



# 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



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 <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 <sup>(a)</sup>				
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	7207102				
IPM-10KW Ruggedized Industrial Version	<b>7Z07106</b> see page 92				
Note: (a)	Calibrated at 1.07µm and 10.6µm. For other wavelengths in the range 0.8 – 2µm add up to ±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 NIRS setting.				
Note: (c)	For circular beam centered within ¼ of beam diameter. IMPROPERLY CENTERED BEAM CAN CAUSE DAMAGE TO SENSOR.				
Note: (d)	Maximum tilt angle ±5 degrees. For rectangular beam please consult Ophir representative.  Water temperature range 18-30°C. Water temperature rate of change <1°C/min. Pressure drop across sensor 0.1MPa. The recommended				
Note. (d)	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 <b>Accessories for High Power Sensors</b> on pages 97-101.				
Table: (1)	Beam diameter	Max power density	Max energy density		
	45	40144/2	1ms pulse width	3ms pulse width	10ms pulse width
	<15mm 15 - 20mm	10kW/cm <sup>2</sup> 7kW/cm <sup>2</sup>	30J/cm <sup>2</sup> 20J/cm <sup>2</sup>	60J/cm <sup>2</sup> 40J/cm <sup>2</sup>	150J/cm <sup>2</sup> 100J/cm <sup>2</sup>
	20 - 40mm	5kW/cm <sup>2</sup>	15J/cm <sup>2</sup>	30J/cm <sup>2</sup>	70J/cm²
	40 - 45mm	4kW/cm <sup>2</sup>	12J/cm <sup>2</sup>	25J/cm²	60J/cm <sup>2</sup>

### 10K-W-BB-45

