



COMPRESSOR CONTROLS CORPORATION

Operation & Maintenance Courses On-Site Training

For more information,
please contact
CCC Global Training
Department:
training@cccglobal.com

Control System Training for Operation

Learning Objectives: Upon completion of the course the participant will be able to:

- Identify a variety of compressors
- Explain surge phenomena and consequences on compressor operation and process stability
- Understand controllers operation
- Alarm resolution

Course Topics:

- Compressor Systems and Classifications
- Surge Phenomenon
 - ◆ Theory of surge control
 - ◆ System resistance
 - ◆ Causes
- Specialized Controller Features
 - ◆ Antisurge control
 - ◆ Performance control (if applicable)
 - ◆ Speed control (if applicable)
 - ◆ Extraction control (if applicable)
- Hands-on Simulation
 - ◆ Using simulation software, a laptop computer, and a demonstration unit consisting of actual CCC controllers
- Simulation Software
 - ◆ Compressor maps
 - ◆ Process disturbances
 - ◆ Instrument failures

Control System Training for Maintenance

Learning Objectives: Upon completion of the course the participant will be able to:

- Edit and build project
- Use configurator to set parameters and troubleshoot
- Analyze, identify and resolve alarms
- Safely replace hardware (on-line, off-line)
- Retrieve and send Train View data to CCC for analysis



Please visit our website
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complete list of training
opportunities.



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Control System Training for Maintenance (continued)

Course Topics:

- Antisurge Control
 - ◆ Surge phenomenon
 - ◆ Compressor maps
 - ◆ Fallback strategies
 - ◆ Application alarms
- Performance Control
 - ◆ Flow or pressure control
 - ◆ Limiting control
 - ◆ Decoupling of antisurge and performance control loops
 - ◆ Automatic startup/shutdown
 - ◆ Performance override control (POC)
 - ◆ Tracking
 - ◆ Fallback strategies
- Speed Control (if applicable)
 - ◆ Steam turbine classifications
 - ◆ Speed measurement
 - ◆ MPU classifications
 - ◆ Automatic start up/shut down sequencing
 - ◆ Idle speeds
 - ◆ Critical speed avoidance
 - ◆ Overspeed functions
- Hardware System Overview
 - ◆ System components
 - ◆ Software architecture
- Engineering Keyboard (S3+/S3++ only)
 - ◆ Parameter grouping
 - ◆ Parameter modification
 - ◆ Keystroke sequences
- Transmitter Failures & Troubleshooting
 - ◆ Procedures to diagnose and correct problems
 - ◆ Card/Controller replacement
 - ◆ Communications
 - ◆ PI parameters
- Site Specific Discussion
 - ◆ P&I diagrams
 - ◆ Instrument connections



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Control System Training for Maintenance (continued)

Course Topics:

- CCC Software Programs: Maintenance Tools Demonstration (if applicable)
 - ◆ Engineering utilities
 - ◆ Configurator
 - ◆ Fast recorder
 - ◆ Alarm monitor
 - ◆ Project Builder
 - ◆ Building a sample project
 - ◆ Project editing
 - ◆ Modbus list
 - ◆ Train View
 - ◆ Architecture of TV
 - ◆ Recorder and archiving
 - ◆ Maps and variables associated with displays
 - ◆ Alarms resolution
- Hands-on Simulation
 - ◆ Using simulation software and CCC controllers
 - ◆ Antisurge
 - ◆ Performance
 - ◆ Speed (if applicable)
 - ◆ Gas turbine (if applicable)

Course Requirements

The following are the requirements for CCC's customized, on-site training:

- Appropriate training room
 - ◆ Screen
 - ◆ LCD Projector
 - ◆ White board with markers and eraser

Course Pricing

- Pricing assumes all classes are taught in consecutive 8-hour days
- Maximum number of participants for each course is 15
- Training quotation provided upon request, please email training@cccglobal.com



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