

# FX150 OTDR

## Mini OTDR for FTTx and Metro fiber networks

FX150 mini OTDR is designed for the installation, maintenance and troubleshooting of FTTx, Mobile FrontHaul/BackHaul and Metro fiber networks. The compact, lightweight platform incorporates power meter, light source, fiber inspection probe and VFL test options which add exceptional versatility to the unit.



## Platform Highlights

- Robust, handheld design for demanding field testing
- High resolution, 5" TFT color touch-screen suitable for both indoor and outdoor use
- Fast boot-up and measurement critical for fiber troubleshooting and restoration
- Intuitive display, simple function keys and touch-screen for fast navigation and easy operation
- Internal data storage with expandable SD card
- Micro-USB OTG interface for flash drives, fiber inspection probe connection and test data transfer
- Rechargeable Lithium Polymer battery with capacity indicator, low voltage alarm and Auto-off function
- Continuous operation of > 9 hours without having to recharge batteries
- Built-in WiFi option to perform software upgrades and for uploading test data via wireless Internet connection
- Built-in Bluetooth option for pairing applications with Mobile Smartphones and Tablet PCs

## Key Features

- FTTx optimized parameters for best dead zones
- Filtered 1625 or 1650 nm OTDR port for in-service measurements
- Live fiber detection with embedded power meter
- Dynamic range up to 39 dB
- Event dead zone < 1m, attenuation dead zone < 4m
- Singlemode wavelength options - 1310, 1550, 1625 and 1650 nm
- Multimode wavelength options - 850 and 1300 nm
- Telcordia SR-4731.sor file formats
- Generate and save traces in sor, png or pdf format
- Auto mode with automated trace diagnostics, simplified setup and events detection
- Optional V-Scout mode - Intelligent Link Map using intuitive icons derived from multi-pulse width and multi-wavelength acquisitions
- Markers for distance, attenuation, reflectance and splice loss measurements
- Optional universal interface with interchangeable optical adaptors (SC, ST, FC, LC) for OTDR port
- Power meter, light source, fiber inspection probe and VFL options
- Remote measurement via USB or WiFi connection using Fiberizer Desktop software

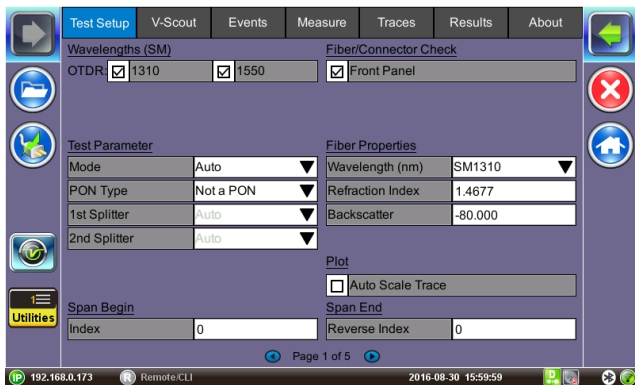
## Loads of features you can depend on

### Fast Startup

The FX150 OTDR powers up and is ready to perform measurements in less than 10 seconds, making it one of the fastest units in the industry. Technicians can start to work almost immediately or be in the position to locate and restore fiber breaks quickly.

### Auto Mode

Test parameters and measurements are fully automated and optimized, so even “OTDR beginners” can test quickly and efficiently. The unit determines total fiber length, total link loss, fiber attenuation and generates full event table.

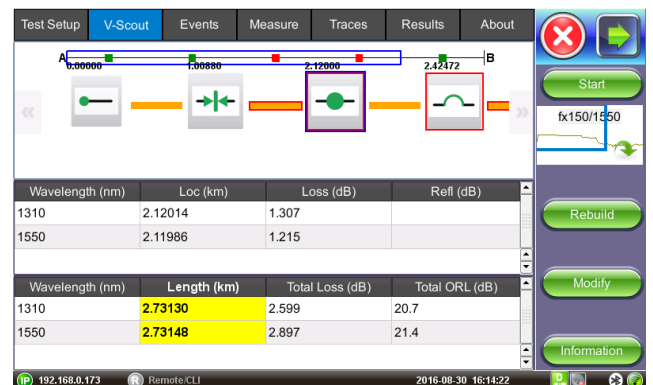


### Live Fiber Check

A test port check warns the user when the OTDR is connected to live fiber, preventing service disruption and potential receiver damage. The unit automatically checks if light is present at the test interface prior to making measurement and will disable the transmitter if an active fiber detected.

### V-Scout Link Mapping

Multi-wavelength, multi-pulse width acquisitions coupled with advanced algorithms quickly and intelligently evaluate the fiber under test and display events and anomalies using intuitive icons. This eliminates trace interpretation and provides greater analysis confidence to the user.



### Advanced Analysis for Experts

OTDR test parameters can be set either manually or automatically depending on user.

The fiber trace is displayed and results are listed in an easy-to-read event table that compares fiber attenuation, splice loss and reflectance against user defined thresholds.

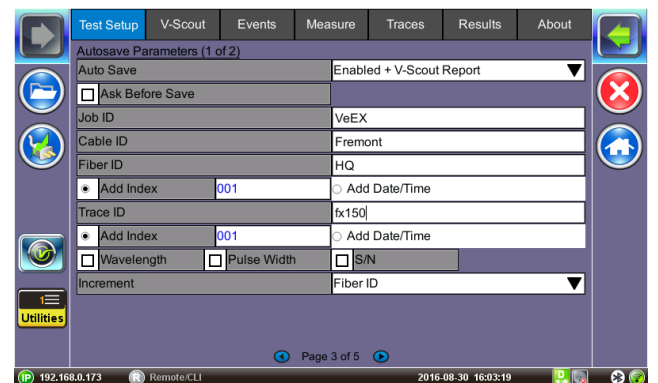
Users can then apply advanced LSA measurement techniques with 5 markers to further evaluate splices or to add/delete/edit optical events.

Powerful zooming functions remain at the user’s disposal to pinpoint faults with greater certainty and precision.

Software and event table displays locations of possible Macrobends when multi-wavelength measurements are performed.

### OTDR Results

Traces are saved in industry standard Telcordia SR-4731 or format. Job, Cable, Fiber and Trace ID information can be defined for each trace which is then used to store data in a logical hierarchy for easy sorting and retrieval afterwards.



### Simple Software Upgrades

Firmware upgrades are performed easily via the micro USB port connected to a PC. Updates are available at no charge for registered users.

### Extended Battery Operation

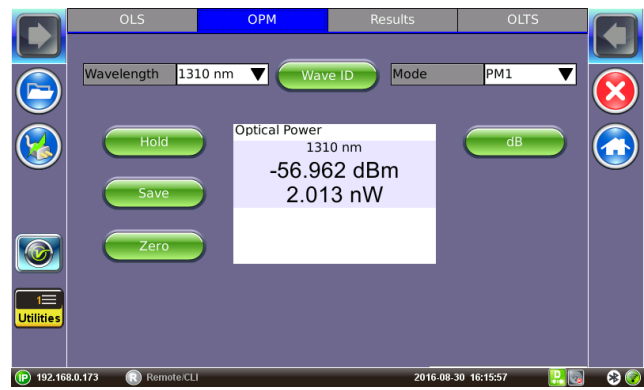
The FX150 OTDR provides over 9 hours of operation on a single charge. A low voltage indicator warns the user when the device power reaches critical levels.

### Power Meter, Light Source and VFL Options

An optional power meter allows users to check the presence of optical signals, and perform accurate signal level measurements. Calibrated wavelengths for legacy transmission systems including newer PON systems are all available.

The OTDR port doubles as a stable source when the Light Source option is ordered. Used with the built-in OPM, the unit provides integrated loss test functionality.

An optional visible laser “red light” source allows users to visually troubleshoot splices, connectors and fiber management enclosures.



### Fiberscope Option

An optional Fiber microscope can be used to assess the cleanliness of the optical connector’s surface and is perfectly suited for bulkhead adapter or male connector inspection. The probe connects directly to the unit’s micro-USB OTG port to obtain its power and to transfer images. Single finger focusing with an automatic image focus and capture feature simplifies operation.

The probe features inter-changeable heads and is supplied with bulkhead adapter tips for FC/PC, SC/PC, and LC/PC connector style, including male connector adapters.

Software for viewing connector end-face images which have been transferred and saved on a Windows® PC is available as an option.

Optional software automatically captures the focused image and analyzes the connector condition and provides a report with Pass/Fail criteria according to the IEC 61300-3-35 Sect 5.4 standard.



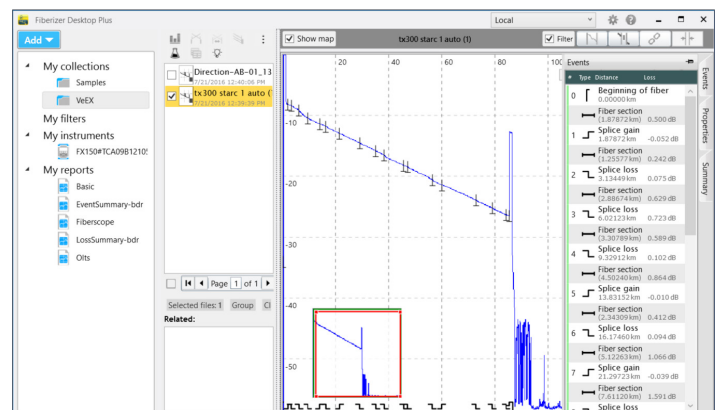
### OTDR Trace Analysis and Documentation

#### Fiberizer™ Desktop Plus

Fiberizer Desktop Plus, is a standalone PC software application to analyze traces acquired by the FX150 OTDR. Supplied as a standard accessory, Users can edit traces, create event tables, generate reports and much more.

The Desktop Pro version supports batch processing and advanced report generation which is useful when analyzing multiple fibers in cable.

The software does not require Internet access to operate, but it can be interfaced Fiberizer Cloud at any time.



## Work from Anywhere, Anytime

### Fiberizer™ Cloud

Fiberizer Cloud not only empowers the OTDR, but also the Workforce. Going way beyond traditional OTDR reporting methods or concepts, this cloud-based solution provides superior centralized test data management capabilities including powerful web based trace analyses. You can work from almost anywhere, at anytime because Fiberizer Cloud is a full online web service.



### Streamlining onsite data reporting

Fiber technicians and contractors tasked to validate new fiber installations or restoring cable routes after an outage are generally obliged to submit measured data (.sor files) and related documentation to the network operator as proof of delivery before being paid. Valuable time however is often wasted after the onsite work is completed, because critical test files are usually first stored to some local storage media before being transferred to a colleague via email for verification and further reporting.

Fiberizer Cloud streamlines this information exchange, eliminating costly paper, e-mail or other time consuming communication methods - instead, time wastage can be avoided by transferring traces of jobs completed directly from the OTDR to Fiberizer Cloud. Professional PDF or MS Excel reporting functionality is also available, and users can create their own templates for reports. Bi-directional analysis of OTDR traces, tested from both ends of the optical fiber, can also be performed.



### Fiberizer Cloud Connectivity

Pair the FX150 OTDR via Bluetooth to a mobile Smartphone, Laptop or Tablet PC and efficiently upload test data directly to the Cloud server using any available wireless technology (3G, WiFi).

### Total compatibility

Fiberizer Cloud is compatible with Windows and MacOS browsers, not limiting users to PC platforms only. OTDR trace files in Telcordia SR-4731 \*.sor formats are securely transferred via HTTPS connection, a fast reliable communication protocol commonly used in today's Internet applications. Another outstanding feature is compatibility with other OTDR vendor trace data formats, so users can reference or compare other OTDR traces and vice versa.

### Peace of Mind

With Fiberizer cloud OTDR trace viewer you never need to install or update the application, thus reducing maintenance time and expenses. Fiberizer Cloud is constantly updated, so you always have the most up-to-date analysis capability for your fiber optic network.

## Optical Specifications

Parameter	Specification
Wavelength ( $\pm 20$ nm)	Multimode - 850/1300, Singlemode - 1310/1550/1625/1650 (refer to ordering guide)
Dynamic Range (db) <sup>2</sup>	Refer to ordering guide
Pulse width (ns)	3, 6, 25, 100, 300, 1000, 3000, 10000, 20000 (where applicable)
Event dead zone (m) <sup>3</sup>	<1
Attenuation dead zone (m) <sup>4</sup>	< 4
Distance range (km)	0.5 to 240
Distance Measurement Accuracy (m) <sup>5</sup>	$\pm (0.5 + \text{resolution} + 5 \times 10^{-5} \times L)$
Sampling resolution (m)	0.04 to 7.6
Sampling points	Up to 256,000
Linearity (dB)	$\pm 0.05$
Measurement time (seconds)	Live or selectable 5, 15, 30, 60, 180, 300 seconds
Memory capacity	>1,000 traces, Telcordia SR-4731 sor format
Fiber analysis	Automatic, event table, user defined PASS/FAIL thresholds
Fiber type	Single mode, 9/125 $\mu\text{m}$
Intelligent Link Mapping (V-Scout)	Link characterization with intuitive icons using Multi-pulse widths, multi wavelengths
OTDR Laser safety	IEC 60825-1, Class 1M
Optical connectors (OTDR)	Fixed connector or optional universal interface with interchangeable adaptors

Options	Single mode
Visual Fault Locator (VFL)	Optional
-Wavelength (nm)	650 nm $\pm 10$ nm
-Output (mW)	Max 1 mW
-Laser Safety	IEC 60825-1, Class II
Light Source (LS) - (O/P shared with OTDR)	Optional
-Wavelengths (nm)	As per OTDR laser fitted
-Output power (dBm)	> -4
-Level Instability (dB)	Better than $\pm 0.05$ (15 min)
Optical Power Meter (OPM)	Optional
-Calibrated wavelengths (nm)	850/1300/1310/1490/1550/1625/1650
-Power range (dBm)	-65 to +7 / -45 to +27
-Accuracy, %	$\pm 5$
-Linearity, %	$\pm 2.5$
Optical connectors (LS/VFL/OPM)	Universal adaptor interface, FC/SC/ST/LC adaptors optional

### Notes:

1. Unless noted, all specifications are valid at  $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$  ( $73.4^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ ) using FCUPC connectors
2. Typical dynamic range after three-minute averaging and SNR = 1
3. Typical dead zone using 3 or 6 ns pulse and reflections below -45 dB
4. Typical dead zone using 3 or 6 ns pulse and reflections below -45 dB
5. Excludes uncertainty due to fiber refractive index (IoR) setting

## General Specifications

Dimensions	150 x 150 x 70 mm
Weight	0.7 kg nominal
Battery	Lithium Polymer battery, 10 Ah with low voltage indication
Battery Autonomy	>9 hours continuous operation
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to 60°C (-40°F to 140°F)
Humidity	0% to 80%, non-condensing
Display	5" high resolution TFT color touchscreen LCD
Interfaces	Micro-USB with On The Go (OTG) support
AC Adaptor	Input: 100-240 VAC (50/60 Hz), 1.5A max Output: 12 VDC
Memory	Internal 8 Gbyte micro SD card
Connectivity	WiFi 802.11 b/g/n (optional), Bluetooth (optional)
Languages	English, French, German, Spanish, Chinese, Japanese (others supported on demand)
Certifications	CE & ROHS compliant
Safety Standards	FX150 OTDR - IEC 61010-1, Class III (GOST 12.2.091) AC adaptor - IEC 61010-1, Class II (GOST 12.2.091)

## Ordering Information

Handheld OTDR Models	
Wavelength (nm)	Dynamic Range (dB)
850/1300	28/30
1310/1550	32/32
1310/1550	36/34
1310/1550	39/36
1310/1490/1550	36/34/34
1310/1550//1625(F)	36/34//38
1310/1550//1625(F)	39/36//39
1310/1550//1650(F)	39/36//39

Add on Hardware Options
Standard OPM (+7 dBm)
High Power OPM (+25 dBm)
Visual Fault Locator
Light Source
Fiber Microscope