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, e]	~3.5% without Scatter Shield, ~1% with Scatter Shield
Maximum Average Power Density kW/cm²	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 [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 1.07µm and 10.6µm. For other wavelengths in the ranges of 0.8 - 0.95µm & 1.1 - 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 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°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)

Beam diameter	Max power density	Max energy density		
		1ms pulse width	3ms pulse width	10ms pulse width
<15mm	10kW/cm²	30J/cm²	60J/cm²	150J/cm²
15 - 20mm	7kW/cm²	20J/cm²	40J/cm²	100J/cm²
20 - 40mm	5kW/cm²	15J/cm²	30J/cm²	70J/cm²
40 - 45mm	4kW/cm²	12J/cm²	25J/cm²	60J/cm²

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