ShinewayTech®
Dependable Partner for Future Networks

OVA-50
Optical Variable Attenuator
User's Manual

Safety Instructions

WARNING!

The **WARNING** sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personnel injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

CAUTION!

The **CAUTION** sign denotes a hazard. It calls attention to an operating procedure, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or the entire product. Do not proceed beyond a **CAUTION** sign until the indicated conditions are fully understood and met.

NOTE

The **NOTE** sign information that may be beneficial during the use and maintenance of the instrument.

WARNING!

Users should avoid looking directly into the optic output of OVA-50. And the use of microscope or magnifier should also be avoided, for the use of such devices can focus a highly intense beam onto the retina, which may result in permanent eye damage

CAUTION!

Battery: OVA-50 battery type is lithium battery. Do not take battery out without technical staff's assistance. Do not expose battery to fire or intense heat. Do not open or mutilate battery. Avoid touching the electrolyte in the battery, which is corrosive and may cause injuries to eyes, skin or damage to clothes.

External Power Supply: Power Adaptor, 5V DC/750mA

Laser Radiation: To avoid serious eye injury, never look directly into the optical outputs of fiber optic network equipment, test equipment, patch cords, or test jumpers.

- Always avoid looking directly into the optical output port,

when the instrument is working

- Always replace protective dust cap on the detector port when the instrument is not in use.
- Always avoid looking directly at unconnected end of optic fiber in testing and make the unconnected end pointing at a non-reflective object.

Contents

1. General Information

1.1 Scope of this Manual

Thank you for purchasing ShinewayTech® instrument. Please read this manual carefully before using ShinewayTech® fiber optic instrument. Always be aware of the **Warning** and **Caution** sign appearing throughout this manual.

This manual contains the information necessary for proper operation and maintenance of ShinewayTech® instrument, troubleshooting instructions as well as information regarding maintenance services.

All ShinewayTech® instruments are carefully assembled and undergo rigorous mechanical, electrical, and optical inspection prior to shipment. Beside the instrument, the package also includes a lithium battery pack, a charging/data transfer cable, a power adapter, a FC/PC flange and this user's manual. For detailed information, please refer to the packing list.

Upon receiving the instrument, please check for any obvious signs of physical damage that may have occurred during shipment. Report any damage to the shipping agent or the representative of Shineway Technologies Inc. immediately. Retain the original packing materials in case reshipment is necessary.

1.2 Unpacking and Inspection

This instrument has been carefully packed in accordance with standard shipping procedures. Examine the instrument for damage that may have occurred during shipment. If you find any damage or the instrument is not working, or if any of the following items are not included, please contact your representative of Shineway Technologies, Inc.

If necessary, you may contact Shineway Technologies, Inc via this email:
support@shinewaytech.com.

1.3 Introduction

ShinewayTech® OVA-50 Optical Variable Attenuator can precisely attenuate input optical signals at 1310/1490/1550/1625nm wavelengths and directly output defined stabilized optical signals. OVA-50 is applicable in various testing situations:

- Network/BER testing
- Power meter calibration
- Link loss simulation
- Optical margin analysis

Features:

- Attenuation range: 2.5-60dB
- Direct output power control
- Working modes:
  - Output power control
  - Absolute/relative attenuation setting
  - Program (Preprogramming frequently-used attenuations)
- Adjust at step of 0.05/0.10/1.00/10.00 dB
- PC control via USB
- Backlight
- Over 30 hours continuous operation
- Handheld, light and easy-to-use
- CE FCC certificates

Direct Output Power Control

Normal attenuator can only introduce and display an attenuation value, you need a separate power meter to measure or adjust the output power value of attenuated optical signal. Working like a combination of attenuator and power meter, OVA-50 Output Power Control mode enables direct setting of precise optical power level and can automatically stabilize output level without any interference by variations of input power.

Program Mode

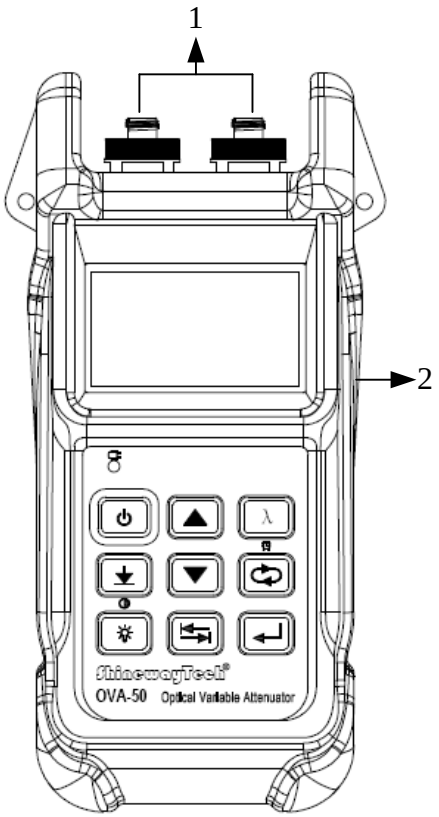
User can preprogram frequently-used attenuations to reduce workload.

2. Basic Operation

2.1 Foreword

This part introduces the basic operation on OVA-50. Specific operations of each type instrument are elaborated in Chapter 3 of this manual. Please read this manual carefully for optimal operation. If you encounter any problems during operation, you are welcome to contact the technical staff of our company or representatives.

2.2 Instrument Details



2.2.1 External Interfaces

1. **Optical Input**
   OVA-50 is available with FC connector (Interchangeable SC/ST).

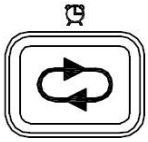
2. **USB Power /Data Port**
   OVA-50 can be charged by external power adapter (5V DC, 750mA).

2.2.2 Keypad Operation

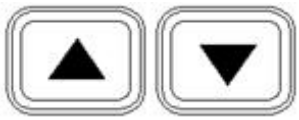
Power on/off

Toggle between calibrated wavelengths

Reset to minimum attenuation value

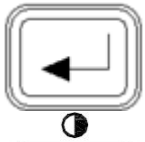


Short press to toggle between working modes:
Absolute attenuation, Relative attenuation, Program & Output power control;
Long press to enable/disable Auto Off



Change attenuation value

Toggle between attenuation stepping;
Shift digit positions



Enter functional interface; Confirm

Turn backlight on/off; Long press to adjust contrast

2.2.3 Indicator

Charging indicator

2.3 Use of Battery

OVA-50 works on lithium battery, please make sure battery is mounted properly before use.

When battery is low, low battery indicator will appear on LCD. You can still use OVA-50 as long as its display on LCD is identifiable. Please charge as soon as possible when battery is low to ensure accurate measurement.

NOTE Please take out the battery if OVA-50 is not in use for a long time.

2.4 Connector Cleaning

Please follow the instructions below when cleaning:

- Turn off the instrument before cleaning.
- Non-compliant operation may result in hazardous radiation exposure.
- Turn off laser source before cleaning optical interface.
- Always avoid looking directly into the optical output port when the instrument is working, laser is invisible and can cause serious eye damage.
- Disconnect instrument from power supply before cleaning to prevent electric shock.
- Do not install unauthorized parts or make unauthorized adjustments on instrument.
- Please consult qualified professional about maintenance and repair services.

Always clean optical connector before using optical power meter to ensure accurate measurement. Clean the optical connector gently with cleaning swab.

Inappropriate maintenance may result in low performance or error:

- Distance error increases;
- Linearity error;
- Extra optical power attenuation;
- Received optical power is beyond normal range.

3. Operation

3.1 Power On

Press [**On/Off**] button and loading screen appears, see Figure 3.1.

Figure 3.1

Then it enters default interface: Absolute attenuation setting, see Figure 3.2.

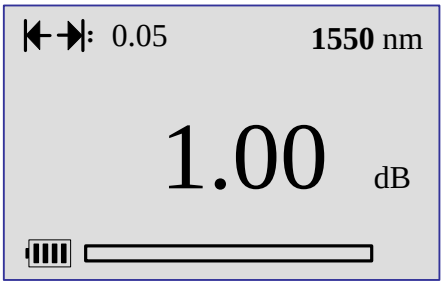


Figure 3.2

3.2 Absolute Attenuation

It is default to enter absolute attenuation mode when OVA-50 powers on; or press  button to absolute attenuation mode, see Figure 3.2;

In absolute attenuation mode, press  button to toggle between the steps of 0.05/0.10/1.00/10.00; press  or  button to adjust absolute attenuation value.

Press  button to insertion loss setting interface, see Figure 3.3.

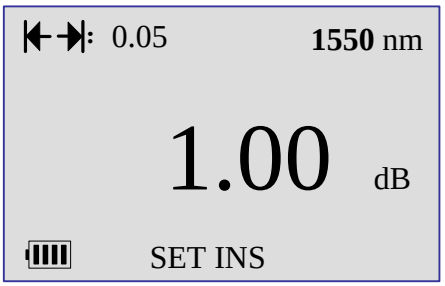


Figure 3.3

Press  button to toggle between the steps of 0.05/0.10/1.00/10.00; press  or  button to adjust insertion loss value; Press  button to confirm and return to the initial interface of absolute attenuation mode.

Note: 1. Function shown in Figure 3.3 is mainly applied before testing to set the insertion loss for jumper fiber and the instrument to ensure accurate attenuation calculation.

2. Once the insertion loss value is set, press  button and OVA-50 will save the value as default minimum attenuation value.

3.3 Relative Attenuation

Press  button to relative attenuation value mode, see Figure 3.4;

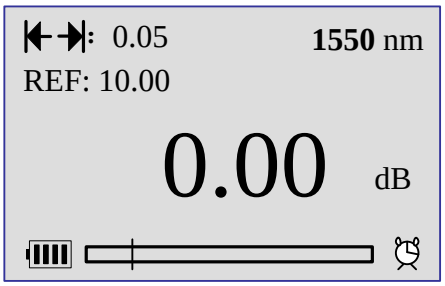


Figure 3.4

Press  button to toggle between the steps of 0.05/0.10/1.00/10.00; Press  or  button to adjust relative attenuation value, then real attenuation value equals set reference attenuation value (See Figure 3.4: "REF: 10.00") plus set relative attenuation value;

In the interface of Figure 3.4, press  button to interface shown in Figure 3.5 and press

or button to adjust relative attenuation value; Press button to confirm and return to the initial interface of relative attenuation mode.

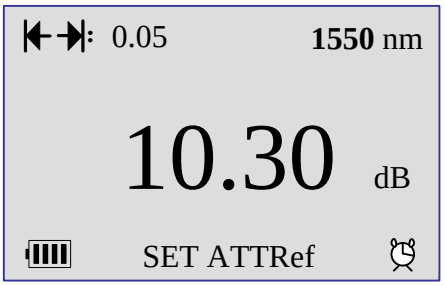


Figure 3.5

3.4 Program

Press button to program attenuation mode, see Figure 3.6

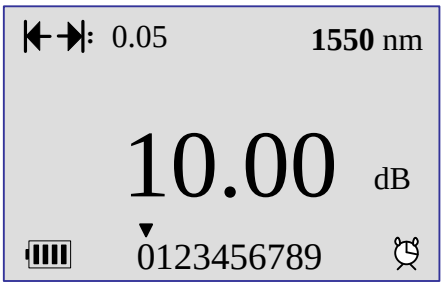


Figure 3.6

There are 10 preset attenuation values in the program attenuation mode; black arrow indicates the currently selected preset.

Press or button to select the preset attenuation value.

Press button, the black arrow on the top of the selected preset will blink, press or button to adjust the value of the current preset attenuation; Press button to toggle between the steps of 0.05/0.10/1.00/10.00; Press button to confirm and return to the initial interface of program attenuation mode.

3.5 Output Power Control

Press  button to output power control mode, see Figure 3.7.

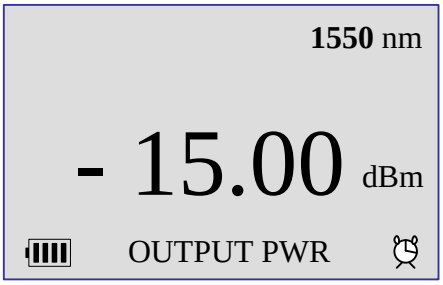


Figure 3.7

Press  button to enter output power setting interface, see Figure 3.8.

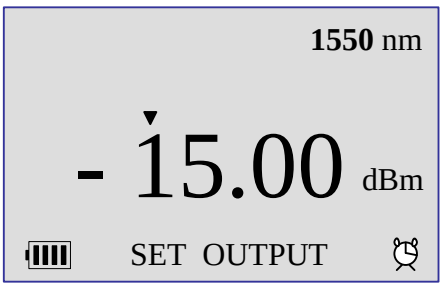
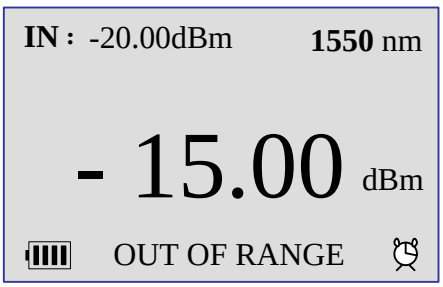


Figure 3.8

Press  button to shift digit position of the output power value; Press  or  button to adjust the value of output power; Press  button to confirm and return to the initial interface of output power control mode.

Note: "**IN: XXXXXdBm**" will display when set value is equal or greater than input value, and "OUT OF RANGE" will display on the bottom of interface, and then the function is invalid.



4. Calibration

4.1 Optical Interface Cleaning

Optical interface must be always kept clean. Always put protective dust cap on when the unit is not in use, and keep the protective dust cap clean.

4.2 Calibration Requirements

Calibration of the instrument is recommended every 3 years. Please contact our representatives or customer service centers for proper calibration.

5. Specifications

Model	OVA-50
Wavelength Range	1260~1650nm
Calibrated Wavelengths	1310/1490/1550/1625nm
Fiber Type	9/125μm Singlemode
Attenuation Range	2.5 - 60dB
Insertion Loss	<2.5dB
Max Input Power	+21dBm
Output Power Range (1)	+18 ~ -55 dBm
Setting Time	<3s
Display Resolution	0.01dB
Attenuation Accuracy	±0.25dB @+25℃ (Output power control mode)
Repeatability	±0.25dB @+25℃
Return Loss	≥55dB
Connector	FC/PC (Interchangeable SC,ST)
Power Saving	Auto-off after 5 minutes idle
Backlight	Yes
Power Supply	Li-Ion Battery/ACAdaptor
Battery Life	Continuous operation >30hours
Weight	345g (0.7 lbs)
Dimensions (H ×W ×T)	177×80×44mm (6.97×3.15×1.73 inch)

Note: (1) Input power level should be at least 3 dB higher than selected output power level;
Input power variations in frequency range <0.5 Hz

* Specifications subject to change without notice

6 Warranty Information

6.1 Warranty Period

All ShinewayTech® products are warranted against defective material and workmanship for a period of one (1) year from the date of shipment to the original customer. Any product found to be defective within the warranty period would be repaired or replaced by Shineway Technologies Inc free of charge.

In no case will Shineway Technologies, Inc liabilities exceed the original purchase price of the product.

6.2 Exclusion

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

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

Shineway Technologies, Inc. reserves the right to make changes to any of its products at any time without having to replace or change previously purchased units.

6.3 Warranty Registration

A warranty registration card is included with the original shipment of equipment. Please take a few minutes to fill out the card and mail or fax it to the local Customer Service Center of Shineway Technologies, Inc. for your product warranty activation.

6.4 Returning Instrument

To return instrument for yearly calibration or other purposes, please contact the local Customer Service Center of Shineway Technologies, Inc to obtain additional information and a RMA (Return Materials Authorization) number. And describe brief reasons for the return of the equipment to help us offer you efficient services.

NOTE To return the instrument in the case of repair, calibration or other maintenance, please note the following:

- Be sure to pack the instrument with soft cushion like Polyethylene, so as to protect the shell of the instrument.
- Please use the original hard packing box. If you use other packing material, please ensure at least 3 cm soft material around the instrument.
- Be sure to correctly fill out and return the warranty registration card, which should include the following information: company name, postal address, contact, phone number, email address and problem description.
- Be sure to seal the packing box with exclusive tape.
- Be sure to ship to your representative or agent of Shineway Technologies, Inc in a reliable way.

6.5 Contact Customer Service

Please check our web site **(www.shinewaytech.com)** for updates to this manual and additional application information. If you need technical or sales support, please contact local Shineway Technologies Customer Service.

Shineway Technologies (China), Inc.:

Address: Fl.7, Zhongtai Plaza, No.3 Shuangqing Rd, Haidian District, Beijing, China

Postal code: 100085

Tel: +86-10-62953388

Fax: +86-10-62958572

Email: support@shinewaytech.com

WEB: www.shinewaytech.com

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SHINEWAY TECHNOLOGIES!

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