

Equipment Set TP 1312 Smart Sensors

Build proficiency in smart sensor technology for Industry 4.0



Highlights

- Comprehensive, practical training in the most important smart sensors in Industry 4.0
- IO-Link® technology
- PLC integration
- New Sensor Workstation
- Connection to mobile devices

Smarter manufacturing

In today's complex and increasingly interconnected manufacturing environment, obtaining relevant, timely input from processes is key to higher efficiency and productivity. As the industrial internet of things (IIoT) develops, sensors get smarter and reliance on smart sensor technology increases. It is a building block of Industry 4.0.

Using an open communication protocol, such as IO-Link® or OPC UA, smart sensors become visible through all layers of Industry 4.0 manufacturing networks (machines, PLCs, SCADA, MES, ERP, Cloud). They monitor a variety of physical variables in real time, collect, and transmit data to operators, technicians, and engineers.

Understanding smart sensors

Clever integration of smart sensors in automation equipment provides plant workers with useful, live information about the status of systems and processes so that they can perform predictive maintenance and make improvements to the processes.

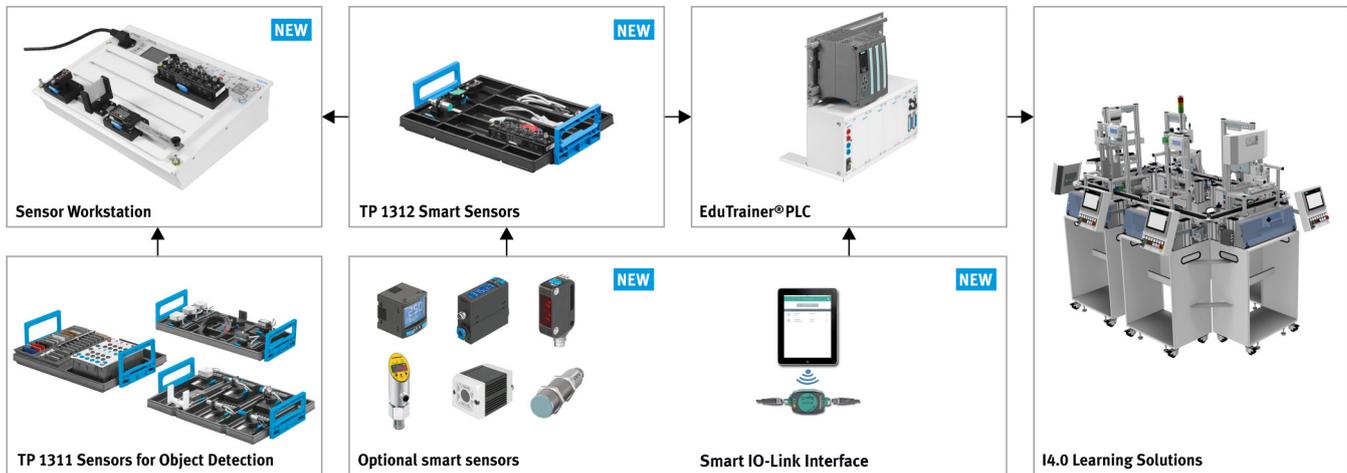
Industry 4.0 (I4.0) workers need to understand this technology to reap its full benefits.

Equipment set TP 1312 combines industrial components with project-oriented learning activities to efficiently build proficiency in smart sensor technology for I4.0.

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A progressive learning path for sensor technology



Available smart sensors

All smart sensors are equipped with IO-Link®. The equipment set includes an IO-Link® communication master module and the necessary cables, as well as three common smart sensors:

- Photoelectric sensor
- Inductive proximity sensor
- Ultrasonic sensor

Optional smart sensors can be added depending on training needs:

- RFID sensor
- Laser distance sensor
- Code reader sensor
- Pressure sensor
- Flow proximity sensor
- Temperature sensor

All components are based on the Quick-Fix® mounting system, which allows for quick mounting and alignment of sensors and test objects without any tools. Components can be installed on a profile plate or on the optional Sensor Workstation.

Data monitoring

The software PACTware™ provides the interface to parameterize, adjust, and operate smart sensors. Monitoring real-time data prepares students to perform predictive maintenance and troubleshooting.

An optional Smart IO-Link Interface seamlessly integrates mobile devices (iOS or Android) through Bluetooth for remote monitoring and operation.

Targeted skills

- TP 1312 allows students to develop skills such as:
- Understanding the benefits of smart sensors in the context of Industry 4.0
 - Selecting up, parameterizing, monitoring, and adjusting sensors
 - Setting up IO-Link® communication
 - Integrating sensors into different manufacturing communication layers
 - Performing predictive maintenance
 - Replacing sensors and uploading settings automatically
 - Troubleshooting sensors

A complete learning concept

Comprehensive courseware guides students through detailed project-oriented learning activities. Starting with the basics of each sensor, students perform practical exercises in a simplified work environment, allowing them to focus on smart sensors.

Students can also connect these sensors to a PLC over PROF-INET®, Ethernet/IP™ or Modbus®, just like in industry.

Once the fundamentals are mastered, more complex I4.0 learning systems such as MPS, CP Lab, or CP Factory, offer further training opportunities: the wide variety of sensors integrated into these systems allows students to put their knowledge into practice and deepen their understanding of the role of sensors within a complete manufacturing system.

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