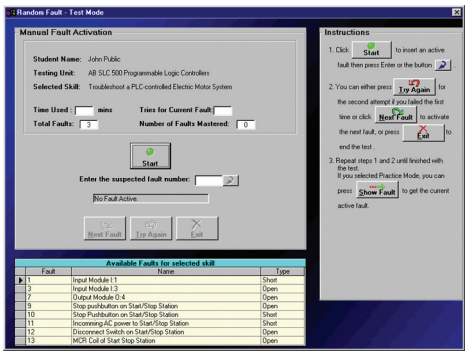
PLC TROUBLESHOOTING LEARNING SYSTEM 890-PEC-B

Application showing 890-PEC-B



Programmable logic controller (PLC) troubleshooting skills are in high demand. Amatrol's 890-PEC-B PLC Troubleshooting Learning System teaches these valuable skills like no other product with a hands-on learning station that models real world PLC-controlled machines where a wide array of faults that can be inserted into the system. A unique computerized fault insertion system safely inserts faults automatically and tracks student progress.

CURRICULUM IS THE KEY TO LEARNING

Learning Topics:

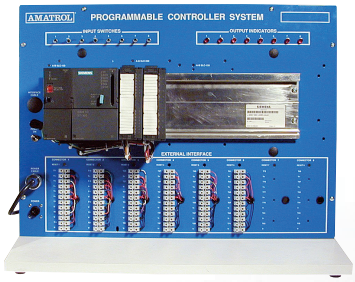
- PLC Operation
- PLC Programming
- PLC Troubleshooting
- PLC Interfacing
- PLC Applications
- PLC Program Editing
- Discrete I/O
- Counters/ Timer Instructions
- BCD/LED Instructions
- Program Control Instructions
- Math Instructions
- Block Transfer

The 890-PEC-B offers a variety of interchangeable application stations having live components to demonstrate student programs with real applications that make the troubleshooting process realistic. The 890 is also compatible with a variety of PLC brands and models, which can be easily interchanged to provide a multi-vendor learning platform.

Amatrol's PLC Troubleshooting Learning System includes a mobile workstation with PLC mounting console, power supply, start/stop station, application station console, computerized fault insertion system, student learning materials for both theory and lab, and teacher's guide. Students will learn industry-relevant skills including how to operate, interface, program, and troubleshoot PLC systems for a variety of applications.

DESIGNED FOR LEARNING

Multi-Vendor Learning Platform - The 890-PEC-B supports multiple PLC brands and models so students can receive a comprehensive learning experience that will better prepare them for the many brands and models they will encounter in industry. The 890's PLC mounting console and I/O connections are designed to allow PLCs to be exchanged in minutes so multiple PLCs can even be taught within one class session. The 890 is compatible with Allen-Bradley SLC500, PLC5, Control Logix; Siemens S7; Modicon 984, and Quantum. The user or Amatrol can supply the PLC.

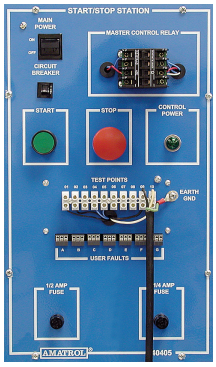


Siemens S7 PLC

Quick Release Application Stations

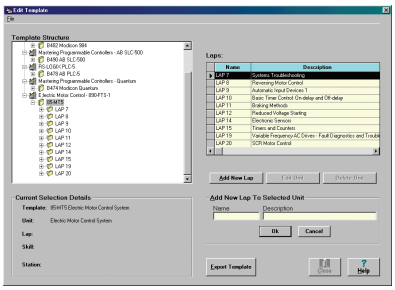
Interchangeable Application Stations - The 890-PEC-B features a modular system with interchangeable application stations, so students can quickly set up different types of PLC applications with live components. Each application station attaches to the application console with quick release connectors. Panels not in use store conveniently under the workstation. Five application stations are required to support the basic student curriculum. Advanced application stations can be added to support development of advanced PLC skills.

Real World Machine Conditions - The 890 enhances learning by providing a learning system that is set up like a real machine. The start / stop station supplies separate power to the PLC processor and I/O. A holding relay circuit controls I/O power, just like students will see on the job! Troubleshooting is performed at terminal strips and two application station positions are available to replicate the manual and automatic components on a typical machine.



Industrial Start/Stop Controls

Realistic Troubleshooting Emphasis - The 890-PEC-B is the first product to offer a realistic troubleshooting experience for students because the faults are inserted throughout the system, including both inside the PLC itself and in the external field devices. The 890-PEC-B System includes Amatrol's unique FaultPro computerized troubleshooting system. This system enables students to learn troubleshooting in a self-directed environment, allowing teachers to support more students. FaultPro features on-line student control of the troubleshooting activity through menu-driven screens, making it easy for students to set up and perform their own troubleshooting exercises for both practice and testing sessions. Students get immediate feedback about their responses so they know if they are learning and they receive a record of their skill achievement. An on-line help screen provides step-by-step instructions during the troubleshooting process.



Fault Insertion System

The computerized fault insertion system avoids damage to the equipment that is normally associated with manual fault insertion because it inserts faults electronically. This makes the training equipment last longer while being safer for the student and the teacher.

TECHNICAL DATA

Mobile Workstation
- -Welded steel construction
- -Dimensions 72-in L x 29-in H x 30-in W
- -Application station storage, 5 station
- -Casters (4)
- -PLC Mounting console, vertical, 11 gauge steel
- -PC Mounting module, vertical
- -Work surface, laminated plastic, horizontal

Start/Stop Station
- -Steel enclosure
- -Power supply, 24 VDC, 2.4 amps
- -Start and stop pushbuttons
- -Power on indicator
- -Circuit breaker with on/off switch
- -Holding relay circuit for I/O power
- -Power cord with grounded plug

Application Station Console
- -Steel construction, 11-gauge
- -I/O Terminal Strips, (4) 16-point
- -I/O Cable Connectors (4), plug-in, 16-point
- -Application station mounting positions, (2)

Fault Insertion Controller
- -PC digital I/O fault control card, PCI slot
- -Fault insertion relay circuit board, 40 fault relays, 10 A @ 115VAC
- -4-foot ribbon cables (2)

Fault Insertion Software
- -PC-Based Windows 2000 or higher
- -On-line student troubleshooting
- -Database student response tracking
- -Custom template design capability
- -Class administration capability
- -Student results reporting

Required Application Stations (separately purchased)

The 890-PEC-B requires the following 5 applications stations, one or more fault kits, one or more PLC, and a multi-meter to fully support the student learning materials supplied with each fault kit.

89-IOS I/O Simulator Application Station
- -Input selector switches, 2-position, (16)
- -Output indicators, 24 VDC, (16)

89-OS-PDS Operator Application Station with Programmable Display
- -Selector switch, 2-position
- -Selector switch, 3-position
- -Indicator, (3)
- -Pushbutton switches, (4)
- -Programmable display

89-BCD BCD/LED Application Station
- -LED display, 4-digit
- -BCD thumbwheel switches (4)

89-EMT Electromechanical Application Station
- -Electric motor, bi-directional, AC
- -Electrical limit switch, (2)
- -Lead screw module-Reversing motor starter

89-EP Electro-Pneumatic Application Station
- -Cylinders, double-acting, (2)
- -Directional control valve, 24 VDC (2)
- -Pressure switch
- -Electrical limit switch, (4)

Required Fault Kits (separately purchased - choose one or more)

Each kit includes I/O cables, fault cables, fault modifications to PLC, and student learning materials specific to the model and brand of PLC indicated.

- -89-AB5D Fault Kit for A-B PLC5 for 6200 Software
- -89-AB5 Fault Kit for A-B PLC5 for RS Logix Software
- -89-AB500 Fault Kit for A-B SLC500
- -89-AB5500 Fault Kit for A-B Control Logix
- -89-M800 Fault Kit for Modicon 984
- -89-MQ1 Fault Kit for Modicon Quantum for ProWorx DOS software
- -89-MQ2 Fault Kit for Modicon Quantum for ProWorx NxT software
- -89-S7 Fault Kit for Siemens S7

Required PLC (separately purchased-choose one or more - contact Amatrol for details)
- -A-B PLC 5 with 6200 software
- -A-B PLC 5 with RS Logix software
- -A-B SLC500 models /02 thru /05
- -A-B Control Logix
- -Modicon 984
- -Modicon Quantum with ProWorx DOS software
- -Modicon Quantum with ProWorx NxT software
- -Siemens S7 with Step 7 Software

Additional Requirements
- -Multimeter

Power Requirements
- -Compressed air supply, clean, dry, 100 psig, 1 scfm, Amatrol model 90-926 or equal
- -1-Phase, 115 VAC, 60 Hz, 8 Amps

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