EN

SENSORS
WITH IO-LINK

Overview IO-Link Sensor Range

IPF ELECTRONIC

High-End in High-Tech.

SCAN QR CODE
AND READ FLYER DIGITALLY

IO-LINK PAVES THE WAY TO THE DIGITAL FUTURE

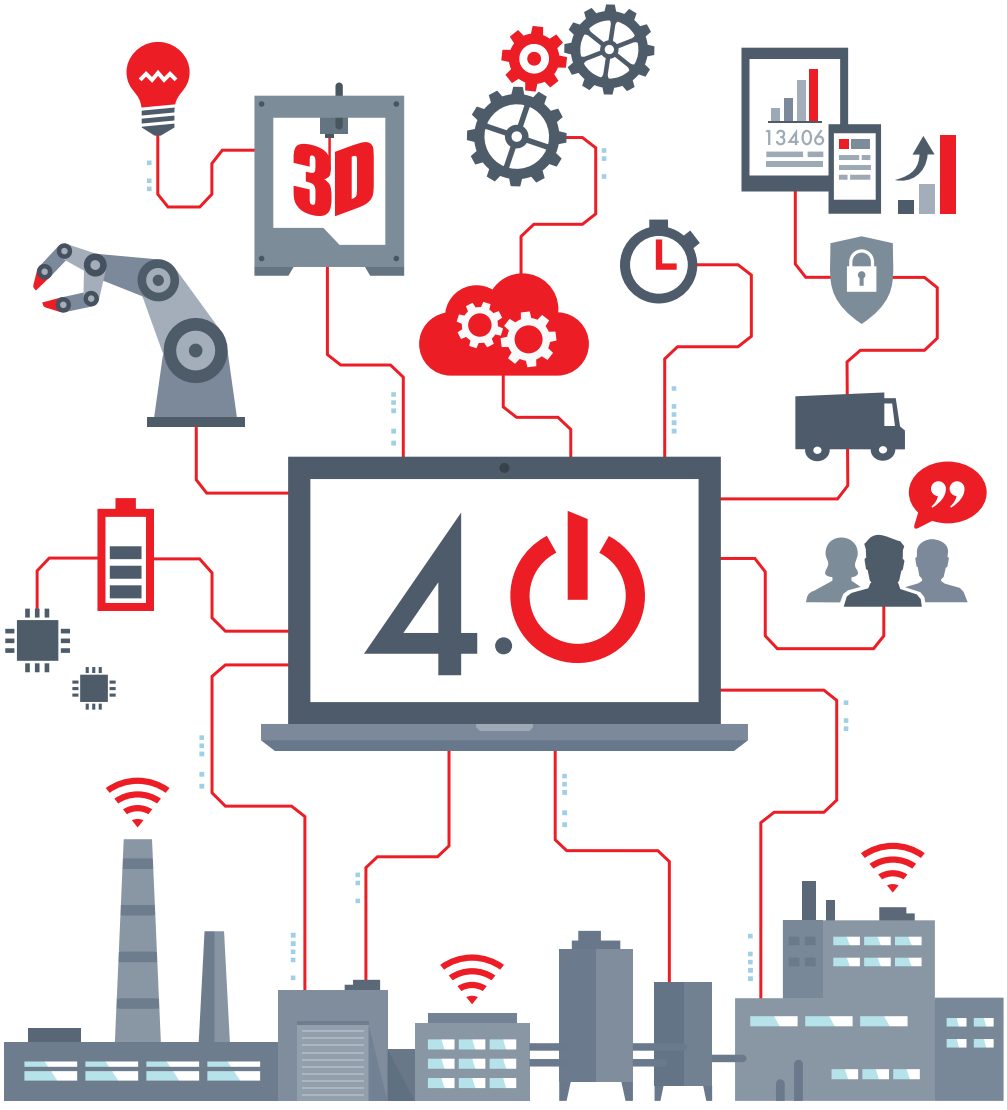
The digital transformation of production is progressing continuously and affects almost all sectors and industries. However, the linking of automated production with modern information and communication technologies can only be realized with intelligent interfaces. In the field of sensor technology, there is therefore hardly any way around technologies such as IO-Link in the future.

INDUSTRY 4.0

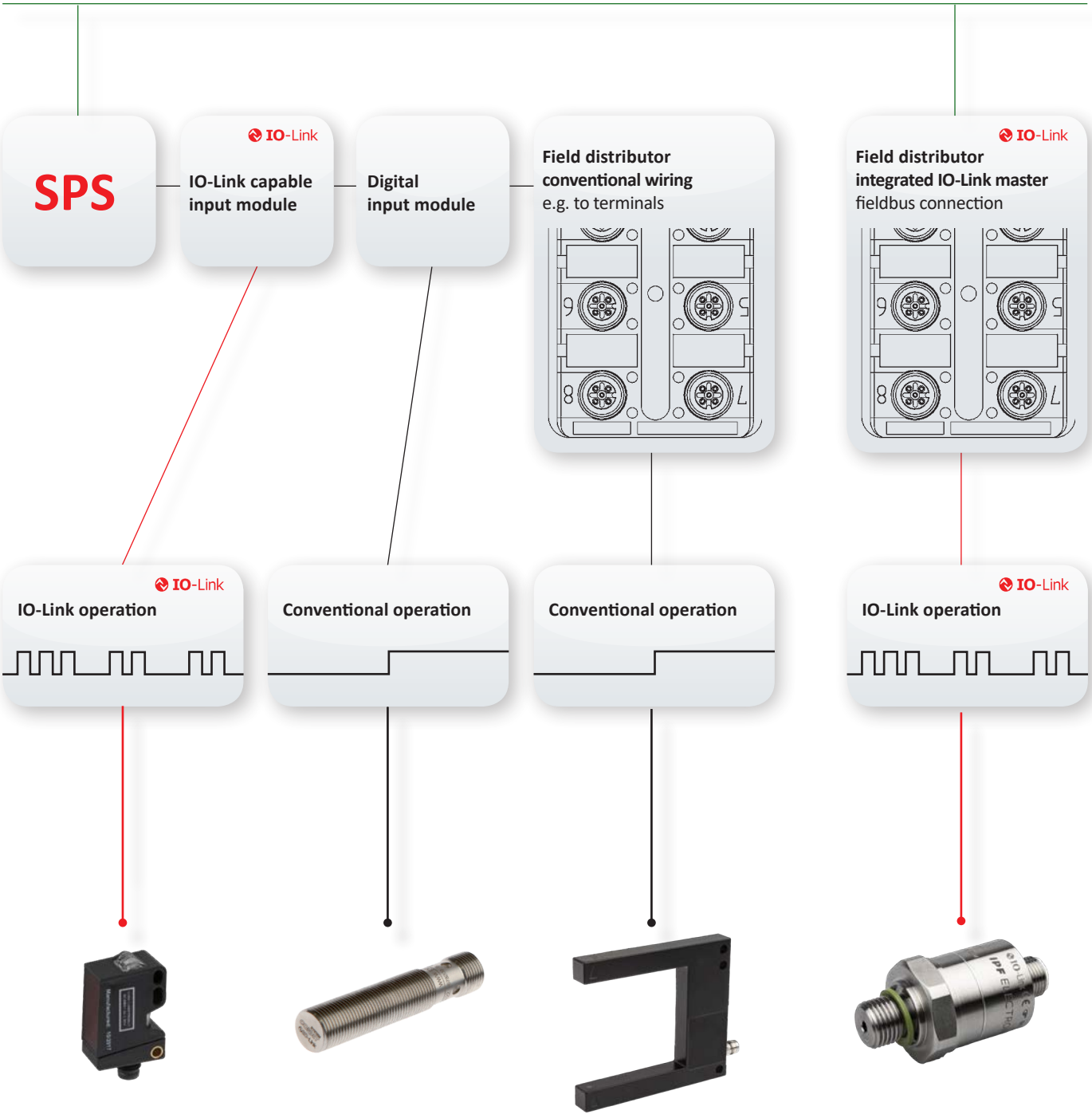
IO-LINK: YOUR INTERFACE TO THE FUTURE

IO-Link makes our inductive sensors intelligent, as they can communicate with higher-level control systems via the device interface. Our sensors can thus be parameterized during operation and also provide extremely valuable process, diagnostic and device data for production automation.

The potential for your automation of the future is enormous: Through targeted process optimization and the use of condition-based maintenance strategies, you not only increase plant availability, but also transparency in highly automated production processes. Among other things, this can lead to sustainable cost savings. By the way, if you decide on an IO-Link capable sensor, you do not need to invest more than in a device without an intelligent interface.



FIELDBUS


SPS
IO-Link
IO-Link capable input module
Digital input module
Field distributor conventional wiring
e.g. to terminals
IO-Link
Field distributor integrated IO-Link master
fieldbus connection
IO-Link
IO-Link operation
Conventional operation
Conventional operation
IO-Link
IO-Link operation

SYSTEMS WITH CONVINCING FEATURES

VISIBLE RESULTS IN NO TIME

ADVANTAGES

- Cost-efficient standardization of sensor technology
- Easy device replacement due to plug & play
- Efficient communication through a single vendor-independent system
- Intelligent sensor technology that provides additional diagnostic information
- Direct modification of sensor parameters during operation
- Trouble-free wiring without great effort and special requirements
- An IO-Link system requires only a few components:

  IO-Link master

  IO-Link device (e.g. sensor)

  Connection cable (standard 3-wire sensor cable)

  Configuration tool (parameterization software for IO-Link master)

SIMPLE, EFFICIENT, SOLUTION-ORIENTED

SYSTEM ARCHITECTURE AND FUNCTIONALITY OF IO-LINK

The IO-Link master as interface to the higher-level controller (PLC) has one or more ports. Only one IO-Link device can be connected to each port (point-to-point communication with parallel wiring - no fieldbus). An IO-Link device is connected to the IO-Link master via an unshielded 3-wire standard cable (M8 or M12 standard sensor connection) with a maximum length of up to 20 meters.

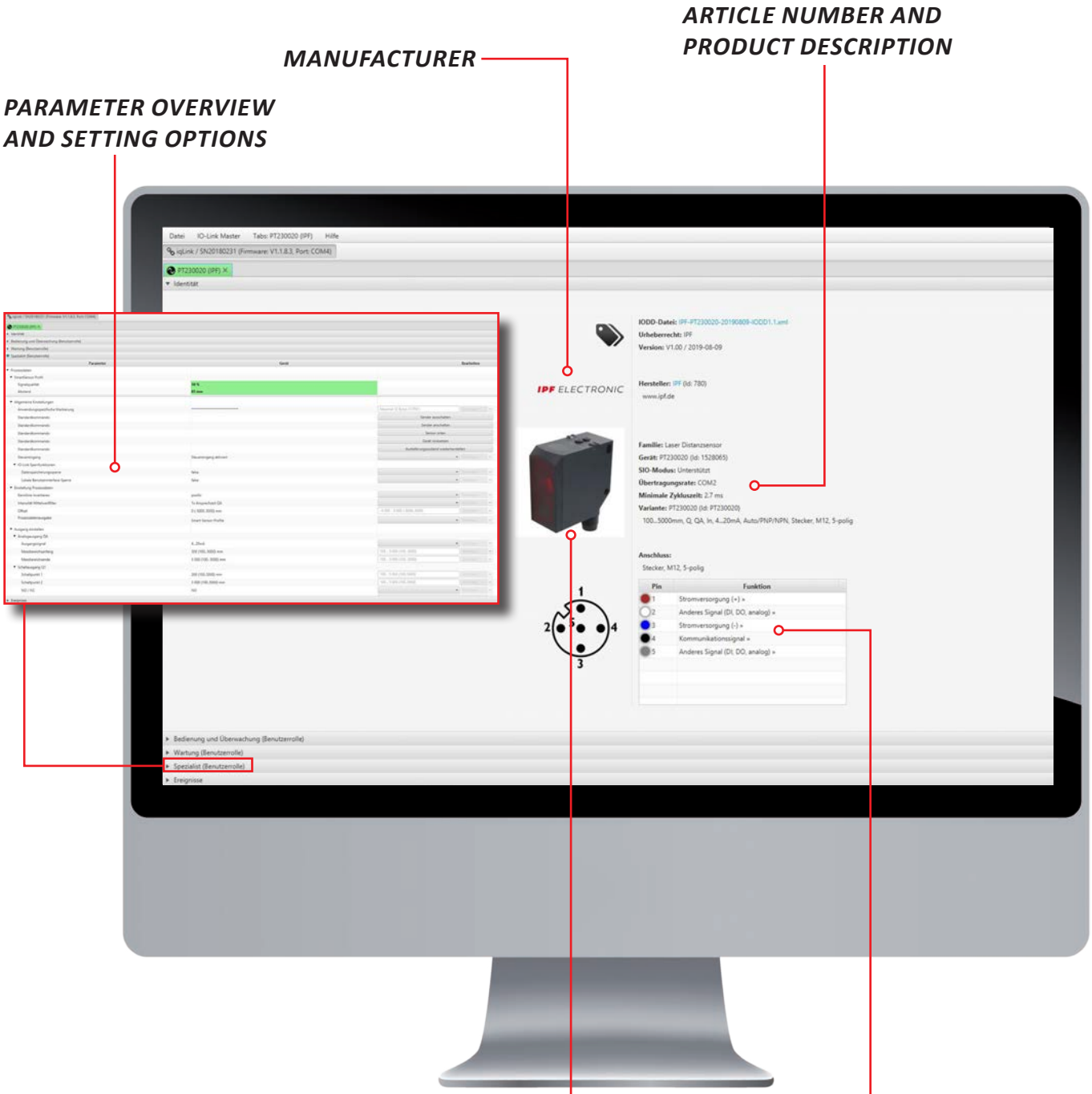
No special specifications are to be observed for laying the cable. The IO-Link device communicates via the IO-Link master, which is integrated either in a PLC or a fieldbus distributor. The implementation of IO-Link in existing automation systems therefore places no special requirements on either the wiring or the mounting.

Three types of data are exchanged between the IO-Link master and the IO-Link device:
- Cyclical process data
- Acyclic device data (IO-Link device): e.g. parameters, diagnostic information
- Acyclic data (events): e.g. errors and warnings

The IO-Link device only transmits its data when requested to do so by the IO-Link master.

A configuration tool is required for parameterization of the IO-Link master (more on this on the following pages).

CONFIGURATION TOOL OF THE IPF IO-LINK MASTER



SYSTEM INTELLIGENCE ACROSS VARIOUS MANUFACTURERS

IO-LINK CONFIGURATION TOOL AND IODD

A software is required for parameterizing the IO-Link master and thus the manufacturer-independent IO-Link devices or IO-Link-capable sensors connected to it. This so-called IO-Link configuration tool enables a transparent representation (visualization) of the respective IO-Link system architecture.

Via the IO-Link protocol, our IO-Link capable sensors provide access to process data and variables. All properties of the sensors are described in the IODD (IO Device Description). The structure of the IODD is the same for all IO-Link capable devices from all manufacturers. The IODD consists of one or more xml files that describe the IO-Link capable sensor and image files in png format.

AN IODD THUS CONTAINS:

- Information on communication properties
- Information on device parameters
- Identification, process and diagnostic data
- Picture of the sensor
- Logo of the manufacturer
- PDF with all relevant information for the user

The IO-Link configuration tools of the master manufacturers are able to read in an IODD and thus display the properties of the sensor described.

CONDITION-ORIENTED MAINTENANCE

Continuous evaluation of sensor diagnostic data extends your maintenance intervals, as you can automatically readjust systems and machines. You can detect critical system conditions in advance.

INCREASE MACHINE AVAILABILITY

Downtimes can be significantly reduced because the IO-Link master automatically parameterizes replaced sensors. Incorrect settings or the installation of incorrect sensor types are reliably prevented.

INCREASE PLANT FLEXIBILITY

Necessary changes to the system parameters in the event of format changes or formulation modifications can be transferred to the systems via the IO-Link master depending on production. This minimizes the potential for errors and reduces setup times.

EASY INSTALLATION

Industry-standard unshielded three- or four-wire standard cables are sufficient. The IO-Link interface, which is standardized across all manufacturers, is easy to integrate and even complex devices can be integrated simply. Digital communication ensures a high level of interference immunity.

MORE EFFICIENT OPERATION

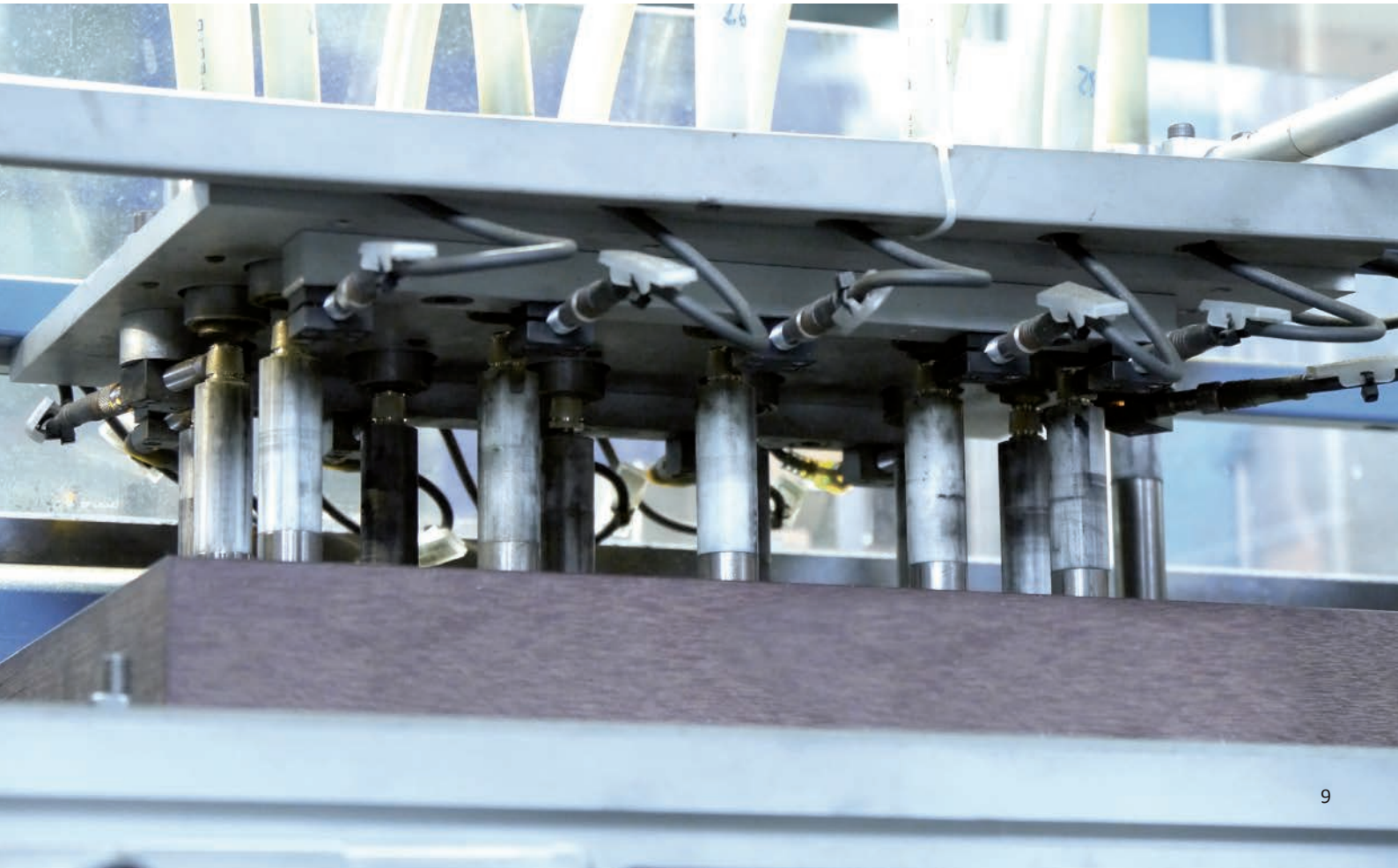
The accessibility of the sensors is no longer crucial, as the setting is made via the IO-Link interface. In addition, the technology enables continuous process monitoring and error analysis of the IO-Link components via the machine control system. In this way, for example, machine processes can be specifically optimized in terms of time. The digital data transmission is interference-proof, fast and open for binary as well as analog standard devices.

SUSTAINABLY REDUCE DOWNTIME AND COSTS

Production downtimes due to maintenance and servicing work, whether planned or unplanned, cause considerable costs in everyday operations. In the assembly facility for brass bushings shown here, "commercially available" inductive proximity switches were previously used, which were regularly replaced as part of preventive maintenance. Despite this measure, which involved replacing devices that were still completely intact, production was occasionally interrupted due to defective sensors.

By switching to IO-Link capable inductive sensors from ipf electronic, the downtimes could be reduced significantly and, above all, sustainably. The sensors inform the higher-level PLC via IO-Link as soon as they no longer have a sufficient functional reserve. Maintenance is thus able to plan an operation in good time before the failure of a device and thus implement a condition-oriented ergo more cost-efficient service strategy.

The changeover to the new, IO-Link compatible sensors was unproblematic, because the design of the devices remained unchanged. The existing sensor cables could also continue to be used. Only the input module of the PLC had to be replaced by an IO-Link capable module.



SENSOR VERSIONS IO-LINK

PRESSURE SENSORS

PRESSURE TRANSMITTERS

ULTRASONIC SENSORS

IPF ELECTRONIC

INDUCTIVE SENSORS

/ With norm switching distance

/ With increased range

/ With metallic sensor surface

/ Metal chips resistant versions

/ Miniature designs

SENSOR VERSIONS-
IO-LINK

OPTICAL SENSORS

/ Forked

/ Angled

/ Through-beam sensors
(transmitter and receiver)

/ Retro-reflective light barriers
(transmitter and reflector)

OPTICAL SENSORS

/ Auto-reflective light barriers
(sensor and machine part)

/ Energetic diffuse-reflection sensors

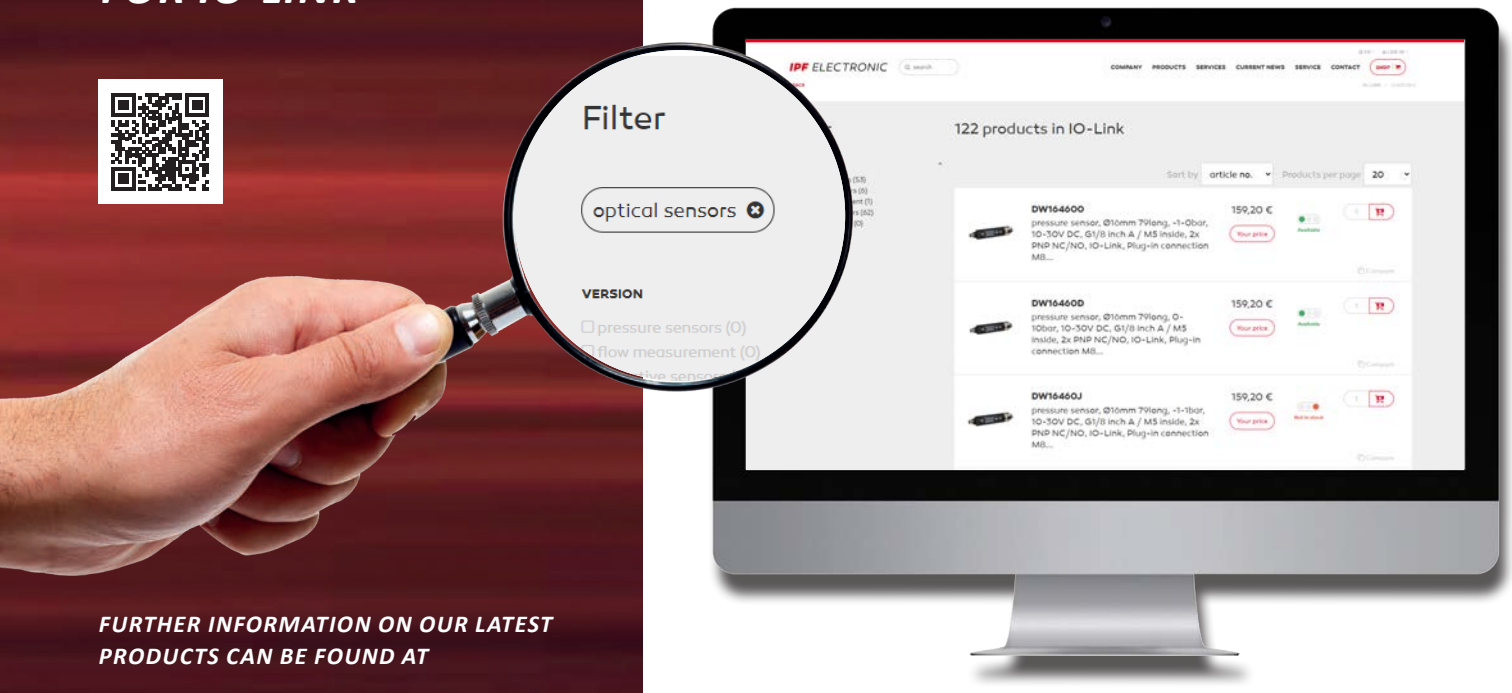
/ Diffuse-reflection sensors with back-
ground suppression
(independant of surface colors)

/ Distance measuring sensors

SENSOR VERSIONS IO-LINK

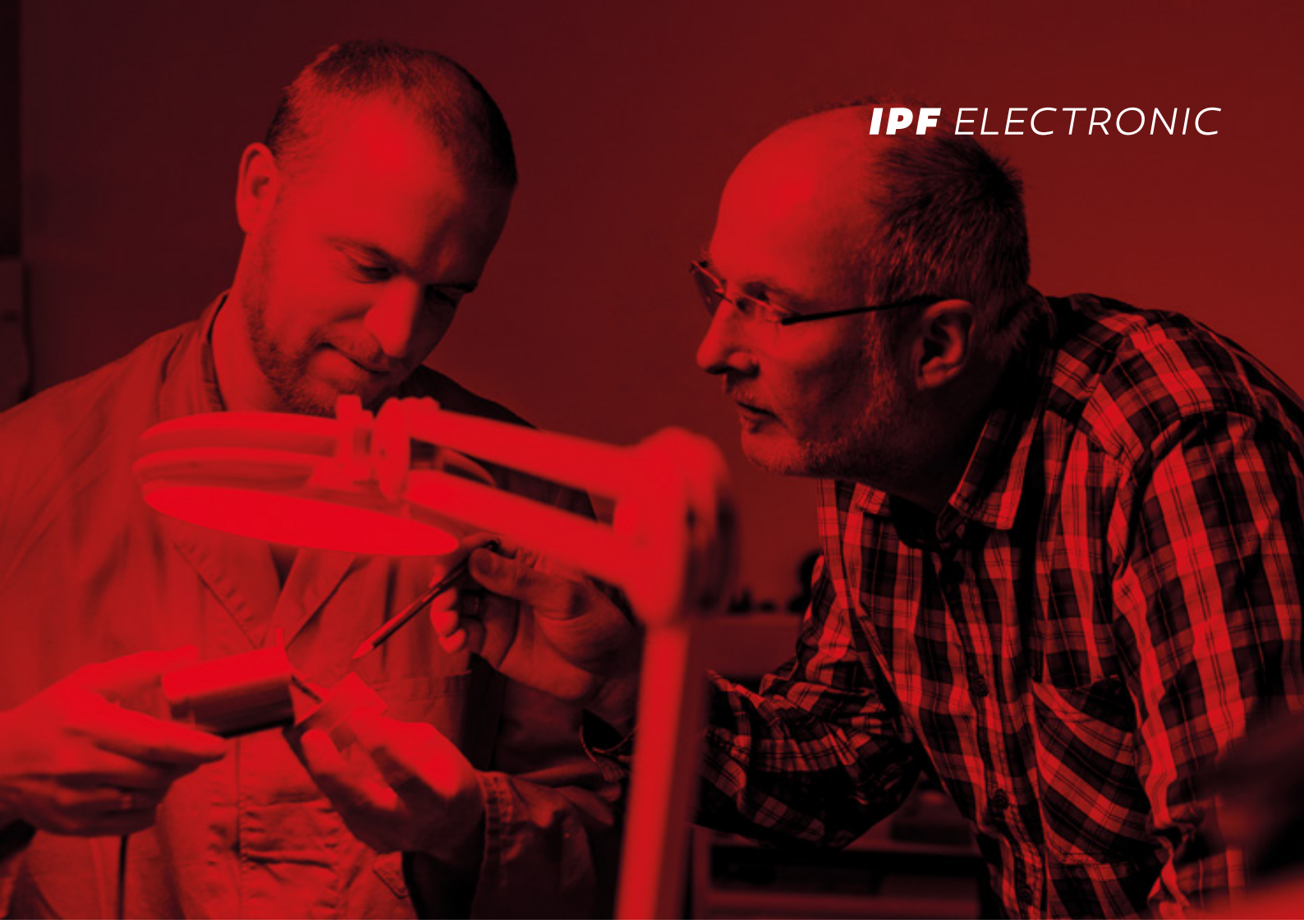
IO-LINK MASTER

PRODUCT SELECTOR FOR IO-LINK



FURTHER INFORMATION ON OUR LATEST PRODUCTS CAN BE FOUND AT

www.ipf-electronic.com



EFFICIENT ADVICE ON ALL MATTERS

PERSONAL SERVICE AND PROBLEM-SOLVING ON SITE

Every call is important! When you contact our technical hotline, you speak to experienced employees who will answer your questions competently and conscientiously. Our goal is to provide you with comprehensive and individual advice around the clock. Our expert team of in-house trained personnel are here to support you.
You can also contact your personal applications consultant in our Sales department. At ipf electronic, we work together very closely so that we are able to react quickly, competently and reliably to your specific query.

In almost all industrial applications, problems are becoming ever more complex and varied. Solutions to these problems often require external expertise. You will find this expertise together with a high level of specialist and problem-solving competence at ipf electronic. We are happy to discuss tasks which may seem small with you. For us, this is a matter of course!

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Diversity, expertise, consultation and flexibility:
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Subject to alteration! Version: August 2022