

USER NOTES FOR OPHIR PD300RM IRRADIANCE SENSOR FAMILY

INTRODUCTION

Ophir's PD300RM radiometer family provides measurement of irradiance [W/cm^2] and dosage [J/cm^2]. By definition, the angular response of an irradiance sensor must be 'cosine corrected', i.e., the measurement is proportional to the cosine of the incidence angle. This is achieved by placing a diffuser in front of the photodiode detector.

The PD300RM radiometers are calibrated for irradiance according to an ISO17025 accredited calibration method.

Question: why not use a PD300 power sensor to measure power and obtain the irradiance by dividing the power by the sensor area.

Answer: if the light is collimated and is perpendicular to the sensor this can work, otherwise a PD300RM is needed.

MODELS

PD300RM-UV: This model has an 8 mm aperture, spectral range 200-850 nm, and measures up to $250 \text{ mW}/\text{cm}^2$.

PD300RM-8W: This model has an 8 mm aperture, spectral range 350-850 nm, and measures up to $8 \text{ W}/\text{cm}^2$.

PD300RM-UVA flat spectral response: This model has a 2.75 mm aperture, spectral range 350-450 nm, and measures up to $15 \text{ W}/\text{cm}^2$.

OPERATING THE SENSOR

PD300RM-UV and PD300RM-8W:

- **Irradiance**
 - Select 'irradiance' on the display
 - Enter the wavelength
 - Select the scale or 'autoranging'
- **Dosage**
 - Select 'dosage' on the display
 - Enter the wavelength
 - Autoranging is not possible during dosage measurement. Therefore, select a scale that will not saturate during the measurement
 - Zero the measurement by pressing 'offset'.

Any offset will accumulate during the measurement and contribute to measurement error

- Press 'start'. The meter will sample the irradiance at 500 samples per second and will accumulate the measurements to show the dosage
- Press 'stop' to stop the measurement
- If at any point during the measurement the sensor was saturated, there will be an indication on display. Repeat the measurement at a higher scale

PD300RM-UVA:

Due to its flat spectral response, the PD300RM-UVA measures light at the 350-450 nm wavelength range without the need to define the exact light's wavelength. This is particularly useful for LEDs when the peak wavelength and bandwidth are not always known and may change with temperature.

The wavelength range is divided into two regions: ultraviolet region for light with wavelength of 350-400 nm (abbreviated UV) and visible region for light with wavelength of 400-450 nm (abbreviated VIS). Switching between the two regions is possible using the Filter selection feature in the meter/software.

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 - Select 'irradiance' on the display
 - Select the scale or 'autoranging'
- **Dosage**
 - Select 'dosage' on the display
 - Autoranging is not possible during dosage measurement. Therefore, select a scale that will not saturate during the measurement
 - Zero the measurement by pressing 'offset'. Any offset will accumulate during the measurement and contribute to measurement error
 - Press 'start'. The meter will sample the irradiance at 500 samples per second and will accumulate the measurements to show the dosage
 - Press 'stop' to stop the measurement
 - If at any point during the measurement the sensor was saturated, there will be an indication on display. Repeat the measurement at a higher scale