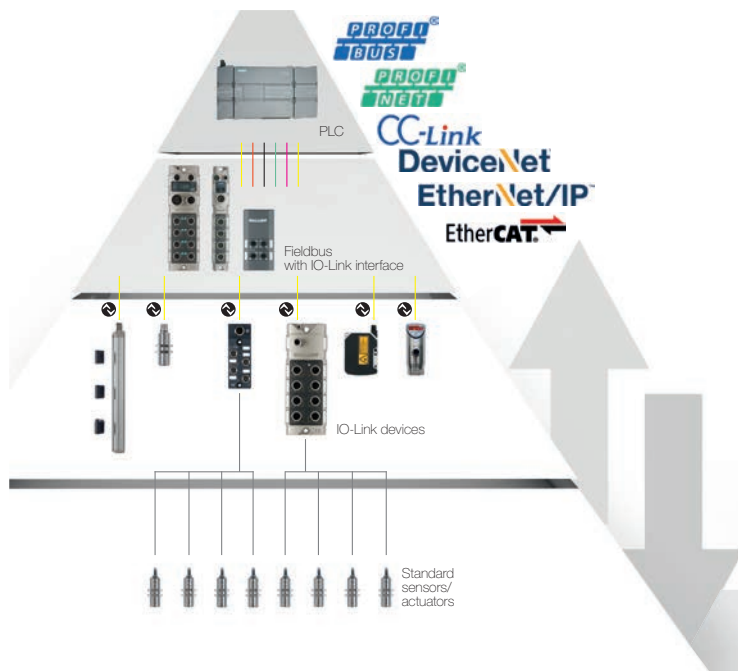


IO-Link – An introduction

IO-LINK – THE USB INTERFACE FOR AUTOMATION



As the degree of automation increased, the need for intelligent field devices grew.

This resulted in a variety of messy interfaces with different mechanical and electrical characteristics. Consequently, the pressure for standardization became ever greater.

By using IO-Link, a collaboration amongst several companies are developing a viable solution. Like USB in the PC world, IO-Link used in automation results in great simplification of installation while providing the capability for expanded diagnostics and parameter setting.

The automation pyramid with bi-directional IO-Link communication up to the field device level (sensor, actuator)

Before IO-Link the controller could only communicate up to fieldbus devices. Communication to the sensors and actuators wasn't possible. Only through the use of IO-Link is communication now made possible for both sensors and actuators. Now devices can be parameterized centrally, diagnostics information can be sent from the device to the controller, and process data can be exchanged in digital form with high signal quality. IO-Link enables standardized and significantly simplified installation. Regardless of the complexity of the devices, plug-and-play allows them to always be connected using the same simple 3-conductor standard cable.

The IO-Link Community founded in 2006, consisting of leading automation manufacturers, promotes IO-Link with the acronym "USE":

- **Universal** – IO-Link is an international standard (IEC 61131-9)
- **Smart** – IO-Link enables diagnostics and parameter setting of devices
- **Easy** – IO-Link provides great simplification and cost reduction



8-port IO-Link master for Profinet for connecting up to 8 IO-Link devices



Selection of IO-Link capable intelligent sensors (here: photoelectric distance sensor, pressure sensor, color sensor)



Selection of IO-Link capable intelligent actuators (here: signal light and valve interface)



Sensor/actuator hub for connecting binary and/or analog sensors and actuators

The **IO-Link-Master** is the heart of the IO-Link installation. It communicates with the controller over the respective fieldbus as well as downward using IO-Link with the sensor/actuator level (gateway).

The **IO-Link-capable intelligent sensors** and actuators are connected directly to the IO-Link master via IO-Link. This enables the simplest installation, best signal quality, parameter setting and diagnostics.

The **sensor/actuator hub** exchanges signals with the binary and/or analog sensors and actuators and communicates via IO-Link with the IO-Link master.