

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

for checking the switching position directly at the sensor

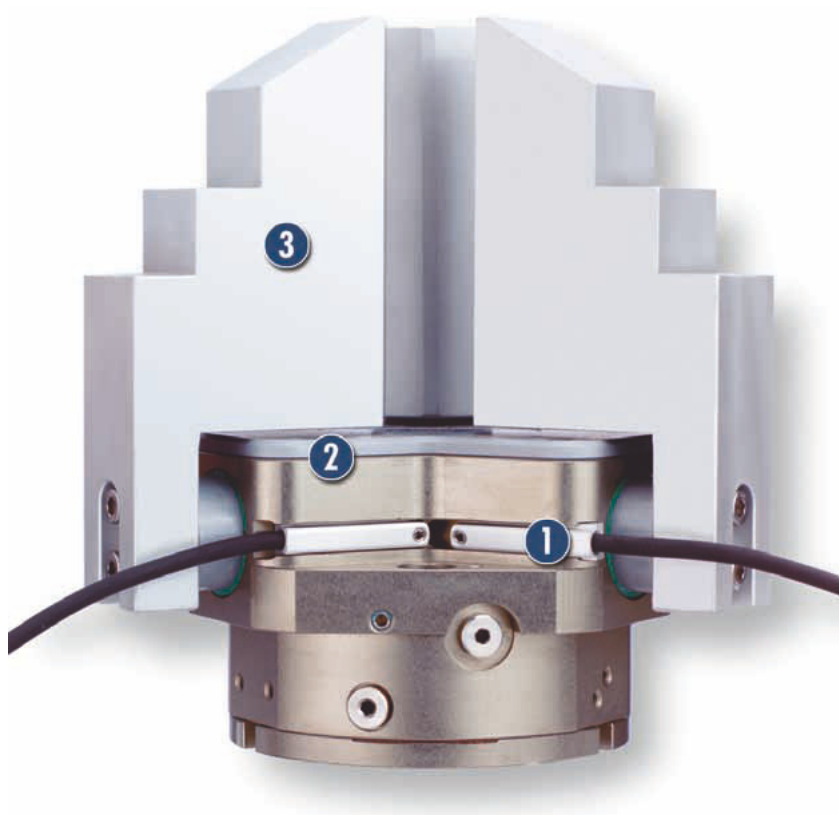
Version with connector

for easy, rapid replacement of the extension cable

Ultra-flexible PUR cable

for a long life and resistance to many chemicals

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 sheath

Fastening

Clamps in the sensor slot

Protection class according to DIN 40050

IP 67 in connected condition for use in clean or dusty environments or in the event of contact with water. Contact with other media (cooling lubricants, acidic or caustic substances, etc.) frequently does not impair the function, but this cannot be guaranteed by SCHUNK.

Voltage

10 – 30 V DC at < 10 % residual ripple

Switching method

PNP switching / NPN switching

Warranty

24 months (details, general terms and conditions and operating manuals can be downloaded under www.schunk.com)

Notes

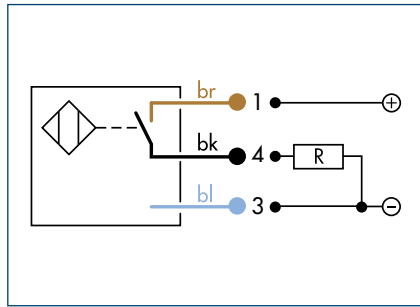
SCHUNK gripper, rotary and linear modules and robot accessory components that are to be monitored with electromagnetic slot-fitted switches can generally only be reliably monitored with the appropriate electromagnetic switches from SCHUNK.

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.

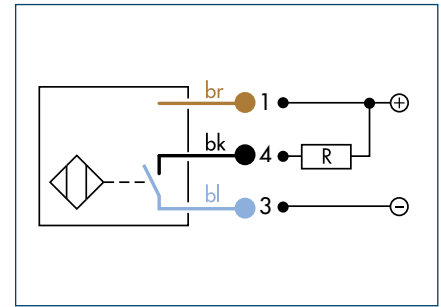
For this reason, sensors from other manufacturers employed in SCHUNK products rarely give satisfactory switching results.



Circuit diagram of PNP closer



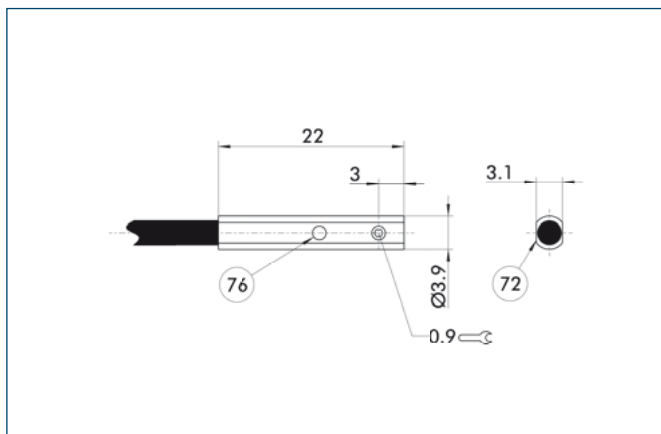
Circuit diagram of NPN closer



Technical data

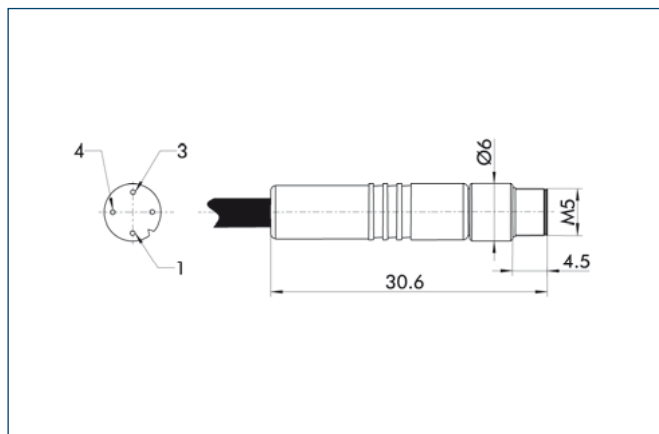
Description	MMS 22-S-M5-PNP	MMS 22-S-M5-NPN	MMS 22-S-M8-PNP	MMS 22-S-M8-NPN	MMSK 22-S-PNP	MMSK 22-S-NPN
ID	0301438	0301439	0301432	0301433	0301434	0301435
Switching function	Closer	Closer	Closer	Closer	Closer	Closer
Switching method	PNP	NPN	PNP	NPN	PNP	NPN
Cable length [cm]	30.0	30.0	30.0	30.0	200.0	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 class (sensor)	67	67	67	67	67	67
IP class (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 ²]	0.14	0.14	0.14	0.14	0.14	0.14

MMS 22 sensor

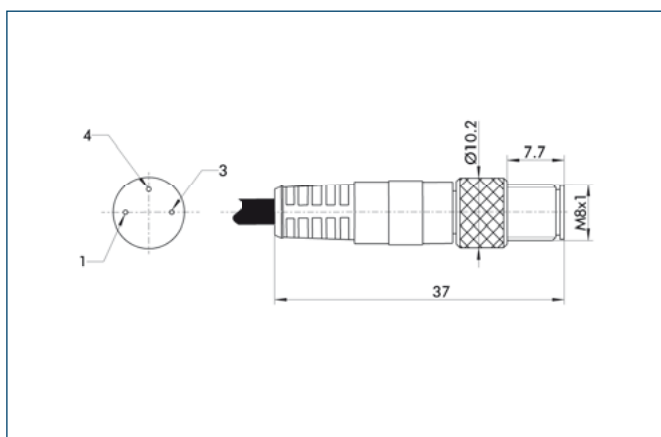


- 72 Active sensor surface
- 76 LED

M5 connector

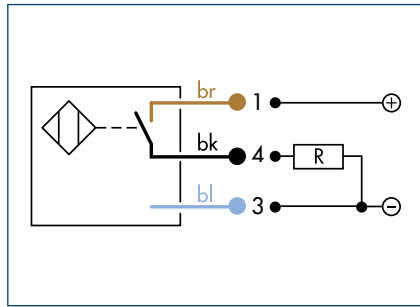


M8 connector

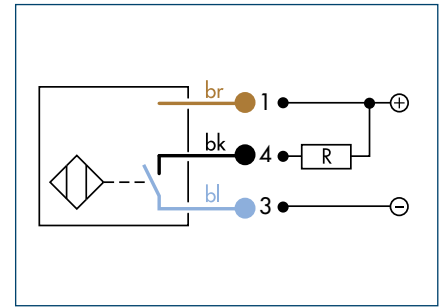




Circuit diagram of PNP closer



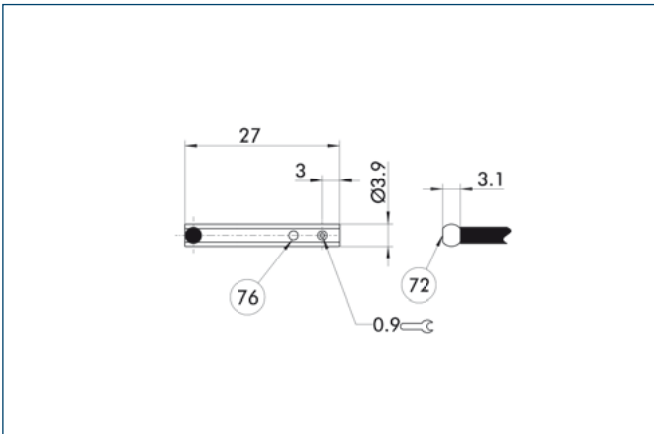
Circuit diagram of NPN closer



Technical data

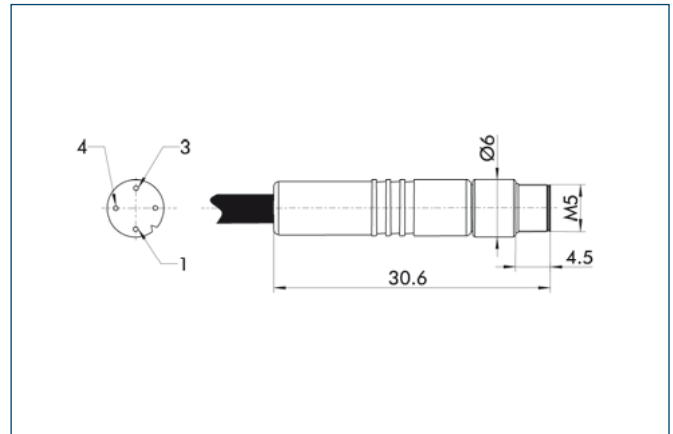
Description	MMS 22-S-M5-PNP-SA	MMS 22-S-M5-NPN-SA	MMS 22-S-M8-PNP-SA	MMS 22-S-M8-NPN-SA	MMSK 22-S-PNP-SA	MMSK 22-S-NPN-SA
ID	0301448	0301449	0301442	0301443	0301444	0301445
Switching function	Closer	Closer	Closer	Closer	Closer	Closer
Switching method	PNP	NPN	PNP	NPN	PNP	NPN
Cable length [cm]	30.0	30.0	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 class (sensor)	67	67	67	67	67	67
IP class (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 ²]	0.14	0.14	0.14	0.14	0.14	0.14

MMS 22-SA sensor

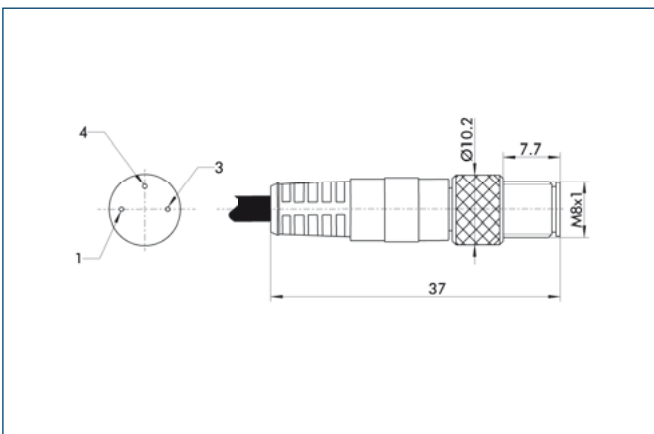


- 72 Active sensor surface
- 76 LED

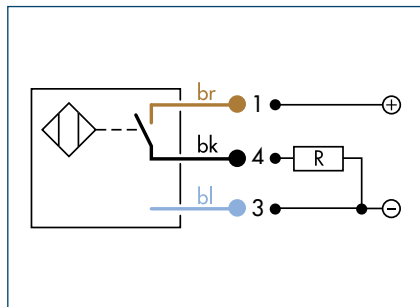
M5 connector



M8 connector



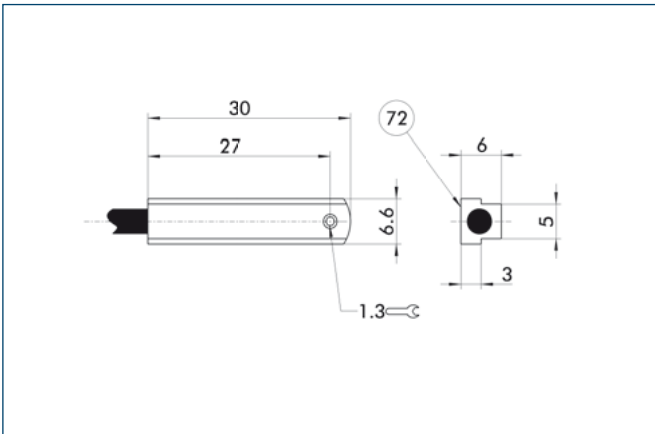
Circuit diagram of PNP closer



Technical data

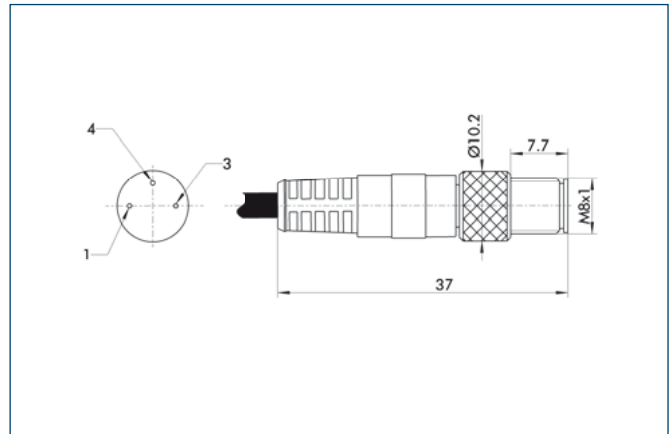
Description	MMS 30-S-M8-PNP	MMS 30-S-M12-PNP	MMSK 30-S-PNP
ID	0301471	0301571	0301563
Switching function	Closer	Closer	Closer
Switching method	PNP	PNP	PNP
Cable length [cm]	30.0	30.0	200.0
Cable connector/cable end	M8	M12	Open wire
Type of voltage	DC	DC	DC
Nominal voltage [V]	24.0	24.0	24.0
Min. voltage [V]	10.0	10.0	10.0
Max. voltage [V]	30.0	30.0	30.0
Voltage drop [V]	1.5	1.5	1.5
Max. power on contact [A]	0.2	0.2	0.2
Min. ambient temperature [°C]	-25.0	-25.0	-25.0
Max. ambient temperature [°C]	70.0	70.0	70.0
Typical switching time [s]	0.001	0.001	0.001
IP class (sensor)	67	67	67
IP class (connector, plugged in)	67	67	67
LED display on sensor	No	No	No
Cable diameter [mm]	3.5	3.5	3.5
Min. bending radius (dynamic) [mm]	35.0	35.0	35.0
Min. bending radius (static) [mm]	17.5	17.5	17.5
No. of wires	3	3	3
Wire cross section [mm ²]	0.14	0.14	0.14

MMS 30 sensor



72 Active sensor surface

M8 connector



M12 connector

