

**SAP E&C RATIO CONTROL SYSTEM TRAINER  
(PCST 06) COMPUTERIZED (OPTIONAL)**



The Ratio Control System Trainer is the system, which outlines the Basics of Ratio Control Loop with associated aspects.

**KEY WORDS:**

- Feedback control.
- Feedback Flow control.
- Ratio control. (Flow+Flow)
- PID control.
- P, P+I, P+I+D CONTROLLER ACTION.

**Technical Specification: -**

- ❖ Sump tank: - Material: Stainless Steel, 2 mm thick/P.P 5 mm thick , Capacity: 30 liter, Dimension: 1ft (L) ×1ft (W) ×1ft (H).
- ❖ Piping: - ½’’ GI, Class B, with ½’’ SS ball valves: 10 No.
- ❖ Centrifugal Pump: - ¼ H.P., 230 V AC supply.
- ❖ Flowmeter: - 2 no. Size: ½’’, turbine type / wfm type, Range: 0-600 LPH / 0-1000 LPH, Output: 4-20 mA Type: 3-wire type, Supply: 24 V DC: 100 mA Mounting: Horizontal, Connection; ½’’
- ❖ Flow Indicator:- 2 no. 3 ½ Digit Display, 230 VAC supply
- ❖ Pneumatic control valve: - Size: ½’’, Type: Two-way Globe type (Air to Close) Cv: 5 US GPM, with diaphragm actuator. Flange connection: PCD: 60 mm, ID: 16 mm, OD: 90 mm.
- ❖ Rotameter: - 2 no. Range: 0-1000 LPH, Glass Tube Type/Acrylic body, Connection: ½’’, (OPTIONAL) Bob material: SS 304, Mounting: Inlet Bottom Outlet Top.
- ❖ E/P Converter: - Input: 4-20 mA, Output: 3-15 psi, Connection: ¼’’ NPT / BSP.
- ❖ Air Filter Regulator: - 0-10 Kg/cm<sup>2</sup> with pressure gauge, Connection ¼’’ NPT / BSP.
- ❖ Power Supply: - 24 V DC, 1 A, Size: 48mm×126mm×68mm.
- ❖ Electronic PID Controller: -With Serial PC Interface (ASCII Protocol) RS 232, Cut out Size: 92×92×144, Input: 4-20 mA, Output: 4-20 mA, Display: Dual for PV & SP, Barograph display for Output & deviation, Hi-Low Alarm annunciation.
- ❖ SCADA Application Software : - SCADA S/W, PID control setting (P, PI, PD and PID mode), (Optional) 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,  
Use of 1sq mm multistrand wire with proper insulated  
Lugs, Ferrulling & neat wire dressing & clamping  
Wires & power cables are seated through 1''×1''PVC cable tray.  
Dimension: 1ft (L) ×1ft (W) ×1ft (H)

- ❖ Computer: - PC with colour monitor: 15'', PC Pentium Dual Core, with serial port, (Optional) 80 GB HDD, 512 MB RAM, Floppy Drive.
- ❖ Air Compressor: - Tank capacity: 30 Liters, Discharge: 2 CFM (Optional) Motor: ½ H.P. 230 V AC Operated, Working pressure: 3-4 kg/cm<sup>2</sup>

**Features: -**

- ❖ Compact Ergonomic Design.
- ❖ User Friendly, Self Explanatory Systems.
- ❖ Leak proof Safety Measures, sturdy piping & robust construction.
- ❖ 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 Ratio Control System Trainer (Optional).

**Range of Experiments:**

- ❖ Study of multivariable loop, Ratio control.
- ❖ Study of P, I, P+I, P+I+D control Modes.
- ❖ Study of data logging & Feedback, Ratio control system.
- ❖ Study of Computerized Ratio control of flow system trainer (optional).
- ❖ Study of SCADA Application Software/ Computerized Control of Ratio Control System.
- ❖ Auxiliary Experiments.

**System Dimensions:** 5Ft. (L) X 2 Ft. (W) X 4.5 Ft. (H)

**Software Specifications:**

- ❖ Use of Personal computer for Process Control (Optional).
- ❖ On line Process Monitoring with SCADA (Optional).
- ❖ Data Acquisition and Supervisory Control facility (Optional).
- ❖ Graphs, Reports, Historical database generation facility.
- ❖ Printer (Optional).

**Services Required:**

- ❖ Water supply and drainage arrangement.
- ❖ Electric supply 230 V AC, 50 Hz.
- ❖ Clean, dry Compressed air supply at 2.1 Kg/cm<sup>2</sup>.

**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.

**Manufactured / Marketed by**

**SAP ENGINEERS & CONSULTANTS**

**Sales Office:** Shop no.A-26, Srushti, S.NO.82/11+12+33+34, Nr. Guruganesh Nagar, Eklavya college Road (D P Road), Kothrud, Pune-411038.

**Regd. Office:** 2, Nirmitee Vihar, S.NO.52, Plot no.35/2, Kothrud, Pune-411038.

**Tel: (020)25384737, Fax: (020)25383544 Cell: (0)9422088946**

**E-mail: [pravinsdeode@vsnl.net](mailto:pravinsdeode@vsnl.net)**

**Website: [www.sapengineers.co.in](http://www.sapengineers.co.in), [www.indiamart.com/sapengineers](http://www.indiamart.com/sapengineers)**