

**SAP E&C AIR PRESSURE CONTROL SYSTEM TRAINER
(PCST-03B) COMPUTERIZED (OPTIONAL)**



The Air Pressure Control System Trainer is the system, which outlines the basics of Pressure Control loop (Air Pressure) with aspects related to it.



KEYWORDS:

Feedback control.
Feedback Pressure control.
PID CONTROLLER.
P, P+I, P+I+D CONTROL

Technical Specification: -

- ❖ Pressure vessel with: -
Pressure gauge
Shape: Cylindrical, Material: SS 304, Thickness: 5 mm.
Diameter: 150 mm, Length: 300 mm,
Capacity: 15 Kg/cm², with ½”BSP connection
For pressure gauge (0 - 4kg), inlet & drain facility
½”, Class B GI with ½”, SS ball valves: 5 no.
- ❖ Piping: -
- ❖ Pressure Transmitter: -
Input: 0-2.5 Kg/cm² / 0-4 Kg/cm² / 0-10 Kg/cm²
Output: 4-20 mA, Type: 2-wire Piezoresistive type,
Supply: 24 V DC, 50 mA.
Mounting: Top ½”BSP connection.
- ❖ Pneumatic control valve: -
Size: ½”, Type: Two ways Globe type (Air to Close)
Cv: 0.3 US GPM, with diaphragm actuator, equal % characteristics
Flange connection: PCD: 60 mm, ID16 mm, OD: 90 mm.
- ❖ E/P Converter: -
Input: 4-20 mA, Output: 3-15 psi, Connection: ¼” NPT/ BSP,
Supply: 1.4Kg/cm²
- ❖ Air Pressure Regulator: -
0-10 Kg/cm² with pressure gauge, Connection: ¼” NPT / BSP.
- ❖ Electronic PID Controller: -
with Serial PC Interface (ASCII Protocol) RS 232,
Cut Out Size: 92mm×92mm×144mm,
Input: 4-20 mA, Output: 4-20 mA,
Display: Dual for PV & SP, Bargraph display for
Output & deviation, Hi-Low alarm annunciation.

- ❖ SCADA Application Software : - (OPTIONAL) SCADA S/W, PID control setting (P, PI, PD and PID mode), Auto/Manual Tuning of PID, Data Storage, Off Line analysis, Online Data Acquisition, Simulation and Printing of data in Graphical and Tabular form. Interactive Graphical User Interface (GUI) included.
- ❖ Electrical Control Panel: - MS Powder coated panel with Switches, indicator, test Points, Controller on front Facia, UK 2.5 Terminal Connectors mounted On DIN rail channel, Dimension: 1ft (L) ×1ft (W) ×1ft (H).
- ❖ Air compressor: - (OPTIONAL) Tank capacity; 70 Liters, Discharge; 3 CFM Motor: 1 H.P. 230 V AC Operated, Working Pressure: 7-8 Kg/cm²
- ❖ Computer: - (OPTIONAL) PC with color monitor: 15'', PC Pentium Dual Core, with serial communication ports, 80 GB HDD, 512 MB RAM, Floppy Drive.

Features:

- ❖ Compact Ergonomic Design.
- ❖ User Friendly, Self Explanatory Systems.
- ❖ Leak proof Safety Measures, sturdy piping.
- ❖ Enhanced Electrical Safety Considerations.
- ❖ Training Manuals mimic Charts for Operation Ease.
- ❖ System Frame with Caster Wheel Arrangement for ease in movement.
- ❖ M.S. powder coated cubical plant with standard Instrument Mountings.
- ❖ Inbuilt Safety Measures to avoid improper usage.
- ❖ Computer Interface & SCADA software connectivity for analysis of Pressure Control System Trainer (Optional).

Range of Experiments:

- ❖ Study of single loop proportional (P), integral (I) and derivative (D) control.
- ❖ Study of operation and calibration of transmitters, I/P converters and valves.
- ❖ Study of programming & operation of PID controller.
- ❖ Study of stability of single loop pressure control system.
- ❖ Configure microcontroller based controllers to give manual output, changing controller mode (Manual/Auto), Checking ON-OFF, Proportional, Integral, Derivative PI and PID control actions, change local set point, configure and run a set point, configure measured values to either percentage or engineering units.
- ❖ Demonstrate proportional control of pressure, with offset, overshoot, instability and optimum value of proportional band or gain.
- ❖ Demonstrate the effect of integral control and the optimization of the integral (Reset) time for pressure control.
- ❖ Study of SCADA Application Software/ Computerized Control of Air Pressure Control System.

System Dimensions: 4.5 Ft. X 1.5 Ft. X 4.5 Ft. (H)

Services Required:

- ❖ Single-phase electrical supply of 230V, 50Hz
- ❖ Clean, dry Compressed air supply at 7-8Kg/cm².

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 notice.

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