

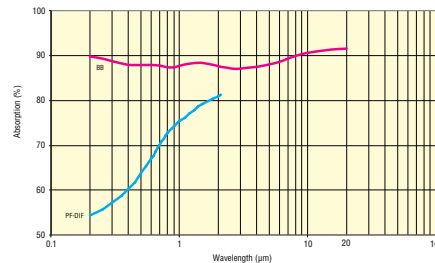
919P Series Thermopile Sensors



- Broadband flat spectral response from 0.19–11 μm
- NIST-traceable calibration included
- Insensitive to beam position
- Compatible with the new 843-R power meter
- Calibrated at 532 nm, 1.06 and 10.6 μm (1.06 and 10.6 μm only for 919P-5kW-50)

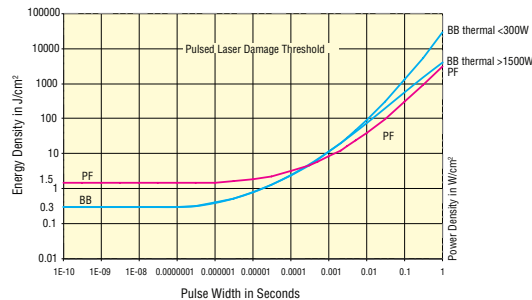
Constant Responses over Broad Wavelength Range

The thermopile detector's response to the input laser beam is characterized by its absorption. We use two different types of coating in the sensor. The broadband BB type is employed in most of the models and has an excellent constant absorption throughout the responsive wavelength range. Majority of the 919P series detectors employ the BB type, and you can measure light with the wavelength up to 11 μm . The PF type is employed in the mode 919P-050-18HP, which is specially designed for high energy density pulses.



Extensively Tested for Damage Threshold vs. Pulse Width

The 919P series thermopile detectors have been extensively tested for the damage threshold with a variety of lasers. You can trust our specifications and have your mind at ease.



Ideal for High Power Measurement

Newport's 919P Thermopile Detector Series provide a full range of sensors to meet the power measurement needs for CW or pulsed lasers. They offer broadband, spectrally flat response, with the maximum power range up to 5000 Watts.

NIST Traceability

Each 919P thermopile sensor include a DB15 connector and internal EEPROM for storing factory calibration data. Most sensors are calibrated at three different wavelengths at 532 nm, 1.064 μm , and 10.64 μm . Calibration of the thermopile detectors is recommended annually to assure NIST traceability.

919P Series Thermopile Sensors

919P Specifications

Model	919P-003-10	919P-010-16	919P-020-12	919P-030-18	919P-040-50
Spectral Range (μm)	0.19 to 11				
Max. Measurable Power (W)	3	10	20	30	35
Power Noise Level (mW) ⁽¹⁾	2 μW	1	0.5	1	5
Rise Time (s) ⁽²⁾	1.8	0.8	0.8	0.8	2.5
Calibration Uncertainty (nm)	±3				
Repeatability (%)	±0.5				
Linearity (%)	±1.5		±1		
Uniformity (%)	±2				
Maximum Average Power (W)	(continuous) 3 (2 minutes) N/A	10 N/A	20 ⁽³⁾ 20	30 N/A	35 150
Power Density, Maximum Average (kW/cm ²)	1	28	23	20	12
Max Energy Density (J/cm ²)	<100 ns, 0.3 J/cm ² 0.5 ms, 1 J/cm ² 2 ms, 2 J/cm ² 10 ms, 4 J/cm ²	<100 ns, 0.3 J/cm ² 0.5 ms, 2 J/cm ² 2 ms, 2 J/cm ² 10 ms, 2 J/cm ²	<100 ns, 0.3 J/cm ² 0.5 ms, 5 J/cm ² 2 ms, 10 J/cm ² 10 ms, 30 J/cm ² ⁽⁴⁾		
Active Diameter (mm)	9.5	16	12	17.5	50
Active Area (cm ²)	0.71	2.01	1.13	2.40	19.63
Cooling Method	Heat Sink				
Dimensions (L x W x D) [in. (mm)]	2.76 x 2.76 x 2.56 x 2.56 x 1.50 x 1.50 x 2.52 x 2.52 x 3.54 x 3.54 x 1.18 (70 x 70 x 30) 1.32 (65 x 65 x 33.5) 0.55 (38 x 38 x 14) 1.93 (64 x 64 x 49) 1.30 (90 x 90 x 33)				
Weight [lb (kg)]	0.44 (0.2)		0.66 (0.3)		1.32 (0.6)

Notes:

- See Tech Note 4 - *Minimum Measurable Power of Power Meters* - on www.newport.com
- Measured with 843-R power meter.
- 4 W free standing, 20 W heat sunked to chassis.
- Measured at 1064 nm. Derate 80 % at 532 nm, 60 % at 355 nm, 40 % at 266 nm.
- Calibrated at 1.064 and 10.6 μm only.

For Gaussian beams multiply power and energy density by a factor of 2 when comparing to online damage threshold specifications. For beams with hot spots multiply power and energy density by a factor of 3 when comparing to online damage threshold specifications.

Model	919P-050-18HP	919P-050-26	919P-150-26	919P-250-35	919P-600-65	919P-5KW-50
Spectral Range (μm)	0.24 to 2.2		0.19 to 11			0.19 to 11 ⁽⁵⁾
Max. Measurable Power (W)	50	50	150	250	600	5000
Power Noise Level (mW) ⁽¹⁾	7	2	3	15	25	1 W
Rise Time (s) ⁽²⁾	2	1.5	1.5	2.0	2.8	3.0
Calibration Uncertainty (%)	±5		±3			±5
Repeatability (%)	±1		±0.5			±1
Resolution (%)	±0.5					
Linearity (%)	±1.5		±1		±1.5	±2
Uniformity (%)	±2					
Maximum Average Power (W)	(continuous) 50 (1.5 minutes) N/A	50 150	150	250	600	5000 N/A
Power Density, Maximum Average (kW/cm ²) (1064 nm, CW)	0.5		12	12	10	7
Max Energy Density (J/cm ²)	<100 ns, 4 J/cm ² 0.5 ms, 15 J/cm ² 2 ms, 25 J/cm ² 10 ms, 50 J/cm ²		<100 ns, 0.3 J/cm ² 0.5 ms, 5 J/cm ² 2 ms, 10 J/cm ² 10 ms, 30 J/cm ²			
Active Diameter (mm)	17.5	26	26	35	65	50
Active Area (cm ²)	2.40	5.31	5.31	9.62	33.17	19.63
Cooling Method	Heat Sink			Fan	Water	
Dimensions (L x W x D) [in. (mm)]	2.52 x 2.52 x 2.95 (64 x 64 x 75)		2.52 x 2.52 x 2.52 (64 x 64)	2.52 x 2.52 x 2.52 (64 x 64)	2.52 x 2.52 x 4.6 (64 x 64 x 116)	5.7 x 5.0 x 4.6 (146 x 128 x 52)
Weight [lb (kg)]	0.77 (0.35)	0.66 (0.3)	0.77 (0.35)	0.88 (0.4)	5.94 (2.7)	6.16 (2.8)

Ordering Information

Model	Description
919P-003-10	Thermopile Sensor, 3 W, 10 mm Diameter, 0.19-10.6 μm
919P-010-16	Thermopile Sensor, 10 W, 16 mm Diameter, 0.19-10.6 μm
919P-020-12	Thermopile Sensor, 20 W, 12 mm Diameter, 0.19-10.6 μm
919P-030-18	Thermopile Sensor, 30 W, 18 mm Diameter, 0.19-10.6 μm
919P-040-50	Thermopile Sensor, 35 W cw, 50 mm Diameter, 0.19-10.6 μm
919P-050-18HP	High Peak Power Thermopile Sensor, 50 W, 17.5 mm Diameter, 0.24-2.2 μm
919P-050-26	Thermopile Sensor, 50 W, 26 mm Diameter, 0.19-10.6 μm
919P-150-26	Thermopile Sensor, 150 W, 26 mm Diameter, 0.19-10.6 μm
919P-250-35	Thermopile Sensor, 250 W, 35 mm Diameter, 0.19-10.6 μm
919P-600-65	Thermopile Sensor, 600 W, 65 mm Diameter, 0.19-10.6 μm
919P-5KW-50	Thermopile Sensor, 5 kW, 50 mm Diameter, 0.19-10.6 μm



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