



MEDIUM & LOW VOLTAGE DRIVES

Hands-On AC Drive Trouble Shooting Seminar

September 24 & 25, 2019

Country Inn & Suites – 3707 NYS 281 Cortland NY 13045

NYS Water & Wastewater Operator Renewal Credits Approved

12-14.5 Contact hours. Contact our office for more information.

Contact us for our upcoming Seminar dates

One of the most common inquiries we get here at EMA Inc. is for training on AC Solid-State Motor Drives. Often it isn't cost effective to have us teach on-site schools for a small number of people.

Here is a VERY cost-effective solution.

Who should attend? ANYONE troubleshooting, maintaining, applying or operating AC variable speed motor drives.

You'll leave this school with a clear & practical understanding of solid-state AC drives, motors and the mechanical/electrical interaction which takes place.

You'll learn to recognize classic drive trouble symptoms and quickly resolve common problems. This seminar could **easily** return your investment with just **one** instance of reduced downtime due to your increased knowledge.

An electronic background will be helpful, but not essential; we'll review the basic electrical laws and component operation you need to know.

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"Theory was ABSOLUTELY great. Opened my eyes on many subjects. Good illustration guide. Great hints and good info."  
- **Borg Warner Automotive**

"Great class covered a lot of eye-opening stuff on safety. Would recommend this class for maintenance line techs to help save line down time. Nuts and bolts type of teacher which is very refreshing from other seminars I have attended before."  
- **Reckitt Benckiser**

"I have attended many seminars, by many manufacturers, never have I seen a more informative and effective class. I learned more in two days than I have learned in week long classes."  
- **Charles Cole Memorial Hospital**

"Excellent overview of drive theory and troubleshooting procedures. Presented in a manner that was easily understood. Should be able to pass these troubleshooting methods to the shift maintenance personnel in a condensed manner." - **Cooper Vision Inc.**

"Very informative class. Practical knowledge taught. Well informed Instructor" - **Los Angeles DWP**

"Excellent information, helped to clarify many theories"  
- **Emerson Power Transmission**

**Contact Rebecca today to reserve your spot!**

**607-756-0424 or [rebeccaz@emainc.net](mailto:rebeccaz@emainc.net)**

**\$695.00 Per attendee**

**Cost covers tuition, class materials, lunch only**

### Cancellation Policy:

EMA reserves the right to cancel a scheduled class at anytime due to low enrollment. In this situation the student will be asked to reschedule, or the tuition cost will be refunded. EMA is not liable for any charges incurred by the customer (i.e. airline, hotel, and rental car) due to cancellation. Payment is required at the time of registration. Cancellation fee for customers: if canceling within 1 week of the scheduled class is 100% of the total.

### ~ DAY ONE ~

#### Safety

#### Drive Application Basics

- Horsepower/Torque
- Load Types
- Typical Applications, Pitfalls and Troubleshooting
- Harmonics and Noise

#### Test Equipment and Measuring Methods

- Component Testing
- Voltage/Current Measuring Methods, Problems and Considerations of Non-sinusoidal Waveforms
- Oscilloscope Basics and Safety Considerations

#### Discrete Components and Typical Circuits Overview

- Passive Components (capacitors, diodes)
- Active Components (transistors, IGBT's etc.) and Associated Circuits
- Inductors, Transformers
- Electrical Laws

### ~DAY TWO~

#### AC Motors

- Construction & Theory of Operation (Induction)
- Connections & Testing
- Maintenance

#### AC Drives

- Construction & Theory of Operation (PWM)
- Braking Types (Dynamic, DC Injection, Line Regenerative)
- Programming
  - User Interface (I/O)
  - Drive, Motor, and Load Data
- Faults & Troubleshooting
- Visual & Test Equipment Diagnosis
- Typical Application Problems
- Maintenance

#### Final Review and Open Question Session.