

[Siemens S5 100/115 PLC Level 1](#)

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<b>Software</b>	DOS Based Step 5
<b>Duration</b>	5 Days
<b>PLC-Type</b>	Siemens S5 100/115 PLC
<b>Pre-Requisites</b>	No prerequisites this is a beginners course
<b>Maximum Delegates</b>	6

### Brief Description

- \* Be able to recognise S5 hardware and be able to replace modules when a fault occurs.
- \* Be able to operate the Step-5 software to make it perform certain tasks.
- \* Understand basic S5 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
- \* 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 to the PLC (project settings)
- \* If comms problem check PG/PC interface
- \* Create a blank project and take a backup (just in case I mess up)
- \* Open project for PLC and go OnLine

- \* Interrogate I Stack and B stack
- \* 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
- \* Clear Memory and Download program
- \* Check software against latest copy (Compare function)
- \* Monitor program
- \* Searching for specific operands and instructions
- \* Changing timer, counter values On Line
- \* Making minor mods Off Line and On line
- \* Check or create a status table to establish parameter status
- \* Force a parameter if required
- \* Use Xreference to assist with software diagnostics
- \* Upload and Download project
- \* Display Documentation (Symbols, Comments)
- \* Reassign an I/O address and change software addresses (Rewire Function)
- \* Printing Cross Reference / Program Listings etc. Background information also covered

## Understanding of the following:

- \* Introduction to MS-DOS
- \* Siemens DOS Files (ST.S5D, PX.INI) etc
- \* Number formats, bits, bytes, words, double words
- \* Binary, HEX, octal, floating point, integer
- \* Data types and parameter types, Bool etc.
- \* I/O Addressing
- \* Block types
- \* Program Structure
- \* Variable types (local and global)
- \* How to monitor various blocks (OB, PB, FB, DB etc.) (FBs in particular)
- \* Ladder, STL, FBD programs
- \* Basic Instructions, contacts, Set, reset etc.
- \* Timers, Counters
- \* Comparators, Maths
- \* How to make minor mods
- \* Altering values in a status variable table
- \* Back tracking through a program to establish where power flow stops
- \* Overall reset procedure
- \* Fault finding tips

## Equipment

- \* S5 PLC
- \* PC or Laptop
- \* Simulator

*Solutions, Not Courses.*