

Programmable Logic Control



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Programmable Logic Control

An Integral Component of Automation Engineering

New focal points in training and education reflect new skills and qualifications in the disciplines of process control technology, electro-mechanics, electronics and computer-assisted control systems (PLC). The basics of PLC technology as well as how it works are graphically demonstrated using examples, explanatory texts and practical exercises.



Multidisciplinary applications

Nowadays, programmable logic control systems are an integral part of automation engineering. They are used, for example, to control automated processes in the machine industry, for transport and conveyor belts, process engineering, drive systems and in manufacturing plants.



Time to provide individual support

Basic topics are taught using the UniTrain "Automation Engineering" program. The self-study aspect of the courses means instructors have more time to provide personal attention to individual students or small groups. With the UniTrain PLC control system, students get hands-on training using realistic control tasks and assignments in line with industry standards.



Training systems

The training systems focus on conveying basic knowledge and information on programmable logic control (PLC) and demonstrate how such systems are networked with sensors and actuators. The fundamentals and operation of PLC systems are graphically explored using a multitude of examples, explanations, exercises and practical assignments:

- UniTrain PLC and bus technology
- Programmable logic controls with SIMATIC S7-300



Programmable Logic Control with SIMATIC S7-300

Fully Configured Basic Equipment Sets

In addition to the recommended basic set, all of the CPUs in the 300 series are available as fully configured units. To implement automation assignments comparable to those actually used in industry, the STEP 7 software package is employed. The system features object-oriented programming of automation units in line with the IEC 1131-1 standard. Editors are also available for the languages LD (Ladder Diagram), FBD (Function Block Diagram), IL (Instruction List), ST (Structured Text, designated Structured Control Language, SCL, in STEP 7) in addition to the GRAPH tool (for Sequential Function Chart programming) plus tools for software testing and hardware configuration.



Training contents

- Design and project configuration for a PLC
- Creating assignment lists
- Programming in accordance with IEC 1131-1 (IL, LD, FBD, ST/SCL, GRAPH) using STEP 7
- Programming of binary and word operations
- Programming of counters and timers, comparison and arithmetic functions
- Program structure, calling subroutines
- Commissioning, testing and fault finding on an automation system
- Diagnostic functions
- Documentation and archiving

Programmable Logic Control (PLC) Training System

The Training System at a Glance

The basic apparatus is equipped with a SIMATIC S7-1200, a KTP700 touch panel and a power supply. It therefore makes for a self-contained, compact and extensible training system. The KTP700 touch panel has an Ethernet port for communication and programming. All equipment can be networked easily using a 4-way Ethernet switch.



Your benefits

- SIMATIC S7-1200 with 1214C DC/DC/DC CPU
- Robust console housing with non-slip feet
- Built-in power supply: 24 V/5 A DC
- Sockets for emergency stop/shut-down circuit (cuts off the voltage to the output modules)
- Built-in touch panel
- 4-way Ethernet switch for networking PLC and touch panel
- 9-pin and 25-pin sockets for direct analysis of mechatronics systems

Programmable Logic Control (PLC) Training System

Training System for 1500-Series Control Units

Training system for PLC equipment from the SIMATIC S7-1500 range. The profile rail is universally accessible and is equipped with input and output modules from the SIMATIC S7-1500 range. The 4 digital input and output bytes are distributed in such a way that 2 bytes of each are accessed via 4-mm sockets as well as via 9-pin, 25-pin and 37-pin plug/socket connectors.



Your benefits

- 16 Digital inputs, 24 V DC, via 4-mm safety sockets
- 16 Latching switches for simulating digital inputs
- 16 Digital outputs, 24 V DC, via 4-mm safety sockets
- 16 Digital inputs, 24 V DC, via 9-pin, 25-pin and 37-pin system plugs
- 16 Digital outputs, 24 V DC, via 9-pin, 25-pin and 37-pin system plugs
- 8 Analog inputs, -10 V ... +10 V, and 0 ... 20 mA
- 4 Analog outputs, selectable between -10 V ... +10 V or 0...20 mA
- 1 Analog output, adjustable from -10 V to +10 V via potentiometer
- 1 Analog output, adjustable from 0 to 20 mA via potentiometer
- 9-pin and 25-pin sockets for direct control of mechatronics systems
- 37-pin plug and 37-pin socket

Automation Visualisation

Using the KTP700 and TP700 touch panels, whole applications can be depicted or merely their signals. Controlling mechanisms like push-buttons or switches complete the requirements needed for control operations and monitoring.



Your benefits

- Programming is carried out via the included visualization software, WinCC Advanced
- Full-graphic colour display (16 million colours)
- 7" touch screen
- Resolution: 800 x 480 pixels
- Ports MPI, PROFIBUS DP, PROFINET I/O, USB
- Display of fault and operating messages
- Formula management
- Large viewing angle
- Dimmable LED background lighting, adjustable between 0 and 100 %