

## [Mitsubishi FX, A and Q Series PLC Level 1](#)

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<b>Software</b>	GX Developer
<b>Duration</b>	5 Days
<b>PLC-Type</b>	Mitsubishi Q Series PLC
<b>Pre-Requisites</b>	No prerequisites this is a beginners course
<b>Maximum Delegates</b>	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 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

- \* Filofax Pocket Reference Guides

### 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?

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- \* 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 required

## 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.*