

### 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 <sup>(a)</sup>	3A-P-QUAD <sup>(a)</sup>	10A-PPS <sup>(a)</sup>
Use	General purpose	Short pulses	Low power
Functions	Power / Energy / Position	Power / Energy / Position	Power / Energy / Position / Size
Absorber Type	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 <sup>(b)</sup>	10 - 40 µW <sup>(b)</sup>	NA
Maximum Average Power Density kW/cm <sup>2</sup>	1	0.05	28
Response Time with Meter (0-95%) typ. s	1.8	2.5	0.8
Power Accuracy +/-% <sup>(f)</sup>	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 <sup>2</sup>			
<100ns	0.3	1 <sup>(e)</sup>	0.3
0.5ms	1	1 <sup>(e)</sup>	2
2ms	2	1 <sup>(e)</sup>	2
10ms	4	1 <sup>(e)</sup>	2
Beam Tracking Mode			
Position			
Beam Position Accuracy mm <sup>(c)</sup>	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 <sup>(d)</sup>			
Size Accuracy mm	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 83)	ST, FC, SMA, SC	ST, FC, SMA, SC	ST, FC, SMA, SC
<b>Part number</b>	<b>7Z07934</b>	<b>7Z07935</b>	<b>7Z07904</b>

Notes: (a) The BeamTrack features are supported by StarBright, StarLite, Nova II and Vega meters, Juno and EA-1 interfaces and StarLab application.

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

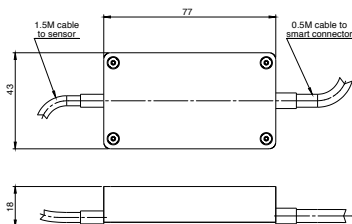
Notes: (c) For position within inner 30% of aperture. Position measuring center corresponds to geometrical center within <1mm. Position center can be software reset to geometric center or other desired position with StarBright or StarLab.

Notes: (d) Assumes laser beam with Gaussian (TEM<sub>00</sub>) distribution. For other modes, size measurement is relative.

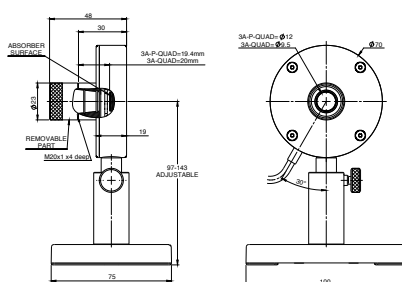
Notes: (e) For P type and shorter wavelengths derate maximum energy density as follows:	Wavelength	Derate to value
	1064nm	not derated
	532nm	not derated
	355nm	40% of stated value
	266nm	10% of stated value
	193nm	10% of stated value

Notes: (f) 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

