



MSM DP 16 ST



MSM DP22 RI blue



### Description

- Momentary switch available in version Standard, with Lettering, starting from 22 mm diameter with Point Illumination or Ring Illumination
- 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 Low Voltage Directive 2006/95/EC
- 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
- double pole version with two switching contact sets, can be wired as NO, NC or as change-over
- for use in harsh environments

### References

- Alternative: single-pole switch:
- Alternative: switch with latching function:
- Alternative: switch with backlighted illumination:

### 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	2 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	1250 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	0.2 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. 250 VAC
Rated Breaking Capacity	1500 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	5.0 N
Actuating Travel	1.0 mm, for mounting diameter 19, 22 mm 1.2 mm for mounting diameter 30 mm
Lifetime	1.5 mill. actuations
Shock Protection	IK 07
Starting Torque Plastic Nut	max. 4.5 Nm for thread M19, 3.5 Nm for M22, 8 Nm for M30
Starting Torque Stainless Steel Nut	max. 12 Nm for thread M19, 16 Nm for M22, 50 Nm for M30

**Climatical Data**

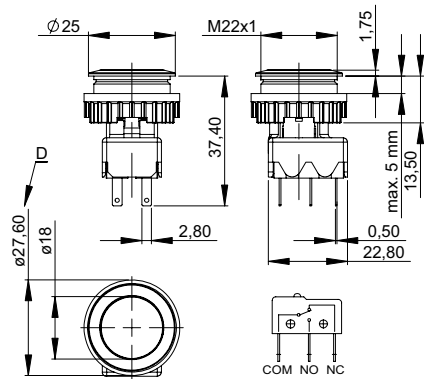
Operating Temperature	-25 to +85 °C
Storage Temperature	-25 to +85 °C
IP-Protection	IP 40 , IP 67 , IP 40 / IP 67
Salt Spray Test (acc. to DIN 50021-SS)	24 h / 48 h / 96 h Residence Time

**Material**

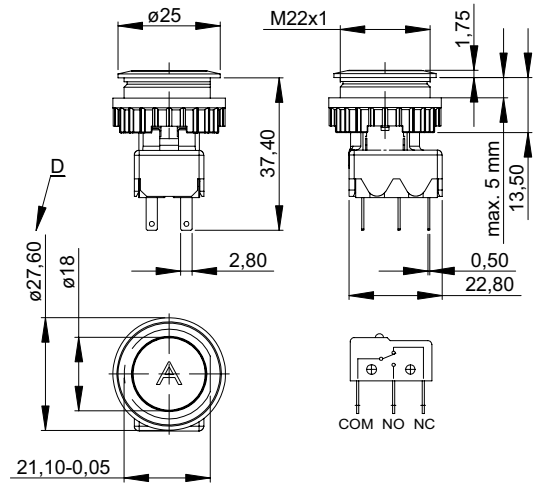
Housing	Stainless Steel
Actuator	Stainless Steel
Light Conductor (Point Illumination)	PC
Illuminated Ring (Ring Illumination)	PA
Gasket	NBR70
Switcher Collet	PA
Intermediate Connector non-illuminated	PA
Intermediate Connector illuminated	PA
Switcher Adapter	PA

**Dimensions**

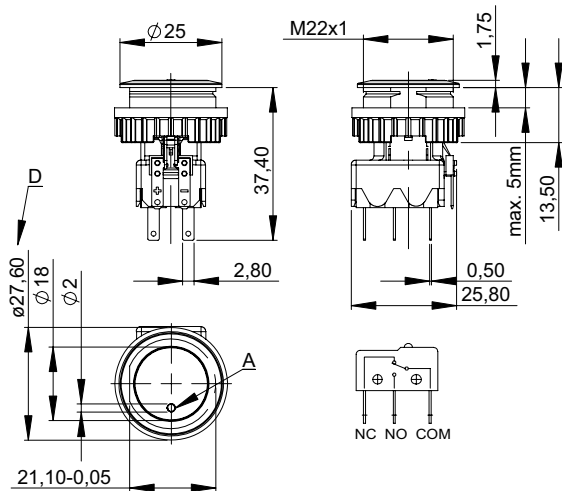
MSM 22 DP ST



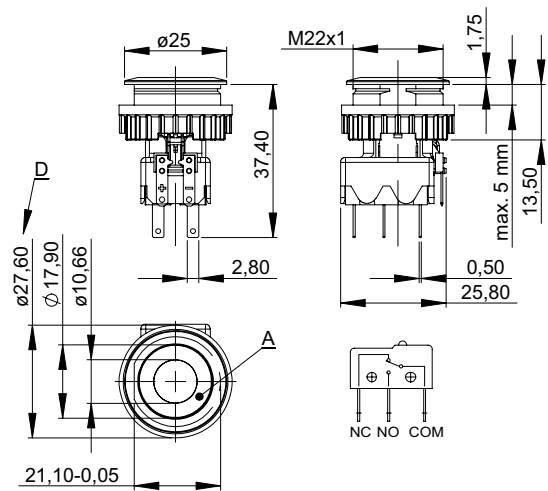
MSM 22 DP LE



MSM 22 DP PI



MSM 22 DP RI

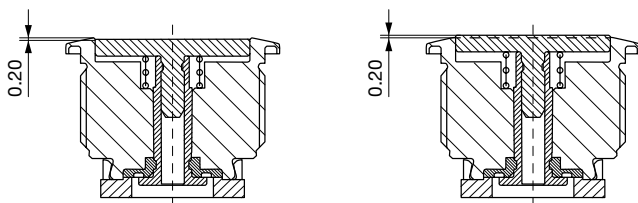


**Legend**

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

**Tolerance Range**

Actuator Tolerance Range

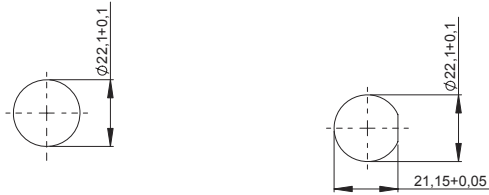
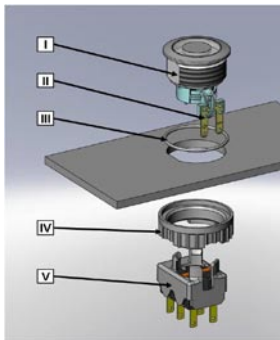


The mounting tolerance range of the actuator varies from 0.2 mm projection length and 0.2 mm short length to the housing edge. The slanting position of the actuator can range within this tolerance.

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**Dimensions**

MSM 22 DP ST / MSM 22 DP RI

MSM 22 DP LE / MSM 22 DP PI /  
MSM 22 DP RI optional**Mounting 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:

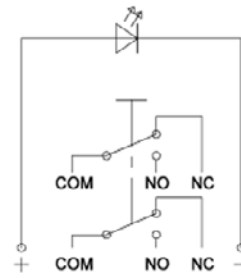
- 1.) The power supply and the configuration of the flat pin terminals have to be installed correctly for the illumination and micro switch function.
- 2.) Insulate the terminals as required. Fully insulated plug-in sleeves are recommended.
- 3.) Installation instructions according to VDE-standard DIN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

Diagrams

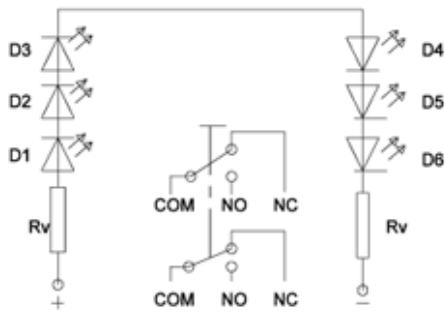
MSM DP ST / MSM DP LE



MSM DP PI



MSM DP 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	IP-Protection Frontside; Microswitch	Type	Order Number
[mm]	[A]	[VAC/ VDC]					
22	5 / 3 A	125 / 250 VAC	non-illuminated	Stainless Steel ,no	IP 67 / IP 40 ;IP 40	MSM 22 DP ST	1241.6931.1120000
22	5 / 3 A	125 / 250 VAC	non-illuminated	Stainless Steel ,yes	IP 67 / IP 40 ;IP 40	MSM 22 DP LE	1241.6932.1120000
22	5 / 3 A	125 / 250 VAC	Point Illumination, red	Stainless Steel ,yes	IP 67 / IP 40 ;IP 40	MSM 22 DP PI red	1241.6933.1121000
22	5 / 3 A	125 / 250 VAC	Point Illumination, green	Stainless Steel ,yes	IP 67 / IP 40 ;IP 40	MSM 22 DP PI green	1241.6933.1122000
22	5 / 3 A	125 / 250 VAC	Point Illumination, blue	Stainless Steel ,yes	IP 67 / IP 40 ;IP 40	MSM 22 DP PI blue	1241.6933.1124000
22	5 / 3 A	125 / 250 VAC	Ring Illumination, red, 24 VDC	Stainless Steel ,yes	IP 67 / IP 40 ;IP 40	MSM 22 DP RI red	1241.6934.1121000
22	5 / 3 A	125 / 250 VAC	Ring Illumination, green, 24 VDC	Stainless Steel ,yes	IP 67 / IP 40 ;IP 40	MSM 22 DP RI green	1241.6934.1122000
22	5 / 3 A	125 / 250 VAC	Ring Illumination, blue, 24 VDC	Stainless Steel ,yes	IP 67 / IP 40 ;IP 40	MSM 22 DP RI blue	1241.6934.1124000

Legend:

Type:

ST = Standard: not lettered

LE = Lettering: lettered

PI = Point Illumination: Lettering possible

RI = Ring Illumination: Lettering possible

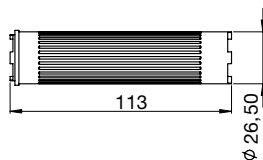
Ring illuminated versions: 24 VDC supply voltage (12 and 5 VDC on request)

Customer-specific versions on request.

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

**Accessories**

Description



Installation Wrench MSM 22 DP  
Installation Wrench for MSM 22

MSM 22 DP

1141.1337