SIEMENS

Drives - SINAMICS / MASTERDRIVE / SIMOTION / S7-1500T

SINAMICS S Setup and Maintenance

General Information

Course Code: SCT-DVSNAM1A
Length: 4 Days

Audience

This course is for engineering and maintenance personnel responsible for installing, maintaining and troubleshooting drive systems that use the SINAMICS S (S110, S120, S150) drive systems.

Prerequisites

- 20 AC Motor Basics **&** 24 AC Drive Basics

Profile

2.6 CEUs (Continuing Education Credits)

This course is intended to provide knowledge and skills related to the SINAMICS S drive as it pertains to commissioning, operation, configuration, maintenance, diagnostics, and troubleshooting. It is formatted as a combination of instruction and carefully structured, hands-on exercises aimed at developing job-related knowledge and skills.

Objectives

Upon completion of this course, the student shall be able to:

- Locate modules, terminals, options, and features on the SINAMICS S series drives.
- Create an offline project in SINAMICS STARTER
- Connect with the Drive via STARTER
- Commission the Drive with STARTER for Servo Motors
- Take local control of a drive using the STARTER Control Panel
- Configure Analog, Digital, and Comm. I/O
- Configure, Trace, and Evaluate BICO connections in the drive control logic
- Use Device Trace to monitor signals
- Use STARTER tools to troubleshoot and correct Topology errors
- Perform required Drive optimizations - servo
- Commission the Drive with STARTER for Induction Motors
- Perform required Drive optimizations - vector
- Configure the Setpoint channel
- Evaluate and configure operating states, alarms and fault codes
- Activate and Configure the Basic Positioner
- Set the Basic Positioner Home Position
- Traverse the axis with a traversing program
- Configure and test S7 communications between an S7 PLC CPU and S120 Drive via PROFIBUS

Topics

1. S120 Fundamentals and Overview
   a. Frequency Converter principles
   b. S120 Components
2. SINAMICS STARTER
   a. Overview
   b. Project Creation
   c. Project Structure
3. S120 Control Units and Additional System Components
4. STARTER connection to target device
   a. PG/PC Interface
5. Line and Motor Modules
6. Control Word, Setpoint, and Device Trace
   a. Required Enables
   b. Control and Status Words
   c. Input and Output Terminals
   d. BICO Technology
   e. Device Trace
7. S120 Topology
   a. Drive-Cliq
8. Chassis and Cabinet Power Units
9. Closed Loop Control - servo
   a. Operating modes
   b. Speed, Current, and Torque control
   c. Optimization - automatic
   d. Optimization - manual
10. Closed Loop Control - vector
    a. Induction motor design
    b. Commissioning an induction motor
    c. Optimizing and induction motor control
11. Setpoint Channel
12. Diagnostics
    a. LEDs
    b. Fault and Alarm memories
    c. Comparison features in STARTER
13. Basic Positioner
    a. Overview
    b. Activating and Configuring the Basic Positioner
14. S120 Communication
    a. Overview
    b. PROFIDRIVE
    c. Telegram configuration
    d. Device and S7 Online Access Points

15. Further Drive Functions
    a. Line Contactor Control
    b. Brake Control
    c. Flying Restart
    d. Vdc Controller
    e. Simulation Mode
    f. Technology Controller
    g. Drive Control Chart