**EN:** This Datasheet/Document is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

Metal Switch, Latching Action, 1- and 2-pole, Switching Voltage up to 125 VDC / 250 VAC



MSM LA19 LE RI blue

RoHS COMPLIANT

## 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, RoHS, CHINA-RoHS, e-Shop, CAD-Drawings, Product News, Detailed request for product

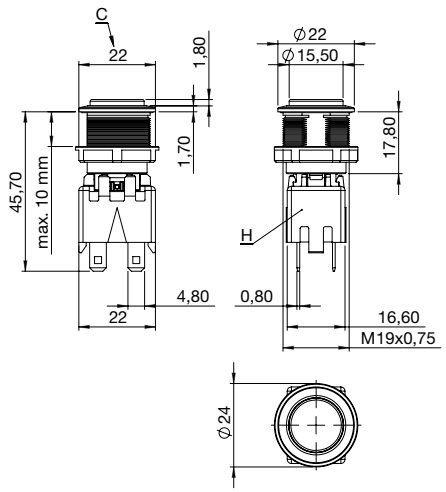
## Technical Data

| 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 | min. 30 VDC (125 VDC / 0.5 A), max. 250 VAC |
| Switching Current | max. 12 A AC |
| Rated Breaking Capacity | 3000 W |
| Lifetime | 0.05 mill. actuations (250 VAC / 8 A), 0.1 mill. 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 mill. actuations |
| Contact Gap | 3 mm |
| Shock Protection | IK 07 |
| Starting Torque Plastic Nut | 4.5 Nm for thread M19, 3.5 Nm for M22 |
| Starting Torque Stainless Steel Nut | 12 Nm for thread M19, 16 Nm for M22 |

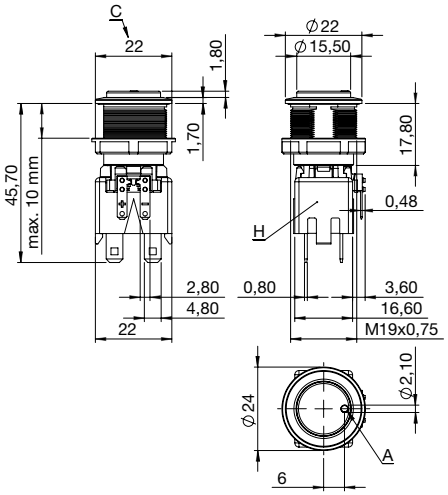
| Climatical Data | |
|---|---|
| Operating Temperature | -20 to +85 °C |
| Storage Temperature | -20 to +85 °C |
| IP-Protection | , IP 64 Frontside, IP 00 Rear Side |
| Salt Spray Test (acc. to DIN 50021-SS) | 24 h / 48 h / 96 h Residence Time |
| **Material** | |
| Housing | Stainless Steel |
| Actuator (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

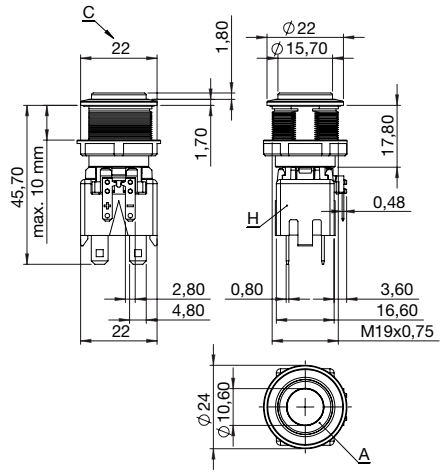
MSM 19 LA ST / LE double-pole



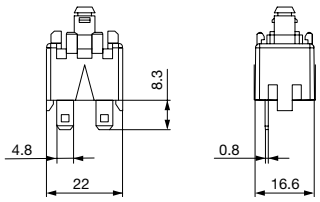

MSM 19 LA PI double-pole




MSM 19 LA RI double-pole



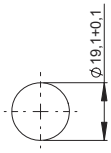

Switching Element single-pole with Push Button Holder



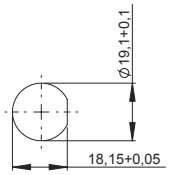

***Legend***
A = Illumination Area
C = Width Across Flats
D = Knurled Nut
H = Switching Element

## Dimensions

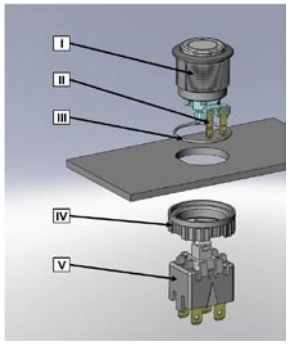
MSM 19 LA ST / MSM 19 LA RI




MSM 19 LA LE / MSM 19 LA PI / MSM 19 LA RI optional



## Mounting instructions

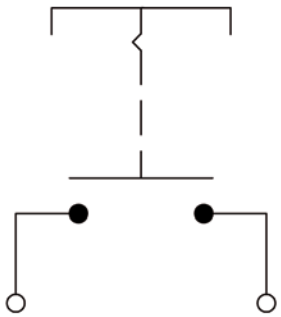



I Housing
II Flat Pin Terminal (Illumination)
III Gasket
IV Screw Nut
V Module Switching Contact

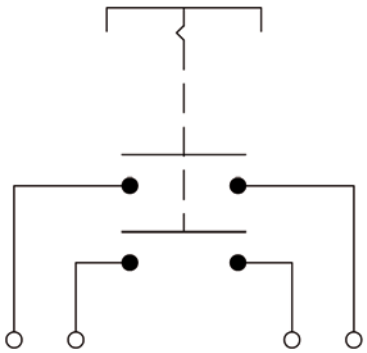
Installation Instruction:
1.) Place the gasket accurately on the actuator housing. Then mount the actuator housing assembly into the panel.
2.) Tighten the screw nut according to the torque instructions.
3.) Clasp the module switching contact into the actuator housing.
Installation information:
1.) The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

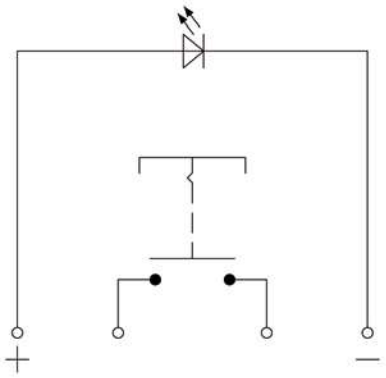
MSM LA ST / LE single-pole



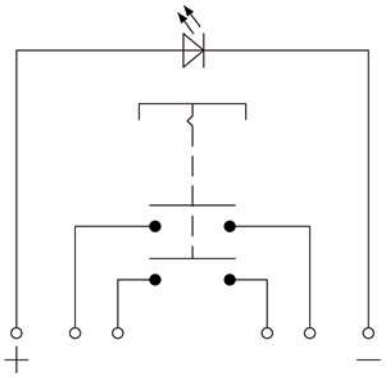
MSM LA ST / LE double-pole



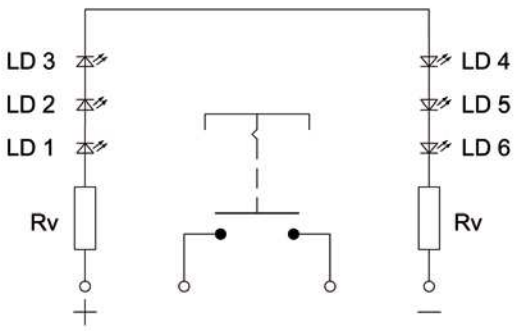
MSM LA PI single-pole



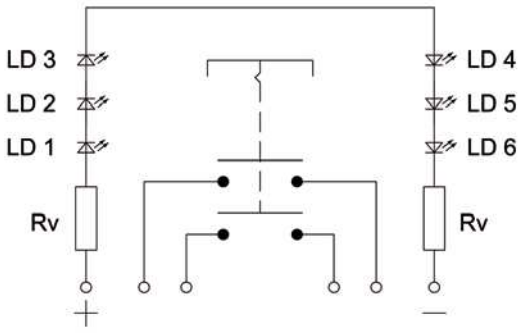
MSM LA PI double-pole



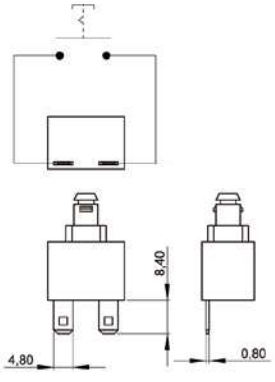
MSM LA RI single-pole



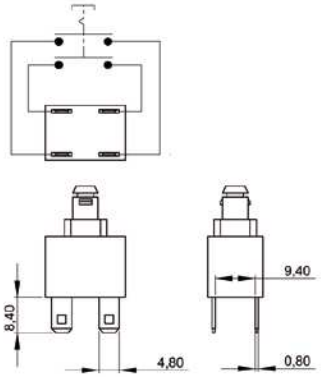

MSM LA RI double-pole




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] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 5 | | | | 12 | | | | 24 | | | |
| 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 |
| 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 |

| | |
|---|---|
| $I_D$ | 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 | Type | 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 | 1 pole | non-illuminated | yes | MSM 19 LA LE | 1241.6822.1110000 |
| 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:
ST = Standard: not lettered
LE = Lettering: lettered
PI = Point Illumination: Lettering possible
RI = Ring Illumination: Lettering possible

Customer-specific versions on request.

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

06.03.2013


SCHURTER ELECTRONIC COMPONENTS
The specifications, descriptions and illustrations indicated in this document are based on current information. All content is subject to modifications and amendments.