Controller Maintenance - Logic Developer PLC

Instructor-led

Topics

- Control System Fundamentals

- Controller Hardware Overview

- Operate PAC Logic Developer PLC

- Configure Controller and IO

- Working with Variables

- Intro to Ladder Diagram (LD) Programming

- Monitor Application Variables

- Monitor Controller without Original Project

- Modify Existing Program

- Controller Equality Status

- Manage Controller Forces

- Application Troubleshooting

- Controller and IO Faults

Course description

The Emerson Controller Maintenance - Logic Developer PLC course features the PACSystems RX3i Controller to provide the student with the skills necessary to troubleshoot and repair faults in Emerson Controllers. The class is taught using Logic Developer PLC software, which is part of PAC Machine Edition. The course focus is on interpreting existing LD programs for troubleshooting purposes. Students are taught how to use troubleshooting tools to determine where faults have occurred and how to correct them.

Who should attend?

This course is intended for anyone who will be troubleshooting control systems using PAC Logic Developer PLC software. It is designed for electrical technicians, electricians, and/or engineers beginning to work with Logic Developer PLC, who will be tasked with modifying and maintaining PLC programs and hardware.

Are there any pre-requisites?

Participants should be comfortable operating in a Microsoft Windows environment. Participants should have a basic understanding of electrical/control fundamentals.

Duration
24 hours

Delivery
Classroom
Onsite
Virtual

Part
7700
7700V

Suggested class size
10 Students

Session 1

Control System Fundamentals
Introduction to Controller application components and Logic Structure.
Basic Controller Variables, Data Types, and Numbering Systems.
Understanding the Controller Scan.

Controller Hardware Overview
Basic controller system hardware components.
Find Controller Information using Emerson web sites.

Operating PAC Machine Edition
Orientation to the Machine Edition programming environment and its tools.
Machine Edition "Best-Kept Secrets".
Work with Projects and Targets.

Session 2

Configuring Controller and IO
Configure the Controller, IO, and Option Modules.
Understand Hardware Configuration Status indicators.
Assign Reference Addresses to I/O Modules.
Use the Hardware Reference View.
Import and Export Hardware Configuration.

Working with Controllers
Communications over Serial and Ethernet connections.
Validate a Machine Edition Project.
Download to and Upload from a Controller.
Verify Information between a Project and a Controller.
Work with Fault Tables.
View Controller Status information.

Session 3

Working with Variables
Understand basic Variable concepts, along with Universal, Local, Global, and Alias scoping of Variables.
Understand Variable Types, Variable access, and the various Variable attributes.

Introduction to LD Programming
Understand the basic operation of the Ladder Diagram Programming Language.
Become familiar with the LD Editor layout and operation.
Review the basic LD logic elements, such as contacts, coils, counters, timers, and relational operators.
Learn how to monitor LD logic executing in the Controller.

Session 4

Monitor Application Variables
Understand how to monitor application Variables using the Data Watch, Data Monitor Utility, & Reference View Tables.
Understand how to modify application Variables.
Understand how to use Variable References to find application Variable usage in the Project.

Monitor Controller Without Original Project
Understand how to monitor a Controller program without having the original Project.

Modify An Existing Program
Understand how to modify an existing Project by working with Rungs, entering LD Logic, connecting LD Logic, and creating New Variables in the LD Editor.

Session 5

Controller Equality Status
Understand the Controller Equality Status indicators.
Understand how to determine what Controller components are Not Equal to the Project.
Understand how to gain Controller and Project Equality.

Manage Controller Forces
Understand how to detect and locate Controller Forces.
Understand how to Clear and Unforce Variables and Reference Memory Locations.

Session 6

Application Troubleshooting
Understand how to troubleshoot Controller applications.
Understand how to use Search, Cross References, and References to diagnose logic behavior.

Controller and IO Faults
Understand how to use Controller and I/O Faults to diagnose system issues.
Understand the differences between Fatal and Non- fatal Faults. Understand how to clear and print Faults.
Understand how to save Fault Tables to a file.

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