GRANDWAY
FHO5000 SERIES OTDR

Convenient multi-function fiber optic tester
Design for tough outdoor environment

FEATURES

- Integrated design, smart and rugged
- IP65 protection level, outdoor enhanced
- 7-inch anti-reflection LCD screen
- PON online test module (1625nm) is optional
- MMF test module (850/1300nm) is optional
- Support multi-language display and input

APPLICATIONS

- FTTX test with PON networks
- CATV network testing
- Access network testing
- LAN network testing
- Metro network testing
- Lab and Factory testing
- Live fiber troubleshooting

Ready for all kinds of environment.

FHO5000 series OTDR is specially designed for tough outdoor jobs. IP65 protection level, lightweight, easy operation, low-reflection LCD and more than 12 hours working period make it be perfect in filed testing. Meanwhile, optional PCB board with water-proof coating helps FHO5000 series OTDR get better protection performance.

What you need is all-in-one!

FHO5000 series OTDR is a highly integrated platform that features with four module slots, with a large 7-inch color screen (with a touchscreen option), a high-capacity Lithium-Ion battery, an optional microscope (through universal serial bus [USB] port), and built-in optical test functions, such as PON test module, visual fault locator (VFL), optional power meter, and laser source, making it qualified in the installation, turn-up, and maintenance of FTTx/Access optical networks.

Main functions

Multi-mode OTDR

Besides standard single-mode (1310/1550nm), FHO5000 series OTDR supports multi-mode (850/1300m) test mode for option to analyze the multi-mode fiber network.

PM (power meter)

FHO5000 series OTDR comes with optional built-in power meters that let technicians easily verify the presence of a signal.

VFL (visual fault locator)

The VFL, available as an standard module in FHO5000 series OTDR, offers built-in 650nm visual fault location on a FC/UPC connector.

LS (laser source)

FHO5000 series OTDR comes with optional built-in laser source through OTDR1 Port that let technicians easily verify the total loss of the local network with a power meter.

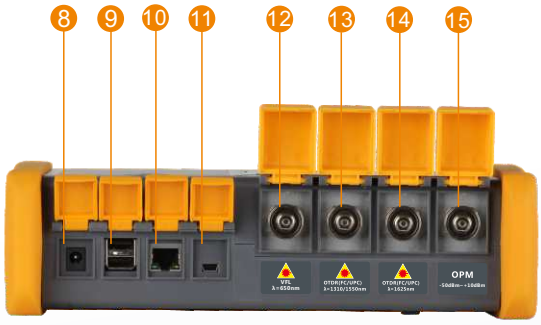
PON ONLINE TEST

FHO5000 series OTDR uses 1625nm wavelength to scan and analyze the access point, and proceed online testing with optical filter and will not disturb the service.

FM (fiber microscope)

The optional fiber inspection probe facilitates the Inspect Before the connection. FHO5000 series OTDR offers this capability through a USB port connection, which allows quick and easy inspection of connector end faces for contamination and also enables it capture and store the image.

Stucture



1. Menu selection Button
2. Navigation Button
3. AVG test Button
4. RT test Button
5. Test setup Button
6. File management Button
7. Power Switch
8. Charging Port
9. USB(A Type) Port
10. RJ45 Port
11. USB(B Type) Port
12. VFL Port
13. OTDR1 Port
14. OTDR2 Port(Optional)
15. PM Port(Optional)
16. Battery Compartment
17. Supporting Plate
18. Crash Pad
19. Safety belt buckle

Model

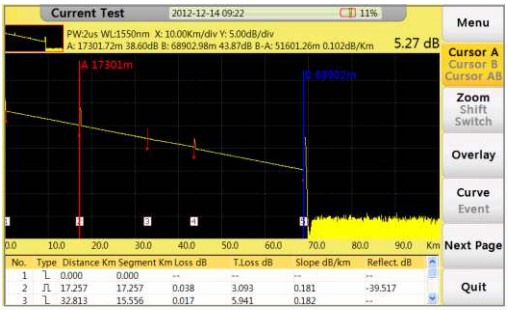
1	FHO5000-M	850/1300nm	3	FHO5000-D	1310/1550nm
2	FHO5000-MD	850/1300/1310/1550nm	4	FHO5000-T	1310/1550/1625nm

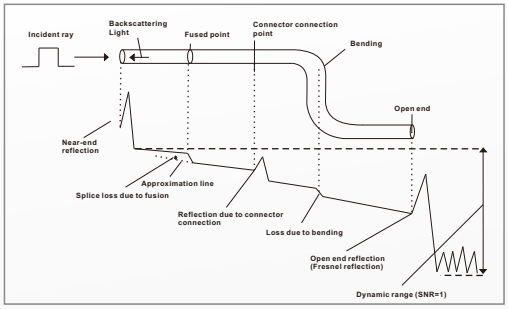
Humanized Test Interface

FHO5000 series OTDR could display Splice loss, Connector loss, Fiber attenuation, Reflection of points, Link optical return loss and distance to fiber events etc. With test information in a smart way, user could get detailed information immediately.

Quick fit in short time

Simplified display style and structured menus help effective in reducing the time of study.



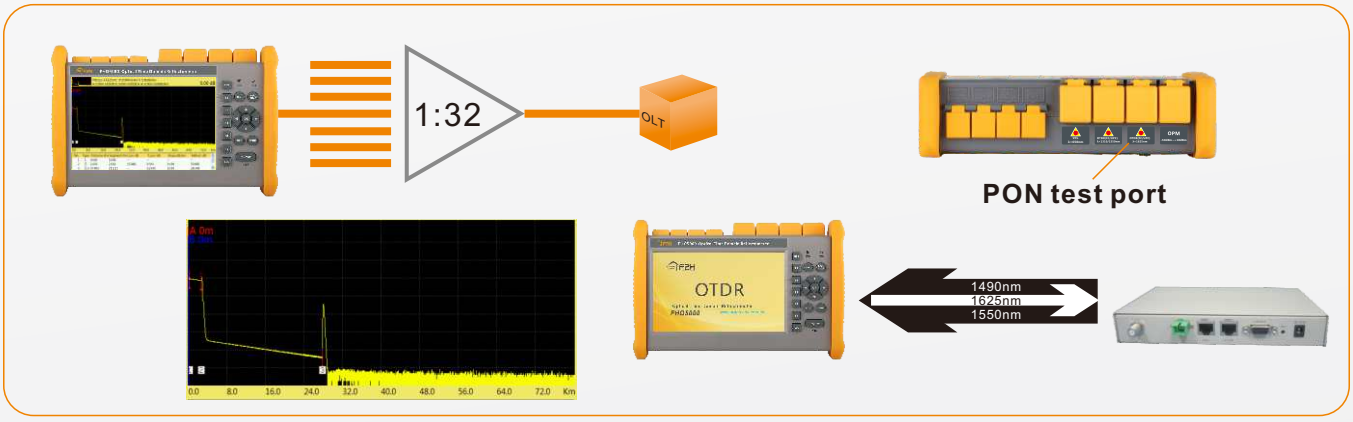


FTTH test within PON networks

FHO5000 series OTDR's models, like T40F and T43F, are dedicated to the testing of PON network maintenance and troubleshooting without service disruption.

Last mile master

FHO5000 series OTDR could easily test through 1*32 PLC splitter in PON test (Model: FHO5000-T43F) .



Fiber Microscope

Microscope is optional for FHO5000 series OTDR. 400X amplification and variety of accessories ensure perfect terminal condition before test.

The essential first step

Taking time to properly inspect connector end faces can prevent a slew of problems down the line, saving you time,money and headaches.

Result transfer

Check test result on PC or PDA through USB; 4GB large internal memory space could store more than 40,000 groups of result.

Link in line

- Download reference traces and settings from database
- Send measurement result via e-mail
- Ask for remote help

FHO5000-PC **FHO5000-PDA**

Data Manager

Use Data manager to elaborate and print out result files on upper computer within a few steps.

High Compatibility

- **Support:**

  -Windows Vista (32/64 bit system)

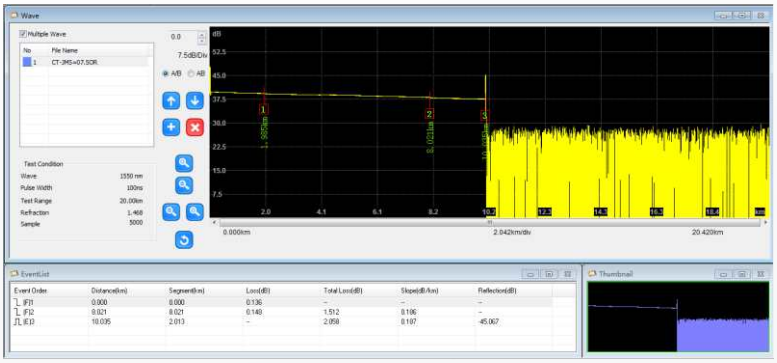
  -Windows 7 (32/64 bit system)

  -Windows 8 (32/64 bit system)

  -Microsoft Office Excel 2007

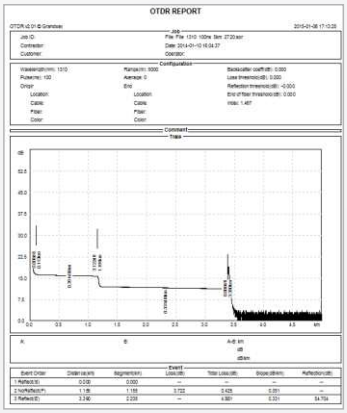
  -Microsoft Office Excel 2010

  -Microsoft Office Excel 2013

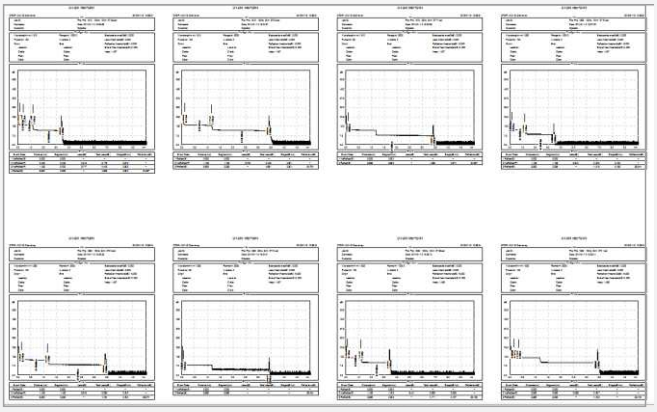


- **Delicate Report**

  -Simplified display style easy to read, support multi-result printing.



1in 1



8 in 1

Specification

General

Dimension	253×168×73.6mm 1.5kg(battery included)
Display	7 inch TFT-LCD with LED backlight (touch screen function is optional)
Interface	1×RJ45 port, 3×USB port(USB2.0,Type A USB×2, Type B USB×1)
Power Supply	10V(dc), 100V(ac) to 240V(ac), 50~60Hz
Battery	7.4V(dc)/4.4Ah lithium battery (with air traffic certification) Operating Time: 12 hours①, Telcordia GR-196-CORE Charging time: <4 hours (power off)
Power Saving	Backlight off: Disable/1 to 99minutes Auto shutdown: Disable/1 to 99minutes
DataStorage	Internal memory: 4GB (about 40,000 groups of curves)
Language	User selectable (English,Simplified Chinese, traditional Chinese, French, Korean, Russian, Spanish and Portuguese -contact us for availability of others)
Environmental Conditions	Operating temperature and humidity: -10℃~+50℃, ≤95% (non-condensation) Storage temperature and humidity: -20℃~+75℃, ≤95% (non-condensation) Proof: IP65(IEC 60529)
Accessories	Standard: Main unit, power adapter, Lithium battery, FC adapter, USB cord, User guide, CD disk, carrying case Optional: SC/ST/LC adapter, Bare fiber adapter

Technical parameter

Type②	Testing wavelength (MM:±20nm, SM:±10nm)	Dynamic range(dB)③	Event/Attenuation dead-zone(m)④
FHO5000-M21	850/1300	19/21	0.8/4
FHO5000-MD21	850/1300 1310/1550	19/21 35/33	0.8/4 1/4
FHO5000-MD22	850/1300 1310/1550	**19/21** 40/38	0.8/4 1/4
FHO5000-D26	1310/1550	26/24	0.8/4
FHO5000-D32	1310/1550	32/30	0.8/4
FHO5000-D35	1310/1550	35/33	0.8/4
FHO5000-D40	1310/1550	40/38	1/4
FHO5000-D43	1310/1550	43/41	1/5
FHO5000-D45	1310/1550	45/43	1/5
FHO5000-T40F	1310/1550/1625	40/38/38	1/4
FHO5000-T43F	1310/1550/1625	43/41/41	1/5
FHO5000-T45F	1310/1550/1625	45/43/43	1/5

Test parameter

Pulse Width	Single mode: 3ns, 5ns, 10ns, 20ns, 50ns, 100ns, 200ns, 500ns, 1μs, 2μs, 5μs, 10μs ,20us Multi mode: 3ns, 5ns, 10ns, 20ns, 50ns, 100ns, 200ns, 500ns, 1μs, 2μs
Distance Range	Single mode: 100m, 500m, 2km, 5km, 10km, 20km, 40km, 80km, 120km, 160km, 240km Multi mode: 500m, 2km, 5km, 10km, 20km, 40km
Sampling Resolution	Minimum 5cm
Sampling Point	Maximum 128,000 points
Linearity	≤0.05dB/dB
Scale Indication	X axis: 4m~70m/div, Y axis: Minimum 0.09dB/div
Distance Resolution	0.01m
Distance Accuracy	±(1m+measuring distance×3×10^{-5}+sampling resolution) (excluding IOR uncertainty)
Reflectance Accuracy	Single mode: ±2dB, multi mode: ±4dB
IOR Setting	1.4000~1.7000, 0.0001 step
Units	km, miles, feet
OTDR Trace Format	Telcordia universal, SOR, issue 2(SR-4731) OTDR: User selectable automatic or manual set-up
Testing Modes	Visual fault locator: Visible red light for fiber identification and troubleshooting Light source: Stabilized Light Source (CW, 270Hz, 1kHz, 2kHz output) Field microscope probe
Fiber Event Analysis	Auto or manual operation, displayed in table format User defined PASS/FAIL thresholds: -Reflective and non-reflective events: 0.01 to 1.99dB (0.01dB steps) -Reflective: 0.01 to 32dB (0.01dB steps) -Fiber end/break: 3 to 20dB (1dB steps)
Other Functions	Real time sweep: 1Hz Averaging modes: Timed (1 to 3600 sec.) Live Fiber detect: Verifies presence communication light in optical fiber Trace overlay and comparison

VFL Module (Visual Fault Locator, as standard function)

Wavelength(±20nm)	650nm
Power	10mW,CLASSIII B
Range	12km
Connector	FC/UPC
Launching Mode	CW/2Hz

PM Module (Power Meter, as optional function)

Wavelength Range	800~1700nm
Calibrated Wavelength(±10nm)	850/1300/1310/1490/1550/1625/1650nm
Test Range	TypeA: -65~+5dBm (standard); TypeB: -40~+23dBm (optional)
Resolution	0.01dB
Accuracy	±0.35dB±1nW
Modulation identification	270/1k/2k Hz,$P_{input}\geqslant$-40dBm
Connector	

LS Module (Laser Source, as optional function)

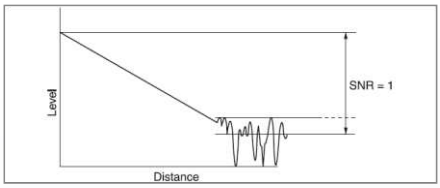
Working wavelength(±10nm)	1310/1550/1625nm⑤
Output power	Adjustable -25 ~ 0dBm
Accuracy	±0.5dB
Connector	FC/UPC

FM Module (Fiber Microscope, as optional function)

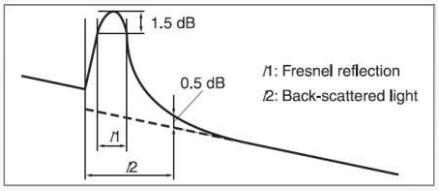
Magnification	400X
Resolution	1.0μm
View of Field	0.40×0.31mm
Storage/working Condition	-18℃~35℃
Dimension	235×95×30mm
Sensor	1/3 inch 2 million of pixel
Weight	150g
USB	1.1/2.0
Adapter⑥	Standard: SC-PC-F (For SC/PC adapter) FC-PC-F (For FC/PC adapter) LC-PC-F (For LC/PC adapter) 2.5PC-M (For 2.5mm connector, SC/PC, FC/PC, ST/PC)

Notes

1. Typical, backlight off, sweeping halted at 25℃, 12 hours typical continuous testing.
2. Model T40F/T43F/T45F are integrated with optical filter, which allow them to test PON network online (by using 1625nm wavelength) and will not interrupt the fiber signal.
3. Dynamic range is measured with maximum pulse width, averaging time is 3 minutes, SNR=1; The level difference between the RMS noise level and the level where near end back-scattering occurs.

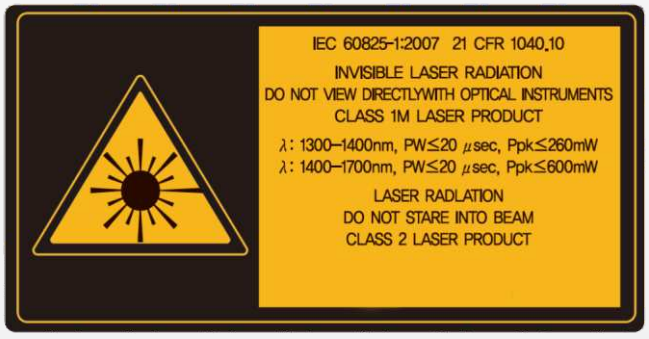


4. Event dead zone is measured with pulse width of 3ns; attenuation dead zone is measured with pulse width of 5ns.



5. 1310/1550nm laser source uses OTDR1 port, and 1625nm or 850/1300nm uses OTDR2 port.
6. For more adapters please contact us.

CAUTION:



VIEING THE LASER OUTPUT WITH CERTAIN OPTICAL INSTRUMENTS(FOR EXAMPLE: EYS LOUPES, MAGNIFIERS AND MICROSCOPES) WITHIN A DISTANCE OF 100 MM MAY POSE AN EYS HAZARD.

Ordering Information

FHO5000-XX-XX-XX-XX-XX-XX-XX-XX

Model
- **M** 850/1300nm
- **MD** 850/1300/1310/1550nm
- **D** 1310/1550nm
- **T** 1310/1550/1625nm

Dynamic Range
- **21** 19/21dB for Model M or 19/21/35/33dB for Model MD
- **22** 19/21/40/38dB for Model MD
- **26** 26/24dB for Model D
- **32** 32/30 dB for Model D
- **35** 35/33dB for Model D
- **40** 40/38dB for Model D
- **43** 43/41dB for Model D
- **45** 45/43dB for Model D
- **40F** 40/38/38dB for Model T with filter
- **43F** 43/41/41dB for Model T with filter
- **45F** 45/43/43dB for Model T with filter

Laser Source
- **/** Without laser source
- **LS** With laser source

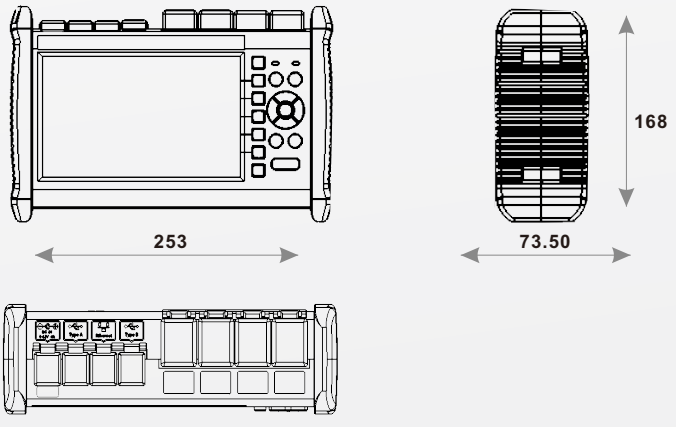
Power Meter
- **/** Without power meter
- **PMA** With power meter TYPE A
- **PMB** With power meter TYPE B

Touch Screen
- **/** Without touchscreen
- **TS** With touchscreen

Fiber Microscope
- **/** Without fiber microscope
- **FM** With fiber microscope

Water Proof
- **/** Without water proof
- **WP** With water proof

Connector
- **/** FC/UPC(default)
- **SC** SC/UPC
- **ST** ST/UPC



Unit:mm
Except where noted, tolerance default as:±3%
(if size<10mm, tolerance:±0.3mm)

✶ **Product specifications and descriptions in this document subject to change without notice.**

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Shanghai Grandway Telecom Tech.co.,Ltd, registered in 1994, is a shareholding company which is professionally engaged in the integration and service of customized projects of deployment and detection of optical communication network. Of course, grandway is also one of the biggest national supplier of optical communication meters and equipments.The products of grandway are sold all around the world, and gain the praise.