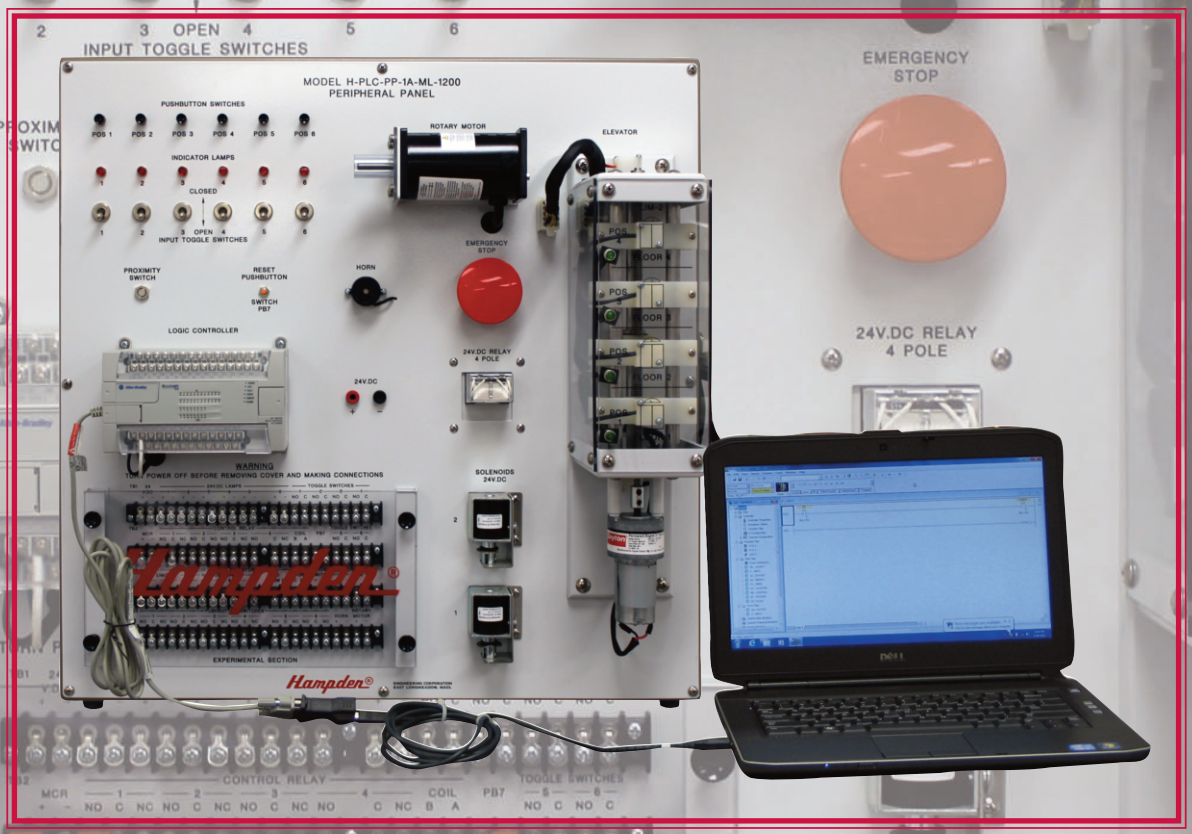
PROGRAMMABLE LOGIC CONTROLS



Hampden®
ENGINEERING CORPORATION

ISO 9001:2015

MADE IN U.S.A.

PROGRAMMABLE LOGIC CONTROLS

The Hampden MODEL H-PLC-PP-1A Peripheral Panel

contains a variety of I/O components all brought to terminal strips which connect to PLC's via provided interface cables

H-PLC-PP-1A-ML-1200

H-PLC-PP-1A-S7-1200

Introduction to Programmable Logic Controllers
Textbook and Answer Key
by Mazur, and Weindorf

Explains, illustrates, and guides the reader through real life (not just theory) PLC situations that you may encounter in the industry.

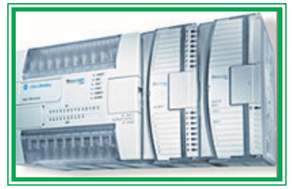
Introduction to Programmable Logic Controllers Applications
Manual and Answer Key
by Mazur, and Weindorf

As a study guide, this book enables practicing professionals to refresh their memories and sharpen their skills in traditional and cutting-edge PLC technologies.

PLC Options

ML-1200 MicroLogix 1200 Controller

The ML-1200 MicroLogix 1200 Controller is filled with features and options designed to handle an extensive range of applications with high-powered embedded I/O plus the ability to add expansion I/O if needed. This field-upgradable flash operating system allows your controller to be upgraded as new functionality is developed.

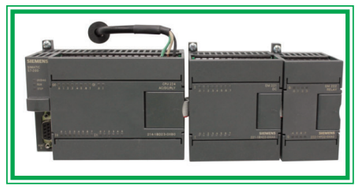


CompactLogix Programmable Automation Controllers

CompactLogix controllers take full advantage of the power and flexibility of Compact I/O rackless I/O modules offering superior functionality.

MicroLogix 1100 System

With online editing and a built-in 10/100 Mbps EtherNet/IP port for peer-to-peer messaging, the MicroLogix 1100 controller adds greater connectivity and application coverage to the MicroLogix family of Allen-Bradley controllers. This next generation controller's built-in LCD screen displays controller status, I/O status, and simple operator messages.



S7-1200 Simatic Siemens

The S7-1200 series is a line of micro-programmable logic controllers that can control a variety of automation applications. Compact design, low cost, and a powerful instruction set make the S7-1200 a perfect solution for controlling small applications. The wide variety of S7-1200 models and the Windows-based programming tool give you the flexibility you need to solve your automation problems.

Hampden Engineering Corporation

REAL WORLD TECHNOLOGY IN THE CLASSROOM

▼ Courseware Overview

Programmable Logic Controllers (PLCs)
- Define what a programmable logic controller (PLC) is and list its advantages over relay systems.
- Identify the main parts of a PLC and describe their functions.
- Outline the basic sequence of operation for a PLC.
- Identify the general classifications of PLCs according to the number of inputs and outputs and the size of memory.

PLC Hardware Components
- List and describe the function of the hardware components used in PLC systems.
- Describe the basic circuitry and applications for discrete and analog I/O modules, and interpret typical I/O and CPU specifications.

Number Systems and Codes
- Define the decimal, binary, octal, and hexadecimal numbering systems and be able to convert from one numbering or coding system to another.
- Explain the BCD and Gray code systems
- Define the terms bit, byte, word, least significant bit (LSB) and most significant bit (MSB) as they apply to binary memory locations.
- Describe the purpose of the encoder and decoder integrated-circuits (IC).

Fundamentals of Logic
- Describe the binary concept and the functions of gates.
- Draw the logic symbol, construct a truth table, and state the Boolean equation for the AND, OR, and NOT functions.
- Construct circuits from Boolean expressions and drive Boolean equations for given logic circuits.
- Convert relay ladder diagrams to logic ladder diagrams.

Basics of PLC Programming
- Define and identify the functions of a PLC memory map.
- Describe input and output image tables and a typical PLC program scan sequence.
- Understand how ladder diagram language and Boolean language are used to communicate information to the PLC.
- Define and identify the function of internal relay instructions.
- Identify the common operating modes found in PLCs.

Developing Fundamental PLC Wiring Diagrams & Ladder Programs
- Identify the functions of electromagnetic control relays.
- Identify switches commonly found in PLCs.
- Describe the operation of an electromagnetic latching relay and the PLC-programmed LATCH/UNLATCH instruction.
- Compare sequential and combination control process.
- Convert fundamental relay ladder diagrams to PLC logic ladder programs.

Programming Timers
- Describe the operation of pneumatic on-delay and off-delay timers.
- Describe PLC timer instruction and differentiate between a non-retentive and retentive timer.
- Convert fundamental timer relay schematic diagrams to PLC logic ladder programs.
- Analyze and interpret typical PLC timer logic ladder programs.

Programming Counters
- List and describe the functions of PLC counter instructions.
- Describe the operating principle of a transitional, or one-shot, contact.
- Analyze and interpret typical PLC counter logic ladder programs.

Program Control Instructions
- Identify and list override and jump instructions.
- Describe the function of immediate input and output instructions function.
- Describe the forcing capability of the PLC.
- Describe safety considerations built into PLCs and programmed into a PLC installation.

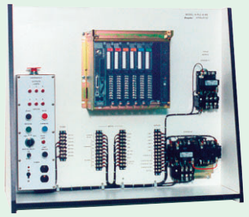
Data Manipulation Instructions
- Define data manipulation and apply it by writing a PLC program.
- Interpret data transfer and data compare instructions as they apply to a PLC program.
- Compare the operation of discrete I/Os with that of multi-bit and analog types.
- Describe the basic operation of a closed-loop control system.

Math Instructions
- Analyze and interpret math instructions as they apply to a PLC program.
- Create PLC programs involving math instructions.
- Analyze and interpret logic ladder programs.

H-PLC-5-AB Programmable Logic Control Trainer

The **MODEL H-PLC-5-AB** Programmable Logic Control Trainer combines state-of-the-art Allen-Bradley PLC-5 controllers mounted in a 1771 Universal I/O chassis, mounted on a **MODEL H-PLC-PPA** A-Frame Controller Board. Accessory devices surround the PLC, enabling the student to perform complete closed loop analysis without having to interface to any additional outside components.

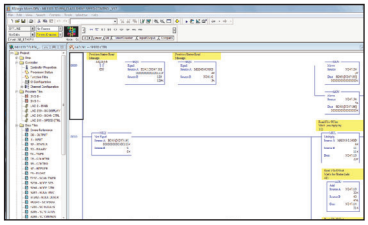
H-PLC-5-RS-LOGIC Advanced Programming RS-Logix Software option with UIC Interface and Programmer Cable allows ladder programs to be created and edited with a computer. Requires an PC computer (computer not included).



Standard Products…Designed to Meet Your Growing Needs!

PROGRAMMABLE LOGIC CONTROLS

H-RS-LOGIX-MICRO



The **MODEL H-RS-LOGIX-MICRO** software package for sequential, process, drive, and motion control programming.

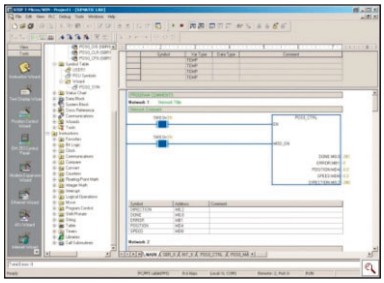
This package environment offers an easy-to-use, compliant interface, symbolic programming with structures and arrays, and a comprehensive instruction set that serves many types of applications. It supports relay ladder, structured text, function block diagram, and sequential function chart editors for you to develop application programs.

RSLogix Micro programming software allows you to create, modify and monitor application programs for the Allen-Bradley MicroLogix family of controllers. Designed with features to help save time and increase productivity, RSLogix Micro helps maximize performance, save project development time, and reduce the total cost of ownership of your system.

H-S7-Micro/Win V4.0 Simatic Siemens

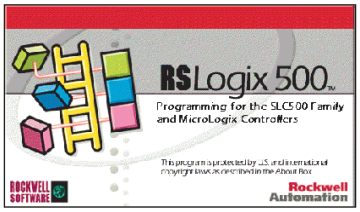
The **MODEL H-S7-Micro/WIN** lets you save time and money in programming. This software package can be handled like a standard Windows application and includes all necessary tools for convenient programming of the SIMATIC S7-200: from the high-performance SIMATIC instruction set to IEC 1131-compliant programming and all the way to trend charts and wizards.

The latest version, STEP7-Micro/WIN 4.0, which is compatible with Win2000, Windows XP and higher operating systems, offers even more: segmented data memory, improved handling of the program and command structures, diagnostic functions as well as a user-specific LED, error history, runtime edit, and online-download.



H-RS-LOGIX

Ladder Logic Programming



Provides the resources to program the AB programmable Logic Controllers. This CD combines powerful functionality and superior diagnostics. It incorporates the latest technologies to help you maximize performance and save time – an unbeatable productivity tool.

Drag & Drop Editing – Simply click, drag and drop to place instructions on any number of desired rungs. A powerful ASCII editor is also included.

Edit multiple rungs simultaneously using the **Program Editor** and correct program errors quickly and easily with the included **Project Verifier** utility.

H-RS-VIEW 32

Visual Graphics

Development System

Animate data values, bargraphs, vessel fills and color change etc.

Embedded Trend Animation – Trend up to 16 process variables per animation.

Visual Action/Reaction System – Link actions together in logical expressions to trigger one or more reactions. Alarming, product interaction, download values and displays are operated through this system.

Alarming System – Integrated into Visual Action/Reaction System.

Product Interaction – Includes methods of interacting with other applications.

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