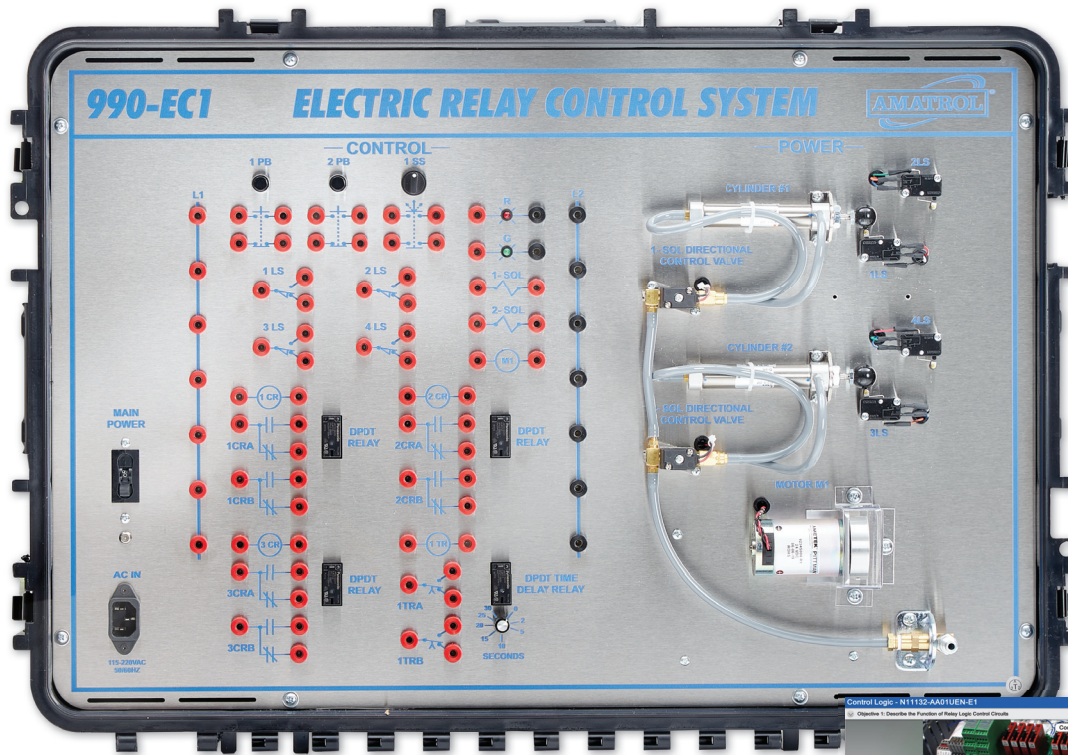
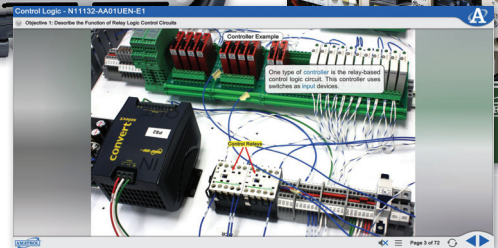
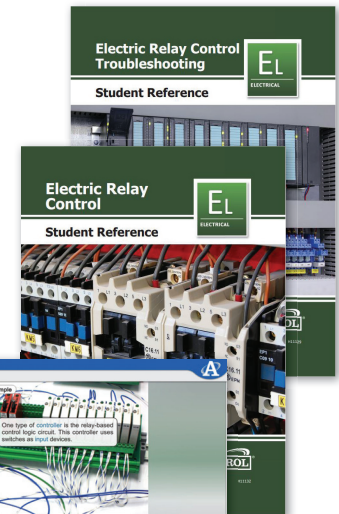


# Portable Electric Relay Control Troubleshooting Learning System 990-EC1F



990-EC1F



Interactive Multimedia Curriculum and Student Reference Guides

## Learning Topics:

- Logic Elements
- Ladder Diagrams
- Electro-Pneumatic Solenoid Valves
- Relay Applications
- Limit Switch Operation
- Time-Delay Relay Applications
- Multiple Cylinder Control
- Machine Modes of Operation
- Troubleshooting Techniques
- Troubleshooting Aids

Amatrol's Portable Electric Relay Control Troubleshooting Training System (990-EC1F) covers concepts widely used in industrial, commercial, and residential applications to regulate electric motors and fluid power actuators, as well methods used for troubleshooting problems in relay control components and systems. This portable learning system offers customers flexibility and convenience when there's a need to use a trainer in multiple locations or where space is too small for a full-size trainer.

Portable Electric Relay Control Troubleshooting includes a relay control panel with pre-mounted electrical control, pneumatic, and electric power components. Learners can use these components to connect electrical terminals to heavy-duty banana jacks to test various automation control circuits. This system also includes a digital multimeter that will be used for troubleshooting concepts and skills. Combined with Amatrol's world-class interactive multimedia curriculum, this innovated product can provide learners with a thorough understanding of electric relay control.



## Technical Data

Complete technical specifications available upon request.

### Portable Console

Directional Control Valves  
Cylinders  
Motor, 24V, 6000 RPM  
Limit Switches  
Pushbuttons

### FaultPro Electronic Troubleshooting System Power Cord, 8-ft.

### Lead Set

### Digital Multimeter

### Interactive Multimedia Curriculum (M11132, M11129)

### Instructor's Guide (C11132, C11129)

### Installation Guide (D11132, D11129)

### Student Reference Guide (H11132, H11129)

### Additional Requirements:

Computer: See Requirements: <http://www.amatrol.com/support/computer-requirements/>

### Additional Recommendations

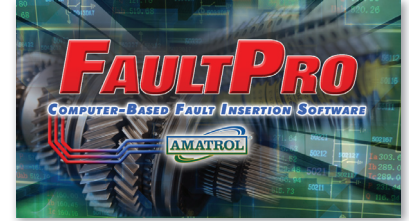
6' Workstation (82-610)

### Utilities:

Electricity: (120VAC/60Hz/1 phase)  
Compressed Air (Regulated 0.5 CFM @ 50 PSIG)

## Real-World Troubleshooting using Electronic Fault Insertion!

Portable electric relay control troubleshooting uses FaultPro, an electronic fault insertion system that is only available from Amatrol, to insert faults into the system for troubleshooting. During the learning process, FaultPro allows learners to insert faults in the system as they progress through the step-by-step procedures learning industrial troubleshooting methods. Then, FaultPro can be set to randomly select and insert a fault to test a learner's troubleshooting abilities and prepare them to solve real-world technical problems once they're in the field. This system allows learners to use a digital multimeter to perform troubleshooting skills like: testing input and output devices, relays, and relay logic circuits.

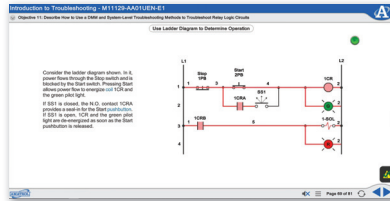


## Training Is as Easy as a Portable Electric Relay Control Troubleshooting System, a Desk, and a Computer

Amatrol offers a full array of electric relay control troubleshooting training in a portable learning system, where learners only need desk space for the trainer and a computer to study this vital industry skill. An electrical relay, most often used as a memory logic element, is the component that makes electrical relay control possible. Learners will study applications of this vital component, as well as the available styles of control relays, the major components, and their ladder diagram symbols.

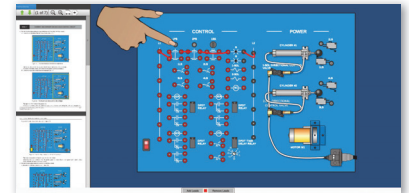
## Engaging Interactive Relay Control Curriculum Covers Logic Elements, Timer Relays, and Much More!

Amatrol offers extensive, thorough multimedia curriculum covering electric relay control basics and troubleshooting such as the six logic elements of control logic and more advanced topics like a timer relay's operation within an unloaded motor start circuit. Learners can then apply this theoretical knowledge to immediate hands-on skills. For example, learners study how multiple cylinders can be controlled by limit switches and then immediately operate a dual cylinder control circuit using two limit switches. This multimedia curriculum is highly engaging and features text, audio voiceovers, 3D animations, videos, and interactive exercises and quizzes.



## Virtual Trainer for Online Relay Control Skill-Building

The Portable Electric Relay Control Troubleshooting Training System also features a virtual multimedia trainer! Amatrol's virtual trainers replicate hands-on equipment in such great detail that learners will feel like they are using the actual equipment. Learners will perform essentially the same tasks using virtual trainers that they would perform using equipment hardware. Transition from theory to hands-on is a seamless process.



## Student Reference Guide

Sample copies of Electric Relay Control and Electric Relay Control Troubleshooting Student Reference Guides are also included with the system for your evaluation. Student Reference Guides supplement this course by providing a condensed, inexpensive reference tool that learners will find invaluable once they finish their training, making it the perfect course takeaway.

