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







| 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 |
| 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/cm ^{2 (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 88) | ST, FC, SMA, SC | ST, FC, SMA, SC | ST, FC, SMA, SC | ST, FC, SMA, SC |
| Compliance | CE, China RoHS | CE, China RoHS | CE, China RoHS | CE, China RoHS |
| Version | | | V1 | |
| Part number: Standard Sensor | 7Z02767 | 7Z02621 | 7Z02622 | 7Z02720 |
| BeamTrack Sensor: Beam Position & Size (p. 49) | | 7Z07934 | 7Z07935 | |
| Note: (a) | | Depending on room airflow and by thermally quiet room condit averaging and offset subtraction | ions, using removable snout (f | est measurable powers are achieve for 3A, 3A-P, 3A-PF-12 sensors), |
| 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 355nm | Not derated 40% of stated value | Not derated 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) | wavelengths in its spectral ranged and when used with those me | have a relatively large spectral var ge to the above specified accurac- ters, the accuracy will be ±3% as at other wavelengths in the spec | cy. Nova, Orion and LaserStar above for 532nm, 905nm, 10 | a calibrated spectral curve at all meters do not support this feature 164nm and 10.6µm but there will be |



