

Metal Switch, Latching Action, Switching Voltage up to 125 VDC / 250 VAC



See below:

## Approvals and Compliances

### Description

- Switch available in version: Standard (ST), with Lettering (LE), with Point Illumination (PI), with Ring Illumination (RI)
- Available with 12 A and 16 A switching current Assembly by mounting with nut and subsequent clipping of the switching element
- Equipped with flat-pin plugs to permit fast connection

### Characteristics

- Housing and actuator material: high-quality stainless steel
- Variety of design options regarding size, colour, illumination, connection or lettering
- Switching voltage up to 125 VDC respectively 250 VAC, switching current up to 16 A
- optional with point or ring illumination
- available with single-pole and double-pole switching system, switching status is easy to discern by looking at or feeling the resting position of the actuator
- for use in harsh environments (see technical data)

### References

Alternative: Standard version [MSM 16](#)

Alternative: double-pole switch: [MSM DP 19](#); [MSM DP 22](#); [MSM DP 30](#)

Alternative: switch with backlighted illumination:

Alternative: Other diameter

### Weblinks

[html-datasheet](#), [General Product Information](#), [CAD-Drawings](#), [Product News](#), [Detailed request for product](#)

### Technical Data

#### Electrical Data

|                                 |                                                                                                                             |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Switching Function              | N.O.                                                                                                                        |
| Number of Poles                 | 1-pole and 2-pole                                                                                                           |
| Supply Voltage                  | 24 VDC Ring Illumination , Point Illumination without series resistor , LED operating data are listed in a separate table   |
| Impulse Withstand Voltage (ESD) | 4 kV MSM ST / MSM LE                                                                                                        |
| Switching Voltage               | max. 250 VAC 30 VDC (125 VDC at 0.5 A),                                                                                     |
| Switching Current               | 12 A AC / 16 A AC                                                                                                           |
| Rated Switching Capacity        | 3000 W                                                                                                                      |
| Lifetime                        | 0.05 million actuations (250 VAC / 8 A), 0.1 million actuations (125 VDC / 0,5 A), 0.02 million actuations (250 VAC / 16 A) |
| Contact Resistance              | < 100 mΩ (12 VDC / 1 A)                                                                                                     |
| Insulation Resistance           | > 100 MΩ 500 VDC                                                                                                            |

#### Mechanical Data

|                                       |                        |
|---------------------------------------|------------------------|
| Actuating Force                       | 10 N                   |
| Actuating Travel                      | 5.2 mm,                |
| Lifetime                              | 0.1 million actuations |
| Contact Gap                           | 3 mm                   |
| Shock Protection                      | IK 07                  |
| Tightening Torque Plastic Nut         | max. 3.5 Nm            |
| Tightening Torque Stainless Steel Nut | max. 16 Nm             |

#### Climatical Data

|                                        |                                   |
|----------------------------------------|-----------------------------------|
| Operating Temperature                  | -20 to +85 °C                     |
| Storage Temperature                    | -20 to +85 °C                     |
| Protection Class                       | IP 64                             |
| Switching Unit                         | IP 40                             |
| Salt Spray Test (acc. to DIN 50021-SS) | 24 h / 48 h / 96 h Residence Time |

#### Material

|                                                |                                      |
|------------------------------------------------|--------------------------------------|
| Housings                                       | Stainless Steel                      |
| Actuator (disc, outside housing)               | Stainless Steel                      |
| Illuminated Ring (die-casting, inside housing) | PC                                   |
| Seal Ring                                      | NBR70                                |
| Switcher Collet                                | PA66 (UL94-V0 related to d ≥ 1.6 mm) |
| Intermediate Connector                         | PA66 (UL94-V0 related to d ≥ 1.6 mm) |
| Contact Pin Adapter                            | PA66 (UL94-V0 related to d ≥ 1.6 mm) |

### Approvals and Compliances

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

Approvals

Approval Reference Type:

| Approval Logo                                                                    | Certification Body | Description                                                       |
|----------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------|
|  |                    | Low Voltage Directive 2014/35/EU Low Voltage Directive 2014/35/EU |
|  | KEMA               | KEMA / ENEC File Number (Marquardt): 2181991.01                   |
|  | UL                 | UL / CSA File Number (Marquardt): E41791                          |
|  | CQC                | CQC File Number (Marquardt): CQC03002004102                       |

Product standards

Product standards that are referenced

| Organization                                                                     | Design                | Standard       | Description                                           |
|----------------------------------------------------------------------------------|-----------------------|----------------|-------------------------------------------------------|
|  | Designed according to | DIN EN 61058-1 | Switches for appliances. Part 1. General requirements |
|  | Designed according to | UL 1054        | UL standard for safety special-use switches           |

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. |

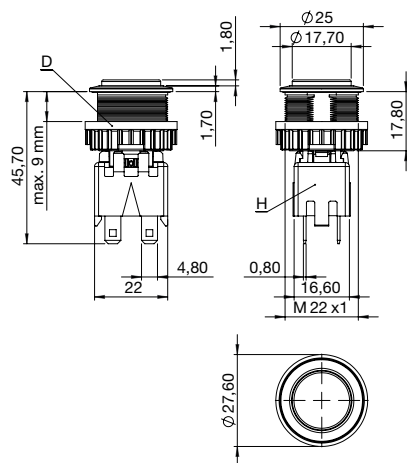
Compliances

The product complies with following Guide Lines

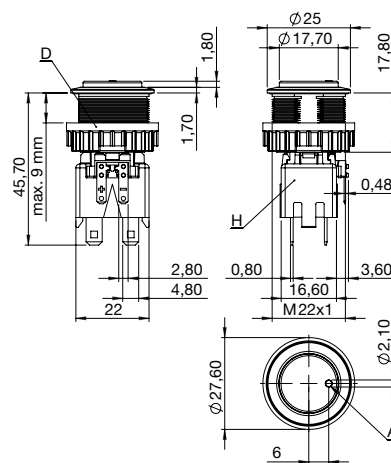
| Identification                                                                     | Details | Initiator   | Description                                                                                                                                                             |
|------------------------------------------------------------------------------------|---------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | RoHS    | SCHURTER AG | EU Directive RoHS 2011/65/EU                                                                                                                                            |
|  | 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]

MSM 22 LA ST / LE double-pole

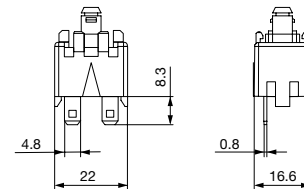
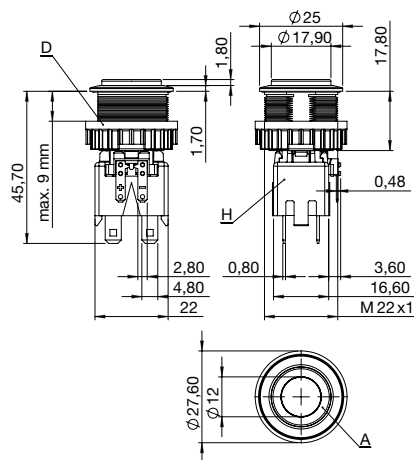


MSM 22 LA PI double-pole



**MSM 22 LA RI double-pole**

**Switching Element single-pole with Push Button Holder**



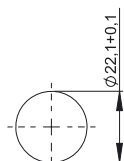
**Legend**

A = Illumination Area  
C = Width Across Flats  
D = Nut  
H = Switching Element

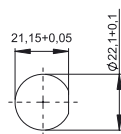
**Dimension**

MSM 22 LA ST / MSM 22 LA RI

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

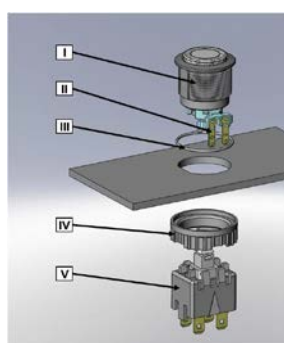


Drilling diagram



Drilling diagram

**Assembly Instructions**



I Housing  
II Flat Pin Terminal (Illumination)  
III Gasket  
IV Nut (Nut type see Dimensions)  
V Module Switching Contact

**Installation Instruction:**

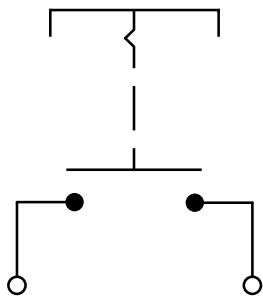
- 1.) Place the gasket accurately on the actuator housing. Then mount the actuator housing assembly into the panel.
- 2.) Tighten the screw nut according to the torque instructions.
- 3.) Clasp the module switching contact into the actuator housing.

**Installation information:**

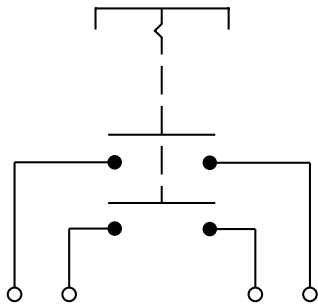
- 1.) The power supply and the configuration of the flat pin terminals have to be installed correctly for the illumination and micro switch function.
- 2.) Insulate the terminals as required. Fully insulated plug-in sleeves are recommended.
- 3.) Installation instructions according to VDE-standard DIN VDE 0100-100 or alternatively IEC 60354 standard

Diagrams

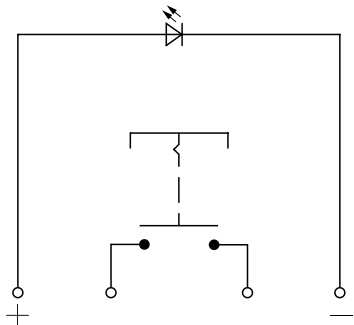
MSM LA ST / LE single-pole



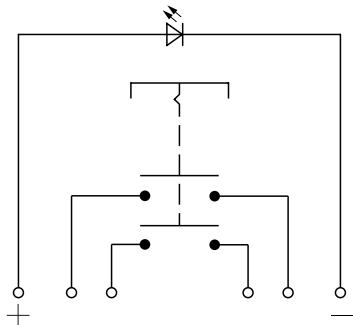
MSM LA ST / LE double-pole



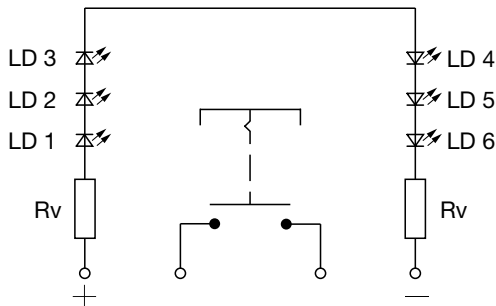
MSM LA PI single-pole



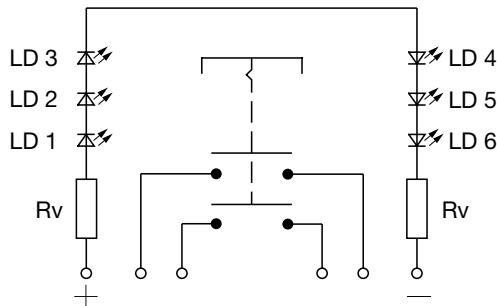
MSM LA PI double-pole



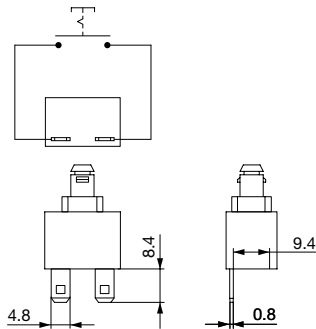
MSM LA RI single-pole



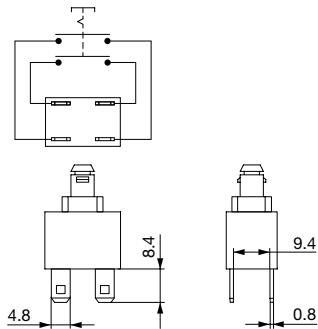
MSM LA RI double-pole



Contact Layout single-pole



Contact Layout double-pole



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.

## Lettering

The last three digits in the order number define the lettering:

|         |                      |
|---------|----------------------|
| 000     | No Lettering         |
| 001-074 | Standard Lettering   |
| 101-    | Customized Lettering |

## Lettering Colour of Laser Lettering

| Material        | Lettering Colour |                |
|-----------------|------------------|----------------|
| Stainless Steel | black            | Filled letters |

## Order Index Lettering

| Laser Marking  |                |                     |                                                                                           |
|----------------|----------------|---------------------|-------------------------------------------------------------------------------------------|
| 001 = <b>A</b> | 021 = <b>U</b> | 041 = ÷             | 061 = <b>EIN</b>                                                                          |
| 002 = <b>B</b> | 022 = <b>V</b> | 042 = *             | 062 = <b>AUS</b>                                                                          |
| 003 = <b>C</b> | 023 = <b>W</b> | 043 = =             | 063 = <b>AUF</b>                                                                          |
| 004 = <b>D</b> | 024 = <b>X</b> | 044 = #             | 064 = <b>AB</b>                                                                           |
| 005 = <b>E</b> | 025 = <b>Y</b> | 045 = ↔             | 065 = <b>ON</b>                                                                           |
| 006 = <b>F</b> | 026 = <b>Z</b> | 046 = ‡             | 066 = <b>OFF</b>                                                                          |
| 007 = <b>G</b> | 027 = <b>0</b> | 047 = →             | 067 = <b>UP</b>                                                                           |
| 008 = <b>H</b> | 028 = <b>1</b> | 048 = ←             | 068 = <b>DOWN</b>                                                                         |
| 009 = <b>I</b> | 029 = <b>2</b> | 049 = ↓             | 069 = <b>HIGH</b>                                                                         |
| 010 = <b>J</b> | 030 = <b>3</b> | 050 = ↑             | 070 = <b>LOW</b>                                                                          |
| 011 = <b>K</b> | 031 = <b>4</b> | 051 = %             | 071 = <b>ON/OFF</b>                                                                       |
| 012 = <b>L</b> | 032 = <b>5</b> | 052 = √             | 072 = <b>START</b>                                                                        |
| 013 = <b>M</b> | 033 = <b>6</b> | 053 = <b>CTRL</b>   | 073 = <b>RESET</b>                                                                        |
| 014 = <b>N</b> | 034 = <b>7</b> | 054 = <b>RETURN</b> | 074 =  |
| 015 = <b>O</b> | 035 = <b>8</b> | 055 = <b>SHIFT</b>  | 075 =  |
| 016 = <b>P</b> | 036 = <b>9</b> | 056 = <b>LOCK</b>   | 076 =  |
| 017 = <b>Q</b> | 037 = <b>+</b> | 057 = <b>STOP</b>   | 077 =  |
| 018 = <b>R</b> | 038 = <b>-</b> | 058 = <b>ENTER</b>  |                                                                                           |
| 019 = <b>S</b> | 039 = <b>.</b> | 059 = <b>BACK</b>   |                                                                                           |
| 020 = <b>T</b> | 040 = <b>x</b> | 060 = <b>LINE</b>   |                                                                                           |

## All Variants

| Diameter | Number of Poles | Switching Current | Illumination, LED                | Torsion Protection Housing/Actuator | Config. Code       | Order Number      |
|----------|-----------------|-------------------|----------------------------------|-------------------------------------|--------------------|-------------------|
| [mm]     |                 |                   |                                  |                                     |                    |                   |
| 22       | 1-pole          | 12 A              | non-illuminated                  | yes / yes                           | MSM 22 LA ST       | 1241.6831.1110000 |
| 22       | 1-pole          | 12 A              | Point Illumination, red          | yes / yes                           | MSM 22 LA PI red   | 1241.6833.1111000 |
| 22       | 1-pole          | 12 A              | Point Illumination, green        | yes / yes                           | MSM 22 LA PI green | 1241.6833.1112000 |
| 22       | 1-pole          | 12 A              | Point Illumination, blue         | yes / yes                           | MSM 22 LA PI blue  | 1241.6833.1114000 |
| 22       | 1-pole          | 12 A              | Ring Illumination, red, 24 VDC   | yes / yes                           | MSM 22 LA RI red   | 1241.6834.1111000 |
| 22       | 1-pole          | 12 A              | Ring Illumination, green, 24 VDC | yes / yes                           | MSM 22 LA RI green | 1241.6834.1112000 |
| 22       | 1-pole          | 12 A              | Ring Illumination, blue, 24 VDC  | yes / yes                           | MSM 22 LA RI blue  | 1241.6834.1114000 |
| 22       | 2-pole          | 12 A              | non-illuminated                  | yes / yes                           | MSM 22 LA ST       | 1241.6831.1120000 |
| 22       | 2-pole          | 12 A              | Point Illumination, red          | yes / yes                           | MSM 22 LA PI red   | 1241.6833.1121000 |
| 22       | 2-pole          | 12 A              | Point Illumination, green        | yes / yes                           | MSM 22 LA PI green | 1241.6833.1122000 |
| 22       | 2-pole          | 12 A              | Point Illumination, blue         | yes / yes                           | MSM 22 LA PI blue  | 1241.6833.1124000 |
| 22       | 2-pole          | 12 A              | Ring Illumination, red, 24 VDC   | yes / yes                           | MSM 22 LA RI red   | 1241.6834.1121000 |
| 22       | 2-pole          | 12 A              | Ring Illumination, green, 24 VDC | yes / yes                           | MSM 22 LA RI green | 1241.6834.1122000 |
| 22       | 2-pole          | 12 A              | Ring Illumination, blue, 24 VDC  | yes / yes                           | MSM 22 LA RI blue  | 1241.6834.1124000 |

| Diameter | Number of Poles | Switching Current | Illumination, LED                | Torsion Protection Housing/Actuator | Config. Code       | Order Number |
|----------|-----------------|-------------------|----------------------------------|-------------------------------------|--------------------|--------------|
| [mm]     |                 |                   |                                  |                                     |                    |              |
| 22       | 1-pole          | 16 A              | non-illuminated                  | yes / yes                           | MSM 22 LA ST       | 3-101-001    |
| 22       | 1-pole          | 16 A              | Ring Illumination, red, 24 VDC   | yes / yes                           | MSM 22 LA RI red   | 3-101-013    |
| 22       | 1-pole          | 16 A              | Ring Illumination, green, 24 VDC | yes / yes                           | MSM 22 LA RI green | 3-101-014    |
| 22       | 1-pole          | 16 A              | Ring Illumination, blue, 24 VDC  | yes / yes                           | MSM 22 LA RI blue  | 3-101-015    |
| 22       | 2-pole          | 16 A              | Ring Illumination, green, 24 VDC | yes / yes                           | MSM 22 LA RI green | 3-100-912    |
| 22       | 2-pole          | 16 A              | non-illuminated                  | yes / yes                           | MSM 22 LA ST       | 3-101-012    |
| 22       | 2-pole          | 16 A              | Ring Illumination, red, 24 VDC   | yes / yes                           | MSM 22 LA RI red   | 3-101-016    |
| 22       | 2-pole          | 16 A              | Ring Illumination, blue, 24 VDC  | yes / yes                           | MSM 22 LA RI blue  | 3-101-018    |

Legend:  
Type:  
MSMCS = Ceramic Surface  
ST = Standard: not lettered  
LE = Lettering: lettered  
AI = BL = Full Surface Backlighting: Lettering possible (see Lettering, last 3 digits)  
Customer-specific versions available on request.  
Special materials for use in salt and chlorinated environment on request.  
The MOQ for standard laser lettering on standard variants is 10 pieces.  
The nut with gasket and micro switch are enclosed in the box.

Most Popular.

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

|                |                       |
|----------------|-----------------------|
| Packaging unit | 10 in box with insert |
|----------------|-----------------------|



- Actuating elements in ESD safe packaging
- Screw nuts and sealing rings in a bag (enclosed in the box)
- Micro switches (enclosed in the box)

## Accessories

### Description



#### Power Supply

Power Supply IP42 for LED- and Illumination applications indoor 90~264 VAC => 24 VDC 0.34 A 8 W