



UVR1 ULTRAVIOLET PYRANOMETER

UVR1-T2: broad-band UV-Total global spectral radiometer

UVR1-A2: broad-band UV-A global spectral radiometer

UVR1-B2: narrow-band UV-B global spectral radiometer



The Middleton Solar UVR1 series are precision filter radiometers for measuring solar global ultraviolet irradiance. The UVR1-T2 and UVR1-A2 are suitable for air pollution monitoring. The UVR1-B2 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) | < 3% (0°- 85° zenith angle) |
| Sideband error (% signal, typical) | UVR1-T2 & UVR1-A2: negligible UVR1-B2: 2.5% (summer), 7% (winter) |
| Temperature error | negligible (when heater on) |

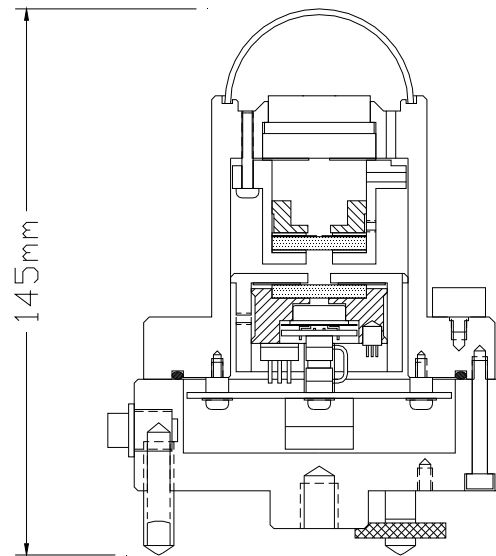
NEGLIGIBLE COSINE ERROR, EXCELLENT STABILITY

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-T2, UVR1-A2, UVR1-B2 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 | UVR1-T2: 280-400nm (UV-Tot.); 0-75 W.m ⁻² UVR1-A2: 315-400nm (UV-A); 0-70 W.m ⁻² UVR1-B2: 280-315nm (UV-B); 0-4 W.m ⁻² , 0-10 MED/hr |
| detector type; active area | UV si-photodiode + amp.; 25 mm ² |
| sensitivity (typical) | UVR1-T2 & UVR1-A2: 20 - 40 mV/W.m ⁻² UVR1-B2: 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, with connector at instrument end |
| mounting | central M10 hole in base, plus pair M4 holes on 65mm P.C.D. |
| construction | anodized aluminium; stainless steel |
| net weight | 1.0kg (excluding lead) |
| shipping size & weight | 230 x 230 x 180mm, 3Kg |