DVP323 Series

User Manual

Version 1.00

Preface

Thanks for purchasing this series Optical Time Domain Reflectometer (OTDR). This manual contains useful information about this series OTDR's functions and operating procedures as well as its handling precautions. To ensure proper use, please read this guide thoroughly before starting the operations.

We make every effort to ensure the accuracy of the contents in this guide. However, should you have any questions or find any errors, please contact your nearest representative. The contents of this operation guide are subject to change without prior notice as a result of our continuing improvements to the instrument's performance and functions. Copying or reproducing all or any part of the contents of this manual without permission is strictly prohibited.

Description of Symbols

Operation information and recommendations

Important operation information to follow to make the use of this instrument more efficiently

To alert users of conditions that could cause damage to the instrument or loss of important data

To alert users of conditions that could cause serious body injuries

This instrument has high power semiconductor laser and its safety conforms with:

FDA21CFR Part 1040.10 standard Ⅰ

IEC825-1(EN60825-1:1994) Ⅲ b standard

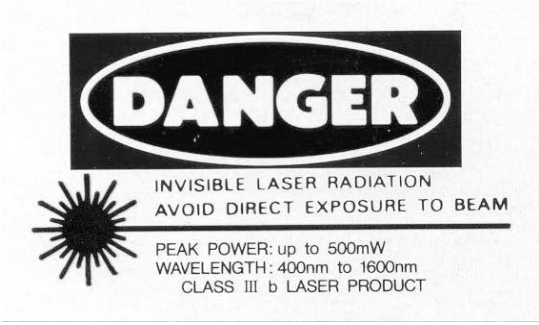


Table of Content

Introduction

Optical Time Domain Reflectometer (OTDR) acquires and analyses the information of backscattering and reflective light propagating in fiber, based on the light backscatter and Fresnel reflection principle, to get the length, loss, fault points, light return loss, connector loss and so on. It is an essential tool for optical cable construction, deployment and maintenance.

The DVP323 series is a high-performance portable OTDR presented in 2017. This series product adopts some new techniques such as touch screen and real-time analysis. The optimized interface makes operations more convenient. Meanwhile the OPM and VFL are standard accessories. It is the best tool for fiber construction, deployment and maintenance.

Features：

- 5 inch touch screen, 800×480 high dot array resolution
- Compact structure design, lighter, thinner and smaller
- Exceptional short distance performance; minimum 0.8m event dead zone; minimum 4m attenuation dead zone
- Support 28dB to 36dB dynamic range of various application demands
- Convenient and fast UE design
- Support OPM and VFL
- Complete data interfaces such as LAN, USB and so on

Component Function

Front Panel

Top protector

Protect instrument from collisions

Hand belt

AUTO key

A single-button automatic test

Bottom protector

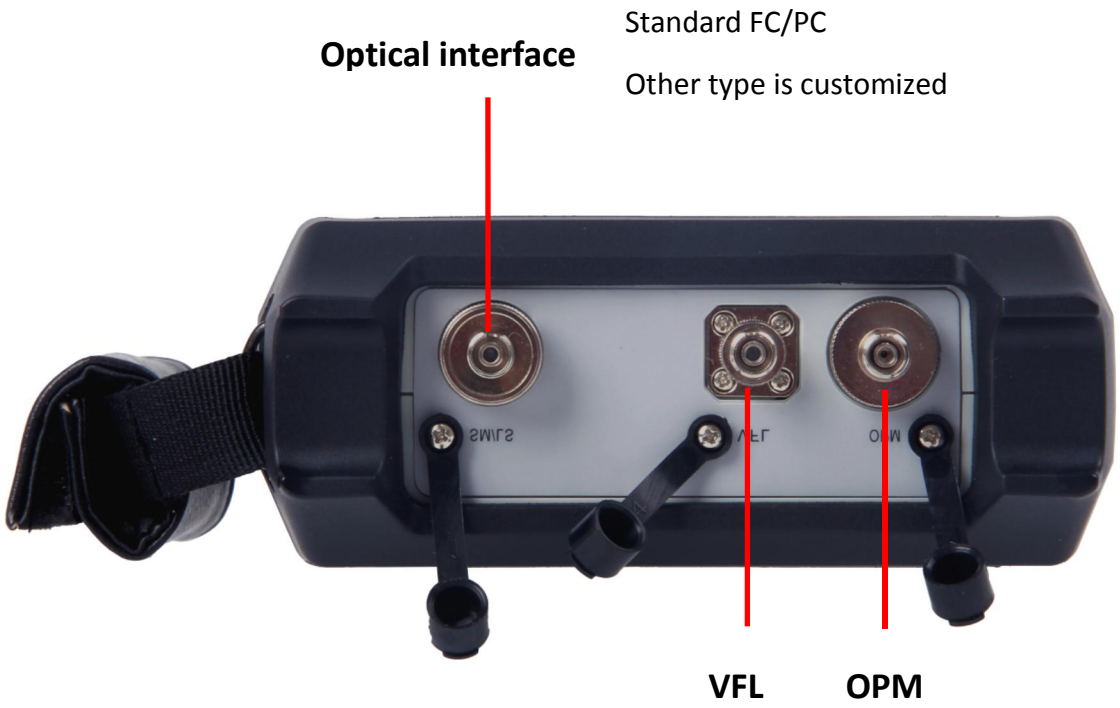
Brightness control

On/Off button

Operation status/Charge indication

Open/Close soft keyboard

Top Panel


Optical interface
Standard FC/PC
Other type is customized
VFL
OPM

Right Panel

Touch Pen

Charge port

Connect AC adapter

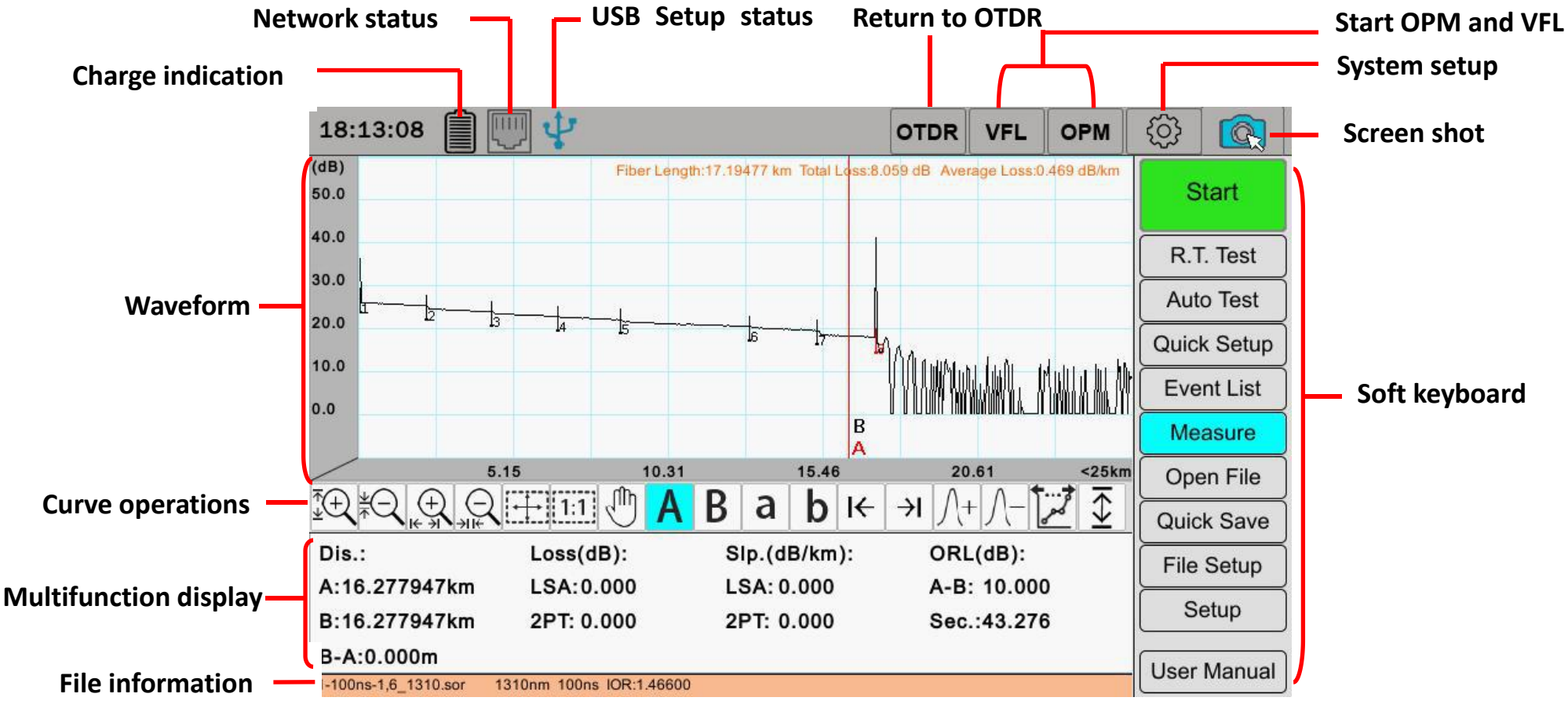
Ethernet port

Connect Workbench remote control

USB port

Connect USB external storage or device

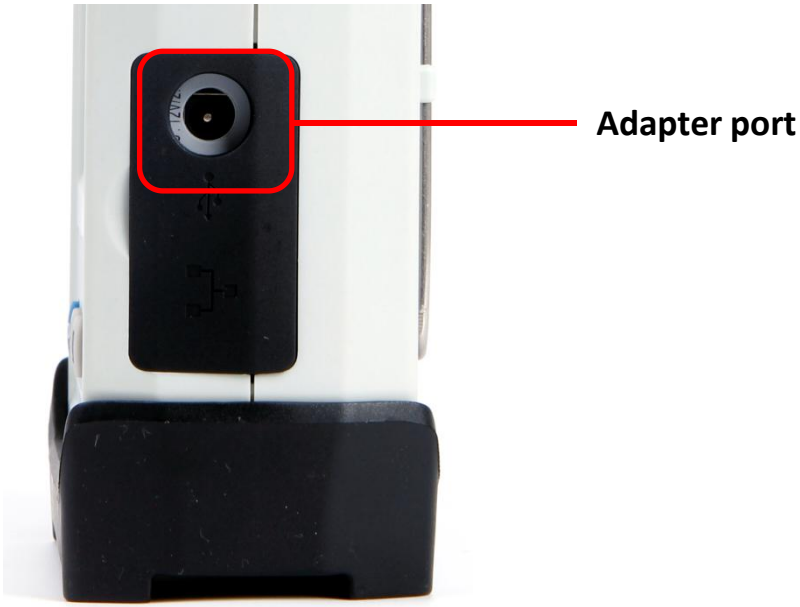
Display


Network status
USB Setup status
Return to OTDR
Start OPM and VFL
System setup
Charge indication
Screen shot
Waveform
Soft keyboard
Curve operations
Multifunction display
File information
18:13:08
OTDR
VFL
OPM
Fiber Length:17.19477 km Total Loss:8.059 dB Average Loss:0.469 dB/km
(dB)
50.0
40.0
30.0
20.0
10.0
0.0
5.15
10.31
15.46
20.61
<25km
Start
R.T. Test
Auto Test
Quick Setup
Event List
Measure
Open File
Quick Save
File Setup
Setup
User Manual
Dis.:
Loss(dB):
Slp.(dB/km):
ORL(dB):
A:16.277947km
LSA:0.000
LSA: 0.000
A-B: 10.000
B:16.277947km
2PT: 0.000
2PT: 0.000
Sec.:43.276
B-A:0.000m
-100ns-1,6_1310.sor 1310nm 100ns IOR:1.46600

Preparations

AC adapter

Adapter AC input : 100~240V , 600mA , 50/60Hz DC output : 12.0V , 2A



Install battery

1. **Crew off 2 screws in the battery cover (red circle in the figure)**
2. **Remove the battery cover**
3. **Install the battery**
4. **Attach the battery cover**
5. **Screw on the screws**

Caution: **Please recharge the battery every 3 months.**

Power ON/OFF

Power ON：

1. **Press button on the panel for more than 2s;**
2. **The lightening of the LCD means turning on. Stop pressing.**

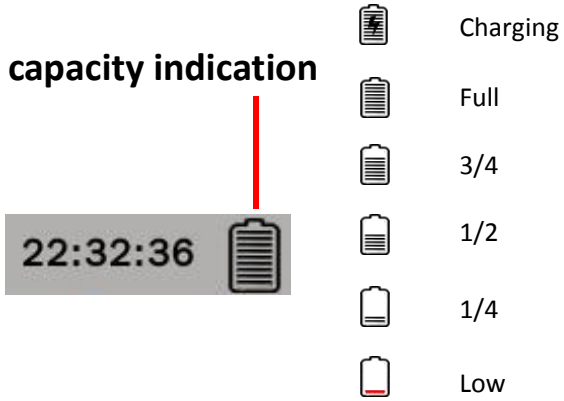
Power OFF：

1. **When the instrument is in operation, press button, and the shutdown interface would pop up;**
2. **Click on to cancel the operation;**
3. **Click on to turn off the screen and shut down the instrument;**
4. **Click on to enter the standby mode. Press any key to wake it up;**

When the instrument is in operation, long press (more than 5s) the button to shut it down directly.

Please charge the battery when it starts to alarm because of the low battery.

Battery capacity indication



LED for charging status

Red： Charging

Green： Full

Connect Fiber

Before using the OTDR to measure, the operator should ensure that the type of fiber connector is consistent with the instrument's optical connector and please prepare cleaning tools to clean the fiber interface.

Otherwise, it will affect measurement accuracy and potentially cause serious damage to the equipment.

To ensure the instrument functioning properly and obtain the best test result, you should always clean the fiber end with ethanol (ethyl alcohol or pure alcohol) before connecting to the laser interface. Wait until the alcohol is volatilized before connecting the fiber to the instrument.

When the fiber is disconnected from OTDR, cover the laser interface with its cap immediately to avoid dust or dirt getting into the laser interface.

Do not look directly into any live fiber or direct laser light. Wear appropriate protective eyewear. Otherwise, it can cause blindness or damage to the eye.

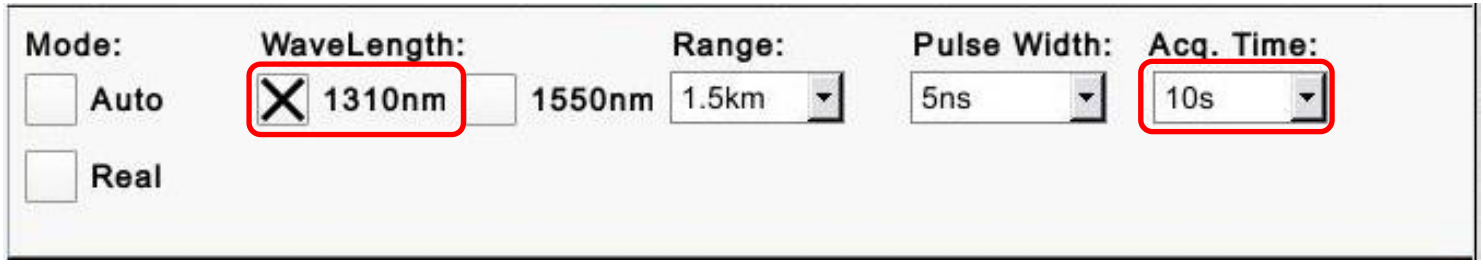
Start Test

Auto Test

Two ways for starting Auto Test:

- **Single-button automatic test**

1. **Press** Quick Setup **to set up wavelength and measurement time;**



2. **Press** AUTO **or** Auto Test **to start measurement.**

NOTE

Press Setup **to enter advanced setup interface for more detailed setup information.**

3. After starting the measurement, it will check the port and link state first, and the following prompt bar will be displayed at the bottom of the interface:

4. The progress bar will appear after starting measurement:

5. In this process, press 

again or 

to stop testing.

6. The test curve will display on the screen after the testing finished or stopped.

- **Set Auto Test mode**

1. **Press** Quick Setup

2. **Select Auto mode and set up wavelength and measurement time.**

3. **Press** Start **to start testing.**

4. **Press** AUTO **or** Stop **to stop testing.**

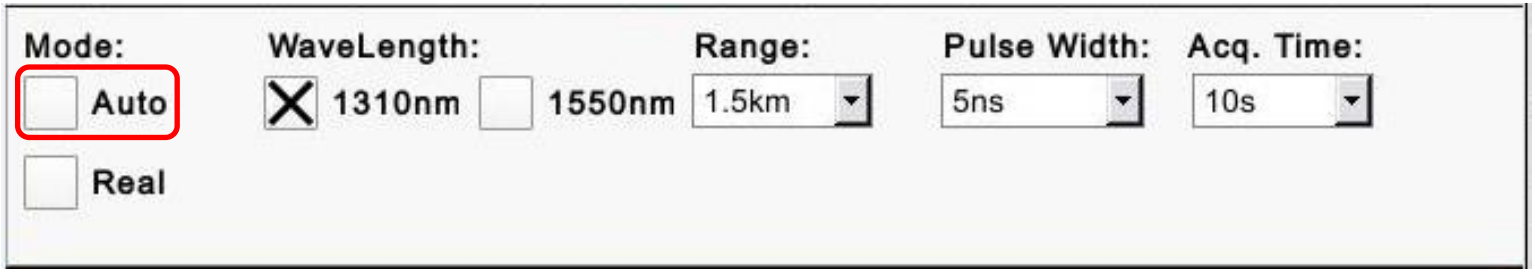
NOTE

Press Setup **to enter advanced setup interface for more detailed setup information.**

Manual Test

Manual Test is a professional mode. User can set test parameters according to the actual situation of the optical cable.

1. **Press** Quick Setup
2. **Select Manual mode(cancel Auto mode)**



3. **Select proper wavelength, range, pulse width, testing time**
4. **Press** Start **to start testing.**
5. **Press** AUTO **or** Stop **to stop testing.**

NOTE **Press** Setup **to enter advanced setup interface for more detailed setup information.**

Real-Time Test

In Real-Time mode, there is no limit of measurement time. The testing should be stopped manually and cannot generate event list.

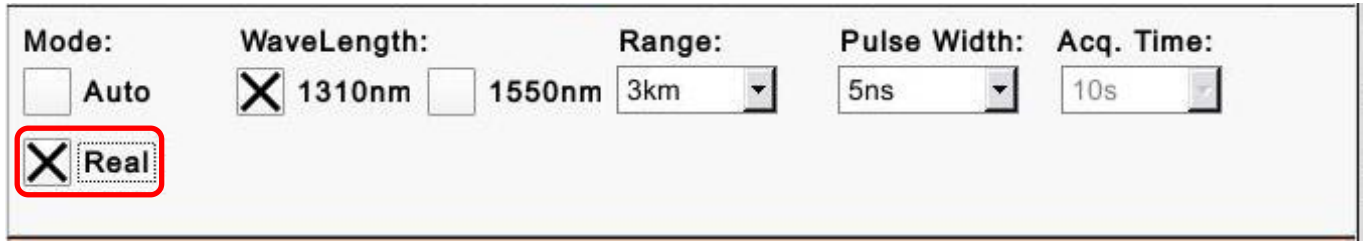
- **Start Real-Time Test with single button**

Directly press R.T. Test **to start Real-Time Test with current parameters.**

- **Set Real-Time Test mode**

1、Press Quick Setup

2、Select Real-Time mode and select proper parameters.



3、Press Start **or** R.T. Test **to start Real-Time Test.**

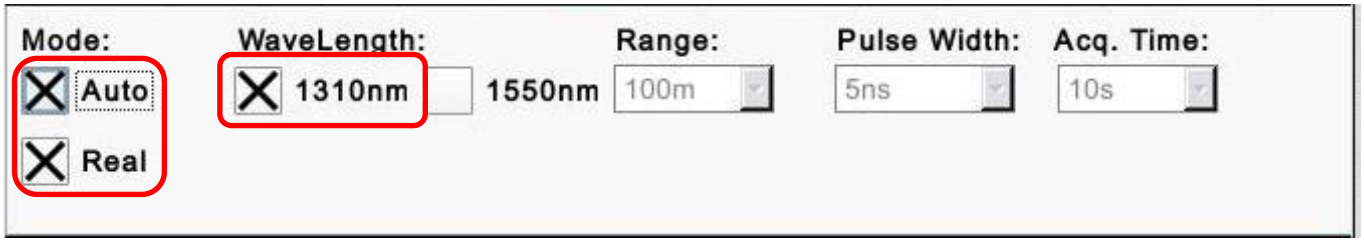
4、The following prompt bar will display in testing process:

Auto-R.T Test

Auto-R.T Test is making the OTDR set parameters such as range and pulsewidth automatically and operating Real-Time test.

1、Press Quick Setup

2、Select both Auto and Real mode and set wavelength



3、Press Start **to start testing**

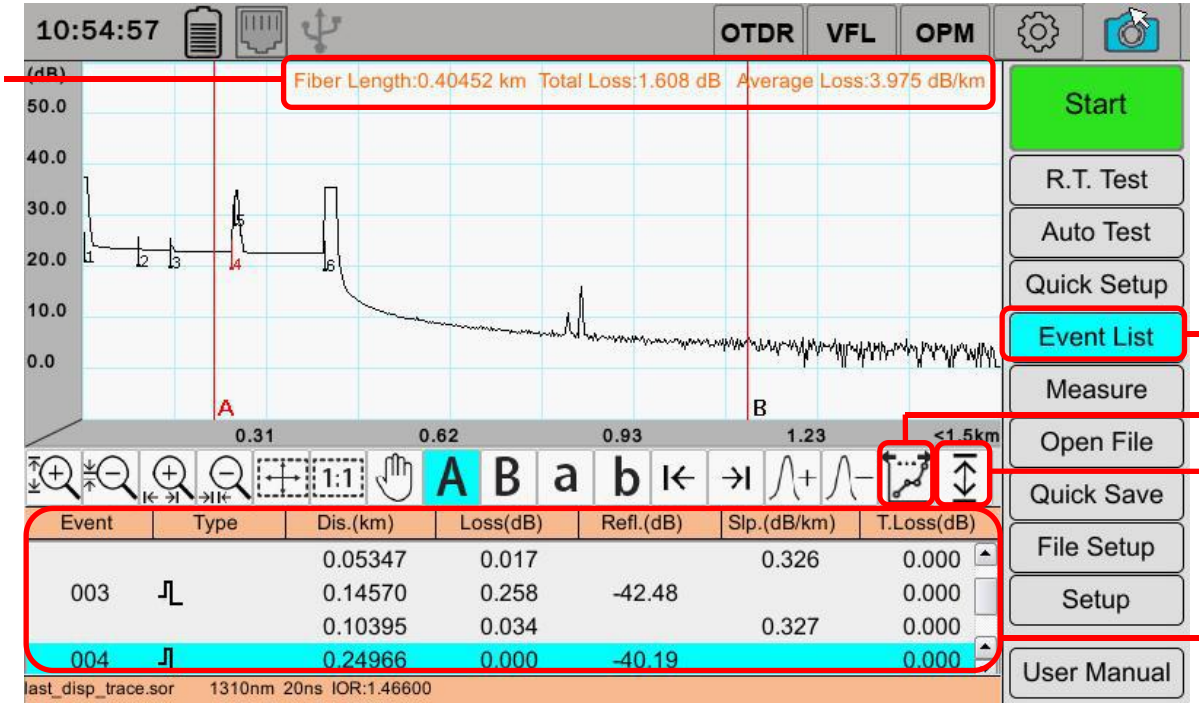
4、The following prompt bar will display in testing process:

NOTE

In Auto-R.T test mode, the testing should be stopped manually same as Real-Time test, and cannot operate curve analysis and generate event list.

Analyzing the Results

Quick check of results



Click Multi-function area displays event list

Click Toggle traces of different wavelengths （available for multi-wavelength test）

Click Event List to expand （available to expand twice）

Event List

Add event: press this button, and an event will be added at the cursor position conforming to the event rule.

Delete event: press this button to delete events selected currently.

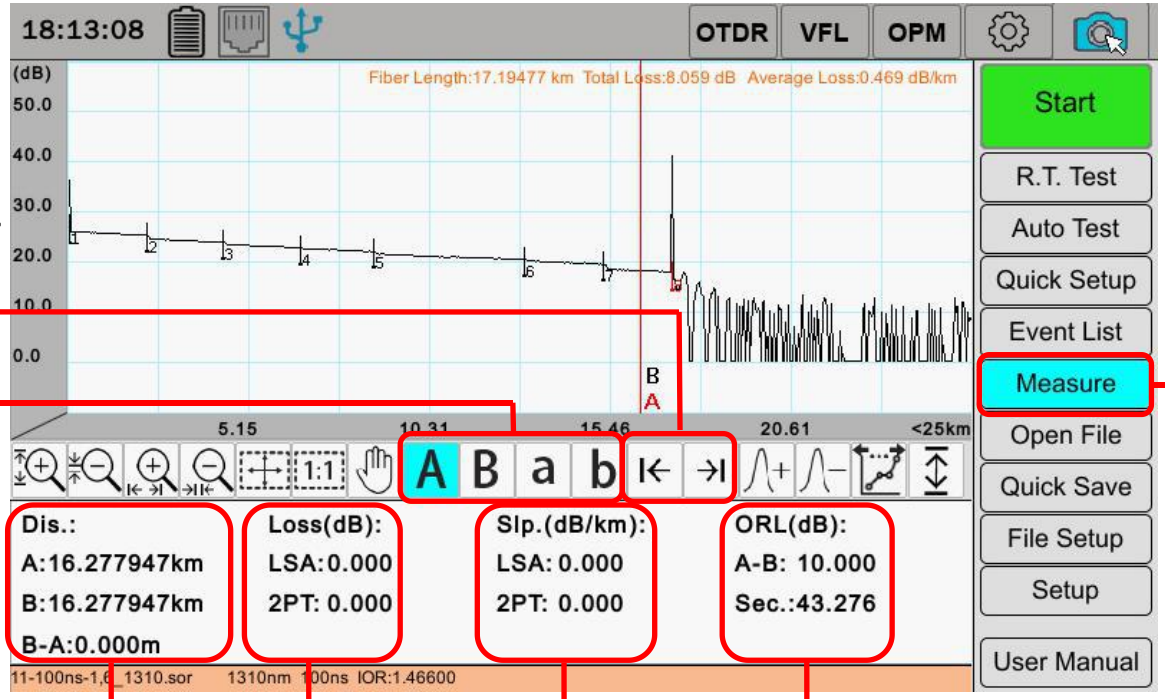
Select event in the Event List, and the corresponding event on the curve will be marked.

Curve Test

NOTE

LSA—Least square attenuation, 2pt—Two point method

Click any position on the curve gently, the currently selected cursor will automatically jump to that position.



Fine-tuning cursors or select with the touch pen

Select cursor

Click Multi-function area displays test information

Cursors distance

Cursors loss

Cursors mean loss

Cursors ORL Link ORL

Zoom&Move

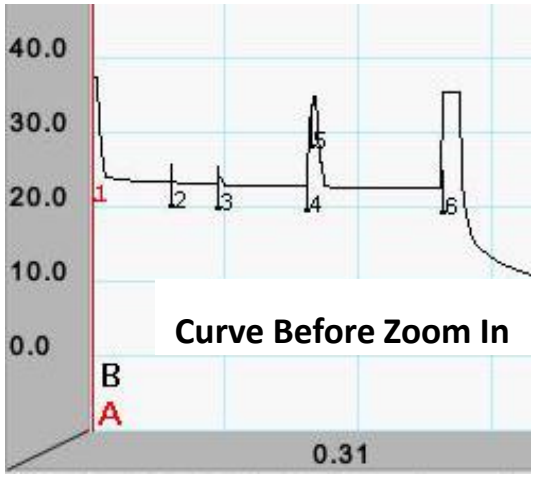

V. Zoom In

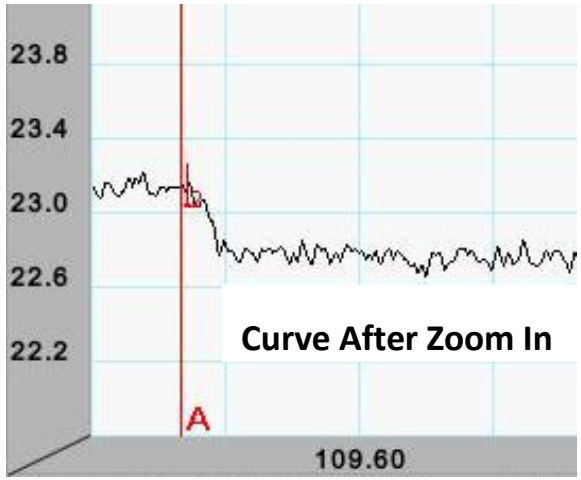

H. Zoom In

Original graph


V. Zoom Out


H. Zoom Out





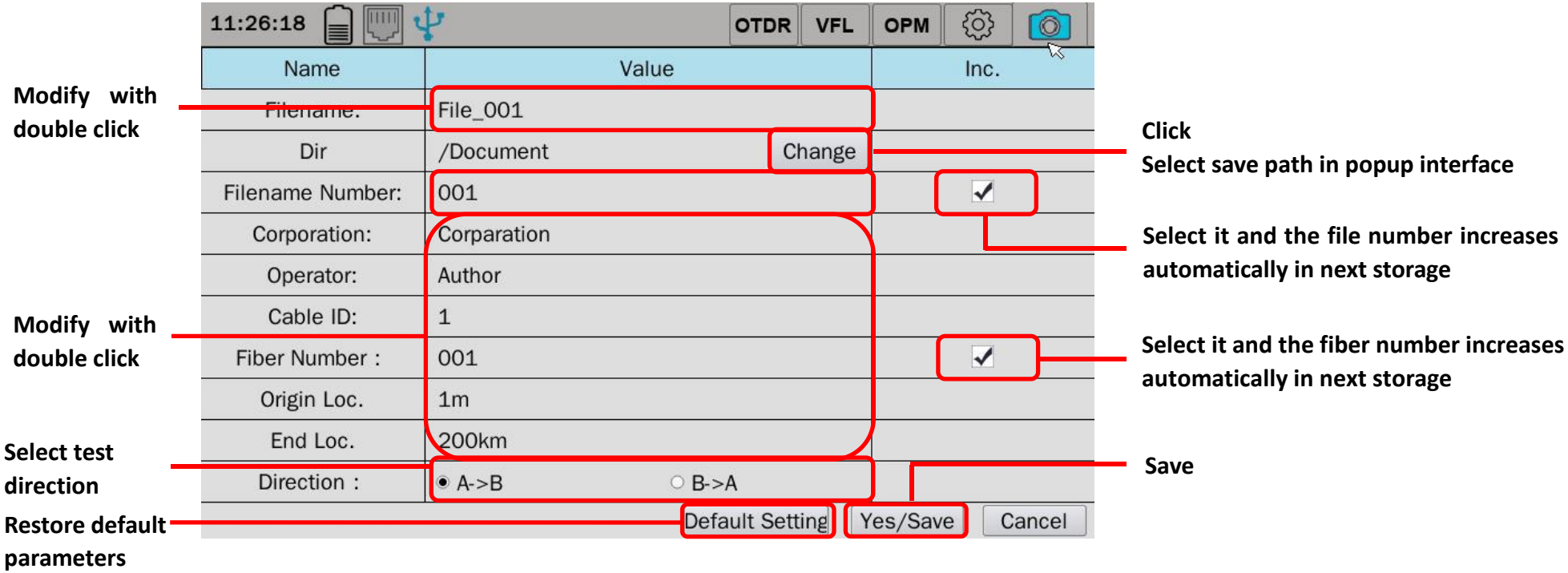

Move: select this key and drag the curve directly to make the display area on the screen move.


Magnify area: select this key and press on the curve with the touch pen and drag the curve, the selected area will be magnified automatically in horizontal and vertical direction.

In addition to the area magnified function, the focus of other operations is based on the active cursor.

Save test result

1. Press File Setup to enter File Setup interface.



2. When finish the settings, press Quick Save directly to store every testing result quickly.

NOTE

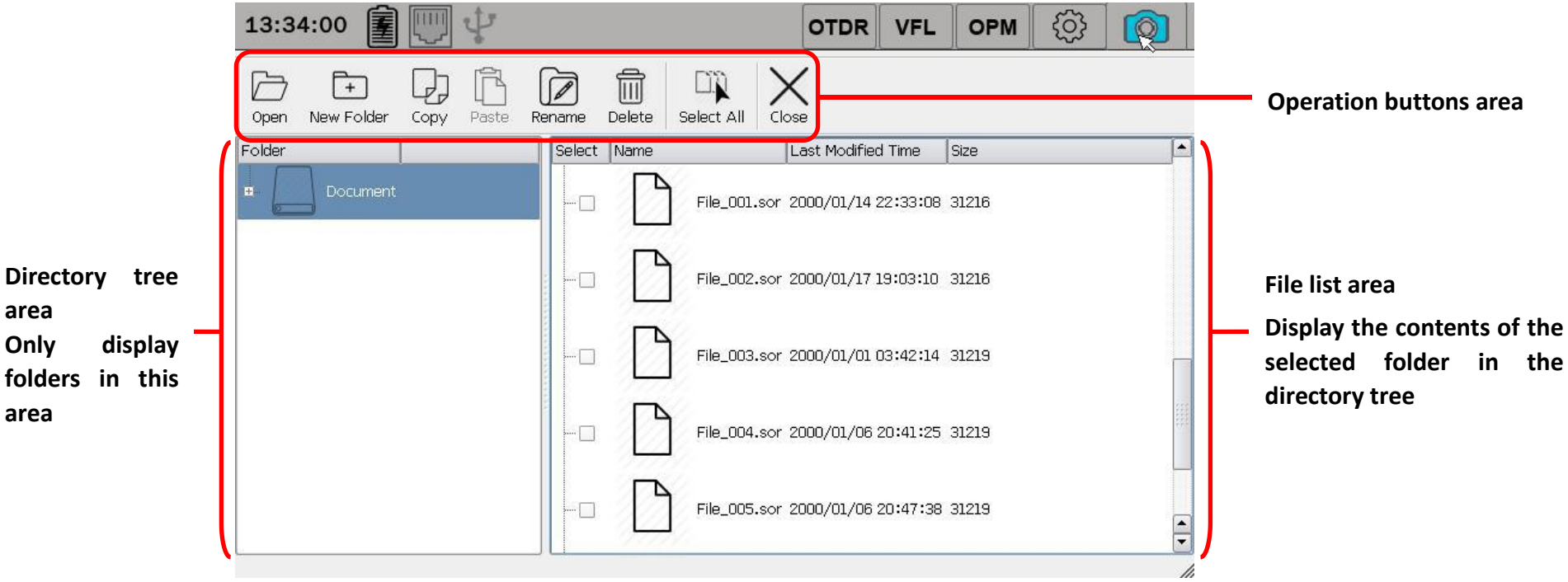
Press icon to open or close the soft keyboard.

File Management

- Open File Management function

Press 

to open File Management interface.



- Exit File Management

Press 

in operation buttons area to exit File Management function.

Open test result file(sor file)

1. In right file list area, click to select a sor file

2. Press 

in operation buttons area

3. The interface will automatically return to the test interface and display the opened file

Export file

1. In right file list area, select the file(s) to be exported(allow to select multi files)

2. Press 

button

3. Select the target folder in left directory tree

4. Press 

button, the selected file(s) will be copied to the target folder

The names of the copied file and the file in the target folder cannot be same.

New Folder

1. Press 

in operation buttons area, the soft keyboard and new folder dialog box will pop up.

2. Enter a new name of folder with the soft keyboard.

   If input Chinese, it needs to switch to the Chinese input mode first as shown below:

3. Close the soft keyboard after inputting finished and press ‘OK’ in new folder dialog box.

Press  **icon to open or close the soft keyboard.**

Rename

1. Select the file to be named in right file list.
2. Press 

button in the operation area, the soft keyboard and rename dialog box will pop up.
3. Input new name with soft keyboard(see last page)
4. Press ‘OK’ button after inputting.

Delete

1. Select file(s) to be deleted in right file list.
2. Press 

button in the operation button area.
3. Press ‘OK’ in popped up box to delete file(s).

Selct All/Unselect

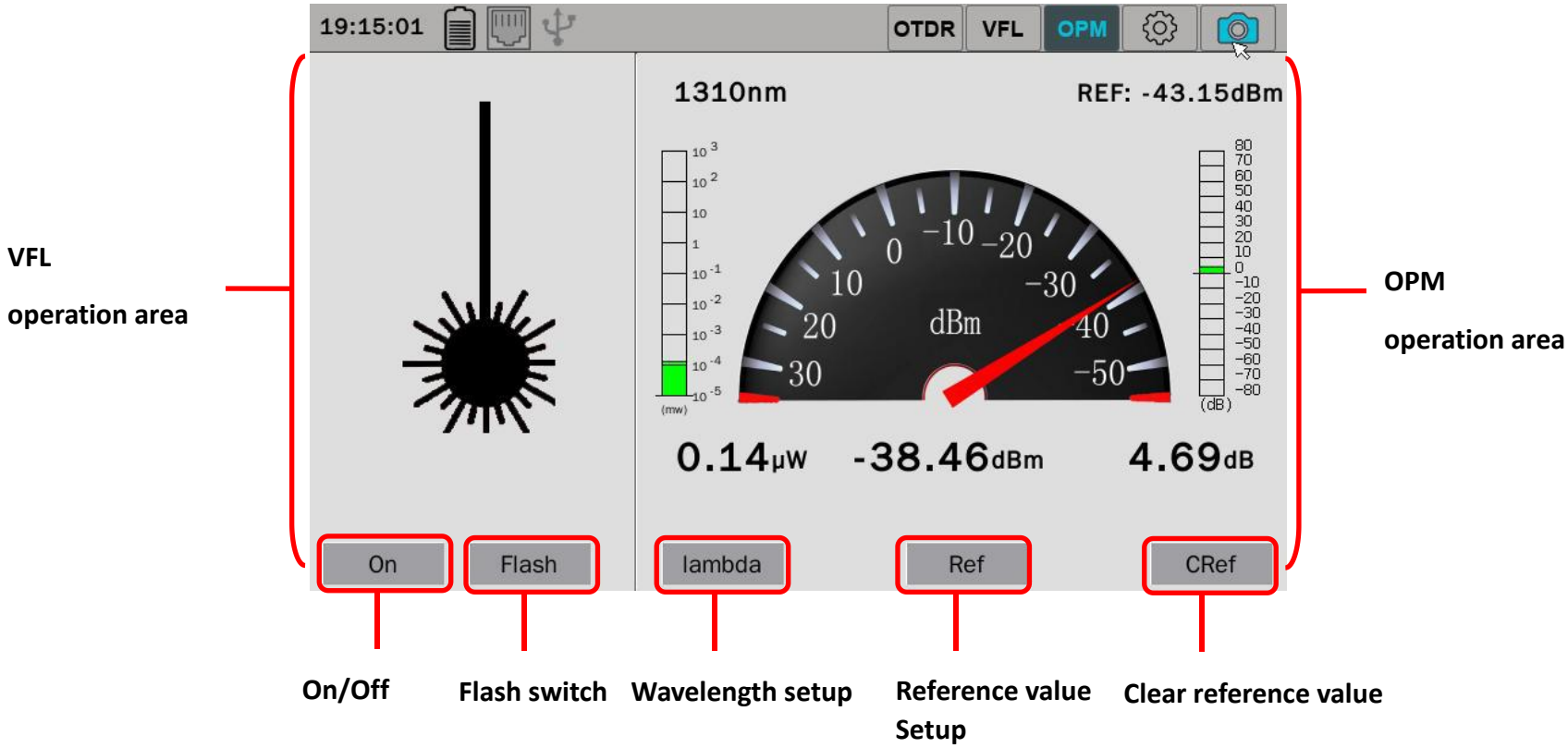
1. Press 

button in the operation area, all files in right file list will be selected.
2. Press 

button to cancel selection of all files.

VFL and OPM

In testing, Setup and File Setup interfaces, press OPM or VFL in the title panel to start OPM and VFL function.



VFL

- Open VFL

  Press On button in VFL operation area to open VFL.

- Open VFL Flash

  Press Flash button in VFL operation area, the VFL will begin to flash.

- Close VFL Flash

  Press CW button to close flashing, and a continue wave will be launched.

- Close VFL

  Press Off button in VFL operation area to close VFL.

Don’t look straight at the beam, it may cause damage to one’s body.

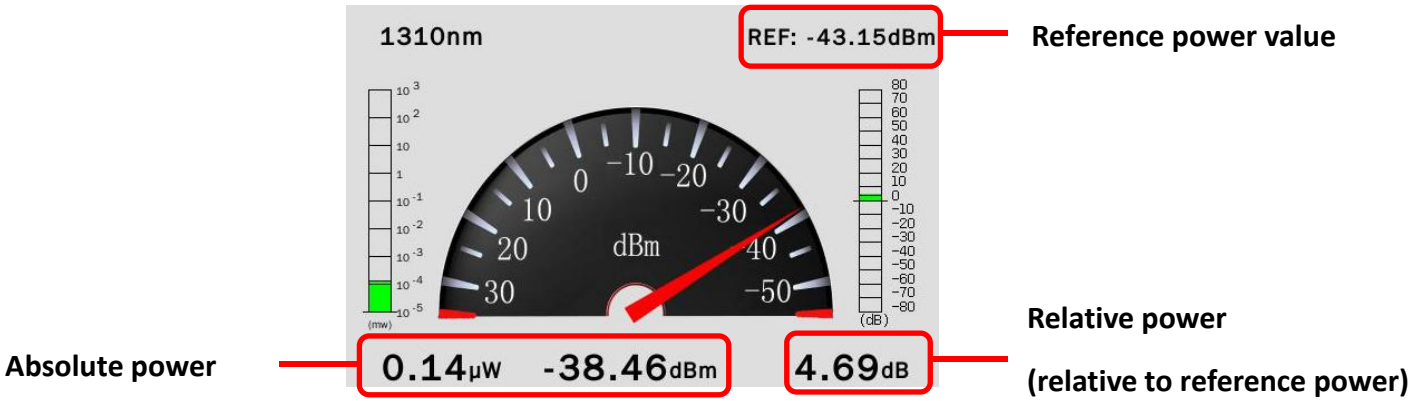
OPM

- Toggle Wavelength

Press lambda button in OPM operation area to toggle wavelength among 1310nm、1490nm、1550nm、1610nm、1625nm、1650nm、850nm、980nm、1300nm circularly.

- Set Reference Power

Press Ref , the current power could be set as reference power. After setting the reference power, the next measured power value, relative to the reference power, will display on the right.



- Cancel Reference Power

Press CRef to cancel the reference power being set before, while the relative power display is cancelled.

System Function

- **Press  in the title panel to enter the System Function interface.**

Time setup

1. Press  (time)icon to start Time setup program;
2. Click date, month and year to set time with a touch pen. Then click on to set second, minute and hour successively;
3. Press ‘OK’ to finish the setting.

Netsetting

1. Press  (Netsetting)icon to start netsetting program;
2. If use DHCP function, set the DHCP switch to ON state;.
3. If close DHCP function, set the DHCP switch to OFF state, while set IP address, gateway, subnet mask and DNS(input with soft keyboard);
4. Press ‘OK’ to finish the setting.

Appmanager

1. Press  (Appmanager)icon to enter the Appmanager window;
2. Insert USB disk stored application programs;
3. Press ‘Add Module’ list item at the bottom to make it white.
4. Press ‘Add’ icon, it will identify the application programs in the USB disk automatically and show them in the new popped up list;
5. Select the program needed to be added;
6. Press ‘Install’ to start the installation of application program.

Touchscreen Calibration

1. Press  (Calibration)icon to start calibration program;
2. Click on  cons displayed on the screen successively with a touch pen;
3. The program returns to the main screen automatically, and the calibration is finished.

Check Disk

1. Press (Disk)icon to start disk display program;
2. The used size and available size of disk will be shown in pie graph and text form two ways.

Auto Shutdown/Sleep

1. Press (Shutdown)icon to start the shutdown program;
2. If start the Shutdown function, click to select 'Shutdown time' and set required time;
3. If start the Sleep function, click to select 'Sleep time' and set required time;
4. Press 'OK' to make settings effective.

NOTE **When start Auto Sleep mode, press any key to wake up the screen.**

Language setup

1. Press (Language)icon to start language setup program;
2. Select target language;
3. Press 'Yes' button. Shutdown the instrument and start it again to make the language setting effective.

Upgrade

1. Press (Upgrade)icon to open the Upgrade window;
2. Insert USB disk stored system program, it will identify the corresponding upgrade application program;
3. Select 'System' and then pop up a dialog box;
4. Confirm it and enter the upgrading process. It is finished after automatic restarting of the platform.

Attention:

1. **Please make sure that the needed upgrade program is in the U disk or SD card, and the U disk or SD card could be accessed by the platform.**
2. **Do not remove the battery in any upgrade process.**
3. **Do not remove the U disk or SD card in any upgrade process.**
4. **In order to upgrade successfully, AC adaptor must be used during the process, and make sure the platform has enough available flash place.**

Trouble Shooting

Connection State

If the connection state is bad, or it alarm for strong reflection, please clean or replace the connector. It will cause the instrument to fail or not working properly.

Signal on Fiber

Alarm about the signal on fiber after starting the measurement or in the measurement process.

Please make sure to stop the measurement, otherwise it can severely damage the instrument. Start measuring again after closing the signal on the fiber.

Setup Problem

The trace is too short—Increase the distance range

Noise too large—Increase measurement time and pulse width

Events incomplete—Reset the threshold to Auto

Resolution Low—Reset the high resolution

Blank screen or fail to boot

The battery is depleted .Charge the battery.

Improper use of charger

Battery is damaged. Replace a new one.

Hardware faults. Return it to the factory for repair.

NOTE

This instrument has been calibrated, and in order to get more accurate testing result, calibrating it every 2 years is recommended.

Customer Service and Support

Company warrants this instrument against defects for 24 months from the date of shipment. Customer can buy extended-warranty for 12 months before the warranty is up which costs 6% of the instrument's price, but not includes the followings:

1. The build-in optical connector adapter is not covered in the warranty. It carries a three-month warranty.
2. The built-in battery is not covered in the warranty. It carries a 12-month warranty.
3. Charge for replacement due to the optical connector damages caused by improper use or harmful cleaning is required.

Exclusions in warranty：

1. Any fault caused by improper operations because the user fails to comply with this manual specification. Such as the damages of APD and its subsidiary circuits due to the measurement of a fiber with a signal light.
2. Warranty tag is removed. Non-authorized personnel of DVP Company open the instrument casing for repair or dispose faults.
3. Damages caused by external mechanical forces, soaking, extreme heat or cold, and fire.
4. Damages of the instrument, accessories and software due to improper operations or non-authorized modification.
5. Damages caused by the usage of product. Any fault caused by other equipment connected to the instrument.

Service and Maintenance

Send your instrument for services or maintenance.

1. Please contact your local distributor where you purchased from or contact our customer service center listed in this guide. Our representative will determine whether your equipment needs to be tested, repaired or calibrated.
2. Please backup your data before sending it in for repair.
3. Please try to use the original packaging materials and attach a statement to describe in detail of what the observed problems were.
4. Please return the equipment to your local distributor or our local repair center with freight paid.
5. After repair is done, we will return the equipment with a repair report. If the instrument is under warranty, we will pay the return freight. If the instrument is no longer under warranty, you will be responsible for the cost listed on the repair report.

Attention:
After testing, if the returned equipment is found to be working properly and meet all the applicable standards, all related costs will be charged to the user.

NanJing DVP O.E. TECH. CO, LTD

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