TRANSFORMATIONAL
PERFORMANCE SOLUTIONS

PLC Programming and Application

This development course is available in both virtual and in-person, instructor-led formats, it is a two-day PLC Programming and Application course to provide a greater in-depth knowledge of PLC. It is recommended that team members take PLCs for non-programmers prior to this course.

Description:

This course is designed to help maintenance technicians, electricians and others modify and write common PLC programs on their own. It will provide team members with the comfort and confidence they need to edit or create new PLC solutions for their specific work applications. It will make vendor-specific PLC programming manuals understandable. Team members' specific needs and concerns are also addressed during the class, so that they can go back to their workplace and immediately apply what they've learned.

Course Outline:

Day One – Topics

Five Parts of a PLC

PLC System Sequence of Operation

1. Input Data Table
2. Output Date Table

Relay Type Instructions

1. Input
2. Output

Addressing

1. Hardware (Rack/Slot/Screw)

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2. Software (File/Word/Bit)
3. Addressing Examples
    a. Allen Bradley SLC 500
    b. Allen Bradley PLC5
    c. Allen Bradley RSLogix 5000 / Studio
    d. Siemens Simatic Step 7 (S7)
    e. Modicon

Logic Gates

1. And
2. Or
3. Not

Application of Bit Type I/O Instructions

1. LogixPro Garage Door Simulation
2. Motor Control Circuit
3. Exclusive
4. Latching Outputs

Troubleshooting Logic

1. Copy & Paste Errors
2. Incorrect Addressing
3. Duplicate Destructive Bits

Converting Hardwired Systems to PLC Control

1. Series Circuit vs. AND Statement
2. Parallel Circuit vs. OR Statement
3. Schematic Exercises

Timer Parameters & Control Bits

1. Timer On Delay

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2. Timer Off Delay
3. Retentive Timers
4. Cascading Timers
5. Self-Resetting Timers

Day Two - Topics

Application of Timer Control Bits

1. LogixPro Traffic Light Simulation

Compare Instruction

2. EQU
3. NEQ
4. LES
5. GRT
6. LEQ
7. GEQ
8. LIM

Binary Decimal System

Programmer & Processor Memory

Program Control Instructions

1. Jump
2. Master Control Reset
3. Jump to Subroutine
4. Forces
5. One Shot

Compute Instructions

1. Introduction to Source & Destination

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2. Add, Subtract, Multiply, Divide, SQR, Clear & Trig
3. Convert to BCD (TOD) & Compute (CPT)

Transfer Instructions

Counters

1. Count Up
2. Count Down
3. Reset

Application of Counter Control Bits

1. LogixPro Batch Simulation

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