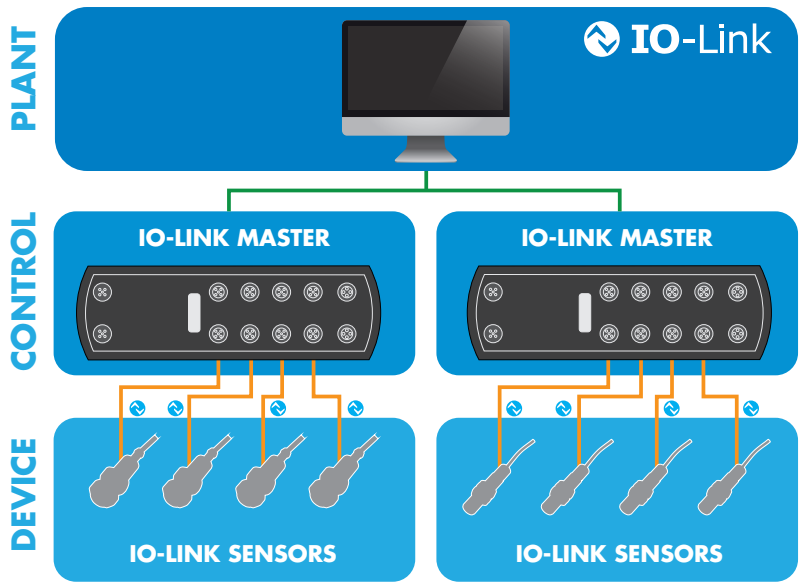
Universal, smart and easy

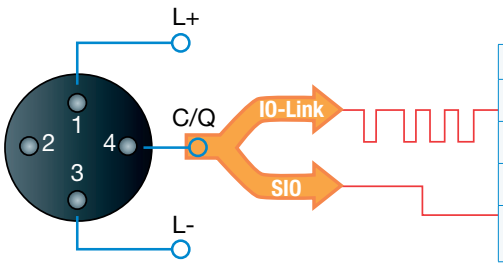
Centralised configuration and data management
IO-Link enables fast configuration and dynamic change of the sensor parameters on the fly, which considerably reduces downtime in case of product changeover and increases flexibility and diversity of the installation.

Simplified installation
An IO-Link system requires just standard, unshielded 3-wire cables, and a standardised uniform interface for sensors and actuators drastically reduce the complexity of the installation process. In addition, the automated parameter reassignment simplifies sensor replacement in case of defects and prevents incorrect settings. The IO-Link-enabled sensor acts as a standard sensor when installed in a non-IO-Link system, so the same sensor can be stocked for both standard I/O (SIO) applications and IO-Link applications.

Predictive maintenance
Advanced and detailed diagnostics mechanisms are one of the main features of the IO-Link sensors. Moreover, the sensors continuously deliver data on their condition and are able to detect defects at an early stage or predict when a machine needs repair or replacement of spare parts. Instead of unnecessary, frequent preventive maintenance, service is need-based, and the risk of machine stoppages is significantly reduced.

IO-Link





Pin	Signal	Remarks
1	L+	24 V
2	OUT	Sensor dependent
3	L-	Ground
4	C/Q	Communication/ switching signal

What is IO-Link?
IO-Link is a universal, open communication standard protocol that allows IO-Link-enabled devices to exchange, collect and analyse data and convert it into actionable information.
IO-Link is recognised worldwide as an international standard (IEC 61131-9), and it is today considered as the "USB interface" for sensors and actuators in the industrial automation environment.

Plug and play
When the IO-Link sensor is connected to an IO-Link port, the IO-Link master sends a wake-up request to the sensor, which automatically switches to IO-Link mode, and a point-to-point bidirectional communication automatically starts between the master and the sensor.

Operating modes
The IO-Link-capable sensor can operate in two different modes; SIO mode (standard I/O) or IO-Link mode.

- SIO mode: the sensor works as a traditional sensor, and pin 4 acts as an ordinary digital output. SIO mode ensures backwards compatibility with standard sensor systems.

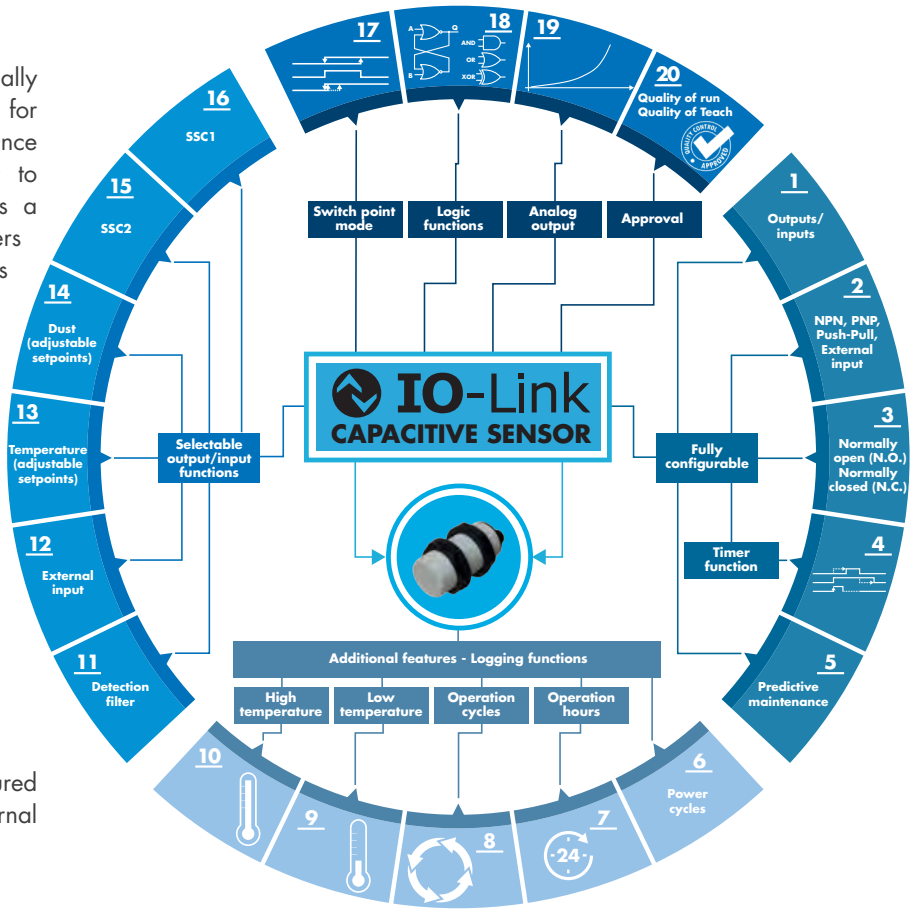
- IO-Link mode: exchange of data between sensor and IO-Link master takes place, and pin 4 is used for the transmission of IO-Link-related data.

IO-Link capacitive proximity sensors

IO-Link functions

Fully configurable

IO-Link provides the first globally standardised interface for communication with the sensor. Once you have connected the sensor to the IO-Link port, you can access a multitude of configuration parameters and advanced functionalities. This way, the sensor can be tailored to meet your individual needs and requirements at a given time. The settings can also stored in the master and can always be changed if the need occurs, or they can be smoothly transferred to a new sensor in case of sensor replacement.



1. Outputs/inputs

The sensor has two I/O terminals.

2. NPN, PNP, Push-pull, External input

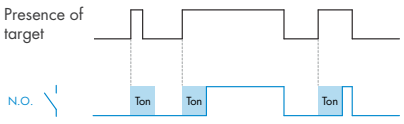
The I/O terminals can be configured as: NPN, PNP, push-pull or external input (only output 2).

3. Normally open (N.O.) Normally closed (N.C.)

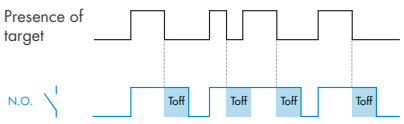
The output can be configured to normally open or normally closed.

4. Timer function

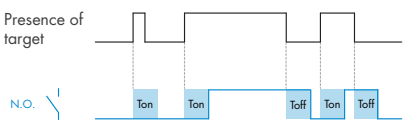
It is possible to activate different timer functions: ON delay, OFF delay, ON and OFF delay or one shot (leading edge or trailing edge).



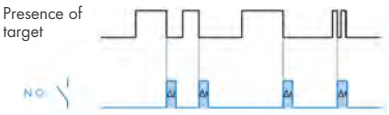
On delay



Off delay



On and Off delay



One shot (trailing edge)

5. Predictive maintenance

The sensors can provide information about their basic status during normal operation, for instance increasing contamination (dust build up). Maintenance can be required before a system fails and costly machine downtime is avoided.

Additional logging functions

The Carlo Gavazzi capacitive IO-Link sensors offer additional logging functions for advanced diagnostics mechanisms making both real-time and historic data available.

6. Power cycles

Counts and store how many times the sensor has been powered up since its creation.

7. Operation hours

Counts and store number of hours of power connected since its creation.

8. Operation cycle

Number of sensor detections (SSC1) since its creation.

9. Low temperature

Two different specifics are measured: The lowest temperature the sensor has been exposed to since
1. its creation (stored in sensor)
2. since last power-up.

10. High temperature

Two different specifics are logged: The highest temperature the sensor has been exposed to since
1. its creation (stored in sensor)
2. since last power-up.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.