

SENSORS (MAGNETIC PROXIMITY SWITCHES)

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General features and codification scheme

GENERAL FEATURES:

The magnetic sensor is a device that change its status with the magnetic field.
Basically it'fs used as proximity end-stroke on the pneumatic cylinders which have the piston holding a magnet.
Therefore, fastening the sensor, on its seat on the external part of the cylinder housing, it is possible to get the information relative to the position of the piston, by an electrical contact or a voltage output, depending on the kind sensor which can be REED switch or static (GMR magneto resistive chip) respectively.
The sensor cabled or quick connect are available.
Our custom service is accessible round-the-clock to meet specific requirements for which standard products are not satisfactory.

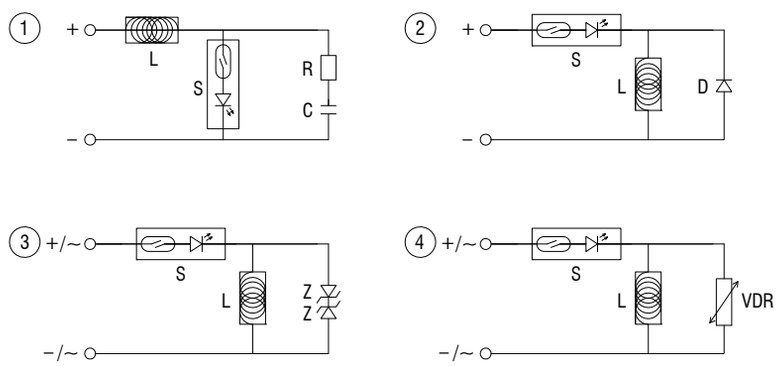
SENSOR CHOICING:

Sensor choicing The sensor is a switch indeed, connect in series with a load, it must be used respecting its own electrical limit.
The functioning principles are two.
REED SWITCH: an electrical contact is switched by a magnetic field.
It can be supplied with both Vac and Vdc voltage.
In presence of vibration it can give troubles. If several sensors must be connected in series, it is recommended to utilize the version "D" to avoid the voltage drop due to the led indicators.
ELECTRONIC: a chip magneto resistor (GMR) is a solid-state device, therefore static (long life) with a voltage output NPN (sink) or PNP (source).
It must be supplied only with a 30Vdc max voltage. No problem in case of vibrations.

PROTECTION CIRCUIT FOR SWITCHES:

The switching of inductive loads made by REED produces an high voltage peak during the drop-out. In order to prevent dielectric discharges or voltaic arcs, you have to introduce a protection circuit.
It can be:
- a RC circuit in parallel to the switch in case of V dc supply - (Picture n.1) -
- a diode in parallel to the load in case of V dc supply - (Picture n.2) -
- n.2 Zener diodes in parallel to the load with V ac / dc supply - (Picture n.3) -
- a varistor (VDR) in parallel to the load with V ac / dc supply - (Picture n.4) -

The switching of capacitive loads or the use of cables longer than 10 meters produces current peaks during the connection. For this reason you have to introduce a protection resistance near the switch on the brown wire. Please, pay attention in granting the minimum necessary current to the switch. (10 ÷ 20 mA)



HSL | 1 | C | 2 | 25 | - | G15

SERIES
HCB ; HSA ; HSL ; HSM ; HSS

CONNECTION
1 : 2 WIRES CABLE.
2 : 2 WIRES M8 SNAP CONNECTOR.
3 : 3 WIRES M8 SNAP CONNECTOR.
4 : 3 WIRES CABLE.
5 : 2 WIRES M12 SNAP CONNECTOR.
6 : 3 WIRES M12 SNAP CONNECTOR.
7 : 3 WIRES CABLE.
8 : 3 WIRES M8 AU SNAP CONNECTOR.
9 : 3 WIRES M12 AU SNAP CONNECTOR.

CIRCUIT TYPE
A : NO LED 2 WIRES - REED.
B : NO LED+VDR 2 WIRES - REED.
C : 2 WIRES - REED.
D : 3 WIRES - REED PNP.
F : NO LED 2 WIRES - NC REED.
G : NO LED+VDR 2 WIRES - NC REED.
H : 2 WIRES - NC REED.
M : MAGNETO-RESOSTIVE NPN.
N : MAGNETO-RESOSTIVE PNP.
P : NC MAGNETO-RESOSTIVE PNP.
L : NC MAGNETO-RESOSTIVE NPN.

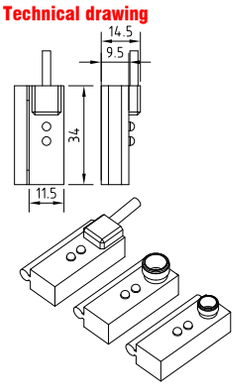
VOLTAGE
2 : 24 V AC/DC.
3 : 110 V AC.
5 : 250 V AC.

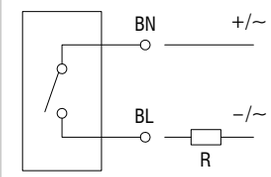
CABLE LENGTH
NO DIGIT : WITHOUT CABLE.
03: EXTENSION WITH SENSOR + M8 L=0.3m.
25: SENSOR + M8/M12 CONNECTOR WITH CABLE L=2.5m.

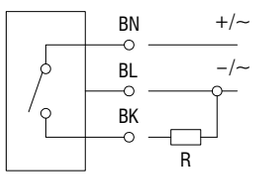


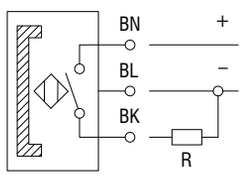


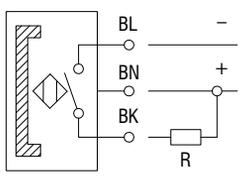
Technical drawing

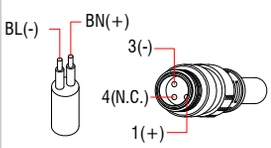


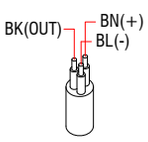


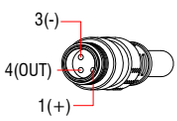






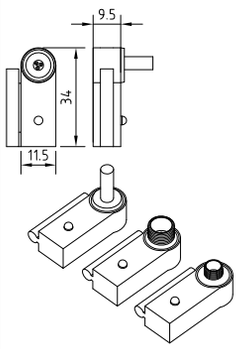
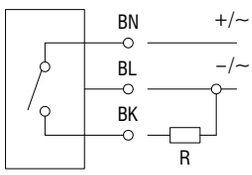
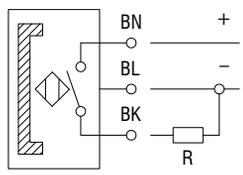
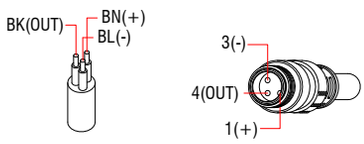


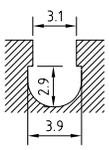
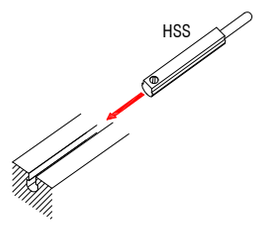
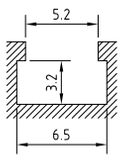
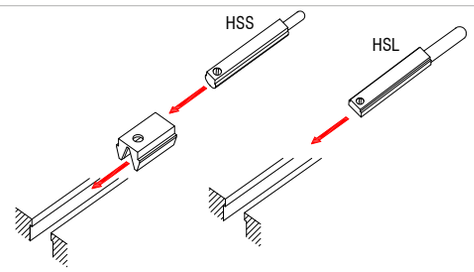
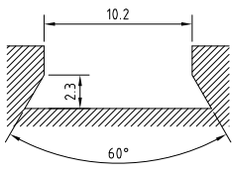
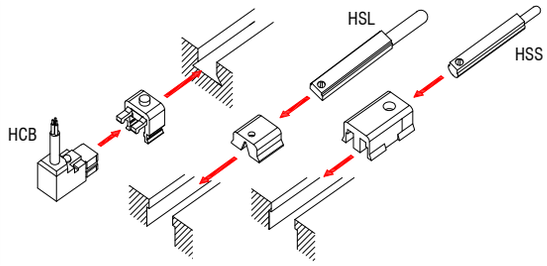
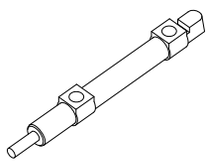
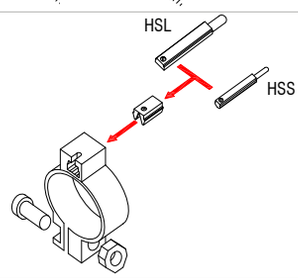
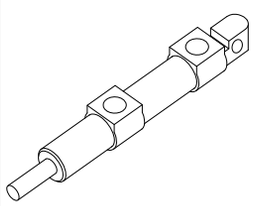
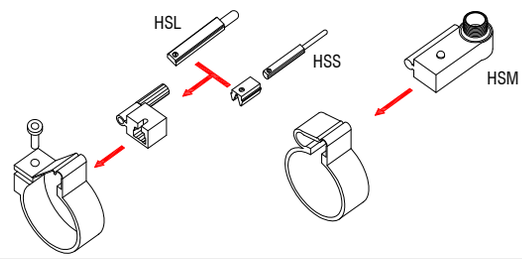
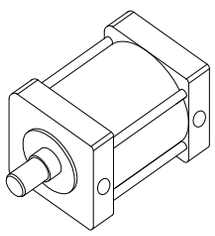




Product description				
Sensor type	2 wires REED NORMALLY OPEN	3 wires REED NORMALLY OPEN	Magneto-resistive PNP NORMALLY OPEN	Magneto-resistive NPN NORMALLY OPEN
Sensor Part Number:				
2.5m moulded cable	**HSM1C525-G15**	**HSM4D225-G15**	**HSM4N225-G15**	**HSM4M225-G15**
With M8 plug	**HSM2C5-G15**	**HSM3D2-G15**	**HSM3N2-G15**	**HSM3M2-G15**
With M12 plug	**HSM5C5-G15**	**HSM6D2-G15**	**HSM6N2-G15**	**HSM6M2-G15**
Technical data				
Power Supply Rated voltage	3 ÷ 250 V AC/DC	0 ÷ 24 V AC/DC	6 ÷ 30 V DC	6 ÷ 30 V DC
Switching current	1.5 A	2 A	0.25 A	0.25 A
Power Rating	10 W	10 W	6 W	6 W
On voltage drop	< 3 V	//	< 1 V	< 1 V
Nominal operate point	20 ÷ 25 AT	20 ÷ 25 AT	15Gauss (11 ÷ 22 Gauss)	15Gauss (11 ÷ 22 Gauss)
ON-OFF differential	5 ÷ 10 AT	5 ÷ 10 AT	4 ÷ 7 Gauss	4 ÷ 7 Gauss
"ON" response time	0.5 ms	0.5 ms	0.8 µs	0.8 µs
"OFF" response time	0.1 ms	0.1 ms	0.3 µs	0.3 µs
Operating temperature	- 10°C ÷ 70°C	- 10°C ÷ 70°C	- 10°C ÷ 70°C	- 10°C ÷ 70°C
Operating frequency	500 Hz	500 Hz	200 Hz	
Life Time	10^7 imp	10^7 imp	10^9 imp	10^9 imp
Speed piston	10 m/s	10 m/s	10 m/s	10 m/s
Polarity - reversal protection	Yes	Yes	Yes	Yes
Protection class	IP 67	IP 67	IP 67	IP 67
Sensor material	PA ; AISI 303 ; OT 63	PA ; AISI 303 ; OT 63	PA ; AISI 303 ; OT 63	PA ; AISI 303 ; OT 63
M8-M12 plug material	Brass	Brass	Brass	Brass
Cable type	PVC/PVC CEI2022 II O.R.	PVC/PVC CEI2022 II O.R.	PVC/PVC CEI2022 II O.R.	PVC/PVC CEI2022 II O.R.
Cable jacket colour	Grey	Grey	Grey	Grey
No.Conductors / Section	2x0.14mm²	3x0.14mm²	3x0.14mm²	3x0.14mm²
Conductor colours	Brown(+); Blue(-);	Brown(+); Blue(-); Black(OUT)	Brown(+); Blue(-); Black(OUT)	Brown(+); Blue(-); Black(OUT)
Cable length	2.5m	2.5m	2.5m	2.5m
Packaging				
Qty/Box	1pc / Bag	1pc / Bag	1pc / Bag	1pc / Bag
Other accessories options				
-				
Notes:				



Technical drawing				
				
Product description				
Sensor type	3 wires REED NORMALLY OPEN	Magneto-resistive PNP NORMALLY OPEN		
Sensor Part Number:				
2.5m moulded cable	**HSM7D225-G15**	**HSM7N225-G15**		
With M8 plug	**HSM8D2-G15**	**HSM8N203-G15**		
With M12 plug	**HSM9D2-G15**	**HSM9N203-G15**		
Technical data				
Power Supply Rated voltage	3 ÷ 30 V AC/DC	6 ÷ 30 V AC/DC		
Switching current	0.2 A	0.2 A		
Power Rating	6 W	6 W		
On voltage drop	//	< 1 V		
Nominal operate point	20 ÷ 25 AT	40Gauss (34 ÷ 46 Gauss)		
ON-OFF differential	5 ÷ 10 Gauss	5 ÷ 15 Gauss		
"ON" response time	- 10 ° ÷ 70°C	- 10 ° ÷ 70°C		
"OFF" response time	0.5 ms	0.8 µs		
Operating temperature	0.1 ms	0.3 µs		
Operating frequency	- 10°C ÷ 70°C	- 10°C ÷ 70°C		
Life Time	10^7 imp	10^9 imp		
Speed piston	10 m/s	10 m/s		
Polarity - reversal protection	Yes	Yes		
Protection class	IP 68	IP 68		
Sensor material	PA	PA		
M8-M12 plug material	Brass	Brass		
Cable type	PVC/PVC CEI2022 II O.R.	PVC/PVC CEI2022 II O.R.		
Cable jacket colour	Grey	Grey		
No.Conductors / Section	3x0.14mm²	3x0.14mm²		
Conductor colours	Brown(+); Blue(-); Black(OUT)	Brown(+); Blue(-); Black(OUT)		
Cable length	2.5m	2.5m		
Packaging				
Qty/Box				
Other accessories options				
-				
Notes:				

Slots type		Sensors type					Applications type
		HSS	HSL	HSA	HSM	HCB	
C slot		HSS	-	-	-	-	
T slot		HSS + HK-SENS	HSL	HSA	-	-	
Dovetail slot		HSS + HK-SENS	HSL + HK-SENS	HSA + HK-SENS	-	HCB	
SW mounting clamps		HSS + HK-SENS + HSW	HSL + HK-SENS + HSW	HSA + HK-SENS + HSW	-	-	
XF mounting clamps		HSS + HK-SENS + HXF	HSL + HK-SENS + HXF	HSA + HK-SENS + HXF	HSM + HXF	HCB	
ST mounting brackets		HSS + HK-SENS + HST	HSL + HK-SENS + HST	HSA + HK-SENS + HST	HSM + HST	HCB	