

## UVR1-A & UVR1-B ULTRAVIOLET PYRANOMETER

**UVR1-A: broad-band UV-A global spectral radiometer**

**UVR1-B: narrow-band UV-B global spectral radiometer**



The Middleton Solar UVR1-A and UVR1-B are precision filter radiometers for measuring solar global ultraviolet irradiance. The UVR1-A is suitable for air pollution monitoring. The UVR1-B is suitable for biological and human erythema (sunburn) monitoring.

### Performance Specification

Response time	0.5s, for 10% to 90%
Resolution	< 0.1% of full-scale
Non-stability (per year)	< -3%
Non-linearity	< 1%
Directional error (cosine + azimuth)	< $\pm 5\%$ (for all zenith angles)
Sideband error (% signal, typical)	UVR1-A: negligible
Temperature error	negligible (when heater on)

### NEGLIGIBLE SIDEBAND ERROR, EXCELLENT STABILITY

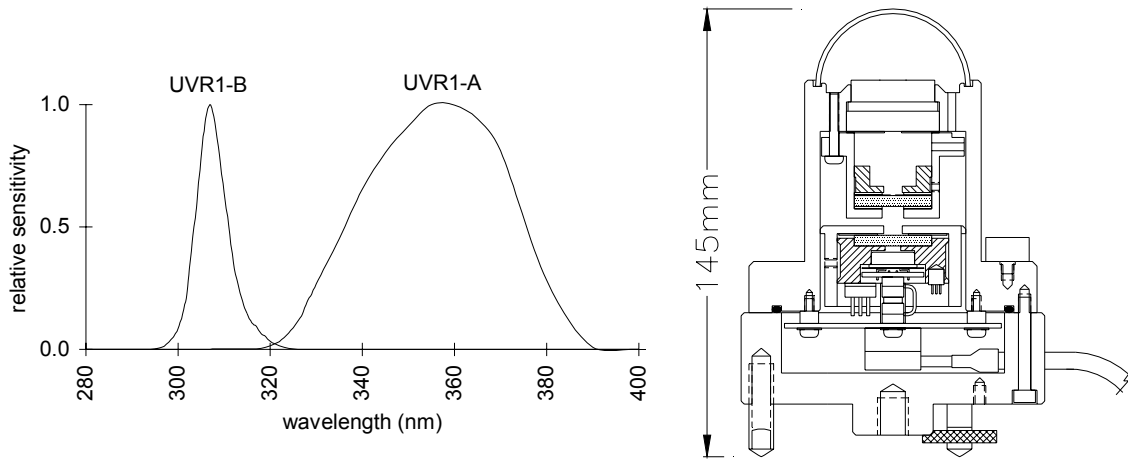
Marine-grade aluminium, hard anodized for corrosion resistance.

Large diameter (25mm) interference filter for long-term stability.

Narrow internal field-of-view to avoid filter bandpass distortion.

No thermal error as detector and filter held at constant temperature.

## Middleton Solar UVR1-A & UVR1-B Ultraviolet Pyranometer Detailed Specification



Large-area UV silicon photodiode detector with integral pre-amplifier.
Cosine-corrected diffuser with integrating cavity.
Independent shutdown for heater supply and detector supply.
Desiccated and sealed, with output signal for seal integrity.
Output signal for sensor temperature.
Supplied with simple mounting kit.
User's Guide and Calibration Certificate included.

### General Specification

central wavelength; half-power bandwidth	UVR1-A: 355 ±3.5nm; 40 ±3.5nm UVR1-B: 307 ±0.9nm; 7.5 ±1.5nm
detector type; active area	UV si-photodiode + amp.; 25 mm <sup>2</sup>
irradiance	UVA: 0-70 W.m <sup>-2</sup> (315-400nm) UVB: 0-3 W.m <sup>-2</sup> (280-315nm)
sensitivity (typical)	UVR1-A: 25 mV/W.m <sup>-2</sup> UVR1-B: 500 mV/W.m <sup>-2</sup>
dark offset (for 50°C ambient change)	±1.5mV (30°C & 40°C heater) ±2.5mV (50°C heater)
operating ambient temperature (heater on; off)	-30 to 45°C (on); -20 to 60°C (off)
thermal control: heater set-point selection	30°C; 40°C (default); 50°C
set-point stability	< 2.5°C (for 50°C ambient change)
power supply requirement (heater on)	5.5 to 14.5VDC, single supply 8W max., < 2W typical
standby current draw	heater + detector shutdown: < 1mA
hermetic seal integrity signal	OK = 0.5 to 1.0V, fail = 0 to 0.2V
temperature signal (detector/filter); accuracy	10mV/°C (eg: 0.4V = 40°C); ± 1°C
dome	UVR1-A: glass. UVR1-B: quartz
lead	6m; 8-core
mounting	central M10 hole in base, plus pair M4 holes on 65mm P.C.D.
weight	1.1kg (excluding lead)

Alternative spectral configurations in the range 280-1000nm are available to special order.

Available from: