

Metal Switch Medium Stroke, Switching Voltage up to 250 VAC



See below:

#### **Approvals and Compliances**

#### **Description**

- Switch with homogeneous surface illumination 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
- Scratch-resistant biocompatible ceramic actuator

#### **Characteristics**

- Housing material: high-quality stainless steel, actuator material: highly durable ceramic
- 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:

Alternative: switch with ring illumination: [MSM 16](#)

Alternative: Other diameter [MSM CS 19](#); [MSM CS 22](#)

Alternative: double-pole switch [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 Illumination area
Impulse Withstand Voltage (ESD)	2 kV with Ring Illumination

**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	IK07
Mounting screw torque Plastic Nut	max. 2 Nm
Mounting screw torque Stainless Steel Nut	max. 10 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**

Housing	Stainless Steel
Actuator	Ceramic (Zirconium Dioxide)
Seal Ring	NBR70
Switcher Collet	PA
Plastic Nut	PA, UL94


**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
	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 62368-1	Audio/video, information and communication technology equipment - Part 1: Safety requirements

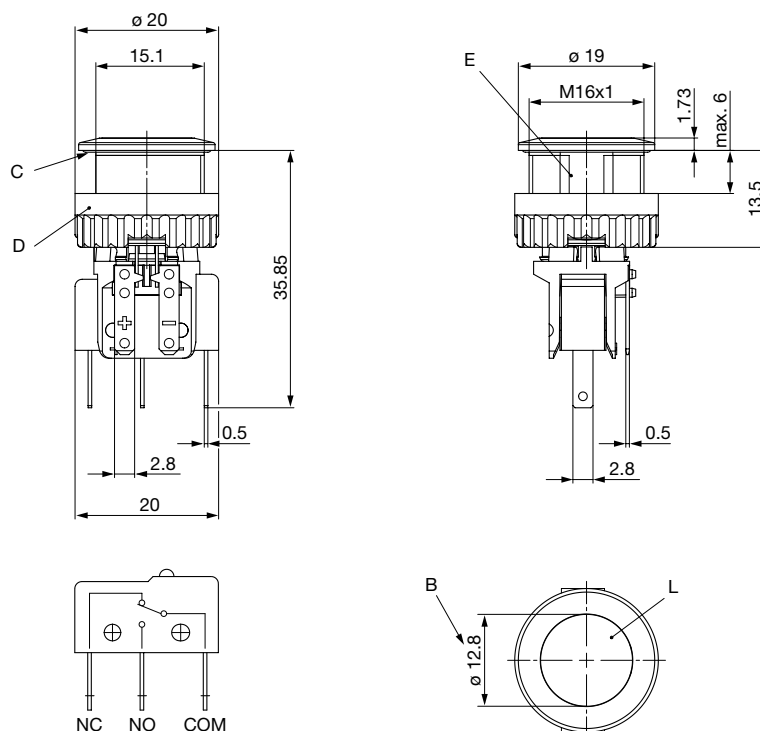
## Compliances

The product complies with following Guide Lines

Identification	Details	Initiator	Description
	RoHS	SCHURTER AG	Directive RoHS 2011/65/EU, Amendment (EU) 2015/863
	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.

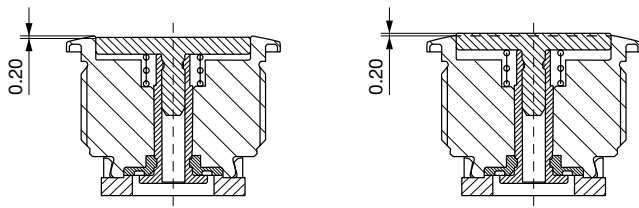
## Dimension [mm]

MSM CS

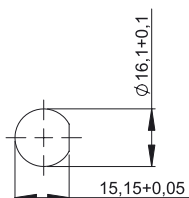


### Legend

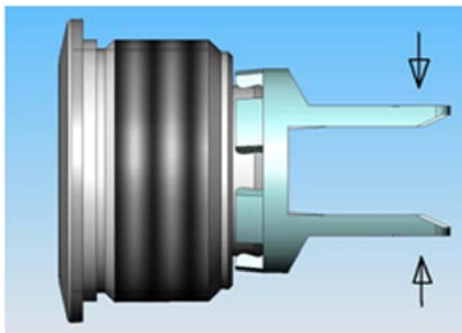
B = Actuating Area  
C = Sealing  
D = Nut  
E = Anti-rotation protection  
L = Illuminated area

**Tolerance Range****Actuator Tolerance Range**

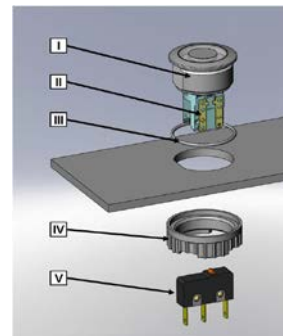
The mounting tolerance range of the actuator varies from 0.2 mm projection length and 0.2 mm short length to the housing edge. The slanting position of the actuator can range within this tolerance.

**Dimension****MSM 16 CS**

Drilling diagram

**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:**

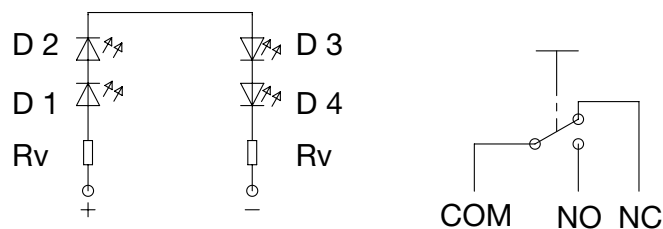
- 1.) Place the gasket accurately on the actuator housing. Then mount the actuator housing assembly into the panel.
- 2.) Tighten the screw nut according to the torque instructions.
- 3.) Clasp the module switching contact into the micro switch holder of the actuator housing.

**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 CS



## Marking

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
Ceramic	black Filled letters

## Order Index Lettering

Laser Marking

001 = <b>A</b>	021 = <b>U</b>	041 = <b>÷</b>	061 = <b>EIN</b>
002 = <b>B</b>	022 = <b>V</b>	042 = <b>*</b>	062 = <b>AUS</b>
003 = <b>C</b>	023 = <b>W</b>	043 = <b>=</b>	063 = <b>AUF</b>
004 = <b>D</b>	024 = <b>X</b>	044 = <b>#</b>	064 = <b>AB</b>
005 = <b>E</b>	025 = <b>Y</b>	045 = <b>↔</b>	065 = <b>ON</b>
006 = <b>F</b>	026 = <b>Z</b>	046 = <b>↑</b>	066 = <b>OFF</b>
007 = <b>G</b>	027 = <b>0</b>	047 = <b>→</b>	067 = <b>UP</b>
008 = <b>H</b>	028 = <b>1</b>	048 = <b>←</b>	068 = <b>DOWN</b>
009 = <b>I</b>	029 = <b>2</b>	049 = <b>↓</b>	069 = <b>HIGH</b>
010 = <b>J</b>	030 = <b>3</b>	050 = <b>↑</b>	070 = <b>LOW</b>
011 = <b>K</b>	031 = <b>4</b>	051 = <b>%</b>	071 = <b>ON/OFF</b>
012 = <b>L</b>	032 = <b>5</b>	052 = <b>√</b>	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 = <b>⏻</b>
015 = <b>O</b>	035 = <b>8</b>	055 = <b>SHIFT</b>	075 = <b>💡</b>
016 = <b>P</b>	036 = <b>9</b>	056 = <b>LOCK</b>	076 = <b>🔔</b>
017 = <b>Q</b>	037 = <b>=+</b>	057 = <b>STOP</b>	077 = <b>①</b>
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>	

Please note that the font size depends on the number of characters

## All Variants

Diameter	Switching Current	Switching Voltage	Illumination, LED	Housing Material	Torsion Protection Housing/Actuator	Config. Code	Order Number
[mm]	[A]	[VAC/ VDC]					
16	0.1	30 VDC	non-illuminated	Stainless Steel	yes yes	MSM 16 CS	3-102-649
16	5 / 3	125/250 VAC	non-illuminated	Stainless Steel	yes yes	MSM 16 CS	3-102-650
16	10	250 VAC	non-illuminated	Stainless Steel	yes yes	MSM 16 CS	3-102-651
16	0.1	30 VDC	Backlighted, red, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI red	3-102-633
16	5 / 3	125/250 VAC	Backlighted, red, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI red	3-102-634
16	10	250 VAC	Backlighted, red, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI red	3-102-635
16	0.1	30 VDC	Backlighted, green, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI green	3-102-636
16	5 / 3	125/250 VAC	Backlighted, green, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI green	3-102-637
16	10	250 VAC	Backlighted, green, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI green	3-102-639
16	0.1	30 VDC	Backlighted, blue, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI blue	3-102-640
16	5 / 3	125/250 VAC	Backlighted, blue, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI blue	3-102-641
16	10	250 VAC	Backlighted, blue, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI blue	3-102-642
16	0.1	30 VDC	Backlighted, yellow, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI yellow	3-102-643
16	5 / 3	125/250 VAC	Backlighted, yellow, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI yellow	3-102-644
16	10	250 VAC	Backlighted, yellow, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI yellow	3-102-645
16	0.1	30 VDC	Backlighted, white, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI white	3-102-646
16	5 / 3	125/250 VAC	Backlighted, white, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI white	3-102-647
16	10	250 VAC	Backlighted, white, 24 VDC	Stainless Steel	yes yes	MSM 16 CS AI white	3-102-648

Legend:

Type:

MSMCS = Ceramic Surface

ST = Standard: not lettered

LE = Lettering: lettered

AI = BL = Full Surface Backlighting: Lettering possible (see Lettering, last 3 digits)

IP65 degree of protection front side contact areadegree of protection rear side contact area IP40 or IP67 optional -&gt; see Technical Data Micro Switch

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 a packing unit.

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 O-ring in a bag (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

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Schurter:

[3-102-639](#) [3-102-648](#) [3-102-633](#) [3-102-636](#) [3-102-646](#)