

818-RAD-UVA SENSOR

Irradiance and Dosage Sensor

 | Newport

The 818-RAD-UVA LED and laser radiometer replaces traditional radiometers which are calibrated to a single wavelength (254nm, 365nm, etc.), offering calibration over a broad spectral range, which the user can access by entering any wavelength in the calibration range. 818-RAD-UVA is a general purpose circular geometry photodiode irradiance and dosage sensor with an 8.75mm aperture and a cosine corrected diffuser. Its spectral range is 350-450nm and its irradiance measuring range is 1.5 $\mu\text{W}/\text{cm}^2$ - 15 W/cm^2 . The sensor has a 1.5 meter length cable for connecting to a power meter.



Applications

- The 818-RAD-UVA is a photodiode sensor equipped and calibrated with a cosine corrector for measuring irradiance and dosage
- Measure irradiance in W/cm^2 and dosage J/cm^2
- Cosine corrected
- Ideal for narrowband LED sources

Ideal for Irradiance and Dosage Measurement

The 818-RAD-UVA sensor is an irradiance and dosage sensor with an 8mm aperture and a cosine corrected diffuser. It allows more accurate measurements for LED light sources than standard photodiode sensors. Its spectral range is 350-450nm and its irradiance measuring range is 1.5 $\mu\text{W}/\text{cm}^2$ - 15 W/cm^2 . The compatible power meters are also capable of integrating the irradiance over time, thereby providing the total amount of exposure (dose) in J/cm^2 .

NIST-traceable Sensor Calibration

Our calibrated photodiode sensors include a full spectral response calibration utilizing NIST- traceable standards calibrated with high-precision equipment maintained in Newport's optical detector calibration facility. Tight calibration facility and process control allows the tightest calibration uncertainty in industry. Each detector is shipped with the calibration data, which is electronically stored inside the detector's EEPROM. A certificate of calibration as well as the calibration data are shipped

with each detector. To maintain accuracy and guarantee performance, Newport recommends annual photodiode detector calibration.

Cosine Corrector for Beam at an Angle

In order to get a good cosine corrected response, a diffuser is placed in front of the photodiode to convert directional light into lambertian diffused light, thus eliminating any sensitivity to direction. In addition, it allows to measure highly diverging light sources such as LEDs more accurately than standard photodiode sensors calibration.

Detector Type	Post Mounted
Detector Input	Free Space
Detector Material	Silicon with Cosine corrected Diffuser
Spectral Range	350 - 450 nm
Irradiance Range	1.5µW/cm ² - 15W/cm ^{2(a)}
Irradiance Scales	30W/cm ² to 30µW/cm ² (7 scales), Auto ranging
Resolution	10 nW/cm ²
Attenuator	None
Maximum Power Density	50 W/cm ^{2(a)}
Maximum Pulse Energy (for laser ns pulse)	20 µJ
Noise Level	65 nW/cm ²
Calibration Uncertainty ^(b)	±3.6%, 350-400nm ±3.4%, 400-450nm
Thermal Coefficient	-0.03% /°C
Linearity	±0.5 %
Rise Time	0.2 sec
Clear Aperture	Ø2.75 mm
Connector Type	DB15
Cable Length	1.5 m
Maximum Irradiance vs. Wavelength	15 W/cm ² @350-450 nm
Dosage Sample Rate	500 samples per second
f'2 Cosine Correction Factor Accuracy	6.5 % ^(c)
Dimension	Ø35 x 21mm
Sensor Weight	0.11 kg
Compatible Meter	1919-R and 843-R/843-R-USB with or without PMManager, 844-PE-USB, 845-PE-RS
Compliant	CE, UKCA, China RoHS

Notes:

(a) Do not exceed 30 seconds of continuous exposure at > 5W/cm².

(b) The sensitivity of various photodiode sensors varies from one sensor to another as well as with wavelength.

(c) Up to 70 degrees.

