

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

Contents

Standard Training.....	2
General.....	3
ABB Learning Center Mannheim / Germany	4
Curriculum RTU.....	5
Introduction Courses	6
7550E Introduction Network Control Technology.....	6
7575E Introduction to DIN Rail Mountable RTU.....	7
Basic Courses	8
4911E MicroSCADA Rel. 9 System Operation.....	8
4912E MicroSCADA Rel. 9 Engineering.....	9
7563E Remote Terminal Unit RTU560 Basic Course	10
7810E Remote Terminal Unit RTU200/232.....	11
8420E REF542plus – Operation, Maintenance, Engineering	12
8670E RE*650/670 – Operation, Maintenance, Engineering.....	13
8700E Busbar Protection REB500 – Operation, Maintenance, Engineering	14
Advanced Courses	15
7581E Remote Terminal Unit RTU560 Advanced Course, IEC60870-5 protocol.....	15
7591E Remote Terminal Unit RTU560 IEC61850 Client and Server Configuration....	16
7600E Remote Terminal Unit RTU560 Workshop.....	17
7840E Remote Terminal Unit RTU200/232 - Advanced Course	18
8460E REF542plus – SPAbus/IEC60870-5-103 – RTU.....	19
8470E REF542plus – IEC61850 – RTU.....	20
8473E RE630 – IEC61850 – RTU	21
8475E RE650 – IEC61850 – RTU	22
8477E RE670 – IEC61850 – RTU	23
Courses Local Automation Functions (LAF/PLC)	24
7570E Remote Terminal Unit RTU560, Integration PLC Local Automation Functions	24
7830E Remote Terminal Unit RTU200/232, Local Automation Functions LAF/PLC...	25
Commercial Conditions	26
Course Schedule and Price List Release 22.01.2014	28

Training Courses 2014 – English RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

Standard Training

The Training Center of ABB AG / PSN offers product- and project-related courses for different target groups within the scope of a modular training program.

This brochure contains the English course program for remote terminal units (RTUs).

Our aim is to impart the basic know-how and a general overview of our system to the participants of the training courses on the one hand, and to familiarize them with those details, which ensure safe handling and practical application of the equipment on the other hand. Therefore our instructors are people of practice, experienced both as technical specialists and as teachers.

For your best success the persons per training place are limited to 1-2 participants per place. If you prefer to work on your company's laptop, feel free to take it along. You may also work with your laptop and you may parameterize the RTU in the training room with it if you like. You should have administrator rights at your laptop. If you attend an RTU560 course, please plug the CD-ROM-drive into your laptop. For RTU560 courses you need Windows XP. Just Microsoft DOS is sufficient for RTU200/232 courses.

Picture 1

Training place in
Mannheim/Germany
with RTU, simulator desk,
personal computer, training file,
CDs

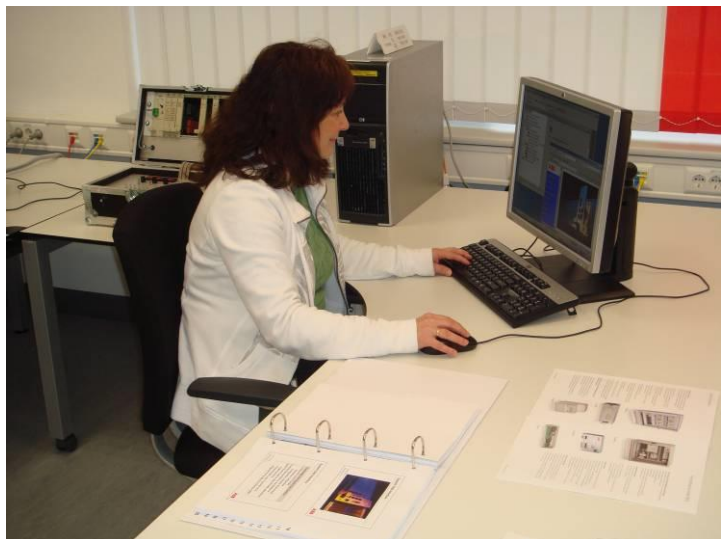


ABB PSN is the ABB competence center for RTU development. Specialists in Mannheim can find the answer to difficult customer questions also.

The learning rooms are equipped exemplary for the benefit of the participants: Several RTU560 of several types, several RTU200/232, RTU211 and DIN rail mountable devices.

The full range of protocols can be trained: IEC60870-5, DNP3, RP570/71, MODBUS, SPABus, IEC61850.... A process simulator for single and double point informations, for single and double point commands, for counter values and for analogue inputs and outputs belongs to each RTU. There are 16 PCs including LAN connection to RTUs.

The training courses are subdivided into theoretical and practical sections. Extensive and continually updated instruction documents are available for all training courses and will be issued to the students at the beginning of the course. Their cost is included in the course fees.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

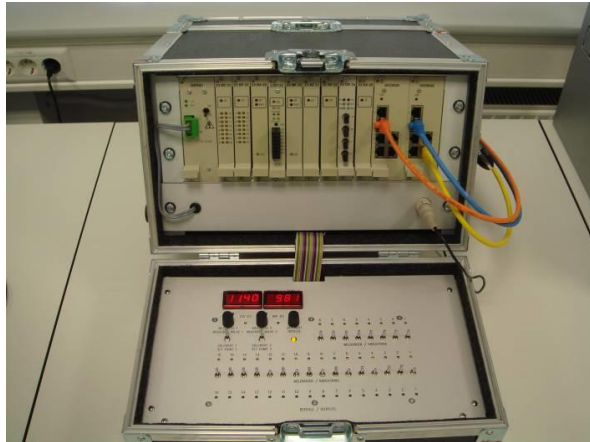
General

Dates

The dates of the courses are listed in the enclosed course schedule.

Training Location for courses in Germany

ABB Learning Center
Kallstadter Str. 1
D 68309 Mannheim



Picture 2 RTU demo box for onsite training

Time

The training schedule is part of the course program. On the first day lesson starts at 9:00 am.

Registration

To guarantee maximum benefit of the courses for the attendees, the number of participants per course is restricted. You are therefore advised to apply early. Immediately after ordering the course a registration confirmation will be sent to you together with a description of how to get there.

Customized training courses

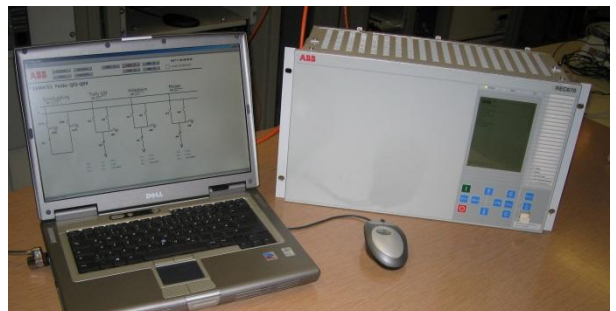
If you are interested in special customized courses to be conducted in our learning center or on your site, please contact us.

Hotel reservations

Together with the confirmation of your order for one of our training courses we will send you a list of hotels. Please make reservation by yourself as soon as possible.

Inquiries

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Picture 3 Mobile training place with notebook and REC670 for use either at employer's premises or at ABB Mannheim/Germany

Cancellation

Please look at chapter Commercial Conditions

Payment terms

Please look at chapter Commercial Conditions

Training Courses 2014 – English
RTU / Substation Automation / MicroSCADA
ABB DEPSNM-T (22.01.2014)

ABB Learning Center Mannheim / Germany



Picture 4 Training room Substation Automation (left) – RTU training (right)

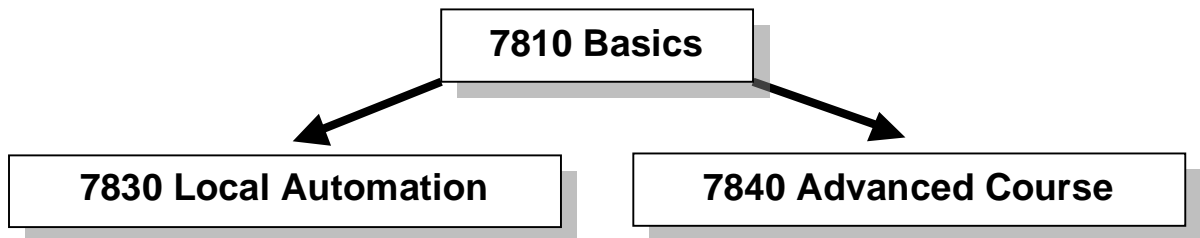


Picture 5 ABB Power Systems Mannheim training facility: red building, fourth floor

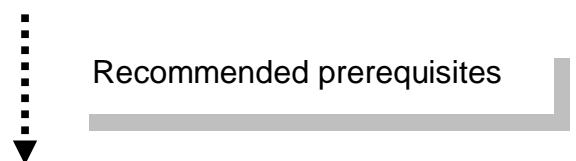
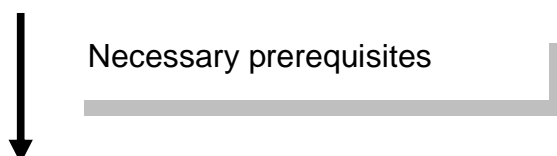
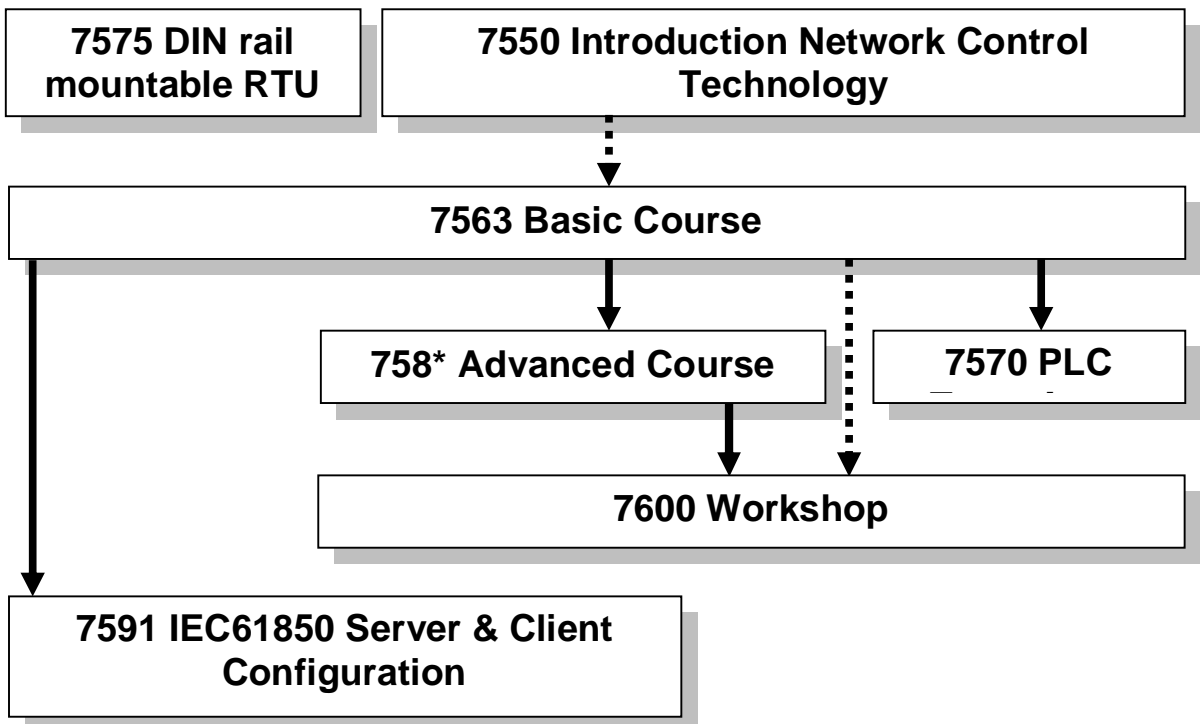
Training Courses 2014 – English
RTU / Substation Automation / MicroSCADA
ABB DEPSNM-T (22.01.2014)

Curriculum RTU

RTU200/232 :



RTU211/560 :



Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

Introduction Courses

7550E Introduction Network Control Technology

Objectives of the course:

The training course provides a basic introduction into data acquisition and RTU560. The course is proper to be prepared for the RTU560 basic course.

After the course participant will be informed about the basics of data acquisition process and the utilities' secondary process. He knows all actually used means of communication, networks, and usual communication protocols.

He is informed about the actual ABB RTU products, RTU211 and RTU560 family. He knows how to configure PC for using RTU560 and is familiar with RTU demonstration box which is used in the RTU560 courses.

Contents:

- Basics of data acquisition and utilities' secondary process (SCADA),
- Communication protocol basics,
- Communication interfaces, networks,
- Introduction into ABB RTU products, RTU211 and RTU560 family,
- PC applications for RTU560; RTUtil560 installation and COMPROTware
- The integrated Webserver of the RTU560
- RTU Demonstration box.

Participants: Engineering-, commissioning- and maintenance-personnel

Prerequisites: Knowledge of utility process, PC handling (Microsoft Windows) and Internet Explorer experiences.

Method: Lessons and Exercises

Duration: 3 Days **Course Language:** English

Start: 1st Day 9 a.m. **End:** 3rd Day 12 a.m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

7575E Introduction to DIN Rail Mountable RTU

Objectives of the course:

After the course the participant will be familiar with DIN Rail mountable modules of the RTU211 and RTU560 family.

The available DIN Rail mountable modules are introduced, and the system concept for DIN Rail mounting is described (Connections to the bus system, system limitations, license model, ...). Using RTU WIZARD and the configuration tool RTUtil560 DIN Rail mountable systems are configured in practical exercises.

The technical details of the available Multi Meter (CT / VT interface modules) are discussed, the configuration and conversion parameter are described. In a practical exercise the participant is able to configure and test his own Multi Meter (560CVD03).

The features and configuration of the available GSM/GPRS modems is presented in the training.

Contents:

- Hardware modules for DIN Rail mounting (basic modules, I/O modules, additional)
- System concept of the DIN Rail mountable RTU Family RTU211 and RTU560
- Configuration of DIN Rail mountable Systems by using RTU WIZARD and RTUtil560
- Configuration of additional DIN Rail mountable I/O modules by using RTUtil560
- Technical Details and Properties of the Multi Meter (CT / VT Interface modules)
- Wiring principles for Voltage Transformer (VT) / Current Transformer (CT)
- Configuration of Multi Meters
- GSM / GPRS modem connection (client / server) and PPP connection
- Practice with basic modules, I/O modules, Multi Meter und GSM/GPRS modems

Participants: Proposal- and Engineering-personnel

Prerequisites: Knowledge of general telecontrol functions, IEC protocols, and of Microsoft Windows

Duration: 2 days **Course language:** English

Start: Monday 9 a. m. **End:** Tuesday 4 p. m.

Basic Courses

4911E MicroSCADA Rel. 9 System Operation

Objectives of the course:

After the course the participant will be familiar with control options of substations or network control function. He will be able to operate a substation using MicroSCADA.

Contents:

- Basics of MicroSCADA / System Functions
- Operation (dialogs and menus in MicroSCADA)
- Diagnosis of lines and stations
- Handlin with curves and reports

Participants: Operators

Prerequisites: Basic knowledge of a PC and of Microsoft Windows

Duration: 2 days

Course language: English

Start: First day 9 a. m.

End: Second day 4:30 .p m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

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4912E MicroSCADA Rel. 9 Engineering

Objectives of the course:

After the course the participant will be familiar with architecture, functionality and control options of the substation or network control system MicroSCADA.

He will be able to operate his substation from the MicroSCADA console.

He can make system modifications.

Contents:

- Basics of MicroSCADA
- Creation and modification of exercise displays
- Creation and modification of command procedures
- Process Object Definition
- Measurands
- Time channels
- Event channels
- Data Objects
- Menue adaption
- Tool launcher function
- How to configure an IEC 101 / 104 communication line
- Creation of trend displays
- Creation of overview displays

Participants: Engineering-, commissioning- and maintenance-personnel

Prerequisites: Participation in 4911E or Basic knowledge of a PC

Duration: 5 days

Course language: English

Start: Monday 9 a. m.

End: Friday 12 a. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

7563E Remote Terminal Unit RTU560 Basic Course

- IEC 60870-5 Protocol (booking code: 7563/1E)
- DNP3 Protocol (booking code: 7563/2E)

SCADA Engineering Plattform (remote control and process interface) based on RTU560 product line.

Objectives of the course:

After the course the participant will be familiar with the system architecture, with the functionality and with the telecontrol protocol options of the Remote Terminal Unit RTU560. He will be able to use RTUtil 560 and the Internet Explorer. The participant can communicate with the RTU560 by the Internet Explorer, he can download and upload files, he can diagnose the RTU560.

He can listen to telecontrol communication and record it. He can work with telegram filters. He is able to simulate the network control center and use Excel export and import.

For one day the student class is divided into two groups – one for IEC 60870-5 protocol and one for DNP3 protocol family.

Contents:

- System concept of the RTU Family RTU211 and RTU560
- Configuration options of Rack / DIN Rail
- Cabinets, subracks and hardware modules
- Properties of the communication units (CMU)
- Process data acquisition and telecontrol functions (SCADA)
- Exercises with the Windows based tool RTUtil560 for configuration, signal definition and parameterization
- Diagnosis by the Integrated Webserver
- Excel-Import/Export function of RTUtil560
- Process archives for indications, measurements, pulse counter, security events
- Logic Function
- **Trainee group 1:** Basics of IEC 60870-5-101 and IEC 60870-5-104
- **Trainee group 2:** Basics DNP3 and DNP3 via LAN/WAN

Participants: Engineering-, commissioning- and maintenance-personnel

Prerequisites: Knowledge of general telecontrol functions and of Microsoft Windows and office. Participation in course 7550E is recommended.

Duration: 5 days **Course language:** English

Start: Monday 9 a. m. **End:** Friday 12 a. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

7810E Remote Terminal Unit RTU200/232

Objectives of the course:

The participant gets familiar with the system architecture, with the functionality and with the telecontrol protocols of the Remote Terminal Unit RTU200/232. He can install the tool RTUtil on a PC. He can use the tool for configuration, setting, test and protocol analysis (RP570/71).

Contents:

- System integration
- Configuration options
- Hardware and software modules
- Control functions
- Data acquisition functions
- Tool RTUtil with the menus selection-configuration-filter-transfer-diagnosis-list-protocol-configuration monitor
- Tool installation and start from DOS or WindowsNT
- Introduction to LAF (local automation functions)

Participants: Engineering-, commissioning- and maintenance-personnel

Prerequisites: Knowledge of general telecontrol functions and operating of PC

Duration: 5 days

Course language: English

Start: Monday 9 a. m.

End: Friday 12 a. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

8420E REF542_{plus} – Operation, Maintenance, Engineering

Objectives of the course:

The attendee becomes acquainted with architecture, functionality and control options of the switchbay protection and control unit REF542_{plus}. The course participant can operate the device by the display menus and the front keys. He is prepared to work with the PC-based tools for configuration, setting, test and protocol analysis. He knows how to modify functions and how to implement additional features.

Contents:

- Hardware REF542(SCU) and REF542_{plus}
- Tool SCUconf - installation and menus
- Preparing a single line display with circuit breaker, and disconnectors
- Programming of event and alarm text strings and of LEDs
- Configuring of measurement displays
- REF542 logic programming, interlockings, collective alarm etc.
- Programming of overcurrent protection module
- Programming of fault recorder function
- Program download and test by simulator
- Transfer of a fault record from REF542 to laptop, evaluation by program Reval
- Configuring and test of ABB SPAbus and of the IEC870-5-103-interface
- Principle connection to remote terminal units ABB RTU
- Further protection functions in REF542
- Operating REF542_{plus}, menus, key chip switch

Participants: Engineering-, commissioning- and maintenance-personnel

Prerequisites: General knowledge of medium or high voltage plants and of PCs (Microsoft Windows)

Duration: 3 days **Course language:** English

Start: First day 9 a. m. **End:** Third day 4 p. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

8670E RE*650/670 – Operation, Maintenance, Engineering

Objectives of the course:

The attendee becomes acquainted with architecture, functionality and control options of a switchbay protection or control units RE*650/670 of the family RELION. He is prepared to work with the PC-based tools for configuration, setting, test and diagnosis.

The attendee can test protection functions and will be able to modify them. He will be familiar with event lists and will be able to evaluate fault recordings.

Contents:

- Operating RE*6xx, display menus, LEDs
- Hardware Hardware
- Tool PCM600
 - Connectivity packages
 - Graphical Subtool „Application Configuration“
 - Standard modules
 - Logic
 - Interlocking
 - Fault recording module
 - Four step phase overcurrent protection (PTOC, 51_67)
 - Display Editor
 - Engineering of the bay single line
 - Measurement
 - Indication text
 - Signal Matrix
 - Parameter Setting
 - Upload and Download
 - Signal Monitoring
 - Event list
 - Reading and evaluation of fault recording
 - Creation and use of Templates
- Logical nodes
- Principal configuration of interfaces (ABB SPAbus, IEC870-5-103, 61850-8)
- Principal connection of remote terminal unit ABB RTU560
- Presentation of selected protection functions
- Commissioning and test by Omicron or similiar equipment

Participants: Engineering-, commissioning- and maintenance-personnel

Prerequisites: General knowledge of medium or high voltage plants and of PCs (Microsoft Windows)

Duration: 3 days **Course language:** English

Start: First day 9 a. m. **End:** Third day 4 p. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

8700E Busbar Protection REB500 – Operation, Maintenance, Engineering

Objectives of the course:

The attendee becomes acquainted with architecture, functionality and control options of the busbar protection system REB500. He is prepared to work with the PC-based tools for configuration, setting, test and protocol analysis. He knows how to modify functions and how to implement additional features.

Contents:

- Principle of busbar protection
- Centralized and decentralized applications
- Hardware of the REB500 family
- Display menus and their structure
- Tool: Installation of REBWIN
- Training example
- Programming of event and alarm text strings
- Measurement displays
- Logic programming, collective alarm etc.
- Parameterizing of protection modules
- Programming of fault recorder function
- Program download and test by simulator
- Transfer of a fault record from REB500 to notebook and evaluation by program
- Configuring and test of bus interface
- Principle connection to remote terminal units RTU or to gateway COM581
- Further protection functions in REB500

Participants: Engineering-, commissioning- and maintenance-personnel

Prerequisites: General knowledge of medium or high voltage plants and of PCs (Microsoft Windows)

Duration: 3 days **Course language:** English

Start: First day 9 a. m. **End:** Third day 4 p. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

Advanced Courses

7581E Remote Terminal Unit RTU560 Advanced Course, IEC60870-5 protocol

Objectives of the course:

The participant, who has already experience with RTU560, RTU560 and Webserver, refreshes his RTU knowledge. He extends his skills especially concerning configuration, extensions and trouble shooting.

1. The Redundancy Concept of the RTU560 concerning power supplies, communication lines and communication units are discussed and the participant is informed about properties and limits.
2. The "System Data Interface" is explained.
3. In chapter 'File Transfer' the participant learns the possibilities to transfer (transparent) data and fault records from and to the RTU560.
4. He knows the features and possibilities of the 'Integrated Human Machine Interface', and is trained in creating his own station diagram, to control a substation.
5. The participant learns about RTU nodes and subordinated devices (IED).
6. Cyber security features are treated during the course.

Workshop 7600E provides the possibility for a more detailed training of issues. It is possible to discuss individual requirements, which can be tested on the RTU560 training system.

Contents:

- System integration of subordinated RTUs, Master- and Slave function
- Transfer of files from and to the RTU560
- RTU560 Redundancy Concept for power supplies, communication lines and -units
- RTU560 System Data Interface (System Events)
- Properties of the 'Integrated Human Machine Interface' (HMI)
- Creation of a single line diagram for switchgear by using the 'Integrated HMI'
- Fault tracing and eliminating in an operating RTU560 by the Webserver
- Analyzing telecontrol protocols based upon protocol family IEC60870-5-101, IEC60870-5-103, IEC60870-5-104 and other protocols
- Exercises with subordinated devices
- Gateway Functions and network-tree-routing
- The training can be modified according to the requirements of the participants
- Cyber security features of the RTU

Participants: Maintenance-, commissioning- and planning-personnel

Prerequisites: Attendance of the basic course 7563/1E

Duration: 5 days **Course language:** English

Start: Monday 9 a. m. **End:** Friday 12 a. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

7591E Remote Terminal Unit RTU560 IEC61850 Client and Server

Objectives of the course:

After the course the participant will be familiar to configure RTU560 IEC61850 as client (gateway) and server (IED Proxy). In exercises the engineering is done for common configuration together with REx670 or 615, 630, REF542plus... The participant will have a basic knowledge and practice of necessary tools for configuration and protocol analysis. He is able to commission RTU560 in IEC61850 client, server and GOOSE configuration.

Contents:

- Introduction in IEC61850 standard structure - used protocol elements
- RTU560 as IEC61850 server
- RTU560 as IEC61850 client
- RTU Server (IED) configuration
- RTU client (gateway) configuration
- GOOSE configuration
- Data flow: EXCEL import of IEC61850 configuration into RTU560
- Usage of tools (RTUtil560, RTUtil61850, ITT600)
- Create SCD files
- Integrated Human Machine Interface
- Configuration of NCC protocols (e.g. IEC60870-5-101)
- Protocol analysis tool
- Commissioning of a IEC61850 configuration

Participants: Engineering-, commissioning- and maintenance personnel

Prerequisites:

- Attendance of the basic course 7563E
- Basic knowledge of standard IEC61850
- Basic knowledge of IEC61850 devices is recommended

Method: Lectures, Exercises

Duration: 5 days

Course Language: English

Start: Monday, 9 a. m.

End: Friday, 1 p. m.

Configuration

For trainees, who already have participated in the course “7590 RTU560 IEC61850 gateway” course, server and GOOSE amendment workshops are conducted on request.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

7600E Remote Terminal Unit RTU560 Workshop

Objectives of the course:

The Workshop gives the possibility to address certain topics, which are not the subject of the other courses, or which would like to be studied more in detail. In particular it is possible to treat individual topics from 756*E and 758*E.

In addition it is possible to discuss special actual problems and try to reproduce it on a training system.

Contents:

Contents are specified according to agreement.

Participants: Engineering-, commissioning- and maintenance personnel

Prerequisites: Attendance of the RTU560 basic course 7563E

Method: Workshop

Duration: by agreement

Language: English

Start: by agreement

End: by agreement

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

7840E Remote Terminal Unit RTU200/232 - Advanced Course

Objectives of the course:

The participant, who has already worked with RTU200/232 and RTUtil at Microsoft DOS, refreshes his RTU knowledge. He extends his skills especially concerning trouble shooting, router RTUs and planning and extending RTU systems.

Contents:

- System integration
- Functionality
- Planning
- Changing of boards, extension of racks and cabinets, configuration and parameters
- Fault tracing and eliminating
- Proper engineering and diagnostic with the tool RTUtil at operating system DOS or WindowsNT
- parameterising and working with Line Couplers
- Exercises with modems, RTUs and Sub-RTUs, protocol listening and simulation (RP570/71)

Participants: Maintenance-, commissioning- and planning-personnel

Prerequisites: Attendance of the basic course RTU200/232 7810E

Duration: 5 days **Course language:** English

Start: Monday 9 a. m. **End:** Friday 12 a. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

8460E REF542_{plus} – SPAbus/IEC60870-5-103 – RTU

Objectives of the course:

After successful participation in the course you are familiar with the configuration options and with the functions of the remote terminal unit RTU560 and of the bay control and protection unit REF542_{plus}, both by compressed lessons.

The participant works with tools for configuring, parameterizing, test and diagnosis.

He configures and checks the RTU560 by the Internet Explorer.

He once uses all operator menus of REF542.

The participant gets familiar with the basics of SPAbus- and IEC870-5-103-communication. He can send test commands via the RTU to REF542 and can release interrogations for the opposite direction.

Contents:

- REF542 hardware
- Tool SCUconf: installation, modification of bay mimic and of text and of measurement displays
- REF542 logic programming
- RTU560-REF542-system incorporation
- RTU560 configuration options
- RTU560 hardware
- RTU560 functions and process data parameter
- Tool RTUtil560: installation, project evaluation by network tree, signal tree and hardware tree
- RTU560 diagnosis via browser
- Telecontrol: basics of IEC 60870-5-101 and of IEC 60870-5-103, interoperability, basics of SPAbus, telegram tools for line listening and for simulation

Participants: Maintenance-, commissioning- and planning-personnel

Prerequisites: Knowledge of general telecontrol functions and of Microsoft Windows

Start: Monday 9 a. m.

End: Friday 12 a. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

8470E REF542_{plus} – IEC61850 – RTU

Objectives of the course:

After successful participation in the course you are familiar with the configuration options and with the functions of the remote terminal unit RTU560 and of the bay control and protection unit REF542_{plus}, both by compressed lessons.

The participant works with tools for configuring, parameterizing, test and diagnosis.

He configures and checks the RTU560 by the Internet Explorer.

He once uses all operator menus of REF542.

The participant gets familiar with the basics of IEC61850-communication.

Contents:

- REF542 hardware
- Tool SCUconf: installation, modification of bay mimic and of text and of measurement displays
- SCL-Tool
- REF542 logic programming
- RTU560-REF542-system incorporation
- RTU560 configuration options
- RTU560 hardware
- RTU560 functions and process data parameter
- Tool RTUtil560: installation, project evaluation by network tree, signal tree and hardware tree, Excel import
- CCT-tool, 61850 file types *.SCD, *.ICD, *.CID
- RTU560 diagnosis via browser
- Telecontrol: basics of IEC 60870 and IEC61850

Participants: Maintenance-, commissioning- and planning-personnel

Prerequisites: Knowledge of general telecontrol functions and of Microsoft Windows

Start: Monday 9 a. m. **End:** Friday 12 a. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

8473E RE630 – IEC61850 – RTU

Objectives of the course:

The attendee becomes acquainted with the configuration options and with the functions of the remote terminal unit RTU560 and of a bay control or protection unit of the ABB Relion family RE630, both by compressed lessons.

The participant works with tools for configuring, parameterizing, test and diagnosis.

He configures and checks the RTU560 by the Internet Explorer.

He once uses all operator menus of REF630.

The participant gets familiar with the basics of IEC61850-communication.

Contents:

- RE630-Hardware
- Tool PCM600, Installation, Connectivity Packages
- Creation of a project structure according to IEC61850
- Add IED type REF630 either in on-line or in off-line mode
- Read configuration in on-line mode
- Application Configuration, Parameter Setting, Signal Matrix
- Modify the configuration
- Tool Rutil560, Installation
- Creation of a project with network tree, signal tree and hardware tree
- RTUutil Excel-export and import
- RTU-RE630 system integration
- Tool CCT (Communication Configuration IEC61850)
- Creation of a project tree in CCT
- Import/Export of SCD-files
- IEC61850 Data Engineering
- Report Control Engineering
- RTU-Diagnosis by WEB-browser
- Basics of IEC60870 und IEC61850

Participants: Maintenance-, commissioning- and planning-personnel

Prerequisites: Knowledge of general telecontrol functions and of Microsoft Windows and Excel.
In case the participant wants to use his own PC instead of ABB training room PCs, this is required: WindowsXP SP3, administrator right, license ABB PCM600 Engineering Pro, LAN-RJ45-plug

Start: Monday 9 a. m. **End:** Friday 12 a. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

8475E RE650 – IEC61850 – RTU

Objectives of the course:

The attendee becomes acquainted with the configuration options and with the functions of the remote terminal unit RTU560 and of a bay control or protection unit of the ABB Relion family RE650, both by compressed lessons.

The participant works with tools for configuring, parameterizing, test and diagnosis.

He configures and checks the RTU560 by the Internet Explorer.

He once uses all operator menus of RE650 relay.

The participant gets familiar with the basics of IEC61850-communication.

Contents:

- RE650-Hardware
- Tool PCM600, Installation, Connectivity Packages
- Creation of a project structure according to IEC61850
- Add IED type RE650
- Read configuration
- Application Configuration, Parameter Setting, Signal Matrix
- Modify the configuration
- Tool Rtutil560, Installation
- Creation of a project with network tree, signal tree and hardware tree
- RTU Util Excel-export and import
- RTU-RE650 system integration
- Tool CCT (Communication Configuration IEC61850)
- Creation of a project tree in CCT
- Import/Export of SCD-files
- IEC61850 Data Engineering
- Report Control Engineering
- RTU-Diagnosis by WEB-browser
- Basics of IEC60870 und IEC61850

Participants: Maintenance-, commissioning- and planning-personnel

Prerequisites: Knowledge of general telecontrol functions and of Microsoft Windows and Excel.
In case the participant wants to use his own PC instead of ABB training room PCs, this is required: WindowsXP SP3, administrator right, license ABB PCM600 Engineering Pro, LAN-RJ45-plug

Start: Monday 9 a. m. **End:** Friday 12 a. m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

8477E RE670 – IEC61850 – RTU

Objectives of the course:

The attendee becomes acquainted with the configuration options and with the functions of the remote terminal unit RTU560 and of a bay control or protection unit of the ABB Relion family RE670, both by compressed lessons.

The participant works with tools for configuring, parameterizing, test and diagnosis.

He configures and checks the RTU560 by the Internet Explorer.

He once uses all operator menus of a RE670 relay.

The participant gets familiar with the basics of IEC61850-communication.

Contents:

- RE670-Hardware
- Tool PCM600, Installation, Connectivity Packages
- Creation of a project structure according to IEC61850
- Add IED type RE670
- Read configuration
- Application Configuration, Parameter Setting, Signal Matrix
- Modify the configuration
- Tool Rtutil560, Installation
- Creation of a project with network tree, signal tree and hardware tree
- RTUtil Excel-export and import
- RTU-RE670 system integration
- Tool CCT (Communication Configuration IEC61850)
- Creation of a project tree in CCT
- Import/Export of SCD-files
- IEC61850 Data Engineering
- Report Control Engineering
- RTU-Diagnosis by WEB-browser
- Basics of IEC60870 und IEC61850

Participants: Maintenance-, commissioning- and planning-personnel

Prerequisites: Knowledge of general telecontrol functions and of Microsoft Windows and Excel.
In case the participant wants to use his own PC instead of ABB training room PCs, this is required: WindowsXP SP3, administrator right, license ABB PCM600 Engineering Pro, LAN-RJ45-plug

Start: Monday 9 a. m.

End: Friday 12 a. m.

Courses Local Automation Functions (LAF/PLC)

Remark:

“Local Automation Function“ (LAF) is the term formerly used by the RTU community, “Programmable Logic Controller“ (PLC) is the present term in the world of industrial controlling systems, defined by IEC61131, used for programs which may run optionally on an RTU, besides of the standard remote control application.

7570E Remote Terminal Unit RTU560, Integration PLC Local Automation Functions

Objectives of the course:

The participant is able to extend the configuration of an RTU560 by a PLC program. Programs which were created by using the tool MULTIPROGwt can be loaded into the RTU560 and be tested by the participant

He is able to navigate within the project tree in MULTIPROGwt. He is able to expand signal tree and hardware tree for virtual data points and PLC programs in RTUtil 560.

Contents:

- Basics of function block diagram programming according IEC61131-3: project tree, library types, program organization units, global and local variables, tasks, functions, instances, busIOs
- Libraries and their modules
- Cyclic tasks and system tasks
- Extension of a project in RTUtil560 by a PLC-program
- MULTIPROGwt – handling of the tool
- Exercise program concerning binary and analog processing and command handling

Participants: Engineering-, commissioning- and maintenance-personnel

Prerequisites: Course No. 7563E,
basic knowledge in PLC programming and standard function blocks

Duration: 3 days **Course language:** English

Start: 1st day 9 a.m. **End:** 3rd day 3 a.m.

Training Courses 2014 – English

RTU / Substation Automation / MicroSCADA

ABB DEPSNM-T (22.01.2014)

7830E Remote Terminal Unit RTU200/232, Local Automation Functions LAF/PLC

Objectives of the course:

The participant will be able to program, test and integrate local automation functions (LAF/PLC) by the tool PTS (Program and Test System) using function block diagrams (FBD).

Contents:

- Basics of function plan programming
- Typical applications
- Benefits and limits of LAF programs
- Cycle times
- Real and virtual data points
- Data types bit - word - double word
- Library of function elements
- Installation and start of the tool PTS
- Working with PTS and the data base editor DBL
- Usage of subplans
- Creation of small example programs (adding indications to a collective alarm – usage of timers – analogue value calculations)
- Loading and testing of programs
- At the last day the participant may write a program of his special interest, load it into the training equipment and test it

Participants: Engineering, commissioning and maintenance personnel

Prerequisites: Course No. 7810E

Duration: 3 days

Course language: English

Start: 1st day 9 a. m.

End: 3rd day 4 p. m.