

## Metal Switch Short Stroke



MCS 19 painted green



MCS 19 actuator painted green



MCS 19 stainless steel

**Description**

- Switch available in version Standard, with Point Illumination, Lettering, varnished in different colours
- Assembly by mounting with nut -
- Pin connections, Pins with Soldering Aid or Clip for Pins

**Approvals**

- EMC directive 2004/108/EWG EMC directive 2004/108/EWG

**Characteristics**

- Housing and actuator material types: zinc die-cast with nickel plating or stainless steel
- Wide range of materials, colours, lettering, colours of illumination
- Switching voltage 48 VDC, switching current 125 mA
- Zinc die-cast for housing and actuator
  - For indoor use, no illumination, no lettering
- Stainless Steel for actuator
  - Optional point illumination and laser lettering with standard or customer-specific symbols
- Stainless Steel for housing and actuator
  - for use in harsh environments outdoors
- Varnished Version
  - Colour adjustments to customer housings possible, as standard: Signal colors red, green and yellow, optional: housing or actuator varnishing according to provided color specifications
  - the varnished actuators are sealed by transparent lacquer after the laser lettering

**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

Supply Voltage	LED operating data are listed in separate table
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### Contact Material Silver

Switching Voltage	min. 4 VDC , max. 48 VDC
Switching Current	max. 125 mA
Rated Breaking Capacity	1.2 W
Lifetime	1 mill. actuations at Rated Braking Capacity

Contact Resistance	< 50mΩ, < 150 mΩ after lifetime
Insulation Resistance	> 100 MΩ
Duration of Bounce	< 5 ms

### Contact Material Gold

Switching Voltage	min. 50 mVDC, max. 24 VDC
Switching Current	max. 80 mA
Rated Breaking Capacity	0.36 W
Lifetime	1 mill. actuations at Rated Braking Capacity

Contact Resistance	< 50mΩ, < 150 mΩ after lifetime
Insulation Resistance	> 100 MΩ
Duration of Bounce	< 5 ms

### Mechanical Data

Actuating Force	3.7 N
Actuating Travel	0.4 mm,
Lifetime	1 mill. actuations
Shock Protection	IK 05 ,
Starting Torque	0.4 Nm with Sealing Ring, 1.5 Nm without Sealing Ring

### Climatical Data

Operating Temperature	-20 to +60 °C
Storage Temperature	-20 to +60 °C
IP-Protection	IP 40 , IP 65 ,
Salt Spray Test (acc. to DIN 50021-SS)	24 h / 48 h / 96 h Residence Time

### Other Data

Contact Material	Ag or Au
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### Soldering Data

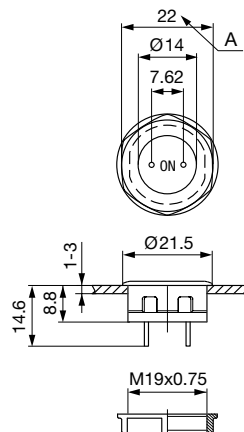
Tinning	260 °C / 2 sec according to DIN IEC 60068-2-20
Solderability	260 °C / 2 sec (IEC 68-2-20 Test Ta Method 1)
Resistance to Soldering Heat	260 °C / 5 sec (IEC 68-2-20 Test Tb Method 1A)

### Material

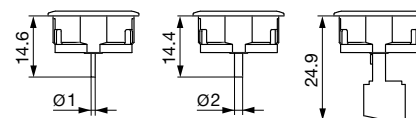
Housing	Stainless Steel 1.4305 / Zinc Die Casting Nickel Plated
Actuator unlettered	Zinc Die Casting Nickel Plated
Actuator lettered	Stainless Steel
Contact	CuZn37 2,5 μm Ag
Snap Dome	X 12 CrNi 177 gold plated
Socket	PA

## Dimensions

### MCS 19

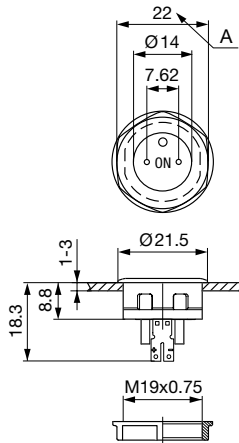


### MCS 19 Connection Versions



Drawing 1: Pins  
 Drawing 2: Pins with Soldering Aid  
 Drawing 3: Clip for Pins

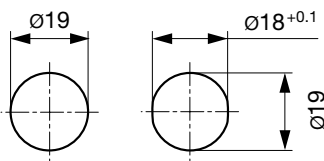
MCS 19 PI



Legend:

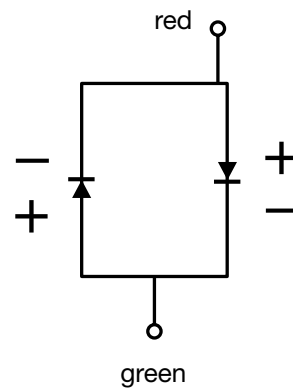
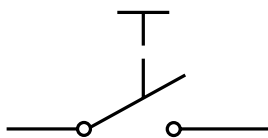
Zinc Die Casting Version:  
 x = 1 mm without sealing ring  
 x = 2 mm with sealing ring  
 Stainless Steel Version:  
 x = 1 mm without sealing ring  
 x = 1,7 mm with sealing ring

Dimensions



Diagrams

MCS 19 PI Bi-colour-LED



## Point Illumination

Operating Data	Forward Current max.	Forward Current at 10 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 yellow	30 mA	2.1 VDC	3.0 VDC
LED blue	20 mA	3.8 VDC	4.5 VDC
LED red/green	25 mA	2.0 VDC	2.5 VDC

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>DMa</sub>		U <sub>V</sub> = 5				U <sub>V</sub> = 12				U <sub>V</sub> = 24			
			U <sub>D</sub> [V]*	x [V]*	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	---	1,9	---	310	330	0,03	1010	1000	0,10	2210	2200	0,22			
	---	30	---	3,0	67	68	0,06	300	300	0,27	700	750	0,63			
green	10	---	2,1	---	290	300	0,03	990	1000	0,10	2190	2200	0,22			
	---	30	---	3,0	67	68	0,06	300	300	0,27	700	750	0,63			
Yellow	10	---	2,1	---	290	300	0,03	990	1000	0,10	2190	2200	0,22			
	---	30	---	3,0	67	68	0,06	300	300	0,27	700	750	0,63			
blue	10	---	3,8	---	120	120	0,01	820	820	0,08	2020	2200	0,20			
	---	20	---	4,5	25	27	0,01	375	390	0,15	975	1000	0,39			
red/green	10	---	2,0	---	300	300	0,03	1000	1000	0,10	2200	2200	0,22			
	---	25	---	2,5	100	100	0,06	380	390	0,24	860	910	0,54			




- I<sub>D</sub> LED-Forward Current [10mA]
- I<sub>DMax</sub> LED-Forward Current max. [20mA/25mA/30mA]
- U<sub>D</sub> LED-Forward voltage [10mA]
- U<sub>DMax</sub> LED-Forward voltage max. [20mA/25mA/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

Terminal	Kontakte	Housing Material	Actuator Material	Lettering	Illumination	Color LED	Type	Bestellnummer
Pins	Ag	Zinc Diecasting	Zinc Diecasting	without Lettering	non-illuminated	-	MCS 19 Zinc	1241.2800
Pins with Soldering Aid	Ag	Zinc Diecasting	Zinc Diecasting	without Lettering	non-illuminated	-	MCS 19 Zinc	1241.2801
Clip for Pins	Ag	Zinc Diecasting	Zinc Diecasting	without Lettering	non-illuminated	-	MCS 19 Zinc	1241.2802
Pins	Ag	Zinc Diecasting	Stainless Steel	without Lettering	non-illuminated	-	MCS 19 Zinc/Stainless Steel	1241.2805
Pins	Ag	Zinc Diecasting	Stainless Steel	with Lettering	non-illuminated	-	MCS 19 Zinc/Stainless Steel	Kopie von 1241.2805.057
Pins	Ag	Zinc Diecasting	Stainless Steel	with Lettering	non-illuminated	-	MCS 19 Zinc/Stainless Steel	1241.2805.072
Pins with Soldering Aid	Ag	Zinc Diecasting	Stainless Steel	without Lettering	non-illuminated	-	MCS 19 Zinc/Stainless Steel	1241.2806
Clip for Pins	Ag	Zinc Diecasting	Stainless Steel	without Lettering	non-illuminated	-	MCS 19 Zinc/Stainless Steel	1241.2807
Pins	Au	Zinc Diecasting	Zinc Diecasting	without Lettering	non-illuminated	-	MCS 19 Zinc	1241.2810
Clip for Pins	Au	Zinc Diecasting	Zinc Diecasting	without Lettering	non-illuminated	-	MCS 19 Zinc	1241.2812
Pins	Au	Zinc Diecasting	Stainless Steel	without Lettering	non-illuminated	-	MCS 19 Zinc/Stainless Steel	1241.2815
Clip for Pins	Au	Zinc Diecasting	Stainless Steel	without Lettering	non-illuminated	-	MCS 19 Zinc/Stainless Steel	1241.2817
Pins	Ag	Stainless Steel	Stainless Steel	without Lettering	non-illuminated	-	MCS 19 Stainless Steel	1241.2820
Pins with Soldering Aid	Ag	Stainless Steel	Stainless Steel	without Lettering	non-illuminated	-	MCS 19 Stainless Steel	1241.2821
Clip for Pins	Ag	Stainless Steel	Stainless Steel	without Lettering	non-illuminated	-	MCS 19 Stainless Steel	1241.2822
Clip for Pins	Au	Stainless Steel	Stainless Steel	without Lettering	non-illuminated	-	MCS 19 Stainless Steel	1241.2827
Pins with Soldering Aid	Ag	Stainless Steel	Stainless Steel	without Lettering	Point Illumination	red	MCS 19 PI	1241.2830

Terminal	Kontakte	Housing Material	Actuator Material	Lettering	Illumination	Color LED	Type	Bestellnummer
Pins with Soldering Aid	Ag	Stainless Steel	Stainless Steel	without Lettering	Point Illumination	green	MCS 19 PI	1241.2831
Pins with Soldering Aid	Ag	Stainless Steel	Stainless Steel	without Lettering	Point Illumination	yellow	MCS 19 PI	1241.2832
Pins with Soldering Aid	Ag	Stainless Steel	Stainless Steel	without Lettering	Point Illumination	red / green	MCS 19 PI	1241.2833
Pins with Soldering Aid	Ag	Zinc Diecasting	Stainless Steel	without Lettering	Point Illumination	red	MCS 19 PI	1241.2855
Pins with Soldering Aid	Ag	Zinc Diecasting	Stainless Steel	with Lettering	Point Illumination	red	MCS 19 PI	1241.2855.065
Pins with Soldering Aid	Ag	Zinc Diecasting	Stainless Steel	without Lettering	Point Illumination	green	MCS 19 PI	1241.2856
Pins with Soldering Aid	Ag	Zinc Diecasting	Stainless Steel	without Lettering	Point Illumination	yellow	MCS 19 PI	1241.2857
Pins with Soldering Aid	Ag	Zinc Diecasting	Stainless Steel	without Lettering	Point Illumination	red / green	MCS 19 PI	1241.2858
Pins with Soldering Aid	Ag	Zinc Diecasting	Stainless Steel	without Lettering	Point Illumination	blue	MCS 19 PIPi	1241.2859
Pins with Soldering Aid	Ag	Zinc Diecasting, varnished	Stainless Steel	without Lettering	non-illuminated	-	MCS 19 Housing Varnished	1241.2874.5

Order numbers MCS 19, varnished versions (Colour of the switch housing or the actuator): 1241.28XX.A => A = 1 (yellow) / 3 (red) / 5 (green)

Order numbers MCS 19, illuminated versions (Point Illumination): 1241.2876.A.XXX.B and respectively 1241.2880.A.XXX.B => B = 1 (red) / 2 (green) / 3 (yellow) / 4 (blue) / 5 (red-green)

For Lettering versions see tables "Lettering" and "Order Index Lettering" to determine the symbol

**Packaging unit** 20 blistered in boxes (with connecting terminal 10 pcs.)

## Accessories

### Description



Connecting Terminal MCS 19  
Connecting Terminal for MCS 19