



# MAGNETIC SENSORS

The magnetic sensors range is basically made by two categories

## DETECTION OF EXTERNAL MAGNETS

Very long sensing distance even with small sensors are possible. In order to choose properly the magnet see page C-12. In many cases the sensor is used to detect a magnet embedded inside other devices such as pneumatic cylinders, specifically made for this purpose.

There are two basic technologies : Reed contact or solid state.

### Reed contact

They are the cheapest solution. Being made with the same production process as for the inductive sensors, they join the advantages of a robust and sealed construction to the electromechanical devices performances:

- no need of power supply
- no voltage drop
- no minimum load required
- no limitations in series and parallel connection

It must be observed that eventhough the number of cycles of a Reed contact is very high, that's not infinite. They are hence not suited for applications with high working frequency or requiring fast response time. It is also highly recommended to avoid to apply excessive mechanical strenght on the body of the sensors.

### Working principle:

A Reed contact embedded inside the sensor detects the magnetic field and closes a contact able to drive directly the load. Versions with three wires or without LED don't have voltage drop on contacts. On the two wires with LED version you must consider a little voltage drop, to be considered for the series connection of more sensors.

### Amplified in d.c. or static output

They are much more sensitive than the Reed contacts, as showed on page C-12 table.

They have all the advantages of the solid state sensors :

- Illimited number of cycles
- Very fast switching time
- High working frequencies
- High resistance against vibrations and mechanical strenght on the housing

### Working principle:

An electronic, solid state component detects the magnetic field and drives amplifier stage, LED and short circuit protection.

## DETECTION OF A FERROMAGNETIC TARGET

These sensors are able to detect only ferromagnetic objects. They are mainly used as selective sensors on working plants for aluminium, brass, copper, where bits of metal would create unavoided signals using standard inductive sensors.

### Working principle:

An electronic, solid state component, internally polarized by an embedded magnet, detects the magnetic field variation due to the influence of an external ferromagnetic object, driving the amplifier, LED and short circuit protection.