

The Gearhead's Guide to Machine Electronics

July 6-July 8 Sheraton Boston

BE AT ONE WITH YOUR VOLTMETER

If you're like most plant engineers, you grew up working on cars, taking stuff apart and rebuilding it.

You're a *gearhead* and you're proud of it.

But when it comes to electrical problems, that's a different story – voltmeters are not necessarily your thing. Don't worry, you're not alone and there is something you can do about it.

In one information-packed three-day seminar, we'll teach you the secrets of trouble shooting for electrical problems. Wiring diagrams, voltmeters, amps and resistance – we cover it all and it's really not as complicated as you might think.

What's more, MulteX and this class is not associated with any manufacturer so we don't push any particular products. You'll get the facts – not a sales pitch – and as you'll soon find out, the rewards are enormous.

WHO SHOULD TAKE THE COURSE?

If you're a Plant Engineer we can teach you to diagnose electrical problems quickly and accurately. We can also teach you to understand new equipment being purchased for the factory floor and evaluate its reliability.

Bottom line: You'll become invaluable to your plant's operation.

If you're a Plant Manager, having a better understanding of machine electronics will help you reduce downtime and in turn, improve productivity. You'll also save your company big money because you won't have to bring in outside help to fix the problem.

Bottom line: you come out looking like a hero.

HANDS-ON TRAINING

We start you off with an explanation of basic electricity: voltage, amperage and resistance. From these fundamentals we gradually build, using lots of hands-on training, *and in three days you'll actually be able to fix 80% of the electrical problems that you're ever likely to find.*

You can never understand anything better than when you build it yourself so in the class you will build your own products including:

- a stepper motor controller
- an encoder
- a stepper motor controller and encoder combined to make a servo system

You work on a bench top system with just one or two other people. Each system is different for each group in the class and because of the limited class size you'll get

- How the tri-state concept works: (+), (-) and no connection.
- What is the floating inputs/floating ground concept
- What is the purpose of calibration and how do you implement a calibration routine
- What is PID and how does it help to control a process
- How to understand rotary, linear, absolute and incremental encoders

BLOCK UNDERSTANDING

There is such a thing as information overload. Take the case of a light bulb: To troubleshoot a lightbulb, it's not important that you know absolutely everything that goes on inside. All you need to know is that if you provide 120 VAC the light goes on. This is called Block Understanding and it's a very successful technique we utilize in our seminars. We'll teach you what you need to know to troubleshoot without burying you in information.

TAILORED TO YOU

We also want to make the course as relevant to your work experience as we possibly can. Prior to attending the seminar we will send you an information sheet to fill out so that we can be sure to address your particular needs. Bring in your wiring diagrams or any specific problems you may be having and we'll address them in class. You can tell us what brands of electronic products you use and we will tailor the class to your needs.

YOUR INSTRUCTOR: GARY MULTER

This class is taught by Gary Multer. Gary was granted a Bachelors degree in engineering from Northeastern University in 1980. After school Gary was employed to work on factory automation for global corporations and small companies including: Honeywell, Digital Equipment Corporation, Best Foods, and Power General. In 1992 Gary founded MulteX Automation to build custom factory equipment and perform troubleshooting and repairs on equipment built by others. While troubleshooting equipment along side factory technicians and engineers, Gary would explain the concepts and what he was doing. This led to frequent requests for training and ultimately, this course: *The Gearhead's Guide to Electronics.*

Gary's writings have been published in a variety of

