



# MAINTENANCE TROUBLESHOOTING INTERNATIONAL LLC

VFD-302

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## VFD-302 Level 1 - Introduction to VFDs

This course introduces the world of variable frequency drives and their applications in industrial plants and commercial buildings with plenty of hands-on exercises. Students learn how to improve VFD control and efficiency, fundamentally troubleshoot and fix VFDs, reduce equipment downtime, and minimize chronic VFD problems. The instructor guided information along with hands-on activities allow participants to immediately utilize the newly developed skills. Topic coverage will allow participants to perform installation and wiring tasks, in addition to keypad drive configuration.

Attendees leave this VFD training course with the ability to lower the cost of VFD operation, thus alleviating the need for hiring costly outside service contractors, all while establishing a culture of safe work practices among employees. This class is very much a "learn by doing" exercise with over 40 lab exercises to give the attendee a chance to build a circuit, program it, and then troubleshooting problems associated with it. A very unique approach to VFD learning.



### VFD operation and applications in the workplace

- Benefits of using a VFD
- Using electrical drawings for a VFD application
- The relationship between the motor and the VFD
- Types of VFDs and their various options and capabilities
- Applying VFD technology for your specific needs
- Installation of a VFD
- VFD setup and programming
- Wiring and grounding VFDs
- Controlling VFDs for constant torque or variable torque applications
- Controlling VFDs for optimum performance
- The importance of monitoring your VFD
- Maintenance considerations for a VFD
- Troubleshooting a VFD versus motor problem
- Finding and Fixing the most common VFD problems

### Hands On Assignments

- Lab 1M: Initialize the VFD
- Lab 2M: Controlling motor parameter
- Lab 3M: Activation
- Lab 4M: Accel/Decel time

- Lab 5M: Min/Max frequency
- Lab 6M: Stop mode
- Lab 7M: Reverse disable
- Lab 8M: Preset speeds 1
- Lab 9M: Remote start/stop 3-wire
- Lab 10M: Remote speed control
- Lab 11M: Remote start/stop 2-wire
- Lab 12M: Jog
- Lab 13M: Drive relay contacts
- Lab 14M: Safe torque off
- Lab 15M: Keypad Speed Control
- Lab 16M: Display Amps
- Lab 17M: Display DC Bus Voltage
- Lab 18M: Display RPM
- Lab 19M: Display Drive Heat Sink Temperature
- Lab 20M: Preset Speeds 2 – Selector Switch 2 Speeds
- Lab 21M: Preset Speeds 3 – Selector Switch 3 Speeds
- Lab 22M: Jog Forward-PB
- Lab 23M: Jog Reverse-PB
- Lab 24M: Ramp to Stop
- Lab 25M: Coast to Stop
- Lab 26M: Opto – Blue Light at Frequency
- Lab 27M: Opto – Red Light at Motor Running
- Lab 28M: Opto – Red Light in Reverse
- Lab 29M: Opto – Blue Light on at Run Off at Frequency
- Lab 30M: Opto – Red Light On at Motor Off

- Lab 31M: Opto – Blue Light On at Motor in Forward
- Lab 32M: Relay – Blue Light On at Frequency
- Lab 33M: Relay – Blue Light Off at Frequency
- Lab 34M: Relay – Blue Light On at Motor Running
- Lab 35M: Relay – Blue Light Off at Motor Running
- Lab 36M: Relay - Blue Light On at Reverse
- Lab 37M: Relay - Blue Light Off at Reverse
- Lab 38M: Relay - Blue Light Time Delay On
- Lab 39M: Relay - Blue Light Time Delay OFF
- Lab 40M: Relay - Red Light Pushbutton P Time Delay
- Lab 41: Challenge – Drive Stop with Time

### CLASS FORMATS AVAILABLE

- MTI Hands-On Center \$995/person
- ZOOM Interactive (Not available)
- On-Site (Your Location) Ask for Quote  
Quick Quote Available in 48 hrs.

### CLASS DURATION

2-days, 15 hours of instruction  
85% Hands-On

### FREE BOOKS

Allen Bradley Manual—Powerflex  
Complete LAB Manual

**Class Details:** Each student will receive class books, work activity sheets, self-test progress evaluations, as well as questions from the instructor to make sure they understand the material presented. It is expected that an attendee will leave the class with the basic knowledge of the subject and possess new found skills to better equip them when they return to their job. A certificate suitable for framing will be issued to each attendee who successfully completes the course. Call, email or check the website for the next time this course is scheduled at the MTI training center. On-site sessions? Request a quick 48-hour turnaround quote. Revised: 12/02/2021