

**Industrie 4.0:
New Challenges for Automation**

Envisioning factories of the future, Industrie 4.0 presents the automation industry with new challenges. It creates a scenario of fully networked production systems that exchange data not only horizontally within the production processes but also vertically up to higher-level information systems such as MES or ERP – or even beyond company boundaries.

While this scenario enables communication at any time between any subscriber and at any hierarchy level, the current status of many factories continues to be traditional machine communication on the control level. It is for these companies that Pepperl+Fuchs is developing sensor solutions that are paving the way for the innovations of Industrie 4.0.

Sensorik4.0®: Communication-Ready Sensors for Industrie 4.0 Applications

Fully networked production systems require a communication-ready sensor technology that would allow sensor data to be transferred effectively. Such communication-ready sensors are a key feature of Sensorik4.0®: Under this label, Pepperl+Fuchs is providing a new generation of innovative sensor solutions for use in Industrie 4.0 scenarios.

Your automation, our passion.

Explosion Protection

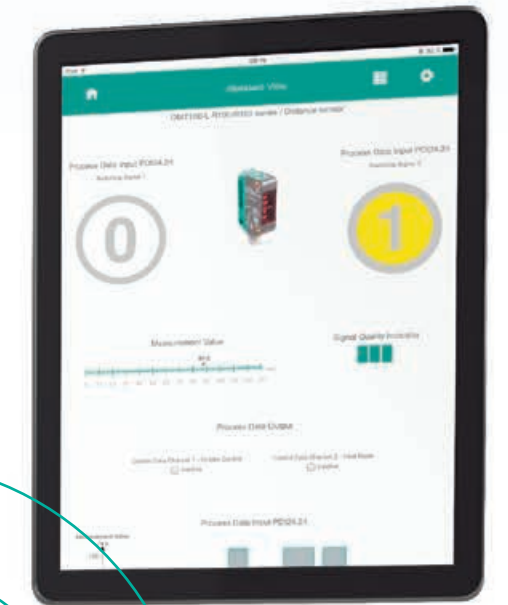
- Intrinsically Safe Barriers
- Signal Conditioners
- Fieldbus Infrastructure
- Remote I/O Systems
- HART Interface Solutions
- Wireless Solutions
- Level Measurement
- Purge and Pressurization Systems
- Industrial Monitors and HMI Solutions
- Electrical Explosion Protection Equipment
- Solutions for Explosion Protection

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- AS-Interface
- Identification Systems
- Logic Control Units
- Connectivity

Harnessing sensor data.
Creating value.
Improving simplicity.

SmartBridge® Interface



For more information on Sensorik4.0®, see
www.pepperl-fuchs.com/sensorik40

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SmartBridge® Technology: A Gateway to the Possibilities of Industrie 4.0

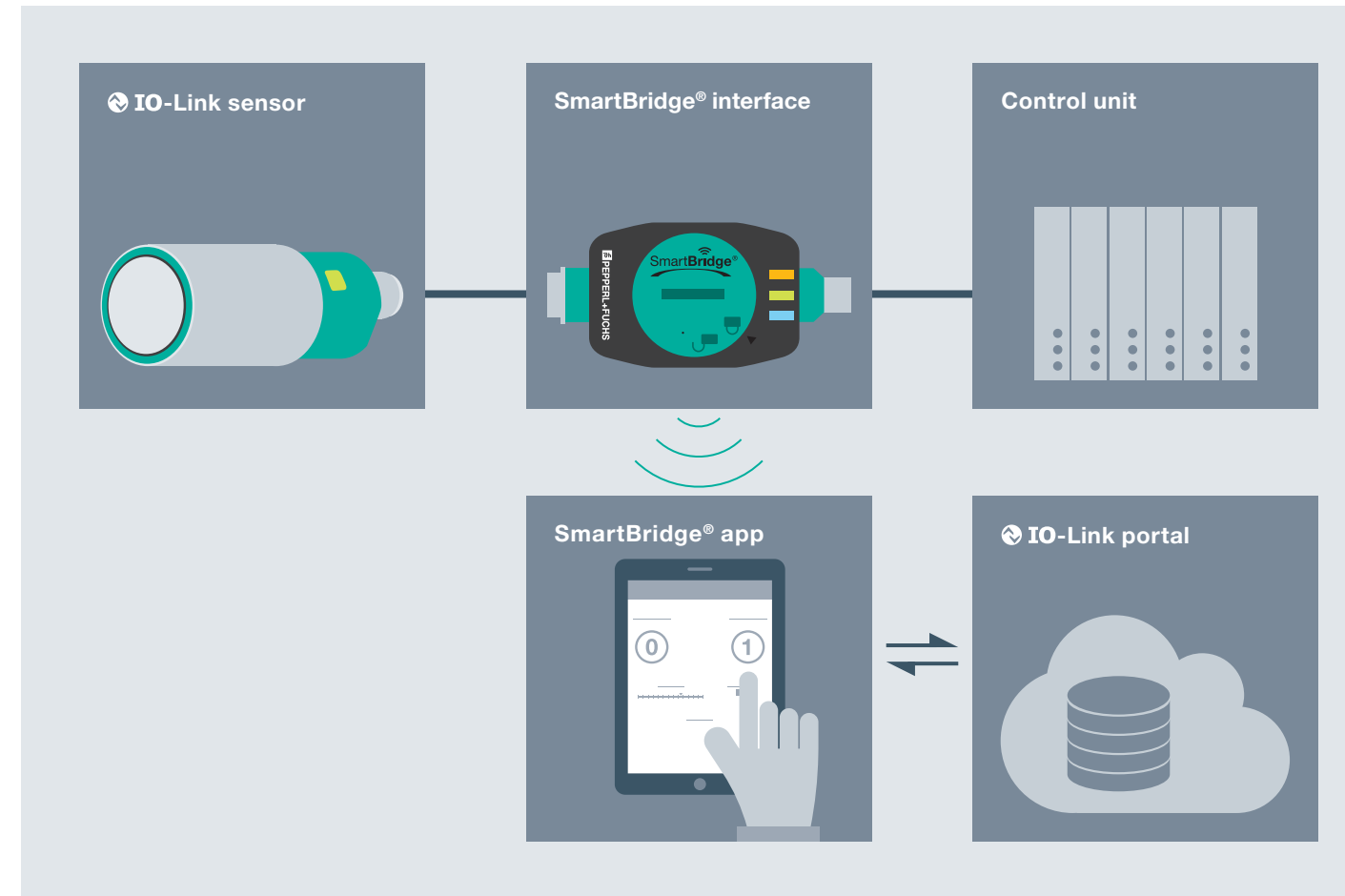
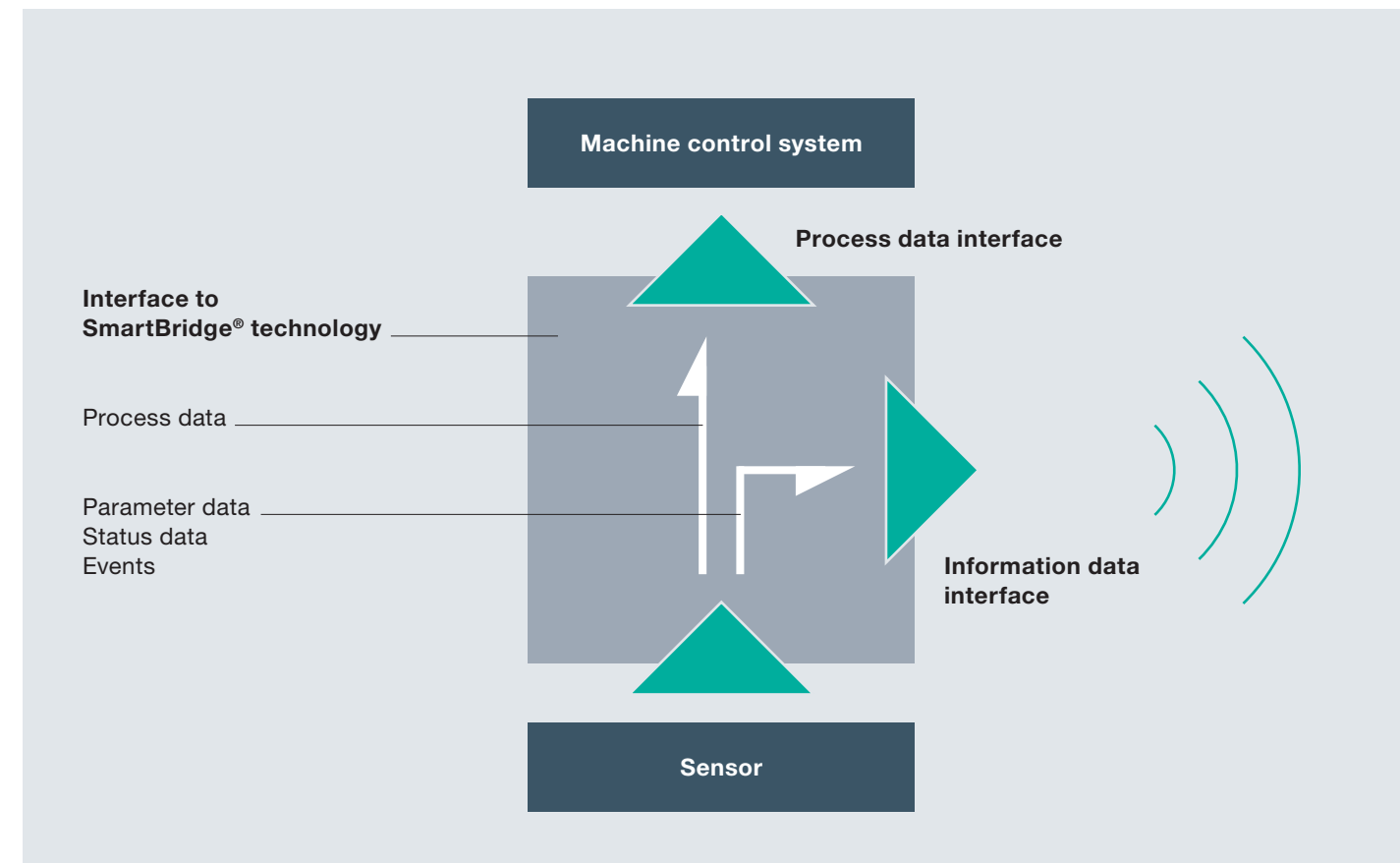
Condition-based maintenance, process optimization, and service on demand – these have become a reality with SmartBridge® technology. SmartBridge® takes valuable status data from automation components and makes it directly available to higher-level information systems. It not only increases the efficiency of the individual processes, but also your entire production process.

Using Field Devices as a Valuable Source of Data for Process Optimization

Status data that is delivered from sensors, machines, or even the entire production line can provide significant information for the user. But this requires a technology that can distinguish between different types of data and then transmit that data appropriately. This is SmartBridge® technology.

Throughout the manufacturing process, cyclical process data from the field devices provides information on how machine control systems are regulating the various processes. Simultaneously, intelligent field devices deliver acyclic status information, such as signal quality, hours of operation, or wear. Traditional machine control systems are not capable of evaluating this data.

SmartBridge® – the name says it all – intelligently bridges this digital gap. It identifies and transfers this data, allowing information about the operating status of automation to be transmitted directly to higher-level information systems and service systems – bypassing the machine control system.



Data Access Is Easier and More Efficient than Ever

The unique combination of the hardware interface, the intuitive app, and the server structure to automatically download the control and display files makes access to each IO-Link device easy and convenient.

The SmartBridge® Interface: 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.

The SmartBridge® App: Intuitive Operation via Smartphone or Tablet

Wireless, mobile, and intuitive: The SmartBridge® app offers a modern, familiar smartphone and tablet user interface with text and graphics. The app is available for iOS and Android devices, can be downloaded from the respective store, and supports IO-Link devices from different manufacturers.

The Server Structure: Automatic Control and Display Files for All IO-Link Devices

Full access to the IO-Link device is established quickly and easily. Once the connection is established between the app and IO-Link device, the common IO-Link portal is accessed and device-specific files are downloaded automatically.

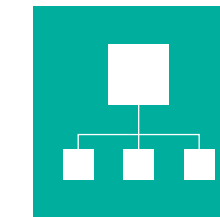


Remote Control of IO-Link Devices

The SmartBridge® system offers all the benefits of a user-friendly remote control. Field devices at inaccessible locations can be accessed remotely.

Applications:

- Commissioning, control, and maintenance, even for IO-Link devices that are difficult to access
- Demonstration and marketing aid for IO-Link devices



IO-Link Master

If the interface is plugged into a connection between an IO-Link-compatible device and a conventional control unit, or is being used entirely without a machine control, its built-in master takes over. In this operating mode, SmartBridge®

supports the display of all device information as well as the parameterization of IO-Link sensors and actuators.

Applications:

- Predictive maintenance by evaluating events on IO-Link devices
- Commissioning of systems, sensors, and actuators installed in machine modules without IO-Link machine control

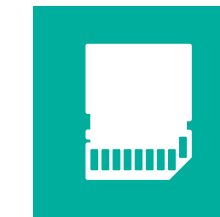


IO-Link Status Monitoring

Monitor mode allows users to monitor the communication between an IO-Link device and the IO-Link master at any time. The SmartBridge® interface is the only module of its kind to offer this type of monitoring with no impact or interference on the process.

Applications:

- Troubleshooting in the event of machine malfunction
- Commissioning and control of IO-Link devices



Data Logging

The SmartBridge® Interface features a slot for a microSD card where process and status data, as well as random malfunctions are stored for later analysis. SmartBridge® also supports the effective verification and documentation of the error-free operation of a machine.

Applications:

- Troubleshooting for IO-Link devices, machines, and plants
- Process analysis

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, USB2.0 Micro-B socket
Interfaces	Binary (push/pull, NPN, PNP), IO-Link, Bluetooth LE, microSD card, USB2.0 Micro-B
Functional principle	Monitoring mode, master mode
Standards	IEC 61131-9 (IO-Link versions 1.0 and 1.1), IEEE 802.15 (Bluetooth LE)
Power supply	24 V DC via standardized M12 IO-Link device connection

SmartBridge® app

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