

1.1.2.7 High Power Thermal Sensors

1.1.2.7.3 High Power Water Cooled Thermal Sensors

100W to 11kW

Features

- 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 100				
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 ¼ 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 $< 1^\circ\text{C}/\text{min}$. 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 105-108				
Table: (1)	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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