FPM 8200

Fiber Optic Power Meter

Product Features

- Optical power measurement from 800–1600 nm
- Over 75 dB of dynamic range at 1300 nm with high linearity over the entire range
- Calibrated to NIST-traceable standards
- Analog output for full systems capability
- Save and Recall functions for all instrument settings
- GPIB interface for easy systems integration

The FPM-8200 is a precision fiber optic power meter that provides optical power measurement from 800–1600 nm. Featuring 75 dB of dynamic range and an accuracy of 2.5% with NIST traceable calibration, the FPM-8200 comes equipped with GPIB interface and analog output ports for complete system integration with other lab equipment. A free LabVIEW® instrument driver is available upon request. To ensure maximum instrument flexibility, unique Save and Recall functions allow complete instrument states to be saved and recalled, all at the touch of a button.

Precision Fiber Optic Measurement

ILX Lightwave
Photonic Test & Measurement Instrumentation

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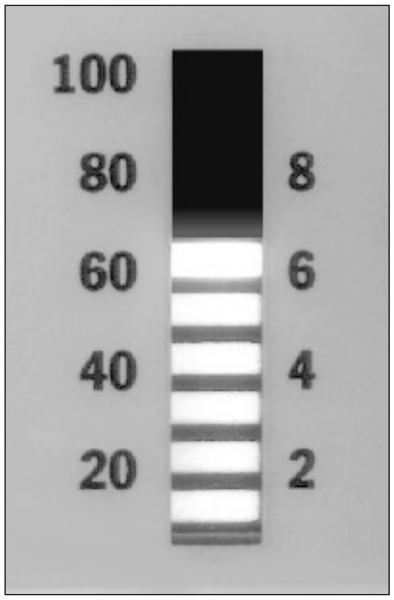
The FPM-8200 is a sophisticated high-performance fiber optic power meter without the high price tag. The versatile and easy-to-use FPM-8200 gives you total systems capability and fast data acquisition.

NIST-Traceable Calibration

ILX Lightwave has devoted considerable resources to develop state-of-the-art calibration facilities. By using the most advanced technology and the latest quality assurance techniques throughout our production and service areas, we can guarantee that instrument calibrations are directly traceable to NIST standards. Wavelength calibration is performed at 10 nm intervals throughout, so you can be confident in the accuracy of your measurement, no matter what wavelength you are using.

For more information, ask for Application Note #12, "Calibration and Traceability of ILX Lightwave Optical Power Meters."



A unique LED bar graph displays relative power with 0.05 dB resolution.

Fast and Accurate Measurements

In applications where systems capability and data acquisition speed are important, the FPM-8200 is hard to beat. That's because the FPM-8200 features 20 readings/second for more realistic data collection. What's more, resolution is unbeatable at 0.1 pW, accuracy is within 2.5 %, and high linearity is achieved to ensure accuracy over a full dynamic range.

Simple and Intuitive System Optimization

Our exclusive LED bar graph gives you quick feedback of power fluctuations so that you can easily reduce losses and optimize your system for maximum throughput.

Using a special vernier-style readout, our LED bar graph represents percentage of gain range full scale—for better than 0.05 dB resolution. Unlike analog needles, it's easy to read from a distance, even in a darkened lab.

An analog output on the back panel adds the convenience of recording power levels directly to a strip chart or other recording device.

Zeroed Gain Range Offsets

Noisy signals? No problem. A digital "filtering" function lets you average up to 100 measurements for a greater signal-to- noise ratio. With our zeroing feature, you can also zero-out background noise over all seven gain ranges at the touch of a button. When you press the "ZERO" button on the front panel, the "ZERO" LED flashes and the power display blanks while the zeroing is performed. You may also cancel the process at any time by pressing the "ZERO" button again. The instrument simply reverts back to the gain ranges determined by the most recent zero calibration.

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Designed for systems capability and fast data acquisition.

Easy System Configuration

To ensure compatibility with a variety of systems, a set of fiber connector adapters is available, including FC, SC, and DIN. In addition the FPM-8200 has been designed to accept industry-standard adapter caps (7/8" - 28 UNC) allowing you to use virtually all connector types.

Clear and Concise Automated Testing

For automated testing, a GPIB interface allows remote programming and readout from most computers. All instrument functions accessible from the front panel are also accessible through the interface bus, making data gathering both quicker and easier.

Put Our Expertise to Work for You

ILX Lightwave is a recognized world leader in photonic instrumentation. Our products are renowned for their reliability, quality and value. We back our products with strong after-sales support. Discover how our applications experience and expertise can work for you.

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Specifications

OPTICAL DETECTOR

Wavelength Range:	800–1600 nm
Power Range:[1]	-75 to +1.5 dBm
Damage Threshold	+10 dBm

ACCURACY[2]

Reference Conditions:[3]	±2.5%
Operating Conditions:[4]	±5.0%
Sensor Type:	InGaAs
Noise:[5]	≤2 pW p-p (1000–1600 nm) <4 pW p-p (800–1000 nm)
Sample Rate:[6]	50 msec
Temperature Coefficient:	*Typical* ±0.02%/°C
Linearity:[7]	±0.015 dB, ±2 pW

POWER DISPLAY

Range:	-80 to +5 dBm
Type:	5-digit, 7-segment LED, log or linear mode
Resolution:	0.001 unit (log or linear)

WAVELENGTH DISPLAY (input)

Type:	4-digit, 7-segment LED
Range:	800–1600 nm
Resolution:	1 nm

POWER LEVEL BARGRAPH

Type:	LED Bar Graph
Range:	Relative to Full Scale
Resolution:	<0.05 dB

DISPLAY FILTER UPDATE RATE[8]

Slow - 100 measurements:	5 s
Medium - 10 measurements:	0.50 s
Fast - 1 measurement:	0.05 s

ANALOG OUTPUT (REAR PANEL)

Bandwidth:	*Typical* 0–10 Hz
Voltage:	0–10 V
Impedance:	*Typical* 1000 Ω

CONNECTORS[9]

Type:	FC/PC, FC/APC, LC, SC, ST, DIN, Bare Fiber

ENVIRONMENT

Operating Temperature:	10°C–40°C
Storage Temperature:	–40°C to +70°C
Humidity:	<85% RH, non condensing
Line Voltage:	100 V, ±10% 120 V, ±10% 220 V, ±10% 230–240 V ±10%
Line Frequency:	50–60 Hz

GENERAL

Size (HxWxD):	88 mm x 212 mm x 270 mm 3.5" x 8.4" x 10.6"
Weight:	4.4 kg (9.7 lbs)

NOTES

1 Minimum power –70 dBm for λ = 800–1000 nm. Power range limits defined by linearity specification at NA = 0.11 (eg: SMF-28 fiber). Maximum power linearity limit is higher for wider NA fiber.

2 Valid across power range limits from 1000–1600 nm. Includes traceability to NIST. Calibrated at 23°C ±3°C, at 10 nm intervals. Uncertainity evaluated according to NIST Technical Note #1297: "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results",

3 Temperature 23 ±2°C , λ 1000–1600 nm, spot diameter 1.1 mm, power –20 dBm (10 µW).

4 Conditions: Temperature 0–40°C, 1000–1600 nm, fiber NA ≤0.3.

5 Measured over 1 minute, in medium filter mode.

6 GPIB data transfer rate is faster that measurement sample rate.

7 Total variation from straight-line response. Valid across power range measurement limits if measured in auto-range mode. Measured at 23 ±2°C.

8 Applies to measurements taken within the same gain range. Display update rates will increase if changing gain ranges is required during measurements.

9 Anti static covers are included on all connectors. Please keep these covers in place when the instrument is not in use to prevent static discharge damage to the instrument.

For more information, refer to ILX Lightwave Application Note #12: *Calibration and Traceability of Optical Power Meters.*

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-8200	Fiber Optic Power Meter with 800–1600 nm InGaAs Detector (Includes GPIB Interface)
AO120	Bare Fiber Adapter
AO22103	FC Adapter
AO24102	ST Adapter
AO26102	SC Adapter
AO281	HP Connector Adapter Ring
AO601	Ericsson Fiber Holder Adapter
BF601E	Ericsson Fiber Cup Holder
BF-820	Bare Fiber Holder
RM-122	Rack Mount Kit, Dual Instrument
RM-124	Rack Mount Kit, Single Instrument
LabVIEW®	Instrument Driver

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