ABB UNIVERSITY & ONLINE ACADEMY FOR EXCITATION AND SYNCHRONIZATION

J131 - UNITROL® 1010/1020 Service and Commissioning

4 days, in person training

Course goals

UNITROL® 1010 and UNITROL® 1020 provides a comprehensive range of Automatic Voltage Regulators and is intended for small generators and industrial synchronous machines. The maximum output current for continuous operation is 20 ADC. The most advanced microprocessor technology together with IGBT semiconductor technology allows it to be used in all conceivable areas of application.
The course goal is to learn how to operate, maintain, perform commissioning, and trouble-shoot the automatic voltage regulator (AVR).

Main learning objectives

Upon completion of the course, attendees will be able to operate the system either using the front panel or the PC tool, perform standard maintenance and troubleshooting work and put the UNITROL® 1010/1020 in service.

Participant profile(s)

- Operator and maintenance personnel in power plants and industrial sites
- Test and commissioning engineers
- Application engineers and system integrator

Prerequisites

- Basic knowledge of electronics and power generation
- Basic personal computer knowledge
- English Level: B1

Delivery and learning methods

- Lectures for introduction
- Practical exercise using demo equipment

Duration

- 4 days, Max. 8 participants

Registration

For registration or enquiries please visit: ABB University & Online Academy for Excitation - Enquiries

ABB MyLearning page (requires log in): J131 UNITROL® 1010/1020

Notes

Tailor-made and on-site training courses on request

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Topics

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- Basics of the synchronous machine Duties of excitation system
- Major components of the UNITROL® 1010 and UNITROL® 1020

The Hardware configurations and parts

- Control elements
- Device connections
- Input/output configuration
- The main software function of UNITROL® 1010/20
- Voltage regulator
- Limiters
- Power factor and VAR control
- Droop compensation mode
- Boost output
- Synchronization
- Monitoring and protection
- Double channel configuration

Operating aspects

- How to use the local control panel
- Start/Stop sequence
- Commands and Indications
- Field bus communication (Modbus)
- Exercises using the demo equipment
- How to use the PC-tool
- How to install the PC-tool
- How to display signals
- How to change parameters
- How to use the oscilloscope function
- How to configure I/O's
- How to use the event logger function
- How to tune the closed loop controllers
- How to operate the voltage regulator using the PC-tool
- Exercises using the demo equipment and PC-Tool

Servicing and Faults

- Commissioning aspects
- Trouble shooting
- Maintenance aspects
- Engineering aspects
- Integration of the device into various environments
- System parameters
- Connection diagrams

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Virtual Course map

Typical course layout (time or sequence may change)

DAY 1 | 8:30 AM – 4:30 PM

- Course overview
- Basics of excitation system
- Introduction to UNITROL® 1010/20
- Field of application
- Supply modes
- Modes of operation
- Overview to the various software packages
- Hardware

DAY 2 | 8:30 AM – 4:30 PM

- Recap day 1
- How to connect the UNITROL® 1010/20
- Introduction to the training unit (table Model) used for hands-on part
- Exercises using the training unit
- How to operate UNITROL® 1020 using the local control panel
- How to use the CMT1000 tool
- Exercises using the CMT-Tool and training unit

DAY 3 | 8:30 AM – 4:30 PM

- Recap day 2
- Software Functions and parameter settings
- Engineering aspects
  - Mechanical installation
  - Electrical installation
  - Technical data
  - Engineering hints
  - Exercise project engineering
- Commissioning aspects
  - Safety rules
  - Step by step procedure
  - Machine at stand still
  - Machine idle running
  - Machine on load

DAY 4 | 8:30 AM – 4:30 PM

- Exercises related to commissioning
- Tuning of the controller using oscilloscope function
- Testing of the limiter reactive load rejection
- Testing of reactive power and power factor control
- Testing of the synchronizer function
- Maintenance and trouble shooting
  - Recommended maintenance work
  - Download of new software release
  - Trouble shooting procedure
  - Alarm indication
  - Event logger
  - Device replacement

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Contact us

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