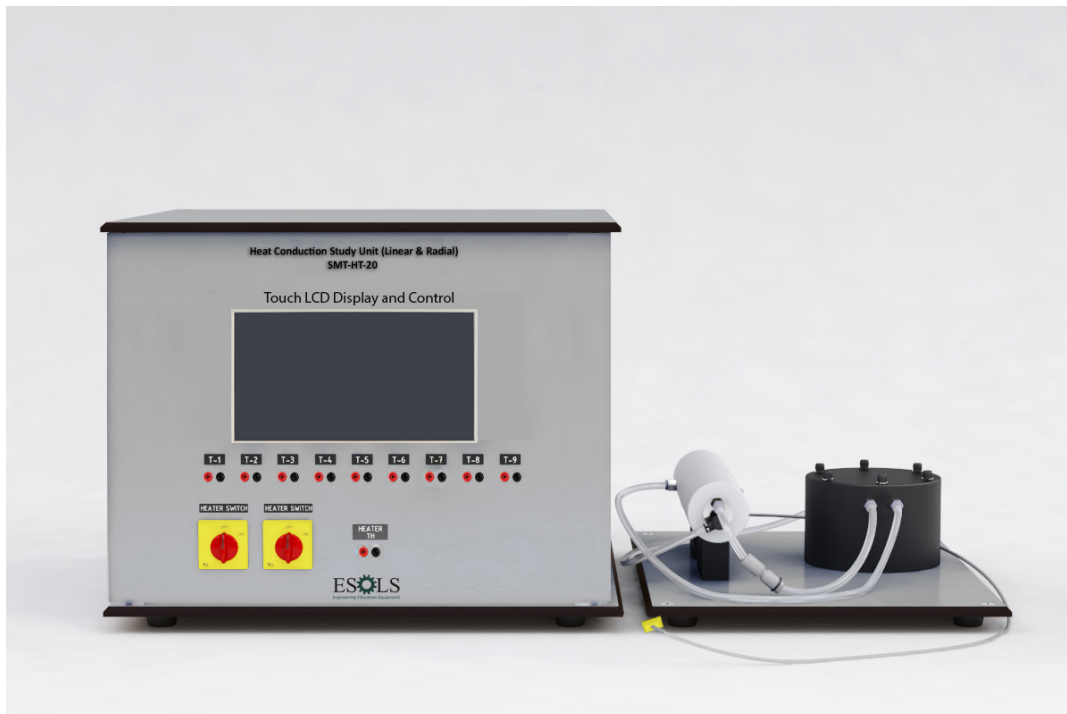


**Heat Conduction Study Unit (Linear & Radial) (SMT-HT-20)**

As the Heat conduction is one of the three basic forms of heat transfer. This type of heat transfer is an irreversible process and transports heat from the higher energy level, i.e. higher absolute temperature, to the lower level with lower temperature. If the heat transport is maintained permanently by means of the supply of heat, this is called steady heat conduction. The most common application of heat conduction in engineering is in heat exchangers. This experimental unit can be used to determine basic laws and characteristic variables of heat conduction in solid bodies by way of experiment. The experimental unit comprises a linear and a radial experimental setup, each equipped with a heating and cooling element. Different measuring objects with different heat transfer properties can be installed in the experimental setup for linear heat conduction.

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:

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- Touch LCD with GUI Interface for better monitoring and accurate measurement of Plant variables.
- Experimental setup consisting of experimental unit and display and control unit
- Linear heat conduction: 3 measuring objects, heating and cooling element, 9 temperature measuring points
- Radial heat conduction: brass disc with heating and cooling element, 6 temperature measuring points
- Cooling by means of tap water
- Electrical heating element
- Table Top stand-alone Unit.
- ESOLS DAQ Software for monitoring and control.

### Technical Data:

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- Linear heat conduction
  - 3 measuring objects, insulated
  - 1x DxL: 25x30mm, steel
  - 1x DxL: 15x30mm, brass
  - 1x DxL: 25x30mm, brass
  - Heater: 150W
- Radial heat conduction
  - Disc DxL: 110x4mm
  - heater in the center of the disc: 150W
  - cooling coil on the outer edge of the disc
- Measuring ranges:
  - Temperature: 0 to 100°C
  - Power: 0 to 200W
- 230V, 50Hz, 1 phase  
230V, 60Hz, 1 phase; 230V, 60Hz, 3 phases
- Touch LCD with GUI Interface for better monitoring and accurate measurement of Plant variables.
- ESOLS DAQ Software for monitoring and control.
  - Graphical visualization.
  - Security mechanism for login.
  - USB Connected
  - Compatible with Windows 7,8.1,10.
- Digital Instrumentation
- Capability to modify according to end user.
- Can be used in Research Purposes.

## Experiments:

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- Linear heat conduction (plane wall)
  - determination of temperature profiles for different materials
  - determination of the temperature profile in case of a disturbance
  - determination of the thermal conductivity  $\lambda$
- Radial heat conduction
  - determination of the temperature profile
  - determination of the thermal conductivity  $\lambda$