

# CH Modular, IP20 finger-safe DIN-Rail holders for Class CC, supplemental and PV fuses



## Catalog symbol:

- CHCC\_ (Class CC)
- CHM\_ (UL® supplemental/IEC 10x38)
- CHPV\_ (13/32 x 1-1/2 and 10x38 photovoltaic)

## Description:

Eaton's Bussmann™ series CH DIN-Rail fuse holders are for UL Class CC and supplemental fuses, and IEC 10x38 fuses. They are available with and without indication in 1-, 2- and 3-pole IP20 finger-safe versions. A variety of accessories extends their application flexibility and they may be ganged together to meet specific application requirements.

For other Bussmann series CH fuse holders, please see the following data sheets.

| Fuse class | Fuse size   | Data sheet No. |
|------------|-------------|----------------|
| Class J    | 30 and 60 A | 2144           |
|            | 8 x 32 mm   | 720147         |
| IEC        | 14 x 51 mm  | 10080          |
|            | 22 x 58 mm  | 10015          |

## Specifications:

### Ratings

- Volts
  - 600 V (or less) UL
  - 690 V (or less) IEC
  - 1000 Vdc (or less) photovoltaic (PV)
- Amps
  - 30 A UL
  - 32 A IEC
- Short-Circuit Current Rating (SCCR)
  - 33 kA photovoltaic
  - 200 kA RMS Sym. (CHCC, CHM\*)

\* CHM SCCR is fuse interrupting rating dependent.

### Agency information

- CHCC - Class CC version: UL Listed, File E14853, Guide IZLT
- CHM - Supplemental fuse version: UL Recognized, File E14853, Guide IZLT2
- CHPV - PV version: UL Listed, File E348242, Guide IZMR
- CSA® File 47235, CHPV and CHM - Class 6225-30, CHCC - Class 6225-01
- IEC 60269-2 (CHM, CHPV)
- CCC
- RoHS compliant

### Mounting

- 35 mm DIN-Rail

**Wire range** (see conductor table on page 3 for details)

- 75°C and 90°C Cu
- #18 to #4 (0.8 mm<sup>2</sup> to 21.1 mm<sup>2</sup>)
  - Solid
  - Stranded
  - Fine stranded

### Terminals

- Single or dual conductors
- Comb busbar
- Terminal screws
  - Standard phil-slot
  - Optional hex head (order by adding "-H" suffix to the catalog number, e.g., CHM1DU-H)

### Flammability

- UL 94V0, self-extinguishing

### Storage and operating temperature

- -4°F (-20°C) to 194°F (90°C) indicating
- -4°F (-20°C) to 248°F (120°C) non-indicating

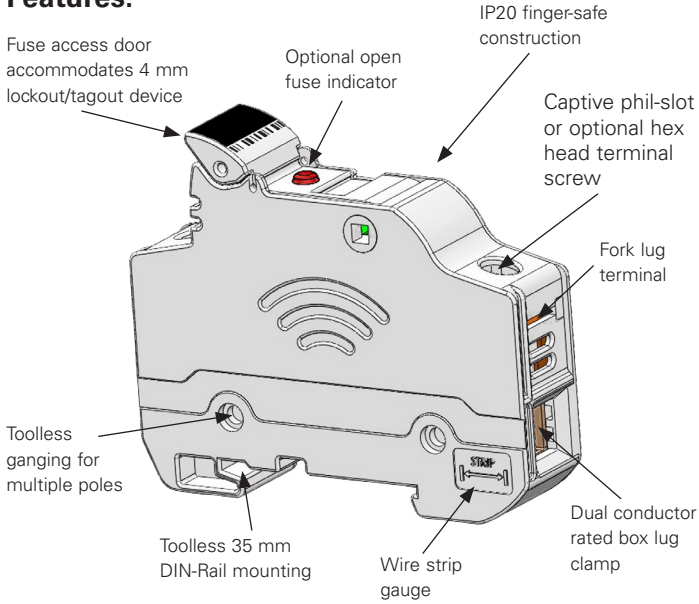


Powering Business Worldwide

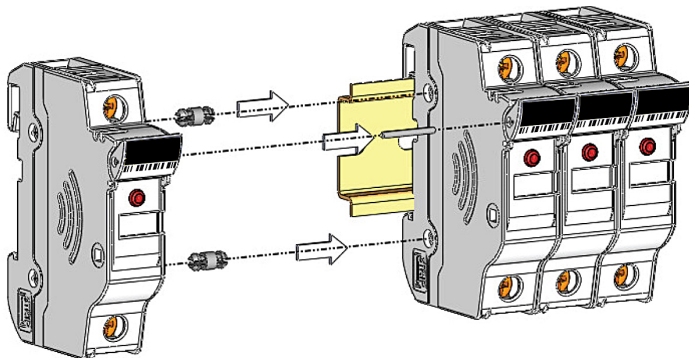
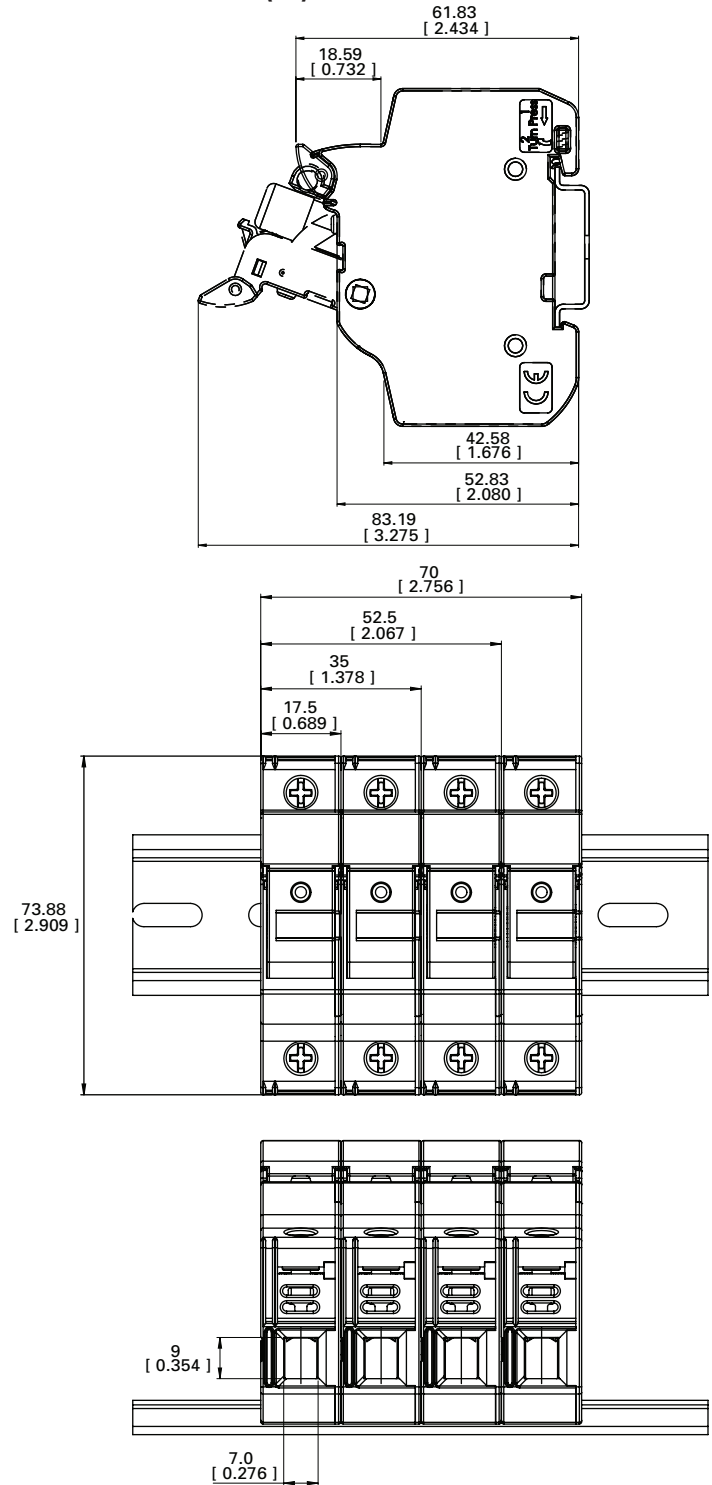
**Features and benefits:**

- High SCCR rated, UL Listed Class CC holder with optional open fuse indication for 600 Vac/dc and 48 V dc (see catalog number table for details)
- Enhanced safety with IP20 finger-safe construction
- UL Recognized midjet and IEC 10x38 holders with factory assembled neutral pole option
- Agency ratings up to 1000 Vdc for use with PV fuses
- Available remote PLC fuse indication module
- Wiring flexibility with terminals rated for use with 75°C or 90°C solid, stranded and fine stranded wire, and spade terminals and comb busbars. (Use any higher temperature insulations at the 90°C ampacity.)
- Complete range of UL Listed and high SCCR rated one- and three-phase finger-safe comb busbars and power feed lugs
- Optional hex head terminal screw makes it easier to achieve necessary torque values

**Features:**



**Dimensions - mm (in):**



Gang multiple poles to meet application requirements using kit catalog number JV-L (gangs up to four poles).

### UL midget and IEC 10x38 CHM holder catalog numbers



| Catalog number†  |                    | Volts and amps          |             |                           | Agency marks | Poles                         | SCCR                                                                                                  | Recommended Bussmann series fuses |
|------------------|--------------------|-------------------------|-------------|---------------------------|--------------|-------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------|
| With indication* | Without indication | UL                      | IEC         | Volts / amps              |              |                               |                                                                                                       |                                   |
| CHM1DIU          | CHM1DU             | 600 V/30 A              | 690 V/32 A  | UR, CSA, IEC 60269-2, CCC | 1            | 200 kA** RMS Sym.††           | BAF, BAN, FNM, FNQ, FWA, FWC, KLM, KTK, AGU, C10G_, C10M_                                             |                                   |
| CHM2DIU          | CHM2DU             |                         |             |                           | 2            |                               |                                                                                                       |                                   |
| CHM3DIU          | CHM3DU             |                         |             |                           | 3            |                               |                                                                                                       |                                   |
| CHM4DIU          | CHM4DU             |                         |             |                           | 4            |                               |                                                                                                       |                                   |
| CHM1DNIU         | CHM1DNU            |                         |             |                           | 1 + neutral  |                               |                                                                                                       |                                   |
| CHM3DNIU         | CHM3DNU            |                         |             |                           | 3 + neutral  |                               |                                                                                                       |                                   |
| CHM1DI-48U       | —                  | 48 Vdc/30 A             | 48 Vdc/32 A | UR, CSA, IEC 60269-2, CCC | 1            |                               |                                                                                                       |                                   |
| —                | CHM1DNXU           | —                       | 690V/32 A   | IEC 60269-2               |              | N/A                           | N/A                                                                                                   |                                   |
| CHM1DCIU         | CHM1DCU            | 600 Vac, 1000 Vdc, 30 A | 690 V, 32 A | UR, CSA, IEC 60269-2      | 1            | 200 kA** RMS Sym., 33 kA DC†† | 600/690V BAF, BAN, FNM, FNQ, FWA, FWC, KLM, KTK, AGU, C10G_, C10M_, 1000Vdc PV-(amp)A10F, PV10M-(amp) |                                   |
| CHM2DCIU         | CHM2DCU            |                         |             |                           | 2            |                               |                                                                                                       |                                   |
| CHM3DCIU         | CHM3DCU            |                         |             |                           | 3            |                               |                                                                                                       |                                   |
| CHM4DCIU         | CHM4DCU            |                         |             |                           | 4            |                               |                                                                                                       |                                   |

† Available with optional hex head terminal screws. To order, add “-H” suffix to the desired catalog number.

†† SCCR is limited to the interrupting rating of the installed fuse or 200 kA, which ever is less.

\* All models require 90 V minimum for illumination, except CHM1DI-48U that requires 15 V minimum.

\*\* SCCR is limited to the interrupting rating of the installed fuse or 200 kA, which ever is less.

### UL Class CC CHCC holder catalog numbers



| Catalog number†  |                    | Volts / amps | Agency marks | Poles | SCCR            | Recommended Bussmann series fuses |
|------------------|--------------------|--------------|--------------|-------|-----------------|-----------------------------------|
| With indication* | Without indication |              |              |       |                 |                                   |
| CHCC1DIU         | CHCC1DU            | 600 V/30 A   | UL, CSA, CCC | 1     | 200 kA RMS Sym. | LP-CC, FNQ-R, KTK-R               |
| CHCC2DIU         | CHCC2DU            |              |              | 2     |                 |                                   |
| CHCC3DIU         | CHCC3DU            |              |              | 3     |                 |                                   |
| CHCC1DI-48U      | —                  | 48 Vdc/30 A  |              | 1     | 33 kA DC        |                                   |

† Available with optional hex head terminal screws. To order, add “-H” suffix to the desired catalog number.

\* All models require 90 V minimum for illumination, except CHCC1DI-48U that requires 15 V minimum.

### UL and IEC photovoltaic CHPV holder catalog numbers



| Catalog number† |                    | Volts / amps  | Agency marks                           | Poles | SCCR     | Recommended Bussmann series fuses |
|-----------------|--------------------|---------------|----------------------------------------|-------|----------|-----------------------------------|
| With indication | Without indication |               |                                        |       |          |                                   |
| CHPV1IU         | CHPV1U             | 1000 Vdc/30 A | UL, CSA, IEC 4248-19, IEC 60269-1, CCC | 1     | 33 kA DC | PV-(amp)A10F, PV10M-(amp)         |
| CHPV2IU         | CHPV2U             |               |                                        | 2     |          |                                   |

† Available with optional hex head terminal screws. To order, add “-H” suffix to the desired catalog number.

\* All models require 90 V minimum for illumination.

### Conductor information

| AWG wire range                                           | Wire type                      | Wire rating     | Terminal torque N•m (lb-in)* |
|----------------------------------------------------------|--------------------------------|-----------------|------------------------------|
| 4-12                                                     | Solid/Stranded/compact/Class K | 75°C or 90°C Cu | 3.4 (30)                     |
| 14-18                                                    | Solid/Stranded/Class K         |                 | 2.3 (20)                     |
| (2) 10-12                                                | Stranded                       |                 | 3.4 (30)                     |
| 10-18 (includes up to 6mm <sup>2</sup> in metric sizing) | Solid/Stranded/Ferrule         |                 | 2.8 (25)                     |
| (2) 14                                                   | Solid/Stranded                 |                 | 3.4 (30)                     |
| (2) 16-18                                                |                                |                 | 2.8 (25)                     |
| Fork terminals                                           | N/A                            |                 | 3.4 (30)                     |
| Comb busbar                                              |                                |                 | 3.4 (30)                     |

\* Use a phil-slot bit designed for high torque, or specify hex head terminal screw option.

**Accessories:**

Bussmann series CH modular fuse holders can be applied using a variety of accessories that facilitate or simplify installation.

**35 mm DIN-Rails**

- Constructed of high strength stainless steel
- Sold in 1 meter lengths
- Available in high- or low-profile versions

| Catalog numbers | Profile | Height |
|-----------------|---------|--------|
| DRL35MMLO       | Low     | 7.5 mm |
| DRL35MMHI       | High    | 15 mm  |

**Comb busbars**



- Easily distribute power in single-or three-phase systems
- Flexible cut-to-length busbars do not compromise the finger-safe protection (requires using endcaps)
- 100 kA SCCR when protected by a max 200 A Class J fuse
- Single-phase busbars rated to 1000 Vdc and 100 A
- Three-phase busbars rated to 600 Vac/dc and 100 A
- Power feed terminals for single-and three-phase systems

**Specifications:**

**Agency information**

- UL 508, File E195399

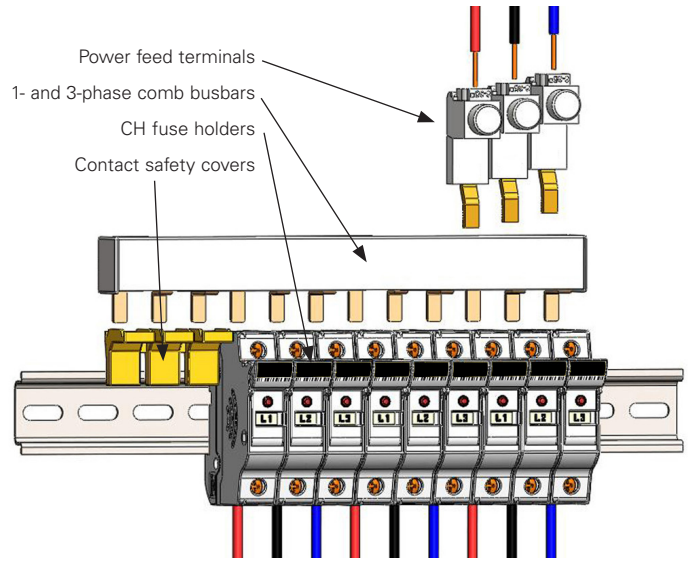
**Pitch**

- 178 mm

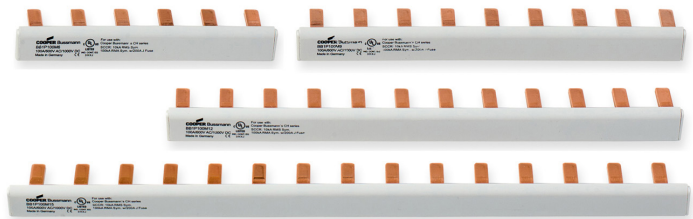
**Ratings**

- Volts
  - 600 Vac/dc max. (three-phase)
  - 1000 Vdc/600 Vac max. (single-phase)
- Amps 100 A max.
- SCCR
  - 10 kA (default)
  - 100 kA (with upstream Class J max 200 A fuses)

**CH modular, IP20 finger-safe DIN-Rail holders for Class CC, supplemental and PV fuses**

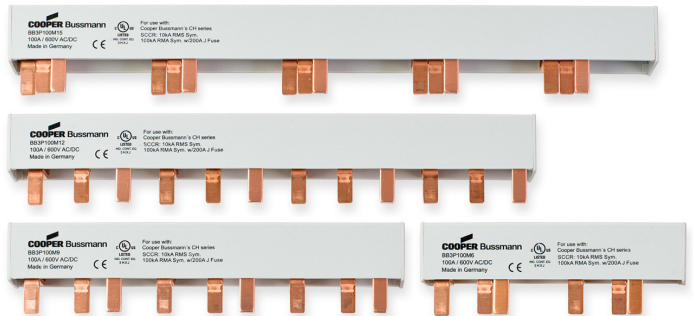


**Single-phase comb busbars**



Available in 3, 6, 9, 12,15 and 57 pin constructions.

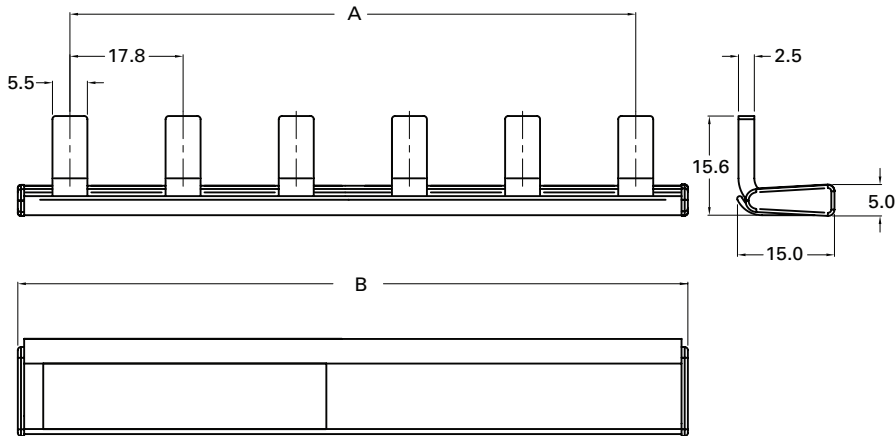
**Three-phase comb busbars**



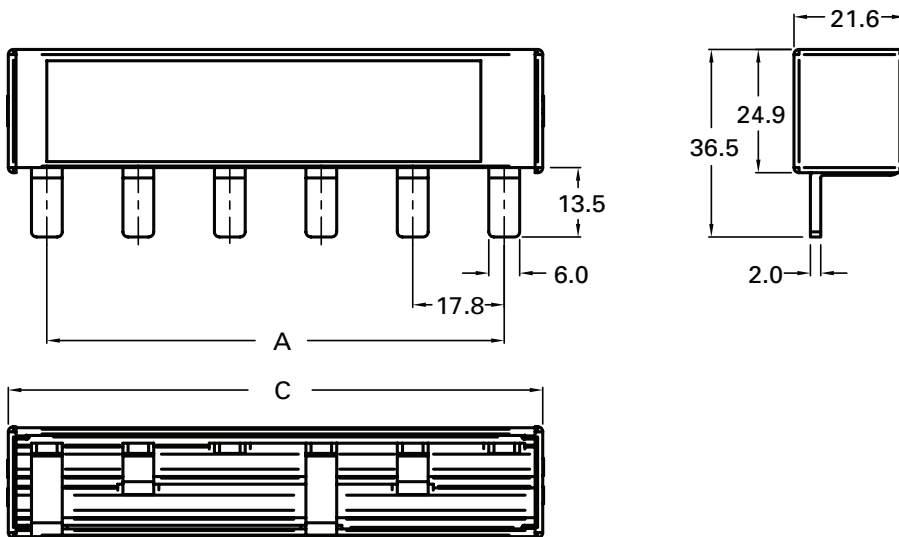
Available in 6, 9, 12, 15 and 57 pin constructions.

**Comb busbar dimensions - mm:**

**Single-phase**



**Three-phase**



**Single- and three-phase dimensions - mm**

| Poles | A     | B    | C    |
|-------|-------|------|------|
| 3     | 35.6  | 52   | —    |
| 6     | 89.0  | 106  | 104  |
| 9     | 142.4 | 160  | 159  |
| 12    | 195.8 | 208  | 214  |
| 15    | 249.2 | 272  | 266  |
| 57    | 996.8 | 1012 | 1009 |

All 15-pole or fewer comb busbars come with endcaps installed. If a comb busbar will be cut-to-length, order additional endcaps to maintain electrical protection.

End caps are sold in carton quantities of 50. Order ECAP1P for single-phase and ECAPMP for three phase.

**Comb busbar catalog numbers:**

| Catalog number | Phase        | Voltage  | Amps  | Number of pins  | Endcaps                                                                        |
|----------------|--------------|----------|-------|-----------------|--------------------------------------------------------------------------------|
| BB1P100M3      | Single-phase | 1000 Vdc | 100 A | 3               | With endcaps assembled. If cut to length, order additional endcaps separately. |
| BB1P100M6      |              |          |       | 6               |                                                                                |
| BB1P100M9      |              |          |       | 9               |                                                                                |
| BB1P100M12     |              |          |       | 12              |                                                                                |
| BB1P100M15     |              |          |       | 15              |                                                                                |
| BB1P100M57     |              |          |       | 57 pin cuttable | Without endcaps (order separately)                                             |
| BB3P100M6      | Three-phase  | 600 V    | 100 A | 6               | With endcaps assembled. If cut to length, order additional endcaps separately. |
| BB3P100M9      |              |          |       | 9               |                                                                                |
| BB3P100M12     |              |          |       | 12              |                                                                                |
| BB3P100M15     |              |          |       | 15              |                                                                                |
| BB3P100M57     |              |          |       |                 |                                                                                |

**Power feed terminals:**

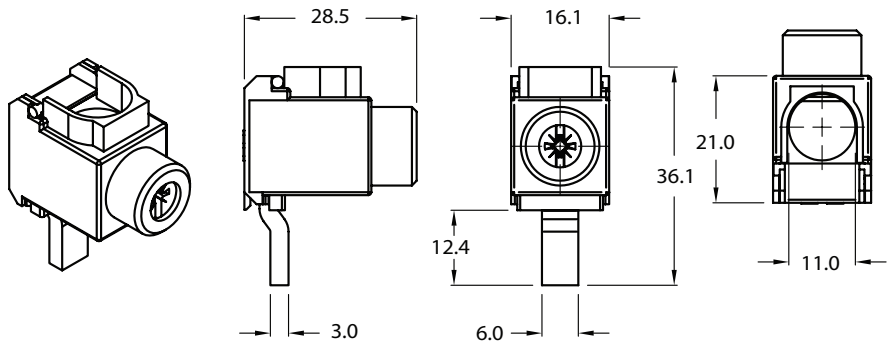
**PWR1PLP**



Single-phase, low profile power feed terminal

**Ratings**

- Volts 1000 Vac/dc
- Amps 115 A
- Wire range 1/0-10 AWG Cu, max torque 50 lb-in (5.6 N•m)
- Wire temp. rating 60°C\*



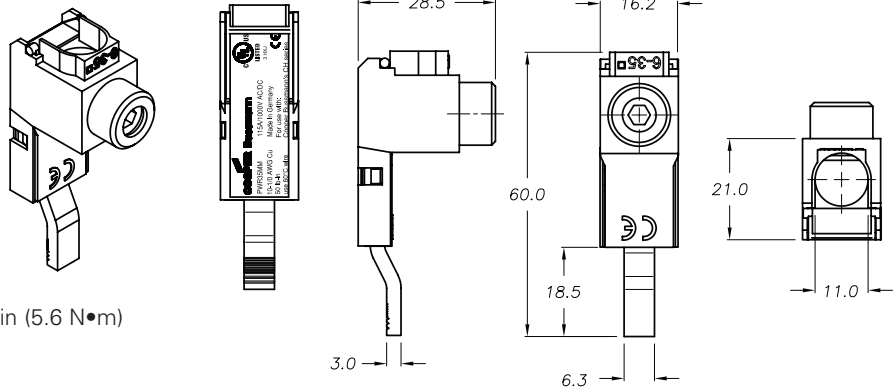
**PWR35MM**



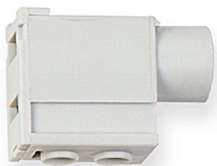
35 mm<sup>2</sup> three-phase power feed terminal for three-phase busbars

**Ratings**

- Volts 1000 Vac/dc
- Amps 115 A
- Wire range 1/0-10 AWG Cu, max torque 50 lb-in (5.6 N•m)
- Wire temp. rating 60°C\*



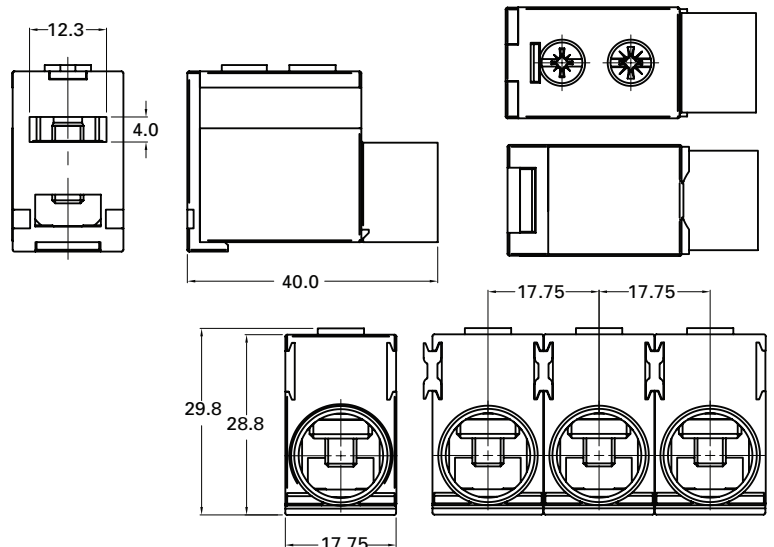
**PWR50MM**



50 mm<sup>2</sup> direct feed power terminal

**Ratings**

- Volts 1000 Vac/dc
- Amps 115 A
- Wire range 1-14 AWG Cu, max torque 35 lb-in (3.9 N•m)
- Wire temp. rating 75°C\*



\* Higher temperature rated wire may be used with appropriate derating.

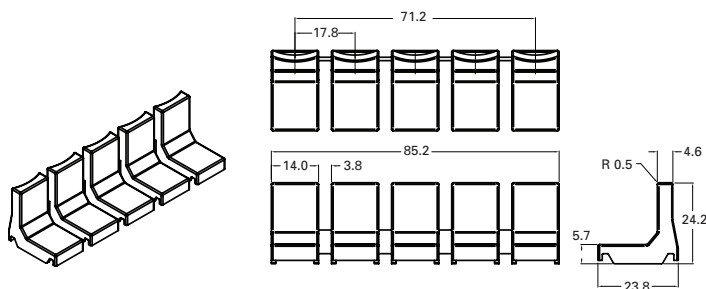


### Comb busbar safety covers and end caps:

#### FSCVR



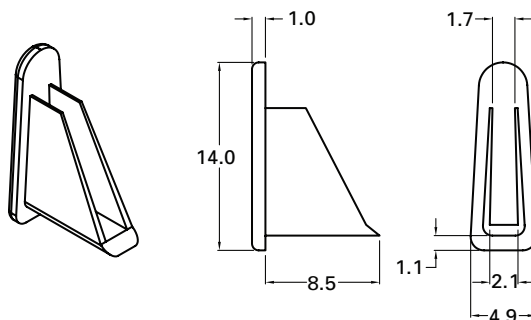
Spare comb busbar pin safety protection covers (used to cover exposed pins on comb busbars). Sold in quantity of ten strips of five covers each. (FSCVR comes with five covers on a strip. Minimum order is 10 strips or 50 safety covers total.)



#### ECAP1P



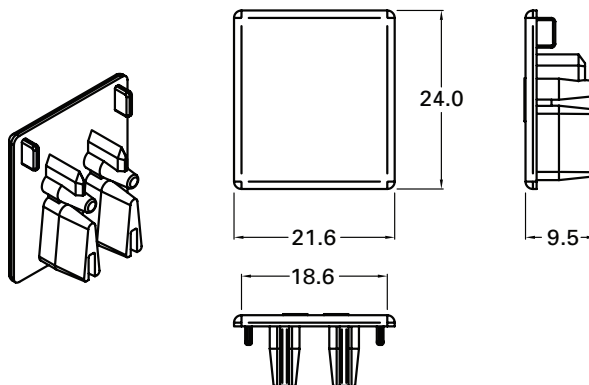
End cap for single-phase comb busbars. Sold in quantity of fifty.



#### ECAPMP



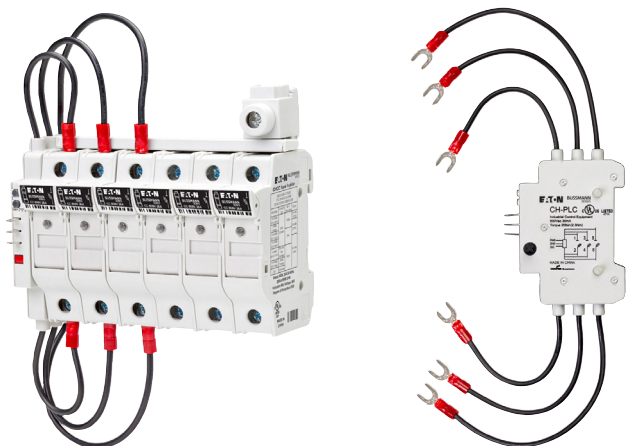
End cap for three-phase comb busbars. Sold in quantity of fifty.



### Accessory catalog numbers

| Catalog no. | Description                                                                        | Carton quantity                                           |
|-------------|------------------------------------------------------------------------------------|-----------------------------------------------------------|
| PWR1PLP     | Single-phase low-profile power feed terminal (115 A, 1000 Vac/dc)                  | 10                                                        |
| PWR35MM     | 35 mm <sup>2</sup> power feed terminal for three-phase busbar (115 A, 1000 Vac/dc) | 10                                                        |
| PWR50MM     | 50 mm <sup>2</sup> direct power feed terminal (1000 Vac/dc)                        | 10                                                        |
| ECAP1P      | Single-phase busbar endcap                                                         | 50                                                        |
| ECAPMP      | Three-phase comb busbar end cap                                                    | 50                                                        |
| FSCVR       | Spare comb busbar pin safety protection covers                                     | 10 strips of five covers each, total 50 individual covers |

## PLC fuse monitor



The Bussmann series resettable PLC fuse monitor permits easy integration with a Programmable Logic Controller (PLC) or other monitoring and control equipment. Signals up to three-phases. Includes 0.11" (2.8 mm) quick-connects for power, signal and ground connections.

### Ratings

- Signal output to PLC\*
  - +24 Vdc, 10 mA max
- Output signals
  - Digital 0 Vdc (low), 24 Vdc max (high)
  - 0 Vdc Low – fuse is good
  - 24 Vdc High – fuse has opened

\* When the fuse opens, the output signal is sent high and will remain high until the unit is reset.

### Agency information

- UL 508 Listed, Guide NKCR, File E170168
- cULus, Guide NKCR7, File E170168 to Canadian Standard 22.2, No. 14-13

### Emissions and immunity testing

- IEC 60947-1: Voltage Switchgear and Control Gear
- IEC 61000-6-2: Electromagnetic Compatibility (EMC)
  - IEC 61000-4-2: Electrostatic Discharge Immunity - Test at level 3 (6 kV-Contact Discharge) and level 2 (4 kV-Air Discharge)
  - IEC 61000-4-3: Electromagnetic Compatibility - Radiated, Radio-frequency, Electromagnetic Field Immunity test at level x (20 V/m)
  - IEC 61000-4-4: Electromagnetic Compatibility - Testing and Measurement Techniques at level 3 ( $\pm 2$  kV - Power Port and  $\pm 1$  kV - I/O Ports)
  - IEC 61000-4-5: Electromagnetic Compatibility - Surge Immunity test at level 4 ( $\pm 4$  kV)
  - IEC 61000-4-6: Immunity to Conducted Disturbances at level 3 (10 V)

### Flammability rating UL 94V0

### Local indication

- Two distinct LEDs indicate unit power (green) and open fuse (red). Open fuse LED is resettable upon fuse replacement and the actuating the reset switch

### Wiring

- For power, signal and ground connections use shielded twisted pair 22-24 AWG (0.34-0.25 mm<sup>2</sup>) 300 V rated wire.

### Minimum circuit voltage

- Minimum circuit voltage required across the CH holder is 100 Vac for the remote indication device to operate

### Installation

- Mounts on the left side of the fuse holder and mechanically interlocks with the fuse holder switch handle with hardware provided

### Degree of protection IP20 finger-safe

### Storage and operating temperature

- -4°F (-20°C) to +167°F (+75°C)

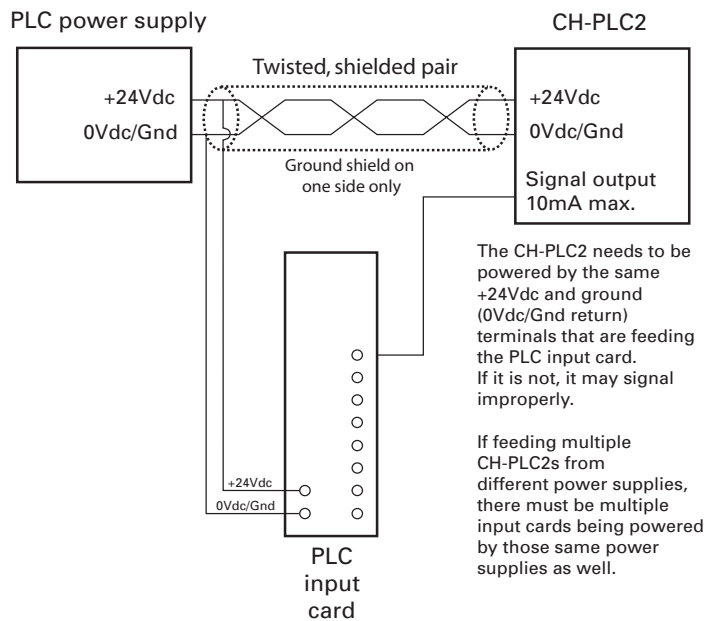
### PLC programming

- The CH-PLC2 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

### To order

- Specify catalog number CH-PLC2 (one unit)

### PLC wiring schematic





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**Eaton**  
1000 Eaton Boulevard  
Cleveland, OH 44122  
Eaton.com

Bussmann Division  
114 Old State Road  
Ellisville, MO 63021  
United States  
[Eaton.com/bussmannseries](http://Eaton.com/bussmannseries)

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