

1.1.2.2 High Sensitivity Thermal Sensors

10 μ W to 3W

Features

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

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



Model	3A	3A-P	3A-PF-12
Use	General purpose	Short pulses	Short Pulses UV
Absorber Type	Broadband	P type	PF type
Spectral Range μ m	0.19 - 20	0.15 - 8	0.15 - 20
Aperture mm	\varnothing 9.5mm	\varnothing 12mm	\varnothing 12mm
Maximum Beam Divergence	NA	NA	NA
Power Mode			
Power Range ^(a)	10 μ W - 3W	15 μ W - 3W	15 μ W - 3W
Power Scales	3W to 300 μ W	3W to 300 μ W	3W to 300 μ W
Power Noise Level	2 μ W	4 μ W	4 μ W
Thermal Drift (30min) ^(a)	5 - 20 μ W	5 - 30 μ W	5 - 30 μ W
Maximum Average Power Density kW/cm ²	1	0.05	3
Response Time with Meter (0-95%) typ. s	1.8	2.5	2.5
Power Accuracy +/--% ^(d)	3	3	3 ^(c)
Linearity with Power +/--%	1.5	1.5	1.5
Energy Mode			
Energy Range	20 μ J - 2J	20 μ J - 2J	20 μ J - 2J
Energy Scales	2J to 200 μ J	2J to 200 μ J	2J to 200 μ J
Minimum Energy	20 μ J	20 μ J	20 μ J
Maximum Energy Density J/cm ² ^(b)			
< 100ns	0.3	1	1.5
0.5ms	1	1	7
2ms	2	1	15
10ms	4	1	40
Cooling	convection	convection	convection
Weight kg	0.2	0.2	0.2
Fiber Adapters Available (see page 69)	ST, FC, SMA, SC	ST, FC, SMA, SC	ST, FC, SMA, SC
Version		V1	
Part number: Standard Sensor	7Z02621	7Z02622	7Z02720
BeamTrack Sensor: Beam Position & Size (p. 65)	7Z07934	7Z07935	
Note: (a)	Depending on room airflow and temperature variations. Lowest measurable powers are achieved by thermally quiet room conditions, using removable snout, 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 Not derated Not derated 40% of stated value 5% of stated value 10% of stated value	PF type Derate to value Not derated Not derated 70% of stated value 15% of stated value 5% of stated value
Note: (c)	Calibrated from 193nm to 2.2 μ m and at 10.6 μ m. There is an additional error of +/-1% from 450nm to 650nm.		
Note: (d)	The 3A has 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 \pm 3% as above for 532nm, 905nm, 1064nm and 10.6 μ m but there will be an additional error of up to 3% at other wavelengths in the spectral range 190 - 3000nm.		

