



1.1.3.4 Low Power BeamTrack-Power / Position / Size Sensors

100μW to 10W

Features

- All the features of standard power sensors plus...
- Accurate tracking of beam position to fractions of a mm
- Monitoring of the laser beam size

3A-QUAD / 3A-P-QUAD



10A-PPS



| Model | 3A-QUAD ^(a) | 3A-P-QUAD ^(a) | 10A-PPS ^(a) |
|--|---------------------------|---------------------------|----------------------------------|
| Use | General purpose | Short pulses | Low power |
| Functions | Power / Energy / Position | Power / Energy / Position | Power / Energy / Position / Size |
| Absorber Type | Low power broadband | P type | Broadband |
| Spectral Range μm | 0.19 - 20 | 0.15 - 8 | 0.19 - 20 |
| Aperture mm | Ø9.5mm | Ø12mm | Ø16mm |
| Power Mode | | | |
| Power Range | 100μW - 3W | 160μW - 3W | 20mW - 10W |
| Power Scales | 3W to 300μW | 3W to 300μW | 10W / 5W / 0.5W |
| Power Noise Level | 5μW | 10μW | 1mW |
| Thermal Drift (30min)% | 10 - 40μW ^(b) | 10 - 40 μW ^(b) | NA |
| Maximum Average Power Density kW/cm ² | 1 | 0.05 | 28 |
| Response Time with Meter (0-95%) typ. s | 1.8 | 2.5 | 0.8 |
| Calibration Uncertainty ±% | 1.9 | 1.9 | 1.9 |
| Power Accuracy ±% ^(c) | 3 | 3 | 3 |
| Linearity with Power ±% | 1 | 1 | 1 |
| Energy Mode | | | |
| Energy Range | 20μJ - 2J | 30μJ - 2J | 6mJ - 2J |
| Energy Scales | 2J to 200μJ | 2J to 200μJ | 2J / 200mJ |
| Minimum Energy | 20μJ | 30μJ | 6mJ |
| Maximum Energy Density J/cm ² | | | |
| <100ns | 0.3 | 1 ^(f) | 0.3 |
| 0.5ms | 1 | 1 ^(f) | 2 |
| 2ms | 2 | 1 ^(f) | 2 |
| 10ms | 4 | 1 ^(f) | 2 |
| Beam Tracking Mode | | | |
| Position | | | |
| Beam Position Accuracy mm ^(c) | 0.15 | 0.15 | 0.15 |
| Beam Position Resolution mm | 0.02 | 0.02 | 0.02 |
| Min Power for Position Measurement | 300μW | 400μW | 50mW |
| Size ^(d) | | | |
| Size Accuracy ^(e) | NA | NA | ±(5%+50μm) for centered beam |
| Size Range mm (4σ beam diameter) | NA | NA | 1.5 - 10 |
| Min Power for Size Measurement | NA | NA | 50mW |
| Cooling | Convection | Convection | Convection |
| Weight kg | 0.3 | 0.3 | 0.3 |
| Fiber Adapter Available (see page 93) | 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 |
| Part number | 7Z07934 | 7Z07935 | 7Z07904 |

Notes: (a) The BeamTrack features are supported by Centauri, StarBright, StarLite, Nova II and Vega meters, Juno, Juno+, Juno-RS and EA-1 interfaces and StarLab application. Position and Size measurements work only in Power mode (but not in single shot Energy mode).

Notes: (b) Depending on room airflow and temperature variations.

Notes: (c) For position within inner 30% of aperture. Position measuring center corresponds to geometrical center within <1mm. Position center can be software reset to geometric center or other desired position with Centauri, StarBright or StarLab.

Notes: (d) Assumes laser beam with circular Gaussian (TEM₀₀) distribution. For other modes, size measurement is relative.

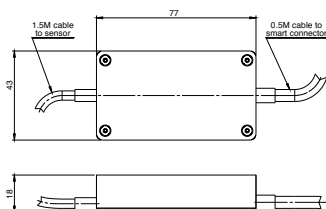
Notes: (e) Accuracy spec will be maintained for beams ≥1.8 mm not deviating from center by more than 15% of beam diameter.

Notes: (f) For P type and shorter wavelengths derate maximum energy density as follows:

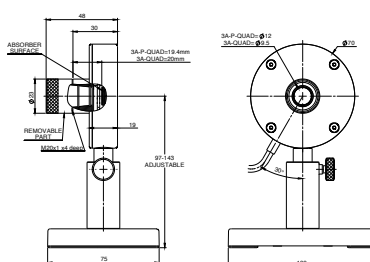
| Wavelength | Derate to value |
|------------|---------------------|
| 1064nm | not derated |
| 532nm | not derated |
| 355nm | 40% of stated value |
| 266nm | 10% of stated value |
| 193nm | 10% of stated value |

Notes: (g) The 3A-QUAD 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 ±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.

Interface Module on cable



3A-QUAD / 3A-P-QUAD



10A-PPS

