

**Type: 106**



Miniaturised single pole thermal circuit breaker with push-to-reset tease free, trip-free, snap action mechanism (R-type TO CBE to EN 60934), threadneck mounting.

Approved to CBE standard EN 60934 (IEC 60934). For higher current ratings see type 1140-G.

**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:**

threadneck

**Terminal design:**

blade terminals

**Actuation:**

push button

**Auxiliary contacts:**

without auxiliary contacts

**Water splash protection:**

with water splash protection  
without water splash protection

**Illumination:**

without illumination

**Typical life:**

0.05...5 A: 3,000 operations at  $2 \times I_N$ , inductive

6...8 A: 500 operations at  $2 \times I_N$ , inductiv

10 A: 50 operations at  $2 \times I_N$ , inductiv

**Interrupting capacity  $I_{cn}$ :**

0.05...8 A:  $6 \times I_N$  (AC)

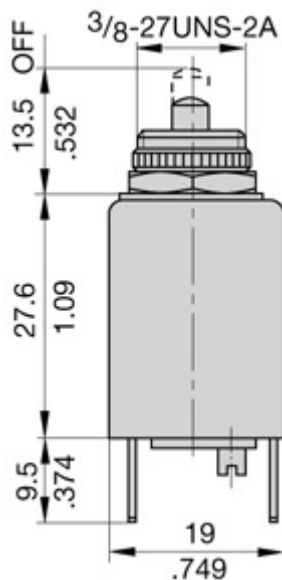
> 8...10 A:  $5 \times I_N$  (AC)

0.05...10 A:  $6 \times I_N$  (DC)

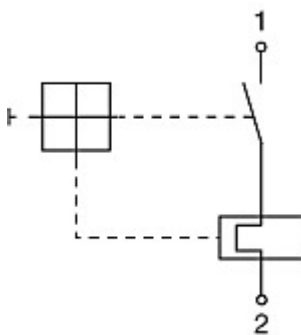
**Approvals:**

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.

## Ordering information

Type No.	Description
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*
<b>Terminal design</b>	
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
<b>Shunt terminal (optional)</b>	
A3	same as main terminals (up to $I_N$ 6 A/3 A max. load)
<b>Manual release facility (optional)</b>	
H	only with type 105
<b>Auxiliary contacts (optional)</b>	
Si51	type 104 only
<b>Current ratings</b>	
0.05...10 A	

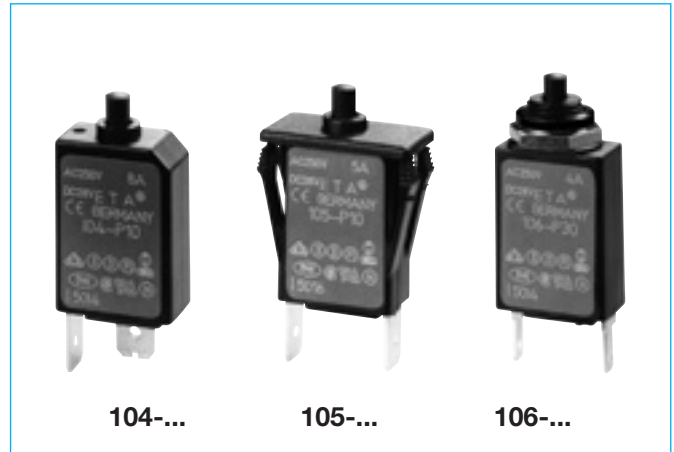
106 - P30 - .. - .. - 5 A = ordering example

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 ( $\Omega$ )	Current rating (A)	Internal resistance ( $\Omega$ )
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	$\leq 0.05$
0.7	1.6	6	$\leq 0.05$
0.8	1.45	7	$\leq 0.05$
1	0.9	8	$\leq 0.05$
1.2	0.6	10	$\leq 0.05$
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 $1 \times I_N$ , inductive	
	0.05...5 A	3,000 operations at $2 \times I_N$ , inductive	
	6...8 A:	500 operations at $2 \times I_N$ , inductive	
DC 48 V	0.05...8 A	2,000 operations at $1 \times I_N$ , inductive	
	0.05...5 A	3,000 operations at $2 \times I_N$ , inductive	
	6...8 A:	500 operations at $2 \times I_N$ , inductive	
	10 A	200 operations at $1 \times I_N$ , inductive	
	10 A	50 operations at $2 \times I_N$ , inductive	
Ambient temperature	-20...+60 °C (-4...+140 °F) T 60		
Insulation co-ordination (IEC 60664 and 60664 A)	rated impulse withstand voltage	pollution degree	
	2.5 kV	2	
	reinforced insulation in operating area		
Dielectric strength (IEC 60664 and 60664A)	test voltage		
operating area	AC 3,000 V		
Insulation resistance	> 100 M $\Omega$ (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) $\pm$ 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		

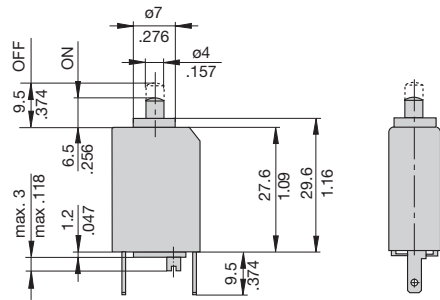
## Approvals

Authority	Voltage ratings	Current ratings
VDE, SEV,	AC 240 V	0.05...8 A
Kema (EN 60934)	DC 48 V	0.05...10 A
CSA, UL	AC 250 V; DC 48 V	0.05...10 A

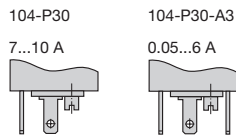
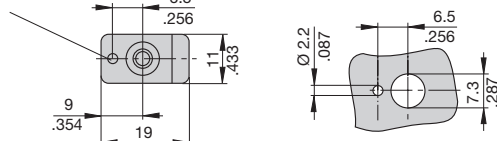
Circuit breakers with -Si51 not approved

## Dimensions

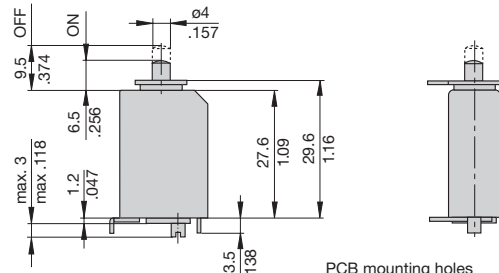
### 104-P30



hole for mounting screw M2  
 usable depth 4.5 mm (.177 in.)  
 blade terminals  
 DIN 46244-A2.8-0.8  
 (QC .110)  
 cut-out dimensions



### 104-PR

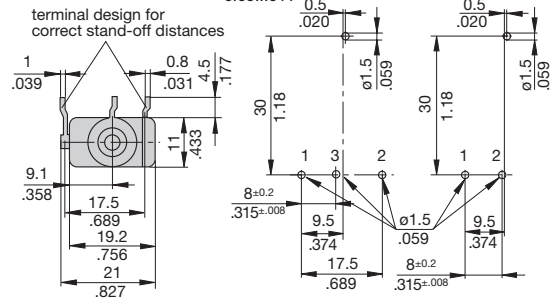


PCB mounting holes

104-PR  
 104-PR-A3  
 0.05...6 A

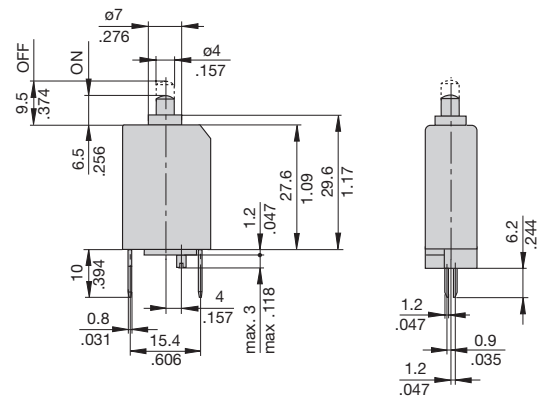
104-PR  
 7...10 A

terminal design for correct stand-off distances



### 104-PR3

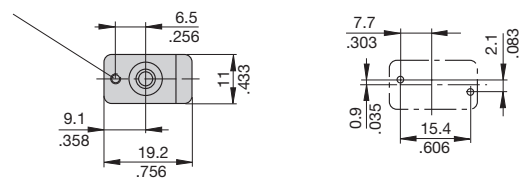
0.05...6 A



PCB mounting holes

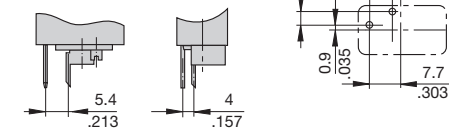
0.05...6 A

hole for mounting screw M2x5

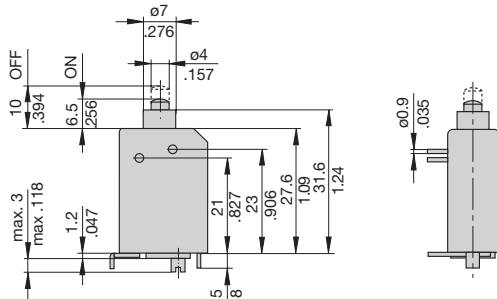


7...10 A

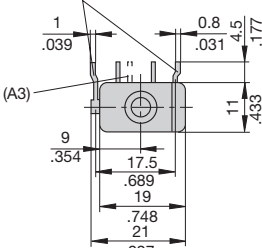
7...10 A



### 104-PR-(A3)-Si51

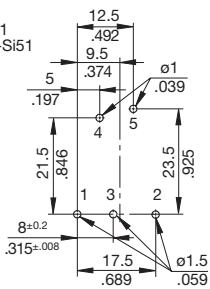


terminal design for correct stand-off distances

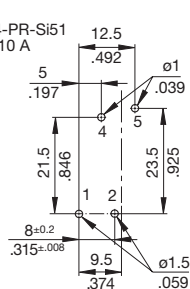


PCB mounting holes

104-PR-Si51  
 104-PR-A3-Si51  
 0.05...6 A



104-PR-Si51  
 7...10 A

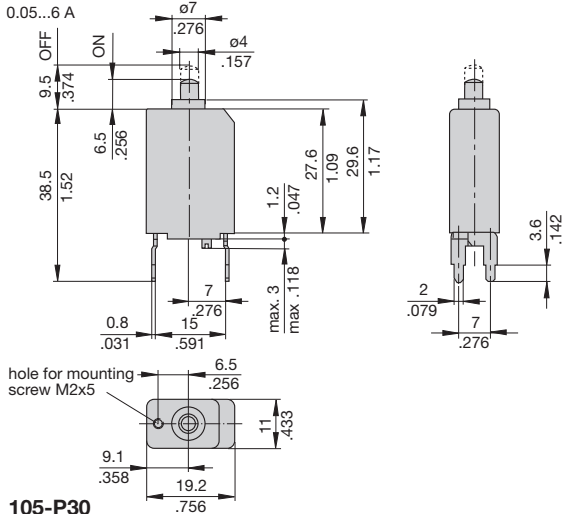


This is a metric design and millimeter dimensions take precedence (mm/inch)

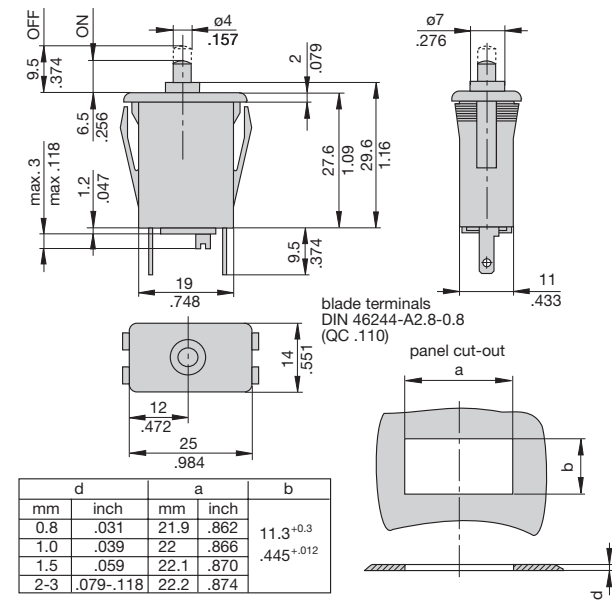
## Dimensions

### 104-PR2

0.05...6 A



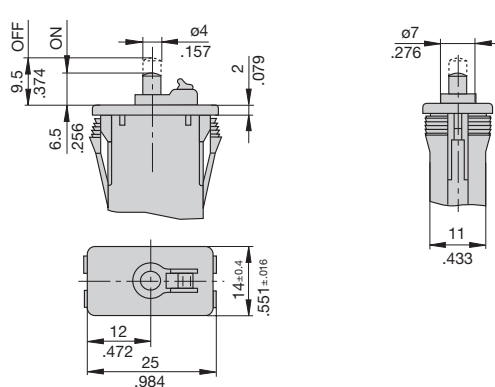
### 105-P30



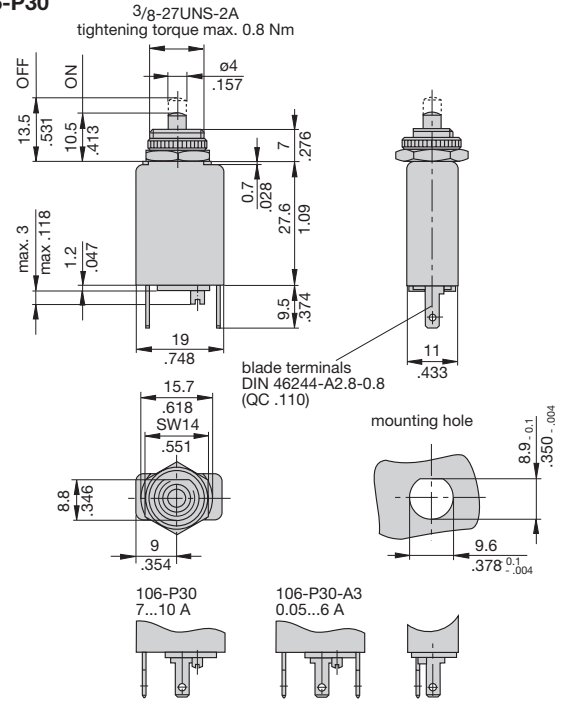
105-P307...10 A

105-P30-A3  
0.05...6 A

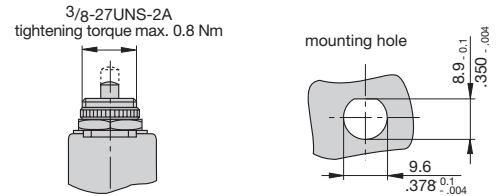
### 105-P.-H



### 106-P30



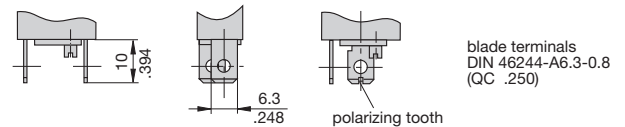
### 106-M2



## Terminal design

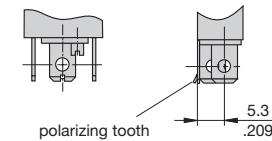
### 104/105/106-P10

0.05...6 A



### 104/105/106-P10-A3

0.05...6 A



### 104/105/106-P30-A3

0.05...6 A

