



Extended Surface Heat Transfer Apparatus (SMT-HT-33)

In this apparatus long horizontal rod, which is heated at one end, provides an extended surface (pin) for heat transfer measurements. Thermocouples at regular intervals along the rod allow the surface temperature profile to be measured. By making the diameter of the rod small in relation to its length, thermal conduction along the rod can be assumed to be one-dimensional and heat loss from the tip can be ignored.

The unit has Touch LCD display for visualization of process and the measurements. The Unit is also connected to Software for computer connectivity and data analysis. The Touch screen and computer software is included in the package.



TECHNICAL SPECIFICATIONS

Specifications:

- Touch LCD with GUI Interface for better monitoring and accurate measurement of Plant variables.
- Shows how a long thin rod conducts heat along it and how heat is lost due to radiation and convection
- Table Top stand-alone Unit.
- ESOLS DAQ Software for monitoring and control.

Technical Specifications:

- The extended surface comprises a 10mm-diameter long solid brass rod mounted horizontally and heated at one end with a 20W, 24V DC heater

Experiments:

- Measuring the temperature distribution along an extended surface and comparing the result with a theoretical analysis.
- Calculating the heat transfer from an extended surface resulting from the combined modes of free convection and radiation heat transfer and comparing the result with a theoretical analysis.
- Determining the constant of proportionality/thermal conductivity of the rod material.