SAP E&C WATER TEMPERATURE CONTROL SYSTEM TRAINER (PCST-08) COMPUTERIZED (OPTIONAL)

The Temperature Control System Trainer is the system, which outlines the basics of Closed Loop Temperature Control and various aspects related to it.

KEY WORDS:

- Feedback Control.
- Feedback Temperature Control.
- PID Control.
- P, P+I, P+I+D CONTROLLER ACTION.

Technical Specifications:-

❖ Temperature Sensor	:-	Type RTD PT-100, 6mm diameter, 50 mm Length
❖ Temperature Transmitter (Optional)	:-	Input: RTD I/P, Output:4-20mA DC Supply 24V, 50 mA Range: 0-100ºC
❖ Process Tank	: -	Capacity: 2/3 Litres, Material SS 304 with heater.
❖ Thyristor for heater control	: -	Input: 4-20mA, Panel mounted, Output: 0-230 V AC, 6A max.
❖ Rotameter	:-	Size ½" Range: 0-500 LPH / 0-100 LPH, Glass tube type/ Acrylic body
❖ Piping	: -	Size ½" with ½" gate valves: 1 No., ½" NRV: 1no, Ball valve: 1no.
❖ Pump	:-	¼" HP/ TULLU
❖ Interfacing Unit for Input	: -	Output communication with auto/manual facility.
❖ PID Controller	:-	µC based PID controller with communication facility
❖ Software (Optional)	:-	For experimentation: PID control, Data Logging, Trend Plot, offline analysis and printing.
❖ Overall Size	: -	4 ft. (L) × 1.5ft. (W) × 4ft. (H) ; Weight: 50 Kg
❖ 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, Ferruling, neat wire dressing & clamping. Wires and power cables are seated through 1" × 1" PVC cable tray.
❖ Dimension	:-	1ft. (L) × 1ft. (W) × 1ft. (H)

- SCADA:- Application Software (Optional): SCADA software, PID control setting (P, PI, PD and PID mode Tuning of PID, Data storage, Offline analysis, online data acquisition Simulation and Printing of data in Graphical and tabular form. Interactive, Graphical user Interface (GUI)
- Computer: - (Optional): PC with color monitor: 15'', PC Pentium Dual Core, With serial communication ports, 160/300 GB HDD, 512 MB/1GB RAM,

Features: -

- Compact Ergonomic Design.
- User Friendly, Self Explanatory Systems.
- Electrical control panel.
- Enhanced Electrical Safety Considerations.
- Training Manual, mimic Charts for Operation Ease.
- Inbuilt Safety Measures to avoid improper usage.
- Computer Interface & SCADA software connectivity for analysis of Temperature Control System Trainer (Optional).

Range of Experiments:-

- Study of single loop proportional, integral and derivative control.
- Study of operation and calibration of sensors/transmitter.
- Study of stability of single loop control.
- Configure micro controller based PID to give manual output, change controller mode as Manual or Auto, give ON-OFF, proportional, integral, derivative PI and PID Control, change local set point, configure and run a set point ramp, configure measured values to either percentage or temperature.
- Demonstrate the use of RTD (or a transmitter) for the measurement of temperature of water. Show the operation of a thyristor to control the energy input of an electrical heater.
- Demonstrate the proportional control of temperature, with offset, overshoot, Instability optimum value of proportional band or gain.
- Demonstrate the effect of integral control and the optimization of the integral (reset) time for temperature control.
- Optimize the parameters for PID control of temperature; demonstrate the use of Automatic tuning.
- Study of SCADA Application Software/ Computerized Control of Water Temperature Control System.

Services Required: -

- Electric supply 230 V AC, 50 Hz. If Pump arrangement is not needed, suitable provision for external tap water is necessary.

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.

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