IO-Link

Unlocking added value. Discovering flexibility. Enabling Industry 4.0.

Sensors and Systems with IO-Link

Your automation, our passion.

PEPPERL+FUCHS

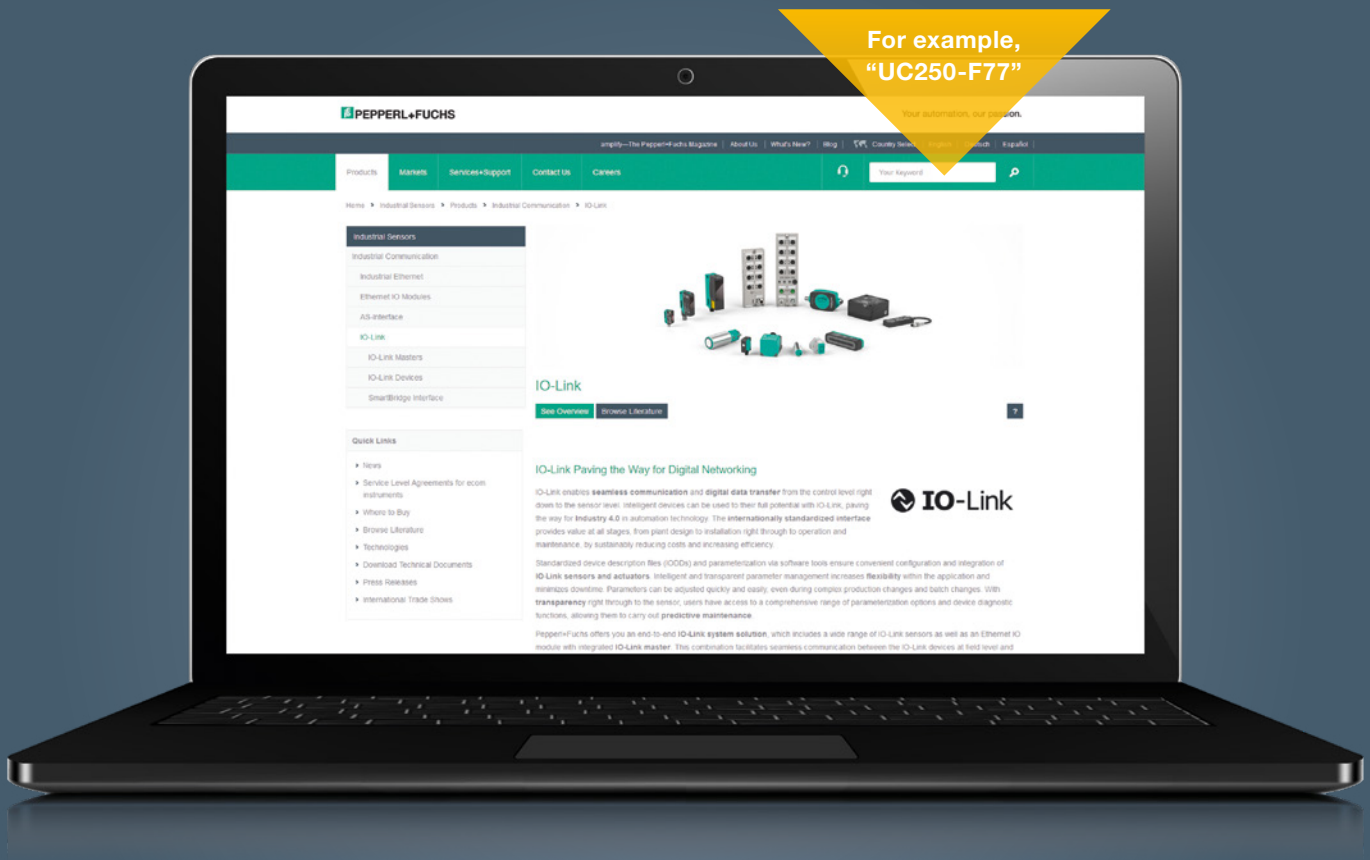
Find Your IO-Link Device in Just a Few Clicks

Go online. Specify your requirements. Select your device. You can find the right solution for your application in just a few clicks. If you have any questions, our experts are available to take your call.

Online Search on the Pepperl+Fuchs Website

Enter the model number in the search field on the Pepperl+Fuchs website and get to your product selection immediately. Model numbers can be found in this brochure in the technical data summaries.

Or you can navigate through our range of product families and groups. Product selectors help you select the optimal IO-Link device.



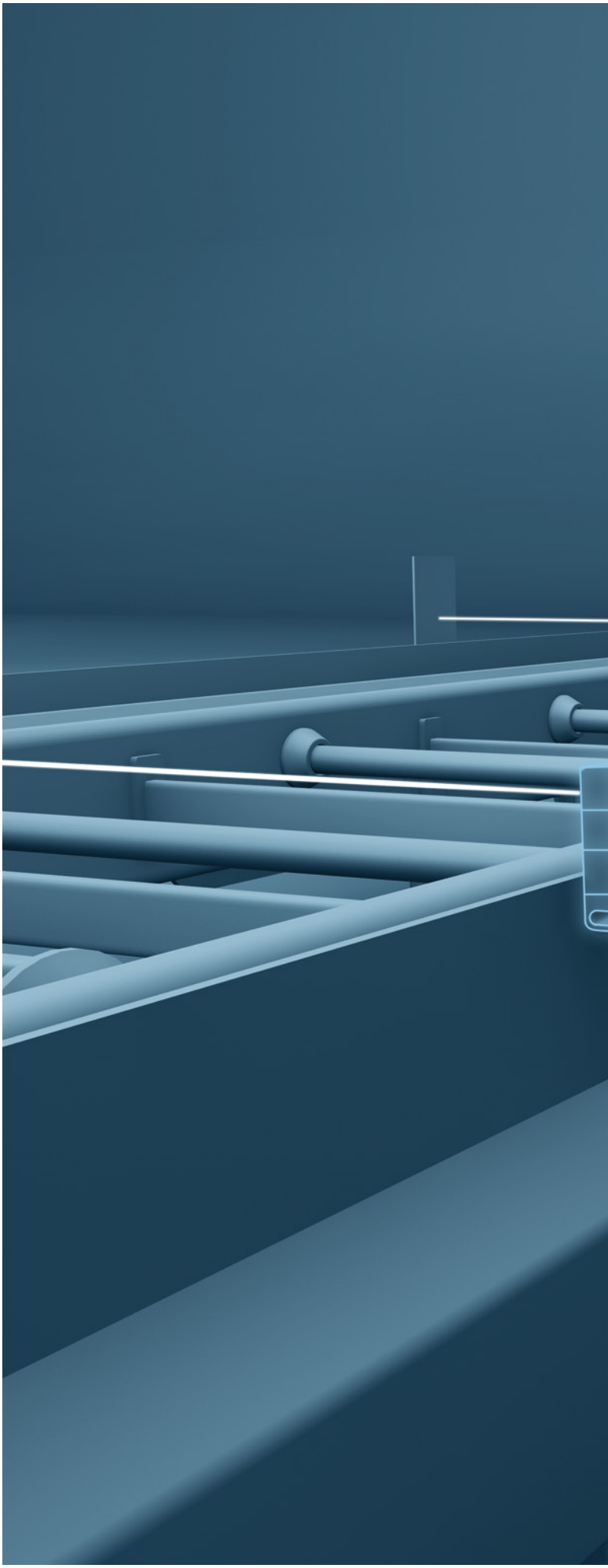
www.pepperl-fuchs.com/tf-io-devices

Contents

Technology

The Standard for Future-Proof Technology

IO-Link enables comprehensive diagnostics down to the sensor/actuator level, reduces costs, and provides a secure investment. Pepperl+Fuchs' IO-Link portfolio offers a complete solution from a single source for flexible solutions.

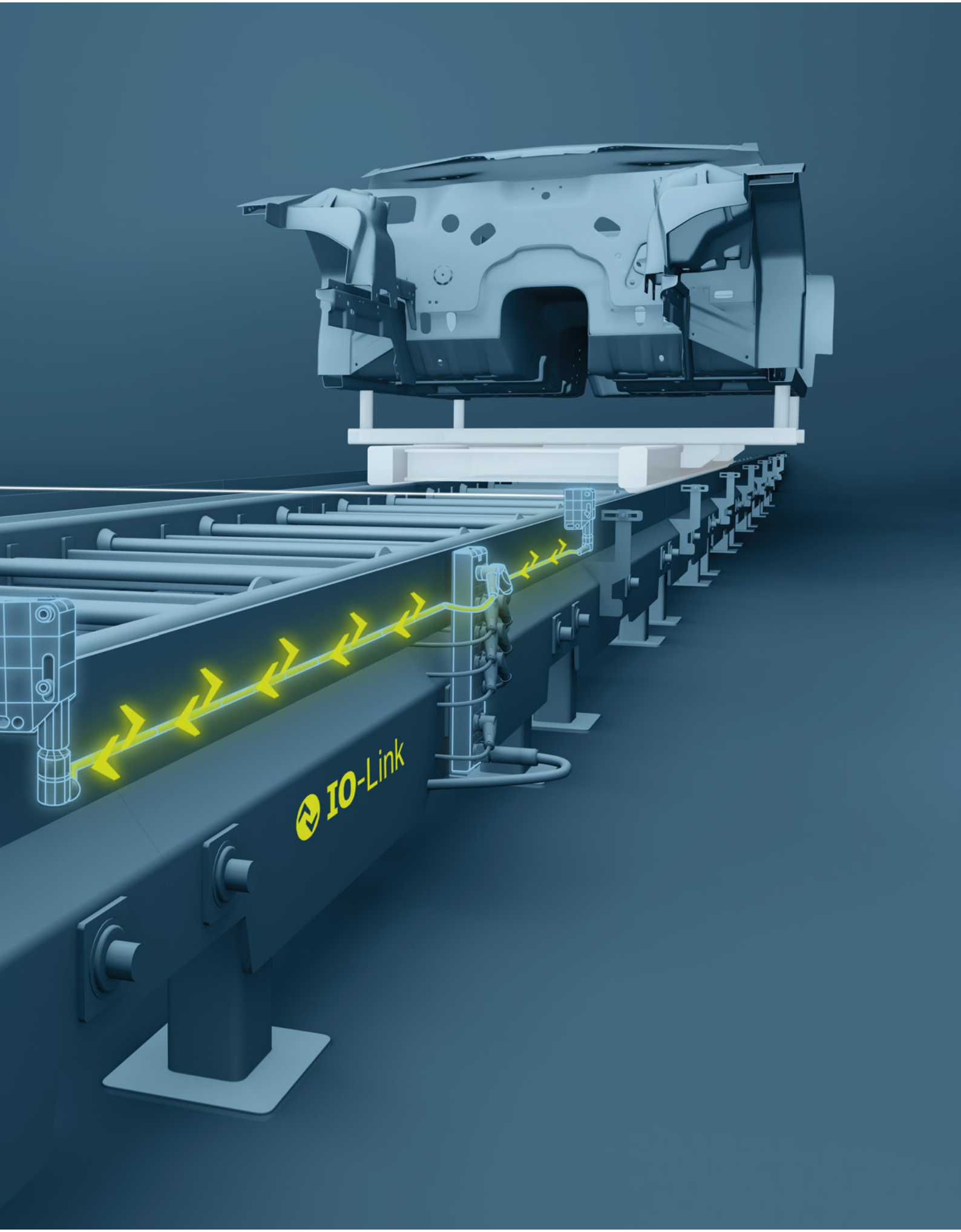


Standardization for Industry 4.0

IO-Link is an internationally standardized, cross-vendor IO technology that enables bidirectional communication from the control system to the sensor/actuator level. The fieldbus-independent open standard can be integrated into any system landscape using standard unshielded cables and point-to-point connectivity. Bidirectional communication enables comprehensive diagnostics, and data transfer is interference-free.

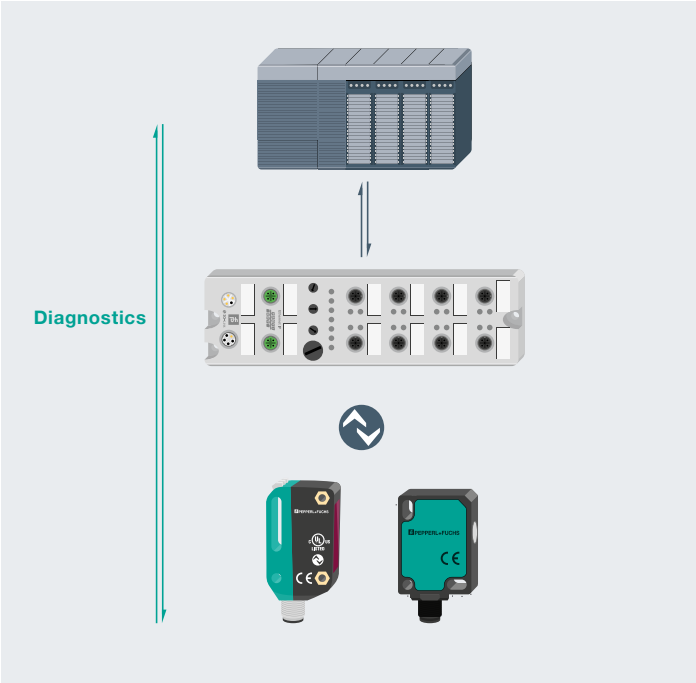
Complete Solution from a Single Source

Pepperl+Fuchs' IO-Link portfolio allows users to choose from a wide range of sensor technologies, including photoelectric sensors, ultrasonic sensors, inductive proximity sensors, positioning systems, and RFID. In addition to IO-Link sensors, I/O hubs with IO-Link offer another economical solution for connecting standard digital sensors. The complete solution is rounded off by IO-Link masters, connectivity, and software.


IO-Link

Reducing Costs with IO-Link

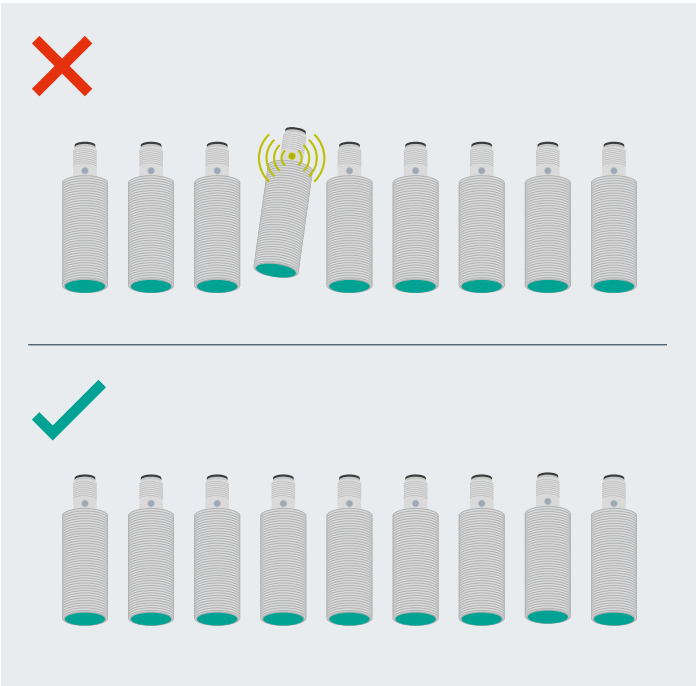
IO-Link offers countless new possibilities and creates added value for users. It reduces complexity, provides needs-based maintenance with comprehensive diagnostics, and enables individualized production with central data storage and automatic configuration.



Acyclical data for comprehensive diagnostics

Comprehensive Diagnostics Down to the Sensor/Actuator Level

Bidirectional communication from the control system to the field level enables comprehensive diagnostics of sensors and actuators. In addition to cyclical process data, a wealth of additional data is transferred acyclically, allowing device identification to be performed at any time. The control system simply accesses the manufacturer, part number, and serial number information saved in every IO-Link device. Diagnostic information about the general device condition, specific data from operation, temperature, and signal quality are also available.



Sensor and target misalignment can be identified early via stability alarm

Easy and Efficient Maintenance

With diagnostic data from the IO-Link device, maintenance can be scheduled and carried out based on the needs of plants and machines.

If an inductive proximity sensor with IO-Link falls out of alignment and the target is no longer in range, a stability alarm can be triggered. During the next maintenance cycle, the sensor can be readjusted by maintenance personnel.

If a sensor needs to be replaced, simply replace it with a new one and let IO-Link import the existing settings. This avoids downtime and unnecessary costs.

IO-Link at a Glance

- Bidirectional, serial point-to-point connectivity for signal and power
- Operating modes: Standard IO mode (SIO), IO-Link mode
- Three transfer rates: 4.8 kBaud (COM 1), 38.4 kBaud (COM 2), 230.4 Kbaud (COM 3)
- Unshielded standard industry cable for all connections
- Pin assignment: Pin 1: 24 V, Pin 3: 0, Pin 4: Switching and communication line (C/Q)
- Cable length: 20 m maximum

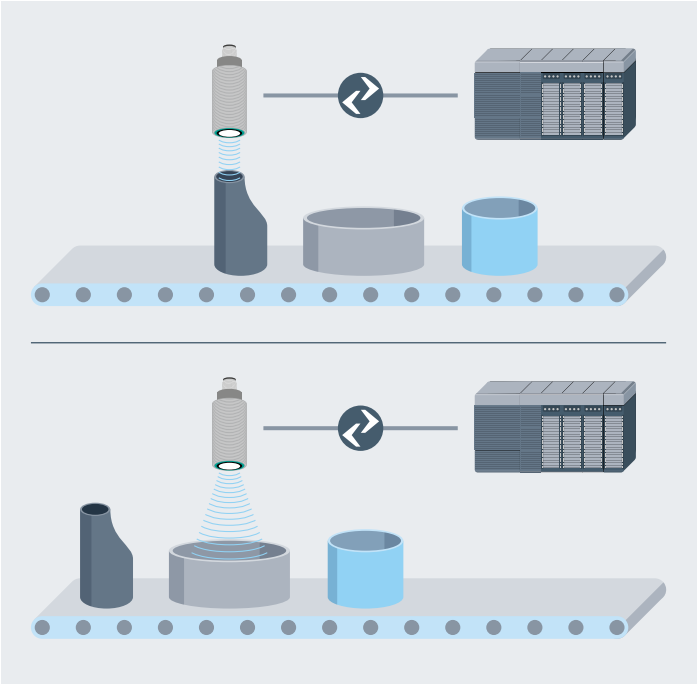
IO-Link

For more information, visit
www.pepperl-fuchs.com/tf-io-link

Batch Size 1 Production

IO-Link sensors can be configured via the control system. This simplifies commissioning and makes quick recipe changes possible without extended downtime. Even complete individualization—batch size 1 production—is possible.

For example, the beam width on an ultrasonic sensor can be adjusted to accommodate different container shapes in a level measurement application.



Automatic beam width adjustment on an ultrasonic sensor

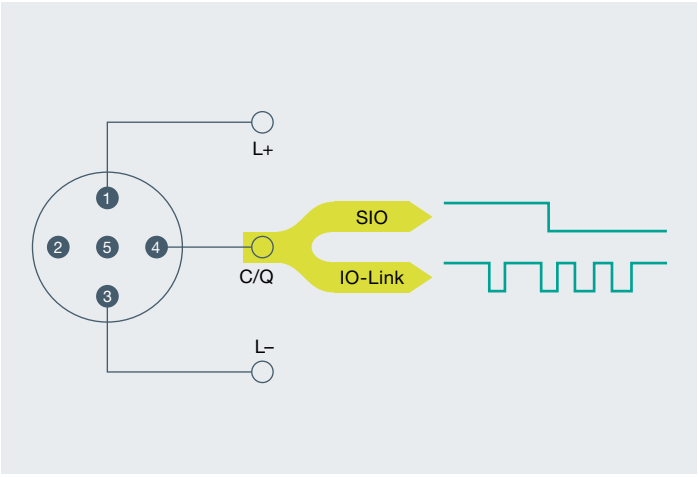
Technology

Future-Proof with IO-Link

Smart Sensor Profiles for simple integration and a reliable investment—Pepperl+Fuchs is pioneering integration of the new standard and paving the way toward Industry 4.0.

Uniform Structures Ensure Efficiency

Every IO-Link device that incorporates Smart Sensor Profiles is developed to follow a general specification and structure. The same device information is always stored and available anytime, and the pin layout and available operating modes are also identical in every device. This standardization ensures efficient machine design—and compatibility with Industry 4.0.



Standardized pin assignment of IO-Link devices

Sensorik 4.0

Sensorik4.0®—Paving the Way for the Smart Factory

IO-Link sensors pave the way for the Fourth Industrial Revolution. In the Industry 4.0 future of fully networked production systems, communication-ready sensors play a vital role: they send and receive sensor data within production processes and to higher-level local or cloud-based information systems.

To pave the way for Industry 4.0, Pepperl+Fuchs is providing innovative sensor technologies with Sensorik4.0®. They use the standard IO-Link interface to support the digitization of industrial applications.

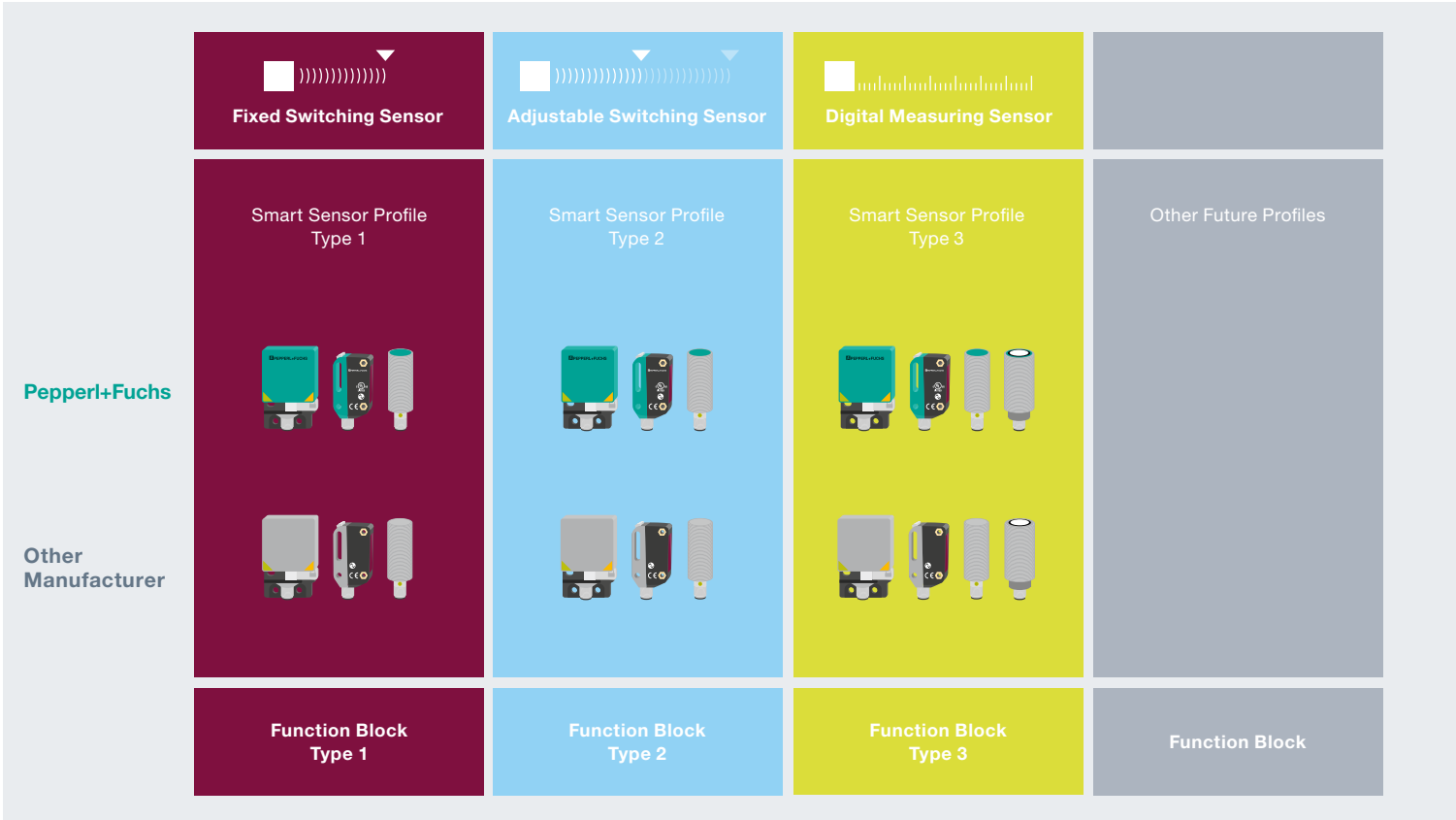
Smart Sensor Profiles: Finding a Common Denominator

To achieve true standardization, data transfer, data structures, and data content must be clearly defined for all manufacturers. Smart Sensor Profiles were developed for this purpose. They divide all sensors into types that are not determined by manufacturer or sensing mode but by the signal that a sensor transmits.

Profile-specific function blocks exist for each profile class to make integration quick and easy for users. Once a device from a specific profile class is initially integrated into a control system, the integration of additional devices from the same profile is simple.

This makes it possible to quickly replace a photoelectric distance sensor with a sensor from another manufacturer or with a measurement sensor that uses another sensing technology, such as an ultrasonic sensor.

Pepperl+Fuchs is pioneering the integration of Smart Sensor Profiles in current and future product development projects, paving the way for international standardization and Industry 4.0.



Principles of Smart Sensor Profiles

Portfolio

Complete Solution from a Single Source

A comprehensive portfolio of IO-Link devices, IO-Link infrastructure, software, and connectivity—this is the complete solution of intelligent IO-Link systems from Pepperl+Fuchs.

Flexible Applications

Pepperl+Fuchs' IO-Link portfolio offers flexible solutions for a range of applications—photoelectric sensors, ultrasonic sensors, inductive proximity sensors, positioning systems, and RFID. In addition to sensors, IO-Link masters, connectivity, I/O hubs, and software are also available.

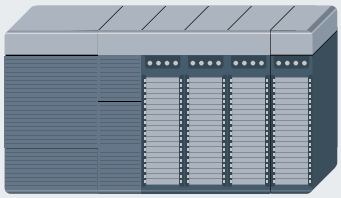
IO-Link Devices: Broad Portfolio for Any Requirement

Every application poses unique challenges. Pepperl+Fuchs' broad product portfolio includes a range of sensing technologies and housing styles that can be seamlessly integrated into all applications.

IO-Link Infrastructure: Optimized for Every Application

Take full advantage of IO-Link. Pepperl+Fuchs offers a range of IO-Link infrastructure: an IO-Link USB master for offline configuration, Ethernet IO modules with IO-Link master for connectivity to higher-level systems, and SmartBridge® for convenient diagnostics via tablet or smartphone during plant operation. The portfolio is completed by matching software and perfectly coordinated connectivity.

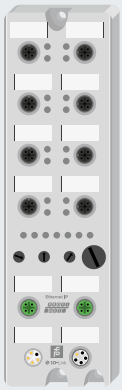
For an overview of the IO-Link portfolio, visit
www.pepperl-fuchs.com/tf-io-portfolio



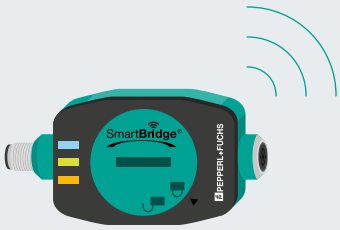
PLC Control

IO-Link Infrastructure

IO-Link
USB Master



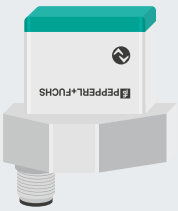
Ethernet IO Modules
with IO-Link Master



SmartBridge®

IO-Link Devices

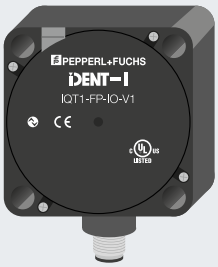
Inductive
Proximity Sensors



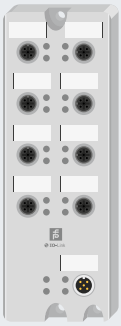
Inductive
Positioning Systems

Photoelectric
Sensors

Ultrasonic
Sensors

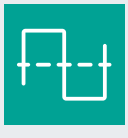


Identification
Systems

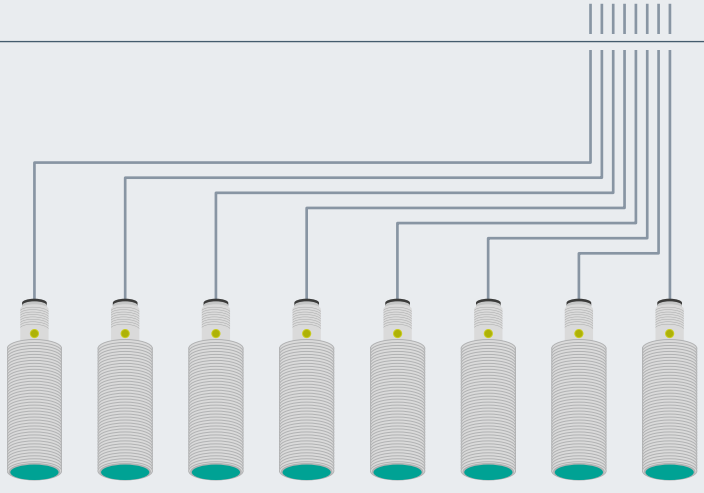


I/O Hub
with IO-Link

Standard Devices



Digital Sensors



Software Tools for Every Application

Pepperl+Fuchs offers a comprehensive set of tools for sensor configuration and diagnostics. Convenient, standardized user interfaces make sensors even easier to use.

IODD: Standardized Device Description for Easy Commissioning

Every IO-Link device has an IO device description (IODD) file that contains a range of information for integration into different systems. This information includes communication characteristics, available parameters and functions, and the user interface, among other things.

Because the IODD structure has been standardized for all devices, it can always be read the same way—regardless of the IO-Link master being used, the manufacturer, or the automation system.

The Right Software for Every Need

In addition to the IODD, several software tools are available for configuring IO-Link devices. From device DTMs for configuring a device via PACTware to function blocks for user programs in the control system to GDDs for graphical representation of data via the SmartBridge app, Pepperl+Fuchs offers software for every situation.

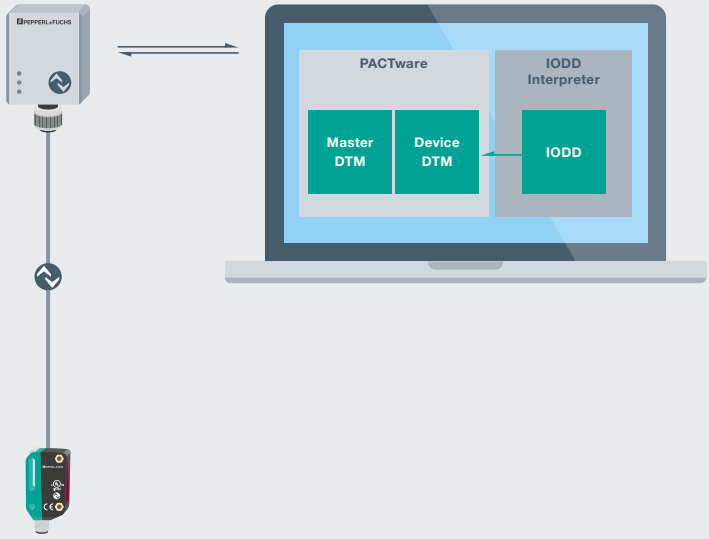
For more information, visit
www.pepperl-fuchs.com/tf-io-link

Offline Configuration

With offline configuration, IO-Link devices are configured before they are mounted. Pepperl+Fuchs' IO-Link USB master can be used for this.

In addition to the master, a program such as PACTware, USB Master DTM, or IODD interpreter is required to display an IO-Link device's IODD.

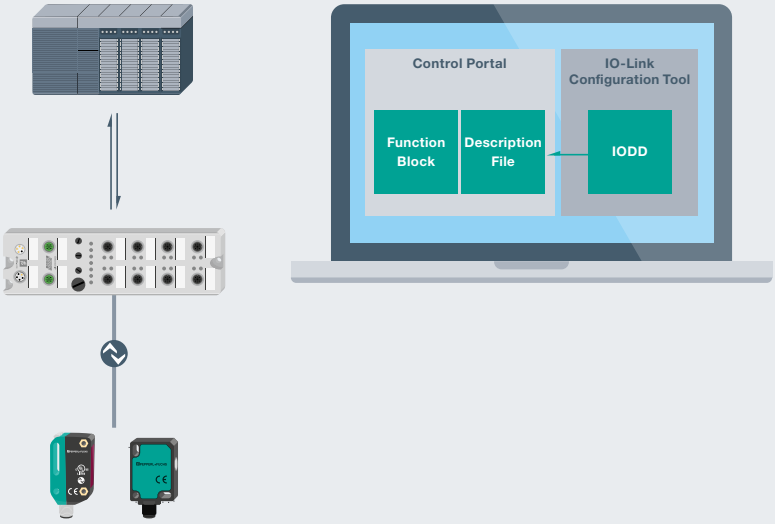
Device DTMs simplify operation of more complex devices with a graphical interface.



Online Configuration

To commission machines and plants, the IO-Link master and devices must be integrated into the appropriate automation system, which requires different software.

Then, the IO-Link configuration tool can be used to configure devices. During operation, IO-Link device parameters can be set, and diagnostic data can be monitored. The integration of IO-Link data into an application program takes place via function blocks.

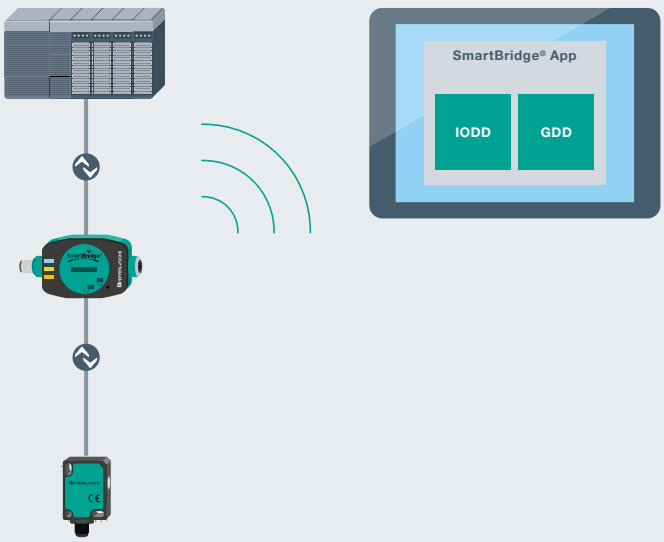


Online Monitoring and Diagnostics

SmartBridge can be installed to monitor data transfer and analyze potential problems during operation.

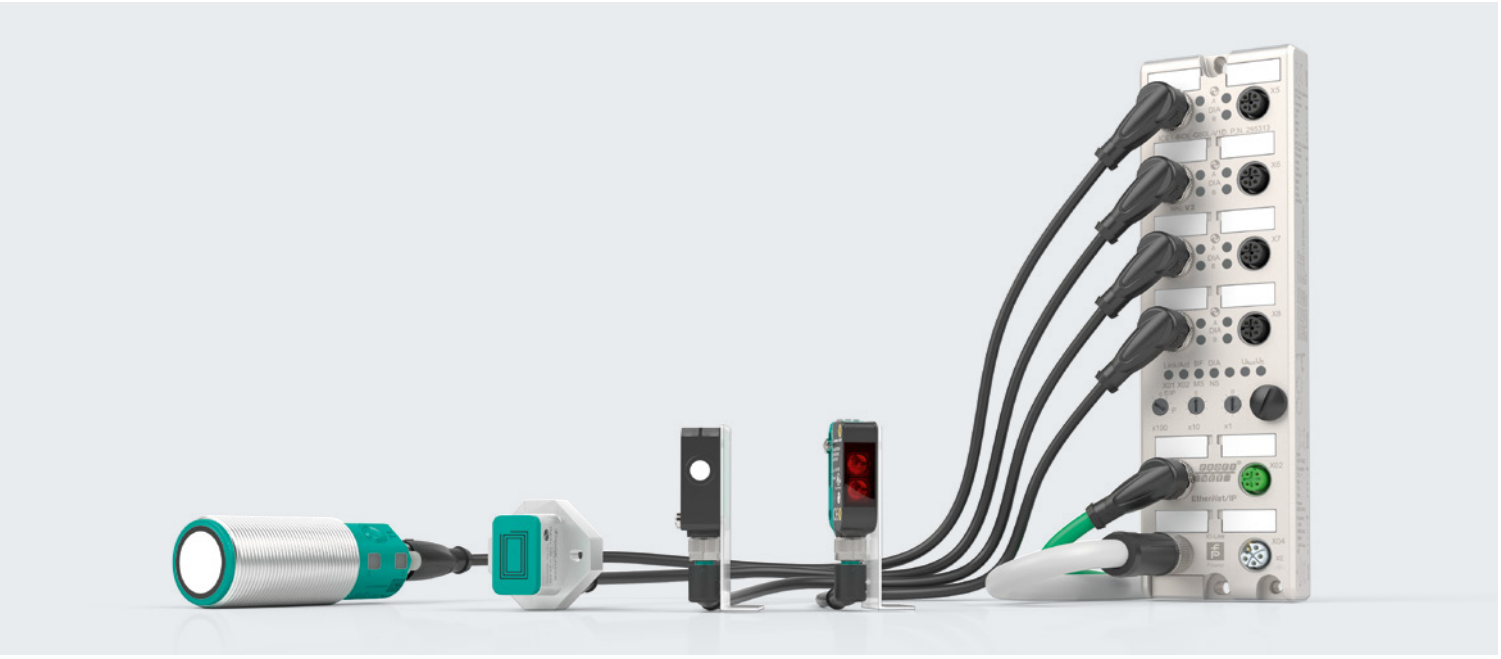
Connected between the IO-Link master and device, the SmartBridge enables data to be conveniently accessed via a tablet or logged via memory card over a longer period of time.

In this case, only the SmartBridge app, IODD, and GDD—for intuitive graphical display—are required.



Ethernet IO Modules with IO-Link

Efficient, Innovative, and Durable



Flexible Connectivity to Higher-Level Systems

Pepperl+Fuchs' Ethernet IO modules offer a number of innovative features. With a versatile multi-protocol capability, they provide optimum efficiency for standardizing manufacturing facilities. IO-Link and comprehensive diagnostics are important for maintaining and troubleshooting your machines. These innovative, high-performance communication modules can help optimize your installations.

Highlights

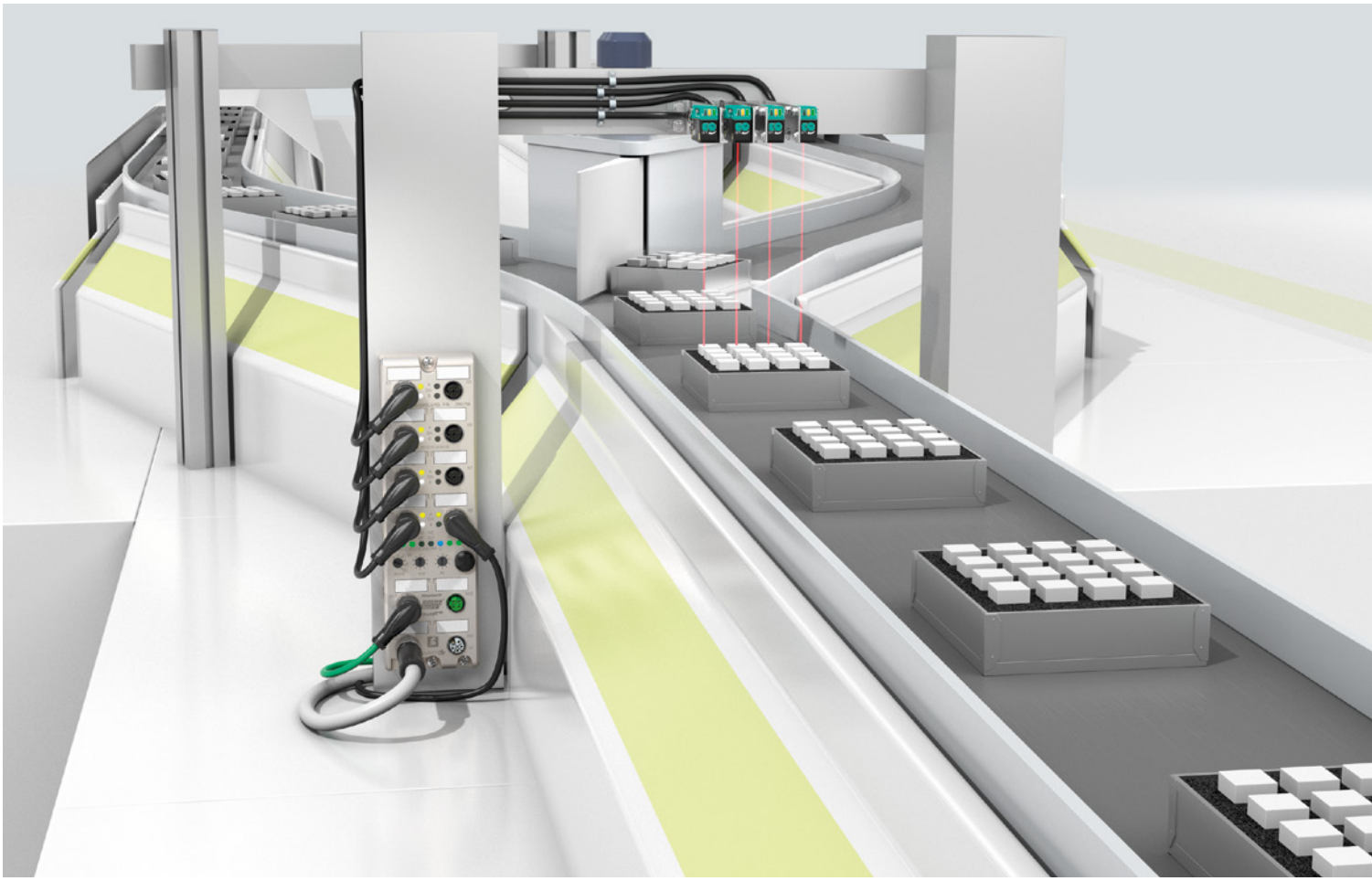
- All standard Ethernet communication protocols are supported in one single module for optimal machine standardization
- Innovative M12 power connector for reduced installation costs thanks to higher current capability of 2 x 16 A for sensors and actuators
- Integrated IO-Link master for continuous diagnostics and parameterization from the control system to the sensor level

IP65/ IP67 | PROFINET | EtherNet/IP | MULTI-PROTOCOL

For more information, visit
www.pepperl-fuchs.com/tf-io-master

Rugged Design, Extreme Durability

The rugged design of these modules ensures durability in harsh, industrial environments. The fully encapsulated metal housing is extremely resistant to mechanical damage and environmental factors. It is dust-tight and can withstand both water jets and immersion in water, in accordance with IP65/ IP67 standards. The modules also operate in a wide range of temperatures, from –20 °C to +70 °C, and they are resistant to mechanical vibration (15 g) and shock (50 g).



IO-Link USB Master

Offline Configuration—Easy and Universal

Flexible Configuration for All IO-Link Devices

Get an IO-Link sensor up and running quickly and easily—and do it all from your desk. The IO-Link USB master acts as a link between a standard office infrastructure with Windows® PCs and an industrial IO-Link device.

The computer's USB port is used for both communication and power, allowing sensors to operate immediately without complex wiring. For devices with higher current consumption, an additional power supply is included with delivery.

Highlights

- Offline operation for a variety of applications via standardized interfaces and tools
- Plug-and-play with power supply from the USB port
- Standard M12 connector for quick connectivity with conventional cables

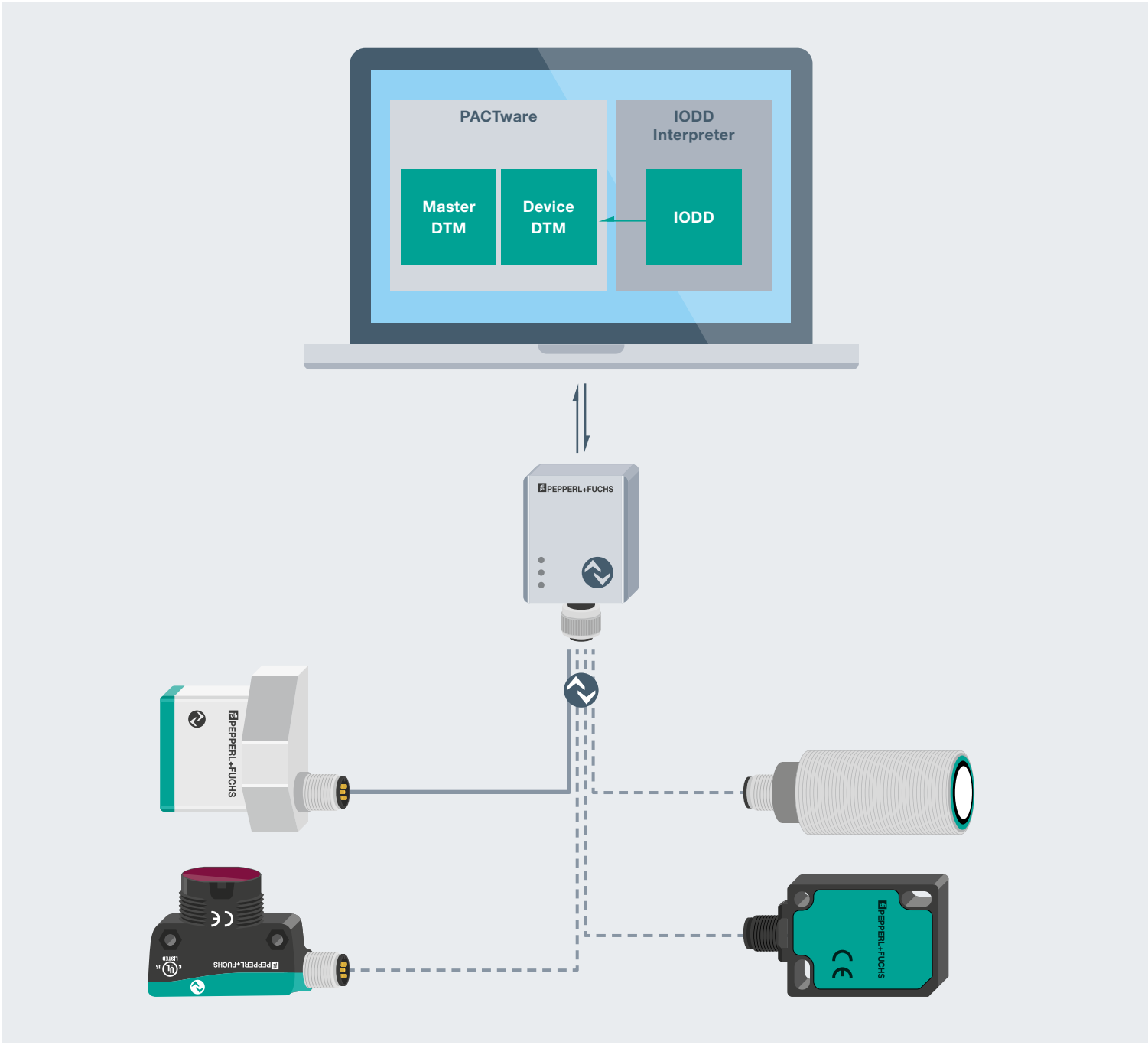
Technical Data	
Dimensions	70 x 41 x 24 mm (L x W x H)
Mass	100 g
Connection	IO-Link port: 1x M12, 5-pin, A-coded Operating voltage: DC-9, 2.1 mm USB 2.0: USB connector type MiniB
Interfaces	IO-Link, USB
Functional principle	Master mode
Standards	IEC 61131-9 (IO-Link Version 1.0 and 1.1)
Power supply	24 V DC/USB 5 V DC

For more information, visit
www.pepperl-fuchs.com/tf-io-master

Small but Mighty

The IO-Link USB master enables any IO-Link device to be preconfigured and tested via the IODD interpreter included in the software package from Pepperl+Fuchs.

Read parameter data from an IO-Link device, record changes and save data externally, duplicate and compare device settings—these are only a few of many possibilities. Previous knowledge of control system programming is not necessary.



SmartBridge®

Data Access Is Easier and More Efficient Than Ever

Easy Integration with Plug and Play

SmartBridge® easily connects between the sensor and an IO-card, making permanent installation, temporary integration, or even retrofitting easy. No additional power source is necessary. The replaceable SD card also allows long-term logging of process, operation, and status data. Once powered up, SmartBridge® uses Bluetooth LE to communicate with smartphones and tablets that are running the SmartBridge® app.

Highlights

- Access to status and event data directly from IO-Link devices using mobile devices
- Easy integration into existing infrastructures via plug and play for data access without interrupting the manufacturing processes
- SmartBridge® app provides a consistent and easily understandable user interface for IO-Link-compatible field devices regardless of device manufacturer

Plug and play | Master mode | Monitor mode | Data logging

Technical Data	
Dimensions	103 x 50 x 28 mm (L x W x H)
Mass	135 g
Connection	M12x1 socket, 5-pin, M12x1 connector, 5-pin, USB 2.0 Micro-B socket
Interfaces	Binary (push/pull, NPN, PNP), IO-Link, Bluetooth LE, microSD card, USB 2.0 Micro-B
Functional principle	Monitoring mode, master mode
Standards	IEC 61131-9 (IO-Link Version 1.0 and 1.1), IEEE 802.15 (Bluetooth LE)
Power supply	24 V DC via standardized M12 IO-Link device connection

Two Modes for Different Tasks

SmartBridge® can operate in different modes depending on the application. It typically operates in monitor mode, which allows users to monitor the communication between an IO-Link device and master at any time. An integrated memory card allows data to be logged long term and analyzed later as needed.

In master mode, IO-Link devices can be conveniently operated via a mobile device like a tablet or smartphone.

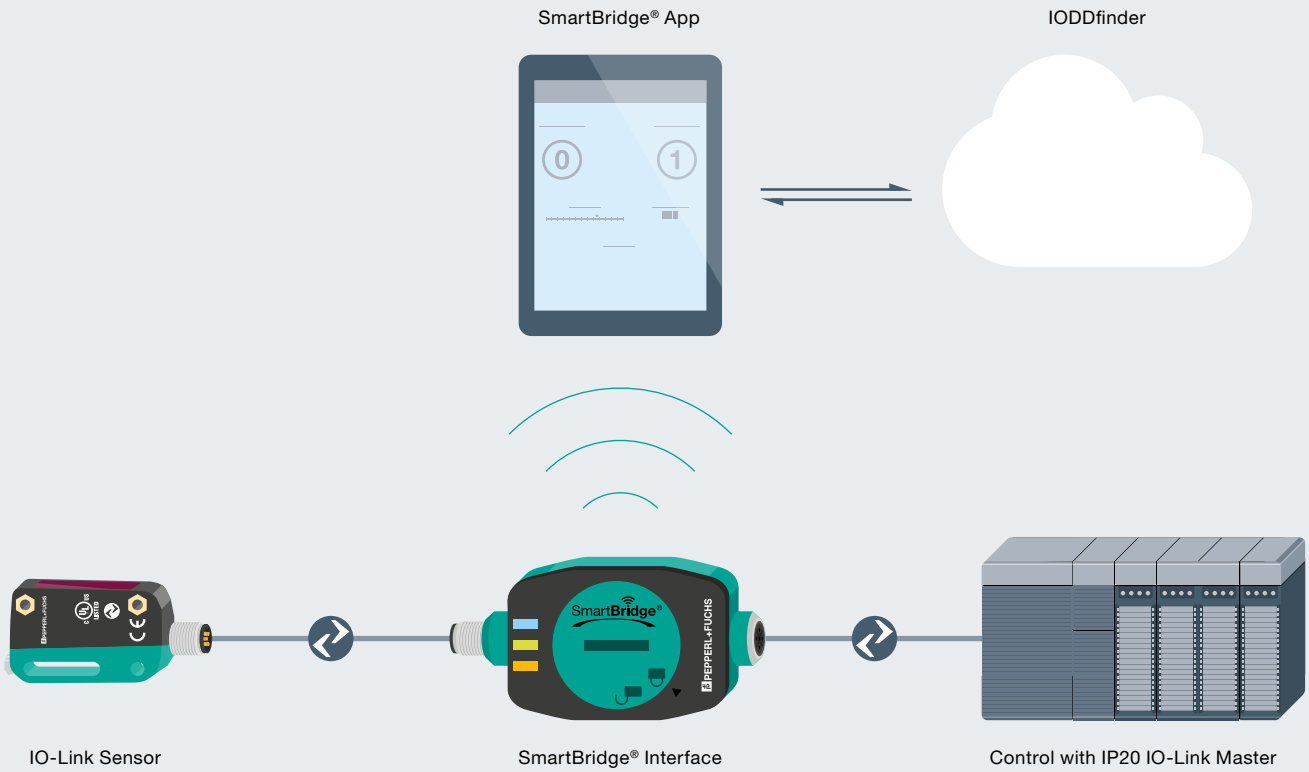
SmartBridge® App

The app is available for iOS and Android devices via the following description: “SmartBridge® Sensor Technology 4.0 Pepperl+Fuchs GmbH.”

Available on the App Store

ANDROID APP ON Google Play

For more information, visit
www.pepperl-fuchs.com/tf-io-smartbridge



Photoelectric Sensors

R10x and R20x Series
Standard Housings—All Sensing Modes

Forward-Thinking Product Design—Endless Application Possibilities

A complete family of sensing modes in five standard housing styles with one user interface and IO-Link in every model. The forward-thinking design of Pepperl+Fuchs' R100, R101, R103, R200, and R201 series simplifies installation and reduces costs.

Sensing Mode	Red Light LED (PowerBeam)	DuraBeam Laser	Infrared LED (R100, R101)
Thru-beam sensor	■	■	■
Retroreflective sensor with polarization filter	■	■	
Retroreflective sensor without polarization filter			■
Retroreflective sensor with clear object detection	■		
Diffuse mode sensor	■		■
Diffuse mode sensor with background suppression	■	■	■
Diffuse mode sensor with background evaluation	■	■	■
Measuring sensor with multiple switch points	■	■	■
Distance sensor	■	■	

IO-Link version 1.1

Up to IP69K

Smart Sensor Profile

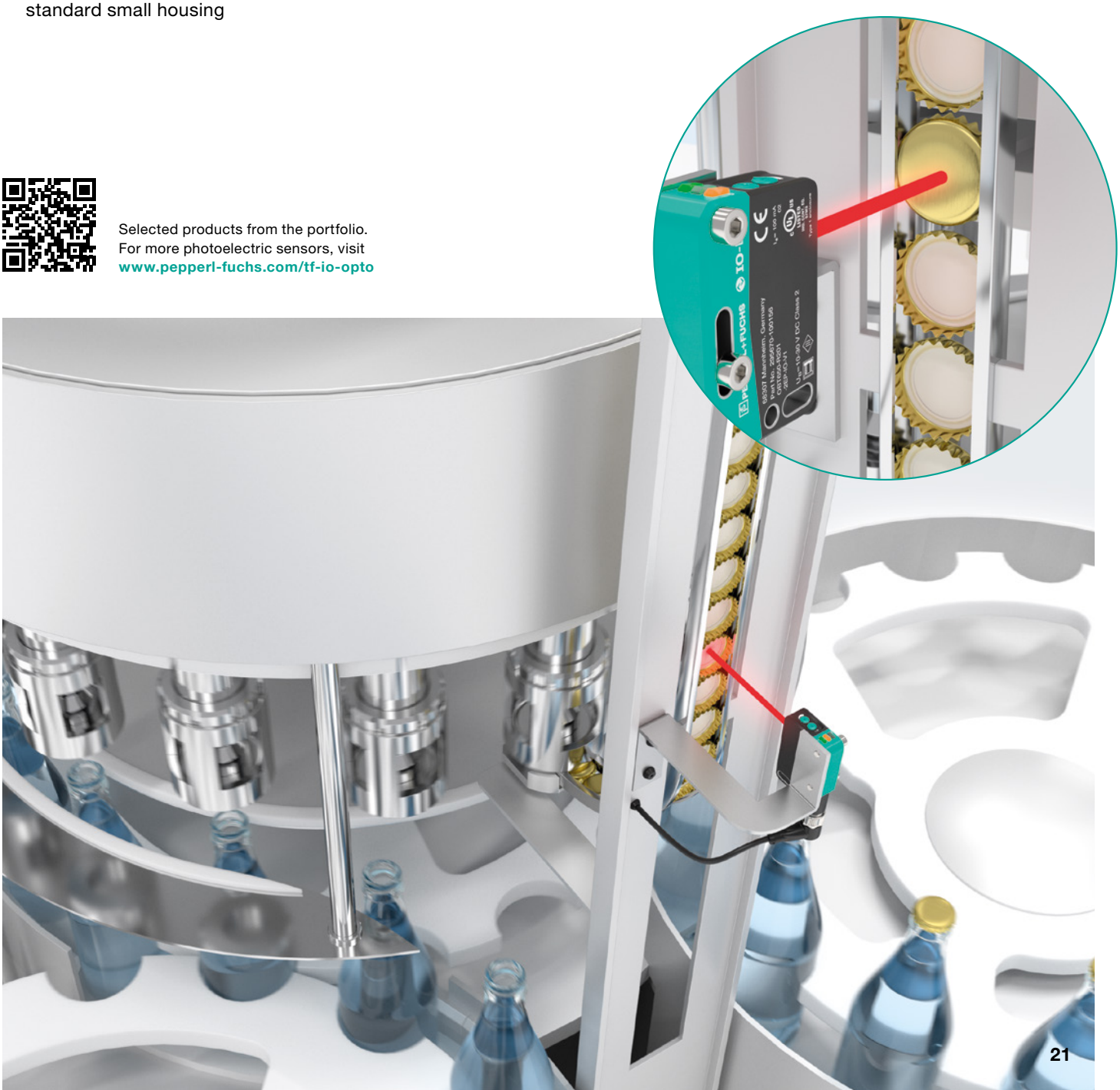
Highlights

- All photoelectric sensing modes in standard housing styles for maximum flexibility and more integration possibilities
- Simple installation and setup with one user interface for all housing styles and sensing modes
- IO-Link and Smart Sensor Profile in every sensor: standardized communication down to the sensor level as the basis for Sensorik4.0®
- Precise and reliable MPT distance measurement in a standard small housing

Smart Sensor Profile: Pioneering the Standardization of IO-Link

Pepperl+Fuchs is among the first manufacturers to implement Edition 2 of Smart Sensor Profile—including in the R200 and R201 series. This standard will also be implemented in future Pepperl+Fuchs products, and additional Smart Sensor Profiles with new function classes will be integrated into future developments.

Selected products from the portfolio.
For more photoelectric sensors, visit
www.pepperl-fuchs.com/tf-io-opto



Ultrasonic Sensors

UC-F77 Series

Extreme Performance in Reduced Space

Impressive Functionality

With IO-Link, sound beam adjustment, synchronization, long detection ranges of up to 800 mm, and minimal dead bands, F77 series ultrasonic sensors offer an unparalleled range of features and adjustment options. The series is available in a standard or side-looker version with integrated M18 thread. The minimized dead bands and long detection range mean objects close to the sensor and farther away are detected reliably. The sound beam width is easy to switch depending on requirements.

Highlights

- Highly adaptable: a single sensor can be adjusted to fit a wide range of applications
- Precise and reliable: high noise immunity and multiplex capability for maximum reliability
- Simple integration: compact, space-saving housing design with thru-hole and surface-mount options

IO-Link version 1.1

Adjustable sound beam

Synchronization

Technical Data	UC250-F77	UC400-F77	UC800-F77S
Sensing mode	Diffuse		
Sensing range	20 … 250 mm	30 … 400 mm	60 … 800 mm
Operating voltage	10 … 30 V DC (18 … 30 V DC analog output versions)		
Output type	1 switching output (push-pull output) 1 analog output (current or voltage)		

Simple Configuration for Batch Size 1 Production

With IO-Link, UC-F77 series sensors can be adapted to the demands of the application. Filter settings, sound beam width, switch points, and other parameters can be easily adjusted via the control system—even during production. This enables quick automatic recipe changes and individualized production down to batch size 1.

Selected products from the portfolio.
For more ultrasonic sensors, visit
www.pepperl-fuchs.com/tf-io-ultra

Inductive Proximity Sensors

Reduction Factor 1 Sensors
Identical Switching for All Metals

Adaptability—Even in Applications with Multiple Target Types

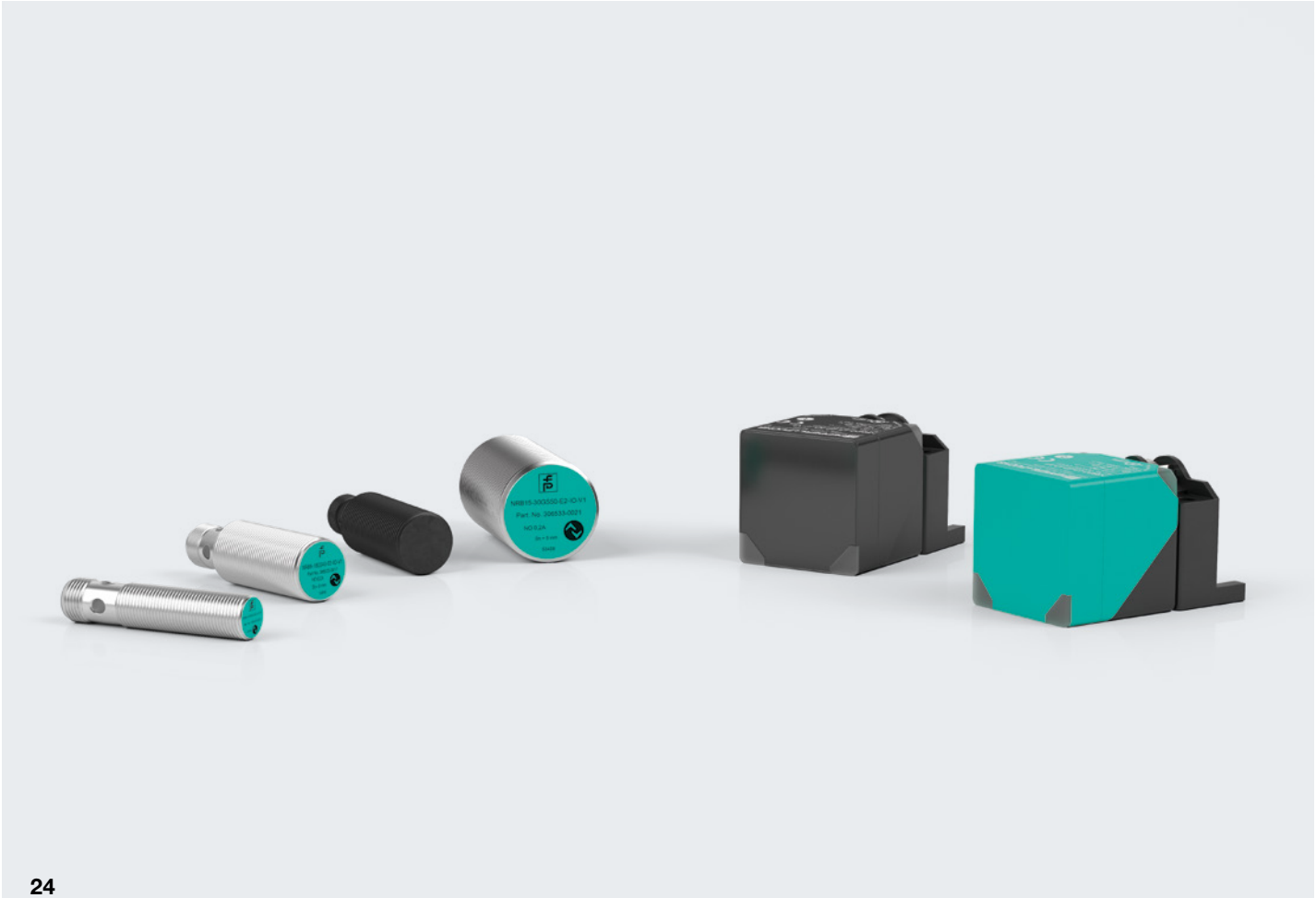
Starting with steel, the switching distances of conventional inductive sensors are reduced, metal to metal, by a defined reduction factor. This is not the case with reduction factor 1 sensors, which offer identical switching distances for all metals with a single sensor. This allows much more flexibility in machine design and use in applications with multiple target metals. By using only one sensor instead of several, procurement, storage, and administration costs are reduced. In addition, reduction factor 1 sensors offer high magnetic field immunity for use in weld cell environments.

Highlights

- Flexible—a broad portfolio of sensors with identical switching distance, regardless of a target's material
- Smart maintenance via stability alarm and temperature indicator
- Rugged, weld-immune sensors with IP68/IP69K protection for harsh industrial environments

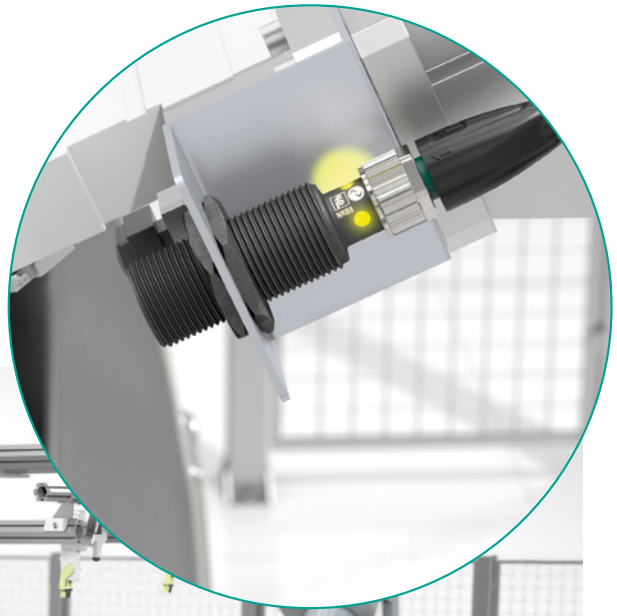
IO-Link
version 1.1

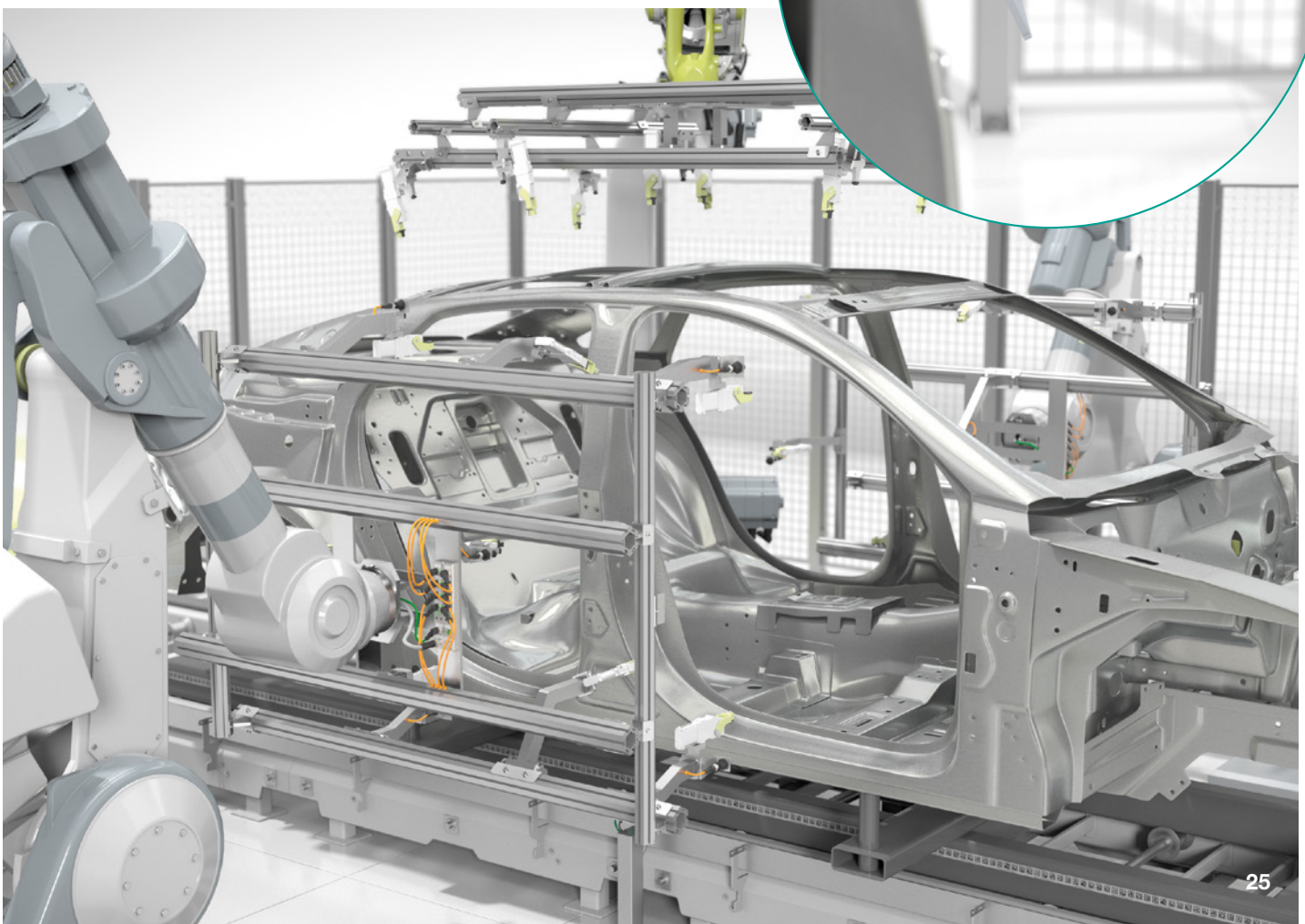
Weld-immune
versions available



Technical Data	M12	M18	M30	Varikont L
IO-Link standard	NR*-12GS40-E2-IO-*-V1	NR*-18GS40-E2-IO-*-V1	NR*-30GS50-E2-IO-*-V1	NR*-L3-E2-IO-*-V1
IO-Link weld-immune	NR*-12GS40-E2-IO-C-V1	NR*-18GS40-E2-IO-C-V1	NR*-30GS50-E2-IO-C-V1	NR*-L3-E2-IO-C-V1
Switching distance Flush Non-flush	 4 mm 10 mm	 8 mm 15 mm	 15 mm 30 mm	 20 mm 40 mm
Output	3-wire, PNP, NO/NC programmable			
Housing	Threaded sleeve M12 x 1	Threaded sleeve M18 x 1	Threaded sleeve M30 x 1.5	40 x 40 x 40 mm (Varikont L) 40 x 40 x 120 mm (Varikont)

Selected products from the portfolio.
For more proximity sensors, visit
www.pepperl-fuchs.com/tf-io-inductive





PMI F90 and F112 Series: Patented Technology for Precise Position Detection

Maximum Precision and Efficiency

A patented configuration and wiring of multiple coils within a single sensor and intelligent evaluation enable maximum precision and efficiency. This allows simple steel actuators to be used. Whether the actuator is the customer's design, from Pepperl+Fuchs' accessory portfolio, or part of the machine module being monitored—PMI inductive positioning systems always detect the exact position.

F112 Series

With a measurement length of 14 mm, the F112 series provides high-precision position data or switch points/windows. Fully encapsulated in a rugged metal housing with IP67 protection, the sensor withstands tough conditions and, with IO-Link, offers new possibilities in space-restricted applications.

F90 Series

IO-Link, simultaneous detection of two damping elements, as well as measuring and switching functions in one device—the F90 series offers an unprecedented range of features for your application. Available in three measurement lengths (40 mm, 80 mm, and 120 mm), the best solution is always available. Certified versions are also available for applications in ATEX Zone 2/22 (3G nA, 3D tc) hazardous locations.

Highlights

- Maximum durability with noncontact, maintenance-free technology and high environmental protection
- Simple steel actuator opens up a variety of possible applications
- Flexibility due to a wide range of functions and programmable measuring and switching range

IO-Link
version 1.1

Zone 2/22
(3G nA, 3D tc)

Measuring and switching
in one device

Technical Data	PMI*F90-IU-IO	PMI*F90-3EP-IO	PMI*F90-IU2EP-IO-V15	PMI*F112-U-IO	PMI*F112-2EP-IO	PMI*F112-2EPE2-IO
Measurement length		40, 80, 120 mm			14 mm	
Output type	1 analog output (current or voltage)	3 switching outputs (push-pull)	1 analog output 2 switching outputs (push-pull)	1 analog output (voltage)	2 switching outputs (push-pull)	2 switching outputs (push-pull) 1 switching output (PNP)

Selected products from the portfolio.
For more identification systems, visit
www.pepperl-fuchs.com/tf-io-positioning

RFID Read/Write Heads
Industry 4.0 Identification with IO-Link

Flexible Identification Solution Simplifies Integration

RFID read/write heads with IO-Link offer simplicity and flexibility. With autostart functionality, they simplify integration dramatically. Combining our Ethernet IO module with IO-Link master with the new RFID read/write heads, Pepperl+Fuchs offers a complete, flexible identification solution.

RFID IO-Link read/write heads operate in the HF range according to ISO 15693 and offer a read/write range of up to 13 cm. The housing designs are rugged and compact, ideal for use in harsh industrial environments.

Flexible System Integration

Users can choose between two operating modes that are designed for easy and complex applications. **Easy mode** enables simple plug-and-play commissioning with minimal programming. With **Expert mode**, Pepperl+Fuchs also offers a solution for high-performance data access via a handshake procedure.

The standardized IO-Link interface on the read/write heads enables flexible connectivity to most common bus systems and controls.

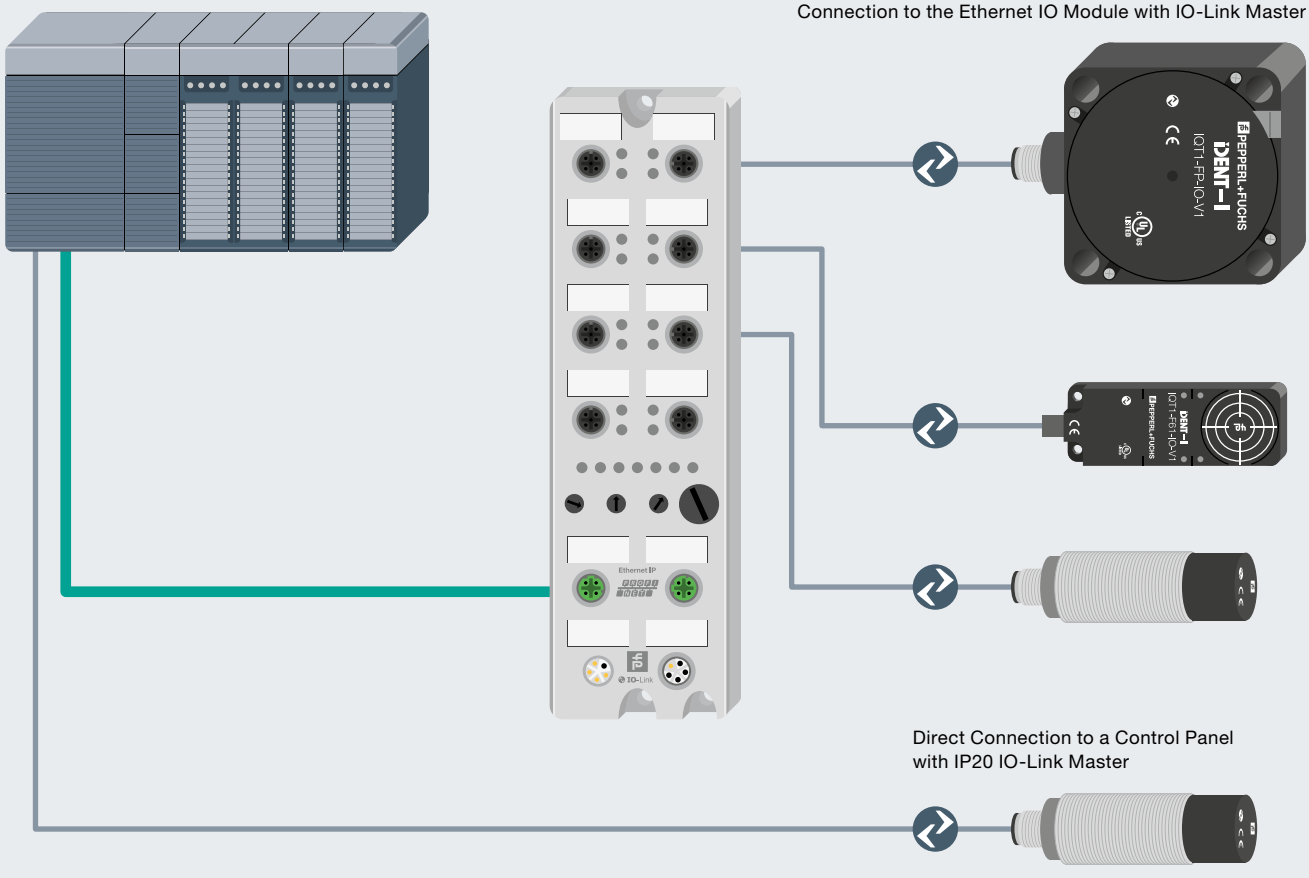
IO-Link
version 1.1

Highlights

- Easy mode reduces complexity without compromising performance
- System standardization with multi-protocol support for most common bus systems
- Flexible and efficient solution enables IO-Link read/write heads to be combined with other devices on Ethernet IO Modules with IO-Link master

Technical Data	IQT1-18GM-IO-V1	IQT1-F61-IO-V1	IQT1-FP-IO-V1
Operating frequency	13.56 MHz		
Read/write distance	0 ... 50 mm	0 ... 55 mm	0 ... 130 mm
Electrical interface	IO-Link (V1.1)		
Mechanical interface	M12 x 1		
Conformity	According to ISO 15693		
Dimensions	ø 18 mm, length 63.5 mm	80 x 28 x 12 mm	80 x 80 x 40 mm

Selected products from the portfolio.
For more identification systems, visit
www.pepperl-fuchs.com/tf-io-ident



I/O Hub with IO-Link

Efficient Integration of Standard Digital Sensors

Increased Efficiency with IO-Link

I/O hubs with IO-Link make it possible to easily and economically integrate digital sensors into the IO-Link communication channel. The hub's eight ports with 16 digital inputs, combined with an Ethernet IO module with integrated IO-Link master from Pepperl+Fuchs, enable signal transmission of up to 128 digital I/Os to higher-level control systems.

Since only one connector is necessary for signal transmission and power, wiring complexity is significantly reduced, leading to an especially efficient solution.

With a rugged housing design and extended temperature range of –25 °C to +70 °C, the I/O hub can also be used in demanding industrial environments.

IO-Link Version 1.1

Up to IP69K

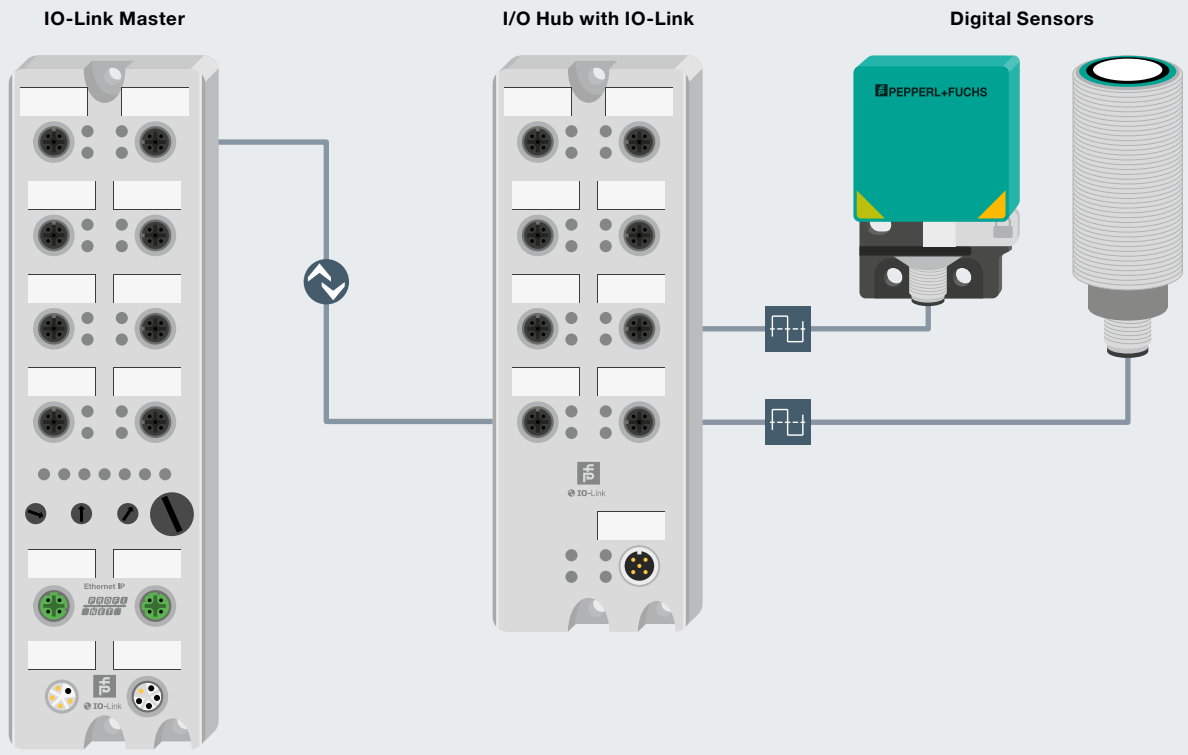
Connectivity of up to 16 sensors

Highlights

- Easy integration of binary sensors into automation systems via IO-Link
- Efficient signal transmission of up to 128 digital IOs via Pepperl+Fuchs' IO-Link master module to the control level
- Simpler cabling with one connection line for power and data transfer from the I/O hub to an IO-Link master

Technical Data	ICA-16DI-G60A-IO
Inputs/Outputs	16 digital inputs
Shock/Vibration	15 g/500 Hz
Connections	Power supply: M12 A-coded, Inputs: M12, A-coded
Dimensions	160 mm x 60 mm x 31 mm

Selected products from the portfolio.
For more products, visit
www.pepperl-fuchs.com/tf-io-hub



Your automation, our passion.

Explosion Protection

- Intrinsic Safety Barriers
- Signal Conditioners
- FieldConnex® Fieldbus
- Remote I/O Systems
- Electrical Ex Equipment
- Purge and Pressurization
- Industrial HMI
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- Fieldbus Modules
- AS-Interface
- Identification Systems
- Displays and Signal Processing
- Connectivity

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www.pepperl-fuchs.com/quality

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