JONARD TOOLS®

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FPM-50A FIBER OPTIC POWER METER

(-50 TO +26 DBM) WITH FC/SC/LC ADAPTERS

INSTRUCTION MANUAL

FPM-50A Power Meter Manual

This Power Meter is a smart and user-friendly fiber power meter, expertly designed for ease of use. Capable of performing both absolute and relative power measurements, it delivers exceptional precision across a broad range of wavelengths, making it an essential tool for maintaining and optimizing fiber optic networks.

This Product Includes:

- Fiber Optic Power Meter
- Instruction Manual
- (3) AA Batteries (required for operation)
- (2) Cleaning Swabs
- FC Adapter
- SC Adapter
- FC-LC Adapter (Singlemode Only)
- Hard Carrying Case

Specifications

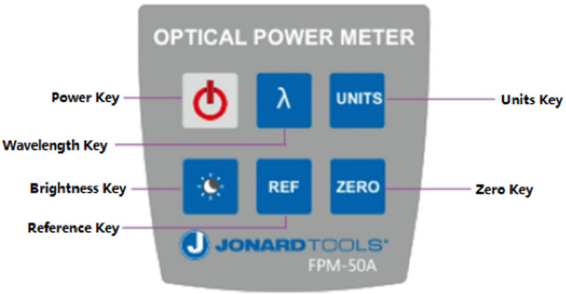
MODEL	FPM-50A OPTICAL POWER METER
Detector Type	InGaAs
Wavelength Test Range (nm)	800 ~ 1700
Measurement Range (dBm)	+26 ~ -50
Default Calibration Wavelength (nm)	850/980/1300/1310/1490/1550/1625/1650
Minimum Display Resolution (dB)	0.01
Linearity (dB)[1]	≤ 0.12
Uncertainty	± 0.2
Frequency Identification (Hz)	CW, 270 Hz, 330 Hz, 1000 Hz, 2000 Hz
Measurement Unit	dBm, dB, xW
Optical Connector	FC, SC
Wavelength Identification[2]	Yes, using our FLS-50 or FLS-55
Display Size	2.4-inch LCD
Power Supply	1.5V*3 AA alkaline batteries
Continuous Working time[3]	≥50 hr
Auto turn-off (min)	10
Operating Temperature (°C)	-10 ~ +60
Storage Temperature (°C)	-25 ~ +70
Dimensions	7.44" x 3.31" x 1.85" (189 mm x 84 mm x 47 mm)
Weight	0.64 lb (290 g)

1. @1550 nm: +26~-30 dBm

2. Must be used with the FLS-50 or FLS-55 Light Sources

3. The continuous working time is related to the brightness of the color screen backlight. The higher the brightness, the shorter the working time.

Key Functions



Power Key: Power the device on or off.

Wavelength Key: Switches between the current operating wavelength and other selectable wavelengths: 850/980/1300/1310/1490/1550/1625/1650 nm.

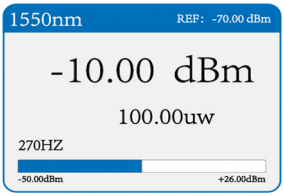
Units Key: Press this key to switch between the absolute power measurement (dBm) and relative power measurement (dB) of the optical fiber being tested.

Brightness Key: Adjust the brightness of the backlight.

Reference Key: To store the current power value as the reference value which will be displayed on the top right corner of the LCD. It will compare the current power with the reference and show the relative power in dB.

Zero Key: Zero out the current Reference Value.

Screen Display



“1550nm”: Selected or detected (in Auto mode) wavelength

“REF: -70.00 dBm”: Current Reference Power stored in the system

“-10.00 dBm”: Absolute Power being measured

“100.00 uW”: Linear Power being measured

“270Hz”: Selected Frequency. When long pressing the λ key, “AUTO” will appear. This indicates that the device has entered the automatic wavelength recognition function. This function only works when the power meter is linked to one of our light sources (FLS-50 or FLS-55).

: Absolute Power Indicator

Auto-off feature: The Auto-off feature can be turned on and off by quickly pressing the power button. Its status is indicated in the upper left-hand corner of the LCD screen. When you see a power button symbol, auto-off is active.

Manual Calibration Mode

The FPM-50A and FPM-70 Fiber Power Meters have a special function that allow for manual calibration of the unit. In this mode, you can add an offset to your measurements. Press the REF and ZERO keys simultaneously and the device will enter Manual Calibration mode. The first line of the screen will display **CAL**, and the current absolute power value, in dBm, will be displayed in blue.

λ Key: Change wavelength

REF: Press to decrease the power by 0.05 dBm

ZERO: Press to increase the power by 0.05 dBm

UNITS: Press to save the current calibration value. If the dBm data blinks once or the OK message is displayed, the calibration will be saved.

REF + ZERO: Exit Manual Calibration Mode, and the **CAL** symbol will disappear.

Absolute Power Measurements Using a Fiber Optic Power Meter & Light Source

Using a power meter and light source, you can test the quality of a fiber optic cable. To do so, follow the instructions below:

Before You Start

You will need the following pieces of test equipment:

- Fiber Optic Power Meter, such as our FPM-50A, FPM-50S, FPM-70, or FPM-55
- Fiber Optic Light Source, such as our FLS-50 or FLS-55
- Fiber Optic Cleaning Tool or Wipes, such as FCC-125, FCC-250, FW-50, etc.
- Fiber Optic Cleaning Fluid, such as FCF-3, or 99% isopropyl alcohol
- If testing a Multimode cable, a mandrel is required

How to Test

1. Attach the necessary adapters to the Fiber Optic Light Source and Fiber Optic Power Meter.

   NOTE: The Fiber Optic Light Source will only work with UPC connectors. The Power Meters can use either UPC or APC polished ferrule connectors.

2. Take your Test Cable and clean one of the end faces with Fiber Optic Cleaning Fluid and a Fiber Optic Cleaning Tool or Wipes.

3. Plug this end of the Test Cable into the Fiber Optic Light Source.

   NOTE: When testing a multimode cable, the Test Cable needs to be attached to a mandrel to eliminate higher modes of light that interfere with test results.

4. Clean the other end's ferrule end face of the Test Cable and insert that end into the Fiber Optic Power Meter.

5. Turn on the Light Source and select the wavelength you want to test, with the frequency set to 0 Hz.

   NOTE: For singlemode testing, 1310 nm or 1550 nm should be selected. For multimode testing, 850 nm or 1300 nm should be selected.

6. Turn on the Fiber Optic Power Meter and select the same wavelength that is set on the Light Source, and the Absolute Power of the Test Cable will be displayed.

Relative Power Measurements Using a Fiber Optic Power Meter & Light Source

Using a power meter and light source, you can also determine the amount of loss in a fiber optic cable. To do so, follow the instructions below:

Before You Start

You will need the following pieces of test equipment:

- Fiber Optic Power Meter, such as our FPM-50A, FPM-50S, FPM-70, or FPM-55
- Fiber Optic Light Source, such as our FLS-50 or FLS-55
- Fiber Optic Patch Cable with the same fiber type (G.652, G.655, G.657, etc.) as the test cable
- Fiber Optic Cleaning Tool or Wipes, such as FCC-125, FCC-250, FW-50, etc.
- Fiber Optic Cleaning Fluid, such as FCF-3, or 99% isopropyl alcohol
- If testing a Multimode cable, a mandrel is required

How to Test (One Cord)

One Cord testing is the simplest and fastest way to test a fiber optic cable. This test should be performed when testing short cables where the connector loss on each end is not critical.

NOTE: This test may not be accurate if the cable under test has different connector types on each end.

7. Attach the necessary adapters to the Fiber Optic Light Source and Fiber Optic Power Meter.

   NOTE: The Fiber Optic Light Source will only work with UPC connectors. The Power Meters can use either UPC or APC polished ferrule connectors.

8. Take your Fiber Optic Patch Cable (also known as the Reference Cable) and clean one of the end faces with Fiber Optic Cleaning Fluid and a Fiber Optic Cleaning Tool or Wipes.

9. Plug this end of the Reference Cable into the Fiber Optic Light Source.

   NOTE: When testing a multimode cable, the Reference Cable needs to be attached to a mandrel to eliminate higher modes of light that interfere with test results.

10. Clean the other end's ferrule end face of the Reference Cable and insert that end into the Fiber Optic Power Meter.

11. Turn on the Light Source and select the wavelength you want to test, with the frequency set to 0 Hz.

    NOTE: For singlemode testing, 1310 nm or 1550 nm should be selected. For multimode testing, 850 nm or 1300 nm should be selected.

12. Turn on the Fiber Optic Power Meter and select the same wavelength that is set on the Light Source and press the Reference Key (REF) to store the current power value as the reference value.
13. Remove the Reference Cable from the Light Source and Power Meter and insert the Fiber Optic Cable you want to test.

    NOTE: Follow the same cleaning procedure as done with the Reference Cable for the Test Cable before inserting it into the Light Source and Power Meter.
14. Once the Test Cable is inserted into both devices, the relative power (or loss of the test cable) will appear on the Power Meter's screen.

How to Test (Two Cords)

Two Cord testing is more accurate than One Cord testing, but it still includes the loss of one connection in the reference. This is useful when the cable under test uses two different connector types on each end.

You can test the loss of a fiber optic cable using two Reference Cables and a Connector Adapter by following the same procedure as One Cord testing. To do so:

1. Plug in one Reference Cable to the Light Source and Connector Adapter, and the other Reference Cable into the Connector Adapter and Power Meter.
2. Zero out the Reference Cables.
3. Replace the Reference Cable connected to the Connector Adapter and Power Meter with your Test Cable.

How to Test (Three Cords)

Three Cord testing is the most accurate method, as it excludes the loss of both connections to the cable under test. This is the preferred method for the most accurate results of fiber testing.

You can test the loss of a fiber optic cable using three Reference Cables and two Connector Adapters by following the same procedure as One Cord testing. To do so:

1. Plug in one Reference Cable to the Light Source and first Connector Adapter, one Reference Cable to the first Connector Adapter and the second Connector Adapter, and the last Reference Cable into the second Connector Adapter and the Power Meter.
2. Zero out the Reference Cables.
3. Replace the Reference Cable connected to both Connector Adapters with your Test Cable.

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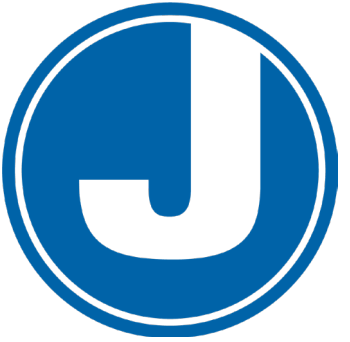

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