TR3038 Course Outline

TwinCAT 3 Training: PLC with Motion, Safety, Diagnostics, and TwinCAT HMI

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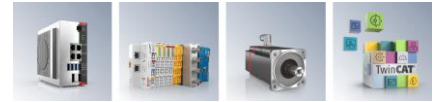
Attention: The following topics are *not* addressed during this class:

- Tuning

Prerequisite:

Students are expected to have good computer skills and experience with another PLC system and Motion Controller.

Topics Covered

Documentation – Catalog and Information System

I/O Diagnostics

- Hardware Identification
- EtherCAT I/O Hardware
- Terminal Wiring
- Grounding
- Power Rail
- Replacing Terminals
- Diagnostics

eXtended Automation Architecture

TwinCAT Overview – Using the Visual Studio IDE

Scanning / Communicating with Hardware

Troubleshooting EtherCAT Networks

IPC Diagnostics

TwinCAT Measurement

Installing TwinCAT

Licensing

Remote Connections

PC Control & IEC 61131 Programming

- Overview of IEC 61131-3 & TwinCAT
- Getting Started with TwinCAT
- Scanning and Adding I/O Terminals
- PLC Programming with TwinCAT
- Working with POU's – Programs
- Linking I/O

- Using Libraries
- Information System
- Defining Variables – Local, Global, Retentive
- Fundamentals of Structured Text Programming
- State Machine Programming in Structured Text
- Defining Variables – Arrays, Structures
- Working with POU's – Functions and Function Blocks

TwinSAFE & EtherCAT Diagnostics

- Overview of TwinSAFE
- Configuring TwinSAFE
- Basic TwinSAFE programming
- Linking TwinSAFE data to PLC
- EtherCAT Diagnostics

NC Point-to-Point

- Scanning and Adding Drives
- Configuring Drives and Motors
- Linking Drives to NC Tasks
- Configuring and Scaling Axes
- Online Axis Control
- Using TwinCAT Measurement
- Working with the Motion Library in PLC Control
- Using Motion Control Axis and Function Blocks
- Linking PLC Axes to NC Tasks

TwinCAT HMI Basics

- Introduction to TwinCAT HMI
- System Architecture (Engineering, Client & Server)
- TwinCAT HMI Creator Features
- Standard Controls
- Custom Control Events
- Overview of possible connections to different data sources
- Publishing to TwinCAT HMI Server

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