S7 PLCs - Level 1

TheAutomationSchool.com

Learn how to setup, configure, and program the **Siemens S7-1200 and S7-1500** families of Programmable Logic Controllers in S7 PLCs - Level 1

Level 1 Lesson Topics:

Hardware
- Vital S7 Manuals and Documents
- S7-1500 Overview
- S7-1500 Details
- S7-1500 Tour
- S7-1200 Overview
- S7-1200 Details
- S7-1200 Tour
- Distributed IO
- Component Selection

Memory, Data, Software
- CPU Memory
- Data Blocks, Types, Tags
- Programs, Modes, Execution
- TIA Portal 21 Day Trial
- Automation License Manager
- Remaining Trial Days
- Intro to Using TIA Portal
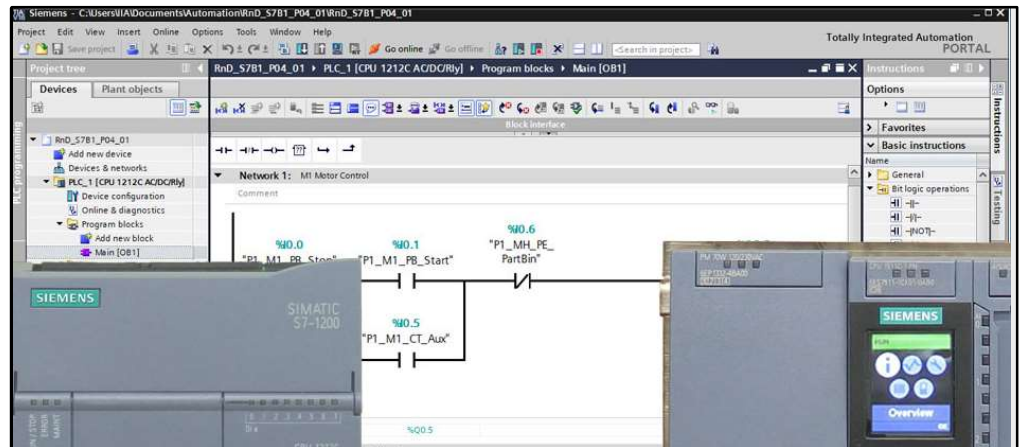
Communications, Setup, Test
- Identify CPU Model, IP Address, Firmware
- Download and Update CPU Firmware
- Reset CPU Memory
- Resetting to Factory Defaults
- Add, Test, and Force S7-1500 IO
- Add, Test, and Force S7-1200 IO

Programming
- IEC-61131, First Program Details
- Create, Load, Test First Program
- Load and Test First Program with PLCSim
- Boolean Logic, Transition, Latch
- Set, Reset, Edge Detection, Toggle
- First Scan, Clock Bits
- Motor Control, Permissives
- IEC 61131-3 Timers
- TON On Delay, TON Extra Credit
- TOF Off Delay
- TONR Time Accumulator
- Memory Reserve, HMI Start, Etc.
- Counters, Count Up
- Count Down, Count Up Down
- PLC Time, Program Control
- Program: Automatic Mode, Test/Debug
- Program: Maintenance Mode, Test/Debug
- Moving Data & User Data Types
- Math and Comparisons

Bonus Videos
- Bonus 01: SIOS Online Support Interview
- Bonus 02: S7-1200 Prod. Manager Interview
- Bonus 03: S7-1500 Prod. Manager Interview
- Bonus 04: DIO Prod. Manager Interview
- Bonus 05: TIA Portal v17 Interview
- Bonus 06: V17 View of Things Interview
- Bonus 07: PROFINET Interview
- And several more bonus videos

S7 PLCs - Level 1 is designed for those students who have some familiar with PLCs, and would like to learn how to setup, program, and troubleshoot the Siemens S7-1200 and S7-1500 family of Programmable Logic Controllers (PLCs) using TIA Portal Step 7.

What students will learn:

- Understanding the overall design of the S7-1200 and S7-1500 system
- TIA Portal license options, including the free 21 day trial, 1 year, and perpetual
- How to connect with PROFINET and change system settings
- How to configure the CPU and flash its firmware
- How to add, edit, test, and force S7-1200 and S7-1500 Signal modules
- Understanding CPU Memory and Data Block Types
- How to setup, configure, and edit Step 7 Projects in TIA Portal
- How to create, download programs to S7-1200, S7-1500, and PLCSim
- Using and troubleshooting Boolean, Transition, and Latching Logic
- Using and troubleshooting Set/Reset, Edge Detection, and Toggle logic
- Using the First Scan and Clock Bits
- Motor Control, Presence Sensing, and Permissives
- Using Timers and Counters in common applications
- Memory Reserve, PLC Time, and Program Control
- Create, Test, and Debug automatic mode logic, maintenance mode logic
- Handling Data, using Math and Comparisons
- Bonus: Eight interviews with Siemens experts on S7 Topics

What students need to complete hands-on exercises:

- Windows 10 PC with Ethernet and an internet connection
- An S7-1200 or S7-1500 PLC, or PLCSim
- A licensed copy of TIA Portal Step 7 that is compatible with the student's PC and PLC, or
- Free 21 Day Trial of TIA Portal Step 7 with PLCSim

Course Editions (Note: Online courses include instructor support, completion certificate, and lifetime access for a single user)

- **TAS-S7C-O**   Siemens S7 PLCs – Level 1 Online Course (S7-1200 & S7-1500 covered)   **$199**$^{.99}$