

Analog Sensors • Non-Weighted UVA + UVB Detector for Lab Use

PMA1107



Measures Both “A” and “B”
Bandwidth Ultraviolet Radiation
from Sun and Artificial Sources

Applications

- Industrial and Laboratory Radiometry
- Phototherapy
- Environmental Monitoring
- Psoriasis Treatment Monitoring
- Materials Testing
- UV B + UV A Transmission Measurements
- Agricultural

Features and Benefits

- High Sensitivity
- Dynamic Range 2×10^5
- Excellent Long-Term Stability
- Cosine Corrected
- NIST Traceable Calibration

The PMA1107 detector gives an accurate measurement of non-weighted UVB+UVA ultraviolet radiation from sunlight or artificial light sources. The detector has angular response very close to an ideal cosine function (Lambertian response) making it suitable for measurements of diffuse radiation or radiation generated by extended sources.

The measured irradiance can be displayed in mW/cm^2 as well as a W/m^2 . High dynamic range allows measurements of very weak signals down to $0.001 \text{ mW}/\text{cm}^2$ as well as very strong irradiances over $200 \text{ mW}/\text{cm}^2$.

Calibration

The PMA1107 detector is calibrated spectroradiometrically for a source closely resembling solar UV radiation. A high pressure xenon arc lamp with 1mm SCHOTT WG305 filter is measured spectroradiometrically and a total power in the UV-A and UV-B regions are integrated. The PMA1107 detector is then exposed to the same source and adjusted to read the same power as the spectroradiometric measurement. Since the spectral response of the PMA1107 detector differs from an ideal UV-A / UV-B response (step function from 280 to 400nm), the reading of a source with substantially different spectral power distribution would have to be corrected with a multiplicative factor. This correction factor can be derived knowing the relative spectral power distribution of the source and the original detector calibration method.

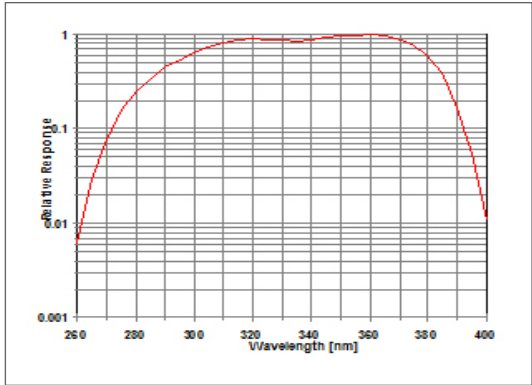


Fig. 1. PMA1107 Spectral Response

Specifications	
Spectral Response	Follows Erythema Action Spectrum Figure 1
Angular Response	5% for Angles <60°
Angular Range	200 [mW/cm²], 2,000 [W/cm²]
Display Resolution	0.001 [mW/cm²], 0.01 [W/cm²]
Operating Environment	32 to 120 °F (0 to +50 °C) No Precipitation
Temperature Coefficient	1% /°C for Solar Radiation
Cable	6 ft. Straight Cable (1.82m)
Diameter	1.6" (40.6mm)
Height	1.8" (45.8mm)
Weight	7.1 oz. (200 grams)
Ordering Information	
PMA1107	Non-Weighted UVA + UVB Detector