

FOM, FOS 850, FOS 1300, FOS 850/1300

Fiber Optic Power Meter Fiber Optic Light Source

Instruction Sheet

Introduction

The Fiber Optic Power Meter (FOM) measures optical power on fiber optic cables. An FOM indicates any power loss on tested cables using any digital multimeter (DMM) or graphical multimeter (GMM) that has a 10 $M\Omega$ input impedance, standard diameter banana jacks, and mVdc capability. The Fiber Optic Light Source (FOS) is used as a light source with the FOM or other fiber optic meters.

Safety Information

All FOSs have been tested according to IEC 1010-1 and IEC 825-1 and meet all requirements for a Class 1 LED Product.

To ensure the FOS is used safely, read the following warnings:

To avoid possible exposure to hazardous invisible LED radiation and to prevent eye damage:

- Never look directly into the aperture (Figure 2) of the ST connector.
- Do not open the case; no serviceable parts are inside.
 Send the source to a authorized service center for calibration or repair.
- Do not adjust or modify the source; LED sources may exceed Class 1.
- Do not use magnification at the ST connector output.
- Caution Use of controls or adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure.

FOM Features

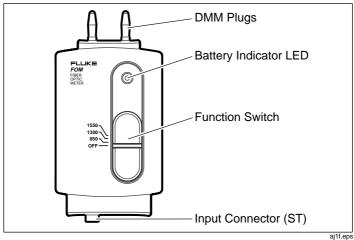


Figure 1. Fiber Optic Power Meter

FOS Features

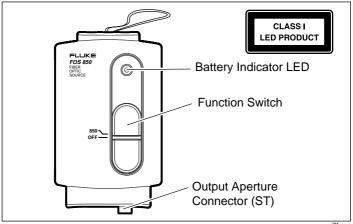


Figure 2. Fiber Optic Light Source (850 Source Shown)

aj2f.eps

Clean Connectors

Turn the FOS off before cleaning. To ensure proper operation, clean internal portion of connectors with a low-lint optical grade cleaning swab and optical grade alcohol, and a can of filtered compressed air.

Measuring dB Loss

To measure dB loss, refer to Figures 3 and 4 and do the following:

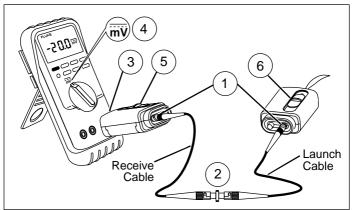


Figure 3. Measuring Output for Source Reference

aj3f.eps

- Clean the connectors and fiber ends with alcohol and check for fiber bends. Connect the receive cable to the FOM and the launch cable to the FOS.
- Connect the launch and receive cables with a coupling (P/N 602810 or equivalent).
- Plug the FOM into the DMM or GMM with the red polarity indicator aligning with the voltage input.
- Select mVdc on the DMM.
- Select the desired wavelength on the FOM.
- Select the desired wavelength on the FOS and stabilize (20 minutes).
- 7. Record the dBm reference measurement (1 dBm = 1 mVdc) on the DMM display (or if you have a DMM with a reference function, activate the reference function).

Note

The reference measurement on the display should closely match the output level specified for the optical source (approximately -20 dBm into multimode fiber).

8. When finished, disconnect the launch and receive cables from the coupling.

Note

To measure dB loss accurately, do not disturb the connections to the FOM and FOS after measuring the source output.

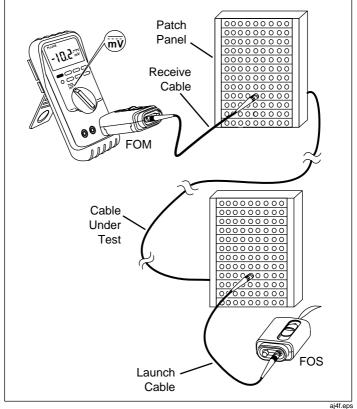


Figure 4. Measuring Optical Loss

ај41.ерѕ

- Connect the launch and receive cables to cable under test; record the measurement. (Cables must be the same fiber type as the cable under test.)
- Subtract the optical loss measurement from the dBm reference measurement to get the actual dB loss. (If the DMM has an activated reference function, the reading is dB loss.)

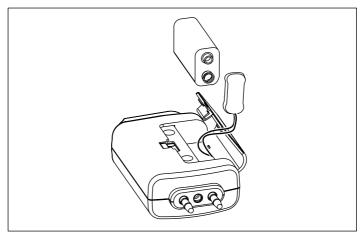
Checking the Battery

If the LED is on continuously, the battery is good.

If the LED blinks or is not on, replace the battery.

Replacing the Battery

To replace the battery, refer to Figure 5.



aj5f.eps

Figure 5. Battery Replacement

General Specifications

Power Meter Specifications

Output: 1 mV per 1 dB
Input Connector Type: Fixed ST
Photodetector Type: Germanium
Application Range: 800 to 1600 nm

Calibrated wavelengths: 850, 1300, and 1550 nm

Acceptable fiber types

Relative accuracy:

(sizes): 9/125 to 100/140 μm

Operating range: +3 to -50 dBm

Maximum power level: +5 dBm

Absolute accuracy: ± 0.25 dB, (Specified at 25°C &

-10.0 dBm per NIST standard) ±0.15 dB, (Specified over any 10 dB

within measurement range)

Repeatability: ±0.04 dB

Battery type: 9V alkaline, NEDA 1604A or IEC 6LR61 Battery life: 16 hours minimum, 100 hours typical, 9V

alkaline

Low battery indication: Blinking LED indicator

Operating temperature: $0 \text{ to } +40^{\circ}\text{C}$ Storage temperature: $-20 \text{ to } +70^{\circ}\text{C}$

Humidity: 0 to 40°C, up to 75% RH

Electromagnetic

Compatibility: Total Accuracy = RF Field ≤1 V/m Specified Accuracy

RF Field = 3 V/m Specified Accuracy + 2.5 dB

Source (850, 1300, 850/1300) Specifications

Type: Infrared LED Wavelength: $850 \pm 30 \text{ nm}$

 $1300 \pm -40/+50 \text{ nm}$

 $850/1300 \pm 30 \text{ nm}, -40/+50 \text{ nm}$

Output power: -20 dBm, nominal into 62.5/125 micron

multimode fiber

Output connector type: Fixed ST Beam divergence: 0.3 radians

Pulse duration: Continuous wave

Maximum output: 200 μ W (radiated into free space) Stability: ± 0.2 dB per 8 hours at 20°C after 20

minute warmup

Temperature coefficient: $-0.08 \text{ dB per }^{\circ}\text{C}, < 18^{\circ}\text{C or} > 28^{\circ}\text{C}$

Battery type: 9V alkaline, NEDA 1604A or IEC 6LR61 Battery life: 16 hours minimum, 24 hours typical, 9V

alkaline

Low battery indication: Blinking LED indicator

Operating temperature: $0 \text{ to } +40^{\circ}\text{C}$ Storage temperature: $-20 \text{ to } +70^{\circ}\text{C}$

Humidity: 0 to 40°C, up to 75% RH

Service

For service information in the U.S.A., call 1-800-825-9810. Outside the U.S.A., contact an authorized service center.

To locate an authorized service center, visit us on the World Wide Web: www.fluke.com or call Fluke using any of the phone numbers listed below:

1-800-443-5853 in U.S.A and Canada

31 40 267 8200 in Europe

206-356-5500 from other countries