

SAP E & C CUSTOMIZED ELECTRO-PNEUMATIC TRAINER
(PRODUCT CODE: SAP – 20A)



The **Basic Customized Electro-Pneumatic Trainer (SAP – 20A)** outlines the principal of Pneumatic control used in industrial applications. It explains components of pneumatic control system and their applications.

CUSTOMIZED ELECTRO-PNEUMATIC TRAINER (SAP –20A)

- The **CUSTOMIZED ELECTRO-PNEUMATIC TRAINER (SAP –20A)** is capable of being used to demonstrate the design, construction and application of electro-pneumatic components and circuits.
- This **CUSTOMIZED ELECTRO-PNEUMATIC TRAINER (SAP –20A)** simulator is used for imparting training with a variety of different circuits which covers the basic pneumatic system. The simulator and its accessories are suitable for working at 10 bar pressure.
- This structure will have adequate space for proper orientation of valves and cylinders
- Industrial components are used in the kit so that the students get hands on practical training in using industrial components.
- The simulator will show the application of linear actuator, speed control circuits, logic control circuits etc.

Objectives: -

- ❖ Function & identification of Pneumatic components & their symbols.
- ❖ Direct and indirect manual controls, stroke dependent controls and pressure dependent controls with Different valves.
- ❖ Design & function of Pneumatic System.
- ❖ Functional diagrams.
- ❖ Application and fault findings of Pneumatic controls.
- ❖ To empower students to design their own circuits.
- ❖ The Trainer is Modular & Upgradable
- ❖ Operation & Instruction Manual provided for Operation ease.

Technical Specification: -

No.	Item Name	Technical Specifications
1	Profile Plates & Stand-	The anodized Aluminum profile plate is the basis for training. All components fit securely & safely onto the profile plate with safe fixing arrangement. Grid Dimensions: 50mm, Size: 1000 × 700mm
2	Single Acting Cylinder with spring return-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -01 No.: Design type is Piston Cylinder. Operating Pressure 10 bar. Bore: 25 mm × Stroke: 100mm, Mounting: Foot
3	Double Acting Cylinder-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -01 Nos., Design – Piston Cylinder. Operating Pressure – 10 bar. Bore: 25 mm × Stroke: - 100mm, Mounting: Foot,
4	Air Filter Regulator-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -01 Nos., ¼" Connection, 0-10 Kg/cm ²
5	Shuttle Valve (OR)-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., ¼" Connection, Pressure range: (1-10 Bar)
6	Dual Pressure Valve (AND)-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., ¼" Connection, Pressure Range: (1-10 Bar)
7	Solenoid Valve-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -03 No., 5/2 way single sided and 5/3 way double sided, ¼", 24 V DC & 3/2 way, ¼", 24 V DC
8	Flow Control Valve-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., ¼" (F), Square Body.
9	Pneumatic Motor	QTY: -1 No., Unidirectional, Air pressure: 0-90 psi.
10	Limit Switch, right actuated-	QTY: -1 No., contact load: maximum 5A, switching frequency: maximum 200Hz, Reproducible accuracy: 0.2mm, Switch travel: 2.7 mm,
11	Limit Switch, Left Actuated-	QTY: -1 No., Contact load: maximum 5A, switching frequency: maximum 200Hz, Reproducible accuracy: 0.2mm, Switch travel: 2.7 mm
12	3/2 Pilot operated valve	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., 3/2-way Valve, ¼" Connection
13	Hand Lever Operated Valve	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., 3/2 Hand Lever Operated Valve -1 No. & 5/2 Hand Lever operated Valves-1 No. each Connection: ¼" Connection. Design type is spool valve. Actuation using Hand Lever.
14	5/2 Push Button Operated Valve	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., Connection: ¼" Connection. Design type is spool valve. Actuation using Push Button.

15	Pneumatic – Electric convertor-	Make: Orion/Eqvt QTY: -1 No., The pneumatic – electric convertor can fulfill 3 functions: Pressure Switch, Vacuum Switch and Differential Pressure Switch. Pneumatic Technical Data- Pressure Ranges: Pressure Switch connector, P1: 0.25 to 3.5bar, Vacuum Switch: -0.2 to -0.8 bar, Differential Pressure Switch: Connector, P2 - (-0.95 to 3.5 bar)
16	Relay, Threefold Panel With Test points	QTY: -1 No., the device has three relays with terminals and two buses for power supply. Contact set – Single change-over switches, Contact load – maximum 5 A
17	Manifold Assembly-	QTY: -1 No., Manifold with 6 (2 ×3) Hex-Ball Valve. A common manifold for plastic tubing allows supply of compressed air to the control via six individual ports (for plastic tubing PUN 4×0.75)
18	Equipment Tray-	QTY: -1 No., MS powder coated tray with slots for placing components to be supplied with Electro-pneumatic supplementary kit.
19	Plastic Tubing-	PUN 6×0.75, Exterior Diameter-6mm, Interior Diameter- 4mm, Transparent – 10mtrs/Blue-10mtrs
20	Set of molded Cables-	1/1.5 Meter (1 core): Red- 06 Nos, Black- 06 Nos. Yellow- 03 Nos. BS5 Patch cords: Red - 04 Nos. (Approx. 300mm)., Black - 04 Nos. (Approx.300mm)
21	Air Compressor (Optional)-	QTY: -1 No., Tank capacity: 20/24 Liters, Discharge: 2 CFM, MOTOR: 1 H.P./ 2 H.P, 1 ϕ , 230 V AC Operated, Working pressure: 5-6 kg/cm ²

Note: We will also provide Sufficient headers, fitted with push on connector and other necessary fittings which would be required to develop the different said pneumatic circuits. Apart from the above we will also supply sintered bronze silencer, push on connector for 6 mm O.D tube, headers fitted with push on connectors and 6 mm O.D nylon tube of adequate length and necessary fitting

Range of experiments:

- ❖ Study of Advanced Electro – Pneumatic Trainer.
- ❖ Study of Self Reciprocation of Single Acting Cylinder by Using Electric Limit Switch & 3/2 Solenoid Valve
- ❖ Study of Self Reciprocation of Double Acting Cylinder by Using Proximity Switch & 5/2 Double Sided S.V.
- ❖ Study of Self Reciprocation of Double Acting Cylinder by Using Proximity Switches & 5/2 Single Sided S.V.
- ❖ Study of AND Valve (Dual Pressure Valve)
- ❖ Study of Shuttle Valve (OR Valve)
- ❖ Study of operation of Hand Lever Valve (3/2 & 5/2 DCV)
- ❖ Study of operation Of 5/2 Push Button Valve
- ❖ Study of operation Of 3/2 Single Pilot Operated Valve
- ❖ Study of Flow Control Valve & Pneumatic Motor
- ❖ Study of P To E Converter
- ❖ Study of Pneumatic & Electro-Pneumatic Circuits.

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Features: -

- ❖ Function & identification of Electro-pneumatic components & their symbols.
- ❖ Direct and indirect manual controls, stroke dependent controls, time dependent and pressure dependent controls with time delay, pressure sequence valves.
- ❖ Design & function of an electro-pneumatic System.
- ❖ Functional diagrams.
- ❖ Logic AND/OR function to start signals.
- ❖ Application and fault findings of Electro Pneumatic controls.
- ❖ Pneumatic power section – Electric control section.
- ❖ To empower students to design their own circuits.
- ❖ The kit is modular and upgradeable.
- ❖ Training literature – Instruction & operation manual, troubleshooting & maintenance tips will be provided in soft copy as well as hard copy format.

System Dimension: Approx.4 Ft. (L) X 2 Ft. (W) X 6.25 Ft. (H)

Weight: 80 Kg. (Approx.)

Services Required:

- ❖ Compressed clean, dry air supply at 4-5 Kg/cm².
- ❖ Electric Supply of 1 ϕ 230 VAC motor, 6A, 50Hz.

Note:

All descriptive matter and illustrations are intended to give only a general idea of the equipment Detailed specifications may be altered at the company's discretion without any notice.

