



Breakthrough in communication

 **IO-Link**
www.IO-Link.com





Are you prepared for the global market?



Are you ready for innovative machine concepts?



Are your setup times also too long?



Are you still setting up or are you already producing?



Are you ready for the revolution in maintenance?



IO-Link



Improve your market position in the global competition!

IO-Link gives you a variety of arguments for continually staying out front in the global competition. Standardization offered by IO-Link not only simplifies the design and construction of machines, IO-Link also significantly enhances their functionality. Short assembly times, higher productivity and new, modern maintenance concepts make IO-Link a clear choice.



Implement innovative machine concepts!

The expense for development and design, especially for custom projects, is already exceeding 50% of the total cost of a machine. IO-Link accelerates your development cycle and helps you implement innovative, flexible machine concepts by:

- Reducing the number of interfaces required
- Providing data retention and repeatability of the parameter sets
- Ensuring field bus neutrality and the simplest integration
- Offering diagnostics capability down to the field level



Shorten your startup times!

The time expenditure for assembly and startup of a machine is still exceedingly high today. With IO-Link your assembly and startup effort is drastically simplified. In addition, you reduce the number of different versions required (standardization).

- No more manual parameter setting for your sensors, since the parameter sets can be downloaded to IO-Link sensors/actuators from the controller in seconds.
- Standard cables are used in the IO-Link sensor/actuator level, i.e. no more time-consuming assembly and integration of cables for sensors with multiple signals.



Increase the productivity of your machine!

One of the key criteria in actual operation is the system availability. IO-Link provides maximum transparency to increase availability down to the sensor/actuator level, thereby significantly increasing the efficiency of your machine.

- Integrated parameter setting for sensors and actuators reduces downtime when changing the machine over for other product types.
- Continuous monitoring of the process parameters while the machine is running improves process quality.
- Ongoing documentation of the process and machine parameters at a specially defined location in the network increases system reliability.



Revolutionize your maintenance!

Diagnostics prevents downtime and reduces maintenance costs. Instead of frequent preventive maintenance, service can be need-based.

IO-Link devices can provide information about the device status. For example, increasing contamination of a photoelectric sensor can be indicated early and service measures triggered before there is a problem.

Examples for diagnostic messages include:

- Malfunction of the device (contamination, under-voltage, pressure loss, temperature, time exceeded, ...)
- Cable break (loss of communication)

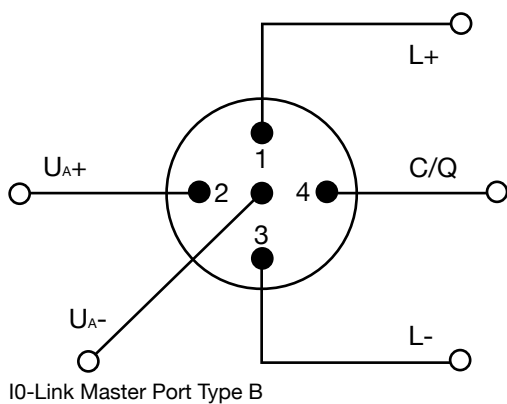
How does IO-Link work?

IO-Link is based on the familiar 3-wire connection for a digital switching signal, whereby the signal is implemented as a serial telegram. In this way additional information in the form of a serial protocol between the I/O level and the field device can be exchanged. A standard UART protocol is used, with the data represented in so-called data frames. All this means that IO-Link is not a new field bus, but rather a point-to-point connection between a peripheral module and an I/O field device.

What has to change for installation and application?

IO-Link uses the familiar standard M12, M8 and M5 sensor cable and replaces the previous analog measurement transmission. Shielded cables or multi-conductor parallel wiring are eliminated. The advantage of IO-Link lies in its bi-directional communication. Parameter and configuration data are written from the controller to the sensor/actuator and process and diagnostic data are read from the sensor/actuator to the controller.

Connecting sensors and actuators



Standard 3-conductor cables are used to connect sensors. The supply voltage is on Pins 1 and 3, and communication on Pin 4.

Actuators can be connected isolated on Pins 2 and 5. Here 5-conductor standard cables are used. A shield is generally not required.

Technical Specifications

Data rate	4,8 kBaud; 38,4 kBaud; 230,4 kBaud
Cable length max.	20 m, unshielded
Typical cycle time	2 ms
Connection type	point-to-point, serial, bi-directional, half-duplex
Connectors	M5, M8, M12



IO-Link

A consortium made up of the leading suppliers of automation products formed to support the new concept in all areas of sensors, actuators and control technology. IO-Link is a neutral interface which is independent of field bus systems. Integration into other higher-order bus systems can take place through initiatives of the various field bus user organizations, and is expressly desired and actively supported by the IO-Link consortium.

IO-Link Consortium

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