

# HFP01



## HEAT FLUX SENSOR

The HFP01 is the World's most popular selling heat flux sensor. Intended for heat flux measurement research in soil, through walls and building envelopes, the HFP01 employs a thin low-profile ceramic plastic composite body, minimizing sensor thermal resistance.

The HFP01 serves to measure the heat flux flow through the object in which it is incorporated or mounted upon. The sensor employs a passive thermopile detector (no power required), which generates a millivolt output signal resulting from the differential temperature across the ceramic plastic body of the HFP01 and proportionate to the local heat flux. Determining heat flux with the HFP01 requires connection to either a data logger or digital voltmeter with a measurement resolution of twenty-five micro-volts or better; simply divide the HFP01 millivolt output signal by the factory supplied calibration factor to arrive heat flux in W/m<sup>2</sup> units. The HFP01 can be used for in-situ measurement of building envelope thermal resistance (R-value) and thermal transmittance (H-value) according to ISO 9869, ASTM C1046 and ASTM 1155 standards. Sensor calibration is traceable to the 'Guarded Hot Plate' of the National Physical Laboratory (NPL) in the UK, in accordance with ISO 8302 and ASTM C177 standards. Some sensor applications often require the installation of two HFP01 sensors for improved spatial averaging, resulting in superior measurement accuracy. The HFP01 may also be connected in a series configuration with one or more HFP01 sensors, generating a cumulative output signal. For certain soil applications where greater measurement accuracy may be required, the self-calibrating HFP01SC model should be considered. See also HFP03 and the PU series.



### APPLICATIONS

- Agrometeorology (evapo-transpiration)
- Building Physics (thermal insulation studies)

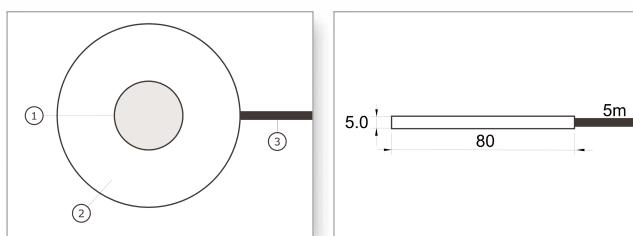
Note: Above applications are inclusive of, but not limited to the entire HFP01 application range.

### HFP01 SPECIFICATIONS

Sensitivity (nominal):	50 $\mu$ V/W/m <sup>2</sup>
Temperature range:	-30 to +70° C
Sensor thermal resistance:	< 6.25 10 <sup>-3</sup> Km <sup>2</sup> /W
Range :	± 2000 W/m <sup>2</sup>
Calibration traceability:	NPL, ISO 8302 / ASTM C177
Measurement accuracy: (based on 12 hour totals)	+5 / -15% common soils +5 / -5 % on wall surfaces

### OPTIONS

Additional cable length by the meter (5 m supplied standard), AC100 amplifier, LI 18 hand-held display unit



► Figure 1: HFP01 heat flux plate dimensions:  
(1) sensor area, (2) guard of ceramics plastic composite, (3) cable, standard length is 5 m.  
All dimensions are in mm.