

## Course description

# T562

## Freelance

# PROFIBUS DP/PA, HART

# Technology & Configuration

### Course goal

The participants acquire theoretical knowledge and the necessary practical experience in order to project, configure and to commission PROFIBUS applications independently. They will be able to operate and maintain the system.

### Learning objectives

Upon completion of this course the participants will be able to:

- Project the system structure for using PROFIBUS and HART based field devices.
- Configure and commission cyclic and acyclic PROFIBUS DP communication.
- Configure and commission GSD and DTM based modular PROFIBUS DP devices.
- Link up PROFIBUS PA field devices to a PROFIBUS DP line.
- Analyze disturbances in the PROFIBUS network.
- Optimize bus cycle times.
- Configure and commission HART field devices with Control Builder F.

### Participant profile

Freelance users who want to couple PROFIBUS field devices to the Freelance controllers.

### Prerequisites

Participation in the Freelance System and Engineering basic course (T560). Participation in the Freelance Advanced Configuration Controller course (T564) is beneficial.



### Topics

- History of the field device communication
- Structure of a field-bus-based distributed control system
- Field devices with fixed and modular structure
- Hardware components of the PROFIBUS network
- Bus access procedure, cyclic and acyclic communication
- Field Device Tool (FDT) and the specific Device Type Manager (DTM)
- Planning the system structure and the field devices to be connected to the bus
- Freelance PROFIBUS master configuration
- Standard configuration of modular field devices using GSD files
- Progressive configuration of modular field devices using DTM
- Commissioning and testing the configured application

### Course type and methods

This is an instructor led course with interactive classroom discussions and associated lab exercises. Approximately 50% of the course is hands-on lab activities.

### Duration

The duration is 4 days.

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### Course outline

Day 1	Day 2	Day 3	Day 4
<ul style="list-style-type: none"><li>■ Course overview</li><li>■ PROFIBUS DP/PA basics</li><li>■ Project workflow</li><li>■ Master configuration with Control Builder F</li><li>■ Diagnosis function "Scan Bus"</li></ul>	<ul style="list-style-type: none"><li>■ S900 Remote I/O basics</li><li>■ S900 configuration (DTM based)</li><li>■ Application with HART DTM</li><li>■ Acyclic communication with the HART programmable Head mounted temperature transmitter TH02.</li></ul>	<ul style="list-style-type: none"><li>■ S800 Remote I/O basics</li><li>■ S800 configuration (GSD based)</li><li>■ S700 Remote I/O basics</li><li>■ S700 configuration (GSD based)</li><li>■ S900 configuration (GSD based) mode 2</li><li>■ Additional HART variables via component insertion</li></ul>	<ul style="list-style-type: none"><li>■ Configuration DTM based PROFIBUS PA devices</li><li>■ Project commissioning</li><li>■ Diagnostics methods</li><li>■ Using additional variables for diagnosis</li></ul>

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