

# Analog Sensors • Non-Weighted UV-B Detector for Lab Use

PMA1106

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



## Applications

- Industrial and Laboratory Radiometry
- Phototherapy
- Environmental Monitoring
- Psoriasis Treatment Monitoring
- Materials Testing
- UV B Transmission Measurements
- Agricultural
- Ultraviolet Curing
- Ultraviolet Lithography Systems

## Features and Benefits

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

The PMA1106 UVB detector provides fast and accurate irradiance measurement in the UVB region. Its spectral response covers the 280–320nm range.

The Teflon diffuser assures an angular response close to a cosine function (Lambertian response) making it suitable for measuring diffused radiation or radiation from extended sources. The measured irradiance is displayed in  $\text{mW}/\text{cm}^2$  or  $\text{W}/\text{m}^2$ , user selectable. The PMA1106 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  $20 \text{ mW}/\text{cm}^2$  and the effect of stray light is negligible.

### Calibration

The PMA1106 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 the total power in the UV-B region is integrated. The PMA1106 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 PMA1106 detector differs from an ideal UV-B response (step function from 280–320nm), 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.

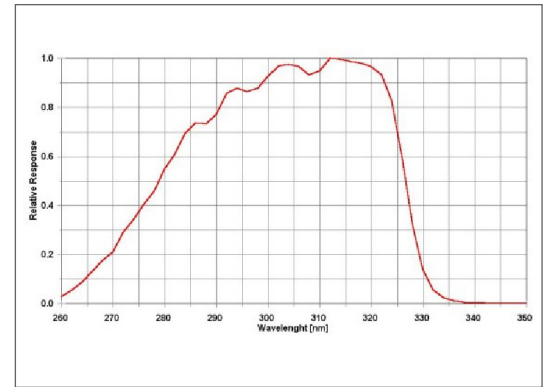


Fig. 1. PMA1106 Spectral Response

Specifications	
Spectral Response	Follows Erythema Action Spectrum Figure 1
Angular Range	PMA1106: 20 [mW/cm <sup>2</sup> ], 200 [W/cm <sup>2</sup> ]
	PMA1106B: 200[mW/cm <sup>2</sup> ], 2,000[W/cm <sup>2</sup> ]
Display Resolution	0.001 [mW/cm <sup>2</sup> ], 0.01 [W/cm <sup>2</sup> ]
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	
PMA1106	Non-weighted UV-B detector