1.1.2.7. High Power Thermal Sensors

1.1.2.7.4 Very High Power Water Cooled Thermal Sensors

100W to 16kW

Features

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

16K-W-BB-55

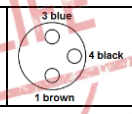
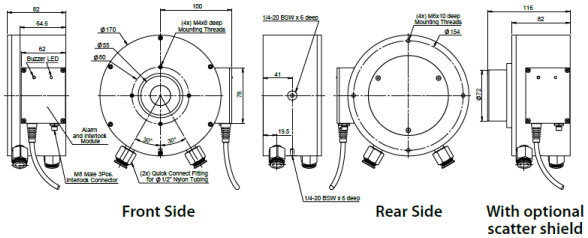
Model	**16K-W-BB-55**
Use	High power up to 16kW, larger aperture, over temperature alarm and interlock
Absorber Type	Beam deflector + broadband absorber
Spectral Range µm [a]	0.8 – 2, 10.6
Aperture mm	Ø55mm
Power Range	100W – 16kW
Power Scales	16KW / 4KW / 400W
Power Noise Level	1W
Backscattered Power [b, e]	~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
Power Accuracy ±%	5 [a]
Linearity with Power ±%	2
Variation with Beam Size	±1% from 10 to 35mm
Cooling	water [d]
Minimum Water Flow Rate	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 1/2" OD nylon tubing
Over Temperature Warning / Interlock	Module on sensor near output cable with over temperature LED, loud audible signal and M8 3 connector interlock
Cable Length and Connections	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]	16K-W Scatter Shield (P/N 7Z08355)
Weight kg	8
Compliance	CE, UKCA, China RoHS
Version	V2
Part number	**7Z07131**
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 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 options see **Accessories for High Power Sensors** on pages 97-100.

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

16K-W-BB-55



Front Side Rear Side With optional scatter shield