

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, c)	~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																												
Calibration Uncertainty $\pm\%$	1.9																												
Power Accuracy $\pm\%$	5 ^(a)																												
Linearity with Power $\pm\%$	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, UKCA, China RoHS																												
Version	V4																												
Part number	7Z07102																												
IPM-10KW Ruggedized Industrial Version	7Z07106 see page 94																												
Note: (a)	Calibrated at 1.07 μm and 10.6 μm . For other wavelengths in the ranges of 0.8 - 0.95 μm & 1.1 - 2 μm add up to $\pm 2\%$ to the calibration error.																												
Note: (b)	When scatter shield is installed, use the NIRS setting to compensate for slightly higher reading. When not installed, use the NIR setting.																												
Note: (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.																												
Note: (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 solutions for prolonged usage with untreated water (tap water, non DI water), please contact Ophir.																												
Note: (e)	Heavy duty stand is available as optional extra. For further information and other options see Accessories for High Power Sensors on pages 99-102.																												
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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