Series SR - SU - SQ - ST

General

The limit switches, or magnetic sensors, must 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 to relay, solenoid valve or converse with the controlling electronic system of the machine. There are both ampulla Reed and Hall effect magnetic sensor available. The sensors are attached to the cylinder by a proper clamp, slot or adapter and may have an activation LED indicator.

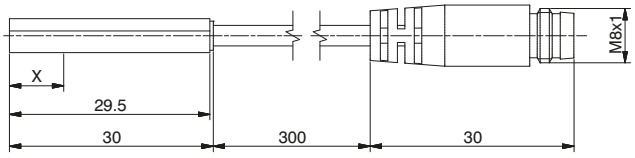
Note: The magnetic sensors are according to the Directive **EMC 89/336/CEE** and following amendments.

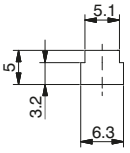
Instruction on how to use the sensors properly

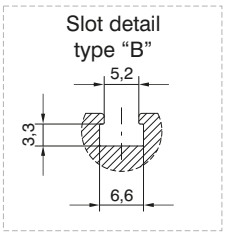
Particular attention should be paid in order not to exceed the wide operating limits shown in the next pages. Besides, the 2 wires sensors have never to be connected to the mains if a load has not been yet connected in series. These are the only cares that, if not followed, may cause damages to the sensor. Besides, please consider that, while loading, the current absorbed by the sensors might be 50% higher that the rated one.
In case of direct current (DC) feeding, the polarity of the connection must be observed: the brown cable must be connected to the plus (+) and the blue one to the minus (-).
For all sensors, particular attention has to be paid to external factors (like, for example, nearby live cables, electromagnetic fields generated by electric motors, nearby metallic bodies, etc.) since they can affect the magnetic field generated by the magnet inside the piston and therefore causing malfunctions.
Electrical cable length must be kept below 10 meters in order to guarantee proper functioning.
If needed, 10 meters cable length can be exceeded; Pneumax suggests the use of an inductor or resistor in series to the load in order to reduce the capacitive behavior of the cable.
In this case, the customer is responsible for the selection of the inductor or resistor value. Pneumax assume no responsibility in case of malfunction.
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 two or more sensors need to be connected in series, pay attention to the voltage drop generated (around 3V for each sensor), and, in case, use the version designed for in series connection.
Hall effect sensors are longer lasting if compared to the Reed version since they do not include any moving mechanical part.

Sensor with 2.5 m. cable

Weight g 27

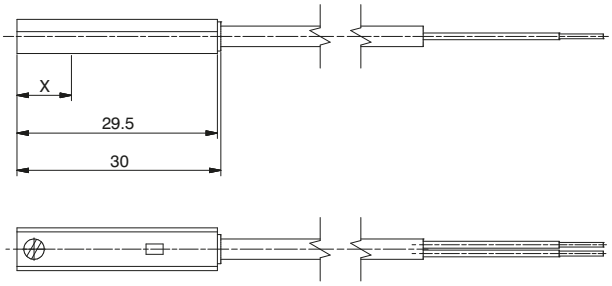






Sensor with cable and M8 connector

Weight g 15



Ordering code

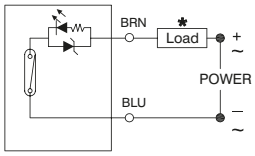
Ampulla Reed sensors, with led, Universal, N.O. (Normally open)

			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

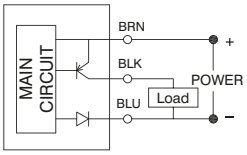
Hall effect sensors, with led, DC, N.O. (Normally open)

			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

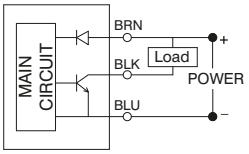
Diagrams and connections



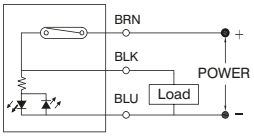
with Reed bulb (2 wires)



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 (mm²)	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
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

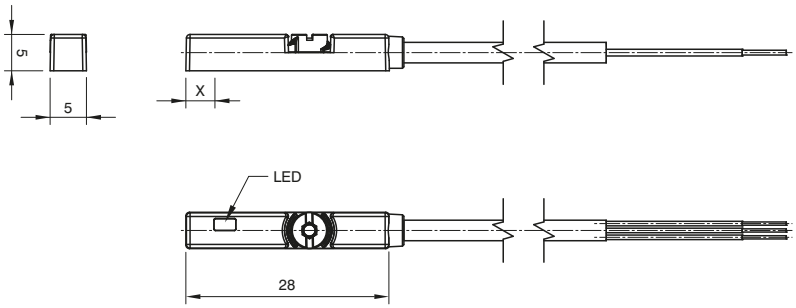
Connector

Sensor

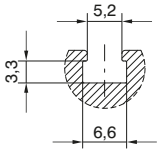
1 Brown (+)
4 Black (signal)
3 Blue (-)

Sensor with 2.5 m. cable

Weight g 23



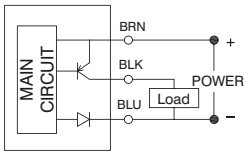
Slot detail type “B”



Ordering code

Hall effect sensors, with led, DC, N.O. (Normally open)		X= point of commutation
1595.HAP	PNP (3 wires) cable 2.5 mt.	2.3 mm

Diagrams and connections

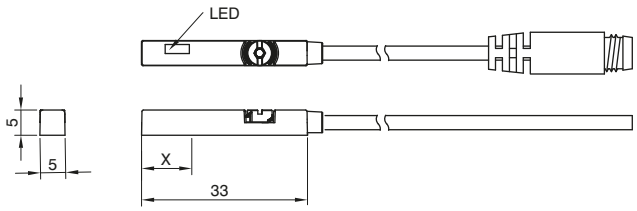


Hall-PNP effect (3 wires)

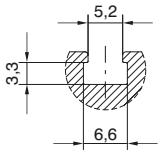
Technical characteristics	1595.HAP
Type of contact	N.O.
Output type	PNP
Maximum current	100 mA
Maximum permanent power	3W
Voltage range	10 - 28 VDC
Working temperature	-10 - +70°C
Maximum voltage drop	1,5V
Cable section (mm^2)	3 x 0,14 Ø2.8 mm PUR
Degree of protection	IP67

Sensor with 2,5 m cable

Weight g 27

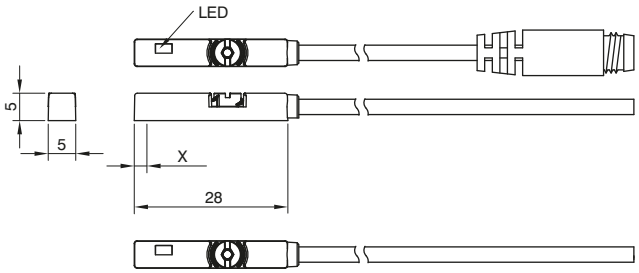


Slot detail type “B”



Sensor with cable and M8 connector

Weight g 15



Ordering code

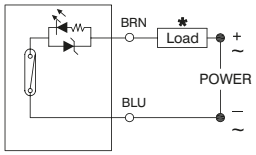
Ampulla Reed sensors, with led, Universal, N.O. (Normally open)

		X=point of commutation
1590.U	(2 wires) cable 2.5 mt.	10 mm
LRS.U	(2 wires) cable 300 mm, M8 connector (use MC1 or MC2 connectors)	10 mm
1590.UAP	PNP (3 wires) cable 2.5 mt.	10 mm
LRS.UAP	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	10 mm

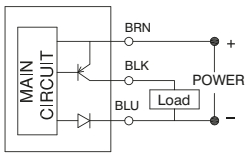
Hall effect sensors, with led, DC, N.O. (Normally open)

		X=point of commutation
1590.HAP	PNP (3 wires) cable 2.5 mt.	2,3 mm
LHS.P	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	2,3 mm

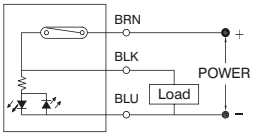
Diagrams and connections



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

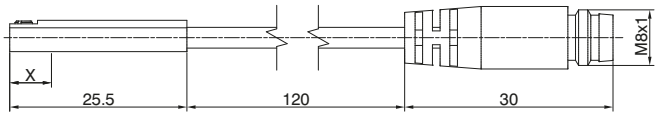
Connector

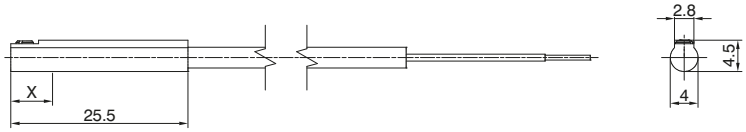
Sensor

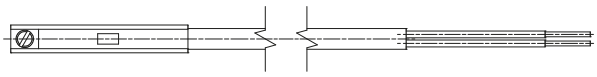
1 Brown (+)
4 Black (signal)
3 Blue (-)

Sensor with 2.5 m. cable

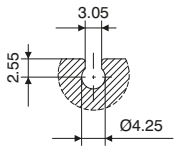
Weight g 22



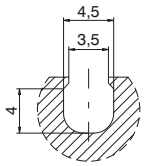




Slot detail type "C"



Slot detail type "D"



Sensor with cable and M8 connector

Weight g 10

Ordering code

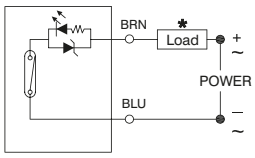
Ampulla Reed sensors, with led, Universal, N.O. (Normally open)

		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

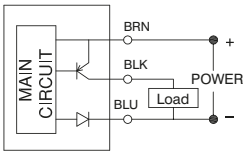
Hall effect sensors, with led, DC, N.O. (Normally open)

		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 (mm²)	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

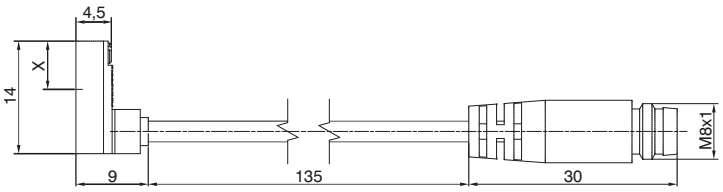
Connector

Sensor

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

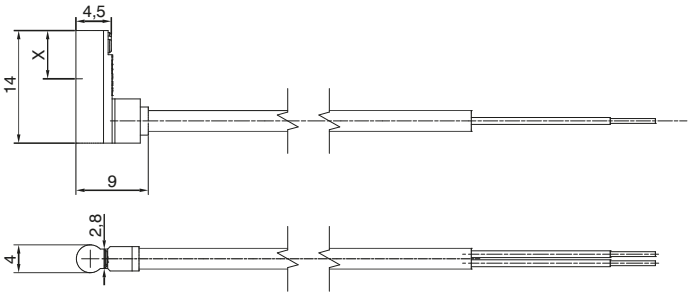
Sensor with cable

Weight g 22

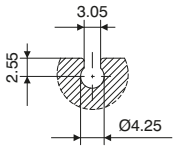


Sensor with cable and M8 connector

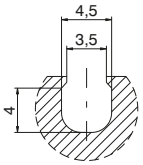
Weight g 10



Slot detail type “C”



Slot detail type “D”



Ordering code

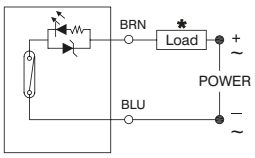
Ampulla Reed sensors, with led, DC, N.O. (Normally open)

		X=point of commutation
1583.DC	(2 wires) cable 2 mt.	6 mm

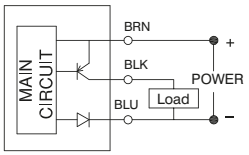
Hall effect sensors, with led, N.O. (Normally open)

		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 (-)

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

SERIES	DESCRIPTION	MOUNTED
1200	Microbore with threaded end covers and “TECNO-MIR” microbore “MIR” with rolled end covers Microbore “MIR-INOX” with rolled end covers	with clamps code **1260.Ø.FS** with clamps code **1280.Ø.FS** 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**
	for cylinders Ø125	with brackets code **1320.DSC**
	for cylinders Ø160	with brackets code **1320.ESC**
	for cylinders Ø200	with brackets code **1320.FSC**
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	Twin through rod slides units	
6301	Pneumatic grippers, angular standard version	
6303	180° angular gripper rack & pinion style	
6310	Parallel style pneumatic grippers standard version (Ø10 - Ø25)	
6311	Parallel style pneumatic grippers wide opening	
6312	3 finger parallel style pneumatic grippers (Ø32 - Ø125)	

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

SERIES	DESCRIPTION	MOUNTED
1200	Microbore with threaded end covers and “TECNO-MIR” microbore “MIR” with rolled end covers Microbore “MIR-INOX” with rolled end covers	with clamps code **1260.Ø.FS** with clamps code **1280.Ø.FS** with clamps code **1280.Ø.FSX**
1319 - 1320 1325 - 1345 1330 - 1332 1348 - 1349	for cylinders Ø32 - Ø40	with brackets code 1320.ASC
	for cylinders Ø50 - Ø63	with brackets code 1320.BSC
	for cylinders Ø80 - Ø100	with brackets code 1320.CSC
	for cylinders Ø125	with brackets code 1320.DSC
	for cylinders Ø160	with brackets code 1320.ESC
	for cylinders Ø200	with brackets code 1320.FSC
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
		from Ø32 to Ø50: directly on groove
	Compact cylinder according to standard ISO 21287 ECOMPACT	directly on groove
6100	Guided compact cyalinder (Ø20 - Ø63)	directly on groove
6101	Heavy duty guided shortstroke cylinder	
6200	Twin rod slides units	
6210	Twin through rod slides units	
6301	Pneumatic grippers, angular standard version	
6303	180° angular gripper rack & pinion style	
6310	Parallel style pneumatic grippers standard version (Ø10 - Ø25)	
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 (Ø16 and Ø25)	
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