

NetLinx Industrial Communication Course

(EtherNet /IP Network, ControlNet and DeviceNet Communication)

Course Description

This course prepares you to successfully design and configure an efficient EtherNet/IP & ControlNet (Industrial Protocol) & DeviceNet network and RSNetWorx-capable hardware and software into an effective control network. This course also prepares you to effectively resolve the breakdown in communications between a controller and the devices it is controlling. You will troubleshoot an EtherNet/IP network's media components and use web-based technologies imbedded within multiple EtherNet/IP devices to monitor the health and status of the EtherNet/IP network & ControlNet and RSNetWorx hardware and software.

Trainees gain these skills from the ground up, practicing each step in the design; configure process from choosing the correct cable to configuring the connections that will transmit data across that cable, and by using troubleshooting best practices and network troubleshooting tools in order to safely and efficiently return a network to operation.

After completing this course, Trainees will have designed a ControlNet and RSNetWorx media system that will serve as the backbone of their network and will have configured ControlNet and RSNetWorx-capable hardware to behave as a deterministic and repeatable control network. More importantly, Trainees will have configured data connections between devices that transmit data where they need it, when they need it.

Trainees will have hands-on experience troubleshooting a ControlNet and RSNetWorx network that they can immediately apply to their job responsibilities.

Target Audience:

Individuals responsible for designing and configuring a new EtherNet/IP & ControlNet network or modifying and troubleshooting an existing EtherNet/IP & ControlNet network should attend this course.

Pre-requisites:

- Ability to perform basic Microsoft Windows tasks
- Familiarity with basic control and electrical principles
- Completion of the RSLogix5000 Fundamentals (Basic Ladder Logic Programming and Project Development)

Duration:

5 days, 7hours/day (from 9:00am to 4:00 pm).

Technical Contents:

1- *EtherNet /IP Network communication- 2 days*

- EtherNet/IP Overview
- Understand the OSI Model
- IP Address Overview
- Designing an EtherNet/IP Cable System
- Optimizing an EtherNet/IP Network
- Pinging a Module's EtherNet/IP Address
- Configuring and Modifying EtherNet/IP Addresses Using RSLinx® Software
- Configuring and Modifying EtherNet/IP Addresses Using RSLogix™ 5000 Software
- Configuring and Modifying EtherNet/IP Addresses Using BOOTP-DHCP Server© Software
- Establishing EtherNet/IP Connections to Remote Devices
- Producing and Consuming Data over an Ethernet/IP Network
- Communicating between Multiple Controllers on an Ethernet/IP Network Using a Message Instruction
- Configuring the Stratix 6000 Ethernet Switch
- Troubleshooting an EtherNet/IP Network's Media Components
- Monitoring an EtherNet/IP Network Using Web-Enabled Technologies

2- *ControlNet Network communication- 2 days*

- ControlNet network overview.
- Configuring an Offline ControlNet Network
- Going Online to a ControlNet Network
- Entering Scheduled ControlNet I/O Data Connections for Logix5000 Controllers
- Entering Scheduled ControlNet produced/consumed tags Data Connections for Logix5000 Controllers
- Entering ControlNet Messages for Logix5000 Controllers
- Integrated Practice: Configuring a ControlNet Network
- Getting Started with Troubleshooting a ControlNet Network

- Troubleshooting a ControlNet Media System
- Isolating Faulty ControlNet Media Using Signal Measurement Equipment
- Isolating ControlNet Network Malfunctions Using LEDs and Mnemonic Displays
- Connecting to a ControlNet Network Using RSLinx Software
- Identifying a ControlNet Network Malfunction Using RSLinx Software
- Troubleshooting a Network Using RSNetWorx for ControlNet Software
- Troubleshooting a Scheduled ControlNet Data Connection for Logix5000 Controllers

3- DeviceNet Network communication- 1 day

- Identifying DeviceNet Network Components
- Designing a DeviceNet Cable System
- Creating a DeviceNet Network Configuration
- Commissioning Nodes on a DeviceNet Network
- Configuring a DeviceNet Scanner Module
- Mapping Inputs and Outputs to scanner module on a DeviceNet Network
- Managing DeviceNet EDS Files
- Configuring the Automatic Device Recovery Feature (ADR) for a DeviceNet Network
- Communicating on a DeviceNet Network Using Messaging with the ControlLogix platform
- Troubleshooting a DeviceNet Network Using RSNetWorx for DeviceNet Software
- Troubleshooting Using DeviceNet and ControlLogix Hardware Indicators
- Troubleshooting a DeviceNet Network Using RSLogix 5000 Software
- Troubleshooting Duplicate Node Addresses on a DeviceNet Network