

# User Manual

## KI6102 / T6102 series 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/Tempo or its representatives if accidental damage or inconvenience results from use or attempted repair of the equipment.

This Kingfisher/Tempo 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 happen: -

- 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.

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# 1. Technical specifications

Standard wavelengths	1310 (upstream test)	1490 (downstream test)	1550 (downstream test)
Passband <sup>1</sup> (nm)	1260 ~ 1360	1470 ~ 1505	1535 ~ 1570
Range (dBm)	-40 ~ +10	-45 ~ +10	-45 ~ +23
Isolation @1310nm (dB)		> 40	> 40
Isolation @1490nm (dB)	> 40		> 40
Isolation @1550nm (dB)	> 40	> 40	
Uncertainty <sup>2</sup> (dB)	±0.5		
Polarization Dependent Loss (dB)	< ±0.25		
Linearity (dB)	±0.1		
Insertion Loss (dB)	< 1.5		
ORL (dB)	50		
Resolution (dB)	0.01		
Measurement unit	dBm / dB / W / Pass / Fail		
Memory capacity	99 tests		
Auto backlight off time	30 seconds		
Auto power off time	10 minutes		
Battery type	6102-xx series: 7.4V 1000mAH build-in rechargeable Lithium battery 6102AA-xx series: 4x AA non-rechargeable battery (not included)		
Battery life	18 hours with rechargeable Lithium battery or 4x AA Alkaline batteries		
Operating / storage temperature	-10 ~ 60 °C / -25 ~ 70 °C		
Dimensions / Weight	200 x 90 x 43 mm / 330g		
Recommended calibration cycle	3 years		
Warranty	1 year		

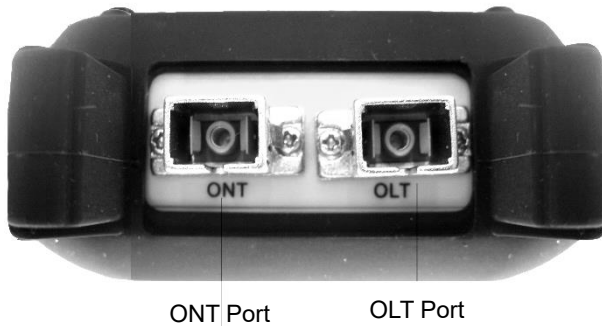
**Note 1:** FWHM

**Note 2:** At calibration conditions

## 2. The Instrument

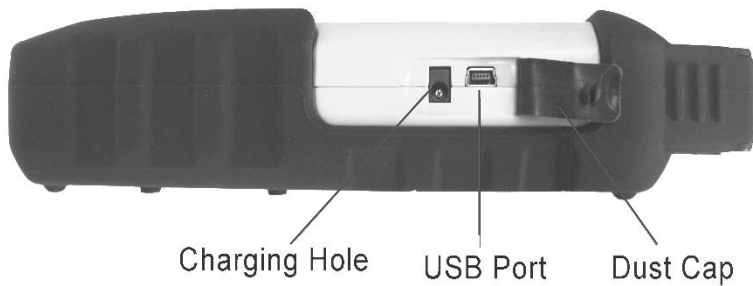


Figure 1: Front view



ONT Port: for 1310nm upstream signal test.  
OLT Port: 1490/1550 nm downstream signal test.

Figure 2: Top View



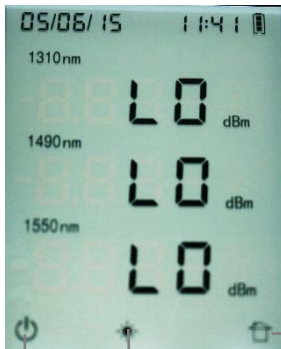
USB connector: Connects instrument to a computer.  
Charging Hole: Not use

Figure 3: Side View

## 3. Operation Instructions

### 3.1 ON/OFF Instrument

Press and hold [ON] to turn on instrument; the Home Display below will be seen on screen as shown below.




The instrument is now ready for measurements. Powers levels of the respective wavelengths will be displayed automatically when live fibers are appropriately connected to the OLN & OLT ports.

Indicates calibration settings are of factory default.

Indicates back light is on

Indicates Auto Power Off mode is enabled.

### 3.2 Auto Power Off

Auto Power Off mode is enabled when the instrument is turned on. “” indicates that Auto Power Off mode is enabled.

When Auto Power Off mode is enabled, instrument will turn off automatically if no subsequent key is pressed 10 minutes after it was turned on.

At Home Display, press [OFF] to disable or enable Auto Power Off mode.

### 3.3 Back Light

Backlight turns on when instrument is turned on and goes off after 30 sec.

When the backlight is off, press any key to turn it back on for another 30 sec.

### 3.4 Selecting Measurement Unit

At Home Display, press [F2] to select measurement unit (dBm or W).

### 3.5 Relative Measurement Mode

At Home Display, press and hold [▼] to enter Relative Measurement mode; the displayed measurement unit will change to dB. Press [F2] to exit Relative Measurement mode.

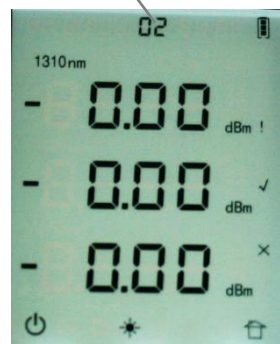
### 3.6 Threshold Setup

**3.6.1** At Home Display, press and hold [▲] to enter Threshold Management Display, see picture on the right.

**3.6.2** Choose a threshold group number from the available 01, 02, 03 using [▲, ▼].

**3.6.3** When a threshold group is selected, use [◀, ▶] to select wavelength from the available 1310, 1490, 1550 nm.

Selected threshold group



**3.6.4** When a wavelength is selected, press and hold [OK] to enter Threshold Editing mode.

Use [◀, ▶] to move cursor onto threshold type & onto digit to be edited; the selected digit will blink.

Use [▲, ▼] to change value of selected digit and [▼] to change the sign (positive or negative) of a set value.

Set the 3 displayed thresholds types (see below) with the desired values:

ALARM (displayed as “ ! ”)

PASS (displayed as “ √ ”)

FAIL (displayed as “ x ”)

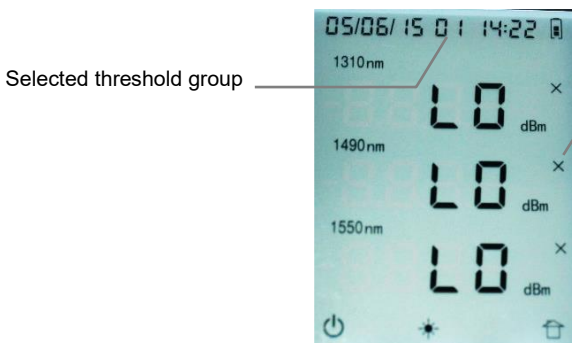
Press [OK] to save settings. *Note that if an invalid threshold value was entered, it will exit from Threshold Editing Mode & return to Home Display without saving.*

Use [▶] to select the next wavelength and set the respective thresholds by repeating steps in 3.6.4.

**3.6.5** Press [OFF] to exit Threshold Editing Mode and return to Home Display. The Threshold Management Display or Threshold Editing Mode will exit automatically if no subsequent key is pressed 10 sec after being selected.

### 3.7 Measurement with Pass/Fail Display Mode

At Home Display, press and hold [▲] to enter Threshold Management Display, see picture below.



The pass/fail/alarm sign displayed beside each measurement reading to show their respective test result.



Choose a threshold group number (from the available 01, 02, 03) using [▲, ▼].

Press [OK] to activate Pass/Fail display mode.

Press and hold [OK] to de-activate Pass/Fail display mode.

### 3.8 Setting Time

At Home Display, press and hold [▶] to enter Time Setting mode.

Use [◀, ▶] to select digit to be edited; the selected digit will blink. Use [▲, ▼] to edit the value of the selected digit. Press [OK] to save changes or press [OFF] to exit Time Setting mode without saving.

*Date format: YY/MM/DD*

*Time format: HH:MM*

Time Setting mode will exit automatically if no subsequent key is pressed 10 sec after it was selected.

### 3.9 Save, Retrieve/view, Delete Test Data

*To save data:*

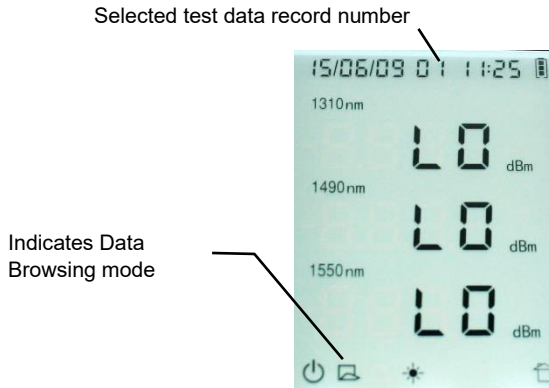
At Home Display, press [F1]; the blinking symbol, “” indicates that instrument is in **Data Saving mode**.

Press [OK] to save existing test data onto internal memory or press [OFF] to exit without saving.

Data Saving Mode will exit automatically if no subsequent key is pressed 10 sec after being selected. A max of 99 records can be saved.

To read retrieve/read saved data:

At Home Display, press and hold [◀] to enter **Data Browsing mode**, see picture below.



Use [▲, ▼] to choose test data record saved in instrument's memory. The chosen test data record is displayed with date, record number and time information.

To delete all data records: Press and hold [OK].

Test Data Browsing mode will exit automatically if no subsequent key is pressed 10 sec after it was selected.

### 3.10 Battery

When battery voltage drops below 6.7volt (for Lithium battery), the indicator, "□" will be displayed and instrument will beep for a short instant before powering off automatically.

See Section 4 (Maintenance) for instructions to replace AA batteries.

## 4. Maintenance

**4.1** Keep the sensors' surfaces clean and free of dust or other contaminant by cleaning them regularly.

**4.2** Do not use unclean or nonstandard adapters.

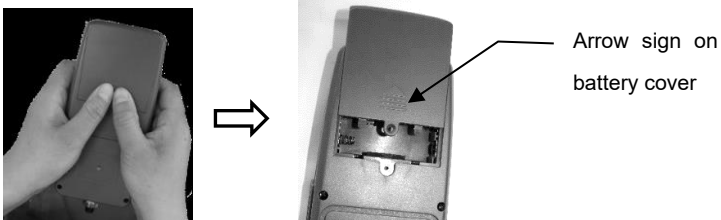
**4.3** Change adapter carefully if necessary and keep any spare adapter in dirt/dust free environment.

**4.4** When the instrument is not in use, keep the optical connectors covered with dust caps at all the time. Exposing the sensor for a long period of time will allow dust to be accumulated on surface of the sensor; this will in turn result in measurement inaccuracy.

**4.5** Consider leaving test cords always connected to the PON meter. This will prolong the life of the instrument ONT & OLT connectors.

**4.6** Instruction to replace AA batteries.

- ❶ Remove instrument from rubber holster.
- ❷ Hold instrument with its back facing up as shown in picture below.
- ❸ Press down with both thumbs near arrow sign, push battery cover in direction shown by the arrow sign.



- ❹ Remove battery cover, replace all the 4 batteries. Make sure batteries are inserted with the correct polarities.
- ❺ Replace battery cover followed by rubber holster of instrument.

## 5. Content of Packing

Description	Quantity	
	6102-APC	6102AA-APC
External power supply/charger	1	-
PON Power meter	1	1
User manual	1	1
Soft carry pouch	1	1
SC/APC--SC/APC or SC/PC--SC/PC Patchcord	1	1
Software CD	1	1
USB cable	1	1
Cleaning cotton stick pack	1	1

## 6. Safety



Take appropriate eye-safe precautions when handling live fibre.

### 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.