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# 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  $\mu\text{m}$ .

## SPECIFICATIONS

- Sensitivity: approx. 4  $\mu\text{V}/\text{Wm}^{-2}$ .
- Impedance: approx. 700 Ohms.
- Temperature Dependence:  $\pm 1\%$  over ambient temperature range  $-20$  to  $+40^\circ\text{C}$ .
- Linearity:  $\pm 1\%$  from 0 to 700  $\text{Wm}^{-2}$ .
- 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