

## Introduction—Electronic Circuit Protection ESX10-T

Electronic circuit protection type ESX10-T is designed to ensure selective disconnection of 24VDC load systems.

24VDC power supplies, which are widely used in industry today, will shut down the output in the event of an overload with the result that one faulty load in the system can lead to complete disconnection of all loads.

Through selective disconnection the ESX10-T responds much faster to overload or short circuit conditions than the switch-mode power supply. This is achieved by active current limitation. The ESX10-T limits the highest possible current to 1.3 to 1.8 times the selected rated current of the circuit protector. Thus it is possible to switch on capacitive loads of up to 20,000  $\mu\text{F}$ , but they are disconnected only in the event of an overload or short circuit.

For optimal alignment with the characteristics of the application the current rating of the ESX10-T can be selected in fixed values from 0.5 A...12 A. Failure and status indication are provided by a multicolour LED and an integral short-circuit-proof status output or a relay signal contact. Remote operation is possible by means of a remote reset signal or a remote ON/OFF control signal. The manual ON/OFF button allows separate actuation and reset of individual load circuits.

**Upon detection of overload or short circuit in the load circuit, the MOSFET of the load output will be blocked to interrupt the current flow. The load circuit can be re-activated via the remote electronic reset input, control input or manually by means of the ON/OFF button.**

### Features

- Selective load protection, electronic trip characteristics
- Active current limitation for safe connection of capacitive loads up to 20,000  $\mu\text{F}$  and on overload/short circuit
- Current ratings 0.5 A...12 A
- Reliable overload disconnection with  $1.1 \times I_n$  plus, even with long load lines or small cable cross sections (see table 3)
- Manual ON/OFF button (S1)
- Control input IN+ for remote ON/OFF signal (option)
- Electronic **reset** input RE (option)
- Clear status and failure indication through LED, status output SF or Si contact F
- Integral fail-safe element adjusted to current rating
- Width per unit only 12.5 mm
- Rail mounting
- Ease of wiring through busbar LINE+ and 0 V as well as signal bars and bridges
- UL/CSA Hazardous area approved—Class 1, Div 2



## Approvals

| Authority                                         | Voltage rating | Current ratings |
|---------------------------------------------------|----------------|-----------------|
| UL2367 (E306740)                                  | 24VDC          | 0.5...12 A      |
| UL1604 (E322549)                                  | 24VDC          | 0.5...12 A      |
| (class 1, div. 2, group A, B, C, D)               |                |                 |
| UL508/ cUL 508                                    | 24VDC          | 0.5...12 A      |
| CSA file 165971:                                  |                |                 |
| CSA C22.2 No: 213 (class I, div. 2)               | 24VDC          | 0.5...12 A      |
| Groups A, B, C, D, T5                             |                |                 |
| CSA C22.2 No: 142                                 | 24VDC          | 0.5...12 A      |
| Class 2                                           |                |                 |
| Meets requirements for Class 2 current limitation |                |                 |
| (ESX10-T... 0.5 A / 1 A / 2 A / 3 A               |                |                 |

## Technical data (T<sub>ambient</sub> = 40°C, operating voltage U<sub>B</sub> = 24VDC)

### Operating data

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating voltage U <sub>B</sub> | 24VDC (18...32 V)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Current rating I <sub>N</sub>    | fixed current ratings: 0.5, 1 A, 2 A, 3 A, 4 A, 6 A, 8 A, 10 A, 12 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Closed current I <sub>Q</sub>    | ON condition: typically 20...30 mA<br>depending on signal output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Status indication by means of    | <b>• multicolour LED:</b><br>GREEN: unit is ON, power-MOSFET is switched on<br>- status output SF ON, supplies + 24VDC<br>ORANGE: in the event of overload or short circuit until electronic disconnection<br>RED: - unit electronically disconnected<br>- load circuit/Power-MOSFET OFF<br>OFF: - manually switched off (S1 = OFF)<br>or device is dead<br>- undervoltage (U <sub>B</sub> < 8 V)<br>- after switch-on till the end of the delay period<br><b>• status output SF (option)</b><br><b>• potential-free signal contact F (option)</b><br><b>• ON/OFF/ condition of switch S1</b> |

### Load circuit

|                                                        |                                                                                                                                                                                                                         |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Load output                                            | Power-MOSFET switching output (high side switch)                                                                                                                                                                        |
| Overload disconnection                                 | typically 1.1 x I <sub>N</sub> (1.05...1.35 x I <sub>N</sub> )                                                                                                                                                          |
| Short-circuit current I <sub>K</sub>                   | active current limitation (see table 1)                                                                                                                                                                                 |
| Trip time for electronic disconnection                 | see time/current characteristics<br>typically 3 s at I <sub>Load</sub> > 1.1 x I <sub>N</sub><br>typically 3 s...100 ms at I <sub>Load</sub> > 1.8 x I <sub>N</sub><br>(or 1.5 x I <sub>N</sub> /1.3 x I <sub>N</sub> ) |
| Temperature disconnection                              | internal temperature monitoring with electronic disconnection                                                                                                                                                           |
| Low voltage monitoring load output                     | with hysteresis, no reset required<br>load "OFF" at U <sub>B</sub> < 8 V                                                                                                                                                |
| Starting delay t <sub>start</sub>                      | typically 0.5 sec after every switch-on and after applying U <sub>B</sub>                                                                                                                                               |
| Disconnection of load circuit                          | electronic disconnection                                                                                                                                                                                                |
| Free-wheeling circuit                                  | external free-wheeling diode recommended with inductive load                                                                                                                                                            |
| Several load outputs must not be connected in parallel |                                                                                                                                                                                                                         |

## Technical data (T<sub>ambient</sub> = 40°C, operating voltage U<sub>B</sub> = 24VDC)

|                                  |                                                                                                                                                                                                                                                                                |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Status output SF</b>          | <b>ESX10-TB-114/-124/</b>                                                                                                                                                                                                                                                      |
| Electrical data                  | plus-switching signal output, connects U <sub>B</sub> to terminal 12 of module 17plus<br>nominal data: 24VDC / max. 0.2 A (short circuit proof)<br>status output is internally connected to GND with a 10 kOhm resistor                                                        |
| Status OUT                       | ESX10-TB-114/-124 (signal status OUT),<br>at U <sub>B</sub> = +24 V<br>+24 V = S1 is ON, load output connected through<br>0V = S1 is ON, load output blocked and/or switch S1 is OFF<br>red LED lit                                                                            |
| OFF condition                    | 0 V level at status output when:<br><ul style="list-style-type: none"> <li>switch S1 is in ON position, but device is still in switch-on delay</li> <li>switch S1 is OFF, or control signal OFF, device is switched off</li> <li>no operating voltage U<sub>B</sub></li> </ul> |
| <b>Signal output F</b>           | <b>ESX10-TB-101/-102</b>                                                                                                                                                                                                                                                       |
| Electrical data                  | potential-free signal contact<br>max. 30VDC/0.5 A, min. 10 V/10 mA                                                                                                                                                                                                             |
| ON condition LED green           | voltage U <sub>B</sub> applied, switch S1 is in ON position<br>no overload, no short circuit                                                                                                                                                                                   |
| OFF condition LED off            | <ul style="list-style-type: none"> <li>device switched off (switch S1 is in OFF position)</li> <li>no voltage U<sub>B</sub> applied</li> </ul>                                                                                                                                 |
| Fault condition LED orange       | overload condition > 1.1 x I <sub>N</sub> up to electronic disconnection                                                                                                                                                                                                       |
| Fault condition LED red          | electronic disconnection upon overload or short circuit<br>device switched off with control signal (switch S1 is in ON position)                                                                                                                                               |
| ESX10-TB-101                     | single signal, make contact<br>contact SC/SO-SI open                                                                                                                                                                                                                           |
| ESX10-TB-102                     | single signal, break contact<br>contact SC/SO-SI closed                                                                                                                                                                                                                        |
| Fault                            | signal output fault conditions:<br><ul style="list-style-type: none"> <li>no operating voltage U<sub>B</sub></li> <li>ON/OFF switch S1 is in OFF position</li> <li>red LED lighted (electronic disconnection)</li> </ul>                                                       |
| <b>Reset input RE</b>            | <b>ESX10-TB-124</b>                                                                                                                                                                                                                                                            |
| Electrical data                  | voltage: max. +32VDC<br>high > 8VDC ≤ 32VDC<br>low ≤ 3VDC > 0 V<br>power consumption typically 2.6 mA (+24VDC)<br>min. pulse duration typically 10 ms                                                                                                                          |
| Reset signal RE (terminal 22)    | The electronically blocked ESX10-TB-124 may remotely be reset via an external momentary switch due to the falling edge of a +24 V pulse.<br>A common reset signal can be applied to several devices simultaneously.<br>Switched on devices remain unaffected.                  |
| <b>Control input IN+</b>         | <b>ESX10-TB-114</b>                                                                                                                                                                                                                                                            |
| Electrical data                  | see reset input RE                                                                                                                                                                                                                                                             |
| Control signal IN+ (terminal 21) | +24V level (HIGH): device will be switched on by a remote ON/OFF signal<br>0 V level (LOW): device will be switched off by a remote ON/OFF signal                                                                                                                              |
| Switch S1 ON/OFF                 | unit can only be switched on with S1 if a HIGH level is applied to IN+                                                                                                                                                                                                         |

# Electronic Circuit Protection ESX10-T

## Technical data (T<sub>ambient</sub> = 40°C, operating voltage U<sub>b</sub> = 24VDC)

| General data                                       |                                                                                                       |                                                         |                                                                                                                                                                                                                                              |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fail-safe element:                                 | backup fuse for ESX10-T <u>not required</u><br>because of the integral<br>redundant fail-safe element | Mounting                                                | symmetrical rail to EN 50022-35x7.5                                                                                                                                                                                                          |
| Terminals                                          | LINE+ / LOAD+ / 0V                                                                                    |                                                         |                                                                                                                                                                                                                                              |
| screw terminals                                    |                                                                                                       | max. cable cross section                                | M4                                                                                                                                                                                                                                           |
| flexible with wire end ferrule w/wo plastic sleeve | 20-6 AWG (0.5 - 10 mm <sup>2</sup> )                                                                  | flexible with wire end ferrule without plastic sleeve   | 20-11 AWG (0.5 - 4 mm <sup>2</sup> )                                                                                                                                                                                                         |
| multi-lead connection<br>(2 identical cables)      |                                                                                                       | flexible with TWIN wire end ferrule with plastic sleeve | 20-13 AWG (0.5 - 2.5 mm <sup>2</sup> )                                                                                                                                                                                                       |
| rigid/flexible                                     | 20-11 AWG (0.5 - 4 mm <sup>2</sup> )                                                                  | flexible with TWIN wire end ferrule with plastic sleeve | 20-9 AWG (0.5 - 6 mm <sup>2</sup> )                                                                                                                                                                                                          |
| wire stripping length                              | 10 mm                                                                                                 | tightening torque (EN 60934)                            | 1.2 Nm                                                                                                                                                                                                                                       |
| Terminals                                          | aux. contacts                                                                                         |                                                         |                                                                                                                                                                                                                                              |
| screw terminals                                    |                                                                                                       | max. cable cross section                                | M3                                                                                                                                                                                                                                           |
| flexible with wire end ferrule w/wo plastic sleeve | 23-13 AWG (0.25 - 2.5 mm <sup>2</sup> )                                                               | wire stripping length                                   | 8 mm                                                                                                                                                                                                                                         |
| tightening torque (EN 60934)                       | 0.5 Nm                                                                                                | Housing material                                        | moulded                                                                                                                                                                                                                                      |
|                                                    |                                                                                                       | EMC                                                     | emission: EN 61000-6-3                                                                                                                                                                                                                       |
|                                                    |                                                                                                       | (EMC directive, CE logo)                                | susceptibility: EN 61000-6-2                                                                                                                                                                                                                 |
|                                                    |                                                                                                       | Insulation co-ordination<br>(IEC 60934)                 | 0.5 kV/2 pollution degree 2<br>re-inforced insulation in operating area                                                                                                                                                                      |
|                                                    |                                                                                                       | dielectric strength                                     | max. 32VDC (load circuit)                                                                                                                                                                                                                    |
|                                                    |                                                                                                       | Insulation resistance<br>(OFF condition)                | n/a, only electronic disconnection                                                                                                                                                                                                           |
|                                                    |                                                                                                       | Approvals                                               | UL2367, File E306740,<br>Solid State Overcurrent Protectors<br>UL1604 (class I, div. 2, zone 2), UL508, CE logo<br>CSA C22.2 No. 142 - file 165971, C22.2 No. 213 - file<br>165971, C1D2 Groups A, B, C, D, Temp Code T5;<br>Ambient 0°-40°C |
|                                                    |                                                                                                       | Dimensions (W x H x D)                                  | 12.5 x 80 x 83 mm                                                                                                                                                                                                                            |
|                                                    |                                                                                                       | Mass                                                    | approx. 65 g                                                                                                                                                                                                                                 |

**Table 1:**  
**voltage drop, current limitation, max. load current**

| current rating<br>I <sub>N</sub> | typically voltage drop<br>U <sub>ON</sub> at I <sub>N</sub> | active current<br>limitation (typically) | max. load current at 100% ON duty |                        |
|----------------------------------|-------------------------------------------------------------|------------------------------------------|-----------------------------------|------------------------|
|                                  |                                                             |                                          | T <sub>U</sub> = 40 °C            | T <sub>U</sub> = 50 °C |
| 0.5 A                            | 70 mV                                                       | 1.8 x I <sub>N</sub>                     | 0.5 A                             | 0.5 A                  |
| 1 A                              | 80 mV                                                       | 1.8 x I <sub>N</sub>                     | 1 A                               | 1 A                    |
| 2 A                              | 130 mV                                                      | 1.8 x I <sub>N</sub>                     | 2 A                               | 2 A                    |
| 3 A                              | 80 mV                                                       | 1.8 x I <sub>N</sub>                     | 3 A                               | 3 A                    |
| 4 A                              | 100 mV                                                      | 1.8 x I <sub>N</sub>                     | 4 A                               | 4 A                    |
| 6 A                              | 130 mV                                                      | 1.8 x I <sub>N</sub>                     | 6 A                               | 5 A                    |
| 8 A                              | 120 mV                                                      | 1.5 x I <sub>N</sub>                     | 8 A                               | 7 A                    |
| 10 A                             | 150 mV                                                      | 1.5 x I <sub>N</sub>                     | 10 A                              | 9 A                    |
| 12 A                             | 180 mV                                                      | 1.3 x I <sub>N</sub>                     | 12 A                              | 10.8 A                 |

Attention: when mounted side-by-side without convection the ESX10-T should not carry more than 80% of its rated load with 100% ON duty due to thermal effects.

Please note:

- The user should ensure that the cable cross sections of the relevant load circuit are suitable for the current rating of the ESX10-T used.
- Automatic start-up of machinery after shut down must be prevented (Machinery Directive 98/37/EG and EN 60204-1). In the event of a short circuit or overload the load circuit will be disconnected electronically by the ESX10-T.
- Refer to UL/CSA file for proper wiring and installation techniques.

**Table 2: ESX10-T - Ordering Information**

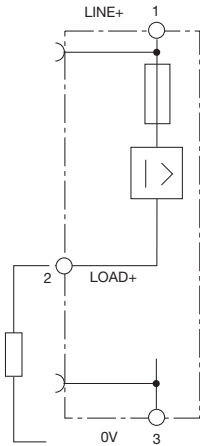
| Version      | Signal input               |                               |                 | Signal output               |                                            |                                              |                             |                                    |                       |
|--------------|----------------------------|-------------------------------|-----------------|-----------------------------|--------------------------------------------|----------------------------------------------|-----------------------------|------------------------------------|-----------------------|
|              | without<br>Signal<br>Input | Control input<br>ON/OFF Reset | Remote<br>Reset | without<br>Signal<br>Output | single signal<br>N/O<br>(normally open NO) | single signal<br>N/C<br>(normally closed NC) | without<br>Signal<br>Output | Status OUT<br>Positive 24V<br>= OK | Status OUT<br>ØV = OK |
| ESX10-TA-100 | x                          |                               |                 | x                           |                                            |                                              | x                           |                                    |                       |
| ESX10-TB-101 | x                          |                               |                 |                             | x                                          |                                              | x                           |                                    |                       |
| ESX10-TB-102 | x                          |                               |                 |                             |                                            | x                                            | x                           |                                    |                       |
| ESX10-TB-114 |                            | x                             |                 |                             |                                            |                                              |                             | x                                  |                       |
| ESX10-TB-124 |                            |                               | x               | x                           |                                            |                                              |                             | x                                  |                       |
| ESX10-TB-127 |                            |                               | x               | x                           |                                            |                                              |                             |                                    | x                     |

| ESX10-TA-100                |                                      | ESX10-TB-101                |                               | ESX10-TB-102                |                               | ESX10-TB-114*               |                                 | ESX10-TB-124**              |                               | ESX10-TB-127                |                               |
|-----------------------------|--------------------------------------|-----------------------------|-------------------------------|-----------------------------|-------------------------------|-----------------------------|---------------------------------|-----------------------------|-------------------------------|-----------------------------|-------------------------------|
| Current<br>Rating<br>(amps) | Circuit<br>Protection<br>Part Number | Current<br>Rating<br>(amps) | N/O<br>Contact<br>Part Number | Current<br>Rating<br>(amps) | N/C<br>Contact<br>Part Number | Current<br>Rating<br>(amps) | Control<br>Input<br>Part Number | Current<br>Rating<br>(amps) | Reset<br>Input<br>Part Number | Current<br>Rating<br>(amps) | Reset<br>Input<br>Part Number |
| 0.5                         | 6720005305                           | 0.5                         | 6720005320                    | 0.5                         | 6720005340                    | 0.5                         | 6720005360                      | 0.5                         | 6720005380                    | 0.5                         | 6720005309                    |
| 1                           | 6720005301                           | 1                           | 6720005321                    | 1                           | 6720005341                    | 1                           | 6720005361                      | 1                           | 6720005381                    | 1                           | 6720005319                    |
| 2                           | 6720005302                           | 2                           | 6720005322                    | 2                           | 6720005342                    | 2                           | 6720005362                      | 2                           | 6720005382                    | 2                           | 6720005329                    |
| 3                           | 6720005303                           | 3                           | 6720005323                    | 3                           | 6720005343                    | 3                           | 6720005363                      | 3                           | 6720005383                    | 3                           | 6720005339                    |
| 4                           | 6720005304                           | 4                           | 6720005324                    | 4                           | 6720005344                    | 4                           | 6720005364                      | 4                           | 6720005384                    | 4                           | 6720005349                    |
| 6                           | 6720005306                           | 6                           | 6720005326                    | 6                           | 6720005346                    | 6                           | 6720005366                      | 6                           | 6720005386                    | 6                           | 6720005369                    |
| 8                           | 6720005308                           | 8                           | 6720005328                    | 8                           | 6720005348                    | 8                           | 6720005368                      | 8                           | 6720005388                    | 8                           | 6720005389                    |
| 10                          | 6720005310                           | 10                          | 6720005330                    | 10                          | 6720005350                    | 10                          | 6720005370                      | 10                          | 6720005390                    | 10                          | 6720005399                    |
| 12                          | 6720005312                           | 12                          | 6720005332                    | 12                          | 6720005352                    | 12                          | 6720005372                      | 12                          | 6720005392                    | 12                          | 6720005313                    |

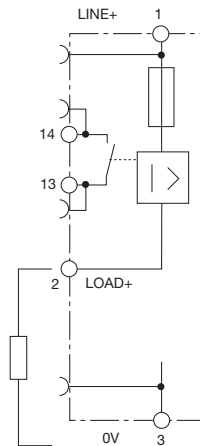
\* Control force input on/off    \*\* Reset input only to reset under fault conditions

## ESX10-T Signal inputs / outputs (wiring diagram)

**ESX10-TA-100**  
without signal input/output

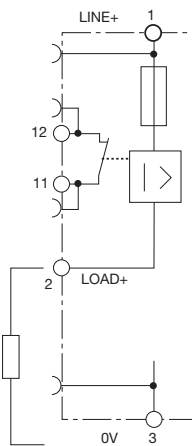


**ESX10-TB-101**  
without signal input  
with signal output F  
(single signal, N/O)



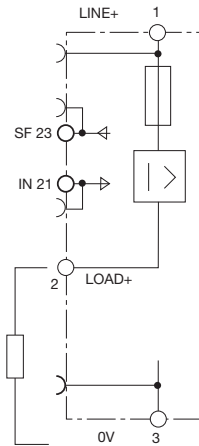
operating condition: 13-14 closed  
fault condition: 13-14 open

**ESX10-TB-102**  
without signal input  
with signal output F  
(single signal, N/C)



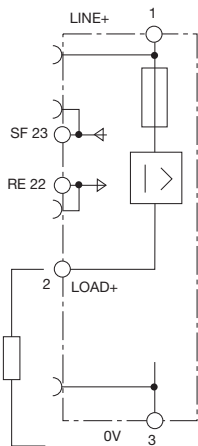
operating condition: 11-12 open  
fault condition: 11-12 closed

**ESX10-TB-114**  
with control input IN+  
(+24VDC)  
with status output SF  
(+24 V = load output ON)



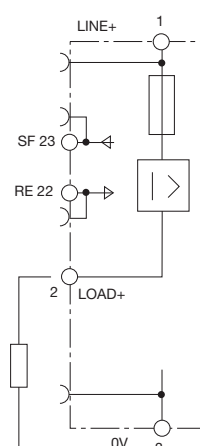
operating condition: SF +24 V = OK  
fault condition: SF 0 V

**ESX10-TB-124**  
with reset input RE  
(+24VDC ↓)  
with status output SF  
(+24 V = load output ON)



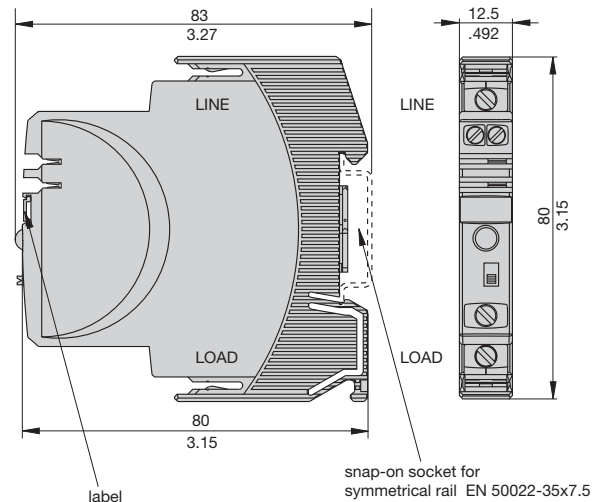
operating condition: SF +24 V = O  
fault condition: SF 0 V

**ESX10-TB-127**  
with reset input RE  
(+DC 24 V ↓)  
with inverse status output SF  
(0 V = load output ON)



operating condition: SF 0 V = OK  
fault condition: SF +24 V

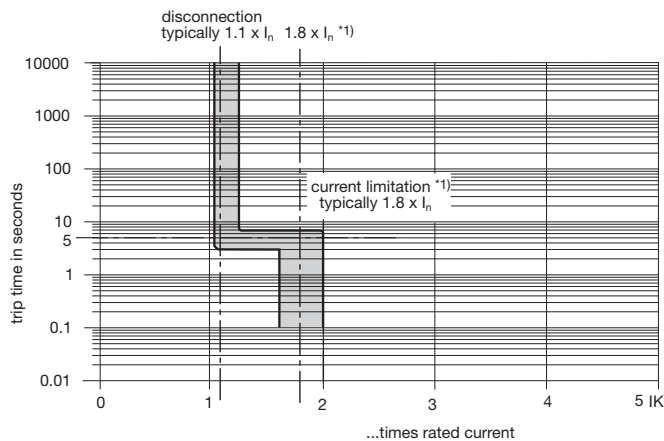
## Dimensions



This is a metric design and millimeter dimensions take precedence (mm / inch)

# Electronic Circuit Protection ESX10-T

## Time/Current characteristic curve ( $T_a = 25^\circ\text{C}$ )



\*1) current limitation typically  $1.8 \times I_n$  times rated current at  $I_n = 0.5 \text{ A} \dots 6 \text{ A}$   
 current limitation typically  $1.5 \times I_n$  times rated current at  $I_n = 8 \text{ A}$  or  $10 \text{ A}$   
 current limitation typically  $1.3 \times I_n$  times rated current at  $I_n = 12 \text{ A}$

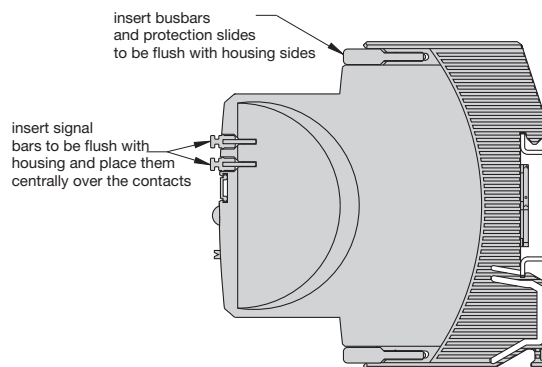
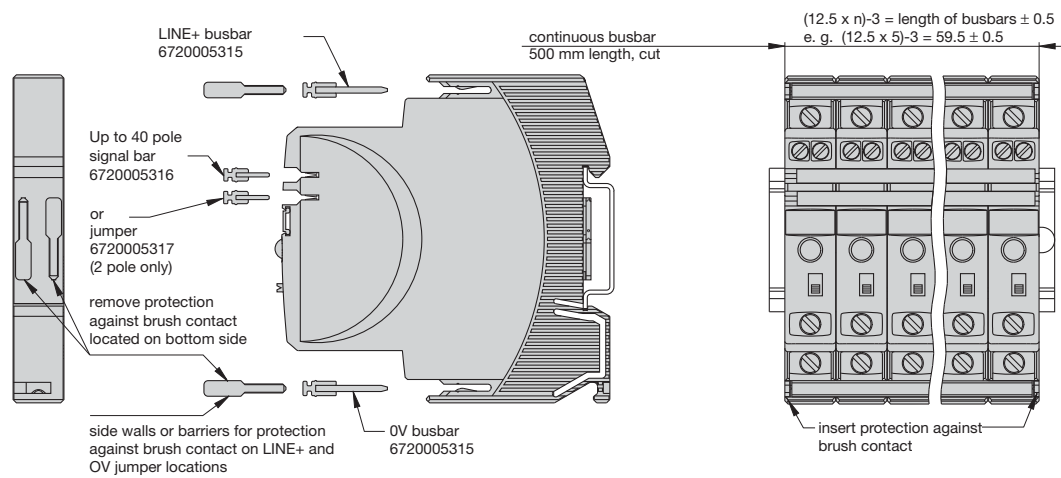
- The trip time is typically 3 s in the range between  $1.1$  and  $1.8 \times I_n$ .
- Electronic current limitation occurs at typically  $1.8 \times I_n$  which means that under all overload conditions (independent of the power supply and the resistance of the load circuit) the max. overload before disconnection will not exceed  $1.8 \times I_n$  times the current rating. Trip time is between 100 ms and 3 sec (depending on overload or at short circuit).
- Without this current limitation a considerably higher overload current would flow in the event of an overload or short circuit.

**Table 3: Reliable trip of ESX10-T**

| Reliable trip of ESX10-T with different cable lengths and cross sections                  |                                                  |                                                                                                                                                            |             |                                  |       |       |       |      |      |
|-------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------|-------|-------|-------|------|------|
| Resistivity of copper $\rho_0 =$                                                          |                                                  | 0.0178 (Ohm x mm <sup>2</sup> ) / m                                                                                                                        |             |                                  |       |       |       |      |      |
| <b>U<sub>b</sub> = DC 19.2 V</b> (= 80 % of 24 V)                                         |                                                  | voltage drop of ESX10-T and tolerance of trip point (typically 1.1 x I <sub>N</sub> = 1.05 ... <b>1.35 x I<sub>N</sub></b> ) have been taken into account. |             |                                  |       |       |       |      |      |
| ESX10-T-selected rating I <sub>N</sub> (in A)                                             | ➔                                                | <b>3</b>                                                                                                                                                   | <b>6</b>    | ➔ <b>ESX10-T trips after 3 s</b> |       |       |       |      |      |
| e. g. trip current I <sub>ab</sub> = 1.25 x I <sub>N</sub> (in A)                         | ➔                                                | 3.75                                                                                                                                                       | 7.5         |                                  |       |       |       |      |      |
| <b>R<sub>max</sub> in Ohm = (U<sub>b</sub> / I<sub>ab</sub>) - 0.050</b>                  | ➔                                                | <b>5.07</b>                                                                                                                                                | <b>2.51</b> |                                  |       |       |       |      |      |
| <b>The ESX10-T reliably trips from 0 Ohm to max. circuitry resistance R<sub>max</sub></b> |                                                  |                                                                                                                                                            |             |                                  |       |       |       |      |      |
|                                                                                           | Cable cross section <b>A</b> in mm <sup>2</sup>  |                                                                                                                                                            | 0.14        | 0.25                             | 0.34  | 0.5   | 0.75  | 1    | 1.5  |
|                                                                                           | cable length <b>L</b> in meter (= single length) | <b>cable resistance in Ohm = (R<sub>0</sub> x 2 x L) / A</b>                                                                                               |             |                                  |       |       |       |      |      |
|                                                                                           | ↓                                                | ↓                                                                                                                                                          | ↓           | ↓                                | ↓     | ↓     | ↓     | ↓    | ↓    |
|                                                                                           | 5                                                |                                                                                                                                                            | 1.27        | 0.71                             | 0.52  | 0.36  | 0.24  | 0.18 | 0.12 |
|                                                                                           | 10                                               |                                                                                                                                                            | 2.54        | 1.42                             | 1.05  | 0.71  | 0.47  | 0.36 | 0.24 |
|                                                                                           | 15                                               |                                                                                                                                                            | 3.81        | 2.14                             | 1.57  | 1.07  | 0.71  | 0.53 | 0.36 |
|                                                                                           | 20                                               |                                                                                                                                                            | 5.09        | 2.85                             | 2.09  | 1.42  | 0.95  | 0.71 | 0.47 |
|                                                                                           | 25                                               |                                                                                                                                                            | 6.36        | 3.56                             | 2.62  | 1.78  | 1.19  | 0.89 | 0.59 |
|                                                                                           | 30                                               |                                                                                                                                                            | 7.63        | 4.27                             | 3.14  | 2.14  | 1.42  | 1.07 | 0.71 |
|                                                                                           | 35                                               |                                                                                                                                                            | 8.90        | 4.98                             | 3.66  | 2.49  | 1.66  | 1.25 | 0.83 |
|                                                                                           | 40                                               |                                                                                                                                                            | 10.17       | 5.70                             | 4.19  | 2.85  | 1.90  | 1.42 | 0.95 |
|                                                                                           | 45                                               |                                                                                                                                                            | 11.44       | 6.41                             | 4.71  | 3.20  | 2.14  | 1.60 | 1.07 |
|                                                                                           | 50                                               |                                                                                                                                                            | 12.71       | 7.12                             | 5.24  | 3.56  | 2.37  | 1.78 | 1.19 |
|                                                                                           | 75                                               |                                                                                                                                                            | 19.07       | 10.68                            | 7.85  | 5.34  | 3.56  | 2.67 | 1.78 |
|                                                                                           | 100                                              |                                                                                                                                                            | 25.34       | 14.24                            | 10.47 | 7.12  | 4.75  | 3.56 | 2.37 |
|                                                                                           | 125                                              |                                                                                                                                                            | 31.79       | 17.80                            | 13.09 | 8.90  | 5.93  | 4.45 | 2.97 |
|                                                                                           | 150                                              |                                                                                                                                                            | 38.14       | 21.36                            | 15.71 | 10.68 | 7.12  | 5.34 | 3.56 |
|                                                                                           | 175                                              |                                                                                                                                                            | 44.50       | 24.92                            | 18.32 | 12.46 | 8.31  | 6.23 | 4.15 |
|                                                                                           | 200                                              |                                                                                                                                                            | 50.86       | 28.48                            | 20.94 | 14.24 | 9.49  | 7.12 | 4.75 |
|                                                                                           | 225                                              |                                                                                                                                                            | 57.21       | 32.04                            | 23.56 | 16.02 | 10.68 | 8.01 | 5.34 |
|                                                                                           | 250                                              | ➔                                                                                                                                                          | 63.57       | 35.60                            | 26.18 | 17.80 | 11.87 | 8.90 | 5.93 |
| <b>Example 1:</b>                                                                         | max. length at 1.5 mm <sup>2</sup> and 3 A       | <b>214 m</b>                                                                                                                                               | ➔           |                                  |       |       |       |      |      |
| <b>Example 2:</b>                                                                         | max. length at 1.5 mm <sup>2</sup> and 6 A       | <b>106 m</b>                                                                                                                                               |             |                                  |       |       |       |      |      |
| <b>Example 3:</b>                                                                         | mixed wiring:                                    | R1 = 40 m in 1.5 mm <sup>2</sup> and R2 = 5 m in 0.25 mm <sup>2</sup> :                                                                                    |             |                                  |       |       |       |      |      |
|                                                                                           | (Control cabinet – sensor/actuator level)        | R1 = 0.95 Ohm, R2 = 0.71 Ohm <b>Total (R1 + R2) = 1.66 Ohm</b>                                                                                             |             |                                  |       |       |       |      |      |

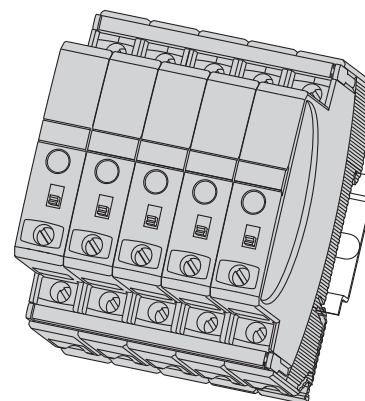
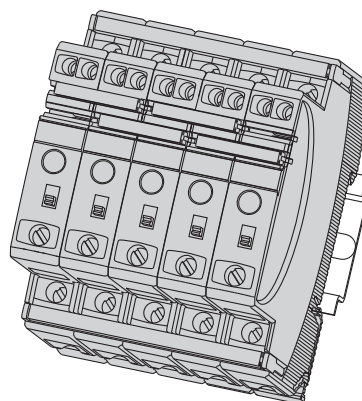
## Mounting examples for ESX10-T

The ESX10-T features an integral power distribution system.



5 ESX10-TB  
with busbars  
and jumpers

5 ESX10-TA  
with busbars



## Mounting procedure:

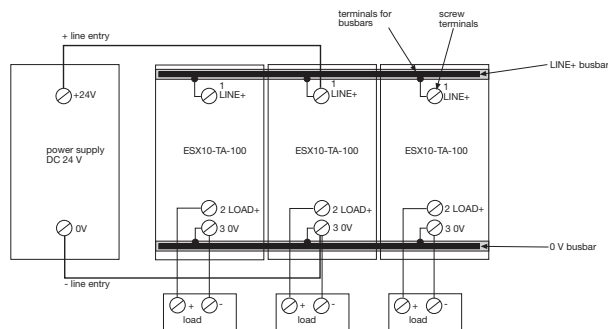
Before wiring insert busbars into protection block.

# Electronic Circuit Protection ESX10-T

## Connection diagrams and application examples ESX10-T

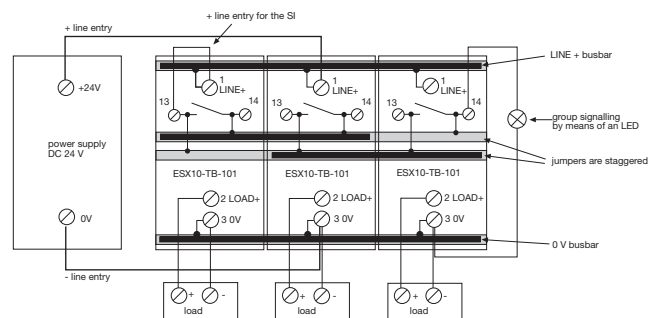
Signal contacts are shown in OFF or fault condition.

### ESX10-TA-100



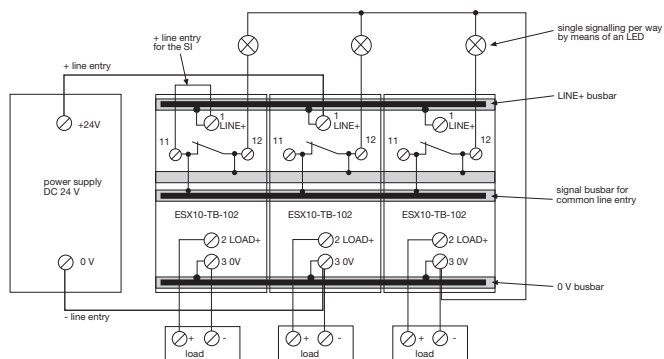
### ESX10-TB-101

group signaling (series connection)



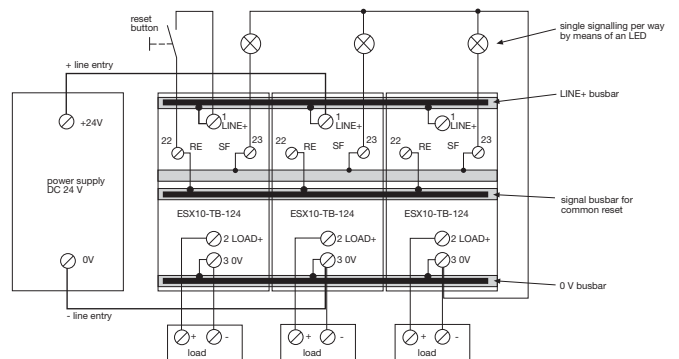
### ESX10-TB-102

Single signaling with common line entry



### ESX10-TB-124

Single signaling with common reset



## Accessories for ESX10-T

### Description

The ESX10-T features an integral power distribution system. The following wiring modes are possible with various plug-gable current and signal busbars:

- LINE +(24VDC)
- 0 V

**Caution:** The electronic devices ESX10-T require a 0 V connection

- signal contacts
- reset inputs

| Description                                                       | Part No.          |      |
|-------------------------------------------------------------------|-------------------|------|
| <b>Busbars for LINE+ and 0 V</b>                                  | <b>6720005315</b> |      |
| max. load with one line entry<br>(recommended: centre line entry) | I <sub>max</sub>  | 50 A |
| max. load with two line entries                                   | I <sub>max</sub>  | 63 A |
| length:                                                           | 500 mm            |      |

|                                                                |                   |       |
|----------------------------------------------------------------|-------------------|-------|
| <b>Signal busbars for signal contacts<br/>and reset inputs</b> | <b>6720005316</b> |       |
| max. load with one line entry                                  | I <sub>max</sub>  | 1 A   |
| with one series connection of signal contacts                  | I <sub>max</sub>  | 0.5 A |
| length:                                                        | 500 mm            |       |

|                                    |                   |  |
|------------------------------------|-------------------|--|
| <b>Jumpers for signal contacts</b> | <b>6720005317</b> |  |
| length:                            | 21 mm             |  |
| packing unit:                      | 10 pcs            |  |

|                                                          |                   |
|----------------------------------------------------------|-------------------|
| <b>TS32 rail adapter</b>                                 | <b>9102100000</b> |
| (Remove protection walls/barriers before using adapter.) |                   |

For detailed installation instructions and approvals contact Weidmüller at 1-800-849-9343 or go to [www.weidmuller.com](http://www.weidmuller.com)

## Introduction – Circuit Protection

Weidmüller's DIN-rail mounted circuit breakers are available for use in applications where circuit protection must be able to distinguish between circuit overloads and short circuits. Each circuit breaker has the ability to be reset without the need to change components. All circuit breakers are available with an assortment of jumpers and marking tags.

Circuit breakers in the 9926 Series are cULus listed according to UL489 and CSA 22.2 No. 5.02, CE, VDE. The hydraulic magnetic trip mechanism offers 10,000A of interrupting capacity in 120V and 240V, 50/60Hz applications.



**9926 Series**

The CB2200 Series feature integrated alarm contacts within a narrow profile, thereby allowing increased enclosure capacity. All of these circuit breakers demonstrate consistent reliability through 100% calibration and testing, and feature a touch safe design to prevent injury from accidental contact with live components.



**CB2200 Series**

The CB4200 Series of thermal magnetic circuit breakers feature a push-button style of trip reset. This reset provides a visual indication of status which allows for rapid troubleshooting.



**CB4200 Series**

The CB9100 Series of thermal magnetic circuit breakers provide a rugged and industry-standard form factor (18 mm/pole). For supplemental circuit protection.



**CB9100 Series**



## 9926 Series Branch Rated Circuit Breakers–AC Version with Contacts

### Circuit Breakers with Auxiliary switch, Trip alarm, Combination of both

- AC voltages (120/240V)
- Single and double pole versions
- cULus listed according to UL489 and C22.2 No. 5.02, CE, VDE
- Factory fitted auxiliary or trip alarm
- Compact 6.5mm width
- Attached to right hand side of circuit breaker

### 9926 Series Single Pole w/ Auxiliary Contact†



### 9926 Series Single Pole Trip (Alarm Contact)



### 9926 Series Single Pole Combination (Auxiliary & Alarm Contact)†



| Technical Data                                              |                        |
|-------------------------------------------------------------|------------------------|
| Voltage                                                     | 120/240 VAC, 50/60Hz   |
| Current                                                     |                        |
| minimum                                                     | 0.5A                   |
| maximum                                                     | 25A                    |
| Interrupting capacity                                       | 10,000A                |
| Dielectric strength                                         | 1500V, 50/60Hz         |
| Insulation resistance                                       | 100MΩ                  |
| Operating life                                              | 10000                  |
|                                                             | mechanical operations  |
| Operating temperature                                       | -40...+65°C            |
| Wire size*                                                  |                        |
| 0.5-15A:                                                    | 14AWG min., 10AWG max. |
| 20-25A:                                                     | 10AWG min.             |
| Torque                                                      | 20 in.-lb              |
| Approval                                                    |                        |
| cULus listed according to UL489 and C22.2 No. 5.02, CE, VDE |                        |

†UL 489 listed  
(5A, 250 VAC; 0.5A, 80 VDC Auxiliary; 0.5A, 125 VDC Trip Alarm)

IEC 60947-5-1 Approved  
(5A, 250 VAC; 0.5A, 110 VDC Auxiliary; 0.5A, 125 VDC Trip Alarm)

\*Wire sizes: gauges specified are the minimum allowable as per CSA and UL standards.

The 9926 circuit breakers do not have provisions for marking tags. A possible solution is to cut the adhesive SchS2 tag rail to length (approximately 20 mm on a single pole unit so the current rating remains visible or approximately 30 mm on a two pole unit). The SchS2 accepts DEK, WS and ESG 8/17 marking tags. The part number for adhesive SchS2 is **1720600000**.

| Type: Single Pole Aux (up to 120 VAC) |            |                    |  |
|---------------------------------------|------------|--------------------|--|
| Current Ratings (amps)                | Part No.   | Description        |  |
| 1                                     | 9926261001 | QL-A-1-13-DM-KM-1  |  |
| 2                                     | 9926261002 | QL-A-1-13-DM-KM-2  |  |
| 5                                     | 9926261005 | QL-A-1-13-DM-KM-5  |  |
| 10                                    | 9926261010 | QL-A-1-13-DM-KM-10 |  |
| 15                                    | 9926261015 | QL-A-1-13-DM-KM-15 |  |
| 20                                    | 9926261020 | QL-A-1-13-DM-KM-20 |  |
| 25                                    | 9926261025 | QL-A-1-13-DM-KM-25 |  |

### 9926 Series Double Pole w/ Auxiliary Contact†



| Type: Single Pole Trip (up to 120 VAC) |            |                    |  |
|----------------------------------------|------------|--------------------|--|
| Current Ratings (amps)                 | Part No.   | Description        |  |
| 1                                      | 9926271001 | QL-T-1-13-DM-KM-1  |  |
| 2                                      | 9926271002 | QL-T-1-13-DM-KM-2  |  |
| 5                                      | 9926271005 | QL-T-1-13-DM-KM-5  |  |
| 10                                     | 9926271010 | QL-T-1-13-DM-KM-10 |  |
| 15                                     | 9926271015 | QL-T-1-13-DM-KM-15 |  |
| 20                                     | 9926271020 | QL-T-1-13-DM-KM-20 |  |
| 25                                     | 9926271025 | QL-T-1-13-DM-KM-25 |  |

### 9926 Series Double Pole Trip (Alarm Contact)



| Type: Single Pole Combo (up to 120 VAC) |            |                     |  |
|-----------------------------------------|------------|---------------------|--|
| Current Ratings (amps)                  | Part No.   | Description         |  |
| 1                                       | 9926281001 | QL-AT-1-13-DM-KM-1  |  |
| 2                                       | 9926281002 | QL-AT-1-13-DM-KM-2  |  |
| 5                                       | 9926281005 | QL-AT-1-13-DM-KM-5  |  |
| 10                                      | 9926281010 | QL-AT-1-13-DM-KM-10 |  |
| 15                                      | 9926281015 | QL-AT-1-13-DM-KM-15 |  |
| 20                                      | 9926281020 | QL-AT-1-13-DM-KM-20 |  |
| 25                                      | 9926281025 | QL-AT-1-13-DM-KM-25 |  |

### 9926 Series Double Pole Combination (Auxiliary & Alarm Contact)†



| Type: Double Pole Aux (up to 240 VAC) |            |                    |  |
|---------------------------------------|------------|--------------------|--|
| Current Ratings (amps)                | Part No.   | Description        |  |
| 1                                     | 9926262001 | QL-A-2-13-DM-KM-1  |  |
| 2                                     | 9926262002 | QL-A-2-13-DM-KM-2  |  |
| 5                                     | 9926262005 | QL-A-2-13-DM-KM-5  |  |
| 10                                    | 9926262010 | QL-A-2-13-DM-KM-10 |  |
| 15                                    | 9926262015 | QL-A-2-13-DM-KM-15 |  |
| 20                                    | 9926262020 | QL-A-2-13-DM-KM-20 |  |
| 25                                    | 9926262025 | QL-A-2-13-DM-KM-25 |  |

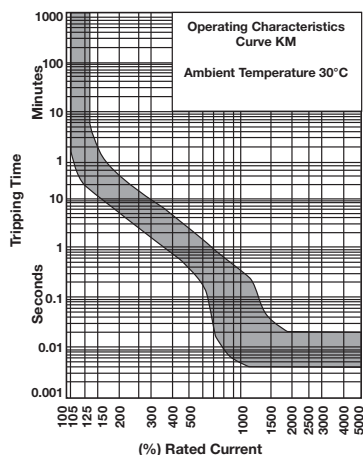
| Type: Double Pole Trip (up to 240 VAC) |            |                    |  |
|----------------------------------------|------------|--------------------|--|
| Current Ratings (amps)                 | Part No.   | Description        |  |
| 1                                      | 9926272001 | QL-T-2-13-DM-KM-1  |  |
| 2                                      | 9926272002 | QL-T-2-13-DM-KM-2  |  |
| 5                                      | 9926272005 | QL-T-2-13-DM-KM-5  |  |
| 10                                     | 9926272010 | QL-T-2-13-DM-KM-10 |  |
| 15                                     | 9926272015 | QL-T-2-13-DM-KM-15 |  |
| 20                                     | 9926272020 | QL-T-2-13-DM-KM-20 |  |
| 25                                     | 9926272025 | QL-T-2-13-DM-KM-25 |  |

| Type: Double Pole Combo (up to 240 VAC) |            |                     |  |
|-----------------------------------------|------------|---------------------|--|
| Current Ratings (amps)                  | Part No.   | Description         |  |
| 1                                       | 9926282001 | QL-AT-2-13-DM-KM-1  |  |
| 2                                       | 9926282002 | QL-AT-2-13-DM-KM-2  |  |
| 5                                       | 9926282005 | QL-AT-2-13-DM-KM-5  |  |
| 10                                      | 9926282010 | QL-AT-2-13-DM-KM-10 |  |
| 15                                      | 9926282015 | QL-AT-2-13-DM-KM-15 |  |
| 20                                      | 9926282020 | QL-AT-2-13-DM-KM-20 |  |
| 25                                      | 9926282025 | QL-AT-2-13-DM-KM-25 |  |

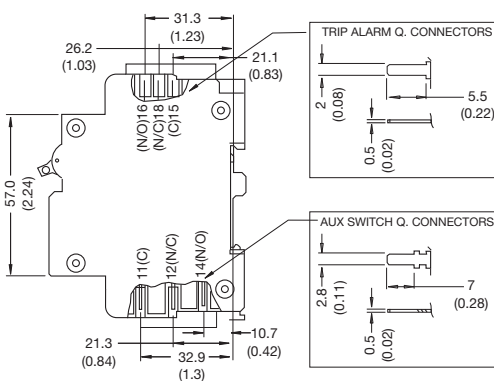
### 9926 Series–AC version Trip Curve

### Trip Curves—Hydraulic Magnetic Type Typical time/current characteristics at 30°C

Additional trip curves and amp ratings are available upon request.



### Dual Mount Dimensions in mm (in.)



## 53



# 9926 Series Supplemental Circuit Breakers with Contacts

## Circuit Breakers Auxiliary switch, Trip alarm, Combination of both

- AC Voltages 277/480V
- Trip curve 2 for general purpose applications
- UL 1077 recognized
- VDE approved and CE marked
- Just 13 mm wide
- Mounts to 35 mm DIN-rail
- Factory fitted auxiliary or trip alarm
- Single, double and triple pole versions

| Technical Data        |                                                 |
|-----------------------|-------------------------------------------------|
| Voltage               | 277/480 VAC @ 50/60 Hz                          |
| Current               |                                                 |
| minimum               | 0.5 A                                           |
| maximum               | 60 A                                            |
| Interrupting capacity | 5 kA @ 277/480 V,<br>5 kA @ 120 V, 5 kA @ 240 V |
| Dielectric strength   | 1500 V, 50/60 Hz                                |
| Insulation resistance | 100 MΩ                                          |
| Operating life        | 10000                                           |
|                       | mechanical operations                           |
| Operating temperature | -40...+65°C                                     |
| Wire size*            |                                                 |
| 1-15A:                | 14 AWG min., 10 AWG max.                        |
| 20-25A:               | 10 AWG min.                                     |
| Torque                | 20 in.-lb                                       |

### Approval

†UL 1077 Recognized, VDE (EN 60947-2)

Approved, CSA C22.2 No. 235, CE Marked

†UL 489 listed

(5A, 250 VAC; 0.5A, 80 VDC Auxiliary; 0.5A, 125 VDC Trip Alarm)

IEC 60947-5-1 Approved

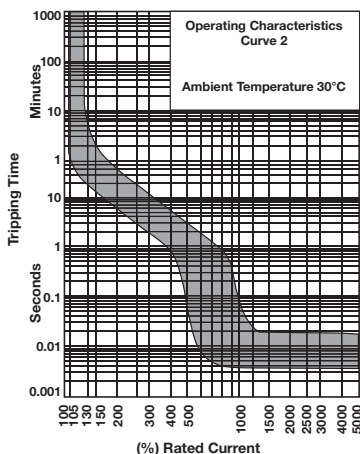
(5A, 250 VAC; 0.5A, 110 VDC Auxiliary; 0.5A, 125 VDC Trip Alarm)

\*Wire sizes: gauges specified are the minimum allowable as per CSA and UL standards.

The 9926 circuit breakers do not have provisions for marking tags. A possible solution is to cut the adhesive SchS2 tag rail to length (approximately 20 mm on a single pole unit so the current rating remains visible or approximately 30 mm on a two pole unit). The SchS2 accepts DEK, WS and ESG 8/17 marking tags. The part number for adhesive SchS2 is **1720600000**.

### 9926 Series-Supplemental Trip Curve

## Trip Curves—Hydraulic Magnetic Type Typical time/current characteristics at 30°C



†cURus recognized to UL1077 and C22.2 No. 235

## 9926 Series Single Pole w/ Auxiliary Contact†



| Type: Single Pole Aux (up to 277 VAC) |            |                  |
|---------------------------------------|------------|------------------|
| Current Ratings (amps)                | Part No.   | Description      |
| 1                                     | 9926261501 | QZ-A-1-13-D-2-01 |
| 2                                     | 9926261502 | QZ-A-1-13-D-2-02 |
| 5                                     | 9926261505 | QZ-A-1-13-D-2-05 |
| 10                                    | 9926261510 | QZ-A-1-13-D-2-10 |
| 15                                    | 9926261515 | QZ-A-1-13-D-2-15 |
| 20                                    | 9926261520 | QZ-A-1-13-D-2-20 |
| 25                                    | 9926261525 | QZ-A-1-13-D-2-25 |

## 9926 Series Double Pole w/ Auxiliary Contact†



| Type: Double Pole Aux (up to 480 VAC) |            |                  |
|---------------------------------------|------------|------------------|
| Current Ratings (amps)                | Part No.   | Description      |
| 1                                     | 9926262501 | QZ-A-2-13-D-2-01 |
| 2                                     | 9926262502 | QZ-A-2-13-D-2-02 |
| 5                                     | 9926262505 | QZ-A-2-13-D-2-05 |
| 10                                    | 9926262510 | QZ-A-2-13-D-2-10 |
| 15                                    | 9926262515 | QZ-A-2-13-D-2-15 |
| 20                                    | 9926262520 | QZ-A-2-13-D-2-20 |
| 25                                    | 9926262525 | QZ-A-2-13-D-2-25 |

## 9926 Series Triple Pole w/ Auxiliary Contact†



| Type: Triple Pole Aux (up to 480 VAC) |            |                  |
|---------------------------------------|------------|------------------|
| Current Ratings (amps)                | Part No.   | Description      |
| 1                                     | 9926263501 | QZ-A-3-13-D-2-01 |
| 2                                     | 9926263502 | QZ-A-3-13-D-2-02 |
| 5                                     | 9926263505 | QZ-A-3-13-D-2-05 |
| 10                                    | 9926263510 | QZ-A-3-13-D-2-10 |
| 15                                    | 9926263515 | QZ-A-3-13-D-2-15 |
| 20                                    | 9926263520 | QZ-A-3-13-D-2-20 |
| 25                                    | 9926263525 | QZ-A-3-13-D-2-25 |

## 9926 Series Single Pole Trip (Alarm Contact)



| Type: Single Pole Trip (up to 277 VAC) |            |                  |
|----------------------------------------|------------|------------------|
| Current Ratings (amps)                 | Part No.   | Description      |
| 1                                      | 9926271501 | QZ-T-1-13-D-2-01 |
| 2                                      | 9926271502 | QZ-T-1-13-D-2-02 |
| 5                                      | 9926271505 | QZ-T-1-13-D-2-05 |
| 10                                     | 9926271510 | QZ-T-1-13-D-2-10 |
| 15                                     | 9926271515 | QZ-T-1-13-D-2-15 |
| 20                                     | 9926271520 | QZ-T-1-13-D-2-20 |
| 25                                     | 9926271525 | QZ-T-1-13-D-2-25 |

## 9926 Series Double Pole Trip (Alarm Contact)



| Type: Double Pole Trip (up to 480 VAC) |            |                  |
|----------------------------------------|------------|------------------|
| Current Ratings (amps)                 | Part No.   | Description      |
| 1                                      | 9926272501 | QZ-T-2-13-D-2-01 |
| 2                                      | 9926272502 | QZ-T-2-13-D-2-02 |
| 5                                      | 9926272505 | QZ-T-2-13-D-2-05 |
| 10                                     | 9926272510 | QZ-T-2-13-D-2-10 |
| 15                                     | 9926272515 | QZ-T-2-13-D-2-15 |
| 20                                     | 9926272520 | QZ-T-2-13-D-2-20 |
| 25                                     | 9926272525 | QZ-T-2-13-D-2-25 |

## 9926 Series Triple Pole Trip (Alarm Contact)



| Type: Triple Pole Trip (up to 480 VAC) |            |                  |
|----------------------------------------|------------|------------------|
| Current Ratings (amps)                 | Part No.   | Description      |
| 1                                      | 9926273501 | QZ-T-3-13-D-2-01 |
| 2                                      | 9926273502 | QZ-T-3-13-D-2-02 |
| 5                                      | 9926273505 | QZ-T-3-13-D-2-05 |
| 10                                     | 9926273510 | QZ-T-3-13-D-2-10 |
| 15                                     | 9926273515 | QZ-T-3-13-D-2-15 |
| 20                                     | 9926273520 | QZ-T-3-13-D-2-20 |
| 25                                     | 9926273525 | QZ-T-3-13-D-2-25 |

## 9926 Series Single Pole Combination (Auxiliary & Alarm Contact)†



| Type: Single Pole Combo (up to 277 VAC) |            |                   |
|-----------------------------------------|------------|-------------------|
| Current Ratings (amps)                  | Part No.   | Description       |
| 1                                       | 9926281501 | QZ-AT-1-13-D-2-01 |
| 2                                       | 9926281502 | QZ-AT-1-13-D-2-02 |
| 5                                       | 9926281505 | QZ-AT-1-13-D-2-05 |
| 10                                      | 9926281510 | QZ-AT-1-13-D-2-10 |
| 15                                      | 9926281515 | QZ-AT-1-13-D-2-15 |
| 20                                      | 9926281520 | QZ-AT-1-13-D-2-20 |
| 25                                      | 9926281525 | QZ-AT-1-13-D-2-25 |

## 9926 Series Double Pole Combination (Auxiliary & Alarm Contact)†



| Type: Double Pole Combo (up to 480 VAC) |            |                   |
|-----------------------------------------|------------|-------------------|
| Current Ratings (amps)                  | Part No.   | Description       |
| 1                                       | 9926282501 | QZ-AT-2-13-D-2-01 |
| 2                                       | 9926282502 | QZ-AT-2-13-D-2-02 |
| 5                                       | 9926282505 | QZ-AT-2-13-D-2-05 |
| 10                                      | 9926282510 | QZ-AT-2-13-D-2-10 |
| 15                                      | 9926282515 | QZ-AT-2-13-D-2-15 |
| 20                                      | 9926282520 | QZ-AT-2-13-D-2-20 |
| 25                                      | 9926282525 | QZ-AT-2-13-D-2-25 |

## 9926 Series Triple Pole Combination (Auxiliary & Alarm Contact)†



| Type: Triple Pole Combo (up to 480 VAC) |            |                   |
|-----------------------------------------|------------|-------------------|
| Current Ratings (amps)                  | Part No.   | Description       |
| 1                                       | 9926283501 | QZ-AT-3-13-D-2-01 |
| 2                                       | 9926283502 | QZ-AT-3-13-D-2-02 |
| 5                                       | 9926283505 | QZ-AT-3-13-D-2-05 |
| 10                                      | 9926283510 | QZ-AT-3-13-D-2-10 |
| 15                                      | 9926283515 | QZ-AT-3-13-D-2-15 |
| 20                                      | 9926283520 | QZ-AT-3-13-D-2-20 |
| 25                                      | 9926283525 | QZ-AT-3-13-D-2-25 |

## 9926 Series Supplemental Circuit Breakers–GFCI

### Ground Fault Current Interrupt

- CE approved
- UL1077 and UL1053 recognized
- Small frame size (26mm wide)
- Single pole plus switched neutral ground leakage protection
- Trip point is unaffected by ambient temperature
- Current ratings up to 50A
- Trip indication (mid trip handle position)
- Trip curve 2 for general purpose applications

### 9926 Series GFCI



#### Ordering Data

|  |
|--|
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

#### Technical Data

|                             |                     |
|-----------------------------|---------------------|
| Standard Ampere Ratings (A) | 5 to 50A            |
| Sensitivity (mA)            | 30 (CE) / 22 (UL)   |
| Number of Poles             | 1 + N               |
| Equipment Type              | Ground Leakage/GFCS |
| Rated Voltage (V)           | 230 (CE) / 240 (UL) |
| Rated Interrupting/         | 5 kA                |
| Withstand Capacity (kA)     | –                   |
| Weight (kg)                 | 0.26                |
| Trip Curve (standard)       | 2                   |
| Operating Temperature       | -40 to +65°C        |

#### Approval

UL 1077 and UL 1053, CE

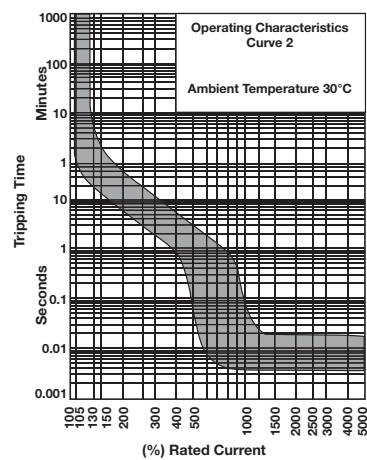
#### Type: Single Pole GFCI

##### Current

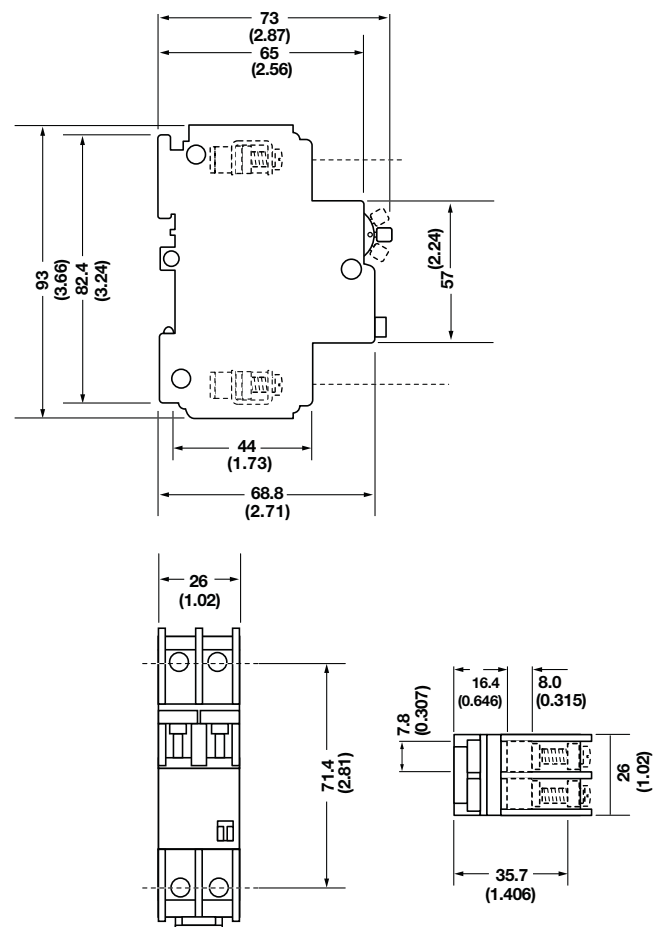
| Ratings (amps) | Part No.   | Description          |
|----------------|------------|----------------------|
| 5              | 9926291105 | QF17A2505 - CB W/GFI |
| 10             | 9926291110 | QF17A2510 - CB W/GFI |
| 15             | 9926291115 | QF17A2515 - CB W/GFI |
| 20             | 9926291120 | QF17A2520 - CB W/GFI |
| 25             | 9926291125 | QF17A2525 - CB W/GFI |
| 30             | 9926291130 | QF17A2530 - CB W/GFI |
| 50             | 9926291150 | QF17A2550 - CB W/GFI |

#### 9926 Series–AC version Trip Curve

**Trip Curves—Hydraulic Magnetic Type Typical time/current characteristics at 30°C**



#### 9926 Series GFCI – dimensions in mm (in.)

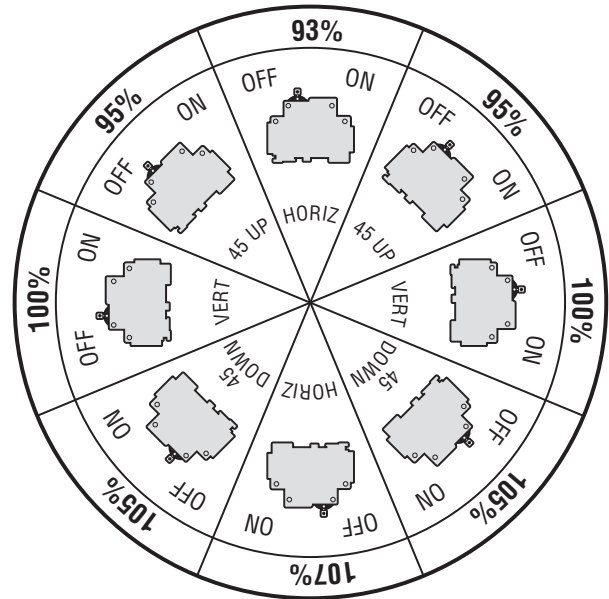


# 9926 Series Mounting Options and Accessories

## Mounting Options

If the product is not vertically mounted in the normal DIN-rail mounting orientation, a rating factor must be applied. Figure 1 shows a diagram of the rating factor to apply. The published curves for these circuit breaker products are produced with the circuit breaker in the vertical mounting position. The rating factor only applies to the must hold and must trip points of the curve as the other parts (instantaneous trip point) stay largely unaffected.

It is important to note that in environments that are exposed to a high degree of vibration, the cables that connect to the circuit breaker must be securely held in place, as the breaker is not designed to carry the weight of the cables. A maximum of 35N can be applied to the terminal area, in a direction perpendicular to the mounting axis.

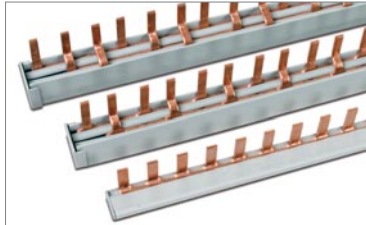


## Accessories

### Technical Data

|                        |           |
|------------------------|-----------|
| Current Rating         | 80A max.  |
| Voltage                | 500V max. |
| Short Circuit Strength | 25kA      |

| Type                           | Part No. |
|--------------------------------|----------|
| Bus bar (1 pole, insulated 1m) | 67101904 |
| Bus bar (2 pole, insulated 1m) | 67101972 |
| Bus bar (3 pole, insulated 1m) | 67101971 |



| Type                              | Part No. |
|-----------------------------------|----------|
| Bus bar end cap, 1 pole           | 67101973 |
| Bus bar end cap, 2 pole or 3 pole | 67101974 |



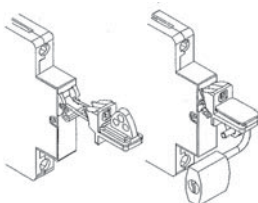
### Technical Data

|                |                         |
|----------------|-------------------------|
| Current Rating | 85A max.                |
| Wire Size      | 10 AWG min., 4 AWG max. |
| Dimensions     | A: 6 mm B: 32 mm        |

| Type                | Part No. |
|---------------------|----------|
| Power lug, straight | 67101960 |
| Power lug, 90°      | 67101961 |



| Type            | Part No. |
|-----------------|----------|
| Lock-out handle | 67101913 |



### Part Number Table - Example

To order 9926 Series Single Pole Circuit Breaker  
Part No. 9926251100

- Current Rating of 1.0 amp
- Internal Resistance per Pole of 1.1 ohms
- Trip Curve – M1, Medium (Standard)

9 9 2 6 2 5 1 0 0 0

#### Amperage

- \*00\* - 0.5A
- \*01\* - 1A
- \*02\* - 2A
- \*/
- \*60\* - 60A

#### Trip Curves (Types 5-9)

- \*0\* - Branch AC KM (Standard)
- \*1\* - Branch AC OP (Instantaneous)
- \*2\* - Branch AC 1 (Fast)
- \*3\* - Supplemental 9 (Slow)
- \*4\* - Branch 80VDC 1 (Fast)
- \*5\* - Supplemental 2 (Standard)
- \*6\* - Branch 125VDC OP (Instantaneous)
- \*7\* - Branch 80VDC OP (Instantaneous)
- \*8\* - Branch 125VDC U2 (Standard)
- \*9\* - Branch 80VDC U2 (Standard)

#### Poles

- 1 Pole
- 2 Pole
- 3 Pole

#### Type

- \*5\* - Base Breaker
- \*6\* - With Auxiliary Contact
- \*7\* - With Trip Alarm Contact
- \*8\* - Combo Aux/Trip Contact
- \*9\* - GFCI

9 9 2 6 2 4 1 0 0 0

#### Amperage

- \*00\* - 0.5A
- \*01\* - 1A
- \*02\* - 2A
- \*/
- \*60\* - 60A

#### Trip Curves (Type 4)

- \*0\* - Supplemental 1 (Slow)
- \*1\* - Supplemental 3 (Fast)
- \*3\* - Branch AC 9 (Slow)

#### Poles

- 1 Pole
- 2 Pole
- 3 Pole

#### Type

- \*4\* - Base Breaker

## CB4200 Series Supplemental Circuit Breakers

### Circuit Breakers

#### Thermal Magnetic Type

- Rated from 0.05 to 16.0 amps
- Available in single or double pole configurations
- Features a tease free design to reduce contact damage
- Offers push button trip/reset function
- Trip free design means the breaker cannot be held closed against a fault
- Mounts on 32mm\* or 35mm DIN-rail
- UL 1077 recognized
- CSA C22.2 No. 235

## CB4200 Series Single Pole

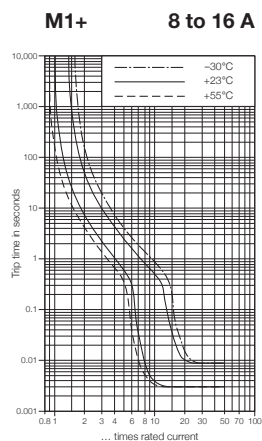
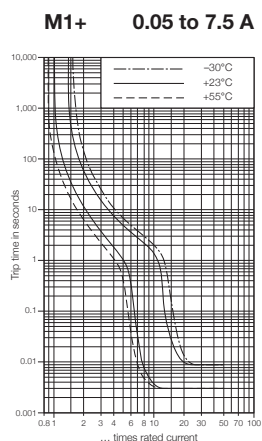


## CB4200 Series Double Pole

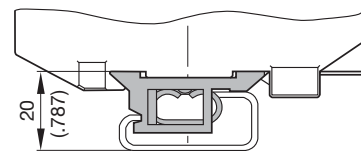


| Ordering Data | Type: Single Pole      |                                                         | Type: Double Pole      |                                                         |
|---------------|------------------------|---------------------------------------------------------|------------------------|---------------------------------------------------------|
|               | Current Ratings (amps) | Part No. TS 35<br>*For TS 32 Rail,<br>see adapter below | Current Ratings (amps) | Part No. TS 35<br>*For TS 32 Rail,<br>see adapter below |
|               | 0.05                   | 9124083500                                              | 0.05                   | 9124223500                                              |
|               | 0.08                   | 9124653500                                              | 0.08                   | 9124233500                                              |
|               | 0.1                    | 9104173500                                              | 0.1                    | 9120353500                                              |
|               | 0.2                    | 9104183500                                              | 0.2                    | 9124243500                                              |
|               | 0.3                    | 9129813500                                              | 0.3                    | 9124263500                                              |
|               | 0.4                    | 9124093500                                              | 0.4                    | 9124273500                                              |
|               | 0.5                    | 9101003500                                              | 0.5                    | 9129583500                                              |
|               | 0.6                    | 9124113500                                              | 0.6                    | 9124283500                                              |
|               | 0.7                    | 9129563500                                              | 0.7                    | 9124293500                                              |
|               | 0.8                    | 9101103500                                              | 0.8                    | 9129593500                                              |
|               | 1.0                    | 9101203500                                              | 1.0                    | 9129613500                                              |
|               | 1.2                    | 9101303500                                              | 1.2                    | 9129623500                                              |
|               | 1.3                    | 9124123500                                              | 1.3                    | 9124313500                                              |
|               | 1.4                    | 9124133500                                              | 1.4                    | 9124323500                                              |
|               | 1.5                    | 9101403500                                              | 1.5                    | 9129633500                                              |
|               | 1.8                    | 9124143500                                              | 1.8                    | 9124333500                                              |
|               | 2.0                    | 9101503500                                              | 2.0                    | 9129643500                                              |
|               | 2.5                    | 9101603500                                              | 2.5                    | 9129653500                                              |
|               | 3.0                    | 9101703500                                              | 3.0                    | 9129663500                                              |
|               | 3.5                    | 9124163500                                              | 3.5                    | 9124343500                                              |
|               | 4.0                    | 9104353500                                              | 4.0                    | 9129713500                                              |
|               | 4.5                    | 9124173500                                              | 4.5                    | 9124353500                                              |
|               | 5.0                    | 9101803500                                              | 5.0                    | 9129673500                                              |
|               | 5.5                    | 9107833500                                              | 5.5                    | 9124363500                                              |
|               | 6.0                    | 9103813500                                              | 6.0                    | 9124373500                                              |
|               | 6.5                    | 9120043500                                              | 6.5                    | 9124383500                                              |
|               | 7.0                    | 9104153500                                              | 7.0                    | 9124393500                                              |
|               | 8.0                    | 9103003500                                              | 8.0                    | 9104673500                                              |
|               | 9.0                    | 9104613500                                              | 9.0                    | 9124423500                                              |
|               | 10.0                   | 9101903500                                              | 10.0                   | 9129683500                                              |
|               | 11.0                   | 9124183500                                              | 11.0                   | 9124433500                                              |
|               | 12.0                   | 9107843500                                              | 12.0                   | 9124443500                                              |
|               | 13.0                   | 9124193500                                              | 13.0                   | 9124453500                                              |
|               | 14.0                   | 9107853500                                              | 14.0                   | 9124463500                                              |
|               | 15.0                   | 9102003500                                              | 15.0                   | 9129693500                                              |
|               | 16.0                   | 9124213500                                              | 16.0                   | 9124473500                                              |

**Trip Curves**  
**Thermal Magnetic Type**  
**Typical time/current characteristics at 23°C**

**CB4200 Series**

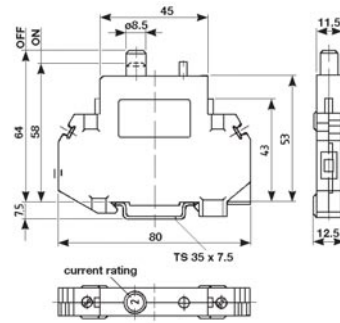
\*Adapter foot – dimensions in mm (in.)



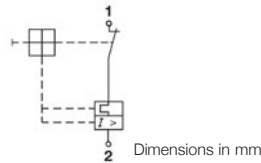
9102100000  
TS32 adapter

# CB4200 Series Supplemental Circuit Breakers

## CB4200 Series Single Pole

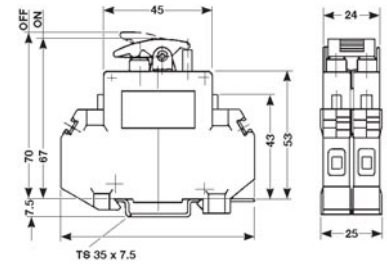


### Internal Wiring Diagram

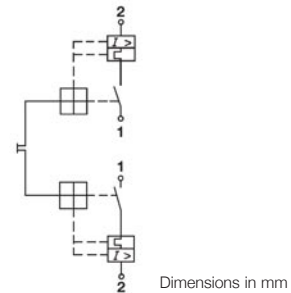


Dimensions in mm

## CB4200 Series Double Pole



### Internal Wiring Diagram



Dimensions in mm

### Technical Data

Rated voltage & current†

|     |
|-----|
| UL  |
| CSA |
| VDE |

Creepage resistance

Dielectric strength

Insulation resistance

Interrupting capacity

(VDE 0660, Part 101, P-2)

Interrupting capacity; 4201

(UL 1077/EN 60934 PC1)

Typical life at 2 x rated current

Shock

Torque

Vibration

Temperature range

Corrosion

Humidity

Weight

Wire size (UL)

### Voltage Ratings

|                             |
|-----------------------------|
| AC 250 V, DC 65 V, 50/60 Hz |
| AC 250 V, DC 65 V, 50/60 Hz |
| AC 250 V, DC 65 V, 50/60 Hz |

### Current Ratings

|             |
|-------------|
| 0.05...16 A |
| 0.05...16 A |
| 0.05...16 A |

PTI 600 to IEC 112

4,000 VAC; IEC 664 & 664 A

> 100 MΩ (DC 500 V)

4201-10

Maximum capacity

0.05...0.8 A

Self-limiting

1...2 A

200 A

2.5...16 A

400 A

Rated current

Rated voltage

Maximum capacity

0.05...2.0 A

AC 250 V

200 A

2.0...16 A

AC 250 V

200 A

20 A

AC 125 V

400 A

5,000 operations

25 g (11 ms) to IEC 68-2-27, Test Ea

1.2 Nm

5 g (57 to 500 Hz / ±0.38 mm, 10 to 57 Hz) to IEC 68-2-6, Test Fc

-30°C...+55°C (-22°F...+131°F)

96 hours at 5% salt spray, to IEC 68-2-11, Test Ka

240 hours at 95% RH, to IEC 68-2-3, Test Ca

60 g per pole

#20...8 AWG solid/0.5...6 mm²

### Accessories

Jumpers

Daisy Chain 50\*

Straight CQB\*\*

insulated

Angled CQB\*\*

insulated

Adapter foot (for TS 32 Rail)

Busbar

Single pole 1 meter

Busbar end cap for 6720000227

Power lug for 6720000227

### Type

### Part No.

|             |            |
|-------------|------------|
| BDC 50      | 9970290000 |
| CQB 2       | 9970560000 |
| CQB 3       | 9970570000 |
| CQB 4       | 9970580000 |
| CQB 10      | 9970590000 |
| CQB 2       | 9970600000 |
| CQB 3       | 9970610000 |
| CQB 4       | 9970620000 |
| CQB 10      | 9970630000 |
| MCBAF/TS 32 | 9102100000 |
|             | 6720000227 |
|             | 6720000225 |
|             | 6720000226 |

### Marking Tags

Note: Part numbers are shown for a single card of pre-printed tags numbered 1-50.

Special print only

Consecutive horizontal

Consecutive vertical

|           |               |
|-----------|---------------|
| WS 8/5 MC | 1640750000*** |
| DEK 5/5   | 0473460001    |
| DEK 5/5   | 0473560001    |

†Note: Resistive and inductive loads (0.05 - 16 A)

\*BDC will accommodate 20 A per pin, 20 A total

\*\*CQB will accommodate 18 A per pin, 18 A total; dedicated to 4201 Series

\*\*\*Please specify horizontal or vertical print when ordering.

Standard quantity = 144 tags per card.

# CB2200 Series Supplemental Circuit Breakers

## Circuit Breakers Thermal Magnetic Type

- Rated from 0.1 to 32.0 amps
- Available in single, double and triple pole configurations
- Offers normally open (N/O) and normally closed (N/C) auxiliary contacts
- Lever-switch trip/reset function
- Mounts on 32mm or 35mm DIN-rail
- UL 1077 recognized
- CSA C22.2 No. 235

## CB2200 Series Single Pole



## CB2200 Series Double Pole



## CB2200 Series Triple Pole



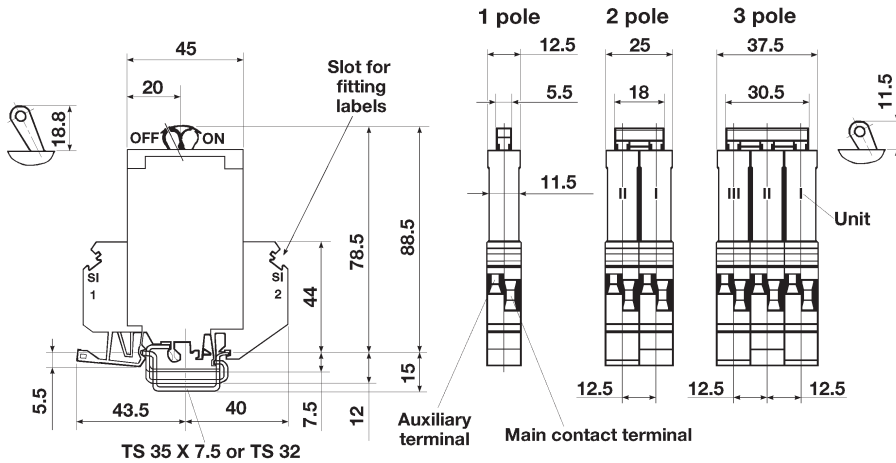
| Ordering Data | Type: Single Pole*     |                   | Type: Double Pole      |                  | Type: Triple Pole      |                  |
|---------------|------------------------|-------------------|------------------------|------------------|------------------------|------------------|
|               | Current Ratings (amps) | N/O Aux. Part No. | Current Ratings (amps) | N/O-N/C Part No. | Current Ratings (amps) | N/O-N/C Part No. |
|               | 0.1                    | 9911010005        | 0.1                    | 9912010003       | 0.1                    | 9913010003       |
|               | 0.2                    | 9911020005        | 0.2                    | 9912020003       | 0.2                    | 9913020003       |
|               | 0.3                    | 9911030005        | 0.3                    | 9912030003       | 0.3                    | 9913030003       |
|               | 0.4                    | 9911040005        | 0.4                    | 9912040003       | 0.4                    | 9913040003       |
|               | 0.5                    | 9911050005        | 0.5                    | 9912050003       | 0.5                    | 9913050003       |
|               | 0.6                    | 9911060005        | 0.6                    | 9912060003       | 0.6                    | 9913060003       |
|               | 0.8                    | 9911080005        | 0.8                    | 9912080003       | 0.8                    | 9913080003       |
|               | 1.0                    | 9911100005        | 1.0                    | 9912100003       | 1.0                    | 9913100003       |
|               | 1.5                    | 9911150005        | 1.5                    | 9912150003       | 1.5                    | 9913150003       |
|               | 2.0                    | 9911200005        | 2.0                    | 9912200003       | 2.0                    | 9913200003       |
|               | 2.5                    | 9911250005        | 2.5                    | 9912250003       | 2.5                    | 9913250003       |
|               | 3.0                    | 9911300005        | 3.0                    | 9912300003       | 3.0                    | 9913300003       |
|               | 4.0                    | 9911400005        | 4.0                    | 9912400003       | 4.0                    | 9913400003       |
|               | 5.0                    | 9911500005        | 5.0                    | 9912500003       | 5.0                    | 9913500003       |
|               | 6.0                    | 9911600005        | 6.0                    | 9912600003       | 6.0                    | 9913600003       |
|               | 8.0                    | 9911800005        | 8.0                    | 9912800003       | 8.0                    | 9913800003       |
|               | 10                     | 9921100005        | 10                     | 9922100003       | 10                     | 9923100003       |
|               | 12                     | 9921120005        | 12                     | 9922120003       | 12                     | 9923120003       |
|               | 15                     | 9921150005        | 15                     | 9922150003       | 15                     | 9923150003       |
|               | 16                     | 9921160005        | 16                     | 9922160003       | 16                     | 9923160003       |
|               | 18                     | 9921180005        | 18                     | 9922180003       | 18                     | 9923180003       |
|               | 20                     | 9921200005        | 20                     | 9922200003       | 20                     | 9923200003       |
|               | 25                     | 9921250005        |                        |                  |                        |                  |
|               | 32                     | 9921320005        |                        |                  |                        |                  |

\*All part numbers with N/O Auxiliary Contacts on each pole when the main breaker contact is open (in the OFF position)

| Ordering Data | Type: Single Pole                                                                                                     |            | Type: Double Pole |            | Type: Triple Pole |            |
|---------------|-----------------------------------------------------------------------------------------------------------------------|------------|-------------------|------------|-------------------|------------|
|               | All part numbers with N/C Auxiliary Contacts on each pole when the main breaker contact is open (in the OFF position) |            |                   |            |                   |            |
|               | Current Ratings                                                                                                       |            | Current Ratings   |            | Current Ratings   |            |
|               | (amps)                                                                                                                | Part No.   | (amps)            | Part No.   | (amps)            | Part No.   |
|               | 0.1                                                                                                                   | 9911010000 | 0.1               | 9912010000 | 0.1               | 9913010000 |
|               | 0.2                                                                                                                   | 9911020000 | 0.2               | 9912020000 | 0.2               | 9913020000 |
|               | 0.3                                                                                                                   | 9911030000 | 0.3               | 9912030000 | 0.3               | 9913030000 |
|               | 0.4                                                                                                                   | 9911040000 | 0.4               | 9912040000 | 0.4               | 9913040000 |
|               | 0.5                                                                                                                   | 9911050000 | 0.5               | 9912050000 | 0.5               | 9913050000 |
|               | 0.6                                                                                                                   | 9911060000 | 0.6               | 9912060000 | 0.6               | 9913060000 |
|               | 0.8                                                                                                                   | 9911080000 | 0.8               | 9912080000 | 0.8               | 9913080000 |
|               | 1.0                                                                                                                   | 9911100000 | 1.0               | 9912100000 | 1.0               | 9913100000 |
|               | 1.5                                                                                                                   | 9911150000 | 1.5               | 9912150000 | 1.5               | 9913150000 |
|               | 2.0                                                                                                                   | 9911200000 | 2.0               | 9912200000 | 2.0               | 9913200000 |
|               | 2.5                                                                                                                   | 9911250000 | 2.5               | 9912250000 | 2.5               | 9913250000 |
|               | 3.0                                                                                                                   | 9911300000 | 3.0               | 9912300000 | 3.0               | 9913300000 |
|               | 4.0                                                                                                                   | 9911400000 | 4.0               | 9912400000 | 4.0               | 9913400000 |
|               | 5.0                                                                                                                   | 9911500000 | 5.0               | 9912500000 | 5.0               | 9913500000 |
|               | 6.0                                                                                                                   | 9911600000 | 6.0               | 9912600000 | 6.0               | 9913600000 |
|               | 8.0                                                                                                                   | 9911800000 | 8.0               | 9912800000 | 8.0               | 9913800000 |
|               | 10                                                                                                                    | 9921100000 | 10                | 9922100000 | 10                | 9923100000 |
|               | 12                                                                                                                    | 9921120000 | 12                | 9922120000 | 12                | 9923120000 |
|               | 15                                                                                                                    | 9921150000 | 15                | 9922150000 | 15                | 9923150000 |
|               | 16                                                                                                                    | 9921160000 | 16                | 9922160000 | 16                | 9923160000 |
|               | 18                                                                                                                    | 9921180000 | 18                | 9922180000 | 18                | 9923180000 |
|               | 20                                                                                                                    | 9921200000 | 20                | 9922200000 | 20                | 9923200000 |
|               | 25                                                                                                                    | 9921250000 | 25                | 9922250000 | 25                | 9923250000 |
|               | 32                                                                                                                    | 9921320000 | 32                | 9922320000 | 32                | 9923320000 |

# CB2200 Series Supplemental Circuit Breakers

## CB2200 Series



Dimensions in mm

### Technical Data

Rated voltage & current†

|  |     |
|--|-----|
|  | UL  |
|  | CSA |
|  | VDE |

Auxiliary contacts

Creepage resistance

Dielectric strength

Insulation resistance

Interrupting capacity

(VDE 0660, Part 101, P-2)

Interrupting capacity

(UL 1077/EN 60934 PC1)

Typical life at 2 x rated current

Shock

Torque

Nm (lb. in.)

Vibration

Temperature range

Corrosion

Humidity

Weight

Wire size (UL)

Voltage Ratings

Current Ratings

|                                  |            |
|----------------------------------|------------|
| 277 / 480 VAC (50/60 Hz); 65 VDC | 0.1...32 A |
| 277 / 480 VAC (50/60 Hz); 65 VDC | 0.1...32 A |
| 250 / 415 VAC / 65 VDC           | 0.1...32 A |
| 250 VAC / 65 VDC, 1 A            |            |

PTI 600 to IEC 112

3,000 VAC; IEC 664 & 664 A

> 100 MΩ (DC 500 V)

| Rated current | Rated voltage | Rupture capacity (3 times) |
|---------------|---------------|----------------------------|
| 0.05...0.8 A  | 250 / 415 VAC | 400 A                      |
| 6...32 A      | 250 / 415 VAC | 800 A                      |

| Rated current | Rated voltage | Max. rupture capacity (3 times) |
|---------------|---------------|---------------------------------|
| 0.1...16 A    | 277 / 480 VAC | 5000 A                          |
| 20...32 A     | 277 / 480 VAC | 2000 A                          |
| 0.1...32 A    | 65 VDC        | 2000 A                          |

5,000 operations

25 g (11 ms) to IEC 68-2-27, Test Ea

0.6 (5.3) Auxiliary contact: 0.5 (4.4)

5 g (57 to 500 Hz / ±0.38 mm, 10 to 57 Hz) to IEC 68-2-6, Test Fc

-30...+60°C (-22°F...+140°F)

96 hours at 5% salt spray, to IEC 68-2-11, Test Ka

240 hours at 95% RH, to IEC 68-2-3, Test Ca

Approximately 60 g per pole

max 6 mm²...8 AWG max 1.5 mm²...14 AWG (Aux. contact)

### Accessories

|         |                |
|---------|----------------|
| Jumpers | Daisy Chain 50 |
| Busbars |                |

### Marking Tags

|             |                        |
|-------------|------------------------|
| 1 2 3 4 5 6 | Special print only     |
|             | Consecutive horizontal |
|             | Consecutive vertical   |

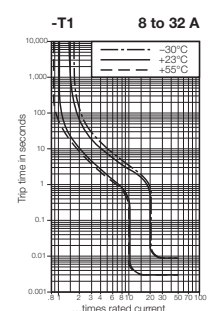
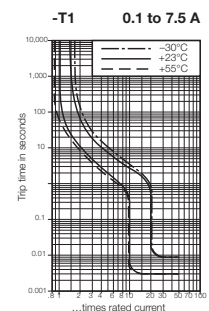
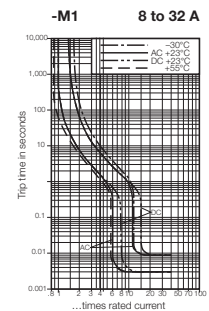
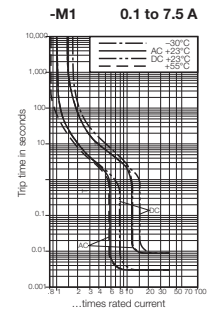
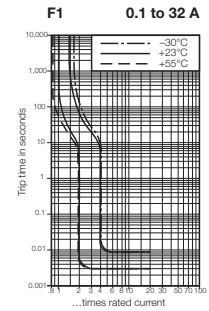
Note: Part numbers shown are for a single card of pre-printed tags numbered 1-50.

†Note: Resistive and inductive loads (0.05 - 16 A)

\*Please specify horizontal or vertical print when ordering.

## Trip Curves—Thermal Magnetic Type Typical time/current characteristics at 23°C

### CB2200 Series



# CB9100 Series Supplemental Circuit Breakers

## Circuit Breakers Thermal Magnetic Type

- Rated from 0.5 to 63 amps
- Available in single, double and triple pole configurations
- Optional auxiliary contacts
- Mounts on 35mm DIN-rail
- UL and CSA approvals
- CSA 277 VAC (1 pole) or 480 VAC (2 and 3 pole)
- 50 VDC (0.5 A to 50 A) 1 pole
- 110 VDC (0.5 A to 50 A) 2 pole

## CB9100 Series Single Pole



## CB9100 Series Double Pole



## CB9100 Series Triple Pole

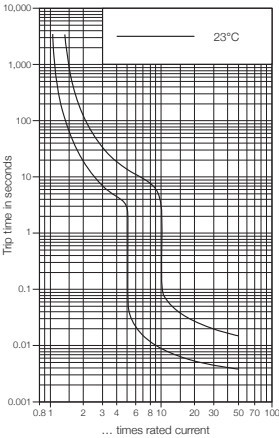


| Ordering Data | Type: Single Pole      | Type: Double Pole      | Type: Triple Pole      |
|---------------|------------------------|------------------------|------------------------|
|               | Current Ratings (amps) | Current Ratings (amps) | Current Ratings (amps) |
|               | Part No.               | Part No.               | Part No.               |
|               | 0.5                    | 0.5                    | 0.5                    |
|               | 1.0                    | 1.0                    | 1.0                    |
|               | 2.0                    | 2.0                    | 2.0                    |
|               | 3.0                    | 3.0                    | 3.0                    |
|               | 4.0                    | 4.0                    | 4.0                    |
|               | 6.0                    | 6.0                    | 6.0                    |
|               | 10.0                   | 10.0                   | 10.0                   |
|               | 13.0                   | 13.0                   | 13.0                   |
|               | 16                     | 16                     | 16                     |
|               | 20                     | 20                     | 20                     |
|               | 25                     | 25                     | 25                     |
|               | 32                     | 32                     | 32                     |
|               | 40                     | 40                     | 40                     |
|               | 50                     | 50                     | 50                     |
|               | 63                     | 63                     | 63                     |

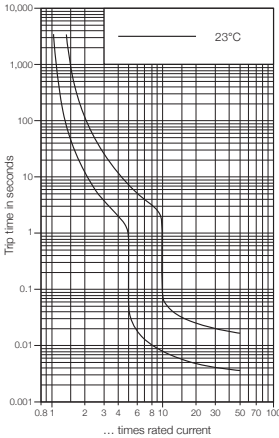
## Trip Curves Thermal Magnetic Type Typical time/current characteristics at 23°C

### CB9100 Series

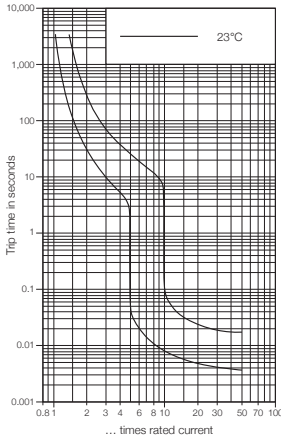
M1 0.5 to 6 A



M1 AC 10 to 40 A

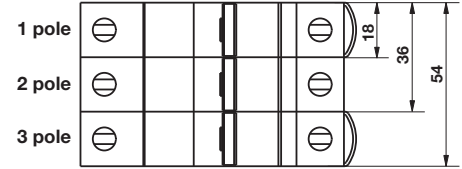
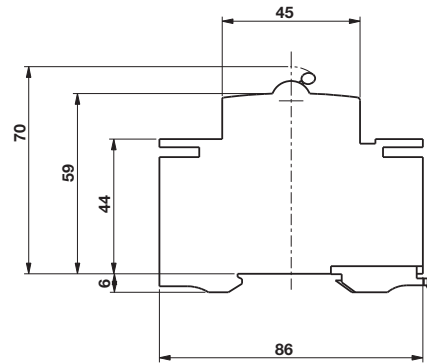


M1 AC 63 A



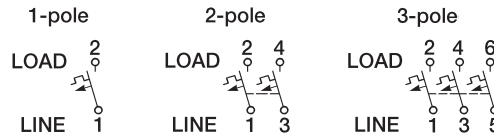
# CB9100 Series Supplemental Circuit Breakers

## CB9100 Series

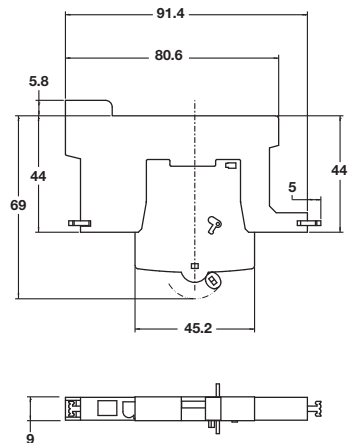


Dimensions in mm

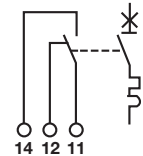
## Internal Wiring Diagram



## Auxiliary Contact Modules



## Internal Auxiliary Wiring Diagram



## Technical Data

Rated voltage & current

|                    |
|--------------------|
| UL 1077            |
| CSA C 22.2 No. 235 |
| VDE                |

Creepage resistance

Insulation resistance

Interrupting capacity

(UL 1077/EN 609334 PC1) 1 pole

Mechanical/Electrical endurance

Shock

Torque

Vibration

Temperature range - operating

Weight

Strip length

Auxiliary contact rating

Wire size - #22...12 AWG

Wire size

|                |                      |                 |                  |
|----------------|----------------------|-----------------|------------------|
| 277 V (1 pole) | 480 V (2 and 3 pole) | 50 VDC (1 pole) | 110 VDC (2 pole) |
| 277 V (1 pole) | 480 V (2 and 3 pole) | 50 VDC (1 pole) | 110 VDC (2 pole) |

PTI 250 to IEC 112

>100 MΩ at 500 VDC

| Current ratings | Interrupting Rupture capacity (3X) | Voltage           |
|-----------------|------------------------------------|-------------------|
| 0.5...63 A      | 10,000 A (UL)                      | 277 VAC/50 VDC    |
| 0.5...32 A      | 2,000 A (UL)                       | 277 / 480 AC      |
| 0.5...63 A      | 6,000 A (UL)                       | 50 VDC (1) pole   |
| 0.5...50 A      | 6,000 A (UL)                       | 110 VDC (2) poles |

20,000/10,000

20 g (10 ms)

2 Nm

3 g (10 to 55 Hz)

-25°C...+55°C (-13°F to 131°F)

1 pole (130 g); 2 pole (280 g); 3 pole (430 g)

12 mm

| Voltage    | Current |
|------------|---------|
| AC 220/240 | 5 A     |
| AC 277     | 3 A     |
| DC 24 V    | 4 A     |
| DC 60 V    | 1 A     |
| DC 220 V   | 0.4 A   |

#18...2 AWG (line); #18...3 AWG (load)

## Accessories

Jumpers

Auxiliary contacts

SPDT

Security hardware

## Marking Tags

Adhesive label

| Type                                                   | Current Side/Middle | Part No.   |
|--------------------------------------------------------|---------------------|------------|
| 3 pole bus, 10 x 1010 mm, buses (19) 3 phase groupings | 80A/100A            | 9970330000 |
| 3 pole bus, 16 x 210 mm, buses (4) 3 phase groupings   | 120A/130A           | 9970340000 |
| 3 pole bus, 16 x 1010 mm, buses (19) 3 phase groupings | 120A/130A           | 9970350000 |
| 1 pole bus, 12 x 210 mm, buses 12 breakers             | 80A/100A            | 9970360000 |
| 1 pole bus, 12 x 210 mm (insulated), buses 12 breakers | 63A                 | 9991990000 |
| Bus bar clamp                                          | 130A                | 9970370000 |

Auxiliary contacts 9970300000

Lock out cover 9970380000

ETO 10/26, yellow (26 mm x 10 mm) 1686401687