

Product Name :
Computerized Emissivity Measurement Apparatus

Product Code :
CHINAELABC2620002



Description :

Computerized Emissivity Measurement Apparatus

Technical Specification :

The Computerized Emissivity Measurement Apparatus offers basic experiments for targeted teaching on the topic of heat transfer by radiation.

At the heart of the experimental unit is a metallic sample heated by a concentrated light beam.

The light beam is generated by a continuously adjustable halogen lamp and a parabolic reflector.

The reflector concentrates the radiation to a focal point.

A sample is placed on a thermocouple located at the focal point.

The thermal radiation emitted by the sample is measured by a thermopile.

In order to be able to measure the radiation at different distances, the thermopile is mounted on a moveable carriage.

Heat radiation is one of the three basic forms of heat transfer.

In radiation the heat transfer takes place via electromagnetic waves.

Unlike heat conduction and convection, heat radiation can also propagate in a vacuum.

Heat radiation is not bound to a material.

The microprocessor-based instrumentation is well protected in the housing.

With explanatory texts and illustrations the educational software significantly aids the understanding of the theoretical principles.

The software for system operation and for data acquisition and educational software.

The unit is connected to the PC via USB.

FEATURES:

Effect of different surfaces on heat transfer by radiation

Functions educational software, data acquisition, system operation

Fundamentals of heat transfer

Study transient behavior

Create power balances

Verify Lambert's inverse-square law

Verify Stefan-Boltzmann law

Verify Kirchhoff's law

SPECIFICATION:

Halogen lamp :

Electrical power: 150W

Max. Temperature: approx. 560°C

Aluminum samples, Ø 20mm

1x matt anodized on both sides

1x painted on both sides (high-temperature paint)

1x matt anodized with one painted side

Copper samples, Ø 20mm

1x nickel-plated

1x heavily oxidized

Steel sample, Ø 20mm

1x heavily oxidized

Measuring ranges :

Temperature: 0...780°C

Radiation intensity: 0...1250W/m²

Required for Operation :

230V, 50Hz, 1 phase

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



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