

FHO1000 OTDR User Manual



Let's go in the grandway!



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1 Before use

1.1 Foreward

Thank you for purchasing FHO1000 OTDR (Optical Time Domain Reflectometer). This user's manual contains useful information about the instrument's functions and operating procedures. To ensure correct use, please read this manual thoroughly before beginning operation. After reading the manual, keep it in a convenient location for quick reference whenever a question arises during operation.

1.2 Note

- The contents of this manual are subject to change without prior notice as a result of continuing improvements to the instrument's performance and functions. The figures given in this manual may differ from those that actually appear on your screen.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest Grandway dealer.
- Copying or reproducing all or any part of the contents of this manual without Grandway's permission is strictly prohibited.

1.3 Version

Version 1.0 2020



2 Product description

2.1 Product function

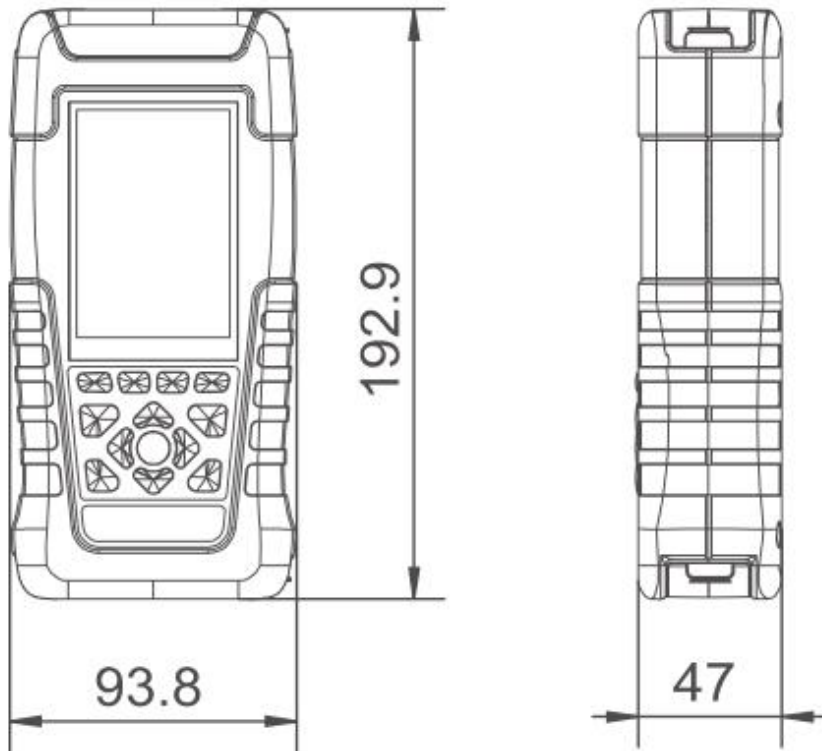
FHO1000 optical time domain reflectometer (OTDR) is a new generation of intelligent optical fiber communication measuring instrument. It is carefully developed and produced by our company, and has undergone strict mechanical, electronic and optical inspection and other standard quality control processes before leaving the factory. It can measure the length of optical fiber and optical cable, the distance between two points, and determine the position of connection point, fault point and breakpoint of optical fiber and optical cable.

The main features of the instrument are: integrated design, novel appearance, strong and durable; small volume, light weight, easy to carry; easy to test the loss, length and fault location of optical fiber link; with visual fault location system, it is convenient to detect the fault location in the optical fiber line; the battery in the machine has a long working time, which is suitable for long-term field operation.

The instrument is widely used in engineering construction and maintenance to detect fiber loss and fiber fault location. Main functions of the instrument are as follows:

- Measure the fiber length
- Measure the distance between any two points on the optical fiber curve
- Measure and display the loss between any two points on the curve (dB) and fiber attenuation constant (dB / km)
- Measure and display the connection loss of connection points on the curve (dB)
- Measure the connector reflectance value
- Auto fiber connection points searching function
- Real time test function to test the fiber condition quickly
- Test files can be saved automatically in the OTDR
- Test files can be copy to the PC to make OTDR report
- Support Chinese/English input
- VFL(10mw)
- OLS(>-8dBm)
- OPM(-70dBm~+10dBm)

2.2 Appearance size



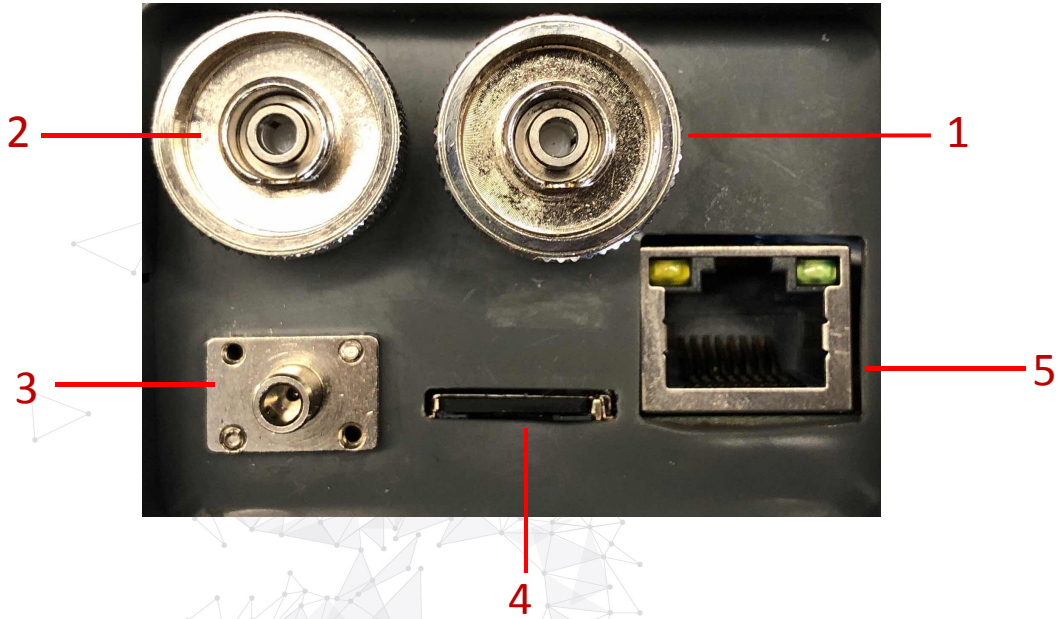
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2.3 Keyboard



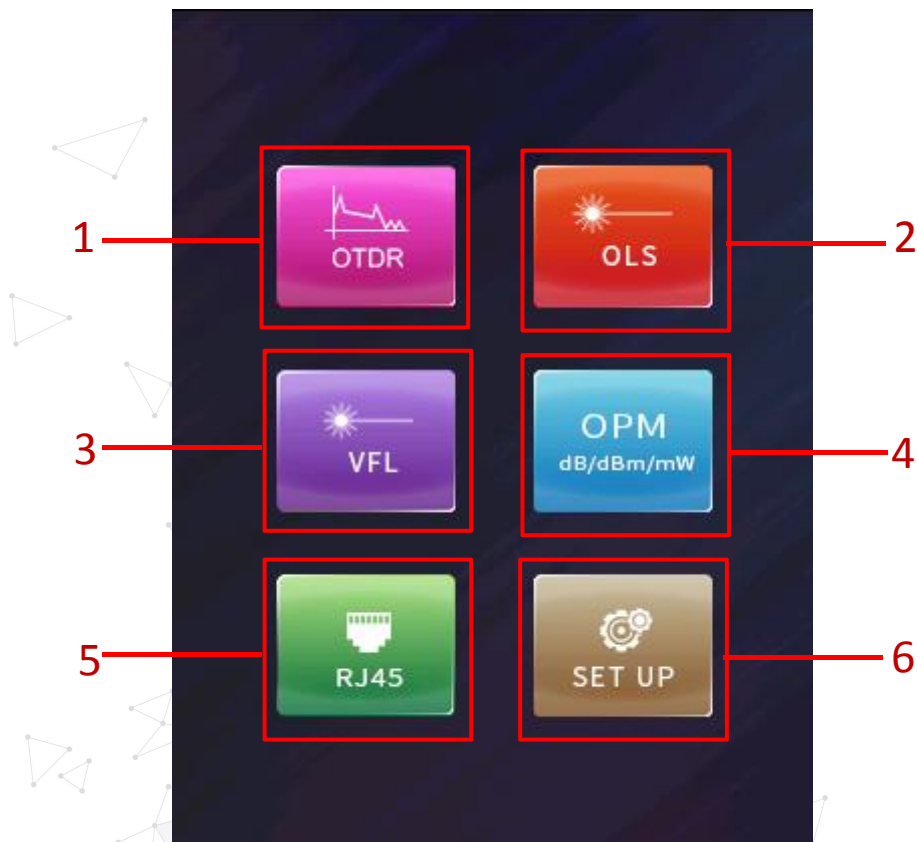
| No | Name | Function |
|----|--------------|------------------------------|
| 1 | F1-F4 | Enter the corresponding menu |
| 2 | Arrow button | Move the cursor and confirm |
| 3 | AUTO | Cursor focus centering |
| 4 | ON/OFF | Power on and power off |
| 5 | TEST | Quick start OTDR testing |
| 6 | ESC | Exit current menu |

2.4 Interface



| NO | Name | Function |
|----|-------------------|---------------------------------------|
| 1 | OTDR optical port | OTDR 1310/1550nm testing |
| 2 | VFL optical port | 650nm VFL testing |
| 3 | OPM optical port | Optical power meter value testing |
| 4 | SD card port | Inserting SD card to store test files |
| 5 | Ethernet port | Software upgrade |

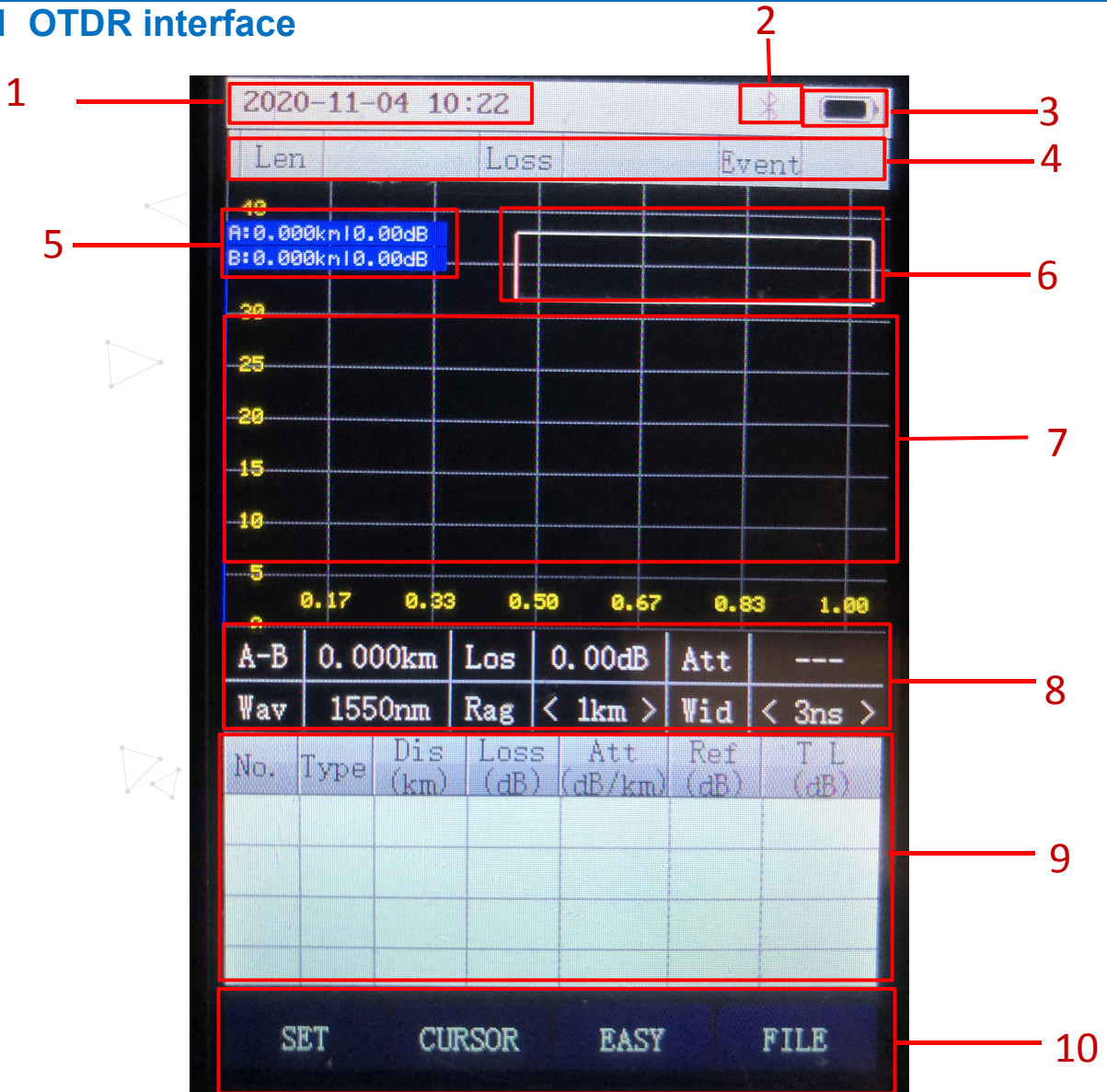
2.5 Boot interface



| NO | Name | Function |
|----|-------------|--|
| 1 | OTDR module | Enter OTDR testing menu |
| 2 | OLS module | Entering optical laser source testing menu |
| 3 | VFL module | Entering VFL testing menu |
| 4 | OPM module | Entering optical power meter testing menu |
| 5 | RJ45 module | Entering Ethernet RJ45 cable testing menu |
| 6 | SET UP | Entering OTDR system set up menu |

3 OTDR module

3.1 OTDR interface



| NO | Name | Function |
|----|-----------------|---|
| 1 | Date and time | Show the date and time |
| 2 | Bluetooth | Show the bluetooth status |
| 3 | Battery | Show the battery level |
| 4 | Result summary | Show the OTDR test result summary |
| 5 | Cursor A/B data | Show the cursor A and B position(km and dB) |
| 6 | Curve thumbnail | Show the OTDR test curve thumbnail |
| 7 | OTDR curve | Show the OTDR test curve |

| | | |
|----|-----------------|--|
| 8 | Curve info | Show the current test setting and data between A and B |
| 9 | Event table | Show the OTDR test events |
| 10 | Function button | Enter different functions (SET/CURSOR/EASY/FILE) |

3.2 Test setup


Enter "SET" function to setup the OTDR test parameter.

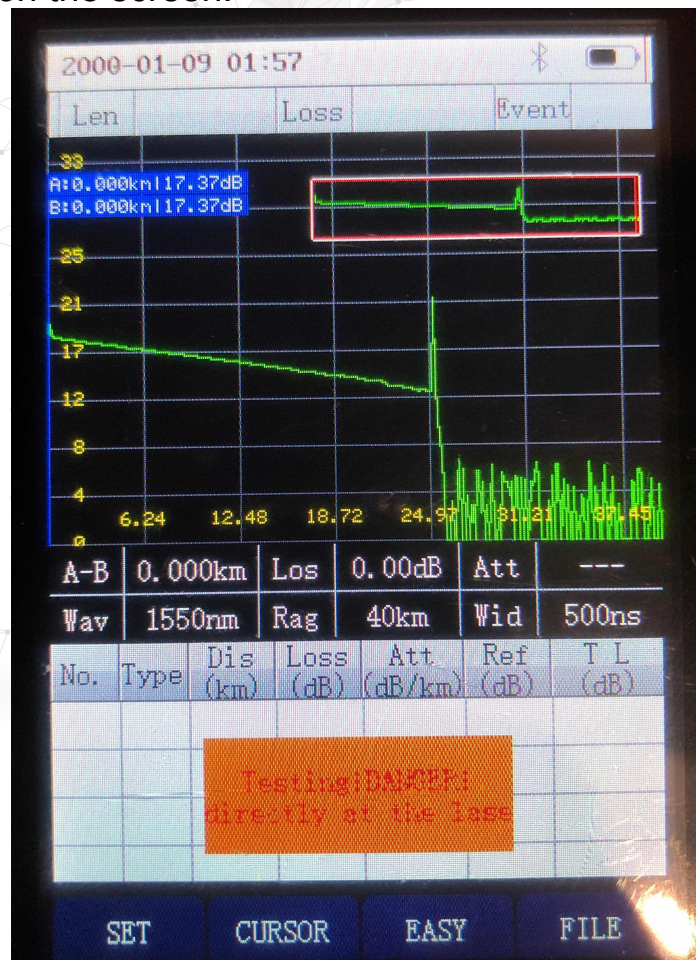


| NO | Name | Description |
|----|---------------|---|
| 1 | Wavelength | Set the test wavelength (1310nm/1550nm) |
| 2 | Test Distance | Set the test distance (1km/2km/5km/10km/20km/40km/80km/120km) Unable to set when auto mode is on |
| 3 | Pulse Width | Set the test pulse width (3ns/5ns/10ns/30ns/50ns/100ns/275ns/500ns/1us/2us/5us/10us/20us) Unable to set when auto mode is on |
| 4 | Test Mode | Set the test mode (Average time/Real time) |
| 5 | Test Time | Set the test time (5s/10s/15s/30s/60s/120s) |

| | | |
|----|---------------|--|
| 6 | IOR | Set the test IOR (1.465/1.467/1.468/1.469/1.470) |
| 7 | End Threshold | Set the fiber end threshold (3dB/4dB/5dB/6dB) |
| 8 | Auto mode | ON: Auto mode is ON OFF: Auto mode is OFF |
| 9 | REC | / |
| 10 | BACK | Back to the OTDR test interface |

3.3 Start to test

Choose the “Auto mode” to test , connect the tested fiber to the OTDR optical port. Press “TEST” button  to start the OTDR test. Test curve and event table will display on the screen.



Testing!

Result summary





3.4 Curve operation

Enter "CURSOR" to check the curve clearly . In this menu, you can zoom the OTDR curve to check an specific event. Locate cursor A and cursor B to check the fiber loss and attenuation between A and B. Move the curve to check segment fiber.

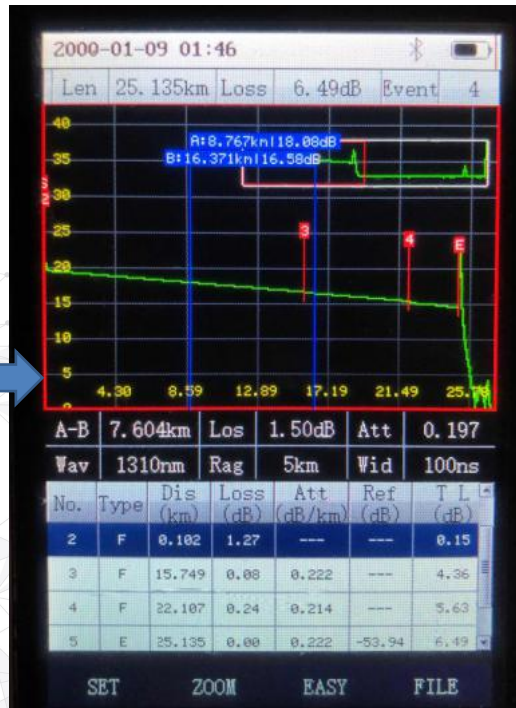
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Zoom the curve

In this menu, you can zoom the OTDR curve by press “RIGTH” arrow  to zoom horizontally and “UP” arrow  to zoom vertically.



Before ZOOM



After ZOOM

Move the cursor A and cursor B





Cursor A and B location and dynamic range

Data between cursor A and B
Test setting parameter


In this menu, you can move cursor A and cursor B to check the loss and attenuation between A and B.

Move the cursor

In this menu, you can move the curve by press "LEFT"  arrow and "RIGHT"  arrow.






Recovery the curve

Press "ATUO"  to recovery the curve. And cursor A and cursor B will back to the zero position.

3.5 Real time test



Enter the “SET” to set the OTDR test mode “Real Time” test. Connect the tested fiber to the optical port, Press “TEST” button  to start the OTDR real time test. OTDR will continue to test. Press “TEST” button  again, Test will stop ,then test curve and event table will display on the screen. When OTDR is under the Real time testing, no button is available except “TEST” button .

3.6 Easy mode

Enter “Easy” mode to enter the OTDR easy mode.

In this “Easy” mode, the test curve will not display, only display the test fiber distance and total loss. This “Easy” mode is suitable for those user without



3.7 OTDR FILE

Enter "FILE" to enter the OTDR FILE. All the test sor files are saved in the file.

In this menu, you can check your test sor files, delete and rename. The sor

Files can be transferred to the PC to make OTDR test report.



4 OLS module

Enter “OLS” module, In this menu, OLS function can be switched by 1310nm and 1550nm. The output mode can be switched by CW/1k/2kHz. The output is $>-8\text{dBm}$ when the output mode is CW mode.



OLS interface

5 VFL module

Enter “VFL” module, In this menu, 650nm VFL output mode can be switched by CW/1Hz/2Hz. The output power is 10mw.



VFL interface

6 OPM module

Enter “OPM” module, In this menu, 6 calibrated wavelength can be switched to test the optical power value.

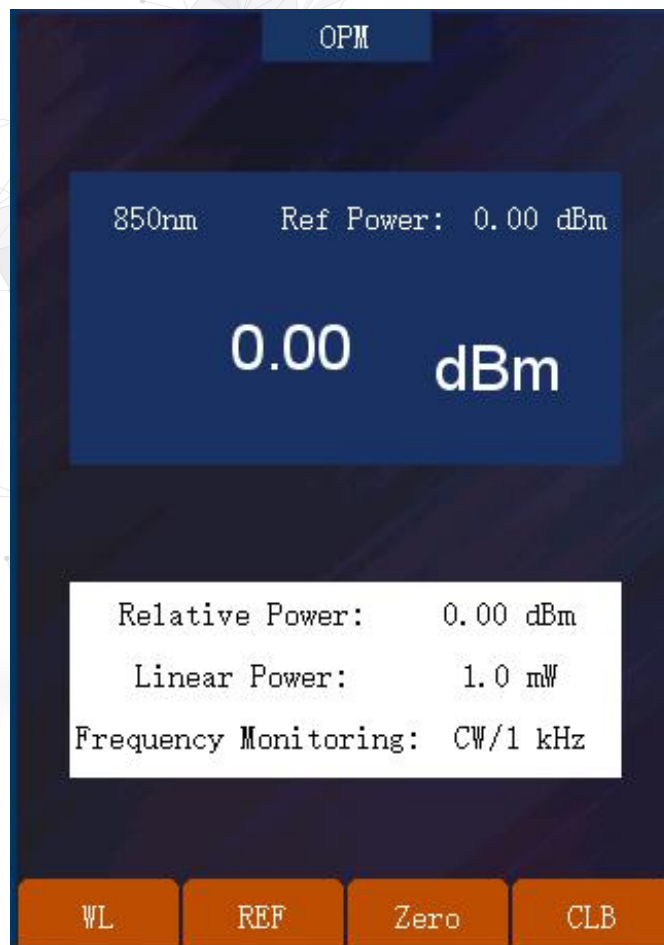
Press “WL” to switch the calibrated wavelength among the below wavelength.

(850nm/1300nm/1310nm/1490nm/1550nm/1625nm)

Press “REF” to set the current power value as reference value.

Press “ZERO” to clean the reference value.

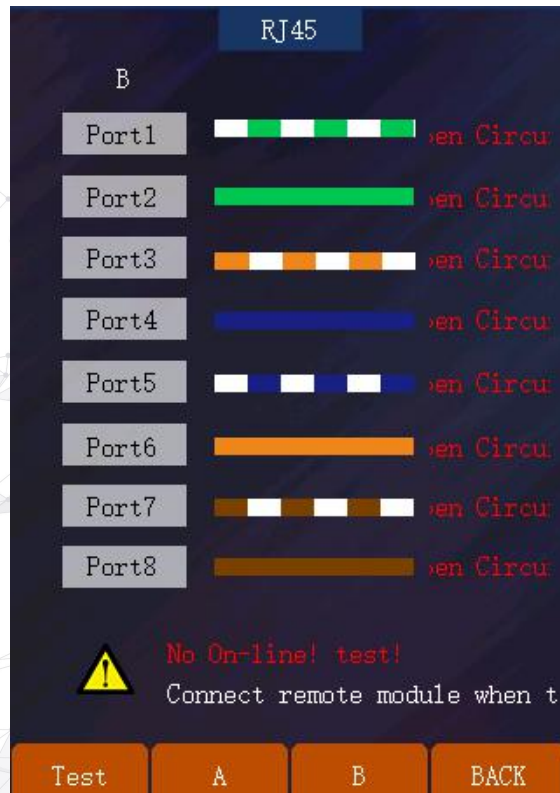
Press “CLB” to calibrate the test optical power.



OPM interface

7 RJ45 Ethernet cable test module

RJ45 Ethernet cable test is not available currently.



RJ45 Test interface

8 System Setup

Press "SETUP" to enter the OTDR system setup.

In this menu, "AUTO OFF" can be activated. "Brightness", "Voice", "Date", "Time", "Language", "OTDR auto save" can be adjust.

In this menu, press "UPGRD" to do the OTDR system upgrade.

Press "Version Information" to check the current OTDR system information.



Setup interface

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