

User Manual

KI 6103 Optical PON Power Meter



Warranty:

Information in this manual is given in good faith for the benefit of the user. It cannot be used as the basis for claims against Kingfisher International or its representatives, if accidental damage or inconvenience results from use or attempted repair of the equipment.

This Kingfisher International product is guaranteed against defective components and workmanship for a period of 1 year from the date of delivery, unless specifically stated in the original purchase contract or agreement. This warranty excludes optical connectors or incorrect use.

The warranty will be voided if the following instance happens:-

- 1) Opening the instrument.
- 2) The instrument has been immersed in water or subjected to extreme environmental conditions.

Liability is limited solely to repair of the equipment.

Safety:

	Take appropriate eye-safe precautions when handling live fibre.
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Operation

Battery

The instrument uses AA type alkaline batteries or NiMh rechargeable batteries.

- Avoid using mixed battery types.
- Do not use lithium batteries or other batteries with a nominal voltage greater than 1.8 V. The instrument will be damaged.
- Only charge NiMh rechargeable batteries. Do not charge Alkaline batteries.

Avoid condensation

The instrument is resistant to normal dust and moisture, however it is not waterproof. If moisture gets into the instrument, remove the batteries and dry it out carefully for at least one hour before using it again.

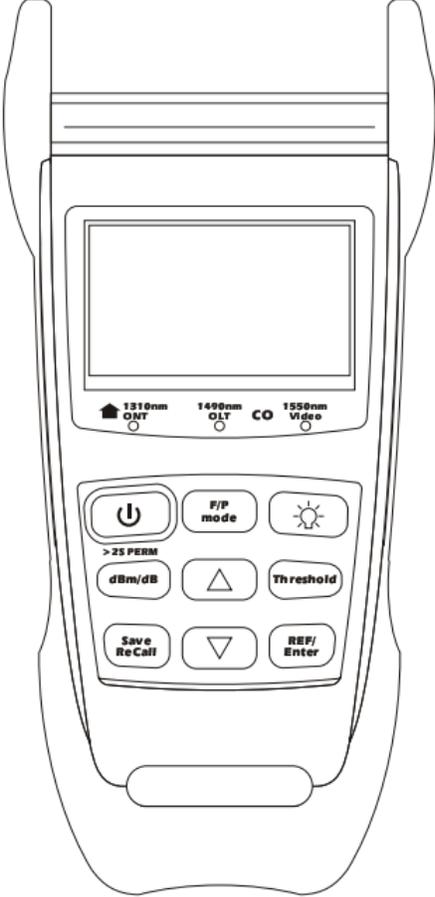
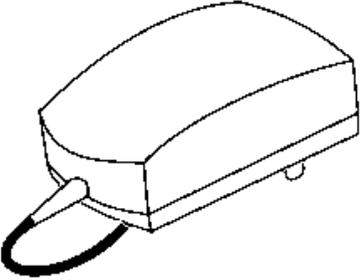
Storage

During prolonged storage, remove batteries to eliminate the possibility of acid leakage. Use only high quality batteries.

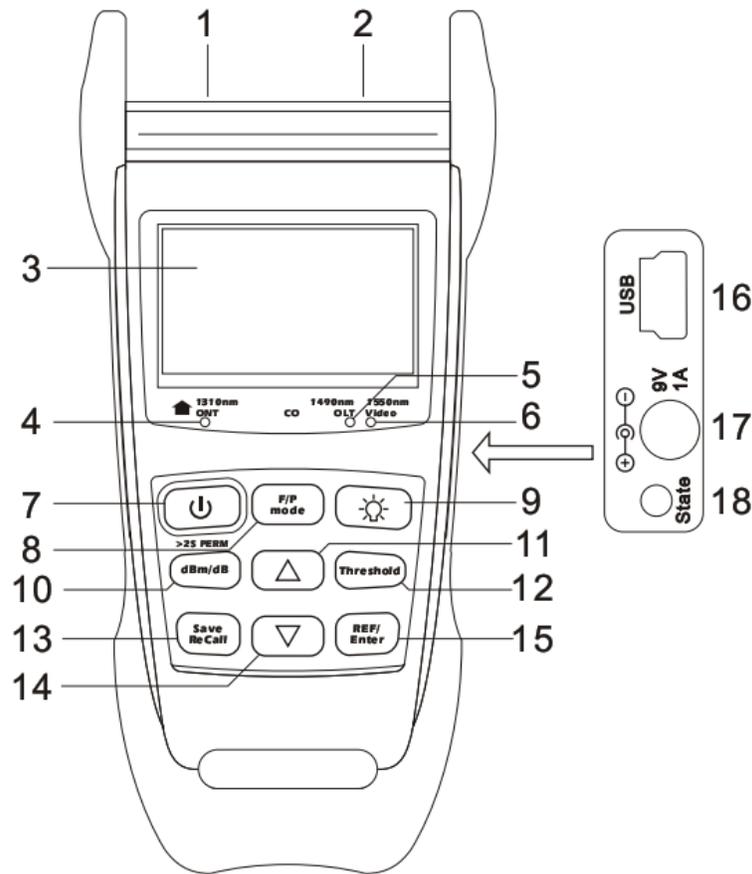
Check the instrument and part list

(Please contact us if you find anything missing after you open the case)

Standard accessories

Instrument	AC Adapter/Charger	User manual
		<p>1</p> <p>Carry case with strap</p> <p>1</p>

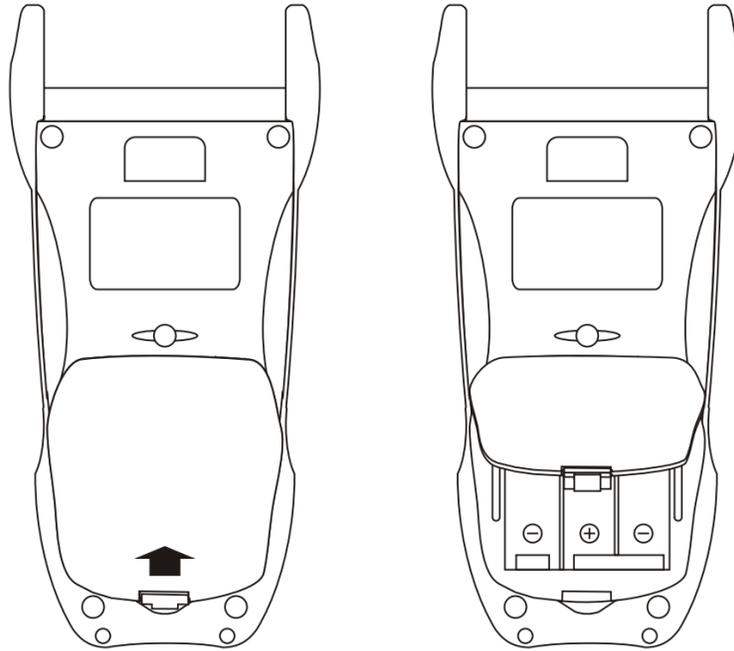
Instrument Description



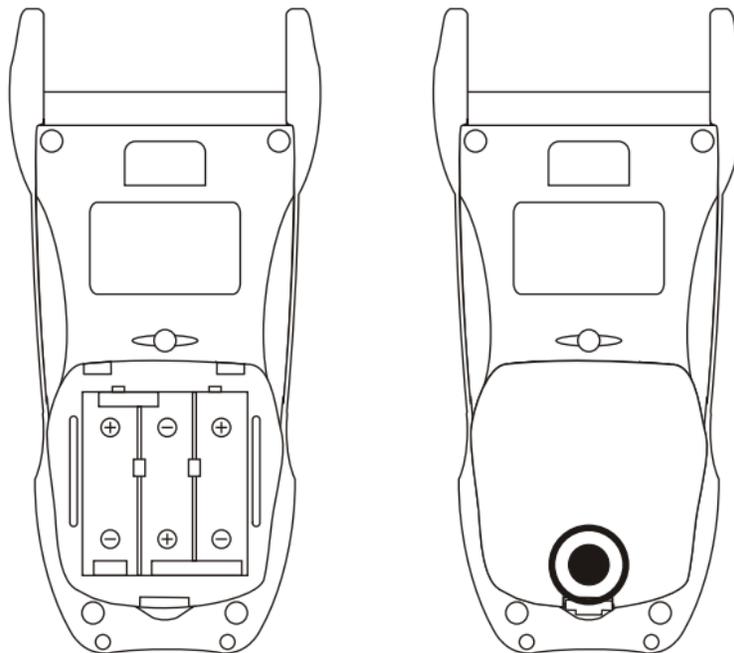
1	ONT upstream signal test port (1310 nm) SC
2	OLT/Video downstream signal test port (1490/1550 nm) SC
3	LCD display
4	ONT upstream Pass/Fail LED indicator (1310 nm)
5	OLT downstream Pass/Fail LED indicator (1490 nm)
6	OLT downstream Pass/Fail LED indicator (1550 nm)
7	On/Off key
8	Measurement unit dBm/dB key
9	Backlight key
10	Absolute/Relative key
11	Up key
12	Threshold menu select key
13	Test data storage key
14	Down key
15	Reference set key
16	USB port
17	DC power supply socket
18	Charging indicator

Install Batteries

Warning: To avoid damage to the instrument, do not mix different types of batteries.

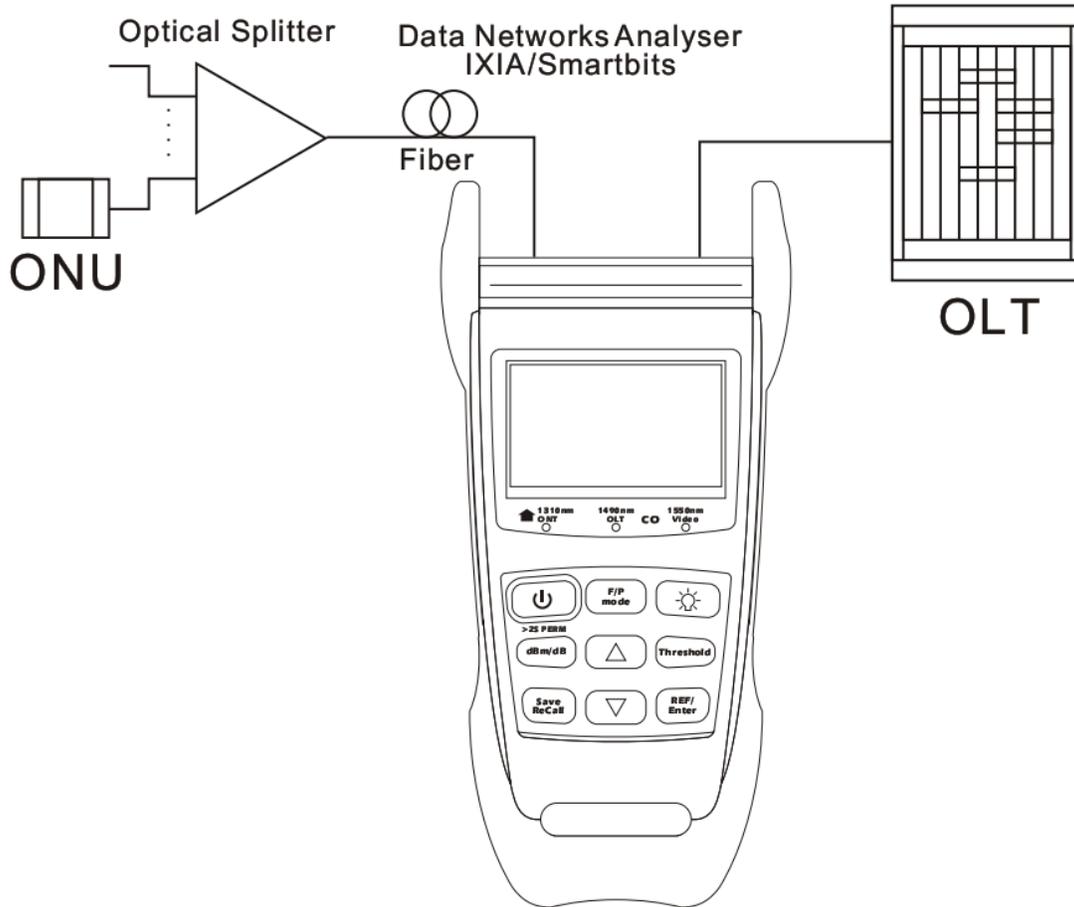


1. Press in the direction of the arrow.
2. Open the battery compartment cover.

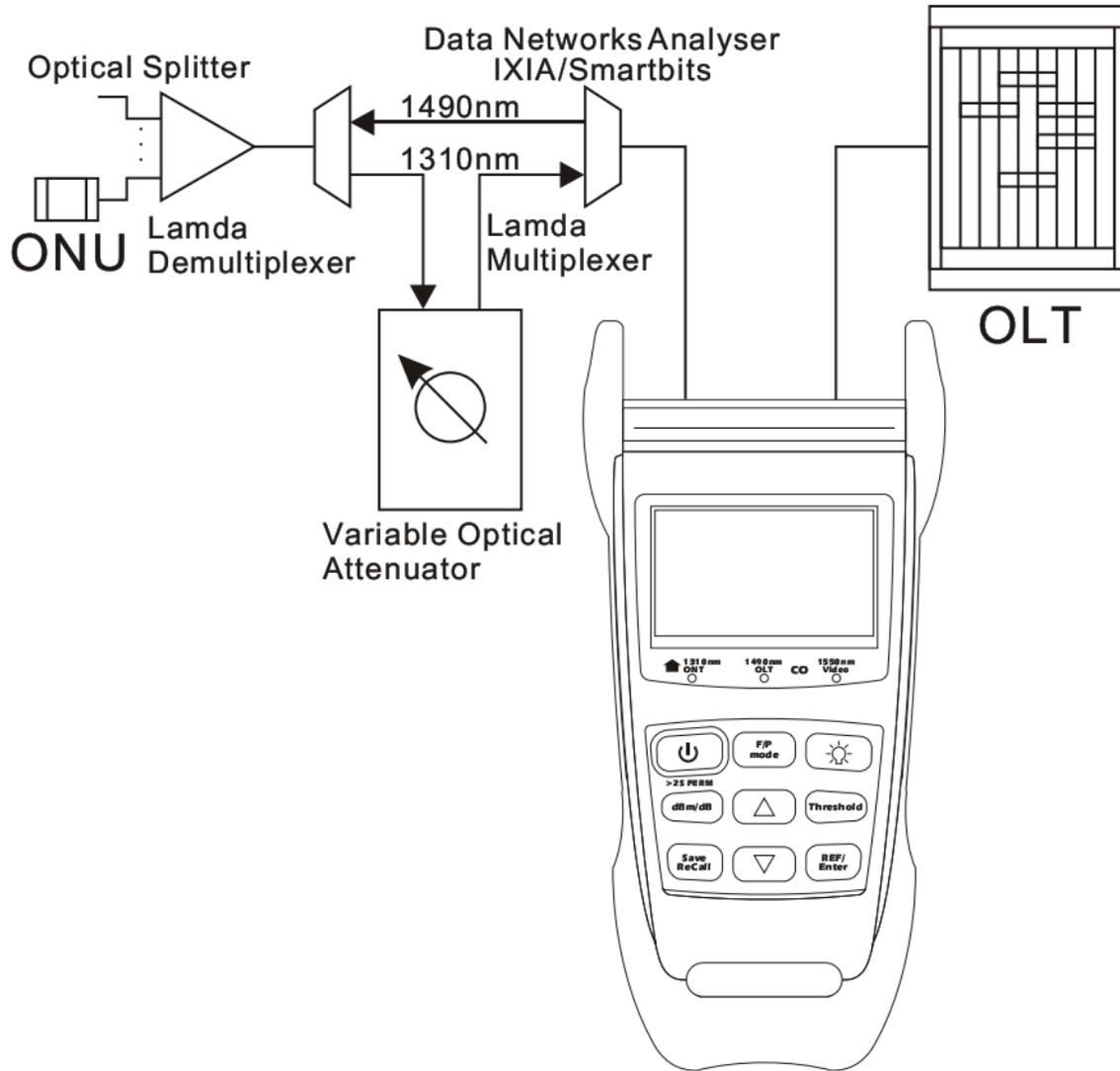


3. Place batteries correctly.
4. Press down until the cover clicks into place.

In-Line Test Setup

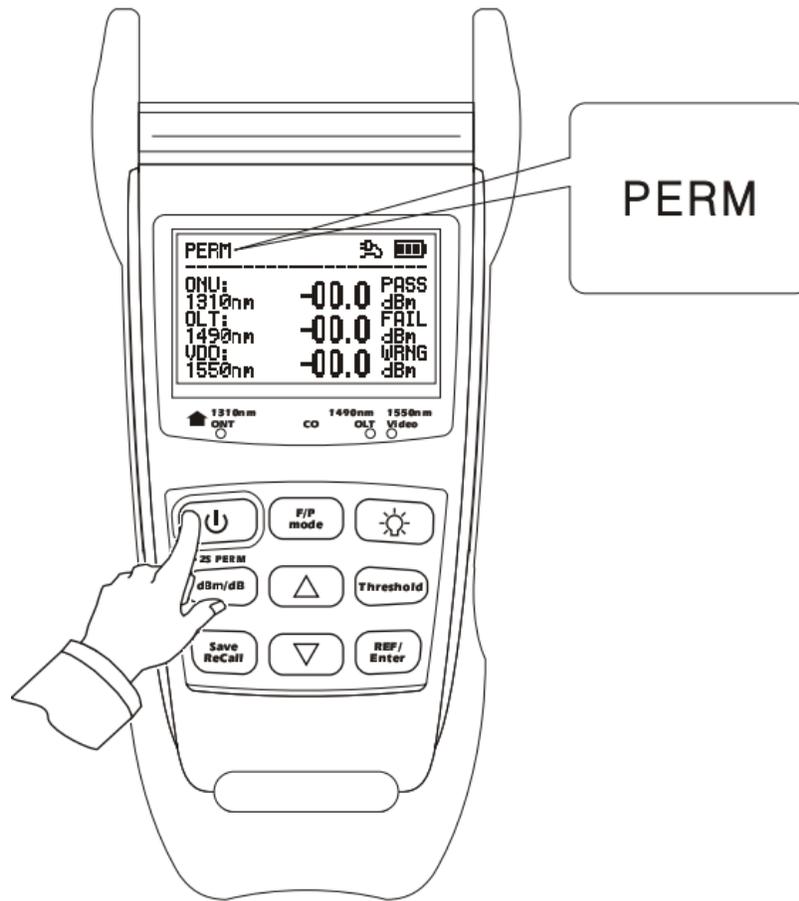


OLT PON-C type average power test diagram



OLT Optical power sensitivity test diagram

Power Auto off, battery saving function

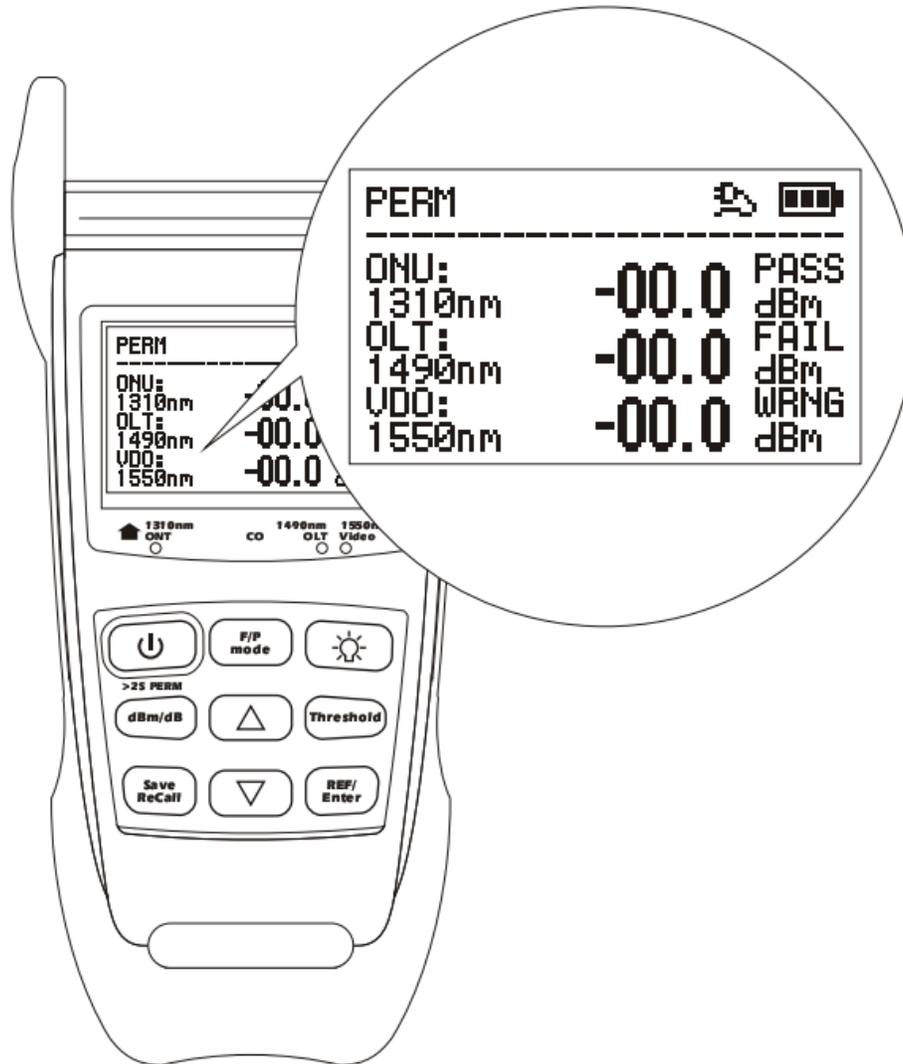


To Turn On; Press the [ON/OFF] key. The instrument will turn on and automatically zero and self-calibrate.

- For power saving, the instrument automatically turns Off 10 minutes after the last key press.
- To defeat the Auto Off feature: Press the [ON/OFF] key for >2 seconds until “PERM” is displayed on the LCD.

To turn Off: Press the [ON/OFF] key.

Optical Power Measurement



The instrument can measure upstream 1310 nm and downstream 1490, 1550 nm PON power levels.

When connected to a live PON network, the instrument displays the 3 channel power level.

- If the power level is too high, it displays “HI”.
- If the power level is close to but higher than the LO level, WRNG is displayed to warn the user.
- If the signal is too low, it displays ‘LO’,

Using LED indicators for fast Pass/Fail assessment



The instrument uses LED indicators for fast Pass/Fail assessment according to the threshold settings, which can be pre-set per wavelength.

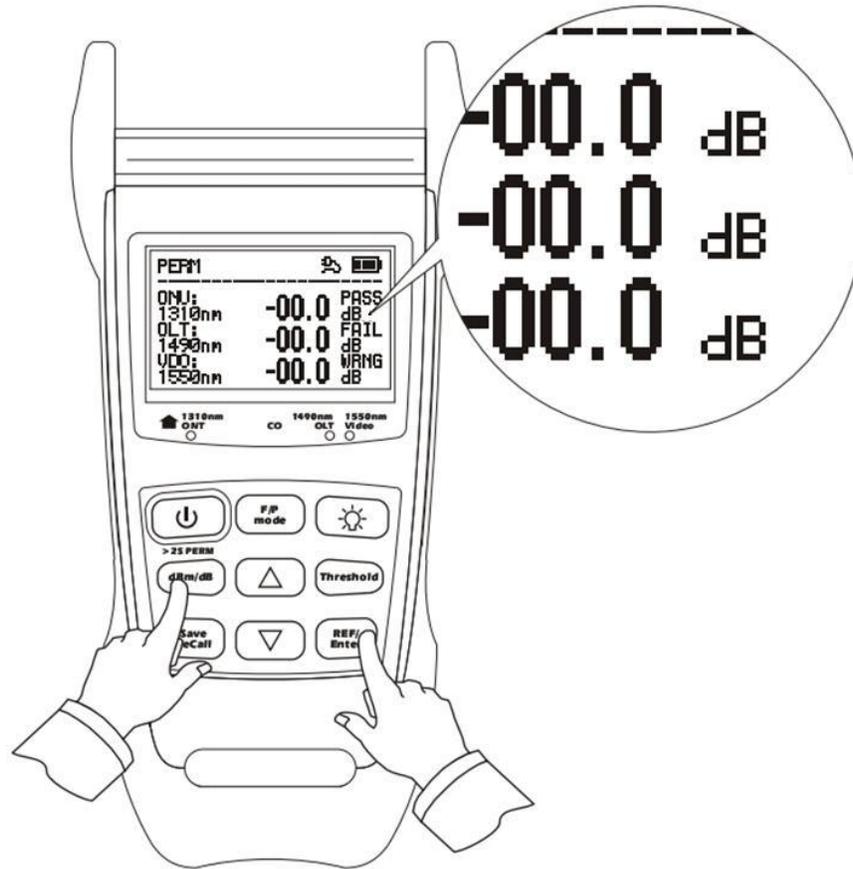
Press [F/P mode], the instrument displays the following according to the threshold setting:

- 1) "PASS" if the power level meets the specification.
- 2) "WRNG", to give warning if the signal level is close to the fail specification.
- 3) "FAIL", if the signal level fails the specification.

For the LED indicators:

- 1) **Green** means "PASS".
- 2) **Orange** means "WRNG", warning.
- 3) **Red** means "FAIL".

Optical Power Reference Setting

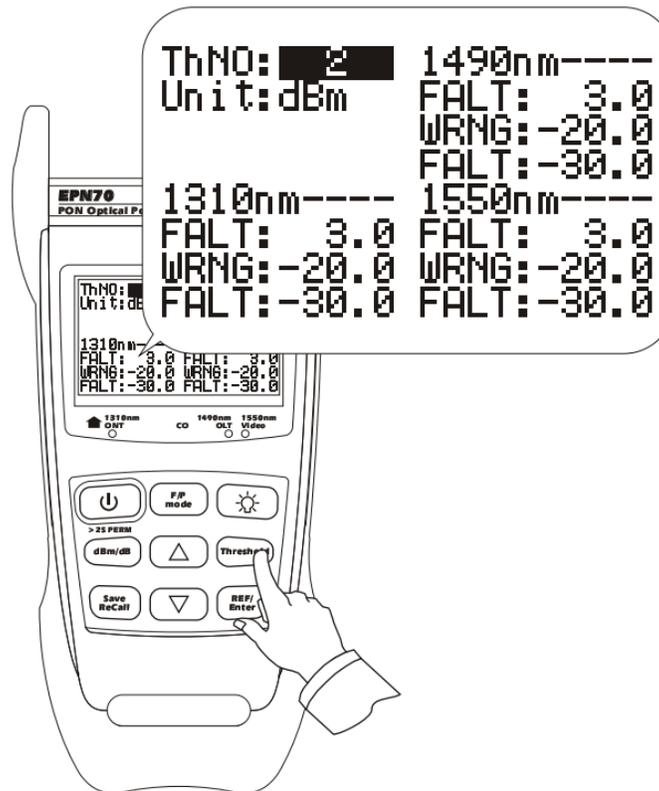


The instrument can be operated in Absolute (dBm) and Reference (dB) mode.

To set the Reference at all wavelengths: Press [REF/Enter] for > 2 seconds, the instrument will beep indicating that the reference is set and display the relative values in dB.

To toggle between dB and dBm, short press the [dB/dBm] key.

Threshold setting



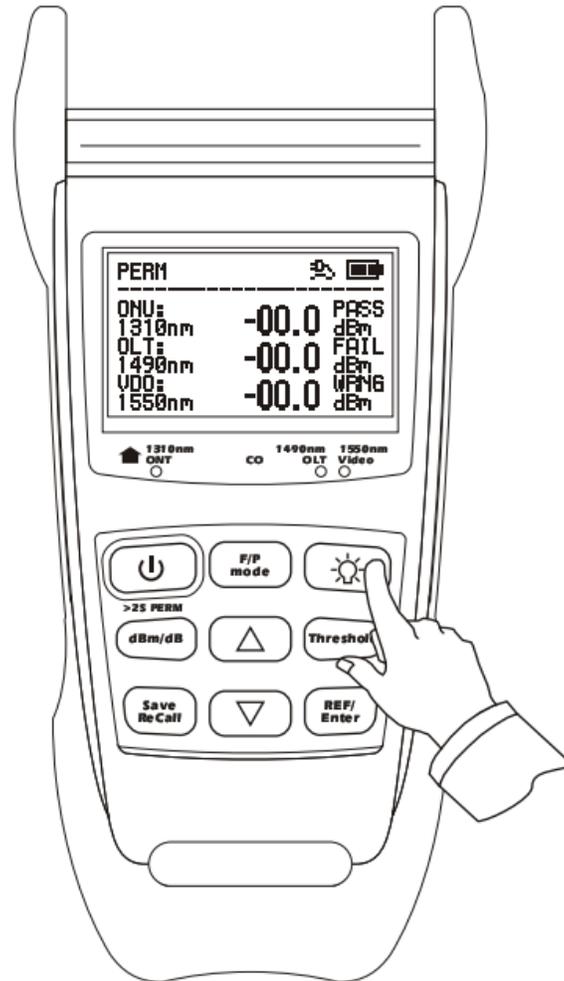
The threshold settings permit fast assessment of a links Pass/Fail status. There are 10 threshold Pass/Fail data memory locations, numbered 1~10.

- To enter the threshold setting area, press [Threshold].
- To toggle between the threshold memory locations press [Up] or [Down]
- To select a threshold memory location press [REF/Enter].
- To exit the threshold setting area, press [Threshold].

<pre>ThNo: 1 Unit: dBm</pre>	<p>When entered, the threshold area displays the threshold number 1~10. You can use the [UP] and [DOWN] keys to select threshold number. Press [REF/Enter] to confirm.</p>
<pre>1310nm---- FALT: 3.0 WRNG: -20.0 FALT: -30.0</pre>	<p>For each wavelength, there are 3 parameters:</p> <ol style="list-style-type: none"> 1) Up limit (communication will fail if the power level is above this value) 2) Down limit warning (communication is close to fail) 3) Down limit (communication will fail if the power level lower than this value) 4) Use the [UP] and [DOWN] keys to alter the value, followed by [REF/Enter] to confirm.

By pressing [Threshold] again, the instrument reverts back to measurement mode.

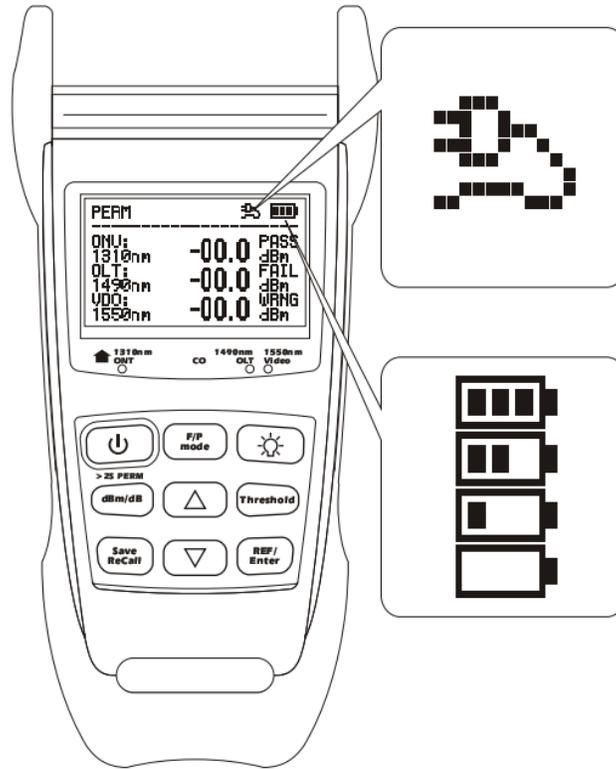
Backlight



When working in a low light environment, you can press the [] key to turn the backlight on to help view the screen.

Pressing the [] key again turns the backlight off.

Battery level and external power monitor



The battery symbol has 4 levels.

	80 – 100% battery power remains
	40 – 80% battery power remains
	20 – 40% battery power remains
	Less than 20% battery power remains

The LCD symbol shows external power is connected and battery charging initiated. Please remove any alkaline batteries when connected to external power.

While charging, the battery symbol will flash until the batteries are fully charged, after which it will enter trickle/slow charging mode. Avoid leaving the instrument on charge for longer than 24 hours.

The instrument can be used whilst charging/external power is connected.

For rechargeable batteries, if less than 20% power remains, to avoid reducing the rechargeable batteries lifetime, the instrument should be turned off and the batteries charged.

Instrument maintenance and calibration

General maintenance

Avoid hard material making contact with the optical adaptors. Keep adaptors clean at all times.

Keep the instrument in a dry place, avoid moisture.

Remove the batteries when storing the instrument for long time.

Calibration period

Recommended once a year calibration if the instrument is used in the field.

Recommended once every two years calibration if the instrument is used in the laboratory.

User trouble shooting

Problem	Reason	Method
Fails to turn On	Battery	Check if the batteries are properly installed
Immediately turns itself Off after turn On	Battery	Check the battery charge level
Fails to charge the batteries	Battery	Check if the batteries are rechargeable batteries
Error display	Reset	Turn Off and then turn On
Display is OK, but fails to operate	Firmware	Turn Off and then turn On

Specifications

1310nm upstream measurement	
Pass zone	1260 nm ~ 1360 nm
Measurement range	+10 dBm ~ -35 dBm
Max power input	+15 dBm
Isolation (@1490/1550nm)	> 30 dB
1490nm downstream measurement	
Pass zone	1480 nm ~ 1500 nm
Measurement range	+10 dBm ~ -50 dBm
Max power input	+15 dBm
Isolation (@1310nm)	> 30 dB
Isolation (@1550nm)	> 30 dB
1550nm downstream measurement	
Pass zone	1530 nm ~ 1570 nm
Measurement range	+25 dBm ~ -45 dBm
Max power input	+25 dBm
Isolation (@1310nm)	> 30 dB
Isolation (@1490nm)	> 30 dB
Connector interface	
Fiber type	SM 9/125 μm
Connector interface	Fixed, select from LC, SC, FC, PC or APC
Measurement accuracy	
Uncertainty	0.5 dB
Polarization	<0.25 dB
Return Loss	
Linearity	0.1 dB
Insertion Loss	< 1.5 dB
General	
Display	LCD
Show Results	dBm, dB, Pass/Fail
Display Accuracy	0.01 dB
Backlight function	YES
Battery Type, Battery Life	3 AA batteries, > 20 hours
Auto off function	10 minutes after last key pressed
External power supply	9V, 1A DC input with LED charging indicator
Temperature	-0 ~ +50 C°
Storage temperature	-40 ~ +70 C°
Relative humidity	< 95% non-condensing
Size	190 x 95 x 45 mm
Weight	0.54Kg

Test condition: 23 ± 3 °C, 40 – 60% relative humidity, SC/PC connector.