

1.2.3 High Energy Pyroelectric Sensors

10µJ to 40J

Features

- Removable diffusers
- PE50-DIF-ER-C mainly for NIR lasers
- E100BF-DIF-C for very large beams
- Rep rates up to 10kHz
- Measure lasers with pulse widths up to 20ms



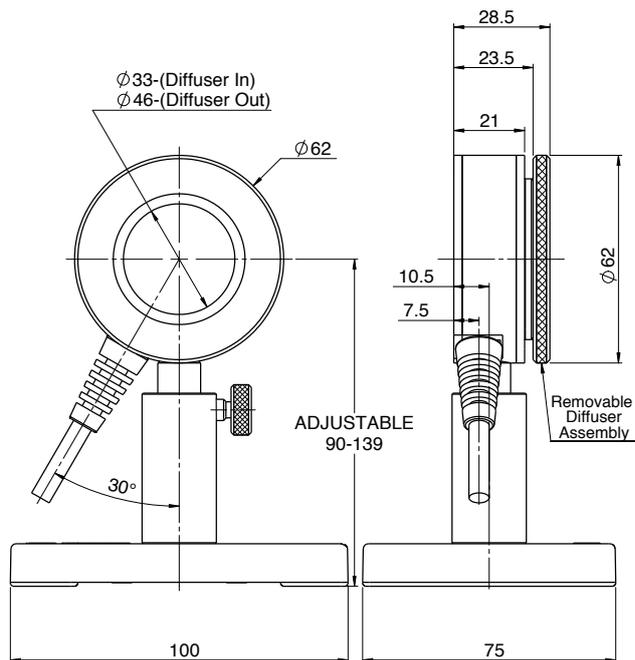
| Model | PE50-DIF-ER-C | | | | | | | | | | PE100BF-DIF-C | | | | | | | | | |
|--|--|--------------|------------|------------|-------------|--|--------------|------------|------------|-------------|--|-------------|-------------|-------------|-------------|--|-------------|-------------|-------------|-------------|
| Use | Mainly for 1064nm, 2.1µm and 2.94µm | | | | | | | | | | Very large aperture | | | | | | | | | |
| Diffuser | Diffuser out | | | | | Diffuser in | | | | | Diffuser out | | | | | Diffuser in | | | | |
| Aperture mm | Ø46 | | | | | Ø33 | | | | | Ø96 | | | | | Ø85 | | | | |
| Absorber Type | Metallic | | | | | Metallic with diffuser | | | | | BF | | | | | BF with diffuser | | | | |
| Spectral Range µm ^(a) | 0.19 - 3 | | | | | 0.4 - 3 | | | | | 0.15 - 3 | | | | | 0.4 - 2.5 | | | | |
| Surface Reflectivity % approx. | 50 | | | | | 50 | | | | | 20 | | | | | 50 | | | | |
| Calibration Uncertainty ±% ^(a) | 3 | | | | | 4 | | | | | 3 | | | | | 4 | | | | |
| Max Pulse Width Setting ^(c) | 2µs | 30µs | 500µs | 1ms | 5ms | 2µs | 30µs | 500µs | 1ms | 5ms | 1ms | 2ms | 5ms | 10ms | 20ms | 1ms | 2ms | 5ms | 10ms | 20ms |
| Energy Scales | 10J to 200µJ | 10J to 200µJ | 10J to 2mJ | 10J to 2mJ | 10J to 2mJ | 30J to 600µJ | 30J to 600µJ | 30J to 6mJ | 30J to 6mJ | 30J to 6mJ | 10J to 2mJ | 10J to 20mJ | 10J to 20mJ | 10J to 20mJ | 10J to 20mJ | 40J to 40mJ | 40J to 40mJ | 40J to 40mJ | 40J to 40mJ | 40J to 40mJ |
| Lowest Measurable Energy mJ ^(b) | 0.01 | 0.01 | 0.06 | 0.08 | 0.1 | 0.05 | 0.05 | 0.3 | 0.4 | 0.5 | 0.4 | 0.7 | 1.5 | 1.5 | 1.5 | 2 | 3 | 5 | 5 | 5 |
| Max Pulse Width ms | 0.002 | 0.03 | 0.5 | 1 | 5 | 0.002 | 0.03 | 0.5 | 1 | 5 | 1 | 2 | 5 | 10 | 20 | 1 | 2 | 5 | 10 | 20 |
| Maximum Pulse Rate pps | 10kHz | 5kHz | 800Hz | 400Hz | 100Hz | 10kHz | 5kHz | 800Hz | 400Hz | 100Hz | 200Hz | 100Hz | 50Hz | 35Hz | 25Hz | 200Hz | 100Hz | 50Hz | 35Hz | 25Hz |
| Noise on Lowest Range µJ | 1 | 1 | 6 | 10 | 20 | 5 | 5 | 30 | 50 | 100 | 80 | 150 | 250 | 200 | 200 | 300 | 500 | 1000 | 600 | 600 |
| Additional Error with Frequency % | ±2% to 2kHz ±4.5% to 5kHz | ±2% | ±2% | ±2% | ±1% to 80Hz | ±2% to 2kHz ±4.5% to 5kHz | ±2% | ±2% | ±2% | ±1% to 80Hz | ±1% to 100Hz ±2.5% to 150Hz ±4.5% to 200Hz | ±1% | ±1% | ±1% | ±1% | ±1% to 100Hz ±2.5% to 150Hz ±4.5% to 200Hz | ±1% | ±1% | ±1% | ±1% |
| Linearity with Energy for > 10% of full scale ^(b) | ±1.5% | | | | | | | | | | ±1% | | | | | | | | | |
| Maximum Energy Density J/cm ² | | | | | | | | | | | | | | | | | | | | |
| <100ns | 0.1 | | | | | 1.5 | | | | | 0.8 | | | | | 3 | | | | |
| 1µs | 0.2 | | | | | 3 | | | | | 1 | | | | | 3 | | | | |
| 300µs | 2 | | | | | 20 | | | | | 5 | | | | | 10 | | | | |
| 2ms | 6 | | | | | 60 | | | | | 10 | | | | | 25 | | | | |
| Maximum Average Power W | 15, 25 with optional heat sink (P/N 7Z08267) | | | | | 40, 60 with optional heat sink (P/N 7Z08267) | | | | | 25 | | | | | 50 | | | | |
| Maximum Average Power Density W/cm ² | 20 | | | | | 500 | | | | | 20 | | | | | 500 | | | | |
| Weight kg | 0.3 | | | | | | | | | | 1.2 | | | | | | | | | |
| Compliance | CE, UKCA, China RoHS | | | | | | | | | | CE, UKCA, China RoHS | | | | | | | | | |
| Version | | | | | | | | | | | | | | | | | | | | |
| Part Number: Standard Sensor | 7Z02948 (1.5m cable) | | | | | | | | | | 7Z02942 (1.5m cable) | | | | | | | | | |
| Sensor with different cable length | 7Z02948B (5m cable) | | | | | | | | | | 7Z02942B (5m cable), 7Z02942C (10m cable) | | | | | | | | | |
| Note: (a) | Calibrated at 532nm and 1064nm only | | | | | Calibrated at 1064nm, 2100nm and 2940nm | | | | | Calibrated at 532nm and 1064nm only | | | | | Calibrated at 532nm, 1064nm and 1550nm only | | | | |

Note: (b) With the "user threshold" setting set to minimum. For other settings, the spec is for >10% of full scale or greater than twice the "user threshold", whichever is greater. For use with Centauri, StarBright, StarLite, Nova II, Vega, Juno, Juno+, Juno-RS and EA-1. The sensors will operate with older Ophir meters and PC interfaces but do not support the threshold function and may give inaccurate readings with the diffuser in and therefore it is not recommended to use these sensors with older Ophir meters and PC interfaces. The user threshold feature allows adjustment of the internal threshold up to 25% of full scale if desired to avoid false triggering in noisy environments. For further information, see the FAQs on our Website.

Note: (c) With the LaserStar, Pulsar, USBI, Quasar and Nova with adapter only 2 of the 5 pulse width settings are available. For the PE50-DIF-ER-C, the 30µs and 1ms settings and for the PE100BF-DIF-C, the 1ms and 10ms settings. Furthermore, with the diffuser mounted, the sensor may saturate at lower than the maximum energy in some cases. Therefore it is recommended to use these sensors with the newer meters/PC interfaces.

* For drawings please see page 137

PE50-DIF-ER-C



PE100BF-DIF-C

