980RTC HANDY MINI OTDR

All in 1 Device, Pocket-sized, Multi Functions, Easy-to-use, and Affordable for Technicians at Any Level

Features

- Single, dual, and triple wavelength lightweight OTDR
- Combines all essential fiber tests in one handheld with OPM, OLS, VFL, etc
- Easy to understand OTDR analysis with event map result view and pass/fail indications
- Access network or point-to-point network verification or troubleshooting
- Upgrades easily in the field All-day battery life

Application

- FTTX Testing and Maintenance
- CATV Network Testing
- Access Network Testing
- LAN Network Testing
- Metro Network Testing
- FTTA Troubleshooting



9 Function in One Device | OTDR | Optical Power Meter | Optical Light Source | Visual Fault Locator | Insertion Loss Testing | Event Map | LED Light | RJ45 Cable Sequence | RJ45 Cable Tracker

Configuration

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			Hot Sale			
Model#	980RTC-D26	980RTC-D24SF	980RTC-A26	980RTC-B26	980RTC	980RTC-M24
Wavelength	1310/1550nm	1550nm	1625nm	1650nm	1310/1550/1625nm	850/1300nm
Dynamic Range	26/24dB	24dB	26dB	26dB	26/24/26dB	24/22dB
Testing Range	3m to 90km	3m to 70km	3m to 90km	3m to 90km	3m to 90km	3m to 70km
OTDR	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Event Map	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Power Meter	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Light Source	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
VFL	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Loss Test	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
LED Light	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
RJ45 Sequence	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
RJ45 Tracker	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
1490nm Online	х	\checkmark	\checkmark	\checkmark	\checkmark	х
1550nm Online	х	х	\checkmark	\checkmark	\checkmark	х
1610nm Online	х	х	х	\checkmark	\checkmark	х

The Kit Includes: OTDR, FC/SC Connector, OTDRviewer Software, Power Charging Adapter, USB Cable, Carrying Case, User Manual, Certificate of Calibrate, RJ45 Signal Receiver(optional)

Note: 980RTC-A26 is with Filter for Online Testing even though 1490/1550nm Light is in Fiber Cable 980RTC-B26 is with Filter for Online Testing even though 1490/1550/1610nm light is in Fiber Cable 980RTC is with Filter for Online Testing even though 1490/15501610nm Light is in Fiber Cable

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General	
Size/Weight	175x105x45mm/ 450g (Battery included)
Display	4.3 inch touch-sensitive TFT Screen, 800x480 Resolution
Interface	SD port, OTDR port, VFL port, Optical Power Meter Port, Type A USB, Type C USB
Bower Supply	Input: 100V(ac) to 240V(ac), 50~60Hz, 0.8A; Output: 9V(DC), 2A
Power Supply	5200mAh/3.7V Lithium battery (with air traffic certification)
Battery	Standby Time>10 hours
Power Saving	Back light: Common/Highligh/Power saving/Customized
Power Saving	Auto power off: Never/1min/5min/10min/30min/60min
Data Storage	Internal Memory: 1000 traces, SD Card (optional)
Language	English, Spanish, French, Korean, Italian, Portugal, Russian
Environmental	Operating temperature and humidity: -10 $^\circ\!\!\!\!\!^\circ \sim$ +55 $^\circ\!\!\!\!^\circ$, \leqslant 95% (non-condensation)
Conditions	Storage temperature and humidity: -20 $^\circ\!\mathrm{C}$ ~+80 $^\circ\!\mathrm{C}$, \leqslant 95% (non-condensation)

OTDR Module

Pulse Width	5ns, 10ns, 20ns, 50ns, 100ns, 200ns, 500ns, 1µs, 2µs, 5µs, 10µs					
Distance Range	100m, 500m,2km, 5km, 10km, 20km, 40km, 60km, 90km					
Sampling Resolution	Minimum 0.2m					
Sampling Point	Maximum 64,000 points					
Linearity	≤0.05dB/dB					
Averaging Time	10s, 15s, 30s, Real Time, Customized					
Scale Indication	X axis: 4~70m/div, Y axis: 0.09~5dB/div					
Distance Accuracy	±(1m+measuring distance×3×10^-5+sampling resolution) (excluding IOR uncertainty)					
Loss Threshold	Auto, Customized					
Loss Resolution	Auto, Customized					
Distance Desclution	0.01-					
Distance Resolution	0.0111					
IOR Setting	1.0~1.9, 0.0001 step					
IOR Setting	1.0~1.9, 0.0001 step					

VFL Module

Wavelength	650nm
Output Power	10mw, CLASSIII B
Range	12km
Launching Mode	CW/2Hz

OPM Module

Wavelength	850/1300/1310/1490/1550/1625/1650nm
Test Range	-70~+ 10dBm (in default) or -50~+ 26dBm
Resolution	0.01
Accuracy	±0.35dB±1nW
Modulation	270/1k/2k Hz, Pi≥-40dBm

OLS Module

Wavelength	Same as OTDR Wavelengths
Output Power	-10 to -4dBm±2dB
Output mode	CW/270/1k/2k Hz

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Save

Load

Quit

Functions Display 2000-01-06 01:15 OTDR Event Map Ö (\gg 2000-01-06 01:16 ð (WL: 1550nm PW: 1us A - B: -16168.58m 4.10dB -0.254dB/km dB 28.0 Test Wave 1550 nm Pulse Width 1us Parameter Settings Parameter Settings 24.0 20.0 Cursor B 16.0 ÷ 12.0 Curve Operations 1 2 8.0 3 File Operations T.Length Avg.Loss 47.5 63.3 23.7 71.2 7.9 15.9 39.5 Event Analysis 5.104 2 Л 20.513 1.00 1.00 0.188 -52.2 20.513 5.104 1.00 3.00 0.188 -52.2 Л 3 Л Е 3 ЛЕ 40.903 20.390 0.189 -22.8 40.903 20.390 ... 0.189 -22.8

OTDR Curve & Event List

2000-01-06 01:22 OPM 2000-01-06 01:22 Ö (\ge Õ (Shutdown VFL ON 2Hz Wave Switch -75.02 dBm 650 m Shutdown DANGER Linearity power Reference power Relative power 0.031 nW 0.00 dBm -75.02 dB Calibration Laser, don't direct at the eyes! Quit

Event Map

Visual Fault Locator

RJ45 Test	2000-01-06 01:22	 \gg	RJ45 Tracker	2000-01-06 01:22	Ģ •	
Tip:ple	ease access the remote module when testing	Shutdown				Start
Port		T568B		Port:1	≥	T568B
Port: Port:				Port:3		
Port: Port:				Port:4		
Port: Port:				Port:6		
Port	8 ——— • LED8	Quit		Port:8		Quit

AJ45 Cable Sequence

Files	2000-01-06 01:26	Ş (\sim
200001	06011517.bmp		File Operations
🕫 🗁 OTDR	28 Files	Date	operations
SNAP	вмр 20000106011517.bmp	2000-01-06 01:15:34	Load
B 🖻 Udisk	вмр 20000106011641.bmp	2000-01-06 01:16:56	Loud
	вмр 20000106011741.bmp	2000-01-06 01:17:46	
	вмр 20000106011841.bmp	2000-01-06 01:18:44	Save Settings
	вмр 20000106011850.bmp	2000-01-06 01:18:54	
	вмр 20000106011902.bmp	2000-01-06 01:19:06	
	вмр 20000106011910.bmp	2000-01-06 01:19:14	
	вмр 20000106011920.bmp	2000-01-06 01:19:22	
	вмр 20000106011936.bmp	2000-01-06 01:19:40	
	вмр 20000106011946.bmp	2000-01-06 01:19:50	Quit
	вмр 20000106012001.bmp	2000-01-06 01:20:04	

SOR and BMP Files Management

AJ45 Cable Tracker

Optical Power Meter

Test Parameter	2000-01-06 0	1:18	 >
Test Wave	1310nm	Test Range	Test
Test Range	10km	500m1km	Test Parameter
Pulse Width Test Time	10us 10S	 2km 5km 	Threshold Settings
Refraction		🥪 10km 🔵 20km	Default Parameter
Launch Cable	0.0m	• 40km	Light
Receive Cable	None	 60km 90km 	Calibration
Unit	km		Back

Parameter Setting

 \star for more pictures and video demo, please contact our sales or technical support tech@FirstFiber.cn

OTDR Report Printing OTDR REPORT OTDR v2.20 2019-08-31 02:26:06 *.bmp Job ID : Contractor: OTDR-0002.sor 2019-08-28 17:38:46 .sor Backscatter coeff(dB) : Loss threshold(dB) : Reflectance threshold(dB) : End of fiber threshold : Refractive Index : Wavelength(nm): 1550 Pulse(ns) : 1000 rage Time (s) : 10 Pulse(hs) Origin Location: Cable : Fiber : Color : **USB** Disc Location: 2 Cable : 2 Fiber : 2 Color : 2 A 1997 A 1997 A 1997 A **USB** Cable 44.9 | 1:1 - 요 II 는 제 시 시 시 사 사 용 @ A+ A-39. 34. 29. 24. 20. Edit 15. File Date: 10. 164dB race Remove Clea 5. 1 OTDR 2 OTDR 3 OTDR 0.0 A: 0.147km 16.68dB B: 26.665km 10.56dB -26.518km A-B: 0. 231dB/km 0.000 15.409 5.104 0.164 2.794 3.870 8.628 0.180 0.188 0.189 Segment (km) Total Loss(dB) Attenuation(dB/km) Reflectance(dB) Event Type 1Reflect(S) Distance (km) -52.2 0. 164 🛆 PC Software

OTDR Online Testing

Recent years, many OTDR manufacturers and suppliers declare their OTDRs support online testing, but some times, it is a trap if you do not understand what is OTDR online testing clearly. This artical will explain what is OTDR online testing.

1. OTDR working wavlength

OTDR emits a specific wavelength of light pulse into the tested fiber, while at the same time, OTDR receives backscattered and reflected light from the tested fiber. OTDR analyzes the received optical light and forms a curve, which is displayed on the screen. Please note that the wavelength of the backscattered and reflected light received by OTDR is consistent with the wavelength of the light emitted by OTDR. That is to say, the specific wavelength of optical light used in OTDR testing are emitted by OTDR itself. This wavelength is called the OTDR working wavelength.

2. Fiber network service wavelength

Fiber optic networks transmit information through specific wavelength optical signals. Due to the characteristics of optical fibers, at wavelengths of 1310nm, 1490nm, and 1550nm, the loss is relatively small, so these three wavelengths are usually used for signal transmission. The following table briefly lists the wavelengths used in common GPON, EPON, and CWDM technologies.

GPON 1310nm 1490nm 1550nm

EPON 1310nm 1490nm 1550nm

CWDM 1270nm 1290nm 1310nm 1330nm 1350nm 1370nm 1390nm 1410nm 1430nm 1450nm 1490nm 1510nm 1530nm 1550nm 1570nm 1590nm 1610nm

3. when no service wavelength in fiber network

Throughout the OTDR testing process, OTDR only needs to use the wavelength of light emitted by itself. It does not need or want to have optical signals of other wavelengths in the tested fiber. If there is, it needs to be filtered out. In the daily OTDR test scenario, it can be roughly divided into the acceptance testing before the network is opened and the maintenance test after the network is opened. During the acceptance testing, the optical cable is usually just laid and the network service has not been opened, so there is no optical signal in the optical fiber. At this time, it is very friendly to OTDR. Considering that the service wavelength for future operation is 1310/1490/1550nm, it is recommended to select the corresponding wavelength for testing on OTDR, which can better simulate the fiber optic link condition during operation. Of course, other wavelengths such as 1610nm or 1525nm can also be chosen, because although the fiber exhibits slight differences in loss at different wavelengths, these differences are not significant due to the close proximity of wavelengths, and they only affect the loss and do not affect the testing

OTDR Online Testing

of length and event points. Therefore, for the tested fiber without optical signals, any wavelength can be selected for testing. Due to the lower cost of 1310nm/1550nm lasers, it is customary to use 1310nm/1550nm for testing.

4. when there is an optical signal in the tested fiber

When conducting fiber optic maintenance or troubleshooting, maintenance personnel generally do not disconnect the fiber optic link from the OLT, as a PON port on an OLT typically manages dozens of ONUs. Once not online, the impact range is large. Therefore, during troubleshooting, technical personnel usually conduct online testing. At this point, we have learned that the so-called OTDR online testing refers to testing when there is an optical signal present in the fiber optic link.

5. Testing of GPON/EPON optical networks

5.1. There is a 1490nm downlink signal in the link

In traditional GPON/EPON networks, upstream signals are transmitted at a wavelength of 1310nm, while downstream signals are transmitted at a wavelength of 1490nm. When testing with 1550nm wavelength OTDR from the ONU to the OLT side, the 1490nm wavelength light in the link will also enter the OTDR, which affects the testing. Therefore, it is necessary to filter out the 1490nm wavelength optical signal present in the link. A specialized passive component filter is a good choice. Usually, it is customary to refer to OTDR with integrated filters as online testing

5.2 There are 1490nm and 1550nm downlink signals in the link

In GPON/EPON optical networks, 1550nm cable TV video signals are generally added, so the downstream wavelengths of 1490nm and 1550nm will coexist in the fiber optic link, making it impossible to use 1550nm OTDR for online testing. It is necessary to find another wavelength as the testing wavelength for OTDR. Considering cost factors, OTDR at 1610nm is a good choice. This way, a filter can be built into the 1610nm OTDR to filter out all wavelengths except for 1610nm.

6. CWDM fiber network testing

Due to the use of a transmission wavelength of 1610nm in the CWDM fiber optic communication system, OTDR with a working wavelength of 1610nm cannot be used. At this point, the 1625nm OTDR came in handy. So, 1310nm/1550nm/1625nm OTDR is the most widely used. The 1310nm/1550nm wavelengths are mainly used for non online testing. 1625nm is mainly used for online testing. However, due to the proximity of 1625nm to 1610nm, its isolation is relatively low. Sometimes, there may be problems that cannot be measured online. Therefore, in recent years, 1650nm online OTDR has been developed. Due to the relatively high cost of 1650nm lasers, in general, if users purchase 1650nm OTDR, its main purpose is to conduct online testing. In this way, most of them only purchase OTDR with a single wavelength of 1650nm.