



## Ron Beaufort Training, LLC

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## Hands-On Technical Workshops

by Ron Beaufort

### Offers for PLC Instructors

**Suppose there's a better way of teaching ladder logic. Would you want to know about it?**

Most instructors teach the concepts of ladder logic programming in much the same way - by using analogies such as "switches" and "coils" for the PLC's basic instructions. These clumsy teaching methods have been around since PLCs were first introduced. They were originally intended to "simplify" the subject and make the concepts easier for maintenance electricians to understand.

Here are just a few very common examples:

- An XIC (Examine if Closed) examines a switch for an ON condition.
- An XIO (Examine if Open) examines a switch for an OFF condition.
- An OTE (Output Energize) controls an output.
- Green on the screen means TRUE.

The good news about these common "rules" is that they tend to work quite well in "beginner-level" classroom situations. The bad news is that they do NOT work all of the time. Worst of all, the times when they fail to work are precisely when they are needed most - while troubleshooting or debugging a malfunctioning system.

Misconceptions like those we've listed above have been passed down from one technician to another over the years. In fact, these erroneous "rules" have become so commonly accepted that many instructors are actually teaching them in their PLC classes. If you're one of those instructors, we're offering to share the simple 1-2-3 step method of ladder logic analysis that we teach in all of our PLC Boot Camp classes. Just give us a call and let's talk for a few minutes.

The methods that we use are actually simpler to learn - and easier to remember - than any of the common analogies. More importantly, they always work. They're based on the nuts-and-bolts operation of what actually goes on during the PLC processor's scan cycle. As complicated as that sounds, it only takes a few minutes to explain - and many students have it totally mastered before lunchtime on the first day of our classes. In fact, the students who have the most difficulty are usually the more experienced ones - the students who just can't help reverting back to those same old clumsy misconceptions that they've always followed. But even these students eventually come around though - as one hands-on exercise after another conclusively proves that what we're teaching always works - and that their old methods often fail.

Picture this common occurrence from our PLC Boot Camp classes. Using a series of hands-on exercises, the instructor teaches our simple step-by-step method of analyzing the ladder logic program. The students practice the steps. Then a little later in the class the students begin working through a hands-on troubleshooting exercise. During the classroom discussion, our instructor "explains" the concepts involved - but he intentionally throws in some of those common "old school" misconceptions as part of the dialog. At first glance this seems to be a highly confusing way to conduct a training session. Actually it works extremely well - because being the first to recognize the instructor's "mistakes" becomes a competition which the students fully enjoy. Not only does this approach keep the students alert, it's also highly effective at building their self-confidence. Of course "correcting" the instructor is only possible when the students truly understand the material. The "Comments from Students" and "Comments on Forums" pages of our website show just how well our PLC Boot Camp training methods work.

Now back to our offer. If you're an instructor who teaches PLC classes at the high-school, technical college, or university level, we're willing to share the "secret handshake" with you. Just give us a call and have pencil and paper handy. A ten minute phone call might change the way you look at - and teach - PLC concepts forever. And if you want to go beyond a free ten-minute introduction, we're available for consultation.

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