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"Finally Get the Most out of IO-Link"

Interview about Comprehensive Communication Solutions

When it comes to sensors, the path often leads directly to Pepperl+Fuchs. But sensors alone are no longer sufficient - customers want comprehensive communication solutions from a single source. That is why the manufacturer is fully committed to IO-Link and has strengthened its communication solutions by acquiring the business activities of industrial Ethernet pioneer Comtrol. In an interview with A&D, Dr. Thomas Sebastiany, Director of the Systems Business Unit, explains the added value that this brings and how Pepperl+Fuchs supports its customers beyond IO-Link. The interview was conducted by: Christian Vilsbeck, A&D

Why do you believe IO-Link is the ideal basis for communication with intelligent sensor technology in Industry 4.0 scenarios?

It starts with an absolutely essential point: IO-Link is the only system to have the backing of all the major sensor manufacturers. As a globally standardized technology, IO-Link allows for continuous and bidirectional communication between the control level and the lowest level sensor/actuator level. With this future-oriented interface, users can easily parameterize the sensors during operation, carry out extensive diagnosis, and can read out more than just the pure process data. In addition, IO-Link data packets can be easily transferred using Industrial Ethernet, making continuous communication possible—if desired, all the way to up to the cloud. And finally—this is also a decisive argument for customers—IO-Link enables sustainably cost reduction at all levels.

However, users acceptance of IO-Link hasn't been as widespread as expected. What are the reasons for this and is it changing?

In the past few years, manufacturers have flooded the market with "cloud-ready" IO-Link sensors, but users have been left to deal with the technology on their own. Users were left to wonder what advantages it really offered and, above all, how they could easily make use of it. This deterred many from investing in the technology, but this is now changing drastically. Here at Pepperl+Fuchs, we have focused on providing our customers with the necessary infrastructure and software tools from the outset so that the added value of IO-Link is

immediately available. This allows users see the benefits of intelligent sensor technology that can do more than just read out a distance, for example; it can also provide the degree of sensor contamination, making predictive maintenance very easy.

But not everything can be achieved with IO-Link at sensor level?

This is true, but most things can! And for cases such as long conveyors and connecting multiple machines, where IO-Link is less suitable as a point-to-point connection, ASi is the perfect addition. That is exactly why, in addition to IO-Link, we've also had a comprehensive and proven AS-Interface product portfolio for a long time. This bus system is extremely easy to use and is ideal for connecting simple binary sensors and actuators to the ASi cable via piercing technology. In my opinion, IO-Link and the AS-Interface complement each other perfectly.

Pepperl+Fuchs already offers a wide range of solutions for industrial communication. Why did you take over Comtrol (now: P+F Comtrol)?

We want to establish ourselves further in Ethernet-based communication. The solutions from P+F Comtrol, a pioneer in the field of industrial Ethernet, complement our previous solution portfolio perfectly. P+F Comtrol has highly intelligent solutions involving IO-Link masters, gateways, and switches. With these communication solutions and the expertise of the P+F Comtrol team, we can now offer our customers even better industrial networks tailored to individual requirements. What's more, P+F Comtrol is a specialist in handling all kinds of data, meaning we now have the perfect interpreters between the network worlds. P+F Comtrol helps us obtain all sensor data at the edge of the production network. From this point on, nothing stands in the way of communication with IT and cloud level.

By contrast, does it not make sense to process the data acquired from the intelligent IO-Link sensors directly on site?

You are absolutely right on that point, but the customers’ acceptance of such decentralized approaches still varies greatly—not because they don't want to; often the existing higher-level automation level cannot manage these decentralized intelligent components. Flexible and modular production is increasingly headed in that direction, however. So in the future, our IO-Link masters, ASi gateways, and fieldbus modules will also focus on the options of carrying out local operations and individual automation tasks independently in the module. In addition to relieving the central control panel, further advantages can be seen, for example, in conveyor systems: parts are checked according to the correct position or size, sorted, and any rejects are filtered out using a compressed-air control system. In such extremely quick

processes, quality assurance must be carried out within milliseconds. With the Ethernet IO modules, these programs run independently in the module, unnecessary dependencies with other processes are capped, and precious time is saved.

IO-Link is now highly suitable for transporting sensor data to higher levels using continuous communication. But what do I do if, for security reasons, I don't want a connection with the IT or cloud level? Is IO-Link the wrong choice in such a case?

No, because even in isolated production environments you can benefit from the advantages of IO-Link; just think of the simple parameterization and diagnosis possibilities—you don’t need a cloud for those. But if you do still wish to find out how certain processes are running, you can connect our SmartBridge to each IO-Link sensor. The sensor data and the equally valuable parameter and status data are then transferred via Bluetooth direct to a smartphone or tablet in a fully secure manner and without any intervention in the ongoing process chain. The analysis can then be carried out independently here, using cloud services if necessary.

Do these comprehensive communication solutions relating to IO-Link, ASi, and Industrial Ethernet represent great added value from Pepperl+Fuchs in this competitive environment?

Pepperl+Fuchs sets itself apart from the competition by drawing on a combination of 70 years of expertise in sensors and offering the most comprehensive solutions within modern industrial communication technology. We don’t just leave our customer alone with the sensor; we also offer the appropriate communication technology for their automation environment. Here we are able to offer everything from IO-Link and AS-Interface to PROFINET, EtherCAT, PROFINET, Ethernet/IP, and OPC UA. Our customers can use the same sensor principle via different communication channels on their choice of control panel. Where necessary, we help customers generate added value from their production data through our subsidiary, Neoception.