

# *User's Guide to the FHP2A/B04*

*Optical Power Meter*

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### 1 Introduction



The FHP2 series are full featured palm sized optical power meters designed for use with an optical laser source to perform optical loss measurements on optical fiber cables. The FHP2 series are lightweight and are controlled by microprocessor. Utilizing state-of-the-art SMT in its manufacture, optical connections to the FHP2 are made via the universal adapter interface on the top of the unit. The instrument has 7 working wavelengths to totally satisfy your needs.

It can be extensively used in telecommunication projects and other situations where optical power of wavelengths close to infrared ray needs to be measured.

## **2 Warranty**

### **One Year Limited Warranty**

Grandway products are warranted against the defective components and workmanship for a period of one year from the date of delivery to the original customer. Any product found to be defective within the warranty period would be returned to Grandway authorized service center for repair, replacement and calibration.

### **Exclusions**

The warranty on your equipment shall not apply to defects resulting from the following:

- Unauthorized repair or modification
- Misuse, negligence, or accident

### **Returning Product**

To return product, you may contact Grandway to obtain additional information if necessary.

To serve you better, please specify the reasons for the return.

All delivery and mails should be sent to the following address:

Grandway Customer Service  
6F, Xin'an building No. 99 Tianzhou Road  
Shanghai, 200233 P.R. China

### **Contacting Us**

Tel: 0086-21-54451260/61/62/63

Fax: 0086-21-54451266

E-mail: [overseas@grandway.com.cn](mailto:overseas@grandway.com.cn)

Website: [www.grandway.com.cn](http://www.grandway.com.cn)

### **3 Safety Information**

#### **Warnings!**

- Never look directly into optical outputs or a fiber while the equipment is on. Invisible laser beam may damage your eyes.
- Do not short-circuit the terminal of AC adapter / charger and the batteries. Excessive electrical current may cause personal injury due to fumes, electric shock or equipment damage.
- Connect AC power cord with the equipment and wall socket properly. While inserting the AC plug, make sure there is no dust or dirt on the terminals and both plugs are fully seated. Incomplete engagement may cause fuming, electric shock or equipment damage and may result in personal injury.
- Do not operate the equipment near hot objects, in hot environments, in dusty/ humid atmosphere or when condensation is present on the equipment. This may result in electric shock , product malfunction or poor performance.

## 4 Preparing for Operation

### 4.1 Unpacking the instrument

#### **Packing material**

We suggest that you keep the original packing material. Using the original packing material is your guarantee of protecting the instrument during transit.

#### **Checking the package contents**

The standard accessories of FHP2 are as follows:

FC, SC interchangeable connector, Manual, Carrying Bag, Software (CD), USB cable, AC/DC adapter, Test Report.

Optional accessories:

Description	Ordering Number	Description	Ordering Number
MU Adaptor	FHP-MU	2.5mm Universal Adaptor	FHP-U2.5
E2000 Adaptor	FHP-E2000	1.25mm Universal Adaptor	FHP-U1.25
LC Adaptor	FHP-LC	Aluminium Carrying Box	FH-PS

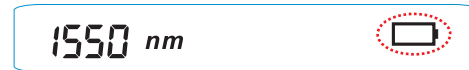
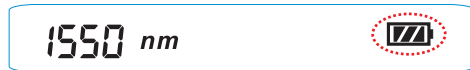
#### **Checking for damage in transit**

After unpacking the instrument, check to see whether it was damaged in transit. This is particularly likely if the outer casing is clearly damaged. If there is damage, do not attempt to operate the instrument or to repair it without authorization. Doing so can cause further damage and you may lose your warranty qualification.



### 4.2 Discharged batteries

There is a battery indicator on the screen to show the remaining charge. There are four possibilities the indicator may show, full, with 2 blacks, with 1 black and empty. If an empty battery indicator flashes it means the power is almost out, and that is when you should recharge the batteries by connect the AC adapter with the instrument. If the discharged batteries get to their limitations after long-time use, please replace it with a new one. To replace the batteries, please remove the battery plate on the back of instrument with a screwdriver.




When the battery charge is extremely low to supply the necessary power, the instrument will automatically switch off.

**Note: 1** The AC indicator is not displayed when power is supplied by battery.

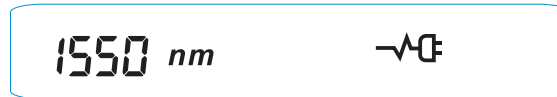
**2** To eliminate the possibility of acid leakage, please take out the battery if the unit is not used for a long time.

### 4.3 AC operation

If the instrument is mainly used at one location, e.g. in a laboratory or test department, the AC adapter can be used to power it instead of batteries. The USB cable of the AC adapter is plugged into the USB port. And when the AC adapter is plugged in, the Charging Indicator  on the LCD will be displayed.

Note:

- 1 Power is supplied by the AC adapter even if battery is fitted. And the battery indicator is not displayed on the screen when AC adapter is plugged.
- 2 Make sure that the operating voltage of the AC Adapter / Charger is the same as the local AC line voltage.









## 5 Operation

### 5.1 Display and controls

#### 5.1.1 Keypad

The FHP2 keypad is used to access a wide range of instrument functions.

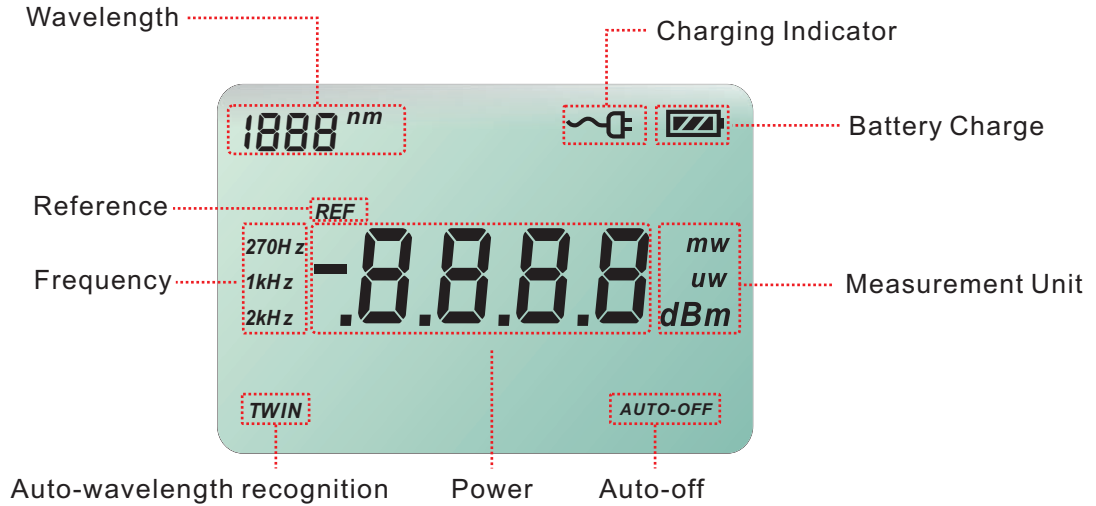


NO.	Key	Function
1		Switches instrument on / off. Long keypress while powering on to activate the instrument without Auto-off function.
2		Selects measurement wavelength in sequence of 850/1300/1310/1490/1550/1625/1650nm and to activate auto-wavelength recognition(TWIN).
3		Switches measurement unit among dBm,dB and mw.
4		Long keypress for 2s to store the current test value; short keypress to display the record.
5		Short keypress to display reference level of present test wavelength. Long keypress to set a new reference level of present test wavelength.
6		Switches backlighting on / off.

## 5.1.2 Back



5.1.3 LCD



### 5.2 Turning the instrument on and off

Press the “ON/OFF” key briefly.

The instrument powers on, and backlighting switches on.

Please check the battery capacity if it fails.

Press the “ON/OFF” key briefly again.

The instrument powers off, and backlighting switches off.





Note: Auto-off function

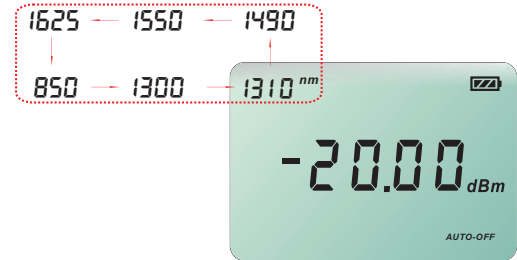
1. The instrument powers off automatically if no keypress in 10 minutes.
2. Press the “ON/OFF” key for about 2 seconds to power on the instrument with “Auto-off” function deactivated.

### 5.3 Setting the wavelength & Activate the Auto-wavelength Recognition(TWIN)

Press the “λ” key repeatedly until the desired wavelength is displayed. You can select from six possible wavelengths: 850nm, 1300nm, 1310nm, 1490nm, 1550nm, 1625nm.

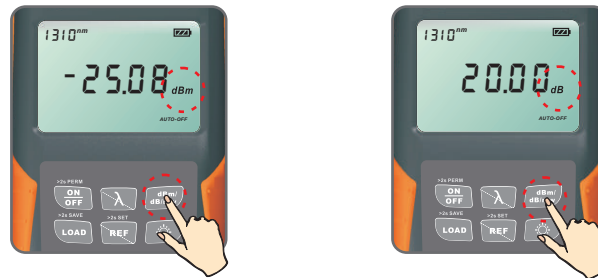
The instrument defaults to the wavelength which the user set in the last test.

When used with the FHP2 Series optical laser source, the wavelength will shift automatically according to the output wavelength of the laser source. Long keypress  is to activate the auto-wavelength recognition and the "TWIN" will show on the LCD. Short keypress  is to close the "TWIN".



## 5.4 Switching measurement mode

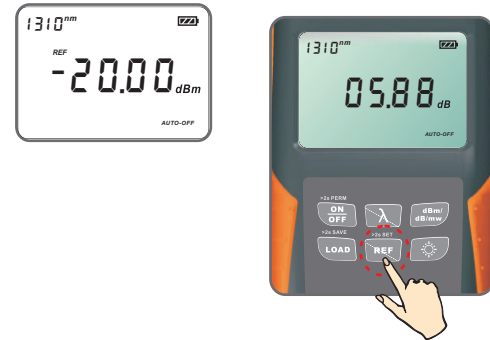
There are three measurement modes you can choose by pressing the “dBm/dB/mW” key repeatedly, dB, dBm, mW.





### 5.5 Setting reference level

1. Press the “REF” key to display the stored reference level for the current wavelength and a sign of “REF” will be displayed on the screen to indicate that it is a reference value. The displayed value only lasts 1 second.



2. Press and hold the “REF” key over 2 seconds to store the presently measured value as the new reference level for the current wavelength. During the process the “REF” sign flashes twice on the screen and buzzer sound is heard. Once the new reference level is set, the FHP2 switches to the dB measurement mode. The displayed value only lasts 1 second.



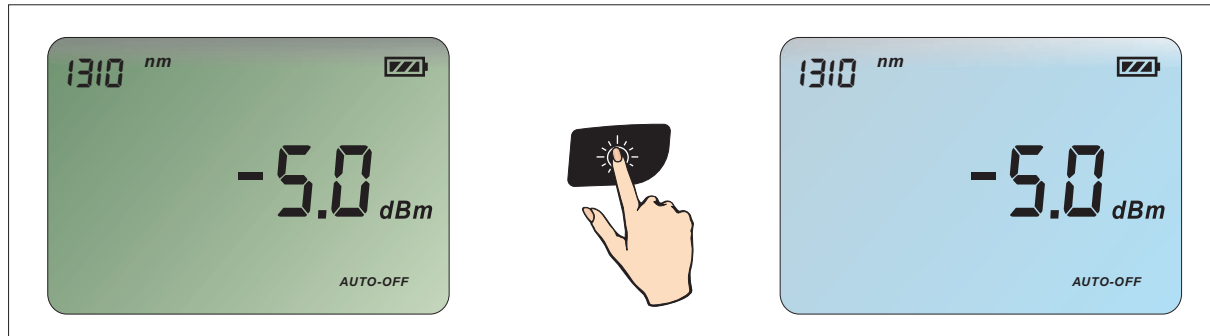
## 5.6 Switching backlighting of the LCD on and off

Press the backlighting key.

Backlighting switches on.

Press the backlighting key again.

Backlighting switches off.



## 5.7 Frequency detecting

If the tested wavelength is carrying a tone of 270Hz, 1kHz, or 2kHz, the respective frequency indicates on the screen



## **5.8 The overflow of the measured power value**

If the measured power value is too high, the LCD screen will display “HI”.



If the measured power value is too low, the LCD screen will display “LO”.



### 5.9 The storage of the current test value

Press <sup>>2s SAVE</sup> **LOAD** key over 2s, the SAVE flashes on the screen once with the sounds of the buzzer. It indicates the setting is finished. It will display the stored value and the serial number of the storage. Then, the FHP2A will return to the test state automatically.

### 5.10 Check the storage records

Press <sup>>2s SAVE</sup> **LOAD** key, it will display the latest record.

Press **λ** key, it will browse the forward records.

Press <sup>>2s SET</sup> **REF** key, it will browse the afterward records.

Press <sup>>2s SET</sup> **REF** + **☀** key, it will delete all the records.



### 6 Specifications

#### Optical Specifications

Model	FHP2A Series	FHP2B Series
Measuring Range (dBm)	-70~+10@1550nm	-50~+26@1550nm
Frequency Detecting Range	-40~+10(dBm)	-20~+26(dBm)
Wavelength Detecting Range	-40~+10(dBm)	-20~+26(dBm)
Resolution	0.01	
Wavelength (nm)	850/1300/1310/1490/1550/1625/1650	
Detector	InGaAs	
Precision	±5% <sup>①</sup>	
Operating Wavelength (nm)	800~1700	
Power	2*1.2V Ni-MH batteries; USB cable	

Note 1:±5% is effective under 1550nm, CW, 23°C±3°C, humidity≤70%

2: AC adapter cannot be used if the instrument is powered by the AA non-dischargeable batteries, otherwise Grandway will not be responsible for the trouble caused by the misuse. The discharging time will be different under various operating environment and batteries.

**General Specifications**

Operation Temperature	-10°C~+50°C
Storage Temperature	-20°C~+70°C
Humidity	< 90%
Size(H*W*D)	160*76*45mm
Weight	about 265g

## **7 Maintenance**

- Please disconnect the AC adapter/charger and cover the protective dust cap once you finish using.
- It is a good idea to clean the connector and the instrument when they get dirty through use. Optical cleaning pads and anhydrous alcohol is recommended. And please be careful not to get the detergent inside the instrument.
- To ensure the measurement accuracy, please send the instrument to Grandway Service Center for calibration once a year.

**NOTE:** Specifications, terms and conditions are subject to change without notice.

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