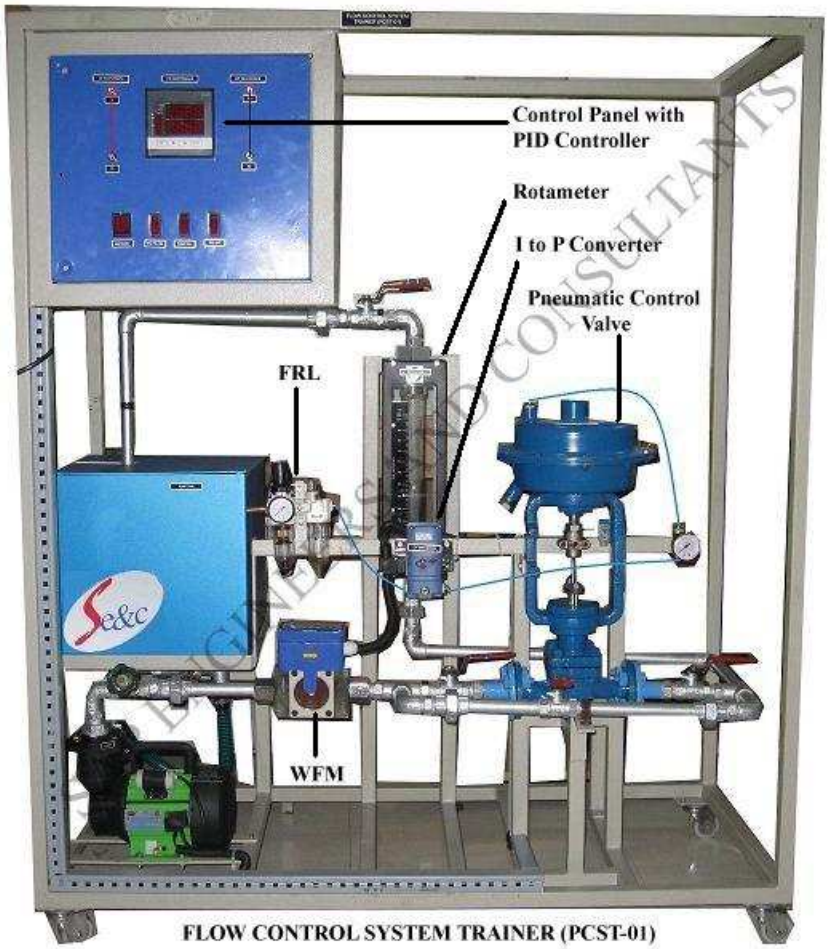
SAP E & C FLOW CONTROL TRAINER
(PRODUCT CODE: PCST- 01)



FLOW CONTROL SYSTEM TRAINER (PCST-01)

The **Flow Control Trainer (PCST-01)** is the system, which outlines the basics of Closed Loop Flow Control and various aspects related to it.

KEY WORDS:

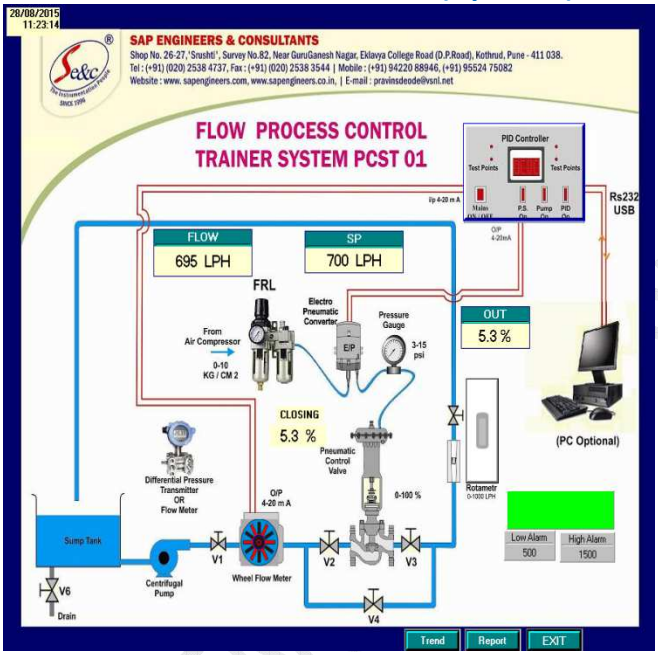
- Feedback Flow control.
- ON-OFF & PID control.
- OPEN/CLOSE loop response.
- MANUAL/AUTO tunning of controller
- SCADA Based Flow Control
- P, P+I, P+I+D Controller Action.
- TRANSIENT response analysis study.
- USB/RS 232 / Ethernet/ Modbus Communication
- Ability to hook up with DCS (Distributed Control System Trainer)

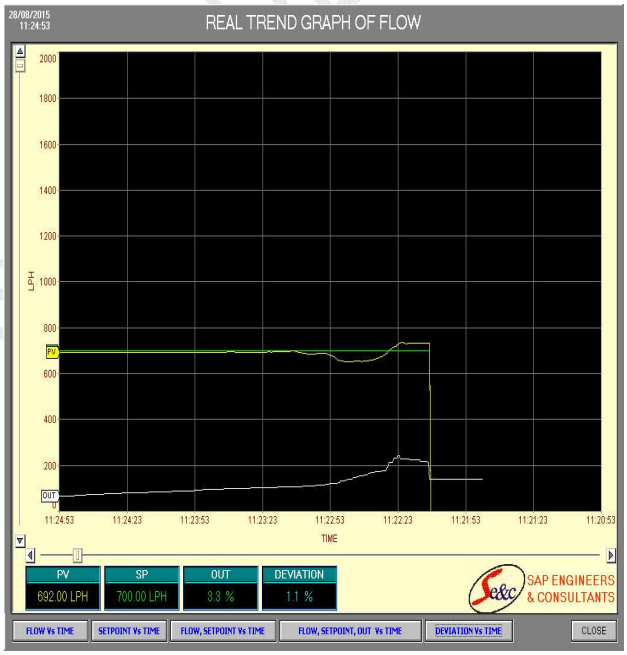
Technical Specification:-

No.	Item Name	Technical Specifications
01	**Sump tank-**	Material: Stainless Steel, 1.5 mm thick /P.P.5mm thick, with top cover, Capacity: 30 liter, Dimension: 1 ft (L) ×1ft (W) ×1 ft (H).
02	**Piping-**	½" GI, Class B, with ½" SS ball valves: 6 No.
03	**Centrifugal Pump-**	½ HP, 1ϕ 230 V AC supply, Surface mounting
04	**Flow meter-**	**Type: Turbine(WFM)/DPT/Magnetic/Ultrasonic** Range: 0-600/0-1000 LPH, Output: 4-20 mA, Supply: 24 V DC 100 mA, Mounting: Horizontal, Connection: ½"
05	**Pneumatic Control valve-**	Size: ½", Type: Two way Globe type (Air to Close), Cv: 5 US GPM, with diaphragm actuator, equal% characteristics, Flange connection : PCD 60 mm, ID: 16 mm, OD: 90 mm.
06	**Rotameter-**	Range: 100-1000 LPH, Glass Tube Type/ Acrylic body. Connection: ½", Bob Material- SS 304, Mounting: Inlet- Bottom, Outlet- Top.
07	**E/P Converter-**	Input: 4-20 mA, Output: 3-15 psi, Connection: ¼"NPT / BSP, Supply: 2.1 Kg/cm^2
08	**A.F.R /F.R.L. UNIT-**	Air Filter, Regulator & Lubricator, 0-10 Kg/cm^2 with pressure gauge, Connection ¼'' NPT / BSP.
09	**Power Supply-**	24 V DC, 3 A, Size: 48mm×126mm×68mm.
10	**Electronic PID Controller-**	With Serial PC Interface (ASCII/MODBUS Protocol) USB / Ethernet / RS 485 / RS232, for SCADA option only, Cut Out Size: 92mm × 92mm × 144mm, Input:4-20 mA, Output; 4-20 mA, Display: Dual for PV & SP,

		High-Low Alarm annunciation, Bar graph display (Optional)
11	**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 0.5 sq. mm multi-strand wire with proper insulated Lugs, Feruling & neat wire dressing & clamping, Wires & power cables are seated through 1"×1" PVC cable tray. Dimension: 1ft (L) ×1ft (W) ×1ft (H)
12	**SCADA Application Software (Optional)-**	SCADA Application 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
13	**Computer (Optional)-**	PC with color monitor: 18.5'', Intel Core i3, 500 GB HDD, 4GB RAM, Keyboard & Mouse, DVD Writer, With supporting OS and Communication port.
14	**Air Compressor (Optional)-**	Tank capacity: 25 Liters, Discharge: 2 CFM, Motor: 1 H.P. 230 V AC Operated,Max.Pressure:8-10Kg/cm^2 Working pressure: 5-6 kg/cm^2

SCADA APPLICATION SOFTWARE (Optional):





Range of experiments:

- Study of single loop Proportional (P), Integral (I) and Derivative control (D).
- Study of operation and calibration of transmitters, I/P converter and Control Valve.
- Study of OPEN LOOP/CLOSE LOOP TUNNING & AUTO TUNNING of controller.
- Study of STEP response & Transient response of controller (process curve).
- Study of programming and operation of PID controller.
- Study of stability of single loop Flow Control System.
- Configure microcontroller based controller to give manual output, changing controller modes (Manual/Auto), Checking ON-OFF, Proportional(P), Integral(I), Derivative(D) , PI(P+I) and PID (P+I+D) control actions, change local Set point, configure and run a set point ramp, configure measured values to either percentage or Engineering units.
- Auxiliary experiments
- Study of SCADA Application Software/ Computerized Control of Flow Control System.

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Features: -

- Understand the concept of feedback FLOW control loop.
- User Friendly, Self Explanatory Systems.
- Leak proof Safety Measures, sturdy piping.
- Enhanced Electrical Safety Considerations.
- Training Manual & 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 (Optional), SCADA Application software connectivity for analysis of Flow Control System Trainer.

System Dimensions: 4 Ft. (L) X 2Ft. (W) X 4.5 Ft. (H)

Weight: Approx.70 Kg

Services Required:

- Water supply and drainage arrangement.
- Electric supply 1ϕ 230 V AC, 50 Hz.
- Clean, dry and dust free Compressed air supply 2.1 kg/cm².
- Laptop/desktop computer (for SCADA)

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

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