

Learn About:

- Basic pump principles
- What VFDs Do
- Load Types
- VFD Options
- Installation of a VFD
- Customer Connections
- Wiring & Grounding VFDs
- Controlling a VFD
- VFD Setup, Programming and Troubleshooting
- The Electrical Hazards associated with VFDs
- How closed loop control can improve torque
- How encoder feedback provides wider control
- Learn how to control multiple motors from one VFD
- Types of transducers available for different applications
- Learn how Power Quality is impacted by the VFD
- How one source can control multiple VFDs
- Documentation of the parameters to help solve advanced problems
- Learn how preventive maintenance can extend the life of your drive.

Advanced Applications **VARIABLE FREQUENCY DRIVES**



A 2-Day course about drives in an industrial and process control environment

Reserve your space now! **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 2 day seminar is invaluable for technicians needing to know about drives in an industrial and process control environment. We will explore power quality in your facility, remote drive control, advanced communication between multiple drives, compensating for slip, the negative impact on the general duty motor, boosting torque, and how to determine when to skip frequency. After attending this seminar, your VFD skills will be greatly enhanced and will help minimize downtime in your workplace.

WHAT YOU WILL TAKE HOME

- 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.

TRAINING PHILOSOPHY

TPC Training's curriculum is designed to provide complete coverage of essential industrial maintenance skills, across a full range of electrical training, HVAC, plant management, and mechanical & industrial topics. Our "see, touch, do" instructional approach allows us to impart practical skills in an intensive format.

The most vital part of our seminar format is the coverage that goes beyond the course outline. Our small class sizes allow each instructor to tailor the course to address students' individual needs, concerns, and experience levels. Our instructors deliver content with hands-on exercises, demonstrations role-playing, visuals, and case study discussions.

DISCUSSION TOPICS

Electrical Basics Review

What VFDs Do and the Benefits of Using a VFD

Load Types

- Constant and Variable Torque

VFD Options

- Fusing, Reactors, Overload Devices, and Auxiliary Relays

Installation of a VFD

- Environmental Concerns
- Clearances
- Conduit Entry

Customer Connections

- Safety, Start / Stop, and Jog Circuits
- Status and Fault Indication
- Monitoring of Motor Parameters

Wiring & Grounding VFDs

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

Controlling a VFD

- Keypad and Terminal Strip Control
- Bus Communication and Loop Control
- Manual and Automatic Operation

VFD Setup, Programming and Troubleshooting

The Electrical Hazards associated with VFDs

- Osha and NFPA 70E® regulations
- Risk Assessment and Approach distances
- Importance of LOTO (Lockout – Tagout)
- Proper Personal Protective Equipment

How closed loop control can improve torque

- Give positive shaft position indication
- Maintain constant torque
- Function similar to a servo drive

How encoder feedback provides wider control

- More process variables to control drives
- Improved speed regulation and control

Learn how to control multiple motors from one VFD

- Sizing the drive for total current
- External motor overload protection

Learn how Power Quality is impacted by the VFD

- Harmonics in your facility
- Voltage Regulation
- EMI filtering

Documentation

- Startup and Power Quality reports
- Motor and load information
- Documentation of all parameters used

Learn how monthly and annual preventive maintenance can extend the life of your drive.

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.

JOIN OUR CLASSROOM SEMINARS FROM VIRTUALLY ANYWHERE

live.tpctraining.com/simulcast

Our simulcast option allows students to connect to a live classroom seminar via a web link, with the ability to participate fully in the classroom dialogue, exercises, and Q&A. Online participants get all the benefits of the full classroom experience, plus the convenience of remote access.

Features include

- 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

BRING THE TRAINING ON-SITE TO YOUR FACILITY

live.tpctraining.com/on-site

Every public seminar class in our Course Catalog can be conducted on-site, with the same expert instructors. To arrange an on-site training, call or email us at onsite@tpctraining.com.

Some Advantages of On-Site Training

- Cost Savings — Save time and travel costs by keeping workers on-site
- Customized Content — Tailor the seminar to your facility and equipment
- Flexibility — Accommodate multiple shifts and different start and end times

