

## WMZS Circuit Breakers



## WMZS Circuit Breaker

## Product Overview

Optimum product quality, tested reliability and safety stand for best protection of personnel, installations and plant. Eaton's WMZS DIN rail mountable circuit breaker is designed for use in control panel applications. The WMZS is available with B, C and D characteristics in accordance with UL 1077, CSA C22.2 No.235 and IEC 60947-2.

## Application Description

Supplementary protection:

- Control circuits
- Lighting
- Business equipment
- Appliances

## Features

- Complete range of UL 1077 Recognized DIN rail mounted miniature circuit breakers up to 63A current rating
- Standard ratings of 10 kAIC at 277/480 Vac
- Current limiting design provides fast short-circuit interruption that reduces the let-through energy, which can damage the circuit
- Offers supplementary protection
- Thermal-magnetic overcurrent protection
  - Three levels of short-circuit protection, categorized by B, C and D curves
- Trip-free design—breaker can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost
- Fulfill UL 1077, CSA C22.2 No.235 and also IEC 60947-2 Standard
- Field-installable shunt trip and auxiliary switch subsequent mounting
- Module width of only 0.69 inches (17.5 mm) per pole
- Contact Position Indicator (red/green)
- Easy installation on DIN rail
- Possibility for sealing the toggle in ON or OFF position

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### Advanced Features

Breakers install on standard DIN rail

Available in single-, two- and three-pole models

Color-coded indicator provides breaker status for easy troubleshooting



Captive posidrive terminal screws with finger and back-of-hand protection (IP20)

Trip-free design; breaker cannot be defeated by holding the handle in the ON position

Breaker information printed on the front of the device for quick identification

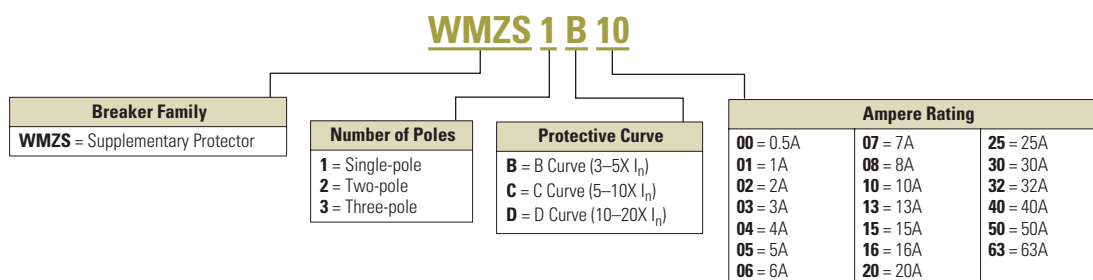
### Standards and Certifications

#### Worldwide Acceptance

WMZS Supplementary Protectors are UL Recognized for use in the United States in accordance with NFPA® 70 (NEC). The devices comply with UL 1077 and CSA 22.2 No. 235, meeting the requirements for supplementary protectors. These devices are for international and domestic use, and also comply with IEC 60947-2 and are CE marked. These devices are RoHS compliant.



### Catalog Number Selection



## Product Selection

**WMZS Product Selection—B Curve (3–5X  $I_n$  Current Rating)**

Suitable for applications where protection against low level short circuit faults in control wiring is desired. Instantaneous trip is 3–5X continuous rating of device ( $I_n$ ). Applications include PLC wiring, business equipment, lighting, appliances and some motors. Low magnetic trip point.

## Single-Pole



## Two-Pole



## Three-Pole

**B Curve (3–5X  $I_n$  Current Rating)—  
Designed for Resistive or Slightly  
Inductive Loads <sup>①②③</sup>**

| Amperes | Single-Pole<br>Catalog<br>Number | Two-Pole<br>Catalog<br>Number | Three-Pole<br>Catalog<br>Number |
|---------|----------------------------------|-------------------------------|---------------------------------|
| 6       | WMZS1B06                         | WMZS2B06                      | WMZS3B06                        |
| 7       | WMZS1B07                         | WMZS2B07                      | WMZS3B07                        |
| 8       | WMZS1B08                         | WMZS2B08                      | WMZS3B08                        |
| 10      | WMZS1B10                         | WMZS2B10                      | WMZS3B10                        |
| 13      | WMZS1B13                         | WMZS2B13                      | WMZS3B13                        |
| 15      | WMZS1B15                         | WMZS2B15                      | WMZS3B15                        |
| 16      | WMZS1B16                         | WMZS2B16                      | WMZS3B16                        |
| 20      | WMZS1B20                         | WMZS2B20                      | WMZS3B20                        |
| 25      | WMZS1B25                         | WMZS2B25                      | WMZS3B25                        |
| 30      | WMZS1B30                         | WMZS2B30                      | WMZS3B30                        |
| 32      | WMZS1B32                         | WMZS2B32                      | WMZS3B32                        |
| 40      | WMZS1B40                         | WMZS2B40                      | WMZS3B40                        |
| 50      | WMZS1B50                         | WMZS2B50                      | WMZS3B50                        |
| 63      | WMZS1B63                         | WMZS2B63                      | WMZS3B63                        |

**WMZS Product Selection—C Curve (5–10X  $I_n$  Current Rating)**

Suitable for applications where medium levels of inrush current are expected. Instantaneous trip is 5–10X rating of device ( $I_n$ ). Applications include small transformers, lighting, pilot devices, control circuits, and coils. Medium magnetic trip point.

## Single-Pole



## Two-Pole



## Three-Pole

**C Curve (5–10X  $I_n$  Current Rating)—  
Designed for Inductive Loads <sup>①④⑤</sup>**

| Amperes | Single-Pole<br>Catalog<br>Number | Two-Pole<br>Catalog<br>Number | Three-Pole<br>Catalog<br>Number |
|---------|----------------------------------|-------------------------------|---------------------------------|
| 0.5     | WMZS1C00                         | WMZS2C00                      | WMZS3C00                        |
| 1       | WMZS1C01                         | WMZS2C01                      | WMZS3C01                        |
| 2       | WMZS1C02                         | WMZS2C02                      | WMZS3C02                        |
| 3       | WMZS1C03                         | WMZS2C03                      | WMZS3C03                        |
| 4       | WMZS1C04                         | WMZS2C04                      | WMZS3C04                        |
| 5       | WMZS1C05                         | WMZS2C05                      | WMZS3C05                        |
| 6       | WMZS1C06                         | WMZS2C06                      | WMZS3C06                        |
| 7       | WMZS1C07                         | WMZS2C07                      | WMZS3C07                        |
| 8       | WMZS1C08                         | WMZS2C08                      | WMZS3C08                        |
| 10      | WMZS1C10                         | WMZS2C10                      | WMZS3C10                        |
| 13      | WMZS1C13                         | WMZS2C13                      | WMZS3C13                        |
| 15      | WMZS1C15                         | WMZS2C15                      | WMZS3C15                        |
| 16      | WMZS1C16                         | WMZS2C16                      | WMZS3C16                        |
| 20      | WMZS1C20                         | WMZS2C20                      | WMZS3C20                        |
| 25      | WMZS1C25                         | WMZS2C25                      | WMZS3C25                        |
| 30      | WMZS1C30                         | WMZS2C30                      | WMZS3C30                        |
| 32      | WMZS1C32                         | WMZS2C32                      | WMZS3C32                        |
| 40      | WMZS1C40                         | WMZS2C40                      | WMZS3C40                        |
| 50      | WMZS1C50                         | WMZS2C50                      | WMZS3C50                        |
| 63      | WMZS1C63                         | WMZS2C63                      | WMZS3C63                        |

**Notes**

- ① In North America, these switches are UL recognized and CSA certified as Supplementary Protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.
- ② Designed for resistive or slightly inductive loads.
- ③ Response time of instantaneous trip: 3–5X  $I_n$  current rating.
- ④ Designed for inductive loads.
- ⑤ Response time of instantaneous trip: 5–10X  $I_n$  current rating.

**WMZS Product Selection—D Curve (10 – 20X In Current Rating)**

Suitable for applications where high levels of inrush current are expected. Instantaneous trip is 10–20X rating of device ( $I_n$ ). The high magnetic trip point prevents nuisance tripping in high inductive applications such as motors, transformers and power supplies.

**Single-Pole****Two-Pole****Three-Pole****D Curve (10–20X  $I_n$  Current Rating)—  
Designed for Inductive Loads** <sup>①②③</sup>

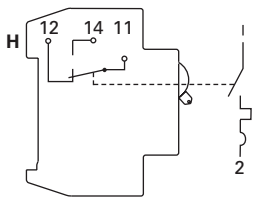
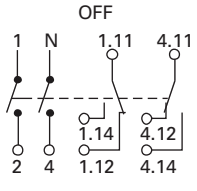
| Amperes | Single-Pole<br>Catalog<br>Number | Two-Pole<br>Catalog<br>Number | Three-Pole<br>Catalog<br>Number |
|---------|----------------------------------|-------------------------------|---------------------------------|
| 0.5     | WMZS1D00                         | WMZS2D00                      | WMZS3D00                        |
| 1       | WMZS1D01                         | WMZS2D01                      | WMZS3D01                        |
| 2       | WMZS1D02                         | WMZS2D02                      | WMZS3D02                        |
| 3       | WMZS1D03                         | WMZS2D03                      | WMZS3D03                        |
| 4       | WMZS1D04                         | WMZS2D04                      | WMZS3D04                        |
| 5       | WMZS1D05                         | WMZS2D05                      | WMZS3D05                        |
| 6       | WMZS1D06                         | WMZS2D06                      | WMZS3D06                        |
| 7       | WMZS1D07                         | WMZS2D07                      | WMZS3D07                        |
| 8       | WMZS1D08                         | WMZS2D08                      | WMZS3D08                        |
| 10      | WMZS1D10                         | WMZS2D10                      | WMZS3D10                        |
| 13      | WMZS1D13                         | WMZS2D13                      | WMZS3D13                        |
| 15      | WMZS1D15                         | WMZS2D15                      | WMZS3D15                        |
| 16      | WMZS1D16                         | WMZS2D16                      | WMZS3D16                        |
| 20      | WMZS1D20                         | WMZS2D20                      | WMZS3D20                        |
| 25      | WMZS1D25                         | WMZS2D25                      | WMZS3D25                        |
| 30      | WMZS1D30                         | WMZS2D30                      | WMZS3D30                        |
| 32      | WMZS1D32                         | WMZS2D32                      | WMZS3D32                        |
| 40      | WMZS1D40                         | WMZS2D40                      | WMZS3D40                        |

**Notes**

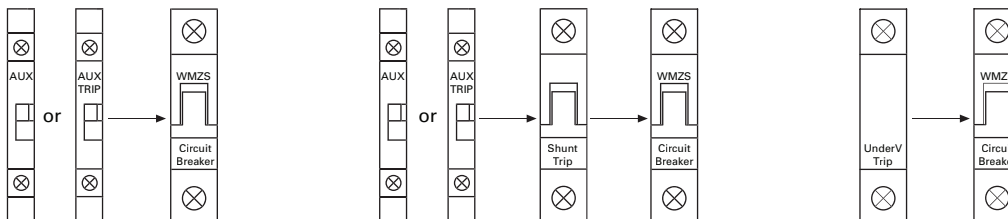
- ① In North America, these switches are UL recognized and CSA certified as Supplementary Protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.
- ② Designed for highly inductive loads.
- ③ Response time of instantaneous trip: 10–20X  $I_n$  current rating.

## Accessories

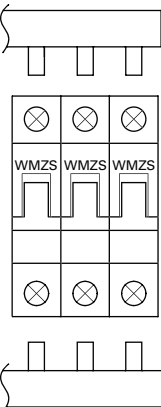
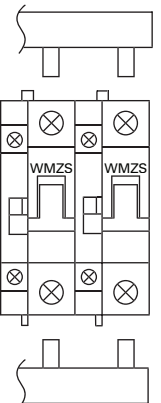
## Auxiliary Contacts and Voltage Trips

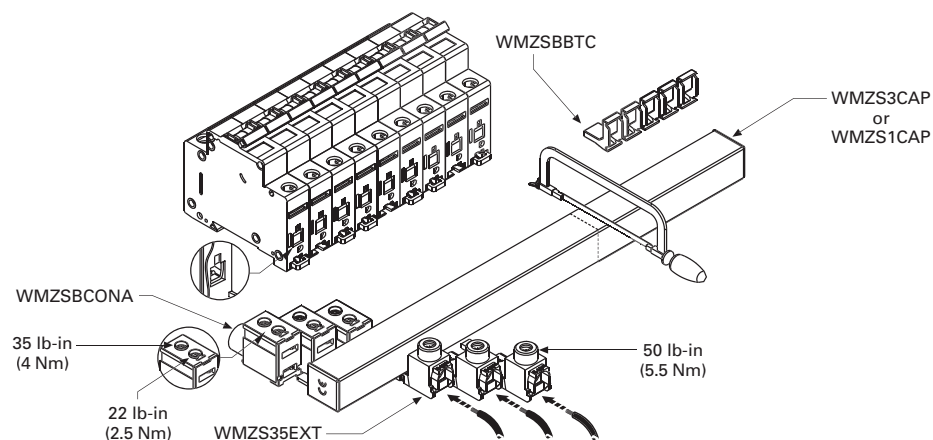
| Module                                                                              | Circuit Diagram                                                                     | Description                                                                                                                                                                                                                                                                                       | Rated Operational Voltage                                                | Catalog Number                                                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <b>Standard Auxiliary Contacts</b>                                                  |                                                                                     |                                                                                                                                                                                                                                                                                                   |                                                                          |                                                                            |
|    |    | <p>1NO/1NC</p> <p>Installs on left side of WMZS or shunt trip</p> <p>Max. one per WMZS (1077) device</p> <p>Switches when WMZS is tripped electrically or manually</p>                                                                                                                            | 230 Vac                                                                  | <b>WMZSAUX</b>                                                             |
| <b>Auxiliary/Trip Indicating Contact</b>                                            |                                                                                     |                                                                                                                                                                                                                                                                                                   |                                                                          |                                                                            |
|    |    | <p>Small selector screw changes mode</p> <p>Two Form C (changeover) contacts</p> <p>Installs on left side of WMZS or shunt trip</p> <p>Auxiliary contacts switch when WMZS is tripped electrically or manually</p> <p>Trip indicating contact switches only when WMZS is tripped electrically</p> | 230 Vac                                                                  | <b>WMZSAUXTRIP</b>                                                         |
| <b>Undervoltage Trip</b>                                                            |                                                                                     |                                                                                                                                                                                                                                                                                                   |                                                                          |                                                                            |
|   |  | <p>Prevents WMZS from operating unless voltage is present</p> <p>Installs on left side of WMZS</p> <p>Includes test button</p>                                                                                                                                                                    | <p>115 Vac</p> <p>230 Vac</p> <p>400 Vac</p>                             | <p><b>WMZSUVR115</b></p> <p><b>WMZSUVR230</b></p> <p><b>WMZSUVR400</b></p> |
| <b>Shunt Trip</b>                                                                   |                                                                                     |                                                                                                                                                                                                                                                                                                   |                                                                          |                                                                            |
|  |  | <p>Allows remote trip of WMZS</p> <p>Installs on left side of WMZS</p>                                                                                                                                                                                                                            | <p>110–415 Vac</p> <p>110–230 Vdc</p> <p>12–110 Vac</p> <p>12–60 Vdc</p> | <p><b>WMZSST415</b></p> <p><b>WMZSST110</b></p>                            |

## Allowable Combinations of Accessories

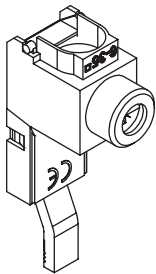


## Bus Bar System

| Description                                                                                                                                                                                      | Rated Operational Current (A) | Number of Poles per Device | Number of Terminals | Catalog Number |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------|---------------------|----------------|
| Without Auxiliary Contacts                                                                                                                                                                       |                               |                            |                     |                |
| For connecting WMZS Supplementary Protectors without auxiliary contacts. May be fed from line or load side.<br> | 80                            | 1                          | 57                  | WMZS1P57T      |
|                                                                                                                                                                                                  |                               | 2                          | 56                  | WMZS2P56T      |
|                                                                                                                                                                                                  |                               | 3                          | 57                  | WMZS3P57T      |
|                                                                                                                                                                                                  | 100                           | 1                          | 57                  | WMZS1P57T25    |
|                                                                                                                                                                                                  |                               | 2                          | 56                  | WMZS2P56T25    |
|                                                                                                                                                                                                  |                               | 3                          | 57                  | WMZS3P57T25    |
| Auxiliary/Trip Indicating Contact                                                                                                                                                                |                               |                            |                     |                |
| For connecting WMZS Supplementary Protectors with auxiliary contacts. May be fed from line or load side.<br>  | 80                            | 1                          | 37                  | WMZS1P37TAUX   |
|                                                                                                                                                                                                  |                               | 2                          | 46                  | WMZS2P46TAUX   |
|                                                                                                                                                                                                  |                               | 3                          | 48                  | WMZS3P48TAUX   |
|                                                                                                                                                                                                  | 100                           | 1                          | 37                  | WMZS1P37T25AUX |
|                                                                                                                                                                                                  |                               | 2                          | 46                  | WMZS2P46T25AUX |
|                                                                                                                                                                                                  |                               | 3                          | 48                  | WMZS3P48T25AUX |



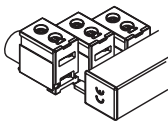
Incoming Terminal



Pin Type Incoming Supply Terminals

| Description                                                  | Catalog Number |
|--------------------------------------------------------------|----------------|
| Accommodates conductors from 6–35 mm <sup>2</sup> /#10–2 AWG | WMZS35EXT      |
| 4–5.5 Nm/35–50 16 lb-in                                      |                |
| Finger-safe connection                                       |                |

Incoming Terminal

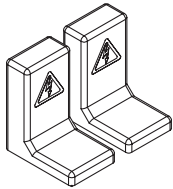


Bus Incoming Supply Terminals

| Description        | Catalog Number |
|--------------------|----------------|
| 50 mm <sup>2</sup> | WMZSBCONA      |
| #14–1 AWG          |                |
| 75 Deg Wire        |                |
| 115A/Y, 480V UL    |                |
| 160A/Y 690V IEC    |                |

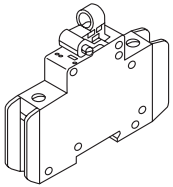
Protective Accessories

Bus Bar Terminal Cover



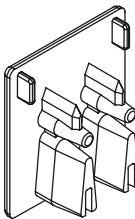
| Description                   | Catalog Number |
|-------------------------------|----------------|
| For covering unused terminals | WMZSBBTC       |

Padlock Hasp

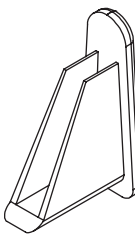


|                                                        |        |
|--------------------------------------------------------|--------|
| Prevents reactivation of the device during maintenance | WMZPLK |
| Holds one padlock                                      |        |

Fork Connector Two- and Three-Pole



Fork Connector Two- and Three-Pole



Bus Bar End Cap

| Description                   | Number of Poles | Catalog Number |
|-------------------------------|-----------------|----------------|
| Install after cutting bus bar | 2 and 3         | WMZS3CAP       |
| Protects end of bus bar       |                 |                |
|                               | 1               | WMZS1CAP       |

## Technical Data and Specifications

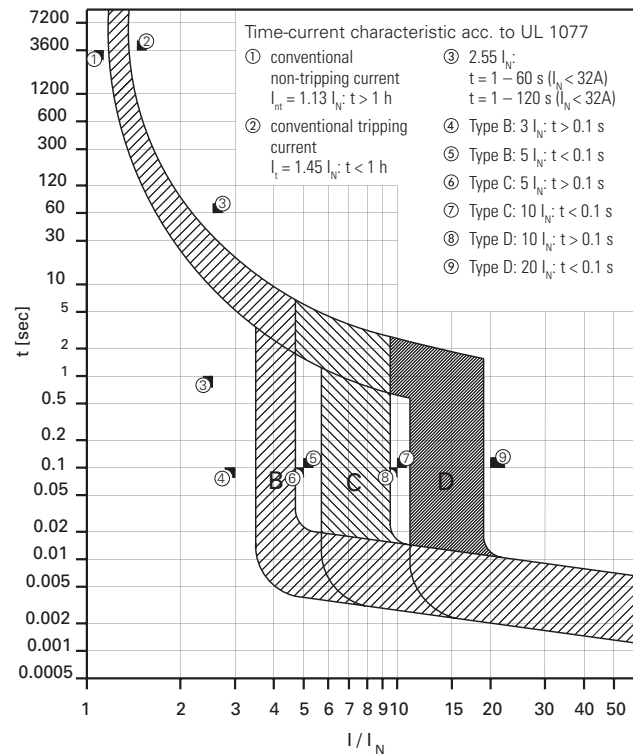
## Trip Curve Charts

## Three Tripping Curves to Choose

Eaton WMZS Supplementary Protectors are available with three different tripping characteristics, including Type B, C and D. Definitions for each trip curve are contained on the ordering pages and can be used to determine the optimal characteristic for your application. For example, low level short-circuit faults in control wiring, such as PLCs, are best protected by devices with Type B trip characteristics (3 to 5X continuous rating of the device ( $I_N$ )).

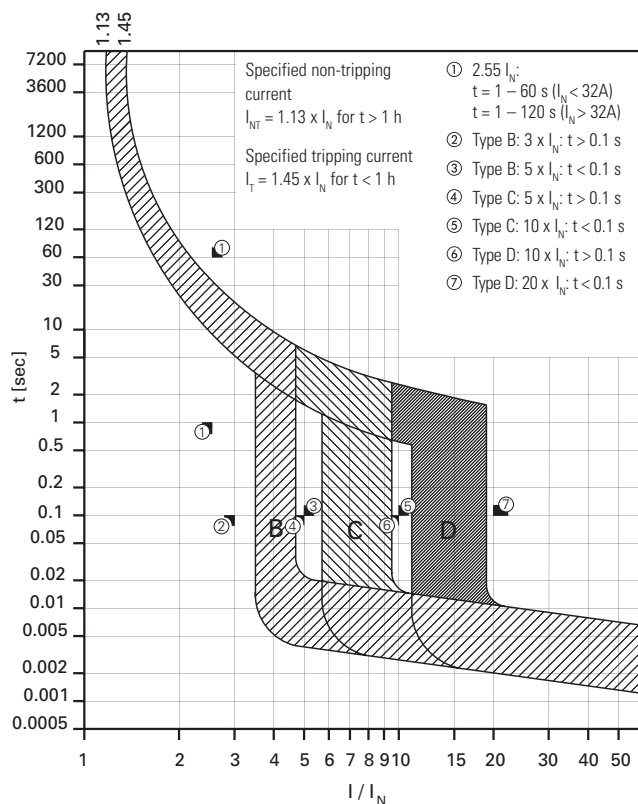
Even though not required by NEC or CEC for Supplementary Protectors, Eaton's WMZS devices are current limiting, which means they interrupt fault currents within one half cycle. Current limiting devices offer superior protection by reducing peak let-through current and energy.

## WMZS Tripping Curves

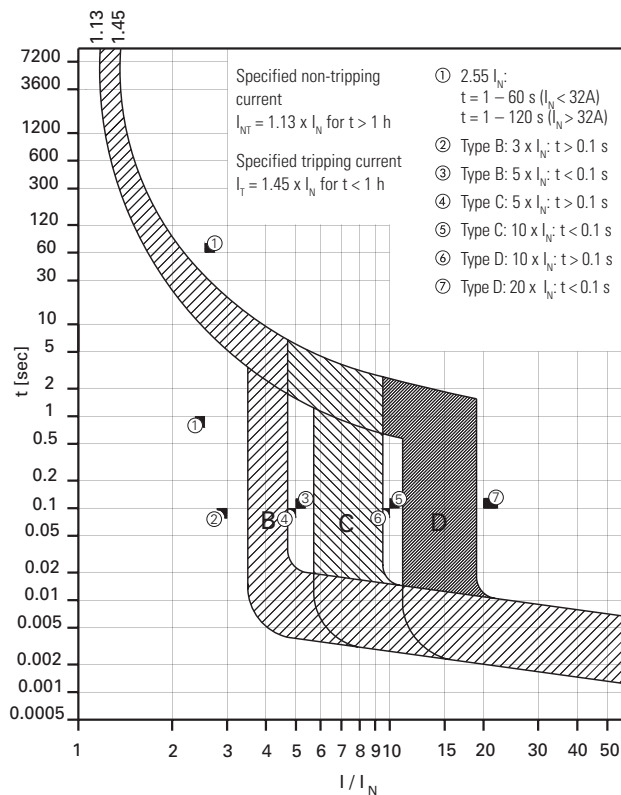




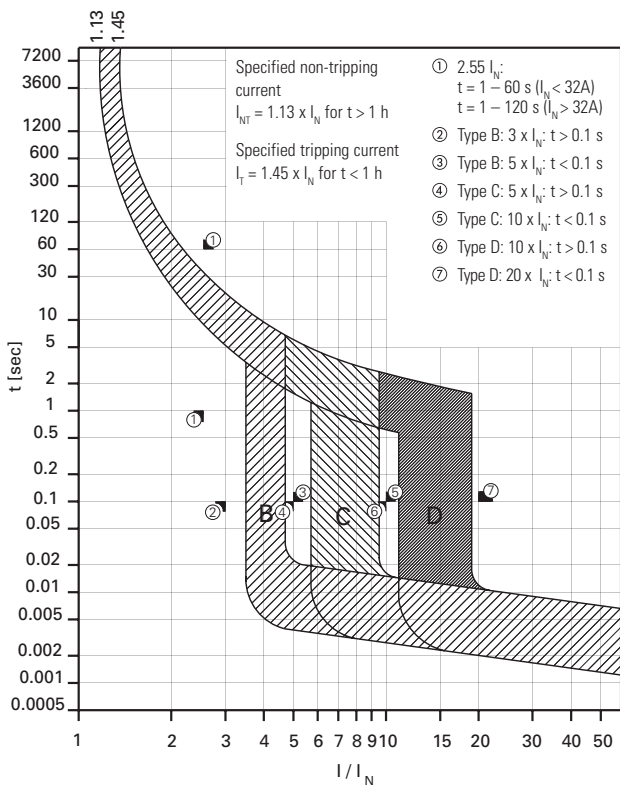
## B Curve



## D Curve



## C Curve



## Technical Data

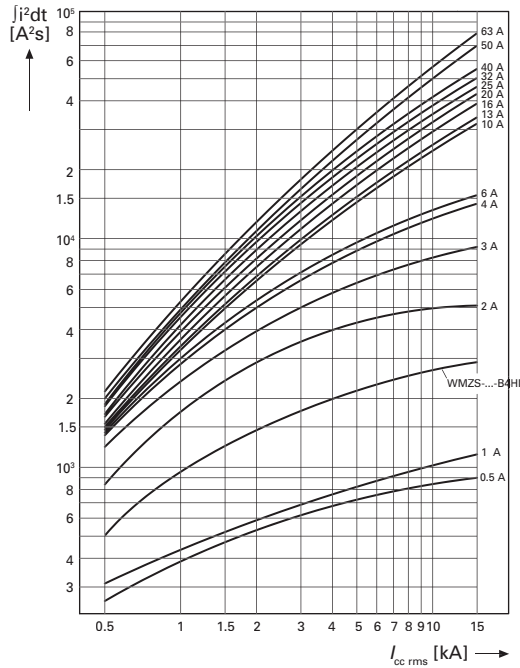
| Description                                    | B Curve                                  | C Curve                        | D Curve                 |
|------------------------------------------------|------------------------------------------|--------------------------------|-------------------------|
| <b>Electrical</b>                              |                                          |                                |                         |
| Approvals                                      | UR (UL 1077), CSA (CSA 22.2 No. 235), CE |                                |                         |
| Standards                                      | IEC/EN 60947-2                           |                                |                         |
| Short-circuit trip response                    | 3–5 $I_n$                                | 5–10 $I_n$                     | 10–20 $I_n$             |
| <b>Supplementary Protectors—UL/CSA</b>         |                                          |                                |                         |
| Current range                                  | 6–63A                                    | 0.5–63A                        | 0.5–40A                 |
| <b>Maximum voltage ratings—UL/CSA</b>          |                                          |                                |                         |
| Single-pole                                    | 277 Vac                                  | 277 Vac                        | 277 Vac                 |
|                                                | 48 Vdc                                   | 48 Vdc                         | 48 Vdc                  |
| Two-, three-pole                               | 480Y/277 Vac                             | 480Y/277 Vac                   | 480Y/277 Vac            |
| Two poles in series                            | 96 Vdc                                   | 96 Vdc                         | 96 Vdc                  |
| <b>Thermal tripping characteristics</b>        |                                          |                                |                         |
| Single-pole                                    | 1.35 x $I_n$ @ 40°C                      | 1.35 x $I_n$ @ 40°C            | 1.35 x $I_n$ @ 40°C     |
| Multi-pole                                     | 1.45 x $I_n$ @ 40°C                      | 1.45 x $I_n$ @ 40°C            | 1.45 x $I_n$ @ 40°C     |
| <b>Short-circuit ratings (at max. voltage)</b> |                                          |                                |                         |
| Single-pole                                    | 10 kA (5 kA for 40–63A device)           | 10 kA (5 kA for 40–63A device) | 5 kA                    |
| Two-, three-pole                               | 10 kA (5 kA for 40–63A device)           | 10 kA (5 kA for 40–63A device) | 5 kA                    |
| Single-pole                                    | 10 kA @ 48 Vdc                           | 10 kA @ 48 Vdc                 | 10 kA @ 48 Vdc          |
| Two poles in series                            | 10 kA @ 96 Vdc                           | 10 kA @ 96 Vdc                 | 10 kA @ 96 Vdc          |
| <b>Miniature Circuit Breaker—IEC</b>           |                                          |                                |                         |
| Current range                                  | 6–63A                                    | 0.5–63A                        | 0.5–40A                 |
| <b>Maximum voltage ratings—IEC 60947-2</b>     |                                          |                                |                         |
| Single-pole                                    | 230 Vac                                  | 230 Vac                        | 230 Vac                 |
|                                                | 48 Vdc                                   | 48 Vdc                         | 48 Vdc                  |
| Two-, three-pole                               | 230/400 Vac                              | 230/400 Vac                    | 230/400 Vac             |
| <b>Maximum voltage ratings—IEC 60898</b>       |                                          |                                |                         |
| Single-pole                                    | 240 Vac                                  | 240 Vac                        | 240 Vac                 |
|                                                | 48 Vdc                                   | 48 Vdc                         | 48 Vdc                  |
| Two-, three-pole                               | 240/415 Vac                              | 240/415 Vac                    | 240/415 Vac             |
| <b>Thermal tripping characteristics</b>        |                                          |                                |                         |
| Single-pole                                    | > 1 hour @ 1.05 x $I_n$                  | > 1 hour @ 1.05 x $I_n$        | > 1 hour @ 1.05 x $I_n$ |
| Multi-pole                                     | < 1 hour @ 1.3 x $I_n$                   | < 1 hour @ 1.3 x $I_n$         | < 1 hour @ 1.3 x $I_n$  |
| <b>Interrupting ratings (at max. voltage)</b>  |                                          |                                |                         |
| IEC 60947-2                                    | 15 kA                                    | 15 kA                          | 15 kA                   |
| IEC 60898                                      | 10 kA                                    | 10 kA                          | 10 kA                   |
| Operational switching capacity                 | 7.5 kA                                   | 7.5 kA                         | 7.5 kA                  |
| Max. back-up fuse [gL/gG]                      | 125A                                     | 125A                           | 125A                    |
| Rated impulse withstand— $U_{imp}$             | 4000 Vac                                 | 4000 Vac                       | 4000 Vac                |
| Rated insulation voltage— $U_i$                | 440 Vac                                  | 440 Vac                        | 440 Vac                 |

## Technical Data, continued

| Description                          | B Curve                                                       | C Curve                                                       | D Curve                                                       |
|--------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| <b>Environmental/General</b>         |                                                               |                                                               |                                                               |
| Selectivity class                    | 3                                                             | 3                                                             | 3                                                             |
| Lifespan (operations)                | > 10,000 (1 operation = ON/OFF)                               | > 10000 (1 operation = ON/OFF)                                | > 10000 (1 operation = ON/OFF)                                |
| Shock (IEC 68-2-22)                  | 10g–120 ms                                                    | 10g–120 ms                                                    | 10g–120 ms                                                    |
| Operating temperature range          | +23 to +104°F (–5 to +40°C)                                   | +23 to +104°F (–5 to +40°C)                                   | +23 to +104°F (–5 to +40°C)                                   |
| Shipment and short-term storage      | –40 to +185°F (–40 to +85°C)                                  | –40 to +185°F (–40 to +85°C)                                  | –40 to +185°F (–40 to +85°C)                                  |
| Housing material                     | Nylon                                                         | Nylon                                                         | Nylon                                                         |
| <b>Mechanical</b>                    |                                                               |                                                               |                                                               |
| <b>Standard Front Dimension</b>      |                                                               |                                                               |                                                               |
| Device height                        | 80 mm                                                         | 80 mm                                                         | 80 mm                                                         |
| Terminal protection                  | Finger and back-of-hand proof to IEC 536                      | Finger and back-of-hand proof to IEC 536                      | Finger and back-of-hand proof to IEC 536                      |
| Mounting width per pole              | 17.5 mm                                                       | 17.5 mm                                                       | 17.5 mm                                                       |
| Mounting                             | IEC/EN 60715 top-hat rail                                     | IEC/EN 60715 top-hat rail                                     | IEC/EN 60715 top-hat rail                                     |
| Degree of protection                 | IP20                                                          | IP20                                                          | IP20                                                          |
| Terminals top and bottom             | Twin-purpose terminals                                        | Twin-purpose terminals                                        | Twin-purpose terminals                                        |
| Supply connection                    | Line or load side                                             | Line or load side                                             | Line or load side                                             |
| Terminal capacity [mm <sup>2</sup> ] | 1 x 25 (AWG 4–18) / 2 x 10 (AWG 8–18)                         | 1 x 25 (AWG 4–18) / 2 x 10 (AWG 8–18)                         | 1 x 25 (AWG 4–18) / 2 x 10 (AWG 8–18)                         |
| Torque                               | 2.4 Nm                                                        | 2.4 Nm                                                        | 2.4 Nm                                                        |
| Imperial torque                      | 21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4) | 21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4) | 21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4) |
| Thickness of bus bar material        | 0.8–2 mm                                                      | 0.8–2 mm                                                      | 0.8–2 mm                                                      |
| Mounting position                    | As required                                                   | As required                                                   | As required                                                   |

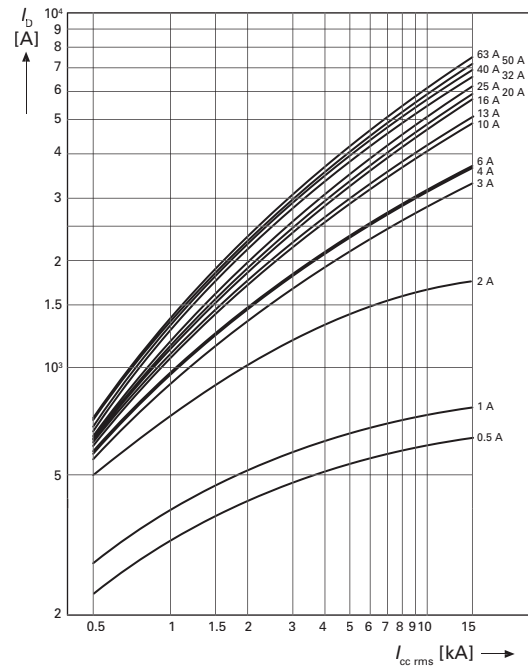
### Let-Through Energy $I^2t$

#### Characteristic B and C

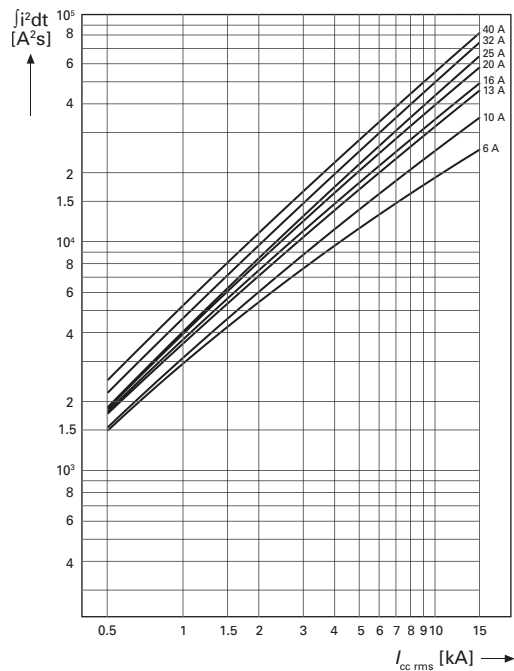


### Let-Through Current $I_D$

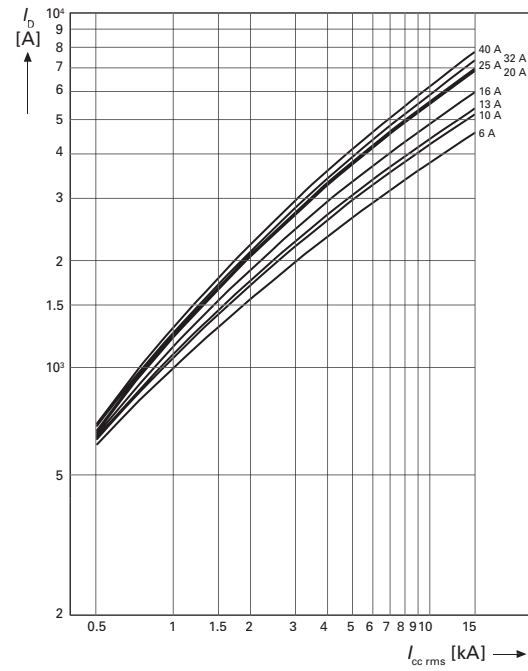
#### Characteristic B and C



#### Characteristic D



#### Characteristic D



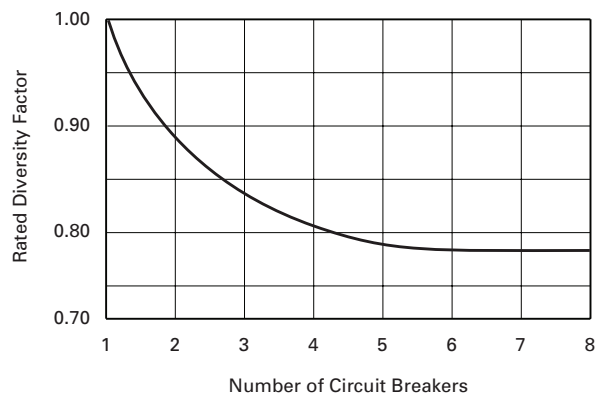
**Influence of the Ambient Temperature on the Thermal Tripping Behavior**

Corrected values of the rated current dependent on the ambient temperature

| $I_n$ (A) | Ambient Temperature T |       |       |      |      |      |      |      |      |      |      |      |      |
|-----------|-----------------------|-------|-------|------|------|------|------|------|------|------|------|------|------|
|           | -25°C                 | -20°C | -10°C | 0°C  | 10°C | 20°C | 30°C | 35°C | 40°C | 45°C | 50°C | 55°C | 60°C |
| 0.16      | 0.2                   | 0.19  | 0.19  | 0.18 | 0.17 | 0.17 | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 | 0.14 | 0.14 |
| 0.25      | 0.31                  | 0.3   | 0.29  | 0.28 | 0.27 | 0.26 | 0.25 | 0.25 | 0.24 | 0.24 | 0.23 | 0.23 | 0.22 |
| 0.5       | 0.61                  | 0.6   | 0.58  | 0.56 | 0.54 | 0.52 | 0.5  | 0.49 | 0.48 | 0.47 | 0.46 | 0.45 | 0.44 |
| 0.75      | 0.92                  | 0.9   | 0.87  | 0.84 | 0.81 | 0.78 | 0.75 | 0.74 | 0.73 | 0.71 | 0.69 | 0.68 | 0.66 |
| 1         | 1.2                   | 1.2   | 1.2   | 1.1  | 1.1  | 1    | 1    | 0.99 | 0.97 | 0.95 | 0.93 | 0.9  | 0.89 |
| 1.5       | 1.8                   | 1.8   | 1.7   | 1.7  | 1.6  | 1.6  | 1.5  | 1.5  | 1.5  | 1.4  | 1.4  | 1.4  | 1.3  |
| 1.6       | 2                     | 1.9   | 1.9   | 1.8  | 1.7  | 1.7  | 1.6  | 1.6  | 1.5  | 1.5  | 1.5  | 1.4  | 1.4  |
| 2         | 2.4                   | 2.4   | 2.3   | 2.2  | 2.2  | 2.1  | 2    | 2    | 1.9  | 1.9  | 1.9  | 1.8  | 1.8  |
| 2.5       | 3.1                   | 3     | 2.9   | 2.8  | 2.7  | 2.6  | 2.5  | 2.5  | 2.4  | 2.4  | 2.3  | 2.3  | 2.2  |
| 3         | 3.7                   | 3.6   | 3.5   | 3.4  | 3.3  | 3.1  | 3    | 3    | 2.9  | 2.8  | 2.8  | 2.7  | 2.7  |
| 3.5       | 4.3                   | 4.2   | 4.1   | 3.9  | 3.8  | 3.7  | 3.5  | 3.4  | 3.4  | 3.3  | 3.2  | 3.2  | 3.1  |
| 4         | 4.9                   | 4.8   | 4.7   | 4.5  | 4.3  | 4.2  | 4    | 3.9  | 3.9  | 3.8  | 3.7  | 3.6  | 3.5  |
| 5         | 6.1                   | 6     | 5.8   | 5.6  | 5.4  | 5.2  | 5    | 4.9  | 4.8  | 4.7  | 4.6  | 4.5  | 4.4  |
| 6         | 7.3                   | 7.2   | 7     | 6.7  | 6.5  | 6.3  | 6    | 5.9  | 5.8  | 5.7  | 5.6  | 5.4  | 5.3  |
| 7         | 8.6                   | 8.4   | 8.1   | 7.9  | 7.6  | 7.4  | 7    | 6.9  | 6.8  | 6.7  | 6.6  | 6.4  | 6.3  |
| 8         | 9.8                   | 9.6   | 9.3   | 9    | 8.7  | 8.4  | 8    | 7.9  | 7.7  | 7.6  | 7.4  | 7.2  | 7.1  |
| 10        | 12                    | 12    | 12    | 11   | 11   | 10   | 10   | 9.9  | 9.7  | 9.5  | 9.3  | 9    | 8.9  |
| 12        | 15                    | 14    | 14    | 13   | 13   | 13   | 12   | 12   | 12   | 11   | 11   | 11   | 11   |
| 13        | 16                    | 16    | 15    | 15   | 14   | 14   | 13   | 13   | 13   | 12   | 12   | 12   | 12   |
| 15        | 18                    | 18    | 17    | 17   | 16   | 16   | 15   | 15   | 15   | 14   | 14   | 14   | 13   |
| 16        | 20                    | 19    | 19    | 18   | 17   | 17   | 16   | 16   | 15   | 15   | 15   | 14   | 14   |
| 20        | 24                    | 24    | 23    | 22   | 22   | 21   | 20   | 20   | 19   | 19   | 19   | 18   | 18   |
| 25        | 31                    | 30    | 29    | 28   | 27   | 26   | 25   | 25   | 24   | 24   | 23   | 23   | 22   |
| 32        | 39                    | 38    | 37    | 36   | 35   | 33   | 32   | 32   | 31   | 30   | 30   | 29   | 28   |
| 40        | 49                    | 48    | 47    | 45   | 43   | 42   | 40   | 39   | 39   | 38   | 37   | 36   | 35   |
| 50        | 61                    | 60    | 58    | 56   | 54   | 52   | 50   | 49   | 48   | 47   | 46   | 45   | 44   |
| 63        | 77                    | 76    | 73    | 71   | 68   | 66   | 63   | 62   | 61   | 60   | 58   | 57   | 56   |

**Influence of the Mains Frequency**Influence of the mains frequency on the tripping behavior  $I_{MA}$  of the instantaneous release

| Description                           | Mains Frequency f [Hz] |     |     |     |     |     |     |
|---------------------------------------|------------------------|-----|-----|-----|-----|-----|-----|
|                                       | 16 2/3                 | 50  | 60  | 100 | 200 | 300 | 400 |
| $I_{MA}(f)/I_{MA}(50 \text{ Hz})$ [%] | 91                     | 100 | 101 | 106 | 115 | 134 | 141 |

**Load Carrying Capacity of Adjoining Miniature Circuit Breakers**

## Technical Data

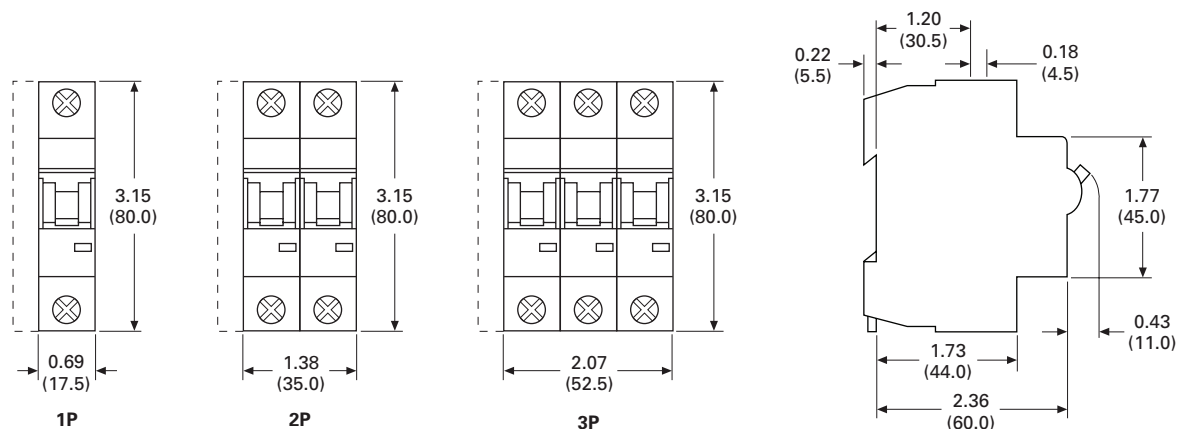
| Description                                                           | WMZSAUX<br>WMZSAUXTRIP                       | WMZSST                                       | WMZSUVR                                                        |
|-----------------------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------------------------|
| <b>Electrical</b>                                                     |                                              |                                              |                                                                |
| Contact function                                                      | 1A + 1B<br>2 C/O                             | —                                            | —                                                              |
| Rated operational voltage $U_n$                                       | 250 Vac                                      | —                                            | 115 Vac—WMZSUVR115<br>230 Vac—WMZSUVR230<br>400 Vac—WMZSUVR400 |
| Voltage range WMZSST110                                               | —                                            | 12–110 Vac<br>—<br>12–60 Vdc                 | —                                                              |
| Voltage range WMZSST415                                               | —                                            | 110–415 Vac<br>—<br>110–230 Vdc              | —                                                              |
| Closing threshold [ $\times U_n$ ]                                    | —                                            | —                                            | 0.8                                                            |
| Tripping threshold [ $\times U_n$ ]                                   | —                                            | —                                            | 0.5                                                            |
| Rated frequency $f$                                                   | 50/60 Hz                                     | 50/60 Hz                                     | 50/60 Hz                                                       |
| <b>General use (UL/CSA)</b>                                           |                                              |                                              |                                                                |
| AC—230/240 Vac                                                        | 2/2A                                         | —                                            | —                                                              |
| DC—110/120 Vdc                                                        | 0.5/0.5A                                     | —                                            | —                                                              |
| Pilot duty                                                            | A600/Q600                                    | —                                            | —                                                              |
| Conventional free air thermal current $I_{th}$                        | 4A                                           | —                                            | —                                                              |
| <b>Rated operational current</b>                                      |                                              |                                              |                                                                |
| AC-13 $I_b$                                                           | 3A (250 Vac)                                 | —                                            | —                                                              |
| AC-15 $I_b$                                                           | 2A (250 Vac)                                 | —                                            | —                                                              |
| DC-13 $I_b$                                                           | 0.5A (110 Vdc)                               | —                                            | —                                                              |
| Rated insulation voltage $U_i$                                        | 250 Vac                                      | —                                            | —                                                              |
| Minimum operating voltage per contract $U_{min}$                      | 5 Vdc                                        | —                                            | —                                                              |
| Rated impulse withstand voltage (1.2/50 $\mu$ ) $U_{imp}$             | 2.5 kV                                       | —                                            | —                                                              |
| Rated conditional short-circuit current with 6A back-up fuse $I_{sc}$ | 1 kA                                         | —                                            | —                                                              |
| Max. admissible back-up fuse                                          | 4A gL                                        | —                                            | —                                                              |
| <b>Mechanical</b>                                                     |                                              |                                              |                                                                |
| Standard front dimension                                              | 45 mm                                        | 45 mm                                        | 45 mm                                                          |
| Device height                                                         | 80 mm                                        | 80 mm                                        | 80 mm                                                          |
| Mounting width                                                        | 8.8 mm                                       | 17.6 mm                                      | 17.8 mm                                                        |
| Mounting                                                              | On MCB                                       | IEC/EN 60715 top-hat rail                    | IEC/EN 60715 top-hat rail                                      |
| Degree of protection enclosed                                         | IP40                                         | IP40                                         | IP40                                                           |
| Terminal protection                                                   | Protection against electric shock to IEC 536 | Protection against electric shock to IEC 536 | Protection against electric shock to IEC 536                   |
| Terminals                                                             | Lift terminals                               | Twin-purpose terminals                       | Twin-purpose terminals                                         |
| <b>Terminal capacity</b>                                              |                                              |                                              |                                                                |
| Solid                                                                 | 0.5 – 2.5 mm <sup>2</sup>                    | 1–2.5 mm <sup>2</sup>                        | 2 x (1–2.5) mm <sup>2</sup>                                    |
| Flexible                                                              | 0.5 – 2.5 mm <sup>2</sup>                    | 1–2.5 mm <sup>2</sup>                        | 2 x (1–2.5) mm <sup>2</sup>                                    |
| Tightening torque of terminal screws                                  | 0.8 – 1.0 Nm (7–9 lb-in)                     | 2.4 Nm (21 lb-in)                            | 0.8 Nm (7 lb-in)                                               |

**Dimensions**

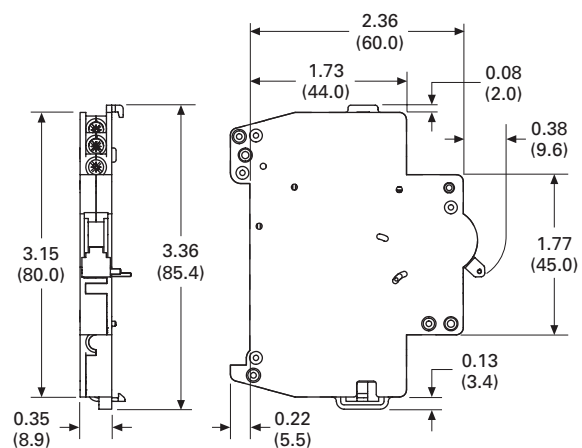
Approximate Dimensions in Inches (mm)

**Miniature Circuit Breakers**

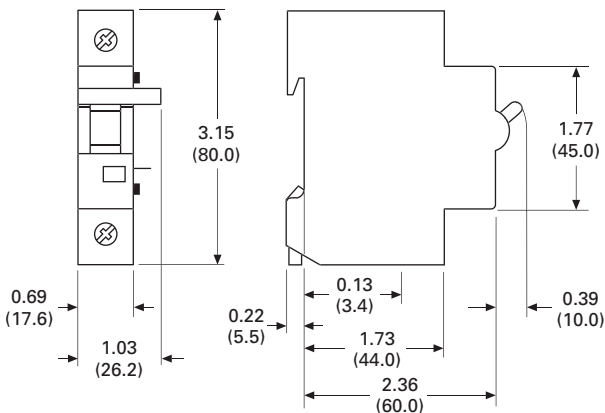
WMZS

**Auxiliary Contacts**

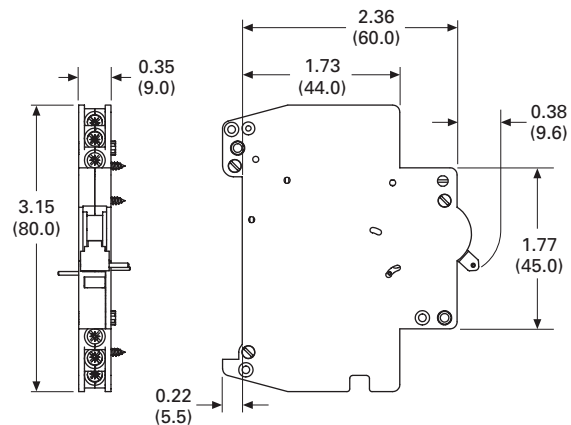
WMZSAUX

**Shunt Releases**

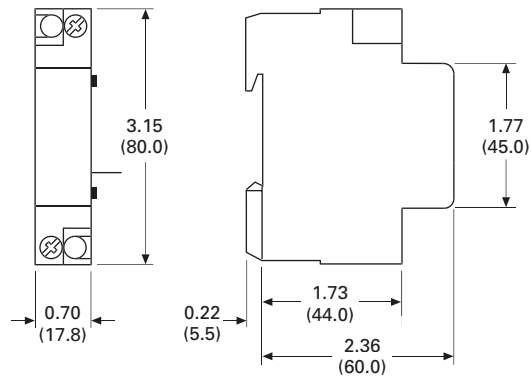
WMZSST



WMZSAUXTRIP

**Undervoltage Releases**

WMZSUVR



Approximate Dimensions in Inches (mm)

**Bus Bar and Accessory Weights and Dimensions**

| Catalog Number | Unit Weight Lbs (kg) | Length         | Width       | Height      |
|----------------|----------------------|----------------|-------------|-------------|
| WMZS1P57T      | 0.64 (0.29)          | 39.72 (1009.0) | 0.59 (15.0) | 0.59 (15.0) |
| WMZS2P56T      | 1.41 (0.64)          | 39.02 (991.0)  | 0.87 (22.0) | 1.46 (37.0) |
| WMZS3P57T      | 1.83 (0.83)          | 39.72 (1009.0) | 0.87 (22.0) | 1.46 (37.0) |
| WMZS1P37TAUX   | 0.57 (0.26)          | 38.78 (985.0)  | 0.59 (15.0) | 0.59 (15.0) |
| WMZS2P46TAUX   | 1.39 (0.63)          | 39.72 (1009.0) | 0.87 (22.0) | 1.46 (37.0) |
| WMZS3P48TAUX   | 1.74 (0.79)          | 38.66 (982.0)  | 0.87 (22.0) | 1.46 (37.0) |
| WMZS1P57T25    | 0.79 (0.36)          | 39.72 (1009.0) | 0.59 (15.0) | 0.59 (15.0) |
| WMZS2P56T25    | 1.74 (0.79)          | 39.02 (991.0)  | 0.87 (22.0) | 1.46 (37.0) |
| WMZS3P57T25    | 2.29 (1.04)          | 39.72 (1009.0) | 0.87 (22.0) | 1.46 (37.0) |
| WMZS1P37T25AUX | 0.68 (0.31)          | 38.78 (985.0)  | 0.59 (15.0) | 0.59 (15.0) |
| WMZS2P46T25AUX | 1.61 (0.73)          | 39.72 (1009.0) | 0.87 (22.0) | 1.46 (37.0) |
| WMZS3P48T25AUX | 2.14 (0.97)          | 38.66 (982.0)  | 0.87 (22.0) | 1.46 (37.0) |
| WMZS35EXT      | 0.07 (0.03)          | 2.36 (60.0)    | 0.67 (17.0) | 1.14 (29.0) |
| WMZSBCONA      | 0.07 (0.03)          | 1.57 (40.0)    | 0.71 (18.0) | 1.18 (30.0) |
| WMZSBBTC       | 0.007 (0.003)        | 3.35 (85.0)    | 0.47 (12.0) | 0.94 (24.0) |
| WMZS1CAP       | 0.002 (0.001)        | 0.55 (14.0)    | 0.20 (5.0)  | 0.39 (10.0) |
| WMZS3CAP       | 0.002 (0.001)        | 0.94 (24.0)    | 0.87 (22.0) | 0.39 (10.0) |

