

## Thermopile 1000824

### Instruction sheet

09/15 SP



- 1 Inlet (funnel)
- 2 Shaft
- 3 Metal housing
- 4 Measurement output (4-mm safety connectors)

### 1. Description

The thermopile is a highly sensitive apparatus used for measuring radiation (e.g. heat radiation from black bodies, reflection of long-wave heat radiation).

Integrated in a metal housing with a polished funnel, the thermopile consists of a black surface of 15 mm diameter to which 17 thermocouples are connected. The thermocouples generate a thermoelectric potential  $U$  which is proportional to the intensity of the incident heat radiation.

### 2. Technical data

Sensitivity:	0.14 $\mu\text{V}/\mu\text{W}$ approx.
Setting time:	40 s for 95% of the measured value
Black surface:	15 mm $\varnothing$
Internal resistance:	1 $\Omega$
Connections:	Two 4-mm safety connectors
Dimensions:	94 mm x 40 mm $\varnothing$
Shaft:	10 mm $\varnothing$
Weight:	200 g approx.

### 3. Operation

To conduct the experiment, the following apparatus is additionally recommended:

1 Instrumentation amplifier for students' experiments	1001028
1 x 4-mm high-frequency BNC cable	1002748
1 Multimeter ESCOLA 10	1006810
1 Stand base	1001046

In order to prevent any drifting of the output voltage, the metal housing of the thermopile should be at room temperature.

- After setting up the experiment, wait for a few minutes before taking readings.

Readings may be made incorrect due to the influence of body heat or other external influences.

- Do not touch the apparatus while taking readings.
- Avoid direct sunlight and do not set up the apparatus in the vicinity of a heater/radiator.
- Set up the thermopile approx. 3 cm away from the object of the experiment (e.g. Leslie's cube 1000835).
- Connect up the instrumentation amplifier and the multimeter.

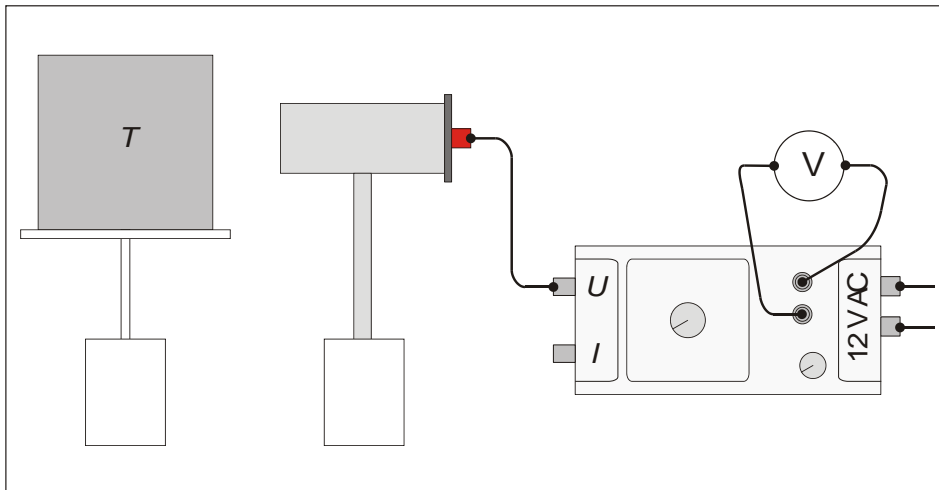


Fig. 1 Experimental set-up Leslie's cube