



TM-3304N Fiber Ranger

User Manual

V1.0

T&M TOOLS CO., LIMITED



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1. Overview

T&M TOOLS makes full use of OTDR work principle to design and develop the TM3304N fiber ranger and greatly improves the performance from outside design to inside functions.

In hardware, it is lightweight, rugged, dustproof and waterproof.

In software, it has three brilliant functions.

One is Automatic Power Control, which automatically test and adjust the best power level according to the real test environment;

Secondly, it is Automatic Pulse Width Selection which automatically select most suitable pulse width according to the real test distance.

Thirdly, it has built-in 650nm VFL, with which it can detect the fault from 1-10km and finally realize the one-dead zone test over the full range.

All these functions make the test easier, more accurate and perfect tool for the field work.

Features

- More accurate and better repeatability.
- List Max 8 results of each test
- Easy to identify the faults location
- Built-in visual fault locator with optional output power
- Optional interchangeable connector
- More than 10 hours long battery life

Applications

- Testing the fiber length and locate the faults.
- Locates the distance between two connection points.
- Installation, maintenance and fault location of FTTX and Access Network



2.Specification

Model		TM3304N
Operating Wavelength		1550nm (1310nm Optional)
Fiber Type		9/125um SM Fiber
Optical Connector Type		FC/PC
Detector Type		InGaAs
Peak Power of laser(mW)		≥60
Max.Distance	Reflection Event(km)	60 (≥1dB)
	Non-reflection Event(km)	20 (≥2.5dB)
Measurement Unit		m
Reflection Event Dead Zone(m)		15
Distance Accuracy (Reflection Event) (m)		$\pm \{2m+2*10^{-3} *Distance(m)\}$
VFL	Wavelength(nm)	650
	Output Power(mW)	>1
Power Supply		AA,3pcs
Battery Operating Time	Measurements	≥5000
	Hours	>10
Working Temperature(°C)		-5~40
Storage Temperature(°C)		-10~60
Humidity(%)		0~85 (Non-condensation)
Dimensions(mm)		190*100*5
Weight(g)		450

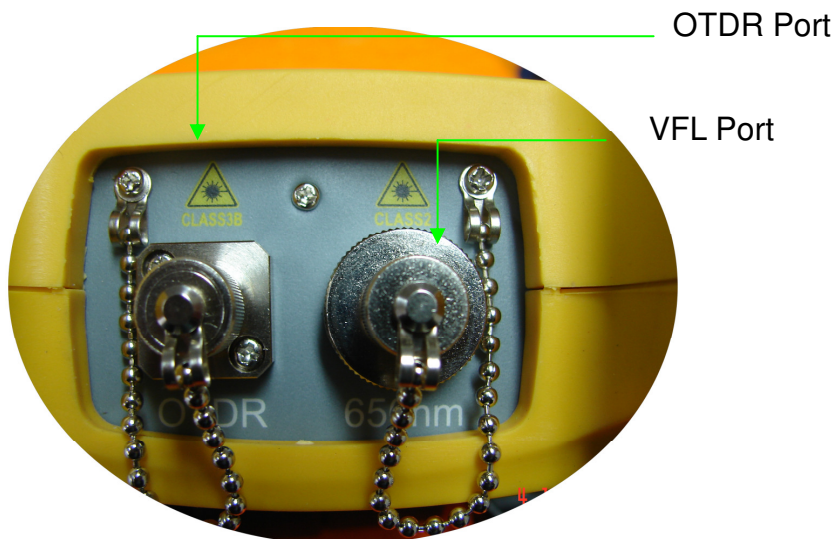


3.Standard Package

1. Main Unit-----1
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5. Desiccant-----1



4. Panel&Function



4.1 Panel&Keypad





Press this key to turn on/off..

Under the standby state, press this key to turn on the auto-off function, under which the unit will turn off automatically after 5 minutes idle time.



Under the test mode, press this key to test the under- test fiber and display the results in the screen. Press this key for 5s to enter the automatic cycle test mode and “A” will be showed in the top left corner of the screen. Press this key again to exit the automatic cycle test mode.



Under the test mode, press this key to review the previous test results. Under the refractive index changing mode, press this key to increase the value of refractive index by 0.0001.



Under the test mode, press this key to review the latter test results. Under the refractive index changing mode, press this key to decrease the value of refractive index by 0.0001.



Under the test mode, press this key to review the current refractive index or change the values together with“▲/▼”keys. Press this key again to save the values and go back to the test mode.



Press this key to activate the VFL function

4. 2 Operation

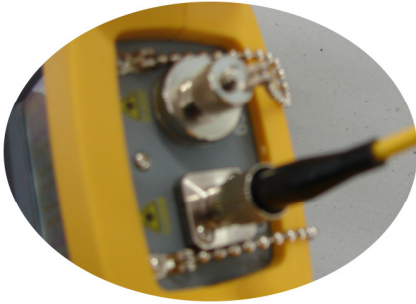
4. 2. 1 Turn on the unit and enter the test mode.



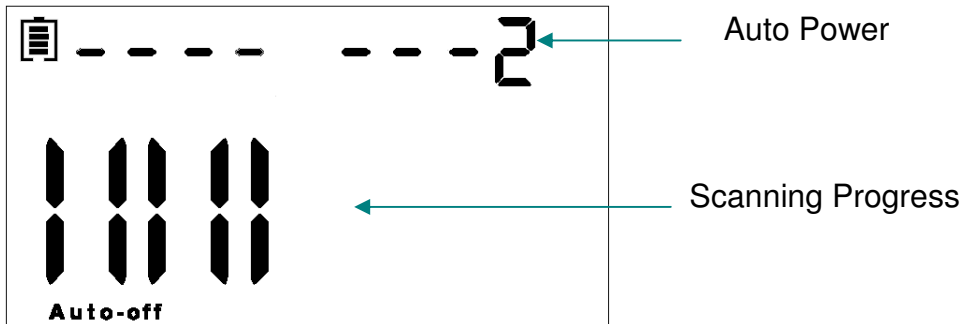
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4. 2. 2 Clean the under-test fiber and connect it to the OTDR port. Please choose the correct the fiber connect before connecting.



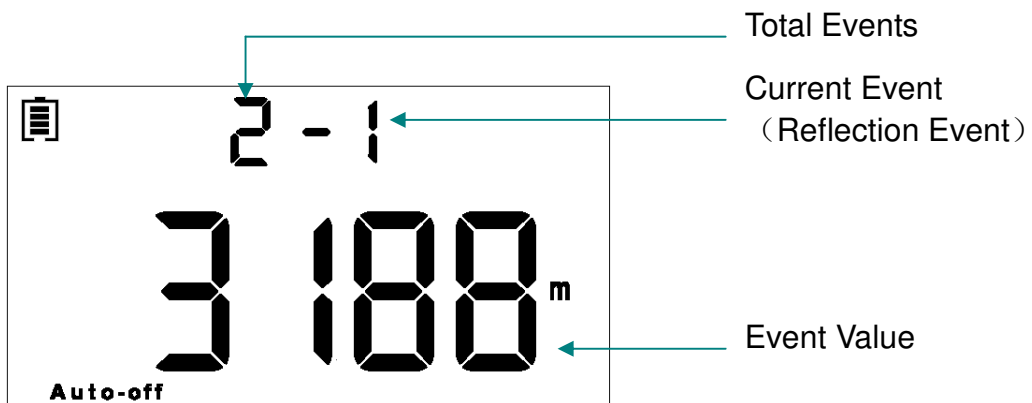


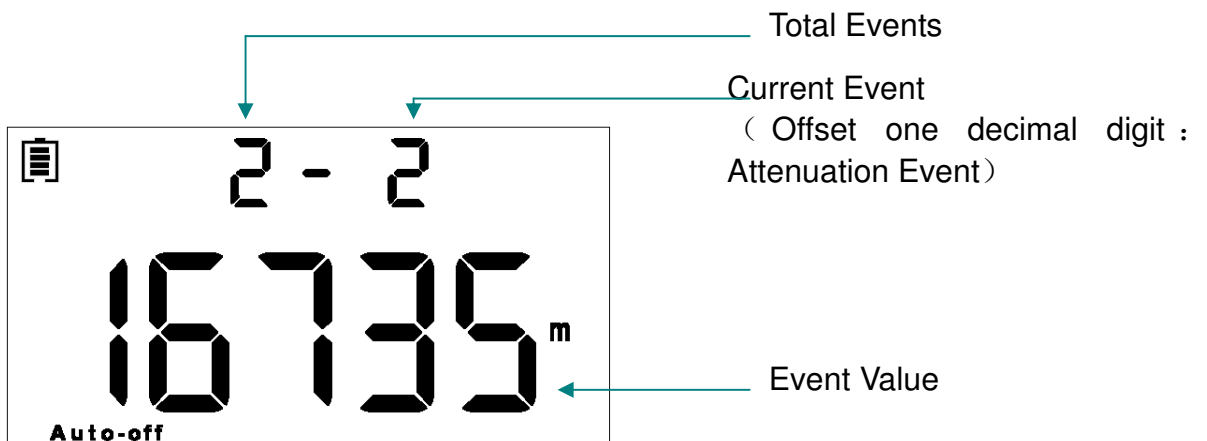
4. 2. 3 Press“SCAN” to review the fiber and show the scanning progress in the screen. With the Auto Pulse Width Control Function, the unit will set the best pulse width during the scanning process and find the events within the test range.



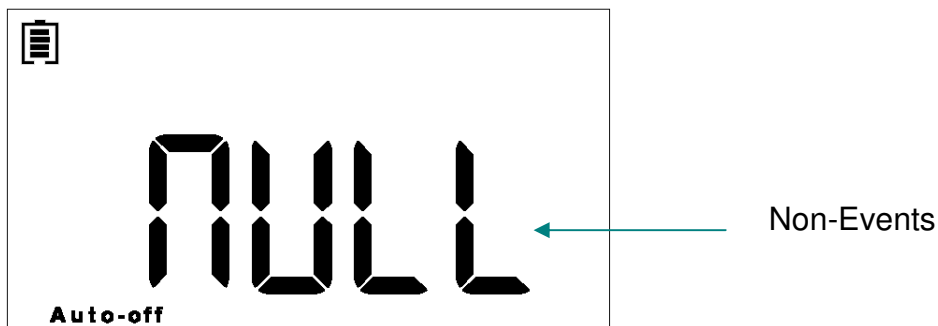
4. 2. 4 After the test, it will show the total test results.

The maximum listable events are 8pcs.Press “▲/▼” to review the total events. The error of the reflection events is smaller; and the error of the attenuation events is relatively larger.

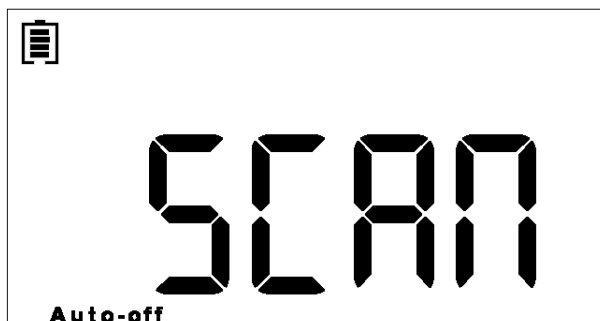




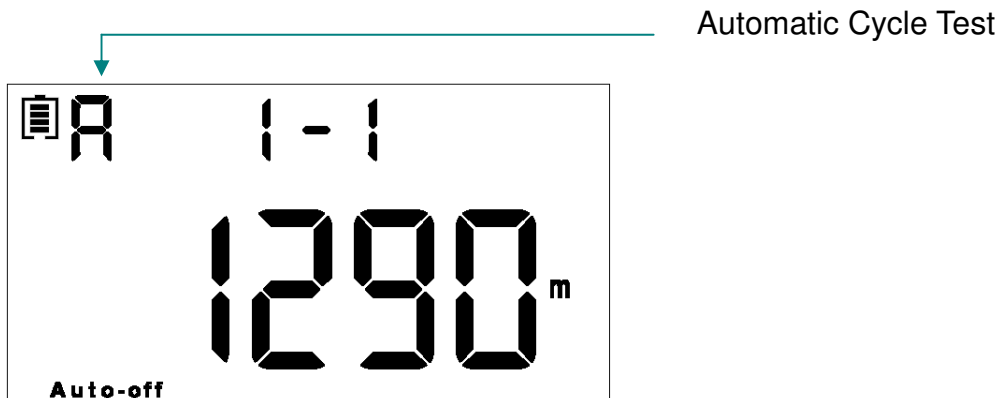
4. 2. 5 It will show the non-events when the real test range is within the dead zone or beyond test range.



4. 2. 6 When repairing the fiber, people could use this unit to identify the location of the breaks or do the automatic cycle test. Press "Scan", unit it shows "Scan" in the screen. .



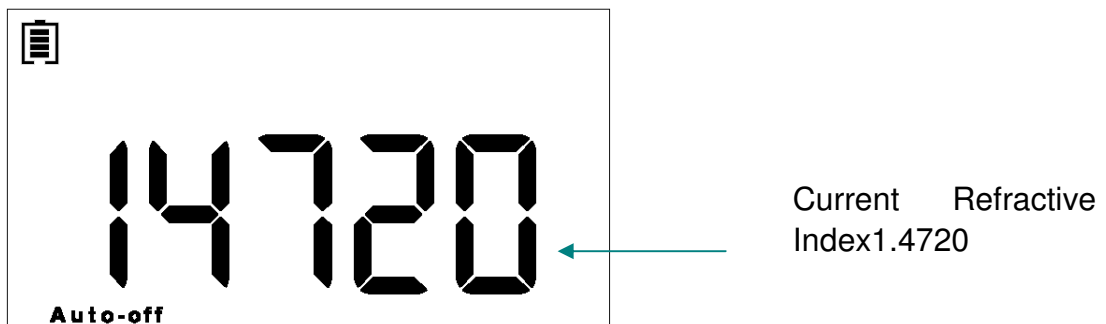
4. 2. 7 Show the location of the current break



4. 2. 8 The unit starts to test 5s later. When the break is successfully repaired, a different value will be showed in the screen.

4. 2. 9 Press “SCAN” again to exit automatic cycle test.

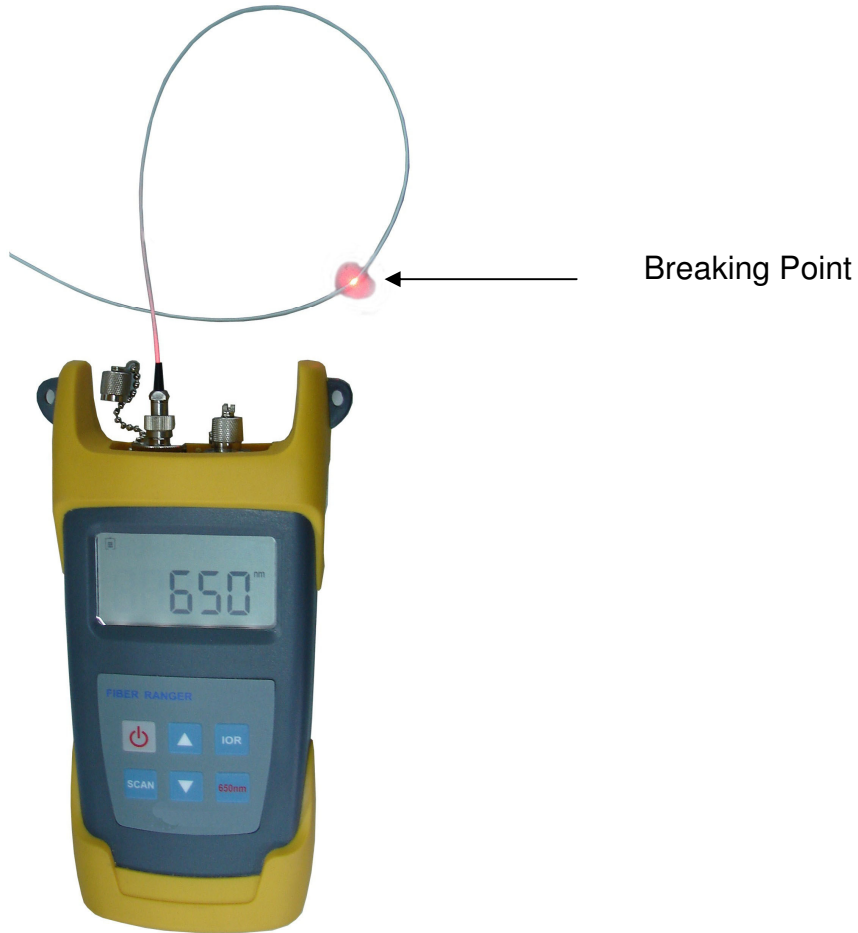
4. 2. 10 Press “IOR” to enter the refractive index changing mode.



4. 2. 11 The refractive index ranges from 1.0000-2.0000. Press “▲/▼” keys to change the values and press “IOR” key to save and exit the changing mode. User can change the value to match the different tested fiber, however, the value should be correctly adjusted according to the refractive index of the fiber under test.

4. 2. 12 The VFL could be used for location of the short-distance fiber faults. Before using the function, please make sure that it is not under the automatic cycle test mode. Connect the fiber to the VFL output port and press “650nm” key, a visible red beam could be seen at the breaking point or end –face of the tested fiber. Press “650nm” again to exit the VFL mode.





Notice: Visible light source is harmful to the eyes. Do not look at the breaking point or end face of the tested fiber directly.

5. Maintenance

- Keep the fiber output ports clean.
- Please clean them regularly with the pure Alcohol
- Keep the dust-proof cap clean and cover it after the test.
- Turn off the unit and keep the output ports inactive when cleaning. Otherwise, it will lead to dangerous radiation harms.
- Choose the correct fiber connector before test.
- Take out the batteries when not in use for a long time.





Cleaning Swab

Dip the cleaning swab in the pure alcohol and clean the connector gently, then clean it again with dry cleaning swab

6. Trouble Shooting

Problem	Possible Reason	Solution
Fail to turn on the unit	Do not turn on the unit	Press the "Power" key
	Lower battery power	Replace the batteries
Fiber length test is not accurate	Poor refractive index setting	Set the refractive index as per the original manufacture's values
	Polluted fiber end face	Clean it with pure alcohol
	Polluted output ports	Clean it with pure alcohol
	Wrong fiber connector	Use the fiber with correct connector or hybrid adapter

