



APOGEE ULTRA VIOLET METERS | MU-100 & MU-200

Measure total radiation from 250 to 400 nm



Product Specifications

Features

Wide Range

Sensitive from 250 to 400 nm, spanning the solar UV and range of electric lamps.

Measurement Units

Calibration factors for photon flux density units [$\mu\text{mol m}^{-2} \text{s}^{-1}$] and energy flux density [W m^{-2}] are provided with each sensor allowing for rapid unit conversions.

Rugged, Self-cleaning Housing

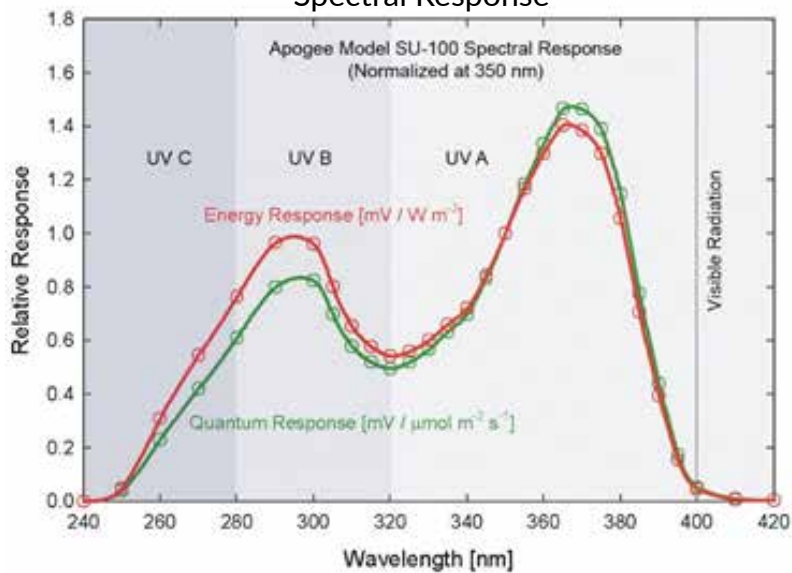
The patented dome-shaped sensor head facilitates runoff of dew and rain, helping to keep the detector clean and minimizing errors caused by dust blocking the radiation path. Sensors are housed in a rugged anodized aluminum body and electronics are fully-potted.

Typical Applications

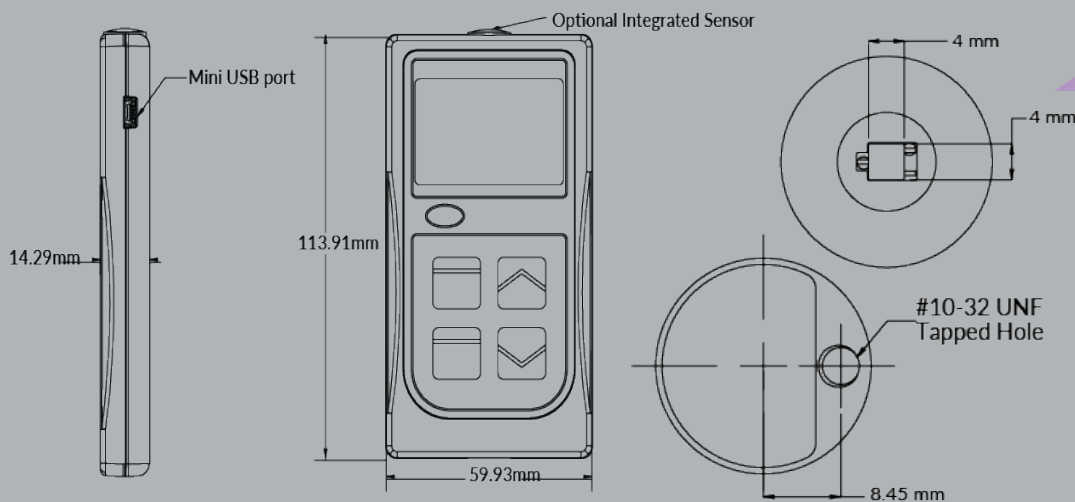
Applications include: UV radiation measurement in outdoor environments (sensor is not recommended for long-term continuous outdoor deployment), laboratory use with artificial light sources (e.g., germicidal lamps), and monitoring the filtering ability and stability of various materials.

	MU-100
Calibration Uncertainty	± 10 %
Measurement Repeatability	Less than 1 %
Long-term Drift (non-stability)	Less than 3 % per year
Non-linearity	Less than 1 % (up to $300 \mu\text{mol m}^{-2} \text{s}^{-1}$)
Response Time	Less than 1 ms
Field of View	180°
Spectral Range	250 nm to 400 nm
Directional (Cosine) Response	± 10 % at 75° zenith angle
Temperature Response	Approximately 0.1 % per C
Operating Environment	0 to 50 C; less than 90 % non-condensing relative humidity up to 30 C; less than 70 % non-condensing relative humidity from 30 to 50 C
Sensor Dimensions	24 mm diameter, 28 mm height
Meter Dimensions	126 mm length, 70 mm width, 24 mm height
Mass	150 g 180 g
Cable	2 m of shielded, twisted-pair wire; additional cable available; TPR jacket (high water resistance, high UV stability, flexibility in cold conditions)
Warranty	4 years against defects in materials and workmanship

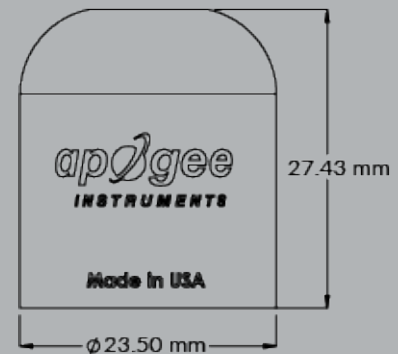
Spectral Response



Spectral response estimate of Apogee SU-100 UV sensors. Spectral response measurements were made at 10 nm increments across a wavelength range of 200 to 450 nm in a monochromator with an attached electric light source. Measured spectral data were normalized at 350 nm.



Dimensions



Spectral Errors

Radiation Source (Error Calculated Relative to sun, Clear Sky)	Error [%]
Sun (Clear Sky)	0.0
Sun (Cloudy Sky)	< 0.5
Reflected from Grass Canopy	< 0.5
Reflected from Deciduous Canopy	< 0.5
Reflected from Conifer Canopy	< 0.5
Reflected from Agricultural Soil	< 0.5
Reflected from Forest Soil	< 0.5
Reflected from Desert Soil	< 0.5
Reflected from Water	< 0.5
Reflected from Ice	< 0.5
Reflected from Snow	< 0.5
Cool White Fluorescent (T5)	9.0
Metal Halide	2.8
High Pressure Sodium	-1.7
Incandescent	-3.3
Mercury Arc	17.8

Spectral Error

Although the relative wavelengths of UV radiation differ among sunlight and electric lights, the error estimates shown in the table below indicate that the SU-100 provides reasonable estimates of UV radiation coming from electric lamps.

Calibration Traceability

Apogee SU-100 UV sensors are calibrated through side-by-side comparison to the mean of four Apogee model SU-100 transfer standard UV sensors under high intensity discharge metal halide lamps. The transfer standard UV sensors are calibrated through side-by-side comparison to an Apogee model PS-200 spectroradiometer under sunlight in Logan, Utah. The PS-200 is calibrated with a LI-COR model 1800-02 Optical Radiation Calibrator using a 200 W quartz halogen lamp. The 1800-02 and quartz halogen lamp are traceable to the National Institute of Standards and Technology (NIST).