

E-T-A® Thermal Overcurrent Circuit Breakers 104/105/106-...

Description

Miniaturised single pole thermal circuit breaker with push-to-reset tease free, trip-free, snap action mechanism (R-type TO CBE to EN 60934). Available in versions for PCB or panel mounting, snap-in or threadneck, or as an integral type. Approved to CBE standard EN 60934 (IEC 934). For higher current ratings see type 1140.

Typical applications

Motors, transformers, solenoids, printed circuit boards, hand-held machines and appliances.

Ordering information

Type No.	
104	PCB mounting type (-PR), or integral type (-P30/P10)
105	snap-in panel mounting
106	threadneck panel mounting with hex and knurled nut *
106-M1	threadneck mounting for standard fuseholder cutout *
Terminal design	
P10	blade terminals A6.3-0.8
P30	blade terminals A2.8-0.8
PR	solder terminal pins for PCB mounting (type 104 only)
Shunt terminal (optional)	
A3	same as main terminals (up to I_N 6 A/3 A max. load)
Auxiliary contacts (optional)	
Si51	type 104 only
Current ratings	
0.05...10 A	

106 - P30 - [] - [] - 5 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.

* mounting hardware bulk shipped

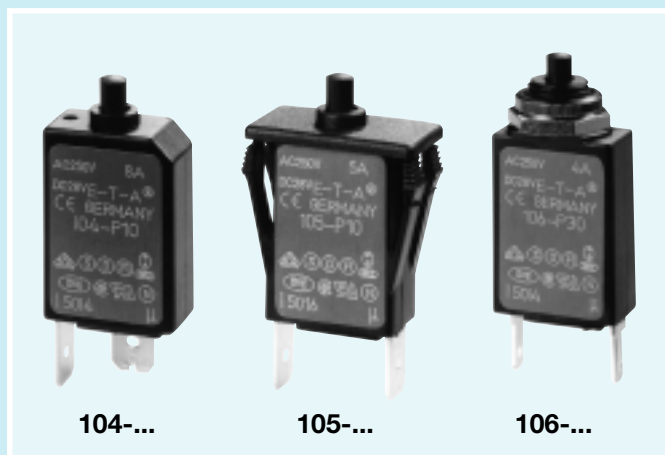
Please enquire for packaging quantities

Standard current ratings and typical 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		

Approvals

Authority	Voltage ratings	Current ratings
VDE (EN 60934), SEV	AC 240 V	0.05...8 A
	DC 48 V	0.05...10 A
Demko	AC 250 V, DC 28 V	0.05...10 A
CSA, UL	AC 250 V, DC 48 V	0.05...10 A
Semko	AC 250 V, DC 48 V	0.1...10 A
Kema (EN 60934)	AC 240 V	0.05...8 A
	DC 48 V	0.05...10 A
Circuit breakers with -Si51 not approved		

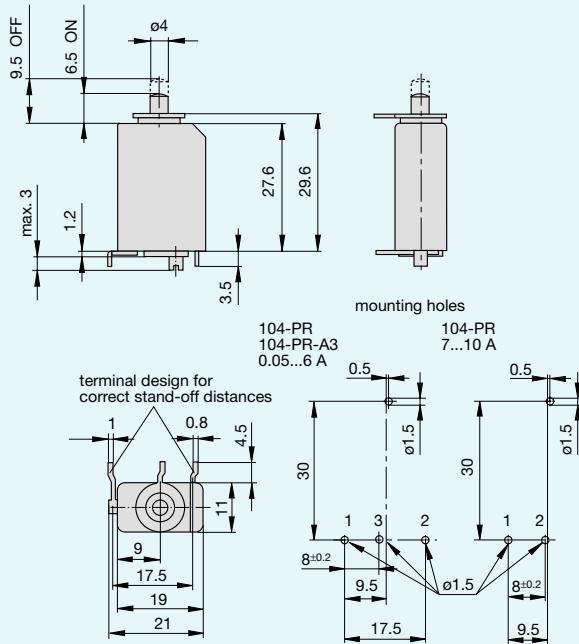


Technical data

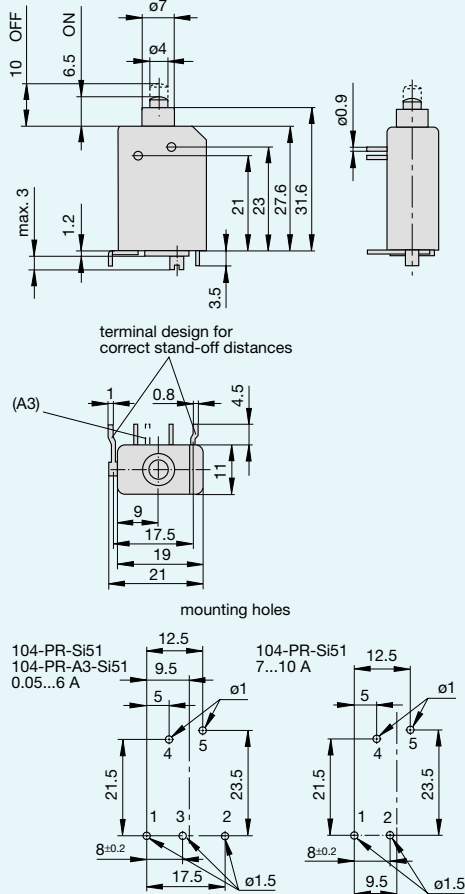
Voltage rating	AC 240 V; DC 48 V		
Current ratings	0.05...10 A		
Auxiliary circuit	0.5 A, AC 240 V, DC 28 V		
Typical life	0.05...5 A: 3,000 operations at 2 x I _N 6 ...8 A: 500 operations at 2 x I _N 10 A 50 operations at 2 x I _N		
Ambient temperature	-20...+60 °C (T 60)		
Insulation co-ordination (IEC 664 and 664 A)	Rated impulse withstand voltage 2.5 kV reinforced insulation in operating area	Pollution degree 2	
Dielectric strength (IEC 664 and 664A) operating area	Test voltage AC 3,000 V		
Insulation resistance	>100 MΩ (DC 500 V)		
Interrupting capacity I _{cn}	0.05 ... 2 A 2.5 ...10 A	6 x I _N 5 x I _N	
Interrupting capacity (UL 1077)	I _N	U _N	
	0.05...4.5 A	AC 250 V	200 A
	5 A	AC 250 V	1000 A
	6...10 A	AC 250 V	2000 A
	0.05...10 A	DC 48 V	200 A
Degree of protection (IEC 529/DIN 40050)	operating area terminal area	IP 40 IP 00	
Vibration	10 g (57-500 Hz),±0.76 mm (10-57 Hz), to IEC 68-2-6, test Fc, 10 frequency cycles/axis		
Shock	25 g (11 ms) to IEC 68-2-27, test Ea		
Corrosion	96 hours at 5 % salt mist, to IEC 68-2-11, test Ka		
Humidity	240 hours at 95 % RH, to IEC 68-2-3, test Ca		
Mass	approx. 10 g		

Dimensions

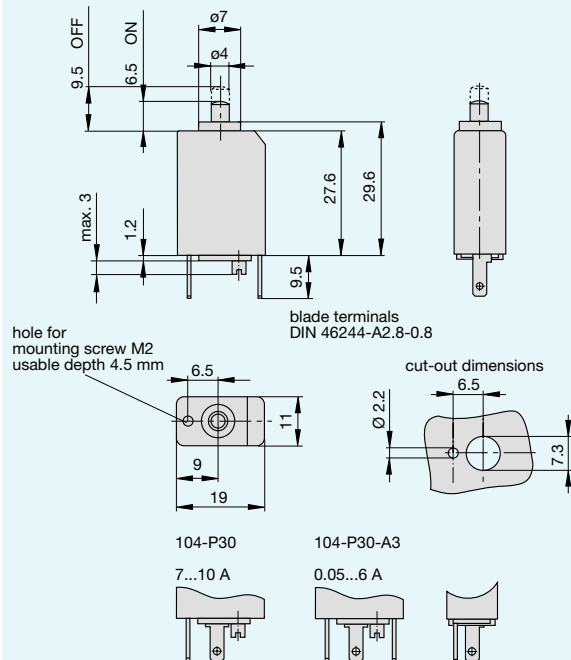
104-PR



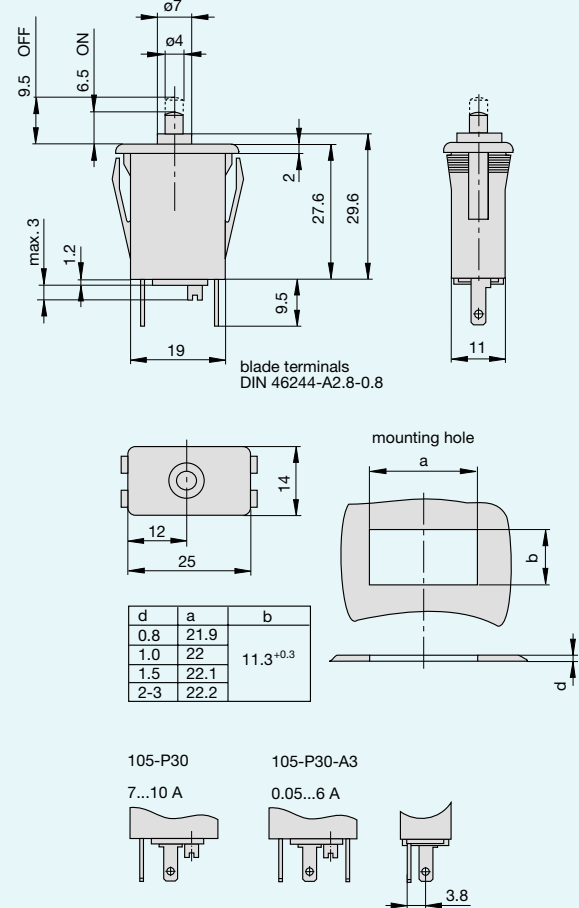
104-PR-(A3)-Si51



104-P30

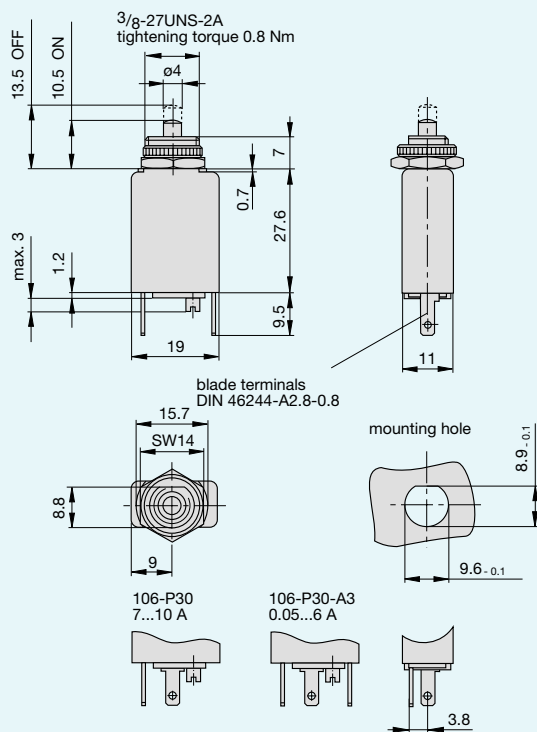


105-P30

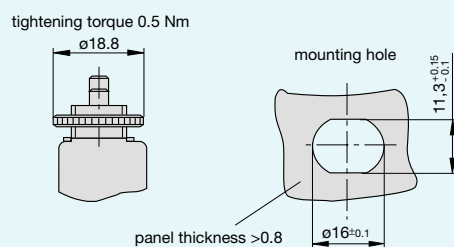


Dimensions

106-P30

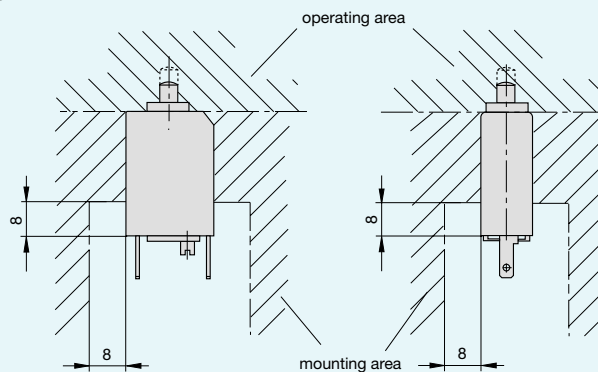


106-M1

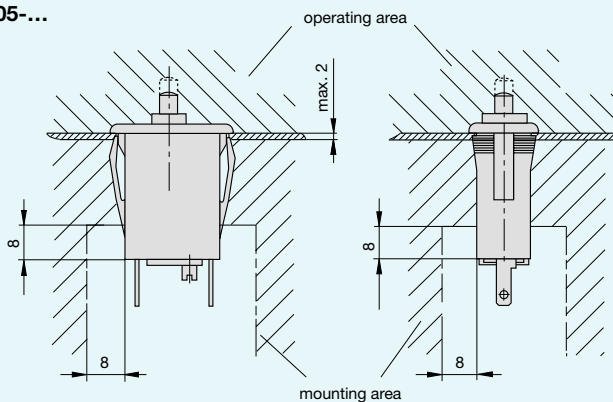


Installation drawings

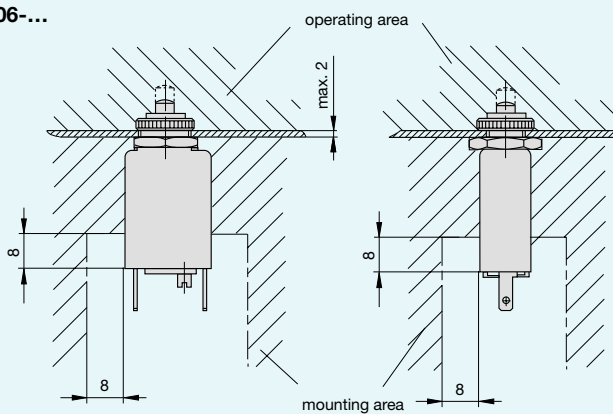
104-...



105-...

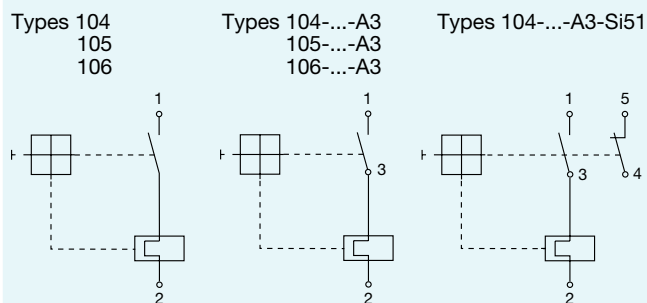


106-...

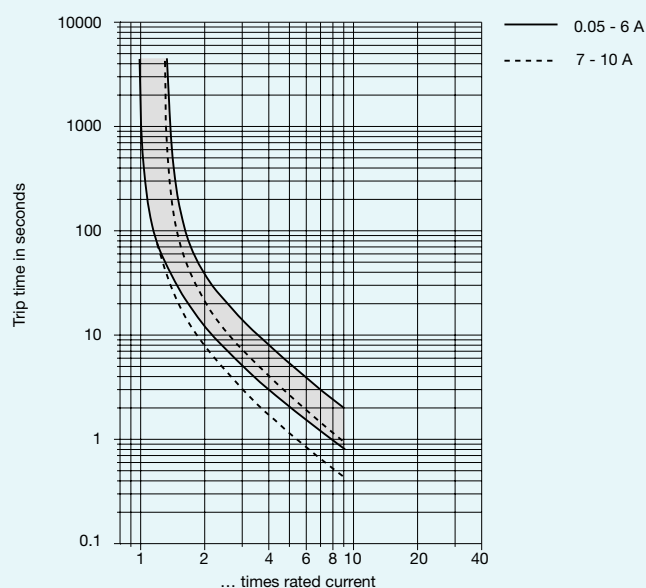


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Internal connection diagrams



Typical time/current characteristics at +23 °C



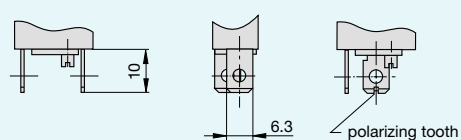
The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section 9 – Technical information.

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

Terminal design

104/105/106-P10

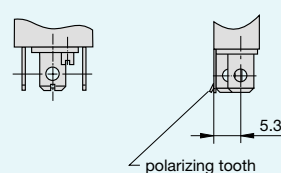
0.05...6 A



7...10 A

104/105/106-P10-A3

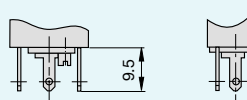
0.05...6 A



blade terminals
DIN 46244-A6.3-0.8

104/105/106-P30-A3

0.05...6 A



Accessories

Water splash cover (transparent)/knurled nut assembly
(type 106-... only)

X 201 285 01

Degree of protection IP 64

