1.1.2.7 High Power Thermal Sensors

1.1.2.7.4 Very High Power Water Cooled Thermal Sensor

100W to 20kW

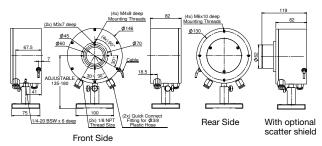
Features

- Very high powers
- Water cooled
- Up to 20kW
- Up to Ø55mm apertures
- Over temperature alarm and interlock



Model	15K-W-BB-45		20K-W-BB-55		
Use	High power up to 15kW			High power up to 20kW, larger aperture, over temperature alarm and interlock	
Absorber Type	Beam deflector + broadband absorber		Beam deflector + broadband absorber		
Spectral Range µm (a)	0.8 - 2, 10.6			0.8 – 2, 10.6	
Aperture mm	Ø45mm			Ø55mm	
Power Range	100W – 15kW			100W – 20kW ^(f)	
Power Scales	15kW / 4kW / 400W			20kW / 5kW / 500W	
Power Noise Level	1W			1W	
Backscattered Power (b, e)	~3.5% without Scatter Shield. ~1% with Scatter Shield			~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				3.5	
Calibration Uncertainty ±%	1.9			1.9	
, , , , , , , , , , , , , , , , , , ,	5 (a)			5 (a)	
Power Accuracy ±%	2			2	
Linearity with Power ±%					
Variation with Beam Size	±1.7% from 15 to 30mm			±1% from 10 to 35mm	
Cooling	water (d)			water (d)	
Minimum Water Flow Rate	12 liter/min at full power ^(d)			20 liter/min at full power ^(d)	
Water Pressure Requirements at Max Flow Rate	Pressure drop across sensor ~0.2MPa			Pressure drop across sensor at full flow rate <0.1MPa	
Water Connectors (e)	Quick connector for 3/8" OD nylon tubing			Quick connector for 1/2" OD nylon tubing	
Over Temperature Warning / Interlock	N.A.			Module on sensor near output cable with over temperature LED, loud audible signal and M8 3 connector interlock	
Cable Length and Connections	5 meters terminated in Ophir DB15 smart connector			Signal: 5 meters terminated in DB15 Interlock: M8 connector with 1.5 meter cable terminated in flying leads: Brown - common, Black - N.C., Blue - N.O.	
Optional Scatter Shield Accessory (e)	10K-W / 15K-W Scatter Shield (P/N 7Z08295)			20K-W Scatter Shield (P/N 7Z08355) (9)	
Weight kg	6			8	
Compliance	CE, UKCA, China RoHS			CE. UKCA. China RoHS	
Version	V2			02, 0.10, 0.1110.1	
Part number	7Z07133			7Z07149	
Note: (a)	Calibrated at 1.07µm and 10.6µm. For other wavelengths in the ranges of 0.8 - 0.95µm & 1.1 - 2µm, the calibration error may be up to ±2% more.				
Note: (b)	When scatter shield is installed, use the NIRS setting to compensate for slightly higher reading. When not installed, use				
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. 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 at near 12 liter/min flow rate. For solutions for prolonged usage with untreated water (tap water, non DI water), please contact Ophir.				
Note: (e)	For further information and other options see Accessories for High Power Sensors on pages 97-100.				
Note: (f)	With scatter shield full power is 18kW.				
Note: (g) Table: (1)	The scatter shield is compatible also with the 16K-W-BB-55 sensor			or P/N 7Z07131	
	Beam diameter	Max power density	Max energy density	Once mules wielth	1 Ocean mula e sui elèle
	<15mm	10kW/cm ²	1ms pulse width 30J/cm ²	3ms pulse width 60J/cm ²	10ms pulse width 150J/cm ²
	15 - 20mm	7kW/cm²	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

15K-W-BB-45



20K-W-BB-55

