

SAP E & C VERIFICATION OF P, P+I, P+D, P+I+D CONTROL (PCST-09)



KEY WORDS:

- ❖ Feedback control.
- ❖ PID control.
- ❖ Temperature control.
- ❖ P, P+I, P+I+D Controller Action.
- ❖ SCADA Based Control

Technical Specification-

No.	Item Name	Technical Specifications
1	Temperature Sensor	Sensor Input: RTD / Thermocouple, Diameter: 6 mm, Sensor Length: 150 mm, DC Supply 24V, 50mA Range: 0-100°C
	Temperature Transmitter (OPTIONAL)	Input: RTD, Output: 4-20 mA, Type: 2-wire type, Range: 0-200 ° C,
2	Thyristorized phase angle control card	Input: 4-20mA, Panel mounted, Output: 0-230 V AC, 6A max.
3	Electronic PID Controller	With Serial PC Interface (ASCII Protocol) USB / Ethernet / RS 485 / RS232, Cut Out Size: 92mm×92mm×144mm, Input: RTD/4-20 mA Input type, Output; 4-20 mA, Display: Dual for PV & SP, Bar graph display. For Output & deviation, Alarm annunciation on Front fascia.
4	Oven Temp Cabinet	Dimension: 1.25 Ft. (L) X 1.25 (W) X 1.25 Ft. (H) With Air Circulation fan
5	Electrical Control Panel	MS Powder coated panel with switches, indicator, test points, Controller on front fascia, UK 2.5 Terminal Connectors mounted on DIN rail channel, use of 1sq mm multistoried wire with proper insulated Lugs, Ferruling, neat wire dressing & clamping. Wires and power cables are seated through 1" × 1" PVC cable tray
6	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.
7	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.

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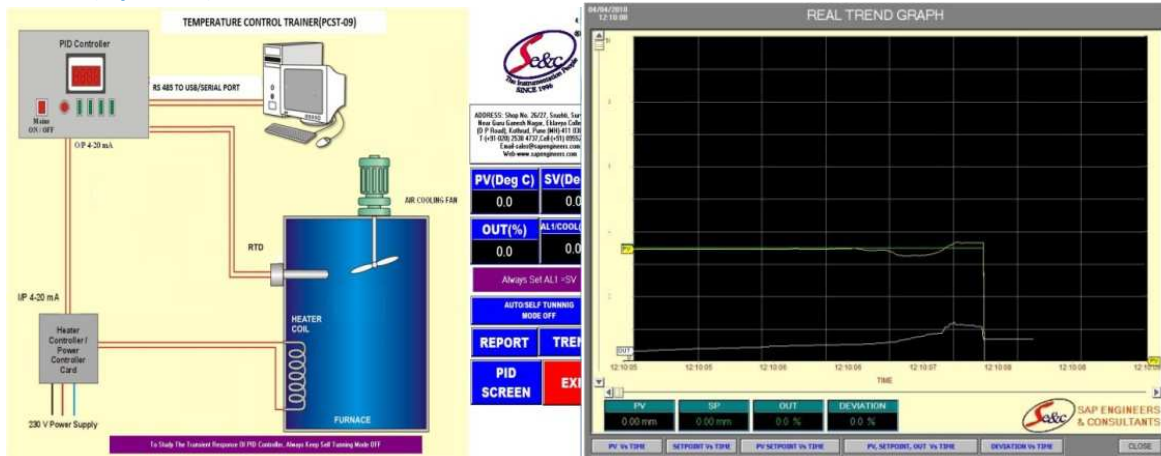
Features: -

- ❖ Compact Ergonomic Design.
- ❖ User Friendly, Self Explanatory Systems.
- ❖ Electrical control panel with temperature cabinet.
- ❖ Enhanced Electrical Safety Considerations.
- ❖ Training Manuals, 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 transmitters.
- ❖ Study of stability of Temperature control loop.
- ❖ 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 flowing air and a heater.
- ❖ Show the operation of a thyristor to control the energy input to an electrical heater.
- ❖ Demonstrate the proportional control of temperature, 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 temperature control.
- ❖ Optimize the parameters for PID control of temperature; demonstrate the use of automatic tuning.
- ❖ Study of SCADA Application Software/ Computerized Control of Closed Loop Temperature control system (For study of Electronic PID controller).

SCADA Software (Optional):



Temperature Cabinet Dimension:- 1Ft. (L) X 1 (W) X 1 Ft. (H)

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System Control Panel Dimensions:- 1.5Ft. (L) x 1Ft. (W) x 1Ft. (H)

Services Required: Electric supply 230 V AC, 50 Hz.

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.

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