ControlLogix/Studio 5000

Studio 5000 Logix Designer Level 4:
Kinetix 6000 (SERCOS) Programming

Rockwell Automation

AB **Allen-Bradley**
by ROCKWELL AUTOMATION

Course Number

CCN145

Course Purpose

After completing this course, you should be able to configure, test, tune, and program SERCOS motion axes using the Studio 5000 Logix Designer® programming environment.

Building upon the skills gained in the Studio 5000 Logix Designer Level 3: Project Development (CCP143) course, you will learn how to apply the Logix5000™ architecture to a multiaxis SERCOS motion control system. You will also practice efficient programming skills necessary for translating a machine specification into reliable ladder logic code.

Because all Logix5000 products share common features and a common operating system, you will be able to apply the configuring and programming motion control skills you learn in this course to any of the Logix5000 controllers that are capable of motion control.

COURSE AGENDA

DAY 1

- Creating a Studio 5000 Logix Designer Project for a SERCOS Motion Application
- Adding Drives and Configuring SERCOS Axes
- Testing SERCOS Hardware
- Autotuning SERCOS Axes

DAY 2

- Programming MSO and MAH Instructions
- Programming MAM and MAJ Instructions
- Programming MAS and MSF Instructions
- Programming MASD, MASR, and MAFR Instructions
- Integrated Practice: Creating a Basic Integrated Motion Application

DAY 3

- Programming Group Motion Instructions
- Programming MCD Instructions and Merging Motion Instructions
- Adding a Virtual Axis
- Programming MAG Instructions

DAY 4

- Programming MAPC Instructions
- Programming MATC Instructions
- Integrated Practice: Programming Dependent Motion Instructions

WHO SHOULD ATTEND

Individuals who need to configure and program Logix5000 motion control systems should attend this course. In addition, only students who are already familiar with Logix5000 systems and general motion control should attend this course.

PREREQUISITES

To successfully complete this course, the following prerequisites are required:

- Completion of the Motion Control Fundamentals course (Course No. CCN130) or equivalent knowledge of drives, feedback devices, and servo motion systems
- Completion of the Studio 5000 Logix Designer Level 3: Project Development course (Course No. CCP143) or equivalent experience

STUDENT MATERIALS

To enhance and facilitate the students' learning experiences, the following materials are provided as part of the course package:

- Student Manual
  - Includes the key concepts, definitions, examples, and activities presented in this course
- Lab Book
  - Provides learning activities and hands-on practice. Solutions are included after each exercise for immediate feedback.
- Studio 5000 Logix Designer and Logix5000 Motion Control Procedures Guide:
  - Provides the steps required to complete common motion-related tasks within a Logix Designer project, as well as basic project organization tasks

HANDS-ON PRACTICE

Throughout this course, you will have the opportunity to practice the skills you have learned through a variety of hands-on exercises using ABT-TD20941 and ABT-TDCLX3 workstations. Exercises focus on the skills introduced in each lesson. You will use the Kinetix® and ControlLogix® workstations, containing real and simulated devices, to practice the tasks involved in programming a motion control application.

After configuring a project that contains the required hardware, you will program a variety of motion routines in a Logix Designer project. You will also employ rapid program development techniques to leverage existing program modules for use with other axes and applications. Finally, you will begin to employ dependent motion in the form of gearing and camming instructions. When complete, you will have practiced the skills required for developing and integrating reliable, motion-related code.

NEXT LEARNING LEVEL

Once you have mastered the skills covered in this course, you will be prepared to attend other Rockwell Automation training courses that will enable you to optimize your motion control application. One example of such a course is the Studio 5000 Logix Designer Level 5: Advanced Motion Programming course (Course No. CCN190).

COURSE LENGTH

This is a four-day course.

TO REGISTER

To register for this or any other Rockwell Automation training course, contact your local authorized Allen-Bradley® Distributor or your local Sales/Support office for a complete listing of courses, descriptions, prices, and schedules.

You can also access course information via the Web at **http://www.rockwellautomation.com/training**

Connect with us.