T12 Series

- Thermal release
- Positively trip-free
- Reset or manual actuation



A circuit breaker for equipment (CBE) of the T12 series is a single pole, thermally operated device providing small size, low cost and reliable trip-free operation on overloads and short circuits, up to the maximum breaking capacity. It is intended primarily for protection of motors, transformers, solenoids etc. against damage due to over-current conditions.

The well proven mechanism is designed to open the contacts in the event of a current flow in excess of the time/current characteristic of the device. A bimetal strip is heated by the overcurrent and deflects, thereby releasing the latch mechanism. The contacts will open even if the reset button is manually held in the closed position. This is known as the positively trip-free feature. The contacts open and close with a snap action and the tripped state is clearly shown by the increased projection of the reset button. After operation, the mechanism will not latch closed until the manual reset button is fully depressed and then released. It is impossible to 'tease' the contacts by gentle pressure on the reset button.

The time which can elapse in case of an overcurrent is given by the tripping characteristic (tripping zone). This curve is valid for a device operating at an ambient temperature of +23°C, without any preloading.

Available options

- Flange type
- Threaded neck type
- Type of actuation: reset or manual ON/OFF (push/push)
- Terminals:
  – quick connect terminals
  – screw clamp terminals
- Independent auxiliary contact (change-over contact)
- Shunt terminal
- Setting indication on the reset button indicates the position of the contacts

Special features

- Competitive pricing
- Quick connect terminals
- Choice of mounting styles
- Positively trip-free
- Not affected by shock or vibration
- UL, CSA, VDE and other approvals

Effect of ambient temperature

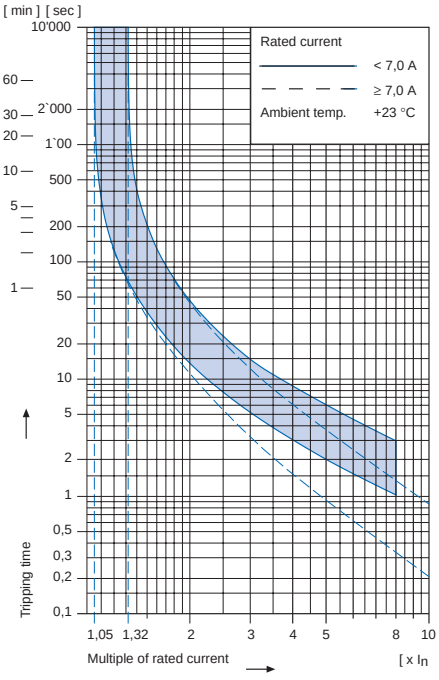
The unit is calibrated for an ambient temperature of +23°C. To determine the rated current for a lower or higher ambient temperature, use a correction factor from the table below:

Ambient temperature [°C]	Correction factor
-5	0,87
0	0,90
+10	0,95
+23	1,00
+30	1,05
+40	1,12
+50	1,20
+60	1,30

Example

Rated current at +23°C	5,0 A
Ambient temperature	+50°C
Correction factor	1,2
Chosen rated current at +50°C ambient temperature	
5,0 A x 1,2 = 6,0 A	

Tripping characteristics



Technical data

Main circuit		
Rated voltage Ue	See approvals, page 18	AC 240 V; DC 28 V
Rated current I_n	See approvals, page 18	AC/DC 0,05 – 16 A
Conditional short circuit current I_{nc}	EN 60 934 PC1, AC 240 V	1000 A
Short circuit capacity I_{cn}	AC 240 V with I_n <7 A AC 240 V with I_n ≥7 A AC/DC 28 V	8 x I_n 200 A 400 A
Auxiliary circuit		
Rated voltage Ue	See approvals, page 18	AC 120 V, 240 V; DC 28 V
Rated current I_n	See approvals, page 18	1,0; 2,0; 3,0 A
Class of protection	• Between live parts and accessible parts • Other parts	II I

Technical data (continued)

Degree of protection	Accessible range Termination range	IP40 IP00
Dielectric strength	Operating range	AC 4000 V
Insulation resistance	DC 500 V	>100 MΩ
Endurance	Number of cycles at 6 x I_n (AC) Number of cycles at I_n	R-type 40 S-type 5000
Permissible ambient temperature		-5°C to +60°C
Vibration resistance	IEC 68-2-6, Test Fc, 1 mm amplitude 5-60 Hz, 60-500 Hz	10 g
Shock resistance	IEC 68-2-6, Test Ea	100 g
Type of actuation	• Reset type • Manual ON/OFF (push/push)	R S
Type of tripping	• Thermal • Positively trip-free	TO
Weight		approx. 23 g

Approvals

			Main circuit			Auxiliary circuit		
			Rated current range	Rated voltage AC	Rated voltage DC	Rated current	Rated voltage AC	Rated voltage DC
	UL	1077	0,3 – 15 A	240 V	28 V	3 A		28 V
						2 A	120 V	
	CSA	C 22,2	0,3 – 16 A	240 V	28 V	1 A	240 V	
	VDE	EN 60934	0,05 – 16 A	240 V	28 V	1 A	240 V	28 V
	SEMKO		0,3 – 12 A	240 V		1 A	240 V	
	NEMKO		0,1 – 16 A	240 V		1 A	240 V	
	DEMKO		0,05 – 16 A	240 V		1 A	240 V	
	SEV	EN 60934	0,05 – 16 A	240 V	28 V	1 A	240 V	28 V

Order code

Basic type

T12 Single pole thermal overload protection switch, positively trip-free

Mounting style

1 Flange type

2 Threaded neck type 3/8 – 27 UNS – 2 A
with hexagonal- and knurled nut

Actuation type

1 Reset type

2 Manual ON/OFF (push/push)

Terminal type

1 6,3 x 0,8 mm quick connect terminals DIN 46244-A

2 Screw clamp terminals*

* Not available with S-auxiliary contact or N-shunt terminal

Construction variants *

S Auxiliary contact

N Shunt terminal only for rated currents <7 A

R Setting indication on reset button

* (S; N; R; SN; SR; NR; SNR)

Rated current

0,05	0,1	0,15	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1,0
1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8	1,9	2,0	2,1	2,3
2,5	2,8	3,0	3,3	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0
7,5	8,0	8,5	9,0	9,5	10	11	12	13	14	15	16

See approvals, page 18

Other rated currents by request

Accessories

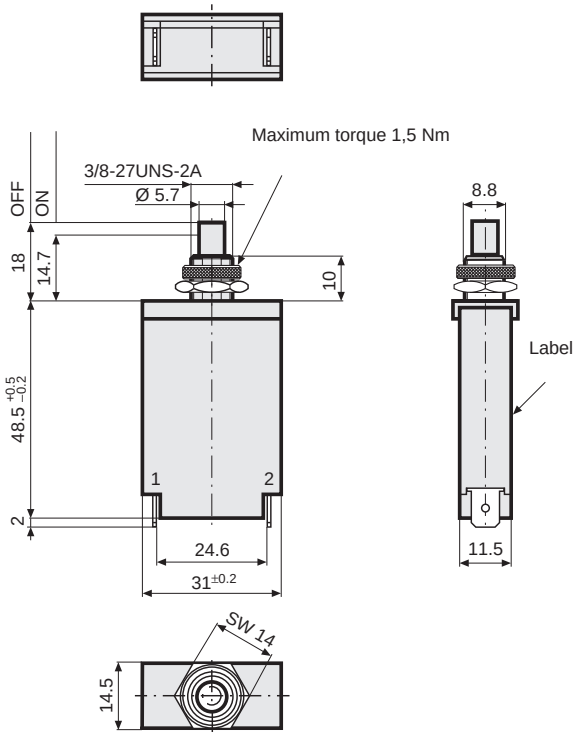
TZZ 01 Protective cover for threaded neck mounted front side IP54

TZZ 06 Protective cover for rear side IP41

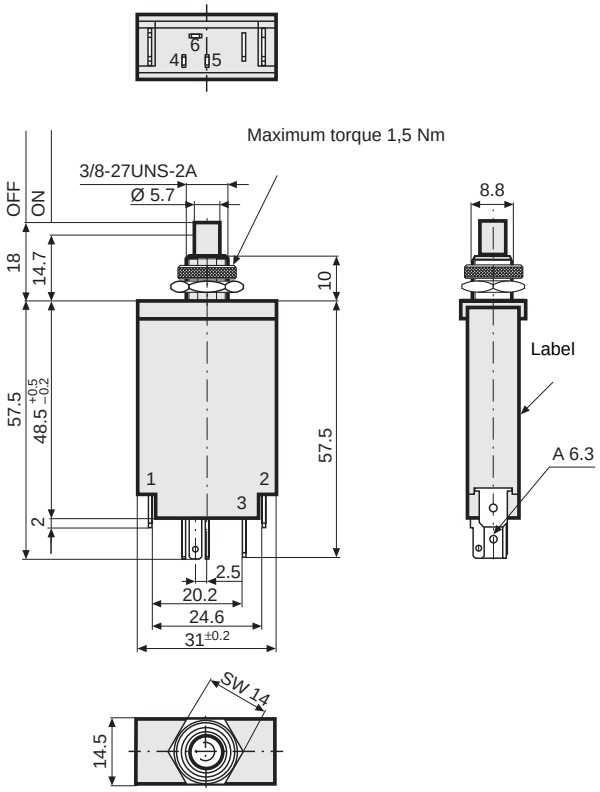
T 1 2 – 2 1 1 S N R – 0,15 – T Z Z 0 1 **Order example**

Threaded neck type

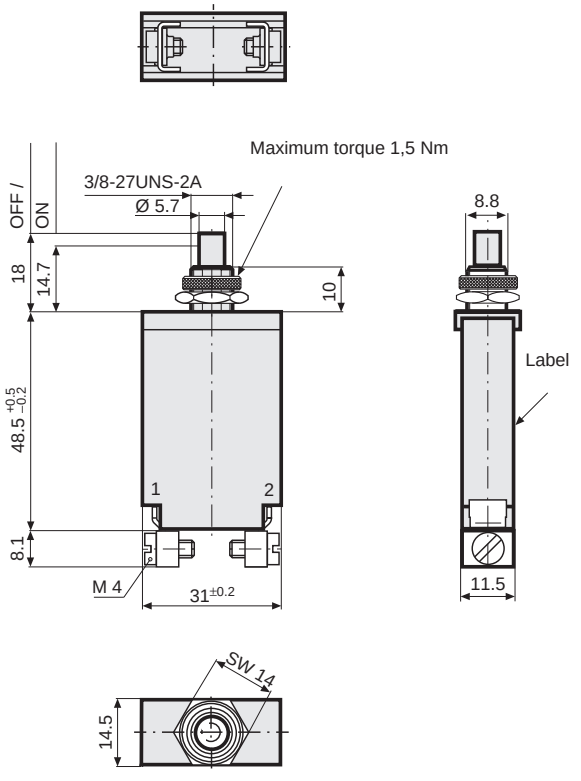
T12–211



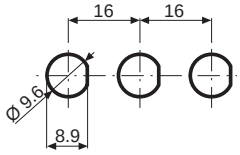
T12–211SN



T12–212



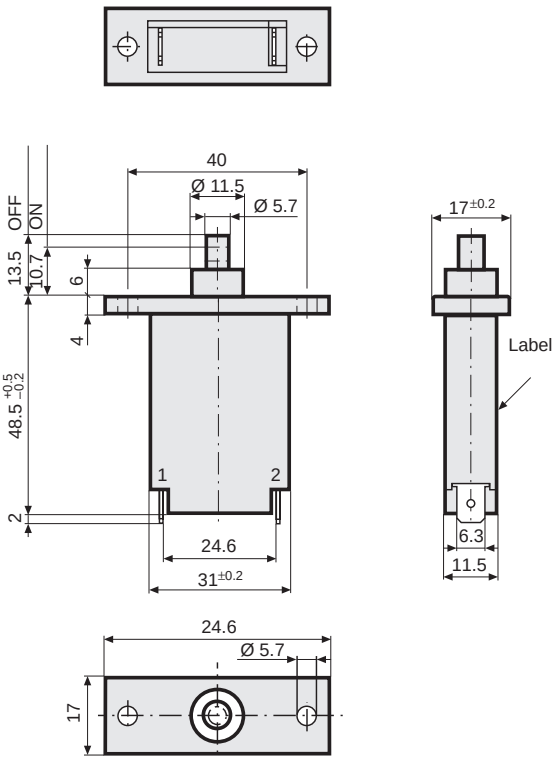
Cut-out



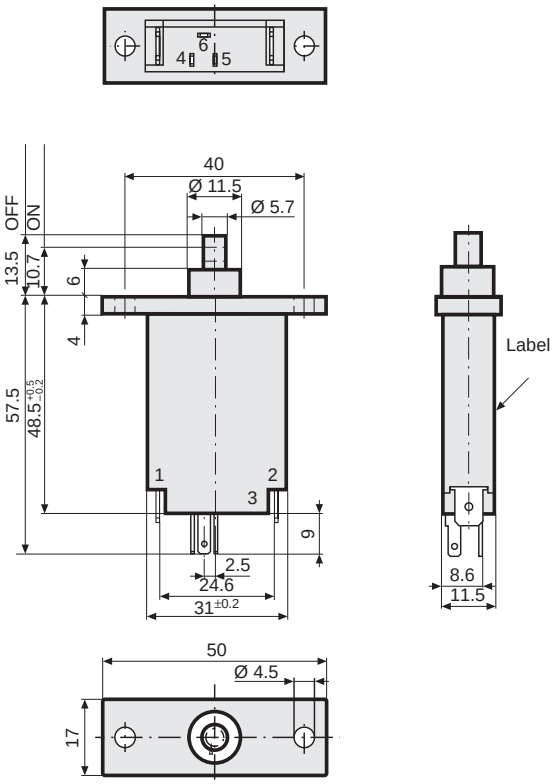
Phone 707-778-6311 • Fax 707-778-6401 • E-mail info@schurterinc.com • Website http://www.schurterinc.com

Flange type

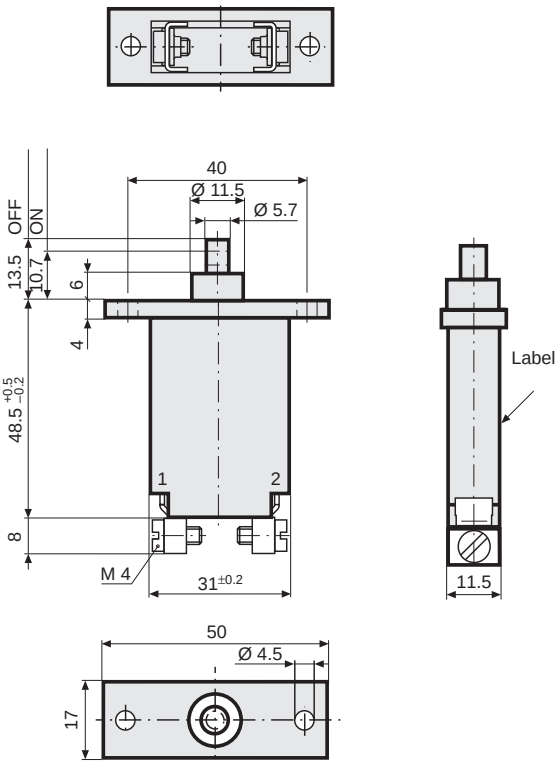
T12–111



T12–111SN

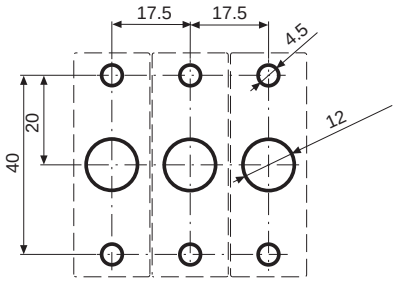


T12–112

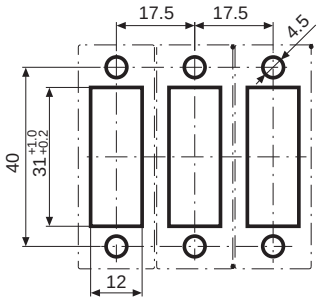


Cut-out
Montageöffnung

Installation from rear



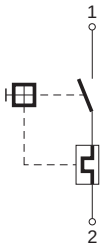
Installation from front



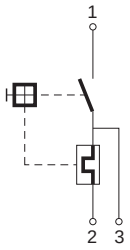
Schematic diagrams – accessories – colors

Schematic diagrams

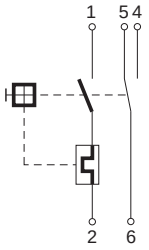
T12-...



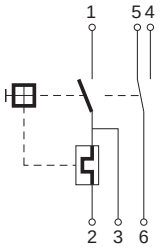
T12-...N



T12-...S

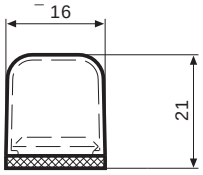


T12-...SN

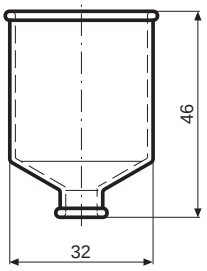


Accessories

Protective transparent cover
Degree of protection IP54
TZZ01



Protective cover rear side
IP41
TZZ06



Colors

