

Solar Light's **Model PMA1123 Digital Bilirubin Phototherapy Sensor** is an accurate, stable sensor designed to measure the output of phototherapy lamps used in neonatal wards to treat infant hyperbilirubinemia (jaundice.) Blue light in the spectral range of 425-475 nm chemically alters bilirubin below the surface of the skin into byproducts that an infant can eliminate in urine. The standard PMA2123 sensor has a narrow spectral response from 425-475nm, closely matching the action spectrum for bilirubin breakdown. The measurement will be accurate for the output of any lamp, especially the blue fluorescent, daylight fluorescent, and quartz halogen lamps commonly used in bililight units.



### Applications

- Jaundice Phototherapy
- Phototherapy Lamp Monitoring
- Determining Length of Exposure
- Clinical Studies

### Features and Benefits

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

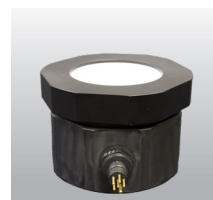




**Standard Chassis - IP60**  
1.8" (45.8mm) High x 1.6" (40.6mm) Diameter



**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 PMA2123)

SPECIFICATIONS	
<b>Spectral Response</b>	425-475nm, Figure 1
<b>Cosine Response</b>	±5% for Angles <40° (Standard Chassis)
<b>Output Signal/Range</b>	*See model chart on the next page
<b>Input Power</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 model chart on the next page
<b>Dimesions and Weight</b>	*See outline drawings

Part Number: 210036

Revision Level: C

Specifications subject to change without notice.

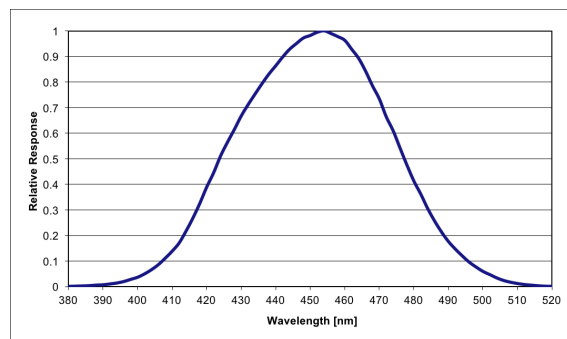


Fig. 1. Linear Spectral Response

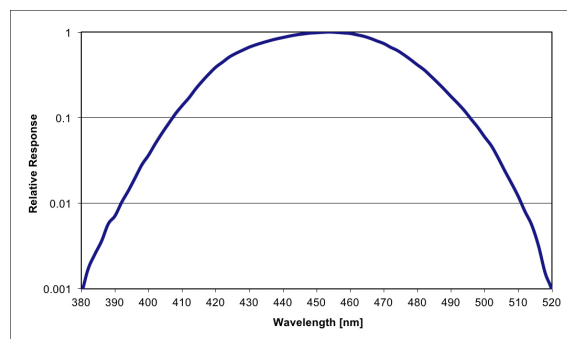


Fig. 2. Log Spectral Response

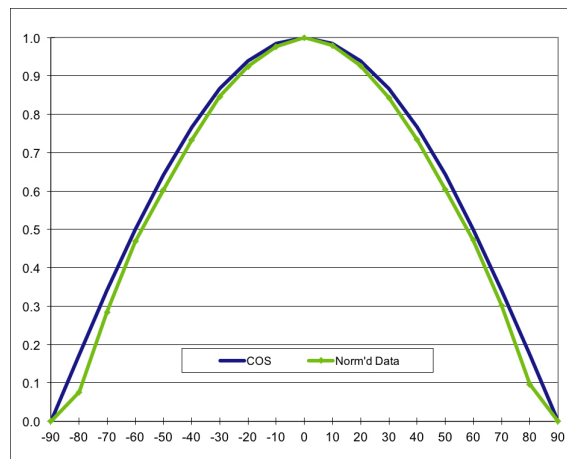


Fig. 3. Cosine Response

### Partial Model Selection Chart



STANDARD CHASSIS - IP60				
Model	Input Power	Output Signal	Range	Cable Type
PMA1123-S-05-2000	9-24 VDC @ 30 mA	0-5 VDC	2,000 [ $\mu$ W/cm <sup>2</sup> ] or 2 [mW/cm <sup>2</sup> ]	Pigtail w/ 2 meter detachable cable
PMA1123-S-420-2000	9-24 VDC @ 70 mA	4-20 mA	2,000 [ $\mu$ W/cm <sup>2</sup> ] or 2 [mW/cm <sup>2</sup> ]	Pigtail w/ 2 meter detachable cable
PMA1123	$\pm$ 5-12 VDC @ <1 mA	*0-5 VDC	2,000 [ $\mu$ W/cm <sup>2</sup> ] 2 [mW/cm <sup>2</sup> ]	6' cable stripped/tinned
PMA1123C	$\pm$ 5-12 VDC @ <1 mA	*0-5 VDC	20,000 [ $\mu$ W/cm <sup>2</sup> ], 20 [mW/cm <sup>2</sup> ] or 200 [W/m <sup>2</sup> ]	6' cable stripped/tinned



WATERPROOF UNDERWATER CHASSIS - IP68				
Model	Input Power	Output Signal	Range	Cable Type
PMA1123-UW	$\pm$ 5-12 VDC @ <1 mA	*0-5 VDC	2,000 [ $\mu$ W/cm <sup>2</sup> ] 2 [mW/m <sup>2</sup> ]	Customer to define length required
PMA1123C-UW	$\pm$ 5-12 VDC @ <1 mA	*0-5 VDC	20,000 [ $\mu$ W/cm <sup>2</sup> ], 20 [mW/cm <sup>2</sup> ] or 200 [W/m <sup>2</sup> ]	Customer to define length required

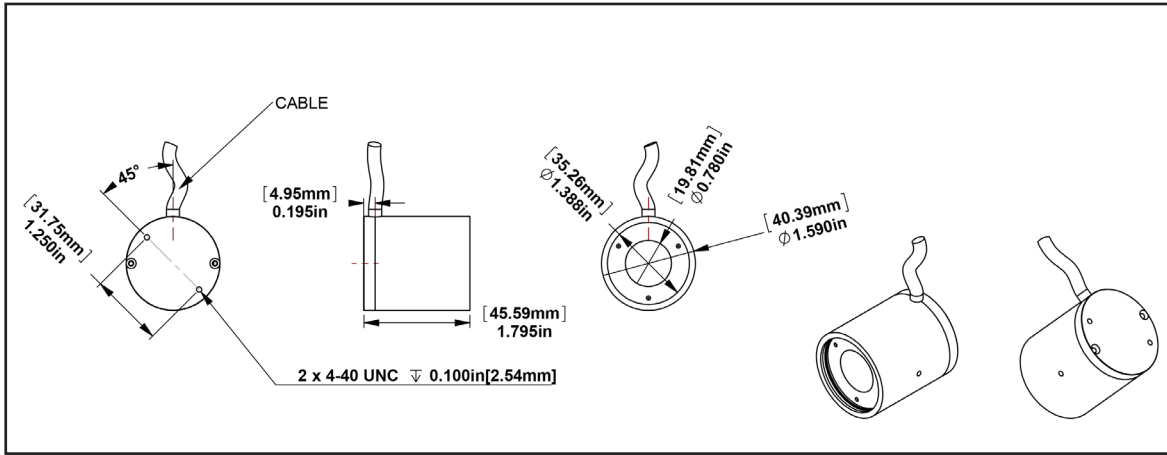


WEATHERPROOF CHASSIS - IP68				
Model	Input Power	Output Signal	Range	Cable Type
PMA1123-WP-05-2000	9-24 VDC @ 30 mA	0-5 VDC	2,000 [ $\mu$ W/cm <sup>2</sup> ] or 2 [mW/cm <sup>2</sup> ]	Pigtail w/ 2 meter detachable cable
PMA1123-WP-420-2000	9-24 VDC @ 70 mA	4-20 mA	2,000 [ $\mu$ W/cm <sup>2</sup> ] or 2 [mW/cm <sup>2</sup> ]	Pigtail w/ 2 meter detachable cable
PMA1123-WP	$\pm$ 5-12 VDC @ <1 mA	*0-5 VDC	2,000 [ $\mu$ W/cm <sup>2</sup> ] 2 [mW/cm <sup>2</sup> ]	15' cable stripped/tinned
PMA1123C-WP	$\pm$ 5-12 VDC @ <1 mA	*0-5 VDC	20,000 [ $\mu$ W/cm <sup>2</sup> ], 20 [mW/cm <sup>2</sup> ] or 200 [W/m <sup>2</sup> ]	15' cable stripped/tinned

\*0 to Supply -0.5 Volts

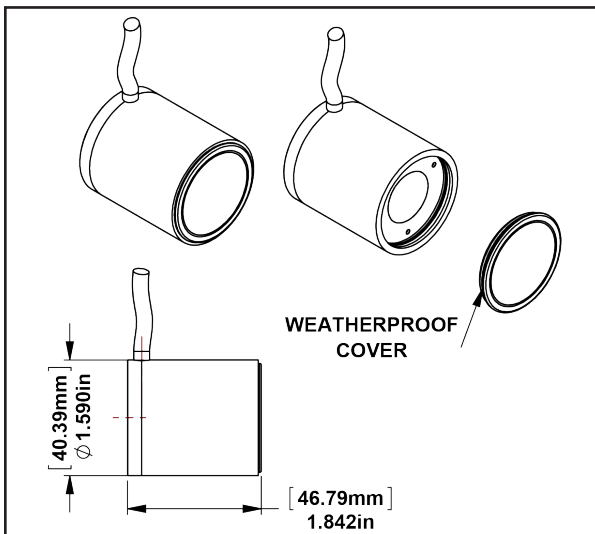
Custom ranges, cable lengths, and cable types are available upon request – please consult factory for details

## Standard Chassis



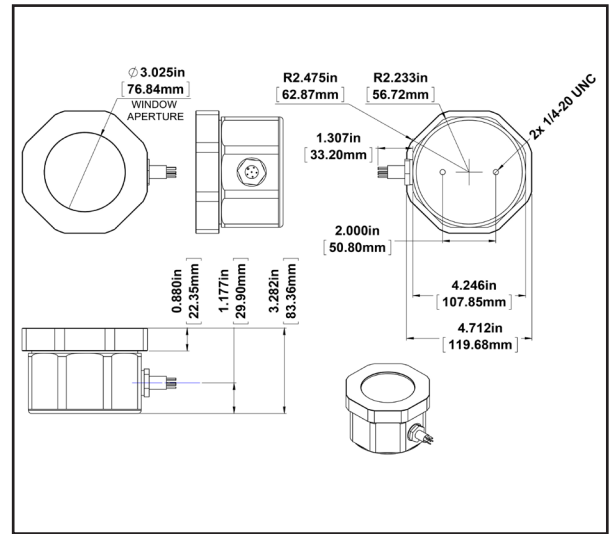
Est. Weight: 4 oz. (113 g)

## 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.