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Product Name : Computerized Steady State and Non Steady State Heat Transfer	**Product Code :** HeatMassLab0006

Description :

Astra Scientific Computerized Steady State and Non Steady State Heat Transfer

Technical Specification :

The Heat conduction is the transport of heat between the individual molecules in solid, liquid and gaseous media under the influence of a temperature difference. Steady heat conduction is the term used when heat transport is maintained permanently and uniformly by adding heat. In transient heat conduction, the temperature distribution in the body is dependent on location and time.

The trainer consists of a heat source and a heat sink, between which cylindrical samples made of different metals are inserted. Each sample is fitted with 12 temperature measurement points. The temperature measurement points are designed to has as little influence on the temperature as possible and the core temperature of the sample is measured.

The heat source consists of an electrically heated hot water circuit. An electronic controller ensures the heating water is kept at a constant temperature.

The heat sink is realized by means of a water-cooling system. An elevated tank ensures a constant cooling water flow rate. A temperature

jump can be generated by appropriate regulation of the cooling water flow. A PC can be used to display the transient temperature distribution in the sample over time and place.

The temperatures of the sample, heating and cooling water, as well as the electrical heating power and the cooling water flow rate are displayed digitally on the switch cabinet and can be transmitted simultaneously via USB directly to a PC where they can be analyzed using the software included. The thermal conductivity ? can be calculated from the measured data.

FEATURES:

- Steady heat conduction
- Transient heat conduction
- Temperature/time profiles
- Calculate thermal conductivity ?of different metals
- Steady and transient heat conduction in metals
- 12 temperature measurement points in every sample
- Regulated temperature of the heat source

SPECIFICATIONS:

- Heater

Output: 800W

Temperature: 20…85°C

- Samples, Ø 40mm

3x 450mm (copper, aluminum, brass)

2x 300mm (steel, stainless steel)

- Heating tank: ca. 2L

Cooling tank: ca. 0,5L

Elevated tank: ca. 6L

- Temperature sensors

12x thermocouple type K, along the sample

2x Pt100, in the cooling water

1x Pt100, in the heating water

- Measuring ranges

temperature: 14x 0…100°C

Power: 0…1000W

Flow rate: 0,1…2,5L/min

- Required for Operation

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase

Astra Scientific

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