SAP E & C  WATER TEMPERATURE CONTROL TRAINER  
(PRODUCT CODE: PCST - 08) COMPUTERIZED (OPTIONAL)  

The Water Temperature Control Trainer (PCST - 08) is the system, which outlines the basics of Closed Loop Water Temperature Control and various aspects related to it.

KEY WORDS:
- Feedback Water Temperature Control.
- PID control.
- SCADA Based Water Temperature Control
- P, P+I, P+I+D Controller Action.
- USB / Ethernet / RS232 / RS 485/ Modbus Communication
- Ability to hook up with DCS (Distributed Control System Trainer)

**Technical Specification:**

<table>
<thead>
<tr>
<th>No.</th>
<th>Item Name</th>
<th>Technical Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Temperature Transmitter</td>
<td>Input: RTD / Thermocouple, Output: 4-20mA, Sensor Length: 150 mm, DC Supply 24V, 50mA Range: 0-100ºC</td>
</tr>
<tr>
<td>2</td>
<td>Sump tank</td>
<td>Material: Stainless Steel, 1.5 mm thick / P.P. 5mm thick, Capacity: 30 liter, Dimension: 1 ft (L) x 1 ft (W) x 1 ft (H).</td>
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<tr>
<td>3</td>
<td>Process Tank</td>
<td>Geyser, Capacity: 2/3 L, with heater</td>
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<tr>
<td>4</td>
<td>Thyresterized phase angle control card-</td>
<td>Input: 4-20mA, Panel mounted, Output: 0-230 V AC, 6A max.</td>
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<tr>
<td>5</td>
<td>Rotameter</td>
<td>Size ½” Range: 500 LPH / 1000 LPH, Glass tube type/ Acrylic body</td>
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<tr>
<td>6</td>
<td>Piping</td>
<td>Size ½” G.I. with ½” gate valves: 1 No., ½” NRV: 1no, Ball valve: 1 no.</td>
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<tr>
<td>7</td>
<td>Centrifugal Pump</td>
<td>½ H.P., 1φ 230 V AC supply, Surface mounting</td>
</tr>
<tr>
<td>8</td>
<td>Electronic PID Controller</td>
<td>With Serial PC Interface (ASCII Protocol) USB / Ethernet / RS 485 / RS232, Cut Out Size: 92mm x 92mm x 144mm, Input: 4-20 mA, Output: 4-20 mA, Display: Dual for PV &amp; SP, Bar graph display for Output &amp; deviation, Alarm annunciation on Front fascia.</td>
</tr>
<tr>
<td>9</td>
<td>Overall Size</td>
<td>4 ft. (L) x 1.5ft. (W) x 4ft. (H) ; Weight: 50 Kg</td>
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For More Details Visit Our Website At: [www.sapengineers.com](http://www.sapengineers.com), E-mail:- pravinsdeode@vsnl.net

SAP Engineers & Consultants, Kothrud, Pune-411 038. Ph-(020)25384737
### 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 temp. Demonstrate the proportional control of temperature, with offset, overshoot, instability optimum value of proportional band or gain.
- 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 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 Control System.

### 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).

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<tbody>
<tr>
<td><strong>10</strong></td>
<td><strong>Electrical Control Panel</strong>-</td>
</tr>
<tr>
<td><strong>11</strong></td>
<td><strong>Panel Dimension</strong></td>
</tr>
<tr>
<td><strong>12</strong></td>
<td><strong>SCADA Application Software (Optional)</strong>-</td>
</tr>
<tr>
<td><strong>13</strong></td>
<td><strong>Computer (Optional)</strong>-</td>
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**System Dimension:**  4 Ft. (L) X 1.5 Ft. (W) X 4 Ft. (H)

**Services Required:**
- Water supply and drainage arrangement.
- Electric supply 1φ 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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Manufactured/Marketed By
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