

1.1.2.6 Medium - High Power Thermal Sensors

1.1.2.6.1 Medium - High Power BeamTrack-Power / Position / Size Sensors

150mW to 1000W

Features (see introduction in pages 110-112)

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

FL250A-BB-50-PPS



1000W-BB-34-QUAD



Model	FL250A-BB-50-PPS ^(a)	1000W-BB-34-QUAD ^(a)
Use	General purpose	General purpose
Functions	Power / Energy / Position / Size	Power / Energy / Position
Absorber Type	Broadband	Broadband
Spectral Range μm	0.19 - 20	0.19 - 20
Aperture mm	\varnothing 50mm	\varnothing 34mm
Power Mode		
Power Range	150mW - 250W ^(b)	5W - 1000W
Power Scales	250W / 30W	1000W / 200W
Power Noise Level	15mW	200mW
Maximum Average Power Density kW/cm ²	10 at 250W, 12 at 150W	10 at 500W, 7 at 1000W
Response Time with Meter (0-95%) typ. s	2.8	2.5
Calibration Uncertainty $\pm\%$	1.9	1.9
Power Accuracy $\pm\%$	3	3 ^(f)
Linearity with Power $\pm\%$	1.5	2
Energy Mode		
Energy Range	80mJ - 300J	500mJ - 300J
Energy Scales	300J / 30J / 3J	300J / 30J
Minimum Energy mJ	80	500mJ
Maximum Energy Density J/cm ²		
<100ns	0.3	0.3
1 μs	0.4	0.4
0.5ms	5	5
2ms	10	10
10ms	30	30
Beam Tracking Mode		
Position		
Beam Position Accuracy	0.2mm + 5% of distance from center ^(c)	0.5mm ^(h)
Beam Position Resolution mm	0.1	0.1
Min Power for Position Measurement	2W	10W
Size ^(d)		
Size Accuracy mm ^(e)	\pm 5% for centered beam	NA
Size Range mm (4 σ beam diameter)	\varnothing 5-35	NA
Min Power Density for Size Measurement	3W/cm ²	NA
Cooling	Fan	Water
Minimum and Recommended Water Flow Rate at Full Power	NA	3 liter/min 6 liter/min ^(g)
Fiber Adapter Available (see page 119)	ST, FC, SMA, SC	Consult Ophir representative
Accessories for High Power Sensors	NA	See pages 97-101
Weight kg	0.9	0.9
Compliance	CE, UKCA, China RoHS	CE, UKCA, China RoHS
Version		
Part number	7Z07902	7Z07936

Note: (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).

Note: (b) For powers up to 30W it is recommended to work with the fan off and then the noise level is ~3 times lower. It is also recommended to measure energy with the fan off.

Note: (c) Position accuracy for the central 20mm of the aperture as limited by beam position resolution. Position can be tracked with \pm 1mm accuracy over central 32mm of the aperture. Accuracy is reduced by a factor of 3 at minimum power. 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.

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

Note: (e) Accuracy spec will be maintained for beams from 6 to 35mm not deviating from center more than 15% of beam diameter.

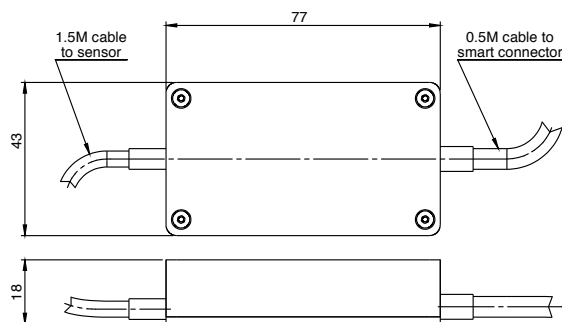
Note: (f) Calibrated for ~0.8 μm , 1.064 μm and 10.6 μm

Note: (g) Water temperature range 18-30°C, Water temperature rate of change <1°C/min. Pressure drop across sensor 0.03MPa.

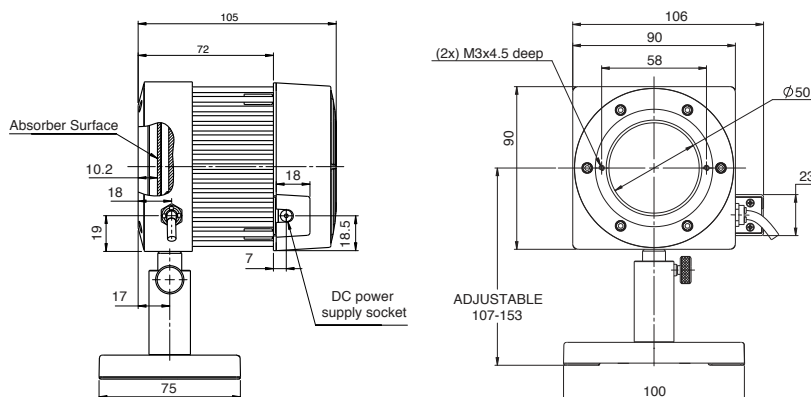
Note: (h) Position accuracy for the central 10 mm of the aperture as limited by beam position resolution. Position measuring center corresponds to geometrical center within <1mm. Position center can be software reset to geometric center or other desired position with Centauri, StarBright or StarLab.

* For drawings please see page 77

Interface Module on cable



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