

CDN-Drive Technology

SINAMICS G120 SET-UP & MAINTENANCE

General Information

Course Code: CDN-DR-SNS-G1
Length: 3 Days

Audience

This course is for engineering and maintenance personnel responsible for installing, maintaining and troubleshooting drive systems that use the SINAMICS G120 series AC drives. SINAMICS G120 equipment will be used for hands-on exercises.

Prerequisites

- Basic computer skills

Profile

This course is intended to provide knowledge and skills related to the SINAMICS G120 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.

An analysis of the required hardware and the relationship between the various operational components and basic converter/inverter operation is presented at the beginning of the course. Proper drive commissioning and additional application dependent steps are presented and practiced.

Analog and digital I/O configuration are covered and practiced. A working knowledge of the "Base Drive" communications and networking capabilities is provided and standard support software (Starter) is introduced and used extensively.

The course covers the extensive diagnostic capabilities of the drive - interpretations of Fault/Warning codes, as well as, the proper troubleshooting steps. It also provides exploration and practice of more advanced applications - such as, sensorless vector and closed loop vector commissioning and tuning - communications interfaces and networking - Step7/TIA integration - and advanced BICO configuration. This includes use of data sets, PID loops, and integrated drive functions.

Objectives

- Upon completion of this course, the student shall be able to:*
- Commission a G120 unit and Power Module using keypads and the STARTER application.
 - Troubleshoot, diagnose and maintain a G120 drive.
 - Connect to the drive using RS232, RS485, and PROFIBUS.
 - Download and upload projects to the drive system.
 - Archive and restore a project.
 - Use Starter to operate the G120.
 - Configure Analog and Digital I/O.
 - Take control of a drive using conventional I/O.
 - Configure and take control of a drive using the Operator Panels.
 - Interpret Fault and alarm codes.
 - Evaluate control and status words.
 - Replace the cooling fan.
 - Configure DC, dynamic, and compound braking.
 - Configure automatic and flying restart functions.
 - Configure the VDC controller.
 - Configure the PID controller.
 - Configure communications I/O.
 - Compare parameter files.
 - Commission G120 safety functions.

Topics

1. SINAMICS G120 Construction and Options
2. Parameter Basics and Quick Commissioning
3. Introduction to Starter
 - a. Available Communications Modes (PC to Drive)
 - b. Project backup and restoration using Starter
4. Drive Navigator Startup and Control Panel
5. Analog I/O Configuration
6. Digital I/O Configuration
7. SINAMICS G120 Diagnostics and troubleshooting
8. Maintenance and Repair
9. Advanced Quick Commissioning including vector and torque control
10. Command and Drive Data Sets
11. Drive Functions
12. PID Control
13. Operator Panel Keypads
14. PROFIBUS Communications and Step7 Integration
15. G120 Safety Functions