OMH 6700B

Silicon Power/ Waveheads

Product Features

- Measures power and wavelength from 350 to 1100 nm
- NIST traceable measurements
- Measures up to 30W optical power
- Integrating sphere based measurements
- Temperature controlled silicon photodetectors
- Free-space and fiber coupled measurements
- Fiber exit port for external measurements (OMH-6780B, OMH-6790B, OMH-67452B only)

The OMH-6700B Silicon Power/Waveheads provide flexibility to easily and accurately measure the optical power and wavelength of laser sources from the blue to the near infrared spectrum. These products incorporate ILX's unique integrating sphere-based power and wavelength measurement capability. The OMH-6732B power/wavehead provides accurate power and wavelength measurement from 350 to 530nm while the OMH-6722B measures from 400 to 1100nm, with both measuring up to 1W optical power. The OMH-6780B and OMH-6790B power/waveheads were developed specifically for pump laser diodes with better wavelength measurement accuracy, low polarization dependent response, and the ability to make either connectorized or bare fiber measurements. The OMH-67452B was designed to measure up to 30W for high power fiber coupled single emitters.

Measure with Confidence

The OMH-6700B Silicon Power/Waveheads are calibrated to NIST traceable standards in ILX's own calibration laboratory where accuracy and traceability are its primary concerns. ILX's documented quality system ensures conformance to continuous traceability and ultimately your confidence in the power/wavehead measurements.

Simplify Optical Measurements

Integrating spheres simplify optical power measurements of laser diodes and LEDs by eliminating measurement problems related to detector saturation, alignment beam profile, polarization, and back reflection. Integrating spheres are inherently insensitive to beam profiles, providing you with more flexibility in laser type and launch conditions. Filtered detectors on the interior of the sphere receive an equal distribution of incident light, ensuring that the calibration and resultant measurement accuracy are independent of the beam profile.

Repeatable, Accurate Measurements

The detectors in the OMH-6700B power/waveheads are temperature-controlled to ensure that repeatable measurements are made independent of the measurement environment. Temperature controlling the detectors increases the signal-to-noise ratio, improving the accuracy of the measurements.

Measurement Flexibility

Each measurement head can be configured easily for fiber-coupled measurements. A choice of adapters is available for FC, SC, LC, ST, and DIN connectors. Bare fiber measurements are also possible with a bare fiber adapter. More flexibility was designed into the heads with the addition of a fiber light exit port to connect to an OSA or other measurement instrument (OMH-6780B/OMH-6790B/OMH-67452B only).

ILX Lightwave®
A Newport Company

OMH 6700B

Silicon Power/ Waveheads

Specifications[1]

	OMH-6722B	OMH-6732B	OMH-6780B	OMH-6790B
WAVELENGTH MEASUREMENT				
Wavelength Range:	450 to 1100nm	350 to 515nm	830 to 1100nm	830 to 1100nm
Accuracy:[2]	±1.0nm[19]	±1.0nm[20]	±0.2nm	±0.2nm
Detection (minimum power required):	-20dBm	-10dBm	-10dBm	0dBm
Temperature Coefficient:	<-0.03nm/°C (typical)	<-0.03nm/°C (typical)[3]	<-0.03nm/°C (typical)[4]	<-0.03nm/°C (typical)[5]
POWER MEASUREMENT				
Power Range:[6]	-40 to +30dBm	-40 to +30dBm	-40 to +30dBm	-30 to +40dBm
Damage Threshold:	+42dBm	+42dBm	+42dBm	+42dBm
Accuracy[7]				
Operating Conditions:	±3.5%[8]	±3.5%[9]		±5.0%
Polarization Dependent Response:[10]	----------	----------	±0.002dB	±0.002dB
Measurement Repeatability:[11]	----------	----------	±0.003dB	±0.003dB
Entrance Aperture:	6mm	6mm	Fiber input, 2.54mm	Fiber input, 2.54mm
Numerical Aperture:	----------	----------	0.1 to 0.3	0.1 to 0.3
Sensor Type:	Silicon	Silicon	Silicon	Silicon
Noise:[8]	5nW p-p (typical) at 980nm	5nW p-p (typical)[12]	5nW p-p (typical)[13]	50nW p-p (typical)[13]
Linearity:[14]	----------	----------	±0.05dB, ±5nW	±0.05dB, ±50nW
Temperature Coefficient:	0.1% /°C (typical)[4]	0.15% /°C (typical)[3]	-0.15% /°C (typical)[4]	-0.15% /°C (typical)[5]
Fiber Exit Port:	----------	----------	For 1W of input power, 1µW (nominal) output (60dB output attenuation); 62.5µm FC/PC receptacle	For 10W of input power, 10µW (nominal) (60dB attenuation); 62.5µm FC/PC receptacle
GENERAL				
Environment				
Operating Temperature:	+10°C to +40°C	+10°C to +40°C	+10°C to +40°C	+10°C to +40°C
Storage Temperature:	–20°C to +60°C	–20°C to +60°C	–20°C to +60°C	–20°C to +60°C
Humidity:	<85% RH, non-condensing	<85% RH, non-condensing	<85% RH, non-condensing	<85% RH, non-condensing
Compatible Connector Types:	FC/PC, FC/APC, SC, ST, DIN, Bare Fiber Holder	FC/PC, FC/APC, SC, ST, DIN, Bare Fiber Holder	FC/PC, FC/APC, LC, SC, Bare Fiber Holder, Fiber Holder	FC/PC, FC/APC, LC, SC, Bare Fiber Holder, Fiber Holder
Dimensions:	69mm (dia.) x 28mm (thick)	69mm (dia.) x 28mm (thick)	86mm (H) x 86mm (W) (thick)	86mm (H) x 86mm (W) x 100mm (D)
Weight:	13.3 ounces	13.3 ounces	2.95 lbs. (1.34 kg)	2.95 lbs. (1.34 kg)

NOTES

Typical values provide supplemental information beyond guaranteed specification limits.

1 Unless otherwise noted, all specifications measured at 23°C ±3°C after one-hour warm-up period. Fiber optic head specifications applicable for 9/125 to 110/140µm fiber, NA = 0.3.
2 Minimum sensitivity -40dBm from 800 to 1100nm.
3 Measured with a 371nm source at 1mW output.
4 Measured with a 975nm source at 80mW optical input.
5 Measured with a 920nm source at 1W optical input.
6 Typical photodiode response is linear over a 60 to 70dB range between the effects of thermal noise and saturation of the diode. ILX power meter heads are calibrated above the noise threshold and linearity is verified in order to produce an accurate calibration for optical power measurements to 10W.
7 Includes traceability to NIST. Calibrated to 21°C ±3°C at 10nm intervals. Uncertainty evaluated according to NIST Technical Note #1297: "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results." Accuracy specifications are verified with the wavelength entered manually (instrument not in auto-wavelength mode).
8 Manual λ mode. Add +0.5% for auto-λ mode. Add +0.5% for λ < 440nm and > 1000nm. For input power > 100 mW, add +0.05%/100 mW.
9 Within the specified operating temperature range. Beam centered in entrance aperture and pointing within ±10°.
10 Variation in meter response associated with changes in input polarization state. Specification is for flat endface (cleaved) fiber. Add PDL for connectors or angled-cleave measurements. For example, 8° cleave in SMF-28 fiber typically adds 0.015dB PDL.
11 Variation in response from removing and replacing the fiber or connector into the detector head. Includes effects of variation in fiber orientation and bare fiber extension 1 to 5mm from the holder. Add ±0.003dB for NA >0.20.
12 Measured over one minute, in gain range seven, medium filter mode.
13 Measured over one minute, in medium filter mode at 975nm.
14 Total variation from straight-line response. Valid across range limits if measured in auto-range mode. Measured at 920nm, 23±5°C, constant temperature. Add ±0.005dB/dB for input power >20dBm.
15 Absolute wavelength measurement accuracy is specified for the range of 830nm to 1100nm
16 This instrument's wavelength measure technology provides "mean" wavelength i.e., all spectral contributions to which detectors are sensitive are measured. Stability of wavelength measurement increases with source linewidth, i.e., wavelength measurement not stable for linewidths <1GHz.
17 Measured with a 975 nm source at 1W optical input for the OMH-67452B.
18 Measure over 1 minutes, in medium filter mode at 975 nm.
19 Wavelength accuracy between 450 nm to 1100 nm.
20 For optical power >-30dBm. Typical wavelength accuracy is ±0.5nm for wavelengths <470nm.

In keeping with our commitment to continuing improvement, ILX Lightwave reserves the right to change specifications without notice or liability for these changes.

ORDERING INFORMATION

OMM-6810B-120V	Optical Power and Wavelength Meter, 120V
OMM-6810B-240V	Optical Power and Wavelength Meter, 240V
OMM-6810B-220V	Optical Power and Wavelength Meter, 220V
OMM-6810B-100V	Optical Power and Wavelength Meter, 100V
OMH-6722B	Silicon Power/Wavehead, 400-1100nm
OMH-6732B	Short Wavelength Power/Wavehead, 350-530nm
OMH-6780B	1W Power/Wavehead, 830 to 1100nm
OMH-6790B	10W Power/Wavehead, 830 to 1100nm

ACCESSORIES

OMH-6722B and OMH-6732B
- AO271 FC Adapter Assembly
- AO272 SC Adapter Assembly
- AO273 ST Adapter Assembly
- AO120 Bare Fiber Adapter Ring
- BF-820 Bare Fiber Holder (6795B also requires CA-120)

OMH-6780B and 6790B
- BF-820 Bare Fiber Holder (requires adapter ring)
- CA-100 FC Adapter
- CA-120 Bare Fiber Adapter Ring
- CA-150 SC Adapter
- CA-20001 LC Adapter

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