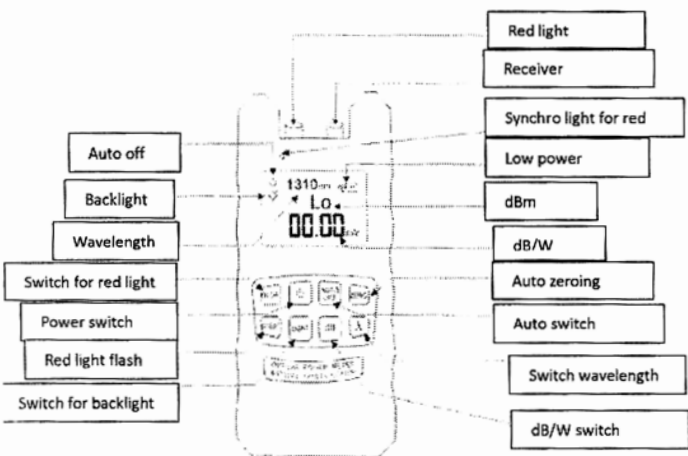


User Manual

Product Overview

This portable optical power meter with red light source is an accurate portable instrument with long service time specially designed for the installation, operation and maintenance of fiber-optical network. It features fine appearance, controllable backlight display, automatic power off, supper wide testing range for optical power, high accuracy, self-calibration and universal interface. What's more, the linearity index(mW) and nonlinear index (dBm) will be displayed in a same screen. The optical power meter can be used alone for saving power.

Product Introduction



Suffix of the model	&1		&10	
Output power of the red light	>1mW		>10mW	
Output wavelength of the red light	650nm			
Optical fiber adapter of the red light	Universal adapter			
Service life of the battery	>42 hours	>13 hours	>10 hours	

Attentions:

1. Wavelength range: the optical power meter can work with specified parameters within the standard working wavelength λ , ranging from λ_{min} to λ_{max} .
2. Measurable power range: the range of optical power which could be measured with specified parameters.
3. Uncertainty: the error between the test result for certain optical power and which for standard optical power.
4. Please do not stare at the laser for avoiding harm for the eyes.

Function Description

1. LCD screen

The measured optical power value will be displayed on the LCD with units of db, dBm, mW, uW and nW. The options of presetting wavelength include 850nm, 980nm, 1300nm, 1310nm, 1490nm, 1550nm, 1625nm, etc.

2. ON/OFF key

Press and hold ON/OFF key or the key with power icon for one second, the red light or optical power meter will be powered on or off.

3. dB key

For relative measurement of the optical power in presetting wavelength.

4. ZERO key

Press this key to self-zeroing the optical power meter.

5. λ key

λ key for selecting seven different working wavelengths -- 850nm, 980nm, 1300nm, 1310nm, 1490nm, 1550nm and 1625nm. Such value will be displayed on the LCD.

6. LIGHT Key

Press this key to open or close the backlight of the LCD screen.

7. AUTOOFF key

Press this key to enable or disable auto off function.

8. CW/GLINT key

Press this key to switch steady/flashing red light. The default setting is steady light. The flashing frequency is 2HZ.

Operating Instruction

Power ON/OFF

1. Press and hold the key with power icon, then LCD turns on, i.e., the optical power meter is powered on;
2. Press and hold the key with power icon, then LCD turns off, i.e., the optical power meter is powered off;
3. Press and hold ON/OFF key, then the indicating light for red light source turns on, i.e., the red light source is powered on;
4. Press and hold ON/OFF key, then the indicating light for red light source turns off, i.e., the red light source is powered off;
5. The optical power meter and the red light source can either work together, or work alone.

Absolute measurement of optical power

1. Power on the optical power meter;
2. Set measurable wavelength. Select measurable wavelength with λ key. The default setting is 1310nm;
3. Introduce the light need to be measured. The screen displays currently measured value, including the linear and non-linear value of the absolute power.

Relative measurement of optical power

1. Set measurable wavelength;
2. Introduce the light need to be measured under absolute measurement mode, and measure the power of current light;
3. Press dB key, then the measured optical power value becomes current reference value (with dBm as unit);
4. Introduce another light, then the instrument will display the absolute and

Product features

The optical power meter with red light of 10mW or 1mW features open self-calibration which could be operated by the user.

With two AA batteries, the optical power meter can work continuously for 40 hours. It can work continuously if working with a red light source of 10mW, or 42 hours with a red light source of 1mW.

the linearity index(mW) and nonlinear index (dBm) will be displayed on the same screen of the optical power meter.

Special universal interface for FC/SC/ST, easy to transformation.

Optional auto off.

Optional backlight display.

Optional steady/flashing red light.

Technical parameters of the optical power meter with red light source

Measurable range	-70 ~ +10dbm
Probe type	InGaAs
Wavelength range	800 ~ 1700nm
Standard wavelength (nm)	850, 980, 1300, 1310, 1490, 1550, 1625
Display resolution	linear display: 0.1% logarithmic display: 0.01dBm
Working temperature (°C)	-10 ~ +60°C
Storage temperature (°C)	-25 ~ +70°C
Time for auto off (min)	10 minutes
Continuous working time with batteries	No less than 40 hours
Boundary dimension (mm)	180×83×28
Power supply	Two chargeable lithium battery or AA alkaline battery
Weight (g)	210g

relative optical power of current light.

Special functions

There are three working modes: factory mode, user mode and working mode. Working mode is the default setting.

Factory mode

For test and calibration by the factory.

User mode

Press λ and Light keys at the same time to enter user mode, then the "nm" at the end of first line will not be displayed. Press again λ and Light keys to exit user mode, and then the "nm" at the end of first line will be displayed again.

Functions of Keys

Function	Key
Increase 0.05	Light
Decrease 0.05	dB
Save	Zero
Switch wavelength	λ
Recover factory settings	λ + Zero

Remarks: if there is any error during self-calibration or operation, press λ and Zero at the same time under user mode to recover factory settings. The power of red light resource is fixed. When the ceramic core is worn or broken, please replace it by yourself.

Auto off in 10 minutes

Press AUTOOFF key to enable or disable auto off function. When such function is enabled, there will be an auto-off icon on the top-left of the screen. The meter will power off automatically if there is no keypad operation for 10 minutes.

Turn on/off LED backlight

Under working mode, press LIGHT key to enable or disable backlight. When the backlight is enabled, there will be a small sun icon on the top-left of the screen.

Serial port debugging

1. The end face of the sensor should be kept clean. No grease or pollute is allowed. Please do not use unclean or non-standard adapter, or insert end face with poor polishing, otherwise the end face of the sensor will be damaged, and the performance of the system will decline.
2. Use only one type of adapter as far as possible.
3. After using the optical power meter & red light source, please cover with dust-proof lid and keep the end face clean, thus to avoid error caused by adsorption of the dust when exposure in the air;
4. Please be careful when inserting and extracting the connector of the adapter for avoiding scratches at the end face;
5. Clean the surface of the sensor at a regular interval. When cleaning the surface of the sensor, please use special cotton swab to roundly scrub the periphery.

Common faults

Description of the Fault	Possible reason	Solution
Dim LCD display	Low battery	Replace battery or recharge the battery
No display when power on	Low battery/other reason	Replace battery/power on again/recharge the battery
No change or little change of the data shown on the LCD display	Fault or dirty of the optical adapter/display being locked	Check if the optical adapter is properly connected; clean the end face of the sensor
Dim or unstable red light	Low battery	Replace battery

Quality Warranty

We don't suggest the users to repair this portable optical power meter by themselves.

1. The warranty for the instrument will be valid for 12 months since the delivery of the goods. Our commitment for the materials and workmanship of our products will be valid for 12 months since the delivery of the goods. If any quality issue is

found, we will repair or replace the defective product as appropriate. However, in any case, our liability won't exceed the purchase price of the product.

2. If the instrument has any problem which can't be fixed according to the solutions provided in this user manual, please do not open the shell of the instrument, but contact our market department or local dealers.

3. For quality issues caused by manufacturing defect, we will repair or replace the product for free. Such commitment is only valid for instruments used within specified scope, and no damage or improper operation. The warranty for the products don't cover the problems/faults caused by following reasons:

- 1) repair or modify the instrument without authorization;
- 2) Improper operation, negligence or accident

Appendix: Measurement of fiber loss

Step 1: Set a benchmark

Power on the optical power meter. Select correct working wavelength with λ key. Turn on the light source, and select correct wavelength and stabilize it (this process may need 1 or 2 minutes).

Select one optical fiber patch cord ("patch cord at the source") to connect with the light source. Clean the connector of the patch cord. Note: the optical fiber of the patch cord at the source must be the same as the optical fiber of the optical fiber link to be measured.

Connect light source with optical power meter via the patch cord.

Obtain the optical power then.

Note: the measured power should be close to the setting value of the light source (emission source). If there is a large difference, please clean all the connecting end face carefully, or replace the patch cord at the source.

Press dB key of the optical power meter, then the dB reading should be 0.00, and the measured optical power is regarded as a benchmark.

Note: After zeroing, the decimal places will change a little. That's normal phenomenon.

Step 2: Measurement of the loss of optical fiber link

Keep the connection between patch cord and the light source.

Connect the light source with optical link to be measured.

Note: clean all the connection end faces, including the optical fiber adapter.

The reading shown at this time is the loss of the measured optical fiber link. The unit is dB (also displaying the absolute optical power in dBm).