Telephone: 01536 409666
Email: info@plctraining.co.uk
Website: https://www.plc-training.co.uk

Schneider M221 EcoStruxture Basic

Software: EcoStruxture Basic
PLC Type: Schneider M221
Duration: 3
Pre-requisites: None
Maximum Delegates: 6

Brief Description

- To understand exactly how a PLC works
- To understand basic PLC concepts
- Be able to troubleshoot a M221 PLC systems in a competent and confident manner
- Be able to understand M221 PLC hardware configuration and be able to add or replace modules when a fault occurs.
- Understand Basics and be able to troubleshoot EtherNet Network
- Be able to operate the Schneider software to make it perform common tasks.
- Understand basic instruction set and be able to make minor modifications to software.
- Be able to backup and restore a PLC program when required.
- Be able to perform basic system diagnostics when a problem occurs.
- Be able to understand and back track through a simple programs

Course Content

To fault find a system you need to know EXACTLY how it works
HOW EXACTLY DOES A PLC WORK?

- Am I getting the input to the PLC?
- The Led on the output card means i am getting voltage out right? does it?
- What exactly happens in between? theres more than just a program in the CPU
- How exactly does it scan the program?
- What is this Watchdog Timer? Is it that important?
- Can I use the same output twice? That’s bad programming isn’t it?
- A PLC is a logic controller, so use a logical approach to fault find it.
- What are the 8 simple test points to check?
- The PLC is in RUN, that means theres a program right? does it?
- FORCING a bit and toggling a bit is pretty much the same yeah? depends on which PLC

Then you need to know the specifics

HOW DO I DO THE FOLLOWING? (some straight forward some not so)

- Check power is ON and PLC is in right mode (RUN or Program)
- Check LEDs for fault definition (what exactly does the LED tell me)
- Check and Change Modules if required (with spares and without spares)
- Removing modules with power ON (will I blow anything up)
- Basics of EtherNet, IP addresses, Subnet Mask
- Configure drivers to establish link to PLC
- Link to CPU via Ethernet
- Checking Ethernet connections using PING instruction (very useful)
- Create a blank project and take a backup (just in case I mess up)
- Open the correct project Off Line and link to PLC
- Interrogate errors in Controller Properties, common faults
- Identify if it is a hardware or software fault?
- Identify if it is a PLC or Comms fault
- Access fault information about I/O cards
- Change the battery, (with power ON of course)
- Check all settings against a template, Node Address etc.
- Check Hardware Configuration, I/O errors
- Clear Memory and Download program
- Monitor program
- Is it Latched or Unlatched I’m never quite sure?
- Altering values in Tag tables
- Back tracking through a program to establish where power flow stops
- Searching for specific operands and instructions
- Changing timer, counter values On Line
- Making minor mods Off Line and On line
- Create a Trend to trend address status or values
- Altering timer, counter and other values if required
- Force a parameter if required
- Toggling addresses to move program on in sequence
- Call up documentation to assist with software diagnostics
- Printing Cross Reference / Program Listings etc.

Background information also covered

Understanding of the following:

- Number formats, bits,words,double words
- Binary, Real, Integer, DINT
- Basic Ethernet Communications
- Network Basics
- Setting up a simple Ethernet network
- Tasks, Programs and Routines
- How to monitor various blocks
- Understand basic Ladder programs
- Basic Instructions, contacts, SET, RESET etc.
- Timers, Counters

- Comparators, Maths
- Fault finding tips

Course Equipment (per delegate)

- M221 PLC
- Laptop
- Simulator