MAGNETIC SENSORS FOR CYLINDERS

Magnetic sensors REED type

Magnetic sensors HALL effect

General

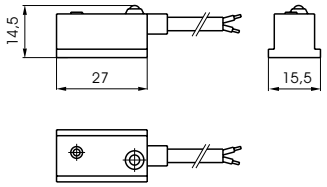
The limit switches, or magnetic sensors, have to be mounted on cylinders with magnetic piston. These, when hit by the magnetic field generated by the piston as it approaches, close the circuit sending an electrical signal by relè solenoid valve control, etc. or converse with the controlling electronic system situaded on the machine. There are available magnetic sensor with ampulla Reed type and with Hall effect. The sensors are attached to the cylinder by a proper clamp and have a Led insertion indicator.
The magnetic sensors with ampulla are made in 3 versions:
- U (universal) functioning with continuous or alternate current, protected by varistor Led indicator.
- U/1(universal) functioning with continuous or alternate current, with contact Reed only to avoid 3 volt tension drop caused by led.
- D.C. for functioning with continuous current only, utilized for switching heavy loads since the contact Reed become the pilot of a semi-conductor power circuit.

Note: The magnetic sensors are according to the Directive **EMC89/336/CEE** and following amendments.

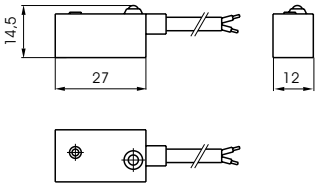
Instruction on how to use the sensors properly

Particular attention must be paid not to exceed the working limits listed in the tables and that the sensor is never connected to the mains without a load connected in series; these are the only measures that if not observed can put the circuits out of order. In the case of direct current (D.C.) connection polarities must be respected, that is the brown wire to the positive load (+) and the blue to the negative (-). If these are inverted the sensor remains switched, the load connected and the led turned off. However, this would not damage the circuit.
For the "U" type sensors attention must be paid that the length of the cable doesn't exceed 8 meters, with tension above 100 V. In this case a serial resistance is added to reduce the capacitive effects of the line.
As an example 1000 Ω per 100-130 V e 2000 Ω per 200-240 V.

Sensors with 2 m. cable (REED type)



for cylinders and microcylinders



for rodless cylinders

Ordering code		
Cylinders and microcylinders	**1500.D.C.** **1500.U** **1500.U/1**	sensor for continuous current with led sensor universal with led sensor universal without led (REED ampulla only)
Rodless cylinders	**1600.D.C.** **1600.U** **1600.U/1**	sensor for continuous current with led sensor universal with led sensor universal without led (REED ampulla only)

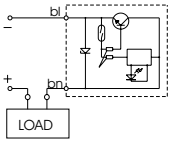
Technical characteristics

	d.c.	U		U/1	
		a.c.	d.c.	a.c.	d.c.
Maximum permanent current	1,2A	0,5A		0,3A	
Maximum current (pulses of 0,5 sec.)	1,5A	1A		0,8A	
Voltage range	12 ÷ 48V	3 ÷ 250V	12 ÷ 48V	0 ÷ 250V	0 ÷ 48V
Maximum permanent power	57W	20VA	15W	10VA	8W
Working temperature	-20° C ÷ 70°C				
Maximum voltage drop	3V			0V	
Cable section	2x0,35 mm²				
Degree of protection	IP 65				
Connecting time	2 ms				
Disconnecting time	1 ms				
Average working period	10^7 cicles				
Repetition of intervention point	± 0,1 mm				
Contact normally open	N.O.				

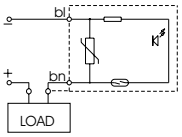
Connection can be done either to negative or positive pole.

Diagrams and connections

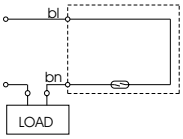
Type - d.c.



Type - U



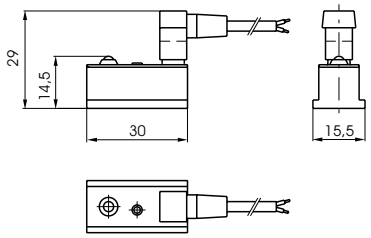
Type U/1



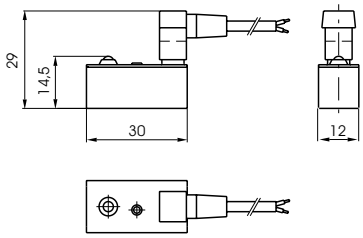
These sensors can be used on cylinders series:

1200	for microcylind. with rolled end covers, with clamps code for microcylind. with threaded end covers, with clamps code	**1260.Ø.F** **1280.Ø.F** for cylinders from Ø16 to Ø32
1306 - 1307 - 1308	brackets code	**1306.A** for cylinders from Ø 32 to Ø 63 **1306.B** for cylinders from Ø 80 to Ø 125 **1306.C** for cylinders from Ø160 and Ø200
1319 - 1320	brackets code	**1320.A** for cylinders Ø 32 and Ø 40 **1320.B** for cylinders Ø 50 and Ø 63 **1320.C** for cylinders Ø 80 and Ø 100 **1320.D** for cylinders Ø 125
1500	directly on groove	
1600	brackets code	**1600.A**

Sensors with connector (REED type)



for cylinders and microcylinders



for rodless cylinders

Ordering code

Cylinders and microcylinders	**RS.UA**	sensor universal with led normally open N.O.
	RS.UA/1	sensor universal without led N.O. (REED ampulla only)
	RS.UC	sensor universal with led normally closed N.C.
	RS.UAC1	sensor universal with led N.O. with connector and 2,5 m. cable
	RS.UAC1/1	sensor universal without led N.O. with connector and 2,5 m. cable (REED ampulla only)
	RS.UCC1	sensor universal with led N.C. with connector and 2,5 m. cable
Rodless cylinders	**SRS.UA**	sensor universal with led N.O.
	SRS.UA/1	sensor universal without led N.O.
	SRS.UC	sensor universal with led normally closed N.C.
	SRS.UAC1	sensor universal with led N.O. with connector and 2,5 m. cable
	SRS.UAC1/1	sensor universal without led N.O. with connector and 2,5 m. cable (REED ampulla only)
	SRS.UCC1	sensor universal with led N.C. with connector and 2,5 m. cable
	C1	connector with 2,5 m. cable
	C2	connector with 5 m. cable
	C3	connector with 10 m. cable

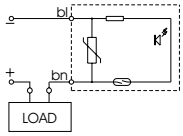
Technical characteristics

	U		U/1	
	a.c.	d.c.	a.c.	d.c.
Maximum permanent current	0,5A		0,3A	
Maximum current (pulses of 0,5 sec.)	1A		0,8A	
Voltage range	3 ÷ 250V	12 ÷ 48V	0 ÷ 250V	0 ÷ 48V
Maximum permanent power	20VA	15W	10VA	8W
Working temperature	-20° C ÷ 70°C			
Maximum voltage drop	3V		0V	
Cable section	2x0,35 mm²			
Degree of protection	IP 65			
Connecting time	2 ms			
Disconnecting time	1 ms			
Average working period	10^7 cicles			
Repetition of intervention point	± 0,1 mm			
Contact normally open	N.O. o N.C.		N.O.	

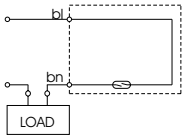
Connection can be done either to negative or positive pole.

Diagrams and connections

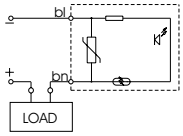
Tipo - UA



Tipo UA/1



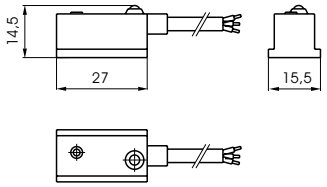
Tipo - UC

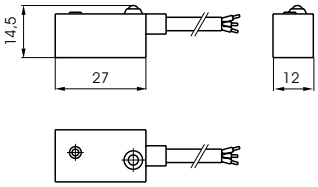


These sensors can be used on cylinders series:

1200	for microcylind. with rolled end covers, with clamps code for microcylind. with threaded end covers, with clamps code	**1260.Ø.F** **1280.Ø.F** for cylinders from Ø16 to Ø32
1306 - 1307 - 1308	brackets code	**1306.A** for cylinders from Ø32 to Ø63 **1306.B** for cylinders from Ø80 to Ø125 **1306.C** for cylinders from Ø160 and Ø200
1319 - 1320	brackets code	**1320.A** for cylinders Ø32 and Ø40 **1320.B** for cylinders Ø50 and Ø63 **1320.C** for cylinders Ø80 and Ø100 **1320.D** for cylinders Ø125
1500	directly on groove	
1600	brackets code	**1600.A**

Sensors with 3 m. cable (HALL effect)





for cylinders and microcylinders

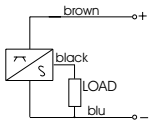
for rodless cylinders

Ordering code		
Cylinders and microcylinders	**1500.HAP**	sensor Hall effect PNP with led, normally open N.O.
	1500.HAN	sensor Hall effect NPN with led, normally open N.O.
	1500.HCP	sensor Hall effect PNP with led, normally closed N.C.
	1500.HCN	sensor Hall effect NPN with led, normally closed N.C.
Rodless cylinders	**1600.HAP**	sensor Hall effect PNP with led, normally open N.O.
	1600.HAN	sensor Hall effect NPN with led, normally open N.O.
	1600.HCP	sensor Hall effect PNP with led, normally closed N.C.
	1600.HCN	sensor Hall effect NPN with led, normally closed N.C.

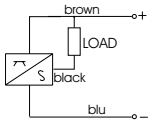
Technical characteristics

Maximum permanent current	0,5A
Voltage range	10 ÷ 30V DC
Power (inductive load)	10W
Working temperature	-20° C ÷ 70°C
Cable section	3x0,25 mm²
Degree of protection	IP 65
Connecting time	0,8 µs
Disconnecting time	0,3 µs
Average working period	10°cicles
Repetition of intervention point	± 0,1 mm
Type of contact	N. O. o N.C.

Diagrams and connections



PNP

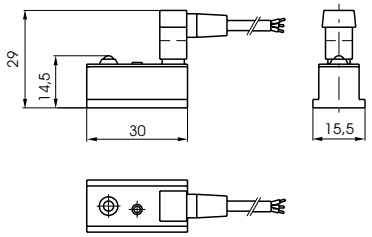


NPN

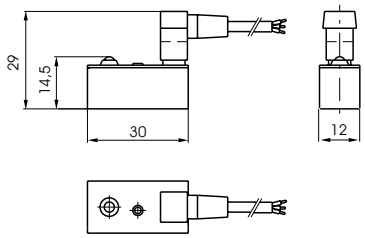
These sensors can be used on cylinders series:

1200	for microcylind.with rolled end covers, with clamps code for microcylind. with threaded end covers, with clamps code	**1260.Ø.F** **1280.Ø.F** for cylinders from Ø16 to Ø32
1306 - 1307 - 1308	brackets code	**1306.A** for cylinders from Ø32 to Ø63 **1306.B** for cylinders from Ø80 to Ø125 **1306.C** for cylinders Ø160 and Ø200
1319 - 1320	brackets code	**1320.A** for cylinders Ø32 and Ø40 **1320.B** for cylinders Ø50 and Ø63 **1320.C** for cylinders Ø80 and Ø100 **1320.D** for cylinders Ø125
1500	directly on groove	
1600	brackets code	**1600.A**

Sensor with connector (Hall effect)



for cylinders and microcylinders



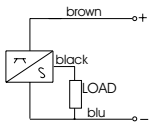
for rodless cylinders

Ordering code		
Cylinders and microcylinders	**HS.PA**	sensor Hall effect PNP with led, normally open N.O.
	HS.NA	sensor Hall effect NPN with led, normally open N.O.
	HS.PAC1	sensor Hall effect PNP N.O. with led, with connector and 2,5 m. cable
	HS.NAC1	sensor Hall effect NPN N.O. with led, with connector and 2,5 m. cable
Rodless cylinders	**SHS.PA**	sensor Hall effect PNP with led, normally open N.O.
	SHS.NA	sensor Hall effect NPN with led, normally open N.O.
	SHS.PAC1	sensor Hall effect PNP N.O. with led, with connector and 2,5 m. cable
	SHS.NAC1	sensor Hall effect NPN N.O. with led, with connector and 2,5 m. cable
	CH1	connector with 2,5 m. cable (3 wires)
	CH2	connector with 5 m. cable (3 wires)

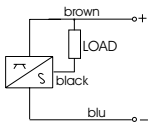
Technical characteristic

Maximum permanent current	0,25A
Voltage range	6 ÷ 30V DC
Power (inductive load)	6W
Working temperature	-20° C ÷ 70°C
Cable section	3x0,25 mm²
Degree of protection	IP 65
Connecting time	0,8 µs
Disconnecting time	0,3 µs
Average working period	10^9cicles
Repetition of intervention point	± 0,1 mm
Contact normally open	N. O.

Diagrams and connections



PNP



NPN

These sensors can be used on cylinders series:

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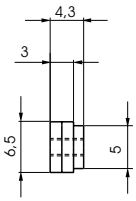
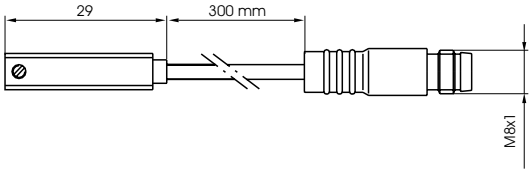
1319 - 1320	brackets code	**1320.A** for cylinders Ø32 and Ø40 **1320.B** for cylinders Ø50 and Ø63 **1320.C** for cylinders Ø80 and Ø100 **1320.D** for cylinders Ø125
1500	directly on groove	
1600	brackets code	**1600.A**

Sensor c/w 2.5 m. cable



Weight gr. 27

Sensor c/w M8 connector (300 mm cable)

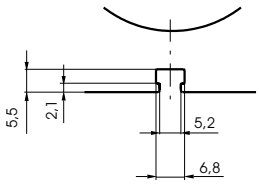


Weight gr. 15

Ordering codes

1580.U	Reed bulb sensor with led and 2.5 m cable
1580.HAP	PNP sensor Hall effect with led and 2.5 m cable
MRS.U	Reed bulb sensor with led and connector
MHS.P	PNP sensor Hall effect with led and connector
MC1	M8 in line connector with 2.5 m cable (2 wires)
MC2	M8 in line connector with 5 m cable (2 wires)
MCH1	M8 in line connector with 2.5 m cable (3 wires)
MCH2	M8 in line connector with 5 m cable (3 wires)

Slot detail



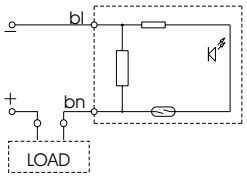
Normal standard "PNEUMAX" sensors suitable for large slot are available for cylinders from Ø 32 to Ø 100 (see catalogue 4 section 8).

Technical characteristics

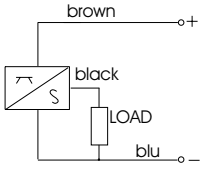
	1580.U	MRS.U	1580.HAP	MHS.P
Type of contact	N.A.			
Maximum current (pulses of 0,5 sec.)	0,1A		0,2A	
Maximum permanent current	0,1A		0,2A	
Maximum permanent power	6VA		4W	
Voltage range A. C.	3 ÷ 30V		/	
Voltage range D. C.	3÷30V		6÷30V	
Working temperature	-20° C ÷ 70°C			
Maximum voltage drop	3V			
Cable section	2x0,14		3x0,14	
Degree of protection	IP 65			
Connecting time	0,5 ms		0,8 µs	
Disconnecting time	0,1 ms		0,3 µs	
Average working period	10^7		10^9	
Repetition of intervention point	± 0,1			

NOTE : pay attention to the connected loads which should not exceed the recommendation

Diagrams and connections



with Reed bulb



Hall effect

These sensors can be used on cylinders series:

1200 microcylinders with threaded end covers, with clamps code **1280.Ø.FS**

1500
- Short stroke compact cylinders with sensor adapter cede 1580.01F
- Europe compact cylinders - directly on groove from Ø 12 to Ø 25
  - directly on groove or with sensor adapter(code 1580.01F) from Ø 32 to Ø 50
  - with sensor adapter (code 1580.01F) from Ø 63 to Ø 100.