3B SCIENTIFIC® PHYSICS

Thermopile 1000824

Instruction sheet

01/24 SP/UD

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 µV/µW approx.
Setting time:	40 s for 95% of the measured value
Black surface:	15 mm ∅
Internal resistance:	1 Ω
Connections:	Two 4-mm safety connectors
Dimensions:	94 mm x 40 mm ∅
Shaft:	10 mm ∅
Weight:	200 g approx.

3. Operation

To put the thermopile in operation, the following apparatus are additionally required:

1 Measurement Amplifier U (230 V, 50/60 Hz) 1020742
or
1 Measurement Amplifier U (115 V, 50/60 Hz) 1020744
1 Digital Multimeter P3340 1002785
or
1 Digital Multimeter P1035 1002781
1 Barrel Foot, 500 g 1001046
2 Pairs of Safety Experiment Leads, 75cm, blue, red 1017718

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, Fig. 1).
- Connect up the instrumentation amplifier and the multimeter.

Fig. 1: Experimental set-up Leslie's cube