

SAP E&C PC-PID BASED FEEDBACK FLOW, PRESSURE LEVEL TEMPERATURE, LEVEL CONTROL (SAP-70)



This trainer is highly flexible and modular system for studying of various feedback control loops in industrial processes. It has been designed to include these processes in a single structure. The system includes transducers, actuators, PID + computerized control with SCADA Software.

Key Words: -

- ❖ Feedback Level control,
- ❖ Feedback Pressure control,
- ❖ Feedback Temperature control,
- ❖ Feedback flow control.

Technical Specifications:

- ❖ Sump tank: - **1 no.** Material: Stainless Steel, 1.5 mm thick/ P.P.5mm thick , , Capacity: 30 litres Dimension: 1.5ft (L) ×1ft (W) ×1 ft (H).
- ❖ Level Tank: - **1 no.** Material: P. P. 5 mm thick, Dimension: 150mm (Ø) ×500mm (H).
- ❖ Geyser :- **1 no.** With thick insulation wall, with Thermostat, Heater: 1 KW.
- ❖ Pressure vessel: - **1 no.** Shape Cylindrical, Material CRCC, / SS 304
Diameter: 150mm, Length: 300mm
Capacity: 15 Kg/cm², with ½ inch BSP Connection,
For Pressure Gauge and Inlet facility
- ❖ Piping: - **1 no.** 1/2'' Class B GI with ½ '' ball valves.
- ❖ Level Transmitter: - **1 no.** Input: 0-500 mm Output: 4-20 mA, supply: 24 V DC,
Type: 2-wire capacitance type, Mounting: Top 2''screwed connection
- ❖ Pressure Transmitter: - **1 no.** Input: 0-2.5 Kg/cm²/ 0-4 Kg/cm², Output: 4-20 mA,
supply: 24 V DC, 50 mA. Type: 2-wire Piezoresistive type,
Medium: Water Pressure, Mounting: Top ½''BSP connection
- ❖ Temperature Transmitter: - **1 no.** Input: RTD, Output: 4-20 mA, Type: 2-wire type, Range: 0-150 ° C.
- ❖ Flow meter: - **1 no.** ½'', Turbine type / Wheel Flow Meter 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''

- ❖ Thyresterized Phase Angle Control Card: - **1 no.** , Input: 4-20 mA, Output: 0-230 VAC variable, 10 A Max.
- ❖ Pneumatic control valve: - **1 no.** Size: 1/2'', Characteristics: Equal percentage.
Type: Two way Globe type with valve Positioner (Air to Close) & two way Globe type with valve Positioner (Air to Open),
Cv: 5 US GPM, with diaphragm actuator. Flange connection: PCD: 80 mm, ID: 26 mm, OD: 110 mm. Positioner Action: 0.2 to 1.0 Kg/cm² (with Bypass), (Direct Action / Reverse Action)
Pneumatic Input Signal: 0.2 to 1.0 Kg/cm² (Without Bypass)
- ❖ Rotameter: - **1 no.** Range:100-1000 LPH, Glass tube type/acrylic body , Bob Material: SS 304
Connection: 1/2 '' , Mounting: Inlet- Bottom, Outlet- Top.
- ❖ E/P Converter: - **1 no.** Input: 4-20 mA, Output: 3-15 psi, Connection 1/4'' NPT / BSP, Supply 2.1 Kg/cm².
- ❖ Air Filter Regulator: - **1 no.** 0-10 Kg/cm² with pressure gauge, Connection 1/4'' NPT / BSP.
- ❖ Power Supply: - **1 no.**, 24 V DC, 3 A, Size: 48mm×126mm×68mm.
- ❖ Electronic PID Controller: - **1 No.**, Single input PID & Dual Input PID, with Serial Interface (ASCII Protocol) RS 232, Cut Out Size; 92×92×144mm, Input: 4-20 mA, Output: 4-20 mA, Display: Dual for PV & SP, Bar graph display for Output & deviation, Hi-Low alarm annunciation
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, Ferruling & neat wire dressing & clamping
Wires & power cables are seated through 1''×1''PVC cable tray. Dimension: 1ft (L) ×1ft (W) ×1ft (H).
- ❖ Electrical Control panel: -
- ❖ SCADA Application Software(**Optional**): - SCADA Application S/W, PID control settings (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.
- ❖ Air Compressor: - **(Optional)** Tank capacity: 25 Liters, Discharge: 2 CFM
Motor: 2 H.P. 230 V AC Operated working pressure: 5-6 kg/cm²
- ❖ Computer: - **(Optional)** PC with color monitor: 15'', PC Pentium Dual Core, with USB/serial communication port, 300/500 GB HDD, 1GB RAM.

For More Details Visit Our Website At: www.sapengineers.com, E-mail:- pravinsdeode@vsnl.net
SAP Engineers & Consultants, Kothrud, Pune-411 038. Ph-(020)25384737

Features:

- ❖ Compact Ergonomic Design.
- ❖ User Friendly, Self Explanatory Systems.
- ❖ Leak proof Safety Measures, sturdy piping.
- ❖ Enhanced Electrical Safety Considerations.
- ❖ Training Manuals and 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.
- ❖ SCADA Application software connectivity for analysis given feedback system.

Process Equipments:

- ❖ A sump tank and transparent acrylic tank (secondary) containing water.
- ❖ A control system for liquid flow across the two tanks
- ❖ A control system for liquid level in secondary tank.
- ❖ An Geyser for temperature control.
- ❖ Electrical control panel along with PC Interface module.
- ❖ ON-OFF Control: Level, Temperature.

Range of experiments:

- ❖ Feedback control: - Flow, Level, Temperature and Pressure.
- ❖ Study of SCADA Application Software/ Computerized Control of Feedback Control System.

Services Required:

- ❖ 230 V Single phase AC Supply, Water Supply and its Drain Arrangement.
- ❖ Clean Dry, Compressed Air Supply at 2.1 Kg /cm².
- ❖ Printer (Optional).
- ❖ Computer (Optional)

System Dimensions: 6 Ft. (L) X 2.5 Ft. (W) X 5.5 Ft. (H)

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		
Regd. Off.	: Shop No. 26-27,'Srushti', Survey No.82, Near Guru Ganesh Nagar, Eklavya College Road (D.P.Road), Kothrud, Pune - 411 038	
Telephone	: (020) 2538 4737	
Mobile	: 94220 88946, 95524 75082	
Fax	: (020) 2538 3544	
Email	: pravinsdeode@vsnl.net , sapengineerspune@gmail.com	
Website	: www.sapengineers.com / www.sapengineers.co.in	

For More Details Visit Our Website At: www.sapengineers.com, E-mail:- pravinsdeode@vsnl.net
SAP Engineers & Consultants, Kothrud, Pune-411 038. Ph-(020)25384737