Metal Switch Medium Stroke, Switching Voltage up to 250 VAC

Single-color

RGB

non-illuminated

See below:
**Approvals and Compliances**

## Description

- Momentary action switch available in version: Standard (ST), with Lettering (LE), with Point Illumination (PI) and with Ring Illumination (RI)
- Single color or RGB illumination
- Choice from 7 colors for RGB variants
- Assembly method: clip micro-switch into the saddle, secure switch using mounting nut
- Equipped with flat-pin plugs to permit fast connection

## Unique Selling Proposition

- Attractive tactile feedback
- High quality materials
- Long life span
- Single color or homogeneous RGB illumination

## Characteristics

- Housing and actuator material: high-quality stainless steel
- Variety of design options regarding size, colour, illumination, connection or lettering
- Switching voltage from 30 VDC to 250 VAC, switching current from 0.1 A to 10 A
- IP-Protection: IP67 from front side to contact area, Micro-Switch is available in versions IP40 or IP67
- For use in harsh environments (see technical data)

## References

Alternative: switch with latching function: MSM LA 19
Alternative: switch with backlighted illumination: MSM CS 16; MSM CS 19; MSM CS 22; MSM LA CS 19; MSM LA CS 22
Alternative: Other diameter
Alternative: version for snap-in mounting
Alternative: double-pole switch: MSM DP 19; MSM DP 22; MSM DP 30

## Weblinks

pdf data sheet, html datasheet, General Product Information, CAD-Drawings, Product News, Detailed request for product

## Technical Data

| Electrical Data | |
|---|---|
| Switching Function | momentary |
| Number of Poles | SPDT |
| Supply Voltage | 24 VDC Ring Illumination , Point Illumination without series resistor , LED operating data are listed in separate table |
| | 5 VDC and 12 VDC RI variants (except for RGB) on request (MOQ 500 pieces) |
| Impulse Withstand Voltage (ESD) | 4 kV MSM ST / MSM LE |
| **Micro Switch 5 A / 125 VAC or 3 A / 250 VAC, IP40** | |
| Contact Material | Ag |
| Switching Voltage | max. 125 / 250 VAC |
| Switching Current | max. 5 / 3 A |
| Rated Switching Capacity | 750 W |
| Lifetime | 0.2 million actuations at Rated Switching Capacity |
| Contact Resistance | < 30 mΩ |
| Insulation Resistance | > 100 MΩ |
| Duration of Bounce | < 5 ms |
| **Micro Switch 0,1 A / 30 VDC, IP40** | |
| Contact Material | Au |
| Switching Voltage | max. 30 VDC |
| Switching Current | max. 0.1 A |
| Rated Switching Capacity | 3 W |
| Lifetime | 0.2 million actuations at Rated Switching Capacity |
| Contact Resistance | < 50 mΩ |
| Insulation Resistance | > 100 MΩ |
| Duration of Bounce | < 5 ms |
| **Micro Switch for Electrical Rating 10 A / 250 VAC (Protection Class IP40)** | |
| Contact Material | Ag |
| Switching Voltage | max. 250 VAC |
| Switching Current | max. 10 A |
| Rated Switching Capacity | 2500 W |
| Lifetime | 0.05 million actuations at Rated Switching Capacity |
| Contact Resistance | < 30 mΩ |
| Insulation Resistance | > 100 MΩ |
| Duration of Bounce | < 5 ms |
| **Micro Switch 6 A / 250 VAC, IP67** | |
| Switching Voltage | max. 250 VAC |
| Switching Current | max. 5 |
| Rated Switching Capacity | 1250 W |
| Lifetime | 0.05 million actuations at Rated Switching Capacity |
| **Micro Switch 0,1 A / 250 VAC, IP67 - on request** | |
| Switching Voltage | max. 250 VAC |
| Switching Current | max. 0.1 |
| Rated Switching Capacity | 25 W |
| Lifetime | 0.05 million actuations at Rated Switching Capacity |
| **Micro Switch 10 A / 250 VAC, IP67 - on request** | |
| Switching Voltage | max. 250 VAC |
| Switching Current | max. 10 A |
| Rated Switching Capacity | 2500 W |
| Lifetime | 0.01 million actuations at Rated Switching Capacity |

| Mechanical Data | |
|---|---|
| Actuating Force | 4.5 N |
| Actuating Travel | 1.0 mm |
| Lifetime | 1.5 million actuations |
| Shock Protection | IK 07 |
| Mounting screw torque Plastic Nut | max. 3.5 Nm |
| Mounting screw torque Stainless Steel Nut | max. 16 Nm |
| **Climatical Data** | |
| Operating Temperature | -25 to 85 °C |
| Storage Temperature | -25 to 85 °C |
| Protection Class | IP67 |
| Switching Unit | IP40 |
| | IP67 optional |
| Salt Spray Test (acc. to DIN 50021-SS) | 24 h / 48 h / 96 h Residence Time |
| **Material** | |
| Housings | Stainless Steel |
| Actuator | Stainless Steel |
| Light Conductor (Point Illumination) | PC |
| Illuminated Ring (Ring Illumination) | PA for dotted single color variants |
| | PMMA for RGB and homogeneous single color variants |
| Seal Ring | NBR70 |
| Switcher Collet | PA |

## Approvals and Compliances

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

SCHURTER products are designed for use in industrial environments. They have approvals from independent testing bodies according to national and international standards. Products with specific characteristics and requirements such as required in the automotive sector according to IATF 16949, medical technology according to ISO 13485 or in the aerospace industry can be offered exclusively with customer-specific, individual agreements by SCHURTER.

## Product standards

Product standards that are referenced

| Organization | Design | Standard | Description |
|---|---|---|---|
| DIN | Designed according to | DIN EN 61058-1 | Switches for appliances. Part 1. General requirements |
| UL | 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 |
|---|---|---|---|
| IEC | Designed for applications acc. | IEC/UL 62368-1 | IEC 62368-1 includes the basic requirements for safety of audio, video, information technology and office equipment. |

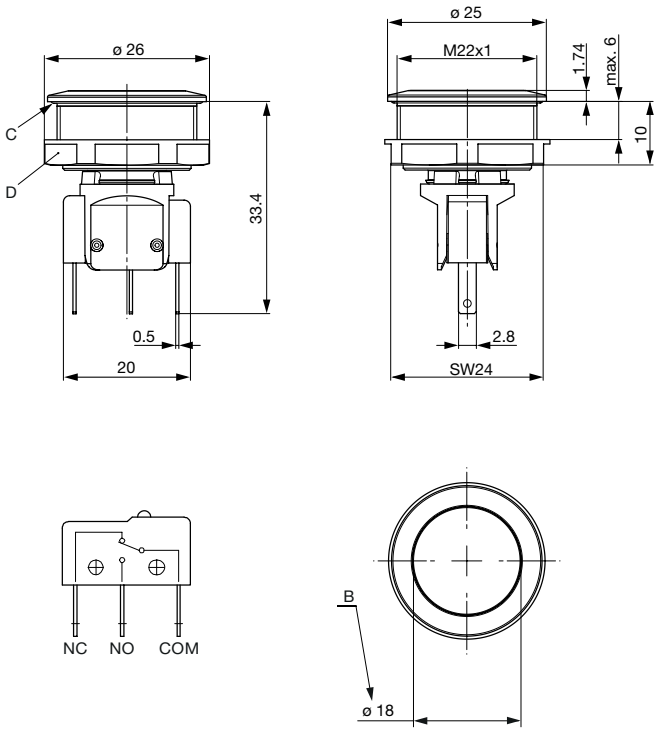
## Compliances

The product complies with following Guide Lines

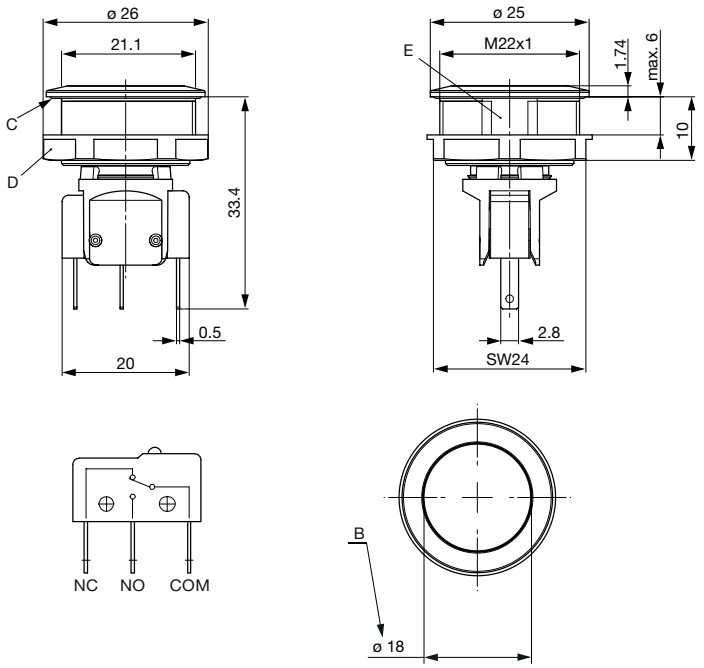
| Identification | Details | Initiator | Description |
|---|---|---|---|
| RoHS | RoHS | SCHURTER AG | Directive RoHS 2011/65/EU, Amendment (EU) 2015/863 |
| REACH | REACH | SCHURTER AG | On 1 June 2007, Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals 1 (abbreviated as "REACH") entered into force. |

## Dimension [mm]

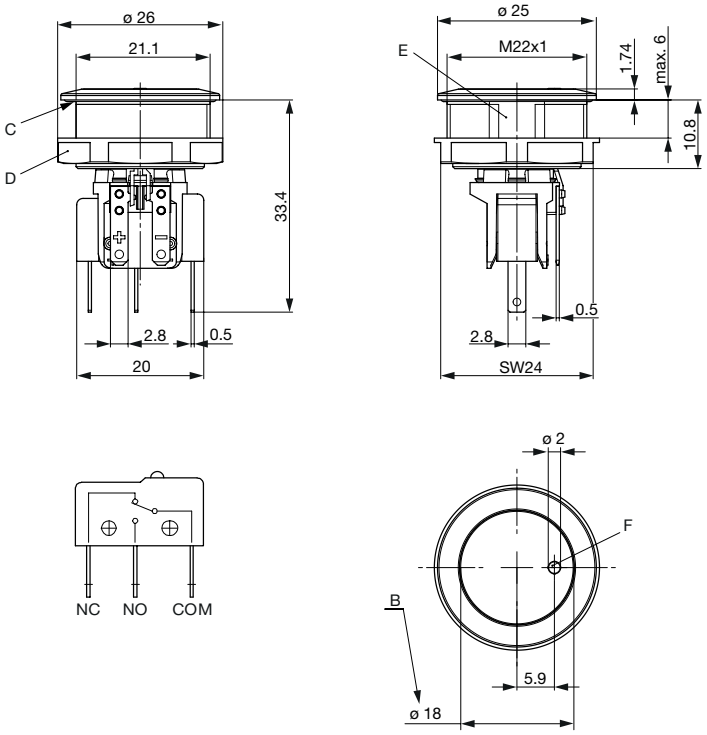
MSM 22 ST

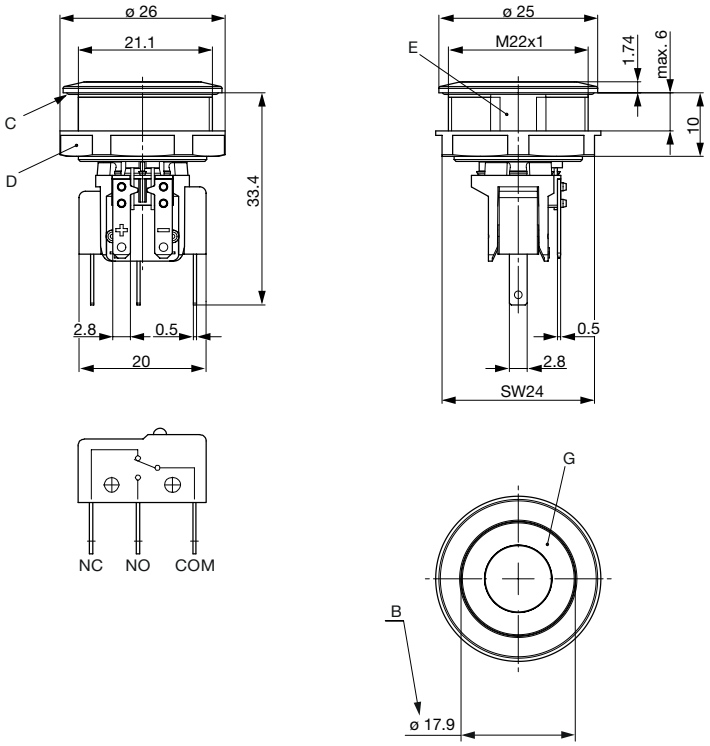


MSM 22 LE

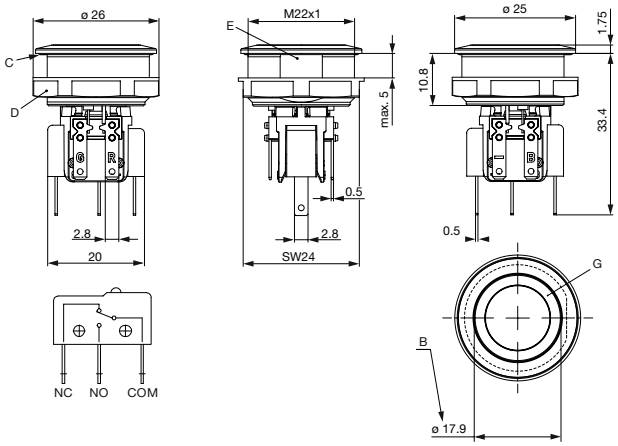



MSM 22 PI





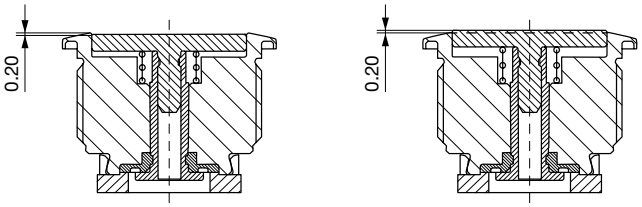

MSM 22 RI RGB




***Legend***
B = Actuating Area
C = Sealing
D = Nut
E = Anti-rotation protection
F = Point illumination
G = Illumination ring

## Tolerance Range

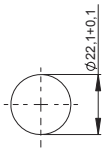
Actuator Tolerance Range



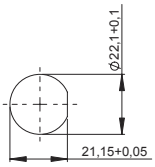

The mounting tolerance range of the actuator varies from 0.2 mm projection length and 0.2 mm short length to the housing edge. The slanting position of the actuator can range within this tolerance.

## Dimension

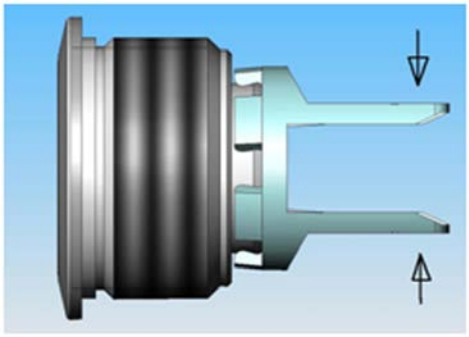
MSM 22 ST / MSM 22 RI



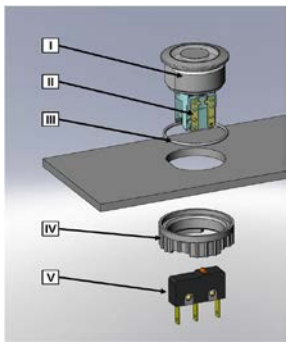

MSM 22 LE / MSM 22 PI / MSM 22 RI optional




## Assembly Instructions



During assembly, the protruding bars of the holder should not be pressed together.



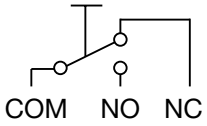

I Housing
II Flat Pin Terminal (Illumination)
III Gasket
IV Nut (Nut type see Dimensions)
V Module Switching Contact

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 micro switch holder of the actuator housing.

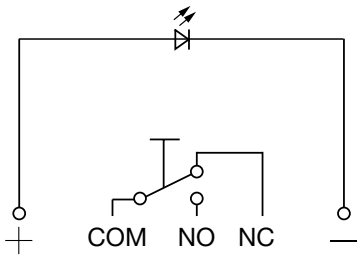
Installation information:
1.) The power supply and the configuration of the flat pin terminals have to be installed correctly for the illumination and micro switch function.
2.) Insulate the terminals as required. Fully insulated plug-in sleeves are recommended.
3.) Installation instructions according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

## Diagrams

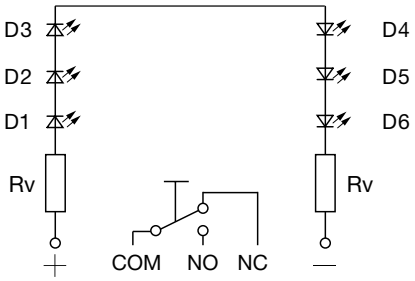
MSM ST / MSM LE



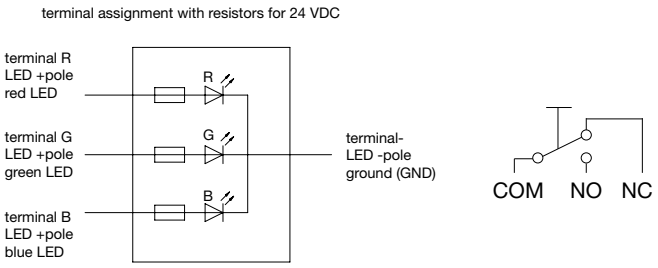

MSM PI




MSM RI / 24 V Single color




MSM RI / 24 V RGB




| Lighting type | Active terminal R) 🔴 | Active terminal G) 🟢 | Active terminal B) 🔵 | Resulting Color |
|---|---|---|---|---|
| Singlecolor | x | | | Red 🔴 |
| Singlecolor | | x | | Green 🟢 |
| Singlecolor | | | x | Blue 🔵 |
| RGB Additive 2 | x | x | | Yellow 🟡 |
| RGB Additive 2 | x | | x | Magenta 🟣 |
| RGB Additive 2 | | x | x | Cyan 🔵 |
| RGB Additive 3 | x | x | x | White ⚪ |

Illumination options for RGB

## Point Illumination

| Operating Data | Forward Current max. | Forward Voltage at 10 mA | Forward Voltage max. |
|---|---|---|---|
| **LED red** | 30 mA | 1.9 VDC | 3.0 VDC |
| **LED green** | 30 mA | 2.4 VDC | 3.0 VDC |
| **LED yellow** | 30 mA | 2.4 VDC | 3.0 VDC |
| **LED blue** | 20 mA | 3.8 VDC | 4.5 VDC |
| **LED red/green** | 25 mA | 2.0 VDC | 2.5 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 =**A** | 021 =**U** | 041 =÷ | 061 =**EIN** |
| 002 =**B** | 022 =**V** | 042 = ✳ | 062 =**AUS** |
| 003 =**C** | 023 =**W** | 043 ==**=** | 063 =**AUF** |
| 004 =**D** | 024 =**X** | 044 = # | 064 =**AB** |
| 005 =**E** | 025 =**Y** | 045 = ↔ | 065 =**ON** |
| 006 =**F** | 026 =**Z** | 046 = ↕ | 066 =**OFF** |
| 007 =**G** | 027 =**0** | 047 = → | 067 =**UP** |
| 008 =**H** | 028 =**1** | 048 = ← | 068 =**DOWN** |
| 009 =**I** | 029 =**2** | 049 = ↓ | 069 =**HIGH** |
| 010 =**J** | 030 =**3** | 050 = ↑ | 070 =**LOW** |
| 011 =**K** | 031 =**4** | 051 = % | 071 =**ON/OFF** |
| 012 =**L** | 032 =**5** | 052 = √ | 072 =**START** |
| 013 =**M** | 033 =**6** | 053 =**CTRL** | 073 =**RESET** |
| 014 =**N** | 034 =**7** | 054 =**RETURN** | 074 = |
| 015 =**O** | 035 =**8** | 055 =**SHIFT** | 075 = |
| 016 =**P** | 036 =**9** | 056 =**LOCK** | 076 = |
| 017 =**Q** | 037 =**+** | 057 =**STOP** | 077 = |
| 018 =**R** | 038 =**-** | 058 =**ENTER** | |
| 019 =**S** | 039 =**.** | 059 =**BACK** | |
| 020 =**T** | 040 = x | 060 =**LINE** | |

## All Variants

| IP Switching Unit | Switching Current | Switching Voltage | Illumination, LED | Housing Material, Torsion Protection | Actuator Material, Torsion Protection | Config. Code | Order Number | |
|---|---|---|---|---|---|---|---|---|
| | [A] | [VAC/ VDC] | | | | | | |
| IP40 | 100 mA | 30 VDC | non-illuminated | Stainless Steel ,no | Stainless Steel ,no | MSM 22 Pcs | 1241.6631.1110000 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | non-illuminated | Stainless Steel ,no | Stainless Steel ,no | MSM 22 Pcs | 1241.6631.1120000 | |
| IP40 | 10 A | 250 VAC | non-illuminated | Stainless Steel ,no | Stainless Steel ,no | MSM 22 Pcs | 1241.6631.1130000 | |
| IP67 | 6 A | 250 VAC | non-illuminated | Stainless Steel ,no | Stainless Steel ,no | MSM 22 Pcs | 1241.6631.1180000 | |
| IP40 | 100 mA | 30 VDC | non-illuminated | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 LE | 1241.6632.1110000 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | non-illuminated | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 LE | 1241.6632.1120000 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | non-illuminated | Alu red ,yes | Stainless Steel ,yes | MSM 22 LE | 1241.6632.3120000 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | non-illuminated | Alu red ,yes | Stainless Steel ,yes | MSM 22 LE | 1241.6632.3120057 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | non-illuminated | Alu red ,yes | Stainless Steel ,yes | MSM 22 LE | 1241.6632.3120066 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | non-illuminated | Alu green ,yes | Stainless Steel ,yes | MSM 22 LE | 1241.6632.5120000 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | non-illuminated | Alu green ,yes | Stainless Steel ,yes | MSM 22 LE | 1241.6632.5120061 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | non-illuminated | Alu green ,yes | Stainless Steel ,yes | MSM 22 LE | 1241.6632.5120065 | |
| IP40 | 100 mA | 30 VDC | Point Illumination, red | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 PI red | 1241.6633.1111000 | |
| IP40 | 100 mA | 30 VDC | Point Illumination, green | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 PI green | 1241.6633.1112000 | |
| IP40 | 100 mA | 30 VDC | Point Illumination, blue | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 PI blue | 1241.6633.1114000 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | Point Illumination, red | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 PI red | 1241.6633.1121000 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | Point Illumination, green | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 PI green | 1241.6633.1122000 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | Point Illumination, blue | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 PI blue | 1241.6633.1124000 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | Point Illumination, red / green | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 PI red / green | 1241.6633.1126000 | |

| IP Switching Unit | Switching Current [A] | Switching Voltage [VAC/ VDC] | Illumination, LED | Housing Material, Torsion Protection | Actuator Material, Torsion Protection | Config. Code | Order Number | |
|---|---|---|---|---|---|---|---|---|
| IP40 | 10 A | 250 VAC | Point Illumination, red | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 PI red | 1241.6633.1131000 | |
| IP40 | 10 A | 250 VAC | Point Illumination, green | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 PI green | 1241.6633.1132000 | |
| IP40 | 10 A | 250 VAC | Point Illumination, blue | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 PI blue | 1241.6633.1134000 | |
| IP40 | 100 mA | 30 VDC | RI dotted, red, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI red | 1241.6634.1111000 | ■ |
| IP40 | 100 mA | 30 VDC | RI dotted, green, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI green | 1241.6634.1112000 | ■ |
| IP40 | 100 mA | 30 VDC | RI dotted, yellow, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI yellow | 1241.6634.1113000 | |
| IP40 | 100 mA | 30 VDC | RI dotted, blue, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI blue | 1241.6634.1114000 | ■ |
| IP40 | 5 / 3 A | 125 / 250 VAC | RI dotted, red, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI red | 1241.6634.1121000 | ■ |
| IP40 | 5 / 3 A | 125 / 250 VAC | RI dotted, green, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI green | 1241.6634.1122000 | ■ |
| IP40 | 5 / 3 A | 125 / 250 VAC | RI dotted, yellow, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI yellow | 1241.6634.1123000 | |
| IP40 | 5 / 3 A | 125 / 250 VAC | RI dotted, blue, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI blue | 1241.6634.1124000 | ■ |
| IP40 | 5 / 3 A | 125 / 250 VAC | RI dotted, white, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI white | 1241.6634.1125000 | ■ |
| IP40 | 10 A | 250 VAC | RI dotted, red, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI red | 1241.6634.1131000 | ■ |
| IP40 | 10 A | 250 VAC | RI dotted, green, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI green | 1241.6634.1132000 | ■ |
| IP67 | 6 A | 250 VAC | RI dotted, red, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI red | 1241.6634.1181000 | ■ |
| IP67 | 6 A | 250 VAC | RI dotted, green, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI green | 1241.6634.1182000 | |
| IP67 | 6 A | 250 VAC | RI dotted, blue, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI blue | 1241.6634.1184000 | |
| IP40 | 100 mA | 30 VDC | RI homogeneous, RGB, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI RGB | 3-102-773 | ■ |
| IP40 | 10 A | 250 VAC | RI homogeneous, RGB, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI RGB | 3-102-784 | ■ |
| IP40 | 100 mA | 30 VDC | RI homogeneous, red, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI red | 3-108-955 | ■ |
| IP40 | 5 / 3 A | 125 / 250 VAC | RI homogeneous, red, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI red | 3-108-956 | ■ |
| IP40 | 10 A | 250 VAC | RI homogeneous, red, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI red | 3-108-957 | ■ |
| IP40 | 100 mA | 30 VDC | RI homogeneous, green, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI green | 3-108-958 | ■ |
| IP40 | 5 / 3 A | 125 / 250 VAC | RI homogeneous, green, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI green | 3-108-959 | ■ |
| IP40 | 10 A | 250 VAC | RI homogeneous, green, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI green | 3-108-960 | ■ |
| IP40 | 100 mA | 30 VDC | RI homogeneous, blue, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI blue | 3-108-961 | ■ |
| IP40 | 5 / 3 A | 125 / 250 VAC | RI homogeneous, blue, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI blue | 3-108-972 | ■ |
| IP40 | 10 A | 250 VAC | RI homogeneous, blue, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI blue | 3-108-973 | ■ |
| IP67 | 100 mA | 250 VAC | RI homogeneous, RGB, 24 VDC | Stainless Steel ,yes | Stainless Steel ,yes | MSM 22 RI RGB | 3-109-580 | |

IP-Protection: IP67 from front side to contact area, Micro-Switch is available in versions IP40 or IP67, see Technical Data Micro-Switch

Variants with 6 A micro switch have IP67

The MOQ for standard laser lettering on standard variants is a packing unit.

5 VDC and 12 VDC RI variants (except for RGB) on request (MOQ 500 pieces)

Customer-specific versions available on request.
Special materials for use in salt and chlorinated environment on request.

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 or packed in air cushion bags

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

## Accessories

| | Description |
|---|---|
| | MSM Cover<br>Protection cover for MSM 19 and MSM 22 |
| | Power Supply<br>Power Supply IP42 for LED- and Illumination applications indoor 90~264 VAC => 24 VDC 0.34 A 8 W |

26.06.2020



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.