

## Description

Miniaturised single pole press-to-reset cycling type trip-free circuit breaker designed for installation in the E-T-A socket type 12 or fuse blocks to ISO 8820-3.

The current ratings available correspond to those of blade fuses to facilitate interchangeability. For further convenience the same colour coding system is used thereby ensuring that circuit breakers and fuses of the same rating are identified by the same colour marking.

## Typical applications

Extra low voltage wiring systems on all types of vehicles and marine craft.

## Ordering information

### Type No.

**1616** single pole automotive circuit breaker

#### Version

**21** DC 28 V without manual release facility

**H2** DC 28 V with manual release facility

**92** DC 12 V autoreset (type I to SAE J 553)

#### Current ratings

**5 7,5 10 15 20 25 30 40 A**

**1616 - 21 - 10 A** ordering example

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

## Current ratings, typical voltage drop values and colour coding

| Current rating (A) | Voltage drop (mV) | Housing cap colour |
|--------------------|-------------------|--------------------|
| 5                  | < 150             | light-brown        |
| 7.5                | < 150             | brown              |
| 10                 | < 150             | red                |
| 15                 | < 150             | blue               |
| 20                 | < 150             | yellow             |
| 25                 | < 150             | white              |
| 30                 | < 150             | light-green        |
| 40                 | < 150             | orange             |



## Technical data

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

|                                            |                                                                                                |
|--------------------------------------------|------------------------------------------------------------------------------------------------|
| Voltage rating                             | 1616-92: DC 12 V<br>1616-21/1616-H2: DC 32 V                                                   |
| Current ratings                            | 5 A (medium delay)<br>7.5...40 A (fast trip)                                                   |
| Service short-circuit breaking capacity    | 300 operations at ≤ 50 A                                                                       |
| Ambient temperature                        | -40...85 °C                                                                                    |
| Reset period for 1616-92 (at 23 °C)        | ≤ 15 s                                                                                         |
| Degree of protection (IEC 60529/DIN 40050) | operating area IP30 (-21/-H2)<br>operating area IP54 (-92)<br>terminal area IP00               |
| Ultimate short-circuit breaking capacity   | ≥ 3 break operations at 150 A, or<br>≥ 1 break operation at 2,000 A                            |
| Vibration (with mounting socket 12)        | 10 g (57-500 Hz) ± 0.38 mm (10-57 Hz)<br>to IEC 60068-2-6, test Fc<br>10 frequency cycles/axis |
| Shock (with mounting socket 12)            | 50 g (11 ms)<br>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 60068-2-3, test Ca                                             |
| Mass                                       | approx. 5 g                                                                                    |

### Caution:

Free travel of the reset button must be ensured! Please ensure to push in the actuator smoothly and completely.

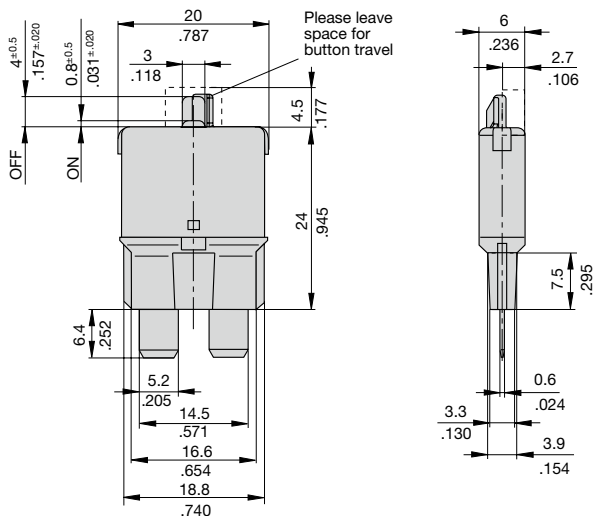
## Trip times at rated current

| Trip times at ... x rated current |             | 1,1 x I <sub>N</sub> |        | 1,35 x I <sub>N</sub> |        | 2,0 x I <sub>N</sub> |      | 3,5 x I <sub>N</sub> |       | 6,0 x I <sub>N</sub> |       |
|-----------------------------------|-------------|----------------------|--------|-----------------------|--------|----------------------|------|----------------------|-------|----------------------|-------|
| I (N)                             | colour      | min.                 | max.   | min.                  | max.   | min.                 | max. | min.                 | max.  | min.                 | max.  |
| 5                                 | light brown | 3600 s               | 3600 s | 40 s                  | 3600 s | 3 s                  | 20 s | 0,8 s                | 2 s   | 0,2 s                | 0,5 s |
| 7,5                               | brown       | 10 s                 | 3600 s | 5 s                   | 120 s  | 1 s                  | 10 s | 0,3 s                | 2 s   | 0,2 s                | 0,5 s |
| 10                                | red         | 10 s                 | 3600 s | 5 s                   | 120 s  | 1 s                  | 10 s | 0,3 s                | 2 s   | 0,2 s                | 0,5 s |
| 15                                | blue        | 10 s                 | 3600 s | 5 s                   | 120 s  | 1 s                  | 10 s | 0,3 s                | 2 s   | 0,2 s                | 0,5 s |
| 20                                | yellow      | 10 s                 | 3600 s | 5 s                   | 120 s  | 1 s                  | 10 s | 0,3 s                | 2 s   | 0,2 s                | 0,5 s |
| 25                                | white       | 10 s                 | 3600 s | 5 s                   | 120 s  | 1 s                  | 10 s | 0,3 s                | 2 s   | 0,2 s                | 0,5 s |
| 30                                | light green | 25 s                 | 3600 s | 10 s                  | 120 s  | 3 s                  | 12 s | 0,8 s                | 2,6 s | 0,2 s                | 0,8 s |
| 40                                | orange      | 25 s                 | 3600 s | 10 s                  | 120 s  | 3 s                  | 12 s | 0,8 s                | 2,6 s | 0,2 s                | 0,8 s |

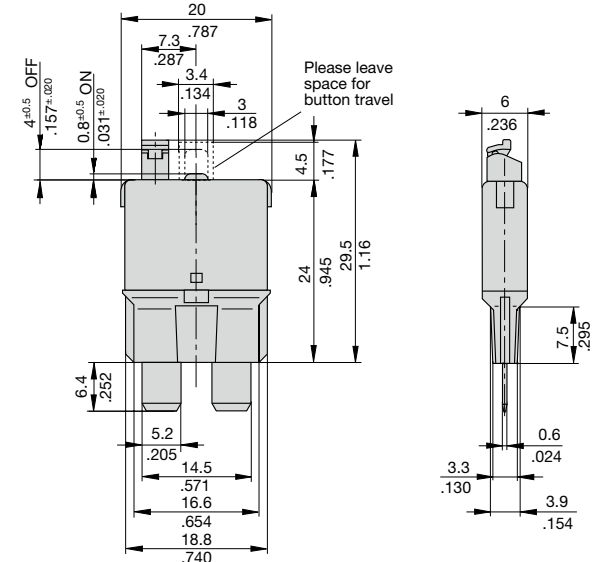
I<sub>N</sub> = rated current / The trip times comply with ISO 10924-4.

## Dimensions

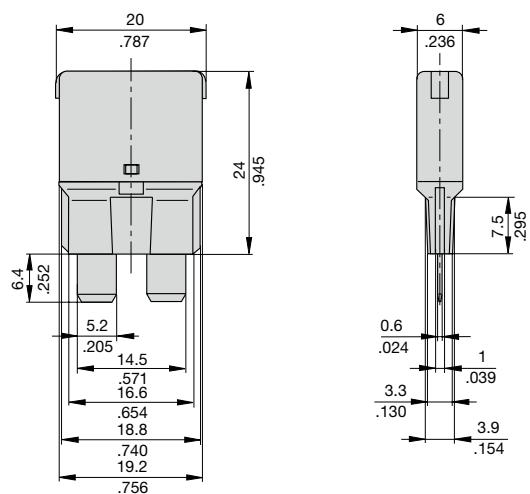
### 1616-21



### 1616-H2

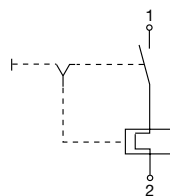


### 1616-92

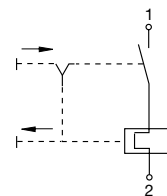


## Internal connection diagrams

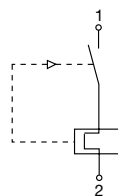
### 1616-21



### 1616-H2

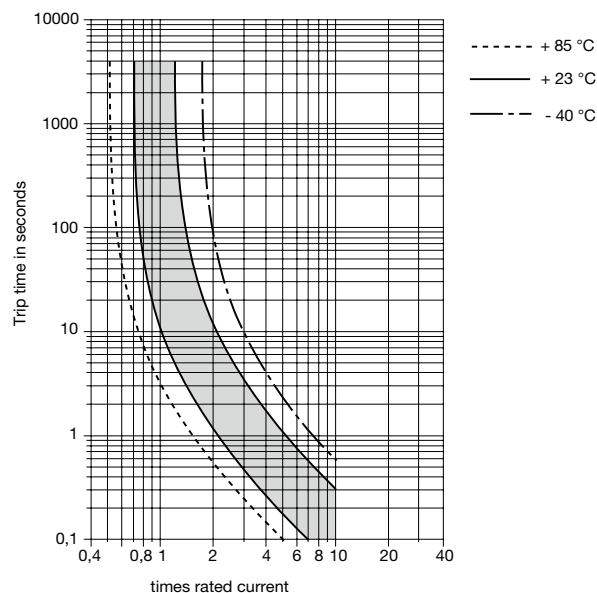


### 1616-92



## Typical time/current characteristic curve

### 7.5...40 A

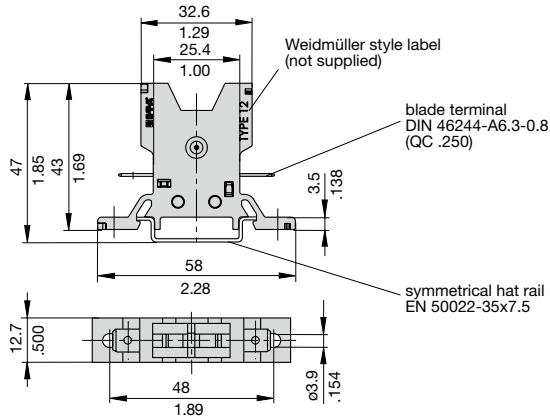


The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section Technical information.

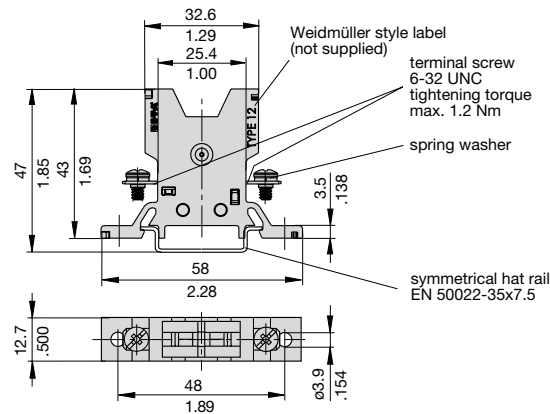
|                     |    |       |      |      |      |      |      |
|---------------------|----|-------|------|------|------|------|------|
| Ambient temperature | °F | -40   | -22  | -4   | +14  | +32  | +50  |
|                     | °C | -40   | -30  | -20  | -10  | 0    | 10   |
| Derating factor     |    | 0,73  | 0,78 | 0,82 | 0,86 | 0,91 | 0,95 |
| Ambient temperature | °F | +73.4 | +104 | +122 | +140 | +158 | +185 |
|                     | °C | 23    | 40   | 50   | 60   | 70   | 85   |
| Derating factor     |    | 1     | 1,09 | 1,16 | 1,25 | 1,33 | 1,43 |

## Accessories

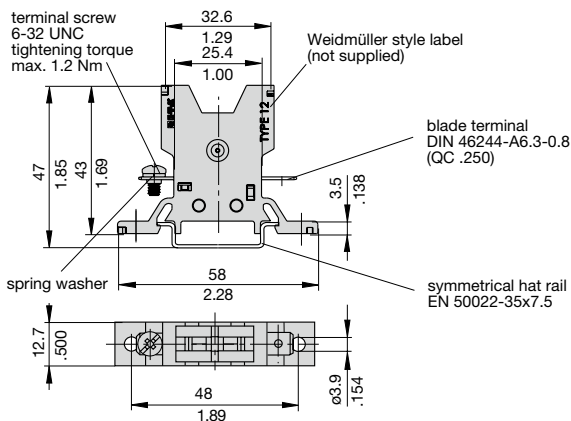
### Socket 12-P10



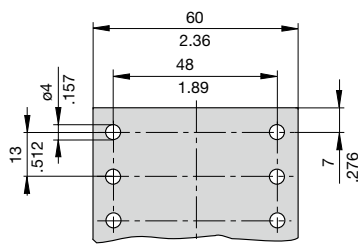
### Socket 12-J20



### Socket 12-A10



### Dimensions for surface mounting



### Other sockets available to special order

Labels: Weidmüller, D-33102 Paderborn

## Ordering information Mounting socket 12

### Type No.

12 Mounting socket

### Terminal design

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

J20 screw terminals 6-32 UNC

A10 1 blade terminal A6.3-0.8 (QC .250) / 1 screw terminal 6-32 UNC

### Version

(blank) single socket

20 two-way

30 three-way

40 four-way

60 six-way

12 - P10 - 20 ordering example

Labels: Weidmüller, D-33102 Paderborn

## Accessories for mounting socket 12

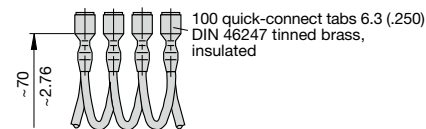
### Connector bus links -P10

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)

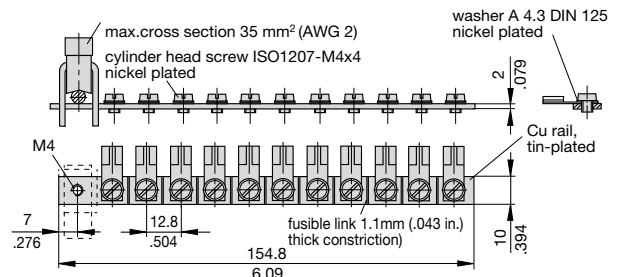
X 210 588 04/ 2.5 mm<sup>2</sup> (AWG 14), blue (up to 20 A max. load)



Bus bar (supplied as a complete package)  
(up to 100 A max. load)

X 211 157 01 with terminal

X 211 157 02 without terminal



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.

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