JONARDTOOLS®

MADE FOR LIFE

FPM-55 FIBER OPTIC POWER METER

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

INSTRUCTION MANUAL

FPM-55 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
- LC Adapter (Mounts onto FC)
- USB-C Cable
- Hard Carrying Case

Specifications

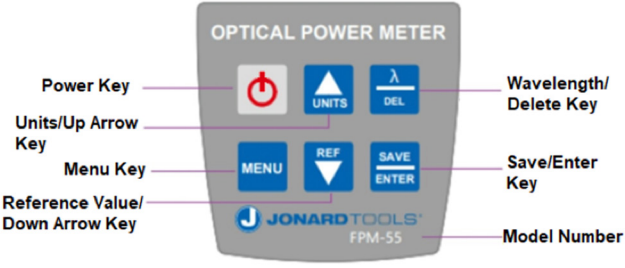
MODEL	FPM-55 OPTICAL POWER METER
Detector Type	InGaAs
Wavelength Test Range (nm)	800 ~ 1700
Measurement Range (dBm)	+26 ~ -50
Default Calibration Wavelength (nm)	850/980/1300/1310/1490/1550/1625/1650
Minimum Display Resolution (dB)	0.01
Linearity (dB)[1]	≤ 0.1
Uncertainty	± 0.15
Frequency Identification (Hz)	CW, 270 Hz, 330 Hz, 1000 Hz, 2000 Hz
Measurement Unit	dBm, dB, xW
Optical Connector	FC, SC, LC
Communication Interface	USB-C
Data Storage (# of entries)	1000
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)	OFF, 10, 20, 30
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.

Units/Up Arrow Key: Press this key to switch between the main measurement from absolute power (dBm), relative power (dB), and linear power (xW). While in the Menu, press this key to move up.

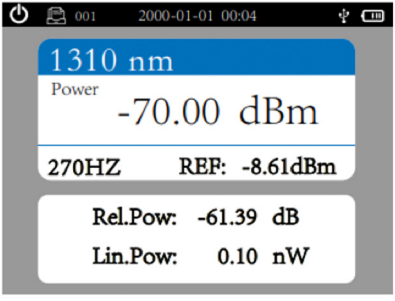
Wavelength/Delete Key: Switches between the current operating wavelength and other selectable wavelengths: 850/980/1300/1310/1490/1550/1625/1650 nm. When viewing data, press this key to delete it from the system.

Menu Key: Press to open the Menu. Here you can change the Auto Off, Backlight, Threshold, Date, and Time settings, as well as view the stored data.

REF/Down Arrow Key: Stores 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 value and show the relative power in dB. While in the Menu, press this key to move down.

Save/Enter Key: Press this key to Save the current data displayed on screen. While in the Menu, press this key to select. Press this key to return to the main screen when viewing saved data.

Screen Display



“1310 nm”: Selected or detected (in Auto mode) wavelength

“REF: -8.61 dBm”: Current Reference Power stored in the system

“Power: -70.00 dBm”: Absolute Power being measured

“Rel Pow: -61.39 dB”: Relative Power being measured

“Lin. Pow: 0.10 nW”: 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).

Data Saving, Viewing, and Deletion

: This icon shows the current record, save data 001. This icon will flash white when saving data, will be **yellow** while it's being viewed, and will flash **red** when it is deleted.

Save: While testing a cable, press the Save/Enter Key to save all data displayed onscreen.

View: Press the Menu Key to enter the Menu and select "Data View" by pressing the Save/Enter Key. Entry 0001 (in yellow) should be displayed onscreen. Press the Up or Down Arrow Keys to navigate the saved entries.

Delete: While viewing data, press the Wavelength/Delete Key to delete the saved entry.

Manual Calibration Mode

The FPM-55 Fiber Power Meter has a special function that allows for manual calibration of the unit. In this mode, you can add an offset to your measurements. Press the UNITS + DEL 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

Down Arrow Key: Press to decrease the power by 0.05 dBm

Up Arrow Key: Press to increase the power by 0.05 dBm

Save/Enter Key: Press to save the current calibration value.

UNITS + DEL Keys: 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.

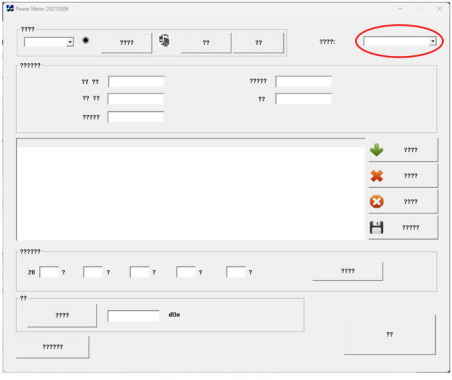
You can test the loss of a fiber optic cable using three Reference Cables and two Connector Adapters by following the same procedure as One Cord testing. To do so:

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.

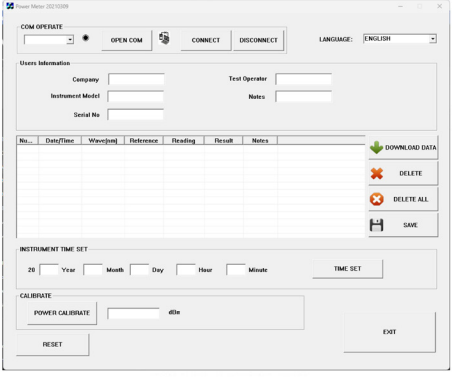
Setting Up the Software:

Double click “OPM.EXE” to run the software. There is no need to install the files directly.

The below figure is the software interface, it includes Chinese and English versions. The user can change the language version via drop down menu shown below:



Language Selection

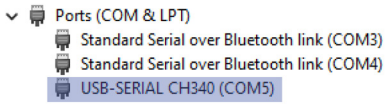


Software Interface (English)

Using the Software:

1. Connecting the Meter:

Connect the meter to the computer with USB data cable and power it on. Check to make sure it is connected to the computer by going to the “Ports (COM and LPT)” section of Window’s device manager. In the example below, it is labeled as “COM5”



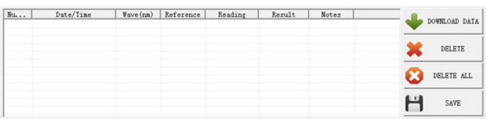
In the FPM-55 Software, choose the corresponding COM port.

After selecting the port, click the “Open COM” button, and then click the “Connect” button.
A pop-up will appear, indicating the connection was successful.

2. User Information & Uploading Data

Before uploading data, fill out the below related user information. You can record any additional information in the “Notes” text box.

After, you can click the “DOWNLOAD DATA” button to download all stored records from the power meter, so long as the Power Meter is on and connected to the computer.

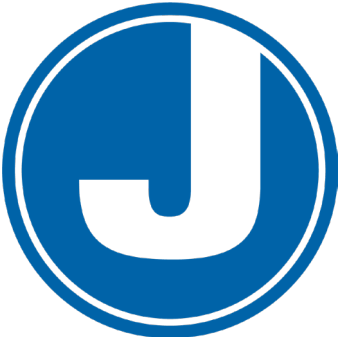


If a single dataset needs to be deleted, select the data, and click the “DELETE” button.
To delete all entries, simply click “DELETE ALL”.

When done, click “SAVE” to save the data as a spreadsheet so it can be viewed or printed later.

Software:

If you need to upload and reference the data, you can download the FPM-55 software and instructions at: **https://jonard.com/FPM55**



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