

Solar Light's **Model PMA1121 Analog Blue Light Safety Sensor** indicates the effective irradiance weighted by the American Conference of Governmental Industrial Hygienists (ACGIH) Spectral Weighting Function for Blue Light Hazard. Employers, safety officers and risk managers can use this sensor to protect workers against the effects of excessive daily blue light exposure. Such exposure, according to numerous medical studies, can inflict permanent and irreversible damage to the eye, causing visual field defects and visual impairment. Light sources that may produce a blue light hazard include monochromatic and collimated lasers, collimated arc, and blue LEDs. To protect against retinal photochemical injury from chronic blue light exposure, the maximum exposure limit for a source subtending less than 0.011 radian should not exceed 10 [mJ/cm²] per 10,000 seconds of exposure (or approximately 2 hours 47 minutes.) For exposure periods greater than 10,000 seconds, the weighted irradiance should not exceed 1 [μW/cm²].



Applications

- Industrial and Laboratory Safety
- Printing
- UV Curing and Photolithography
- Lighting
- Safety Glass Testing
- Environmental Testing

Features and Benefits

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

Typical Blue Light Levels:

- 200 W halogen lamp at 50 cm distance – 70 [μW/cm²]
- 150 W Xe arc lamp at 50 cm distance – 600 [μW/cm²]
- 40 W fluorescent tube at 2 m distance – 5 [μW/cm²]

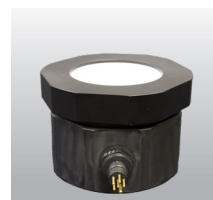




Standard Chassis - IP60
1.8" (45.8mm) High x 1.6" (40.6mm) Diameter



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 Housing - 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 Housing (submersible up to 100 meters)
- Digital Model for Interface with PMA Series Meters (Model PMA2121)

SPECIFICATIONS	
Spectral Response	Follows ACGIH blue hazard action spectrum, Figure 1
Cosine Response	±5% for Angles <40° (Standard Chassis)
Output Signal/Range	*See model chart on the next page
Input Power	*See model chart on the next page
Operating Environment	32 to 120°F (0 to +50°C)
Temperature Coefficient	Negligible
Cable Length	*See model chart on the next page
Dimensions and Weight	*See outline drawings
REFERENCES	
"Documentation of the threshold limit values for Physical Agents in the Work Environment" American Conference of Governmental Industrial Hygienists, Inc. Sliney, D.H., The Merits of an Envelope Action Spectrum for UVR Exposure Criteria, Am. Industr. Hyg. Assn. J..33 (9):644-653, 1972	

Part Number: 210035

Revision Level: C

Specifications subject to change without notice.

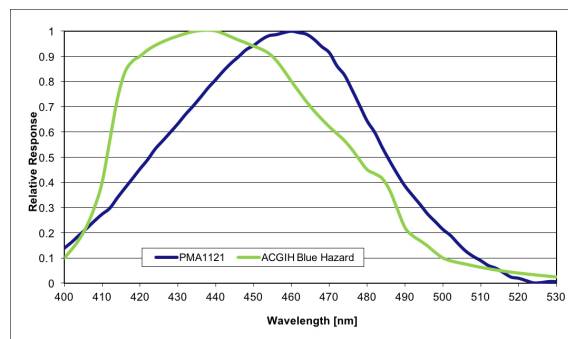


Fig. 1. Spectral Response

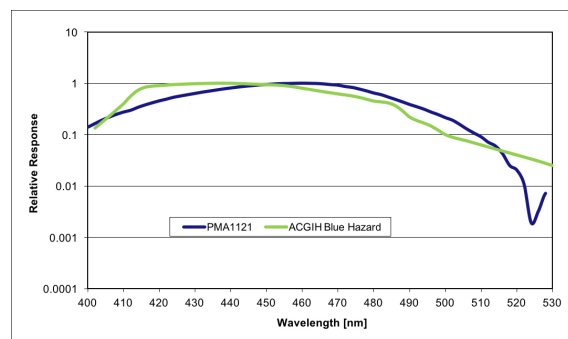


Fig. 2. Log Spectral Response

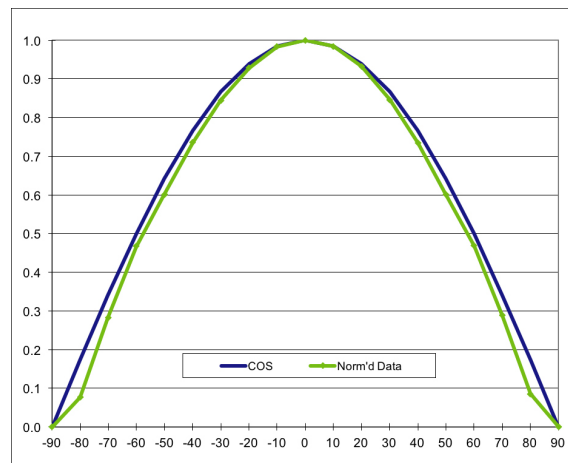


Fig. 3. Cosine Response

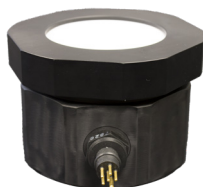
Partial Model Selection Chart



STANDARD CHASSIS - IP60				
Model	Input Power	Output Signal	Range	Cable Type
PMA1121-S-05-2000	9-24 VDC @ 30 mA	0-5 VDC	2,000 [μ W/cm ²] or 2 [mW/cm ²]	Pigtail w/ 2 meter detachable cable
PMA1121-S-420-2000	9-24 VDC @ 70 mA	4-20 mA	2,000 [μ W/cm ²] or 2 [mW/cm ²]	Pigtail w/ 2 meter detachable cable
PMA1121	\pm 5-12 VDC @ <1 mA	*0-5 VDC	2,000 [μ W/cm ²] or 2 [mW/cm ²]	6' cable stripped/tinned



WEATHERPROOF CHASSIS - IP68				
Model	Input Power	Output Signal	Range	Cable Type
PMA1121-WP-05-200	9-24 VDC @ 30 mA	0-5 VDC	2,000 [μ W/cm ²] or 2 [mW/cm ²]	Pigtail w/ 2 meter detachable cable
PMA1121-WP-420-200	9-24 VDC @ 70 mA	4-20 mA	2,000 [μ W/cm ²] or 2 [mW/cm ²]	Pigtail w/ 2 meter detachable cable
PMA1121-WP	\pm 5-12 VDC @ <1 mA	*0-5 VDC	2,000 [μ W/cm ²] or 2 [mW/cm ²]	15' cable stripped/tinned

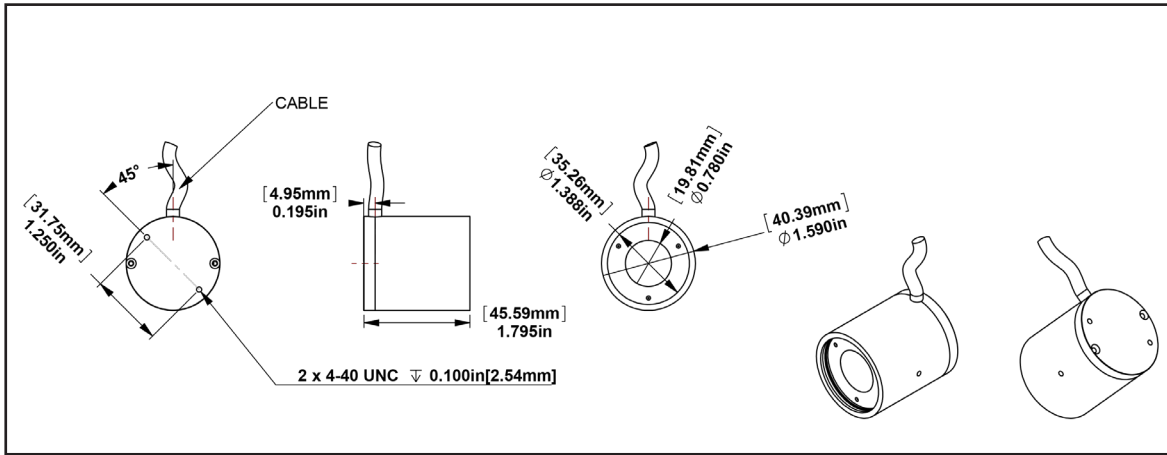


WATERPROOF UNDERWATER CHASSIS - IP68				
Model	Input Power	Output Signal	Range	Cable Type
PMA1121-UW	\pm 5-12 VDC @ <1 mA	*0-5 VDC	2,000 [μ W/cm ²] or 2 [mW/cm ²]	Customer to define length required

*0 to Supply -0.5 Volts

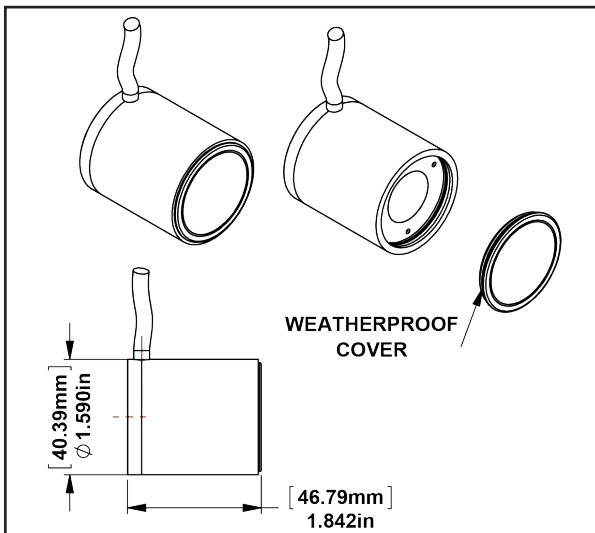
Custom ranges, cable lengths, and cable types are available upon request – please consult factory for details

Standard Chassis



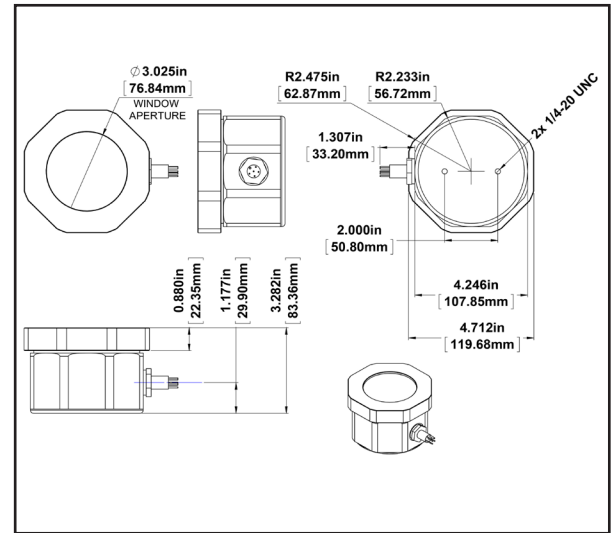
Est. Weight: 4 oz. (113 g)

Weatherproof Chassis



Est. Weight: 4.2 oz. (119 g)

Waterproof Underwater Housing



Est. Weight: 3.7 lbs. (1678 g)

Analog Wiring Chart

WIRE COLOR	PMA11xx-420	PMA11xx-05	PMA11xx
White	Power Ground*	Signal Out 0-5 VDC	Signal Out 0 to Vin-0.5 VDC
Blue		Power Ground	Power Ground
Green			Analog Ground
Red			Vin +5-12 VDC
Orange			Vin -5-12 VDC
Yellow			Signal Out 0 to Vin-0.5 VDC
Black		Analog Ground	
Pink		Vin 9-24 VDC	
Brown	Vin 9-24 VDC*		
Bare or Braid		Shield	Shield
A/C Plug			

*Current meter is connected in series with power supply and sensor

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.