

Craft Skills

Motor Control and Troubleshooting



Course Number

EMS-230

Course Purpose

This course provides information on the concepts associated with systematic troubleshooting of instrumentation systems. Participants use practical application of troubleshooting techniques in exercise scenarios.

Upon completion of this course, you should be able to:

- List and explain a systematic approach to troubleshooting electrical circuits
- List and describe the purpose and application of various motor control components
- Explain methods for inspecting electrical contacts
- Describe the basic methods of starting a three-phase AC motor using full or reduced voltage
- Describe the basic operation of a three-phase AC motor
- Describe methods for troubleshooting AC motors
- Apply a systematic approach to troubleshooting motor control circuits
- Design and construct motor control circuits
- Implement proper motor control troubleshooting techniques
- Analyze and evaluate faults to determine failed motor control components

COURSE AGENDA

DAY 1

- Explaining Troubleshooting Philosophy
- Applying Basic Troubleshooting Methods
- Using the 7-Step Troubleshooting Method
- Distinguishing Contactors, Switches and Contacts
- Lab Exercises

DAY 2

- Applying Motor Controls Fundamentals
- Determining Motor Controls Diagnosis and Repair
- Lab Exercises

DAY 3

- Controlling AC Motors
- Inspecting Rotating AC Machinery
- Using Customized Troubleshooting Techniques
- Lab Exercises

DAY 4

- Troubleshooting Motor Controls Circuits
- Troubleshooting Intermittent Failures
- Lab Exercises

DAY 5

- Applying Root Cause Analysis
- Lab Exercises
- Review
- Written Exam

WHO SHOULD ATTEND

This course is designed for electrical maintenance technicians.

PREREQUISITES

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

- Understanding of electrical theory and electrical systems

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.

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. These exercises focus on the skills introduced in each lesson.

You will also have the opportunity to combine and practice groups of key skills by completing multiple integrated practices during the course.

NEXT LEARNING LEVEL

Once you have mastered the skills covered in this course, you may want to attend specific training, such as:

- Basic Programmable Logic Controllers

COURSE LENGTH





This is a five-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>

To be respectful of the environment, Rockwell Automation is transitioning some of its training courses to a paperless format. Students are asked to complete downloads and bring personal devices to these classes. A full list of digital/paperless courses is currently available through your local distributor.

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