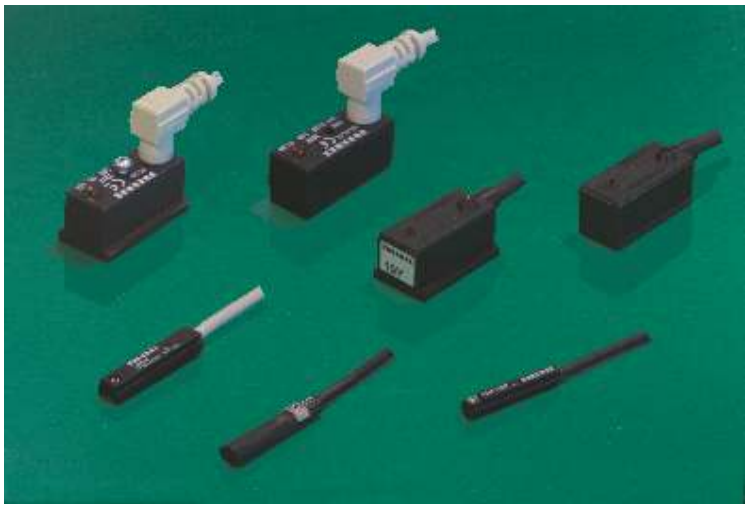


MAGNETIC SENSORS FOR CYLINDERS

Magnetic sensors REED type with cable

Magnetic sensors REED type for connector

Magnetic sensors HALL effect with cable

Magnetic sensors HALL effect for connector

Miniaturized magnetic sensors
- rectangular profile
- oval profile
- round profile
- round section 90° cable

6

General

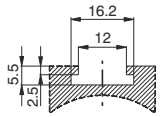
The limit switches, or magnetic sensors, have to be mounted on cylinders with magnetic piston. These, when hit by the magnetic field generated by the piston as it approaches, close the circuit sending an electrical signal by relè solenoid valve control, etc. or converse with the controlling electronic 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, slot or adaptator and have an activation LED indicator.

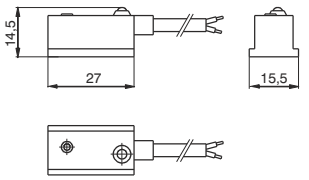
Note: The magnetic sensors are according to the Directive **EMC 89**/**336**/**CEE** and following amendments.

Instruction on how to use the sensors properly

Particular attention should be paid in order not to exceed the wide operating limits shown into the next pages. Besides, the 2 wires sensors have never to be connected to the mains if a load has not been yet connected in series.These are the only cares that, if not followed, may cause damages to the sensor. Furthermore it has to be considered that, while loading, the current absorbed by the sensors might be 50% higher that the rated one.
The switch semiconductor construction design makes this sensors extremely compatible, there are no limitation to the type of load applied : inductive, capacitive resistive.
In case of direct current (DC) feeding, the polarity of the connection has to be observed: the brown cable must be connected to the plus (+) and the blue one to the minus (-). The cable length must not exceed 10mtrs. If the cable needs to be longer then 10 mt, we recommend to insert in series an inductance or a resistance to counteract the capacity generated by the cable itself .
When using a two wire REED type sensor always ensure that the correct load is applied in series on any of the two wires. When using a sensor fitted with the SNAP connector pay attention to the orientation of the connector (see fig. page 6.3) because by inverting the connection the circuit will not be damaged, but the LED will not turn on. In case of two or more sensors connected in series pay attention to tension drop generated (around 3V for each sensor), and eventually use the version designed for in series connection. The Hall effect sensors, which do not include any moving mechanical parts are longer lasting if compared to the Reed version besides, there are some other external factors to be taken into consideration, such as proximity of powered cables, magnetic fields produced by electric motors, mass of iron too close to the sensor, and so on: these factors have to be therefore carefully avoided, being able to influence the sensors and accordingly to cause irregularity of operation.

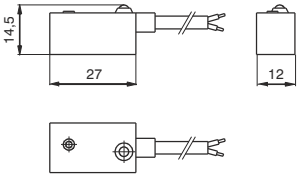
Slot detail
type "A"





for cylinders and microcylinders

for rodless cylinders

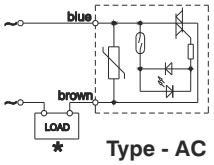


Diagrams and connections

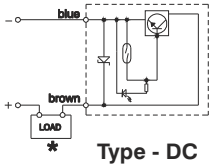
Ordering code

SENSORS WITH 2 WIRES CABLE (PUR Ø4.2 mm 2 x 0.34mm²)

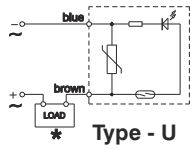
Cylinders and microcylinders	**1500.AC**	sensor for alternating current with led
	1500.DC	sensor for continuous current with led
	1500. U	universal sensor with led
	1500.U/1	universal sensor without led (REED ampulla only)
Rodless cylinders	**1600.AC**	sensor for alternating current with led
	1600.DC	sensor for continuous current with led
	1600.U	universal sensor with led
	1600.U/1	universal sensor without led (REED ampulla only)



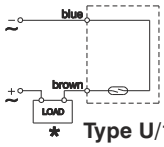
Type - AC



Type - DC



Type - U



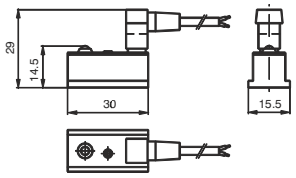
Type U/1

Technical characteristics	A.C.	D.C.	U		U/1	
			a.c.	d.c.	a.c.	d.c.
Maximum permanent current	1,5A	1,2A	0,5A		0,3A	
Maximum current (pulses of 0,5 sec.)	6A	1,5A	1A		0,8A	
Voltage range	12 - 230V	12 - 30V	3 - 230V	12 - 48V	0 - 230V	0 - 48V
Maximum permanent power	375VA	32W	20VA	15W	10VA	8W
Working temperature	-20° C - 70°C					
Maximum voltage drop	3V max	2V max	3V max		0V	
Cable section	2x0,34 mm² Ø4,2 mm PUR					
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					
Type of contact	N.O.					

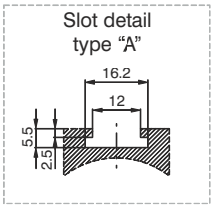
✱The load (LOAD) can be connected either to negative or positive pole.

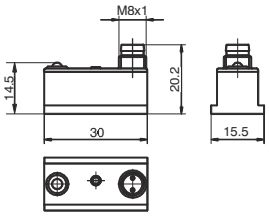
These sensors can be used on cylinders series:

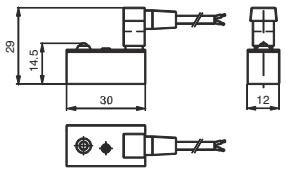
SERIES	DESCRIPTION	MOUNTED
1200	for microcylinders with threaded end covers and "TECNO-MIR" microcylinders	with clamps code 1260.Ø.F
	for microcylinders "MIR" with rolled end covers, cylinders from Ø16 to Ø32	with clamps code 1280.Ø.F
	for microcylinders "MIR-INOX" with rolled end covers	with clamps code 1280.Ø.FX
1306 - 1307 - 1308	for cylinders from Ø32 to Ø63	with brackets code 1306.A
	for cylinders from Ø80 to Ø125	with brackets code 1306.B
	for cylinders from Ø160 to Ø200	with brackets code 1306.C
	for cylinders Ø250 (ISO)	with brackets code 1306.D
1319 - 1320	for cylinders Ø32 and Ø40	with brackets code 1320.A
	for cylinders Ø50 and Ø63	with brackets code 1320.B
	for cylinders Ø80 and Ø100	with brackets code 1320.C
	for cylinders Ø125	with brackets code 1320.D
	for cylinders Ø160	with brackets code 1320.E
	for cylinders Ø200	with brackets code 1320.F
1390 - 1391	for cylinders ECOLIGHT Ø32 and Ø40	with brackets code 1390.A
	for cylinders ECOLIGHT Ø50 and Ø63	with brackets code 1390.B
	for cylinders ECOLIGHT Ø80 and Ø100	with brackets code 1390.C
	for cylinders ECOLIGHT Ø125 - Ø200	with brackets code 1390.D
1500	Compact cylinders "Europe" (from Ø32)	directly on groove
1605	Rodless cylinders	with brackets code 1600.A



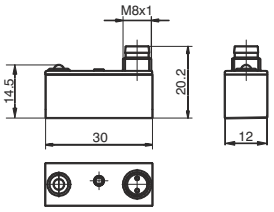
for cylinders and microcylinders







for rodless cylinders



Ordering code

2 PIN SENSOR FOR SNAP CONNECTOR

Cylinders and microcylinders	**RS.DC**	sensor for continuous current with led normally open N.O.
	RS.UA	universal sensor with led normally open N.O.
	RS.UC	universal sensor with led normally closed N.C.
	RS.UA/1	universal sensor without led N.O. (REED ampulla only)
Rodless cylinders	**SRS.DC**	sensor for continuous current with led normally open N.O.
	SRS.UA	universal sensor with led N.O.
	SRS.UC	universal sensor with led normally closed N.C.
	SRS.UA/1	universal sensor without led N.O.
Cable	**C1**	connector with 2.5 m. cable 2 wires (PVC Ø3,5 mm 2x 0,25mm^2)
	C2	connector with 5 m. cable 2 wires (PVC Ø3,5 mm 2x 0,25mm^2)
	C3	connector with 10 m. cable 2 wires (PVC Ø3,5 mm 2x 0,25mm^2)

2 PIN SENSOR FOR SNAP CONNECTOR + C1 CABLE TWO WIRES (PVC Ø3.5 mm 2x0.25 mm^2)

Cylinders and microcylinders	**RS.DCC1**	sensor for DC current N.O. with LED and 2.5 m. cable
	RS.UAC1	universal sensor with led N.O. with connector and 2.5 m. cable
	RS.UCC1	universal sensor with led N.C. with connector and 2.5 m. cable
	RS.UAC1/1	universal sensor without led N.O. with connector and 2.5 m. cable (REED ampulla only)
Rodless cylinders	**SRS.DCC1**	sensor for continuous current with led normally closed N.O. with connector and 2.5 m. cable
	SRS.UAC1	universal sensor with led N.O. with connector and 2.5 m. cable
	SRS.UCC1	universal sensor with led N.C. with connector and 2.5 m. cable
	SRS.UAC1/1	universal sensor without led N.O. with connector and 2.5 m. cable (REED ampulla only)

2 PIN SENSOR WITH M8 CONNECTOR

Cylinders and microcylinders	**RS8.DC**	sensor for DC current N.O. with LED and M8 plug
	RS8.UA	universal sensor N.O. with LED and M8 plug
	RS8.UC	universal sensor N.C. with LED and M8 plug
Rodless cylinders	**SRS8.DC**	sensor for DC current N.O. with LED and M8 plug
	SRS8.UA	universal sensor N.O. with LED and M8 plug
	SRS8.UC	universal sensor N.C. with LED and M8 plug
Cable	**MCH1**	cable 3 wires l=2.5m with M8 connector three wires (PUR Ø2.6 mm 3x 0.15 mm^2)
	MCH2	cable 3 wires l=5m with M8 connector three wires (PUR Ø2.6 mm 3x 0.15 mm^2)
	MCH3	cable 3 wires l=10m with M8 connector three wires (PUR Ø2.6 mm 3x 0.15 mm^2)

3 PIN SENSOR FOR SNAP CONNECTOR WITH TWO WIRES ACCORDING TO IEC 947 NORMS

Cylinders and microcylinders	**RS.DCNO**	sensor for continuous current with led normally open N.O., according to standard IEC 947
	RS.UANO	universal sensor with led normally open N.O., according to standard IEC 947
Cable	**C1NO**	connector with 2.5 m. cable, according to standard IEC 947 (PVC Ø3.5 mm 2x0.25 mm²)
	C2NO	connector with 5 m. cable, according to standard IEC 947 (PVC Ø3.5 mm 2x0.25 mm²)
	C3NO	connector with 10 m. cable, according to standard IEC 947 (PVC Ø3.5 mm 2x0.25 mm²)

3 PIN SENSORS FOR IN SERIES ASSEMBLING WITH SNAP CONNECTOR

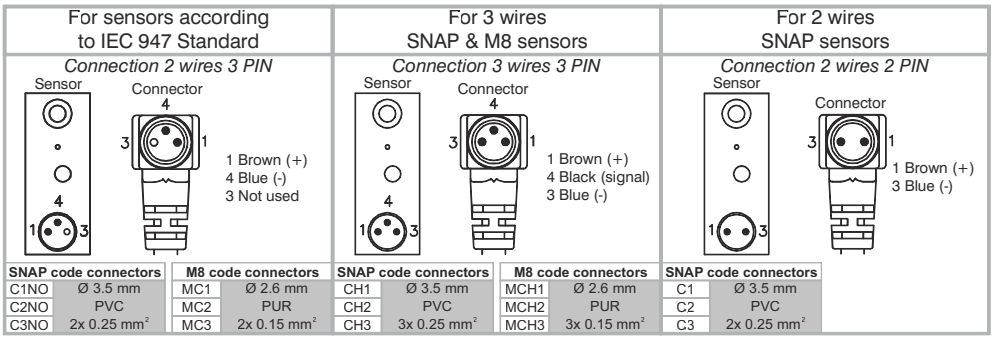
Cylinders and microcylinders	**RS.UA/1L**	universal sensor with led normally open N.O., for series assembly (3 wires)
Rodless cylinders	**SRS.UA/1L**	universal sensor with led N.O., for series assembly (3 wires)
Cable	**CH1**	connector with 2.5 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm²)
	CH2	connector with 5 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm²)
	CH3	connector with 10 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm²)

3 PIN SENSORS FOR IN SERIES ASSEMBLING WITH SNAP CONN. + CH1 CABLE 3 WIRES (PVC Ø3.5mm 3x0.25 mm²)

Cylinders and microcylinders	**RS.UACH1/1L**	universal sensor with led N.O. with connector and 2.5 m. cable, for series mounting (3 wires)
Rodless cylinders	**SRS.UACH1/1L**	universal sensor with led N.O. with connector and 2.5 m. cable, for series assembly (3 wires)

3 PIN SENSORS FOR IN SERIES ASSEMBLING WITH M8 CONNECTOR

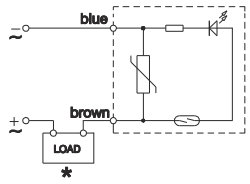
Cylinders and microcylinders	**RS8.UA/1L**	universal sensor N.O. with LED for in series assembling (3wires) and M8 plug
Rodless cylinders	**SRS8.UA/1L**	universal sensor N.O. with LED for in series assembling (3wires) and M8 plug
Cable	**MCH1**	M8 connector with 2.5 m. cable 3 wires (PUR Ø2.6 mm 3x 0.15 mm²)
	MCH2	M8 connector with 5 m. cable 3 wires (PUR Ø2.6 mm 3x 0.15 mm²)
	MCH3	M8 connector with 10 m. cable 3 wires (PUR Ø2.6 mm 3x 0.15 mm²)



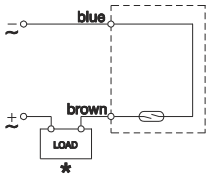
Technical characteristics	DC	UA				UA/1L		UA/1	
		a.c.		d.c.		a.c.	d.c.	a.c.	d.c.
Type of contact	N.O.	N.O.	N.C.	N.O.	N.C.	N.O.		N.O.	
Maximum permanent current	1.2A	0.5A	0.3A	0.5A	0.3A	0.5A		0.5A	
Maximum current (pulses of 0.5 sec.)	1.5A	1A	0.8A	1A	0.8A	1A		1A	
Voltage range	12 - 30V	3 - 250V	3 - 110V	12 - 48V		24V		0 - 250V	0 - 48V
Maximum permanent power	32W	20VA	10VA	15W	8W	20VA	15W	10VA	8W
Working temperature	-20°C - 70°C								
Maximum voltage drop	2V	<3V				0V			
Cables number	2					3		2	
Degree of protection	IP65								
Connecting time	2 ms								
Disconnecting time	1 ms								
Average working period	10^7 cicles								
Repetition of intervention point	±0.1 mm								

Diagrams and connections

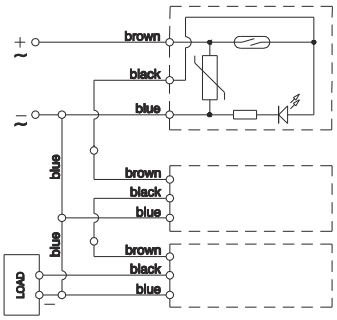
Type - UA



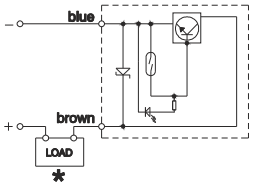
Type UA/1



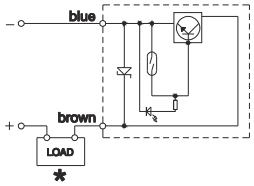
Type - UA/1L



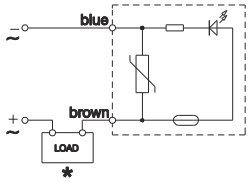
Type - DC



Type - DCNO



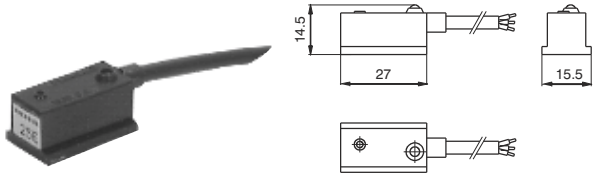
Type - UC



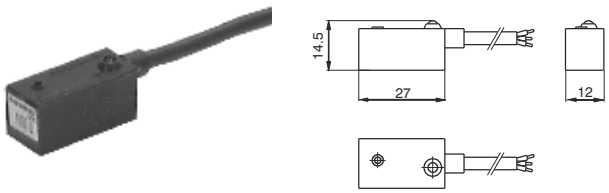
✱The load (LOAD) can be connected either to negative or positive pole.

These sensors can be used on cylinders series:

SERIES	DESCRIPTION	MOUNTED
1200	for microcylinders with threaded end covers and “TECNO-MIR” microcylinders	with clamps code 1260.Ø.F
	for microcylinders "MIR" with rolled end covers, cylinders from Ø16 to Ø32	with clamps code 1280.Ø.F
	for microcylinders "MIR-INOX" with rolled end covers	with clamps code 1280.Ø.FX
1306 - 1307 - 1308	for cylinders from Ø32 to Ø63	with brackets code 1306.A
	for cylinders from Ø80 to Ø125	with brackets code 1306.B
	for cylinders from Ø160 to Ø200	with brackets code 1306.C
	for cylinders Ø250 (ISO)	with brackets code 1306.D
1319 - 1320	for cylinders Ø32 and Ø40	with brackets code 1320.A
	for cylinders Ø50 and Ø63	with brackets code 1320.B
	for cylinders Ø80 and Ø100	with brackets code 1320.C
	for cylinders Ø125	with brackets code 1320.D
	for cylinders Ø160	with brackets code 1320.E
	for cylinders Ø200	with brackets code 1320.F
1390 - 1391	for cylinders ECOLIGHT Ø32 and Ø40	with brackets code 1390.A
	for cylinders ECOLIGHT Ø50 and Ø63	with brackets code 1390.B
	for cylinders ECOLIGHT Ø80 and Ø100	with brackets code 1390.C
	for cylinders ECOLIGHT Ø125 - Ø200	with brackets code 1390.D
1500	Compact cylinders "Europe" (from Ø32)	directly on groove
1605	Rodless cylinders	with brackets code 1600.A

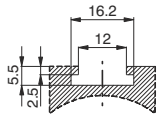


for cylinders and microcylinders



for rodless cylinders

Slot detail
type "A"



Ordering code

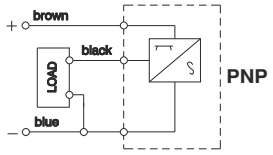
SENSORS WITH 3 WIRES CABLE (PUR Ø 4.2 mm 3x0.34mm²)

Cylinders and microcylinders	**1500.HAP**	PNP sensor Hall effect with led, normally open N.O.
	1500.HAN	NPN sensor Hall effect with led, normally open N.O.
Rodless cylinders	**1600.HAP**	PNP sensor Hall effect with led, normally open N.O.
	1600.HAN	NPN sensor Hall effect with led, normally open N.O.

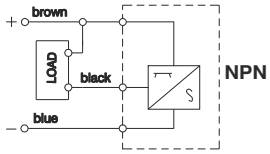
Technical characteristics

Maximum permanent current	0.5A
Voltage range	10 - 30V DC
Power (inductive load)	10W
Maximum voltage drop	2V
Working temperature	-20°C - 70°C
Cable section	PUR 4.2mm 3x0.34 mm²
Degree of protection	IP 65
Connecting time	0.8 μs
Disconnecting time	0.3 μs
Average working period	10^9 cicles
Repetition of intervention point	± 0.1 mm
Type of contact	N.O.

Diagrams and connections



PNP

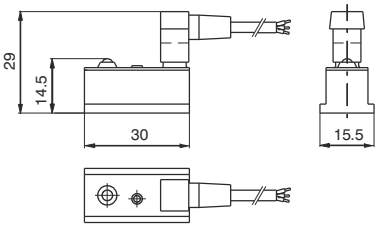


NPN

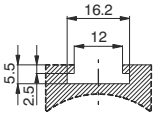
These sensors can be used on cylinders series:

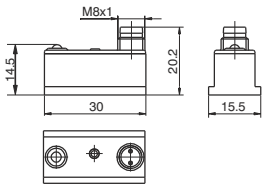
SERIES	DESCRIPTION	MOUNTED
1200	for microcylinders with threaded end covers and "TECNO-MIR" microcylinders	with clamps code 1260.Ø.F
	for microcylinders "MIR" with rolled end covers, cylinders from Ø16 to Ø32	with clamps code 1280.Ø.F
	for microcylinders "MIR-INOX" with rolled end covers	with clamps code 1280.Ø.FX
1306 - 1307 - 1308	for cylinders from Ø32 to Ø63	with brackets code 1306.A
	for cylinders from Ø80 to Ø125	with brackets code 1306.B
	for cylinders from Ø160 to Ø200	with brackets code 1306.C
	for cylinders Ø250 (ISO)	with brackets code 1306.D
1319 - 1320	for cylinders Ø32 and Ø40	with brackets code 1320.A
	for cylinders Ø50 and Ø63	with brackets code 1320.B
	for cylinders Ø80 and Ø100	with brackets code 1320.C
	for cylinders Ø125	with brackets code 1320.D
	for cylinders Ø160	with brackets code 1320.E
	for cylinders Ø200	with brackets code 1320.F
1390 - 1391	for cylinders ECOLIGHT Ø32 and Ø40	with brackets code 1390.A
	for cylinders ECOLIGHT Ø50 and Ø63	with brackets code 1390.B
	for cylinders ECOLIGHT Ø80 and Ø100	with brackets code 1390.C
	for cylinders ECOLIGHT Ø125 - Ø200	with brackets code 1390.D
1500	Compact cylinders "Europe" (from Ø32)	directly on groove
1605	Rodless cylinders	with brackets code 1600.A

for cylinders and microcylinders

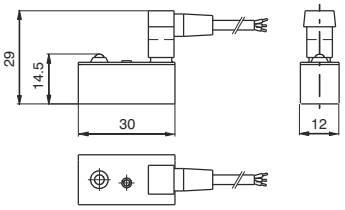


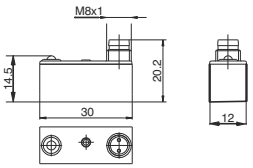
Slot detail type "A"





for rodless cylinders





Ordering code

3 PIN SENSOR FOR SNAP CONNECTOR

Cylinders and microcylinders	**HS.PA**	PNP sensor Hall effect with led, normally open N.O.
Rodless cylinders	**SHS.PA**	PNP sensor Hall effect with led, normally open N.O.
Cable	**CH1**	connector with 2.5 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm^2)
	CH2	connector with 5 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm^2)
	CH3	connector with 10 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm^2)

3 PIN SENSOR FOR SNAP CONNECTOR + CH1 CABLE 3 WIRES (PVC Ø3.5 mm 3x0.25 mm^2)

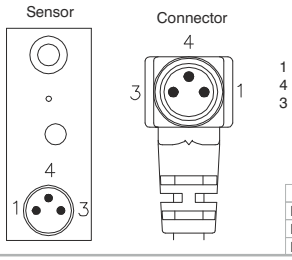
Cylinders and microcylinders	**HS.PAC1**	PNP sensor Hall effect N.O. with led, with connector and 2.5 m. cable
Rodless cylinders	**SHS.PAC1**	PNP sensor Hall effect N.O. with led, with connector and 2.5 m. cable

3 PIN SENSOR FOR M8 CONNECTOR

Cylinders and microcylinders	**HS8.NA**	NPN Hall effect sensor N.O. with LED and M8 plug
	HS8.PA	PNP Hall effect sensor N.O. with LED and M8 plug
Rodless cylinders	**SHS8.NA**	NPN Hall effect sensor N.O. with LED and M8 plug
	SHS8.PA	PNP Hall effect sensor N.O. with LED and M8 plug
Cable	**MCH1**	M8 connector with cable 2.5 m. 3 wires (PUR Ø2.6 mm 3x0.15mm^2)
	MCH2	M8 connector with cable 5 m. 3 wires (PUR Ø2.6 mm 3x0.15mm^2)
	MCH3	M8 connector with cable 10 m. 3 wires (PUR Ø2.6 mm 3x0.15mm^2)

For 3 wires
SNAP & M8 sensors

Connection 3 wires 3 PIN



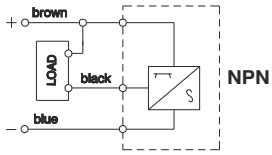
SNAP code connectors	
CH1	Ø 3.5 mm
CH2	PVC
CH3	3x 0.25 mm^2

M8 code connectors	
MCH1	Ø 2.6 mm
MCH2	PUR
MCH3	3x 0.15 mm^2

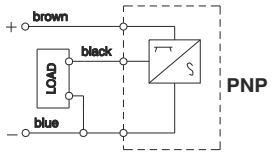
Technical characteristic

Maximum permanent current	0,25A
Voltage range	6 - 30V DC
Power (inductive load)	6W
Maximum Voltage drop	2V
Working temperature	-20°C - 70°C
Cables number	3
Degree of protection	IP 65
Connecting time	0,8 ms
Disconnecting time	0,3 ms
Average working period	10^9 cicles
Repetition of intervention point	± 0,1 mm
Contact normally open	N.O.

Diagrams and connections



NPN



PNP

These sensors can be used on cylinders series:

SERIES	DESCRIPTION	MOUNTED
1200	for microcylinders with threaded end covers and “TECNO-MIR” microcylinders	with clamps code 1260.Ø.F
	for microcylinders "MIR" with rolled end covers, cylinders from Ø16 to Ø32	with clamps code 1280.Ø.F
	for microcylinders "MIR-INOX" with rolled end covers	with clamps code 1280.Ø.FX
1306 - 1307 - 1308	for cylinders from Ø32 to Ø63	with brackets code 1306.A
	for cylinders from Ø80 to Ø125	with brackets code 1306.B
	for cylinders from Ø160 to Ø200	with brackets code 1306.C
	for cylinders Ø250 (ISO)	with brackets code 1306.D
1319 - 1320	for cylinders Ø32 and Ø40	with brackets code 1320.A
	for cylinders Ø50 and Ø63	with brackets code 1320.B
	for cylinders Ø80 and Ø100	with brackets code 1320.C
	for cylinders Ø125	with brackets code 1320.D
	for cylinders Ø160	with brackets code 1320.E
	for cylinders Ø200	with brackets code 1320.F
1390 - 1391	for cylinders ECOLIGHT Ø32 and Ø40	with brackets code 1390.A
	for cylinders ECOLIGHT Ø50 and Ø63	with brackets code 1390.B
	for cylinders ECOLIGHT Ø80 and Ø100	with brackets code 1390.C
	for cylinders ECOLIGHT Ø125 - Ø200	with brackets code 1390.D
1500	Compact cylinders "Europe" (from Ø32)	directly on groove
1605	Rodless cylinders	with brackets code 1600.A

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, slot or adaptator and have an activation LED indicator.

Note: The magnetic sensors are according to the Directive **EMC 89**/**336**/**CEE** and following amendments.

Instruction on how to use the sensors properly

Particular attention should be paid in order not to exceed the wide operating limits shown into the next pages. Besides, the 2 wires sensors have never to be connected to the mains if a load has not been yet connected in series.These are the only cares that, if not followed, may cause damages to the sensor. Furthermore it has to be considered that, while loading, the current absorbed by the sensors might be 50% higher that the rated one. The switch semiconductor construction design makes this sensors extremely compatible, there are no limitation to the type of load applied : inductive, capacitive resistive. In case of direct current (DC) feeding, the polarity of the connection has to be observed: the brown cable must be connected to the plus (+) and the blue one to the minus (-). The cable length must not exceed 10mtrs. If the cable needs to be longer then 10 mt, we recommend to insert in series an inductance or a resistance to counteract the capacity generated by the cable itself. When using a two wire REED type sensor always ensure that the correct load is applied in series on any of the two wires. In case of two or more sensors connected in series pay attention to tension drop generated (around 3V for each sensor), and eventually use the 3 wire REED version designed for in series connection. The Hall effect sensors, which do not include any moving mechanical parts are longer lasting if compared to the Reed version besides, there are some other external factors to be taken into consideration, such as proximity of powered cables, magnetic fields produced by electric motors, mass of iron too close to the sensor, and so on: these factors have to be therefore carefully avoided, being able to influence the sensors and accordingly to cause irregularity of operation.

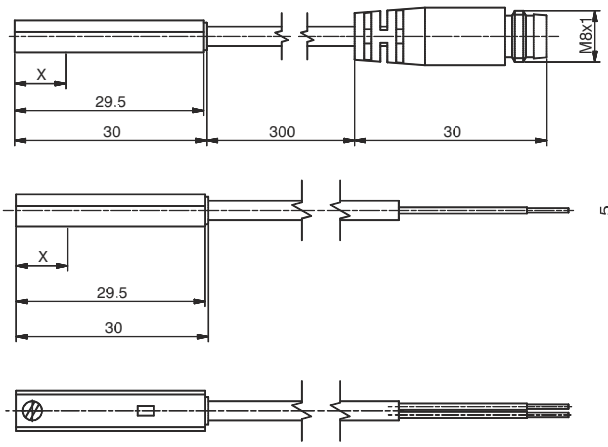
Sensor with 2.5 m. cable

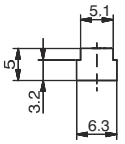
Weight gr. 27

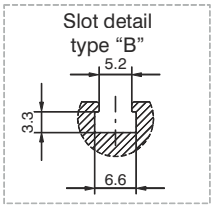
Sensor with cable and M8 connector

Weight gr. 15

X= point of commutation





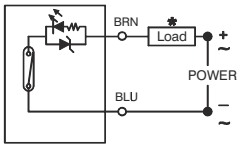


Sensor ordering codes

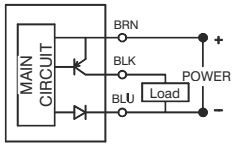
Ampulla Reed sensors, with led, Universal, N.O. (Normally open)		X=point of commutation
1580.U	(2 wires) cable 2.5 mt.	15 mm
MRS.U	(2 wires) cable 300 mm, M8 connector (use MC1 or MC2 connectors)	15 mm
1580.UAP	PNP (3 wires) cable 2.5 mt.	15 mm
MRS.UAP	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	15 mm

Hall effect sensors, with led, DC, N.O. (Normally open)		X=point of commutation
1580.HAP	PNP (3 wires) cable 2.5 mt.	8 mm
1580.HAN	NPN (3 wires) cable 2.5 mt.	8 mm
MHS.P	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	8 mm

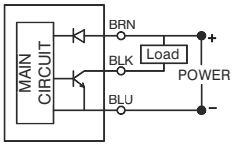
Diagrams and connections



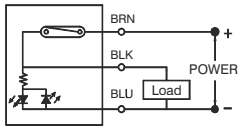
with Reed bulb (2 wires)



Hall-PNP effect (3 wires)



Hall-NPN effect (3 wires)



with Reed bulb (3 wires)

*** The load (LOAD) can be connected either to negative or positive pole**

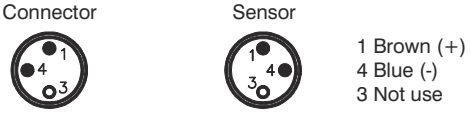
Technical characteristics	**1580.U**	**MRS.U**	**1580.UAP**	**MRS.UAP**	**1580.HAP**	**1580.HAN**	**MHS.P**
Type of contact	N.O.						
Output type			PNP			NPN	PNP
Maximum current	100mA						
Maximum permanent power	14 VA - 10 W		4 VA - 3 W		3 W		
Voltage range	5 - 230V DC/AC	5 - 30V DC/AC	10 - 30 V DC/AC		10 - 30 V DC		
Working temperature	-10°C - +70°C						
Maximum voltage drop	3.5 V		0V **		2 V		
Cable section (mm^2)	2 x 0.14 Ø3.3mm PUR	2 x 0.14 Ø3.3mm PUR	3 x 0.14 Ø3.3 mm PUR		3 x 0.14 Ø3.3 mm PUR		
Degree of protection	IP 67						

**** Even if one sensor generates a voltage drop very close to 0 Volts, we suggest to connect no more than 30 sensors in series.**

Cable ordering code

MC1	cable 2 wires l=2.5m with M8 connector
MC2	cable 2 wires l=5m with M8 connector
MC3	cable 2 wires l=10m with M8 connector

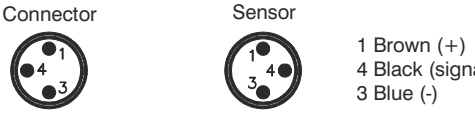
Connection 2 wires



1 Brown (+)
4 Blue (-)
3 Not use

MCH1	cable 3 wires l=2.5m with M8 connector
MCH2	cable 3 wires l=5m with M8 connector
MCH3	cable 3 wires l=10m with M8 connector

Connection 3 wires



1 Brown (+)
4 Black (signal)
3 Blue (-)

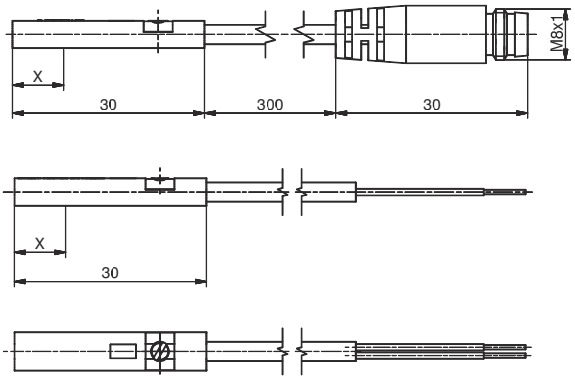
6

Sensor with 2.5 m. cable

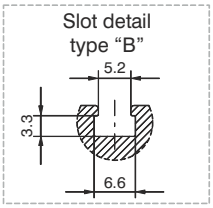
Weight gr. 27

Sensor with cable and M8 connector

Weight gr. 15



X= point of commutation

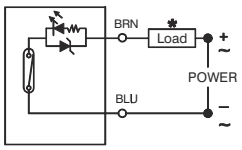


Sensor ordering codes

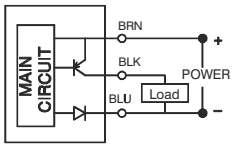
Ampulla Reed sensors, with led, Universal, N.O. (Normally open)		X=point of commutation
1590.U	(2 wires) cable 2.5 mt.	8 mm
LRS.U	(2 wires) cable 300 mm, M8 connector (use MC1 or MC2 connectors)	8 mm
1590.UAP	PNP (3 wires) cable 2.5 mt.	8 mm
LRS.UAP	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	8 mm

Hall effect sensors, with led, DC, N.O. (Normally open)		X=point of commutation
1590.HAP	PNP (3 wires) cable 2.5 mt.	6 mm
LHS.P	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	6 mm

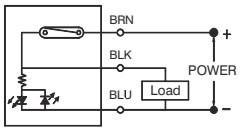
Diagrams and connections



with Reed bulb (2 wires)



Hall-PNP effect (3 wires)



with Reed bulb (3 wires)

*** The load (LOAD) can be connected either to negative or positive pole**

Technical characteristics	**1590.U**	**LRS.U**	**1590.UAP**	**LRS.UAP**	**1590.HAP**	**LHS.P**
Type of contact	N.O.					
Maximum current	100mA		500mA		200mA	
Maximum permanent power	14 VA - 10 W		14 VA - 10 W		6 W	
Voltage range	5 - 30V DC/AC		10 - 30 V DC/AC		10 - 30 V DC	
Working temperature	-10°C - +70°C					
Maximum voltage drop	3 V		0V **		1.5 V	
Cable section (mm²)	2 x 0.14 Ø3 mm PUR		3 x 0.14 Ø3 mm PUR			
Degree of protection	IP 67					

**** Even if one sensor generates a voltage drop very close to 0 Volts, we suggest to connect no more than 30 sensors in series.**

Cable ordering code

MC1	cable 2 wires l=2.5m with M8 connector
MC2	cable 2 wires l=5m with M8 connector
MC3	cable 2 wires l=10m with M8 connector
MCH1	cable 3 wires l=2.5m with M8 connector
MCH2	cable 3 wires l=5m with M8 connector
MCH3	cable 3 wires l=10m with M8 connector

Connection 2 wires

Connector

Sensor

1 Brown (+)
4 Blue (-)
3 Not use

Connection 3 wires

Connector

Sensor

1 Brown (+)
4 Black (signal)
3 Blue (-)

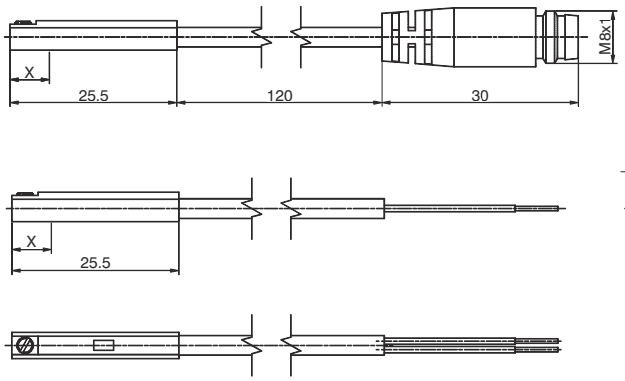
6

Sensor with 2.5 m. cable

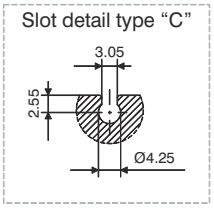
Weight gr. 22

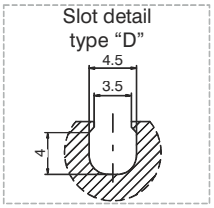
Sensor with cable and M8 connector

Weight gr. 10



X= point of commutation



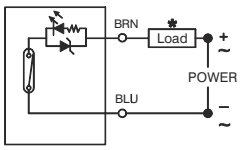


Sensor ordering codes

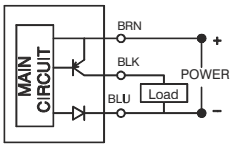
Ampulla Reed sensors, with led, Universal, N.O. (Normally open)		X=point of commutation
1581.U	(2 wires) cable 2.5 mt.	10 mm
TRS.U	(2 wires) cable 100 mm, M8 connector (use MC1 or MC2 connectors)	10 mm

Hall effect sensors, with led, DC, N.O. (Normally open)		X=point of commutation
1581.HAP	PNP (3 wires) cable 2.5 mt.	7.5 mm
THS.P	PNP (3 wires) cable 100 mm, M8 connector (use MCH1 or MCH2 connectors)	7.5 mm

Diagrams and connections



with Reed bulb (2 wires)



Hall-PNP effect (3 wires)

*** The load (LOAD) can be connected either to negative or positive pole**

Technical characteristics	**1581.U**	**TRS.U**	**1581.HAP**	**THS.P**
Type of contact	N.O.			
Maximum current	50mA			
Maximum permanent power	8 VA - 1,5 W		1,5 W	
Voltage range	5 - 30V DC/AC		10 - 30 V DC	
Working temperature	-10°C - +70°C			
Maximum voltage drop	3,5 V		1 V	
Cable section (mm^2)	2 x 0,14 Ø2,8 mm PUR		3 x 0,14 Ø2,8 mm PUR	
Degree of protection	IP 67			

Cable ordering code

MC1	cable 2 wires l=2.5m with M8 connector
MC2	cable 2 wires l=5m with M8 connector
MC3	cable 2 wires l=10m with M8 connector

Connection 2 wires

Connector

Sensor

1 Brown (+)
4 Blue (-)
3 Not use

MCH1	cable 3 wires l=2.5m with M8 connector
MCH2	cable 3 wires l=5m with M8 connector
MCH3	cable 3 wires l=10m with M8 connector

Connection 3 wires

Connector

Sensor

1 Brown (+)
4 Black (signal)
3 Blue (-)

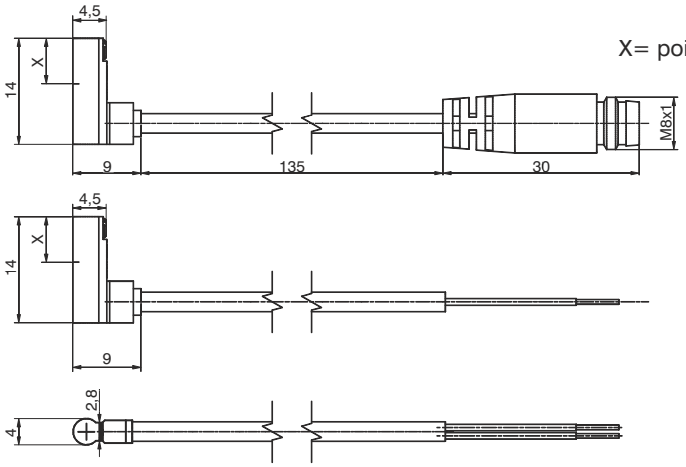
6

Sensor with cable

Weight gr. 22

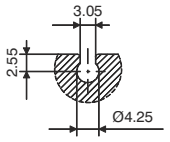
Sensor with cable and M8 connector

Weight gr. 10

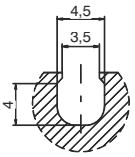


X= point of commutation

Slot detail type “C”



Slot detail type “D”

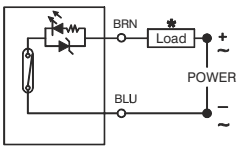


Sensor ordering codes

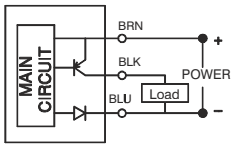
Ampulla Reed sensors, with led, DC, N.O. (Normally open)		X=point of commutation
1583.DC	(2 wires) cable 2 mt.	6 mm

Hall effect sensors, with led, N.O. (Normally open)		X=point of commutation
1583.HAP	PNP (3 wires) cable 3 mt.	6 mm
THR.P	PNP (3 wires) cable 100 mm, M8 connector (use MCH1 or MCH2 connectors)	6 mm

Diagrams and connections



with Reed bulb (2 wires)



Hall-PNP effect (3 wires)

*** The load (LOAD) can be connected either to negative or positive pole**

TECHNICAL CHARACTERISTICS	1583.DC	1583.HAP	THR.P
Type of contact	N.O.		
Maximum current	20mA	50mA	
Maximum permanent power	0,6 W	1,5 W	
Voltage range	10 - 28V DC	4,5 - 28 V DC	
Working temperature	-10°C - +70°C		
Maximum voltage drop	3,5 V	0,5 V	
Cable	Ø2,6 mm PVC - 2 m	Ø2,6 mm PVC - 3 m	
Degree of protection	IP 67		

Cable ordering code

MCH1	cable 3 wires l=2.5m with M8 connector
MCH2	cable 3 wires l=5m with M8 connector

Connection 3 wires

Connector

Sensor

1 Brown (+)
4 Black (signal)
3 Blue (-)

6

Rectangular section version (for sensor slot type “B”)

SERIES	DESCRIPTION	MOUNTED
1200	Microcylinders with threaded end covers and “TECNO-MIR” microcylinders	with clamps code 1260.Ø.FS
	Microcylinders "MIR" with rolled end covers	with clamps code 1280.Ø.FS
	Microcylinders "MIR-INOX" with rolled end covers	with clamps code 1280.Ø.FSX
1319 - 1320 1325 - 1345 1330 - 1332 1348 - 1349	for cylinders Ø32 - Ø40	with brackets code 1320.AS
	for cylinders Ø50 - Ø63	with brackets code 1320.BS
	for cylinders Ø80 - Ø100	with brackets code 1320.CS
1386-87 / 1396-97	Cylinders according to standard ISO 15552 ECOPLUS	directly on groove
1390-1391	Cylinders according to standard ISO 15552 ECOLIGHT **Warning**: To use only into the lateral slot, from Ø32 to Ø63 cylinders. (do not use into the 2 slots positioned on the side of feeding connection)	directly on groove
1370-1373	Cylinders ECOFLAT	directly on groove
1500	Short stroke compact cylinders	with adapter code 1380.01F
	Compact cylinders "Europe"	from Ø12 to Ø25: directly on groove from Ø32 to Ø50: directly on groove or with adapter 1380.01F from Ø63 to Ø100: with adapter cod. 1380.01F
	Compact cylinder according to standard ISO 21287 ECOMPACT	directly on groove
1605	Rodless cylinders	with adapter code 1600.B
6100	Guided compact cylinder (Ø20 - Ø63)	directly on groove
6101	Heavy duty guided shortstroke cylinder	
6200	Twin rod slides units	
6210	Push/pull twin rod slides units	
6301	Pneumatic grippers, angular standard version	
6303	180° angular gripper rack & pinion style	
6310	Parallel style pneumatic grippers standard version (Ø10)	
6311	Parallel style pneumatic grippers wide opening	
6312	3 finger parallel style pneumatic grippers (Ø32 - Ø125)	

Oval section version (for sensor slot type “B”)

SERIES	DESCRIPTION	MOUNTED
1386-87 / 1396-97	Cylinders according to standard ISO 15552 ECOPLUS	directly on groove
1390-1391	Cylinders according to standard ISO 15552 ECOLIGHT	directly on groove
1370-1373	Cylinders ECOFLAT	directly on groove
1500	Compact cylinders "Europe"	from Ø12 to Ø25: directly on groove
	Compact cylinder according to standard ISO 21287 ECOMPACT	directly on groove
6100	Guided compact cylinder (Ø20 - Ø63)	directly on groove
6101	Heavy duty guided shortstroke cylinder	
6200	Twin rod slides units	
6210	Push/pull twin rod slides units	
6301	Pneumatic grippers, angular standard version	
6303	180° angular gripper rack & pinion style	
6310	Parallel style pneumatic grippers standard version (Ø10)	
6311	Parallel style pneumatic grippers wide opening	
6312	3 finger parallel style pneumatic grippers (Ø32 - Ø125)	
6411	Single rack rotary actuators	

Round section version (for sensor slot type “C” and “D”)

SERIES	DESCRIPTION	MOUNTED
6100	Guided compact cylinder (Ø12 - Ø16)	directly on groove
6302	Pneumatic grippers, 180 °angular	
6310	Parallel style pneumatic grippers standard version (Ø10 and Ø16)	
6312	3 finger parallel style pneumatic grippers (Ø16 - Ø25)	
6400	Double rack rotary actuators with turn table	
6420	Vane type rotary actuators (from Ø10 to Ø40)	
6500	Arbitrary mount cylinders	
6600	Slide cylinders	
6700	Guide cylinders	

Round section 90° cable version (for sensor slot type “C” and “D”)

SERIES	DESCRIPTION	MOUNTED
6420	Vane type rotary actuators	directly on groove

Chapter 6