

STUDY OF THERMAL RADIATION



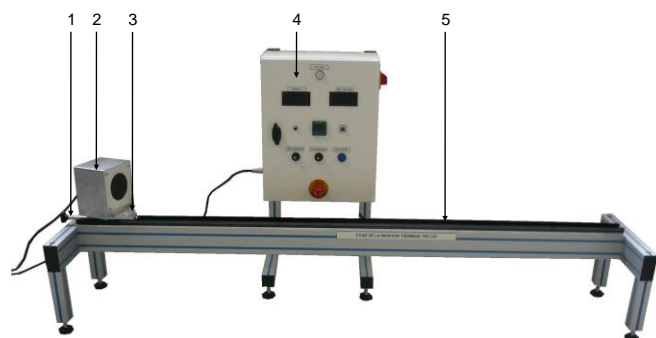
Experimental capabilities

- **Study of thermal radiation**
- **Emission - absorption.**
- **Demonstration of the laws of KIRCHOFF and LAMBERT and inverse squares.**
- **Surface temperature measurement by infrared.**
- **Study of the influence of the distance and of the orientation of the source.**

Operating principle

The PBR 010 bench is designed to study thermal radiation.
The bench allows us to study the laws relating to the transfer by radiation from a heat source.
The robust design of this equipment makes it perfectly suited for use in schools.
Its anodized aluminum frame with legs gives it great strength as well as great flexibility of integration into your premises.
The manufacturing of this equipment meets European machine directive.

Illustrations



Guide rail

Profile anodized aluminum, graduated, mounted on adjustable legs

Infrared thermometer

Output 4-20 mA
With aiming device

Thermal heat source

Mounted on graduated rotary support
Heating element 675 watts
Extension black surface at high efficiency
SSR variable power
PID digital regulation

Technical details

1 Clamping knob

2 Thermal heat source

3 Scale plate

4 Electrical box including:

Temperature indicator measured by the IR thermometer with connector, temperature indicator of the plates with connectors, PID temperature controller, switches of on/off, emergency stop button ...

5 Graduated guide rail

Different metallic plates in aluminum equipped with probes Pt100 Ω of surface with different finishes (x4) :

- Shiny black plate
- Matt black plate
- White plate
- Plate without paint

Radiometer 0 – 1000 mW/cm²

Measuring probe of radiance 0.2 to 1000 mW/cm²

Instrumentation

Plates temperature indicator
Indicator of surface temperature
With the infrared thermometer
PID temperature controller

Services required

- Electrical supply : 230 VAC – 50 Hz – 16 A
- Electrical supply type : 1 phase + Neutral + Earth
- Dimensions : (LxWxH mm): 2000 x 500 x 900
- weight (Kg): 40

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE