

## Description

Single pole thermal-magnetic circuit breaker with tease-free, trip-free, snap action mechanism and two button operation (M-type TM CBE to EN 60934). Designed for plug-in mounting with E-T-A sockets 17-P10-Si, 23-P10-Si, 63-P10-Si; or panel mounting using E-T-A clips. Featuring an unprotected shunt tap terminal and optional auxiliary contacts. Type 3900 offers lower internal resistance values and is fitted as standard with auxiliary contacts and an intermediate reset position in which all contacts are isolated. Approved to CBE standard EN 60934 (IEC 60934).

## Typical applications

Process control systems, instrumentation, communications systems, rail vehicles.

## Ordering information

### Type No.

**3600** standard version with shunt tap terminal -3

**3900** low-resistance version

### Terminal design

**P10** blade terminals 6.3-0.8 (QC .250)

**Auxiliary contacts** (3900: intermediate position as standard)  
**Si** with blade terminals 6.3-0.8, one each NO/NC,

### Current ratings

**0.05...16 A** (type 3600)

**0.05...10 A** (type 3900)

**3600 - P10 - Si - 10 A** ordering example

The exact part number required can be built up from the table of choices shown above. Ordering references for optional features should be omitted if not required.

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

## Preferred types

| Preferred types | Standard current ratings (A) |   |   |   |   |    |    |
|-----------------|------------------------------|---|---|---|---|----|----|
|                 | 0.5                          | 1 | 2 | 4 | 8 | 10 | 16 |
| 3600-P10-Si-    | x                            | x | x | x | x | x  | x  |
| 3900-P10-Si-    | x                            | x | x | x |   |    |    |

## Standard current ratings and typical internal resistance values

| Current ratings (A) | Internal resistance (Ω) |       | Current ratings (A) | Internal resistance (Ω) |        |
|---------------------|-------------------------|-------|---------------------|-------------------------|--------|
|                     | 3600                    | 3900  |                     | 3600                    | 3900   |
| 0.05                | 447                     | 211   | 3                   | 0.19                    | 0.054  |
| 0.1                 | 131                     | 48    | 4                   | 0.090                   | 0.035  |
| 0.2                 | 40                      | 12.4  | 5                   | 0.061                   | 0.025  |
| 0.3                 | 19.3                    | 5.4   | 6                   | 0.041                   | ≤ 0.02 |
| 0.4                 | 10.4                    | 3.1   | 7                   | 0.034                   | ≤ 0.02 |
| 0.5                 | 7.1                     | 2.0   | 8                   | ≤ 0.02                  | ≤ 0.02 |
| 0.6                 | 4.3                     | 1.32  | 10                  | ≤ 0.02                  | ≤ 0.02 |
| 0.8                 | 2.5                     | 0.76  | 12                  | ≤ 0.02                  |        |
| 1                   | 1.67                    | 0.49  | 14                  | ≤ 0.02                  |        |
| 1.5                 | 0.61                    | 0.21  | 15                  | ≤ 0.02                  |        |
| 2                   | 0.38                    | 0.101 | 16                  | ≤ 0.02                  |        |
| 2.5                 | 0.24                    | 0.078 |                     |                         |        |



**3600**  
standard type

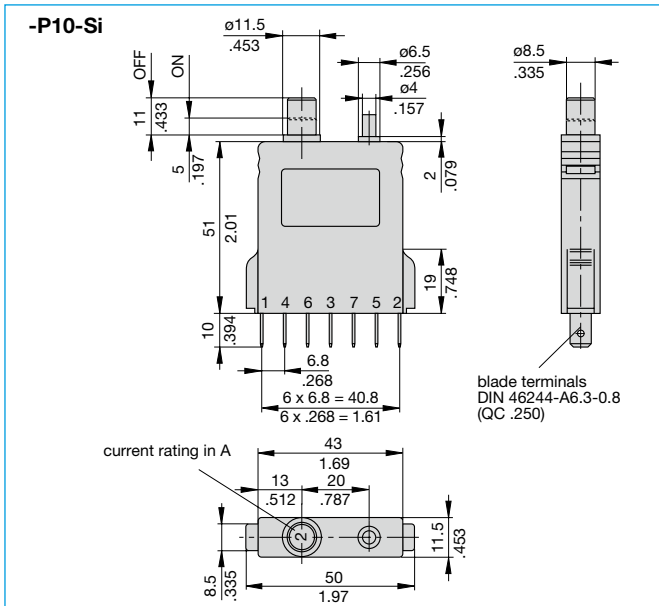
**3900**  
low-resistance type

## Technical data

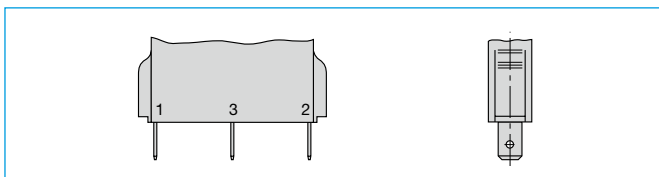
For further details please see: [http://www.e-t-a.de/ti\\_e](http://www.e-t-a.de/ti_e)

|                                                                                                              |                                                                                                          |                                                 |                                 |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------------------------------|
| Voltage rating                                                                                               | AC 240 V, 50/60 Hz; DC 65 V<br>(UL: AC 250 V; DC 65 V)                                                   |                                                 |                                 |
| Current rating range                                                                                         | 3600: 0.05...16 A<br>3900: 0.05...10 A                                                                   |                                                 |                                 |
| Auxiliary circuit                                                                                            | 1 A, AC 240 V / DC 65 V<br>min. 10 V/10 mA                                                               |                                                 |                                 |
| Typical life                                                                                                 | 5,000 operations at 1 x I <sub>N</sub> , inductive<br>5,000 operations at 2 x I <sub>N</sub> , resistive |                                                 |                                 |
| Ambient temperature                                                                                          | -30...+60 °C (-22...+140 °F)                                                                             |                                                 |                                 |
| Insulation co-ordination<br>(IEC 60664 and 60664 A)                                                          | rated impulse<br>withstand voltage<br>2.5 kV<br>reinforced insulation in operating area                  | pollution<br>degree<br>2                        |                                 |
| Dielectric strength<br>(IEC 60664 and 60664A)<br>operating area<br>main/aux. circuit<br>aux. circuit 4-5/6-7 | test voltage<br>AC 3,000 V<br>AC 1,500 V<br>AC 840 V                                                     |                                                 |                                 |
| Insulation resistance                                                                                        | >100 MΩ (DC 500 V)                                                                                       |                                                 |                                 |
| Interrupting capacity I <sub>cn</sub>                                                                        | 3600<br>0.05...0.8 A<br>1...2 A<br>2.5...16 A                                                            | 3900<br>0.05...0.2 A<br>0.3...2 A<br>2.5...10 A | self-limiting<br>200 A<br>400 A |
| Interrupting capacity<br>(UL 1077)<br><br>type 3600:                                                         | I <sub>N</sub><br>0.05...16 A<br>0.05...16 A                                                             | U <sub>N</sub><br>AC 250 V<br>DC 80 V           | 1,000 A<br>1,000 A              |
| Degree of protection<br>(IEC 60529/DIN 40050)                                                                | operating area IP40<br>terminal area IP00                                                                |                                                 |                                 |
| Vibration                                                                                                    | 5 g (57-500 Hz), ± 0.38 mm (10-57 Hz)<br>to IEC 60068-2-6, test Fc<br>10 frequency cycles/axis           |                                                 |                                 |
| Shock                                                                                                        | 25 g (11 ms) to IEC 60068-2-27, test Ea                                                                  |                                                 |                                 |
| Corrosion                                                                                                    | 96 hours at 5 % salt mist<br>to IEC 60068-2-11, test Ka                                                  |                                                 |                                 |
| Humidity                                                                                                     | 240 hours at 95 % RH<br>to IEC 60068-2-78, test Cab                                                      |                                                 |                                 |
| Mass                                                                                                         | approx. 45 g                                                                                             |                                                 |                                 |

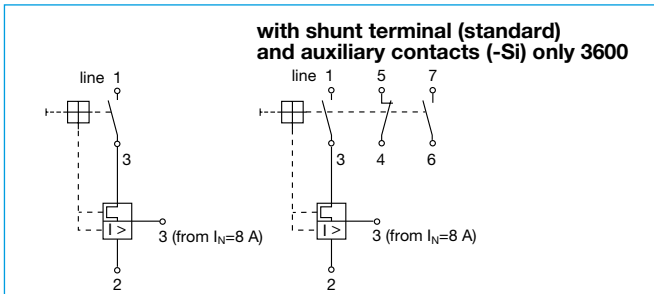
## Dimensions



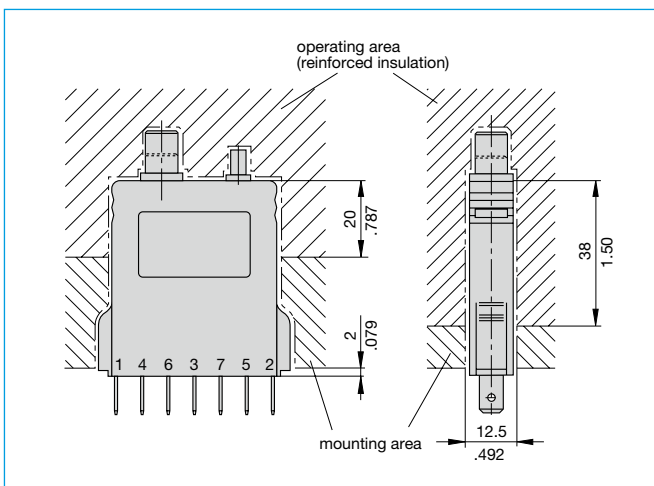
## Terminal design -P10



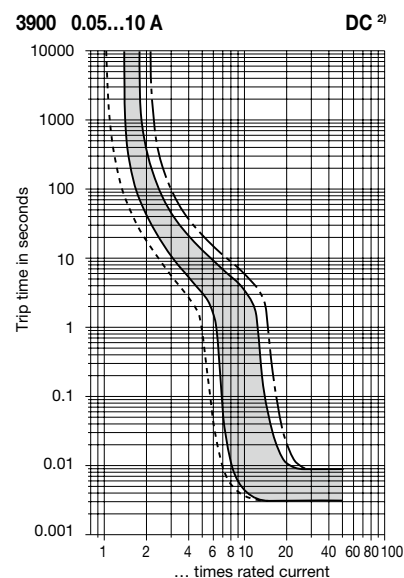
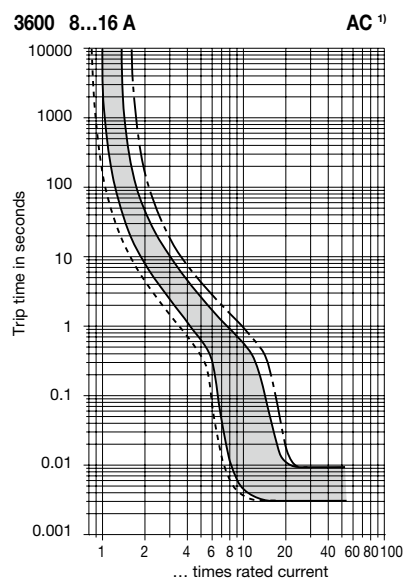
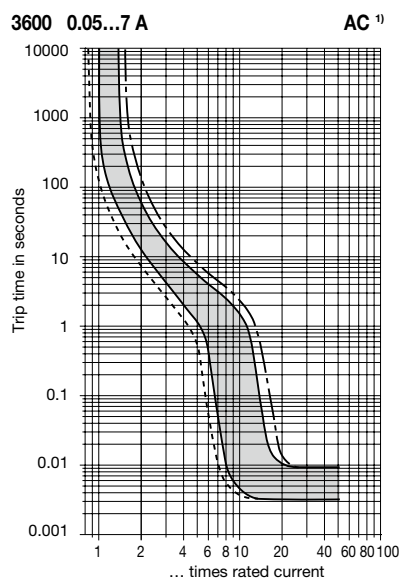
## Internal connection diagrams



## Installation drawing



## Typical time/current characteristics



--- +60 °C  
+140 °F

— +23 °C  
+73.4 °F

--- -30 °C  
-22 °F

<sup>1)</sup> Magnetic tripping currents are increased by 20 % on DC supplies.

<sup>2)</sup> Magnetic tripping currents are decreased by 20 % on AC supplies.

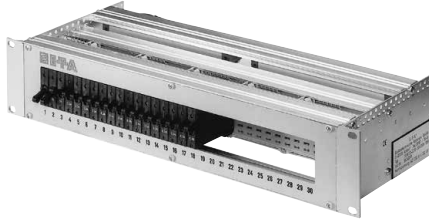
The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section Technical information.

| Ambient temp. °F | -22  | -4   | +14  | +32  | +73.4 | +104 | +122 | +140 |
|------------------|------|------|------|------|-------|------|------|------|
| °C               | -30  | -20  | -10  | 0    | +23   | +40  | +50  | +60  |
| Derating factor  | 0.76 | 0.79 | 0.83 | 0.88 | 1     | 1.08 | 1.16 | 1.24 |

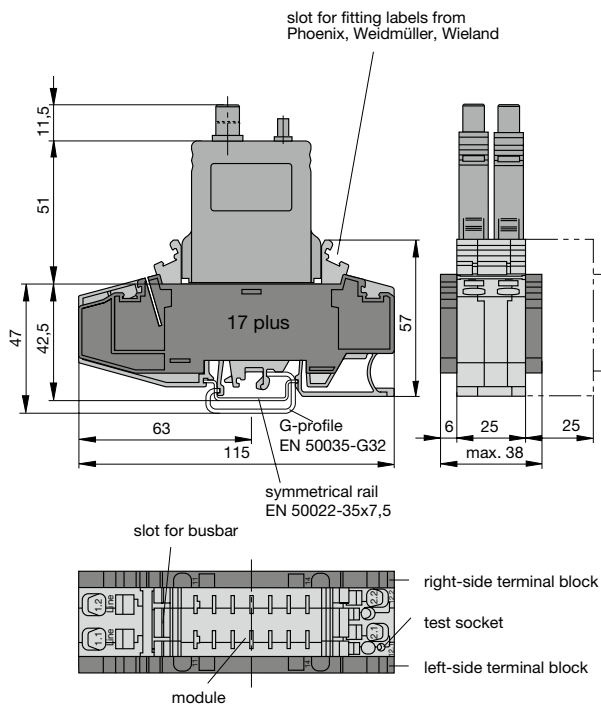
This is a metric design and millimeter dimensions take precedence ( $\frac{\text{mm}}{\text{inch}}$ )

## Accessories

**Power-D-Box with sockets pre-wired 19BGT2 2U**  
for 18, 24 or 30 circuits.  
For technical data see product group Power Distribution Systems.



**Module 17plus**  
For technical data see section Power Distribution Systems



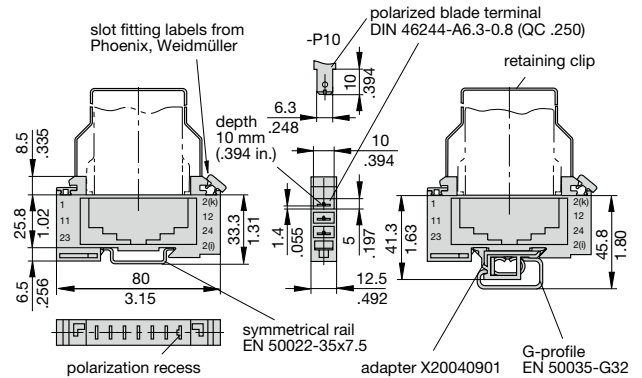
## Approvals

| Authority    | Standard      | Voltage ratings     | Current ratings            |
|--------------|---------------|---------------------|----------------------------|
| <b>3600:</b> |               |                     |                            |
| VDE          | IEC/EN 60934  | AC 240 V<br>DC 65 V | 0.05...16 A<br>0.05...16 A |
| UL           | UL 1077       | AC 250 V<br>DC 80 V | 0.05...16 A<br>0.05...16 A |
| CSA          | C22.2 No. 235 | AC 250 V<br>DC 80 V | 0.05...16 A<br>0.05...16 A |
| <b>3900:</b> |               |                     |                            |
| VDE          | IEC/EN 60934  | AC 240 V<br>DC 65 V | 0.05...10 A<br>0.05...10 A |

### Sockets

**17-P10-Si**  
(up to 16 A max. load)  
Retaining clip Y 300 581 11 to special order.

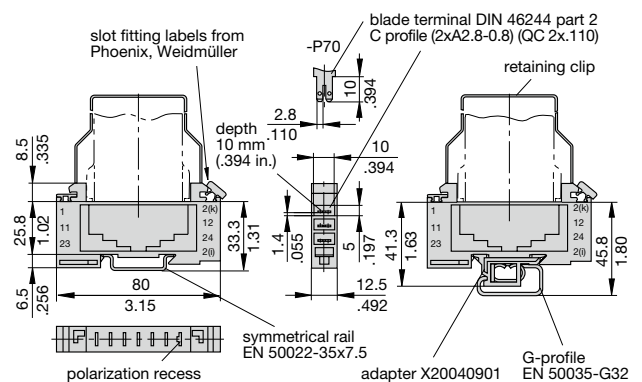
**17-P10-Si-20025**  
mounted with adapter  
Retaining clip Y 300 581 11 to special order.



### Sockets

**17-P70-Si**  
(up to 16 A max. load)  
Retaining clip Y 300 581 11 to special order.

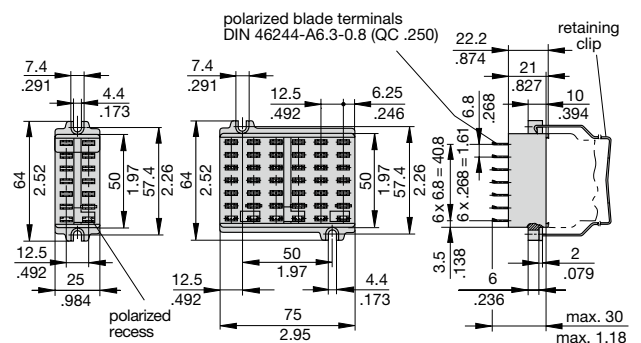
**17-P70-Si-20025**  
mounted with adapter  
Retaining clip Y 300 581 11 to special order.



### Sockets

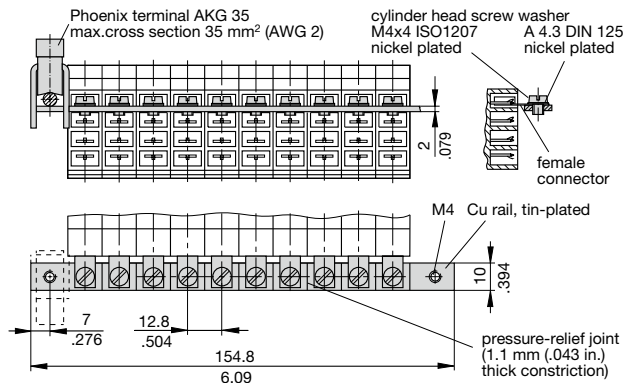
**23-P10-Si**  
(up to 16 A max. load)  
Retaining clip Y 300 581 03 to special order.

**63-P10-Si**

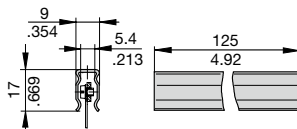


## Accessories

**Bus bar (10-way)** (supplied as a complete package)  
**for socket 17** (for max. 100 A continuous load)  
**X 211 157 01 with terminal**  
**X 211 157 02 without terminal**  
 (more positions available on request)

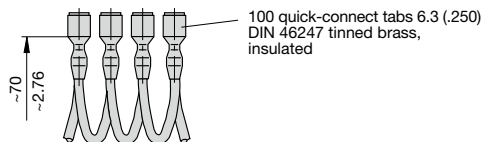


**Insulate sleeving for bus bar**  
**Y 303 824 01**

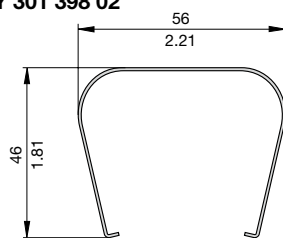


**Connector bus links -P10**

**X 210 588 01/** 1.5 mm² (AWG 16), brown up to 13 A max. load  
**X 210 588 02/** 2.5 mm² (AWG 14), black up to 20 A max. load  
**X 210 588 03/** 2.5 mm² (AWG 14), red up to 20 A max. load  
**X 210 588 04/** 2.5 mm² (AWG 14), blue up to 20 A max. load

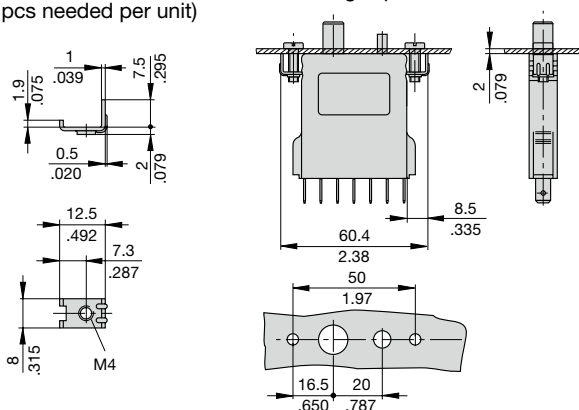


**Extraction tool**  
**Y 301 398 02**



**Mounting clip**  
**Y 300 504 02**  
 (2 pcs needed per unit)

Installation drawing with  
 mounting clips Y 300 504 02



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

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.