

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 panel mounting, snap-in or threadneck, or as an integral type. For lower current ratings see types 104, 105, 106. Approved to CBE standard EN 60934 (IEC 60934).

Typical applications

Motors, transformers, solenoids, hand-held machines and appliances.

Ordering information

Type No.

1140	single pole thermal circuit breaker
Mounting	
E2	integral mounting
F1	snap-in panel mounting
G1	threadneck panel mounting 3/8-27UNS with hex nut and knurled nut (hardware bulk shipped with 5 pcs plus)
Number of poles	
1	1-pole protected
Actuator style	
1	black push button
Terminal design	
P1	blade terminals A6.3-0.8 (QC .250)
Characteristic curve	
M1	medium delaye
Current ratings	
3.5...16 A	
1140 - F1 1 1 - P1 M1 - 10 A = ordering example	

Preferred types

Preferred types	Standard current ratings (A)															
	4	5	6	7	8	9	10	11	12	13	14	15	16			
1140-G111-P1M1-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance (Ω)	Current rating (A)	Internal resistance (Ω)
3.5	0.06	10	< 0.02
4	0.04	11	< 0.02
5	0.03	12	< 0.02
6	0.02	13	< 0.02
7	< 0.02	14	< 0.02
8	< 0.02	15	< 0.02
9	< 0.02	16	< 0.02



Technical data

For further details please see chapter: Technical Information

Voltage rating	AC 240 V; DC 48 V (UL: AC 250 V; DC 50 V)		
Current ratings	3.5...16 A		
Typical life	AC + DC 3.5...8 A 200 operations at 2 x I _N , inductive 9...16 A 100 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 reinforced insulation in operating area	pollution degree 2	
Dielectric strength (IEC 60664 and 60664 A) operating area	test voltage AC 3,000 V		
Insulation resistance	> 100 MΩ (DC 500 V)		
Interrupting capacity I _{cn}	3.5...8 A 9...16 A	8 x I _N 120 A	
Interrupting capacity (UL 10777)	I _N 3.5...16 A 3.5...16 A	U _N DC 50 V AC 250 V	2,000 A 2,000 A
Degree of protection (IEC 60529/DIN 40 050)	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 60068-2-78, test Cab		
Mass	approx. 10 g		

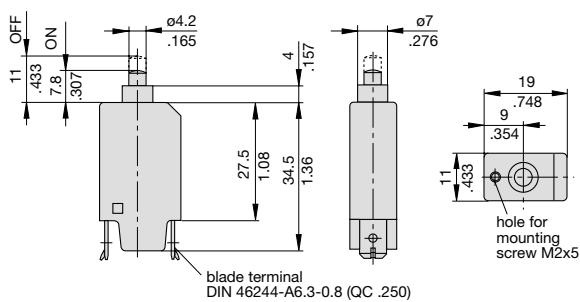
Approvals

Authority	Standard	Rated voltage	Current ratings
VDE	IEC/EN 60934	AC 240 V DC 48 V	3.5 A...16 A 3.5 A...16 A
UL	UL 1077	AC 250 V DC 50 V	3.5 A...16 A 3.5 A...16 A
CSA	C22.2 No 235	AC 250 V DC 50 V	3.5 A...15 A 3.5 A...16 A

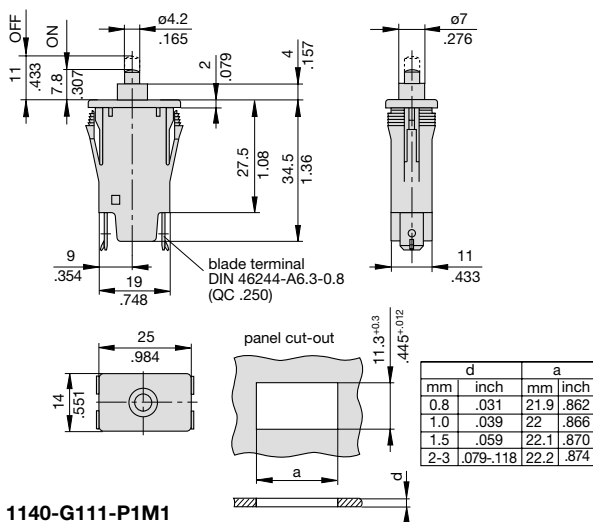
All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

Dimensions

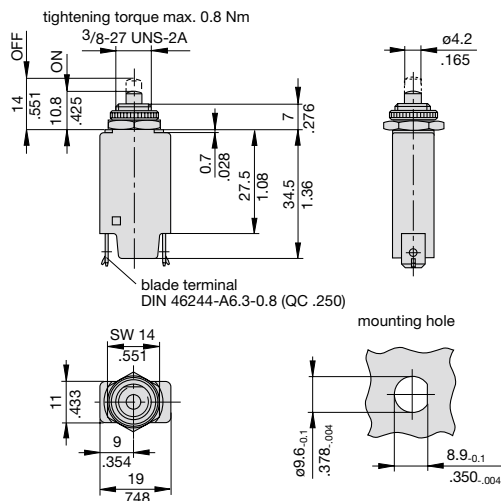
1140-E211-P1M1



1140-F111-P1M1

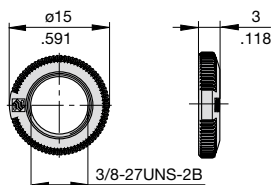


1140-G111-P1M1

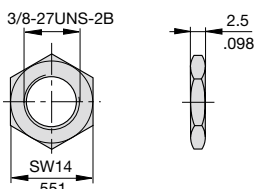


Accessory

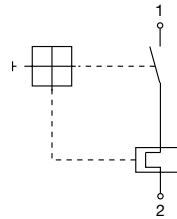
Knurled nut 3/8" plastic (standard) Y 307 117 02



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

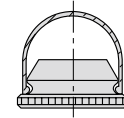


Internal connection diagram

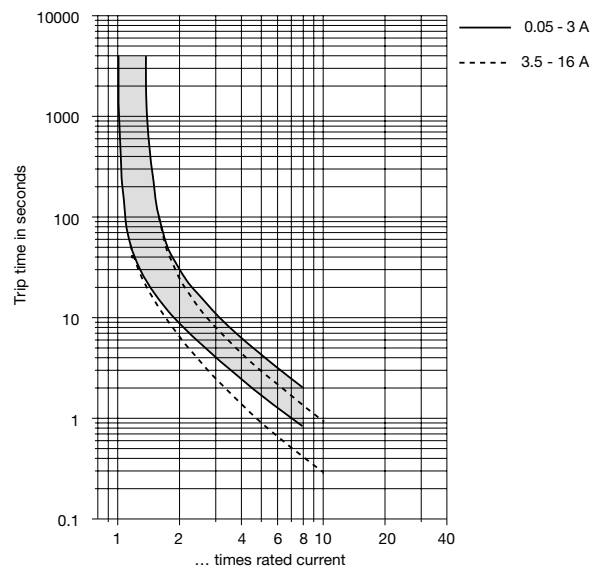


Accessory

Water splash cover/knurled nut assembly, transparent X 201 285 01 (IP64)



Typical time/current characteristics at +23 °C/+73.4 °F

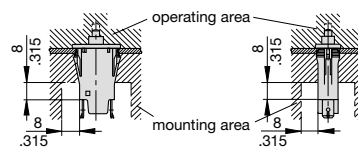


The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section Technical information.

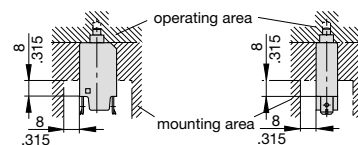
Ambient temperature °F	-4	+14	+32	+73.4	+104	+122	+140
°C	-20	-10	0	+23	+40	+50	+60
Derating factor	0.76	0.84	0.92	1	1.08	1.16	1.24

Installation drawings

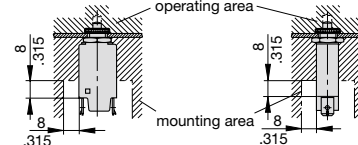
1140-F...



1140-E...



1140-G...



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

Thermal Overcurrent Circuit Breaker 1140-... (2-pole)

Description

Miniaturised double pole thermal circuit breaker with push-to-reset tease-free, trip-free, snap action mechanism (R-type TO CBE to EN 60934). Threadneck panel mounting. Suitable for line and neutral switching - the thermal actuator operating on one pole simultaneously opens both poles under overload conditions. Approved to CBE standard EN 60934 (IEC 60934).

Typical applications

Motors, transformers, solenoids, hand-held machines and appliances. Especially suited to AC duties where the correct orientation of line/neutral is not known/cannot be guaranteed.

Ordering information

Type No.

1140 double pole threadneck panel mounting
Mounting
G1 threadneck panel mounting 3/8-27UNS, with hex nut and knurled nut (hardware bulk shipped with 5 pcs plus)

Number of poles
5 double pole, 1-pole protected

Actuator style
1 black push button

Terminal design
P7 blade terminals DIN 46244-C (QC 2x.110)

Characteristic curve
M1 medium delay

Current ratings
0,05...16 A

1140 - G1 5 1 - P7 M1 - 16 A ordering example

Preferred types

Preferred types	Standard current ratings (A)											
	0.5	1	1.5	2	3	4	5	6	8	10	12	15
1140-G151-P7M1	x	x	x	x	x	x	x	x	x	x	x	x

Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance (Ω)	Current rating (A)	Internal resistance (Ω)
0.05	345	1.8	0.3
0.06	240	2	0.3
0.08	142	2.5	0.2
0.1	88	3	0.1
0.2	24	3.5	0.08
0.3	9.9	4	0.07
0.4	5.9	5	0.05
0.5	3.7	6	0.04
0.6	2.2	7	< 0.02
0.7	1.9	8	< 0.02
0.8	1.4	10	< 0.02
1	0.9	12	< 0.02
1.2	0.6	15	< 0.02
1.5	0.5	16	< 0.02



1140-G15

Technical data

For further details please see chapter: Technical Information

Voltage rating	AC 240 V; DC 48 V (UL: AC 250 V; DC 50 V)		
Current ratings	0.05...16 A		
Typical life AC + DC	0.05...3 A 3.5...8 A 9...16 A	300 operations at 2 x I _N , inductive 200 operations at 2 x I _N , inductive 100 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 reinforced insulation in operating area	pollution degree 2	
Dielectric strength (IEC 60664 and 60664A) operating area pole/pole	test voltage AC 3,000 V AC 1,500 V		
Insulation resistance	> 100 MΩ (DC 500 V)		
Interrupting capacity I _{cn}	0.05...3 A 3.5...8 A 9...16 A	6 x I _N 8 x I _N 120 A	
Interrupting capacity (UL 1077)	I _N 0.05...16 A 0.05...16 A	U _N DC 50 V AC 250 V	2,000 A 2,000 A
Degree of protection (IEC 60529/DIN 40 050)	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 60068-2-78, test Cab		
Mass	approx. 13 g		

Approvals

Authority	Standard	Voltage ratings	Current ratings
VDE	IEC/EN 60934	AC 240 V DC 48 V	0.05 A...16 A 0.05 A...16 A
UL	UL 1077	AC 250 V DC 50 V	0.05 A...16 A 0.05 A...16 A
CSA	C22.2 No 235	AC 250 V DC 50 V	0.05 A...16 A 0.05 A...16 A

Internal connection diagram

Figure 1 is a log-log plot showing the trip time in seconds (Y-axis) versus the times rated current (X-axis). The Y-axis ranges from 0.1 to 10000 seconds, and the X-axis ranges from 1 to 40 times rated current. Two curves are plotted: a solid line for 0.05 - 3 A and a dashed line for 3.5 - 16 A. The 0.05 - 3 A curve is consistently higher than the 3.5 - 16 A curve, indicating a longer trip time for the same current multiple. The shaded area between the two curves represents the difference in trip time between the two ratings.

Figure 1 consists of two cross-sectional diagrams of a sensor assembly. The left diagram shows a sensor with a wide mounting area and a narrow operating area. The right diagram shows a sensor with a narrow mounting area and a wide operating area. Both diagrams include dimension lines for 8 and .315.

A diagram of a dome structure. It features a rectangular base with a semi-circular arch on top. A vertical dashed line runs through the center of the arch and the base, indicating the axis of symmetry.

Technical drawing of a 3/8-27UNS-2B hex nut. The front view shows an outer diameter of $\phi 15$ and an inner diameter of $.591$. The side view shows a height of 3 and a width of $.118$. The thread specification $3/8-27UNS-2B$ is indicated at the bottom.

3/8-27UNS-2B

SW14

2.5

.098

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