

# HANDS-ON ELECTRICAL TROUBLESHOOTING II

WE IMPROVE WORKPLACE SAFETY & PERFORMANCE

## TRAINING DESCRIPTION:

In this seminar you will learn the functions of: off-delay timers, photoelectric sensors, and alternating relays. Also, while working with motor starters, selector switches, push buttons, control relays, and timers, you will learn how to properly troubleshoot three-phase electric motors.

Compared to Hands-On Electrical Troubleshooting, you can expect to wire, troubleshoot, and repair more challenging electrical circuits. You will build electrical circuits that represent common industrial uses such as tank fill control and duplex-pump control, and then repair them after the instructor has inserted a realistic fault. The instructor will work with you one-on-one to find and fix the problem. You will also learn and apply, through hands-on exercises, how to properly test and troubleshoot three-phase motors.

**This seminar is hands-on** and gives each attendee the opportunity to work with real electrical components while building and troubleshooting from ladder diagrams. If you have already attended Hands-On Electrical Troubleshooting, this seminar will be a nice compliment to the knowledge you have gained. To insure the quality of this program, this seminar has limited seating.

**REMEMBER:** Attendees should bring a multimeter, preferably the one they use on the job, with them for this hands-on training.

## TRAINING TOPICS:

MULTIMETER BASICS  
- Categories and Safety

RELAYS  
- 8-Pin Tube Base ("Ice-Cube")  
- Time Delay On  
- Time Delay Off  
- Alternating

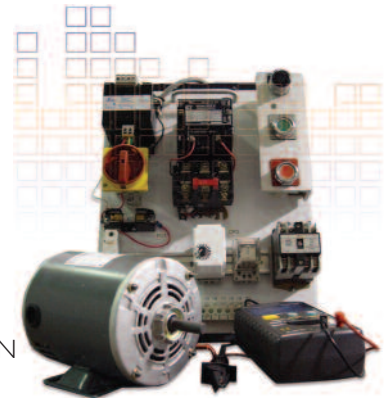
PHOTOCELL OPERATION

TROUBLESHOOTING  
THREE-PHASE MOTORS  
- Common Faults  
- Common Tools

TROUBLESHOOTING TIPS

CIRCUITS  
- 3-Wire Control  
- Permissives  
- Multiple Panels  
- Hoist Control  
- Start Delay  
- Staggered Start  
- Overheat Protection Using Time-Delay Off  
- 3-Wire Control Using Start Relay  
- Hydraulic Ram Control  
- Automatic Duplex Pump Control  
- Two-Speed Motor Control  
- Excessive Cycle Prevention  
- Short Cycle Prevention  
- Circuit Drawing Exercises

CLASS DISCUSSION AND REVIEW



1-DAY  
TRAINING

CLASS SIZE: UP TO 14  
CLASS LENGTH: 6 HOURS  
CLASS NUMBER: S\_E321

**Lewellyn**  
TECHNOLOGY