ORIENTEK TR600-S

Orientek TR600-S Fiber OTDR User Manual

Model: TR600-S 1310/1550 32/30dB

1. Introduction

This manual provides detailed instructions for the safe and efficient operation of the Orientek TR600-S Fiber Optic Time Domain Reflectometer (OTDR). The TR600-S is designed for testing single-mode (SM) fibers in FTTH and FTTX networks, offering precise measurements of fiber length, loss, and event locations. Please read this manual thoroughly before using the device.

2. Safety Information

Observe the following safety precautions to prevent injury and avoid damage to the device:

- **Laser Safety:** The OTDR and VFL (Visual Fault Locator) emit invisible laser radiation. Never look directly into the optical output ports or into a fiber connected to the device. Use appropriate eye protection.
- **Battery Safety:** Use only the specified charger and battery. Do not expose the battery to high temperatures or disassemble it.
- **Environmental Conditions:** Operate the device within the specified temperature and humidity ranges. Avoid exposure to dust, moisture, and strong electromagnetic fields.
- **Cleaning:** Disconnect power before cleaning. Use a soft, dry cloth. Do not use liquid cleaners.

3. Package Contents

Verify that all items listed below are included in your package. If any items are missing or damaged, contact your supplier.

Image: The complete Orientek TR600-S OTDR kit, including the main unit, carrying bag, power adapter, straps, and various accessories.

- TR600-S OTDR Main Unit
- Carrying Bag
- Strap
- Power Cable
- Adapter
- SD Card
- Card Reader
- Quick Guide
- Calibration Certificate
- Inspection Certificate
- Electronic Manual (on SD card)

4. Product Overview

The Orientek TR600-S is a robust and portable fiber optic tester designed for field use. It features a 5.7-inch TFT-LCD color touch screen and a silicone keypad for intuitive operation.

Image: Key features of the TR600-S, highlighting its fast processing, SD card storage, USB connectivity, VFL, TFT LCD, and automatic detection capabilities. The image also shows the durable, water-resistant, drop-resistant, and dust-resistant silicone keypad.

4.1 Front Panel and Display

Image: The front view of the TR600-S, displaying its 5.7-inch TFT-LCD screen and the arrangement of its control buttons, including navigation, enter, ESC, and power.

The front panel features a 5.7-inch TFT-LCD color touch screen for displaying measurement results and navigating the graphical user interface (GUI). A silicone keypad provides tactile control for various functions.

4.2 External Interfaces

Configurtion list:

Carrying bag X1	SD card X1	Quick Guide X1
Strap X1	Card reader X1	Calibration Certificate X1
Power cable X1	Certificate X1	Inspection Certificate X1
Adapter X1	Electronic Manual X1	

Model	TR600-M	TR600-S	TR600-P	TR600-MS	SS24CF
Wavelength (nm)	850/1300	1310/1550	1310/1550/1625	850/1300+1310/1550	1310/1550 SMF+1625 SMF
Dynamic range (dB)	21/ 23	32/ 30	32/ 30/ 28	21/ 23+32/ 30	38/ 36/ 34
Build-in VFL	Y		N		
Applicable fiber	SM (ITU-T G.652)				
Distance range (km)	0.1/ 0.5/ 1/ 2/ 5/ 10/ 20/ 30/ 50/ 100/ 200/ 240				
Pulse width (ns)	5/ 20/ 40/ 80/ 160/ 320/ 640/ 1280/ 2560/ 5120/ 10240/ 20480				
Event dead zone(dB)	1.8				
Attenuation dead zone (m)	3				
Optical connector	FC/UPC (SC/LC/ST can be selected)				
Laser class	Class 1m				
Memory of trances	10.000 pieces				

Image: A detailed view of the TR600-S's external interfaces, showing the OTDR and VFL optical ports, DC charging input, SD card slot, and USB port. Various optional optical connectors (FC, SC, ST, LC) are also illustrated.

The device includes multiple interfaces for connectivity and data management:

- **OTDR Port:** For connecting the fiber under test (FC/UPC connector standard, SC/LC/ST optional).
- **VFL Port:** For the Visual Fault Locator function.
- **DC 15V Input:** For charging the internal battery and powering the device.
- **USB Port:** Supports USB stick for data transfer and direct cable download to PC via ActiveSync.
- **SD Card Slot:** For additional data storage.
- **LAN Port:** (If applicable to model) For network connectivity.

4.3 Rear Panel and Ergonomics

Image: The rear view of the TR600-S, showing its integrated handle and metal kickstand for convenient portability and positioning during operation. A stylus is also shown, indicating touch screen functionality.

The device is equipped with a portable handle and a metal bracket (kickstand) for ease of transport and stable placement on various surfaces.

5. Setup

5.1 Battery Charging

The TR600-S is powered by a built-in high-capacity lithium battery, providing over 8 hours of operating life. To charge the battery:

1. Connect the provided power adapter to the DC 15V input port on the device.
2. Plug the adapter into a suitable power outlet.
3. The charging indicator will illuminate. Allow sufficient time for a full charge before initial use.

5.2 Power On/Off

- **Power On:** Press and hold the power button (usually marked with a circle and a vertical line) until the screen illuminates.
- **Power Off:** Press and hold the power button until a shutdown prompt appears on the screen, then confirm.

5.3 Connecting Fiber

Before connecting any fiber, ensure the optical connector is clean. Use appropriate fiber cleaning tools.

1. Remove the protective cap from the OTDR port.
2. Carefully insert the fiber optic connector into the OTDR port. Ensure a secure connection.
3. For VFL testing, connect the fiber to the VFL port.

6. Operation

The TR600-S features a user-friendly graphical interface and supports both touch screen and keypad input.

Image: The TR600-S display showing a fiber optic trace with event markers and detailed measurement data. The image emphasizes the intuitive GUI and the responsiveness of the color touch screen, which can be operated with a stylus for precision.

6.1 Basic OTDR Measurement

1. From the main menu, select the OTDR function.
2. Configure measurement parameters such as wavelength (1310nm or 1550nm), pulse width, and measurement range.
3. Press the 'Run' or 'Start' button to initiate the measurement.
4. The OTDR trace will be displayed on the screen, showing events like splices, connectors, and fiber ends.
5. Use the 'Smart Link Map' feature for a simplified graphical representation of the fiber link.

6.2 VFL Function

The Visual Fault Locator (VFL) function helps identify macro-bends, breaks, and poor connections in short fiber segments.

1. Connect the fiber to the VFL port.
2. From the main menu, select the VFL function.
3. Activate the VFL. A visible red laser light will be emitted.
4. Observe the fiber for light leakage at fault locations.

6.3 Data Management

The TR600-S allows for saving, opening, and transferring measurement data.

- **Saving Results:** After a measurement, select 'Save' from the menu to store the trace data internally or on an inserted SD card.
- **Opening Files:** Use the 'Open' function to retrieve previously saved measurement files.

- **Data Transfer:** Connect a USB stick to the USB port to transfer files. Alternatively, connect the device to a PC via a USB cable and use ActiveSync software for direct data download.

7. Maintenance

7.1 Cleaning Optical Ports

Clean optical ports regularly to ensure accurate measurements. Use only specialized fiber optic cleaning tools and procedures.

1. Power off the device.
2. Use a fiber optic cleaning stick or lint-free wipe with isopropyl alcohol to gently clean the ferrule inside the port.
3. Allow the port to dry completely before use.

7.2 Battery Care

- Charge the battery fully before long periods of storage.
- Avoid completely discharging the battery frequently.
- Store the device in a cool, dry place when not in use.

8. Troubleshooting

This section addresses common issues you might encounter with your TR600-S OTDR.

Problem	Possible Cause	Solution
Device does not power on.	Low battery; Power button not held long enough.	Charge the battery; Press and hold the power button for several seconds.
Inaccurate OTDR measurements.	Dirty optical connector; Incorrect measurement parameters.	Clean the optical connector; Verify and adjust wavelength, pulse width, and range settings.
VFL not emitting light.	VFL function not activated; Faulty VFL port.	Ensure VFL is enabled in the menu; Contact support if issue persists.
Cannot transfer data via USB.	Incorrect USB connection; Driver issues on PC.	Ensure USB cable is securely connected; Install necessary drivers or ActiveSync software on PC.

9. Specifications

The following table outlines the key specifications for the Orientek TR600-S OTDR.

Parameter	TR600-S
Wavelength (nm)	1310/1550
Dynamic Range (dB)	32/30
Built-in VFL	Yes
Applicable Fiber	SM (ITU-T G.652)

Parameter	TR600-S
Distance Range (km)	0.1/ 0.5/ 1/ 2/ 5/ 10/ 20/ 30/ 50/ 100/ 200/ 240
Pulse Width (ns)	5/ 20/ 40/ 80/ 160/ 320/ 640/ 1280/ 2560/ 5120/ 10240/ 20480
Event Dead Zone (dB)	1.8
Attenuation Dead Zone (m)	3
Optical Connector	FC/UPC (SC/LC/ST can be selected)
Laser Class	Class 1m
Memory of Traces	10,000 pieces
Display	5.7 inch TFT-LCD
Battery Life	Over 8 hours
USB Interfaces	Supports USB stick, printer, PC download via ActiveSync
Dimensions	15.45 x 10.15 x 8.15 inches
Weight	7 Pounds

10. Warranty and Support

The Orientek TR600-S comes with a 3-year warranty from the date of purchase. This warranty covers defects in materials and workmanship under normal use. It does not cover damage caused by misuse, accidents, unauthorized modifications, or improper maintenance.

For technical support, warranty claims, or service, please contact your authorized Orientek distributor or visit the official Orientek website for contact information.