

PRECISION INFRARED RADIOMETER

Model PIR

The Precision Infrared Radiometer, Pyrgeometer, is intended for unidirectional operation in the measurement, separately, of incoming or outgoing terrestrial radiation as distinct from net long-wave flux. The PIR comprises a circular multi-junction wire-wound Eppley thermopile which has the ability to withstand severe mechanical vibration and shock. Its receiver is coated with Parson's black lacquer (non-wavelength selective absorption). Temperature compensation of detector response is incorporated. Radiation emitted by the detector in its corresponding orientation is automatically compensated, eliminating that portion of the signal. A battery voltage, precisely controlled by a thermistor which senses detector temperature continuously, is introduced into the principle electrical circuit.



Isolation of long-wave radiation from solar short-wave radiation in daytime is accomplished by using a silicone dome. The inner surface of this hemisphere has a vacuum-deposited interference filter with a transmission range of approximately 3.5 to 50 μm .

SPECIFICATIONS

- Sensitivity: approx. 4 $\mu\text{V}/\text{Wm}^{-2}$.
- Impedance: approx. 700 Ohms.
- Temperature Dependence: $\pm 1\%$ over ambient temperature range -20 to +40°C.
- Linearity: $\pm 1\%$ from 0 to 700 Wm^{-2} .
- Response time: 2 seconds (1/e signal).
- Cosine: better than 5%.
- Mechanical Vibration: tested up to 20 g's without damage.
- Calibration: blackbody reference.
- Size: 5.75 inch diameter, 3.5 inches high.
- Weight: 7 pounds.
- Orientation: Performance is not affected by orientation or tilt.

