circuit component protection. However, temporary, harmless overloads or surge currents may cause nuisance openings unless these fuses are oversized. They are best used, therefore, in circuits not subject to heavy transient surge currents and the temporary over-load of circuits with inductive loads such as motors, transformers, solenoids, etc. Because single-element, fast-acting fuses such as Limitron and T-Tron fuses have a high speed of response to short-circuit currents, they are particularly suited for the series rating protection of circuit breakers with low interrupting ratings.

Whereas an overload current normally falls between one and six times normal current, short-circuit currents are quite high. The fuse may be subjected to short-circuit currents of 30,000 or 40kA or higher. Response of current limiting fuses to such currents is extremely fast. The restricted sections of the fuse link will simultaneously melt (within a matter of two or three-thousandths of a second in the event of a high-level fault current).

The high total resistance of the multiple arcs, together with the quenching effects of the filler particles, results in rapid arc suppression and clearing of the circuit. (Refer to Figures 4 & 5) Short-circuit current is cut off in less than a half-cycle, long before the short-circuit current can reach its full value (fuse operating in its current limiting range).



Figure 1. Cutaway view of typical single-element fuse.



Figure 2. Under sustained overload, a section of the link melts and an arc is established.



Figure 3. The "open" single-element fuse after opening a circuit overload.



Figure 4. When subjected to a short-circuit current, several sections of the fuse link melt almost instantly.



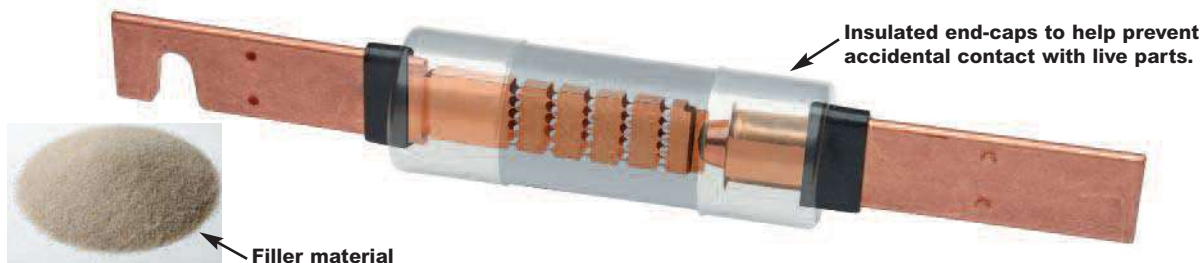
Figure 5. The "open" single-element fuse after opening a short circuit.



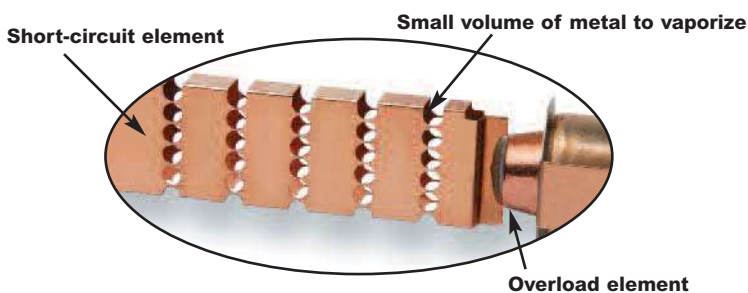
# Fuse Technology

## Bussmann Dual-Element Fuses

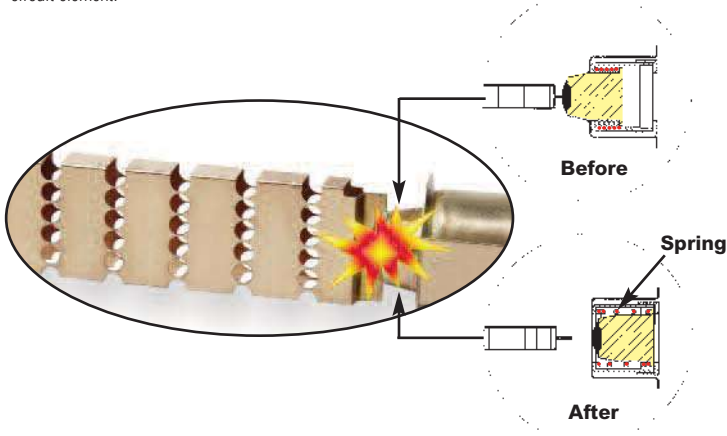
There are many advantages to using these fuses. Unlike single-element fuses, the Bussmann dual-element, time-delay fuses can be sized closer to provide both high performance short-circuit protection and reliable overload protection in circuits subject to temporary overloads and surge currents. For ac motor loads, a single-element fuse may need to be sized at 300% of an a.c. motor current in order to hold the starting current. However, dual-element, time delay fuses can be sized much closer to motor loads. For instance, it is generally possible to size Fusetron Dual-Element Fuses, FRS-R and FRN-R and Low-Peak™ Dual-Element Fuses, LPS-RK\_SP and LPN-RK\_SP, at 125% and 130% of motor full load current, respectively. Generally, the Low-Peak Dual-Element Fuses, LPJ\_SP, and CUBEFuse™, TCF, can be sized at 150 to 175% of motor full load amps. This closer fuse sizing may provide many advantages such as: (1) smaller fuse and block, holder or disconnect amp rating and physical size, (2) lower cost due to lower amp rated devices and possibly smaller required panel space, (3) better short-circuit protection – less short-circuit current let-through energy, and (4) potential reduction in the arc-flash hazard.



**Figure 6.** This is the LPS-RK100SP, a 100A, 600V Low-Peak, Class RK1, Dual-Element Fuse that has excellent time-delay, excellent current-limitation and a 300kA interrupting rating. Artistic liberty is taken to illustrate the internal portion of this fuse. The real fuse has a non-transparent tube and special small granular, arc-quenching material completely filling the internal space.



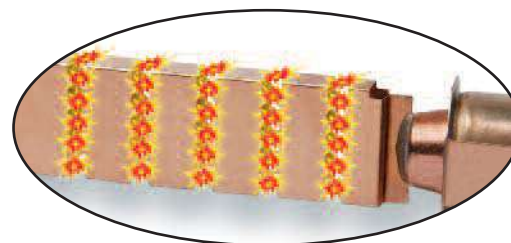
**Figure 7.** The true dual-element fuse has distinct and separate overload element and short-circuit element.



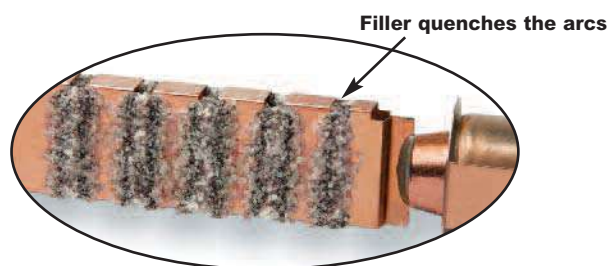
**Figure 8.** Overload operation: Under sustained overload conditions, the trigger spring fractures the calibrated fusing alloy and releases the “connector”. The insets represent a model of the overload element before and after. The calibrated fusing alloy connecting the short-circuit element to the overload element fractures at a specific temperature due to a persistent overload current. The coiled spring pushes the connector from the short-circuit element and the circuit is interrupted.

When the short-circuit current is in the current-limiting range of a fuse, it is not possible for the full available short-circuit current to flow through the fuse – it’s a matter of physics. The small restricted portions of the short-circuit element quickly vaporize and the filler material assists in forcing the current to zero. The fuse is able to “limit” the short-circuit current.

Overcurrent protection must be reliable and sure. Whether it is the first day of the electrical system or thirty or more years later, it is important that overcurrent protective devices perform under overload or short-circuit conditions as intended. Modern current-limiting fuses operate by very simple, reliable principles.



**Figure 9.** Short-circuit operation: Modern fuses are designed with minimum metal in the restricted portions which greatly enhance their ability to have excellent current-limiting characteristics – minimizing the short circuit let-through current. A short-circuit current causes the restricted portions of the short-circuit element to vaporize and arcing commences. The arcs burn back the element at the points of the arcing. Longer arcs result, which assist in reducing the current. Also, the special arc quenching filler material contributes to extinguishing the arcing current. Modern fuses have many restricted portions, which results in many small arcllets – all working together to force the current to zero.



**Figure 10.** Short-circuit operation: The special small granular, arc-quenching material plays an important part in the interruption process. The filler assists in quenching the arcs; the filler material absorbs the thermal energy of the arcs, fuses together and creates an insulating barrier. This process helps in forcing the current to zero. Modern current-limiting fuses, under short-circuit conditions, can force the current to zero and complete the interruption within a few thousandths of a second.

# Fuse Technology

## Fuse Time-Current Curves

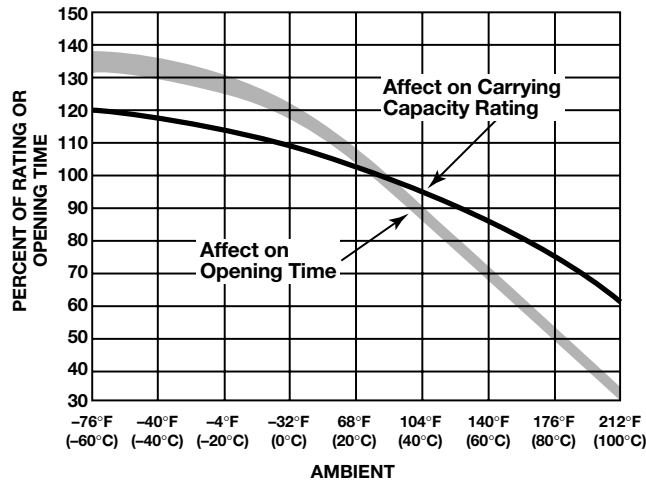
When a low level overcurrent occurs, a long interval of time will be required for a fuse to open (melt) and clear the fault. On the other hand, if the overcurrent is large, the fuse will open very quickly. The opening time is a function of the magnitude of the level of overcurrent. Overcurrent levels and the corresponding intervals of opening times are logarithmically plotted in graph form as shown to the right. Levels of overcurrent are scaled on the horizontal axis; time intervals on the vertical axis. The curve is thus called a “time-current” curve.

This particular plot reflects the characteristics of a 200A, 250V, Low-Peak™ dual-element fuse. Note that at the 1,000A overload level, the time interval which is required for the fuse to open is 10 seconds. Yet, at approximately the 2,200A overcurrent level, the opening (melt) time of a fuse is only 0.01 seconds. It is apparent that the time intervals become shorter as the overcurrent levels become larger. This relationship is termed an inverse time-to-current characteristic. Time-current curves are published or are available on most commonly used fuses showing “minimum melt,” “average melt” and/or “total clear” characteristics. Although upstream and downstream fuses are easily coordinated by adhering to simple amp ratios, these time-current curves permit close or critical analysis of coordination.

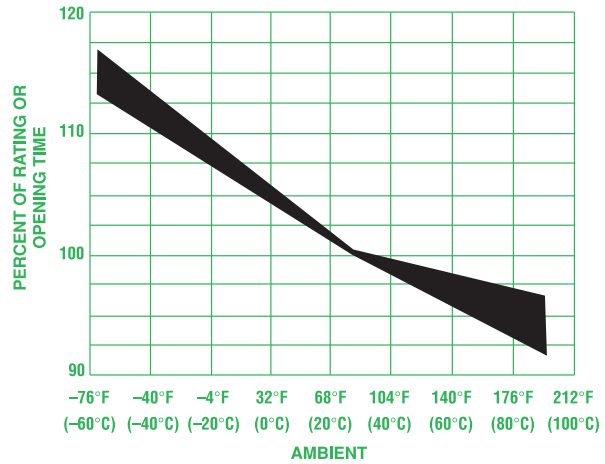
## Better Motor Protection in Elevated Ambients

The derating of dual-element fuses based on increased ambient temperatures closely parallels the derating curve of motors in elevated ambient. This unique feature allows for optimum protection of motors, even in high temperatures.

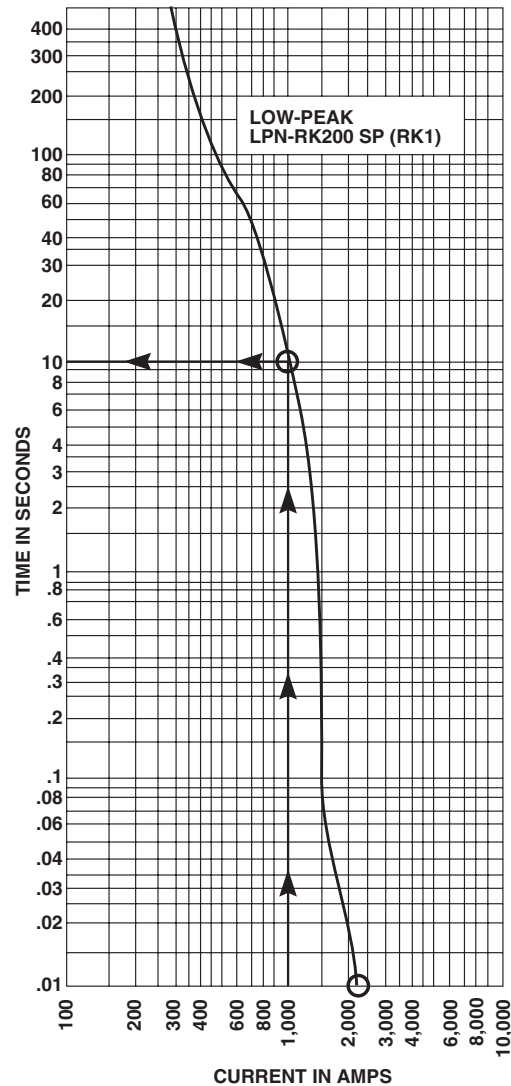
Affect of ambient temperature on operating characteristics of Fusetron and Low-Peak dual-element fuses.



Below is a derating chart for single element fuses or non dual element fuses.



Ambient affect chart for non-dual-element fuses.



## Fuse Technology

### Better Protection Against Motor Single Phasing

When secondary single-phasing occurs, the current in the remaining phases increases to approximately 200% rated full load current. (Theoretically 173%, but change in efficiency and power factor make it about 200%.) When primary single-phasing occurs, unbalanced voltages occur on the motor circuit causing currents to rise to 115%, and 230% of normal running currents in delta-wye systems.

No overcurrent protective device sized only for motor branch circuit short-circuit, ground fault protection will provide single-phasing protection for 3-phase motors. Single-phasing causes are numerous including the utility system that supplies the service losing a phase. Single-phasing is not a serious concern for 3-phase motors when properly protected by three properly sized and calibrated overload protective devices. Many solid state motor controllers will sense and cause the motor controller to open for serious unbalanced voltage situations caused by single-phasing. FRN-R, FRS-R, LPN-R\_SP and LPS-R\_SP dual-element fuses sized for motor running overload protection will help to protect motors against the possible damages of single-phasing. In addition, additional unbalanced voltage protection can be incorporated into motor protection schemes, if desired. For more information refer to the Cooper Bussmann Selecting Protective Devices publication, section Voltage Unbalance & Single-Phasing.

### Classes of Fuses

Safety is the industry mandate. However, proper selection, overall functional performance and reliability of a product are factors which are not within the basic scope of listing agency activities. In order to develop its safety test procedures, listing agencies develop basic performance and physical specifications or standards for a product. In the case of fuses, these standards have culminated in the establishment of distinct classes of low-voltage (600V or less) fuses; Classes RK1, RK5, G, L, T, J, H and CC being the more important.

The fact that a particular type of fuse has, for instance, a classification of RK1, does not signify that it has the identical function or performance characteristics as other RK1 fuses. In fact, the Limitron™ non-time-delay fuse and the Low-Peak dual-element, time-delay fuse are both classified as RK1. Substantial differences in these two RK1 fuses usually requires considerable difference in sizing. Dimensional specifications of each class of fuse does serve as a uniform standard.

### Class R Fuses

Class R (“R” for rejection) fuses are high performance, 1/10 to 600A units, 250V and 600V, having a high degree of current limitation and a short-circuit interrupting rating of 200kA or 300kA (RMS Sym.). Bussmann Class R fuses include Class RK1 Low-Peak™ and Limitron™ fuses, and RK5 Fusetron fuses. They have replaced the K1 Low-Peak and Limitron fuses and K5 Fusetron fuses. These fuses are identical, with the exception of a modification in the mounting configuration called a “rejection feature.” This feature permits Class R fuses to be mounted in rejection type fuseclips. “R” type fuseclips prevent



older type Class H, ONE-TIME and RENEWABLE fuses from being installed. The use of Class R fuse holders is thus an important safeguard. The application of Class R fuses in such equipment as disconnect switches permits the equipment to have a high interrupting rating. NEC® 110-9 and §OSHA 29 CFR 1910.303(b)(4) require that protective devices have adequate capacity to interrupt short-circuit currents. Article 240-60(b) requires fuse holders for current-limiting fuses to reject non-current-limiting type fuses. In the above illustration, a grooved ring in one ferrule provides the rejection feature of the Class R fuse in contrast to the lower interrupting rating, non-rejection type.

### Branch-Circuit Listed Fuses

Branch-circuit listed fuses are designed to prevent the installation of fuses that cannot provide a comparable level of protection to equipment.

The characteristics of Branch-circuit fuses are:

1. They must have a minimum interrupting rating of 10kA
2. They must have a minimum voltage rating of 125V.
3. They must be size rejecting such that a fuse of a lower voltage rating cannot be installed in the circuit.
4. They must be size rejecting such that a fuse with a current rating higher than the fuse holder rating cannot be installed.

## Fuse Technology

### Supplementary Overcurrent Protective Devices for use in Motor Control Circuits

#### Branch Circuit vs. Supplemental Overcurrent Protective Devices

Branch circuit overcurrent protective devices (OCPD) can be used everywhere OCPD are used, from protection of motors and motor circuits and group motor circuits, to protection of distribution and utilization equipment. Supplemental OCPD can only be used where proper protection is already being provided by a branch circuit device, by exception [i.e., 430.72(A)], or if protection is not required. Supplemental OCPD can often be used to protect motor control circuits but they cannot be used to protect motors or motor circuits. A very common misapplication is the use of a supplementary overcurrent protective device such as a UL 1077 mechanical overcurrent device for motor branch circuit short-circuit and ground fault protection. Supplemental OCPDs are incomplete in testing compared to devices that are evaluated for branch circuit protection. **THIS IS A SERIOUS MISAPPLICATION AND SAFETY CONCERN!!** Caution should be taken to assure that the proper overcurrent protective device is being used for the application at hand. Below is a description of popular supplementary overcurrent protective devices.

Most supplemental overcurrent protective devices have very low interrupting ratings. Just as any other overcurrent protective device, supplemental OCPDs must have an interrupting rating equal to or greater than the available short-circuit current.



#### Supplemental fuses as listed or recognized to the UL/CSA/ANCE Trinational 248-14 Standard

These are fuses that can have many voltages and interrupting ratings within the same case size. Examples of supplemental fuses are  $1\frac{3}{32}$ " X  $1\frac{1}{2}$ ", 5 x 20mm, and  $\frac{1}{4}$ " x  $1\frac{1}{4}$ " fuses. Interrupting ratings range from 35 to 100kA.

### Reliability and Maintenance of Overcurrent Protective Devices

Whether the first day of the electrical system or years later, it is important that overcurrent protective devices perform under overload and fault conditions as intended.

Modern current-limiting fuses operate by very simple, reliable principles. Fuses do not have to be maintained. By their inherent design, fuses do not have elements or mechanisms to calibrate, adjust or lubricate. If and when fuses are called upon to open on an overcurrent, installing the same type and ampere rated fuses provides the circuit with new factory-calibrated protection. The original design integrity can be maintained throughout the life of the electrical system. One last point on fuse systems; the terminations, clips and disconnects should be maintained as necessary.



# Motor Circuit Branch Circuit Protection

## Motor Circuits – Choice of Overcurrent Protection

Motor circuits have unique characteristics and several functions, such as short-circuit protection, overload protection and automatic/ remote start/stop, that may be required. Sometimes the comment is made that users prefer circuit breakers because they can be reset. Let's examine the choice of either circuit breakers or current-limiting fuses for motor branch circuit protection.

In the case to be examined, fuses and circuit breakers (includes magnetic only circuit breakers which are called MCPs or motor circuit protectors) are sized with the intent to provide only short-circuit and ground fault protection for the motor branch circuit protection per 430.52. Other means, such as overload relays, provide the motor overload protection. Typical thermal magnetic circuit breakers can only be sized for motor branch circuit protection (typically 200% - 250% of motor current) because if they are sized closer, the motor starting current trips the circuit breaker's instantaneous mechanism. Magnetic only circuit breakers (MCPs) are intentionally not provided with overload capability; they only operate on short-circuit currents. There are some fuses such as the FRS-R and LPS-RK fuses that can be sized close enough for motor running overload protection or backup motor running protection. But for the discussion in this section, assume current-limiting fuses are sized only for motor short-circuit and ground fault protection.

It is important to note that in this protection level being discussed, a circuit breaker or fuses should only open if there is a fault on the motor circuit. A separate overload protective device, such as an overload relays, provides motor overload protection per 430.32. Here are some important considerations:

### 1. OSHA regulation 1910.334(b)(2) Use of Equipment states:

*Reclosing circuits after protective device operation. After a circuit is deenergized by a circuit protective device, the circuit may not be manually reenergized until it has been determined that the equipment and circuit can be safely energized. The repetitive manual reclosing of circuit breakers or reenergizing circuits through replaced fuses is prohibited. NOTE: When it can be determined from the design of the circuit and the over-current devices involved that the automatic operation of a device was caused by an overload rather than a fault condition, no examination of the circuit or connected equipment is needed before the circuit is reenergized.*

*So the speed of reclosing a circuit breaker after a fault is not an advantage. The law requires that if the condition is a fault (that is the only reason the circuit breaker or fuses should open on a motor circuit), then the fault must be corrected prior to replacing fuses or resetting the circuit breaker.*

### 2. The typical level of short-circuit protection for the motor starter provided by circuit breakers and MCPs is referred to as Type 1. This is because most circuit breakers are not current-limiting. So, for a loadside fault, the starter may sustain significant damage such as severe welding of contacts and rupturing of the heater elements. Or the heater/overload relay system may lose calibration. This is an acceptable level of performance per UL 508, which is the product standard for motor starters. Current-limiting fuses can be selected that can provide Type 2 "No Damage" short-circuit protection for motor starters.

*Consequently, with circuit breaker protection, after a fault condition,*

*significant downtime and cost may be incurred in repairing or replacing the starter. With properly selected fuses for Type 2 protection, after the fault is repaired, only new fuses need to be inserted in the circuit; the starter does not have to be repaired or replaced.*

3. *Circuit breakers must be periodically tested to verify they mechanical operate and electrically tested to verify they still are properly calibrated within specification. The circuit breaker manufacturers recommend this. Typically circuit breakers should be mechanically operated at least every year and electrically tested every 1 to 5 years, depending on the service conditions. Modern current-limiting fuses do not have to be maintained or electrically tested to verify they still will operate as intended. The terminations of both circuit breakers and fusible devices need to be periodically checked and maintained to prevent thermal damage. Plus fuse clips should be periodically inspected and if necessary maintained.*
4. *After a circuit breaker interrupts a fault, it may not be suitable for further service. UL 489, the product standard for molded case circuit breakers, only requires a circuit breaker to interrupt two short-circuit currents at its interrupting rating. Circuit breakers that are rated 100 amps or less do not have to operate after only one short-circuit operation under "bus bar" short-circuit conditions. If the fault current is high, circuit breaker manufacturers recommend that a circuit breaker should receive a thorough inspection with replacement, if necessary. How does one know a circuit breaker's service history or what level of fault current that a circuit breaker interrupts? With modern current-limiting fuses, if the fuse interrupts a fault, new factory calibrated fuses are installed in the circuit. The original level of superior short-circuit protection can be there for the life of the motor circuit.*
5. *After a fault, the electrician has to walk back to the storeroom to get new fuses; that is if spare fuses are not stored adjacent to the equipment. This does require some additional down time. However, if fuses opened under fault conditions, there is a fault condition that must be remedied. The electrician probably will be going back to the storeroom anyway for parts to repair the fault. If properly selected current-limiting fuses are used in the original circuit, the starter will not sustain any significant damage or loss of overload calibration.*

With circuit breaker protection on motor circuits, after a fault condition, it may be necessary to repair or replace the starter, so a trip to the storeroom may be necessary. And if the starter is not significantly damaged, it may still need to be tested to insure the let-through energy by the circuit breaker has not caused the loss of starter overload calibration. Also, the circuit breaker needs to be evaluated for suitability before placing it back into service. Who is qualified for that evaluation? How much time will that take?

In summary, resetability is not an important feature for motor branch circuit (short-circuit) protection and resetability of the branch circuit protective device is not a benefit for motor circuits. As a matter of fact, resetability of the motor branch circuit overcurrent protective device may encourage an unsafe practice. The function of motor branch circuit protection is fault protection: short-circuit and ground fault protection. Faults do not occur on a regular basis. But when a fault does occur, it is important to have the very best protection. The best motor branch circuit protection can be judged by (1) reliability - its ability to retain its calibration and speed of operation over its lifetime, (2) current-limiting protection - its ability to provide Type 2 "No Damage" protection to the motor starter, and (3) safety - its ability to meet a facility's safety needs. Modern current-limiting fuses are superior to circuit breakers for motor branch circuit protection.



## Glossary

### Ampere (Amp)

The measurement of intensity of rate of flow of electrons in an electric circuit. An ampere (amp) is the amount of current that will flow through a resistance of one ohm under a pressure of one volt. Ampere is often abbreviated as "A."

### Amp Rating

The current-carrying capacity of a fuse. When a fuse is subjected to a current above its amp rating, it will open the circuit after a predetermined period of time.

### Amp Squared Seconds, I<sup>2</sup>t

The measure of heat energy developed within a circuit during the fuse's clearing. It can be expressed as "melting I<sup>2</sup>t", "arcing I<sup>2</sup>t" or the sum of them as "Clearing I<sup>2</sup>t". "I" stands for effective let-through current (RMS), which is squared, and "t" stands for time of opening, in seconds.

### Arcing I<sup>2</sup>t

Value of the I<sup>2</sup>t during the arcing time under specified conditions.

### Arcing Time

The amount of time from the instant the fuse link has melted until the overcurrent is interrupted, or cleared.

### Breaking Capacity

(See Interrupting Rating)

### Cartridge Fuse

A fuse consisting of a current responsive element inside a fuse tube with terminals on both ends.

### Class CC Fuses

600V, 200kA interrupting rating, branch circuit fuses with overall dimensions of  $1\frac{3}{8}$ " x  $1\frac{1}{2}$ ". Their design incorporates a rejection feature that allows them to be inserted into rejection fuse holders and fuse blocks that reject all lower voltage, lower interrupting rating  $1\frac{3}{8}$ " x  $1\frac{1}{2}$ " fuses. They are available from  $\frac{1}{4}$ A through 30A.

### Class G Fuses

480V, 100kA interrupting rating branch circuit fuses that are size rejecting to eliminate overfusing. The fuse diameter is  $1\frac{3}{32}$ " while the length varies from  $1\frac{1}{16}$ " to  $2\frac{1}{4}$ ". These are available in ratings from 1A through 60A.

### Class H Fuses

250V and 600V, 10kA interrupting rating branch circuit fuses that may be renewable or non-renewable. These are available in amp ratings of 1A through 600A.

### Class J Fuses

These fuses are rated to interrupt a minimum of 200kA AC. They are labeled as "Current-Limiting," are rated for 600Vac, and are not interchangeable with other classes.

### Class K Fuses

These are fuses listed as K-1, K-5, or K-9 fuses. Each subclass has designated I<sup>2</sup>t and I<sub>p</sub> maximums. These are dimensionally the same as Class H fuses, and they can have interrupting ratings of 50kA, 100kA, or 200kA. These fuses are current-limiting. However, they are not marked "current-limiting" on their label since they do not have a rejection feature.

### Class L Fuses

These fuses are rated for 601 through 6000A, and are rated to interrupt a minimum of 200kA AC. They are labeled "Current-Limiting" and are rated for 600Vac. They are intended to be bolted into their mountings and are not normally used in clips. Some Class L fuses have designed in time-delay features for all purpose use.

### Class R Fuses

These are high performance fuses rated  $\frac{1}{4}$ 0-600A in 250V and 600V ratings. All are marked "Current Limiting" on their label and all have a minimum of 200kA interrupting rating. They have identical outline dimensions with the Class H fuses but have a rejection feature which prevents the user from mounting a fuse of lesser capabilities (lower interrupting capacity) when used with special Class R Clips. Class R fuses will fit into either rejection or non-rejection clips.

### Class T Fuses

An industry class of fuses in 300V and 600V ratings from 1A through 1200A. They are physically very small and can be applied where space is at a premium. They are fast-acting fuses with an interrupting rating of 200kA RMS.

### Classes of Fuses

The industry has developed basic physical specifications and electrical performance requirements for fuses with voltage ratings of 600V or less. These are known as standards. If a type of fuse meets the requirements of a standard, it can fall into that class. Typical classes are K, RK1, RK5, G, L, H, T, CC, and J.

### Clearing Time

The total time between the beginning of the overcurrent and the final opening of the circuit at rated voltage by an overcurrent protective device. Clearing time is the total of the melting time and the arcing time.

### Current Limitation

A fuse operation relating to short circuits only. When a fuse operates in its current-limiting range, it will clear a short circuit in less than  $\frac{1}{2}$  cycle. Also, it will limit the instantaneous peak let-through current to a value substantially less than that obtainable in the same circuit if that fuse were replaced with a solid conductor of equal impedance.

## Glossary

### Dual Element Fuse

Fuse with a special design that utilizes two individual elements in series inside the fuse tube. One element, the spring actuated trigger assembly, operates on overloads up to 5-6 times the fuse current rating. The other element, the short circuit section, operates on short circuits up to their interrupting rating.

### Electrical Load

That part of the electrical system which actually uses the energy or does the work required.

### Fast-Acting Fuse

A fuse which opens on overload and short circuits very quickly. This type of fuse is not designed to withstand temporary overload currents associated with some electrical loads.

### Fuse

An overcurrent protective device with a fusible link that operates and opens the circuit on an overcurrent condition.

### High Speed Fuses

Fuses with no intentional time-delay in the overload range and designed to open as quickly as possible in the short-circuit range. These fuses are often used to protect solid-state devices.

### Inductive Load

An electrical load which pulls a large amount of current—an inrush current—when first energized. After a few cycles or seconds the current “settles down” to the full-load running current.

### Interrupting Capacity

(See Interrupting Rating)

### Interrupting Rating — IR (Breaking Capacity)

The rating which defines a fuse’s ability to *safely* interrupt and clear short circuits. This rating is much greater than the ampere rating of a fuse. The NEC® defines Interrupting Rating as “The highest current at rated voltage that an overcurrent protective device is intended to interrupt under standard test conditions.”

### Melting I<sup>2</sup>t

Value of the I<sup>2</sup>t during the melting time of the fuse link under specified conditions.

### Melting Time

The amount of time required to melt the fuse link during a specified overcurrent. (See Arcing Time and Clearing Time.)

### “NEC®” Dimensions

These are dimensions once referenced in the National Electrical Code. They are common to Class H and K fuses and provide interchangeability between manufacturers for fuses and fusible equipment of given ampere and voltage ratings.

### Ohm

The unit of measure for electric resistance. An ohm is the amount of resistance that will allow one ampere to flow under a pressure of one volt.

### Ohm’s Law

The relationship between voltage, current, and resistance, expressed by the equation  $E = IR$ , where E is the voltage in volts, I is the current in amps, and R is the resistance in ohms.

### One Time Fuses

Generic term used to describe a Class H non-renewable cartridge fuse, with a single element.

### Overcurrent

A condition which exists on an electrical circuit when the normal load current is exceeded. Overcurrents take on two separate characteristics—overloads and short-circuits.

### Overload

Can be classified as an overcurrent which exceeds the normal full load current of a circuit. Also characteristic of this type of overcurrent is that it does not leave the normal current carrying path of the circuit—that is, it flows from the source, through the conductors, through the load, back through the conductors, to the source again.

### Peak Let-Through Current, I<sub>p</sub>

The instantaneous value of peak current let-through by a current-limiting fuse, when it operates in its current-limiting range.

### Renewable Fuse (600V & below)

A fuse in which the element, typically a zinc link, may be replaced after the fuse has opened, and then reused. Renewable fuses are made to Class H standards.

### Resistive Load

An electrical load which is characteristic of not having any significant inrush current. When a resistive load is energized, the current rises instantly to its steady-state value, without first rising to a higher value.

### RMS Current

The RMS (root-mean-square) value of any periodic current is equal to the value of the direct current which, flowing through a resistance, produces the same heating effect in the resistance as the periodic current does.

### SCCR

See Short-Circuit Current Rating

### Semiconductor Fuses

Fuses used to protect solid-state devices. See “High Speed Fuses.”

### Short-Circuit

Can be classified as an overcurrent which exceeds the normal full load current of a circuit by a factor many times (tens, hundreds or thousands greater). Also characteristic of this type of overcurrent is that it leaves the normal current carrying path of the circuit—it takes a “short cut” around the load and back to the source.

### Short-Circuit Current Rating (SCCR)

The maximum short-circuit current an electrical component can sustain without the occurrence of excessive damage when protected with an overcurrent protective device.

### Short-Circuit Withstand Rating

Same definition as short-circuit current rating.

## Glossary

### Single-Phasing

That condition which occurs when one-phase of a three-phase system opens, either in a low voltage (secondary) or high voltage (primary) distribution system. Primary or secondary single-phasing can be caused by any number of events. This condition results in unbalanced currents in polyphase motors and unless protective measures are taken, causes overheating and failure.

### Threshold Current

The symmetrical RMS available current at the threshold of the current-limiting range, where the fuse becomes current-limiting when tested to the industry standard. This value can be read off of a peak let-through chart where the fuse curve intersects the A-B line. A threshold ratio is the relationship of the threshold current to the fuse's continuous current rating.

### Time-Delay Fuse

A fuse with a built-in delay that allows temporary and harmless inrush currents to pass without opening, but is so designed to open on sustained overloads and short circuits.

### Total Clearing I<sup>2</sup>t

Total measure of heat energy developed within a circuit during the fuse's clearing of a fault current. Total Clearing I<sup>2</sup>t is the sum of the melting I<sup>2</sup>t and arcing I<sup>2</sup>t.

### Voltage Rating

The maximum open circuit voltage in which a fuse can be used, yet safely interrupt an overcurrent. Exceeding the voltage rating of a fuse impairs its ability to clear an overload or short-circuit safely.

### Withstand Rating

The maximum current that an unprotected electrical component can sustain for a specified period of time without the occurrence of extensive damage.

## Out-of-Stock Substitution/Upgrades

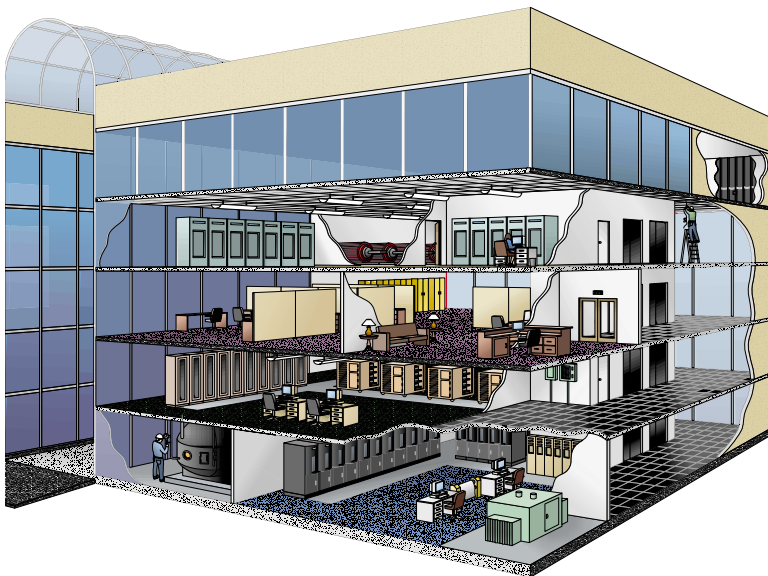
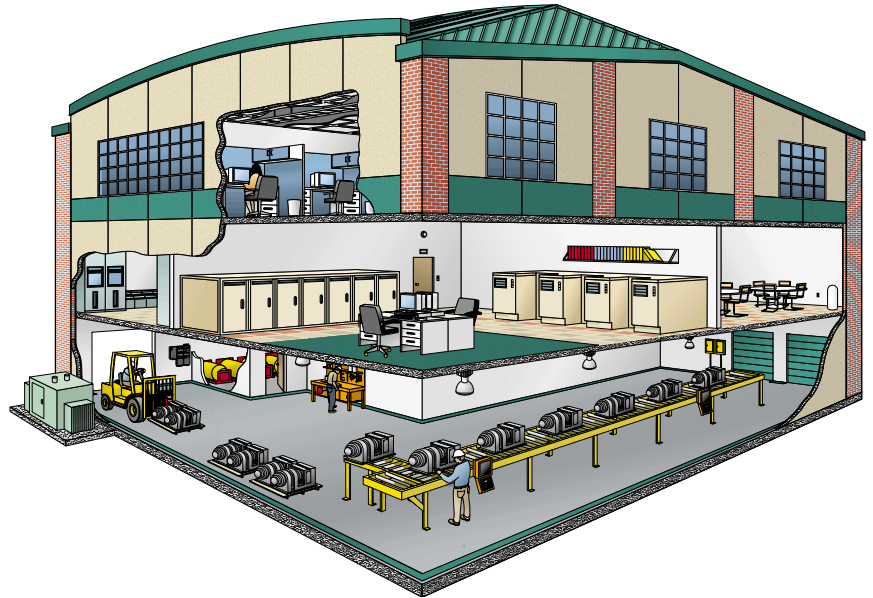
| Bussmann #  | Upgrade #      | Description                             | Data Sheet # |
|-------------|----------------|---|--------------|
| AGC-(AMP)   | ABC-(AMP)      | FAST-ACTING, ¼" X 1¼" FUSE              | 2001         |
| AGC-V-(AMP) | ABC-V-(AMP)    | FAST-ACTING, ¼" X 1¼" FUSE WITH LEADS   | 2001         |
| AGU-(AMP)   | LP-CC-(AMP)    | FAST-ACTING, ½" X 1½" FUSE              | 2008         |
| BAF-(AMP)   | LP-CC-(AMP)    | FAST-ACTING, ½" X 1½" FUSE              | 2011         |
| BAN-(AMP)   | LP-CC-(AMP)    | FAST-ACTING, ½" X 1½" FUSE              | 2046         |
| DCM-(AMP)   | PVM-(AMP)      | SOLAR USE - FAST-ACTING, ½" X 1½" FUSE  | 2153         |
| DCM-(AMP)   | KLM-(AMP)      | INDUSTRIAL - FAST-ACTING, ½" X 1½" FUSE | 2020         |
| DLS-(AMP)   | ECNR-(AMP)     | TIME-DELAY, 250Vac, CLASS RK5           | 1315         |
| DLS-(AMP)   | ECSR-(AMP)     | TIME-DELAY, 600Vac, CLASS RK5           | 1318         |
| FNM-(AMP)   | LP-CC-(AMP)    | TIME-DELAY, ½" X 1½" FUSE               | 2028         |
| FNQ-R-(AMP) | LP-CC-(AMP)*   | TIME-DELAY, 500V, ½" X 1½" FUSE         | 1012         |
| FNR-R-(AMP) | LPN-RK-(AMP)SP | TIME-DELAY, 250V, CLASS RK5 FUSES       | 1019/1020    |
| FRS-R-(AMP) | LPS-RK-(AMP)SP | TIME-DELAY, 600V, CLASS RK5 FUSES       | 1017/1018    |
| JKS-(AMP)   | LPJ-(AMP)SP    | FAST-ACTING, 600V, CLASS J FUSE         | 1026/1027    |
| KLU-(AMP)   | KRP-C-(AMP)SP  | TIME-DELAY, CLASS L FUSE                | 1013         |
| KTK-(AMP)   | KTK-R-(AMP)    | FAST-ACTING, 600V, ½" X 1½" FUSE        | 1011         |
| KTK-R-(AMP) | LP-CC-(AMP)    | FAST-ACTING, 600V, CLASS CC FUSE        | 1015         |
| KTN-R-(AMP) | LPN-RK-(AMP)SP | FAST-ACTING, 250V, CLASS RK1 FUSE       | 1043         |
| KTS-R-(AMP) | LPS-RK-(AMP)SP | FAST-ACTING, 600V, CLASS RK1 FUSE       | 1044         |
| KTU-(AMP)   | KPR-C-(AMP)SP  | FAST-ACTING, 600V, CLASS L FUSE         | 1010         |
| KWS-R-(AMP) | LPS-RK-(AMP)SP | FAST-ACTING, 600V, CLASS RK1 FUSE       | 1044         |
| MDL-(AMP)   | MDA-(AMP)      | TIME-DELAY, ¼" X 1¼" FUSE               | 2004         |
| MDL-V-(AMP) | MDA-V-(AMP)    | TIME-DELAY, ¼" X 1¼" FUSE WITH LEADS    | 2004         |
| MTH-(AMP)   | ABC-(AMP)      | FAST-ACTING, ¼" X 1¼" FUSE              |              |
| NON-(AMP)   | LPN-RK-(AMP)SP | GENERAL PURPOSE, 250V, CLASS H FUSES    | 1030         |
| NOS-(AMP)   | LPS-RK-(AMP)SP | GENERAL PURPOSE, 600V, CLASS H FUSES    | 1030         |
| REN-(AMP)   | LPN-RK-(AMP)SP | 250V RENEWABLE FUSELINK                 | 1028         |
| RES-(AMP)   | LPS-RK-(AMP)SP | 600V RENEWABLE FUSELINK                 | 1028         |
| SL-(AMP)    | S-(AMP)        | TIME-DELAY, 125V, PLUG FUSE             | 1033         |
| TL-(AMP)    | T-(AMP)        | TIME-DELAY, 125V, PLUG FUSE             | 1035         |
| W-(AMP)     | TL-(AMP)       | TIME-DELAY, 125V, PLUG FUSE             | 1035         |

\*Not recommended for control transformer circuits.

# Industrial Fuse Applications

## Industrial Applications

1. Interior Lighting
2. Computer Power
3. Switchboards
4. Motor Control Center
5. Emergency Lighting
6. UPS Backup Power Supplies
7. Transformer/Emergency Generator
8. Forklift Battery Charging Station
9. HVAC Chillers/Blowers
10. Welding Circuits
11. Plant Lighting
12. Distribution Panels
13. Disconnect Switches
14. Programmable Logic Circuits
15. Conveyor System



## Commercial Applications

1. Interior Lighting
2. HVAC Blowers
3. Computer Power
4. Branch Circuits
5. Emergency Lighting
6. Load Centers
7. Disconnect/Distribution Panels
8. HVAC/Chillers
9. Switchboards/Motor Control Centers
10. UPS Backup Power Supplies
11. Elevator Control Centers
12. Transformer/Emergency Generator



Bussmann, the industry leader in critical circuit protection, power management and electrical safety offers an extensive selection of fuses and fuse blocks to meet precise overcurrent protection needs.

Whether it's glass tube, low voltage or high speed fuse ... or fuse blocks needed for an application, you can use this FuseFinder Quick Cross Reference Guide to find the Bussmann replacement. If you cannot find a cross, more extensive listings are available online at [www.cooperbussmann.com/FuseFinder](http://www.cooperbussmann.com/FuseFinder). Or contact our Application Engineers at [FuseTech@cooperindustries.com](mailto:FuseTech@cooperindustries.com).

| Competitor Fuse Family   | Bussmann      | Competitor Fuse Family    | Bussmann        | Competitor Fuse Family              | Bussmann      |
|--------------------------|---------------|---------------------------|-----------------|-------------------------------------|---------------|
| 0481(AMP)                | GMT-(AMP)A    | 413(AMP)                  | MDM-(AMP)       | BDL(AMP)                            | MDL-(AMP)     |
| 211(AMP)                 | GDC-(AMP)     | 414(AMP)                  | ABS-(AMP)       | BGC(AMP)                            | AGC-(AMP)     |
| 212(AMP)                 | GDB-(AMP)     | 417(AMP)                  | ABS-(AMP)       | BGX(AMP)                            | AGX-(AMP)     |
| 213(AMP)                 | GDC-(AMP)     | 418(AMP)                  | TR/3216FF-(AMP) | BLF(AMP)                            | BAF-(AMP)     |
| 215(AMP)                 | S505-(AMP)    | 429(AMP)                  | 3216FF(AMP)     | BLN(AMP)                            | BAN-(AMP)     |
| 216(AMP)                 | GDA-(AMP)     | 431(AMP)                  | 0603FA(AMP)     | BLS(AMP)                            | BBS-(AMP)     |
| 217(AMP)                 | GDB-(AMP)     | 5140(AMP)                 | BAF-(AMP)       | BMA(AMP)                            | GDA-(AMP)     |
| 218(AMP)                 | GDC-(AMP)     | 5170(AMP)                 | AGU-(AMP)       | CBO(AMP) [4-160A]                   | HBO-(AMP)     |
| 221(AMP)                 | S505-V-(AMP)  | 523(AMP)                  | FNM-(AMP)       | CCK(AMP) [1-300A]                   | ACK-(AMP)     |
| 226(AMP)                 | GDA-V-(AMP)   | 5HF(AMP)                  | GDA-(AMP)       | CCL(AMP) [30-100A]                  | ACL-(AMP)     |
| 227(AMP)                 | GDB-V-(AMP)   | 5HFP(AMP)                 | GDA-V-(AMP)     | CCLB(AMP) [20-250A]                 | KGJ-E-(AMP)   |
| 228(AMP)                 | GDC-V-(AMP)   | 5HT(AMP)                  | BK/S505-(AMP)A  | CCLW(AMP) [1-300A]                  | KGJ-(AMP)     |
| 230(AMP)                 | BK/C515-(AMP) | 5MF(AMP)                  | GMA-(AMP)       | CCMR[1-30A Only]                    | LP-CC(AMP)    |
| 235(AMP)                 | GMA-(AMP)     | 5MFP(AMP)                 | GMA-V-(AMP)     | CDNC(AMP)                           | CDN(AMP)      |
| 236(AMP)                 | GMA-V-(AMP)   | 5SF(AMP)                  | GDB-(AMP)       | CDSC(AMP)                           | CDS(AMP)      |
| 238(AMP)                 | GMD-V-(AMP)   | 5ST(AMP)                  | GDC-(AMP)       | CNL(AMP)                            | ANL-(AMP)     |
| 239(AMP)                 | GMD-(AMP)     | 6J(AMP)X                  | KTK-(AMP)       | CNN(AMP)                            | ANN-(AMP)     |
| 251(AMP)                 | MCRW-(AMP)    | 6R(AMP)D                  | LPS-RK-(AMP)SP  | DCT[1-15A]                          | PV-(AMP)A10F  |
| 252(AMP)                 | MCRW-(AMP)    | 702(AMP)                  | HVJ-(AMP)       | E(AMP)FC                            | (AMP)FC       |
| 255(AMP) [1/16-5A]       | MCRW-(AMP)    | 703(AMP)                  | HVL-(AMP)       | E(AMP)FE                            | (AMP)FE       |
| 256(AMP)                 | MCRW-(AMP)    | 81200(AMP)ST              | CBS-(AMP)       | E(AMP)FET                           | (AMP)FET      |
| 257(AMP)                 | ATC-(AMP)     | A70P(AMP)-1 or Type 1     | FWP-(AMP)A14F   | E(AMP)FM                            | (AMP)FM       |
| 275(AMP)                 | MCRW-(AMP)    | A70P(AMP)-4 or Type 4     | FWP-(AMP)A or B | E(AMP)FMM                           | (AMP)FMM      |
| 276(AMP)                 | MCRW-(AMP)    | A70Q(AMP)-4 or Type 4     | FWP-(AMP)A or B | E(AMP)LCT [6-20A]                   | (AMP)LCT      |
| 297(AMP)[AUTOMOTIVEFUSE] | ATM-(AMP)     | A70QS(AMP)-14F            | FWP-(AMP)A14F   | E(AMP)LET [25-180A]                 | (AMP)LET      |
| 299(AMP)                 | MAX-(AMP)     | A70QS(AMP)-22F            | FWP-(AMP)A22F   | E(AMP)LMMT [315-900A]               | (AMP)LMMT     |
| 2AG220                   | BK/C517-(AMP) | A70QS[35-200]-4           | FWP-(AMP)A or B | E(AMP)LMT [160-450A]                | (AMP)LMT      |
| 2AG230                   | BK/C515-(AMP) | A70QS[225-400]-4 or 4K    | FWP-(AMP)A or B | E100SF(AMP) [20-30A]                | FWJ-(AMP)A14F |
| 301(AMP)                 | AGA-(AMP)     | A70QS[450-600]-4K         | FWP-(AMP)A or B | E100S(AMP) [40-2000A]               | FWJ-(AMP)     |
| 303(AMP)                 | AGW-(AMP)     | A70QS[700-800]-4          | FWP-(AMP)A or B | E15S(AMP) [35-3000A]                | FWA-(AMP)A    |
| 307(AMP)                 | SFE-(AMP)     | A50P(AMP)-1               | FWH-(AMP)A14F   | E15SF(AMP) [5, 10, 15, 20, 25, 30A] | FWA-(AMP)A10F |
| 311(AMP)                 | AGC-(AMP)     | A50P(AMP)-4               | FWH-(AMP)A or B | E25S(AMP) [1000-2500A]              | FWX-(AMP)AH   |
| 312(AMP)                 | AGC-(AMP)     | A50QS(AMP)-4 or Type 4    | FWH-(AMP)A or B | E25S(AMP) [35-800A]                 | FWX-(AMP)A    |
| 313(AMP)                 | MDL-(AMP)     | A30QS(AMP)-1 or Type 1    | FWX-(AMP)A14F   | E25SF(AMP) [5-30A]                  | FWX-(AMP)14F  |
| 314(AMP)                 | ABC-(AMP)     | A30QS[35-700]-4 or Type 4 | FWX-(AMP)A      | E50S(AMP)                           | FWH-(AMP)     |
| 315(AMP)                 | MDL-V-(AMP)   | A30QS[1000-1200]-128      | FWX-(AMP)AH     | E50SF(AMP) [5-30A]                  | FWH-(AMP)14F  |
| 318(AMP)                 | AGC-V-(AMP)   | A15QS[1-30]-2             | FWA-(AMP)A10F   | E70S(AMP)                           | FWP-(AMP)     |
| 322(AMP)                 | GBB-(AMP)     | A15QS[35-60]-1            | FWA-(AMP)A21F   | ECK(AMP) [1-300A]                   | ACK-(AMP)     |
| 323(AMP)                 | MDA-(AMP)     | A15QS[70-400]-4           | FWA-(AMP)B      | ECL(AMP) [30-100A]                  | ACL-(AMP)     |
| 324(AMP)                 | ABC-V-(AMP)   | A2D(AMP)R                 | LPN-RK(AMP)SP   | ECN(AMP)                            | FRN-R-(AMP)   |
| 325(AMP)                 | MDA-V-(AMP)   | A2K(AMP)                  | KTN-R(AMP)      | ECNR(AMP)                           | FRN-R-(AMP)   |
| 326(AMP)                 | MDA-(AMP)     | A3T(AMP)                  | JUN(AMP)        | ECS(AMP)                            | FRS-R-(AMP)   |
| 334(AMP)                 | GLD-(AMP)     | A4BQ[225-600]             | KRP-CL-(AMP)    | ECSR(AMP)                           | FRS-R-(AMP)   |
| 336(AMP)                 | GBA-(AMP)     | A4BQ[601-6000]            | KRP-C-(AMP)SP   | ELR(AMP)                            | GLR-(AMP)     |
| 361(AMP)                 | AGX-(AMP)     | A4BT[601-4000]            | KLU[601-4000]   | ENLE(AMP)                           | ANL-(AMP)     |
| 362(AMP)                 | AGX-(AMP)     | A4BY(AMP)                 | KLU(AMP)        | ENNE(AMP)                           | ANN-(AMP)     |
| 3770(AMP)                | SL-(AMP)      | A4J(AMP)                  | JKS(AMP)        | ERN(AMP)                            | REN-(AMP)     |
| 3780(AMP)                | S-(AMP)       | A6D(AMP)R                 | LPS-RK(AMP)SP   | ERS(AMP)                            | RES-(AMP)     |
| 3785(AMP)                | T-(AMP)       | A6K(AMP)                  | KTS-R(AMP)      | ESA(AMP)                            | S-(AMP)       |
| 3AB(AMP)                 | ABC-(AMP)     | A6T(AMP)                  | JJS(AMP)        | FA(AMP)                             | SA(AMP)       |
| 3ABP(AMP)                | AGC-V-(AMP)   | AG(AMP)                   | SC(AMP)         | FI(AMP)                             | CGL-(AMP)     |
| 3AG(AMP)                 | AGC-(AMP)     | AJT(AMP)                  | LPJ(AMP)SP      | FIIC(AMP)                           | CGL-(AMP)     |
| 3AG311(AMP)              | AGC-(AMP)     | AM10/(AMP)                | LP-CC-(AMP)     | FIIM(AMP) [125-200A]                | (AMP)M14CB    |
| 3AG312(AMP)              | AGC-(AMP)     | AOK(AMP)                  | ALS-(AMP)       | FIIM(AMP) [80-100A]                 | (AMP)L09CB    |
| 3AG313(AMP)              | MDL-(AMP)     | ATDR(AMP)                 | LP-CC-(AMP)     | FLA(AMP)                            | FNA-(AMP)     |
| 3AG315(AMP)              | MDL-V-(AMP)   | ATM(AMP)                  | KLM(AMP)        | FLM(AMP)                            | FNM-(AMP)     |
| 3AG318(AMP)              | AGC-V-(AMP)   | ATMR(AMP)                 | KTK-R(AMP)      | FLN(AMP)                            | FRN-R-(AMP)   |
| 3SB(AMP)                 | MDL-(AMP)     | ATQ(AMP)                  | FNQ-(AMP)       | FLNR(AMP)                           | FRN-R-(AMP)   |
| 3SBP(AMP)                | MDL-V-(AMP)   | ATQR(AMP)                 | FNQ-R-(AMP)     | FLQ(AMP)                            | FNQ-(AMP)     |
| 401(AMP)                 | GMT-(AMP)A    | BBC(AMP)                  | ABC-(AMP)       | FLS(AMP)                            | FRS-R-(AMP)   |
| 411(AMP)                 | ABS-(AMP)     | BDB(AMP)                  | GDB-(AMP)       | FLSR(AMP)                           | FRS-R-(AMP)   |
| 412(AMP)                 | ABS-(AMP)     | BDC(AMP)                  | GDC-(AMP)       | GFN(AMP)                            | FNA-(AMP)     |



| Competitor Fuse Family            | Bussmann        | Competitor Fuse Family                           | Bussmann             | Competitor Fuse Blocks <sup>1, 2, 3</sup> | Bussmann             |
|-----------------------------------|-----------------|--|----------------------|---|----------------------|
| GGU(AMP)                          | AGU(AMP)        | RF(AMP)  | REN(AMP)             | 203(XX)                                   | H25030-(X)CR*        |
| GL10(AMP)                         | KTK-(AMP)       | RFS(AMP)   | RES(AMP)             | 206(XX)                                   | H25060-(X)CR*        |
| HCLR(AMP)                         | KTK-R-(AMP)     | RLN(AMP)   | REN-(AMP)            | 210(XX)                                   | HM25100-(X)CR**      |
| HCTR(AMP)                         | FNQ-R-(AMP)     | RLS(AMP)   | RES(AMP)             | 220(XX)                                   | HM25200-(X)CR**      |
| HSJ(AMP)                          | DFJ(AMP)        | SAO(AMP)   | SA-(AMP)             | 240(XX)                                   | HM25400-(X)CR**      |
| IDSR[6-60A Only]                  | FRS-R-(AMP)ID   | SBS(AMP)   | BBS-(AMP)            | 26(XX)                                    | HM25600-(X)CR**      |
| J(AMP)                            | JKS-(AMP)       | SCL(AMP)   | KTS-R-(AMP)          | 603(XX)                                   | H60030-(X)CR*        |
| JDL(AMP)                          | LPJ-(AMP)SP     | SCLR(AMP)  | KTS-R-(AMP)          | 606(XX)                                   | H60060-(X)CR*        |
| JFL(AMP)                          | JKS-(AMP)       | SEC(AMP)   | SC-(AMP)             | 610(XX)                                   | HM60100-(X)CR**      |
| JLLN(AMP)                         | JJN-(AMP)       | SLC(AMP)   | SC-(AMP)             | 620(XX)                                   | HM60200-(X)CR**      |
| JLLS(AMP)                         | JJS-(AMP)       | SLO(AMP)   | SL-(AMP)             | 640(XX)                                   | HM60400-(X)CR**      |
| JLS(AMP)                          | JKS-(AMP)       | SOO(AMP)   | S-(AMP)              | 66(XX)                                    | HM60600-(X)CR**      |
| JTD(AMP)                          | LPJ-(AMP)SP     | TLO(AMP)   | TL-(AMP)             | 203(XX)R                                  | R25030-(X)CR*        |
| KLA(AMP) [5, 10, 15, 20, 25, 30A] | FWA-(AMP)A10F   | TOO(AMP)   | T-(AMP)              | 206(XX)R                                  | R25060-(X)CR*        |
| KLB(AMP) [1-30A]                  | FWX-(AMP)A14F   | TR(AMP)  | FRN-R-(AMP)          | 210(XX)R                                  | RM25100-(X)CR**      |
| KLC(AMP)                          | KAC-(AMP)       | TRM(AMP)   | FNM-(AMP)            | 220(XX)R                                  | RM25200-(X)CR**      |
| KLDR (AMP)                        | FNQ-R-(AMP)     | TRS(AMP)   | FRS-R(AMP)           | 240(XX)R                                  | RM25400-(X)CR**      |
| KLH(AMP) [1-30A]                  | FWH-(AMP)A14F   | WOO(AMP)   | W-(AMP)              | 26(XX)R                                   | RM25600-(X)CR**      |
| KLH(AMP) [225-600A]               | FWH-(AMP)A      |  |                      | 603(XX)R                                  | R60030-(X)CR*        |
| KLH(AMP) [35-200A]                | FWH-(AMP)B      |  |                      | 606(XX)R                                  | R60060-(X)CR*        |
| KLK(AMP)                          | KTK-(AMP)       | <b>Competitor Fuse Blocks <sup>1, 2, 3</sup></b> |                      | 610(XX)R                                  | RM60100-(X)CR**      |
| KLKR(AMP)                         | KTK-R-(AMP)     | <b>Bussmann</b>                                  |                      | 620(XX)R                                  | RM60200-(X)CR**      |
| KLLU(AMP)                         | KLU-(AMP)       | LFJ60030(X) / (X)ID                              | J60030-(X)CR*        | 640(XX)R                                  | RM60400-(X)CR**      |
| KLMR(AMP)                         | LP-CC-(AMP)     | LFJ60060(X) / (X)ID                              | J60060-(X)CR*        | 66(XX)R                                   | RM60600-(X)CR**      |
| KLNR(AMP)                         | KTN-R-(AMP)     | LFJ60100(X) / (X)ID                              | JM60100-(X)CR**      | US3J(X) / (X)I                            | CH30J(X) / (X)I      |
| KLPC(AMP)                         | KRP-C-(AMP)SP   | LFJ60200(X) / (X)ID                              | JM60200-(X)CR**      | US6J(X) / (X)I                            | CH60J(X) / (X)I      |
| KLSR(AMP)                         | KTS-R-(AMP)     | LFJ60400(X) / (X)ID                              | JM60400-(X)CR**      | USPV                                      | CHPV                 |
| KLW(AMP)                          | FWA-(AMP)10F    | LFJ60600(X) / (X)ID                              | JM60600-(X)CR**      | USCC(X) / (X)I                            | CHCC(X)DU / (X)DIU   |
| KON(AMP)                          | NON-(AMP)       | LFR25030(X) / (X)ID                              | R25030-(X)CR*        | USM(X) / (X)I                             | CHM(X)DU / CHM(X)DIU |
| KOS(AMP)                          | NOS-(AMP)       | LFR25060(X) / (X)ID                              | R25060-(X)CR*        | (R)6J30A(X)S                              | J60030-(X)CR*        |
| L(AMP)TD                          | KRP-C-(AMP)SP   | LFR25100(X) / (X)ID                              | RM25100-(X)CR**      | (R)6J60A(X)B                              | J60060-(X)CR*        |
| L15S(AMP) [1-30A]                 | FWA-(AMP)A10F   | LFR25200(X) / (X)ID                              | RM25200-(X)CR**      | R6J100A(X)B                               | JM60100-(X)CR**      |
| L15S(AMP) [35-60A]                | FWA-(AMP)A21F   | LFR25400(X) / (X)ID                              | RM25400-(X)CR**      | 6J200A(X)BFBD                             | JM60200-(X)CR**      |
| L15S(AMP) [70-400A]               | FWA-(AMP)A      | LFR25600(X) / (X)ID                              | RM25600-(X)CR**      | 6J400A(X)BFBD                             | JM60400-(X)CR**      |
| L25S(AMP) [1-30A]                 | FWX-(AMP)A14F   | LFR60030(X) / (X)ID                              | R60030-(X)CR*        | 6J600A(X)BFBD                             | JM60600-(X)CR**      |
| L50S(AMP) [1-30A]                 | FWH-(AMP)A14F   | LFR60060(X) / (X)ID                              | R60060-(X)CR*        | R30A(X)(XX)                               | R25030-(X)CR*        |
| L70S(AMP) [1-30A]                 | FWP-(AMP)A14F   | LFR60100(X) / (X)ID                              | R60100-(X)CR**       | R60A(X)(XX)                               | R25060-(X)CR*        |
| LCU(AMP)                          | KTU-(AMP)       | LFR60200(X) / (X)ID                              | RM60200-(X)CR**      | R100A(X)B                                 | RM25100-(X)CR**      |
| LEN(AMP)                          | FRN-R-(AMP)     | LFR60400(X) / (X)ID                              | RM60400-(X)CR**      | R200A(X)BE                                | RM25200-(X)CR**      |
| LENR(AMP)                         | LPN-RK-(AMP)SP  | LFR60600(X) / (X)ID                              | RM60600-(X)CR**      | R400A(X)B                                 | RM25400-(X)CR**      |
| LES(AMP)                          | FRS-R-(AMP)     | LFH25030(X) / (X)ID                              | H25030-(X)CR*        | R600A(X)B                                 | RM25600-(X)CR**      |
| LESR(AMP)                         | FRS-R-(AMP)     | LFH25060(X) / (X)ID                              | H25060-(X)CR*        | 6R30A(X)(XX)                              | R60030-(X)CR*        |
| LESR(AMP)                         | LPS-RK-(AMP)SP  | LFH25100(X) / (X)ID                              | HM25100-(X)CR**      | 6R60A(X)(XX)                              | R60060-(X)CR*        |
| LGR(AMP)                          | GLR-(AMP)       | LFH25200(X) / (X)ID                              | HM25200-(X)CR**      | 6R100A(X)B                                | RM60100-(X)CR**      |
| LHR(AMP)                          | HLR(AMP)        | LFH25400(X) / (X)ID                              | HM25400-(X)CR**      | 6R200A(X)BE                               | RM60200-(X)CR**      |
| LKU(AMP)                          | KLU-(AMP)       | LFH25600(X) / (X)ID                              | HM25600-(X)CR**      | 6R400A(X)B                                | RM60400-(X)CR**      |
| LLNR(AMP)                         | LPN-RK-(AMP)SP  | LFH60030(X) / (X)ID                              | H60030-(X)CR*        | 6R600A(X)B                                | RM60600-(X)CR**      |
| LLSR(AMP)                         | LPS-RK-(AMP)SP  | LFH60060(X) / (X)ID                              | H60060-(X)CR*        | (R)F30A(X)(XX)                            | H25030-(X)CR*        |
| MEN(AMP)                          | FNM-(AMP)       | LFH60100(X) / (X)ID                              | HM60100-(X)CR**      | (R)F60A(X)(XX)                            | H25060-(X)CR*        |
| MEQ(AMP)                          | FNQ-(AMP)       | LFH60200(X) / (X)ID                              | HM60200-(X)CR**      | RF100A(X)B                                | HM25100-(X)CR**      |
| MJS(AMP)                          | BK/C515-(AMP)   | LFH60400(X) / (X)ID                              | HM60400-(X)CR**      | F200A(X)BE                                | HM25200-(X)CR**      |
| MOL(AMP)                          | BAF-(AMP)       | LFH60600(X) / (X)ID                              | HM60600-(X)CR**      | RF400A(X)B                                | HM25400-(X)CR**      |
| MQ(AMP)                           | MCRW-(AMP)      | LFPSJ30(X) / (X)ID                               | HM6030(X) / (X)I     | F600A(X)B                                 | HM25600-(X)CR**      |
| NCL(AMP)                          | KTN-R-(AMP)     | LPHV   | CH30J(X) / (X)I      | (R)6F30A(X)(XX)                           | H60030-(X)CR*        |
| NCLR(AMP)                         | KTN-R-(AMP)     | LPSC00(X) / (X)ID                                | CH60J(X) / (X)I      | (R)6F60A(X)(XX)                           | H60060-(X)CR*        |
| NLN(AMP)                          | NON-(AMP)       | LPSM00(X) / (X)ID                                | CHPV                 | R6F100A(X)B                               | HM60100-(X)CR**      |
| NLS(AMP)                          | NOS-(AMP)       | 6030(X)J   | CHCC(X)DU / (X)DIU   | 6F200A(X)BE                               | HM60200-(X)CR**      |
| OT(AMP)                           | NON(AMP)        | 6060(X)J   | CHM(X)DU / CHM(X)DIU | R6F400A(X)B                               | HM60400-(X)CR**      |
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| OTS(AMP)                          | NOS(AMP)        | 620(XX)J   | J60060-(X)CR*        | 6SJ30A(X) / (X)I                          | CH30J(X) / (X)I      |
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| R251(AMP)T1                       | TR/MCRW-(AMP)   |  | JM60600-(X)CR**      |   |                      |

\* These Bussmann fuse blocks do not offer indication at this amperage, however a SAMI cover can be used to offer protection against accidental contact and open fuse indication.

\*\* Finger-safe covers are available for this block along with optional open fuse indication.

1. Some competitor blocks are adder blocks and/or have multiple terminal offerings for Cu/Al or Cu only conductors. Bussmann blocks are not adder blocks below 100A, and all blocks are tin plated aluminum terminals to accommodate both Cu and Al conductors.

2. Wire ranges are not always the same. Please assure wire range is suitable for the application.

3. All blocks listed have a box lug for wire termination. Alternate connection types are available in the 30 and 60 amp range. If an alternate type is required, please see the appropriate Bussmann data sheet for part number ordering information.

Data Sheets are available online at [www.cooperbussmann.com/DatasheetsEle](http://www.cooperbussmann.com/DatasheetsEle). For technical assistance, contact the Bussmann Application Engineering Team. Call 636-527-1270 between 8:00 AM and 5:00 PM Central Time, or e-mail [FuseTech@cooperindustries.com](mailto:FuseTech@cooperindustries.com).

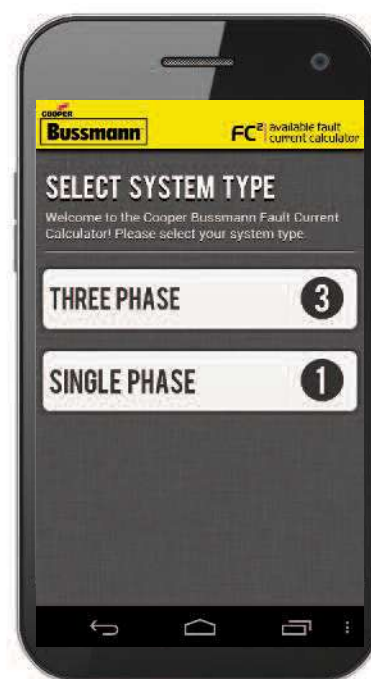
For customer assistance, call the Customer Satisfaction Team toll-free 855-BUSSMANN (855-287-7626) or e-mail [BussCustSat@cooperindustries.com](mailto:BussCustSat@cooperindustries.com).



## Easily Calculate Available Fault Current Anytime, Anywhere

### FC<sup>2</sup> Mobile App Quickly Delivers Fault Current Calculations in the Palm of Your Hand

- Makes point-to-point calculations easy
- Calculate three-phase and single-phase faults
- Create and e-mail NEC® 110.24 compliant labels and one-line diagrams
- Fuse Sizing Guide assists with fuse and conductor sizing
- Works with or without a network connection
- Available for Apple and Android mobile devices
- FC<sup>2</sup> also available on-line in a web-based version



FC<sup>2</sup> | available fault current calculator

One Tool for Easy Available Fault Current Calculations

How to Install:

- Use the QR Code with your device to download the mobile app



OR

- Go to the Android or Apple App store
- Search for “Fault Current Calculator” make sure to select the Bussmann FC<sup>2</sup> icon
- Click “install” and follow the instructions



How to Use:

- 1 Calculator – Calculate Available Fault Current**

  - Select either three-phase or single-phase
  - Add components, calculate the system’s available fault current and review a one-line diagram
  - E-mail one-line diagram at anytime
- 2 NEC® 110.24 Label – Helps Meet the Code**

  - Allows calculation of the maximum available fault current at the service equipment and provides date of calculation
  - Create and e-mail a label once a calculation is complete
  - Print and use label to post the maximum available fault current
- 3 User Guide – Helpful Tips**

  - Click “User Guide” to view helpful user tips
  - Each page has explanations for performing calculations
- 4 Fuse Sizing Guide – For Main, Feeder and Branch Circuits**

  - Click “Fuse Sizing” and “VIEW FUSE SIZING DIAGRAM”
  - Click each blue “HOT SPOT” link in the one-line diagram for fuse and conductor sizing information
- 5 Contact Us – Direct Contact to Industry Leading Support**

  - Click “Contact Us”
  - For application inquiries, click “TECHNICAL SUPPORT”
  - For all other questions, click “CUSTOMER SERVICE”
  - The FC<sup>2</sup> app will automatically begin an e-mail to a Bussmann support representative



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| WKNHO          | 115     |                |      |                |      |                |      |                |      |
| WKS            | *       |                |      |                |      |                |      |                |      |
| WKU            | *       |                |      |                |      |                |      |                |      |
| WKV            | *       |                |      |                |      |                |      |                |      |
| WLF            | *       |                |      |                |      |                |      |                |      |
| WMB            | *       |                |      |                |      |                |      |                |      |
| WMM            | *       |                |      |                |      |                |      |                |      |
| WMQ            | *       |                |      |                |      |                |      |                |      |
| WPQ            | *       |                |      |                |      |                |      |                |      |
| WQN            | *       |                |      |                |      |                |      |                |      |
| WQP            | *       |                |      |                |      |                |      |                |      |
| WSE            | *       |                |      |                |      |                |      |                |      |
| WSH            | *       |                |      |                |      |                |      |                |      |
| WSL            | *       |                |      |                |      |                |      |                |      |
| WSM            | *       |                |      |                |      |                |      |                |      |
| WSQ            | *       |                |      |                |      |                |      |                |      |
| WST            | *       |                |      |                |      |                |      |                |      |
| WSU            | *       |                |      |                |      |                |      |                |      |
| WTJ            | *       |                |      |                |      |                |      |                |      |
| WTK            | *       |                |      |                |      |                |      |                |      |
| WTT            | *       |                |      |                |      |                |      |                |      |
| WTZ            | *       |                |      |                |      |                |      |                |      |
| WUE            | *       |                |      |                |      |                |      |                |      |
| WUG            | *       |                |      |                |      |                |      |                |      |
| WUH            | *       |                |      |                |      |                |      |                |      |
| WUI            | *       |                |      |                |      |                |      |                |      |
| WUQ            | *       |                |      |                |      |                |      |                |      |
| WUR            | *       |                |      |                |      |                |      |                |      |
| WUU            | *       |                |      |                |      |                |      |                |      |
| WUV            | *       |                |      |                |      |                |      |                |      |
| WUW            | *       |                |      |                |      |                |      |                |      |
| WUY            | *       |                |      |                |      |                |      |                |      |
| WVA            | *       |                |      |                |      |                |      |                |      |
| WVQ            | *       |                |      |                |      |                |      |                |      |
| WVR            | *       |                |      |                |      |                |      |                |      |
| WWD            | *       |                |      |                |      |                |      |                |      |
| WWE            | *       |                |      |                |      |                |      |                |      |
| WWG            | *       |                |      |                |      |                |      |                |      |
| WWI            | *       |                |      |                |      |                |      |                |      |
| WWK            | *       |                |      |                |      |                |      |                |      |
| WWU            | *       |                |      |                |      |                |      |                |      |
| WWV            | *       |                |      |                |      |                |      |                |      |
| WWX            | *       |                |      |                |      |                |      |                |      |
| WYM            | *       |                |      |                |      |                |      |                |      |
| WZC            | *       |                |      |                |      |                |      |                |      |
| WZJ            | *       |                |      |                |      |                |      |                |      |
| WZK            | *       |                |      |                |      |                |      |                |      |

\* Not listed in this catalog. Call Cooper Bussmann Customer Satisfaction for more information. Toll-free phone: 855-287-7626 (855-BUSSMANN)

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Fax: 55-11-40-24-8424







## Bussmann Fuse Cross Reference & Low-Peak™ Upgrade

The left column represents Bussmann and competitors' part numbers. The right column represents the Bussmann upgrades.

The Bussmann fuse upgrade offers superior performance while reducing the number of SKUs that need to be in stock. Low-Peak™ fuses feature a high degree of current limitation, which will provide the best component protection and may reduce the arc flash hazard. Listings are alpha-numerical by fuse class and fuse catalog symbol.

This list is only a consolidated cross reference to some of our most common products. For a much more extensive database please consult the *Product Profiler* competitor cross-reference. Just visit [www.cooperbussmann.com](http://www.cooperbussmann.com) and click on the magnifying glass icon in the upper right corner.

| Class CC and Midget   |                   |
|---|-------------------|
| Existing Fuse   | Low-Peak™ Upgrade |
| A6Y (type 2B)   | LP-CC             |
| ABU   |                   |
| AGU   |                   |
| ATDR  |                   |
| ATM   |                   |
| ATMR  |                   |
| ATQ   |                   |
| BAF   |                   |
| BAN   |                   |
| BLF   |                   |
| BLN   |                   |
| CCMR  |                   |
| CM  |                   |
| CMF   |                   |
| CNM   |                   |
| CNQ   |                   |
| CTK   |                   |
| CTK-R   |                   |
| FLM   |                   |
| FLO   |                   |
| FNM   |                   |
| FNQ   |                   |
| GGU   |                   |
| HCLR  |                   |
| KLK   |                   |
| KLK-R   |                   |
| KTK   |                   |
| KTK-R   |                   |
| MCL   |                   |
| MEN   |                   |
| MEQ   |                   |
| MOF   |                   |
| MOL   |                   |
| OTM   |                   |
| TRM   |                   |
| 6JX   | LP-CC             |
| <b>*FNQ-R suggested on primary of control transformers.</b> |                   |
| ATQR  |                   |
| FNQ-R   | FNQ-R             |
| KLDR  |                   |



| Class J       |                   |
|---------------|-------------------|
| Existing Fuse | Low-Peak™ Upgrade |
| A4J           | LPJ_SP            |
| AJT           |                   |
| CJ            |                   |
| CJS           |                   |
| GF8B          |                   |
| HRCXXJ        |                   |
| J             |                   |
| JA            |                   |
| JCL           |                   |
| JDL           |                   |
| JFL           |                   |
| JHC           |                   |
| JKS           |                   |
| JLS           |                   |
| JTD           | LPJ_SP            |



| Class L        |                   |
|----------------|-------------------|
| Existing Fuse  | Low-Peak™ Upgrade |
| A4BQ           | KRP-C_SP          |
| A4BT           |                   |
| A4BY           |                   |
| A4BY (type 55) |                   |
| CLASS L        |                   |
| CLF            |                   |
| CLL            |                   |
| CLU            |                   |
| HRC-L          |                   |
| KLLU           |                   |
| KLPC           |                   |
| KLU            |                   |
| KTU            |                   |
| L              |                   |
| LCL            |                   |
| LCU            | KRP-C_SP          |



| 250 Volt Class R |                   |
|------------------|-------------------|
| Existing Fuse    | Low-Peak™ Upgrade |
| A2D              | LPN-RK_SP         |
| A2D-R            |                   |
| A2K              |                   |
| A2K-R            |                   |
| A2Y (type 1)     |                   |
| AT-DE            |                   |
| CHG              |                   |
| CRN-R (type 3)   |                   |
| CTN-R            |                   |
| DEN              |                   |
| DLN              |                   |
| DLN-R            |                   |
| ECN              |                   |
| ECN-R            |                   |
| ERN              |                   |
| FLN              |                   |
| FLN-R            |                   |
| FRN              |                   |
| FRN-R            |                   |
| FTN-R            |                   |
| GDN              |                   |
| HAC-R            |                   |
| HB               |                   |
| KLN-R            |                   |
| KON              |                   |
| KTN-R            |                   |
| LENRK            |                   |
| LKN              |                   |
| LLN-RK           |                   |
| LON-RK           |                   |
| NCLR             |                   |
| NLN              |                   |
| NON              |                   |
| NRN              |                   |
| OTN              |                   |
| REN              |                   |
| RFN              |                   |
| RHN              |                   |
| RLN              |                   |
| TR               |                   |
| 655              |                   |
| 660              |                   |
| 10KOTN           |                   |
| 50KOTN           | LPN-RK_SP         |



| 600 Volt Class R |                   |
|------------------|-------------------|
| Existing Fuse    | Low-Peak™ Upgrade |
| A6D              | LPS-RK_SP         |
| A6K-R            |                   |
| A6X (type 1)     |                   |
| ATS-DE           |                   |
| CHR              |                   |
| CTS-R            |                   |
| DES              |                   |
| DES-R            |                   |
| DLS              |                   |
| DLS-R            |                   |
| ECS-R            |                   |
| ERS              |                   |
| FLS              |                   |
| FLS-R            |                   |
| FRS              |                   |
| FRS-R            |                   |
| FTS-R            |                   |
| GDS              |                   |
| HA               |                   |
| KLS-R            |                   |
| KOS              |                   |
| KTS-R            |                   |
| LES              |                   |
| LES-R            |                   |
| LES-RK           |                   |
| LKS              |                   |
| LLS-RK           |                   |
| LOS-RK           |                   |
| NLS              |                   |
| NOS              |                   |
| NRS              |                   |
| OTS              |                   |
| RES              |                   |
| RFS              |                   |
| RHS              |                   |
| RLS              |                   |
| SCLR             |                   |
| TRS              |                   |
| TRS-R            |                   |
| 656              |                   |
| 10KOTS           |                   |
| 50KOTS           | LPS-RK_SP         |



The comparative catalog numbers shown were derived from the latest available published information from various manufacturers. Because competitors' products may differ from Bussmann products, it is recommended that each application be checked for required electrical and mechanical characteristics before substitutions are made. Bussmann is not responsible for misapplications of our products. Overcurrent protection is application dependent. Consult the latest catalogs and application literature, or contact our Application Engineering Department toll free at 855-287-7626 (855-BUSSMANN).

## Customer Assistance

### Customer Satisfaction Team

Available to answer questions regarding Bussmann products & services Monday-Friday, 7:00 a.m. – 6:00 p.m. Central Time. Contact:

- Toll-free phone: 855-287-7626 (855-BUSSMANN)
- Toll-free fax: 800-544-2570
- E-mail: [busscustsat@cooperindustries.com](mailto:busscustsat@cooperindustries.com)

### Emergency and After-Hours Orders

Next flight out or will call shipment for time-critical needs. Customers pay only standard product price, rush freight charges, & modest emergency service fee. Place these orders through the Customer Satisfaction Team during regular business hours. For after-hours, contact:

- After hours 314-995-1342

### C3 – the Enhanced, Online Cooper Customer Center

Provides real time product availability, net pricing, order status & shipment tracking for: B-Line, Bussmann, Crouse-Hinds, Lighting, Power Systems & Wiring Devices. Call 877-995-5955 for log-in assistance. Available at:

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### Application Engineering

Technical assistance is available to all customers. Application support is available Monday-Friday, 7:00 a.m. – 5:00 p.m. Central Time. Contact:

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- E-mail: [fusetech@cooperindustries.com](mailto:fusetech@cooperindustries.com)

### Online Resources

Visit [www.cooperbussmann.com](http://www.cooperbussmann.com) for the following resources:

- Product search & cross-reference
- Product & technical materials
- Solutions centers for information on topical issues including arc flash, selective coordination & short-circuit current rating
- Technical tools, like our arc flash calculator
- Where to purchase Bussmann product

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