Mitsubishi FX, A and Q Series PLC Level 1

Software	IEC GX Developer
Duration	5 Days
PLC-Type	Mitsubsihi Q Series PLC
Pre-Requisites	No prerequisites this is a beginners course
Maximum Delegates	6

Brief Description

* Be able to recognise Mitsubishi FX , A and Q Series hardware and be able to locate and cure most faults that occur.
* Be able to operate the IEC GX Developer software to make it perform certain tasks.
* Understand basic FX, A and Q Series 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.

Course Documentation

* Training Log
* Pre Course Exercises
* Course Exercises
* Post Course Exercises
* Beginners guide to IEC GX Developer

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)

* How do I check power is ON and PLC is in right mode (RUN or Program)
* Check for a fault condition
* Establish a link between PC and PLC (can be a major issue nowadays)
* If comms problem check interface

* Create a blank project and take a backup (just in case I mess up)
* Open project for PLC and go OnLine
* Interrogate Diagnostics
* Identify if it is a hardware or software fault?
* Change the battery
* Change modules if necessary, (with spares and without spares)
* Identify if it is a PLC or Comms fault
* Check all settings against a template etc.
* Check Hardware (What voltage should be where)
* Clear Memory and Download program
* Check software against latest copy
* Monitor program effectively
* Searching for specific operands and instructions
* Changing timer, counter values On Line
* Making minor mods Off Line and On line
* Check or create a monitor table to establish parameter status
* Force a parameter if required
* Call up reference data to assist with software diagnostics
* Display Documentation (Symbols, Comments)
* Reassign an I/O address and change software addresses
* Printing Cross Reference / Program Listings etc. Background information also covered

Understanding of the following:

* Number formats, bits, bytes, words, double words
* Binary, HEX,octal,floating point, integer
* Data types and parameter types, Bool etc.
* On Line and Off Line modes
* Basic Instructions, contacts, Set, reset etc.
* Timers, Counters
* Comparators, Maths
* How to make minor mods
* Altering values in a monitor table
* Using Device Monitor function
* Using Force function
* Back tracking through a program to establish where power flow stops
* Reset procedure
* Fault finding tips

Equipment

* FX, A or Q series PLC
* PC or Laptop
* Simulator

Solutions, Not Courses.