

## Description

Single pole thermal reset circuit breaker in a miniaturised design intended for thread neck mounting. Easy and quick reset after tripping due to overcurrent. Trip-free mechanism and automatic disconnection in the event of an overcurrent, even with a blocked actuator button. R-Type TO CBE to EN60934. Very cost effective design to meet international requirements.

- Manual reset, trip free mechanism
- Extremely small and lightweight

## Typical applications

Power tools, Industrial equipment, Medical equipment, Power generators, Motors, Battery chargers, UPS.

## Ordering information

### Type No.

**1657** single pole thermal circuit breaker, black body

### Threadneck design

**G11** M11x1,0 (Plastic), white push-to-reset button

**G12** M11x1,0 (Plastic), black push-to-reset button

**G21** 3/8"-24 UNF (Plastic), white push-to-reset button

**G22** 3/8"-24 UNF (Plastic), black push-to-reset button

### Hardware

**00** no hardware

**01** one integrated knurled nut (plastic),  
Y 310 777 01 for M11, Y 310 778 01 for 3/8", bulk

### Terminals

**P10** blade terminals A6.3-0,8 (QC .250)

**P13** blade terminals A6.3-0,8 (QC .250), 90°

**S83** bent screw terminals 8-32 UNC

### Current ratings

5/6/7/8/10/12/15/20 A

**1657-G21 -01 - P10 -5 A** Ordering example

## Standard current ratings and typical resistance

Current rating (A)	Typical Resistance (Ω)	Current rating (A)	Typical Resistance (Ω)
5 A	0.225	10 A	0.125
6 A	0.175	12 A	0.125
7 A	0.175	15 A	0.050
8 A	0.175	20 A	0.040

## Approvals

Authority	Standard	Voltage rating	Current ratings
UL	UL 1077 (E67320)	AC 250 V DC 50 V	5 A...20 A 5 A...20 A
TÜV SÜD	EN 60934 / IEC 60934	AC 250 V DC 32 V	5 A...12 A 5 A...20 A
UL	UL 1500	AC 250 V DC 50 V	5 A...20 A 5 A...20 A



**1657-...**

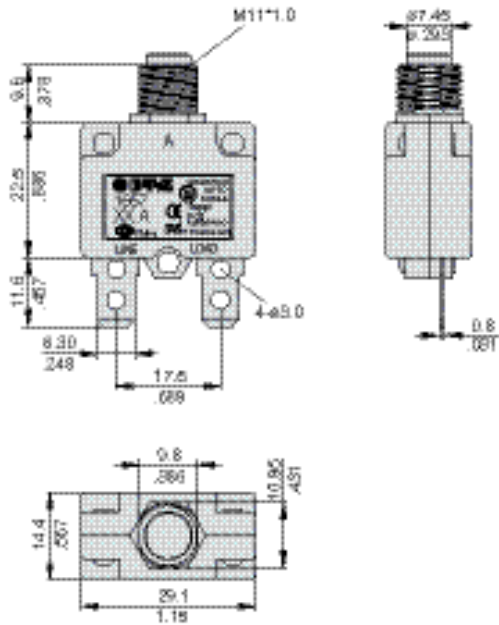
## Technical data

Voltage rating	AC 250 V, DC 32 V		
Current ratings	5...12 A inductive load 13...20 A resistive load		
Typical life	500 operations at 1.5 x I <sub>n</sub> resistive AC 125 V		
Behaviour at rated switching capacity (EN 60934; test sequence D)	operat.	I <sub>N</sub>	U <sub>N</sub>
	40	5...12 A	AC 250 V 6 x I <sub>n</sub> ind.
Ambient temperatur	-10 °C to +60 °C (+14...+140° F)		
	Insulation co-ordination (IEC 60664)		
Dielectric strength operating area	test voltage AC 3,000 V		
	Insulation resistance > 500 MΩ		
Interrupting capacity (I <sub>cn</sub> )	I <sub>N</sub>	U <sub>N</sub>	
	5...12 A	AC 250 V	6 x I <sub>n</sub>
Interrupting capacity (UL 1077)	5...20 A	DC 32 V	6 x I <sub>n</sub>
	I <sub>N</sub>	U <sub>N</sub>	I <sub>NC</sub>
	5...20 A	AC 250 V	1000 A, C, 1
	5...20 A	AC 250 V	400 A, U, 3
Degree of protection (IEC 60529)	operating area IP40		
	terminal area IP00		
Vibration	57 Hz acceleration 30m/s <sup>2</sup> (3 g) in X.Y.Z. direction (2 times/min.)		
Shock	300m/s <sup>2</sup> (30 g) in X.Y.Z. direction		
Mass	approx. 14 g		

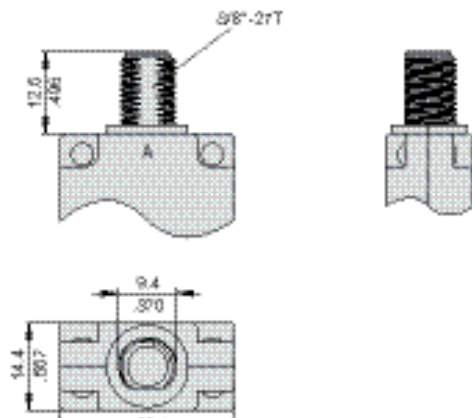
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**Dimensions**

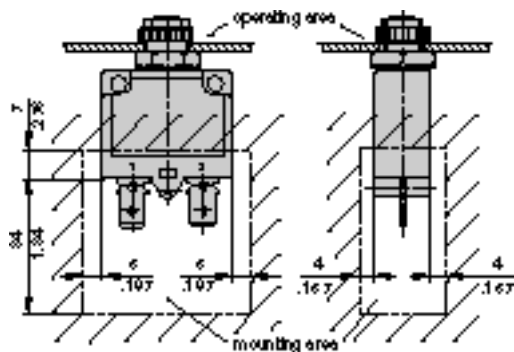
**1657-G11/-G12**



**1657-G21/-G22**

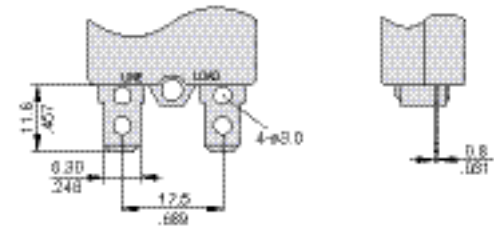


**Installation drawing**

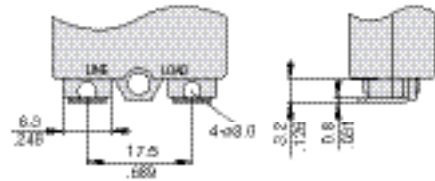


**Terminal design**

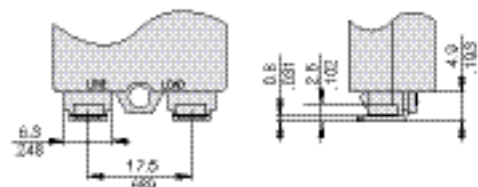
**...-P10**



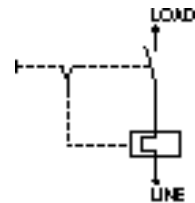
**...-P13**



**...-S83**

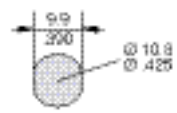


**Internal connection diagram**

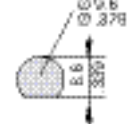


**Panel cut out**

**1657-G11/-G12**

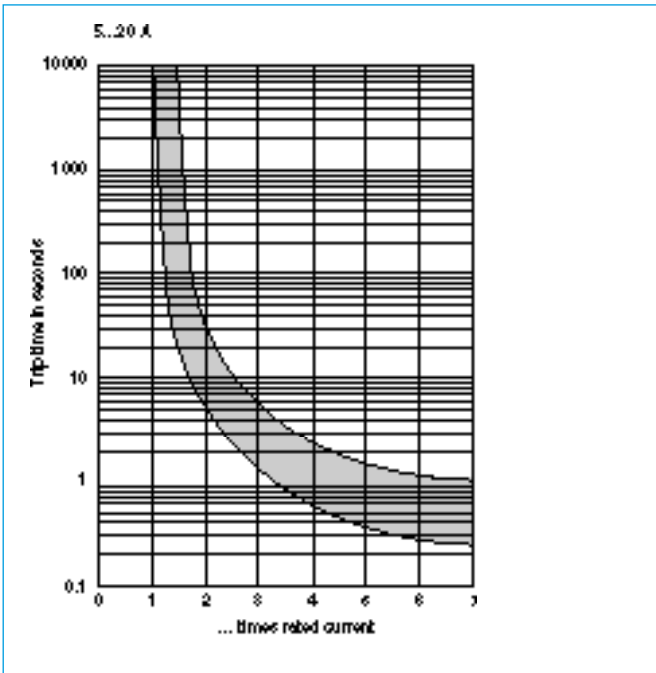


**1657-G21/-G22**



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

## Typical time/current characteristics



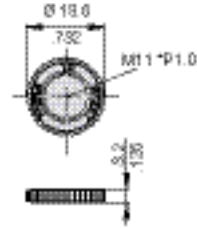
The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section Technical information.

Ambient temp. °F	+14	+32	+50	+77	+95	+104	+122	+140
Ambient temp. °C	-10	0	10	25	35	40	50	60
Derating factor	0.77	0.83	0.91	1	1.06	1.18	1.37	1.47

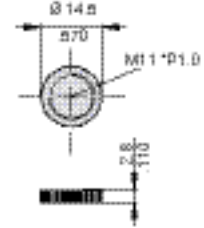
## Accessories

### Nuts

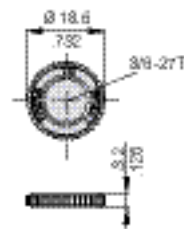
Plastic Nut  
Ref. Y 310 777 01



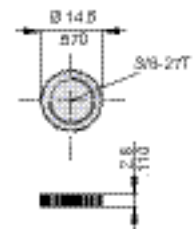
Plastic Nut  
Ref. Y 310 775 01



Plastic Nut  
Ref. Y 310 776 01

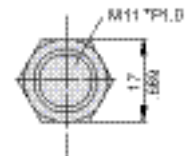
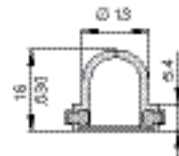


Plastic Nut  
Ref. Y 310 776 01

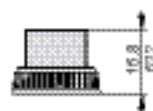


### Watersplash protection

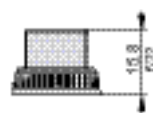
Ref. X 223 356 01



Ref. X 229 357 01



Ref. X 223 355 01



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.

