



## Technical Specifications

### Overview:

The Electro-Pneumatic Training Kit is designed to demonstrate the design, construction, and application of electro-pneumatic components and circuits. It serves as an advanced-level upgrade to the basic pneumatic training systems, enabling in-depth practical training in electro-pneumatic automation.

### Training Objectives:

The trainer is designed to achieve the following learning outcomes:

- Understand the **design and functioning of basic Electro-Pneumatic systems.**
- Identify and interpret **electro-pneumatic components and their standard symbols.**
- Implement **direct and indirect manual control systems, stroke-dependent, time-dependent (with time-delay valves), and pressure-dependent controls** using pressure sequence valves.
- Construct and analyze **logic gates (AND / OR)** for signal initiation.
- Perform **fault finding and diagnostics** in electro-pneumatic control circuits.
- Develop and interpret **functional and circuit diagrams.**
- Design **electro-pneumatic sequential controls** systematically.
- Draft **circuit diagrams** for electro-pneumatic systems.
- Integrate **pneumatic power sections with electric control sections.**

*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*



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**Main Components:**

Component Description	Quantity
Flow and Pressure Regulator (FRL) unit, with pressure gauge (10 bar), ¼" BSP (F)	1 No.
Manifold, 4-way, ¼" BSP (F)	1 No.
One-way flow control adjustable valve, ¼" BSP (F)	1 No.
Ball Valve, ¼" BSP (F), ON/OFF type	1 No.
Silencer	1 No.
5/2-Way DC Valve, spring return, ¼" BSP (F), 24VDC, single solenoid	1 No.
5/2-Way DC Valve, ¼" BSP (F), 24VDC, single solenoid	1 No.
3/2-Way Single Solenoid DC Valve, ¼" BSP (F), 24VDC	1 No.
Single Acting Cylinder, Bore 25mm, Stroke 100mm	1 No.
Double Acting Cylinder, Bore 25mm, Stroke 100mm	2 Nos.
Limit Switches	3 Nos.
Proximity Switch (Inductive)	1 No.
24V DC Power Supply	1 No.
8-Relay Card (PLC Interfaceable with NO/NC contact, 24V DC coil)	1 No.
Siemens PLC (12 Inputs + 8 Outputs) with CDP and Ladder Software	1 Set
Air Compressor (Displacement: 3 cm <sup>3</sup> , Working Pressure: 7 bar) with 0.5 HP motor, 650 rpm, 230V, 50Hz, 1 phase, 10 bar gauge, shut-off valve, and 6.3mm brass connector hose	1 No.
PC with 23" Monitor, Intel i5 CPU, 1TB SSD, 8GB RAM, Windows 11 Pro or latest	1 No.

**List of Experiments:**

The following experiments can be performed using the training kit:

- Working of Air Filter, Lubricator, and Regulator
- Use of Manifold Block
- Working of 2/2-way DC Valve
- Operation of Single Acting Cylinder
- Operation of Double Acting Cylinder
- Functioning of 5/2-Way Valve
- Functioning of 4/2-Way Directional Control Valve
- Functioning of 5/3-Way Valve (Mid Position Closed)
- Operation of 5/2-Way Double Pilot Valve (Air Operated, Manual Override)
- Working of One-Way Flow Control Valve
- Operation of Quick Exhaust Valve
- Study of Vacuum Suction Generator
- Working of 5/2-Way Solenoid Operated Valve

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- Demonstration of OR Gate (Shuttle Valve)
- Demonstration of AND Gate
- Operation of Silencer
- Indirect Actuation of Single Acting Cylinder

**Essential Accessories Supplied:**

- Student Workbook with Instructor Guide – **1 No.**
- Demonstration CD – **1 No.**
- **Set of Spare Parts** recommended for **two years** of normal operation (Detailed list enclosed separately)

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