

OPM-50
Optical Power Meter
User's Manual



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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 optic output of any working laser source or live fiber. 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: OPM-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.

Ø Always avoid looking directly into the optical output port,

when the instrument is working

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

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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[®] OPM-50 paired with SLS-50 Intelligent Stabilized Laser Source can be used to identify fiber, measure attenuation and loss, verify continuity and evaluate fiber link transmission quality.

Features:

- Ø Automatic wavelength identification
- Ø Automatic loss measurement
- Ø Remote reference value setting
- Ø FTTx applicable
- Ø Internal clock & fiber S/N editable
- Ø Memory of 1000 test records
- Ø Data Transfer to PC via USB
- Ø USB power charging
- Ø No warm-up, quick start
- Ø Backlight
- Ø 125 hours continuous operation
- Ø Pocketsize, lightweight and easy-to-use
- Ø CE FCC certificates

Automatic Wavelength Identification

Compatible with the digital encryption protocols of SLS-50, OPM-50 can automatically identify the wavelength of the optical signals transmitted from SLS-50 and switch to the corresponding test mode, which greatly reduces the workload at both ends and risk of potential error.

Remote Reference Value Setting

OPM-50 can receive the power parameters of digital-encrypted signal transmitted from SLS-50 as reference for precise link loss measurement even the two units are far apart.

Internal Clock & Fiber S/N Editable

Internal clock enables OPM-50 to save test data with time and editable fiber SN information.

Compatible with FTTx Test

OPM-50 can be applied to measure Triple-play signals (1310nm, 1490nm and 1550nm) on Passive Optical Network (PON).

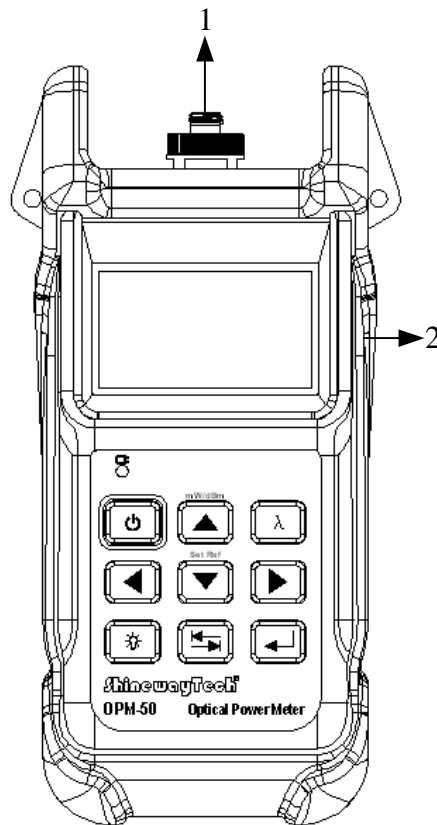
2. Basic Operation

2.1 Foreword

This part introduces the basic operation on OPM-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

OPM-50 is available with FC connector (Interchangeable SC/ST).

2. USB Power /Data Port

OPM-50 can be charged by external power adapter (5V DC, 750mA).

2.2.2 Keypad Operation



Power on/off



Toggle between calibrated wavelengths



Toggle between mW(μ W/nW/pW), dB and dBm;
Adjust reference value in [Reference] interface;
Adjust Cab & Fib value in [Store] interface;
Look up test records in [Recall] interface;
Adjust date and time in [Set Time] interface;
Adjust contrast in [Contrast] interface.



Set current measured value as reference value in [Reference] interface;
Adjust reference value in [Reference] interface;
Adjust Cab & Fib value in [Store] interface;
Look up test records in [Recall] interface;
Adjust date and time in [Set Time] interface;
Adjust contrast in [Contrast] interface.



Toggle between functional interfaces



Shift digit positions or functions in [Reference], [Store], [Set Time] or [Delete] interface



Enter functional interface; Confirm



Turn backlight on/off

2.2.3 Indicator



Charging indicator

2.3 Use of Battery

OPM-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 OPM-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 OPM-50 is not in use for a long time.

2.4 Connector Cleaning

Please follow the instructions below when cleaning:

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

- Ø Distance error increases;
- Ø Linearity error;
- Ø Extra optical power attenuation;
- Ø 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.

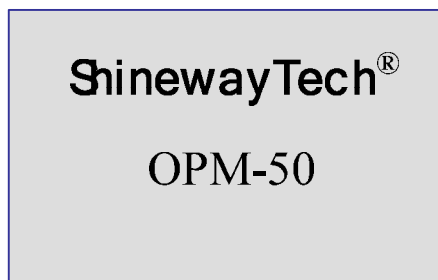
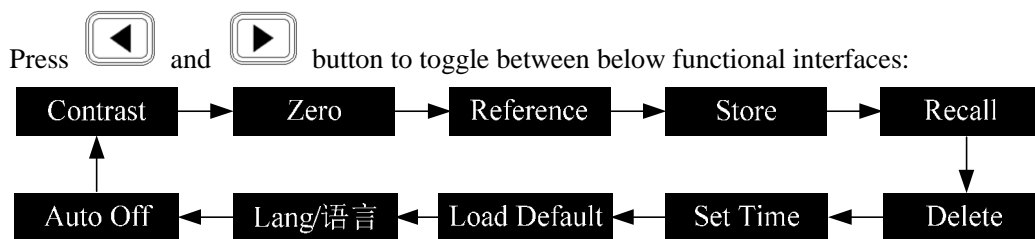



Figure 3.1

Then it enters functional interface (The last interface before last shutdown), see Figure 3.2.





Figure 3.2



Press  button to enter selected functional interface. Please see below the detailed information of each interface.

3.2 Contrast

Press  and  button to [Contrast] interface, see Figure 3.3.

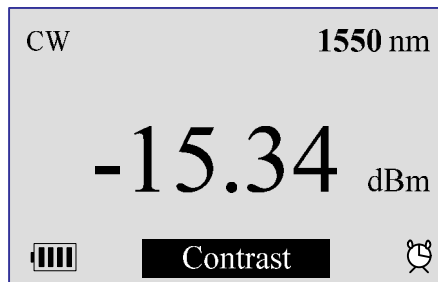








Figure 3.3

Press  button to enter the interface. Press  and  button to adjust contrast and press  button to confirm.

3.3 Zero

Press  and  button to [Zero] interface, see Figure 3.4.

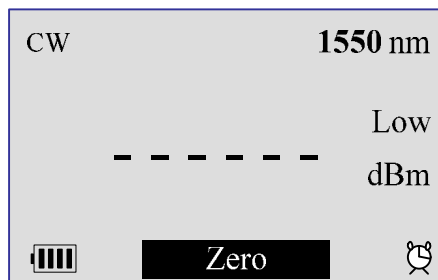



Figure 3.4

Press  button to start zeroing. If zeroing is successful, below screen will appear, please see Figure 3.5.

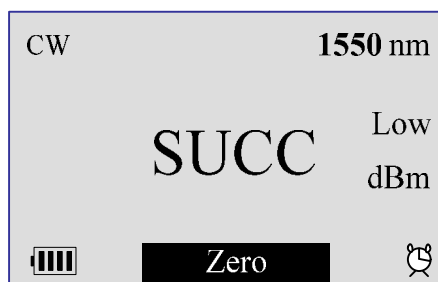


Figure 3.5

If zeroing fails, below screen will appear, see Figure 3.6.

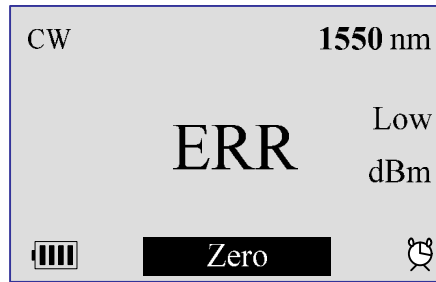


Figure 3.6

Attention:

1. Zeroing is used when measuring low power, e.g. lower than -35dBm to ensure accuracy;
2. Put dust cap on connector when perform zeroing;
3. If “ERR” appears, zeroing fails. Please check the connection between dust cap and connector and redo zeroing.
4. If zeroing still fails, please contact your regional contact or ShinewayTech.

3.4 Reference

Press  and  button to [Reference] interface, see Figure 3.7.

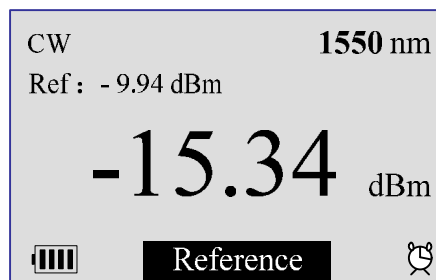




Figure 3.7

In this interface, if the laser source (ShinewayTech laser source with AutoID function) on the other side of the tested fiber enables AutoID, then the optical power meter will automatically identify the incoming signal wavelength and set the reference value sent from the laser source as reference (“AutoID” will appear in this interface) to enhance the testing efficiency and avoid potential operation fault. If the laser source does not enable AutoID

function, user can press  button to set currently measured power value as reference value or manually adjust the reference value.

If you need manually adjust reference value, press  button to enter reference setting interface, see Figure 3.8.

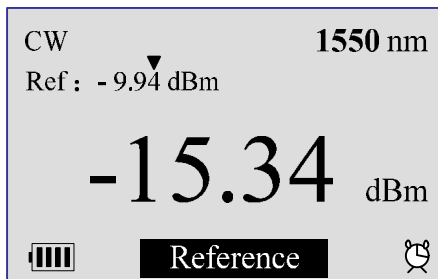






Figure 3.8

Press  button to shift the digit position to be adjusted; press  and  button to adjust the value and press  button to confirm.

3.5 Save Record



Press  and  button to [Store] interface, see Figure 3.9.



Figure 3.9








Press  button to record setting interface, see Figure 3.10.



Figure 3.10

Press  button to shift the digit position of Cab and Fib value to be adjusted; press  and  button to adjust the reference value and press  button to save the record.

3.6 Review Record

Press  and  button to [Recall] interface, see Figure 3.11.

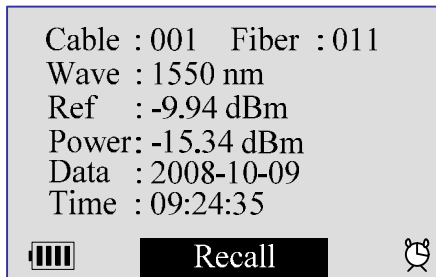




Figure 3.11

Press  and  button to review saved record.

3.7 Delete Record

Press  and  button to [Delete] interface, see Figure 3.12.

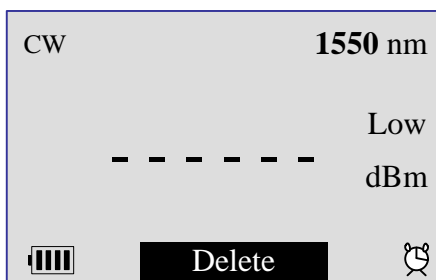


Figure 3.12

Press  button to delete record, see Figure 3.13.

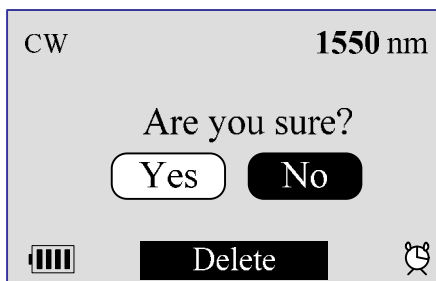






Figure 3.13

Press  button to toggle between “Yes” or “No”, press  button to confirm.

3.8 Set Time

Press  and  button to [Set Time] interface, see Figure 3.14.

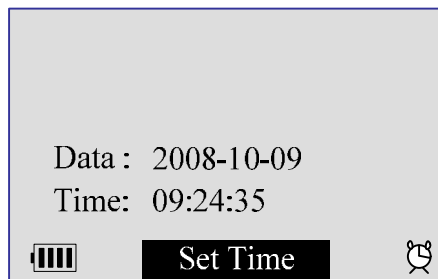






Figure 3.14

Press  button to enter [Set Time] interface, see Figure 3.15.



Figure 3.15

Press  button to shift the digit position to be adjusted; Press  and  button to adjust the value and press  button to confirm.

3.9 Load Default

Press  and  button to [Load Default] interface, see Figure 3.16.

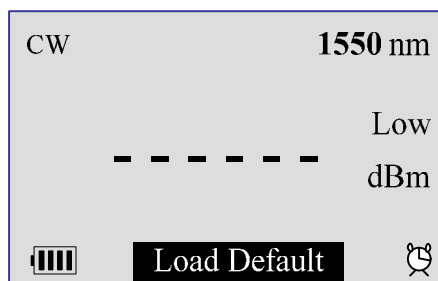



Figure 3.16

Press  button to load default settings, see Figure 3.17.

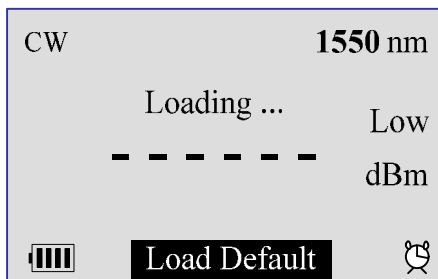


Figure 3.17

3.10 Language Setting





Press  and  button to [语言/Lang.] interface, see Figure 3.18.



Figure 3.18

Press  button to toggle between English and Chinese interface.

3.11 Auto Off

Press  and  button to [Auto Off] interface, see Figure 3.19.

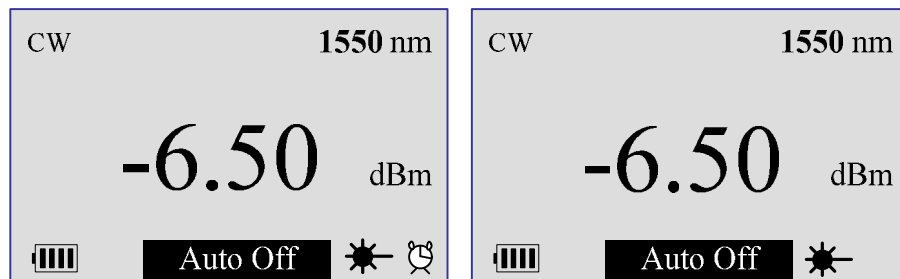



Figure 3.19

Press  button to enable or disable Auto Off function.

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	OPM-50	
	A	B
Calibrated Wavelength	850,1300,1310,1490,1550,1625nm	
Power Range (dBm)	-70 ~ +10	-50 ~ +27
Application Range	Singlemode/Multimode fibers	
Detector Type	InGaAs	
Accuracy	±0.25 dB (5%) @25°C & -10dBm (±0.5 dB@850nm)	
Resolution (dB)	0.01	
MOD Identification	270,1K,2K Hz	
Auto Wavelength Identification	Yes (With SLS-50)	
Display Unit	W/mW/dBm/dB(REF)	
Data Storage	1000 records	
Connectivity	USB	
Connector	FC (Interchangeable SC/ST)	
Power Supply	Lithium Battery/ AC Adapter	
Battery Life	Continuous operation ≥125 hours; Standby ≥250hours	
Power Saving	Auto-off after 5 minutes idle	
Operating Temperature	0°C ~ 50°C (32 ~ 122 F)	
Storage Temperature	-20°C ~ 70°C (-4 ~ 158 F)	
Relative Humidity	0 ~ 95% (Non-condensing)	
Weight	315g (0.69 lbs)	
Dimensions (H × W × T)	177×80×44mm (6.97×3.15×1.73 inch)	

Note: (1) For Model A at 850nm, the lower limit of measurement range is -60 dBm.
 (2) OPM models with Φ1000μm detector are available with:
 FC/SC/ST/DIN/E2000/LC/Universal 1.25mm/Universal 2.5mm connectors.

* 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:

- Ø *Unauthorized repair or modification*
- Ø *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!**

DOC.P/N : MAN-OPM-EN. V300. 04/10