

1.1.2.7 High Power Thermal Sensors

1.1.2.7.4 Very High Power Water Cooled Thermal Sensors

100W to 11kW

Features

- Very high powers
- Water cooled
- Up to 11kW
- Up to Ø45mm apertures

10K-W-BB-45



10K-W-BB-45
With optional scatter shield



Model	10K-W-BB-45																												
Use	High power up to 11kW																												
Absorber Type	Beam deflector + broadband absorber																												
Spectral Range μm ^(a)	0.8 - 2, 10.6																												
Aperture mm	Ø45mm																												
Power Range	100W – 11kW																												
Power Scales	11kW / 6kW / 600W																												
Power Noise Level	1W																												
Backscattered Power ^(b, e)	~3.5% without Scatter Shield, ~1% with Scatter Shield																												
Maximum Average Power Density kW/cm ²	See note ^(c) and table ⁽¹⁾ below																												
Response Time with Meter (0-95%) typ. s	2.7																												
Power Accuracy +/-%	5 ^(a)																												
Linearity with Power +/-%	2																												
Cooling	water ^(d)																												
Minimum Water Flow Rate	8 liter/min at full power ^(d)																												
Water Connectors ^(e)	Quick connector for 3/8" OD nylon tubing																												
Cable Length	5 meters																												
Optional Scatter Shield Accessory ^(e)	10K-W / 15K-W Scatter Shield (P/N 7Z08295)																												
Weight kg	4.5																												
Compliance	CE, China RoHS																												
Version	V3																												
Part number	7Z02756																												
Notes: (a)	Calibrated at 1.07 μm and 10.6 μm . For other wavelengths in the range 0.8 – 2 μm add up to $\pm 2\%$ to the calibration error.																												
Notes: (b)	When scatter shield is installed, use the NIRS setting to compensate for slightly higher reading. When not installed, use the NIR setting.																												
Notes: (c)	For circular beam centered within 1/4 of beam diameter, IMPROPERLY CENTERED BEAM CAN CAUSE DAMAGE TO SENSOR. Maximum tilt angle ± 5 degrees. For rectangular beam please consult Ophir representative.																												
Notes: (d)	Water temperature range 18-30°C. Water temperature rate of change <1°C/min. Pressure drop across sensor 0.1MPa. The recommended flow rate can be lowered proportionately at lower than full power but should not be below 3 liter/min. The response time will be optimum with the recommended flow rate. For prolonged usage with untreated water (tap water, non DI water), the industrial version is recommended. Contact Ophir for details.																												
Notes: (e)	Heavy duty stand is available as optional extra. For further information and other options see Accessories for High Power Sensors on pages 77-81.																												
Table: (1)	<table border="1"> <thead> <tr> <th rowspan="2">Beam diameter</th> <th rowspan="2">Max power density</th> <th colspan="3">Max energy density</th> </tr> <tr> <th>1ms pulse width</th> <th>3ms pulse width</th> <th>10ms pulse width</th> </tr> </thead> <tbody> <tr> <td><15mm</td> <td>10kW/cm²</td> <td>30J/cm²</td> <td>60J/cm²</td> <td>150J/cm²</td> </tr> <tr> <td>15 - 20mm</td> <td>7kW/cm²</td> <td>20J/cm²</td> <td>40J/cm²</td> <td>100J/cm²</td> </tr> <tr> <td>20 - 40mm</td> <td>5kW/cm²</td> <td>15J/cm²</td> <td>30J/cm²</td> <td>70J/cm²</td> </tr> <tr> <td>40 - 45mm</td> <td>4kW/cm²</td> <td>12J/cm²</td> <td>25J/cm²</td> <td>60J/cm²</td> </tr> </tbody> </table>	Beam diameter	Max power density	Max energy density			1ms pulse width	3ms pulse width	10ms pulse width	<15mm	10kW/cm ²	30J/cm ²	60J/cm ²	150J/cm ²	15 - 20mm	7kW/cm ²	20J/cm ²	40J/cm ²	100J/cm ²	20 - 40mm	5kW/cm ²	15J/cm ²	30J/cm ²	70J/cm ²	40 - 45mm	4kW/cm ²	12J/cm ²	25J/cm ²	60J/cm ²
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