

User's Guide to the FHA2S01/02

Optical Fiber Attenuator

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1 Introduction

The FHA2S series digital variable optical attenuator is a compact, portable instrument widely used in fiber link certification and routine maintenance as well as in lab environment.

Features

- Dual-wavelengths calibration
- Adjustable attenuation
- Screen backlight
- Charging supplies
- LCD supplies
- Accurate and quick adjusting the attenuation by key-press
- Auto-off at low voltage
- Auto-off within 10 mins no-operation(default)
- Power supply identification
- Battery capacity display

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: heyong@grandway.com.cn

or

overseas@grandway.com.cn

Website: 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 FHA2S are as follows:

- Main unit
- Quality Check Report
- FC/SC/ST Connectors
- AC/DC Adapter/Charger
- User's Guide
- Carrying Case
- Battery

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 Battery

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. An empty battery indicator means the power is almost out and you need to replace it with a new one. To replace the battery , please remove the battery plate on the back side of the instrument with a screwdriver.



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

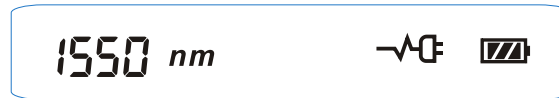
Note: 1 The AC indicator is not displayed when power is supplied by battery.

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. There is a DC input jack on the bottom side of the FHA2S instrument casing into which the output cable of the AC adapter is plugged. And when the AC adapter is plugged in, the AC Indicator on the LCD will be displayed.

Note: Make sure that the operating voltage of the AC Adapter / Charger is the same as the local AC line voltage.



5 Specifications

Optical Specifications

Model	FHA2S01	FHA2S02
Working Wavelengths	1310nm/1550nm	
Attenuation Range ^①	0~80dB	0~60dB
Max Input Power	24dBm	
Linearity	≤0.3dB	
Accuracy ^①	0.2dB @3~30dB 0.5dB @ 30~60dB 1.0dB@60~80 dB	0.2dB @3~20dB 0.5dB @ 20~50dB 1.0dB@50~60 dB
Insert ion Loss	<3dB	
Return Loss	>50dB(PC) >60dB(APC)	
Working time	>10hours(2*size AA)	
Fiber Type	SMF 9/125μm	
Connector	Interchangeable FC/PC, SC/PC, ST/PC connectors. (FC/APC, SC/APC is available at time of ordering)	

General Specifications

Operating temperature	-10°C to 50°C
Storage temperature	-20°C to 60°C
Relative humidity	0%~95% (non-condensing)
Dimension	160L*76W*45H(nm)
Weight	360g(Battery included)

Note: ① Valid at 1550nm, CW, 23±3°C ,Reliable humidity≤70%, with FC/PC connector.

6 Operation

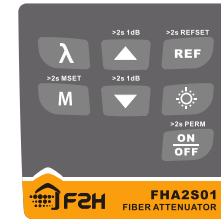
6.1 The key definitions indifferent Modes



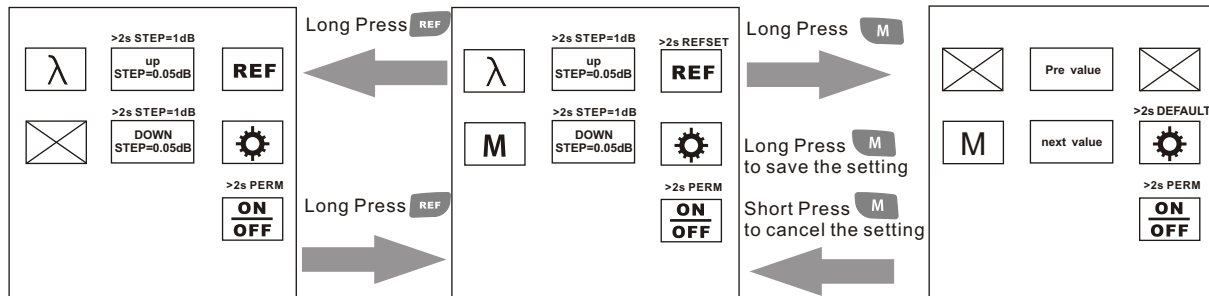
Ref Mode










Normal Mode



Presetting value Mode

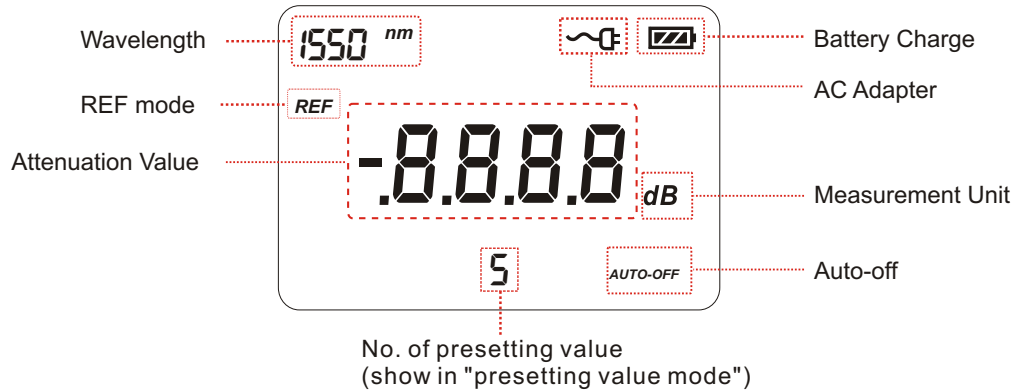


6.2 Controls and connectors

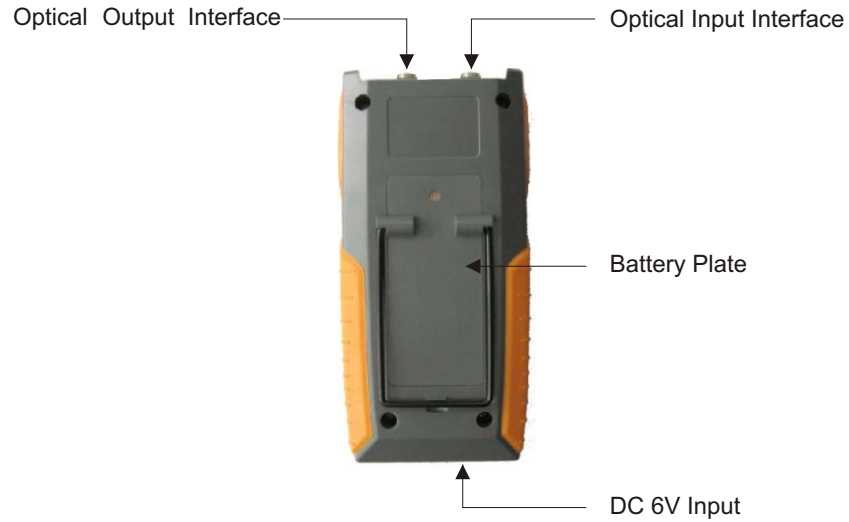
NO.	Key	Function
1		Shot-keypress is to increase the attenuation step by 0.05dB. Long-keypress is to increase the attenuation step by 1dB.
2		Shift wavelength between 1310nm and 1550nm
3		In "normal mode": Long press to enter the "presetting values mode". Short press to change the current value into the presetting values. In "presetting value mode": Short press to cancel setting and go back to "normal mode"; Long term press to save the setting and go back to "normal mode"
4		Shot-keypress is to decrease the attenuation step by 0.05dB. Long-keypress is to decrease the attenuation by 1dB/step.
5		Long press to enter the "REF mode" Short press to check the reference value under "REF mode".
6		Short Press to Turn on or off the LCD background light Long term press in "Presetting value Mode" to set the presetting values into default values.
7		Short keypress to turn on the instrument and long press for more than 2 seconds to close the Auto-off function.



LCD



Back



6.3 Turning the Instrument on and off


Press the "ON/OFF" Key briefly, the instrument powers on.
If it fails, please check the battery capacity. The instrument powers off after pressing the "ON/OFF" Key.

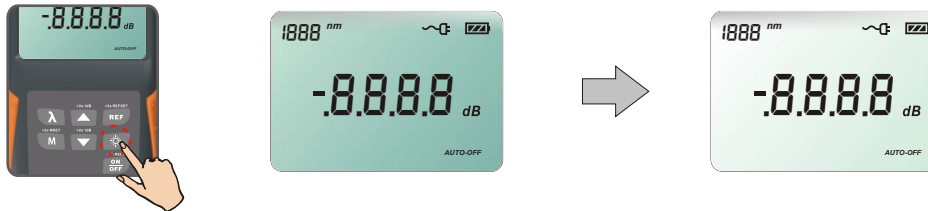
Note: Auto-off function

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.



6.4 Turning on the Background Light

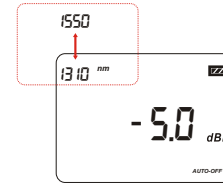
Short press  key to open or close the background light.



6.5 Operation in "Normal Mode"

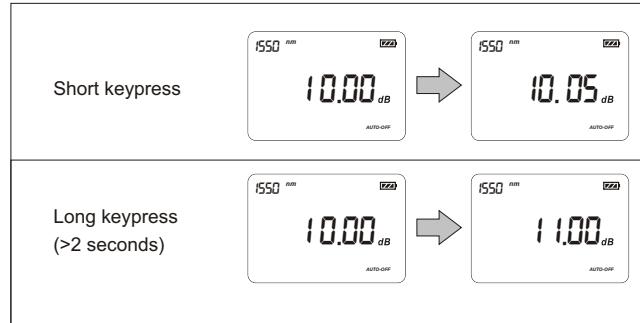
6.5.1 Setting the wavelength

Short keypress the λ key, you can shift the wavelength between 1310nm and 1550nm and the wavelength indicator will change accordingly. The attenuation value will not change when the wavelengths are shifted.



6.5.2 Setting the Attenuation Value

You can press \blacktriangle or \blacktriangledown key to adjust the attenuation value. Short-keypress is to increase or decrease the value of 0.05dB/step; Long-keypress is to increase or decrease the value of 1dB/step.



6.6 Operating in "Ref Mode"


6.6.1 Entering "Ref Mode" and exit "Ref Mode"

Long-keypress  (>2s) in "Normal Mode" to enter the "REF Mode".



Long-keypress  (>2s) in "Ref Mode" to exit the "REF Mode"

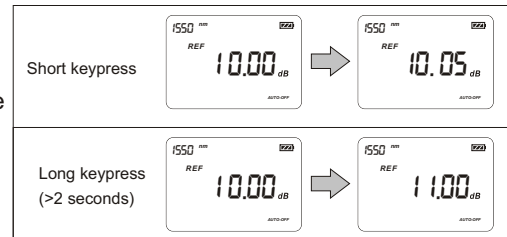


6.6.2 Check the current REF value

Short-keypress the key  to check the reference value under "REF" mode

6.6.3 Change attenuation value in REF mode

You can press  or  key to adjust the attenuation value. Short-keypress is to increase or decrease the value of 0.05dB/step; Long-keypress is to increase or decrease the value of 1dB/step.



6.7 Operation in "Presetting values modes"

6.7.1 Entering "Presetting values Mode" and exit "Presetting values Mode"

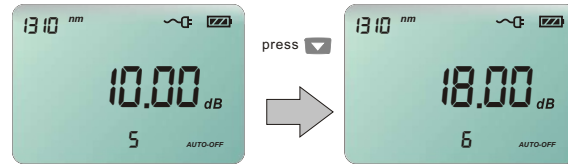
Long-keypress **M** (>2 seconds) in "Normal Mode" to enter the "Presetting values Mode".

Long-keypress **M** (>2 seconds) to save the setting and exit "Presetting values Mode".

Short-keypress **M** (<2 seconds) to cancel the setting and exit "Presetting values Mode".

6.7.2 Choosing the presetting value.

Press **▲** or **▼** to choose the presetting value, and long press **M** key to save the current value as the new value for the presetting value. FHA2 can set nine presetting values for each wavelength. In the screen, there is a number to indicator the number of the presetting number.



6.7.3 Setting presetting values into nine "DEFAULT" values.

Long-keypress **⊕**, it will change the nine presetting values into the nine "DEFAULT" values, which are 0dB, 20dB, 30dB, 40dB, 50dB, 60dB, 70dB, 80dB (70dB and 80dB is not including in FHS2S02)

No. of previous value	1	2	3	4	5	6	7	8	9
DEFAULT value	0dB	10dB	20dB	30dB	40dB	50dB	60dB	70dB	80dB