

Learning Objectives:

- 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



**A Course for
Maintenance
Technicians.
Reduce Your
Dependence
on Contractors!**

▶ *“Very informative, and I really enjoyed the hands on experience.”*
Ronald P.



Unlock the secrets and dispel the myths of VFDs!

- Reserve your space now! **CALL 1-877-978-7246**
- Check us out online at live.tpctraining.com for a complete listing of all seminars coming to your area
- This seminar is also available as an **Online Simulcast** or can be brought **On-Site** to your facility

SEMINAR OVERVIEW

This two-day hands-on Variable Frequency Drives course introduces the student to the world of variable frequency drives and their applications in industrial plants and commercial buildings. Students will learn how to improve VFD control and efficiency, troubleshoot and fix VFDs, reduce equipment downtime, and eliminate chronic VFD problems. Students will perform hands-on activities with a real-life variable frequency drive. Students will input motor data into the variable frequency drive, set parameters for speed control and overcurrent protection, and check fault codes. Students will complete 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.

WHAT YOU WILL TAKE HOME

- A laminated, full-color TPC Training Reference Guide detailing all the “must-know” information covered in the class. Keep this with you while on the job for immediate knowledge recall.
- Comprehensive classroom materials
- A Personalized Training Certificate with 0.8 TPC Training Continuing Education Units for each day attended, 1.6 for both days.
- All the information you need from asking our instructors specific questions about your own unique equipment or facility.

CONTINUING EDUCATION

Upon completion of this seminar, the student will receive a Certification of Completion and .8 TPC Training CEUs per day attended. Most employers and many government agencies accept TPC Training CEUs to fulfill their continuing education requirements. If the student needs CEUs to renew a state license, please contact us at 303-867-5039 to ensure the state licensing board has approved the seminar. If we are currently not approved by your state licensing board, we are happy to begin the process as long as we receive your request at least one month before the training date.

▶ **“More covered in two days than I thought possible.”**
Michael F - Facilities Operation Specialist

▶ **“Our instructor made the class Outstanding.”**
Tim L. - Senior Electrician

DISCUSSION TOPICS

VFD Safety Review

- Electrical Hazards
- Electrically Safe Work Conditions
- PPE & Insulated Tools

Electrical Basics Review

- Multimeter, Clamp-On, Megohmmeter
- Single Phase and Three Phase Motors
- Motor Troubleshooting and Replacement
- Basic Control Circuits & Troubleshooting

What VFDs Do

- Motion Control / Motor Speed
- Air Flow / Liquid Flow / Pressure Control
- Variable Transmission or Sheave
- Variable Vanes or Dampers on Fans
- Variable Valves on Pumps

Benefits of Using a VFD

- Energy Savings
- Easier Maintenance
- Enhanced System Monitoring

Load Types

- Constant and Variable Torque

VFD Options

- Input / Output Reactors
- Motor Overload Device
- Transient Protection
- Auxiliary Relays
- Power Line Phase Reversal Detection

Installation of a VFD

- Environmental Concerns
- Clearances
- Conduit Entry

Customer Connections

- Safety Circuit
- Start / Stop / Jog
- Status and Fault Indication
- Remote Speed Reference
- Monitoring of Motor Parameters

Wiring & Grounding VFDs

- Induced Signals
- Inductive, Capacitive
- Incoming Power, Motor, and Control Wiring
- Proper Grounding Methods

Controlling a VFD

- Keypad Controls,
- Terminal Strip, Bus Communication, Closed Loop, and Open Loop Control
- Manual and Automatic Operation
- Sensorless Flux Vector
- PI Loop Configuration
- Sensor and Motor Shaft Encoder Feedback

VFD Setup, Programming, & Troubleshooting

- Data, Power, Voltage, References, Speed, Functions, Frequencies, Times, Limits, Modes, Alarms, and Faults

SEMINAR FEE & AGENDA

This 2-day course is just \$1195 (Earn 1.6 CEUs)

7:30 am	Registration
8:00 am	Class Begins
12:00 -1:00 pm	Lunch (on your own)
4:30 pm	Class Ends

NO RISK REGISTRATION & MONEY-BACK GUARANTEE

You can reserve your space in the class at any time and cancel without penalty. Cancellations made more than 14 days prior to the seminar may be refunded or rescheduled. Cancellations made within 14 days may be rescheduled for any future topic and/or date. If you're not satisfied with the course, we'll promptly refund your payment.

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- Two full days of live, interactive instruction from a TPC Training instructor
- All classroom materials in PDF format
- Certificate of completion for 16 hours of live training
- Full technical support to ensure your online experience is a rewarding one

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- Flexibility — Accommodate multiple shifts and different start and end times

