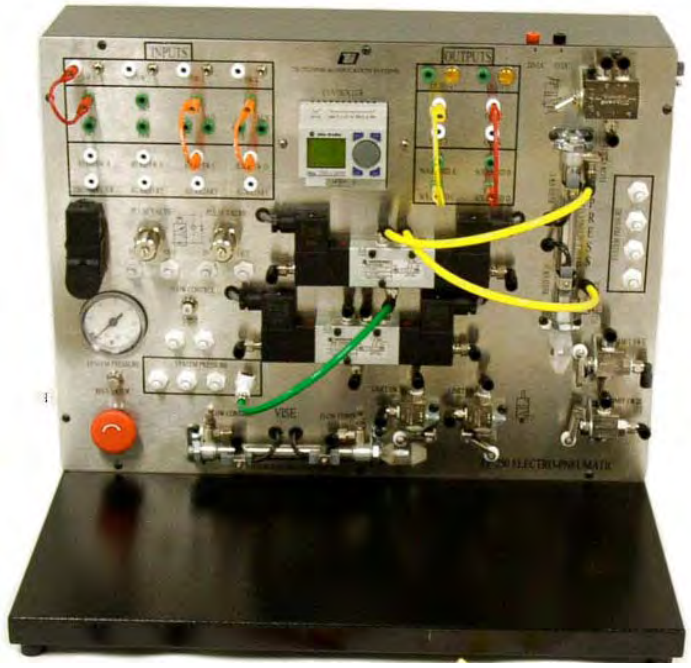
TII Technical Education Systems

Teaching Technology for Tomorrow.

Electro-Mechanical

EP-250
ELECTRO-PNEUMATICS



A Comprehensive Training System For Electronic Control of Pneumatic Technology

The EP-250 Electro-Pneumatic Training System is designed for hands-on study of electrical/electronic control of pneumatic components in a user-friendly application-oriented setting. It includes a student manual and instructor's guide, which focus on the background, use and application of electronic control to pneumatic technology.

Electronic control is done through use of a Programmable "Smart Relay" Micro Controller with system components and hardware mounted in a configuration to replicate manufacturing operations.

Like a PLC, the "Smart Relay" allows the user to program and control up to eight inputs and four outputs simultaneously. However, unlike a PLC, the simplified logic programming software that is included with the "Smart Relay" requires no previous PLC programming knowledge. This enables the student to focus his/her efforts on controlling the pneumatic elements and applications without having to study PLC programming first.

The EP-250 is a stand-alone system mounted upright on a metal frame with stainless steel front panel, built-in 24 VDC power supply and universal banana jack I/O sockets for convenient interfacing with TII's Explorer I Industrial Pneumatic or other training systems. All components are silkscreened for easy identification.

By combining the Programmable Controller with the easy-to-use I/O interfacing and the included pneumatic valves, actuators, switches and sensors, true electrical control and logic of pneumatic technology in a replicated manufacturing press/stamping and vise/clamping environment can be achieved.

With the EP-250's flexible system design, interfacing to Programmable Logic Controllers (PLCs) and other external devices whether as part of an FMS system or stand-alone operation on a table or bench is as easy as "Plug and Play".

SPECIFICATIONS

The EP-250 Electro-Pneumatic is mounted upright on a metal frame (20.5" x 14.5" x 4") with stainless steel panel for convenient interfacing with other TII trainers. There is a large (20.5" x 10") work space attached to the front of the metal frame making the EP-250 system configuration appear "L-shaped". Various application-oriented hardware can be attached to this work space. A programmable "Smart Relay" micro controller is embedded into the top center of the steel panel. All features are silkscreened for easy identification. A series of jacks are located throughout the panel for easy electrical connecting and interfacing using banana jack patchcords. A compressed air source (not included) is required for system operation.

The "Smart Relay" controller has a built-in keypad and display with simultaneous control for up to six digital 24 VDC inputs, two analog 0 – 10 VDC inputs and four relay outputs. Line power is fuse protected. This controller can perform simple logic, timing, counting, and real-time clock operations. The "Smart Relay" controller provides the flexibility for programmable control of inputs/outputs with the ease of relay logic functionality. The "Smart Relay'" can be programmed via the built-in keypad and display or included Windows-based software.

Controller Specifications:

Programming:
- Keypad and Display
- Windows-based software

Voltage:
- Line in: 115 VAC, 60 HZ
- Optional: 230 VAC, 50 HZ

Inputs/Outputs:
- Digital Input: 6 Inputs – 0 to 24 VDC
- Analog Input: 2 Inputs – 0 to 10 VDC
- Output: 4 Outputs – Relay

Memory:
- Size: 164 Instruction words
- Type: Built-in EEPROM

Other items included in the Base Unit are:

- Built-in 2.4 amp 24 VDC power supply for stand alone operation or interface to other 24 VDC enabled external devices or PLC.
- Series of jacks and banana jack patchcords for easy electrical interconnecting of various system elements.
- Two air piloted double-ended solenoid directional control valves. The air pilots assist the shifting of the solenoid valve to permit low system air pressure operation.
- Two double acting pneumatic cylinders with reed switches and flow control valves on each end of the cylinder. The manually operated flow control valves are used for speed control adjustment of cylinder rod extension and retraction. The reed switches provide electrical feedback of cylinder rod motion and location.
- Four pneumatically operated limit switches for system logic activities.
- Emergency Stop Button for emergency system shutdown.
- System pressure regulator with gauge for precise system air control.
- Adjustable pressure switch with electrical controls.
- Four switches and two lights for interface to the "Smart Relay" Controller.
- Three supplemental valves – two pulse and one toggle – for auxiliary action and control.
- Series of banana jacks and patchcords for electrically interconnecting various system elements.
- The cylinders are positioned on the panel to replicate a pneumatic vise/clamping operation and a pneumatic press/stamping operation.
- All pneumatic hoses have been pre-plumbed and connected for system operation.

System Dimensions:
- Size: 20.5" x 15.0" x 14.0"
- Shipping Weight: 40 lbs.