TPC TRAINING

UNDERSTANDING AND TROUBLESHOOTING

PLCS FOR NON-PROGRAMMERS

Day 1 - Speaking the Language of PLCs
Day 2 - Reading, Troubleshooting, & Fixing PLCs

Specifically Designed for Maintenance Personnel and Electricians in Plants, Facilities and Commercial Buildings

Learning Objectives:

- How PLCs Work
- PLC Terminology
- Parts of a PLC
- Hardware Considerations
- Organization and Function of Ladder
- Logic Ladder Logic Data Table Organization
- Introduction to Programming
- Common PLC & PID Instructions
- Relating the PLC to Real World Applications
- Forcing of Input Data Table & Output Devices
- Identifying I/O Field Device and Module Faults
- Identifying System Faults
- Using the Data Monitor Screen
- Using the Processor Status and I/O Status Screen
- Using Troubleshooting Tools
- Using Software Tools

- Reserve your space now either online or by calling us at 1-877-978-7246!

- Check us out online at live.tpctraining.com for a complete list of all virtual and in-person seminars.

- This seminar is also available for Virtual or In-Person Private Group Training

SEMINAR OVERVIEW
Available in both virtual and in-person, instructor-led formats, this introductory PLCs for Non-Programmers course uses hands-on demonstrations to convert the seemingly complex world of automation and Programmable Logic Controllers (PLCs) into practical lessons the average non-programmer can understand. Students will learn to speak the PLC language, read and interpret PLC ladder logic, troubleshoot PLC systems and components, and fix the most common PLC problems on their own.

This course focuses on understanding PLCs; how they work, terminology, and the hardware and software elements that make up a programmable logic controller. Students will learn a systematic approach to troubleshooting; how to set-up and configure local, remote, hierarchical and distributive control systems; how to configure Input/Output modules using various slot addressing techniques; how to understand program and data table file organization, number systems and processor information flow; and how basic relay type instructions, timers and counters, & data manipulation instructions can be used to achieve PLC solutions.

WHAT YOU WILL TAKE HOME
- A laminated, full-color TPC Training Reference Guide detailing all the "must know" information covered in the class. Keep this with you while on the job for immediate knowledge recall.
- Comprehensive classroom materials
- A Personalized Training Certificate with 0.8 TPC Training Continuing Education Units for each day attended, 1.6 for both days.
- All the information you need from asking our instructors specific questions about your own unique equipment or facility.

CONTINUING EDUCATION
Upon completion of this seminar, the student will receive a Certification of Completion and .8 TPC Training CEUs per day attended. Most employers and many government agencies accept TPC Training CEUs to fulfill their continuing education requirements. If the student needs CEUs to renew a state license, please contact us at 303-867-5039 to ensure the state licensing board has approved the seminar. If we are currently not approved by your state licensing board, we are happy to begin the process as long as we receive your request at least one month before the training date.

DISCUSSION TOPICS
Speaking the Language of PLCs
- Hardware Focus
- How PLCs Work
- Past
- Present
- Future
- PLC Terminology
- Parts of a PLC
- Input Interfaces
- Processor
- Output Interfaces
- Power Supplies
- Programming Terminals
- Hardware Considerations
- Field Wiring
- Master Control Relay

- Isolation Transformers
- Grounding

Reading PLC Ladder Logic
- Organization and Function of Ladder
- Logic Ladder Logic Data Table Organization
- Numbering Systems
- Data Table Files
- Bit, Word and File Addressing
- Introduction to Programming
- Common PLC & PID Instructions
- Basic Relay
- Counters and Timers
- Data Transfer
- Organization
- Subroutine Files
- Selectable Timed Interrupt (STI) Files
- Jumps and MCR Instructions
- Fault Routines
- Relating the PLC to "Real World" Applications

Troubleshooting PLC Systems & Components
- Safety
- Forcing of Input Data Table & Output Devices
- Identifying I/O Field Device Faults
- Identifying I/O Module Faults
- Identifying System Faults Using the Data Monitor Screen
- Using the Processor Status and I/O Status Screen

Finding & Fixing the 10 Most Common PLC Problems
- The "Ultimate PLC Troubleshooting Flowchart"
- Using Troubleshooting Tools
- Using Software Tools
- Real World Case Studies

" ...this was a huge bang for the buck!"
— Mark E. – O/M Technician