

## Description

Single and two pole magnetic circuit breakers with trip-free mechanism and push/pull on/off manual actuation. A choice of fast magnetic only or hydraulically delayed switching characteristics (S-type MO or HM CBE to EN 60934) ensures suitability for a wide range of applications. Convenient threadneck panel or plug-in mounting, and with a white push button indicator band showing clearly the tripped/off position. Available with auxiliary contacts (1 x N/O, 1 x N/C) for status signalling. Approved to CBE standard EN 60934 (IEC 60934).

## Typical application

Control equipment, communications systems, power semiconductors.

## Standard current ratings and typical internal resistance values

| Current rating (A) | Internal resistance ( $\Omega$ ) per pole |           |           |
|--------------------|---|-----------|-----------|
|                    | -F4/-F5                                   | -E1/H1/R1 | -E2/H2/R2 |
| 0.02               | 583                                       | 2 896     | 2 660     |
| 0.05               | 94  | 531       | 542       |
| 0.08               | 35.6                                      | 202       | 199       |
| 0.1                | 22.9                                      | 129       | 127       |
| 0.15               | 9.89                                      | 57.3      | 55.7      |
| 0.2                | 5.02                                      | 30.5      | 30.5      |
| 0.3                | 2.44                                      | 13.9      | 13.7      |
| 0.5                | 0.789                                     | 4.50      | 4.42      |
| 0.75               | 0.392                                     | 2.19      | 1.82      |
| 1                  | 0.246                                     | 1.10      | 1.08      |
| 1.25               | 0.145                                     | 0.695     | 0.686     |
| 1.5                | 0.10                                      | 0.487     | 0.472     |
| 1.75               | 0.083                                     | 0.355     | 0.337     |
| 2                  | 0.059                                     | 0.295     | 0.291     |
| 2.5                | 0.048                                     | 0.174     | 0.168     |
| 3                  | 0.028                                     | 0.121     | 0.118     |
| 4                  | < 0.02                                    | 0.0729    | 0.0687    |
| 5                  | < 0.02                                    | 0.0437    | 0.0449    |
| 6                  | < 0.02                                    | 0.0329    | 0.0323    |
| 8                  | < 0.02                                    | < 0.02    | < 0.02    |
| 10                 | < 0.02                                    | < 0.02    | < 0.02    |
| 12                 | < 0.02                                    | < 0.02    | < 0.02    |
| 15                 | < 0.02                                    | < 0.02    | < 0.02    |
| 16                 | < 0.02                                    | < 0.02    | < 0.02    |
| 20                 | < 0.02                                    | < 0.02    | < 0.02    |
| 25                 | < 0.02*                                   | < 0.02    | < 0.02    |
| 30                 | < 0.02*                                   | < 0.02    | < 0.02    |
| 40                 |   | < 0.02    |           |
| 50                 |   | < 0.02    |           |

\* 50 % ON duty / 60 min.



1-pole

8340-G2...

2-pole

## Technical data

For further details please see: [http://www.e-t-a.de/ti\\_e](http://www.e-t-a.de/ti_e)

|   |  |  |                 |
|---|--|--|-----------------|
| Voltage rating                                  | 3 AC 415 V; AC 240 V, 50/60 Hz; DC 80 V (higher DC voltages to special order)  |  |                 |
| Current ratings                                 | 0.02...50 A DC<br>0.02...30 A AC   |  |                 |
| Auxiliary circuit                               | 1 A, AC 240 V/DC 65 V<br>0.5 A, DC 80 V  |  |                 |
| Typical life                                    | 3 AC 415 V, AC 240 V:<br>0.02...30 A 6,000 operations at 1 x I <sub>N</sub> , inductive<br>10,000 operations at 1 x I <sub>N</sub> , resistive<br>DC 80 V: 0.02...25 A 6,000 operations at 1 x I <sub>N</sub> , inductive<br>0.02...30 A 10,000 operations at 1 x I <sub>N</sub> , resistive<br>40 + 50 A 5,000 operations at 1 x I <sub>N</sub> , resistive |  |                 |
| Ambient temperature                             | -40...+85 °C (-40...+185 °F)   |  |                 |
| Insulation co-ordination (IEC 60664 and 60664A) | rated impulse withstand voltage<br>2.5 kV  | pollution degree<br>2<br>reinforced insulation in operating area |                 |
| Dielectric strength (IEC 60664 and 60664A)      | operating area test voltage AC 3,000 V<br>Line to Load test voltage AC 1,500 V<br>pole to pole (2- and 3-pole) test voltage AC 1,500 V<br>main to auxiliary circuit test voltage AC 1,500 V<br>switching to trip circuit test voltage AC 1,500 V (version -X)  |  |                 |
| Insulation resistance                           | > 100 M $\Omega$ (DC 500 V)  |  |                 |
| Interrupting capacity                           | 6 x IN at AC;<br>IEC 60934 - test sequence E4 x IN at DC   |  |                 |
| Interrupting capacity (UL 1077)                 | I <sub>N</sub>   | 0.02...20 A  | 25...30 A       |
|   | AC:  | 1-pole AC 250 V/3,500A   | AC 250 V/3,500A |
|   |  | 2-pole AC 250 V/3,500A   | AC 250 V/5,000A |
|   | DC:  | 1-pole 0.02...50 A   | DC 80 V/3,500 A |
|   |  | 2-pole 0.02...30 A   | DC 80 V/3500 A  |
| Degree of protection (IEC 60529/DIN 40050)      | operating area IP40<br>terminal area IP00  |  |                 |
| Vibration                                       | with button down: 10 g (57-2000 Hz), $\pm$ 0.76 mm (10-57 Hz) at 0.9 x I <sub>N</sub><br>other mounting planes: 10 g (57-2000 Hz) at I <sub>N</sub> to IEC 60068-2-6, test Fc<br>10 frequency cycles/axis  |  |                 |
| Shock   | 100 g (11 ms) at 1 x I <sub>N</sub> , directions 1,2,3,4,5<br>100 g (11 ms) at 0.8 x I <sub>N</sub> , direction 6 to IEC 60068-2-27, test Ea   |  |                 |
| Corrosion                                       | 96 hours at 5 % salt mist, to IEC 60068-2-11, test Ka  |  |                 |
| Humidity  | 240 hours at 95 % RH to IEC 60068-2-78, test Cab   |  |                 |
| Mass  | approx. 70 g per pole  |  |                 |

**Ordering information**

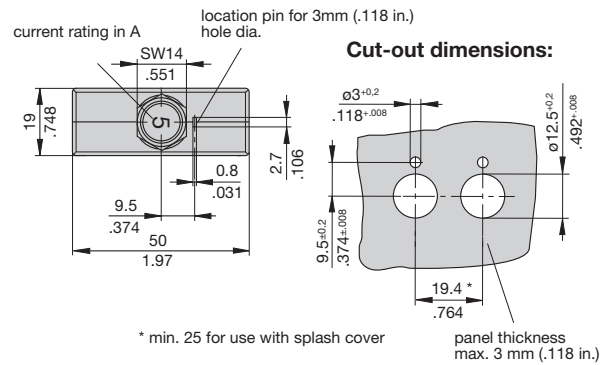
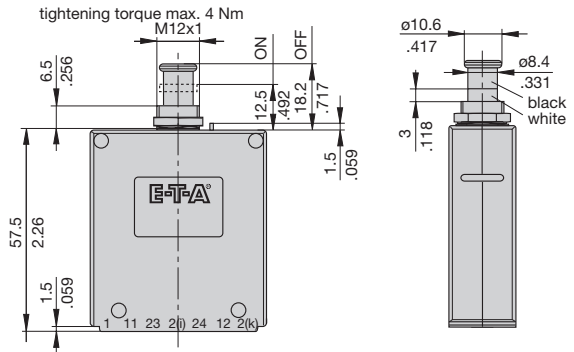
|   |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|
| <b>Type No.</b>                             |  |  |  |  |  |  |  |  |  |
| 8340  | Magnetic push/pull circuit breaker                       |  |  |  |  |  |  |  |  |
| <b>Mounting</b>                             |  |  |  |  |  |  |  |  |  |
| G   | threadneck panel mounting                                |  |  |  |  |  |  |  |  |
| <b>Threadneck design</b>                    |  |  |  |  |  |  |  |  |  |
| 2   | M12x1  |  |  |  |  |  |  |  |  |
| <b>Number of poles (main current paths)</b> |  |  |  |  |  |  |  |  |  |
| 1   | single pole, protected                                   |  |  |  |  |  |  |  |  |
| 2   | two pole, protected                                      |  |  |  |  |  |  |  |  |
| 3   | three pole, protected                                    |  |  |  |  |  |  |  |  |
| <b>Panel hardware</b>                       |  |  |  |  |  |  |  |  |  |
| 0   | without panel hardware                                   |  |  |  |  |  |  |  |  |
| 1   | with hex nut M12x1 and washer 12/15                      |  |  |  |  |  |  |  |  |
| <b>Terminal design</b>                      |  |  |  |  |  |  |  |  |  |
| P1  | blade terminals A6.3-0.8 mm (QC.250) ( $\leq 35$ A)      |  |  |  |  |  |  |  |  |
| K4  | screw terminals M5 recommended for $I_N > 20$ A          |  |  |  |  |  |  |  |  |
| R1  | round connectors $\phi 6$                                |  |  |  |  |  |  |  |  |
| <b>Characteristic curve *)</b>              |  |  |  |  |  |  |  |  |  |
| <b>Characteristic curve, instantaneous:</b> |  |  |  |  |  |  |  |  |  |
| F4  | DC   |  |  |  |  |  |  |  |  |
| F5  | AC 50/60 Hz  |  |  |  |  |  |  |  |  |
| <b>Short delay:</b>                         |  |  |  |  |  |  |  |  |  |
| E1  | DC   |  |  |  |  |  |  |  |  |
| E2  | AC 50/60 Hz  |  |  |  |  |  |  |  |  |
| <b>Medium delay:</b>                        |  |  |  |  |  |  |  |  |  |
| H1  | DC   |  |  |  |  |  |  |  |  |
| H2  | AC 50/60 Hz  |  |  |  |  |  |  |  |  |
| <b>Long delay:</b>                          |  |  |  |  |  |  |  |  |  |
| R1  | DC   |  |  |  |  |  |  |  |  |
| R2  | AC 50/60 Hz  |  |  |  |  |  |  |  |  |
| <b>Actuator colour</b>                      |  |  |  |  |  |  |  |  |  |
| A   | black with white trip indicator band                     |  |  |  |  |  |  |  |  |
| <b>Actuator marking</b>                     |  |  |  |  |  |  |  |  |  |
| 4   | rated current legible with location pin above (standard) |  |  |  |  |  |  |  |  |
| 7   | rated current legible with location pin below            |  |  |  |  |  |  |  |  |
| <b>Auxiliary contacts</b>                   |  |  |  |  |  |  |  |  |  |
| H0  | without auxiliary contacts                               |  |  |  |  |  |  |  |  |
| H1  | with auxiliary contacts                                  |  |  |  |  |  |  |  |  |
| H2  | with auxiliary contacts on pole 1 only (2 pole types)    |  |  |  |  |  |  |  |  |
| <b>Auxiliary contact function</b>           |  |  |  |  |  |  |  |  |  |
| 1   | one each N/O and N/C                                     |  |  |  |  |  |  |  |  |
| 3   | 1 pair N/C (11/12)                                       |  |  |  |  |  |  |  |  |
| <b>Auxiliary contact terminal design</b>    |  |  |  |  |  |  |  |  |  |
| 1   | blade terminals A6.3-0.8 mm                              |  |  |  |  |  |  |  |  |
| <b>Current ratings (optional)</b>           |  |  |  |  |  |  |  |  |  |
| 0.02...50 A                                 |  |  |  |  |  |  |  |  |  |

8340 - G 2 1 1 - P1 F4 - A 4 H1 1 1 - 8 A ordering example

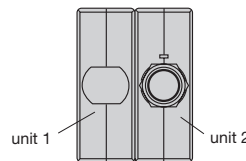
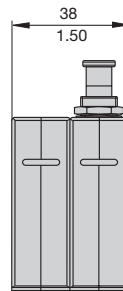
Please be informed that we have minimum ordering quantities to be observed.

\*) Other characteristic curves upon request (e.g. pulse delayed, for high inrush currents or capacitive loads)

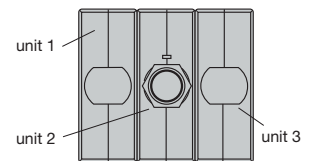
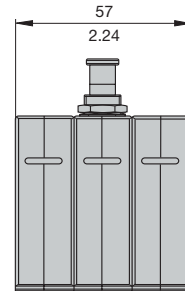
**Dimensions (1-pole)**



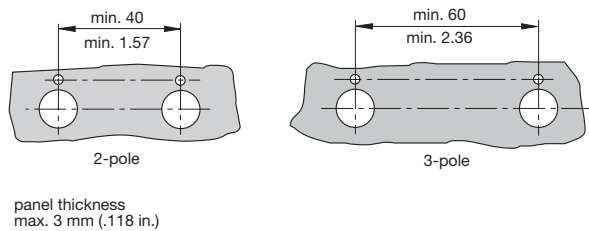
**2-pole**



**3-pole**



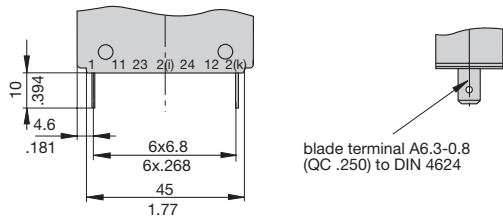
**Cut-out dimensions:**



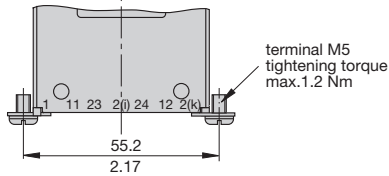
This is a metric design and millimeter dimensions take precedence (mm/inch)

**Terminal design**

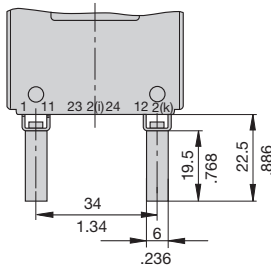
**Terminal design -P1**



**Terminal design -K4**

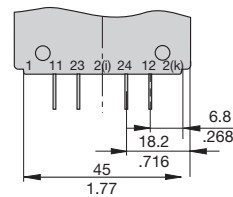


**Terminal design -R1**

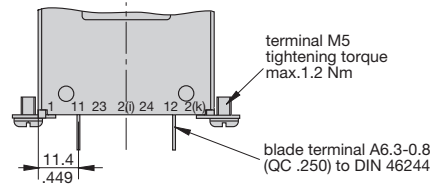


**Auxiliary contact terminal design**

**1 N/O, 1 N/C**

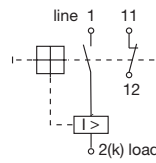


**1 N/C**

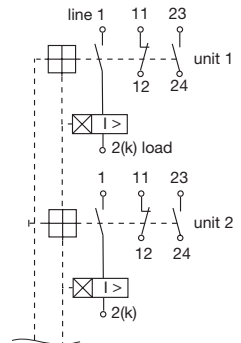


**Internal connection diagrams**

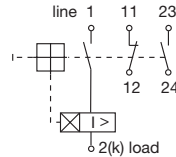
**1-pole, protected magnetically**



**double pole**



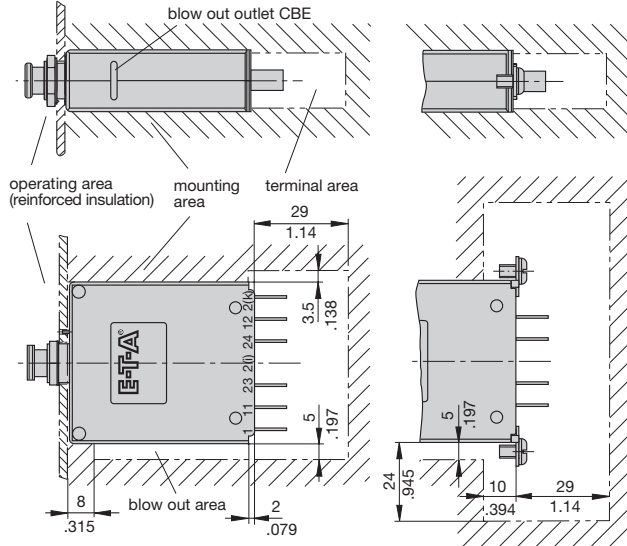
**1-pole, protected hydraulic-magnetically**



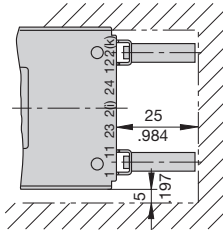
**Installation drawings**

**Terminal design -P**

**Terminal design -K**



**Terminal design -R**



**Approvals**

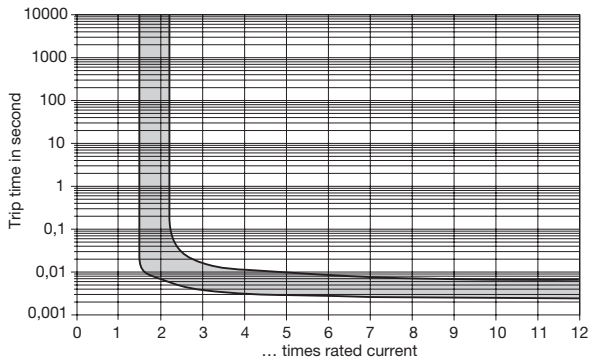
| Authority                          | Standard       | Rated voltage                                     | Current ratings   |
|------------------------------------|----------------|---|---|
| VDE                                | IEC / EN 60934 | AC 240/415 V<br>AC 240 V<br>DC 80 V               | 0.02 A...30 A<br>0.02 A...30 A<br>0.02 A...50 A   |
| UL                                 | UL 1077        | AC 250 V<br>DC 80 V<br>DC 80 V                    | 0.02 A...30 A<br>0.02 A...50 A<br>100 A (2 poles in parallel)                                       |
| UL                                 | UL 489A        | DC 80 V   | 0.05 A...30 A (1 + 2 pole)  |
| CSA                                | C22.2 No 235   | AC 250 V<br>DC 80 V                               | 0.02 A...30 A<br>0.02 A...50 A  |
| CQC                                | GB 17701       | AC 240/415 V<br>AC 240 V<br>DC 80 V<br>DC 110 V   | 0.02 A...30 A<br>0.02 A...30 A<br>0.02 A...50 A<br>0.02 A...50 A (8340-G)                           |
| QPL Sweden Defence Material Admin. | MIL-C-55629    | AC 240 V<br>DC 50 V<br>AC 240 V<br>AC 240 / 415 V | 1 A...30 A (8340-F410)<br>1 A...30 A (8340-410)<br>1 A...30 A (8340-F420)<br>1 A...30 A (8340-F430) |

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

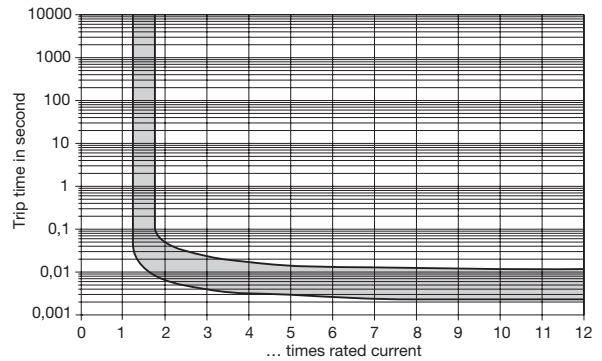
**Typical time/current characteristics**

1

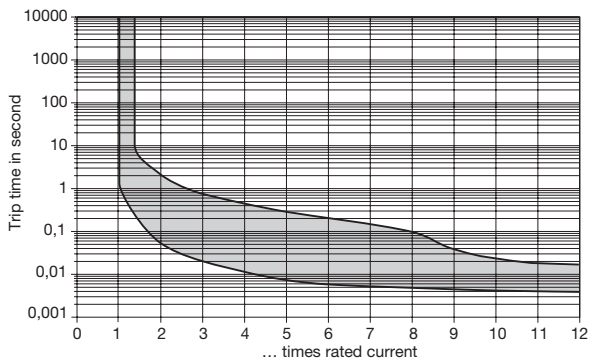
**Curve F4 for DC, magnetic (instantaneous)**  
 ( $I_N > 20$  A, 50% ON period, 60 min.) at +23 °C / +73.4 °F



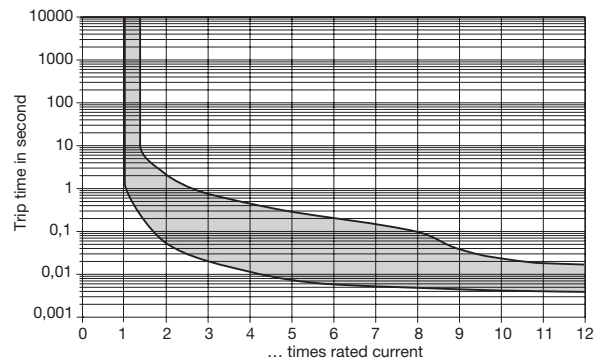
**Curve F5 for AC 50/60 Hz (instantaneous)**  
 ( $I_N > 20$  A, 50 % ED/60 min.)



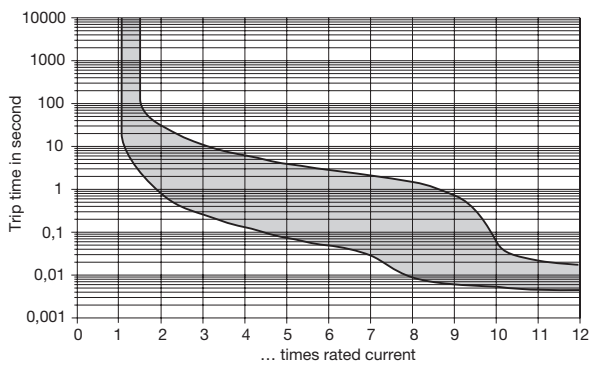
**Curve E1 for DC (short delay)**



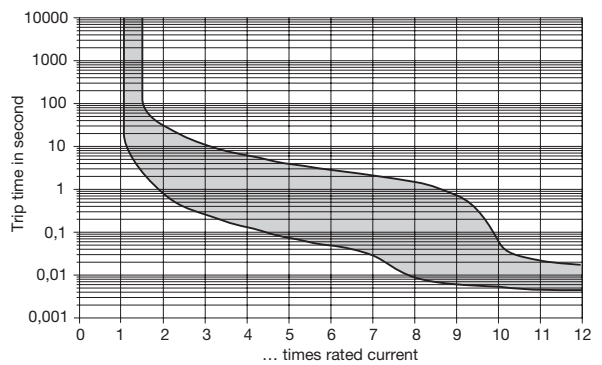
**Curve E2 (short delay) for AC 50/60 Hz**



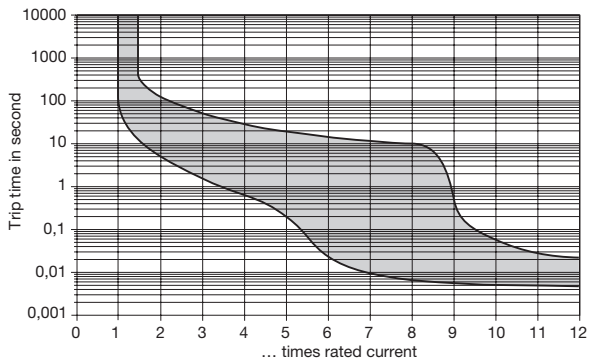
**Curve H1 for DC (medium delay)**



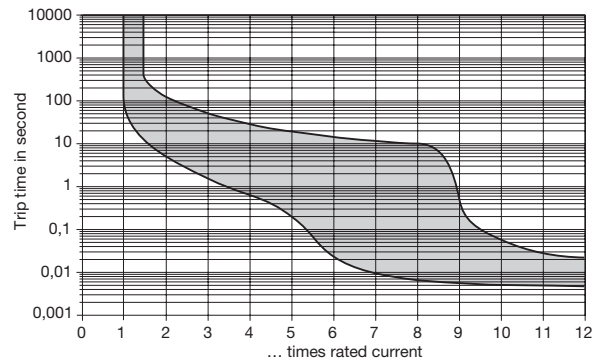
**Curve H2 (medium delay) for AC 50/60 Hz**



**Curve R1 for DC (long delay)**



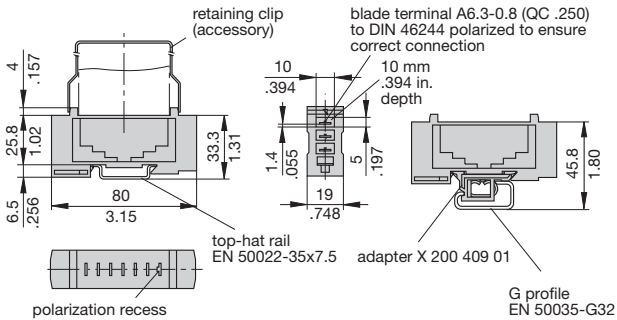
**Curve R2 (long delay) for AC 50/60 Hz**



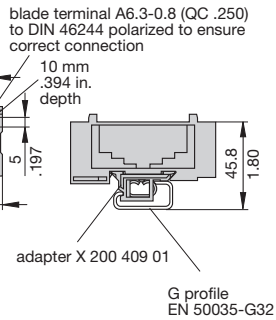
Accessories

**Socket 18-P10-Si**

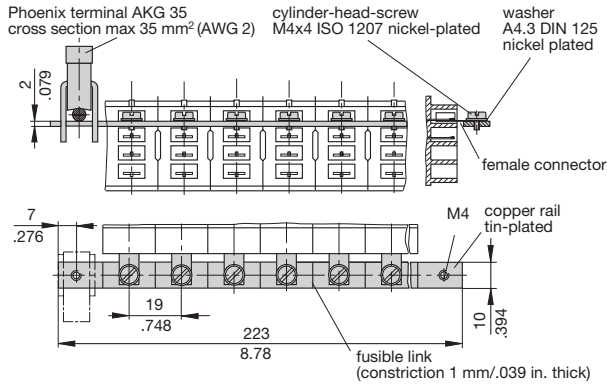
(for ratings >16 A please contact E-T-A)



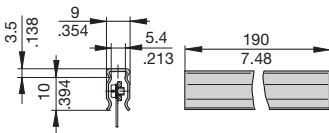
**Polarized socket with adapter 18-P10-Si-20025**



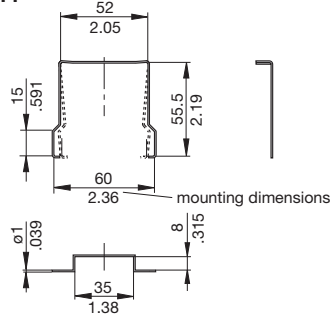
**Bus bar (10-way) (supplied as a complete package) for type 18 socket**  
(for max. 100 A continuous load), more positions available on request  
**X 211 158 01 with terminal**  
**X 211 158 02 without terminal**



**Insulated sleeving for bus bars Y 303 824 11**

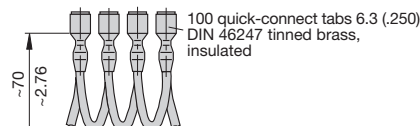


**Retaining clip for socket 18-P10-Si Y 300 579 11**

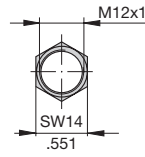


**Connector bus link -P10**

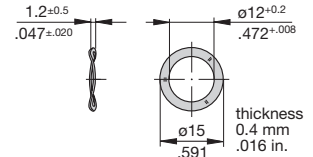
- X 210 588 01**/1.5 mm<sup>2</sup> (AWG 16), brown (up to 13 A max. load)
- X 210 588 02**/2.5 mm<sup>2</sup> (AWG 14), black (up to 20 A max. load)
- X 210 588 03**/2.5 mm<sup>2</sup> (AWG 14), red (up to 20 A max. load)
- X 210 588 04**/2.5 mm<sup>2</sup> (AWG 14), blue (up to 20 A max. load)



**Hex nut Y 300 116 02**

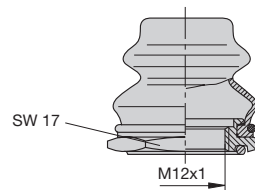


**Spring washer Y 300 118 03**

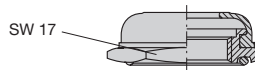


**Accessories for push button**

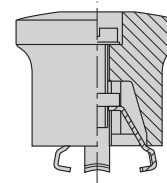
- Splash cover with hex nut and O ring (IP66 and IP67) X 200 801 08** (nickel plated hex nut M12x1, splash cover transparent)
- X 200 801 03** (black finish hex nut M12x1, splash cover black)



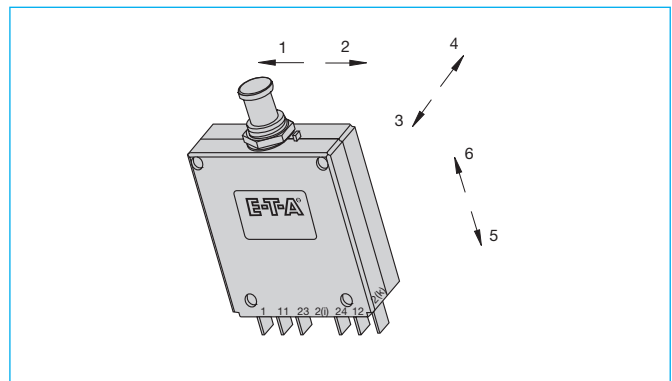
**Splash seal, black, hex nut and O ring (IP54) X 200 802 01** (nickel plated hex nut M12x1, splash seal black)



**Actuator extension X 200 803 01** (black button)



Shock directions / Mounting attitudes



This is a metric design and millimeter dimensions take precedence ( $\frac{mm}{inch}$ )

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.



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