

COURSE DESCRIPTION

J131D UNITROL® 1010/1020

Digital learning classroom

Service and Commissioning Training

Course goal

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 teach students to operate, maintain and do commissioning as well as trouble shooting of the automatic voltage regulator (AVR).

Main learning objectives

Upon completion of the course students 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

- 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

Topics

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
- 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

Learning methods and tools

- Lectures via virtual classroom
- Practical exercise using demo equipment using remote access to simulator

Duration

4 times ½ day, Max. 4 participants

For registration please contact:

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Virtual Course map

	DAY 1	DAY 2	DAY 3	DAY 4
Topics	– Course overview – Basic of excitation systems – Introduction to UNITROL1010/20 – Field of application – Supply modes – Modes of operation – Overview to the various software packages – Hardware : connection to the remote simulator -SMTS explanation	– 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 the training unit – How to use the CMT1000 tool – Exercises using the CMT-Tool and training unit	– Recap day 2 – Software Functions and parameter settings – Engineering aspects - 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	– Exercises related to commissioning - Tuning PID of the controller using oscilloscope function and integrated tunnin assistant - 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 releas - Trouble shooting procedure - Alarm indication - Event logger
Time	8:30 am – 12:00 pm	8:30 am – 12:00 pm	8:30 am – 12:00 pm	8:30 am – 12:00 pm
Typical course layout (time or sequence may change)				