

# USER'S GUIDE

PON OPTICAL POWER METER

English



## WARNING

You are cautioned that changes or modifications not expressly approved in this document could void your authority to operate this equipment. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

## NOTE

As the laser is harmful to the eyes, do not attempt to disassemble the cabinet.



## CLASS I LASER PRODUCT

## Precautions for Use

### Use batteries

At the same time, can not use different style or different capacitance batteries. And only charge the rechargeable batteries.

### Avoiding condensation problems

As much as possible, avoid sudden temperature changes. Do not attempt to use the drive immediately after moving it from a cold to a warm location, to raising the room temperature suddenly, as condensation may form within the drive. If the temperature changes suddenly while using the drive, stop using it and take out batteries for at least an hour.

### Storage

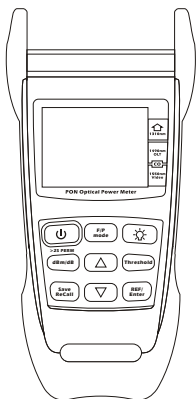
When long time use, must take out the batteries to avoid destroying the device.

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## First check the accessories

(If any accessory is short please relate with the dealer ASAP)

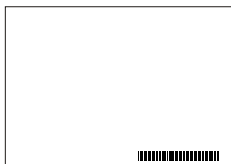
### Standard



Host



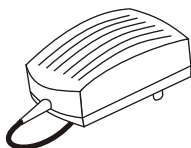
Manual



Calibration Certificate

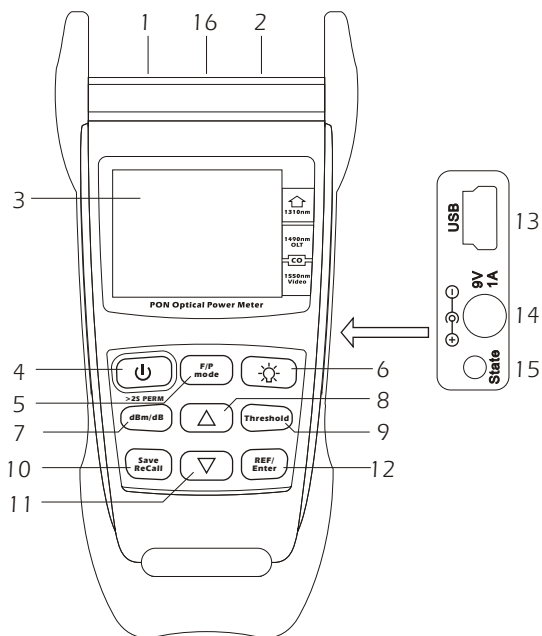
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### Optional



AC/DC Adaptor

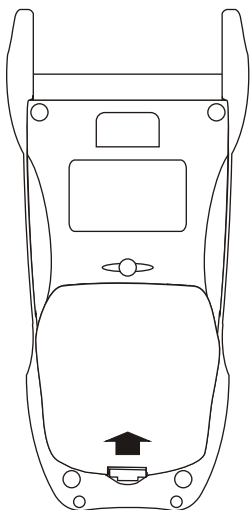
## Description



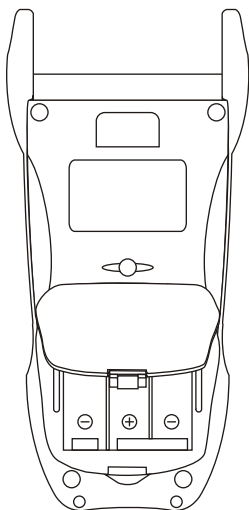
- 1- ONT (1310nm) input connector
- 2- OLT/Video (1490/1550nm) input connector
- 3- LCD
- 4- Power Key
- 5- F/P mode Key ( PASS, WRNG, FAIL)
- 6- VFL key
- 7- Unit Key ( dBm, dB)
- 8- Up Key
- 9- Threshold Key
- 10- Save Key
- 11- Down Key
- 12- REF Key/ Enter Key
- 13- USB port
- 14- AC/DC port (Chargeable)
- 15- Battery charging LED
- 16- Connector of VFL or OPM

## Set batteries

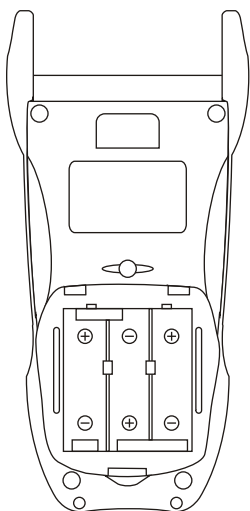
Warning: At the same time, can not use different style and different capacitance batteries.



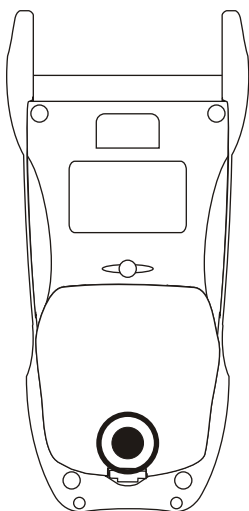
1. Press and push down



2. Open the lid

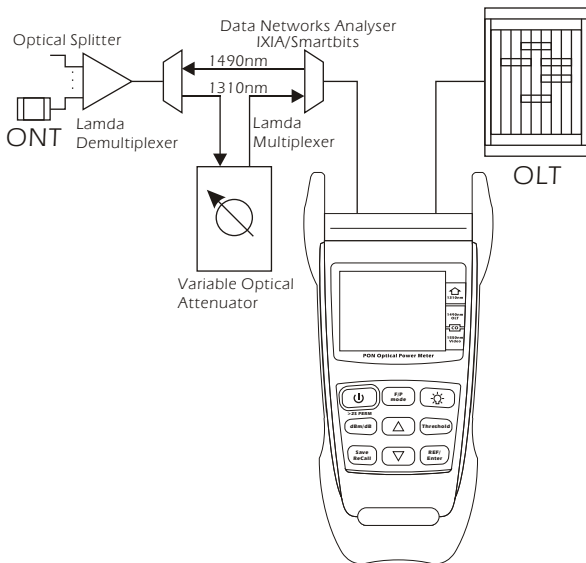
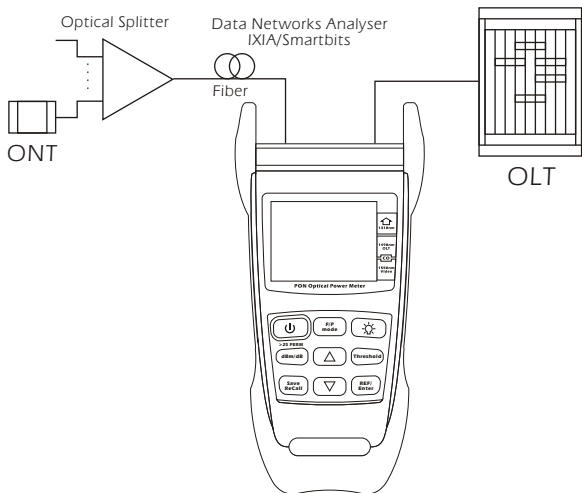


3. Place the batteries

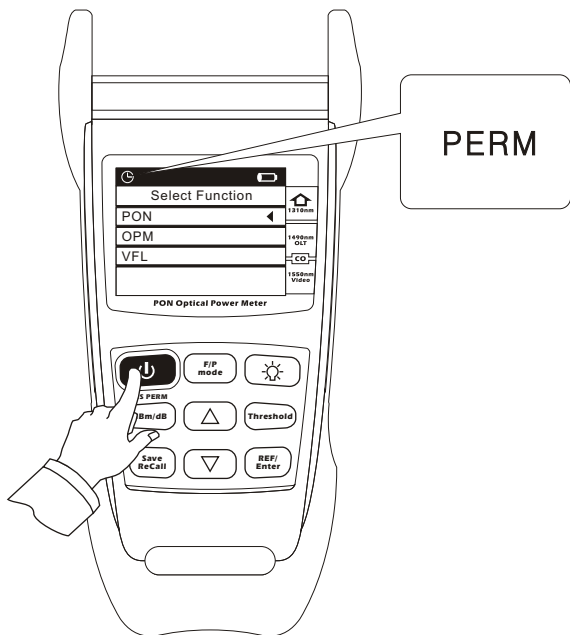



4. Close the lid and push up


# PON testing



## Power on/off, auto power off



Press the “” key to turn on the device with auto power off. (After 10 minutes no key pressed, it will auto power off.)

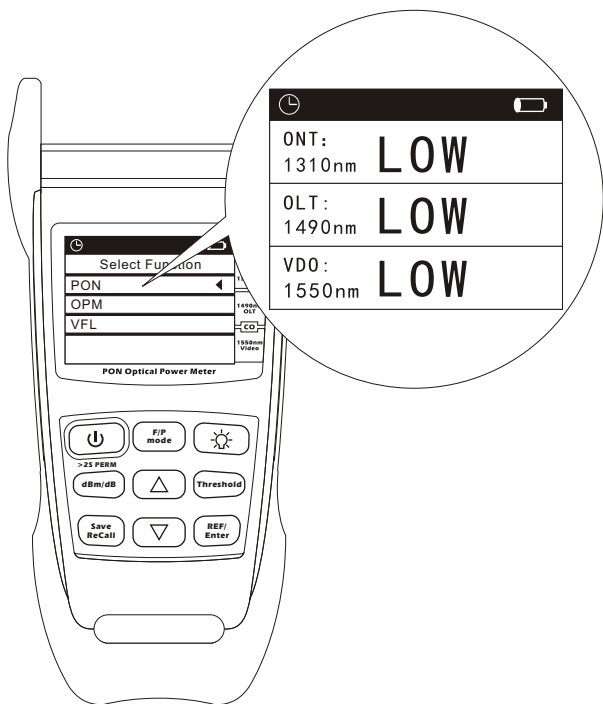
Press the “” key for 2 seconds when turn on the device, the auto power off will be cancelled, and the LCD will show

“”.

Also long press the “” key to shut down the device.



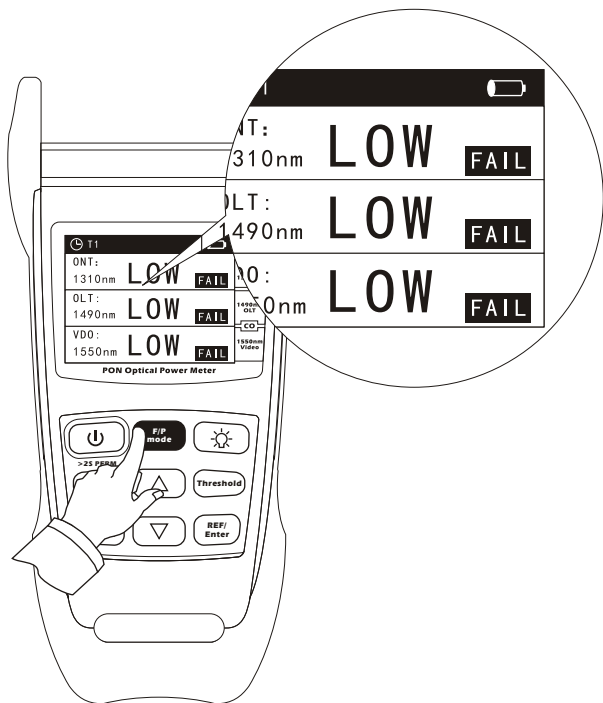
## PON Test mode



It can test the signal of 1310, 1490, 1550nm and show its power at the same time.


HI and LOW mean the result is out of the testing range.

## PON- F/P Mode



“PASS” , “ WRNG” , “ FAIL” :

Alarm, depends on the threshold the user set.

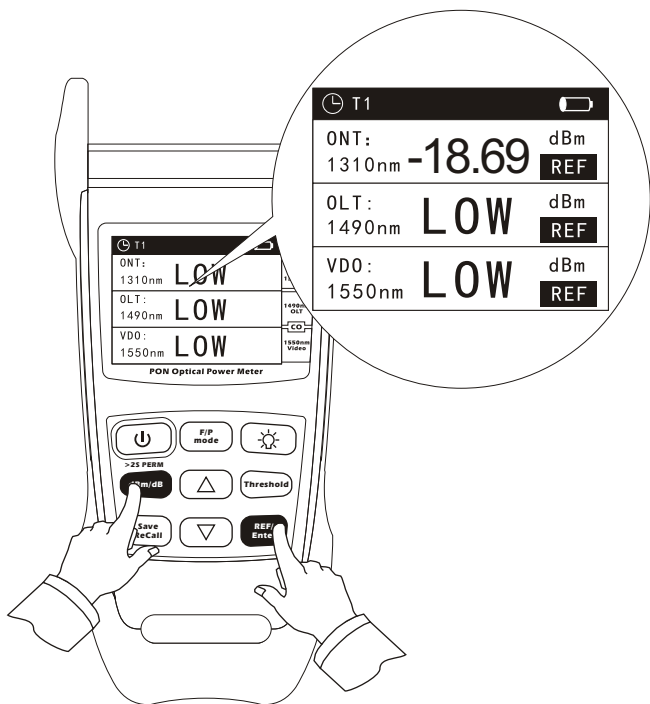
“  ” key:

Open or close the alarm function ( PASS, WRNG, FAIL ). On LCD there are warning words beside the results.

Tx:

The group NO of thresholds.

## PON- REF set

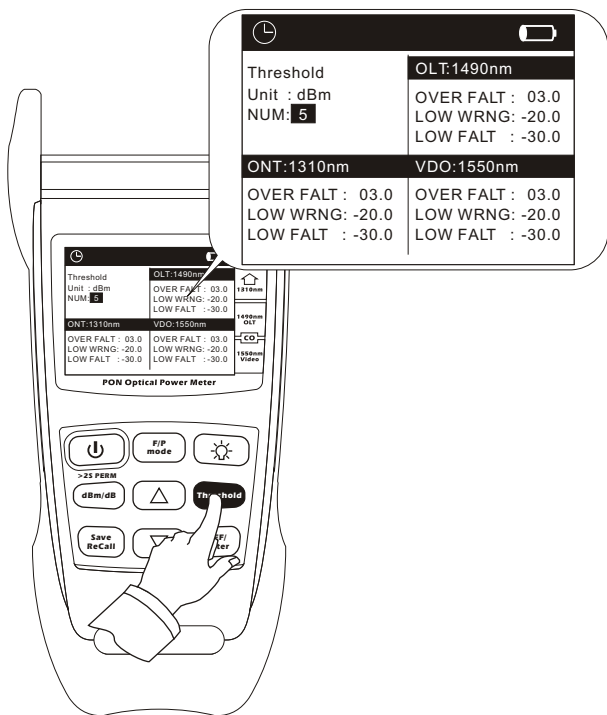


“ **REF/Enter** ” key: It will show you the reference value you stored before, then turn the unit to dB. Keep pressing it for 2 seconds, you can save current value as a new reference.

“ **dBm/dB** ” key: Change the unit ( dBm, dB).

Note: The value must be in the testing range when you press these two keys.

## PON- Threshold set



Press the “ **Threshold** ” key, user can shift the interface. The upper right picture shows the threshold set interface.

User can set these 10 thresholds. Please see page 11 for details.

## PON- Threshold set

FIGURE 1


Threshold		OLT:1490nm
Unit : dBm	NUM: 5	OVER FALT : 03.0
		LOW WRNG: -20.0
		LOW FALT : -30.0
ONT:1310nm		VDO:1550nm
OVER FALT : 03.0		OVER FALT : 03.0
LOW WRNG: -20.0		LOW WRNG: -20.0
LOW FALT : -30.0		LOW FALT : -30.0

FIGURE 2

ONT:1310nm-----	Wavelength
OVER FALT : 03.0	Max. Value
LOW WRNG:-20.0	Warning Value
LOW FALT : -30.0	Min. Value

FIGURE 3

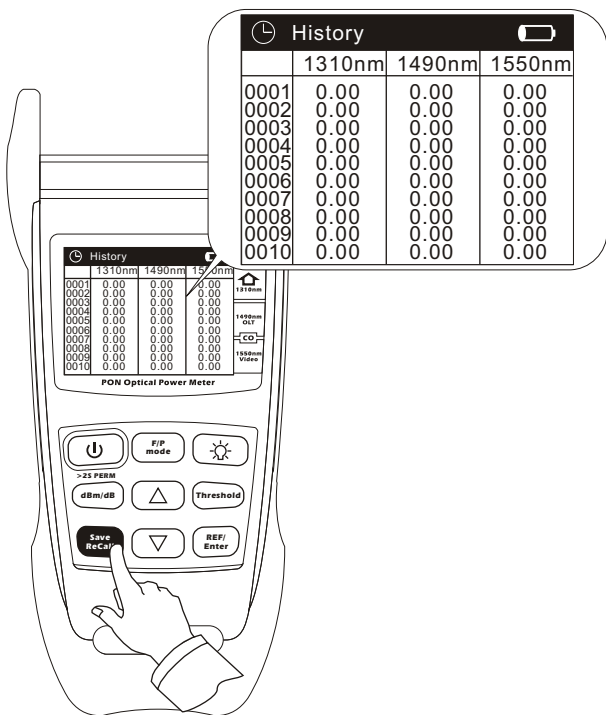
LOW FALT : -30.0



Enter	When the cursor is on “ NUM ” , you can change the threshold number by pressing “  ” key. (see figure 1)
	When the cursor is on “ FALT: ” , “ WRNG: ” , “ FALT: ” , you can shift the cursor from each bit of the data. (see figure 2)
△	Move the cursor up, please note the cursor is not in one bit of any data.
	Increase the bit by 1, when the cursor is in one bit of any data. (see figure 3)
▽	Move the cursor down, please note the cursor is not in one bit of any data.
	Decrease the bit by 1, when the cursor is in one bit of any data. (see figure 3)



How to understand the threshold:


1. Each wavelength has its threshold.
2. If the current value > Max. Value, the alarm of corresponding wavelength will be “FAIL” .
3. If the current value < Max. Value, but > Warning Value, the alarm of corresponding wavelength will be “PASS” .
4. If the current value < Warning Value, but > Min. Value, the alarm of corresponding wavelength will be “WRNG” .
5. If the current value < Min. Value, the alarm of corresponding wavelength will be “FAIL” .

## PON- Data Storage



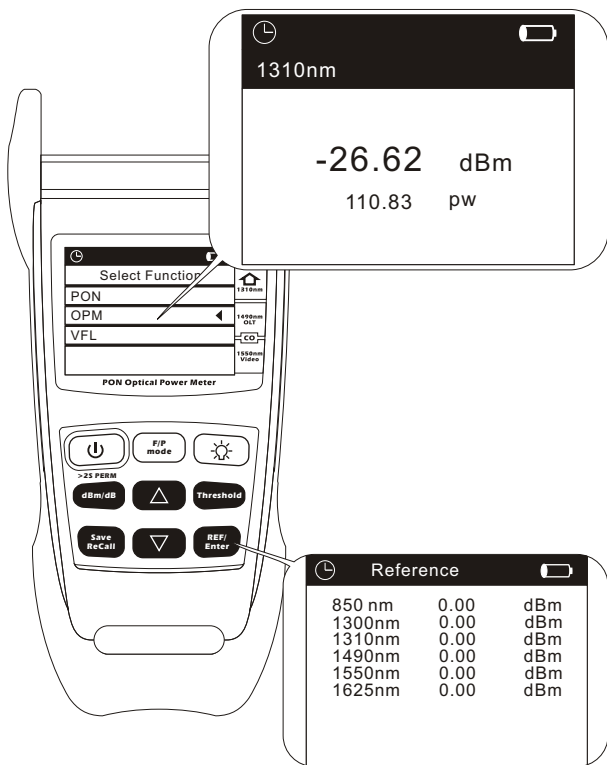
When in PON testing interface, user can press “  ” key to the History interface. And press the “  ” key for 2 seconds to save the current value.



In the History interface, press “  ” and “  ” key to change the history page.

Press “  ” key again back to the testing interface.

## OPM Mode

OPTIONAL



When turn on the device, press “” key to select OPM mode and press “” key to enter the normal optical power meter mode.

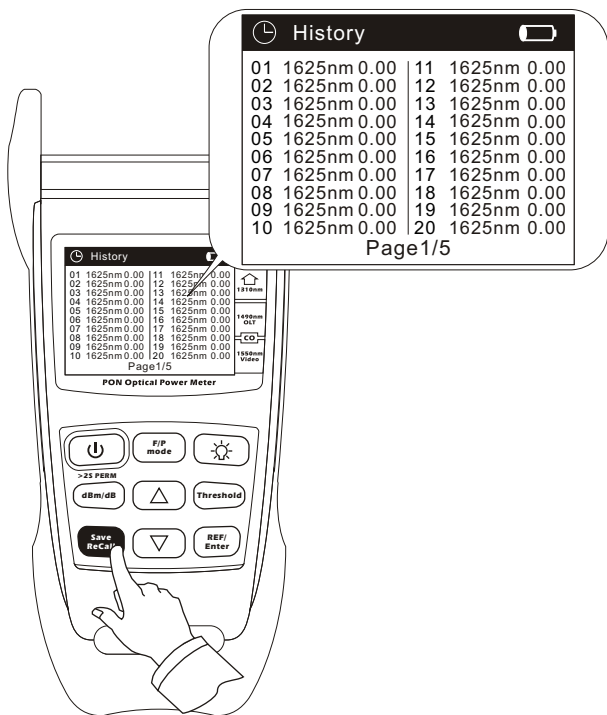
In normal power meter mode:



**dBm/dB:** change the unit, dBm, uW and dB.



**Threshold:** change the wavelength, 850/1300/1310/1490/1550/1625nm.


**REF/Enter:** press to check the REF value, press for 2 seconds to save the current value as a new REF value.

## OPM-Data Storage



When in testing interface, user can press “  ” key to the History interface.. And press the “  ” key for 2 seconds to save the current value.

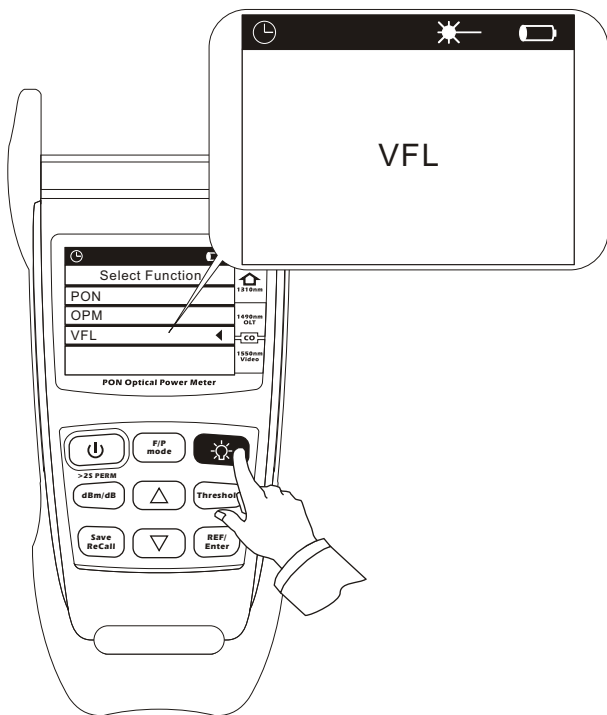
In the History interface, press “  ” and “  ” key to change the history page.

Press “  ” key again back to the testing interface.



## VFL Mode

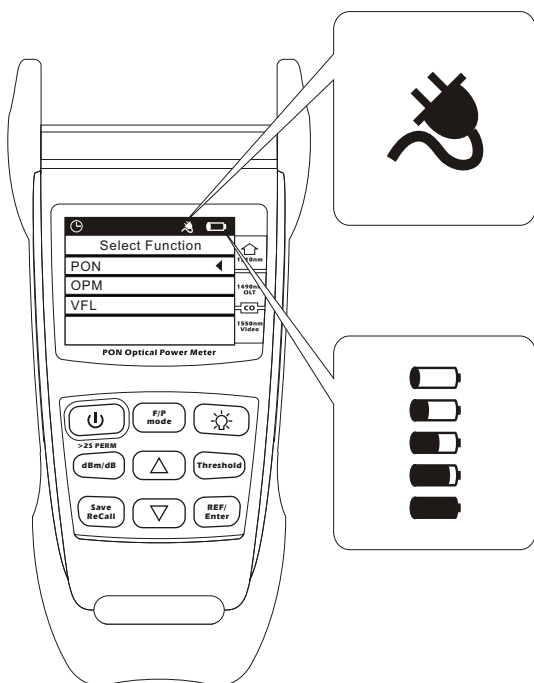
OPTIONAL








When turn on the device, press “” key to select VFL mode and press “” key to enter the visual fault locator mode.

In VFL mode: press “” key can change the light status to be ON - Flashing - OFF.

## Battery energy detect



Battery energy has five indicators:

-  Remain 80%---100%
-  Remain 60%---80%
-  Remain 40%---60%
-  Remain 20%---40%
-  Remain less than 20%

If the energy is too low, the beep will be on and the device will auto power off. When you plug in the AC adapter and rechargeable batteries inside, the screen will show the charging icon on upper right corner.

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## Battery charge

First you must use the rechargeable batteries. When the energy is less than 20%, you should charge the batteries. Long time low energy, the life of the batteries will be short. When charging, the battery indication on LCD will flash. After charging fully, the indication will stop flashing and show full. Don't charge for more than 24 hours. If charging while using the device, the time will be longer. The rechargeable batteries must be in device when you use the AC/DC adaptor for charging. And do not charge the non-rechargeable batteries, or the device will be destroyed and also lose the guarantee.

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## Maintenance and calibration

### Routine attention

- 1.Fiber-optical adapter should keep clean.
- 2.Please store the device in dry and ventilated place.
- 3.The long period no use , please take out the batteries.

### Common malfunction

<b>Described</b>	<b>Malfunction cause</b>	<b>Handle way</b>
Can not turn on	No battery	Check battery setting
After turn on shut it immediately	Check battery capacities	Change battery
Can not charge	Use Non-rechargeable batteries	Change battery
Display the messy code	Reset is incorrect	Reset
Operation do not have reaction	Program is disorderly	Reset

## PON Detailed Parameter

### Measurement of 1310nm

Pass band	1260nm~1360nm
Measurement range	+10dBm~-35dBm
Max. permitted input level	15dBm
Isolation of 1490/1550nmbands	>40dB
Accurate Of Burst Signal	<±0.5dB

### Measurement of 1490nm

Pass band	1480nm~1500nm
Measurement range	+10dBm~-50dBm
Max. permitted input level	15dBm
Isolation of 1310nmbands	>40dB
Isolation of 1550nmbands	>40dB

### Measurement of 1550nm

Pass band	1530nm~1570nm
Measurement range	+25dBm~-45dBm
Max. permitted input level	25dBm
Isolation of 1310nmbands	>40dB
Isolation of 1490nmbands	>40dB

Optic type	SM 9/125um
Optic connector	SC/PC (or customize)
Accurate	±0.2dB(Burstsignal: ±0.5dB)
Linearity	0.1 dB
Pass throughinsertion loss	<1.5dB
Power supply	Size AA x3batteries or AC/DCadapter
Battery life	>20H
Chargeable	Yes
Auto-off	Yes
Operating Temp	-10℃ ~ +50℃, <95%RH
Storage Temp	-20℃ ~ +60℃, <95%RH
Weight	400g
Size	190mm*95mm*50mm

## OPM/ VFL Detailed Parameter

### Visual Fault Locator

Wavelength	650±20nm
Output Power	
V01	1mW
V10	10mW
V15	15mW
V20	20mW
V25	25mW
Optic connector	2.5mmUPP

### Optical Power Meter

Measurement range	
T	-70dBm~+8dBm
M	-60dBm~+18dBm
C	-50dBm~+26dBm
Resolution	0.01dB
Accurate	±0.2dB
Linearity	±2%
Detector type	InGaAs
Connector	FC/PC & 2.5mm UPP
Range of Wavelength	700~1700nm
Calibration Wavelength	850/1300/1310/1490/1550/1625nm

### Model Option

Standard	PON Power Meter
V01	PON Power Meter + 1mWVFL
V10	PON Power Meter + 10mWVFL
V15	PON Power Meter + 15mWVFL
V20	PON Power Meter + 20mWVFL
V25	PON Power Meter + 25mWVFL
T	PON Power Meter + OPM(-70~+8dBm)
M	PON Power Meter + OPM(-60~+18dBm)
C	PON Power Meter + OPM(-50~+26dBm)



