



Optical Fiber Tester

USER'S MANUAL

Warning

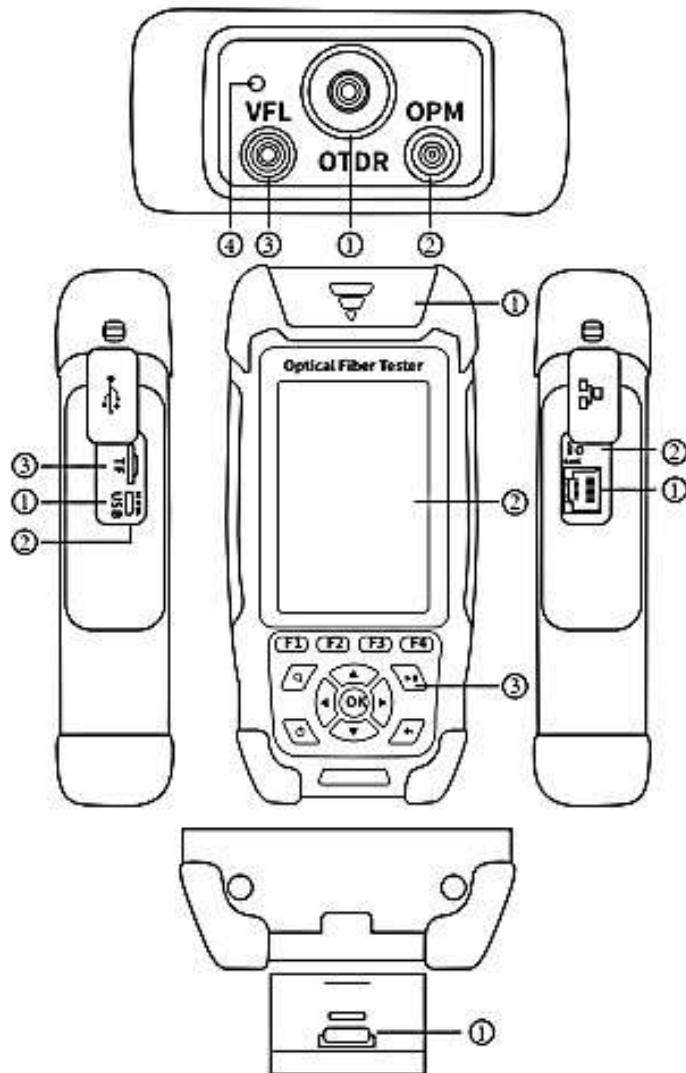
When using this instrument, please do not look directly at the optical interface or the end of the optical fiber with your eyes, avoid eye damage! Any change or modification not explicitly permitted in this manual will deprive you of the right to operate the equipment. To reduce the risk of fire or electric shock, do not expose the equipment to thunderstorm or humid environment. In order to prevent electric shock, do not open the shell, it must be repaired by the qualified personnel designated by the manufacturer.

Attention

Battery: The battery in the machine is a special lithium-ion polymer battery. The charging voltage is 5V, and the charging temperature ranges from $0^{\circ}\text{C} \sim 50^{\circ}\text{C}$. When the ambient temperature is too high, the charging will automatically terminate. When the instrument is not used for a long time, the battery should be removed. The temperature range of the battery during long-term storage is $-20^{\circ}\text{C} \sim 45^{\circ}\text{C}$.

Please use the special AC adapter attached to this instrument and use the external power supply strictly according to the specifications, otherwise the equipment may be damaged.

LCD screen: The display of this series of instruments is 3.5 inch color LCD. In order to maintain good viewing effect, please keep the LCD screen clean and clean. When cleaning, the LCD screen can be cleaned by wiping with soft fabric.



Top view

- ① OTDR/LS Port
- ② OPM Port
- ③ VFL Port
- ④ Flashlight

Right side

- ① RJ45 Interface
- ② Reset button

Main view

- ① Dust Cover
- ② 3.5 inch Color LCD
- ③ Function Keys

Left side

- ① Micro USB
- ② Charging LED Indicator
- ③ TF Card Port

Bottom view

- ① RJ45 Remote tester

Functional keys

Correspond to the operation menu below the screen.

**Zoom key**

Zoom function key, combined with direction keys to operate.

**Measure key**

Press to start or stop the test under the OTDR interface

ON/OFF key

Short press to turn on, long press to turn off; after turning on, short press to turn on or off the flashlight.

Exit key

Return to the previous menu

OK key

Enter the next level of interface, Enter function

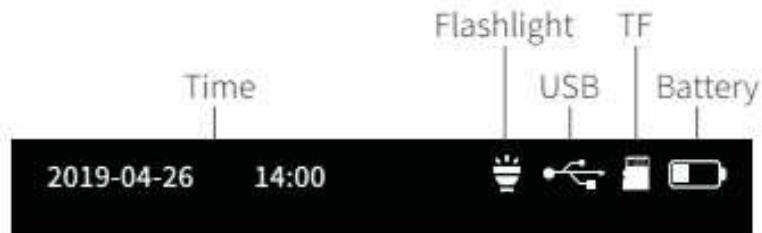
Directional keys

Up and down choice, right and left choice

Main Interface

4.

Turn on and enter the main menu. There are eight functional modules. Select the module by pressing the direction keys, and then press the "OK" key to enter the corresponding functional interface.



OTDR

5.

F1: Enter the parameter setting interface

F2: Switching A/B cursor

F3: Enter the save interface

F4: File or Folder operation

Link Information

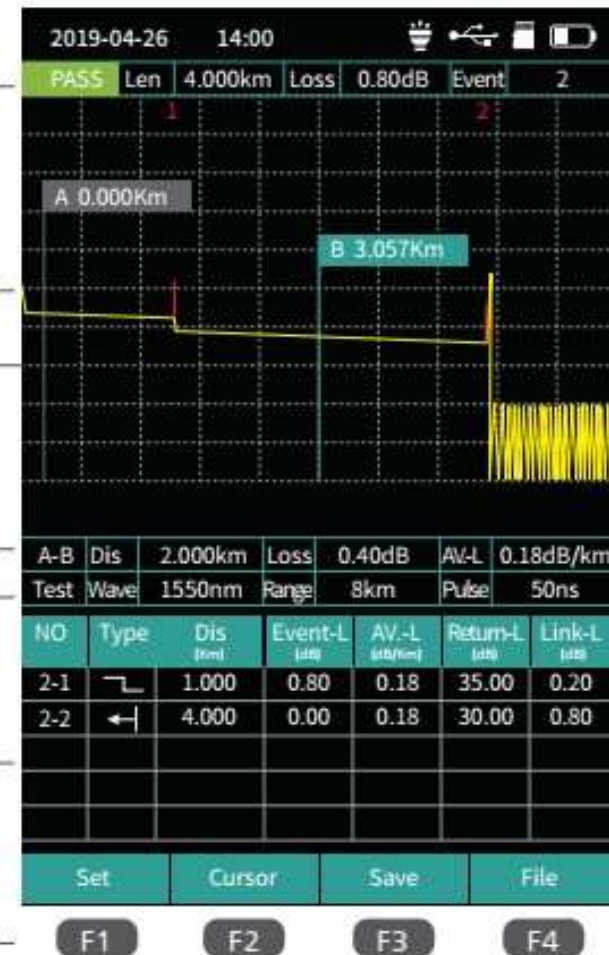
Waveform

A/B cursor

A/B Information

Test Conditions

Event List



OTDR Setting Interface

6.

OTDR setting interface

Enter the parameter setting interface. Multi-digit settings, through the left and right key positioning cursor, up and down selection.

▲▼: Choosing settings items.

Press OK button to confirm or edit corresponding measurement parameters.



F1: Test

F2: OK

F3: Recovery

F4: Cancel




Test Results

7.

Link quality and information can be viewed from the top after the test is completed, Link information includes length, total loss and number of events.

Detailed event information can be viewed from the event list.

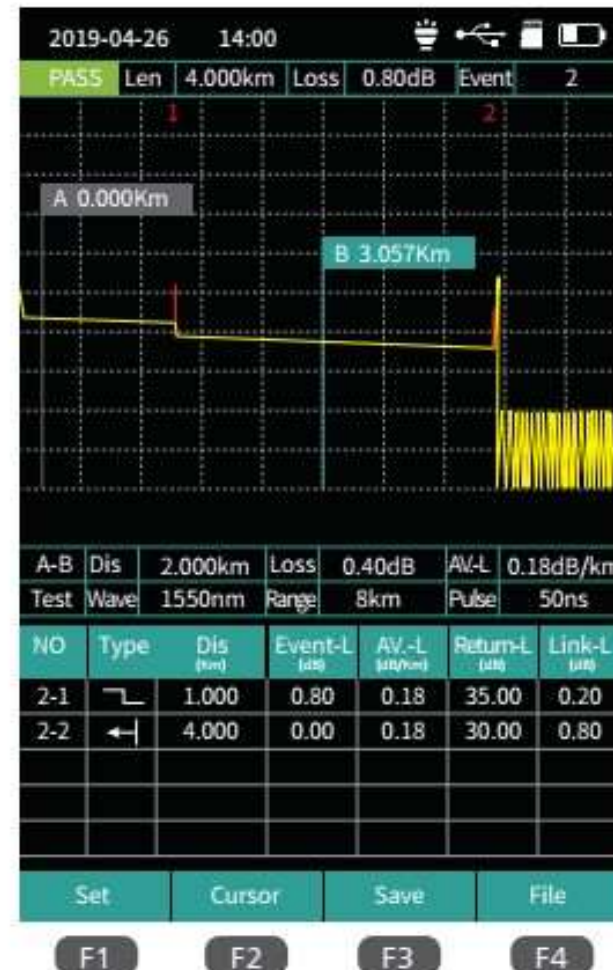
There are Four types of events:

Reflective event ————— 

Non-reflective event ————— 

Fiber splitter ————— 

Fiber end ————— 



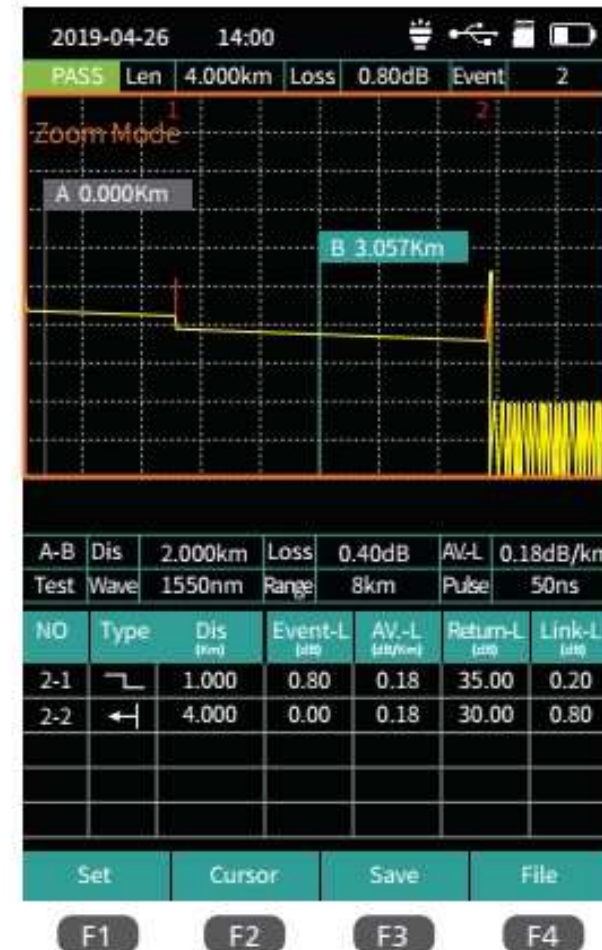
OTDR-Zoom mode

8.

Press  to enter zoom mode

 X-axis direction zoom in
 X-axis direction zoom out
 Y-axis direction zoom in
 Y-axis direction zoom out

Press  1:1 display

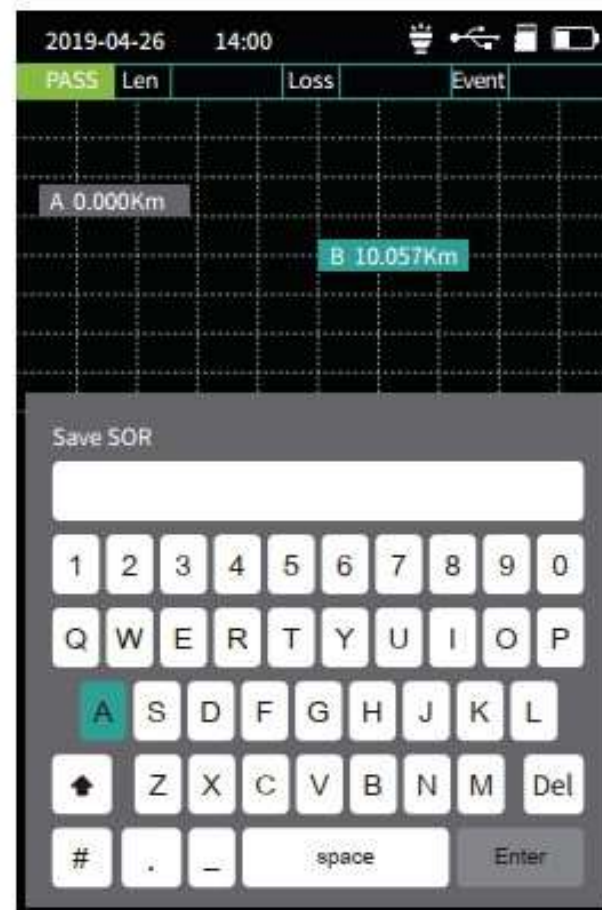


OTDR-File Save

Press **F3** (Save) key to save file after test complete, pop up the keyboard, enter the name of the file, and press Enter to save the file. If the automatic save (otdr) function is turned on in "System Settings", it will be saved automatically after the test complete without manual operation.

Auto-save function

Enter the system settings, open the auto-saving function, the instrument will automatically save the test files after the average or auto-test.



OTDR-File Operation

10.

OTDR-File Operation

Press **F4** to enter the file list.

Press the **OK** key to open a folder or File.

F1: Open file

F2: Delete file

F3: Rename file

F4: Return to the main menu



The function can be tested automatically by one key, and the information of the length of the link, the type of event point and the position of breakpoint can be displayed in a graphical form. The result is clear and easy to understand.



Press left and right buttons to switch events

Note: The function module is optional accessories.

Link state

Link information

Link events

Current event information



OPM

12.

This function is used to test the power of optical signal and insertion loss of various devices and optoelectronic components. It can identify and measure the frequency of 270/330/1k/2kHz frequency optical signal.

F1: Switching wavelength

F2: Setting Reference Power

F3: Zero Reference Power

F4: Enter the Calibration Mode

Absolute power, relative power and linear power are converted as follows:

$$P_{Abs.} = 10 \lg P_{Lin.} / 1mW$$

$$P_{Rel.} = P_{Abs.} - P_{Ref.}$$

Reference Power

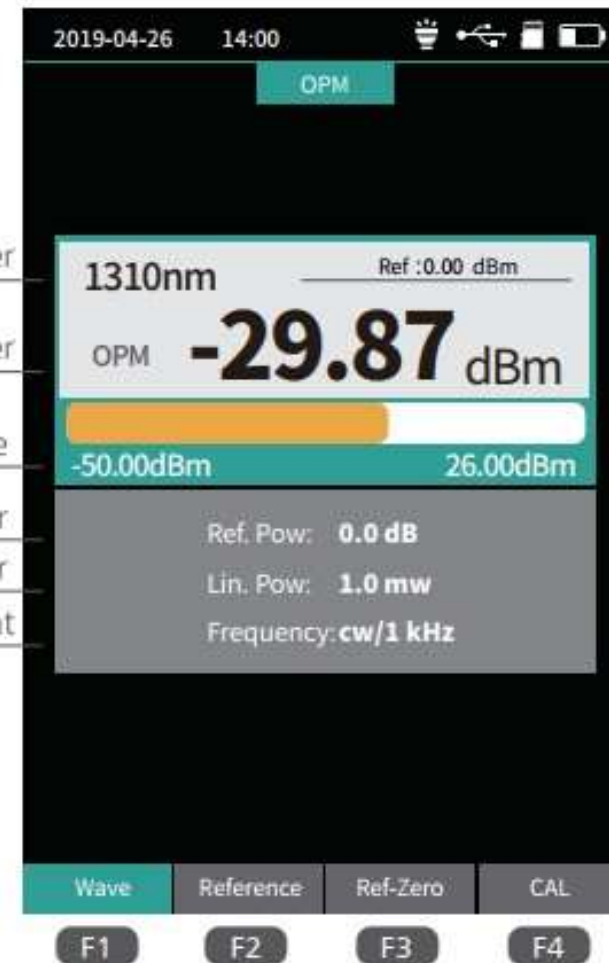
Absolute Power

Power Measurement Range

Relative Power

Linear Power

Frequency Measurement



VFL

13.

Visible red light (650 nm) is injected into the optical fiber, and the position of the optical fiber fault point can be judged conveniently and accurately by observing the leakage position on the measured fiber. It is suitable for the detection of bare optical fibers, jumpers and other high loss sections caused by near-end faults and micro-bending of optical fibers and cables which can leak red light.

Status Indicator

Warning information

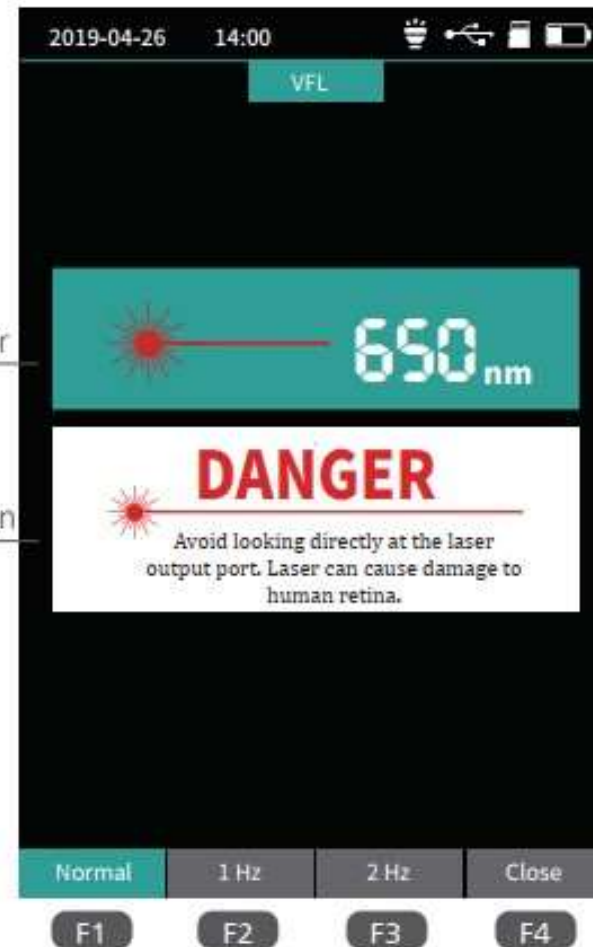
Avoid looking directly at the laser output port.
Laser can cause damage to human retina.

F1: Open VFL

F2: VFL flash at 1 Hz

F3: VFL flash at 2 Hz

F4: Turn off VFL



The wavelength of stabilized laser source is the same as OTDR wavelength. It is used to measure the parameters of telecommunication, CATV, LAN cable, insertion loss, isolation loss and echo loss of optical passive devices, and wavelength responsiveness of detectors.

There are five modes of light source: CW, 270 Hz, 330 Hz, 1 kHz and 2 kHz.

F1: Open LS

F2: Turn off LS

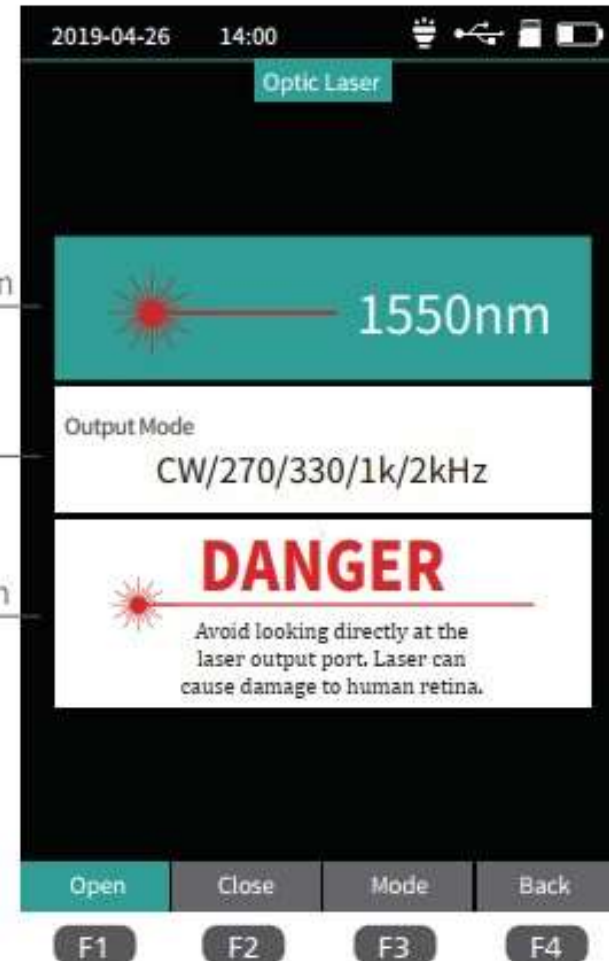
F3: Switch LS Wavelength

F4: Switch LS Mode

LS Information

Mode

Warning Information



RJ45 Sequence

15

RJ45 line sequence measurement.

F1: Start Test

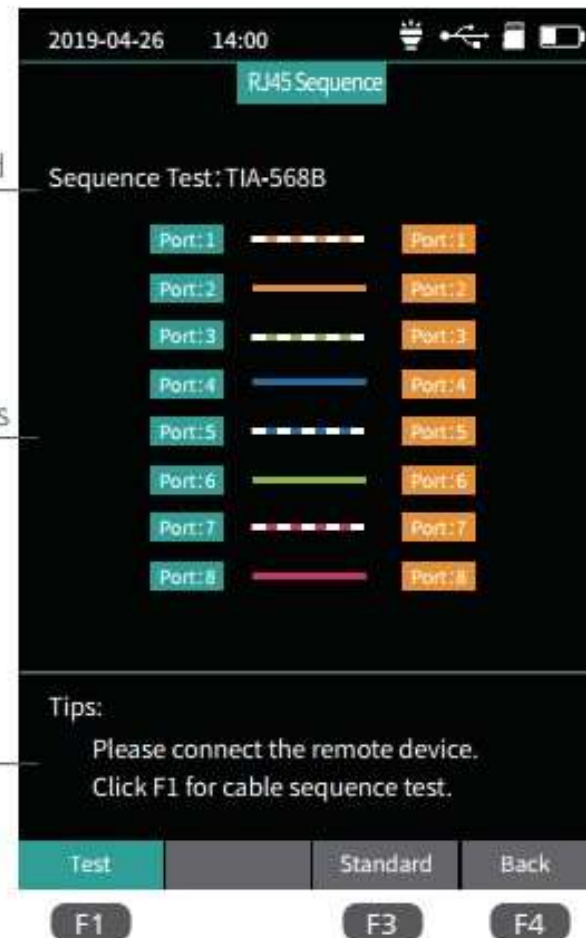
F3: Switch Line Sequence Test Standard

F4: Return to the main menu

Test Standard

Test Results

Tips



RJ45 Line Tracker

Used for RJ45 cable length testing and wire tracker. After the line-finding function is activated, the cable being searched is touched by the distal end of the line-searching, and the sound of continuous "drops and drops" is heard.

The Line-Tracker test is under way. Please use the remote line-finding module to test and click the return key to exit.

exit

RJ45 Line Length Test

F1: Start Line Length Test

F2: Switch Line Length Unit

F3: Switch Line Sequence Test Standard

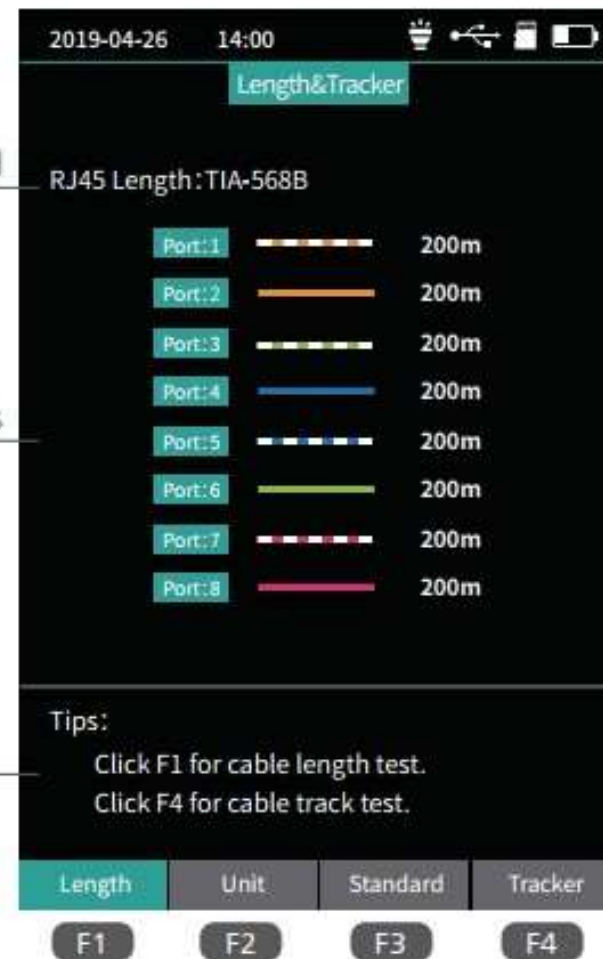
F4: Start Line-tracker Function

Note: The function module is optional accessories.

Test Standard

Test Results

Tips



Set up automatic shutdown, backlight brightness, time, language, upgrade and other information.

F1: Optional for switching the current menu

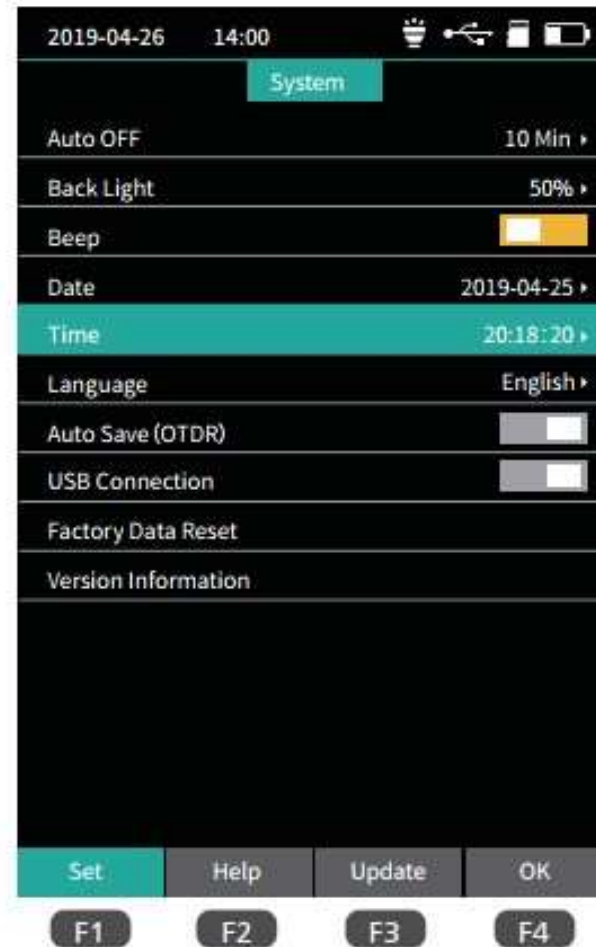
F3: System Software Upgrade

F4: Confirmation settings



Switch settings entry ▲▼

Switch options of current entry ►◀



HSV-110 MINI OTDR



Technical Specifications

Mini-110 OTDR		
Model	HSV-110S	HSV-110D
Wavelength	1550nm \pm 20nm	1310nm/1550nm \pm 20nm
Fiber Type	G.652	
Dynamic Range	22dB	24dB/22dB
Event Blind Zone	3m	
ATT Blind Zone	8m	
Test Range	500m~64km	
Pulse Width	3ns~10us	
Ranging accuracy	\pm (1m+ Sampling interval +0.005 % \times Test distance)	
Loss accuracy	\pm 0.05dB/dB	
Group of refractive index range	1.30000~1.70000	
Sampling Points	16k~128k	
Sampling resolution	0.05m~8m	

Reflection accuracy	±3dB	
Data Storage	Internal: ≥600; External: TF Card	
Laser Safety Level	Class II	
File format	SOR Standard file format	
Connector	FC/UPC（Interchangeable SC、ST）	
OPM		
Wave Range	800nm~1700nm	
Interface Type	Universal Joint FC/SC/ST	
Test Range	-50dBm~+26dBm	
Uncertainty	±5%	
Frequency Identification	CW/270/330/1k/2kHz	
Calibration wavelength	850/980/1300/1310/1490/1550/1625/1650nm	
LS		
LD Type	FP-LD	
Wavelength	1550nm±20nm	1310nm/1550nm±20nm
Output Power	≥-5dBm	
Modulation Frequency	270/330/1k/2kHz	
Stability	CW, ±0.5dB/15min (Test after 15 minutes of preheating)	
Connector	FC/UPC（Interchangeable SC、ST）	
VFL		
Wavelength	650nm±20nm	
Output Power	≥10mW	
Mode	CW/1Hz/2Hz	
Connector	FC/SC/ST	
RJ45 Cable Length Measurement		
Test Range	300m	
Other Parameters		
Display	3.5 inch Color LCD	

Data Interface	Micro USB
External storage	TF Card
Power Supply	Polymer Li-Battery: 3.7V, 4000mAh Adapter: 5VDC, 2A
Battery Life	Standby > 20h; Measuring time > 12h
Operating Temperature	-10°C ~ +50°C
Storage Temperature	-40°C ~ +70°C
Relative Humidity	0 ~ 95% Non Condensing
Size	173mm×82mm×37mm
Weight	≤350g
Functions: Blue, OTDR/EVENT MAP/OPM/LS/VFL/RJ45 Sequence/RJ45 Cable Tracker(Additional purchase detector)/RJ45 Line length/Flashlight	

Note:

- 1 Test temperature is 25°C±2°C, maximum pulse width, the average time is more than 3 minutes.
- 2 Test conditions of Event Blind Zone are minimum range, minimum pulse width, reflection loss of optical fiber end (> 45dB), typical value.

Configuration List

NO.	NAME	QUANTITY	Remarks
1	Host	1	Battery included
2	Adapter	1	
3	Data Line	1	
4	CD-ROM(Analysis software/User's Manual)	1	
5	User's Manual	1	
6	SC/UPC	1	
7	Qualification Certificate/ Service Guarantee Card	1	
8	Calibration Certificate	1	
9	Clean Cotton Slices	10	
10	Instrument Backpack	1	