

Superior Clamping and Gripping

Product Information

Programmable magnetic switches MMS 22-PI2

Programmable. Precise. Easy assembly.

Programmable magnetic switch MMS 22-PI2

A magnetic switch is used to monitor the status of automation components. They detect the approach of a magnet without contact and above a certain switching value, they put out a digital value. The switching value can be programmed.

Field of application

Used for monitoring gripping and rotary modules, as well as linear modules, and robot accessories. Magnetic switches from SCHUNK detect magnets without contact or wear, and are resistant to vibrations, dust and humidity. Magnetic switches are installed in slots, and thus do not produce any additional interfering contours. For connection with a digital input module (utilization categorie DC-12).



Advantages – Your benefits

Individual switching point - without interfering contours
The magnetic switch can be completely inserted, which means that no interfering contours arise due to overhanging sensor systems

Programmable within no time due to non-contact adjustment of the switching points and hysteresis

Adjustable hysteresis for precise position monitoring – even at very low strokes

Suitable for narrow installation spaces due to wired teaching with TeachTool plug

Version with LED display for control of the switching position directly at the sensor

Version with standard plug connector for fast and easy exchangeability of the extension cable

Very flexible cable in PUR version for a long service life

Installation into the sensor groove for space-saving, easy, and fast assembly on the product

Options and special information

High protection class: IP67 when plugged in, for use in clean or dusty environments or in case of contact with water. Operability in case of contact with other media (coolant, acids, bases, etc.) is often given, however cannot be guaranteed by SCHUNK.

Power supply: 10 – 30 V DC at < 10% residual ripple

Sources of interference: Sensors can be influenced by other magnetic fields in the immediate vicinity. Disturbing magnetic fields can be generated by motors, electric welders, permanent magnets or magnetized material (so-called soft magnets) such as hexagon socket wrenches, chips, etc.

Application example



① **Actuator** ② **MMS 22-PI2 C-slot sensor** ③ **Cable-based teaching tool ST**

SCHUNK offers more ...

The following components make the product even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.


Plug teaching tool


Sensor cables


Y distributor


Sensor distributor

ⓘ For more information on these products can be found on the following product pages or at schunk.com.

MMS 22-PI2

Programmable magnetic switches

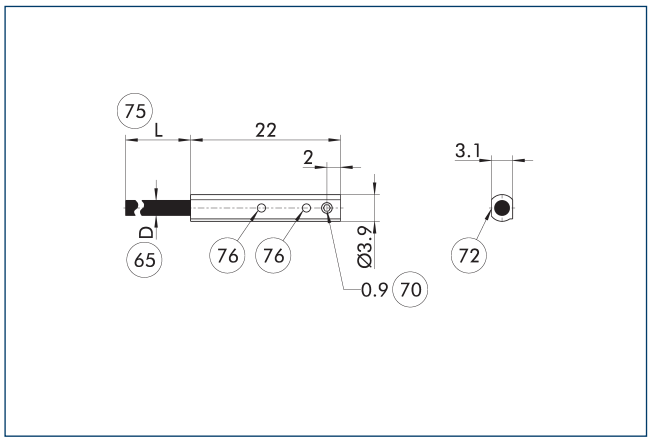


Technical data

Description		MMS 22-PI2-S-M8-PNP	MMS 22-PI2-S-M8-NPN	MMSK 22-PI2-S-PNP	MMSK 22-PI2-S-NPN
ID		0301180	0301181	0301182	0301183
Principle of function					
Measuring principle		magnetic	magnetic	magnetic	magnetic
Switching function		Closer	Closer	Closer	Closer
Type of switching		PNP	NPN	PNP	NPN
Number of switching points		2	2	2	2
Teach function		yes	yes	yes	yes
General data					
typical switching time	[s]	0.001	0.001	0.001	0.001
Max. switching frequency	[Hz]	1000	1000	1000	1000
Min./max. ambient temperature	[°C]	-20/80	-20/80	-20/80	-20/80
LED display in sensor		yes	yes	yes	yes
Electrical operating data					
Type of voltage		DC	DC	DC	DC
Nominal voltage	[V]	24	24	24	24
Min./max. operating voltage	[V]	10/30	10/30	10/30	10/30
Voltage drop	[V]	2	2	2	2
Max. switching current	[mA]	25	25	25	25
Short circuit protection		yes	yes	yes	yes
Protected against polarity reversal		yes	yes	yes	yes
Mechanical operating data					
Housing material		PA	PA	PA	PA
Cable connector/cable end		M8, 4-pin Male Connector	M8, 4-pin Male Connector	open wire strands	open wire strands
Cable length L	[cm]	31	31	200	200
Cable diameter D	[mm]	2.55	2.55	2.55	2.55
Cable design (wire cross section / number of wires)		4x 0,05mm2	4x 0,05mm2	4x 0,05mm2	4x 0,05mm2
Cable sheath material		PUR	PUR	PUR	PUR
Min. bending radius (dynamic)	[mm]	25.5	25.5	25.5	25.5
Min. bending radius (static)	[mm]	12.75	12.75	12.75	12.75
Weight	[kg]	0.01	0.01	0.04	0.04
Protection class IP (sensor, plugged)		67	67	67	67
Protection class		III	III	III	III
Drilling emulsion resistance *		yes	yes	yes	yes
Options and their characteristics					
Version with lateral cable outlet		MMS 22-PI2-S-M8-PNP-SA	MMS 22-PI2-S-M8-NPN-SA	MMSK 22-PI2-S-PNP-SA	MMSK 22-PI2-S-NPN-SA
ID		0301186	0301187	0301188	0301189
LED display in sensor		yes	yes	yes	yes
Heavy duty version		MMS 22-PI2-S-M8-PNP-HD	MMS 22-PI2-S-M8-NPN-HD	MMSK 22-PI2-S-PNP-HD	MMSK 22-PI2-S-NPN-HD
ID		0301130	0301131	0301132	0301133
Housing material		stainless steel	stainless steel	stainless steel	stainless steel
Drilling emulsion resistance *		yes	yes	yes	yes

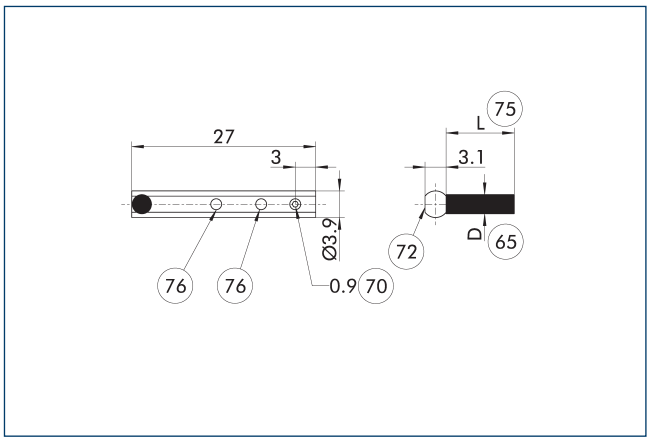
* Tested cutting emulsions: r.rhenus TU 43P, Motorex Swisscool Magnum UX 550 and Oemeta 760 (1008339).

MMS(K) 22-PI2 main view



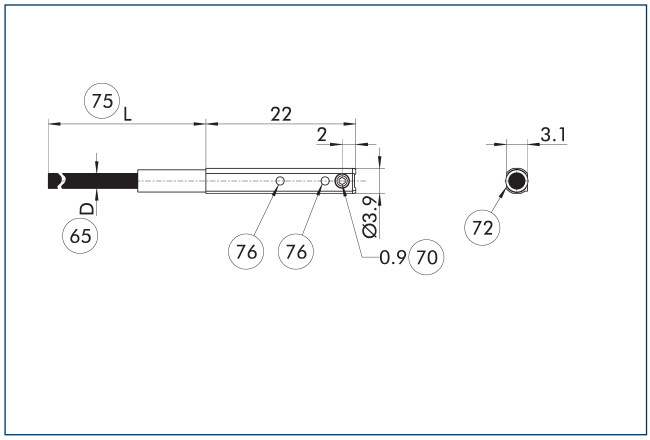
65 Cable diameter
70 Wrench size
72 Active sensor surface
75 Cable length
76 LED

MMS(K) 22-PI2-SA main view



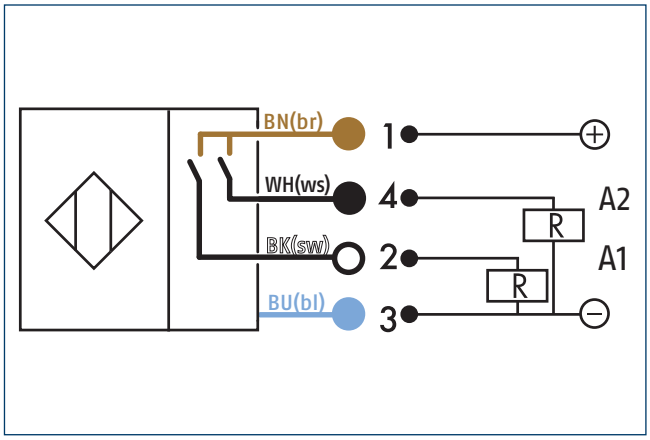
65 Cable diameter
70 Wrench size
72 Active sensor surface
75 Cable length
76 LED

MMS(K) 22-PI2-HD main view

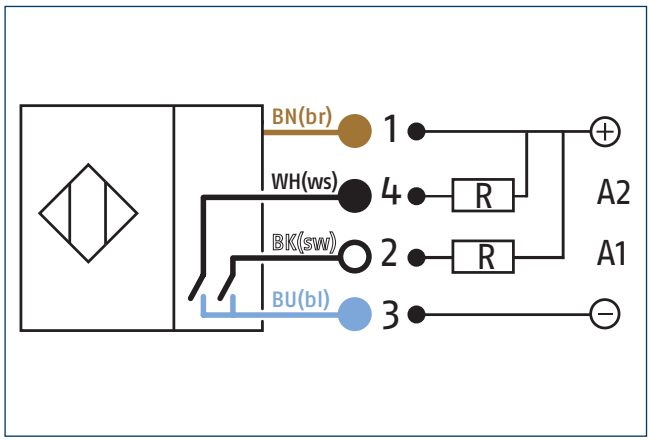


65 Cable diameter
70 Wrench size
72 Active sensor surface
75 Cable length
76 LED

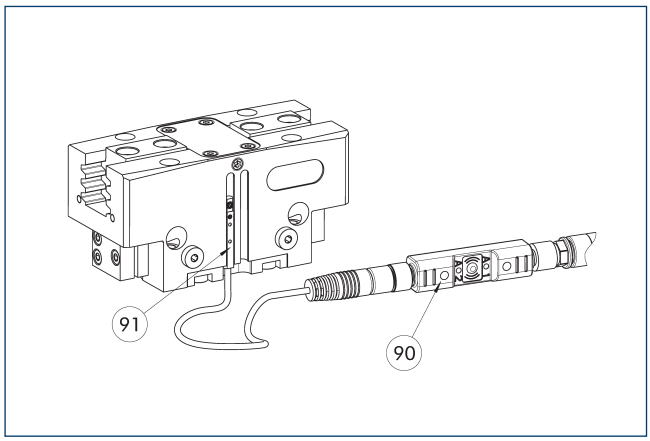
Wiring diagram closer PNP



Circuit diagram of NPN closer



Pug-in teaching tool ST



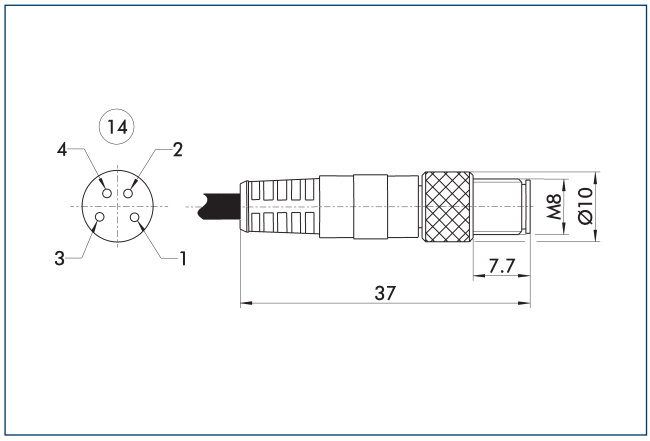
(90) Pug-in teaching tool ST (91) Sensor MMS 22-PI...

In addition to the magnetic teach-in tool included in the scope of delivery, the MMS 22-PI sensors can be taught via the plug teach-in tool. The plug teach in tool is inserted into the wiring from sensor to PLC. This makes teaching in possible even in confined spaces on the sensor. The plug teach in tool differs according to the version of the sensor with regard to switching points (1/2) and switching type (PNP / NPN).

Description	ID	
Sensor Teaching Tool		
MT-MMS 22-PI	0301030	
Plug teaching tool		
ST-MMS 22-PI2-PNP	0301026	

ⓘ The plug-in teaching tool is only required for teaching in and can be removed from the cabling again after. The sensor maintains its programming.

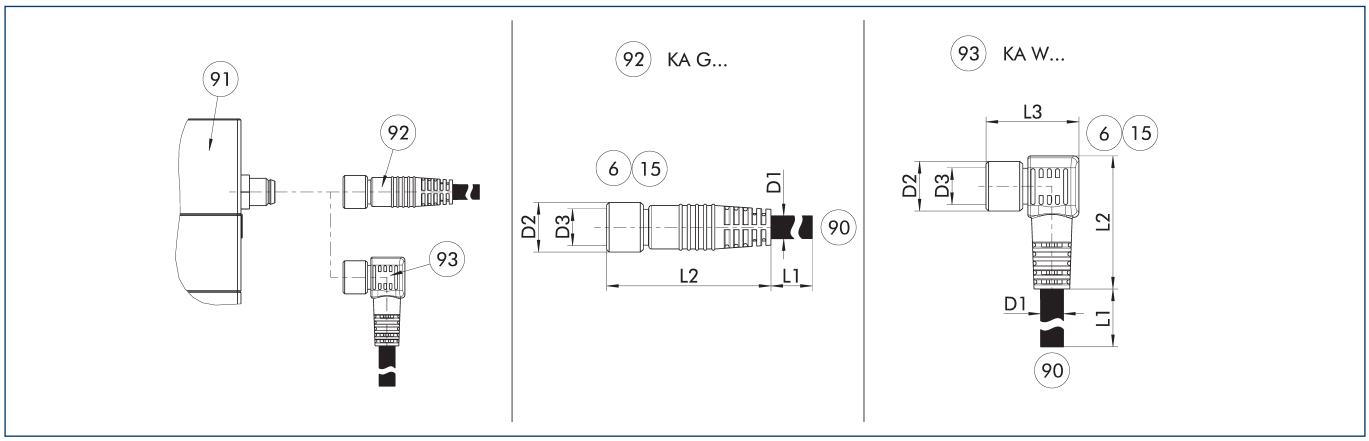
View M8 connector (4 pins)



(14) Connector

This view shows the plug connector on the cable end of the sensor.

Voltage supply connection cable



KA G... Connection cable with straight socket
KA W... Connection cable with angular socket

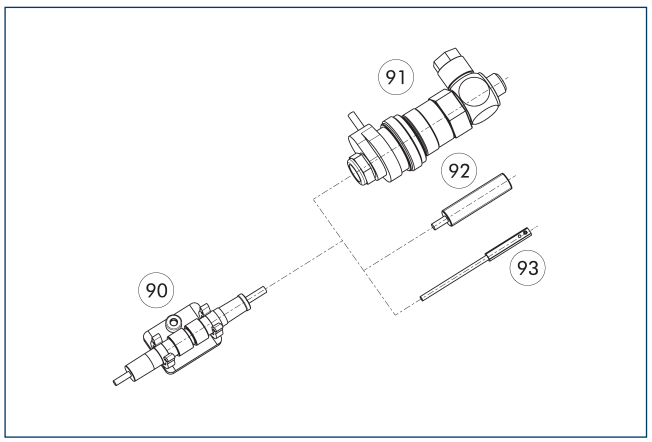
(6) Connection module side
(15) Socket
(90) SAC connection cable with open wire strands
(91) Connection plug component
(92) Cable with straight female connector
(93) Cable with angled female connector

The connection cable is ideal for connecting the corresponding components to the controller or the power supply unit. The connection cable has a 4-pin M8 socket on one side and an open wire strand on the other side for individual connections. The connection cables are suitable for use both in the cable track as well as in torsion applications.

Description	ID	L1	D1	L2	D2	L3	D3	Often combined
		[m]	[mm]	[mm]	[mm]	[mm]		
Connection cables								
KA GLN0804-LK-00500-A	0307767	5	5.3	35	10		M8	●
KA GLN0804-LK-01000-A	0307768	10	5.3	35	10		M8	
KA WLN0804-LK-00500-A	0307765	5	5.3	29	10	20	M8	
KA WLN0804-LK-01000-A	0307766	10	5.3	29	10	20	M8	

ⓘ Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.

clip for plug/socket



(90) CLI plug bracket
(91) MV micro valve
(92) IN proximity switch
(93) Magnetic switch MMS

The CLI clip is used for fastening and strain relief for the plug connectors. For example for the sensor and cable extension connection.

Description	ID	
clip for plug/socket		
CLI-M8	0301463	

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