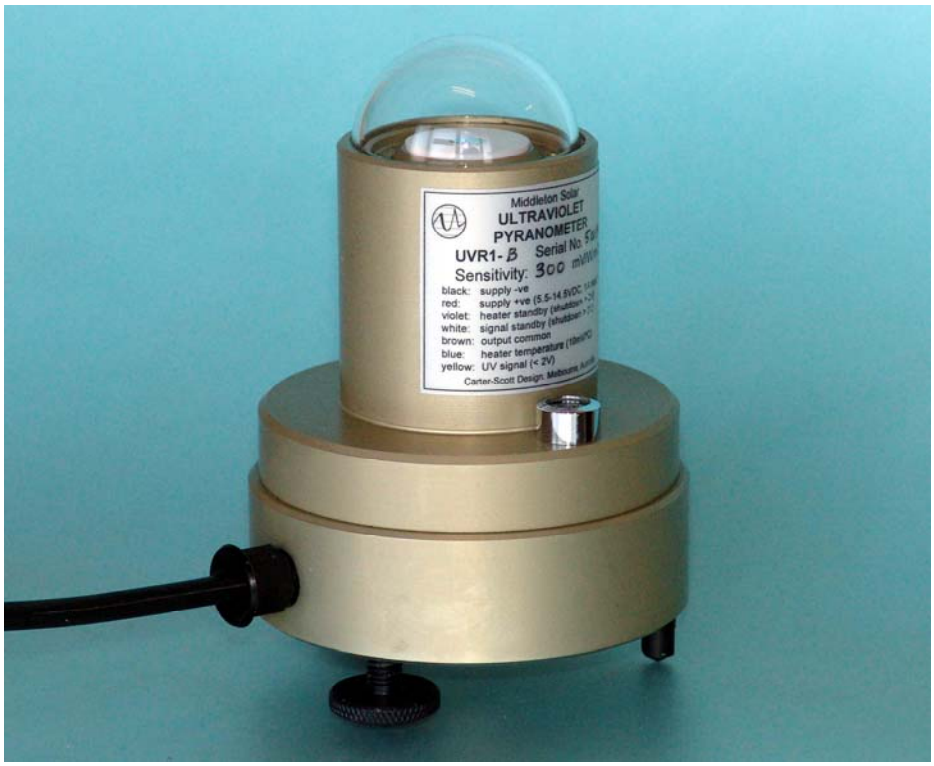
MIDDLETON SOLAR

UVR1 ULTRAVIOLET PYRANOMETER

UVR1-T: broad-band UV-Total global spectral radiometer
UVR1-A: broad-band UV-A global spectral radiometer
UVR1-B: narrow-band UV-B global spectral radiometer



The Middleton Solar UVR1 series are precision filter radiometers for measuring solar global ultraviolet irradiance. The UVR1-T and UVR1-A are 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)	< ± 2% (0°- 85° zenith angle)
Sideband error (% signal, typical)	UVR1-T & UVR1-A: negligible UVR1-B: 2.5% (summer), 7% (winter)
Temperature error	negligible (when heater on)

NEGLIGIBLE COSINE ERROR, EXCELLENT STABILITY

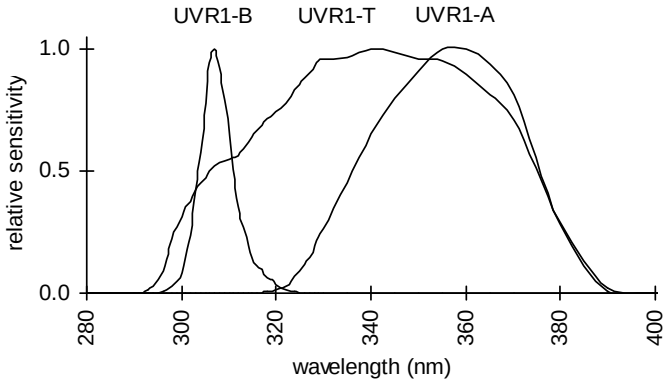
Marine-grade aluminium, anodized & sealed for corrosion resistance.

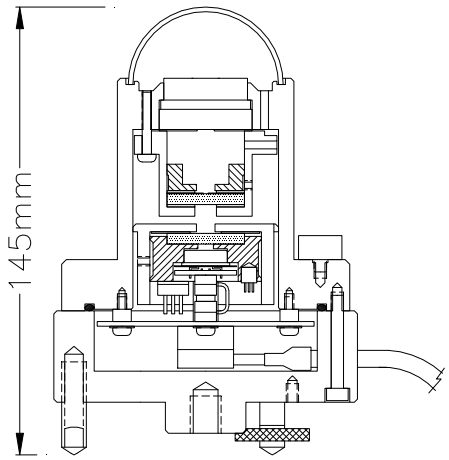
Large diameter (25mm) interference filters for long-term stability.

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

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

Middleton Solar UVR1-T, 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 hermetically sealed.
Output signal for sensor temperature.
Supplied with simple mounting kit.
User's Guide and Calibration Certificate included.

General Specification

spectral range & irradiance	UV-T: 280-400nm; 0-75 $W.m^{-2}$ UV-A: 315-400nm; 0-70 $W.m^{-2}$
	UV-B: 280-315nm; 0-4 $W.m^{-2}$, 0-10 MED/hr
detector type; active area	UV si-photodiode + amp.; 25 mm^2
central wavelength; half-power bandwidth	UVR1-T: 340 ±3.5nm; 70 ±3.5nm UVR1-A: 355 ±3.5nm; 40 ±3.5nm UVR1-B: 307 ±0.9nm; 7.5 ±1.5nm
sensitivity (typical)	UVR1-T & UVR1-A: 20 - 40 $mV/W.m^{-2}$ UVR1-B: 400 - 900 $mV/W.m^{-2}$
output (typical full-scale range)	0-3V DC
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 set-point stability	30°C; 40°C (default); 50°C < 2.5°C (for 50°C ambient change)
power supply requirement (heater on)	5.5 to 14.5VDC, single supply 12W max., 2W typical
standby current draw	heater + detector shutdown: < 1mA
temperature signal (detector/filter); accuracy	10mV/°C (eg: 0.4V = 40°C); ± 1°C
dome	glass or fused silica
IP rating	sealed to IP67
lead	6m; 7-core
mounting	central M10 hole in base, plus pair M4 holes on 65mm P.C.D.
net weight	1.1kg (excluding lead)
shipping size & weight	230 x 230 x 180mm, 3Kg