

## Magnetic Switches

Magnetic switches are used for monitoring the position of automation components. They detect the approach of a magnet without contact and, above a certain switching threshold, enable their output.



### Function description

Magnetic switches react to magnetic fields. The resistors in the sensor consist of several ferromagnetic and non-magnetic layers. Two shielded and two non-shielded resistors are combined in a bridge circuit, which produces a signal proportional to the magnetic field when one is present. Above a threshold value, an output signal is switched via a comparator, and the sensor reacts.

### Your advantages and benefits

#### Installation in the sensor slot

for space-saving, simple and fast assembly

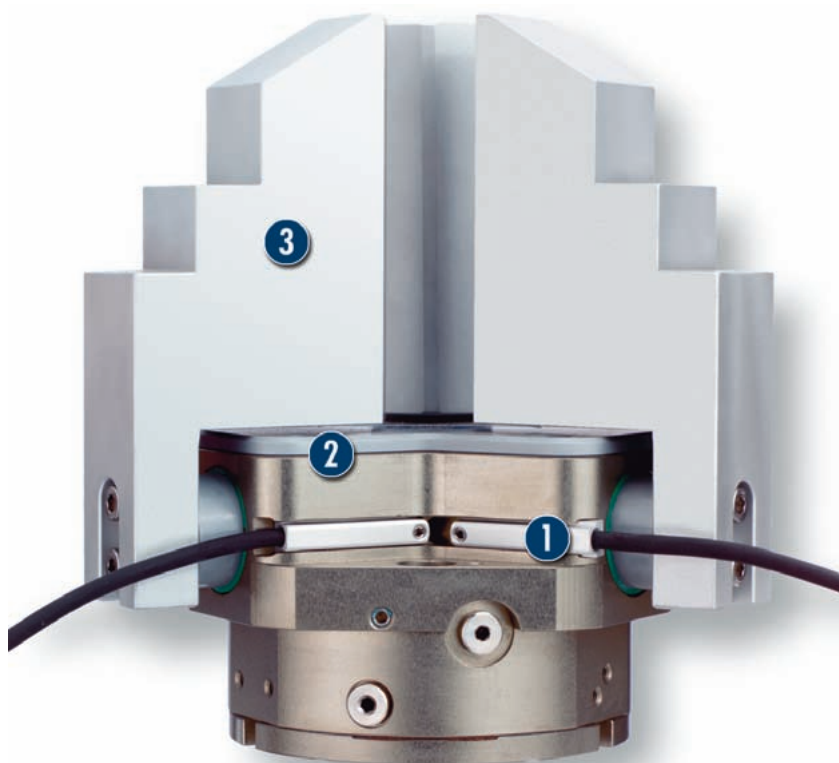
#### Version with LED display (MMS 22)

for checking the switching position directly at the sensor

#### Version with connector

for easy, rapid replacement of the extension cable

## Application example



**1** MMS Electronic Magnetic Switches for mounting in the C-slot of the gripper

**2** Sealed 3-Finger Centric Gripper

**3** Workpiece-specific Gripper Fingers

## Area of application

For use in the monitoring of gripping and rotary modules, linear modules and robot accessories. Magnetic switches from SCHUNK detect metals without contact or wear and are resistant to vibration, dust and humidity. Magnetic switches are fitted in slots and therefore do not form any additional interfering contours.

## General information

### Material

Sensor housing: PA in the MMS 22, aluminum in the MMS 30  
Cable: with PUR sheathing

### Mounting

Clamps in the sensor slot

### Protection class to DIN 40050

IP 67 when connected

### Voltage

10 – 30 V DC at < 10 % residual ripple

### Switching method

PNP switching / NPN switching

### Warranty

24 months

## Notes

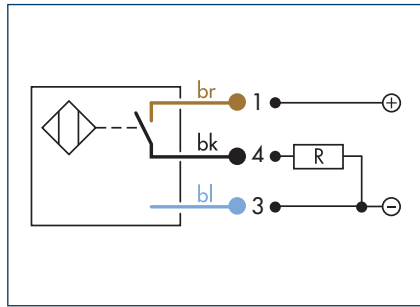
SCHUNK gripper, rotary and linear modules and robot accessory components that are to be monitored with electromagnetic slot-fitted switches can generally only be reliably monitored with the appropriate electromagnetic switches from SCHUNK.

Sensors and products are matched on the basis of the relationships between the parameters type and field strength of the magnet, distance, wall thickness and wall material of the magnet and the sensor, and the orientation and sensitivity of the sensor itself.

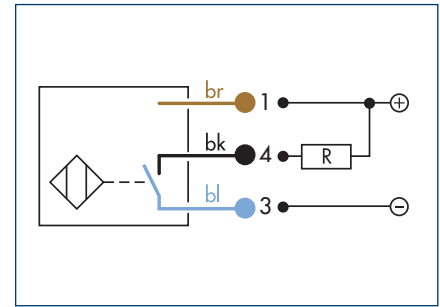
For this reason, sensors from other manufacturers employed in SCHUNK products rarely give satisfactory switching results.



### Circuit diagram of closer



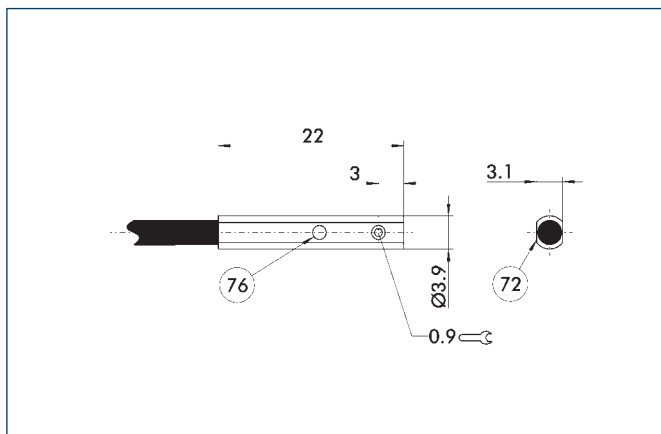
### Circuit diagram of NPN closer



## Technical data

Description	MMS 22-S-M5-PNP	MMS 22-S-M5-NPN	MMS 22-S-M8-PNP	MMS 22-S-M8-NPN	MMSK 22-S-PNP	MMSK 22-S-NPN	
	ID	0301454	0301455	0301450	0301451	0301452	0301453
Switching function	Closer	Closer	Closer	Closer	Closer	Closer	
Switching method	PNP	NPN	PNP	NPN	PNP	NPN	
Cable length	[cm]	30.0	30.0	30.0	30.0	200.0	200.0
Cable connector/cable end	M5	M5	M8	M8	Open wire	Open wire	
Type of voltage	DC	DC	DC	DC	DC	DC	
Nominal voltage	[V]	24.0	24.0	24.0	24.0	24.0	24.0
Min. voltage	[V]	10.0	10.0	10.0	10.0	10.0	10.0
Max. voltage	[V]	30.0	30.0	30.0	30.0	30.0	30.0
Voltage drop	[V]	1.5	1.5	1.5	1.5	1.5	1.5
Max. power on contact	[A]	0.2	0.2	0.2	0.2	0.2	0.2
Min. ambient temperature	[°C]	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Max. ambient temperature	[°C]	70.0	70.0	70.0	70.0	70.0	70.0
Typical switching time	[s]	0.001	0.001	0.001	0.001	0.001	0.001
IP rating (sensor)		67	67	67	67	67	67
IP rating (connector, plugged in)		67	67	67	67	67	67
LED display on sensor		Yes	Yes	Yes	Yes	Yes	Yes
Cable diameter	[mm]	2.1	2.1	2.1	2.1	2.1	2.1
Min. bending radius (dynamic)	[mm]	21.0	21.0	21.0	21.0	21.0	21.0
Min. bending radius (static)	[mm]	10.5	10.5	10.5	10.5	10.5	10.5
No. of wires		3	3	3	3	3	3
Wire cross section	[mm <sup>2</sup> ]	0.14	0.14	0.14	0.14	0.14	0.14

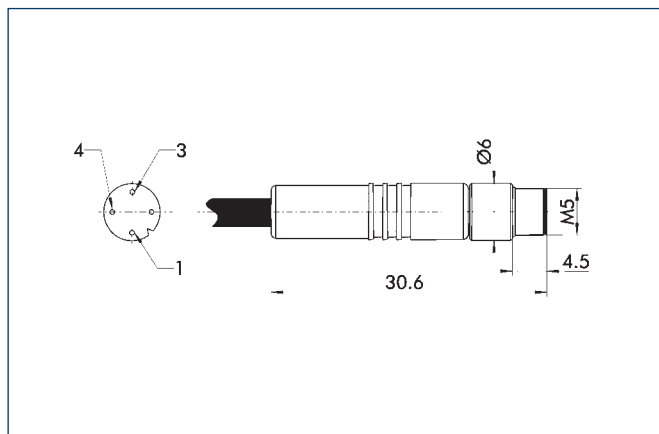
## MMS 22 sensor



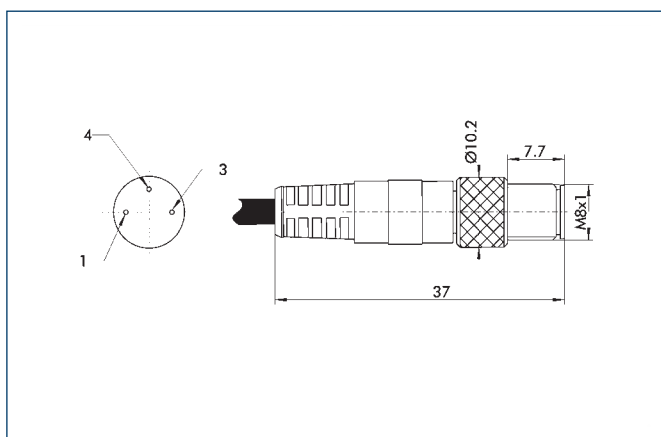
72 Active sensor surface

76 LED

## M5 connector

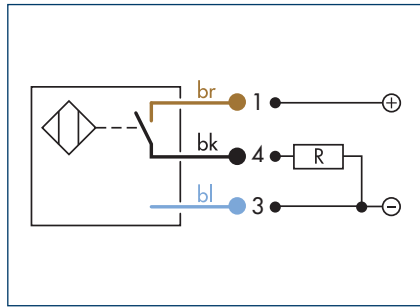


## M8 connector

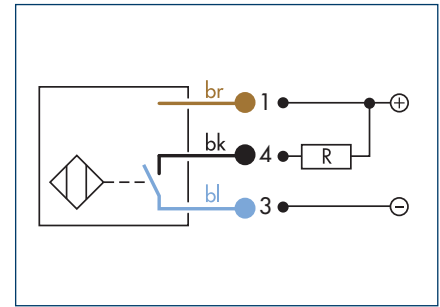




### Circuit diagram of closer



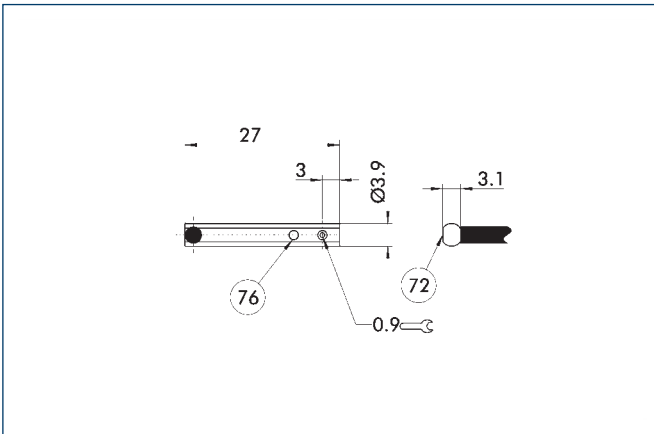
### Circuit diagram of NPN closer



## Technical data

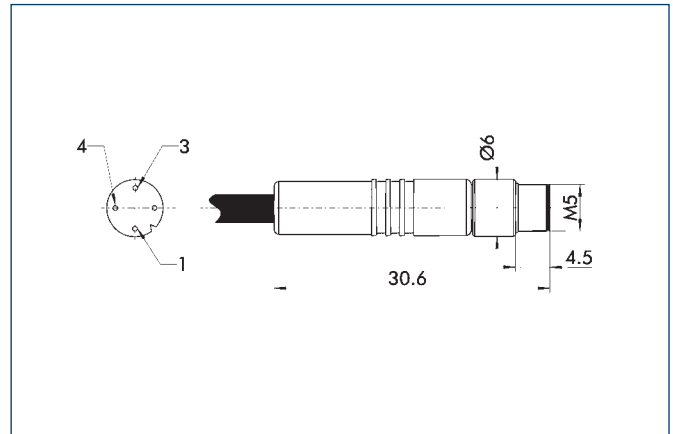
Description	MMS 22-S-M5-PNP-SA	MMS 22-S-M5-NPN-SA	MMS 22-S-M8-PNP-SA	MMS 22-S-M8-NPN-SA	MMSK 22-S-PNP-SA	MMSK 22-S-NPN-SA	
	ID	0301460	0301461	0301456	0301457	0301458	0301459
Switching function		Closer	Closer	Closer	Closer	Closer	Closer
Switching method		PNP	NPN	PNP	NPN	PNP	NPN
Cable length	[cm]	30.0	30.0	30.0	30.0	200.0	200.0
Cable connector/cable end		M5	M5	M8	M8	Open wire	Open wire
Type of voltage		DC	DC	DC	DC	DC	DC
Nominal voltage	[V]	24.0	24.0	24.0	24.0	24.0	24.0
Min. voltage	[V]	10.0	10.0	10.0	10.0	10.0	10.0
Max. voltage	[V]	30.0	30.0	30.0	30.0	30.0	30.0
Voltage drop	[V]	1.5	1.5	1.5	1.5	1.5	1.5
Max. power on contact	[A]	0.2	0.2	0.2	0.2	0.2	0.2
Min. ambient temperature	[°C]	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Max. ambient temperature	[°C]	70.0	70.0	70.0	70.0	70.0	70.0
Typical switching time	[s]	0.001	0.001	0.001	0.001	0.001	0.001
IP rating (sensor)		67	67	67	67	67	67
IP rating (connector, plugged in)		67	67	67	67	67	67
LED display on sensor		Yes	Yes	Yes	Yes	Yes	Yes
Cable diameter	[mm]	2.1	2.1	2.1	2.1	2.1	2.1
Min. bending radius (dynamic)	[mm]	21.0	21.0	21.0	21.0	21.0	21.0
Min. bending radius (static)	[mm]	10.5	10.5	10.5	10.5	10.5	10.5
No. of wires		3	3	3	3	3	3
Wire cross section	[mm <sup>2</sup> ]	0.14	0.14	0.14	0.14	0.14	0.14

## MMS 22-SA sensor



- 72 Active sensor surface
- 76 LED

## M5 connector



## M8 connector

