

# IO-Link – the standard interface for smart sensors



## Short overview of the most important ideas and advantages of IO-Link

- IO-Link masters are available for all major PLCs and fieldbuses
- Simple configuration via LINERECORDER SENSOR (PC) or via web interface
- IO-Link app for AS-i gateways with automatic network scan of all sensors
- A wide range of ifm sensors with IO-Link: encoders, capacitive, photoelectric, temperature, flow, pressure and level sensors

Use  **IO-Link**  
Universal · Smart · Easy



### IO-Link = *universal* process data interface

IO-Link masters are universal input/output modules. Different types of units can be operated on the same port: IO-Link sensors, IO-Link actuators and units with switching signal. Therefore, one IO-Link port can replace several components: analogue (4...20 mA, 0...10 V) and binary input and output cards.

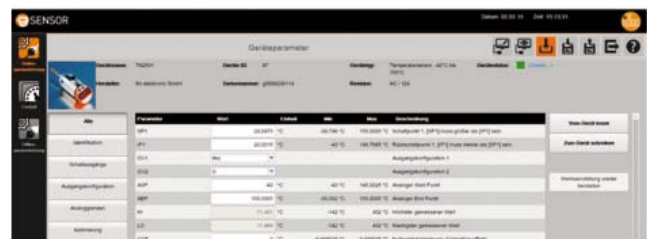
### IO-Link = *smart* sensor interface

In smart sensors, IO-Link is already integrated. So, data can be exchanged bidirectionally with the controller, e.g. diagnostics and maintenance messages or data for remote parameter setting.

### IO-Link = *easy* set-up

The easiest way to obtain sensor process values is as easy as the connection to an analogue card. Connect the sensor to the IO-Link master – done.

Replacement is just as easy. All sensor parameters are stored in the master and transferred to the new unit.



Smart IO-Link sensors can be conveniently set using the LINERECORDER SENSOR 4.0 software. The sensor settings can be stored, copied, loaded or cloned to other units.



The USB IO-Link interface establishes the connection between IO-Link units and the LINERECORDER SENSOR. It is compatible with most Windows PCs.

**10 good reasons to use IO-Link**

**Fast and easy set-up and service:**

1. Offline parameter setting of the sensors prior to installation.
2. Automatic sensor detection online when using the IO-Link app on the AS-i/fieldbus gateway.
3. Easy sensor replacement with automatic parameter setting by the master. Sensor identification included.

**High machine uptime:**

4. Avoidance of incorrect handling during operation by deactivating the operating keys on the sensor.
5. Easy transmission of the measured values without conversion losses; values on the sensor display correspond to the values on the machine display.
6. Highly interference immune - because digital - analogue value transmission in comparison with conventional analogue technology. And this using an unscreened cable without special grounding.
7. Machine diagnostics up to the sensor level functions without disrupting the operation.

**Less wiring saves installation costs:**

8. Several analogue signals and switch points can be transmitted using only one standard 3-wire cable. This reduces the number of terminals and makes space in the cable duct.
9. Sensors and actuators, analogue or binary, can be connected via IO-Link ports. This replaces different input/output modules.

**Investment security:**

10. IO-Link has been internationally standardised to IEC 61131-9 and is therefore future-proof. The acceptance of all leading automation suppliers ensures investment security for OEMs and users.

IO-Link is the interface to Industry 4.0.

**Technical data**

**Characteristic IO-Link data**

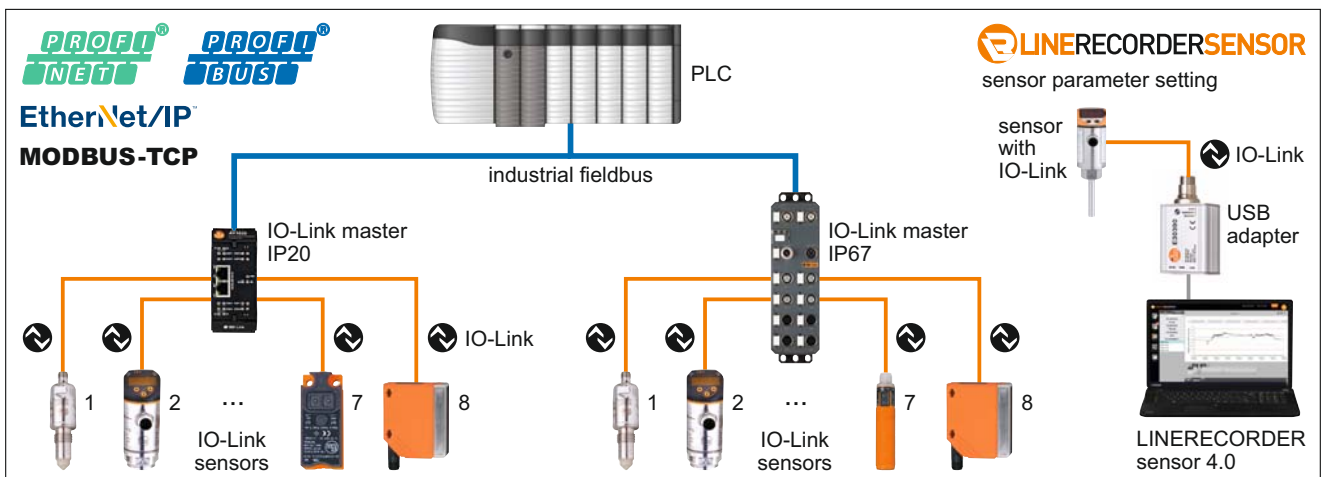
Cable length	[m]	20
Line physics type A		3-wire cable, unscreened
Connection		M12, M8, M5, terminals
Process data (PD) per device		1 bit ... 32 bytes
Cycle time for 2 bytes	[ms]	2.3
Parameters, diagnostics and events		acyclic transmission
Power supply type A		sensors 200 mA
Power supply type B		sensors + actuators separated
M12 pin connection type A		pin 1: 24 V DC pin 3: 0 V DC pin 4: IO-Link / binary input / output

**Order data**

**IO-Link service & maintenance tools**

Description	Order no.
IO-Link USB master low power	E30396
IO-Link USB master ext. power	E30390
LR Sensor 4.0 parameter setting software with IODD import	QA0001
Analogue converter -50...300 °C Pt100/Pt1000 to IO-Link	TP3232
Analogue converter 0...100 °C Pt100/Pt1000 to IO-Link	TP3237
Analogue converter -50...150 °C Pt100/Pt1000 to IO-Link	TP3231
IO-Link app for AS-i gateways AC14xx	AP3002
Memory plug - sensor-parameter memory	E30398

**Typical plant configuration**



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