

## Description

Single pole thermal circuit breaker in miniaturised design. A positively trip-free snap action mechanism ensures a reliable switching behaviour. They meet the requirements of the circuit breaker standard EN 60934 (IEC 60934): R-Type, TO. For higher current ratings in a similar design please see our 1140 version. The 106 version combined with a C14 appliance inlet is also available as a ready-for-use power entry module (optionally with or without line filter).

## Typical applications

Hand tools, domestic appliances, overcurrent protection of PCB conductor paths, marine vehicles, mobile homes

## Approvals

Approval authority	Standard	Rated voltage	Current rating range
VDE	EN 60934	AC 240 V DC 48 V	0.05 A ... 8 A 0.05 A ... 10 A
UL	UL1077	AC 250 V DC 48 V	0.05 A...10 A 0.05 A...10 A
CSA	C22.2 No 235	AC 250 V DC 48 V	0.05 A...10 A 0.05 A...10 A
CQC	GB 17701	AC 240 V DC 48 V	0.05 A...8 A 0.05 A...10 A

## Compliance



## Preferred types

Preferred types	Preferred ratings (A)											
	0.5	0.8	1	1.2	1.5	2	3	4	5	6	8	10
106-P10-	x	x	x	x	x	x	x	x	x	x	x	x
106-P30-	x	x	x	x	x	x	x	x	x	x	x	x



## Technical data

For detailed technical information please see [www.e-t-a.de/ti\\_en](http://www.e-t-a.de/ti_en)

Rated voltage	AC 240 V, DC 48 V		
Current rating range	0.05 ... 10 A		
Typical life	<b>0.05 ... 5 A</b>	1,000 cycles at 2 x I <sub>N</sub> , inductive DC 28 V; 3,000 cycles at 2 x I <sub>N</sub> , inductive	
	<b>6 ... 8 A 10 A</b>	500 cycles at 2 x I <sub>N</sub> , inductive 50 cycles at 2 x I <sub>N</sub> , inductive	
Ambient temperature	-20 ... 60 °C (T 60)		
Insulation coordination (IEC 60664)	2.5 kV /2 reinforced insulation at operating area		
Dielectric strength	<b>Actuating area</b> Test voltage AC 3,000 V		
Insulation resistance	> 100 MΩ (DC 500 V)		
Interrupting capacity I <sub>cn</sub>	0.05 ... 8 A 0.05 ... 10 A	6 x I <sub>N</sub> (AC) 6 x I <sub>N</sub> (DC)	
Rupture capacity (UL 1077)	<b>I<sub>N</sub></b>	<b>U<sub>N</sub></b>	<b>S.C.</b>
	0.05 ... 10 A	AC 250 V	2000 A, C1
	0.05 ... 10 A	DC 48 V	200 A, C1
Degree of protection (IEC 60529)	Operating area IP40 IP00 terminal area		
Vibration	10 g (57-500 Hz), ± 0.76 mm (10-57 Hz), Test to IEC 60068-2-6, test Fc 10 frequency cycles/axis		
Shock resistance	25 g (11 ms) Test to IEC 60068-2-27, test Ea		
Corrosion	96 hours at 5 % salt mist, Test to IEC 60068-2-11, test Ka		
Humidity	240 hrs 95 % RH, test acc. to IEC 60068-2-78, Test Cab		
Mass	approx. 10 g		

## Ordering number code

### Type No.

- 104** PCB mounting type (-PR) or mounting type (-P30/-P10)
- 105** Snap-in panel mounting
- 106** Threadneck mounting with screw-in hexagonal and plastic knurled nut<sup>(1)</sup>
- 106-M2** Threadneck mounting with large lug and screw-in hexagonal and plastic knurled nut

### Terminal design

- P10** Blade terminal 6.3 x 0.8 mm (IEC 61210)
- P30** Blade terminal 2.8 x 0.8 mm (IEC 61210)
- PR** PR Soldering pins for horizontal PCB mounting (104 version only)
- PR3** PR3 Soldering pins for vertical PCB mounting (104 version only)

### Current rating range

0.05 ... 10 A

**106 - P30 - 5 A** Ordering example

<sup>(1)</sup> Use this version for configuration with XR38 power entry module

Please observe our minimum ordering quantities.

## Current ratings and internal resistance values

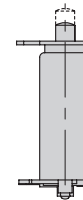
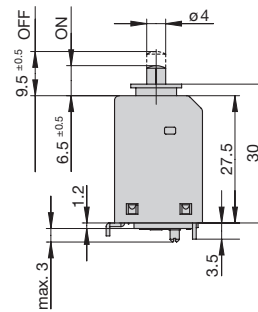
Current rating (A)	Internal resistance (Ω)	Current rating (A)	Internal resistance (Ω)
0.05	285	1.8	0.28
0.08	134	2	0.25
0.1	81	2.5	0.18
0.2	22	3	0.11
0.3	8.7	3.5	0.076
0.4	5.5	4	0.067
0.5	3.3	4.5	0.051
0.6	2.45	5	≤ 0.05
0.7	1.6	6	≤ 0.05
0.8	1.45	7	≤ 0.05
1	0.9	8	≤ 0.05
1.2	0.6	10	≤ 0.05
1.5	0.4		

## Dimensions

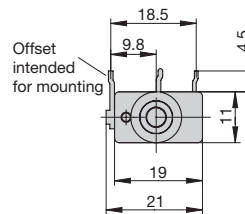
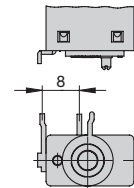
### 104-PR

#### Dimensions

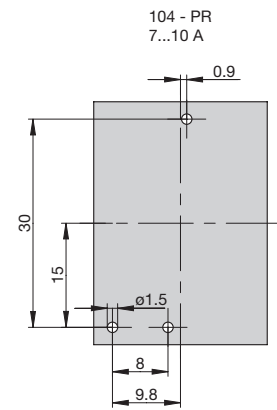
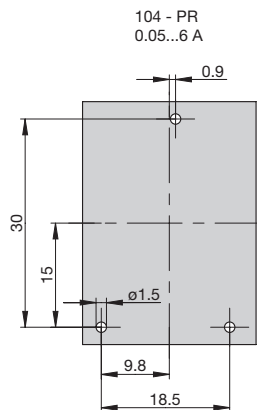
104 - PR  
0.05...6 A



104 - PR  
7...10 A



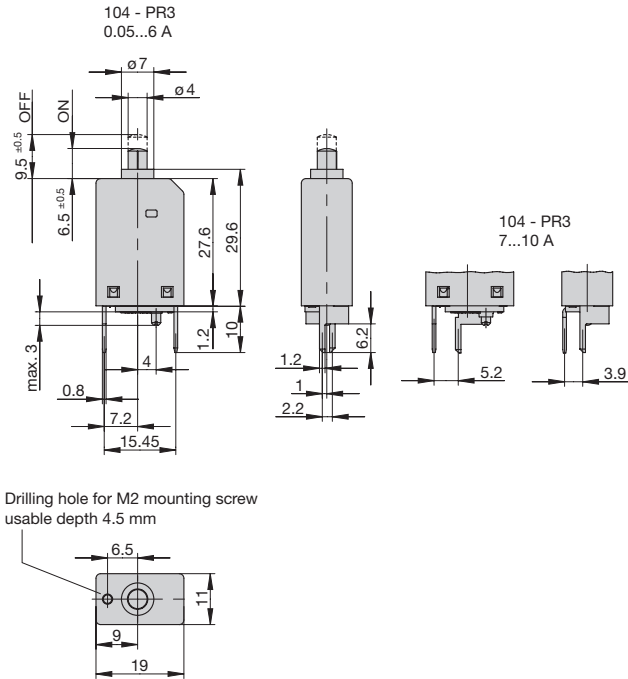
#### PCB drilling hole diagram



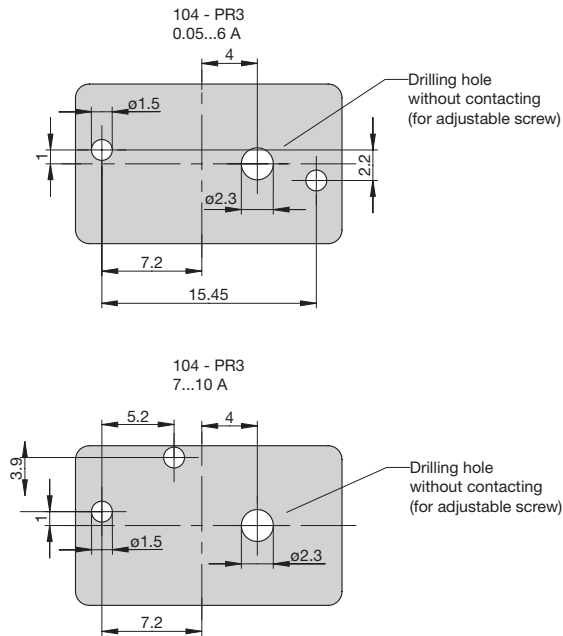
**Dimensions**

**104-PR3**

Dimensions

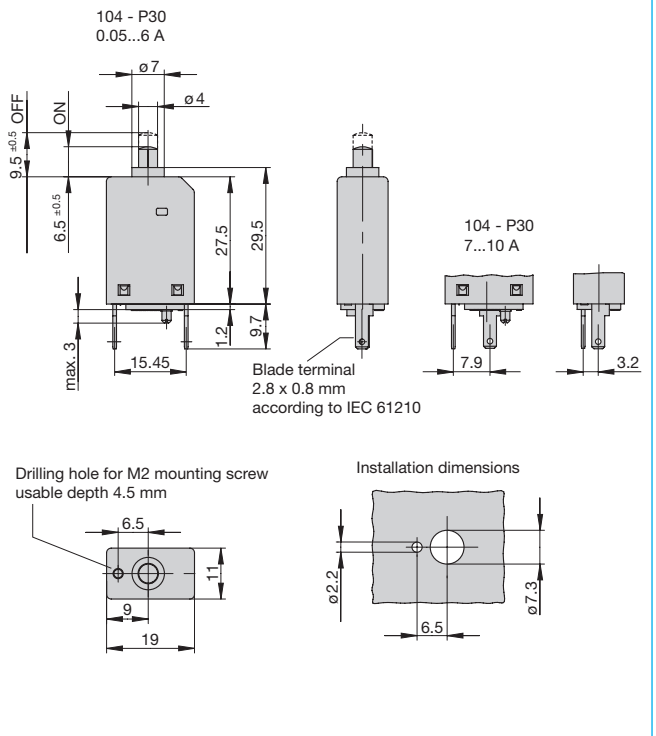


PCB drilling hole diagram

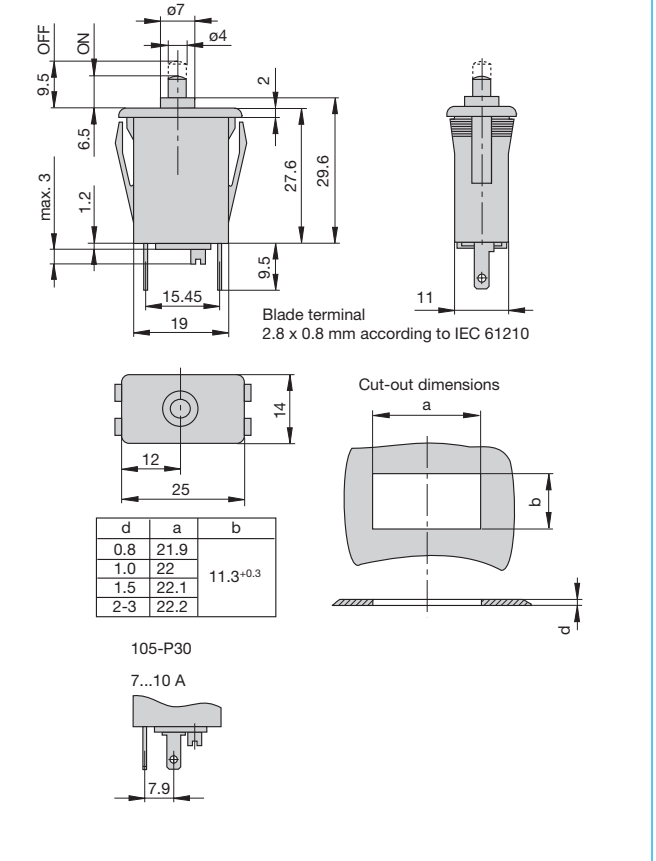


**Dimensions**

**104-P30**



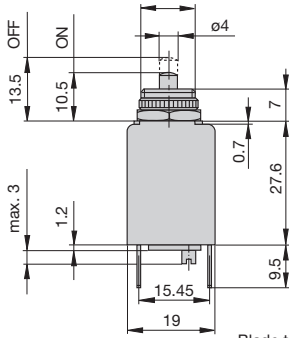
**105-P30**



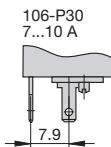
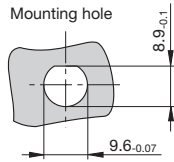
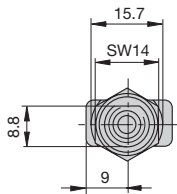
**Dimensions**

**106-P30**

3/8-27UNS-2A  
tightening torque max. 0.8 Nm

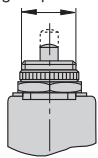


Blade terminals 2.8 x 0.8 mm according to IEC 61210

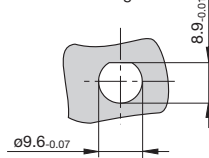


**106-M2**

3/8-27UNS-2A  
tightening torque max. 0.8 Nm



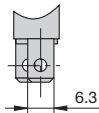
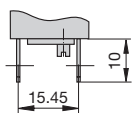
Mounting hole



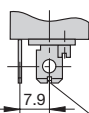
**Terminal types**

**104/105/106-P10**

0.05...6 A



7...10 A

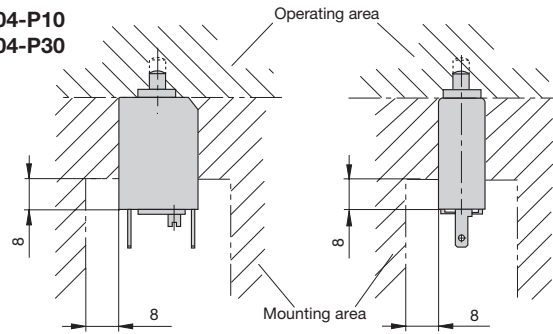


Blade terminal 6.3 x 0.8 mm according to IEC 61210

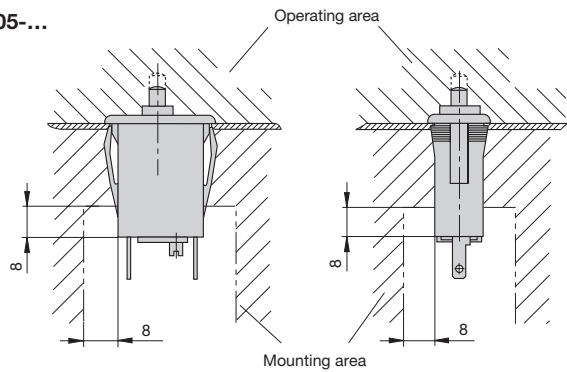
Polarizing tooth

**Installation drawing**

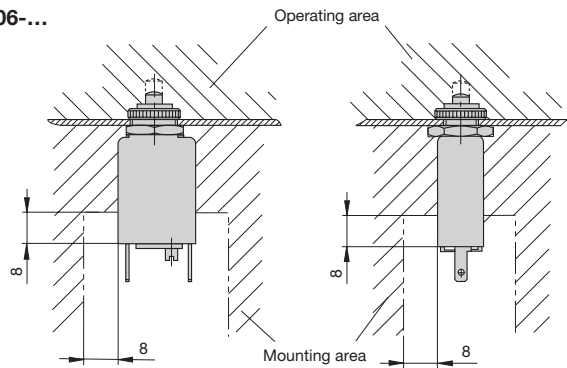
**104-P10  
104-P30**



**105-...**

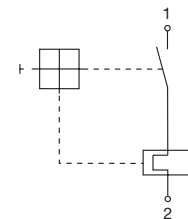


**106-...**



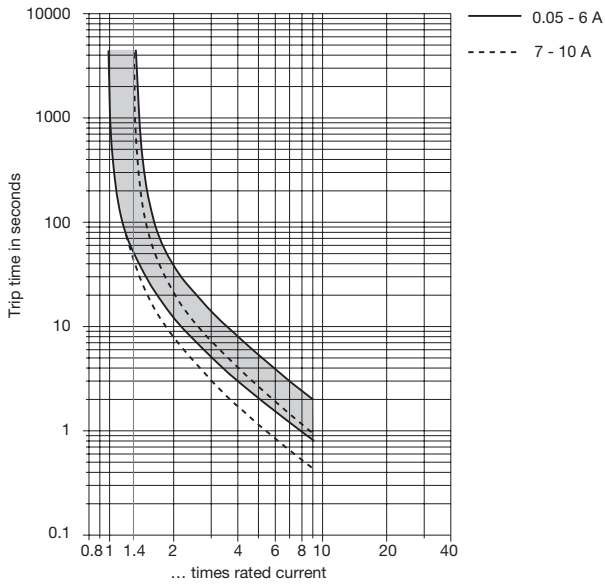
**Schematic diagrams**

**Types 104  
105  
106**



Time/current characteristics

Ambient temperature 23 °C

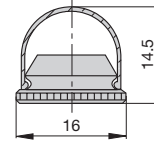


The time/current characteristic depends on the ambient temperature. In order to eliminate nuisance tripping, please multiply the current rating with a temperature factor (see Technical Information chapter)

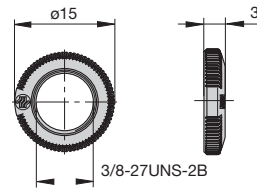
Ambient temperature [°C]	-20	-10	0	+23	+40	+50	+60
Temperature factor	0.76	0.84	0.92	1	1.08	1.16	1.24

Accessories

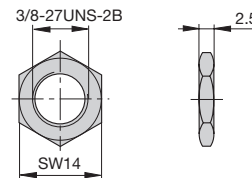
**Water splash cover (transparent)/  
knurled nut assembly (type 106-... only)**  
X 201 285 01 (IP64)



**Knurled nut 3/8", plastic (standard)**  
Y 307 117 02



**Hex nut 3/8", nickel-plated brass**  
Y 300 192 01



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