

Seamless Communication from the Sensor to the Cloud

IO-Link Master for Simple Connection and Parallel Data Flow

At a Glance

- IO-Link master with OPC UA enables parallel communication with different instances from the machine control to the cloud
- Module versions for EtherNet/IP and PROFINET
- Integrated web server for remote parameterization
- Simple configuration—parameterization is also stored in the device
- Open architecture also allows hybrid solutions



The Application

In the calendaring machine used to manufacture battery cells, various sensors monitor particular states and processes. Today, they usually have an IO-Link interface and can transmit extra information used for diagnostics and process optimization alongside the actual measurement data. The data is transmitted to various instances: In addition to the machine control, these instances can include the control system for the entire plant, higher-level IT systems, or cloud applications.

The Goal

A local connection instance should be used to simplify integrating the sensors into higher-level systems. It should “collect” the data from the various sensors and make it available to the respective addressees. It should ensure parallel bidirectional communication with various levels, from the machine control through to the cloud. It creates the foundation for numerous additional functions, such as continuous status monitoring, device self-testing, contamination monitoring for optical sensors, and the transfer of parameterization data during device exchanges and plant expansions.

The Solution

The ICE2/3 IO-Link masters from Pepperl+Fuchs establish a connection between IO-Link devices at the field level and higher-level instances. The modules from the ICE2 series communicate via EtherNet/IP, while those from the ICE3 series communicate using PROFINET. MultiLink™ technology offers a second bidirectional transmission channel with OPC UA. This means data can be exchanged over two channels concurrently: Firstly between the field level and the controller, secondly in a standard format with other IT systems, such as data platforms and cloud applications.

The Benefits

Vertical networking provides numerous options for continuous status monitoring, demand-driven servicing, and asset management. An integrated web server provides the option of remote parameterization; IODD files can be stored. Configuration is very simple, as the parameterization data is also saved on the device. IO-Link device identification makes it substantially easier to integrate and exchange devices. The manufacturer-independent, open architecture of OPC UA and Ethernet-based protocols also make it possible to use hybrid solutions.

Technical Features

- Multi-Link: parallel communication with OPC UA, MQTT, JSON
- IO-Link master with 8 I/O ports
- IO-Link device identification
- IP67-compliant design

