FX150+

Mini OTDR with 256,000 Data Points and 3 cm Resolution

Mini OTDR for FTTx and Metro Fiber Networks

Featuring up to 256,000 Data Points and 3 cm resolution, the new enhanced FX150+ mini OTDR offers superior measurement accuracy for 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 test conditions
- High resolution, 5” TFT color touch-screen suitable for both indoor and outdoor use
- Fast boot-up and measurement 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 >9 hours without recharging batteries
- Built-in WiFi option:
  - perform software upgrades using Windows® PC
  - upload test data to Fiberizer™ Cloud via Internet connection
  - connect wirelessly to fiber inspection microscope
- Built-in Bluetooth® option:
  - pair with mobile devices/Windows PCs to transfer test results

Key Features

- Supports up to 4 wavelengths including Quad MM/SM
  -MM: 850, 1300 nm
  -SM: 1310, 1490, 1550, 1625 and 1650 nm
- Dynamic range up to 45 dB
  - Testing long Point-Point fiber links up to 180 km (110 miles)
  - Testing single or cascaded PON up to 1:64 splitter ratios
- Optimized dead zones (DZ) for FTTx/PON applications
  - Event <1m, attenuation <4m
  - PON ≤20m (≤13 dB loss, ≤100ns PW, non-reflective splitter)
- Filtered OTDR port for in-service testing at 1625 or 1650 nm
- Live fiber detection with embedded power meter
- Telcordia SR-4731.sor file format
- Generate and save results in sor, png or pdf formats
- Auto mode - setup, events detection, and trace diagnostics
- V-Scout option – Intelligent Link Mapping derived from multiple test acquisitions and displayed using intuitive icons
- Markers for distance, attenuation, reflectance and splice loss measurements
- Fixed or universal interface option with interchangeable optical adapters (SC, ST, FC) for OTDR port
- Power meter, light source, fiber inspection probe and VFL options
- Remote measurement using Fiberizer™ Desktop software, VNC or web browser

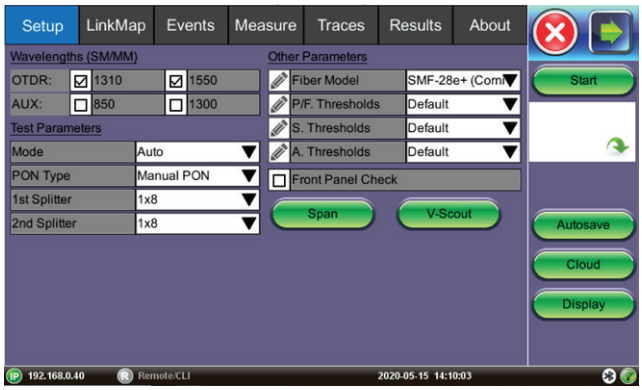
Loads of Features You Can Depend On

Fast Startup

The FX150+ powers up and is ready to perform OTDR measurements in less than 30 seconds, making it one of the fastest units in the industry. Technicians can select the desired test mode from the Fiber menu and begin work almost immediately or be in the position to locate and restore fiber breaks quickly.

Auto Mode

Intuitive Fiber menu structure simplifies test parameter setup 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.



Advanced Analysis for Experts

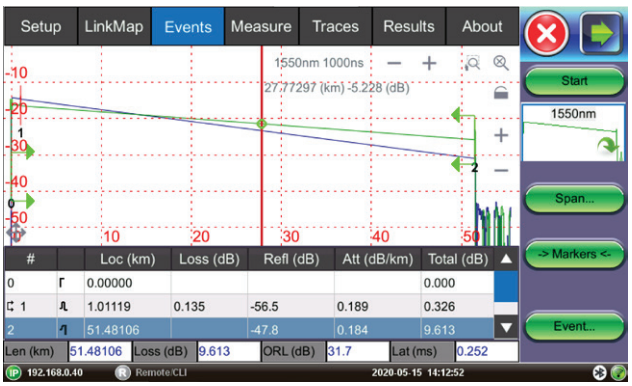
OTDR test parameters can be set manually or automatically depending on user requirements or skill level.

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.

Advanced LSA loss measurement using 5 markers enables skilled Users to analyze splices and fiber sections with the highest possible accuracy. The ability to add/delete/edit optical events enhances the event table when very low loss events go undetected or when landmarks need to be inserted.

Powerful zooming functions remain at the user's disposal to pinpoint faults with greater certainty and precision especially during fiber splicing operations.

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

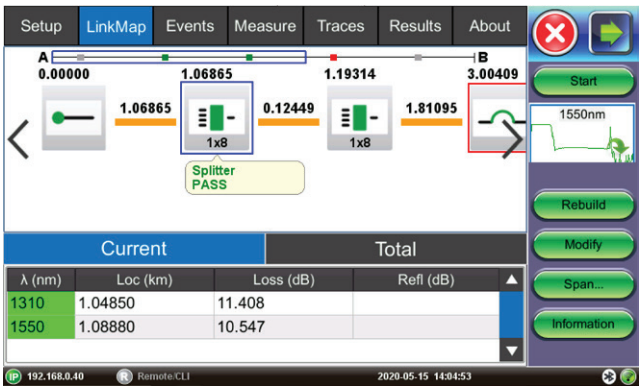


Live Fiber Check

The OTDR automatically checks if light is present on the fiber under test prior to making any measurement. The unit disables the laser transmitter if an active fiber is detected preventing any possible service disruption and potential receiver damage.

V-Scout Link Mapping

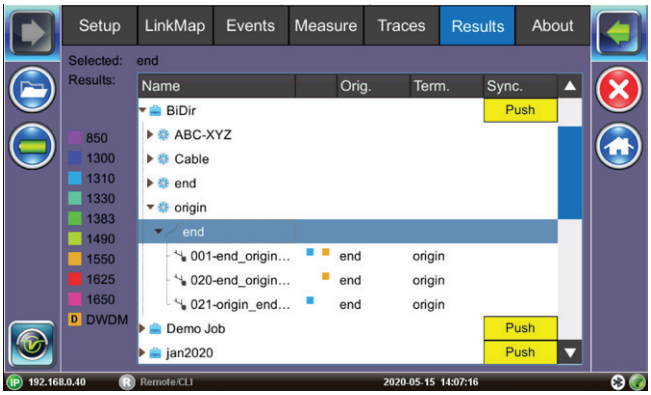
Advanced algorithms evaluate separate acquisitions and characterize the fiber span using intuitive symbols. Each individual acquisition can be customized and user defined as a test profile depending on network type or application. This optional feature eliminates event interpretation and provides greater analysis confidence to the user, regardless of OTDR skill set.



OTDR Results

Traces are saved in industry standard Telcordia SR-4731 sor 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.

A flat file naming convention is also supported and can be invoked depending on user preference.



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

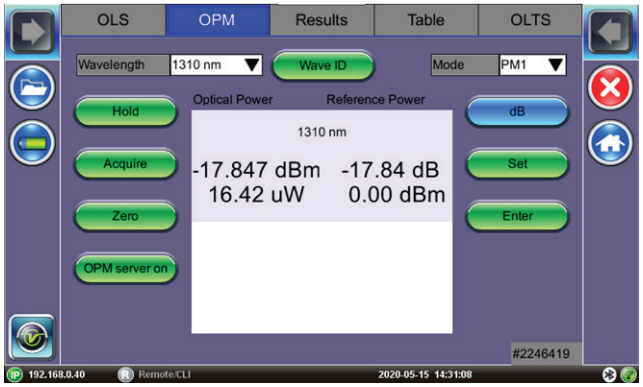
The OTDR provides over 9 hours of operation on a single charge. A low voltage indicator warns the user when the device power reaches critical levels.

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 in conjunction 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

VeEX offers microscopes for checking contamination on single and multi-fiber (MPO/MTP) optical connectors. The large color display allows images to be viewed in great detail while the embedded software captures and automatically freezes the focused image before performing end-face analysis. Graphic and Tabular Pass/Fail results per the latest IEC 61300-3-35 standard are also provided.

Inspection of both female bulkhead adapters and male connectors is supported. A wide range of inter-changeable tips including FC, SC, LC, E2000, and other special types are available in either UPC or APC formats. Multi-fiber inspection and analysis of MPO/MTP connectors with Pass/Fail is supported.

Depending on the fiberscope, connection is either via the unit’s micro-USB port or optional WiFi interface. Images can be saved internally or they can be transferred to a Fiberizer Scope software application on a Windows PC for further analysis and reporting. Saved images can also be uploaded to Fiberizer Desktop software or Fiberizer Cloud application.

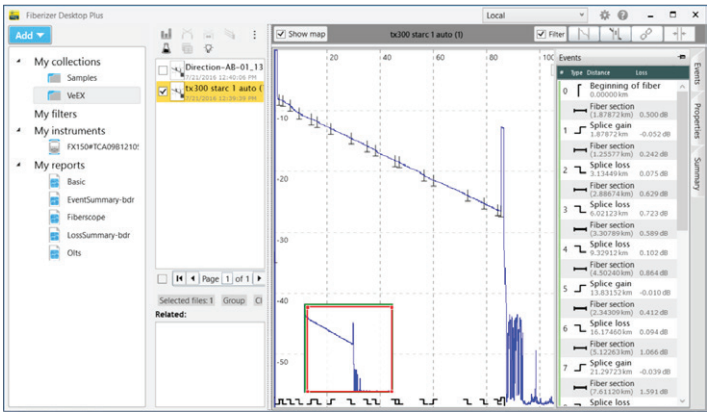
OTDR Trace Analysis and Documentation

Fiberizer Desktop Plus

Fiberizer Desktop Plus, is a standalone PC software application to analyze traces acquired by the OTDR. Users can edit traces, view event tables, and generate basic reports.

The version also supports batch processing and advanced report generation for analyzing multiple fibers in a cable.

The software does not require Internet access to operate, but it can be interfaced and synchronized with 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, this cloud-based solution provides superior centralized test data management capabilities including powerful web based trace analysis. Traces can be uploaded directly from the OTDR via Internet connection from almost anywhere, at anytime because Fiberizer Cloud is a 24/7 full online web service.

Add value with
Fiberizer Cloud
www.fiberizer.com

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 supports HTML5, and is compatible with mobile device 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 (±20 nm)	Multimode - 850/1300, Singlemode - 1310/1490/1550/1625/1650 (refer to ordering guide)	
Parameter	**Single Mode**	**Multimode**
Dynamic Range (dB)[2]	Refer to ordering guide	
Pulse width (ns)	3, 5, 10, 25, 100, 200, 300 ,500, 1000, 3000, 10000, 20000 (where applicable)	3, 5, 10, 25, 100, 200, 300, 500, 1000
Event dead zone (m)[3]	<1	≤1.5
Attenuation dead zone (m)[4]	<4	≤5
PON dead zone (m)[5]	<20	n/a
Distance range (km)	0.1 to 400	0.1 to 80
Reflectance Accuracy	±2 dB	
Distance Measurement Accuracy (m)[6]	±(0.5 + resolution + $5x10^{-5}$ x L)	
Sampling resolution (m)	0.03 up to 16m (model dependent)	
Sampling points	Up to 256,000	
Linearity (dB)	±0.03	
Measurement time (seconds)	Live or predefined values	
Memory capacity	>2,000 traces, Telcordia SR-4731 sor format	
Fiber analysis	Automatic, event table, user defined PASS/FAIL thresholds	
Fiber type	Single mode, 9/125 µm and/or Multimode 50/125	
Intelligent Link Mapping (V-Scout)	Intelligent Link Mapping using intuitive icons derived from multiple test acquisitions	
OTDR Laser safety	IEC 60825-1, Class 1M	
Optical connectors (OTDR)	Fixed connector or optional universal interface with interchangeable adaptors	

Options	Specification
Visual Fault Locator (VFL)	Optional
-Wavelength (nm)	650 nm ±10 nm
-Output (mW)	Max 1 mW
-Laser Safety	IEC 60825-1, Class II
-Mode	CW and 1 Hz
Light Source (LS) - (O/P shared with OTDR)	Optional
-Wavelengths (nm)	As per OTDR laser fitted
-Output power (dBm)	>-4 SM and/or >-6 MM
-Level Instability (dB)	>± 0.05 SM and/or > ±0.1 MM (15 min)
-Modulation (Hz)	270, 1000, and 2000
Optical Power Meter (OPM)	Optional
-Calibrated wavelengths (nm)	850/1300/1310/1490/1550/1625/1650
-Power range (dBm)	-65 to +10 / -50 to +25
-Accuracy, %	±5 (For high power OPM: -35dBm and ± 10 below -35dBm)
-Linearity, %	±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°C ± 2°C (73.4°F ±3.6°F) using FCUPC connectors.
2. Typical dynamic range after three-minute averaging and SNR = 1 using longest pulse. Multimode dynamic range specified for 62.5 µm fiber; for 50 µm fiber, expect typical 3 dB reduction.
3. Typical deadzone using 3 ns pulse with multimode reflectance at -35 dB and singlemode reflectance at -45 dB.
4. Typical deadzone using 3 ns pulse with multimode reflectance at -35 dB and singlemode reflectance at -55 dB and max. dynamic range <41 dB; for dynamic range >43 dB, attenuation deadzone will be <5 meters.
5. Typical value for non reflective splitter, 13 dB loss and PW ≤100 ns.
6. 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 95%, non-condensing
Display (active area)	5” (127 mm) 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 Configurations	
Wavelength (nm)	**Dynamic Range (dB)**
Multimode	
850/1300	26/27
850/1300	27/27
Multimode/Singlemode	
850//1310	22//27
850/1300//1310/1550	27/27//38/35
Singlemode - 1 Wavelength	
1550	36
1650 (F)	32
1625 (F)	41
1650 (F)	41
Singlemode - 2 Wavelengths	
1310/1550	38/36
1310/1550	40/38
1310/1550	43/43
1310/1550	45/44
1310/1550	45/43
Singlemode - 3 Wavelengths	
1310/1490/1550	39/35/36
1310/1550/1625	39/36/39
Singlemode - In-Service Testing	
1310/1550//1625 (F)	40/38//39
1310/1550//1625 (F)	43/43//39
1310/1550//1650 (F)	40/38//39
1310/1550/1650 (F)	43/43//39
1310/1490/1550//1625 (F)	40/37/37//39

Add on Hardware Options
Standard OPM (+7 dBm)
High Power OPM (+10 to -65 dBm)
Visual Fault Locator (+25 to -50 dBm)
Light Source (650 nm, 1 mW output)
Fiber Microscope
WiFi/BT option

**Additional optical configurations available upon request with a maximum dynamic range of 45 dB for single mode lasers. Consult factory.*

VeEX
The Verification Experts

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