SIEMENS

Online Courses

AC Drives Basics

General Information

Course Code: SCT-DVOLACDBG1A
Length: 1 Hour

Audience

This course is for Siemens AC drive users who wish to learn basic low voltage AC drive concepts in preparation for more advanced training on specific AC drive models.

Prerequisites

- AC Motor Basics

Profile

This course provides an introduction to industrial low voltage AC drives as applied to control three-phase AC induction motors.

Objectives

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

- Define the term AC drive.
- Describe the primary function of an AC drive.
- List the primary advantages of AC drives.
- Describe the factors that control the speed of a three-phase AC motor.
- Describe how a pulse-width modulated (PWM) AC drive controls motor speed.
- Describe a typical speed torque curve for a NEMA B motor.
- Describe the concept of volts/hertz ratio and how it applies to motor speed control.
- Identify the constant torque and constant power ranges for AC motor and drive option.
- Identify the four quadrants of AC drive operation.
- Identify the most common methods of stopping an AC motor and its load.
- Identify the major components of an AC drive and describe their functions.
- Identify the most common alternative converter designs.
- Identify the common components used in an AC drive application.
- Define the terms volts/hertz control, flux current control, and flux vector control.
- Describe the functions of AC drive parameters.
- Describe how function blocks and BICO parameters are used in Siemens AC drives.
- Describe common load characteristics.

Topics

1. Introduction to AC Drives
2. Controlling an AC Motor
   a. Power and Motors
   b. Typical Motor Output
   c. Controlling an AC Motor
3. How AC Drives Work
   a. AC Drive Components
   b. Other Converter Designs
   c. Additional Circuits
   d. Drive Control Basics
4. Using AC Drives
   a. Programming AC Drives
   b. Load Characteristics

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