FLUXTEQ

PHFS-09e

PHFS-09e Heat Flux Sensor Description

The PHFS-09e is the first low-cost large area heat flux sensor on the market. It is particularly useful for monitoring the performance of thermal insulation and directly in-situ measuring insulation thermal resistance R-values. The sensor has excellent sensitivity that is perfect for measurements of heat transfer through building thermal insulation. Metal encapsulation increases the robustness of the sensor itself for repeated applications of the sensor to measurement surfaces.

Potential Applications

- R&D of heat transfer components
- Energy efficiency of thermal systems
- Heat transfer education
- Wearable technology that detects calorie burn

Heat Flux Sensor Specifications

Sensor Type	Differential-Temperature Thermopile
Encapsulation Material	Copper (other materials available)
Nominal Sensitivity	Approx. 70 to 90 mV/(W/cm^2)
Sensor Thickness (t)	Approx. 450 microns
Specific Thermal Resistivity	Approx. 0.9 K/(kW/m^2)
Heat Flux Range	+/- 150 kW/m^2
Temperature Range*	-50°C to 120°C
Response Time**	Approx. 0.6 seconds
Sensor Surface Thermocouple	Type-T
Sensing Area Dimensions	a = 8.8 cm, b = 9.5 cm
Sensing Area	83.6 cm^2

*Temperature range may be larger than specified. Further testing is being conducted.
**Response time is time for one time constant or 63% of sensor output signal to a heat flux step input