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## 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







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 <sup>(b, e)</sup>	~3.5% without Scatter Shield, ~1% with Scatter Shield				
Maximum Average Power Density kW/cm <sup>2</sup>	See note (c) and table (1) below				
Response Time with Meter (0-95%) typ. s	2.7				
Calibration Uncertainty ±%	1.9				
Power Accuracy ±%	5 (a)				
Linearity with Power ±%	2				
Cooling	water <sup>(d)</sup>				
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 92				
Note: (a)	Calibrated at 1.07µm and 10.6µm.				
N1-+ (l-)	For other wavelengths in the range $0.8 - 2\mu m$ add up to $\pm 2\%$ to the calibration error.				
Note: (b) Note: (c)	When scatter shield is installed, use the NIRS setting to compensate for slightly higher reading. When not installed, use the NIR setting. For circular beam centered within ¼ of beam diameter. IMPROPERLY CENTERED BEAM CAN CAUSE DAMAGE TO SENSOR.				
Note. (c)	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				
Note: (e)	with the recommended flow rate. For solutions for prolonged usage with untreated water (tap water, non DI water), please contact Ophir. Heavy duty stand is available as optional extra. For further information and other options see Accessories for High Power Sensors on pages 97-101.				
Table: (1)	Beam diameter	Max power density	Max energy density	/	
			1ms pulse width	3ms pulse width	10ms pulse width
	<15mm	10kW/cm <sup>2</sup>	30J/cm <sup>2</sup>	60J/cm <sup>2</sup>	150J/cm <sup>2</sup>
	15 - 20mm	7kW/cm <sup>2</sup>	20J/cm <sup>2</sup>	40J/cm <sup>2</sup>	100J/cm <sup>2</sup>
	20 - 40mm 40 - 45mm	5kW/cm <sup>2</sup> 4kW/cm <sup>2</sup>	15J/cm <sup>2</sup> 12J/cm <sup>2</sup>	30J/cm <sup>2</sup> 25J/cm <sup>2</sup>	70J/cm <sup>2</sup> 60J/cm <sup>2</sup>
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