Type: 104-PR

Miniaturised single pole thermal circuit breaker with push-to-reset tease free, trip-free, snap action mechanism (R-type TO CBE to EN 60934) for PCB mounting.
Approved to CBE standard EN 60934 (IEC 60934). For higher current ratings see type 1140.

Voltage rating:

- AC 240 V
- DC 48 V
- UL/CSA: AC 250 V

Current ratings:

from 0.05 A to 10 A

Number of poles:

single pole

Mounting method:

printed circuit board

Terminal design:

solder terminals

Actuation:

push button

Auxiliary contacts:

with auxiliary contacts
without auxiliary contacts

Water splash protection:

without water splash protection

Illumination:

without illumination

Typical life:

0.05...5 A: 3,000 operations at 2 x I_N, inductive
6...8 A: 500 operations at 2 x I_N, inductive
10 A: 50 operations at 2 x I_N, inductive

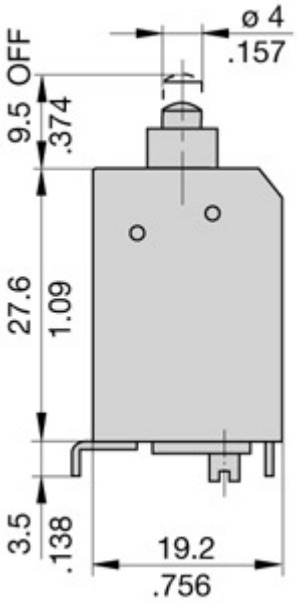
Interrupting capacity I_{cn}:

0.05...8 A: 6 x I_N (AC)
> 8...10 A: 5 x I_N (AC)
0.05...10 A: 6 x I_N (DC)

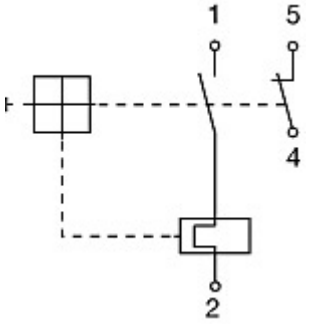
Approvals:

VDE, SEV, CSA, UL, Kema

Dimensions



Internal connection diagrams



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. Manual release facility optional for type 105. Approved to CBE standard EN 60934 (IEC 60934). For higher current ratings see type 1140.

Typical applications

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

104-... 105-... 106-...

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-M2	threadneck panel mounting 3/8-27UNS with collar, hex nut and knurled nut*

Terminal design

P10	blade terminals A6.3-0.8 (QC .250)
P30	blade terminals A2.8-0.8 (QC .110)
PR	solder terminal pins for PCB mounting (type 104 only)
PR2	PCB mounting (vertical), type 104 only up to 6 A
PR3	PCB mounting (vertical), type 104 only

Shunt terminal (optional)

A3	same as main terminals (up to I_N 6 A/3 A max. load)

Manual release facility (optional)

H	only with type 105

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

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		

Technical data

For further details please see chapter: Technical Information

Voltage rating		AC 240 V; DC 48 V (UL: AC 250 V; DC 48 V)
Current ratings		0.05...10 A
Auxiliary circuit		0.5 A, AC 240 V, DC 28 V
Typical life		
AC 240 V	0.05...8 A	2,000 operations at 1 x I_N, inductive
	0.05...5 A	3,000 operations at 2 x I_N, inductive
	6...8 A:	500 operations at 2 x I_N, inductive
DC 48 V	0.05...8 A	2,000 operations at 1 x I_N, inductive
	0.05...5 A	3,000 operations at 2 x I_N, inductive
	6...8 A:	500 operations at 2 x I_N, inductive
	10 A	200 operations at 1 x I_N, inductive
	10 A	50 operations at 2 x I_N, inductive
Ambient temperature		-20...+60 °C (-4...+140 °F) T 60
Insulation co-ordination (IEC 60664 and 60664 A)		rated impulse withstand voltage 2.5 kV pollution degree 2 reinforced insulation in operating area
Dielectric strength (IEC 60664 and 60664A) operating area		test voltage AC 3,000 V
Insulation resistance		> 100 MΩ (DC 500 V)
Interrupting capacity I_{cn}		0.05...8 A 6 x I_N AC > 8...10 A 5 x I_N AC 0.05...10 A 6 x I_N DC
Interrupting capacity (UL 1077)		I_N U_N 0.05...10 A AC 250 V 2,000 A 0.05...10 A DC 48 V 200 A
Degree of protection (IEC 60529/DIN 40050)		operating area IP40 terminal area IP00
Vibration		10 g (57-500 Hz) ± 0.76 mm (10-57 Hz), to IEC 60068-2-6, test Fc, 10 frequency cycles/axis
Shock		25 g (11 ms) 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 60068-2-3, test Ca
Mass		approx. 10 g

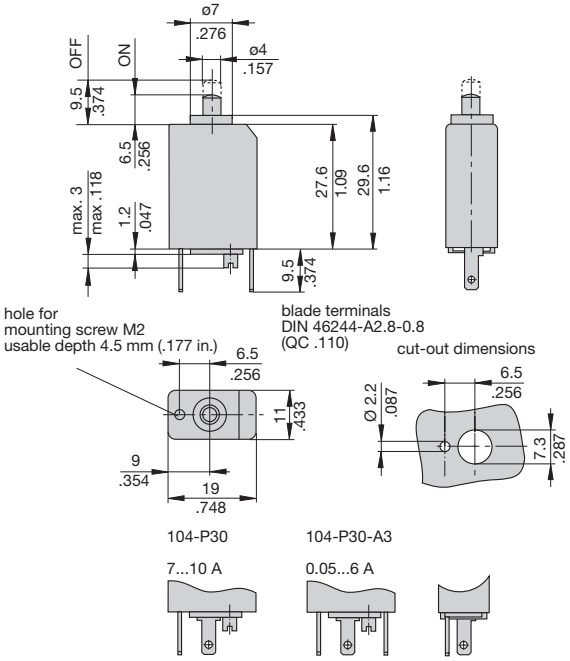
Approvals

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

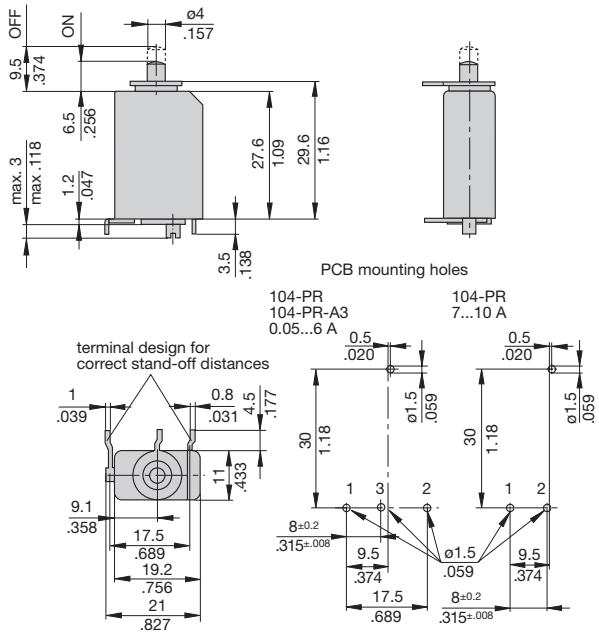
1

Dimensions

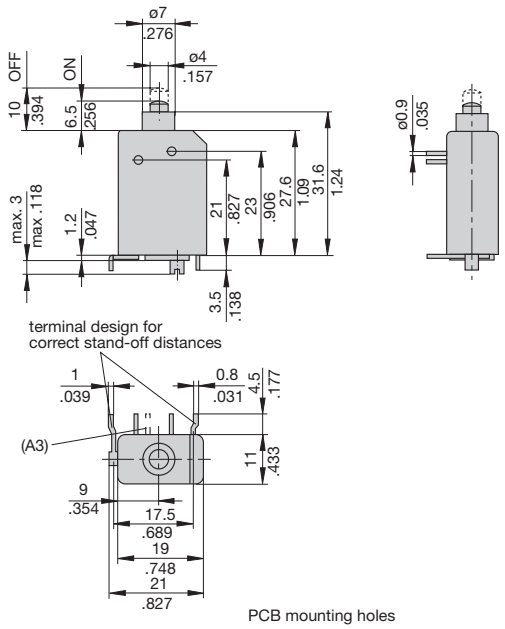
104-P30

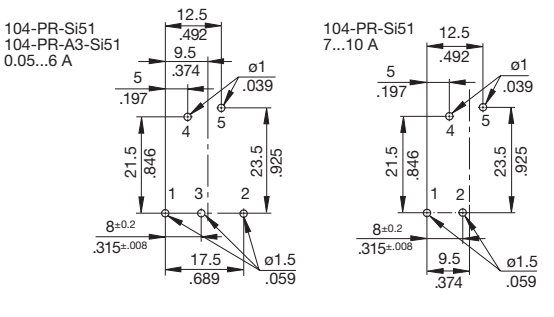


104-PR



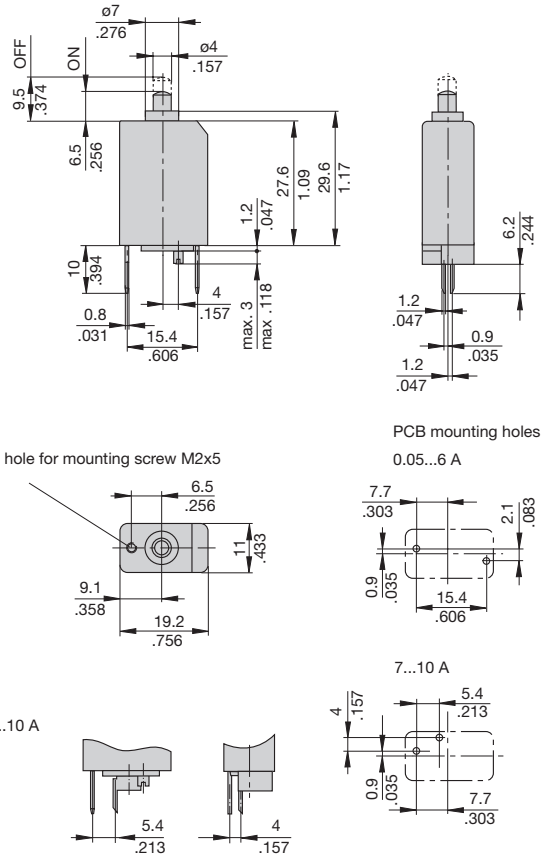
104-PR-(A3)-Si51





104-PR3

0.05...6 A

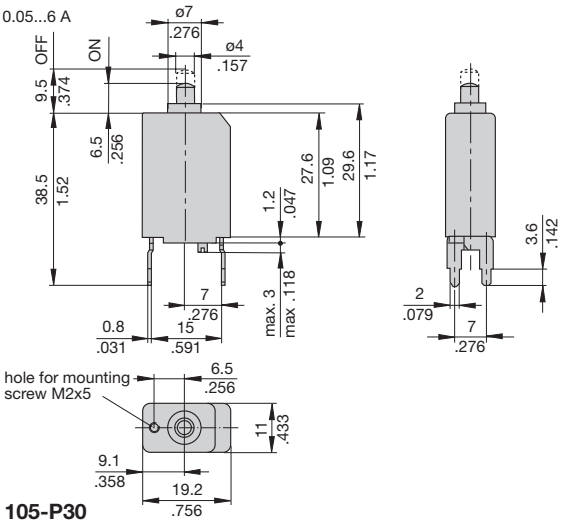


This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

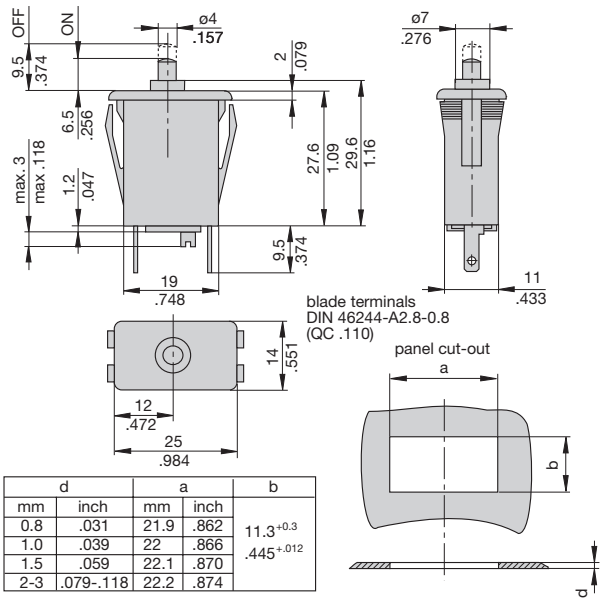
Dimensions

104-PR2

0.05...6 A



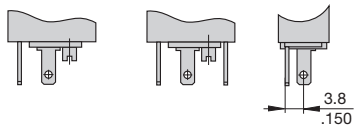
105-P30



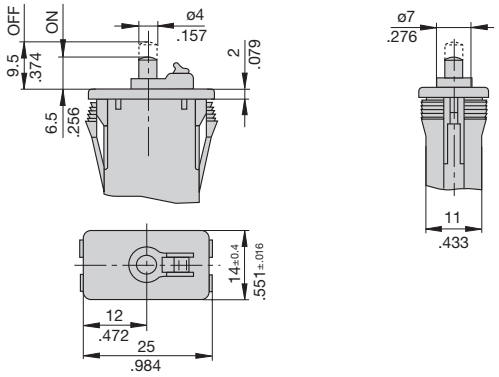
d		a		b
mm	inch	mm	inch	
0.8	.031	21.9	.862	$11.3^{+0.3}$
1.0	.039	22	.866	$.445^{+.012}$
1.5	.059	22.1	.870	
2-3	.079-.118	22.2	.874	

105-P307...10 A

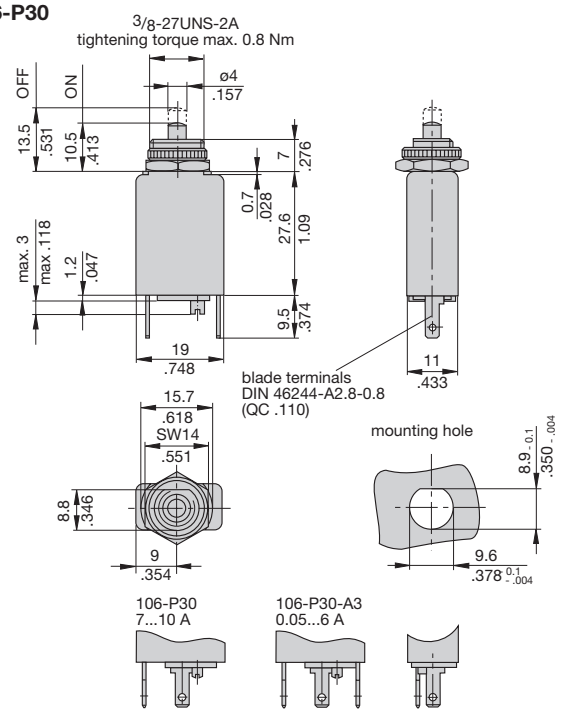
105-P30-A3
0.05...6 A



105-P..-H



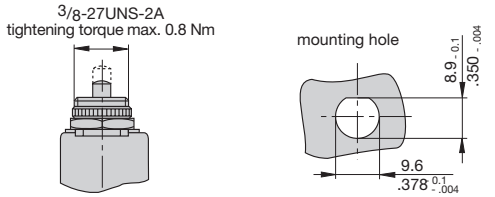
106-P30



106-P30
7...10 A

106-P30-A3
0.05...6 A

106-M2

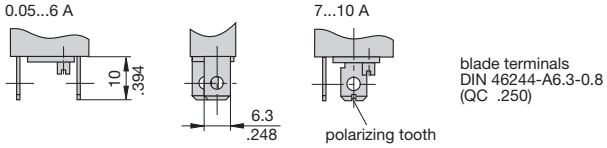


Terminal design

104/105/106-P10

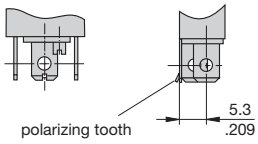
0.05...6 A

7...10 A



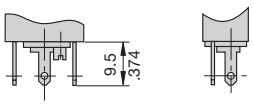
104/105/106-P10-A3

0.05...6 A



104/105/106-P30-A3

0.05...6 A



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