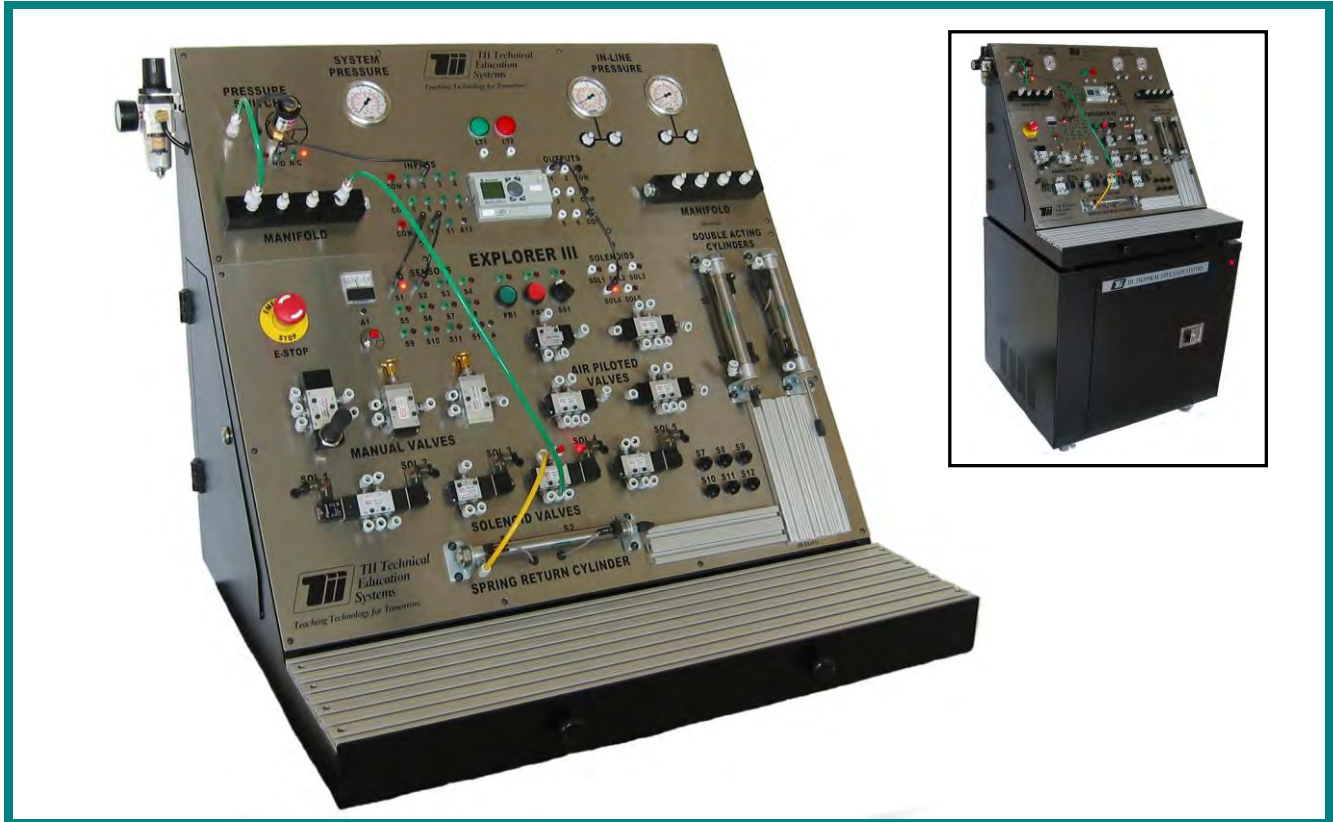




Explorer Series

## EXP-3 Industrial Electro-Pneumatics



### Comprehensive Training System For Industrial Electro-Pneumatics

The EXP-3 Industrial Electro-Pneumatics Training System provides the components and hands-on training required to effectively study air and electrical logic circuitry used in modern industry. It includes a student manual and instructor's guide which focus on the background and applications of combining air and electrical logic with pneumatic components in industrially relevant laboratory exercises.

The curriculum begins with a fundamental review of basic pneumatic principles and an introduction to programmable logic control (PLC). These sections are followed by air logic and electrical control circuits and schematics. Additional topics focus on typical air logic and electro-pneumatic applications found in industry.

An industrial grade component panel with built-in PLC, 24-volt DC power supply, instrumentation, and components is mounted on a slanted stainless steel surface for easy access when conducting experiments.

The component panel is attached to an "A-shaped" metal cabinet. A lockable storage area behind the panel provides space for manuals and additional components. Removable components on the panel, specialty components, and sensors from TII that expand the capabilities of the system can be mounted on the T-slot surface in front and on the panel.

The EXP-3 can be mounted on a mobile training bench that has cabinet space for an air compressor system and allows the system to be wheeled between classrooms. The portability and rugged design of the training system allow it to meet demanding training schedules.

The EXP-3 is one of six building blocks in TII's advanced Explorer Series of technology training systems. The other advanced modules address the principles and applications of industrial pneumatics, hydraulics, electro-hydraulics, and sophisticated electro-mechanics of open / closed loop feedback control systems for pneumatics and hydraulics.

## SPECIFICATIONS

The EXP-3 is a complete education / training system that covers air logic and electro-pneumatic control technology in its four areas of instruction: Physical Properties and Fundamentals, Applications, Air Logic, and Electro-Pneumatic Control. The training system is constructed of a welded steel “A-shaped” frame with a formed sheet steel shell. The system is modular in design so that it can be used as a stand-alone table, on a countertop, or integrated into a bench configuration with other TII trainers. Components are either panel mounted, attached to a subplate for easy T-slot adjustable mounting, or loose. The front trainer panel includes two sections:

1. The **Instrumentation Section** of the panel is mounted at eye level for easy reading of gauges and PLC display. The panel is constructed of 16-gauge stainless steel. All gauges, PLC inputs/outputs and other instruments are identified in large silkscreened lettering on the panel. The Instrumentation Section includes the filter/regulator, system pressure gauge, two in-line pressure testing gauges, two four-port manifolds, a 24-volt DC power supply, two large indicator lights – green and red colored, PLC with eighteen I/O (twelve inputs with green colored jacks and six outputs with white colored jacks) embedded into the center of the panel, adjustable pressure switch with access jacks for normally open or closed operation. Jacks are used for electrical interfacing.

2. The **Component Section** is constructed of 16-gauge stainless steel and angled for ease of use when building circuits. All components are clearly identified in large silkscreened lettering. Individual component electrical interfacing is via panel mounted female connectors using the universal connecting patchcord / banana jack system.

### **PANEL COMPONENTS:**

- Four Solenoid Valves
- Four Air Piloted Valves
- Three Manual Control Valves
- One Red-Colored E-Stop Valve
- Three Switches: P/B, Multi-Position Selector
- Three Cylinders with Flow Controls and Sensors
- Six Sensor Sockets (see included sensors)
- One Adjustable Potentiometer with Panel Meter Display Readout (0 – 10 VDC)

### **Additional Components:**

- Two Roller Valves
- One Pressure Sequence valve
- One Quick Exhaust Valve
- One Shuttle “OR” Valve
- One Dual Pressure “AND” Valve
- One Check Valve
- One Needle Valve
- One Flow Control Valve
- One Venturi Valve

### **Additional Sensors:**

- One Inductive Proximity Sensor
- One Capacitive Sensor
- One Photo-Electric Sensor
- Two Limit Switches

A **Storage Compartment** is located behind the component panel and accessed through a hinged door with lock. This area is designed for storing hoses and extra components. All components, hoses, instruments and fittings are industrial grade design. All control valves are removable and dissectible. All fittings are ball-check quick connect / disconnect.

**Options** to expand the capabilities of the system include a wide range of specialty components which can be purchased for mounting on the system’s T-slot experiment surface. Also, the EXP-3 can be purchased with portable air compressor system (EXPI-C) and mobile cabinet (EXP-MB). The model number for this three part combined system is EXP3-EPB.

## CURRICULUM

The EXP-3 curriculum was designed for industrial relevancy and reviewed by industry experts. The comprehensive courseware includes a student activities manual and instructor’s guide. Instruction includes background study of the topic, observational and hands-on experiments, application exercises, and mathematical calculations.

EXP3-EPB Dimensions: 34” W x 30” D x 66” H  
EXP3-EPB Shipping Weight: 600 lbs.

*For more information, customer service and technical assistance, call toll-free:*

**New England Academic Representative:**



**Technology Education Concepts**