SIEMENS

SINAMICS S120/G120 Maintenance and Troubleshooting

General Information

Course Code	SCT-AUSNSM1A
Global Code	NA
Length	4 Days
CEUs	2.6

Audience

This course is for personnel responsible for the long-term maintenance and diagnostics of the SINAMICS S120 and G120 drive systems.

Prerequisites

- Basic computer skills
- Basic Industrial Electronics experience
- Basic industrial technology skills
- Competent in safe use of common electrical test tools such as VOM, DMM, oscilloscope, etc.
- Completion of the online course quickSTEP: Basics of AC Drives (www.sitrain-lms.com/STEP)

Profile

This course provides maintenance level training on Siemens SINAMICS S120 and G120 drive systems. The course includes an overview of AC Drive power structures, system hardware, basic commissioning steps, and basic steps for configuring and troubleshooting. A heavy emphasis is placed on troubleshooting using various methods and test equipment. The use of the Siemens diagnostic and engineering software tool (STARTER) is demonstrated and practiced extensively throughout the week.

Although commissioning and configuration of the system is not the primary focus of the course, the student will perform basic lab-guided commissioning using various wizard tools to create a simple system. The student will learn to maintain the system settings by creating various backups, followed by actual restoration of the system. Interpretation of Fault and Alarm codes and LEDs and proper troubleshooting steps is a primary goal, as well as necessary steps for component replacement in the event of a hardware failure. Actual component replacement steps will be discussed, but not performed as the training units are not designed for easy access to hardware. The course format is a combination of instruction and hands-on exercises aimed at developing job-related knowledge and skills.

Objectives

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

- Operate the G120 Drive via IOP Keys.
- Perform Basic Commissioning and Set Up via IOP.
- Backup and Restore the G120 Operating Program via Memory Card and IOP.
- Trace voltage waveform from Input rectifier to Motor output for the the G120 and S120 Drive Systems.
- Utilize Drive Architecture to troubleshoot Hardware Modules (On both the G120 and S120 Drive Systems).
- Troubleshoot the Power Electronics for both the G120 and S120 Drive Systems.
- Establish communication with STARTER (on both the G120 and S120 Drive Systems).
- Upload, Archive, and Restore Configuration via STARTER (On both the G120 and S120 Drive Systems).
- Perform an Online Configuration via STARTER (On both the G120 and S120 Drive Systems).
- Control Drive via STARTER Control Panel (On both the G120 and S120 Drive Systems).
- Trace Signals within the Drive configuration utilizing BICO technology (On both the G120 and S120 Drive Systems).
- Troubleshoot Drive failure to respond to a Command Source on both the G120 and S120 Drive Systems
- Troubleshoot Drive failure to respond to a Setpoint Channel Source (On both the G120 and S120 Drive Systems).
- Use the Diagnostic Fault and Warning Buffer to troubleshoot both systems.
- Troubleshoot Regulation (speed or torque) problems for both the G120 and S120 Drive Systems.
- Install or Replace a Motor (On both the G120 and S120 Drive Systems).
- Install or Replace Power Modules (On both the G120 and S120 Drive Systems).
- Install or Replace a Control Unit (On both the G120 and S120 Drive Systems).
- Replace a Cooling Fan (On both the G120 and S120 Drive Systems).

Topics

1. Safety, PPE, and ESD
2. Perform Hardware Module Diagnostics

3. Set up and operate the Drives
4. Back-up and restore operating program via OP
5. Utilize STARTER software to Upload, Archive and Restore Drive Project
6. Troubleshoot a SINAMICS drive system using STARTER application diagnostics
7. Evaluate Drive System Performance
8. Replace Defective Hardware