TURCK

Your Global Automation Partner

IO-Link
Simple, Seamless, Efficient

A Global Leader in Industrial Automation

Turck's sensors, connectivity, and fieldbus technology products are built to be the best. As one of the most **prominent** sensor manufacturers **in the world**, we even back our sensors with a **lifetime warranty**. Turck works by bringing **rugged engineering** solutions to your industrial automation applications.

85,000+ SOLUTIONS

50+ YEARS OF INNOVATION

2,000+ EXPERIENCED SALES REPRESENTATIVES

Pioneer in non-contact sensing technology

Developed innovative connectivity solutions in response to our sensor customer needs

Recognized need and advanced knowledge of harsh duty environments lead to I/O solutions

SUPPORT & DEDICATED SERVICE

EXTENSIVE WARRANTY

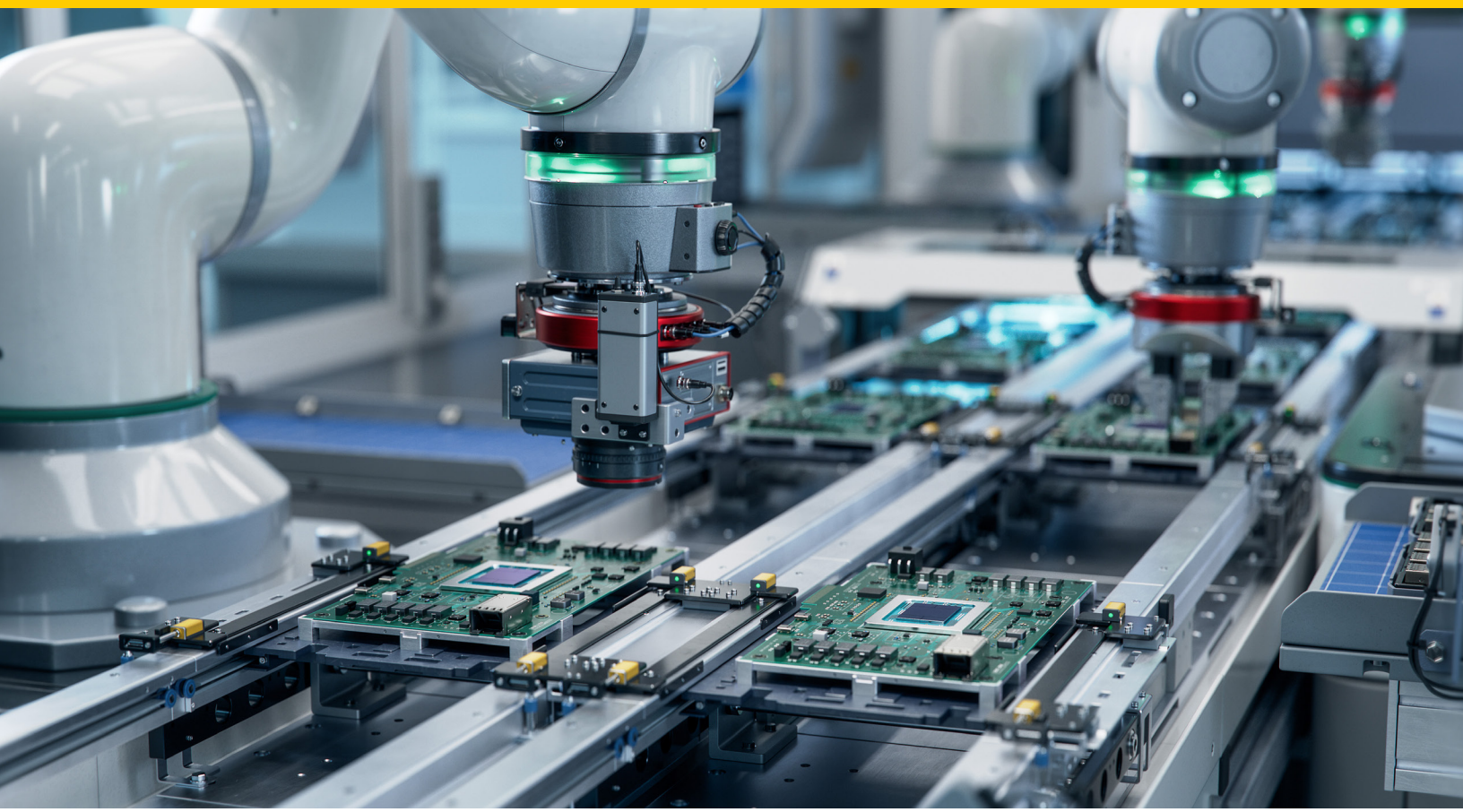
5,000+ APPLICATION EXPERTS

RESPOND and SOLVE over **1,200** inquiries per day

Strategically placed manufacturing facilities in the USA with **30** GLOBAL SUBSIDIARIES

GLOBAL BUT LOCAL...

60 representations worldwide



IO-Link: Simple, Seamless, Efficient

Today, most sensors and actuators are already equipped with microprocessors that are used to control indication, parameterization, and store configuration data. The next step is to overcome the bottleneck of the binary standard interface and make additional functions centrally accessible for the automation system.

For this reason, many well known manufacturers from the field of automation have come together and developed a fieldbus-independent communication interface for sensors and actuators known as IO-Link. Compatibility with existing technologies was the primary objective during development in order to guarantee investment protection.

What is IO-Link?

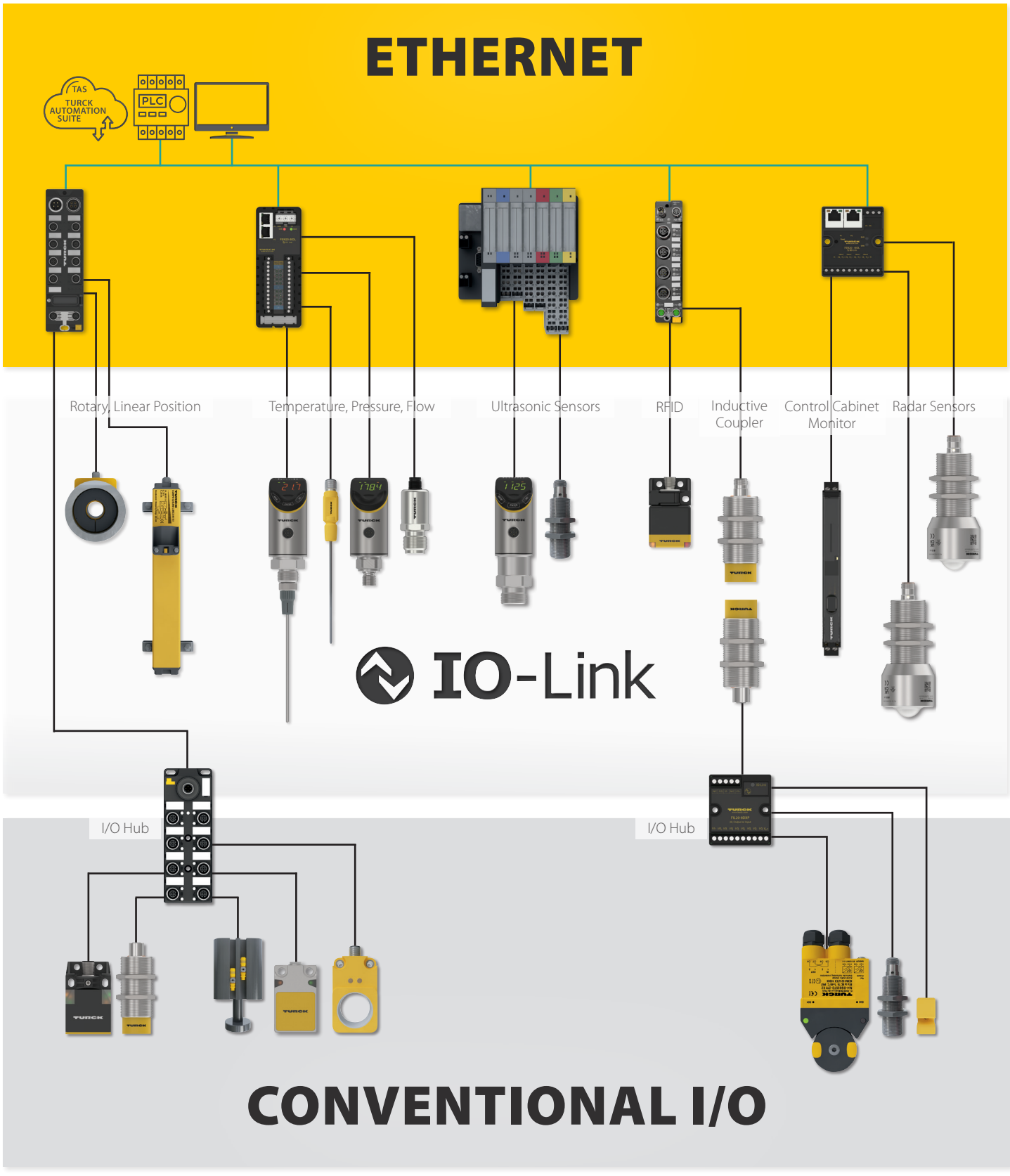
IO-Link is based on a point-to-point connection between the sensor/actuator and an interface module. Previously, the binary connection was only designed for transferring switching information, but IO-Link now allows two bytes to be transferred normally in a 2 ms cycle via a combined switching status and data channel. Other information can be exchanged in addition to the process values, such as parameters or diagnostics messages. This enables communication with sensors and actuators down to the "last meter" to be established for universal communication.

Standard Wiring

IO-Link does not require any special wiring. The sensors and actuators can continue to be connected using the proven, unshielded and attractively priced industrial three core cables. The operating modes available for selection are the standard switch mode and the communication mode.

PROFINET® EtherNet/IP™ Modbus PROFIBUS® DeviceNet™ CANopen®

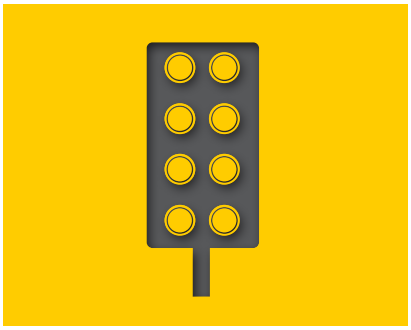
IO-Link Overview



IO-Link Overview

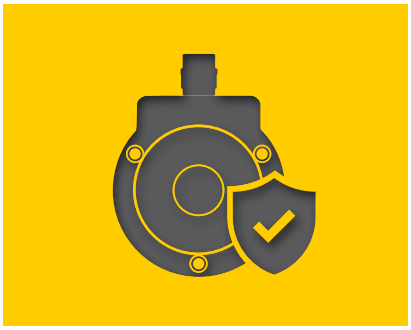
Engineering Tool Integration

Turck enables efficient integration with engineering systems via DTM and IODD standards. Stand-alone tools like asset management and configuration systems are also supported. Standard Ethernet ensures connectivity to enterprise systems, while IO-Link masters simplify centralized device parameter setting.



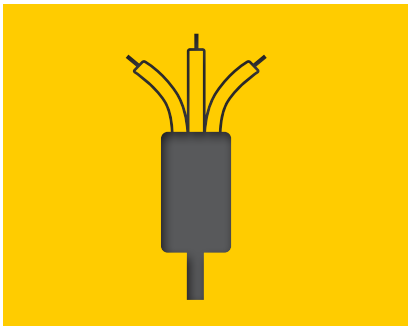
Ethernet/Fieldbus Connection

IO-Link allows connection to most major fieldbuses, as well as industrial Ethernet. Turck offers a wide range of solutions, including master modules for its modular and block I/O systems featuring Multiprotocol Ethernet, which work seamlessly with PROFINET, EtherNet/IP and Modbus TCP in a single device.



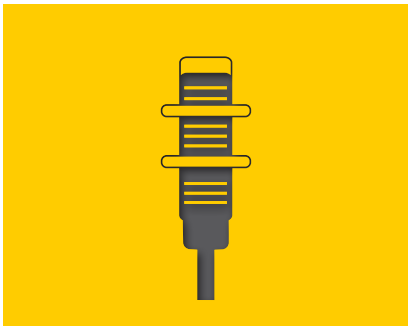
Device Identification

Integrated device identification ensures that the correct device has been installed when replacing components. Each device contains detailed information regarding the manufacturer, so component replacement can be safely handled automatically.



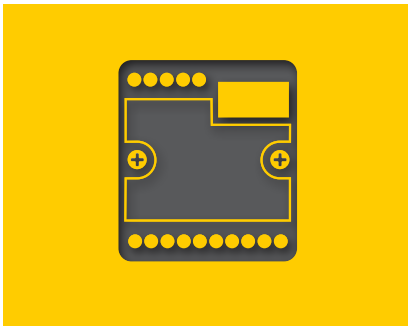
Wiring

IO-Link uses the same standard unshielded 3-core cables with standardized pinning as conventional I/O. This eliminates problems with complex devices which have no pinning standards and often multipole connectors.



Sensor Mounting

All IO-Link devices allow parameter changes and diagnostic evaluation. Devices can now be mounted in the machine where they make sense for the application, not in inconvenient areas that disrupt work flow in order to allow access to display or switches.



I/O Hubs

I/O hubs allow the integration of standard 24 VDC devices into automation systems via IO-Link. Variants for inputs, outputs and a version with configurable digital I/O in class A and class B power are currently available.

Benefits of IO-Link

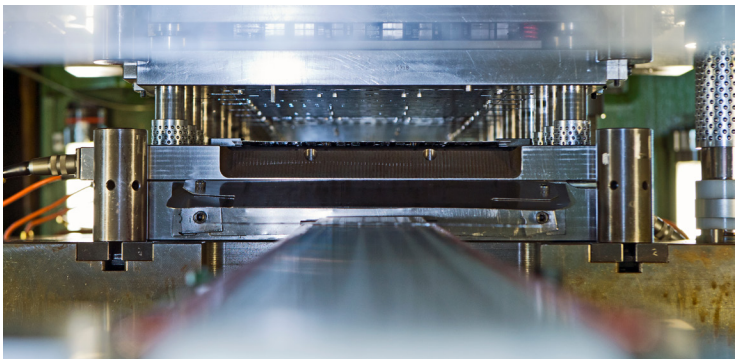
IO-Link users benefit from reduced machine costs, efficient processes and improved machine availability. Turck provides one of the most comprehensive IO-Link portfolios worldwide, from a variety of sensors, cables and active IO-Link junction boxes to interfaces for various industrial fieldbus protocols, including Turck Multiprotocol Ethernet products.

Reduced Machine Costs

- Reduced inventory due to intelligent multi-purpose devices
- Only one I/O module and one inexpensive standard cable required
- Reduced I/O footprint possible Displays and switches no longer required on devices
- Reduced engineering and assembly costs and automatic documentation of device parameters during the engineering phase

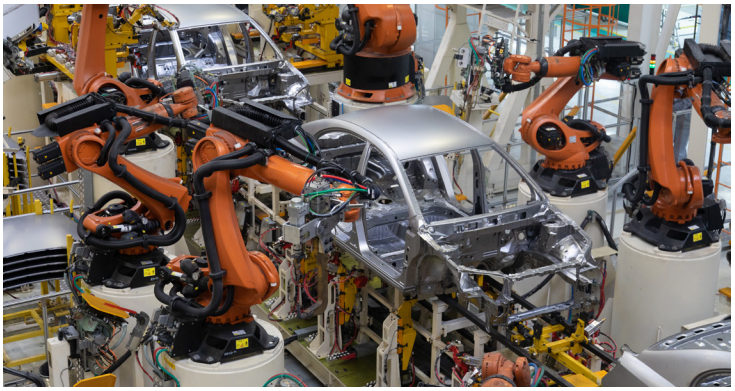
Streamlined, Efficient Processes

- Extensive parameterization options for just in time parameter changes to devices
- Efficient processes requiring different parameter sets for switching thresholds, gain, sensitivity and so forth due to differing production conditions
- Faster tool change operations



Improved Machine Availability

- Comprehensive status information and diagnostic capabilities in the plant lead to drastically reduced machine downtime
- Enhanced information enables cost saving mechanisms such as predictive maintenance or asset management to be easily implemented
- Device replacement without manual intervention to parameterize the new unit alleviates the need for qualified personnel



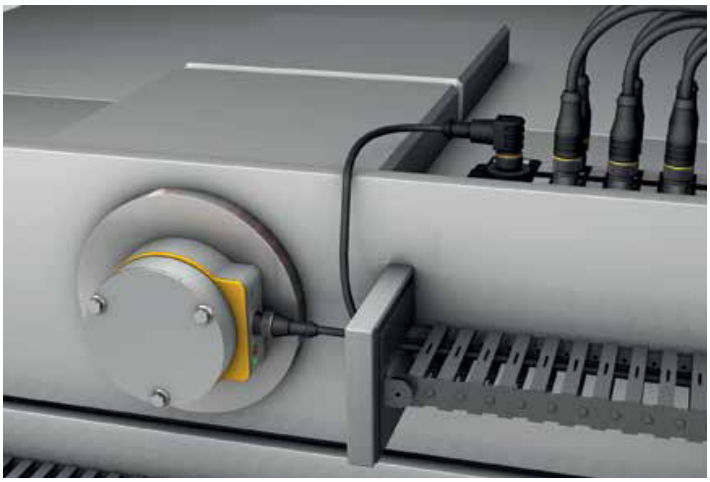
Your Value Added IO-Link Solution Partner

Signal Transmission in Gearbox Production

On the production line for differential gears of an automotive supplier, numerous magnetic field sensors detect the positions of pneumatic cylinders and grippers, while proximity switches detect components of the differentials themselves. In addition, there are also a large number of actuators such as pressure relief valves, solenoid valves and other devices that carry out the commands delivered by the controller.

The original plan to connect the numerous signals with passive junction boxes and multi-core cables to fieldbus gateways in the control cabinet was quickly discarded. The costs of cables and the wiring effort were too high.

With its IO-Link-capable I/O hubs, Turck was able to offer a space-saving solution that considerably simplified the wiring and was still cost-efficient. Furthermore, the system enables a diagnosis down to the sensor level. A BL20 gateway with IO-Link master modules ensures a connection to the controller. TBIL junction boxes from Turck are ideal for connecting the sensors and actuators in the field. These I/O hubs use IO-Link to send up to 16 binary signals to the IO-Link master via a standard sensor cable. In this case, the 16-bit process signal of the IO-Link protocol is therefore not used for an analog process value, rather for the transmission of 16 individual switching signals – whether digital input or output signals. Because the I/O hubs are rated IP67, they can be mounted directly in the field.



Tracking the Swing Movement of a Core Shooter

Core shooters produce sand cores for metal casting. A key objective is to shorten the machines' cycle time. With their new generation of machines, the manufacturer consistently automates using IO-Link. This offers many advantages: The manufacturer not only saves money but also time during the configuration, wiring and electrical planning, and customers benefit from a more dynamic machine. Errors occur less frequently and can be diagnosed more easily. The swing movement of the core carrier, is tracked by the QR24-IOL contactless IO-Link encoder. It is a major influence on the clock rate of the machine.

The numerous intelligent components that had previously been used usually had one bus connection. Consequently, the operating voltage and two bus cables had to be connected separately. All three cables were laid on drag chains and, consequently, were highly stressed. To detect faults such as a cable break, the technicians had to use complex diagnostic systems or search for a very long time.

IO-Link eliminates many of these disadvantages: The two bus cables and the voltage supply have been replaced with a standard three-wire cable, which is guided in the drag chains. All intelligent, analog sensors and devices now have an IO-Link interface and are connected to the controller via IO-Link masters, simple proximity switches and digital actuators via IO-Link-capable junction boxes. In this way, 16 switching signals can be connected via a standard three-wire cable, which significantly reduces the wiring effort.

TURCK

30 subsidiaries and over
60 representations worldwide!

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