

# **Optical Network 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! Except for 1625nm/1650nm, all the others are non-on-line test wavelength, it will cause damage to the internal devices of the instrument if it is used forcibly! 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  $0^{\circ}C \sim 50^{\circ}C$ . When the ambient temperature is too high, the charging will automatically terminate. The instrument battery should be charged every one month to avoid battery failure due to self-discharge after long time storage. The temperature range of the battery during long-term storage is  $-20^{\circ}C \sim 45^{\circ}C$ . 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

according to the specifications, otherwise the equipment may be damaged.

Fiber End Face Cleaning: Before testing, clean the end face of the tested optical fiber joint with alcohol cotton.

LCD screen: The display of this series of instruments is 4.3 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.

Guarantee description: The whole machine is guaranteed for 18 months. The battery, charging adapter and optical interface consumables are guaranteed for 6 months. The warranty date shall be postponed one month from the date of manufacture.

Due to the need of design improvement, the contents are subject to change without notice.





Brief

#### **Top view**

ODTDR/LS port ② OPM port ③VFL port ④ Flashlight

Left side ① TF Card Port ② Type C USB

**Bottom view** RJ45 Remote tester

## Main view

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

# **Right side**

① RJ45 Tracker port ② RJ45 Sequence port

**Back view** ① Loudspeaker

**Functional Keys** 



Test from the splitter to the ONU client to determine whether the optical fiber is connected to the optical modem, and perform resource Inventory and measure the link loss from the splitter to the user end, and perform weak light diagnosis.



## Resource inventory (ONU)

Set up: Enter the optical modem test setting interface and set the configuration parameters.

Test: Optical modem test according to the set configuration parameters.

File: Open the saved OTDR test data

Distance: The distance from the optical fiber to the optical modem Total loss: The loss value from the access point to the optical modem

Number of Events: The total number of events for the current tested link

List: This item is the same as the expert OTDR.



# Resource inventory (ONU)

Connect the fiber and click the Test button Start the test and display a status letter The result mainly contains four emotions Condition.

1. The optical fiber is not plugged into the optical modem.

optical 2.The fiber is normally connected to the optical modem.

3. The end of the fiber may be broken.

4. The loss of the optical fiber connector at the exit of the equipment is large.



# Resource inventory (ONU) - Set up

Connector reflection loss threshold: When the device connector reflection loss is 19: greater than this value, it is represented The connection connector is of poor quality Optical fiber normal access optical modem: the end event reflection loss is between optical cat insertion reflection Between the loss threshold and the fiber break reflection loss threshold

The optical fiber connector is normal and not connected to the optical modem: the reflection loss of the end event is greater than that of the optical modem The reflection loss threshold and the broadening is greater than the broadening distance

Fiber joint breakage: The end event reflection loss is less than the fiber break reflection loss threshold and broadening is less than the break broadening distance Refractive index: Determined by the nature of the fiber and by the cable or fiber manufacturer Yes, the refractive index is a key parameter for calculating distance and cannot be set arbitrarily

Event loss threshold: Events with loss greater than this threshold will be logged Reflection threshold: Sets the reflection threshold for link reflection events that can be tested

End Threshold: Sets the loss threshold at the end of the link that can be tested for event loss

Threshold: Events with loss greater than this threshold will be logged

## Intelligent diagnostics (OLT)-Use Scenarios

Optical Cat Test Settings						
Joint Reflection Loss Thre.	40.00dB					
Optical Cat Insertion Reflection Loss Thre.	45.00dB					
Fiber Fracture Reflection Loss Thre.	30.00dB					
Broadening distance	50.00m					
Fracture broadening distance	6.00m					
lor (1550nm)	1.46800					
Event Loss Thre.	0.20dB					
Return Loss Thre.	40.00dB					
End Loss Thre.	10.00dB					
3	$\bigotimes$					

Optical Network Tester can measure the splitter and optical fiber loss in the link under test from the optical cat side, secondary beam splitter, and primary beam splitter to the OLT end of the equipment room, and realize the intelligent diagnosis test of weak light in the link.



## Intelligent diagnostics (OLT)

Settings: Enter the setting interface, you can set the configuration test mode and splitter test parameters

Test: Splitter test according to the set configuration parameters File: Open the saved OTDR test data

Distance: The distance from the optical fiber to the optical modem Total loss: The loss value from the access point to the optical modem

Number of Events: The total number of events for the current



tested link List: Events with attrition greater than this threshold will be logged

No.	Туре	Dis. (km)	Loss (dB)	Avg.loss (dB/km)	Ref. (dB)	Act. (dB)				
2-0	$\mapsto$	0.000	0.00	0.00	-70.00	0.00				
2-1	≣⊳	15.097	7.91	0.21	-25.62	11.10				
2-2	н	30.132		0.14	-25.63	13.17				
S	et		Tes		iles					

## Intelligent diagnostics (OLT)



Connect the fiber and click Test to start the test Test, and display status information, results There are 5 main cases.

1.No splitter in the fiber link

2. The loss of optical fiber joints at the outlet of the equipment is large 3.The splitter link is normal

4.Fiber macro bending 5.The splicer point has large loss



# Intelligent diagnostics (OLT) -Set up

The splitter test setup is the same as the resource inventory

#### Test mode settings

Optical modem -- machine room: set up the direction test from optical modem to the computer room

2-stage splitter front - machine room: Set up the direction test from the front of the 2-stage splitter to the machine room

In front of the 1-stage splitter --- machine room: set up the direction test from the front of the 1-stage splitter to the machine room



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

FastSet: 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	~
Rise event	
Fiber splitter	∋
Fiber end	Ĥ



# Expert OTDR-List

List: the test results are displayed in the form of a list. Cable length: the total length of the link Link-Loss: the total loss of the link Avg-Loss: the average loss of the link 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

Avg-Loss: the average loss value from the start to the current event

RL: the return loss value of the current event point Link-L: the total loss from the start to the current event point



## OTDR Setting

3:24

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Test Settings

Set: Avg.Time and IOR are the same as those in Auto OTDR. Sample Rate: Standard: test with standard accuracy High: test in high precision mode, the test

time will be extended

Event Loss Thre .: set the loss threshold of connection point, fusion point in the link that can be tested, between  $0.2 dB \sim$ 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.

Return Loss Thre .: 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 Thre .: set the loss threshold at the end of link that can be tested, ranging from 1dB to 30dB, the default value is 10dB.

RealTest Analyse: turn on or off the automatic analysis function after real-time test.

OK: save the set parameters

Restore: restore factory settings

**OTDR-File Save** 

## **OTDR-File Save**

Press the [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.

保存	SOR							Ì								
1	2	Ţ	3	4		5		6	5	7	7	8	3	ç	,	0
Q	W	/	E	R	2	т	·	٢	1	ι	J			c	>	Ρ
	4	s	[	þ	F	-	Ģ	3	нј		нJ		٢	<	I	-
+		z	)	<	C	;	V	νв		3	١	۷	Ν	Λ		$\bigotimes$
@	Γ	&	ŀ	·	Space						E	nte	r			



The 10G demultiplexing optical power meter of Optical Network Tester can test the power value of conventional wavelengths, supports simultaneous accurate measurement of 1490nm/1577nm , and accurately judges weak light fiber segments.







#### **RJ45 Tracking**

#### **Ri45 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" 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.

Normal: 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

RJ45 Length

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

vit ence 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! Tips: Do not online test! Please connect the remote de 

## 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 × 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!

13:24		<u>_</u>							
	RJ45 Length								
		-							
Port:1	)	200m							
Port:2	) ——	200m							
Port:3	)	200m							
Port:4	) ——	200m							
Port:5	)	200m							
Port:6	) ——	200m							
Port:7		200m							
Port:8	) ——	200m							
Tips: Do not online test! Unlug the other end of the cable!									
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Auto OFF: Set auto shutdown time.

Backlight brightness: Setting backlight brightness.

Sound: turn the touch tone on or off.

Flashlight: turn the flashlight on or off.

Date & Time: set the instrument time and date. Language: displays the native language type.

Auto Save: automatically save the curve file after opening.

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

Bluetooth: (Optional)After opening, scan the QR code, download the APP and pair it with the host for operation.

Restore factory settings: restore default parameter values.

Upgrade: software upgrade.

Version information: view local information and alarm records.

