

Description

Single pole thermal circuit breaker with push-to-reset, tease-free, trip-free, snap action mechanism (R-type TO CBE to EN 60934). Options include an additional unprotected circuit tap (-A3) and -KF housing particularly suited to high humidity and other damp conditions. Designed for threadneck panel mounting. Approved to CBE standard EN 60934 (IEC 60934).

Typical applications

Motors, transformers, solenoids, hand tools, appliances.

Ordering information

Type No.	
2-4100	threadneck panel mounting (hardware bulk shipped)
Terminal design	
L10	solder terminals
P10	blade terminals A6.3-0.8 mm (QC .250)
P50	blade terminals A4.8-0.8 mm (QC .190)
Shunt terminal (optional)	
A3	shunt terminal (3 A max. load)
Current ratings	
0.05...10 A	
2-4100 - L10 - .. - .. - 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.

Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance (Ω)	Current rating (A)	Internal resistance (Ω)
0.05	322	1.8	0.34
0.08	125	2	0.29
0.1	101	2.5	0.18
0.2	25	3	0.14
0.3	11	3.5	0.1
0.4	6.3	4	0.08
0.5	4.1	4.5	0.069
0.6	2.8	5	0.053
0.7	2.1	6	< 0.05
0.8	1.6	7	< 0.05
1	0.97	8	< 0.05
1.2	0.66	10	< 0.05
1.5	0.4		

Approvals

Authority	Voltage rating	Current rating
VDE (EN 60934)	AC 250 V; DC 28 V	0.05...10 A
CSA	AC 250 V	0.05...3.5A
UL	AC 250 V	0.05... 5 A

-A3 versions are not UL approved



2-4100-...

Technical data

For further details please see chapter: Technical Information

Voltage rating	AC 250 V; DC 28 V		
Current rating range	0.05...10 A		
Typical life	AC 250 V / DC 28 V: 2,000 operations at 2 x I _N , resistive		
	DC 28 V: 0.05...10 A	1,000 operations at 2 x I _N , inductive	
Ambient temperature	-20...+60 °C (-4...+140 °F)		
Insulation co-ordination (IEC 60664 and 60664 A)	rated impulse withstand voltage	pollution degree 2	
	2.5 kV	reinforced insulation in operating area	
Dielectric strength (IEC 60664 and 60664 A) operating area	test voltage	AC 3,000 V	
	operating area	AC 3,000 V	
Insulation resistance	> 100 MΩ (DC 500 V)		
Interrupting capacity I _{cn}	0.05...2 A	10 x I _N	
	2.5...6 A	8 x I _N	
	7...10 A	6 x I _N	
Interrupting capacity (UL 1077)	I _N 0.05...4.5 A	U _N AC 250 V	200 A
	5 A	AC 250 V	1,000 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. 15 g		

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.

Description

Single pole thermal circuit breaker with press-to-reset, tease-free, trip-free, snap action mechanism. Type 2-5000 is available with optional manual release (-H), type 2-5700 can be supplied as a push-push switch/circuit breaker (R-type TO CBE to EN 60934 in press-to-reset configuration; M-type when fitted with manual release -H; S-type with push-push operation). Fitted with flange or threadneck for panel mounting. Options include an additional unprotected circuit tap (-A3). Approved to CBE standard EN 60934 (IEC 60934).

Typical applications

Motors, transformers, solenoids, battery chargers, power supplies, appliances, machinery, extra low voltage systems.

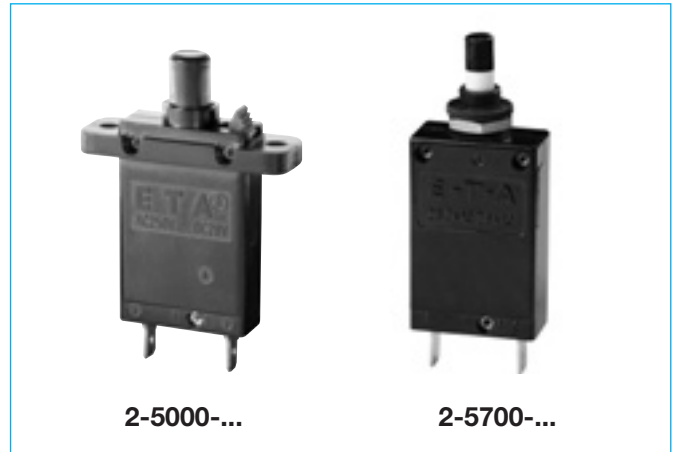
Ordering information

Type No.	
2-5000	flange mounting
2-5700	threadneck panel mounting (hardware bulk shipped)
Threadneck design – type 2-5700 only	
iG1	moulded threadneck 3/8"-27UNS-2A
iG2	moulded threadneck M12x1
Terminal design	
P10	blade terminals 6.3-0.8 mm (QC .250)
K10	screw terminals M4x6
Shunt terminal (optional) -P10 only	
A3	shunt terminal (up to I_N 2.5 A/6 A max. load)
Manual release (optional)	
H	manual release facility (type 2-5000 only)
DD	push to release/push to reset (type 2-5700 only)
Current ratings	
0.05...25 A	
2-5700 -iG1 - P10 - ... - DD - 8 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.

Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance (Ω)	Current rating (A)	Internal resistance (Ω)
0.05	280	3	0.1
0.08	100	3.5	0.06
0.1	110	4	0.06
0.2	29	4.5	0.05
0.3	14	5	0.05
0.4	7	6	0.02
0.5	4.9	7	0.02
0.6	3.4	8	0.02
0.7	2.5	10	< 0.02
0.8	1.8	12	< 0.02
1	1.2	13	< 0.02
1.2	0.8	15	< 0.02
1.5	0.6	16	< 0.02
1.8	0.4	20	< 0.02
2	0.3	22	< 0.02
2.5	0.2	25	< 0.02



Technical data

For further details please see chapter: Technical Information

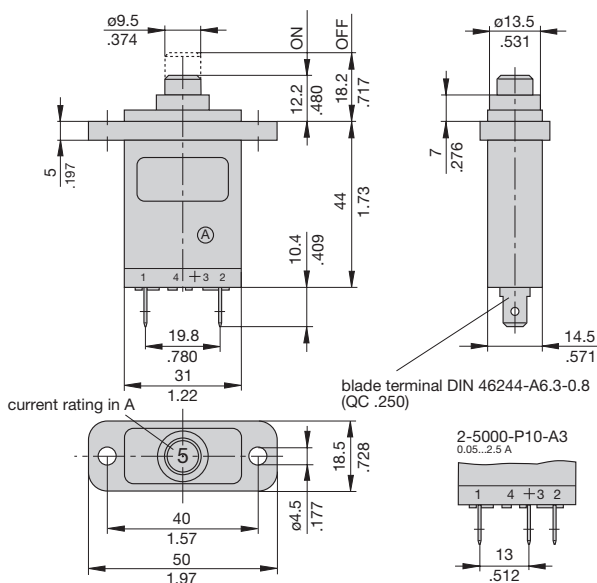
Voltage rating	AC 250 V; DC 28 V (UL: AC 250 V; DC 50 V)	
Current rating range	0.05...25 A	
Typical life	AC 250 V / DC 28 V: 0.05...16 A 5,000 operations at $2 \times I_N$, inductive 17...25 A 5,000 operations at $2 \times I_N$, resistive	
Ambient temperature	-20...+60 °C (-4...+140 °F)	
Insulation co-ordination (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	test voltage AC 3,000 V	
Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity I_{cn}	0.05...2.5 A 3...5 A 6...12 A 13...25 A	$8 \times I_N$ $20 \times I_N$ 200 A 400 A (higher interrupting capacity available to special order)
Interrupting capacity (UL 1077)	I_N 0.05...20 A 0.05...25 A (higher values upon request)	U_N AC 250 V 2,000 A DC 50 V 2,000 A
Degree of protection (IEC 60529/DIN 40050)	operating area IP40 terminal area IP00	
Vibration	8 g (57-500 Hz) ± 0.61 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. 29 g	

Approvals

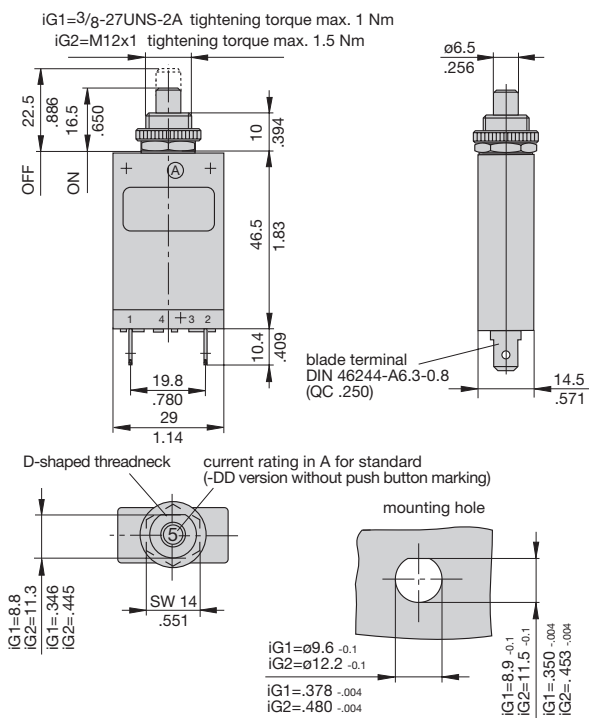
Authority	Voltage ratings	Current ratings
VDE (EN 60934)	AC 250 V; DC 28 V	0.05...25 A
CSA/ UL	AC 250 V; DC 50 V	0.05...20 A
CCC	AC 250 V	0.05...25 A
SEV	AC 250 V; DC 28 V	0.05...25 A
Type 2-5700 only:		
BV	AC 250 V; DC 28 V	0.2...25 A

Dimensions

2-5000-P10



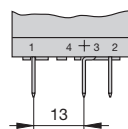
2-5700-P10



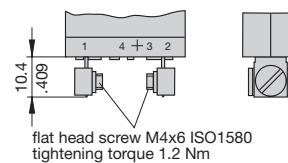
Terminal design

-P10-A3

0.05...2.5 A

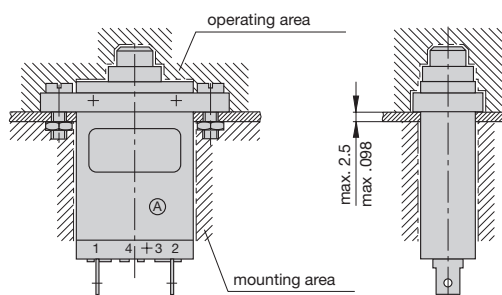


-K10

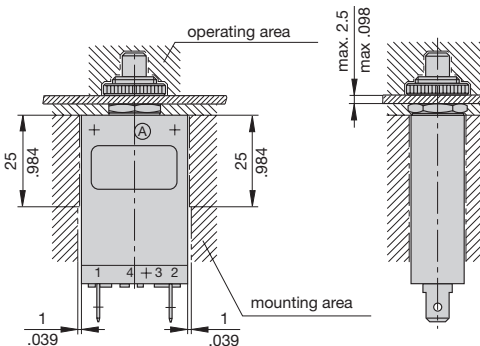


Installation drawings

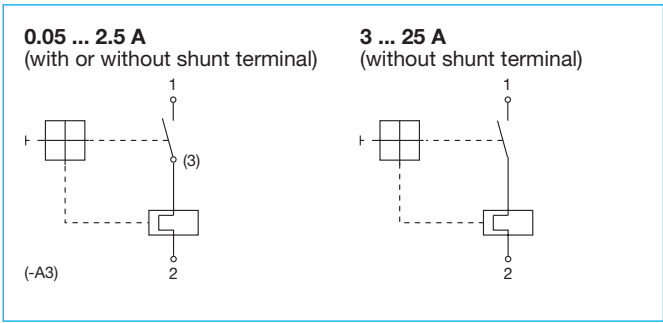
2-5000-P10



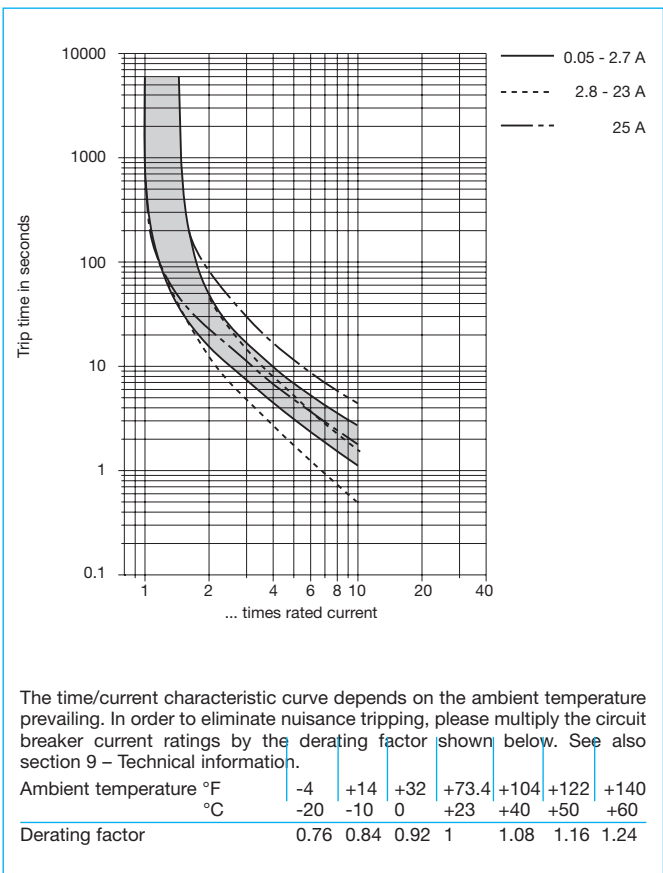
2-5700-P10



Internal connection diagrams

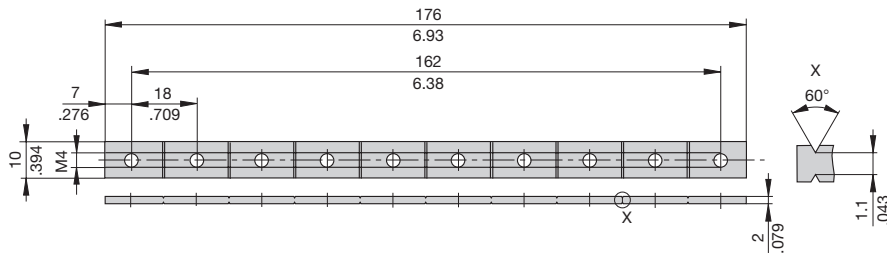


Typical time/current characteristics at +23°C/+73.4°F



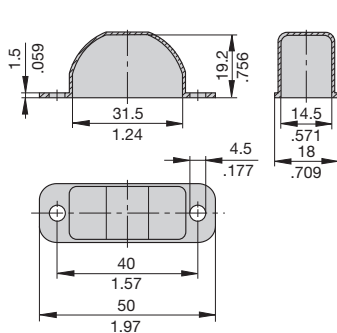
Accessories for types 2-5000 and 2-5700 with screw terminals -K10

**Bus bar
Y 303 563 01**

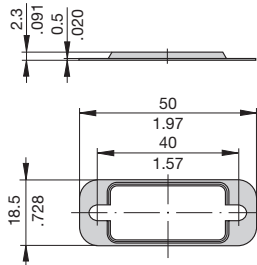


Accessories for type 2-5000-...

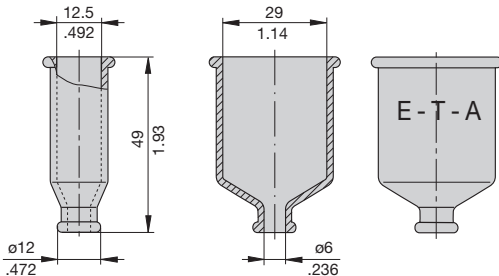
**Water splash cover, transparent
for push button (IP64)
Y 300 728 01**



**Fixing plate
Y 301 056 02**



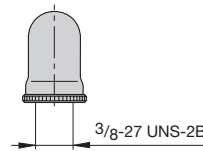
**Rear terminal shroud, transparent (IP64)
Y 300 476 01**



Accessories for type 2-5700-...

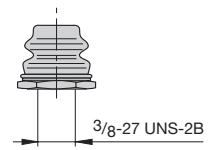
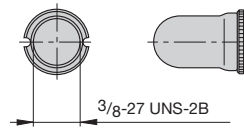
With 3/8" threadneck (-iG1)

**Water splash cover, transparent Y 300 538 01 and
knurled nut Y 300 628 01
X 200 799 01 (IP64)**

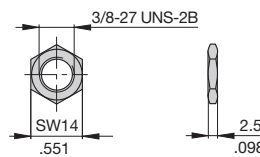


**Water splash cover,
transparent with
special knurled nut
X 200 798 02 (IP64)**

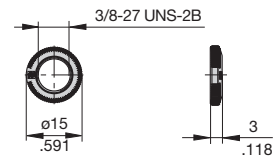
**Hex nut with splash
cover black without O ring
X 210 739 01 (IP64)
transparent splash cover
X 201 296 03 (IP64)**



**Separate hardware
Hex nut
Y 300 192 01**



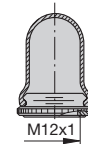
**Knurled nut
Y 307 117 02**



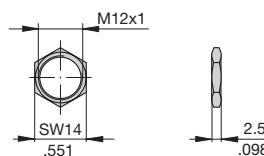
With M12 threadneck (-iG2)

**Hex nut with splash cover, black
X 201 296 01 without O ring (IP64)
X 200 801 03 with O ring (IP66)
Hex nut with splash cover,
transparent
X 200 801 08 with O ring (IP66)**

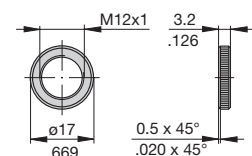
**Water splash cover,
transparent with knurled nut
and O ring
X 210 663 01 (IP64)**



**Hex nut
Y 300 116 02**



**Knurled nut
Y 302 065 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.

Description

Single pole thermal circuit breaker with push-to-reset, tease-free, trip-free, snap action mechanism (R-type TO CBE to EN 60934; M-type when fitted with optional manual release feature). Designed for plug-in mounting with E-T-A sockets 10 and 16.

Typical applications

Extra low voltage wiring systems and components.

Ordering information

Type No.	
2-5200	plug-in
	Manual release (optional)
H	manual release facility
	Current ratings
	0.05...16 A
2-5200 -H - .. - 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.

Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance (Ω)	Current rating (A)	Internal resistance (Ω)
0.05	280	2.5	0.2
0.08	100	3	0.1
0.1	110	3,5	0.065
0.2	29	4	0.065
0.3	14	4.5	0.05
0.4	7	5	0.05
0.5	4.9	6	0.02
0.6	3.4	7	0.02
0.7	2.5	8	< 0.02
0.8	1.8	10	< 0.02
1	1.2	12	< 0.02
1.2	0.84	13	< 0.02
1.5	0.6	15	< 0.02
1.8	0.4	16	< 0.02
2	0.25		



2-5200-...

Technical data

For further details please see chapter: Technical Information

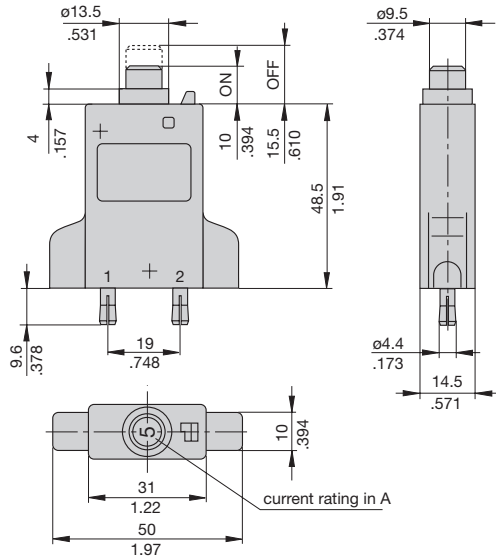
Voltage rating	DC 28 V (UL: AC 250; DC 50 V)	
Current rating range	0.05...16 A (up to 25 A to special order)	
Typical life	AC 250 V / DC 28 V: 0.05...16 A 5,000 operations at 2 x I _N , inductive	
Ambient temperature	-20...+60 °C (-4...+140 °F)	
Insulation co-ordination (IEC 60664 and 60664 A)	rated impulse withstand voltage 2.5 kV	pollution degree 2
Dielectric strength (IEC 60664 and 60664A)	test voltage operating area AC 1,500 V	
Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity I _{cn}	0.05...2.5 A 3...5 A 6...16 A (25 A)	8 x I _N 20 x I _N 400 A
Degree of protection (IEC 60529/DIN 40050)	operating area IP40 terminal area IP00	
Vibration	8 g (57 to 500 Hz/ ±0.61 mm, 10-57 Hz), to IEC 60068-2-6, test Fc,	
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. 35 g	

Approvals

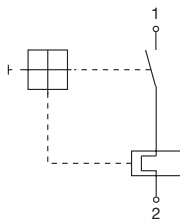
Authority	Voltage ratings	Current ratings
UL	AC 250 V; DC 50 V	0.05...20 A

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.

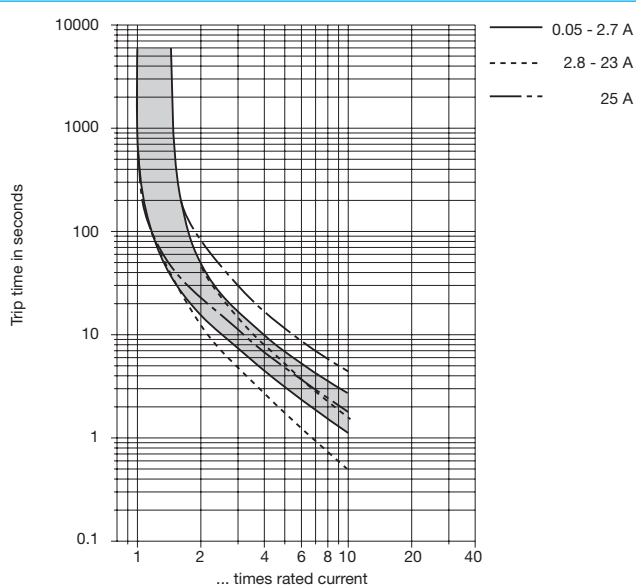
Dimensions



Internal connection diagram



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



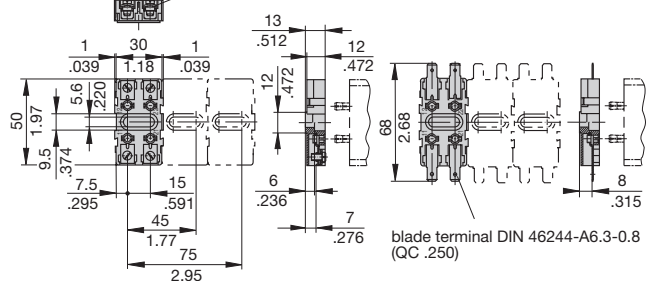
The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section 9 – Technical information.

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

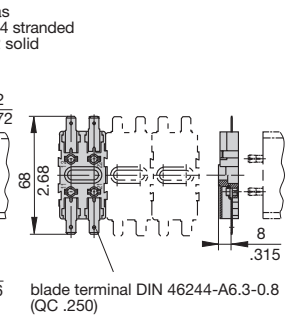
Accessories

Sockets 10R-K10

wire cross sectional areas
2 x max. 2.5 mm² AWG 14 stranded
2 x max. 4 mm² AWG 12 solid

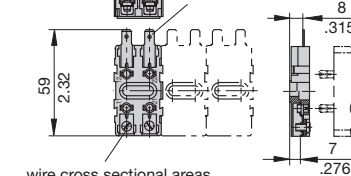


10R-P10



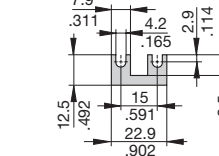
10R-A10

blade terminal
DIN 46244-A6.3-0.8
(QC .250)

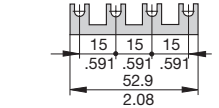


Bus bar for sockets 10...

Y 301 166 02 (2 way)

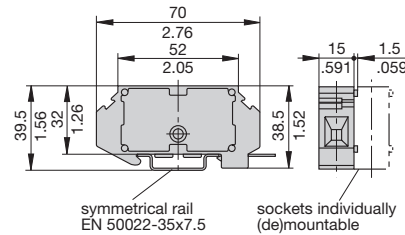


Y 301 166 01 (4 way)



Socket 16

(up to 16 A max. load)

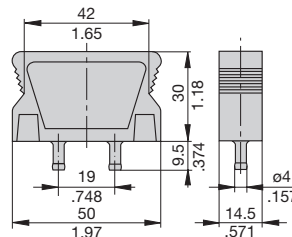


thickness = 0.8 mm
.031 in.

Adapter for EN rail
50035-G32 (specified as
a separate item)
X 200 409 01
for socket 16 available
on request

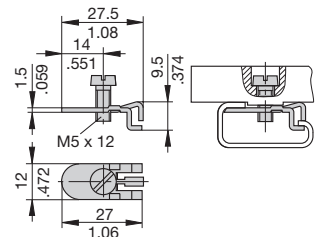
Blanking plug

Y 301 477 01
for sockets 10R-P10/K10



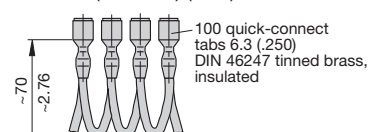
Terminal for mounting rack

X 200 800 01
for sockets 10R, 10F on
EN rail 50 035-G32



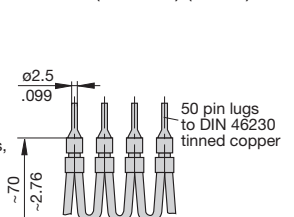
Connector bus links -P10

X 210 588 01/
1.5 mm² (AWG 16) (brown)
X 210 588 02/
2.5 mm² (AWG 14) (black)
X 210 588 03/
2.5 mm² (AWG 14) (red)
X 210 588 04/
2.5 mm² (AWG 14) (blue)



Connector bus links -K10

X 210 589 01/
2.5 mm² (AWG 14) (black)
X 210 589 02/
1.5 mm² (AWG 16) (brown)



1.5 mm² - up to 13 A max. load
2.5 mm² - up to 20 A max. load

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

Description

Single pole thermal circuit breakers with push-to-reset, tease-free, trip-free, snap action mechanism (R type TO CBE to EN 60934; M-type when fitted with manual release features/type 2-6200 only). Featuring auxiliary contacts (1 x N/C; 1 x N/O) as standard. Options include manual release (type 2-6200 only), an additional unprotected circuit tap (-A3) and a centre reset position in which all contacts are open (-ZR: type 2-6200-H only). Approved to CBE standard EN 60934 (IEC 60934).

Typical applications

Motors, transformers, solenoids, controls for oil and gas boilers.

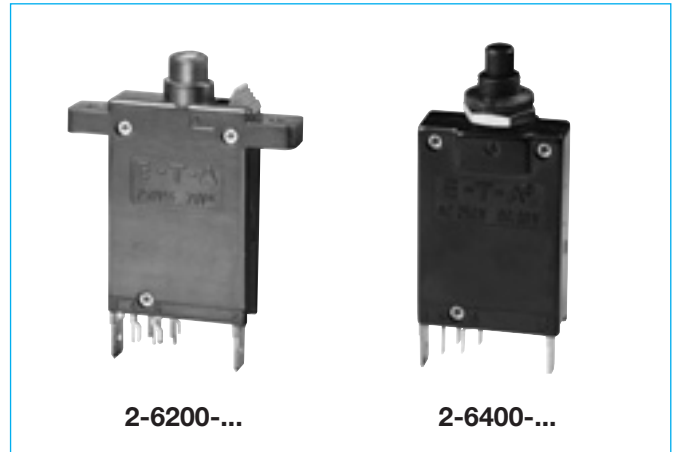
Ordering information

Type No.	
2-6200	flange mounting, with auxiliary contacts
2-6400	threadneck panel mounting, with auxiliary contacts mounting hardware bulk shipped
Mounting (type 2-6400 only)	
iG1	moulded threadneck 3/8-27UNS-2A
iG2	moulded threadneck M12 x 1
Terminal design - main circuit	
L10	solder terminals
P10	blade terminals A6.3-0.8 mm (QC .250)
Shunt terminal (optional)	
A3	shunt terminal same as main terminal (up to 7/5 A max. load; up to 16 A/10 A max. load)
Manual release (optional)	
H	manual release facility (type 2-6200 only)
Intermediate position (optional)	
ZR	intermediate position (type 2-6200-H only)
Auxiliary contacts (standard)	
Si	N/O and N/C contacts, solder terminals
Current ratings	
0.05...16 A	
2-6200 - .. - P10 - .. - .. - .. - Si - 8 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.

Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance (Ω)	Current rating (A)	Internal resistance (Ω)
0.05	257	2	0.30
0.08	138	2.5	0.20
0.1	90	3	0.12
0.2	32.2	3.5	0.10
0.3	14.6	4	0.07
0.4	8.4	4.5	0.056
0.5	5.15	5	0.046
0.6	3.82	6	0.035
0.7	2.80	7	0.03
0.8	2.15	8	< 0.02
1	1.42	10	< 0.02
1.2	0.96	12	< 0.02
1.5	0.51	15	< 0.02
1.8	0.40	16	< 0.02



Technical data

For further details please see chapter: Technical Information

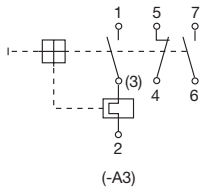
Voltage rating	AC 250 V; DC 28 V		
Current rating range	0.05...16 A		
Auxiliary circuit	1 A, AC 250 V/DC 28 V		
Typical life	AC 250 V / DC 28 V: 0.05...16 A 5,000 operations at 2 x I _N , inductive		
Ambient temperature	-20...+60 °C (-4...+140 °F)		
Insulation co-ordination (IEC 60664 and 60664A)	rated impulse withstand voltage 2.5 kV	pollution degree 2 reinforced insulation in operating area	
Dielectric strength (IEC 60664 and 60664A)	test voltage AC 3,000 V	operating area main circuit to aux. circuit aux. circuit 4-5 to 6-7 AC 1,500 V AC 840 V	
Insulation resistance	> 100 MΩ (DC 500 V)		
Interrupting capacity I _{cn}	10 x I _N		
Interrupting capacity (UL 1077)	I _N	U _N	
	0.05...4.5 A	AC 250 V	200 A
	5...7 A	AC 250 V	1,000 A
	8...15 A	AC 250 V	2,000 A
	16 A	AC 250 V	3,500 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	40 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. 25 g		

Approvals

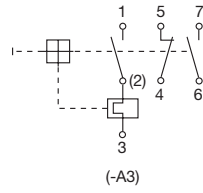
Authority	Voltage ratings	Current ratings
VDE (EN 60934)	AC 250 V; DC 28 V	0.05...16 A
CSA/ UL	AC 250 V; DC 28 V	0.05...16 A

Internal connection diagrams

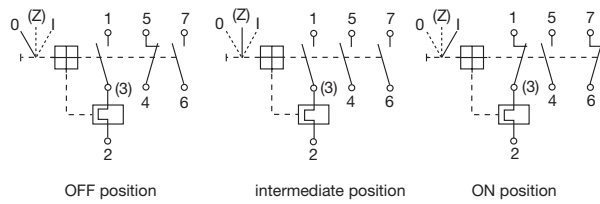
0.05 ... 7 A



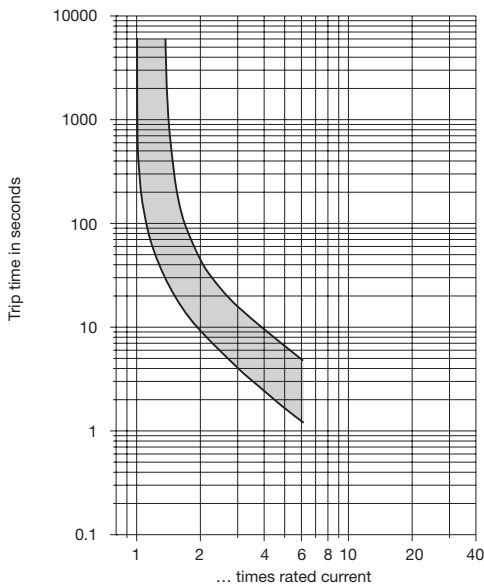
8 ... 16 A



2-6200-...-ZR



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

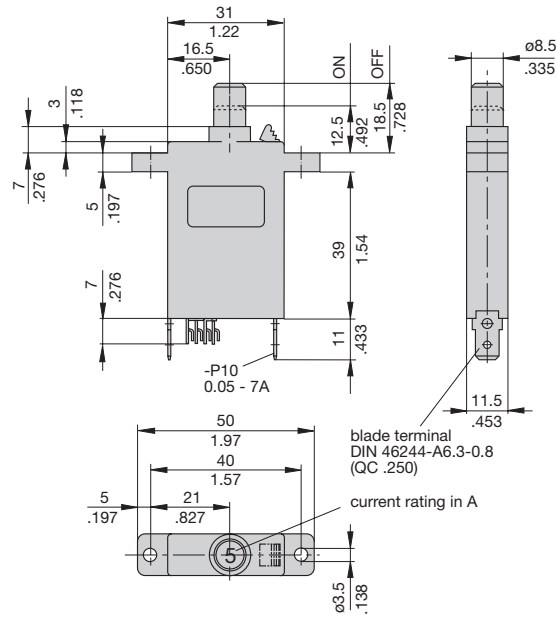


The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section 9 – Technical information.

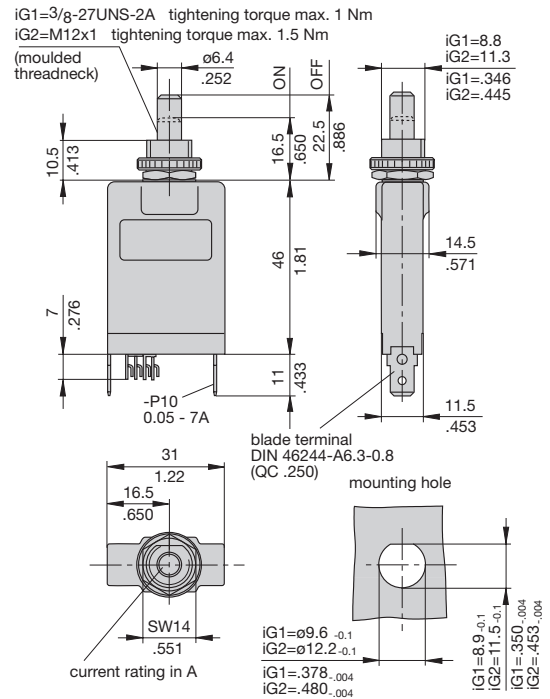
Ambient temperature °F	-4	+14	+32	+73.4	+104	+122	+140
°C	-20	-10	0	+23	+40	+50	+60
Derating factor	0.76	0.84	0.92	1	1.08	1.16	1.24

Dimensions

2-6200-...



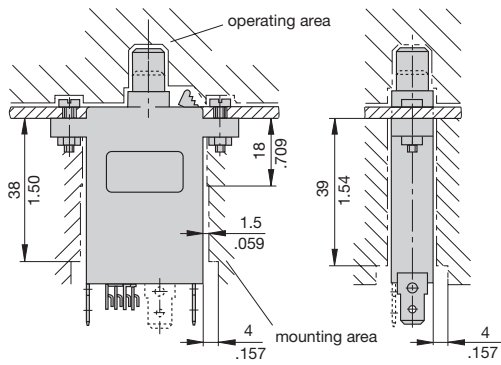
2-6400-...



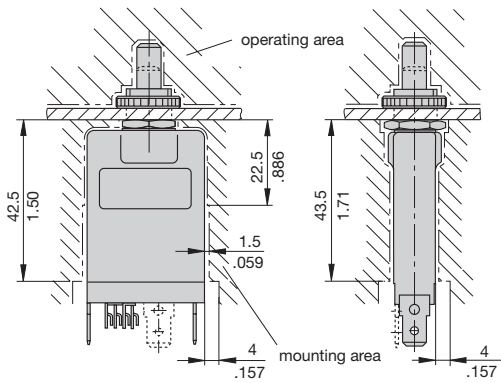
This is a metric design and millimeter dimensions take precedence (mm/inch)

Installation drawings

2-6200-...



2-6400-...

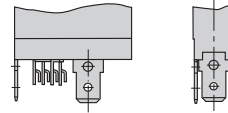


Terminal design

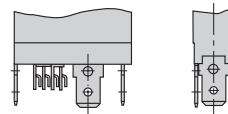
-P10 0.05...7 A

See dimension diagram.

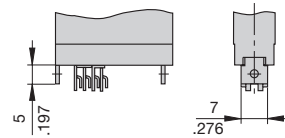
-P10 8...16 A



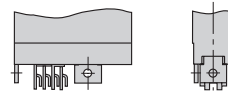
-P10-A3 0.05...16 A



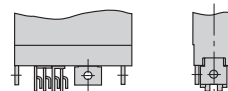
-L10 0.05...7 A



-L10 8...16 A



-L10-A3 0.05...16 A

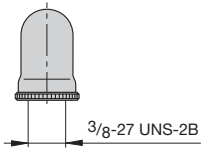


This is a metric design and millimeter dimensions take precedence ($\frac{\text{mm}}{\text{inch}}$)

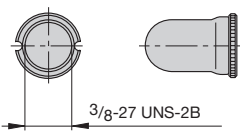
Accessories for type 2-6400-...

With 3/8" threadneck (-iG1)

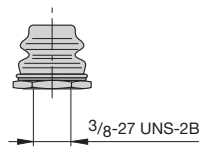
Water splash cover, transparent Y 300 538 01 and knurled nut Y 300 628 01 X 200 799 01 (IP64)



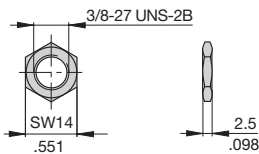
Water splash cover, transparent with special knurled nut X 200 798 02 (IP64)



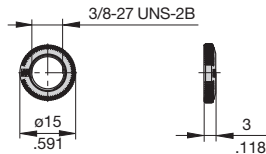
Hex nut with splash cover black without O ring X 210 739 01 (IP64)
transparent splash cover X 201 296 03 (IP64)



Separate hardware
Hex nut
Y 300 192 01



Knurled nut
Y 307 117 02

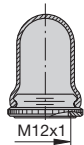


With M12 threadneck (-iG2)

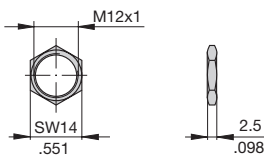
Hex nut with splash cover, black X 201 296 01 without O ring (IP64)
X 200 801 03 with O ring (IP66)
Hex nut with splash cover, transparent X 200 801 08 with O ring (IP66)



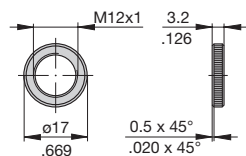
Water splash cover, transparent with knurled nut and O ring X 210 663 01 (IP64)



Hex nut
Y 300 116 02



Knurled nut
Y 302 065 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.