

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.

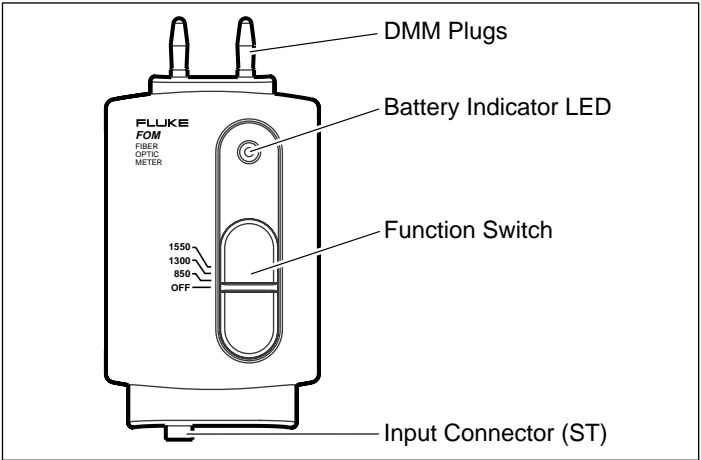
To ensure the FOS is used safely, read the following warnings:

#### **⚠ Warning ⚠**

**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.**

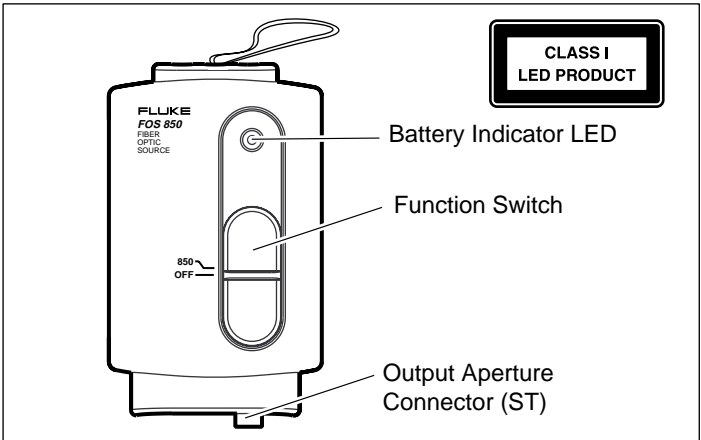
# FOM Features



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Figure 1. Fiber Optic Power Meter

# FOS Features



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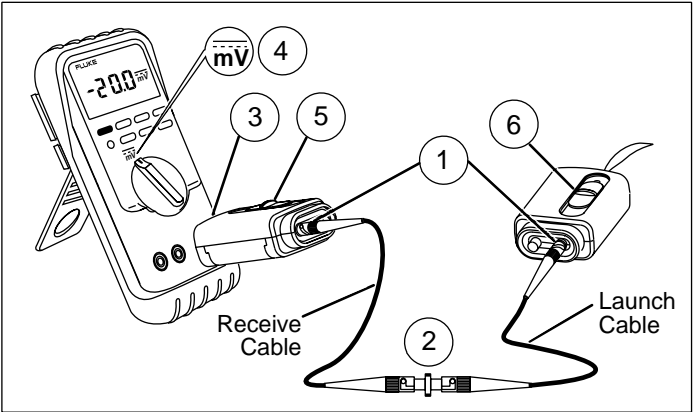
Figure 2. Fiber Optic Light Source (850 Source Shown)

# 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:



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**Figure 3. Measuring Output for Source Reference**

1. 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.
2. Connect the launch and receive cables with a coupling (P/N 602810 or equivalent).
3. Plug the FOM into the DMM or GMM with the red polarity indicator aligning with the voltage input.
4. Select mVdc on the DMM.
5. Select the desired wavelength on the FOM.
6. 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).

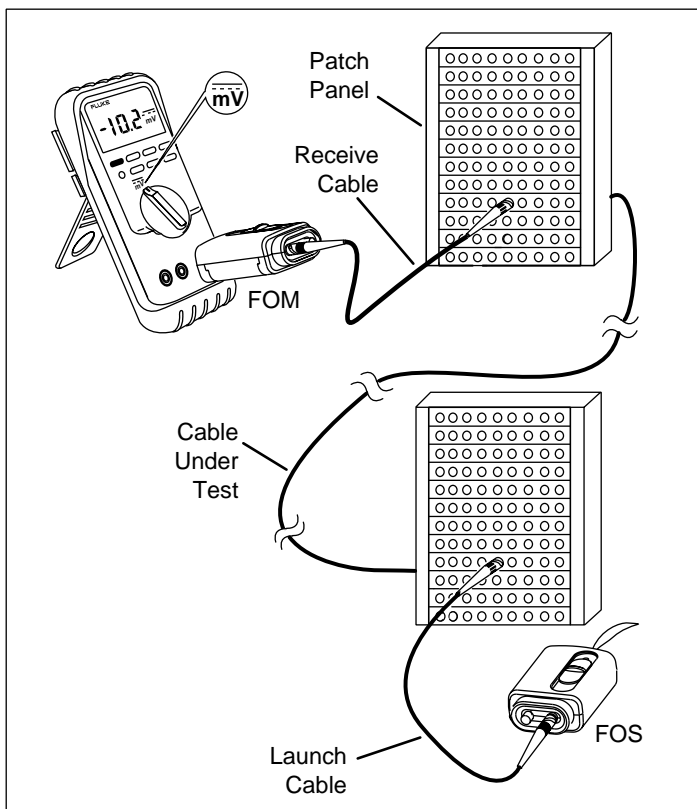
### Note

*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.*



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**Figure 4. Measuring Optical Loss**

9. 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.)
10. 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.)

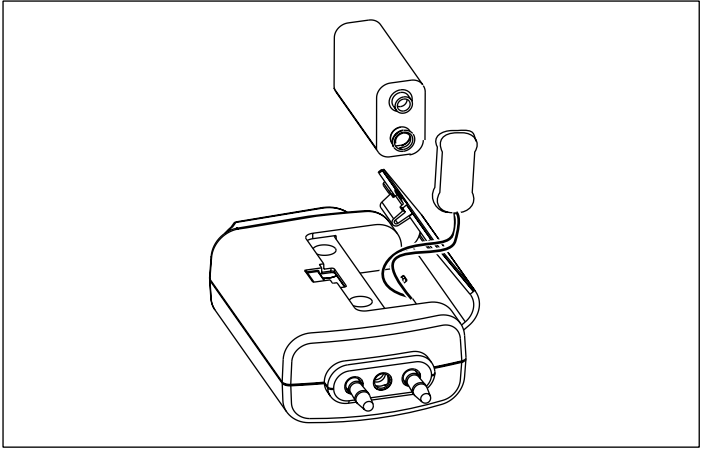
### ***Checking the Battery***

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.



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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 (sizes):	9/125 to 100/140 $\mu\text{m}$
Operating range:	+3 to -50 dBm
Maximum power level:	+5 dBm
Absolute accuracy:	$\pm 0.25$ dB, (Specified at 25°C & -10.0 dBm per NIST standard)
Relative accuracy:	$\pm 0.15$ dB, (Specified over any 10 dB within measurement range)
Repeatability:	$\pm 0.04$ 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 to +40°C
Storage temperature:	-20 to +70°C
Humidity:	0 to 40°C, up to 75% RH
Electromagnetic Compatibility:	Total Accuracy =
RF Field $\leq 1$ 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 ± 30 nm 1300 ± -40/+50 nm 850/1300 ± 30 nm, -40/+50 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 μW (radiated into free space)
Stability:	±0.2 dB per 8 hours at 20°C after 20 minute warmup
Temperature coefficient:	-0.08 dB per °C, < 18°C or > 28°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 to +40°C
Storage temperature:	-20 to +70°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](http://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