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## TRAINING ON IEC 60870-5-101 and -104

**What:** Implementing and using the standards IEC 60870-5-101 and -104 protocols

**Duration:** 2 days training

### Overview

Attendees are introduced to the IEC 60870-5-101 and -104 protocols, their implementation and their usage. During this course, attendees learn how the protocols are organized and the meaning of the different options offered by the protocols. Detailed hands-on examples, centered on relevant application problems, ensure that all attendees become fully familiar with the standard protocols.

### Recommended Audience

The course is intended for engineers and technicians involved in implementing, installing, configuring, maintaining or operating utility automation and control systems, using the IEC 60870-5-101 and -104 standards.

### Prerequisites

Attendees should have a basic understanding of typical communication protocols. Moreover, they should be familiar with common serial and network communication principles.

### Objectives

At the end of the course, attendees will be able to

- Explain the organization of the IEC 60870-5-101 and -104 standards
- Interpret the standardized device documentation to be supplied by device manufactures
- Explain the impact of the different standard parameters
- Implement the standard protocols
- Use the standards to interrogate a device
- Use the standards to supply data to a SCADA control center

### Contents

- Introduction of IEC TC 57 standardization and standards
- IEC TC 57 reference architecture (showing the position of the various IEC TC 57 standards)
- Organization and protocol principles of the standards IEC 60870-5-101 and -104
- IEC protocols overview and basic concepts
- Using the IEC protocols to interrogate a device
- Using the IEC protocols to supply data to the SCADA control center
- Security of transport layer (IEC TS 62351) and conformance testing (IEC 60870-5-601 / -604)
- Comparison with DNP3 and IEC 61850, mapping of IEC 61850 CDCs to IEC 60870-5-101/104 ASDUs
- Hands-on training using fully functional software for controlled (similar to a server, in the RTU) and controllable stations (similar to a client, in the SCADA system)
- Market situation
- Practical examples
- Questions and answers

## Conditions

- Courses run usually from 8:30 a.m. to 5:00 p.m. (other times possible)
- Courses can be held either at client facilities or at any other place (to be negotiated)
- Depending on the specific needs that arise before or during the training we could add other topics. We are quite flexible to provide you exactly what you need!
- Presentation language is English
- A CD-ROM is included, containing all necessary software and documentation. Fully functional software for 101 and 104 for controllable and controlling stations running for 6 months for evaluation is provided.
- For courses with hands-on training attendees have to bring their own computers

Interested experts contact the following address please:

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