

Product Features

± 0.001 dB typical polarization dependent response

Measures up to +33dBm at pump wavelengths ($\lambda < 1000$ nm)

Single input port for both connectorized and bare fiber measurements

Adapters available for most common fiber optic connectors

Large measurement head for stability on the production bench

Competitive, cost-effective fiber optic component manufacturing calls for accurate power measurements that can be easily repeated. For reliable comparison, the FPM-8210 and FPM-8210H Fiber Optic Power Meters have a single input port for both connectorized and bare fiber measurements. Virtually insensitive to polarization state or to pattern changes from fiber orientation, these meters deliver repeatable high resolution results.

ILX Lightwave engineered the FPM-8210 and the FPM-8210H for your production test workstation. The innovative fiber optic head design makes reliable fiber endface positioning a routine task, whether or not the fiber has a connector. With the CA-120 Bare Fiber Adapter, these meters are compatible with either ILX Lightwave or Agilent bare fiber holders.

The FPM-8210 and FPM-8210H Fiber Optic Power Meters are the factory measurement tools to drive down your component PDL specifications while increasing test throughput.

FPM 8210 FPM 8210H

Fiber Optic
Power Meters



Drive Down Test Time, Costs, and PDL Specs

 **ILX Lightwave**
Laser Diode Instrumentation & Test Systems

FPM 8210 FPM 8210H

Fiber Optic Power Meters

Product Overview

These meters combine power measurement accuracy with the industry's lowest polarization dependent response. ILX's innovative, patented detector cavity delivers repeatable and flexible measurements from either bare or connectorized fiber.

Optimized for bare fiber measurements, the integrating cavity detector head delivers the longest bare fiber measurement zone, anywhere from 1–5 mm from the holder, with essentially no change in results. Precise fiber orientation is no longer necessary for repeatable measurements.

ILX Lightwave adapters accommodate the most common fiber optic connectors. The change from bare to connectorized fiber is simple. The connector adapters locate the fiber ferrule in exactly the same

place as the bare fiber endface, giving comparable results.

Designed to hold and position a common telecom fiber, the BF-820 Bare Fiber Holder is compatible with both ILX Lightwave and Agilent adapter rings. Inside the BF-820, opposing V-guides facilitate correct fiber positioning. Outside, knurled finger grips enable single-handed maneuvering of the fiber holder.



The BF-820 Bare Fiber Holder completely encircles the fiber, prohibiting ambient light from interfering with power measurements.

Specifications

MODEL NUMBER	FPM-8210	FPM-8210H
PERFORMANCE		
Wavelength:	850–1650nm	850–1650nm
Power Range: ²	+20 to –70dBm	+30 to –50dBm
Damage Threshold:	>+40dBm	>+40dBm
Accuracy ³		
Reference Conditions: ⁴	±2.5%	±2.5%
Operating Conditions: ⁵	±5.0%	±5.0%
Polarization Dependent Response: ⁶	±0.002dB, typical ±0.001dB ¹	±0.002dB, typical ±0.001dB ¹
Measurement Repeatability: ⁷	±0.003dB, typical ±0.001dB ¹	±0.003dB, typical ±0.001dB ¹
Compatible Connectors:	FC/PC, FC/APC, LC, SC, bare fiber holder ⁸	FC/PC, FC/APC, LC, SC, bare fiber holder ⁸
Entrance Aperture:	2.54mm	2.54mm
Sensor Type:	InGaAs	InGaAs
Noise: ⁹	≤100pW p-p (1200 at 1630nm) typical <40pW p-p at 1310 and 1550nm ¹ 50ms ¹⁰	≤500pW p-p (1200 at 1630nm) typical <250pW p-p at 1310 and 1550nm ¹ 50ms ¹⁰
Sample Rate:		
Temperature Coefficient:	±0.2%/°C, typical ¹	±0.2%/°C, typical ¹
Linearity: ¹¹	±0.02dB, ±100pW (–60dBm to 20dBm)	±0.04dB, ±500pW (–40dBm to 30dBm)
POWER DISPLAY		
Type:	5-digit, 7-segment LED, log or linear	5-digit, 7-segment LED, log or linear
Resolution:	0.001 unit, log or linear	0.001 unit, log or linear
WAVELENGTH DISPLAY (INPUT)		
Type:	4-digit, 7-segment LED	4-digit, 7-segment LED
Range:	850–1650nm	850–1650nm
Resolution:	1nm	1nm
Power Level Bargraph:	Relative to full scale, fast update	Relative to full scale, fast update
Display Filter Update Rate ¹²		
Slow:	100 measurements	5s
Medium:	10 measurements	0.50s
Fast:	1 measurement	0.05s
ANALOG OUTPUT (REAR PANEL)		
Bandwidth:	0–10Hz, typical ¹	0–10Hz, typical ¹
Voltage:	0–10V	0–10V
Impedance:	1000Ω, typical ¹	1000Ω, typical ¹
GENERAL		
Operating Temperature:	10°C to 40°C	10°C to 40°C
Storage Temperature:	–40°C to 70°C	–40°C to 70°C
Humidity:	<85% RH, noncondensing	<85% RH, noncondensing
Line Voltage:	100V ±10%, 120V ±10%, 220V ±10%, 230–240V ±10%	100V ±10%, 120V ±10%, 220V ±10%, 230–240V ±10%

Line Frequency:	50–60Hz	50–60Hz
Size (HxWxD)		
Meter:	88mm x 212mm x 270mm, 3.5" x 8.4" x 10.6"	88mm x 212mm x 270mm, 3.5" x 8.4" x 10.6"
Detector Head:	86mm x 86mm x 100mm, 3.4" x 3.4" x 3.9"	86mm x 86mm x 100mm, 3.4" x 3.4" x 3.9"
Cable:	2 meters	2 meters
Weight:	4.6kg, 10.2lbs, (Meter + Head & Cable)	4.6 kg, 10.2lbs, (Meter + Head & Cable)

NOTES

- Typical values provide supplemental information beyond guaranteed specification limits.
- FPM-8210: +23dBm to –60dBm for $\lambda < 1000\text{nm}$.
FPM-8210H: +33dBm to –40dBm for $\lambda < 1000\text{nm}$.
- 950–1630nm. Includes traceability to NIST. Calibrated at 23°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."
- Temperature 23°C ±2°C, λ 1000–1600nm, spot diameter 1.1mm, power –20dBm (10μW).
- Within operating power and temperature ranges specified above. Add 1% for NA >0.2. Maximum NA ≤0.30.
- 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 1–5mm from the holder. Add ±0.003dB for NA >0.20.
- Compatible with ILX Lightwave BF-820 or Agilent 81000BA bare fiber holders. ILX Lightwave BF-820 fiber holders are designed for fiber diameter 125μm (250μm or 900μm buffer).
- Measured over one minute in medium filter mode. Typical noise at 980nm <150pW for FPM-8210 and <700pW for FPM-8210H.
- GPIO data transfer rate is faster than measurement sample rate.
- 920–1630nm. Total variation from straight-line response. Valid across range limits if measured in auto-range mode. Measured at 23°C ±5°C, constant temperature. Add ±0.005dB/dB for input power >0dBm.
- Applies to measurements taken within the same gain range. Display update rates will increase if changing gain ranges is required during measurements.

In keeping with our commitment to continuous improvement, ILX Lightwave reserves the right to change specifications without notice and without liability for such changes.

ORDERING INFORMATION

FPM-8210	Fiber Optic Power Meter (+20 to –70dBm)
FPM-8210H	Fiber Optic Power Meter (+30 to –50dBm)
BF-820	Bare Fiber Holder (requires CA-120)
CA-100	FC Adapter
CA-120	Bare Fiber Adapter Ring
CA-150	SC Adapter
CA-20001	LC Adapter
CA-500	Accessory Case

Note: CA-500 Accessory Case may be included for no charge with BF-820 or any two CA-series adapters.

ILX Lightwave
Laser Diode Instrumentation & Test Systems
P.O. Box 6310, Bozeman, MT 59771 • FAX: 406-586-9405

For information call

1-800-459-9459

International Inquiries: 406-556-2481
email: sales@ilxlightwave.com



REV02.070705