SPTK-DR02T

Optical Time-Domain Reflectometer

Overview

The SPTK-DR02T OTDR adopts a 5.6-inch capacitive full touch screen and integrates wavelength division optical power meters, OPM, optical power meters, and automatic.Dynamic OTDR, Expert OTDR, event map, terminal status verification, stable light source, RJ45 cable tracking, red light source,multi-core.Testing, file management, and intelligent diagnosis support: 1:32/1:64 splitter testing, end face inspection, loss, system Settings, and eight language switching functions are integrated. OTDR has a maximum dynamic range of 45dB and can achieve up to 180 kilometers or more. Precise testing on. It supports up to four wavelengths of 1310/1550/850/1300nm with light test wavelengths of 1310/1550/1625nm. The minimum event blind zone is 0.8m and the maximum sampling resolution is 2.5cm. The OTDR is equipped with a 5200mAh high-density large-capacity polymer Lithium battery, featuring intelligent power-saving manage ment and powered/charged by a mobile power bank. The SPTK-DR02T can be used to measure para meters such as the length, loss and connection quality of various optical fibers and cables. It is widely applied in the engineering construction, line maintenance and emergency rescue tests of FTTH, metropolitan area networks and secondary back bone network communication systems, as well as in the research and production measurement of optical fibers and cables.

Product Features

- Maximum dynamic range of 45dB,256k data Sampling point
- Automatic monitoring function of communication lights
- Supports eight languages and SOR file format. Professional OTDR:measurement, curve, list
- The map is displayed simultaneously
- A light source that supports continuous/modulated mode output
- Automatic OTDR: One-click testing,no complex Settings required
- Intelligent diagnosis support: 1:32/1:64 splitter testing

Product Features

Product Display

Technical Specifications

Parameter	SPTK-DR02T		
Dimensions	177mm×109mm×37mm Excluding soft rubber protection		
Weight	0.8kg (with battery)		
Operating Wavelength (nm)	1310/1550	1310/1550/1625(with dB)	1310/1550/850/1300(with dB)
		1310/1550/1626/1650	
Maximum Dynamic Range (dB)	32/30	37/36/37	37/36/28/26
	37/35		
		42/40/42	
	40/38		
		45/43/43	
	42/40		
		42/40/40/40	
	45/43		
Event Dead Zone	0.8m		
Attenuation Dead Zone	5m		

Accuracy (m)	±(0.75m+distancex0.0025%+sampling interval) Excluding refractive index error
Resolution (m)	0.025,0.05,0.1,0.2,0.5,1,2,4,8,16,32
Distance Range (km)	0.5,1,2,4,8,16,32,60,120,240km
Pulse Width (ns	5,10,30,80,160,320,640,1280,5120,10240,20480
Maximum Sampling Points	256k
Linearity(dB/dB)	0.03
Loss Resolution (dB	0.001
Refractive Index Setting Range	1.00000~1.99999(Step: 0.00001)
Distance Units	Kilometer, Meter, Kilofoot, Foot
Display	5.6" TFT Color LCD (Capacitive Touchscreen)
Optical Output Port	FC/UPC (Standard), SC/UPC (Optional)
Language	Simplified Chinese,English. Additional languages upon request
Extemal Ports	USB Type C, Micro SD
Power Supply	AC/DC Adapter:Input:AC100V~240V,50/60Hz
	Output: DC12V/2A
	Internal Li-ion Battery:3.7V,5200mAh
Battery Life	≥8 hours (High brightness standby)
Environmental Compliance	Operating Temp: 0°C~+40 °C(Charging: 5°C~40°C)
	Storage Temp:-20°C~+60°C
	Humidity: 5%-95% (Non-condensing)

Standard Configuration Table

No.	Item	Remarks
1	SPTK-DR02T	Built-in Li-ion battery
2	Power Cable Assembly	Input：AC100V~240V，50HZ/60HZ
		Output: DC5V/2A
3	Memory Card	16GB with built-in analysis software
4	User Manual	-
5	Certificate of Conformity	-
6	Soft Case	-

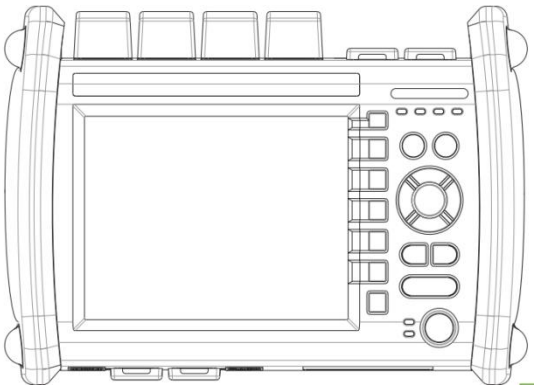
Warning

When using this instrument, do not look directly at the laser output or the end of the optical fiber with your eyes, so as to avoid eye damage or even blindness! Non-online test wavelength, forced use of light will cause damage to the internal components of the instrument! Making any changes or modifications that are not expressly permitted in this Manual will cause you to lose the right to operate the equipment. To reduce the risk of fire or electric shock, do not expose this device to thunderstorms or damp conditions. In order to prevent electric shock, do not open the shell, and must be repaired by qualified personnel designated by the manufacturer.

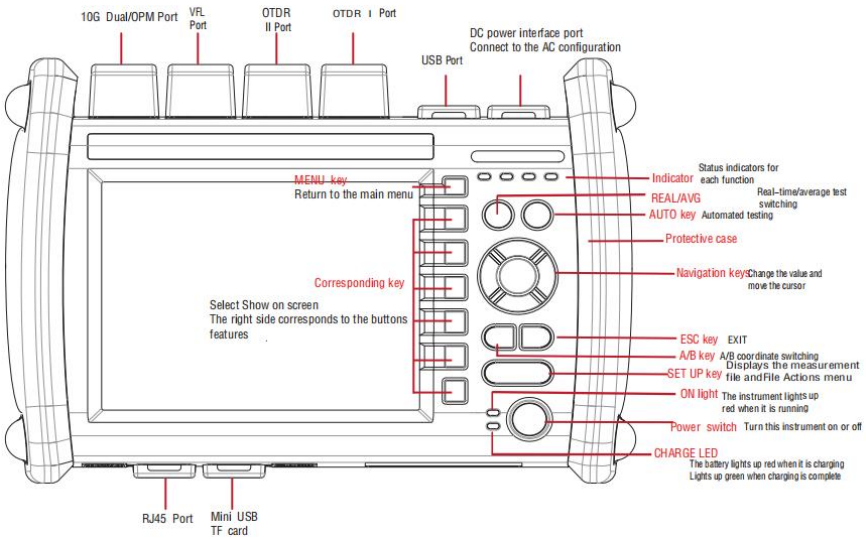
Notice

Battery and adapter: The battery inside the machine is a special polymer lithium battery,the charging voltage is 12V/1A,the charging temperature range is0°C~50°C,the charging will automatically stop when the ambient Temperature is too high.The instrument is recharged once every 1 month to avoid long storage time,and the battery cannot be used normally due to self-discharge. The temperature range of the battery for long-term storage is -20°C~50°C Please use the special adapter that comes with the instrument and use the external power supply in strict accordance with the specifications, other wise it may cause damage to the equipment. Optical fiber end face cleaning Before testing clean the end face of the measured optical fiber connector of the access instrument with an alcohol cotton..LCD screen:The display of this series of instruments is 5.6 inch color LCD,in order to maintain a good viewing effect, please keep the LCD clean and clean.When cleaning,the LCD screen can be wiped with a soft fabric.

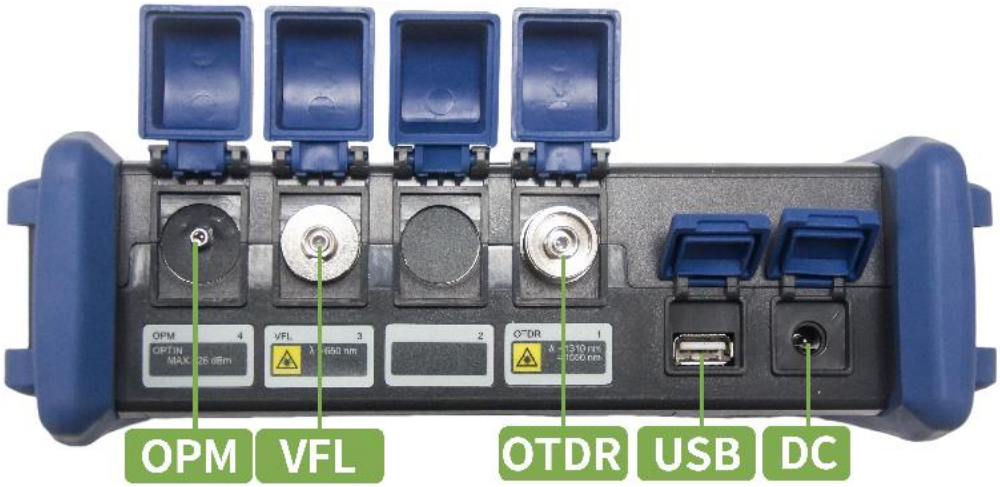
Host



Function Button



Product details



Replaceable Universal Interface Supports LC/SC/ST/FC Adapters

Supports user-replaceable connector types to avoid unnecessary RMA costs and downtime, ensuring sustained peak performance.

Multiple specifications can be provided Supports customization of various interfaces, lengths,capable manufacturers,fast delivery, professional servicewe understand you better!

LC Interface

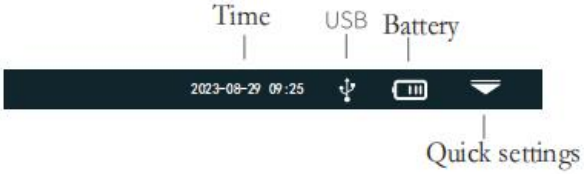
SC Interface

ST Interface

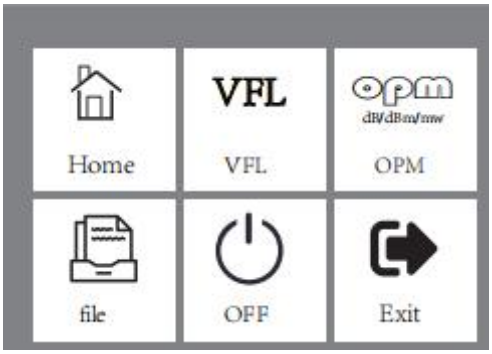
FC Interface

Main Interface

After boot, enter the main menu, there are 13 function modules, press the arrow key to select the module, and then press the "OK" key or directly press the function icon to enter the corresponding function interface.



Press the Quick Setting icon to enter the Quick operation menu. Press different function ICONS to enter the corresponding function interface or implement the corresponding operation function.



10G Dual OPM

The split-wave optical power meter is mainly used for commissioning, installation and maintenance of the 10GEPON/XGPON FTTx service. It not only has the function of a general optical power meter, but also has a downlink 1490nm and 1577nm wavelength split power measurement designed for 10GEPON/XGPON, and displays the respective power values of the two wavelengths on the same screen, which can truly grasp the power value of a single wavelength optical signal on the line, and can accurately determine whether the optical power value is up to standard.

Reference: Set the current power to the reference power

Calibration: Enter calibration mode

Zero setting: Zero reference power

OPM

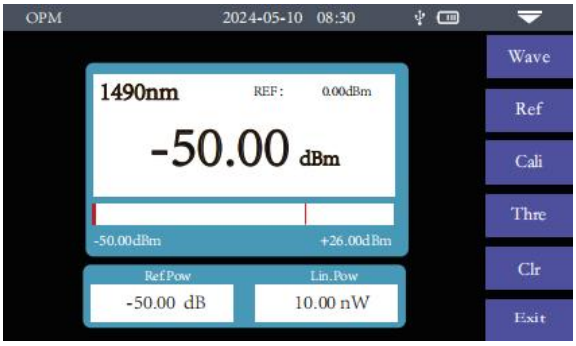
It is used for signal power test and insertion loss test of various equipment and photoelectric components.

Wavelength: Switch the test wavelength of the power meter.

Reference: Set the current power to the reference power.

Calibration: Enter calibration mode.

Threshold: Set the power measurement threshold. If the power measurement threshold is higher than the threshold, the power measurement threshold is marked in red and the power measurement threshold is lower than the threshold,the power measurement threshold is marked in green



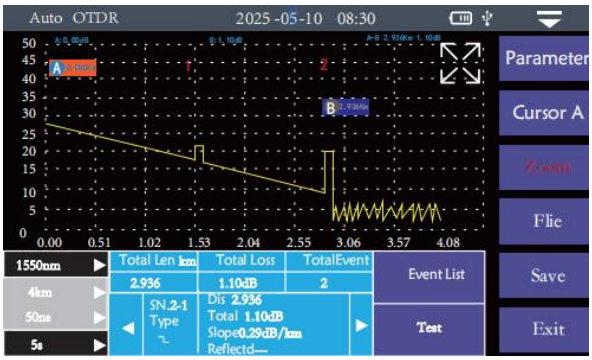
Absolute power, relative power and linear power values are converted as follows:

$P_{\text{Absolute power}}=10LgP_{\text{linear power}}/1mW$,

$P_{\text{Absolute power}}=P_{\text{Absolute power}}-P_{\text{reference power}}$.

AUTO OTDR

OTDR is a photoelectric integrated instrument made of Rayleigh scattering and Fresnel reflection generated by the back scatter of the optical signal transmitted in the optical fiber. It is widely used in the maintenance, construction and monitoring of optical cable lines. It can measure the optical fiber length, optical fiber transmission attenuation, joint attenuation and fault location.



Automatic OTDR: Just set the wavelength and measurement time, and other parameters are automatically selected by the instrument to complete the test.

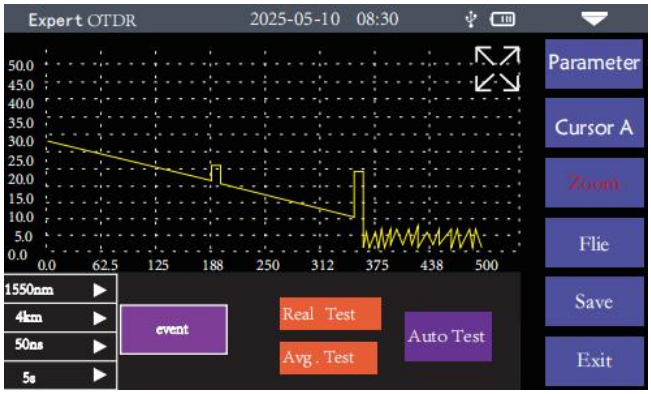
Notice Please do not make online test except online wavelengths!

Expert OTDR

Expert OTDR: Parameters such as wavelength, measurement range and pulse width need to be set.

In expert mode, the appropriate measurement parameters are selected, and the test results are more accurate. The curve can be zoomed in to see the details of each event.

In expert mode, you can select "Real-time Test", "Average Test", and "Automatic Test" according to the actual requirements of customers.



Notice Please do not make online test except online wavelengths!

OTDR - Setting

Measurement wavelength: The test wavelength is selected according to the actual wavelength of the machine.Measurement range: Select the corresponding length range according to the actual length of the optical fiber. It must be greater than the length of the optical fiber under test, and is usually set to about twice the length of the optical fiber under test.

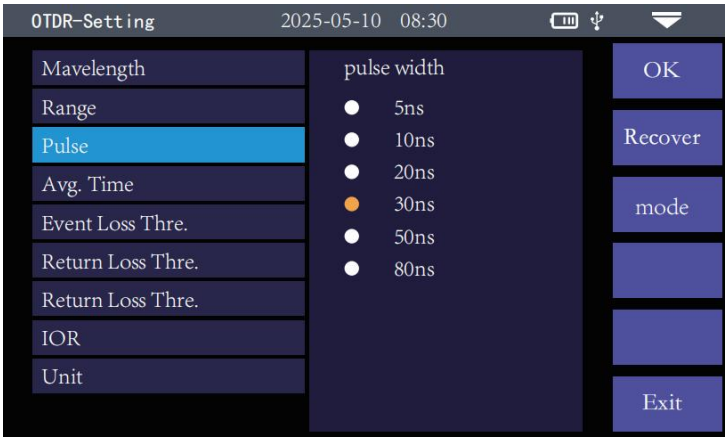
Pulse width measurement: refers to the time width of the optical pulse signal emitted during measurement, the larger the pulse width, the stronger the optical power injected into the fiber, the stronger the back scattered signal of the fiber, the farther the OTDR can effectively detect, but the large pulse width will cause the initial reflected signal saturation, resulting in a large blind area. The choice of pulse width is related to the length of the measured fiber.

Measurement time: The measurement time in the average measurement mode, the longer the detection time, the better the signal-to-noise ratio improvement of the signal,the more accurate the test results. The user should Reasonably choose the measurement time, and the measurement time is_proportional to the measurement dynamics.

Event loss threshold: Set the loss threshold of the connection point, weld point, or macro bend that can be tested. The value ranges from O.2dB to 30dB. The default value is 0.25dB.

Reflection threshold: Set the return loss threshold of the link reflection events that can be tested. The value ranges from 10dB to 6OdB. The default value is 4OdB. End threshold: Set the loss of the end of a link that can be tested. The value ranges from 1dB to 30dB. The default value is 10dB.

Index of refraction: determined by the characteristics of the fiber itself and provided by the cable or fiber manufacturer,the index of refraction is a key parameter for calculating distance and cannot be set arbitrarily. Unit: Required unit,km/kft/mi.



OTDR - Curve

Curve scaling

Press the "Curve Scaling" menu to enter the zoom and zoom modes.

◀ / ▶ Zoom in or out on the X-axis

▲ / ▼ Y-axis zoom in or out

Event list

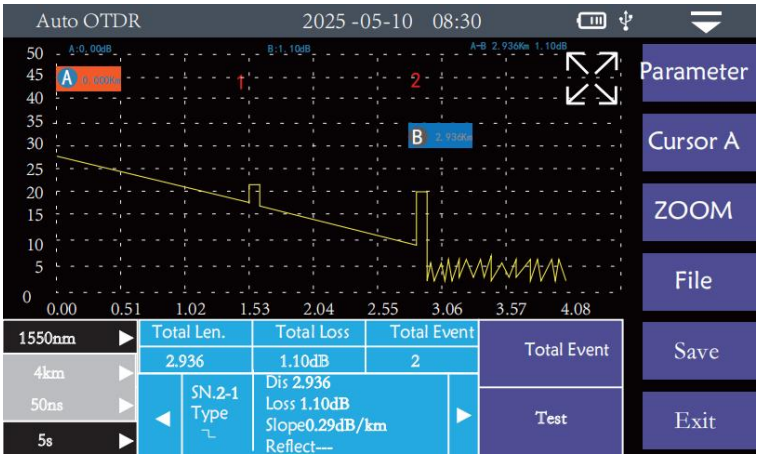
Total length: Indicates the total length of the link under test

Total loss: Indicates the total loss of the link under test

Test wavelength: Indicates the measurement wavelength used by the link under test

Range: Indicates the measurement range of the link under test

Pulse width: The measured pulse width used by the link under test



In the event list

Serial number: Indicates the sequence of current events

Type: Indicates the type of the current event point

Distance: The location of the current event point

Loss: The loss value of the current event point

Total loss: The cumulative loss value of the current event point

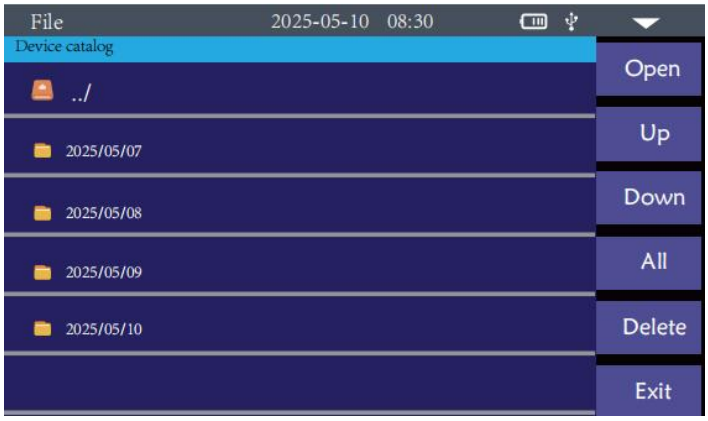
Slope: Loss per kilometer from the starting point to the current event point

Reflection: The return loss value of the current event point

OTDR - File

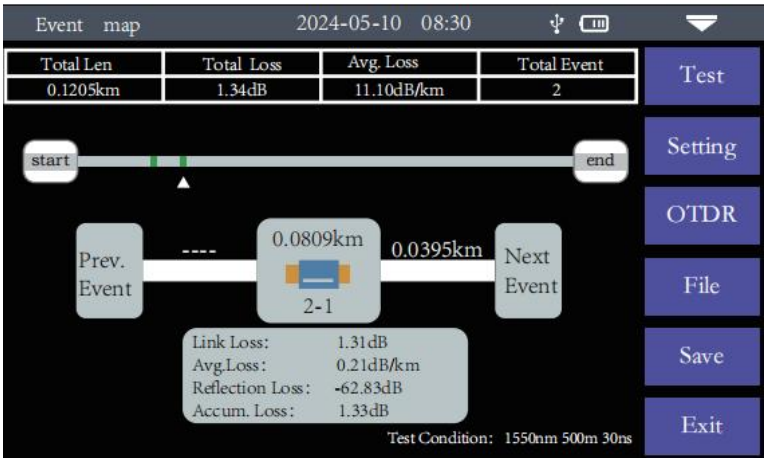
File operation

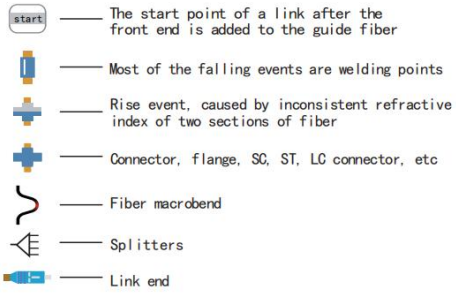
By default, the test data file is saved in the local machine (TF card). When saving, you can select the save location through the pop-up option. Enter the file operation window. You can search for, open, and delete files.



Event Map

The function is completely one-click automatic test, the length of the optical fiber link under test, the connector type, the break point position and other information is displayed in a graphical form, and the results are clear and easy to understand.

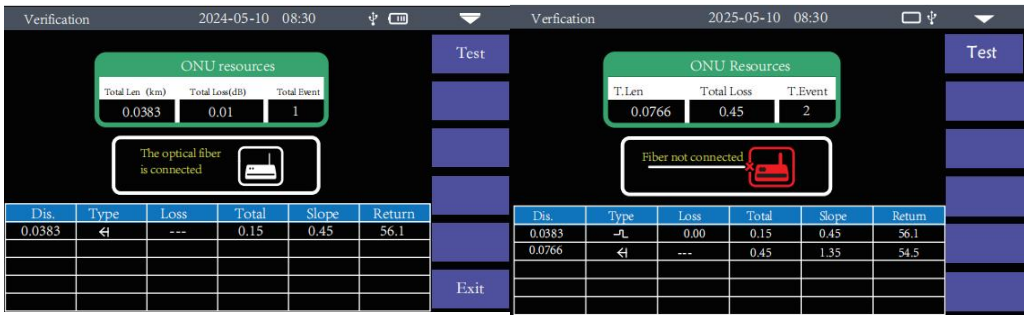




Notice Please do not make online test except online wavelengths!

End State Check

Intelligent inspection of the optical network terminal resource status can be done without entering the household; it is sufficient to determine the connection status of the user-end ONT line at the fiber distribution box in the hallway. This meets the on-site port release and resource data verification needs, achieving refined management of network resources. At the same time, it measures the link loss from a single port of the splitter to the user end and conducts weak light diagnostics. For example, after testing the household line of 383 meters, when the event list shows 1 event, the distance is 383 meters, indicating that the fiber has been connected to the optical modem; when the event list shows 2 events, the distance is 766 meters, indicating that the fiber has not been connected to the optical modem, but the actual fiber distance is 383 meters.

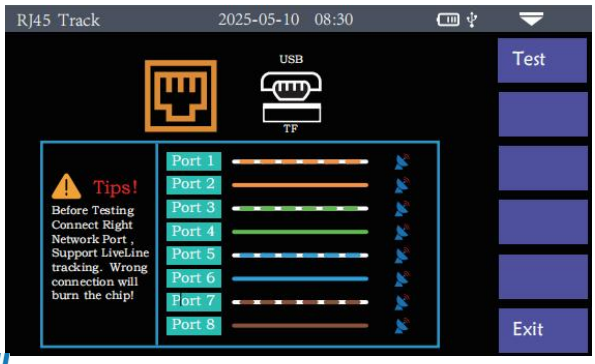


RJ45 Line/Track

RJ45 tracking

After the line tracking function is enabled, touch the cable under test with the line finder and hear the continuous "drip, drip" sound to find the cable. The equipment is pressure resistant, and can be directly charged line tracking. Ethernet switches, routers and other weak current devices with DC voltage less than 60V. Test: Turn on the RJ45 tracking function

The tracking mode of the machine is digital radar tracking , which has strong anti-interference ability. The frequency of the prompt tone is different according to the distance of the target.

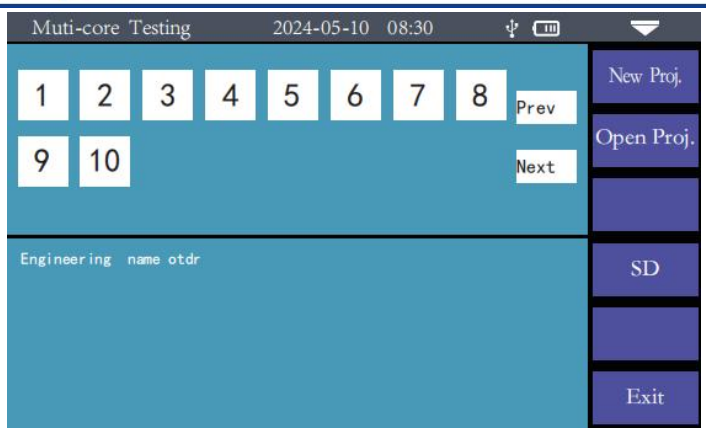


Multi-core Testing

When a multi-fiber cable is tested, the newly constructed project ---- project name ---- number of fiber cores (based on the number of fiber cores currently tested) ----Enter confirm -- new project.

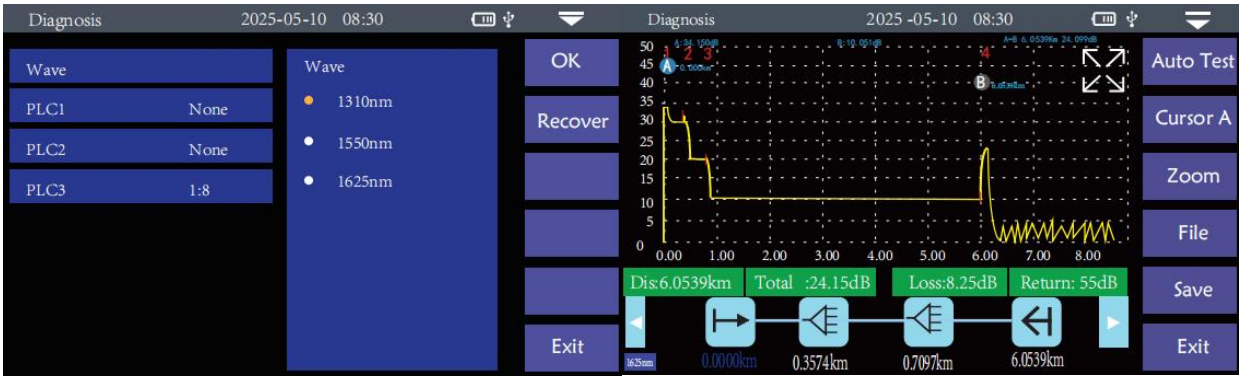
Open the project -- Select the project name -- Working project -- select the corresponding test serial number to test one by one ---- You can test/replace/view the next page.

When each core test is completed, the corresponding icon turns green.



Intelligent Diagnosis

Intelligent diagnosis is mainly used to check the weak light diagnosis and treatment of multi-level optical splitters in the link, first select the wavelength, then select the splitter PLC1, PLC2, PLC3 and their corresponding number of splitters, and then select and measure the splitter and optical fiber loss in the tested link to realize the weak light intelligent diagnostic test in the link



LOSS

The light source and power meter are displayed at the same time, which is convenient for testing the insertion loss, isolation and return loss of optical passive devices.

Optical loss measurement steps are as follows:

1) Connect LS and OPM optical interface with standard jumper first, press [Open], after the power is stable, press [Reference].

2) Connect the tested part and read the "loss" value, that is, the insertion loss of the tested part

Laser Source

Stable light source and OTDR functional wavelength of the same laser, used in telecommunications, CATV, LAN cable parameter testing; Optical passive device insertion loss, isolation, return loss test; Detector wavelength responsiveness test and so on. There are five operating modes of the light source: CW, 270Hz, 330Hz, 1kHz and 2kHz.

On: Turn on the light source

Wavelength: Switch the wavelength of light source

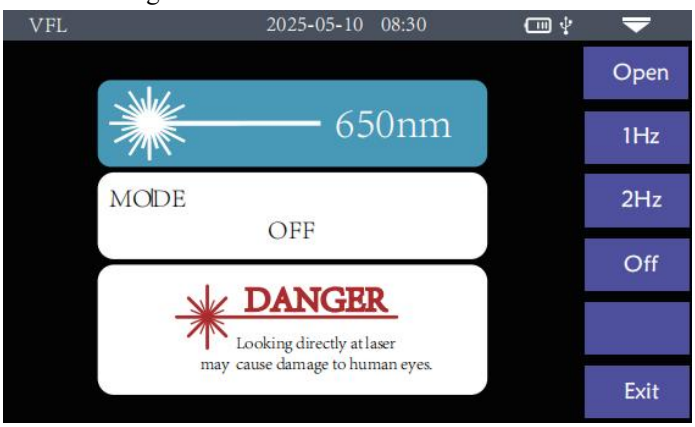
Mode: Switch light source mode, CW, 270Hz, 330Hz, 1kHz and 2kHz

Warning

Avoid looking directly at the laser output port,laser will cause damage to human eyes!

VFL

By injecting visible light (red light) into the fiber and observing the light leakage position on the measured fiber, the location of the fault point of the fiber can be easily and accurately determined. It is suitable for the detection of bare fiber, fiber jumper and other fiber that can leak red light, near end fault point of fiber cable and high loss area caused by micro-bending.



Warning

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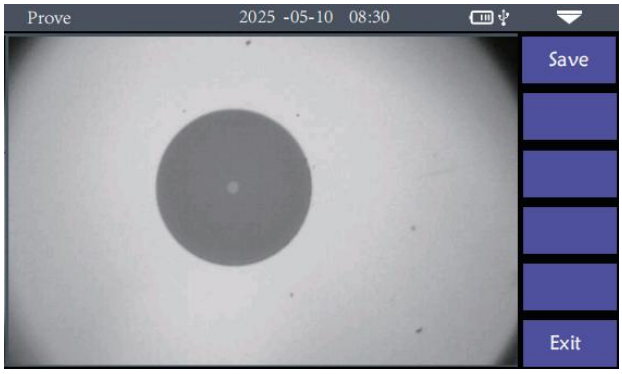
Fiber endface inspection

Optical fiber end detection and cleaning is an important step to ensure the quality of optical fiber communication.The pollution or damage of optical fiber end face will lead to signal attenuation, reflection loss and unreliable connection. Therefore, regular detection and cleaning of optical fiber end face is crucial to ensure effective optical transmission. The USB interface end face detector suitable for this machine can detect and clean the end face of the test link to ensure the quality and reliability of link communication transmission.



System Settings

Set information such as automatic shutdown, backlight brightness, and sound.

Automatic shutdown: OFF / 5 min / 15 min / 30 min / 45 min / 60 min

Backlight brightness: 10%/30%/50%/75%/100%

Sound: Turn on or off touch and key tone

USB connection: After opening, connect to the computer and transfer data

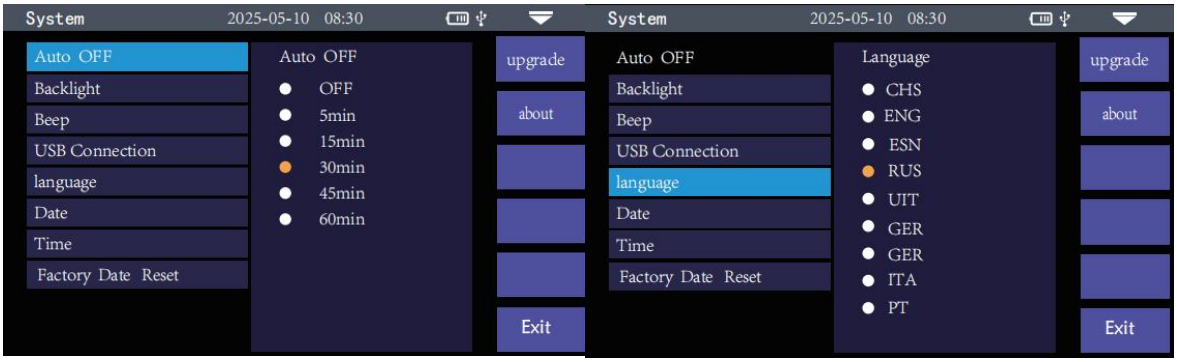
Language: Displays the native language type Time

Date: Set the instrument time and date Restore factory

Settings: Restore default parameter values

Firmware upgrade: Local software update

Version information: View the local information



Faults and Solutions

Fault description	Fault cause	Solution
The instrument does not start properly	The battery is dead	Charge the battery and observe the charging light.If it flashes, continue charging. Otherwise, contact the supplier
The instrument cannot be charged properly	The operating environment does not meet charging conditions	Charge the instrument in an environment ranging from 0℃ to 50℃
	Battery problems, or internal circuit problems	Contact the supplier to replace the battery
No normal curve can be measured	Instrument parameters are not set correctly	Reset the correct test parameters

	The output end of the optical fiber is contaminated	Clean the optical output end face
	The optical output connector is damaged	Connect to output connector
	The optical output connector does not match	Replace the matching connector
The test curve has large burrs and uneven waveform	The output interface is incorrectly connected	Reconnect the appropriate output interface
	Pulse width setting braid small	Increase the test pulse width value
The front end of the test curve is saturated (flat top)	The pulse width setting is too large	Reduce the test pulse width parameter
The reflection peak at the beginning of the test curve drops slowly There is a tailing phenomenon	The output end of the optical fiber is contaminated	Clean the optical output end face
	The optical output connector is damaged	Replace the output connector
	The optical output connector does not match	Replace the matching connector
The optical fiber end reflection peak cannot be measured	The range setting is too small	Increase the test range value
	Pulse width setting is too small	Increase the test pulse width parameter
False positives in curve analysis	The test curve quality difference event threshold is set too small	Increase the test pulse width parameter and increase the event threshold
The measured fiber length is not accurate	Instrument parameters are not set correctly	Reset the appropriate parameters
	The refractive index setting of the optical fiber is incorrect	Reset the refractive index of the optical fiber
The measured average optical fiber loss is inaccurate	The front end of the test curve is too long	Clean the optical output end face
	The cursor point position is incorrectly set	Reset cursor point position.

Maintenance

Connector cleaning

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 is unable to test a normal curve, or the test results are inaccurate, the connector is first considered for cleaning. When cleaning, be sure to do it with both OTDR and visual red light fault location turned off. Unscrew the output connector and wipe the end face with a special dust-free paper towel or cotton swab dampened with alcohol. At the same time, after the instrument is used, please cover the dustproof cap, and keep the dustproof clean.

Instrument screen cleaning

The display of this series of optical time domain reflectometer is a 5.6-inch TFT full-view color LCD with capacitive touch screen. Sharp objects cannot be used to click the LCD screen when in use. If the LCD screen may be damaged, soft paper can be used to wipe and clean the LCD screen. Do not wipe the LCD with organic solvents; otherwise, the LCD may be damaged.

Ordering information

Model	Wavelength (nm)	Dynamic Range (dB)	Event/Attenuation Dead-zone (m)
SPTK-DR02T-M26	850/1300	28/26	2.5/8m
SPTK-DR02T-D37	1310/1550	37/35	2.5/8m
SPTK-DR02T-D42	1310/1550	42/40	2.5/8m
SPTK-DR02T-D45	1310/1550	45/43	2.5/8m
SPTK-DR02T-T37	1310/1550/1625	37/36/37	2.5/8m
SPTK-DR02T-T42	1310/1550/1625	42/40/42	2.5/8m
SPTK-DR02T-T45	1310/1550/1625	45/43/45	2.5/8m
SPTK-DR02T-TO37	1310/1490/1550	37/36/37	2.5/8m
SPTK-DR02T-TO42	1310/1490/1550	42/40/42	2.5/8m
SPTK-DR02T-TO45	1310/1490/1550	45/43/45	2.5/8m
SPTK-DR02T-MD26	850/1300/1310/1550	28/26/37/36	2.5/8m
SPTK-DR02T-Q40	1310/1550/1625/1650	40/40/38/38	2.5/8m

Note: If you need more customized services, please contact us.

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Web : http://www.sopto.com.cn