

EasySplicer OTDR

Owners Manual



- Professional instrument for measuring loss and finding faults in Fiber networks
- OTDR (Optical Time-Domain Reflectometer)
- Measure distance from 0 to 60 km, in resolution of 0.001m
- Measure dB loss with a resolution of 0.001 dB
- Auto mode for super easy operation (and Expert mode for Experts).
- 4.3 inch, multi color LED, touch screen
- Carrying-case with launch cable and 4x adapter cables
- VFL, OPM and OLS, two wavelength, 1310nm and 1550nm
- RJ45 Cable tracker and distance readout (up to 300m)

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Introduction

The EasySplicer OTDR incorporates all the best a Swedish designed OTDR can offer.

NOTE: EasySplicer OTDR is a high precision instrument and should always be handled with care!

Disclaimer

SB Scandinavia AB reserves the right to modify the product in any way without prior customer notification or any other form of notice.

In no event shall SB Scandinavia AB be liable for any damages of any type, incidental, indirect, consequential or other, originating from or relating to this manual or the information contained herein. While SB Scandinavia AB tries to make the user manual complete and accurate, it may contain mistakes, and the user uses it solely at his or her own risk.

EasySplicer OTDR components

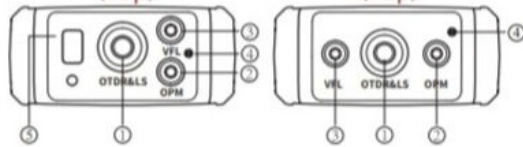
The following components are included for doing test and measurement in the fiber optic Networks:

Item	Description	Quantity
1	EasySplicer OTDR	1
2	Power supply (USB-charger)	1
3	Carrying-case with 500m G.652 launch cable	1
4	Adapter-cable, SC-APC	1
5	Adapter-cable, SC-UPC	1
6	Adapter-cable, LC-APC	1
7	Adapter-cable, LC-UPC	1
8	RJ45 Wire tracker	1
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NOTE: The EasySplicer OTDR is a rugged field instrument designed to withstand field environment. However, to ensure best performance, it is important to keep maintenance as described later in this manual.

BRIEF

Possess laser ranging port (Top)
Not Possess laser ranging port (Top)



Top view

- ① OTDR/LS port
- ② OPM port
- ③ VFL port
- ④ LED flashlight
- ⑤ Laser ranging port(Optional)

Main view

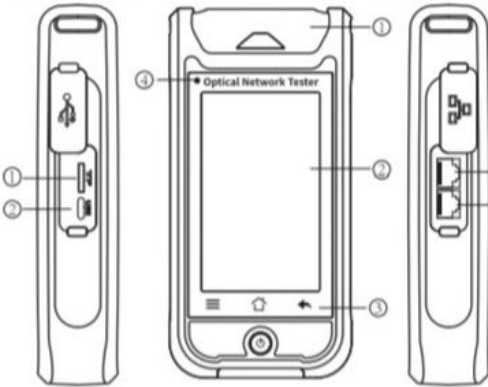
- ① Dust Cover
- ② 4.3 inch Color LCD
- ③ Function Keys
- ④ LED Charging indicator

Left side

- ① TF Card Port
- ② Type C USB

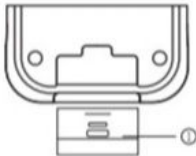
Right side

- ① RJ45 Tracker port
- ② RJ45 Sequence port



Bottom view

- ① RJ45 Remote tester



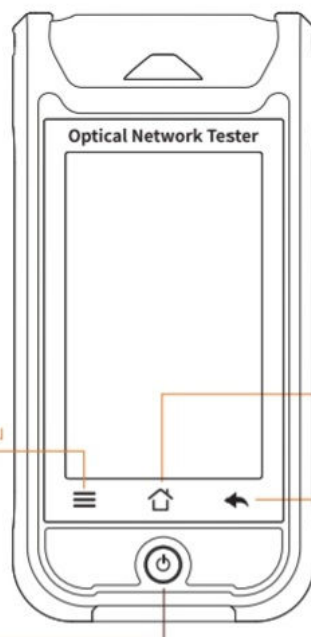
FUNCTION KEYS

Menu key

Short press to pop up the shortcut menu

ON/OFF key

Short press to start, long press to prompt to shut down;
After power on, briefly press to turn on the flashlight function



Home key

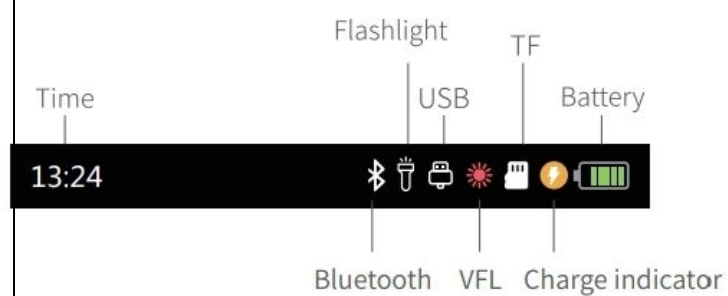
Short press to return to the main interface

Return key

Return to the previous menu

MAIN MENU (Start-up)

Turn ON the instrument and the EasySplicer OTDR will start up in the Main menu. Touch the function of Your choice.



SHORTCUT MENU

Possess laser ranging function



Not possess laser ranging function

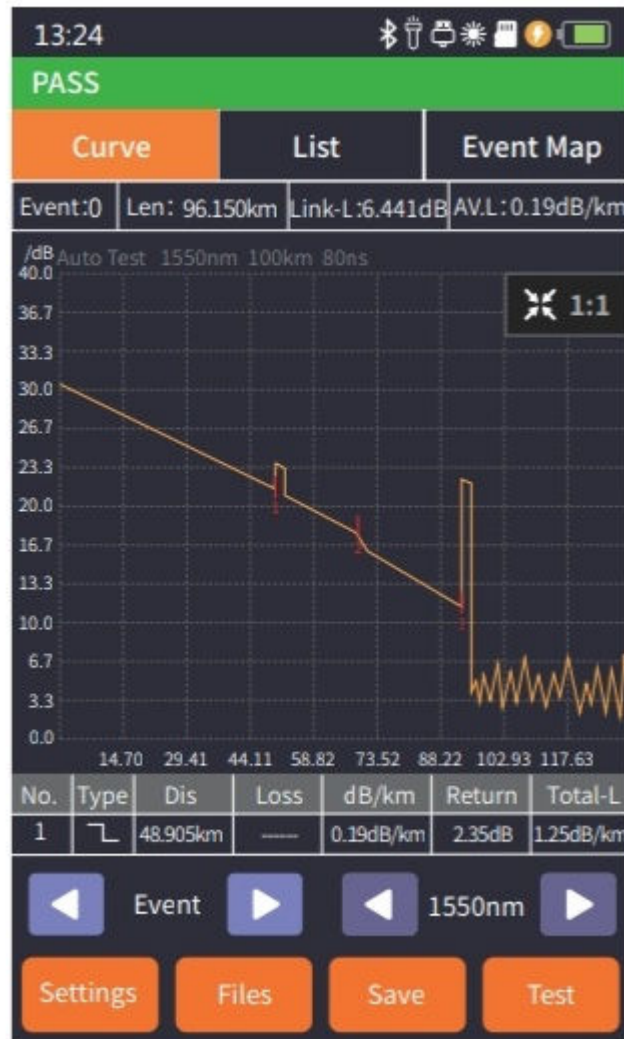


Press the "≡" icon at the bottom of the screen to enter the quick operation menu, and press different function icons to enter the corresponding function interface or realize the corresponding operation functions.

Screen capture: Capture the current interface, the picture will be automatically saved in the instrument, and the file name is the time when the screenshot is generated.

Note: The laser ranging function is optional, and the standard configuration does not have the laser ranging function. Under the shortcut menu, the laser ranging is grayed out and cannot be operated.

AUTO OTDR (Auto Mode)



Auto OTDR: only need to set the wavelength, other parameters are automatically selected.

Settings: enter “Test Setting” / “Pass/Fail” setting interface

Test settings: set the wavelength, IOR and test time

Pass / Fail settings:

Avg. Loss Thre. : set the threshold of the average link loss

Event Loss Thre. : set the loss threshold of events in the link. If it is greater than this threshold, it will be judged as fail, otherwise it will be pass.

Files: open the saved curve data

Save: the file is saved in the folder with the name of the same day







Test: start OTDR automatic test

Attention

Besides 1625/1650nm, pls don't test online !






AUTO OTDR LIST

13:24

PASS

Curve	List	Event Map
Auto Test 1550nm 8km 80ns		
Total Length		
Total-L		
Avg.L		
Total Event	3	Pass
		Fail
		0

No.	Type	Dis km	Loss dB	Total-L dB	Avg.L dB/km	Return dB
3-1		50.500	-0.11	0.18	34.73	8.93
3-2		71.486	0.88	0.20	-----	13.94
3-3		95.160	-----	0.19	17.08	18.44
3-4		95.160	-----	0.19	17.08	18.44
3-5		95.160	-----	0.19	17.08	18.44

◀

Event

▶

Setting

Files

Save

Test

List: the test results are displayed in the form of a list.

Total length: the total length of the link

Total-L: the total loss of the link

Avg.L: the average loss of the link

Total Event: the total number of events, passed numbers, failed numbers

In the event list:

NO.: the order of the current event

Type: the type of the current event

Dis: the distance of the current event

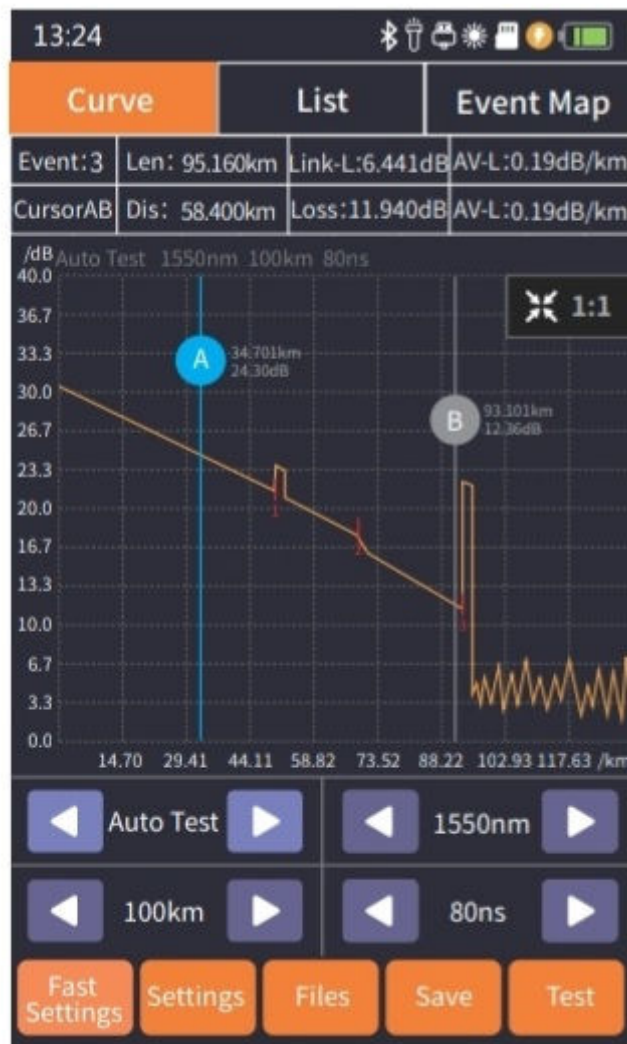
Loss: the loss value of the current event

Total-L: the total loss from the start to the current event point

Avg.L: the average loss value from the start to the current event

Return: the return loss value of the current event point

EXPERT OTDR (Expert Mode)



Expert OTDR: set parameters such as wavelength, range and pulse width.

FastSetting: quickly set the test parameters of OTDR

Measurement mode: OTDR scanning event mode, AutoTest/RealTest/Avg.Test

Wavelength: select the test wavelength of OTDR

Test range: usually choose about 2 times of the length of the optical fiber to be tested

Test pulse width: 3ns ~ 20000ns optional, different range, the optional pulse width is different

There are five types of events:

Reflective event ————— 

Non-reflective event ————— 

Rising event ————— 

Fiber splitter ————— 

Fiber end ————— 

OTDR SETTING

Test Setting		Pass/Fail
Avg.Time	5s	>>
Wave	1550nm	>>
Refractive Index (1550nm)	1.468000	>>
Unit	km	>>
Real Time Test Analyse	Open	>>
Event Loss Threshold	0.20dB	>>
Reflectance Threshold	40.00dB	>>
End Loss Threshold	10.00dB	>>
Auto Save	Open	>>

OK Default Cancele Test

Test Setting: Avg.Time, Wave and Refractice Index are the same as those in Auto OTDR.

Refractive Indexx: provided by optical cable or fiber manufacturer. It is the key parameter for calculating the distance, and can not be set arbitrarily.

Unit: select the required unit, there are 3 options for mi/km/kft.

Real Time Test Analyse: Open/Cancel the real Time Test Analyse function at the end of real-time test

Event Loss Threshold: set the loss threshold of connection point, fusion point in the link that can be tested, between 0.2dB ~ 30dB, and the default value is 0.2dB. Loss value larger than the setting value will be listed in the event list, or it will be ignored.

Reflectance Threshold: set the return loss threshold of the link reflection events that can be tested, ranging from 10dB to 60dB, the default value is 40dB.

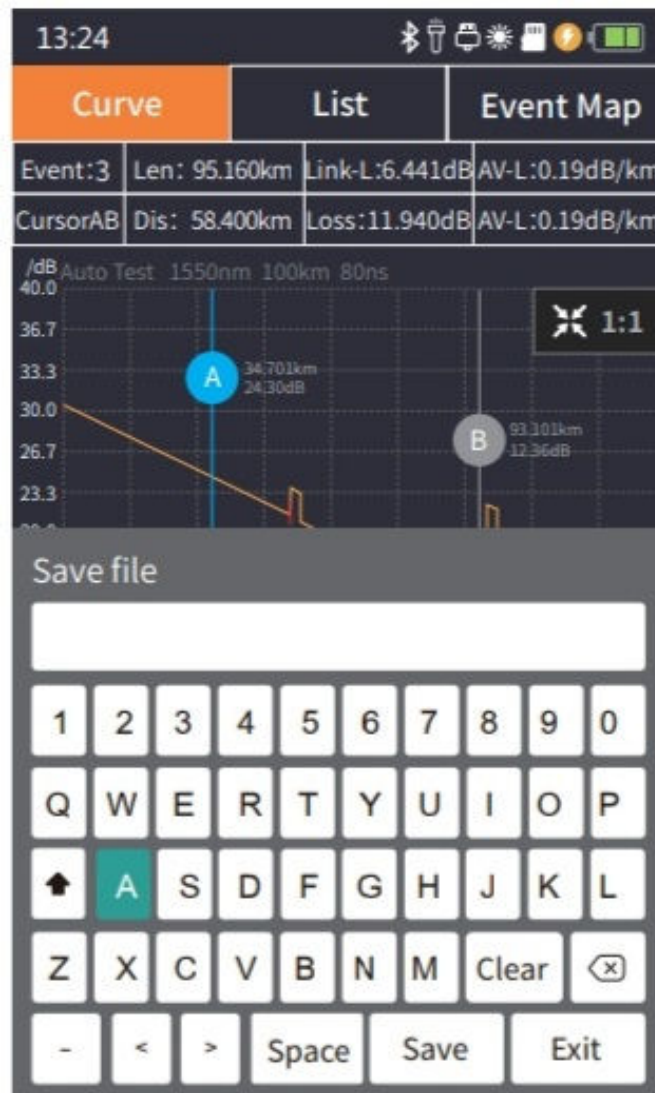
End Loss Threshold: set the loss threshold after link that can be tested, ranging from 1dB to 30dB, the default value is 10dB.

Auto Save: Open/Cancel the Auto Save file function at the end of real-time test.

OK: save the set parameters

Default: restore factory settings

OTDR FILE – SAVE FILES



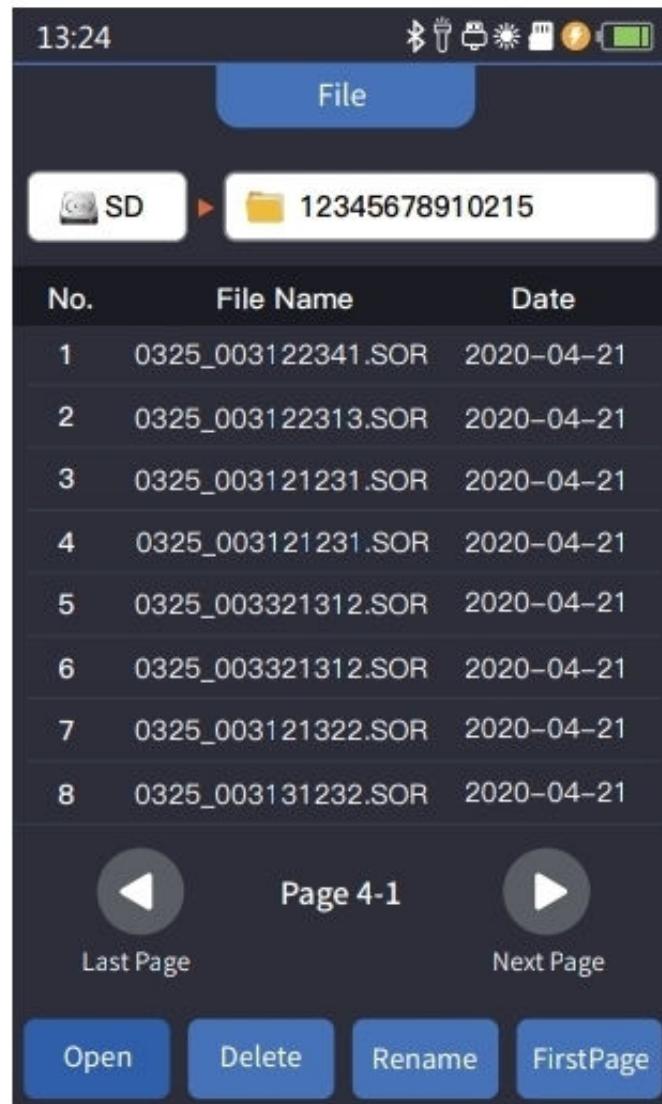
OTDR-File Save

Press the **【Save】** key to save file after the test is 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 "System Settings", it will be saved automatically after the test is 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 – File maintenance



OTDR-File Operation

Press **【Files】** to enter the file list.

Head: back to the first page









Delete: delete the current file or folder

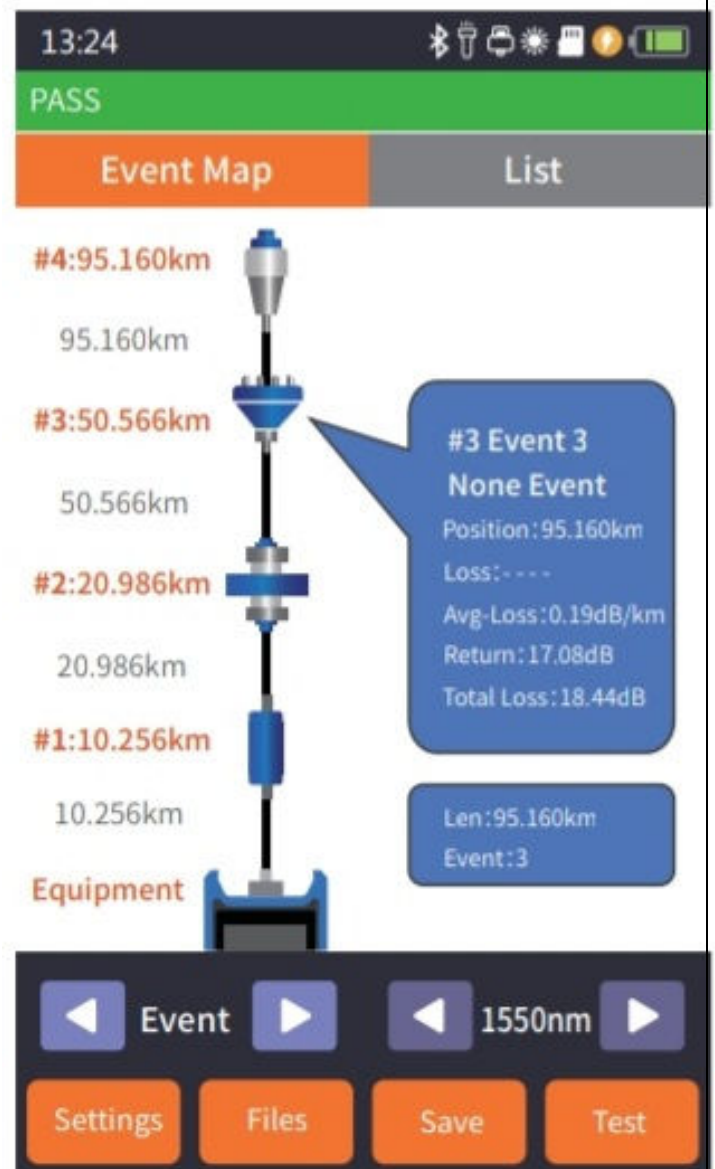
Rename: change the name of the current file or folder

Open: open the selected file or folder

EVENT MAP

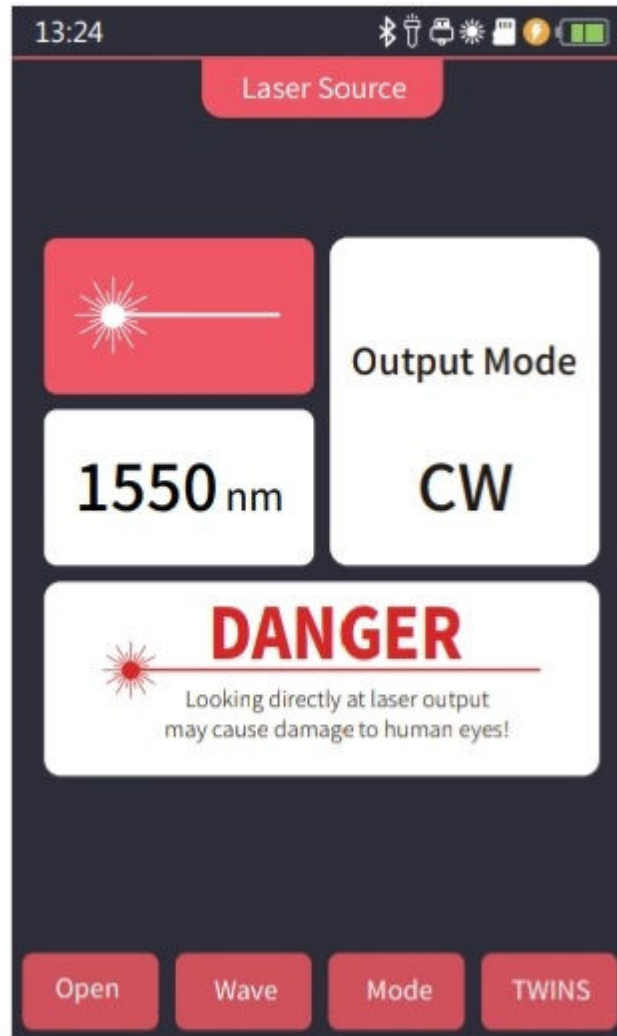
The function can be operated automatically by one key, and the information of the length of the link, the type of event point and the position of breakpoint can be displayed in a graphical form. The result is clear and easy to understand.

-  — The starting point
-  — The starting point of the link added leading optical fiber in the front
-  — Descending events, mostly melting points
-  — Rising event, caused by the inconsistency of refractive index of fiber at both ends
-  — Connector, such FC/SC/LC connectors
-  — Optical fiber macro bending
-  — Optical splitter
-  — End of the link



Attention Besides 1625/1650nm, pls don't test online !

LASER SOURCE



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.

Open: turn on the laser source

Wave: switch the wavelength, the output wavelength is consistent with OTDR

Mode: switch the modulation frequency of light source, CW/270/330/1000/2000Hz optional

TWINS: enter the paired output mode. This function is used with the twins function of optical power meter

Warning

Looking directly at laser output may cause damage to human eyes!

OPM – OPTICAL POWER METER



The 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 270/330/1000/2000Hz optical signal.

Wave: switch the working wavelength

Reference: set current power as reference power

CAL: enter the user calibration mode and calibrate with the standard light source

TWINS: identify the wavelength and frequency of the tested laser source. This function is used with the twins function of the laser source

-50~+26dBm: received power > -10dBm

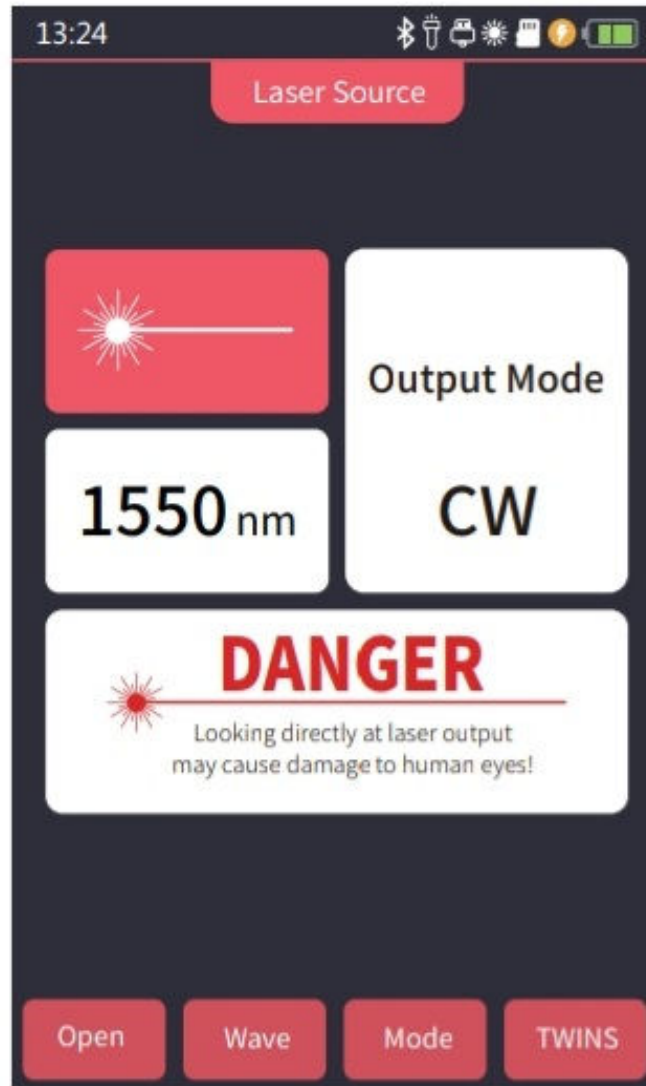
-70~+6dBm: received power > -30dBm

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

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

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

VFL – VISUAL FAULT LOCATOR



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.

Normal: turn on red light, continuous light

1Hz: red light flashes once in 1 second

2Hz: red light flashes twice in 1 second

Close: turn off red light

Warning

Looking directly at laser output may cause damage to human eyes!

OPTICAL LOSS TEST



Used to test the insertion loss of optical passive components.

The loss test steps are as follows:

- 1) First connect the LS and opm optical interfaces with standard jumpers, Press **【Open】** and press **【Reference】** after the power is stable.
- 2) Then connect the tested part to LS and opm optical interfaces with standard jumper, Press **【Open】** , and "relative power" is the insertion loss of the tested part.

RJ45 TRACKER



Rj45 Tracker

Used for Rj45 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 “ticking and ticking” heard.

The equipment can withstand voltage and prevent burning, and can be directly charged for line finding. Ethernet switch, router and other weak current equipment with DC voltage less than 60V.

Start: open the RJ45 cable tracking function

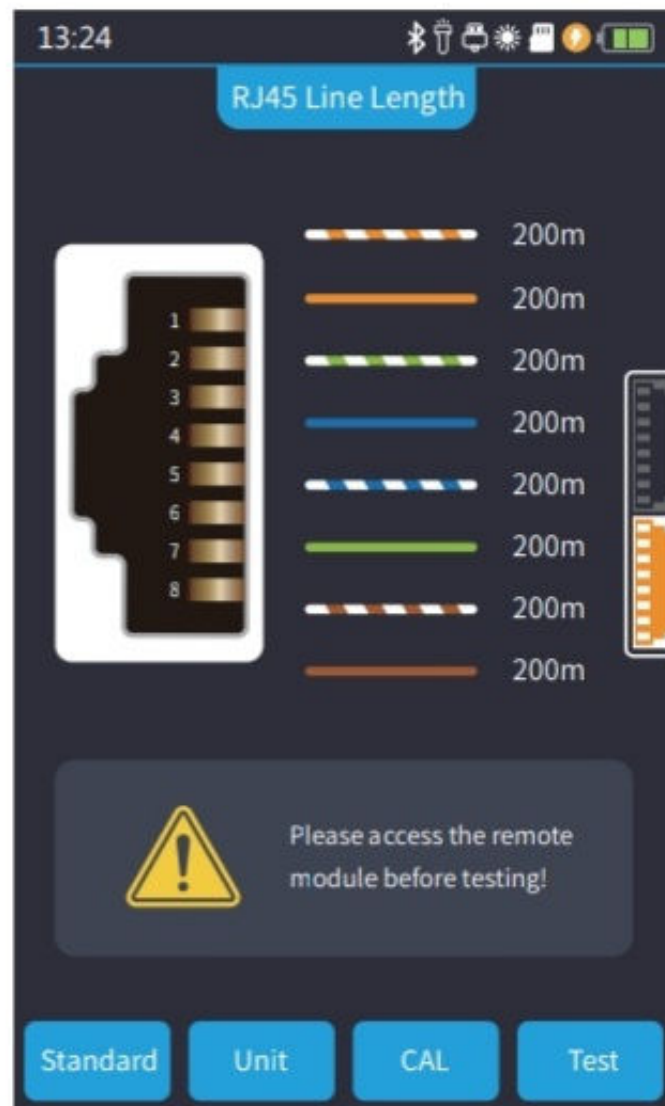
Analog Mode/Digital Mode: different route tracking methods

Standard : Digital cable tracker

Attention

The cable tracker port is designated as the upper interface displayed in yellow. Incorrect connection will cause damage!

RJ45 SEQUENCE TEST



RJ45 line sequence measurement.

Measure the sequence of 8-core wires inside the network cable. Please connect to the remote module when measuring.

Standard: select different network cable standards

Test: start cable sequence test

Exit: exit the cable sequence test and return to the main interface

Warning

Please do not test online!

Attention

The cable sequence port is designated as the lower interface displayed in yellow. Incorrect connection will cause damage!

RJ45 LENGTH



RJ45 Length test: Test the length of the network cable.

Standard: select different cable standards

Unit: switch different units

CAL: adjust the test result according to the actual length, and display length = last test result \times correction

Test: start cable length test

Warning

Please do not test online!

Attention

The cable length port is designated as the lower interface displayed in yellow. Incorrect connection will cause damage!


LASER RANGING (Optional)




Laser Range: the maximum test distance is 40 meters

Mode: Single/Continuous

Reference plane: select a different reference plane

 — Starting from the bottom of the instrument, the test length includes the length of the instrument;

 — Starting from the laser emission port of the instrument, the test length does not include the length of the instrument;

Unit: switch units, with m and ft options

Test: start length test

SYSTEM (Setup)



Brightness: slide the progress bar to adjust the backlight brightness

Energy conservation: slide the progress bar to set automatic screen power off without operation for 1-10 minutes

Auto OFF: slide the progress bar to set the automatic shutdown time without operation

Date & Time: set the instrument date and time

Sound: turn the touch tone on or off

Flashlight: turn the flashlight on or off

USB connection: connect to the computer after opening and transfer data

Bluetooth: turn Bluetooth on or off

Language: displays the native language type

Auto Save: automatically save the curve file after opening

Restore factory settings: restore default parameter values

Upgrade: software upgrade

Version information: view local information and alarm records

FAULTS AND SOLUTIONS

Fault description	Cause of failure	Solutions
OTDR cannot start normally.	The battery is dead.	Charge the battery and observe the charging indicator. If the red light is displayed, continue charging. Otherwise, contact the supplier.
OTDR cannot be charged normally.	Charging conditions are not met.	Charge the instrument at 0°C~ 50°C.
	Battery or internal circuit problem.	Contact the supplier to replace the battery.
Normal curve cannot be measured.	OTDR parameters are not set correctly.	Reset the correct test parameters.
	Fiber output end face is polluted.	Clean OTDR output end face.
	Output connector of OTDR is damaged.	Replace OTDR output connector.
	Optical output connector mismatch.	Replace the matched connector.
The noise of test curve is big and the waveform is not smooth.	The connector is not connected properly.	Re connect the appropriate output interface.
	The pulse width setting is too small.	Increase the test pulse width.
Saturation (flat top) appeared in the front of the test curve.	The pulse width is too large.	Decrease test pulse width parameter.
The reflection peak at the beginning of the test curve decreased slowly. There is a tailing phenomenon.	Fiber output end face is polluted.	Clean OTDR output end face.
	Output connector of OTDR is damaged	Replace OTDR output connector.
	Optical output connector mismatch.	Replace the matched connector.
The reflection peak at the end of the fiber cannot be measured.	The setting for test range is too small.	Increase test range value.
	The setting for pulse width is too small.	Increase test pulse width parameter.
False positive in curve analysis.	Test curve with poor quality.	Increase test pulse width parameter, increase the event threshold value.
	Event threshold setting is too small.	
The tested fiber length is not accurate.	OTDR parameters are not set correctly.	Reset the appropriate parameters.
	The refractive index is not set accurately.	Reset fiber index.
The average loss value of optical fiber is not accurate.	The test curve front end with too long tail.	Clean OTDR output end face.
	Improper setting of cursor position.	Reset cursor point position.

MAINTENANCE

Cleaning of connectors

The optical output interface of this series OTDR is a replaceable universal interface, and the end face must be kept clean during use. When the instrument fails to test the normal curve or the test result is not accurate, first consider cleaning the connector.

When cleaning, be sure to turn off OTDR and visible red light fault location function. Screw off the output port and wipe the connection end face with a special dust-free paper towel or cotton swab wetted with alcohol.

At the same time, please cover the dust cap after using the instrument, and keep the dust-proof clean at the same time.

Instrument screen cleaning

The display of this series of optical time domain reflectors is 4.3 inch TFT full view color LCD with capacitive touch screen. When using, do not click on the LCD with sharp objects, or the LCD screen may be damaged. When cleaning, clean the LCD screen with soft paper. Do not wipe the LCD screen with organic solvent, otherwise it may damage the LCD screen.

TECHNICAL SPECIFICATION

EasySplicer OTDR

SC APC - Singelmode G.652 SM

Wavelength	1310nm and 1550nm
Dynamic Range	24/22dB
Event Blind Zone	2.5m (0m with launch cable)
ATT Blind Zone	8m (0m with launch cable)
Test Range	500m/1km/2km/4km/8km/ 16km/32km/64km/100km
Pulse Width	3ns/5ns/10ns/20ns/30ns/ 50ns/80ns/160ns/320ns/ 500ns/800ns/1us/2us/3us/ 5us/8us/10us/20us
Ranging Accuracy	± (1m+Sample interval+0.005% ×Test distance)
Linearity	≤0.05dB/dB
Sample Points	6k~128k
Sample Resolution	0.05m~8m
Loss Resolution	0.001dB
Loss Threshold	0.20dB
Range Resolution	0.001m
Refractive Index	1.00000-2.00000
Reflection Accuracy	±3dB
File Format	SOR Standard File Format
Loss Analysis	4-point method /5-point method
Laser Safety Level	Class II
Connector	SM/APC (Interchangeable SC, LC ST)
Refresh Rate	3Hz (Typ.)