818-RAD SENSOR

Irradiance and Dosage Sensor

mks | Newport

The 818-RAD 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 is a general purpose circular geometry photodiode irradiance and dosage sensor with an 8mm aperture and a cosine corrected diffuser. Its spectral range is 200-850nm and its irradiance measuring range is 100 nW/cm² - 300 mW/cm². The sensor has a 1.5 meter length cable for connecting to a power meter.

Ideal for Irradiance and Dosage Measurement

The 818-RAD 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 200 - 850 nm and its irradiance measuring range is 100 nW/cm² - 250 mW/cm². The compatible power meters are also capable of integrating the irradiance over time, thereby providing the total amount of exposure (dose) in J/cm².

Applications

The 818-RAD is a new photodiode sensor equipped and calibrated with a cosine corrector for measuring irradiance and dosage.

- **Measure irradiance in W/cm² and dosage J/cm²**
- **Cosine corrected**
- **Ideal for narrowband LED sources**

NIST-traceable Sensor Calibration

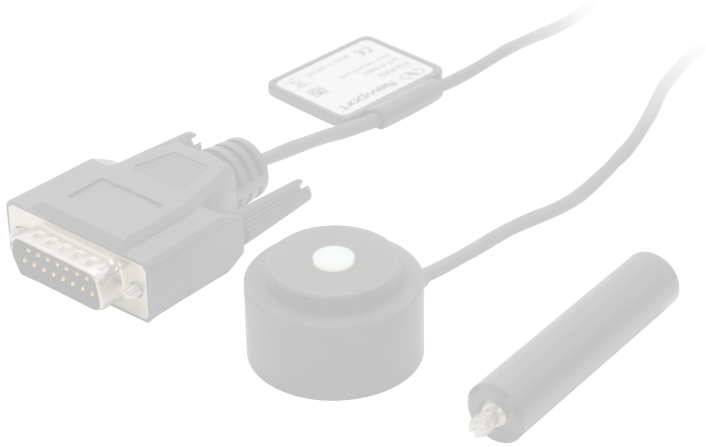
Our calibrated photodiode sensors include a full spectral response calibration utilizing NIST-traceable standards calibrated with high-precision equipment maintained in Newport's optical detector calibration facility. Tight calibration facility and process control allows the tightest calibration uncertainty 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.

Specifications

Detector Type	Post Mounted
Detector Input	Free Space
Detector Material	Silicon with Cosine Corrector corrected Diffuser
Spectral Range	200 - 850 nm
Irradiance Range	100nW/cm² – 250mW/cm²
Irradiance Scales	300mW/cm² to 300nW/cm² (7 scales), Auto ranging
Resolution	0.1 nW/cm²
Attenuator	None
Maximum Power Density	10 W/cm²
Maximum Pulse Energy (for laser ns pulse)	0.4 µJ
Noise Level	5 nW/cm²
Calibration Uncertainty	±3.4 % @400-850 nm
Thermal Coefficient	-0.03% /°C
Linearity	±0.5 %
Rise Time	0.2 sec
Clear Aperture	Ø8 mm
Connector Type	DB15
Cable Length	1.5 m
Maximum Irradiance vs. Wavelength	250 mW/cm² @200-400 nm 100 mW/cm² @400-550 nm 40 mW/cm² @550-850 nm
Dosage Sample Rate	500 samples per second
f'2 Cosine Correction Factor Accuracy	5 %
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



www.newport.com

DS-040720 818-RAD Sensor_10/23