

CWDM POWER METER

User's Manual

Summary

CWDM optical power meter is a multifunctional CWDM optical network channel detector, which integrates six functions, including CWDM power meter, optical power meter, visual fault location, RJ45 network cable sequence, length and cable searching test. It is specially designed and developed for the installation, acceptance and maintenance of CWDM optical network. It is mainly used to measure and monitor the power of up to 6 or 18 CWDM channels, and can also measure each wavelength separately. It can replace the high-cost spectrometer, and it can provide fast and reliable measurement in various environments. Because of its small size, light weight and durability, it has become a necessary special tool for the maintenance and installation of CWDM access network.

Due to the need of design and change, this manual is subject to change without prior notice!

Warning

When using the instrument, any change or modification not explicitly permitted in this manual will deprive you of the right to operate the equipment. To reduce the risk of fire or electric shock, do not expose the equipment to thunderstorm or humid environment. In order to prevent electric shock, please do not open the shell. It must be repaired by qualified personnel designated by the manufacturer.

Attentions

Battery: the battery is a special polymer lithium battery, the charging voltage is 5V/2A, and the charging temperature range is 0°C~50°C. When the ambient temperature is too high, the charging will automatically terminate. The battery should be charged every one month to avoid long storage time and failure of battery due to self discharge. The temperature range of battery during long-term storage is: -40°C~50°C.

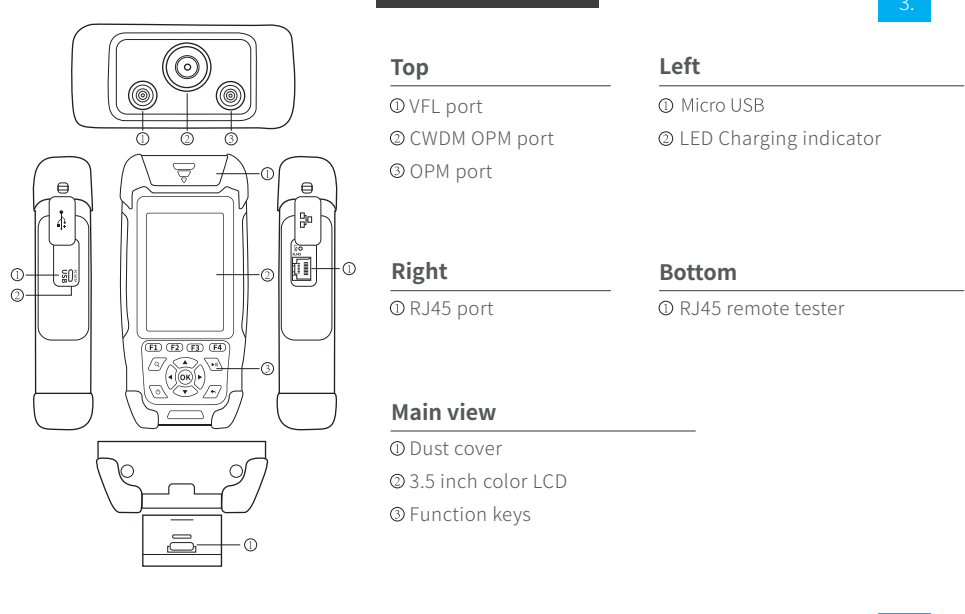
Please use the special adapter attached with the instrument box and use the external power supply in strict accordance with the specifications, otherwise the equipment may be damaged.

End Face Cleaning: Before testing, clean the end face of the tested fiber joint with alcohol cotton.

LCD screen: the display of this series of instruments is 4.3 inch color LCD. In order to maintain good viewing effect, please keep the LCD screen clean. When cleaning, wipe the LCD screen with soft fabric.

Guarantee description: The whole machine is guaranteed for 36 months. The battery, charging adapter and optical interface consumables are guaranteed for 6 months. The warranty date shall be postponed one month from the date of manufacture.

Ports of Host



Function keys

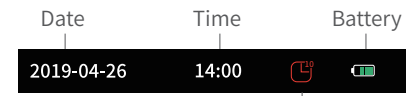
Functional keys
Correspond to the operation menu below the screen.



- Saved results view key**
Press this key to view the stored results
- ON/OFF key**
Short press to turn on, long press to turn off
- OK key**
Enter the next level of interface, Enter function
- Test key**
Start single or automatic measurement
- Exit key**
Return to the previous menu
- Directional keys**
Up and down choice, right and left choice

Main interface

Enter the main menu after power on, press the direction key to select the module, and then press the "OK" key or directly press the function icon to enter the corresponding function interface.



Auto shutdown icon

Tips

1270nm~1610nm, channel spacing is 20nm, 18 channels
1270nm~1370nm, channel spacing 20nm, 6 channels,
they belong to 2 different models.

The operation of CWDM power meter is introduced with 18 channel model as an example.



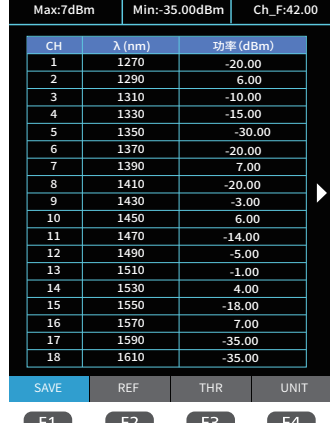
CWDM Power Meter

Press **||** to start single measurement, long press to enter automatic measurement mode, refresh data automatically every 0.5s, press again to exit, and enter manual single measurement mode.

[F1]: save the current 18 wavelength power values.
[F2]: set current value as the reference value.
[F3]: enter the threshold setting mode: press the direction keys to adjust the threshold, press [OK] to save the threshold and exit, press , not save and exit.
[F4]: switch display unit dBm/dB/mW.

Thr: threshold value.
Pass: the number of channels whose power is greater than the threshold.
Fail: the number of channels whose power is less than the threshold.
Max: maximum power value of test.
Min: minimum power value of test. **Ch_F:** Max minus min.

Press the up and down keys to select a single channel, and press [OK] to enter the single channel test interface.



PON Power Meter

In the CWDM power meter interface: press the up and down keys, select a wavelength, press [OK] to enter the single channel display mode; press the left and right keys to switch to the histogram display mode.

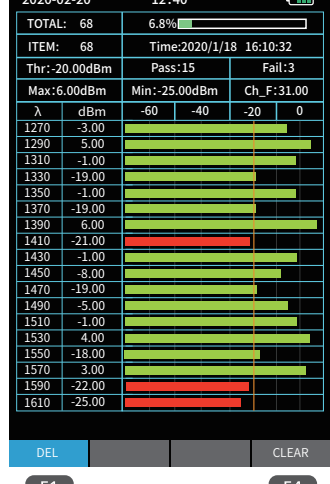
Press **Q** key to enter the saving result view interface: press the left and right keys to adjusting the saved record item.

[F1]: delete the current record when it is the last one.
[F4]: delete all records. Press to exit.

Delete the pop-up window: click left or right to select "YES" and "NO", then click YES to confirm.

In the histogram display interface:
The threshold value is displayed as an orange line, the test results greater than the threshold value are displayed as green, and others are displayed as red.

TOTAL: Number of saved power groups.
ITEM: The number of groups currently open.



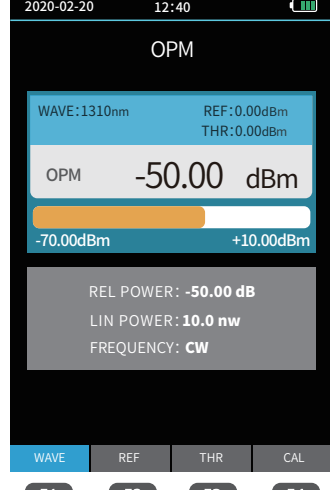
Optical Power Meter

Common power meter is used to test the power of continuous or modulated optical signal.

[F1]: switching wavelength.
[F2]: set the current power as the reference power.
[F3]: enter the threshold setting mode: press the direction key to adjust the threshold, press [OK] to save the threshold and exit, press , not save and exit.
[F4]: enter calibration mode.

Frequency of optical signal recognized by power meter: CW, 270Hz, 330Hz, 1000Hz, 2000Hz

The conversion of absolute power, linear power and relative power is as follows:
Pabs.=10lgPlin./1mW **Prel.=Pabs.-Pref.**



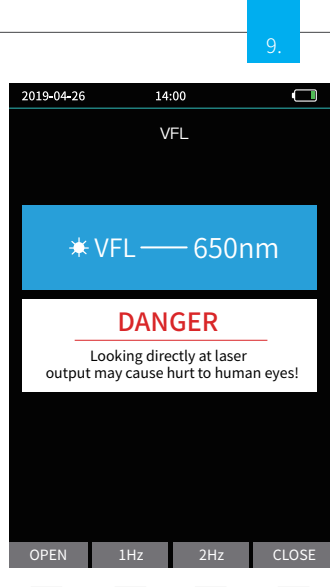
Visual Fault Location

The visible light (red light) is injected into the optical fiber, and the position of optical fiber fault point can be easily and accurately determined by observing the light leakage position on the tested fiber. It is suitable for the detection of bare optical fiber, optical fiber jumper and other optical fiber which can leak red light, and the near end fault point and high loss section caused by micro bending.

[F1]: VFL always on;
[F2]: VFL flickers at 1 Hz frequency;
[F3]: VFL flickers at 2 Hz frequency;
[F4]: turn off VFL;
[←]: exit.

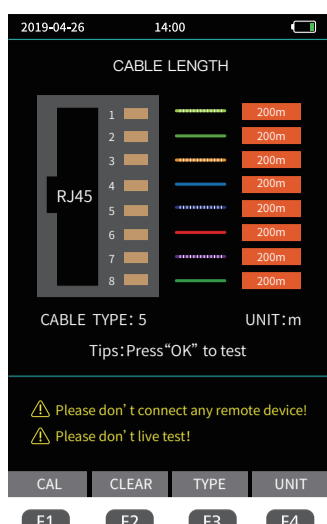
Warning

Avoid looking directly at the laser output port, laser will cause damage to human eyes!



Cable length test: test the length of network cable.

- 【OK】: press to start test;
- 【F1】: enter the setting mode of length calibration K value, press up and down keys to adjust K value, press 【OK】 or to save the settings and exit;
- 【F2】: only in the calibration value setting mode, press it to recover the calibration K value to the default value;
- 【F3】: switch cable type 5/5a/6/6a/7;
- 【F4】: switch display length in m or ft;
- 【↶】: exit.

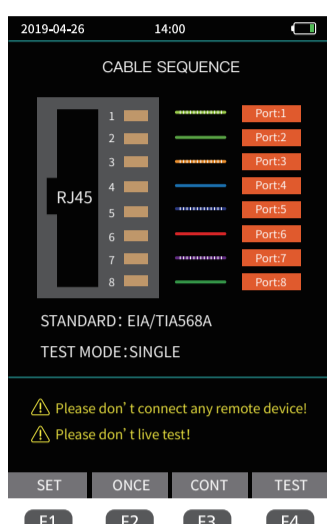


Warning

Please cut off the electricity before test!

Cable sequence: When testing, please connect to the remote module at the bottom of the instrument. There are two kinds of wires for RJ45 connector: straight line and interleaved line.

- 【OK】: press to start the test;
- 【F1】: switching network cable standard 568A/568B;
- 【F2】: enter single test mode;
- 【F3】: enter the continuous test mode;
- 【F4】: press to start the test;
- 【↶】: exit.

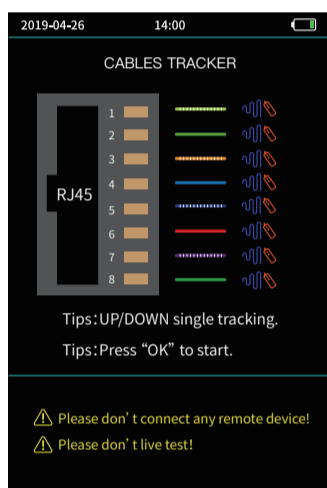


Warning

Please cut off the electricity before test!

Cable tracking: After the cable tracking function is started, touch the cable under test with the tracker, and when hear the sound of continuous "drip drop", the target cable is found.

- 【OK】: press to start or stop the test;
- 【▲/▼】: switch to single network cable tracking;
- 【↶】: stop tracking and exit.



Warning

Please cut off the electricity before test!

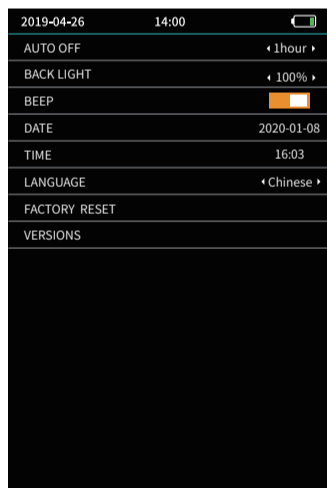
Set the system auto shutdown, backlight brightness, time and other information.

- 【▲/▼】: switch setting items;
- 【◀/▶】: switch the parameters of the current setting item;
- 【OK】: save all settings;
- 【↶】: save all settings and exit.

Date time setting: press 【OK】 to enter the setting mode, press the direction keys to adjust the date and time value, press 【OK】 to save and exit;

【↶】: exit without saving date and time.

Note: direction keys refer to the up【▲】、down【▼】、left【◀】、right【▶】.



CWDM OPM	
Detector	InGaAs
Used in	SM
Connector	FC/UPC
Wavelength	1270~1370nm/1271~1371nm(6 channels) 1270~1610nm/1271~1611nm(18 channels)
Range	-70~+10dBm
Channels	6 or 18
Channel spacing	20nm
Channel bandpass	±6.5nm
Power resolution	0.01dB
Power accuracy	±0.5dB
Return loss	>45dB
Adjacent channel isolation	≥25dB
Unit	mW/μW/nW/dB/dBm(REF)
Data storage	1000
VFL	
Wavelength	650nm±20nm
Output power	≥10mW
Mode	CW/1Hz/2Hz
Connector	Universal joint

OPM	
Connector	Universal joint
Calibration wavelength	850/980/1300/1310/1490/1550/1625/1650nm
Range	-70~+10dBm/-50~+26dBm
Unit	mW/μW/nW/dBm/dB(REF)
Power accuracy	±0.25dB (5%)
Power resolution	0.01dB
RJ45 Cable sequence/length/tracking	
Range	300m
Others	
Display	3.5 inches TFT LCD, 320*480
Interface	Micro USB
Power supply	Li battery: 3.7V/4000mAh Adapter: 5VDC/2A
Battery life	Standby>20h, Measure>12h
working temperature	-10°C~+50°C
Storage temperature	-40°C~+70°C
Relative humidity	0~95%, No condensation
Dimensions	173mm×82mm×37mm
Weight	≤300g

1. Always keep the end face of the sensor clean and free of grease and pollution. Do not use unclean and non-standard adapter connector. Do not insert the end face with poor polished surface, otherwise the sensor will be damaged and the error will be detected.
2. Once the optical power meter is not in use, the dust cap shall be immediately covered to protect the end face from being clean, so as to prevent the measurement error caused by dust adhering to the air for a long time.
3. Plug in and out the adapter connector carefully to avoid scratching the port.
4. Use a special cleaning swab to clean the sensor regularly.