

1.1.2.7 High Power Thermal Sensors

1.1.2.7.4 Very High Power Water Cooled Thermal Sensor

100W to 16kW

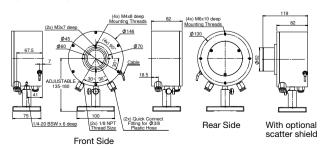
Features

- Very high powers
- Water cooled
- Up to 16kW
- Up to Ø55mm apertures
- Over temperature alarm and interlock



Model	15K-W-BB-45		16K-W-BB-55		
Use	High power up to 15kW		High power up to 16kW, 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 – 16kW		
Power Scales	15kW / 4kW / 400W		16kW / 4kW / 400W		
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			See note (c) and table (1) below	
Response Time with Meter (0-95%) typ. s	3.5			3.5	
Calibration Uncertainty ±%	1.9			1.9	
Power Accuracy ±%	5 (a)			5 (a)	
Linearity with Power ±%	2			2	
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)			12 liter/min at full power (d)	
Water Pressure Requirements at Max Flow Rate				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 termi Interlock: M8 connector cable terminated in flying Brown - common, Black	with 1.5 meter g leads:
Optional Scatter Shield Accessory (e)	10K-W / 15K-W Scatter Shield (P/N 7Z08295)			16K-W Scatter Shield (P/N 7Z08355)	
Weight kg	6			8	
Compliance	CE, UKCA, China RoHS			CE, UKCA, China RoHS	
Version				, , , , , , , , , , , , , , , , , , , ,	
Part number	7 Z 02770			7Z02791	
Note: (a)	Calibrated at $1.07\mu m$ and $10.6\mu m$. For other wavelengths in the range $0.8 - 2\mu m$, the calibration error may be up to $\pm 2\%$ more.				
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. 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 97-101.				
Table: (1)	Beam diameter	Max power density	Max energy density		
		1011111 2	1ms pulse width	3ms pulse width	10ms pulse width
	<15mm	10kW/cm²	30J/cm ²	60J/cm ²	150J/cm²
	15 - 20mm 20 - 40mm	7kW/cm ² 5kW/cm ²	20J/cm ² 15J/cm ²	40J/cm ² 30J/cm ²	100J/cm ² 70J/cm ²
	40 - 45mm	4kW/cm²	12J/cm ²	25J/cm ²	60J/cm ²

15K-W-BB-45



16K-W-BB-55

