

## TFN F7 Series Optical Time Domain Reflectometer



TFN F7 is a high-performance multi-function test instrument launched for optical fiber testing. It has an 8-inch high-definition capacitive screen and full-function buttons. The product has a starting dynamic range of 35/33dB and can achieve a maximum dynamic range of 45dB and a maximum measurement range of 0.05m. distance resolution, with a minimum test blind zone of 0.8m, and rich configuration function modules such as dual-wavelength, three-wavelength, four-wavelength, and single-mode and multi-mode integration. The optional online test module can achieve lossless link light Test, the unique test result self-diagnosis function greatly ensures the reliability and validity of the test results.

This product can realize various testing functions such as light source, optical power meter, VFL, fiber end face detection, optical loss test, fault location, photoeye (MAP view), Bluetooth, single-mode and multi-mode testing according to user needs.

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## Test Function Definition

- **OTDR Functions:**

Supporting up to four wavelengths, the internal features of the OTDR are as follows:

(1) Launch optical fiber and end optical fiber setting;

(2) Pass/Fail threshold determination, threshold customization function, differentiated display of qualified/unqualified events;

(3) Generation of PDF test report;

(4) Turn on the comparison viewing function for multiple SOR curves, the default is 5;

(5) Curve analysis functions such as four-point method and LSA method.

- **Event Map:**

(1) Macro bending fault analysis function, and clearly indicates the macro bending event type;

(2) Pass/Fail threshold determination, threshold customization function, differentiated display of qualified/unqualified events;

(3) Generation of PDF test reports (including curve display, list display, and test information);

- **Light Source Function:** Generate CW, 270Hz, 1kHz, 2kHz laser light source.

- **Optical Power Meter Function:** -70~+6dBm (optional) or -50~+26dBm (standard) multi-wavelength power detection range, supporting the identification of light source modulation frequency.

- **Red Light Function (VFL):** Continuous, 1Hz, 2Hz visible red light to visually locate fiber faults.

- **Optical Loss Test Function:** Supports the light source and optical power meter to be turned on at the same time to test the insertion loss of devices and links.

- **End Face Detection Function:** visual fiber end face diagnosis. (The detection head of this function is optional).

- **Remote Test Function:** Remotely connect the instrument through Ethernet to realize remote control of the OTDR function (module OTDR function).

- **Network Test Function:** The network test function includes PING and IP scanning.

- **Link Test Function:** link speed test, network cable sequence and cable length (this function is optional).

## Other Function Definitions

1. Bluetooth function: Connect the mobile APP to the device and control OT, red light, optical power testing and test file sending through Bluetooth (this function is optional).

### 2. Quick screenshot (screenshot)

The convenient drop-down window provides a quick screenshot function to record the status of the instrument at any time.

### 3. Power-on password

Users can set, modify, and delete power-on passwords.

### 4. Help

The device has built-in help documentation.

## Interface Function Description

(1) Power interface: DC12V~19V, external power input.

(2) Power on/off: Short press for 2 seconds to soft power off, long press for 8 seconds to force power off.

(3) Power/charging indicator light: The power indicator light is on after turning on the phone, and the charging indicator light is on when charging.

(4) Network port 1: Reserved for testing network cable length and line sequence functions (option).

(5) Network port 2: Equipment Ethernet communication interface, which can realize remote testing of instruments, network testing, data transmission and other functions.

(6) OPM: optical power meter interface.

(7) VFL: red light interface.

(8) OTDR1: OTDR interface 1, commonly used 1310/1550 optical interface.

(9) OTDR2: OTDR interface 2, multi-mode 850/1300, 1490, 1625 optical interface.

(10) USB-A: external U disk, end face detector.

(11) USB-C (Type-C): Connect to the computer through a data cable to transmit data.

Function indicators: They are the main function indicators of OTDR, LS (light source), VFL, and OPM. The corresponding indicators light up when the functions are working.

## Specifications

Module	Optical Time Domain Reflectometer F7								
	S1	S3	S4	T1	T2	T3	F1	M1	SM1
Fiber Type	Single Mode							Multi Mode	Single/Multi Mode
Wavelength	1310/1550nm			1310nm 1550nm 1490nm	1310nm 1550nm 1625nm	1310nm 1550nm 1650nm	1310nm 1490nm 1550nm 1625nm	850nm 1300nm	850nm 1300nm 1310nm 1550nm
Max Dynamic Range (dB)	35/33	42/40	45/43	38/36/36	38/36/36	38/36/36	37/35/35/35	26/28	26/28/35/33
Event Blind Area	1m	0.8m		0.8m	0.8m	0.8m	1m	1m	
Attenuation Blind Area	5m	4m		4m	4m	4m	5m	5m	
Test Range		100m/500m/1.25km/2.5km/5km/10km/20km/40km/80km/125km/260km/420km							
Test Pulse Width		3ns/5ns/10ns/20ns/30ns/50ns/80ns/100ns/200ns/300ns/500ns/800ns/1us/2us/3us/5us/8us/10us/20us							
Ranging Accuracy		± (0.75m+sampling interval+0.0025% × test distance)							
Loss Resolution		± 0.001dB							
Loss Threshold		0.01dB							
Linearity		± 0.03dB/dB							
Maximum Number of Sampling Points		≥ 256k							
Sampling Resolution		0.03m~4m							
File Format		SOR standard file format							
Loss Measurement Mode		4 point method							
Laser Safety Level		Class II							
Data Storage		Standard configuration: ≥ 12GB							
Optical Connector		FC/UPC (interchangeable SC, ST)							
Optical Power Meter									
Wavelength Range		800nm~1700nm							
Connector		Universal Connector FC/SC/ST							

Measuring Range	-50dBm ~ +26dBm (Standard Configuration)
Uncertainty	± 5%
Calibration Wavelength	850nm/1300nm/1310nm/1490nm/1550nm/1625nm/1650nm
<b>Laser Source</b>	
Laser Type	FP-LD
Output Wavelength	Consistent with OTDR output wavelength
Output Power	≥ -5dBm (single mode)
Operating Mode	CW/270Hz/1kHz/2kHz
Stability	CW, ± 0.5dB/15min (tested after 15min warm-up)
Optical Connector	FC/UPC (interchangeable SC, ST)
<b>Visual Fault Locator</b>	
Working Wavelength	650nm ± 20nm
Output Power	≥ 10mW
Operating Mode	CW/1Hz/2Hz
Optical Connector	FC/UPC (interchangeable SC, ST)
The optical loss test indicators refer to the above light source and optical power meter indicators.	
<b>Overall Machine Indicators</b>	
Show	8-inch color touch screen 1024X600
Power Supply	Power adapter: input 100V~240V 50/60Hz, output 12V~19V; built-in lithium-ion battery: 3.7V, 15600mAh
Data Interface	USB-A, Type-C port, RJ45 LAN 100/1000Mbit/s
Operating Temperature	-10℃ ~ 50℃
Storage Temperature	-40℃ ~ 70℃
Relative Humidity	0 ~ 95% no condensation
Total Weight	1.7KG
Volume	292*191*75mm

Note:

- Using 3ns pulse, the reflection coefficient is -35dB to -55dB typical value.
- Using 3ns pulse, the reflection coefficient is a typical value of -55dB (1310nm).
- Non-reflective FUT fiber under test, non-reflective beam splitter, 13dB loss, 50ns pulse, typical value.
- Does not include uncertainty caused by the refractive index of light.
- The output power of multi-mode 850/1300nm light source is about -24dBm, and the output power of special 1650nm (38dB) light source is about -24dBm.