

Power Meter Optical Testing Tool

Technical Specifications and Operating Instructions



Description

The Power Meter is a handy tool mainly used for checking the signal output power of the optical communication equipment in fiber optic networks, especially for FTTH & fiber optical network constructions. It measures the average power of a continuous light beam which is emitted from the equipment or other optic sources. It measures power in both 850 nm / 1300 nm (Multimode) and 1310 nm / 1490 nm / 1550 nm (Single mode) respectively.

The Power Meter consists of a solid state InGaAs photo diode, signal power measurement circuitry, and a 2 Digits / 3 Digits LED display. Users are to connect a fiber cable between the transmission port of the equipment and the universal interface on the Fiber Meter or connect to other light source. The product will show the exact amount of the received power (in dBm).

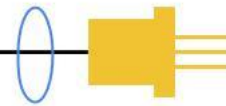
The universal connector can be used for all the most common fiber interfaces such as ST / SC / FC and it is suitable to test both Single mode and Multimode cables. With an optical 2.5 mm to 1.25 mm adaptor, users can even test for 1.25 mm fiber interface.

Features

- Robust, handy design with LED digital readout
- Easy to check Multimode 850 nm / 1300 nm output power
- Easy to check Single mode 1310 nm / 1490 nm / 1550 nm output power
- Universal 2.5 mm to 1.25 mm adaptor for LC or MU connector
- 2 Digits / 3 Digits resolution and Low Voltage Battery warning LED display
- Measuring power in Multimode 850 nm / 1300 nm within -40 dBm ~ +5 dBm ranges
- Measuring power in 3 Digits Single mode 1310 nm / 1490 nm / 1550 nm within -40 dBm ~ +5 dBm ranges.

Applications

- Installation and Maintenance CATV / Telecom / FTTH in fiber optical fiber networks
- Installation and Maintenance 4G / 5G mobile system
- Installation and Maintenance data center network
- Testing in standard laboratories
- High throughput quality assurance

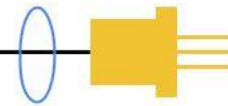


Cross Reference of Power in dBm and μ W

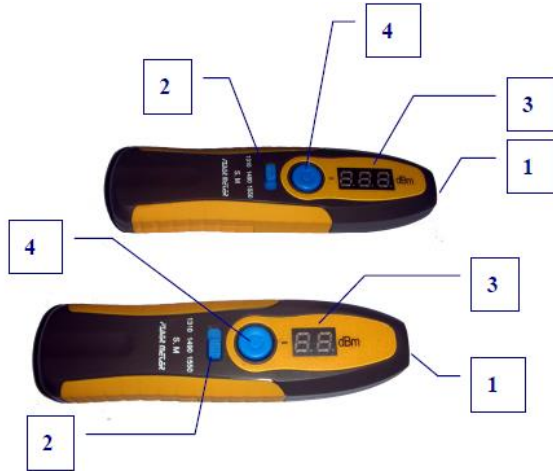
| dBm | μ W | dBm | μ W | dBm | μ W | dBm | μ W |
|-----|---------|-----|---------|-----|---------|-----|---------|
| | | -30 | 1 | -18 | 15.8 | -6 | 251 |
| | | -29 | 1.3 | -17 | 19.9 | -5 | 316 |
| -40 | 0.1 | -28 | 1.6 | -16 | 25.1 | -4 | 398 |
| -39 | 0.126 | -27 | 2.0 | -15 | 31.6 | -3 | 501 |
| -38 | 0.158 | -26 | 2.5 | -14 | 39.8 | -2 | 631 |
| -37 | 0.199 | -25 | 3.2 | -13 | 50.1 | -1 | 794 |
| -36 | 0.251 | -24 | 4.0 | -12 | 63 | 0 | 1000 |
| -35 | 0.316 | -23 | 5.0 | -11 | 79.4 | +1 | 1259 |
| -34 | 0.398 | -22 | 6.3 | -10 | 100 | +2 | 1585 |
| -33 | 0.501 | -21 | 7.9 | -9 | 125 | +3 | 1995 |
| -32 | 0.631 | -20 | 10 | -8 | 158 | +4 | 2512 |
| -31 | 0.794 | -19 | 12.5 | -7 | 199 | +5 | 3162 |

Specifications

| | |
|---|---|
| Wavelength (Multimode) | 850nm / 1300nm |
| Optical Power Range (Multimode) 2 Digits | -40 dBm ~ +5 dBm |
| Wavelength (Singlemode) | 1310nm / 1490nm / 1550nm |
| Optical Power Range (Singlemode) 3 Digits | -40 dBm ~ +5 dBm |
| Wavelength | 850nm / 1310nm / 1550nm |
| Optical Power Range 3 Digits | -40 dBm ~ +5 dBm |
| Batteries | AAA 1.5V X 2 |
| Resolution | 1 dB for 2 digits display or 0.1dB 3 digits display |
| Fiber Connector | Universal Type for \AA 2.5 mm ferrule |
| Display (2 Digits / 3 Digits) | 2 digits / 3 digits LED |
| Operating Temperature | 0°C ~ 50°C |
| Storage Temperature | 0°C ~ 70°C |



Operating Instructions



1. **Dust Cap:** to prevent dirt contaminating the PD
2. **Switch:** Modify wavelength by sliding the switch.
3. **LED:** Figures show various readings you may encounter.



0 1 2 3 4 5 6 7 8 9

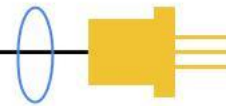


CA Cb Low -4.0 dBm +3.0 dBm High

4. **Button:** press to Turn On / Turn Off the Meter.
5. **Pen Clip:** to fasten the tool while inside your pocket.
6. **Battery Lid:** open to change batteries.
7. **Linchpin:** locks the battery lid.



1. The Fiber Meter is powered by two 1.5v AAA batteries.
2. INITIAL CALIBRATION: Keep the Dust Cap closed and then turn on the Fiber Meter by pressing the Button. The LED will show "CA" which means the Initial Calibration is proceeding. After 3 seconds the LED display will show "Lo" which means the Fiber Meter has completed the Initial Calibration successfully and can now be operated.
1. Lift the front Dust Cap up and insert one end of the fiber cable into the universal connector or directly insert it into an output connector of a fiber device or Power Source.
2. Switch the slide switch to 850 nm / 1300 nm position (for measuring Multimode fiber) or to 1310 nm / 1490 nm / 1550 nm position (for measuring Singlemode fiber). The LED figure shows the actual receiving input power values.
3. "Lo" will be displayed when the actual power received is under measuring range. When the input power is higher than the measuring range, "Hi" is displayed on the LED indicator.
5. To measure the power loss of a fiber cable, you need a steady power source. For example, the light source output power is -20 dBm after a fiber cable transmission and the -10 dBm is read directly from the LD power source. This means there is at least a 10 dB power loss after the fiber transmission.
6. When the LED shows "Cb" (Check Battery), it means that the batteries are almost drained and in a low voltage state. You need to replace the batteries right away.
8. Do not touch the fiber's interface in order to avoid dirt contaminating the connector.
9. Keep the fiber connector capped at all times when the device is not in use.
10. If proper tools are used to clean the fiber before testing, you will obtain accurate test results and ensure longer device service.



Maintenance and Troubleshooting

This tool requires no maintenance other than periodic battery changes. Like any piece of electronic equipment, this tool should be kept away from water, high dampness, dust, electricity, and environments of extreme temperature. Do not drop this tool on a hard surface. Modifying any of this tool's internal components can cause a malfunction and will invalidate the manufacturer's warranty.



"CA" means the Initial Calibration is proceeding,



"Cb" means to Check Battery. It is suggested to replace the batteries at that time.



"Hi" means the input power is higher than the measurement range.



"Lo" means the received power is lower than the measurement range.



"..." It is suggested to Reset the Power Meter.

Warranty

The manufacturer warrants this product to be free of defects in workmanship and materials for a period of 10 months after purchase. This warranty (excluding batteries) is solely limited to the repair and replacement of original parts, which are defective in workmanship or materials. All other costs are the sole responsibility of the owner. This warranty does not cover any defects, damage, or deterioration due to misuse, alteration, or negligence.

Ordering Information

| Part Number | Product Type | Wavelength (nm) | Range (dBm) |
|-------------|----------------------------|-----------------------|--------------|
| S2002421 | 2 Digits MM | 850 / 1300 nm | +5 ~ -40 dBm |
| S2002312 | 3 Digits SM | 1310 / 1490 / 1550 nm | +5 ~ -40 dBm |
| S2002333 | 3 Digits | 850 / 1490 / 1550 nm | +5 ~ -40 dBm |
| S200412 | LC adaptor for Fiber Meter | | |
| S200422 | MU adaptor for Fiber Meter | | |

Note: Specifications are subject to change without notice.