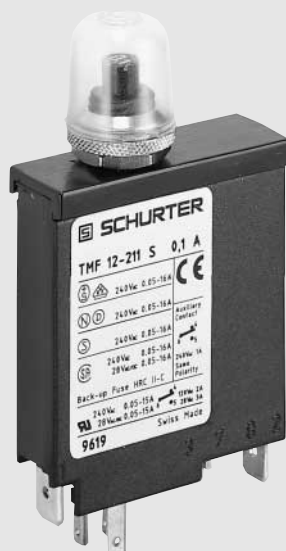


TM12 Series

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



The TM12 circuit breaker for equipment (CBE) is a single pole, thermal-magnetically operated device providing small size, low cost and reliable trip-free operation on overloads and short circuits within the maximum breaking capacity. It is intended primarily for the protection of circuit control functions in sensitive instruments etc. It is not generally suitable for line protection unless the prospective short circuit current is less than 200 A at 240 V a.c. (400 A at 28 V d.c.).

Threaded neck and flange mounting types are available each with optional push on/push off mechanism, shunt terminal and auxiliary contact. There is also a choice of screw clamp terminals on certain types.

The well proven mechanism is designed to open the contacts in the event of overloads. A bimetal strip is heated by the overcurrent and deflects, thereby releasing the latch mechanism. If the overcurrent is sufficiently high, the magnetic release will operate and open the circuit instantaneously. Two characteristics are available. The more commonly used T characteristic has operating limits between 8-12 times the rated current. The optional F characteristic operates at a lower current levels of 4-8 times the rated current.

In case of overloads, the contacts will open even if the reset button is manually held in the closed position. This is known as a 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 the opening operation, the reset button has to be fully depressed, then released, to effect a closing of the contact.

It is impossible to «tease» the contacts by gentle pressure on the reset button.

Available options

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

Special features

- Competitive pricing
- Quick connect terminals
- Choice of mounting styles
- Positively trip-free
- Insensitive to shock or vibration
- UL, CSA, VDE and other approvals

Effect of ambient temperature

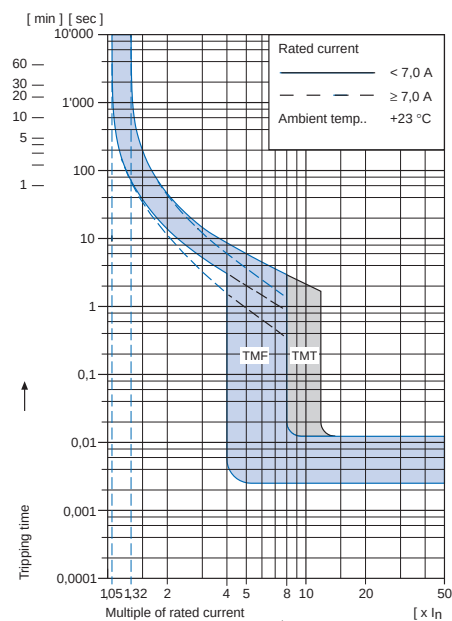
The unit is calibrated for an ambient temperature of +23°C. To determine the rated current for a lower or higher ambient temperature, use a correction factor from the table below:

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 TMF + TMT



Technical data

Main circuit

Rated voltage U_e	See approvals, page 195	AC 240 V; DC 28 V
Rated current I_n	See approvals, page 195	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 AC/DC 28 V	200 A 400 A

Auxiliary circuit

Rated voltage U_e	See approvals, page 195	AC 120 V, 240 V; DC 28 V
Rated current I_n	See approvals, page 195	1,0; 2,0; 3,0 A
Class of protection	Between live and accessible parts	II
	Other parts	I

Technical data (continued)

Degree of protection	Accessible range Termination range	IP40 IP00
Dielectric strength	Accessible range	AC 4000 V
Insulation resistance	DC 500 V	>100 MΩ
Endurance	Number of cycles at $6 \times I_n$ (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-magnetic • Positively trip-free	TM
Weight		approx. 33 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	0,05 – 16 A	240 V	28 V	3 A		28 V
						2 A	120 V	
	CSA	C 22,2	0,05 – 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
	SEMCO		0,05 – 16 A	240 V		1 A	240 V	
	NEMKO		0,05 – 16 A	240 V		1 A	240 V	
	DEMCO		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

TM Single pole thermal magnetic overload protection switch, positively trip-free

Magnetic release range**

F Fast

T Slow

Mounting style

1 Flange type

2 Threaded neck type M10 x 1, 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

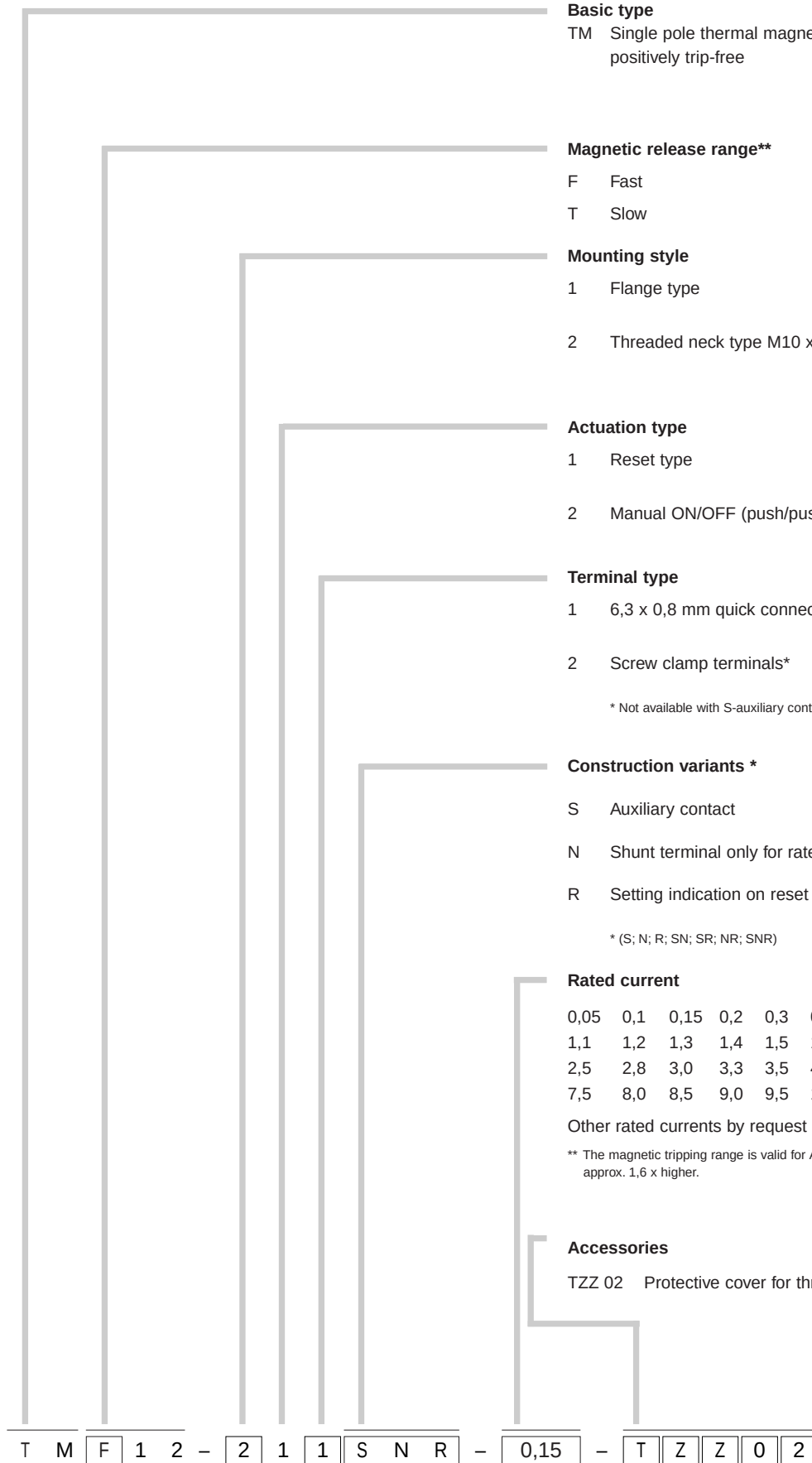
0,05	0,1	0,15	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1,0
1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8	1,9	2,0	2,1	2,3
2,5	2,8	3,0	3,3	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0
7,5	8,0	8,5	9,0	9,5	10	11	12	13	14	15	16

Other rated currents by request

** The magnetic tripping range is valid for AC. For DC the stated magnetic currents are approx. 1,6 x higher.

Accessories

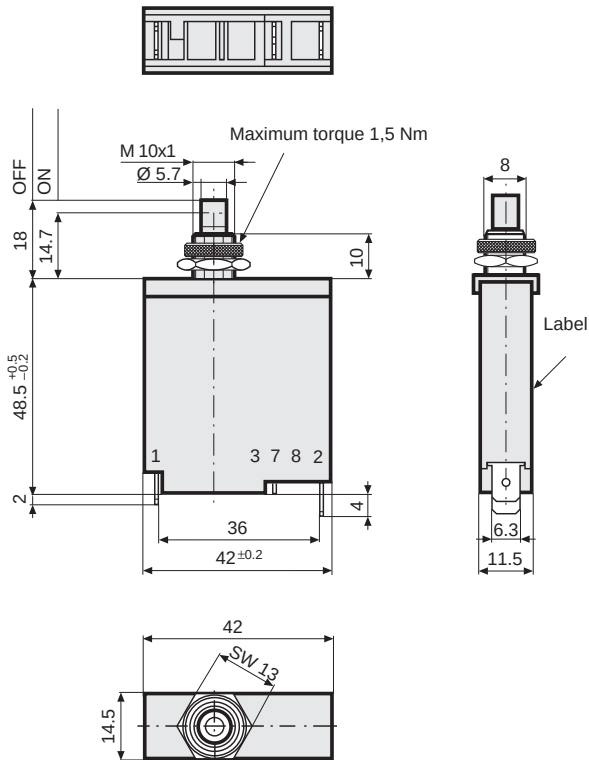
TZZ 02 Protective cover for threaded neck mounted front side IP54



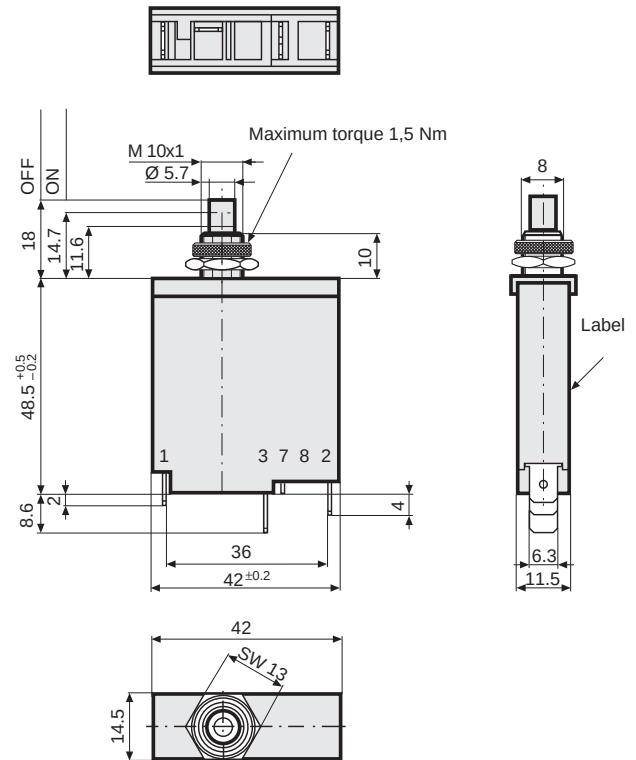
Order example

Threaded neck type

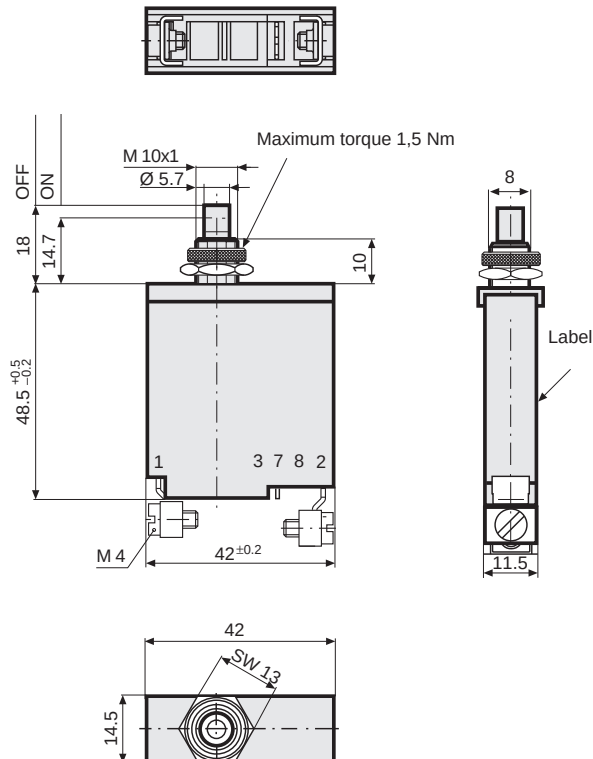
TMx12-211



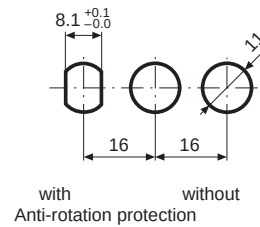
TMx12-211N



TMx12-212

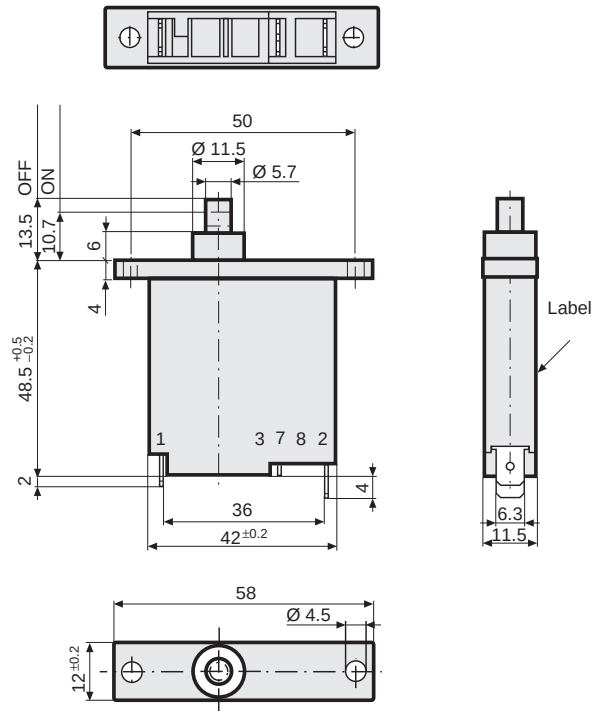


Cut-out

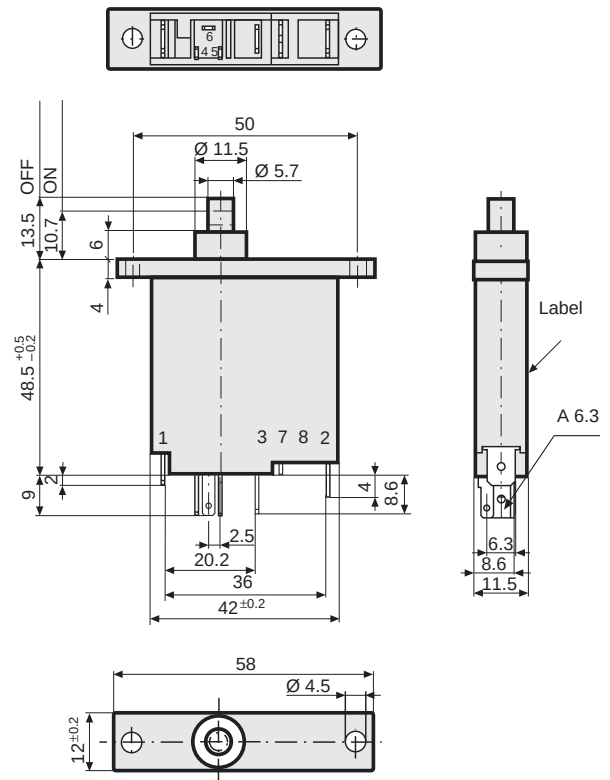


Flange type

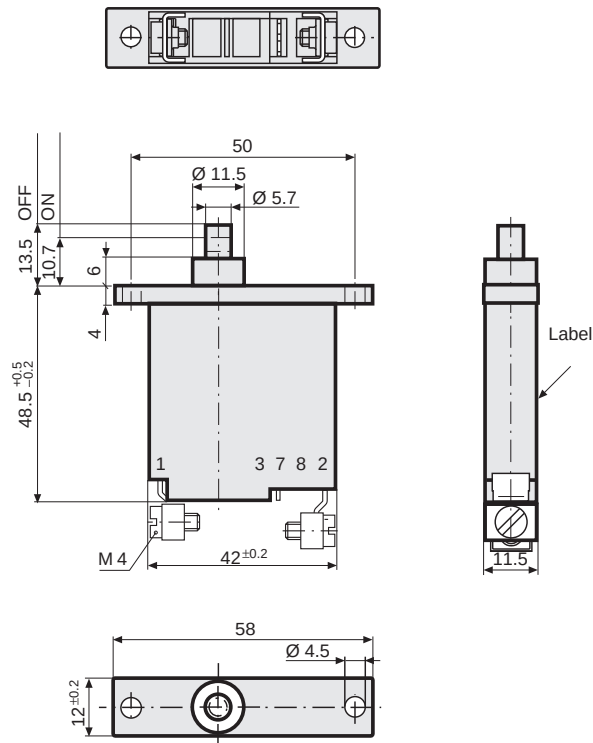
TMx12-111



TMx12-111SN

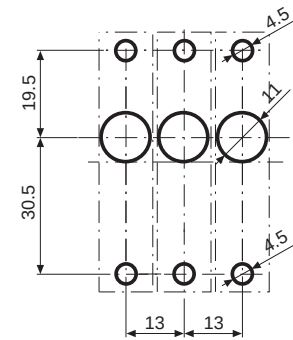


TMx12-112

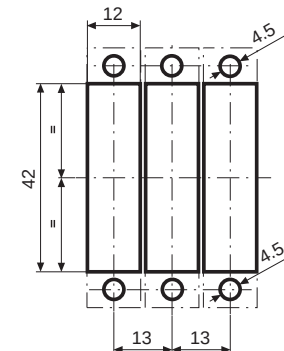


Cut-out

Installation from rear

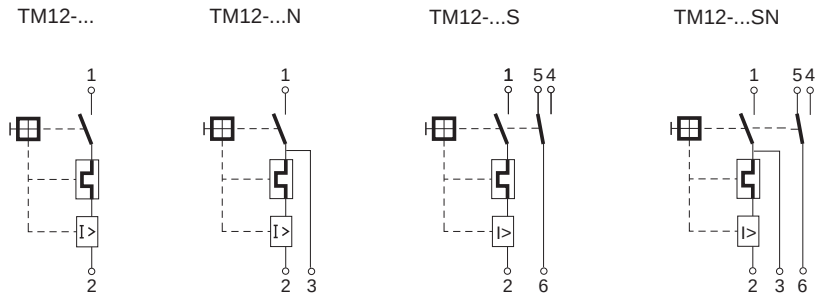


Installation from front



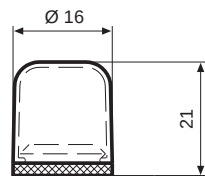
Schematic diagrams – accessories – colors

Schematic diagrams



Accessories

Protective transparent cover
Degree of protection IP54
TZZ02



Colors

