

## Metal Switch Short Stroke



Non-illuminated  
Actuator stainless steel



Point Illumination  
red / green  
Actuator stainless steel



Non-illuminated  
Actuator zinc die-cast

See below:

### Approvals and Compliances

#### Description

- Momentary action switch available in version Standard, with Point Illumination, Lettering
- Assembly by mounting with nut
- Pin connections, Pins with Soldering Aid or Clip for Pins

#### Unique Selling Proposition

- Very low mounting depth
- High ingress protection IP67
- Resistant against vandalism
- Long lifetime

#### Characteristics

- Housing zinc die-cast with nickel plating and two actuator material types: zinc die-cast with nickel plating or stainless steel
- Wide range of materials, colours, lettering, colours of illumination
- Switching voltage max. 48 VDC, switching current max. 125 mA
- Zinc die-cast for housing and actuator  
With or without illumination, no lettering
- Stainless Steel for actuator  
Optional point illumination and optional laser lettering with standard or customer-specific symbols

#### References

Alternative: Other diameter [MCS 19](#)

#### Weblinks

[pdf data sheet](#), [html datasheet](#), [General Product Information](#), [CAD-Drawings](#), [Product News](#), [Detailed request for product](#)

#### Technical Data

##### Electrical Data

Switching Function	N.O.
Supply Voltage	LED operating data are listed in separate table
Impulse Withstand Voltage (ESD)	8 kV with Ring Illumination

##### Contact Material Silver

Switching Voltage	min. 4 VDC , max. 48 VDC
Switching current	max. 125 mA
Rated Switching Capacity	1.2 W
Lifetime	1 million actuations at Rated Switching Capacity
Contact Resistance	< 50mΩ, < 150 mΩ after lifetime
Insulation Resistance	> 100 MΩ
Duration of Bounce	< 1 ms

##### Contact Material Gold

Switching Voltage	min. 50 mVDC, max. 24 VDC
Switching current	max. 80 mA
Rated Switching Capacity	0.36 W
Lifetime	1 million actuations at Rated Switching Capacity
Contact Resistance	< 50mΩ, < 150 mΩ after lifetime
Insulation Resistance	> 100 MΩ
Duration of Bounce	< 1 ms

##### Mechanical Data

Actuating Force	Max. 5 N
Actuating Travel	Max. 0.4 mm
Lifetime	1 million actuations
Shock Protection	IK06
Mounting screw 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
Protection Class	IP67 with O-Ring
Salt Spray Test (acc. to DIN 50021-SS)	24 h / 48 h / 96 h Residence Time

##### Other Data

Contact Material	Ag / 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 60068-2-20 Test Ta Method 1)
Resistance to Soldering Heat	260 °C / 5 sec (IEC 60068-2-20 Test Tb Method 1A)

##### Material

Housing	Zinc Die Casting Nickel Plated
Actuator unlettered	Zinc Die Casting Nickel Plated
Actuator lettered	Stainless Steel 1.4301
Contact	CuZn37 2,5 µm Ag
Snap Dome	X 12 CrNi 177 gold plated
Socket	PA



#### Approvals and Compliances

Detailed information on product approvals, code requirements, usage instructions and detailed test conditions can be looked up in [Details about Approvals](#)

SCHURTER products are designed for use in industrial environments. They have approvals from independent testing bodies according to national and international standards. Products with specific characteristics and requirements such as required in the automotive sector according to IATF 16949, medical technology according to ISO 13485 or in the aerospace industry can be offered exclusively with customer-specific, individual agreements by SCHURTER.



Application standards

Application standards where the product can be used

Organization	Design	Standard	Description
	Suitable for applications acc.	EMC Directive:	EMC directive 2004/108/EWG
	Suitable for applications acc.	IEC/UL 62368-1	Audio/video, information and communication technology equipment - Part 1: Safety requirements

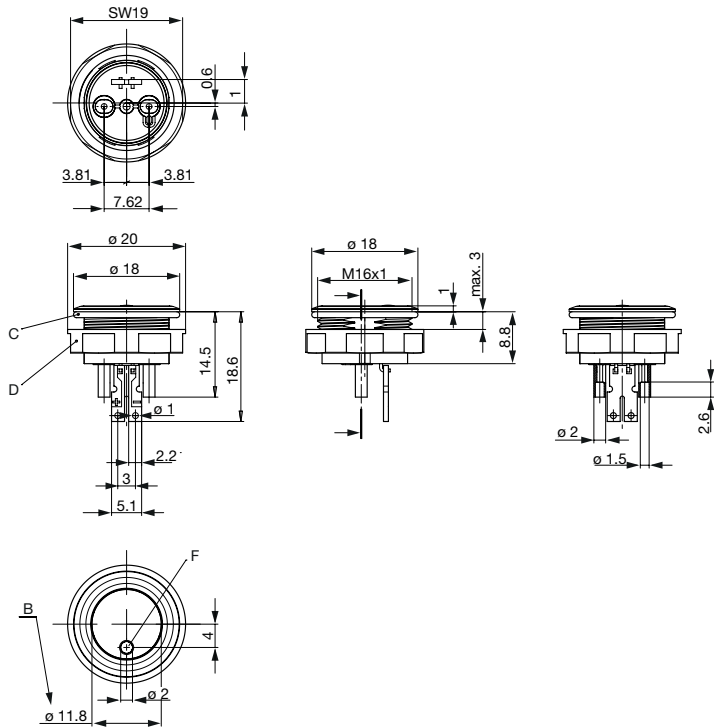
Compliances

The product complies with following Guide Lines

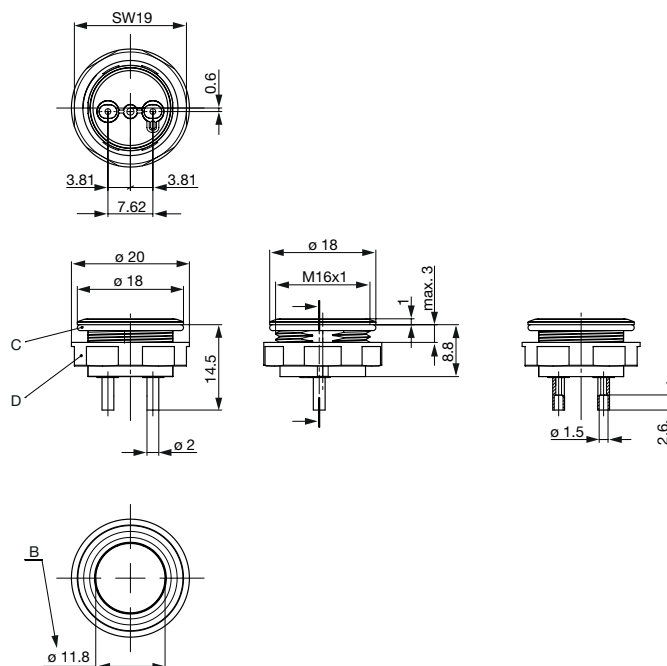
Identification	Details	Initiator	Description
	RoHS	SCHURTER AG	Directive RoHS 2011/65/EU, Amendment (EU) 2015/863
	REACH	SCHURTER AG	On 1 June 2007, Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals 1 (abbreviated as "REACH") entered into force.

Dimension [mm]

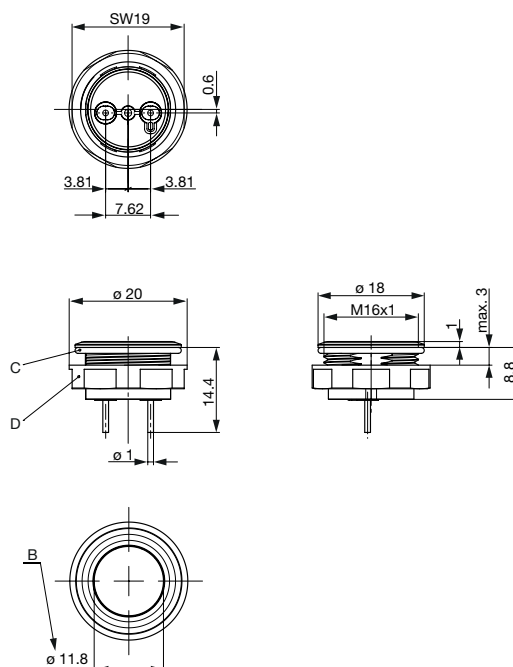
MCS 16 PI



**MCS 16 with soldering aid**



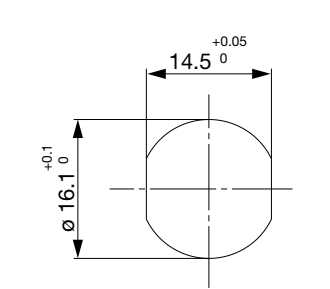
**MCS 16 with pins**



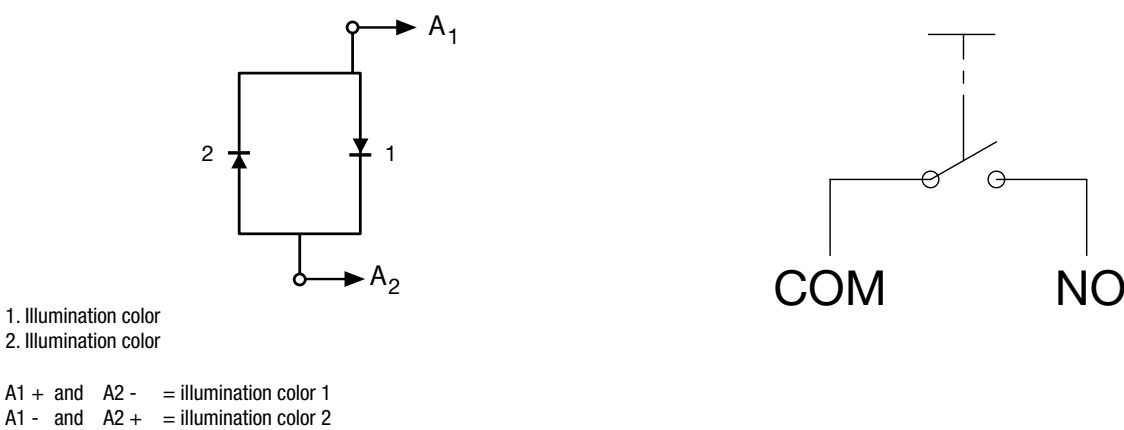
**Legend**

B = Actuating Area  
 C = Sealing  
 D = Nut  
 F = Point illumination

Dimension



Diagrams



Point Illumination

Operating Data	Forward Current max.	Forward Voltage at 10 mA	Forward Voltage max.
LED Colour 1: red/ Colour 2: 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>D</sub> [V]*	U <sub>DMa</sub> x [V]*	U <sub>V</sub> [V]	R <sub>V</sub> [Ω]	R <sub>V</sub> <sup>E24</sup> [Ω]	P <sub>V</sub> [W]**	U <sub>V</sub> [V]	R <sub>V</sub> [Ω]	R <sub>V</sub> <sup>E24</sup> [Ω]	P <sub>V</sub> [W]**	U <sub>V</sub> [V]	R <sub>V</sub> [Ω]	R <sub>V</sub> <sup>E24</sup> [Ω]	P <sub>V</sub> [W]
red	10	---	1,9	---	5	310	330	0,03	12	1010	1000	0,10	24	2210	2200	0,22
	---	30	---	3,0		67	68	0,06		300	300	0,27		700	750	0,63
	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
green	10	---	2,1	---	5	290	300	0,03	12	990	1000	0,10	24	2190	2200	0,22
	---	30	---	3,0		67	68	0,06		300	300	0,27		700	750	0,63
Yellow	10	---	2,1	---	5	290	300	0,03	12	990	1000	0,10	24	2190	2200	0,22
	---	30	---	3,0		67	68	0,06		300	300	0,27		700	750	0,63
blue	10	---	3,8	---	5	120	120	0,01	12	820	820	0,08	24	2020	2200	0,20
	---	20	---	4,5		25	27	0,01		375	390	0,15		975	1000	0,39
red/green	10	---	2,0	---	5	300	300	0,03	12	1000	1000	0,10	24	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>DMa</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 Colour of Laser Lettering

Material	Lettering Colour	
Stainless Steel	black	Filled letters

## Order Index Lettering

Laser Marking			
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	077 = 
018 =R	038 =-	058 =ENTER	
019 =S	039 =.	059 =BACK	
020 =T	040 =x	060 =LINE	
Please note that the font size depends on the number of characters			

## Variants

Terminal	Contact	Housing Material	Actuator Material	Varnish	Illumination	Color LED	Config. Code	Order Number
Pins	Au	Zinc Diecasting	Zinc Diecasting	-	non-illuminated	-	MCS 16	3-109-081
Pins with Solde- ring Aid	Ag	Zinc Diecasting	Zinc Diecasting	-	Point Illumination	red / green	MCS 16	3-109-091
Pins	Ag	Zinc Diecasting	Zinc Diecasting	-	non-illuminated	-	MCS 16	3-109-092
Pins with Solde- ring Aid	Ag	Zinc Diecasting	Zinc Diecasting	-	non-illuminated	-	MCS 16	3-109-095
Pins with Solde- ring Aid	Ag	Zinc Diecasting	Stainless Steel	-	non-illuminated	-	MCS 16	3-109-096
Pins with Solde- ring Aid	Ag	Zinc Diecasting	Stainless Steel	-	Point Illumination	red / green	MCS 16	3-109-100

For Lettering versions see table "Order Index Lettering" to determine the symbol

Nut with gasket are enclosed in the box.

Availability for all products can be searched real-time: <https://www.schurter.com/en/info-center/support-tools/stock-check-distributors>

**Packaging unit**

20 in box with insert



- Actuating elements in ESD safe packaging
- Screw nuts and sealing O-ring in a bag (enclosed in the box)

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Schurter:

[3-109-095](#) [3-109-096](#) [3-109-100](#) [3-109-081](#) [3-109-091](#) [3-109-092](#)