

## 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

With optional scatter shield



Model	10K-W-BB-45		
Use	High power up to 11kW		
Absorber Type	Beam deflector + broadband absorber		
Spectral Range $\mu\text{m}$ <sup>(a)</sup>	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 $\text{kW}/\text{cm}^2$	See note <sup>(c)</sup> and table <sup>(1)</sup> below		
Response Time with Meter (0-95%) typ. s	2.7		
Calibration Uncertainty $\pm\%$	1.9		
Power Accuracy $\pm\%$	5 <sup>(a)</sup>		
Linearity with Power $\pm\%$	2		
Cooling	water <sup>(d)</sup>		
Minimum Water Flow Rate	8 liter/min at full power <sup>(d)</sup>		
Water Connectors <sup>(e)</sup>	Quick connector for 3/8" OD nylon tubing		
Cable Length	5 meters		
Optional Scatter Shield Accessory <sup>(e)</sup>	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 $\mu\text{m}$ and 10.6 $\mu\text{m}$ . For other wavelengths in the ranges of 0.8 - 0.95 $\mu\text{m}$ & 1.1 - 2 $\mu\text{m}$ 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 $\frac{1}{4}$ of beam diameter. IMPROPERLY CENTERED BEAM CAN CAUSE DAMAGE TO SENSOR.		
Note: (d)	Maximum tilt angle $\pm 5$ degrees. For rectangular beam please consult Ophir representative.		
Note: (e)	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.		
Table: (1)	Heavy duty stand is available as optional extra. For further information and other options see <b>Accessories for High Power Sensors</b> on pages 105-108		
Beam diameter	Max power density	Max energy density	
<15mm	10kW/cm <sup>2</sup>	1ms pulse width 30J/cm <sup>2</sup>	10ms pulse width 150J/cm <sup>2</sup>
15 - 20mm	7kW/cm <sup>2</sup>	20J/cm <sup>2</sup>	40J/cm <sup>2</sup>
20 - 40mm	5kW/cm <sup>2</sup>	15J/cm <sup>2</sup>	30J/cm <sup>2</sup>
40 - 45mm	4kW/cm <sup>2</sup>	12J/cm <sup>2</sup>	25J/cm <sup>2</sup>

10K-W-BB-45

