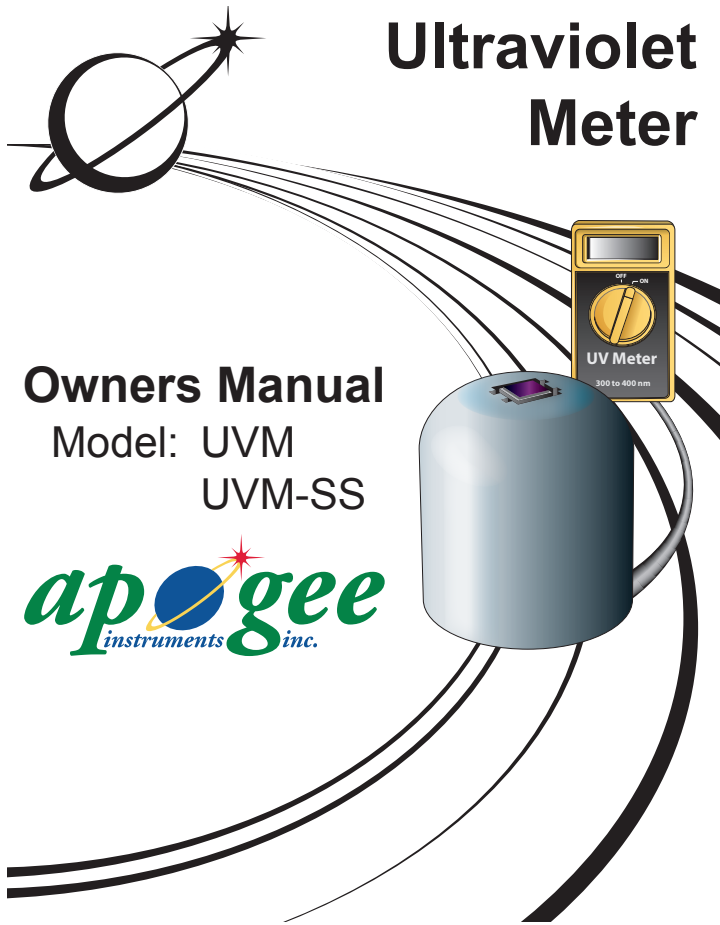
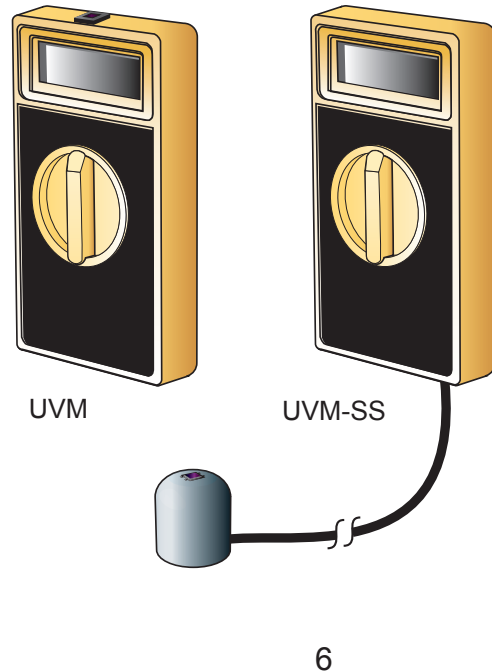


Ultraviolet Meter



Ultraviolet Meter

This meter measures the ultraviolet radiation between 250 and 400 nanometers, in $\mu\text{mol m}^{-2} \text{s}^{-1}$ (micromoles of photons per square meter per second).



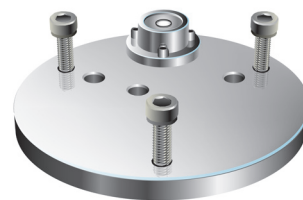
Handheld Readings

1. Turn the dial clockwise to the "on" position.
2. Handheld UV meters should be held level as shown below. Separate sensors should be mounted on a horizontal surface.
3. The number displayed is the $\mu\text{mol m}^{-2} \text{s}^{-1}$
4. Turn the meter off after use to conserve battery power.

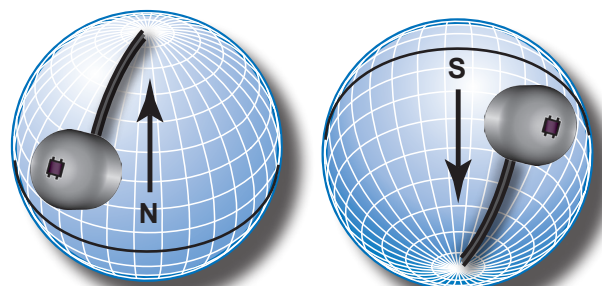


Mounting the UVM-SS

Mount the sensor as level as possible. Small changes in level can cause measurement errors. We recommend using our leveling plate (model LEV) for the most accurate measurements.



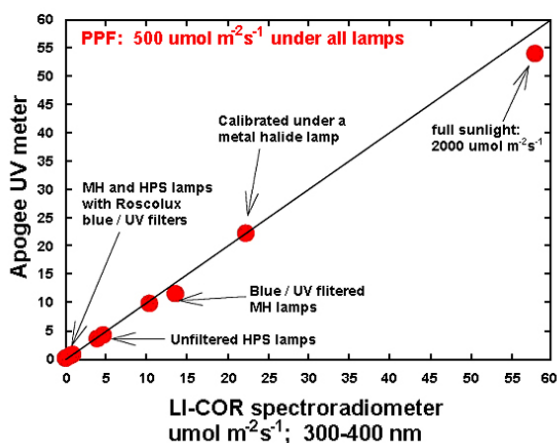
The sensor should be mounted with the cable pointing toward the nearest magnetic pole to minimize azimuth error.



Calibration

Although the relative wavelengths of UV radiation differ among sunlight and electric lights, our measurements, shown in the graph below, indicate that this sensor provides a close estimate of the UV radiation coming from electric lamps. This sensor is particularly useful for determining the UV filtering capacity of the transparent plastic and glass barriers that are commonly used below electric lamps.

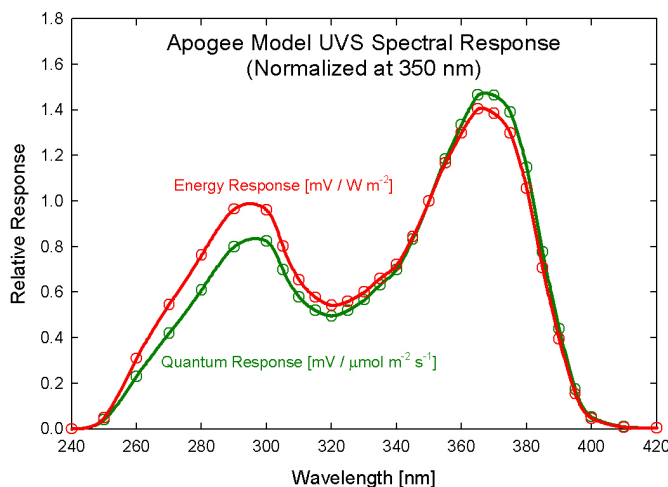
Apogee UV meter vs. LI-COR spectroradiometer under metal halide and high-pressure sodium lamps.



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Why this Meter cannot selectively measure UV-B Radiation (280-320 nm)

Our measurements confirm those of others and indicate that less than 0.4 % of the photon flux from sunlight falls below 320 nm; 2.3 % falls between 320 and 350 nm, and 6 % falls between 350 and 400 nm. Although the UV radiation between 250 and 320 nm is critically important in photochemical and photobiological reactions, only about 5 % of the UV photons are in this range. Because only a small fraction of the photons are in the UV-B range, this meter cannot be used to selectively measure UV-B radiation. The sensor is sensitive to UV-B radiation, but it is included with the UV-A radiation to provide a total measurement of UV radiation.



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Effects on Output

Level

The meter or sensor must be exactly horizontal for the most accurate measurement. The largest error is often caused by small changes in the position of the sensor. Separate sensors should be mounted with the cable pointing toward the nearest magnetic pole.

Cosine response

Some of the radiation coming into a sensor at low angles is reflected, which causes the reading to be less than it should be. The cosine-corrected head helps to capture radiation at low angles. The cosine error for typical applications is less than 10 %.

Temperature response

The temperature response is about 0.1 % per degree celsius. This temperature error is insignificant for most applications.

Long-term stability

The output of all radiation sensors tends to decrease over time as the detector ages. Our measurements indicate that the average output decreases about 1 % per year. We recommend returning the sensor for recalibration every 3 years.

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Specifications

Range	0-199.9 $\mu\text{mol m}^{-2} \text{s}^{-1}$ (full UV in sunlight: 170 $\mu\text{mol m}^{-2} \text{s}^{-1}$)
Absolute Accuracy	$\pm 10 \%$
Input power	Standard 9 V battery
Operating environment	0 to 50 °C. Less than 90 % non-condensing, relative humidity up to 30 °C. Less than 70% RH from 30 to 50 °C.
Display	3 ½ digit, 1.2 cm height
Cable	For separate sensor: 2 meters of shielded, twisted-pair wire with Santoprene casing.
Dimensions	Meter: 12.6 x 7 x 2.4 cm Sensor: 2.4 cm diameter, 2.5 cm tall
Mass	150 g-UVM, 180 g-UVM
Warranty	1 year parts and labor



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