

# LIAD Series

## LOCK-IN AMPLIFIER DETECTORS



The LIAD series Lock-in Amplifier Detectors are ideal detectors for calibrated power measurements of very low level light sources.

- Built-in lock in amplifier to reduce noise and drift
- Broad wavelength range from 0.15 to 12  $\mu\text{m}$
- Power measurement down to 300 fW
- Capable of a pulsed source with 200 Hz or higher frequency
- Chopper included

## CHOPPER INCLUDED

The signal is passed through the 18Hz chopper, included in the products, and the chopped signal is detected by the sensor. All signals not at this 18Hz frequency are suppressed. The chopper must be placed close to the signal source so as to eliminate radiation from an unwanted source.

## BUILT-IN LOCK IN AMPLIFIER TO REDUCE NOISE AND DRIFT

The LIAD series Radiometers use a pyroelectric or photodiode sensor in conjunction with chopped CW or quasi CW radiation, using a digitally synthesized lock-in amplifier to reduce external noise to a minimum. When connected a compatible optical power meter, you can measure a calibrated power at a very low power level.



# MODULE TITLE

## COMPATIBLE POWER METERS

- 843-R Series Handheld Power Meters
- 1919-R Advanced Handheld Power Meter
- 841-PE-USB Virtual USB Power Meter



## BROAD WAVELENGTH RANGE FROM 0.15 TO 12 $\mu\text{M}$

Two models are offered. The photodiode based model LIAD-PD-300N covers between 200 and 1100 nm, while the pyroelectric detector based model LIAD-PY-100M covers between 0.15 and 12  $\mu\text{m}$ .

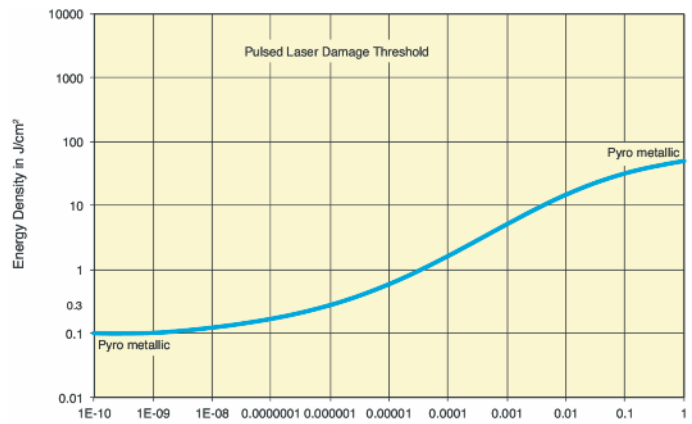
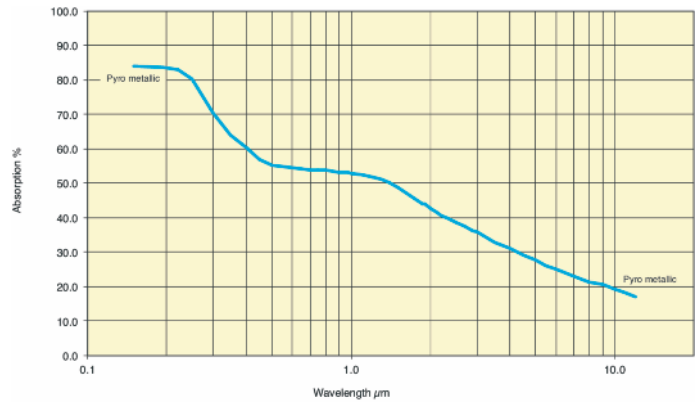


## POWER MEASUREMENT DOWN TO 300 fW

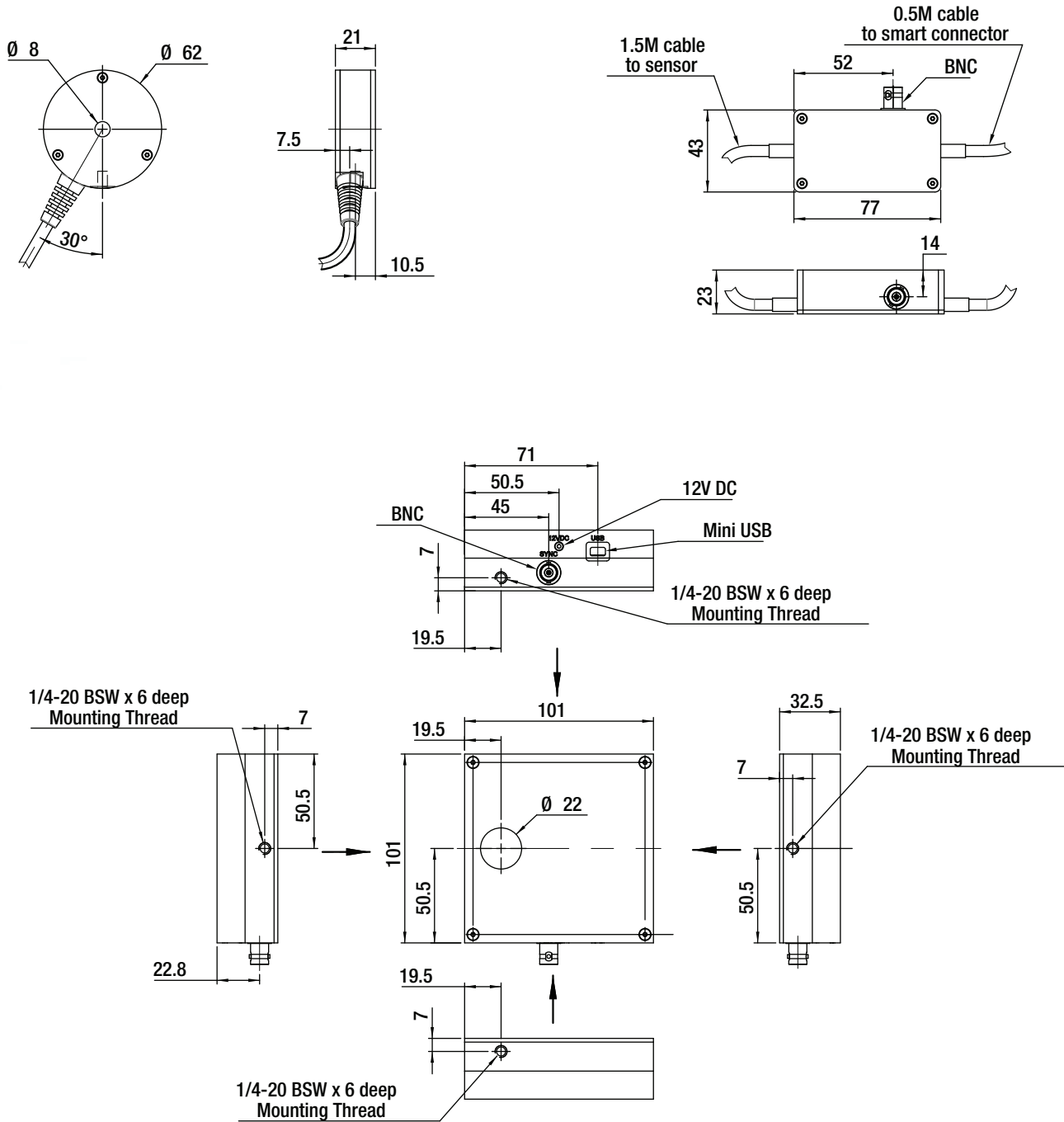
While LIAD-PY-100M can measure down to 100 nW, the minimum measurable power specification of LIAD-PD-300N is as low as 300 fW, lowest calibrated power measurement.

## CAPABLE OF A PULSED SOURCE WITH 200 HZ OR HIGHER FREQUENCY

The LIAD series sensor has a response time 0-95% of approximately 3.5 seconds. It will not be able to respond to signals changing faster than this. Pulsed sources can be measured using the LIAD series detectors, and the output will represent the average power of the pulsed source. For reliable readings, the pulse rate of the source should exceed about 200 Hz.



Dimensional Drawings



## SPECIFICATIONS

	LIAD-PY-100M	LIAD-PD-300N
Absorber Type	Pyroelectric	Si Photodiode
Spectral Range $\mu\text{m}$	0.15 - 12	0.2 - 1.1
Aperture mm	$\varnothing$ 8 mm	$\varnothing$ 8 mm
Surface Reflectivity % approx	50	50
Power Range	100nW - 100nW	300fW - 300nW
Power Scales	100mW to $3\mu\text{W}$	300nW to 3pW
Power Noise Level	$\sim$ 30nW	30fW
Minimum Frequency for PULSED Sources	200HZ	200Hz
Thermal Drift (20min)	$\sim$ 30nW	N.A.
Power Accuracy	$\pm$ 5%	$\pm$ 5%
Damage Threshold W/cm <sup>2</sup>	5	5
Response Time with Display (0-95%)	3.5	3.5
Linearity with Power	$\pm$ 2%	$\pm$ 2.5%
Cooling	Sensor Body	Sensor Body
Weight kg	0.37	0.37

## ORDERING INFORMATION

Model	Description
LIAD-PD-300N	<b>New</b> Lock-in Amp Detector, Si, 300fW - 300 nW, 8 mm
LIAD-PY-100M	<b>New</b> Lock-in Amp Detector, Pyroelectric, 100nW - 100mW, 8 mm



Newport Corporation, Global Headquarters  
1791 Deere Avenue, Irvine, CA 92606, USA

[www.newport.com](http://www.newport.com)

PHONE: 1-800-222-6440 1-949-863-3144 FAX: 1-949-253-1680 EMAIL: [sales@newport.com](mailto:sales@newport.com)  
Complete listings for all global office locations are available online at [www.newport.com/contact](http://www.newport.com/contact)

Newport Corporation, Irvine, California and Franklin, Massachusetts; Evry and Beaune-la-Rolande, France and Wuxi, China have all been certified compliant with ISO 9001 by the British Standards Institution. Santa Clara, California is DNV certified.

