T12-MSM

Circuit Breaker for Equipment thermal with Metal Actuator

new



Description

- Thermal circuit breaker
- Metal switch non-illuminated and illuminated
- 1-pole
- Quick connect terminals 6.3 x 0.8 mm or screw terminals

Approvals

- Approval Reference Type: T12
- IEC Standard: IEC 60934
- UL Standard: UL 1077
- GB Standard: GB 17701

Applications

- Power supplies
- Uninterruptible power supply
- Power tools
- Household appliances

References

Component 1: circuit breakers T12-221; T12-222
Component 2: metal switch MSM LA 19 ; MSM LA 22
Component 3: Coupler

Weblinks

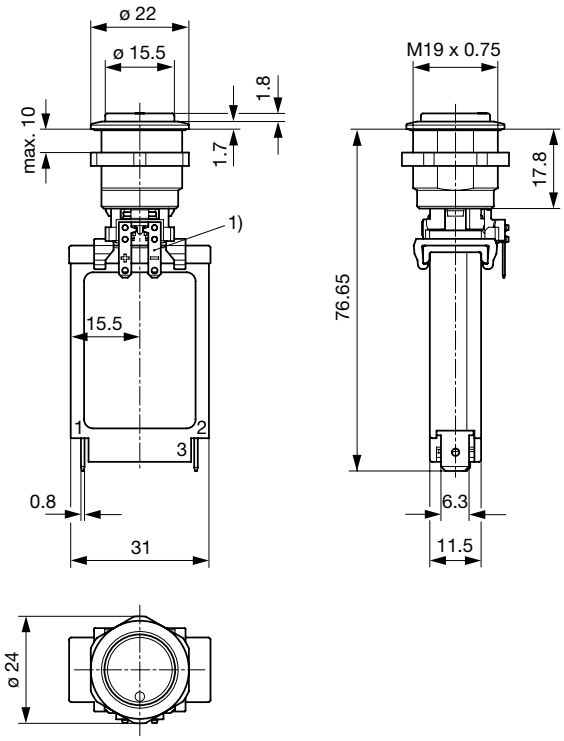
pdf-datasheet, html-datasheet, General Product Information, Approvals, CE declaration of conformity, RoHS, CHINA-RoHS, REACH, e-Shop, SCHURTER-Stock-Check, Distributor-Stock-Check, Detailed request for product, Product News

Technical Data

Rated Voltage AC	240 V; 50/60 Hz
Rated Voltage DC	28 V
Rated current range AC	0.05 - 15/16 A
Conditional short circuit capacity	IEC: Inc, PC1, AC 240V: 1 kA
Dielectric Strength	50 Hz: > 1.5 kV Impulse 1.2/50 µs: > 2.5 kV
Insulation resistance	500 VDC > 100 MΩ
Endurance typical	2 x Ir: 5000 switching cycles
	Reset type AC : 2 x Ir , cos φ 0.6 : DC : 2 x Ir , L/R = 2 - 3 ms : 50 switching cycles
	Manual ON/OFF type AC : 2 x Ir , cos φ 0.6 : DC : 2 x Ir , L/R = 2 - 3 ms : 5000 switching cycles

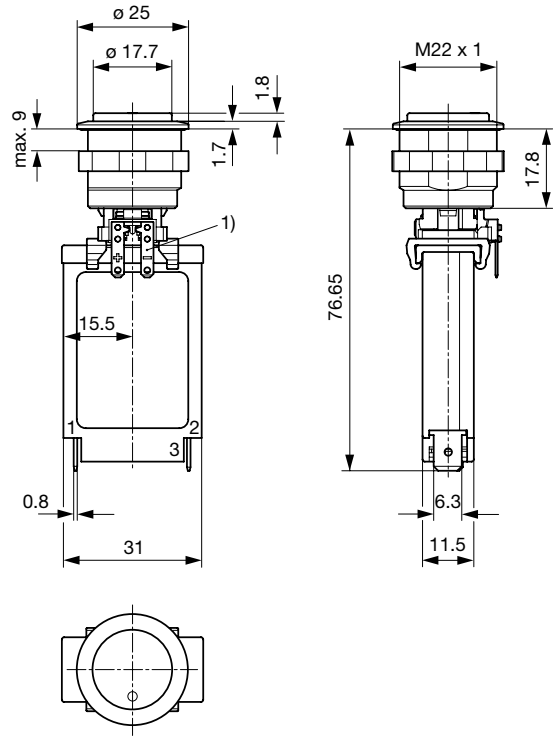
Overload	IEC: min. 40 trips @ 6 x Ir, cos φ 0.6
	UL / CSA: min. 50 trips @ 1.5 x Ir, cos φ 0.75
Ambient temperature	-5 °C to 60 °C
Vibration Resistance	± 0.75 mm @ 5 - 60 Hz acc. to IEC 60068-2-6, test Fc 7 G @ 60 - 500 Hz acc. to IEC 60068-2-6, test Fc
Shock Resistance	60 G / 18 ms acc. to IEC 60068-2-27, test Ea
Tripping Type	Thermal
Actuation type	Manual ON/OFF
Shock Protection	IK 07
Tightening Torque Stainless Steel Nut	12 Nm for thread M19, 16 Nm for M22
Salt Spray Test (acc. to DIN 50021-SS)	24 h / 48 h / 96 h Residence Time
Supply Voltage	24 VDC Ring Illuminationwithout series resistor Point Illumination
Weight	ca. 45 g

Dimension
T12 MSM 19



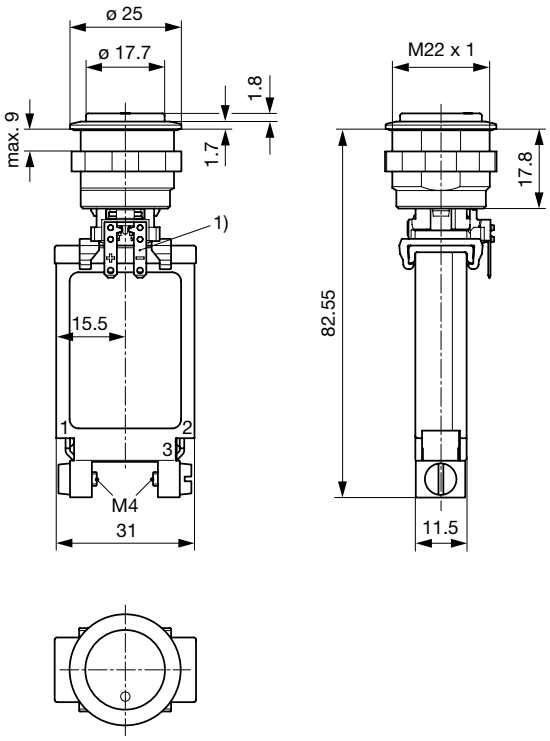
1) only among MSM PI / RI quick connect terminal 2.8x0.5 mm

T12 MSM 22



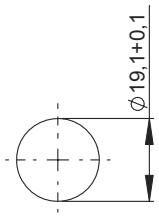
1) only among MSM PI / RI quick connect terminal 2.8x0.5 mm

T12 MSM 22 screw version



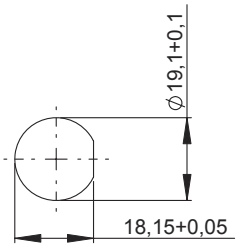
1) only among MSM PI / RI quick connect terminal 2.8x0.5 mm

MSM 19 LA ST / MSM 19 LA RI



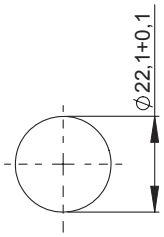
Drilling diagram

MSM 19 LA LE / MSM 19 LA PI / MSM 19 LA RI optional



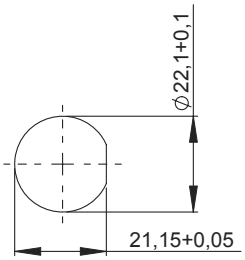
Drilling diagram

MSM 22 LA ST / MSM 22 LA RI



Drilling diagram

MSM 22 LA LE / MSM 22 LA PI / MSM 22 LA RI optional



Drilling diagram

Point Illumination

Operating Data	Forward Current max.	Forward Current at 10 mA	Forward Current at 8 mA	Forward Current max.
LED red	30 mA	1,9 VDC		3,0 VDC
LED green	30 mA	2,1 VDC		3,0 VDC
LED blue	20 mA		3,7 VDC	4,5 VDC
Attention: Switches are delivered without series resistor.				

Recommendation of series resistors for point illumination

LED-Color	I_D [mA]	I_{DMax} [mA]	U_V [V] 5 R_V [Ω]	R_V [Ω]	R_V^{E24} [Ω]	P_V [W]**	U_V [V] 12 R_V [Ω]	R_V [Ω]	R_V^{E24} [Ω]	P_V [W]**	U_V [V] 24 R_V [Ω]	R_V [Ω]	R_V^{E24} [Ω]	P_V [W]
red	**10**	---	**310**	***330***	**0,03**		**1010**	***1000***	**0,10**		**2210**	***2200***	**0,22**	
	---	30	67	*68*	0,06		300	*300*	0,27		700	*750*	0,63	
green	**10**	---	**290**	***300***	**0,03**		**990**	***1000***	**0,10**		**2190**	**2200**	**0,22**	
	---	30	67	*68*	0,06		300	*300*	0,27		700	750	0,63	
blue	**8**	---	**163**	***160***	**0,01**		**1038**	***1100***	**0,07**		**2538**	**2700**	**0,16**	
	---	20	25	*27*	0,01		375	*390*	0,15		975	1000	0,39	

I_D	LED-Forward Current [8mA/10mA]
I_{DMax}	LED-Forward Current max. [20mA/30mA]
R_V	Series Resistor (calculated)
R_V^{E24}	Series Resistor (regarding E24-Resistor series)
P_V	Power dissipation concerning R_V (calculated)

Typical internal resistance

Rated Current [A]	Internal Resistance [Ω]
0.05	225.000
0.50	3.300
1.00	0.880
2.00	0.267
3.00	0.128
4.00	0.073
5.00	0.040
6.00	0.031
7.00	0.018
8.00	0.018
9.00	0.010
10.00	0.0087
11.00	0.0087
12.00	0.0087
13.00	0.0087
14.00	0.0070
15.00	0.0070
16.00	0.0055

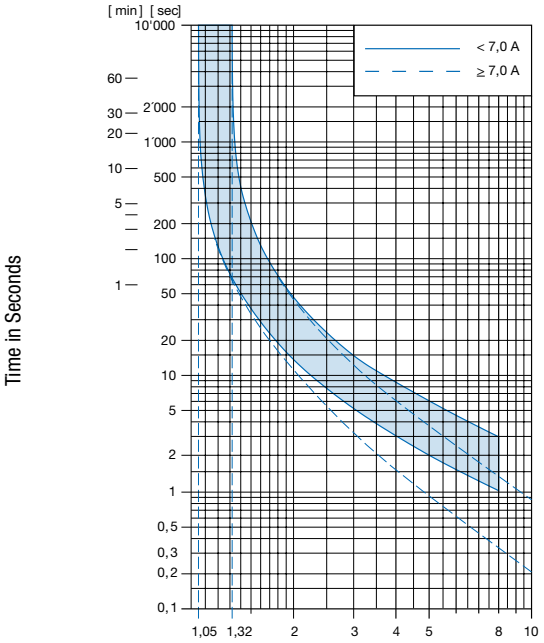
Effect of ambient temperature

The units are calibrated for an ambient temperature of +23°C. To determine the rated current for a lower or higher ambient temperature, use a correction factor (typical value) 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 = 5 A; Environmental temperature = 50 °C; --> Correction factor = 1.2; Resulting current = 6.0 A

Time-Current-Curves



Reference Temperature +23°

Lettering

The last three digits in the order number define the lettering:	
000	No Lettering
001-074	Standard Lettering
101-	Customized Lettering

Lettering options see on Datasheet MSM LA 22

All Variants

Circuit Breakers			Momentary Action Switch		Order Number
Type	Rated cur-	connection type	Type	Illumination	
T12-221-10	10A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 19	non-illuminated	4410.9001
T12-221-16	16A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 19	non-illuminated	4410.9002
T12-221-10	10A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 22	non-illuminated	4410.9003
T12-221-16	16A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 22	non-illuminated	4410.9004
T12-221-10	10A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 19	Point Illumination, blue	4410.9005
T12-221-16	16A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 19	Point Illumination, blue	4410.9006
T12-221-10	10A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 22	Point Illumination, blue	4410.9007
T12-221-16	16A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 22	Point Illumination, blue	4410.9008
T12-221-10	10A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 19	Ring Illumination, blue, 24 VDC	4410.9009
T12-221-16	16A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 19	Ring Illumination, blue, 24 VDC	4410.9010
T12-221-10	10A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 22	Ring Illumination, blue, 24 VDC	4410.9011
T12-221-16	16A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 22	Ring Illumination, blue, 24 VDC	4410.9012
T12-222-10	10A	Bolts and nuts	MSM LA 22	non-illuminated	4410.9017
T12-222-16	16A	Bolts and nuts	MSM LA 22	non-illuminated	4410.9018
T12-221-15	15A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 22	non-illuminated	4410.9019
T12-221-15	15A	Quick connect terminals 6.3 x 0.8 mm	MSM LA 22	Ring Illumination, blue, 24 VDC	4410.9021

Circuit Breakers			Momentary Action Switch		Order Number
Type	**Rated cur-**	**connection type**	**Type**	**Illumination**	

Coupler is included

Availability for all products can be searched real-time:http://www.schurter.com/en/Stock-Check/Stock-Check-SCHURTER

Packaging Unit 10 Pcs



- Actuating elements in ESD safe packaging
- Screw nuts and sealing rings in a bag (enclosd in the box)
- Circuit breaker in a bag (enclosed in the box)

13.11.2014

The specifications, descriptions and illustrations indicated in this document are based on current information. All content is subject to modifications and amendments. Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability and test each product selected for their own applications.