

Solar Light's [Model PMA2132 Digital Quantum Light \(PAR\) Sensor](#) measures the photon flux in wavelength range from 400 to 700 nm. There is a proportional relationship between the number of photons absorbed in 400 to 700 nm band and the rate of photosynthesis in plants. The energy of a photon is proportional to its frequency, and therefore inversely proportional to wavelength. In order to produce a signal proportional to the photon flux (number of photons per unit of area per second,) the sensor's spectral power response (Amps/[W/cm<sup>2</sup>]) must be inversely proportional to the photon's frequency and thus proportional to wavelength. Traditionally the quantum flux is measured in micro-moles (micro-Einsteins)/s/m<sup>2</sup>. The conversion factor is:

$$1\mu\text{E/s/m}^2 = 1\mu\text{mole/s/m}^2 = 6.02 \times 10^{17} \text{ quanta/s/m}^2$$

The angular response of the PMA2132 sensor is cosine corrected, and suitable for measurements of diffuse radiation or radiation from extended sources. Several packages are available for different types of environments, including standard, low profile, weatherproof, waterproof, and high volume / OEM chassis.



### Applications

- Agriculture
- Photobiology
- Meteorology and Climatology
- Environmental Monitoring
- Educational

### Features and Benefits

- High Sensitivity
- Excellent Long-Term Stability
- Cosine Corrected
- NIST Traceable Calibration
- Selectable Units



**Standard Chassis - IP60**  
1.8" (45.8mm) High x 1.6" (40.6mm) Diameter



**Weatherproof Standard Chassis - IP68**  
Can be submersed up to 3 meters deep  
1.8" (45.8mm) High x 1.6" (40.6mm) Diameter



**Waterproof Underwater Chassis - IP68**  
Can be submersed up to 100 meters deep  
3.3" (83.4 mm) High x 4.7" (119.7 mm) Diameter

### Options:

- Tripod Mounting Plate
- Weatherproof Chassis (submersible up to 3 meters)
- Waterproof Underwater Chassis (submersible up to 100 meters)
- Analog Model Also Available (Model PMA1132)

SPECIFICATIONS	
<b>Spectral Response</b>	Quantum Response (400-700nm)
<b>Cosine Response</b>	±5% for Angles <40° (Standard Chassis)
<b>Range</b>	*See model chart on the next page
<b>Display Resolution</b>	*See model chart on the next page
<b>Operating Environment</b>	32 to 120°F (0 to +50°C)
<b>Temperature Coefficient</b>	Negligible
<b>Cable Length</b>	*See chart below
<b>Dimensions and Weight</b>	*See outline drawings

Part Number: 210015

Revision Level: C

Specifications subject to change without notice.

CABLE LENGTHS	
<b>Standard Chassis</b>	6ft Straight Cable (1.82m) (Custom Lengths Available)
<b>Weatherproof Chassis</b>	15ft Standard Cable (4.57m) (Custom Lengths Available)
<b>Waterproof Underwater Chassis</b>	Cable Length by Request. Specify up to 100 Meters.

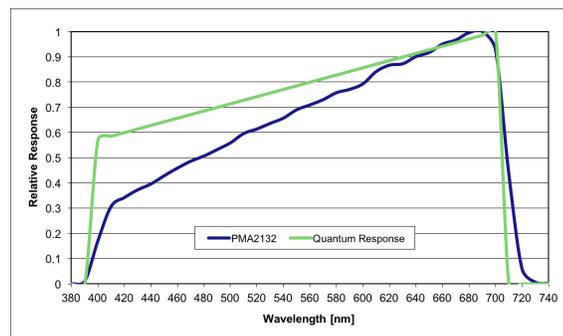


Fig. 1. Linear Spectral Response

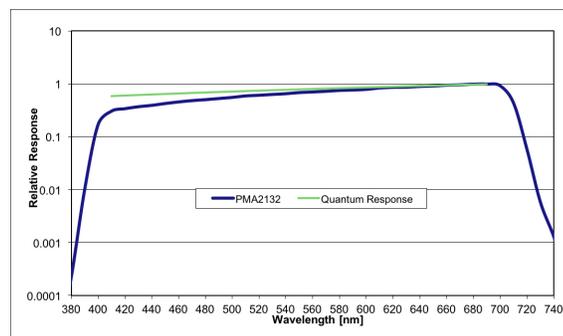


Fig. 2. Log Spectral Response

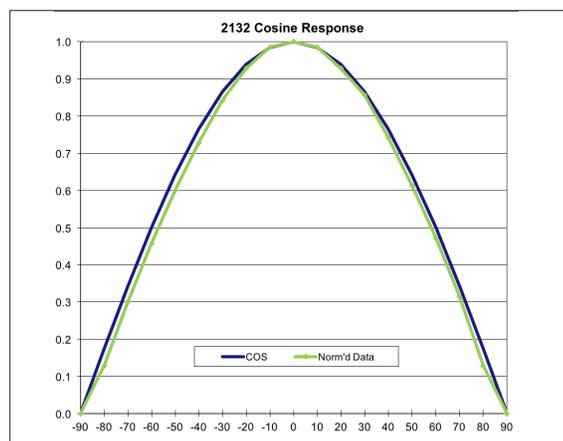


Fig. 3. Cosine Response

### Partial Model Selection Chart



#### STANDARD CHASSIS - IP60

Model	Range	Display Resolution
PMA2132	20,000 [ $\mu\text{E}/(\text{m}^2\text{s})$ ] or 4,300 [ $\text{W}/\text{m}^2$ ]	0.1 [ $\mu\text{E}/(\text{m}^2\text{s})$ ] or 0.01 [ $\text{W}/\text{m}^2$ ]



#### WEATHERPROOF CHASSIS - IP68

Model	Range	Display Resolution
PMA2132-WP	20,000 [ $\mu\text{E}/(\text{m}^2\text{s})$ ] or 4,300 [ $\text{W}/\text{m}^2$ ]	0.1 [ $\mu\text{E}/(\text{m}^2\text{s})$ ] or 0.01 [ $\text{W}/\text{m}^2$ ]

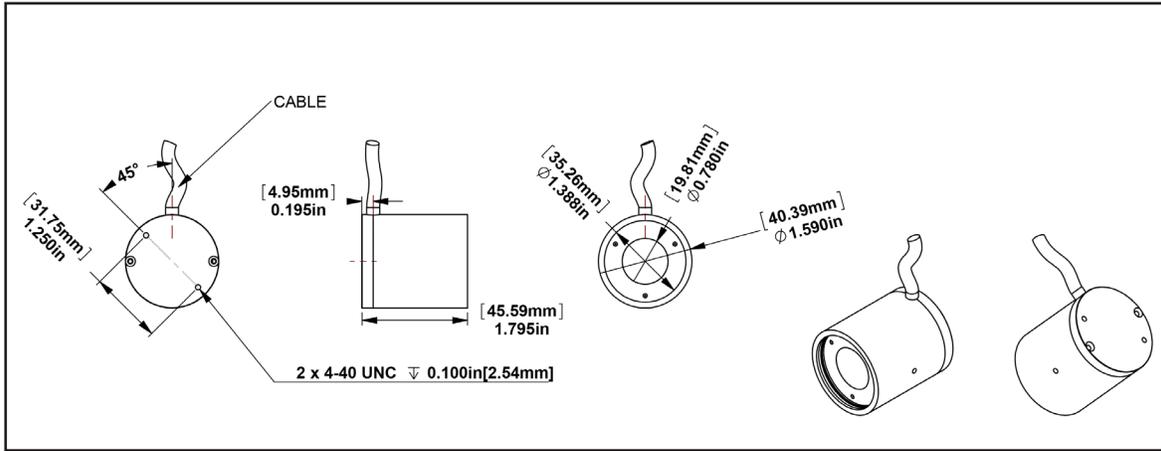


#### WATERPROOF UNDERWATER CHASSIS - IP68

Model	Range	Display Resolution
PMA2132-UW	20,000 [ $\mu\text{E}/(\text{m}^2\text{s})$ ] or 4,300 [ $\text{W}/\text{m}^2$ ]	0.1 [ $\mu\text{E}/(\text{m}^2\text{s})$ ] or 0.01 [ $\text{W}/\text{m}^2$ ]

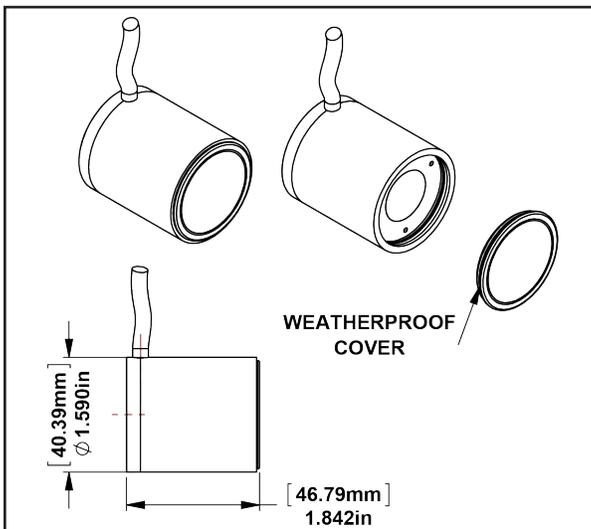
Custom ranges, cable lengths, and cable types are available upon request – please consult factory for details

## Standard Chassis



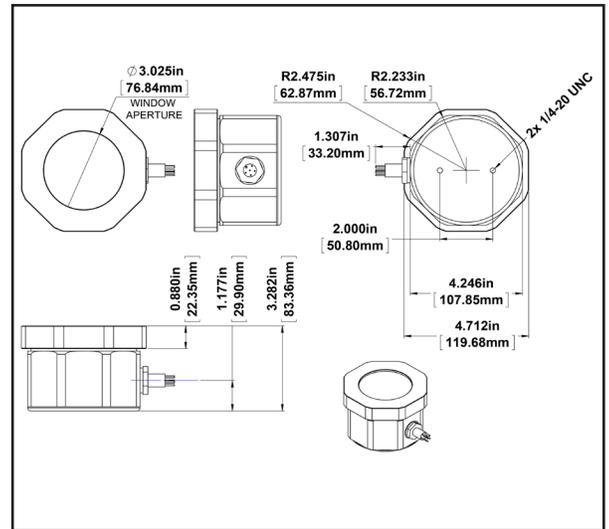
Est. Weight: 4 oz. (113 g)

## Weatherproof Chassis



Est. Weight: 4.2 oz. (119 g)

## Waterproof Underwater Chassis



Est. Weight: 3.7 lbs. (1678 g)

Since 1967, Solar Light Company, LLC has been recognized worldwide as America's premier manufacturer of Precision Solar Simulators and Light Sources, Light Measurement Instrumentation, UV Transmittance Analyzers, Meteorological Instrumentation, and Digital and Analog Sensors. Our advanced line of UV, visible, and IR radiometers and light meters measure laboratory, industrial, environmental, and health related light levels with NIST traceable accuracy. Column ozone, aerosol, and water vapor thickness measurements, in addition to long-term global ultraviolet radiation studies all over the world are performed using our atmospheric line of instrumentation. Solar Light also provides NIST traceable spectroradiometric analyses, calibrations for light meters and light sources, accelerated ultraviolet radiation degradation testing of materials, and OEM instrumentation and monitors. Please visit our website for more details, specifications, and pictures!



**State Of The Art Solar Simulators** available in 150-1000+ watt UV or AM variations for a variety of applications including PV Cell Testing, Materials Testing, Pre-Irradiation for *In Vitro* Broad Spectrum Sunscreen Testing, SPF Testing, and much more.



**Multi-Functional Professional Grade Radiometers** available with and without data logging, and compatible with over 130 Solar Light PMA-Series Sensors to measure UV, Visible and IR wavelengths. Specialty Meters also available to measure UV Radiation, SUV/UVA, Scotopic/Photopic Spectra, and much more.



**Advanced NIST-Traceable Sensors** for accurate measurement of UVA, UVB, UVA+B, UVC, Visible, IR, Photostability, Temperature, and Custom Wavelength – well over 130 models in both digital and analog configurations, all compatible with our Radiometers.



**Ultraviolet Transmittance Analyzers** available as complete integrated turnkey systems to meet the latest ISO24443 requirements.



**Handheld Ozonometers and Sunphotometers** for fast and dependable Column Ozone, Aerosol, and Water Vapor Thickness measurements, in addition to long-term global ultraviolet radiation studies.