

## Product Features

Measures power and wavelength from 900 to 1650nm

NIST traceable calibration

Measures up to 10W optical power

Integrating sphere-based measurements

Temperature-controlled InGaAs photodetectors

Free-space and fiber-coupled measurements

Fiber exit port for external measurements (OMH-6795B only)



The OMH-6700B InGaAs Power/ Waveheads provide the flexibility to easily and accurately measure the optical power and wavelength of laser sources in the near infrared spectrum. These products incorporate ILX's unique integrating sphere-based power and wavelength measurement capability. The OMH-6727B allows free-space power and wavelength measurement from 950 to 1650nm while the OMH-6745B and OMH-6795B allow fiber-based measurements from 900 to 1650nm, up to 1W and 10W, respectively. The OMH-6795B power/wavehead was developed specifically for high power 14XX pump laser diodes with bare fiber measurements and low polarization dependent response.

### Measure with Confidence

The OMH-6700B InGaAs 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 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 easily configured for fiber-coupled measurements. A choice of adapters

# OMH 6700B

InGaAs Power/  
Waveheads

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## InGaAs Power/ Waveheads

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-6795B only).

### Specifications<sup>1</sup>

#### WAVELENGTH MEASUREMENT

Wavelength Range:	950 to 1650nm	1200 to 1650nm
Accuracy: <sup>2</sup>	±1.0nm	±2.0nm
Detection (minimum power required):	-20dBm	-10dBm

#### POWER MEASUREMENT

Power Range: <sup>3</sup>	-40 to +30dBm	-30 to +40dBm
Damage Threshold:	+42dBm	+42dBm
Accuracy: <sup>4</sup>	±5.0% <sup>5,6</sup>	±5.0% <sup>5</sup>
Operating Conditions:	-----	±0.002dB
Polarization Dependent Response: <sup>7</sup>	-----	±0.003dB
Measurement Repeatability: <sup>8</sup>	6mm	Fiber input, 2.54mm
Entrance Aperture:	-----	0.1 to 0.3
Numerical Aperture:	InGaAs	InGaAs
Sensor Type:	5nW p-p (typ.) at 1550nm <sup>10</sup>	≤60nW p-p (1200 to 1650nm); typical 30nW p-p @ 1480nm <sup>10</sup>
Noise:	-----	±0.1dB, ±60nW
Linearity: <sup>4,11</sup>	-----	<-0.15% /°C (typical) <sup>3</sup>
Temperature Coefficient:	-0.1%/°C (typ.)	For 1W of input power, 1μW (nominal) output (60dB attenuation); fiber core: 62.5μm FC/PC receptacle
Fiber Exit Port:	NA	

#### GENERAL

Environment		
Operating Temperature:	+10°C to +40°C	+10°C to +40°C
Storage Temperature:	-20°C to +60°C	-20°C to +60°C
Humidity:	<85% RH, non-condensing	<85% RH, non-condensing
Compatible Connector Types:	FC, SC, ST, DIN, Bare Fiber	FC, LC, SC, E2000, Bare Fiber
Dimensions:	69mm (dia.) x 28mm (thick)	86mm (H) x 86mm (W) x 100mm (D)
Weight:	13.3 ounces	2.95 lbs. (1.34 kg.)

#### NOTES

Typical values provide supplemental information beyond guaranteed specification limits.

- 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.
- This instrument's wavelength measurement technology provides "power-averaged" wavelength (i.e., spectral contributions to which detectors are sensitive are measured).
- 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.
- 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). For auto-wavelength mode, add ±0.8% to the accuracy uncertainty.
- Manually set wavelength. Add ±0.5% for auto wavelength mode. For 6795B, add ±1.2% for auto wavelength mode. Add ±1.0% for λ > 1500nm.
- For input power > 100mW, add ±0.05%/100mW.
- 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.
- 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.
- Measured over one minute, in gain range seven, medium filter mode.
- Measured over one minute, in medium filter mode at 975nm.
- 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.

In keeping with our commitment to continuing improvement, ILX Lightwave reserves the right to change specifications

#### ORDERING INFORMATION

OMM-6810B Optical Multimeter (Includes GPIB Interface)  
OMH-6727B Power/Wavehead 950-1650nm  
OMH-6745B Power/Wavehead 900-1650nm  
OMH-6795B 10W Power/Wavehead 1200-1650nm

#### Accessories

OMH-6727B  
AQ271 FC Adapter Assembly  
AQ273 ST Adapter Assembly  
AO120 Bare Fiber Adapter Ring  
MK-650 Head Mounting Kit (requires CA-120)  
BF-820 Bare Fiber Holder  
(OMH-6727B also requires AO120)

OMH-6795B  
CA-100 FC Adapter  
CA-120 Bare Fiber Adapter  
CA-150 SC Adapter  
CA-2001 LC Adapter  
CA-500 Accessory Case  
BF-820 Bare Fiber Holder



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