

Circuit Breaker for Equipment thermal with Metal Actuator

new



See below:

[Approvals and Compliances](#)

Description

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

Applications

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

References

Component 1: circuit breakers
 Component 2: metal switch ;
 Component 3: Coupler

Weblinks

[pdf datasheet](#), [html-datasheet](#), [General Product Information](#), [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 240 V: 1 kA |
| Dielectric Strength | 50Hz: > 1.5kV Impulse 1.2/50 µs: > 2.5kV |
| Insulation Resistance | 500VDC > 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 Illumination without series resistor Point Illumination |
| Weight | ca. 45 g |

Approvals and Compliances

Detailed information on product approvals, code requirements, usage instructions and detailed test conditions can be looked up in [Details about Approvals](#)


Product standards

Product standards that are referenced

| Organization | Design | Standard | Description |
|--------------|-----------------------|-----------|---|
| | Designed according to | IEC 60934 | Circuit-breakers for equipment (CBE) |
| | Designed according to | UL 1077 | Standard for Supplementary Protectors for Use in Electrical Equipment |
| | Designed according to | GB 17701 | Circuit-breaker for equipment |





Application standards

Application standards where the product can be used

| Organization | Design | Standard | Description |
|--|--------------------------------|--------------|---|
|  | Designed for applications acc. | IEC/UL 60950 | IEC 60950-1 includes the basic requirements for the safety of information technology equipment. |

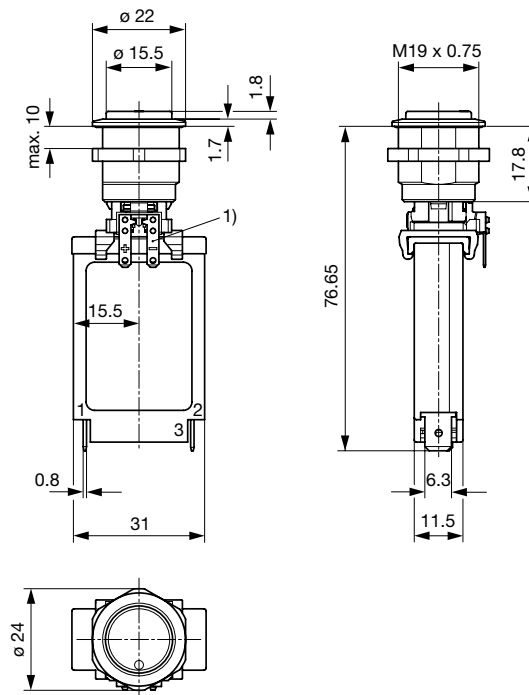
Compliances

The product complies with following Guide Lines

| Identification | Details | Initiator | Description |
|--|--|-------------|---|
|  | CE declaration of conformity | SCHURTER AG | The CE marking declares that the product complies with the applicable requirements laid down in the harmonisation of Community legislation on its affixing in accordance with EU Regulation 765/2008. |
|  | RoHS | SCHURTER AG | EU Directive RoHS 2011/65/EU |
|  | China RoHS | SCHURTER AG | The law SJ / T 11363-2006 (China RoHS) has been in force since 1 March 2007. It is similar to the EU directive RoHS. |
|  | REACH | SCHURTER AG | On 1 June 2007, Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals 1 (abbreviated as "REACH") entered into force. |

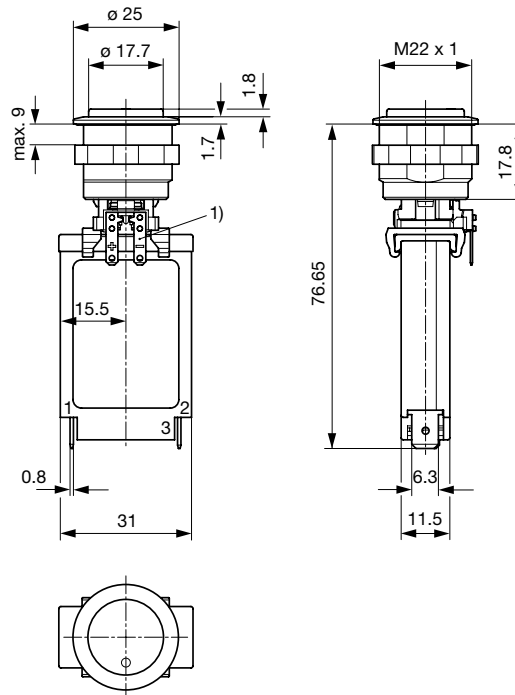
Dimension [mm]

T12 MSM 19



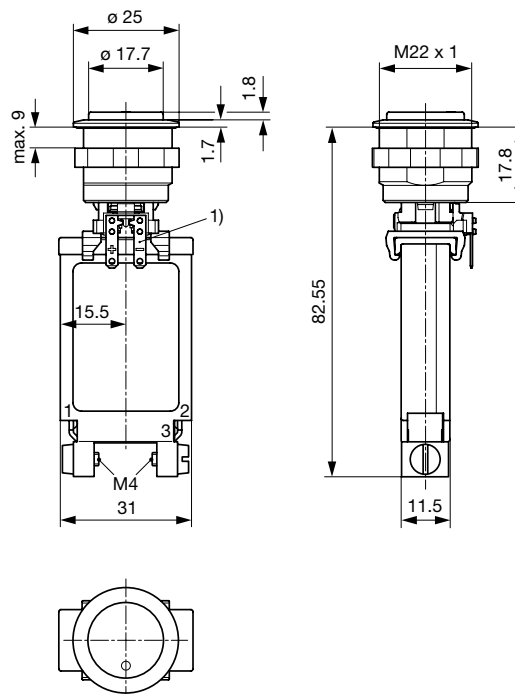
1) only among MSM PI / RI quick connect terminal 2.8x0.5 mm

T12 MSM 22



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

T12 MSM 22 screw version



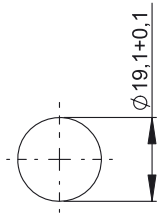
1) only among MSM PI / RI quick connect terminal 2.8x0.5 mm

MSM 19 LA ST / MSM 19 LA RI

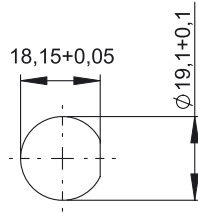
MSM 19 LA LE / MSM 19 LA PI /
 MSM 19 LA RI optional

MSM 22 LA ST / MSM 22 LA RI

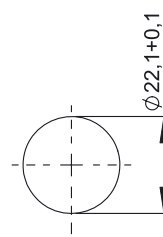
MSM 22 LA LE / MSM 22 LA PI /
 MSM 22 LA RI optional



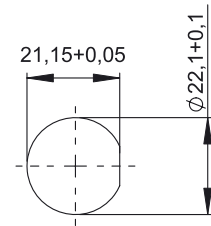
Drilling diagram



Drilling diagram



Drilling diagram



Drilling diagram

Point Illumination

| Operating Data | Forward Current max. | Forward Voltage at 10 mA | Forward Voltage at 8 mA | Forward Voltage 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 5 | | | | U_V 12 | | | | U_V 24 | | | |
|-----------|---------------|--------------------|--------------|--------------------|----------------|--|--------------|--------------------|----------------|--|--------------|--------------------|--------------|--|
| | | | R_V [Ω] | R_V^{E24} [Ω] | P_V [W]** | | R_V [Ω] | R_V^{E24} [Ω] | P_V [W]** | | 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

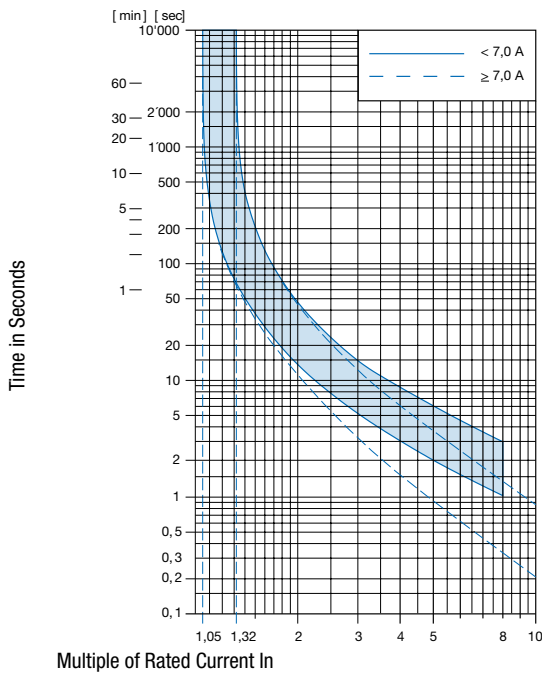
Lettering

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

Time-Current-Curves



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 |

Coupler is included

Most Popular.

Availability for all products can be searched real-time: <https://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 (enclosed in the box)
 - Circuit breaker in a bag (enclosed in the box)
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