ST series RFID safety sensors

Pizzato Elettrica, has been a leader in the market of position switches and electromechanical safety switches for the past 30 years and can currently offer its clients a complete range of **electronic sensors with RFID recognition technology**, for the industrial automation field.

Sensors of the **ST series**, launched during 2014 with the first ST D version, were among the first products in the market to introduce the RFID recognition technology for actuators, allowing installers to quickly meet the highest safety requisites prescribed by standard **EN ISO 14119**.

Entirely built in Italy, in the modern Pizzato Elettrica factory which has the most advanced inspection and testing technologies, the ST series sensors are currently the first choice for all safety applications in **machines without inertia**, where only the interlocking of the guard is required.

ST G

- Technological evolution of the ST D sensors
- Symmetrical housing
- Standard mounting hole spacing (22 mm)
- 2 multicolour signalling LEDs
- Multitag programming
- Version for extented temperatures

ST D

- RFID recognition
- Available with 3 different actuators
- Safety inputs and outputs
- EDM input
- Actuator programming input

NEW!

ST H

- Same technology as for the ST G sensors
- Symmetrical housing
- Mounting hole spacing 78 mm
- 2 multicolour signalling LEDs
- Versions with magnetic holding of the actuator

	ST D series	ST G series	ST H series
Housing material	Glass fibre reinforced technopolymer		
Symmetrical housing	☐	■	■
Absence of visible resined areas	☐	■	■
External dimensions	72 x 25 x 18 mm	37 x 26 x 18 mm	90 x 25 x 18 mm
Mounting hole spacing	60 mm	22 mm	78 mm
Safety category	SIL 3 - PL e - category 4		
Protection degree	IP 67 IP 69K		
Series connection	up to 32 devices		
Signalling LED	4 green LEDs (PWR, OUT, IN, ACT)	2 RGB LEDs	2 RGB LEDs
Multitag programming	☐	■	■
Magnetic holding	☐	☐	■
Tamperproof safety caps	■	■	■
Versions with extended temperatures	☐	■	■
Power supply 24 V	■	■	■
Power supply 12 V	■	☐	☐
Actuator RFID recognition	■	■	■
Actuators - low level of coding - high level of coding	SM D0T SM D1T	SM G0T SM G1T	SM H0T SM H1T
Compatible with SM D•T, SM L•T, SM E•T actuators	■	■	■
Quality marks			Approvals pending

Legend: ■ = available, ☐ = unavailable

Multitag programming

The ST G and ST H devices can be supplied with two or more high coding level actuators, which can all be recognized by the same sensor.

The internal firmware of the sensor can be factory programmed, memorising **up to 16 actuators** and associating a **different device behaviour** to each of the same once the actuator has been acknowledged by the sensor.

The multitag function can:

a) **enable or disable the outputs of the sensor** (example 1);

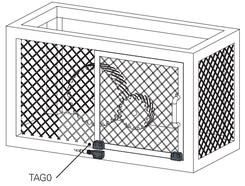
b) transmit a **serial signal** that contains information about which actuator is currently located in front of the sensor via signalling output O3. This signal can be sent and processed by a PLC (example 2).

The multitag function is particularly useful in machines with several work stations, that require various operating modes on the basis of the actuator recognised by the sensor (e.g.: interchangeable machine parts, position of robot, rotary tables, etc.)

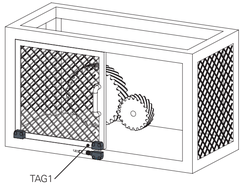
1) Sensor paired to two actuators.

Compared to a traditional configuration with one single actuator, the device is able to not only recognise "**guard closed**" status through TAG0 (in this case activating the OS safety outputs), but also "**guard fully open**" status, through TAG1, which activates signalling output O3.

By sending this information to the machine control logic you can eliminate uncertainties caused by incomplete guard opening, increasing the precision and intrinsic safety of the machine.



A. Guard closed



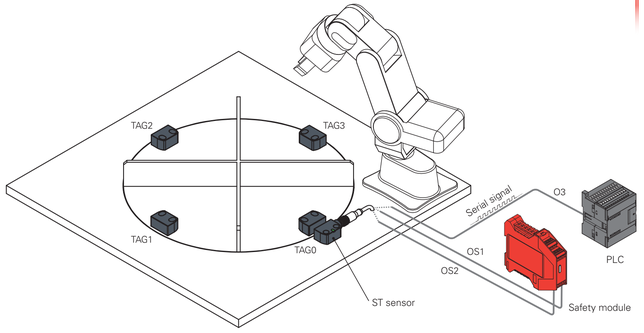
B. Guard completely open

2) Sensor used with multiple actuators

On a rotary table assembly station, the sensor with multitag programming can be installed in combination with as many actuators as the available work stations (4 in the example shown).

When recognised by the sensor, each actuator activates the OS safety outputs and sends a **string of bits with its ID code** ("0" for TAG0, "1" for TAG1, up to "F" for TAG15, according to hexadecimal numbering). In this way, in every situation you can know which is the active work station, for example in the machine start-up phase or after an unexpected blackout.

The device has been designed for processing and assembly plants with multiple stations, robotised islands and machining centres.



ST H series with magnetic holding of the actuator

Devices of the ST H series have the same operation features of the ST G series and can be ordered with a **permanent magnet incorporated** inside the housing, able to generate a holding force between sensor and actuator.

This way, the guard can be kept closed even where there are **vibrations**, after a **recoil** during closing, or in areas where **air turbulence** tends to open the lighter guards.

Thanks to the possibility of placing permanent magnets inside the housing, with many shapes and operation functions, the magnetic holding force can be selected among **three different magnitudes,** in order to adapt to any usage situation.

Protection against tampering

Each sensor and actuator is supplied complete with snap-on protection caps to be applied on the holes of the fixing screws.

Not only do the caps prevent dirt from accumulating and simplify cleaning, they also block access to the fastening screws of the actuator. As a result, standard screws can be used instead of tamper-proof screws.

Certificates for the food & beverage industry

The greatest majority of the ST series sensors was tested for use in the Food Industry thanks to the ECOLAB certification.

ECOLAB is one of the world's leading providers of technologies and services for hygiene in food processing. ECOLAB certifies the compatibility of tested electrical devices in its own laboratories, using disinfectants and cleaning agents used in the area of food processing worldwide.

Multicolour signalling LED

The diagnostics of the device operation state was made even easier and quicker in the ST G and ST H series thanks to the multicolour signalling LEDs which can be seen from both sides of the device.

The high luminosity LEDs can be seen from a great distance so that with a quick glance the operator can check the state of the guard and the correct operation of the sensor.

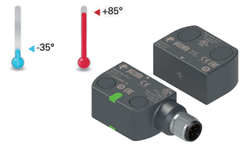
GREEN LED
Normal operating state, with actuator inside detection zone, safety outputs activated

RED LED
Error state: the error type is indicated to the user via LED illumination sequences and colour variations.

YELLOW LED
Normal operating state, with actuator outside detection zone, safety outputs deactivated

PURPLE LED
Programming state during new actuator identification procedure.

Articles for extended temperatures



For special applications in **food plants** (cold rooms, baking ovens) or machines destined for outdoor use in **extreme environments**, sensors with the extension codeT8 are available to resist at temperatures reaching:

- **-35°C ... +85°C**
(versions with fixed installation connector or cable);
- **-15°C ... +85°C**
(versions with flexible or mobile installation cable).

The extended temperature versions are available for both articles with a cable, and those with a stainless steel connector.

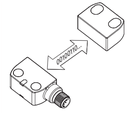
RFID actuators with high coding level

The sensors of the ST series are provided with an electronic system based on RFID technology to detect the actuator.

This allows to provide each actuator with different coding and makes it impossible to tamper with a device by using another actuator of the same series.

Millions of different coding combinations are possible for the actuators. They are therefore classified as high level coded actuators, according to EN ISO 14119.

Programmability



In those versions equipped with an I3 programming input, the sensor can be programmed to recognise the code of a new actuator with a simple and brief operation.

After programming has been completed, the sensor only recognises the code of the last programmed actuator, thereby preserving the safety level and the reliability of the system in which it is installed.

Unlike other similar solutions in the market, the procedure to reprogram the actuator in the ST sensors of Pizzato Elettrica can be performed an unlimited amount of times.

General Catalogue
Detection

General Catalogue
HMI

General Catalogue
Safety

Lift General
Catalogue

Website
www.pizzato.com

PASSION FOR QUALITY

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