CTI 2500 Series® System Training
Comprehensive System Architecture and Application Development

Classic

Description

This course is intended for students that have experience with automation and control systems including PLCs. The student should also have some basic knowledge of RLL or control programming and be competent using a PC with Windows® 10. The course is not for students who have had very little exposure to PLCs.

The following topics are covered:

- Advanced system architecture, including configuration of 2500 Series® Processors
- Description and use of common instructions
- Description and use of program control instructions
- PLC number formats
- Handling analog values in Ladder
- Status words
- PLC scan cycle analysis and tuning
- Setup and operation of Profibus-DP networks
- Programming of analog alarms
- Theory and programming of PID loops
- SF programming
- Advanced RLL Programming
- Optimizing PLC Performance
- Troubleshooting

Hands-On Experience

The student will receive hands-on experience with a live training system. Each Training System will provide a 2500 Series® Base, power supply, processor, digital input module, digital output module, and an analog input/output module connected to a PC Application Development Station. Upon Completion, the student will be able to:

- Assemble a CTI 2500 Series® System
- Understand the System Operation and Architecture
- Write and edit a discrete RLL program
- Monitor the operation of an RLL Program
- Troubleshoot a 2500 Series® System

Course Agenda

PLC Fundamentals
- Hardware Description
- Address and Memory Structure
- Comparison to 545/555 controllers
- PLC Configuration, inlcuding memory configuration, switches and jumpers, and I/O
- Discrete Programming, including Timer and Compare
- Counter and Move Word Instructions
- Event Drum and Load Data Constant
- Memory Structure and data formatting

Discrete Programming
- Shift Register
- Program Control
- End
- MCR (Master Control Relay)
- Jump and JumpEnd
- Skip to Label
- GTS (Go to Subroutine)
- Tasks

Word Programming
- Number formats and conversion
- Analog Inputs
- Analog Outputs
- Ladder Math

Troubleshooting
- Status Words
- PLC Webserver
- PLC Event Log
- Remote Base Communication Troubleshooting

Understanding Your PLC Application
- Debugging with system status words
- Understanding and Tuning PLC scan time configuration
- Accessing embedded web server
- Event log
- Run-time statistics

Profibus DP
- Profibus network setup
- Profibus operation
- Profibus status indicators

Analog Alarms
- Definition
- Alarm operation within PLC
- Alarm configuration parameters
- Alarm SF variables

Control Technology Inc.

5734 Middlebrook Pike, Knoxville, TN 37921-5962
Phone: +1.865.584.0440   Fax: +1.865.584.5720
www.controltechnology.com

ROCK SOLID PERFORMANCE. TIMELESS COMPATIBILITY.

26 JAN 2024

Analog Control (PID) Loops
- Definitions and theory of control Loops
- PID loop operation within PLC
- Ramp/Soak feature
- Loop configuration parameters
- Loop SF variables
- Process simulation using proportional-integral-derivative control elements
- Control loop tuning

Special Function Programs and Subroutines
- SF program types and methods of execution
- SF instruction set and operators
- Passing parameters to SF subroutines
- Memory access within SF programs
- SFP/SFS configuration
- SF error reporting (SFEC)
- On-Line editing of SF programs

Advanced RLL Programming
- Cyclic RLL task (TASK2)
- Immediate I/O instructions
- Fast loop PID instruction
- RLL subroutines

Optimizing PLC Performance
- Tuning PLC scan time setup
- Monitoring PLC process times (PPET variables)

Ordering Information

2500-TR-SC Comprehensive System Architecture and Application Development

Contact CTI or your CTI distributor for pricing and training schedule.

Control Technology Inc.
5734 Middlebrook Pike, Knoxville, TN 37921-5962
Phone: +1.865.584.0440   Fax: +1.865.584.5720
www.controltechnology.com