1.1.2.2 High Sensitivity Thermal Sensors

10µW to 3W

Features

- Very low noise and drift for measurement of very low powers and energies
- PF absorber has high damage threshold for CW and pulses
- Up to 3W

2A-BB-9

3A / 3A-P / 3A-PF-12

Model	2A-BB-9	3A	3A-P	3A-PF-12
Use	**General purpose**	**General purpose**	**Short pulses**	**Short Pulses UV**
Absorber Type	Low power broadband	Low power broadband	P type	PF type
Spectral Range µm	0.19 - 20	0.19 - 20	0.15 - 8	0.15 - 20
Aperture mm	Ø9.5mm	Ø9.5mm	Ø12mm	Ø12mm
Maximum Beam Divergence	NA	NA	NA	NA
Power Mode				
Power Range [a]	20µW - 2W	10µW - 3W	15µW - 3W	15µW - 3W
Power Scales	2W to 200µW	3W to 300µW	3W to 300µW	3W to 300µW
Power Noise Level	1µW	1µW	3µW	3µW
Thermal Drift (30min) [a]	5 - 20µW	5 - 20µW	5 - 30µW	5 - 30µW
Maximum Average Power Density kW/cm²	1	1	0.05	3
Response Time with Meter (0-95%) typ. s	1.8	1.8	2.5	2.5
Calibration Uncertainty ±%	1.9	1.9	1.9	1.9
Power Accuracy ±% [d]	3	3	3	3 [c]
Linearity with Power ±%	1	1	1	1
Energy Mode				
Energy Range	20µJ - 2J	20µJ - 2J	20µJ - 2J	20µJ - 2J
Energy Scales	2J to 200µJ	2J to 200µJ	2J to 200µJ	2J to 200µJ
Minimum Energy	20µJ	20µJ	20µJ	20µJ
Maximum Energy Density J/cm² [b]				
<100ns	0.3	0.3	1	1.5
0.5ms	1	1	1	7
2ms	2	2	1	15
10ms	4	4	1	40
Cooling	Convection	Convection	Convection	Convection
Weight kg	0.2	0.2	0.2	0.2
Fiber Adapters Available (see page 93)	ST, FC, SMA, SC	ST, FC, SMA, SC	ST, FC, SMA, SC	ST, FC, SMA, SC
Compliance	CE, UKCA, China RoHS	CE, UKCA, China RoHS	CE, UKCA, China RoHS	CE, UKCA, China RoHS
Version			V1	
Part number: Standard Sensor	**7Z02767**	**7Z02621**	**7Z02622**	**7Z02720**
BeamTrack Sensor: Beam Position & Size (p. 51)		**7Z07934**	**7Z07935**	

Note: (a) Depending on room airflow and temperature variations. Lowest measurable powers are achieved by thermally quiet room conditions, using removable snout (for 3A, 3A-P, 3A-PF-12 sensors), averaging and offset subtraction.

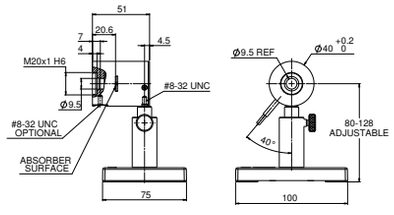
Note: (b) **For P and PF** types and shorter wavelengths derate maximum energy density as follows:

Wavelength	P type Derate to value	PF type Derate to value
1064nm	Not derated	Not derated
532nm	Not derated	Not derated
355nm	40% of stated value	70% of stated value
266nm	5% of stated value	15% of stated value
193nm	10% of stated value	5% of stated value

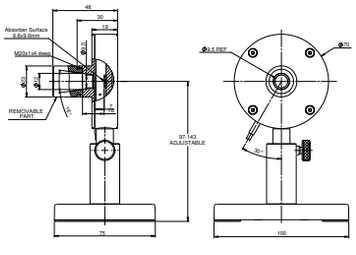
Note: (c) Calibrated from 193nm to 2.2µm and at 10.6µm. There is an additional error of ±1% from 450nm to 650nm.

Note: (d) The 3A and 2A-BB-9 sensors have a relatively large spectral variation in absorption and has a calibrated spectral curve at all wavelengths in its spectral range to the above specified accuracy. Nova, Orion and LaserStar meters do not support this feature and when used with those meters, the accuracy will be ±3% as above for 532nm, 905nm, 1064nm and 10.6µm but there will be an additional error of up to 3% at other wavelengths in the spectral range 190 – 3000nm.

2A-BB-9



3A



3A-P / 3A-PF-12