

Training Package Instrumentation and Control Hardware and Teachware

A training package from Endress+Hauser comprises a matching set of hard- and teachware. While the hardware offers practical experience in an "as real as possible" environment, the teachware provides all necessary documents for successfully running the complete training content.

Learning objectives

Overview about measuring technologies for

- level
- flow
- pressure
- temperature
- analysis

Select, install and commission process instrumentation via local or remote configuration

Special skills

- Operation and device accuracy under different process conditions
- Improve your productivity by a structured life cycle management of your field instruments
- Understand the requirements for a successful implementation of digital communication

Additional know how

- Understand the different elements of a PID control loop
- Learn how the different elements (sensor, actuator, controller) are working together in a control loop



Full SPS integration for training under real conditions



A modular training rig that grows with your requirements

Endress+Hauser offers standard training packages, helping you to cope with your daily requirements in process operation.

General requirements The ideal system for a successful hands-on training in process automation is as close to real life conditions as possible, while it ensures the safety to the real production and the trainees.

This training rig does not only offer a key selection of measurement principles, but also the corresponding actuators and controls for a total of seven different control loops.

Teachware is included with the training package, providing the complete course material for more than two weeks of training duration.

Basic training solution offering

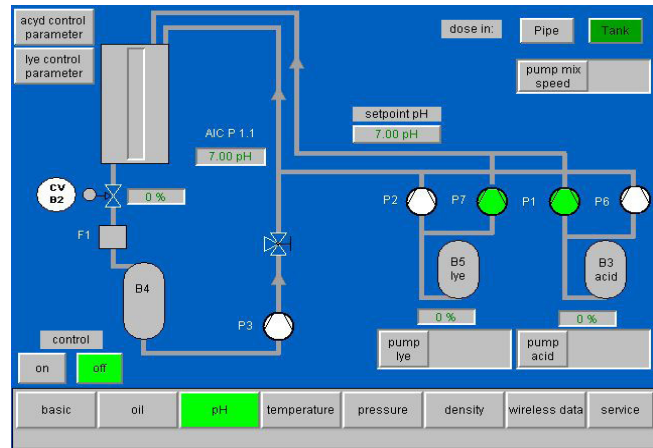
- level
- flow
- hydrostatic pressure measurement and control

Extensions are available in form of additional training kits for

- oil / water interface measurement
- density control
- temperature control
- pH control
- pressure control
- plant asset management functionality
- digital communication

Training package This course involves all elements of process instrumentation, basic measurement principles, selection, installation, set-up and operation of complete closed loop controls.

The course is designed to offer participants practical experience with hands-on exercises and theoretical knowledge via classroom training.



The training rig for Instrumentation and Control offers the perfect training environment for the most process automation requirements

Hardware A stainless steel frame contains storage tanks for water and oil.

The working tank offers different mounting positions for measuring devices. High pressure pumps provide the according flow rates for the circulation and inlet of liquid. The tank design, with transparent tank walls and partially transparent pipes, allows for a visual experience of the changes in the process.

Process control Each control loop can be controlled centralized by the local touch screen HMI.

The training rig includes:*

Flow: Coriolis and electromagnetic flowmeters

Level: Radar, guided radar, ultrasonic, capacitive, hydrostatic pressure and vibronic switches

Pressure: Ceramic cells

Temperature: Pt100 temperature sensors

Configuration tools: Process display, handheld and PC based configuration tools

Remote access: Gateway from Ethernet to Profibus DP

Wireless communication: Wireless HART gateway and two wireless adapters

Actuators: KSB high pressure pumps, Samson control valves, Rockwell frequency inverter, pressure operated agitator, Elektratherm heating element, compressed air agitator

Control system: Panel PC with integrated HMI and software SPS.

WAGO remote IO with 4 to 20mA / HART input and Profibus DP output

Operation software: Software SPS running on Windows CE

Automation system: Eaton Möller Galileo

Option: Profibus communication

*** the mentioned hardware is based on the fully equipped rig**

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