

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



MSM 19 LA LE RI blue



Description

- Switch available in version: Standard (ST), with Lettering (LE), with Point Illumination (PI), with Ring Illumination (RI)
- Assembly by mounting with nut and subsequent clipping of the switching element
- 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
- KEMA / ENEC File Number (Marquardt): 2106068.01
- UL / CSA File Number (Marquardt): E41791

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 12 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

References

Alternative: Standard version [MSM](#)

Alternative: double-pole switch: [MSM DP](#)

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.
Number of Poles	1 pole and 2 pole
Supply Voltage	24 VDC Ring Illumination, without series resistor Point Illumination, LED operating data are listed in a separate table
Surge Strength	4 kV MSM ST / MSM LE
Switching Voltage	, max. 250 / 125 VAC/DC (125 VDC at 0.5 A)
Switching Current	max. 12 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)
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	4.5 Nm for thread M19, 3.5 Nm for M22
Tightening Torque Stainless Steel Nut	12 Nm for thread M19, 16 Nm for M22

Climatical Data

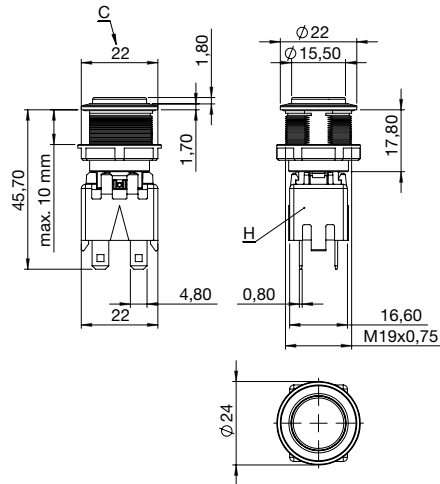
Operating Temperature	-20 to +85 °C
Storage Temperature	-20 to +85 °C
IP-Protection	IP 64 Front Side Contact Area, IP 40 Front Side mechanical, IP 00 Rear Side
Salt Spray Test (acc. to DIN 50021-SS)	24 h / 48 h / 96 h Residence Time

Material

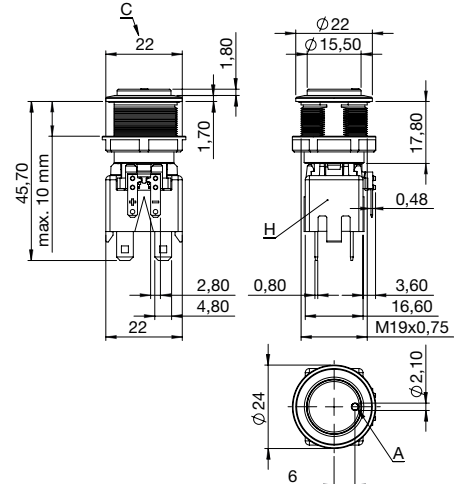
Housing	Stainless Steel
Actuator (disc, outside housing)	Stainless Steel
Illuminated Ring (die-casting, inside housing)	PC
Gasket	NBR70
Switcher Collet	PA66 (UL94-V0 related to d ≥ 1.6 mm)
Intermediate Connector	PA66 (UL94-V0 related to d ≥ 1.6 mm)
Contact Pin Adapter	PA66 (UL94-V0 related to d ≥ 1.6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

Dimensions

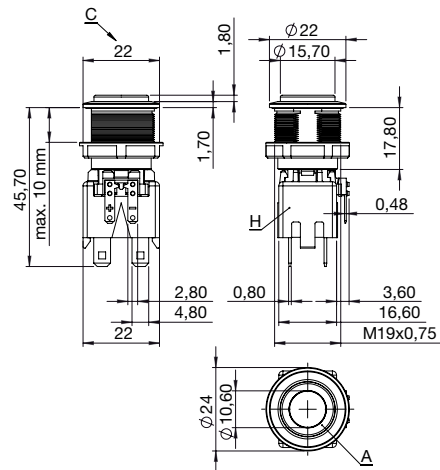
MSM 19 LA ST / LE double-pole



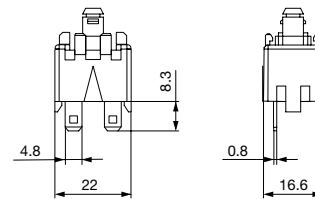
MSM 19 LA PI double-pole



MSM 19 LA RI double-pole



Switching Element single-pole with Push Button Holder



Legend

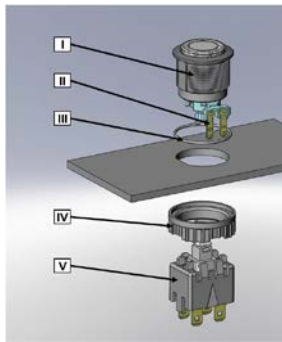
A = Illumination Area
C = Width Across Flats
D = Nut
H = Switching Element

Dimensions

MSM 19 LA ST / MSM 19 LA RI

MSM 19 LA LE / MSM 19 LA PI / MSM 19 LA 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:

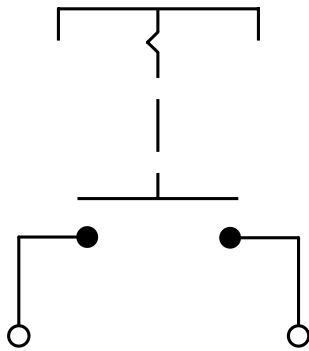
- 1.) Place the gasket accurately on the actuator housing. Then mount the actuator housing assembly into the panel.
- 2.) Tighten the screw nut according to the torque instructions.
- 3.) Clasp the module switching contact into the actuator housing.

Installation information:

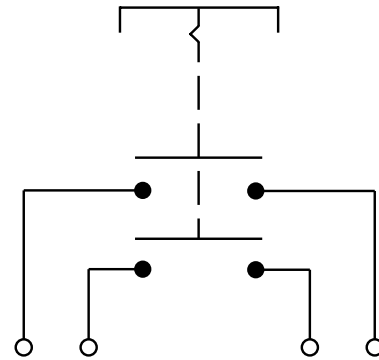
- 1.) The power supply and the configuration of the flat pin terminals have to be installed correctly for the illumination and micro switch function.
- 2.) Insulate the terminals as required. Fully insulated plug-in sleeves are recommended.
- 3.) Installation instructions according to VDE-standard DIN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

Diagrams

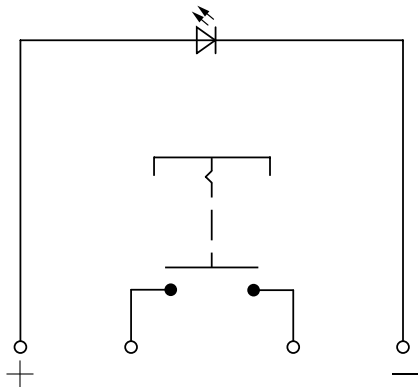
MSM LA ST / LE single-pole



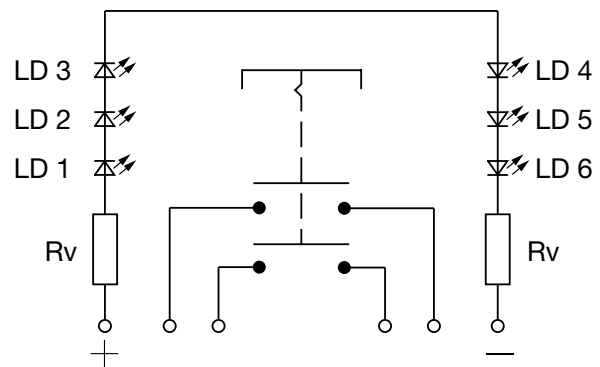
MSM LA ST / LE double-pole



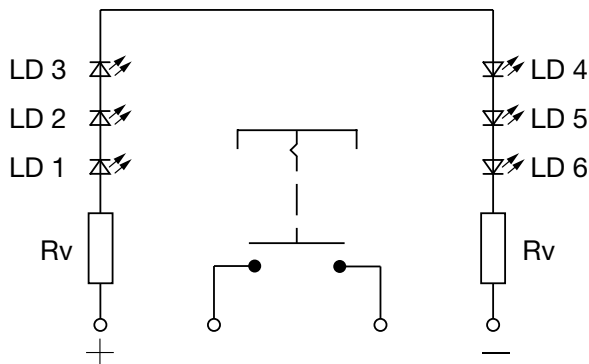
MSM LA PI single-pole



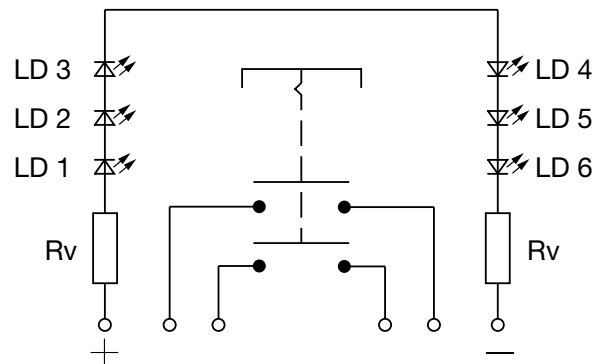
MSM LA PI double-pole



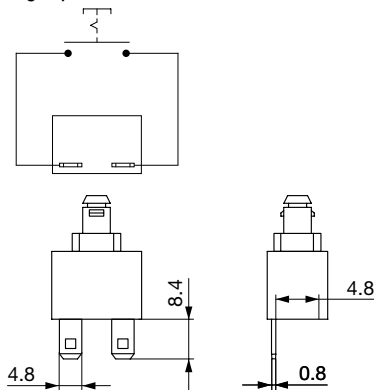
MSM LA RI single-pole



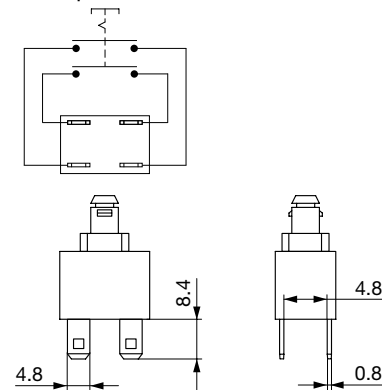
MSM LA RI double-pole



Contact Layout single-pole



Contact Layout double-pole



Point Illumination

Operating Data	Forward Current max.	Forward Current at 10 mA	Forward Current at 8 mA	Forward Current 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.

Recommendation of series resistors for point illumination

LED-Color	I _D [mA]	I _{DMax} [mA]	U _V [V]	R _V [Ω]	R _V ^{E24} [Ω]	P _V [W]**	U _V [V]	R _V [Ω]	R _V ^{E24} [Ω]	P _V [W]**	U _V [V]	R _V [Ω]	R _V ^{E24} [Ω]	P _V [W]
red	10	---	5	310	330	0,03	12	1010	1000	0,10	24	2210	2200	0,22
	---	30		67	68	0,06		300	300	0,27		700	750	0,63
	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
green	10	---	5	163	160	0,01	12	1038	1100	0,07	24	2538	2700	0,16
	---	30		25	27	0,01		375	390	0,15		975	1000	0,39
	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	---	5	163	160	0,01	12	1038	1100	0,07	24	2538	2700	0,16
	---	20		25	27	0,01		375	390	0,15		975	1000	0,39
	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

I_D LED-Forward Current [8mA/10mA]

I_{DMax} LED-Forward Current max. [20mA/30mA]

R_V Series Resistor (calculated)

R_V^{E24} Series Resistor (regarding E24-Resistor series)

P_V Power dissipation concerning R_V (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 = 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	
018 = R	038 = -	058 = ENTER	
019 = S	039 = .	059 = BACK	
020 = T	040 = x	060 = LINE	

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	Number of Poles	Illumination, LED	Torsion Protection	Config. Code	Order Number
[mm]					
19	1 pole	non-illuminated	yes	MSM 19 LA ST	1241.6821.1110000
19	2 pole	non-illuminated	yes	MSM 19 LA ST	1241.6821.1120000
19	2 pole	non-illuminated	yes	MSM 19 LA LE	1241.6822.1120000
19	1 pole	Point Illumination, red	yes	MSM 19 LA PI red	1241.6823.1111000
19	1 pole	Point Illumination, green	yes	MSM 19 LA PI green	1241.6823.1112000
19	1 pole	Point Illumination, blue	yes	MSM 19 LA PI blue	1241.6823.1114000
19	2 pole	Point Illumination, red	yes	MSM 19 LA PI red	1241.6823.1121000
19	2 pole	Point Illumination, green	yes	MSM 19 LA PI green	1241.6823.1122000
19	2 pole	Point Illumination, blue	yes	MSM 19 LA PI blue	1241.6823.1124000
19	1 pole	Ring Illumination, red, 24 VDC	yes	MSM 19 LA RI red	1241.6824.1111000
19	1 pole	Ring Illumination, green, 24 VDC	yes	MSM 19 LA RI green	1241.6824.1112000
19	1 pole	Ring Illumination, blue, 24 VDC	yes	MSM 19 LA RI blue	1241.6824.1114000
19	2 pole	Ring Illumination, red, 24 VDC	yes	MSM 19 LA RI red	1241.6824.1121000
19	2 pole	Ring Illumination, green, 24 VDC	yes	MSM 19 LA RI green	1241.6824.1122000
19	2 pole	Ring Illumination, blue, 24 VDC	yes	MSM 19 LA RI blue	1241.6824.1124000

Legend:

Type: MSM

CS = Ceramic Surface

ST = Standard: not lettered

LE = Lettering: lettered

BL = Full Surface Backlighting: Lettering possible

Customer-specific versions on request

The nut with gasket and micro switch are enclosed in the box.

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 in a bag (enclosed in the box)