



Temperature Control (SMT-9207)

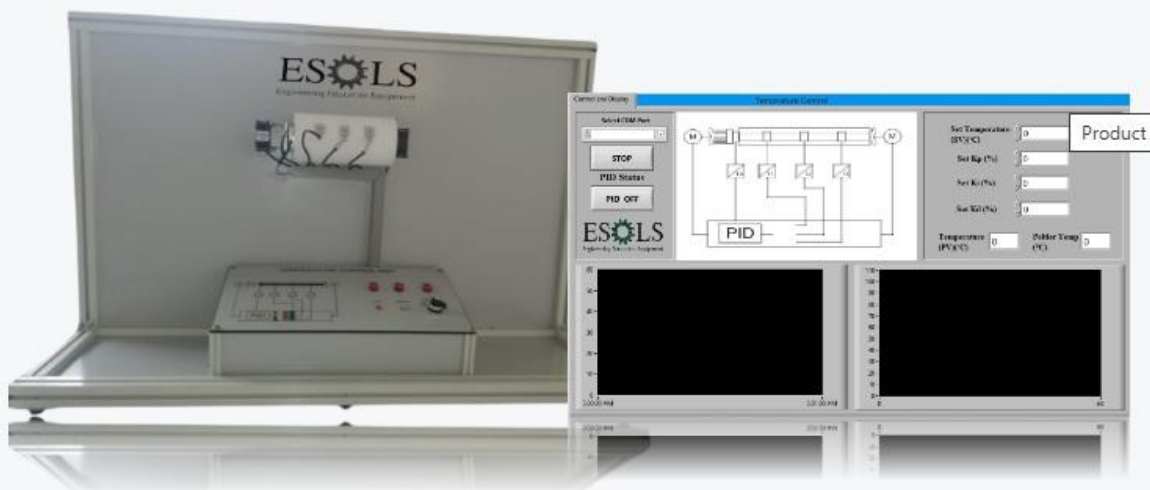
The Temperature Control System (SMT-9207) developed by ESOLS Engineering Solutions is an advanced, compact training module designed to measure and control temperature using precise PID control algorithms. This self-contained unit offers a hands-on learning platform suitable for technical institutions, research labs, and industrial training programs. It operates within a safe, controlled temperature range using thermoelectric technology and includes features such as a manually controlled disturbance fan, high-accuracy PRT sensors, and user-friendly interface components.

The system connects to a PC via USB and is operated through a powerful data acquisition type Windows-based software, which enables real-time data acquisition, process visualization, and feedback control. With three PRT sensors installed at different positions, the module provides detailed temperature profiling and monitoring. The SMT-9207 is designed for safe, low-voltage operation and is equipped with thermal safety features such as a thermic fuse, making it ideal for both educational and demonstration purposes.

TECHNICAL SPECIFICATIONS

Specifications Data:

- Used for control and measurement of temperature
- Complete self-contained desktop unit
- Manual 1 Thermal fuse for overheat protection (110°C)
- LED indicators and simple user controls
- 2V DC fan to introduce disturbances
- Manual 12V DC fan to introduce disturbances
- Compact and safe design suitable for lab environments
- Real-time monitoring and control capability
- Thermoelectric heating and cooling process (0°C to 100°C)
- PID control through Windows-based SCADA software
- USB connectivity for PC interface
- Three PRT sensors placed at different locations for accurate profiling
- Supports standard power input (100–240V AC, 50/60Hz)



Technical Data:

- **Temperature Control Range:**
 - 0°C to 100°C
- **PRT Sensors:**
 - Quantity: 3
 - Range: -50°C to +500°C
 - Resistance: 100Ω (nominal at 0°C)
 - Stability: ±0.05%
 - Response Time: 0.1s
 - Fundamental Interval:
 - 38.5Ω (nominal)
- **Thermoelectric Technology Range:**
 - -50°C to +150°C
- **Disturbance Fan:**
 - 12V DC, manually switched
- **Maximum Power Input:**
 - 34W
- **Current Rating:**
 - 3.9 Amps
- **Voltage Input for Process Module:**
 - 12V to 15V DC
- **Thermal Safety:**
 - Thermic fuse activates at 110°C
- **Power Supply:**
 - 100–240V AC, 50/60Hz