High Performance Photodiode Sensors

918D SERIES

Post, post holder, and clamping fork available for purchase separately

The RoHs compliant 918D Series Photodiode Sensors are calibrated photodiode sensors with advanced features to enhance performance.

UV and Visible Detectors, 200 - 1100 nm

918D-SL-OD1R	Silicon Detector, 400-1100 nm, OD1 Attenuator, DB15 Connector
918D-SL-OD2R	Silicon Detector, 400-1100 nm, OD2 Attenuator, DB15
918D-SL-OD3R	Silicon Detector, 400-1100 nm, OD3 Attenuator, DB15
918D-UV-OD3R	UV Silicon Detector, 200-1100 nm, OD3 Attenuator, DB15z

Germanium Detectors, 780 - 1800 nm

918D-IR-OD1R	Germanium Detector, 780-1800 nm, OD1 Attenuator, DB15
918D-IR-OD2R	Germanium Detector, 780-1800 nm, OD2 Attenuator, DB15
918D-IR-OD3R	Germanium Detector, 780-1800 nm, OD3 Attenuator, DB15

InGaAs Detectors, 800 - 1650 nm

918D-IG-OD1R	InGaAs Detector, 800-1650 nm, OD1 Attenuator, DB15
918D-IG-OD2R	InGaAs Detector, 800-1650 nm, OD2 Attenuator, DB15
918D-IG-OD3R	InGaAs Detector, 800-1650 nm, OD3 Attenuator, DB15

Enhanced Features

The Attenuator on/off switch can be automatically recognized by power meter models 1830-R, 1918-R, 1936-R, and 2936-R.

- Smallest calibration uncertainty specifications in market
- Internal temperature sensor for thermal drift compensation
- Integrated attenuator, selectable from 10X to 1000X
- Attenuator on/off sensor
- Free-space and fiber optic measurements
- RoHS compliant

Features

Tightest Calibration Uncertainty

The 918D Series include a full spectral response calibration utilizing *NIST-traceable standards* calibrated with high-precision equipment maintained in Newport's optical detector calibration facility. Tight calibration facility and process control allows the tightest calibration uncertainty in industry. Each detector is shipped with the calibration data, which is electronically stored inside the detector's EEPROM. A certificate of calibration as well as the actual calibration curves and data are shipped with each detector for attenuator and no attenuator modes. To maintain accuracy and guarantee performance Newport recommends annual photodiode detector calibration.

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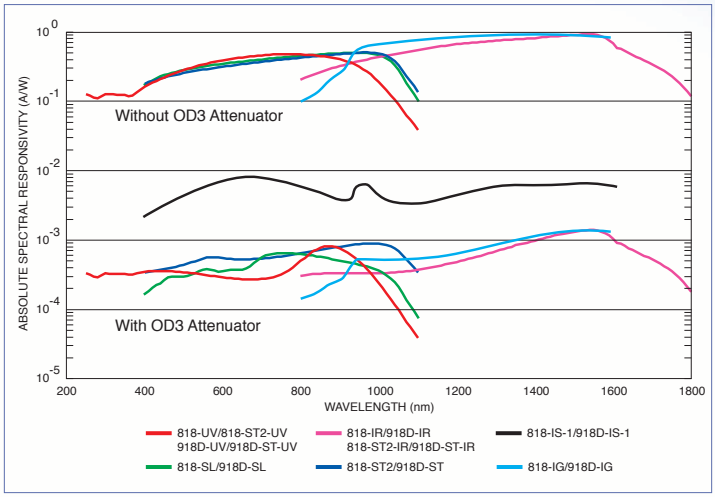
The 918D Series Photodiode Sensors are designed to outperform Newport's industry proven 818 Series Calibrated Photodiode Sensors , by enhancing their performance with advanced features. They feature integrated calibration data storage, built-in OD1, OD2 or OD3 attenuation filter with an electronic attenuator On/Off sensor, and sensing electronics for temperature drift compensation, making the detector more accurate in temperature changes.

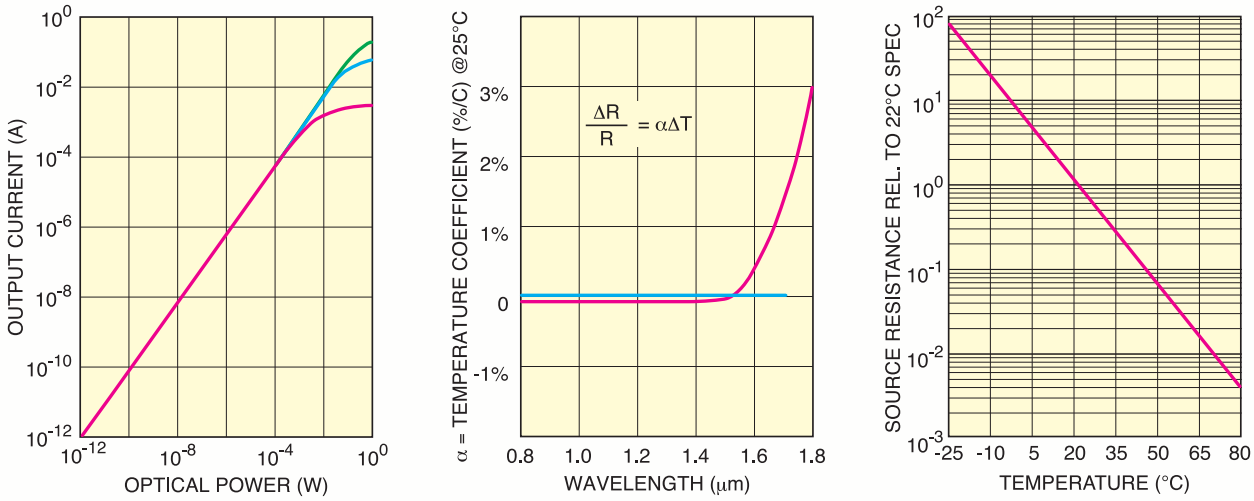
Exclusive OD3 attenuator technology extends the calibrated optical dynamic range of our detectors by three decades. Our attenuator design provides high damage threshold and spectral flatness. With the low NEP associated with the photodiodes Newport is using, a wider dynamic range is achieved. For less than 1 mW input power, we recommend to put the attenuator to OFF position (0.1 mW for 918D-UV-OD3R between 200 - 400 nm) to maximize the signal to noise ratio.

Wide Dynamic Range with Built-in Attenuator



Typical spectral responsivity of Newport's low power detectors

Highest Quality Photodiodes



Plots of various photodiode characteristics

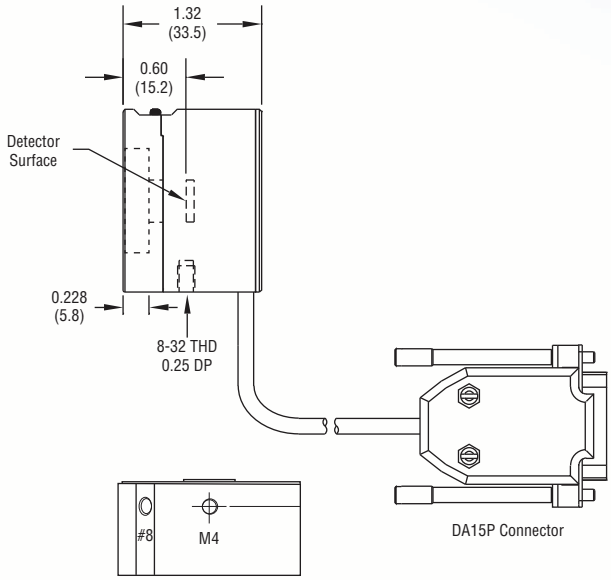
Newport uses the highest quality semiconductor detector materials available. Available sensor types are silicon (Si), UV-enhanced Si, Germanium, and Indium Gallium Arsenide (InGaAs). Choose 918D-UV-OD3R for 200 - 400 nm wavelength, but note that the maximum measurable power level in 400 - 1100 nm is as low as 50 mW with the attenuator on. Newport's advanced in-house calibration facility performs the tightest calibrations in the business, further improving the absolute accuracy of our detectors.

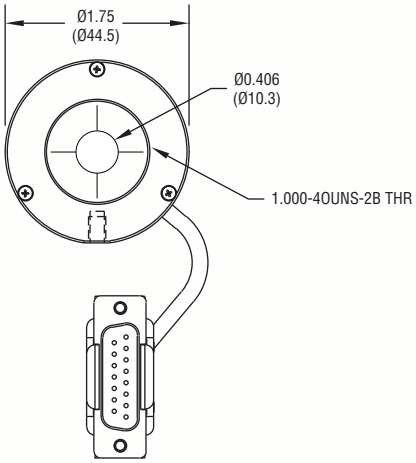
Accessories

To directly mount the 918D head to an optical table consider the 918D-BASE-KITR. It has an optical axis height of 1.00" and is compatible with both Imperial and Metric table tops.

Free Space and Fiber Optic Adapters

Dimensions





918D Series Detector Specifications

Model	918D-UV-OD3R	918D-SL-OD3R	918D-IR-OD3R	918D-IG-OD3R
Spectral Range (nm)	200 to 1100	400 to 1100	780 to 1800	800 to 1650
Max. Measurable Power w/ Attenuator (W)	0.2W (200 - 400 nm) and 50 mW (400 - 1100 nm)	2	2	2
Max. Measurable Power w/o Attenuator (mW)	0.3 mW (200 - 400 nm); 0.1 mW (400 - 600 nm, >1050 nm), 0.07 mW (600 - 1050 nm)	4 mW	10 mW	10 mW
Power Density, Average Max w/ Attenuator (W/cm^2)[1]	30			
Power Density, Average Maximum w/o Attenuator (W/cm^2)[1]	0.2	2	3	3
Pulse Energy, Maximum - w/ Attenuator (J)[2]	500 n	5 µ	5 µ	5 µ
Pulse Energy, Maximum - w/o Attenuator (J)	0.5 n	5 n	5 n	5 n
Calibration Uncertainty (Without Attenuator)[5]	4% @ 200-219nm, 2% @ 220-349nm, 1% @ 350-949nm, 4% @ 950-1100nm	1% @ 400-940nm, 4% @ 941-1100nm	2% @ 780-910nm, 2% @ 911-1700nm, 4% @1701-1800nm	2% @ 800-900nm, 2% @ 901-1650nm
Calibration Uncertainty (With Attenuator)[5]	8% @ 200-219nm, 2% @ 220-349nm, 1% @ 350-949nm, 4% @ 950-1100nm	1% @ 400-940nm, 4% @ 941-1100nm	5% @ 780-910nm, 2% @ 911-1700nm, 4% @ 1701-1800nm	5% @ 800-900nm, 2% @ 901-1650nm
Uniformity (%)[3]	±2			
Linearity (%)	±0.5			
Rise Time (µs)	5.9	2	2	2
Material	UV Enhanced Silicon	Silicon	Germanium	Indium Gallium Arsenide
Active Area (cm^2)	1		0.071	
Active Diameter (cm)	1.13		0.3	
Shape	Cylinder			
Attenuator	Built-In OD3	Built-In [4]	Built-In [4]	Built-In [4]
Calibration	Stored Internally			
Operating Temperature	5°C to 50°C, <70% RH			

1) Based on maximum power density of the OD3 attenuator. For OD2 reduce the value by 10x, & for OD1, derate value by 100x.
2) 15 ns pulse width, max w/ attenuator is for OD3. For OD2 derate listed value by 10x, & for OD1, derate value by 100x.
3) Uniformity specification applies to photodiode only. It does not apply to the attenuator.
4) Selected at time of ordering.
5) Calibration uncertainty can be varied depending on the NIST transfer standard uncertainty variation.

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