

New product 2007

Main data

- Long life, no mechanical wear
- Stainless steel fixing plates
- Output contacts: 2NC, 1NO+2NC or 1NO+1NC
- Insensitive to dirt
- Protection degree IP67
- Coded actuator
- Polymer housing
- Versions with M8 integrated connector

Markings and quality marks:

CE

Approval UL: requested

In conformity with requirements requested by:
Low Voltage Directive 2006/95/EC
Machinery Directive 2006/42/EC
Electromagnetic Compatibility 2004/108/EC.

Technical data

Housing
Made of glass-reinforced polymer, self-extinguishing, shock-proof thermoplastic resin.
Version with integrated cable with 4 or 6 x 0.25 mm^2 wires length 2 m, other lengths on request.
Versions with 4 poles M8 integrated connector

Protection degree:	IP67
Dimensions L x P x H:	88 x 25 x 13 mm
Max screw driving torque:	0,8 ... 2 Nm

General data

Ambient temperature:	-20°C ... +80°C
Vibrations holding:	10 gn (10...500 Hz) according to IEC 60068-2-6
Shock holding:	30 gn (11 ms) according to IEC 60068-2-27
Pollution degree	3

In conformity with standards:
IEC 60947-1, EN 60947-1, IEC 60947-5-1, EN 60947-5-1, EN 60947-5-2, EN 60947-5-3 (in connection with safety module), EN 1088, EN ISO 14119, EN ISO 12100-1, EN ISO 12100-2, EN ISO 13849-1, EN ISO 13849-2, IEC 60204-1, EN 60204-1, IEC 529, EN 60529.

Actuating data

Assured operating distance Sao	5 mm with actuator SM B01F
Assured release distance Sar	15 mm with actuator SM B01F
Assured operating distance Sao	8 mm with actuator SM B02F
Assured release distance Sar	20 mm with actuator SM B02F
Repeat accuracy	≤ 10%
Frequency of operating cycles	150 Hz
Distance between two sensors	Min. 50 mm

Electrical data

Rated operational voltage (Ue):	24 VAC/DC
Rated operational current (Ie):	0.25 A (resistive load)
Protection fuse:	0.5 A type gG
Electrical endurance:	1 million operations cycles

Connection with safety modules with personnel protection function:
Connection with safety modules CS AR-08; CS AR-05; CS AR-06.
The sensor connected with the safety module can be classified as device for control circuit up to PDF-M (EN 60947-5-3). The system can be used in safety circuits up to category 4 according to EN 954-1.

Code structure

article code complete with actuator

SR BD40AN2-B01F

Sensor housing

SR	polymer housing

Contacts (with closed protection)

40	2NC
41	1NO+2NC
42	1NO+1NC

Type of cable or connector

N1	integrated PVC cable, length 1 m
N2	integrated PVC cable, length 2 m
...	.....
N10	integrated PVC cable, length 10 m
LK	4 poles M8 connector (available with 40 and 42 contacts only)

Actuator

B01F	complete with SM B01F actuator, actuation distance 5 mm
B02F	complete with SM B02F actuator, actuation distance 8 mm

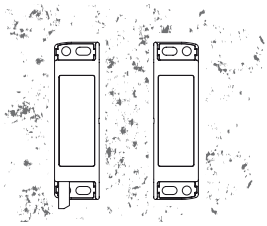
Actuator article code if separately sold

Code	Actuation distance
SM B01F	5 mm
SM B02F	8 mm

Introduction

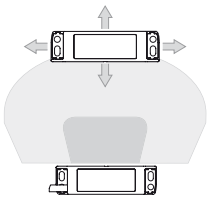
Coded magnetic sensors are devices studied to monitor protections and guards that, when linked to a safety module, can create a system up to safety category 4, according to EN 954-1. These products are composed by a magnetic field monitoring sensor, which is connected to the machine structure; and by a coded magnetic actuator, which has to be connected to the mobile guards. When sensor and actuator are neared (closed guard), the sensor recognizes the actuator and provides to actuate electric contacts. The sensor is manufactured to be activate only by the correct coded actuator and not through a common magnet.

Insensitivity to dirt



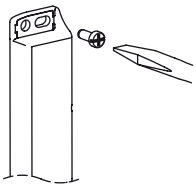
Magnetic sensors are totally sealed and maintain unchanged their safety characteristics also where dirt and dust are present (not ferromagnetic material).
This characteristic, joined with the shape without recesses, make them especially proper to be used in the food-industrial sector.

Wide actuation zone



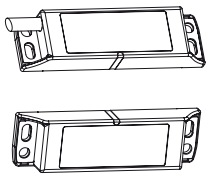
Because of their intrinsic characteristics, magnetic sensors have a wide actuation zone, which make them appreciated in the use of inaccurate protections or for protection that can change their mechanic characteristics through the time.
In this type of sensors actuation distances may change according to the actuator displacement direction from the sensor.

Stainless steel fixing plates



In order to avoid that the fixing on no perfectly plane surfaces could damage the fixing slots, Pizzato Elettrica magnetic sensors are provided with stainless steel fixing plates.
Also in presence of right fixing surfaces, this solution makes the sensor stronger to mechanical stresses and so the whole system becomes safer and more reliable.

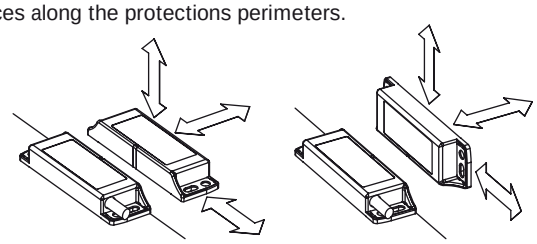
Alignment marks



Sensors and magnets are provided with marks on the housing, as reference for operating distances. For a correct working, it is necessary install sensor with facing marks (see figure).

Actuation from many directions

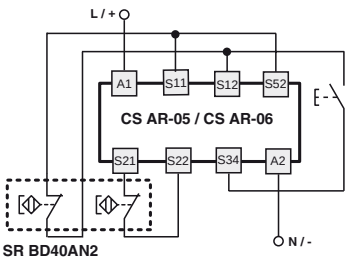
Pizzato Elettrica magnetic sensors have been designed in order to be activated by the related actuator from many directions. In this way, the customer has the max flexibility about the placing of the devices along the protections perimeters.



Coded magnetic sensors used for safety applications

A coded magnetic sensor alone can not be used for safety functions because its working modalities are not considered safe by the standards (as are, for example, the positive opening on mechanical switches). For this reason a coded magnetic sensor, in order to be used in safety applications, has to be compulsory connected to a proper safety module which monitors its right working.

Complete safety system



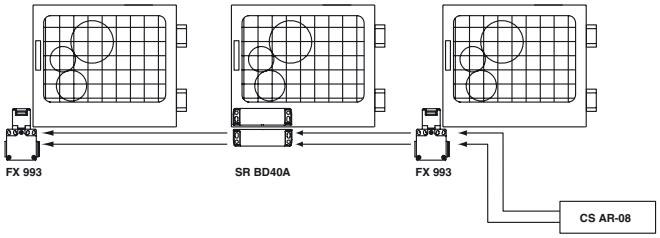
These magnetic sensors have been checked and tested for the working with proper Pizzato Elettrica safety modules. Using completed and tested solutions, the customer has the certainty to have no electric incompatibility between sensor and safety module, and has a higher reliability guarantee.

Sensors	Compatible safety modules	Safety module output contacts
SR BD40A••	CS AR-05••••	3NO+1NC
	CS AR-06••••	3NO+1NC
	CS AR-08••••	2NO
SR BD41A••	CS AR-05••••	3NO+1NC
	CS AR-06••••	3NO+1NC
	CS AR-08••••	2NO

For safety modules technical data see page 4/101

Connection of sensors and switches in series

Pizzato Elettrica magnetic sensors could be connected in series with the only limitation that the overall resistance, gave by sensors and the related wiring, has to be not higher than the admitted max value of the module, which typically 50 ohm (see module features). It is a very high value that, with normal wiring, it allows the use of dozens of sensors without problems. It is also possible to realize mixed circuit solutions connecting in series magnetic sensor to safety switches, with the only limitation of the above mentioned max electric resistance. We remind you that the connection in series of two or more safety sensor, makes the sensors-module system of category 3, according to EN 954-1.

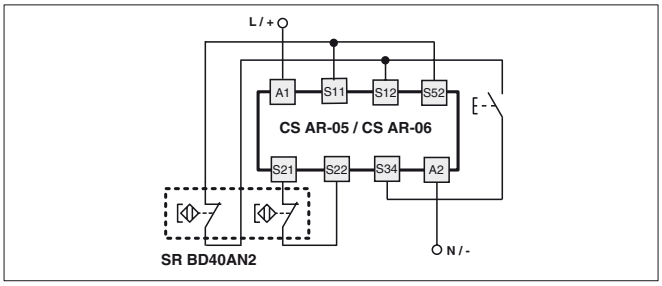


Wiring with safety modules

Wiring with safety modules CS AR-05 or CS AR-06

Input configuration with manual start (CS AR-05) and monitored start (CS AR-06)

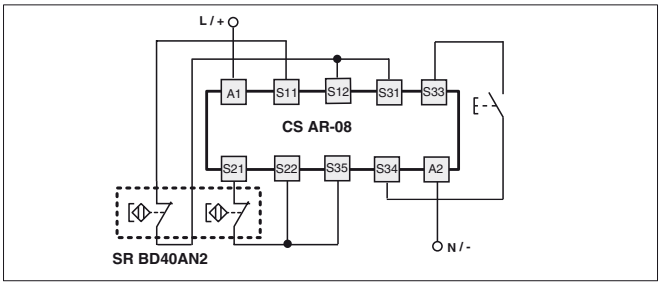
2 channels



Wiring with safety module CS AR-08

Input configuration with manual start

2 channels

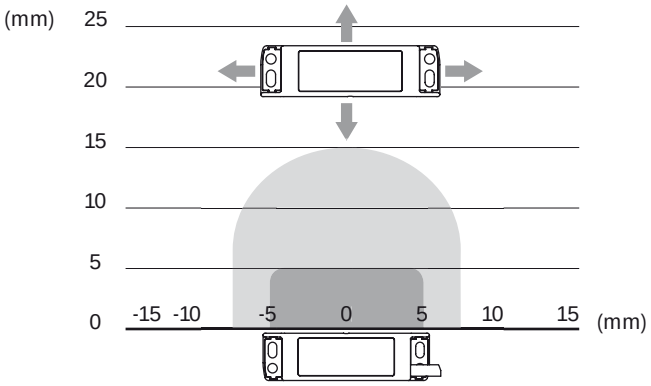


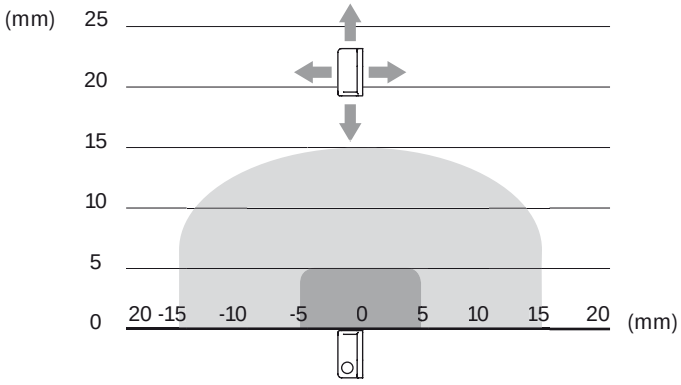
Internal connections

With cable (2NC)	With cable (1NC+1NO)	With cable (2NC+1NO)	With M8 connector (2NC)	With M8 connector (1NC+1NO)
Black White Brown Blue	Black White Brown Blue	Green Brown Grey Pink White Yellow	1 2 4 3 3 1 2 4	1 2 4 3 3 1 2 4

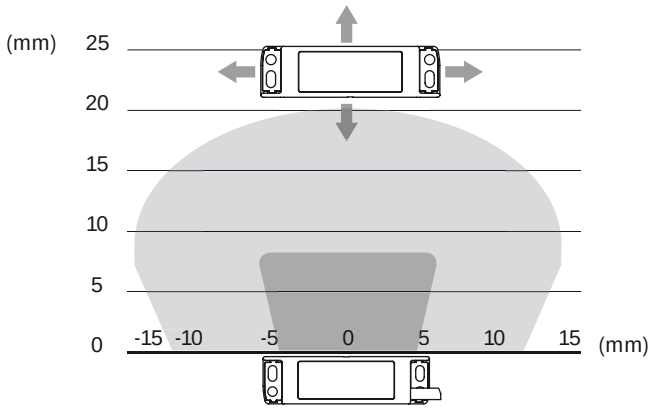
Contacts imply closed protection

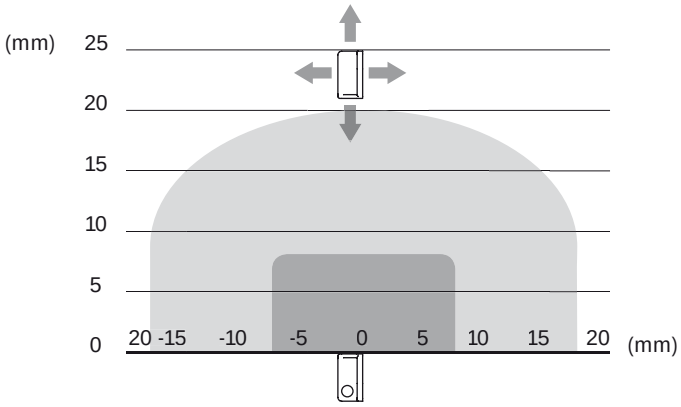
Intervention distance SR BD•••••-B01F





Intervention distance SR BD•••••-B02F





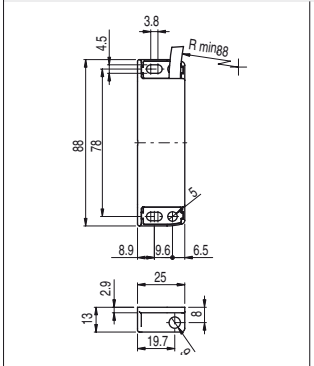
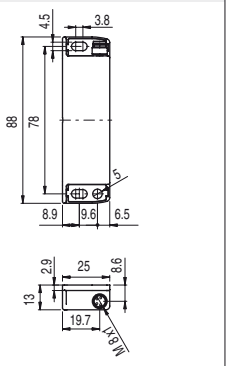
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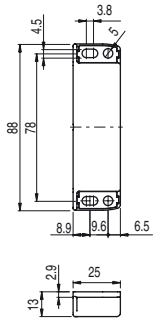
Assured operating distance Sao

Assured release distance Sar

Note: The drawing of the activation areas is indicative.

Dimensional drawings

Sensor with cable, length 2 m		Sensor with M8 connector	
			
SR BD40AN2	2NC	SR BD40ALK	2NC
SR BD41AN2	1NO+2NC		
SR BD42AN2	1NO+1NC	SR BD42ALK	1NO+1NC

Coded actuator

SM B0•F

Utilization limits

- The installation must be performed by qualified staff only.
- Before installation and at regular interval, check the right contacts switching and the system operation of the sensor and the associated safety module.
- Do not use a hammer for adjustment.
- Do not use the sensor as a mechanical stop.
- Observe the assured operating and release distances.
- It is advisable to make adjustment observing the diagram reported in the switching distances section.
- Do not install the sensor and the actuator on strong magnetic field.
- Keep away from iron filing.

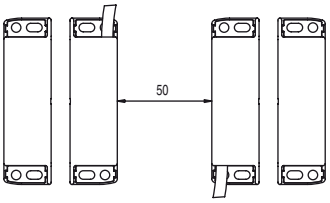
Shock, vibrations and wear:

- Do avoid impact with the sensor. Excessive shock and vibrations could not guarantee the right working of the sensor.
- The actuator must not strike sensor.
- In case of damages or wear is necessary to change the whole device, included the actuator.
- The sensor and the actuator must be replaced after 1 million operations.

Warning during the wiring:

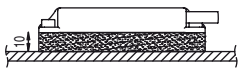
- Keep the load under the value given in the utilization category.
- When sensor contacts are used without the related safety module, connect in series a protection fuse.
- Turn off the power supply before check the switch connection contacts, also during the wiring.

Multiple systems sensor-actuator assembly

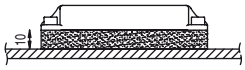


The minimum mounting gap between sensor-actuator systems must be at least 50 mm.

Installation on ferromagnetic material



- If possible do not mount the sensor and the actuator on ferromagnetic materials.
- In order to avoid switching distances reductions, use a non-magnetic shim minimum thickness ≥ 10 mm.



Accessories See page 5/1