

Metal Switch Medium Stroke, Switching Voltage up to 250 VAC



MSM 22 RI blue



### Description

- Momentary switch available in version: Standard (ST), with Lettering (LE), from diameter 19 mm with Point Illumination (PI) and with Ring Illumination (RI)
- Assembly method: clip micro-switch into the saddle, secure switch using mounting nut

- Equipped with flat-pin plugs to permit fast connection

### Standards

- DIN EN 61058-1
- UL 1054

### Approvals

- Low Voltage Directive 2006/95/EC compliant; following certificate numbers apply to micro switch
- VDE / ENEC Certificate Number (Omron): 40008425, 129246, 125256
- UL / CSA File Number (Omron): E41515
- VDE / ENEC Certificate Number (Marquardt): 097550
- UL / CSA File Number (Marquardt): E41791
- KEMA / ENEC File Number (Cherry): 2089323.01
- UL / CSA File Number (Cherry): E23301

### 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
- optional with point or ring illumination
- IP-Protection: IP 67 from front side to contact area, Micro-Switch is available in versions IP 40 or IP 67, moving actuator is rated IP 40 to frontside
- for use in harsh environments

### References

- Alternative: double-pole switch: [MSM DP](#)
- Alternative: switch with latching function: [MSM LA](#)
- Alternative: switch with backlighted illumination: [MSM CS](#)

### Weblinks

[html-datasheet](#), [General Product Information](#), [Approvals](#), [CE declaration of conformity](#), [RoHS](#), [CHINA-RoHS](#), [e-Shop](#), [CAD-Drawings](#), [Product News](#), [Detailed request for product](#)

**Technical Data****Electrical Data**

Switching Function	N.O., N.C., N.O./N.C.
Number of Poles	1 pole
Supply Voltage	24 / 12 / 5 VDC Ring Illumination, without series resistor Point Illumination, LED operating data are listed in separate table
Surge Strength	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 Breaking Capacity	750 W
Lifetime	0.2 mill. actuations at Rated Braking 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 Breaking Capacity	3 W
Lifetime	0.2 mill. actuations at Rated Braking 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 Breaking Capacity	2500 W
Lifetime	0.05 mill. actuations at Rated Braking Capacity
Contact Resistance	< 30 mΩ
Insulation Resistance	> 100 MΩ
Duration of Bounce	< 5 ms

**Micro Switch 5 A / 250 VAC, IP67**

Switching Voltage	max. 250 VAC
Switching Current	max. 5
Rated Breaking Capacity	1250 W
Lifetime	0.05 mill. actuations at Rated Braking Capacity

**Micro Switch 0,1 A / 250 VAC, IP67 - on request**

Switching Voltage	max. 250 VAC
Switching Current	max. 0.1
Rated Breaking Capacity	25 W
Lifetime	0.05 mill. actuations at Rated Braking Capacity

**Micro Switch 10 A / 250 VAC, IP67 - on request**

Switching Voltage	max. 250 VAC
Switching Current	max. 10 A
Rated Breaking Capacity	2500 W
Lifetime	0.01 mill. actuations at Rated Braking Capacity

**Mechanical Data**

Actuating Force	4.5 N
Actuating Travel	1.0 mm, for mounting diameter 16, 19, 22 mm 1.2 mm for mounting diameter 30 mm
Lifetime	1.5 mill. actuations
Shock Protection	IK 07 for mounting diameter 19, 22, 30 mm., IK 06 for mounting diameter 16 mm
Starting Torque Plastic Nut	max. 2 Nm for thread M16, 4.5 Nm for M19, 3.5 Nm for M22, 8 Nm for M30
Starting Torque Stainless Steel Nut	max. 10 Nm for thread M16, 12 Nm for M19, 16 Nm for M22, 50 Nm for M30

**Climatical Data**

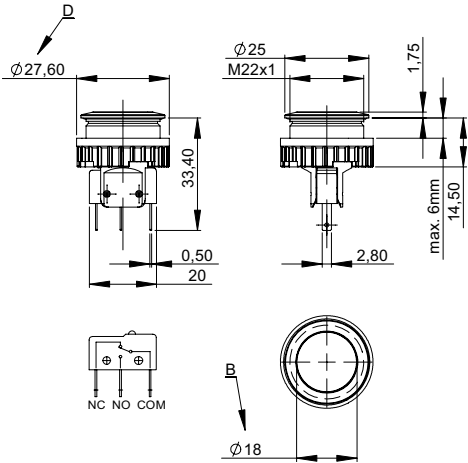
Operating Temperature	-25 to +85 °C
Storage Temperature	-25 to +85 °C
IP-Protection	IP 67 Front Side Contact Area, IP 40 Front Side mechanical, IP 40 / IP 67 Rear Side Contact Area optional
Salt Spray Test (acc. to DIN 50021-SS)	24 h / 48 h / 96 h Residence Time

**Material**

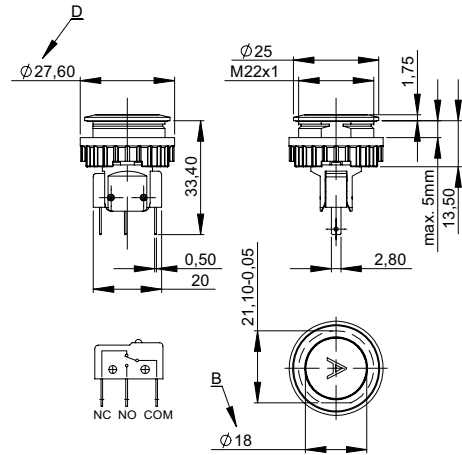
Housing	Stainless Steel
Actuator	Stainless Steel
Light Conductor (Point Illumination)	PC
Illuminated Ring (Ring Illumination)	PA
Gasket	NBR70
Switcher Collet	PA

**Dimensions**

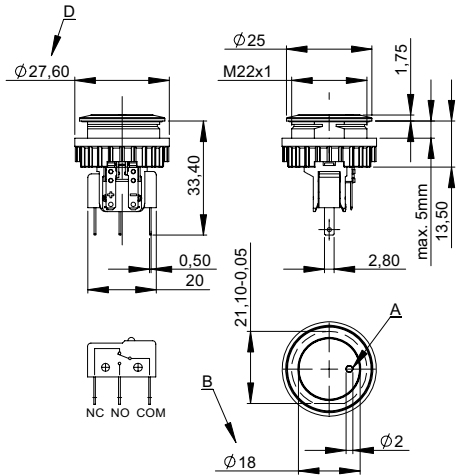
**MSM 22 ST**



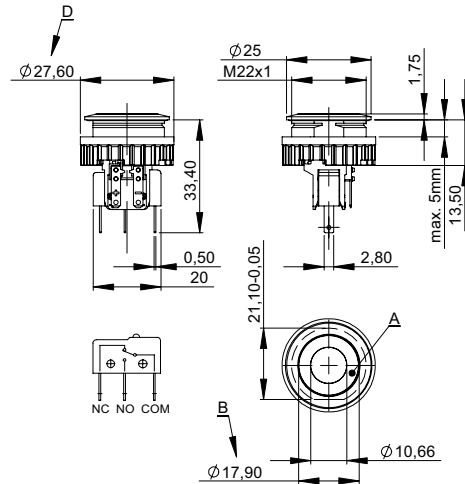
**MSM 22 LE**



**MSM 22 PI**



**MSM 22 RI**

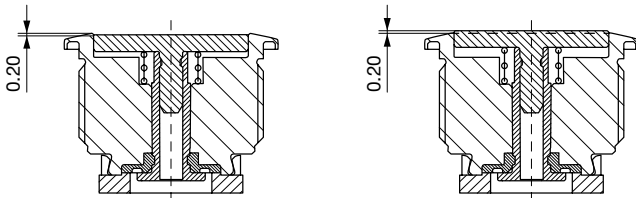


**Legend**

- A = Illumination Area
- B = Actuating Area
- C = Width Across Flats
- D = Nut

**Tolerance Range**

**Actuator Tolerance Range**

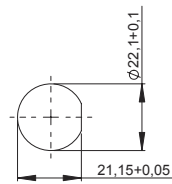
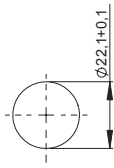


The mounting tolerance range of the actuator varies from 0.2 mm projection length and 0.2 mm short length to the housing edge. The slanting position of the actuator can range within this tolerance.

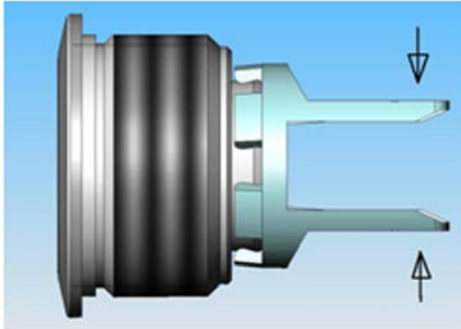
## Dimensions

MSM 22 ST / MSM 22 RI

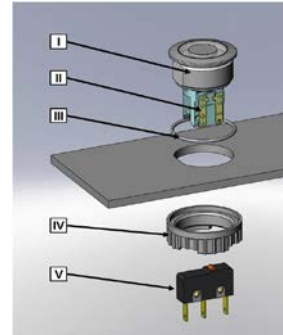
MSM 22 LE / MSM 22 PI / MSM 22  
RI optional



## Mounting 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:

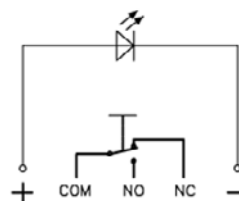
- 1.) The power supply and the configuration of the flat pin terminals have to be installed correctly for the illumination and micro switch function.
- 2.) Insulate the terminals as required. Fully insulated plug-in sleeves are recommended.
- 3.) Installation instructions according to VDE-standard DIN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

Diagrams

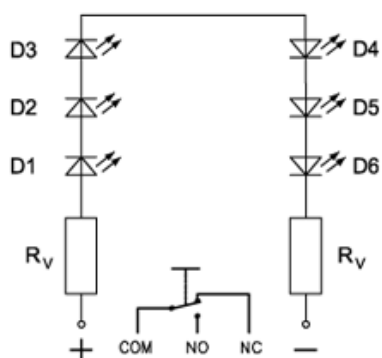
MSM ST / MSM LE



MSM PI



MSM RI



Point Illumination

Operating Data	Forward Current max.	Forward Voltage at 10 mA	Forward Voltage at 8 mA
LED red	30 mA	1.9 VDC	
LED green	30 mA	2.1 VDC	
LED yellow	30 mA	2.1 VDC	
LED blue	20 mA		3.7 VDC
LED white	30 mA		

Attention: Switches are delivered without series resistor.

### Recommendation of series resistors for point illumination

LED-Color	I <sub>D</sub> [mA]	I <sub>DMax</sub> [mA]	U <sub>V</sub> 5				U <sub>V</sub> 12				U <sub>V</sub> 24			
			R <sub>V</sub> [Ω]	R <sub>V</sub> <sup>E24</sup> [Ω]	P <sub>V</sub> [W]**		R <sub>V</sub> [Ω]	R <sub>V</sub> <sup>E24</sup> [Ω]	P <sub>V</sub> [W]**		R <sub>V</sub> [Ω]	R <sub>V</sub> <sup>E24</sup> [Ω]	P <sub>V</sub> [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	
Yellow	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	
white	10	---	140	150	0,01		840	820	0,08		2040	2200	0,20	
	---	30	33	33	0,03		267	270	0,24		667	680	0,60	




- I<sub>D</sub> LED-Forward Current [8mA/10mA]
- I<sub>DMax</sub> LED-Forward Current max. [20mA/30mA]
- R<sub>V</sub> Series Resistor (calculated)
- R<sub>V</sub><sup>E24</sup> Series Resistor (regarding E24-Resistor series)
- P<sub>V</sub> Power dissipation concerning R<sub>V</sub> (calculated)

### Lettering

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

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

### Order Index Lettering

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>	
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>	

## Lettering Colour of Laser Lettering

Material	Lettering Colour
Stainless Steel	black Filled letters

For further Lettering details see also weblink:

[General Product Information](#)

## Variants

Diameter	Switching Current	Switching Voltage	Illumination, LED	Housing Material, Twist Protection	Actuator Material	Config. Code	Order Number
[mm]	[A]	[VAC/ VDC]					
22	100 mA	30 VDC	non-illuminated	Stainless Steel ,no	Stainless Steel	MSM 22 ST	1241.6631.1110000
22	5 / 3 A	125 / 250 VAC	non-illuminated	Stainless Steel ,no	Stainless Steel	MSM 22 ST	1241.6631.1120000
22	10 A	250 VAC	non-illuminated	Stainless Steel ,no	Stainless Steel	MSM 22 ST	1241.6631.1130000
22	5 A	250 VAC	non-illuminated	Stainless Steel ,no	Stainless Steel	MSM 22 ST	1241.6631.1180000
22	100 mA	30 VDC	non-illuminated	Stainless Steel ,yes	Stainless Steel	MSM 22 LE	1241.6632.1110000
22	5 / 3 A	125 / 250 VAC	non-illuminated	Stainless Steel ,yes	Stainless Steel	MSM 22 LE	1241.6632.1120000
22	5 / 3 mA	125 / 250 VDC	non-illuminated	Alu red ,yes	Stainless Steel	MSM 22 LE	1241.6632.3120000
22	5 / 3 mA	125 / 250 VDC	non-illuminated	Alu red ,yes	Stainless Steel	MSM 22 LE	1241.6632.3120057
22	5 / 3 mA	125 / 250 VDC	non-illuminated	Alu red ,yes	Stainless Steel	MSM 22 LE	1241.6632.3120062
22	5 / 3 mA	125 / 250 VDC	non-illuminated	Alu red ,yes	Stainless Steel	MSM 22 LE	1241.6632.3120066
22	10 A	250 VAC	non-illuminated	Alu red ,yes	Stainless Steel	MSM 22 LE	1241.6632.3130062
22	5 / 3 mA	125 / 250 VDC	non-illuminated	Alu green ,yes	Stainless Steel	MSM 22 LE	1241.6632.5120000
22	5 / 3 mA	125 / 250 VDC	non-illuminated	Alu green ,yes	Stainless Steel	MSM 22 LE	1241.6632.5120061
22	5 / 3 mA	125 / 250 VDC	non-illuminated	Alu green ,yes	Stainless Steel	MSM 22 LE	1241.6632.5120065
22	100 mA	30 VDC	Point Illumination, red	Stainless Steel ,yes	Stainless Steel	MSM 22 PI red	1241.6633.1111000
22	100 mA	30 VDC	Point Illumination, green	Stainless Steel ,yes	Stainless Steel	MSM 22 PI green	1241.6633.1112000
22	100 mA	30 VDC	Point Illumination, blue	Stainless Steel ,yes	Stainless Steel	MSM 22 PI blue	1241.6633.1114000
22	5 / 3 A	125 / 250 VAC	Point Illumination, red	Stainless Steel ,yes	Stainless Steel	MSM 22 PI red	1241.6633.1121000
22	5 / 3 A	125 / 250 VAC	Point Illumination, green	Stainless Steel ,yes	Stainless Steel	MSM 22 PI green	1241.6633.1122000
22	5 / 3 A	125 / 250 VAC	Point Illumination, blue	Stainless Steel ,yes	Stainless Steel	MSM 22 PI blue	1241.6633.1124000
22	5 / 3 A	125 / 250 VAC	Point Illumination, red / green	Stainless Steel ,yes	Stainless Steel	MSM 22 PI red / green	1241.6633.1126000
22	10 A	250 VAC	Point Illumination, red	Stainless Steel ,yes	Stainless Steel	MSM 22 PI red	1241.6633.1131000
22	10 A	250 VAC	Point Illumination, green	Stainless Steel ,yes	Stainless Steel	MSM 22 PI green	1241.6633.1132000
22	10 A	250 VAC	Point Illumination, blue	Stainless Steel ,yes	Stainless Steel	MSM 22 PI blue	1241.6633.1134000
22	100 mA	30 VDC	Ring Illumination, red, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI red	1241.6634.1111000
22	100 mA	30 VDC	Ring Illumination, red, 5 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI red	1241.6634.1111000B
22	100 mA	30 VDC	Ring Illumination, green, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI green	1241.6634.1112000
22	100 mA	30 VDC	Ring Illumination, green, 5 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI green	1241.6634.1112000B
22	100 mA	30 VDC	Ring Illumination, yellow, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI yellow	1241.6634.1113000
22	100 mA	30 VDC	Ring Illumination, blue, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI blue	1241.6634.1114000
22	5 / 3 A	125 / 250 VAC	Ring Illumination, red, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI red	1241.6634.1121000
22	5 / 3 A	125 / 250 VAC	Ring Illumination, green, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI green	1241.6634.1122000
22	5 / 3 A	125 / 250 VAC	Ring Illumination, yellow, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI yellow	1241.6634.1123000
22	5 / 3 A	125 / 250 VAC	Ring Illumination, blue, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI blue	1241.6634.1124000
22	5 / 3 A	125 / 250 VAC	Ring Illumination, white, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI white	1241.6634.1125000
22	10 A	250 VAC	Ring Illumination, red, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI red	1241.6634.1131000
22	10 A	250 VAC	Ring Illumination, green, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI green	1241.6634.1132000
22	5 A	250 VAC	Ring Illumination, red, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI red	1241.6634.1181000
22	5 A	250 VAC	Ring Illumination, green, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI green	1241.6634.1182000
22	5 A	250 VAC	Ring Illumination, blue, 24 VDC	Stainless Steel ,yes	Stainless Steel	MSM 22 RI blue	1241.6634.1184000

Legend:

Type:

SI = Snap-in mounting versions

ST = Standard: not lettered

LE = Lettering: lettered

PI = Point Illumination: Lettering possible

RI = Ring Illumination: Lettering possible

BL = Full Surface Backlighting: Lettering possible

Diameter	Switching Current	Switching Voltage	Illumination, LED	Housing Material, Twist Protection	Actuator Material	Config. Code	Order Number
[mm]	[A]	[VAC/ VDC]					
<p>Alu red = red anodized aluminum housing, actuator stainless steel                      1241.6622.3120062 -&gt; 3 last numbers (062) see Order Index Lettering                      IP-Protection: IP 67 from front side to contact area, Micro-Switch is available in versions IP 40 or IP 67, see Technical Data Micro-Switch                      Ring illuminated versions: 24 VDC supply voltage (12 and 5 VDC on request)                      Customer-specific versions on request                      The nut with gasket and micro switch are enclosed in the box.</p>							

**Packaging unit**      10 blistered in boxes (10 pcs.)

### Accessories

**Description**

[Installation Wrench MSM 16](#)  
 Installation Wrench



[Installation Wrench MSM 22](#)  
 Installation wrench