SPEC SHEET

# FTBx-735D metro/PON FTTx/MDU OTDR

## OPTIMIZED FOR METRO/CORE AND FTTx/MDU FIBER DEPLOYMENTS AND TROUBLESHOOTING

- High-resolution OTDR designed for metro network testing and splitter characterization in PON FTTx applications.

COMPATIBLE WITH

eXchange

iOLM READY

## KEY FEATURES

- Dynamic range up to 45 dB for up to 144 km point-to-point (P2P)
- Support high port count PON splitters (up to 1×128)
- Live fiber testing
- Short dead zones: event dead zone (EDZ) = 0.5 m; attenuation dead zone (ADZ) = 2.0 m; PON dead zone = 25 m
- Single port for in-service troubleshooting with in-line 1490/1550 nm PON power meter (optional)
- iOLM-ready: one-touch multiple acquisitions, with clear go/no-go results presented in a straightforward visual format

## APPLICATIONS

- FTTx/MDU test challenges within PON networks
- Metro/core network testing (P2P)
- Manufacturing automation

## RELATED PRODUCTS AND ACCESSORIES

Platform FTB-1v2/ FTB-1 Pro

Platform FTB-2/FTB-2 Pro, FTB-4 Pro

Fiber inspection scope FIP-500

Fiber inspection scope FIP-400B (Wi-Fi or USB)

FastReporter

Advanced data post-processing software

EXFO

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## LOADED WITH FEATURES TO BOOST YOUR EFFICIENCY

### Real-time averaging

Activates the OTDR laser in continuous shooting mode, the trace refreshes in real time and allows to monitor the fiber for a sudden change. Perfect for a quick overview of the fiber under test.

### Zoom tools

Zoom and center to facilitate the analysis of your fibers. Draw a window around the area of interest and center in the screen quicker.

### Set parameters on the fly

Dynamically change OTDR settings for the ongoing acquisition without stopping or returning to submenus.

### Macrobend finder

This built-in feature enables the unit to automatically locate and identify macrobends, no need to spend further time analyzing the traces.

### Automode

Used as a discovery mode, this feature automatically adjusts the distance range and the pulse width in function of the link under test. It is recommended to adjust the parameters to perform additional measurements to locate other events.

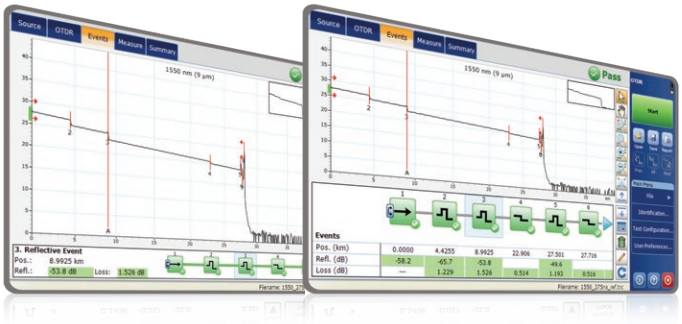
### Bidirectional analysis (Via FastReporter 3 data post-processing software)

Recommended to ensure true splice characterization, bidirectional analysis combines results from both directions to provide an average loss for each event. For a more complete event characterization, use intelligent Optical Link Mapper (iOLM) and benefit from maximum resolution on both directions (multiple pulse widths at multiple wavelengths) as well as a consolidated view.

## LOOKING FOR ICON-BASED MAPPING?

### Linear view (included on all EXFO OTDRs)

Available on our OTDRs since 2006, the linear view simplifies the reading of an OTDR trace by displaying icons in a linear way for each wavelength. This view converts the graph data points obtained from a traditional single pulse trace into reflective or non-reflective icons. With applied pass/fail thresholds, it becomes easier to pinpoint faults on your link.



This improved version of linear view provides the flexibility to display both the OTDR graph and its linear view without having to toggle to analyze your fiber link.

Although this linear view simplifies the OTDR reading of a single pulse width's trace, the user will still need to set OTDR parameters. In addition, multiple traces must often be performed in order to fully characterize fiber links. See the section below to learn how iOLM can do this automatically and provide more accurate results.



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iOLM | intelligent Optical Link Mapper

# iOLM—REMOVING THE COMPLEXITY FROM OTDR TESTING

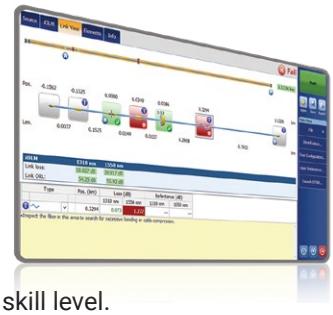
**OTDR testing comes with its load of challenges...**

- WRONG OTDR TRACES
- COUNTLESS TRACES TO ANALYZE
- REPEATING THE SAME JOB TWICE
- COMPLEX INSTRUMENT TRAINING/SUPPORT

**In response to these challenges, EXFO developed a better way to test fiber optics:** The iOLM is an OTDR-based application designed to simplify OTDR testing by eliminating the need to configure parameters, and/or analyze and interpret multiple complex OTDR traces. Its advanced algorithms dynamically define the testing parameters, as well as the number of acquisitions that best fit the network under test. By correlating multipulse widths on multiple wavelengths, the iOLM locates and identifies faults with maximum resolution—all at the push of a single button.

## How does it work?

DYNAMIC MULTIPULSE ACQUISITION → INTELLIGENT TRACE ANALYSIS → ALL RESULTS COMBINED INTO A SINGLE LINK VIEW → COMPREHENSIVE DIAGNOSIS



Turning traditional OTDR testing into clear, automated, first-time-right results for technicians of any skill level.

## Three ways to benefit from the iOLM

**COMBO**

Run both iOLM and OTDR applications (Oi code)

**UPGRADE**

Add the iOLM software option to your iOLM-ready unit, even while in the field

**iOLM ONLY**

Order a unit with the iOLM application only

## iOLM features value pack and options

In addition to the standard iOLM feature set, you can select added-value features as part of the **Advanced** or **Pro** packages, or standalone options. Please refer to the **iOLM specification sheet** for the complete and most recent description of these features.

### iOLM Standard

- Dynamic multipulse multiwavelength acquisition
- Intelligent traces analysis and diagnostics
- Single link view and event table
- SOR trace generation
- Single iOLM file per link for easy reporting
- Unbalanced/tapered PON characterization and troubleshooting
- **Optimode**: Short-link close events, fast short link, fast medium range

### iOLM Advanced (iADV) [a]

- Real-time OTDR
- SOR pulse and wavelength editor
- SOR trace view
- Custom elements
- Advanced link edition and re-analysis
- 2:N splitter characterization
- **Optimode:** SFP-Safe Troubleshooting [b], PON last-mile certification

### iLOOP [a]

- iOLM loopback
- iOLM automated bidirectional analysis over EXFO Exchange [b, c]

### iCERT [a]

- Cabling certification option

a. Require enabling iOLM standard.
b. Singlemode only, configuration without splitter.
c. Requires an EXFO Exchange account.

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## FIBER CONNECTOR INSPECTION AND CERTIFICATION–THE ESSENTIAL FIRST STEP BEFORE ANY OTDR TESTING

Taking the time to properly inspect a fiber-optic connector using an EXFO fiber inspection scope can prevent a host of issues from arising further down the line, thus saving you time, money and trouble. Moreover, using a fully automated solution with autofocus capabilities will turn this critical inspection phase into a fast and hassle-free one-step process.

### Did you know that the connector of your OTDR/iOLM is also critical?

The presence of a dirty connector at an OTDR port or launch cable can negatively impact your test results, and even cause permanent damage during mating. Therefore, it is critical to regularly inspect these connectors to ensure that they are free of any contamination. Making inspection the first step of your OTDR best practices will maximize the performances of your OTDR and your efficiency.

| FEATURES | USB WIRED | WIRELESS | AUTONOMOUS |
|---|---|---|---|
| | FIP-430B | FIP-435B | FIP-500 |
| Image capture | • | • | • |
| Five-megapixel CMOS capturing device | • | • | • |
| Automatic fiber image-centering function and focus adjustment | • | • | • |
| On-board pass/fail analysis | • | • | • |
| Pass/fail LED indicator | • | • | • |
| USB connectivity to an EXFO platform or PC | • | • | |
| Wireless connectivity to an EXFO platform or PC | | • | |
| Wireless connectivity to a smartphone | | • | • |
| Manual scanning for multifiber / MPO connectors | • | • | |
| Semi-automated multifiber / MPO inspection | • | • | |
| Fully automated multifiber / MPO inspection | | | • |
| On-board touch screen | | | • |
| SmarTips with automated thresholds | | | • |
| Quick-connect mechanism | | | • |

For more information, visit **www.EXFO.com/fiberinspection**.

## AVAILABLE IN THE FTB-1 PRO, FTB-2 PRO AND FTB-4 PRO PLATFORMS

The EXFO FTB platforms are the most compact solutions on the market for **multirate, multitechnology, multiservice testing**, delivering all the power of a high-end platform in a conveniently sized, go-anywhere field-testing tool.

### INTUITIVE INTERFACE

Widescreen display and multitouch capability

### UNMATCHED CONNECTIVITY

Wi-Fi, Bluetooth, Gigabit Ethernet and multiple USB ports

### INCREASED PRODUCTIVITY

Store, push and share test data automatically

### Do more with the EXFO FTB platform

The Windows 10 operating system allows for a wide choice of third-party applications and supports an extensive range of USB devices.

- Start faster and multitask
- Use any office suite
- Connect to printers, cameras, keyboards, mice, and more

### Bring your own apps

- Share your desktop (e.g., using TeamViewer)
- Antivirus software
- Communicate via email services and over-the-top (OTT) apps
- Record and automate actions
- Share files via cloud-based storage

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## SOFTWARE TEST TOOLS

This series of platform-based software testing tools enhance the value of the FTB-1v2/FTB-1 Pro, FTB-2/FTB-2 Pro and FTB-4 Pro platforms, providing additional testing capabilities without the need for additional modules or units.

### Remote control and measurement automation

SCPI commands available for OTDR measurements. With FTB-1v2/FTB-1 Pro, FTB-2/FTB-2 Pro and FTB-4 Pro: GPIB (IEEE 488.1, IEEE 488.2) or Ethernet.

### EXpert Test Tools

EXpert VoIP TEST TOOLS

EXpert VoIP generates a voice-over-IP call directly from the test platform to validate performance during service turn-up and troubleshooting.

- Supports a wide range of signaling protocols, including SIP, SCCP, H.248/Megaco and H.323
- Supports mean-opinion-score (MOS) and R-factor quality metrics
- Simplifies testing with configurable pass/fail thresholds and RTP metrics

EXpert IP TEST TOOLS

EXpert IP integrates six commonly used datacom test tools into one platform-based application to ensure that field technicians are prepared for a wide range of testing needs.

- Rapidly performs debugging sequences with VLAN scan and LAN discovery
- Validates end-to-end ping and traceroute
- Verifies file-transfer-protocol (FTP) performance and hypertext-transfer-protocol (HTTP) availability

EXpert IPTV TEST TOOLS

This powerful Internet-protocol-television (IPTV) quality assessment solution enables set-top box emulation and passive monitoring of IPTV streams, allowing for quick and easy pass/fail verification of IPTV installations.

- Real-time video preview
- Analyzes up to 10 video streams
- Comprehensive quality-of-service (QoS) and quality-of-experience (QoE) metrics, including the MOS score

### Automate asset management. Push test data to the cloud. Get connected.

EXFO Connect

EXFO Connect stores test equipment and test-data content automatically in the cloud, allowing you to streamline test operation from build-out to maintenance.



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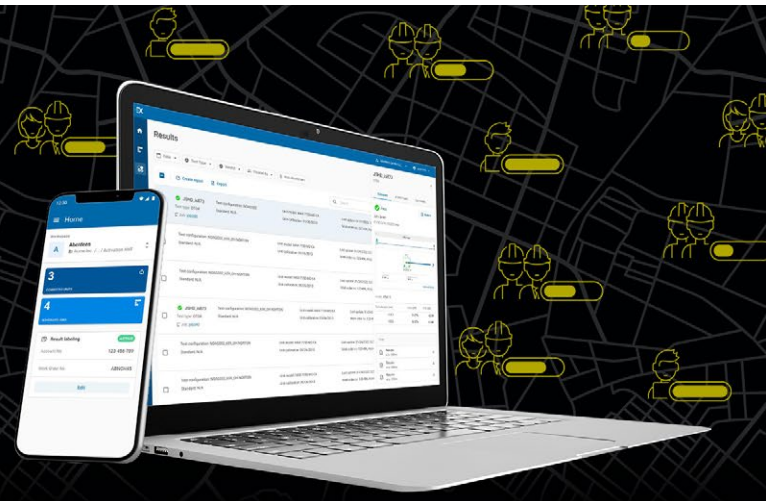
EXchange

# SHARE TEST RESULTS. BOOST COMPLIANCE. UNLOCK INSIGHTS.

**Cloud-hosted solution for sharing test results and ensuring compliance.**

Paired with EXFO's leading test instruments, EXFO Exchange drives an entire ecosystem, while integrating seamlessly with existing operation processes.



## KEY BENEFITS

- **Automate test results management**
- **Boost compliance and efficiency**
- **Improve collaboration and visibility**
- **Access comprehensive reporting**
- **Unlock insights to see what matters**

## SIMPLE SETUP IN THREE STEPS

### Create your free EXFO Exchange account

Begin your journey by creating an EXFO Exchange account. Setting up your account is quick and easy.

Create an account

### Install the mobile app

Download the EXFO Exchange app to allow test data from compatible EXFO devices to be uploaded securely to the cloud (free of charge).

GET IT ON Google Play | Download on the App Store

For MaxTester and FTB users, install the native app.

Access the Native app

### Save time and boost efficiency

Once your account created—and the mobile app installed and paired with compatible EXFO devices—all test results will be sent to the cloud. On the web app, you will see field test results from all invited testers.

Get **started >**

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FastReporter
Data post-processing software

## INCLUDED: ADVANCED FASTREPORTER CAPABILITIES

FastReporter is a consolidated data management and postprocessing solution designed to improve results quality as well as auditing and reporting productivity. When logging onto EXFO Exchange on your tester, you will have access to all advanced FastReporter capabilities, including:

- Results viewer
- Advanced reporting formats (Excel, PDF, custom)
- Advanced editing
- Automated validation and results correction

## SPECIFICATIONS [a]

| TECHNICAL SPECIFICATIONS | |
|---|---|
| Wavelengths (nm) [b] | 1310 ± 20/1550 ± 20/1625 ± 10/1650 ± 5 |
| Live wavelength (nm) | 1650 nm: bandpass 1650 nm ± 7 nm<br>isolation >50 dB out of 1650 nm ± 10 nm |
| Dynamic range (dB) [c] | 45/44/42/42 |
| Event dead zone (m) [d] | 0.5 |
| Attenuation dead zone (m) [d] | 2.0 |
| Distance range (km) | 0.1 to 400 |
| Pulse width (ns) | 3 to 20 000 |
| Linearity (dB/dB) | ±0.03 |
| PON dead zone (m) [e] | 25 |
| Loss threshold (dB) | 0.01 |
| Loss resolution (dB) | 0.001 |
| Sampling resolution (m) | 0.04 to 10 |
| Sampling points | Up to 256 000 |
| Distance uncertainty (m) [f] | ±(0.75 + 0.0025 % x distance + sampling resolution) |
| Measurement time | User-defined (maximum: 60 minutes) |
| Typical real-time refresh (Hz) | 4 |
| Reflectance accuracy (dB) [b] | ±2 |
| Platform | Compatible with platforms which are Windows 10 or later |

| IN-LINE POWER CHECKER [b, g, h] | |
|---|---|
| Power range (dBm) | −60 to 23 |
| Power uncertainty (dB) [h, i] | ±0.5 |
| Calibrated wavelengths (nm) | 1310, 1490, 1550, 1625, 1650 |
| Selectable wavelengths (nm) | 1270, 1290, 1310, 1330, 1350, 1370, 1390, 1410, 1430, 1450, 1470, 1490,<br>1510, 1530, 1550, 1570, 1577, 1590, 1610, 1625, 1650 |
| Tone detection | 270 Hz, 330 Hz, 1 kHz, 2 kHz |

| TECHNICAL SPECIFICATIONS (in-line PON power meter with OPM2 in option) [b, j] | |
|---|---|
| Power range (dBm) | −60 to 23 |
| PON power meter (nm) | Two channels: 1490/1550 and 1490/1577 |
| Power uncertainty (dB) [h, i] | ±0.5 |
| Calibrated wavelengths (nm) | 1310, 1490, 1550, 1625, 1650 |
| Selectable wavelengths (nm) | 1310, 1490, 1550, 1577, 1625, 1650, 1490/1550, 1490/1577 |

| SOURCE | |
|---|---|
| Output power (dBm) [k] | 0 |
| Modulation | CW, 270 Hz, 330 Hz, 1 kHz, 2 kHz |

For complete details on all available configurations, refer to the Ordering information section.

a. All specifications valid at 23 °C ± 2 °C with an FC/APC connector, unless otherwise specified.
b. Typical.
c. Typical dynamic range with longest pulse and three-minute averaging at SNR = 1.
d. Typical, for reflectance at −55 dB, using a 3-ns pulse. Attenuation dead zone at 1310 nm is 2.5 m (typical) with reflectance below −45 dB.
e. Non-reflective FUT, non-reflective splitter, 13-dB loss, 50-ns pulse, typical value at 1550 nm.
f. Does not include uncertainty due to fiber index.
g. Not available when OPM2 is selected
h. At calibrated wavelengths.
i. Requires a good entry connector's health.
j. Specifications valid when OTDR not in operation or in idle mode.
k. Typical output power is given at 1550 nm.

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## GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| Size (H × W × D) | | 158 mm × 24 mm × 174 mm (6 ¼ in × 15/16 in × 6 7/8 in) |
| Weight | | 0.4 kg (0.9 lb) |
| Temperature | Operating<br>Storage | Refer to platform's specification sheet<br>−40 °C to 70 °C (−40 °F to 158 °F) |
| Relative humidity | | 0% to 95% non-condensing |
| Warranty (year) | | 1 |

## LASER SAFETY

## ORDERING INFORMATION

**FTBx-735D-XX-XX-XX-XX-XX**

**Optical configuration**
SM1 = SM OTDR module, 1310/1550 nm
SM3 = SM OTDR module, 1310/1550/1625 nm
SM8 = SM OTDR module, 1310/1550 and 1650 nm, filtered on a separated port

**OPM option** [a]
OPM = In-line power checker
OPM2 = In-line power meter, broadband mode or PON power meter mode (dual band)

**Base software**
OTDR = Enables OTDR application only
iOLM = Enables iOLM application only
Oi = Enables OTDR and iOLM applications

**iOLM software option** [b]
00 = iOLM Standard
iADV = iOLM Advanced
iPRO = iOLM Pro
iLOOP = iOLM loopback mode
iCERT = iOLM tier-2 certification

**Singlemode connector**
EA-EUI-28 = APC/DIN 47256
EA-EUI-89 = APC/FC narrow key
EA-EUI-91 = APC/SC
EA-EUI-95 = APC/E-2000
EA-EUI-98 = APC/LC
EI connectors = See section below

Example: FTBx-735D-SM1-00-OTDR-EA-EUI-89

a. OPM2 available with SM8 model only.

b. Please refer to the **iOLM specification sheet** for the complete and most recent description of these value packs.

## EI CONNECTORS

To maximize the performance of your OTDR, EXFO recommends using APC connectors on singlemode port. These connectors generate lower reflectance, which is a critical parameter that affects performance, particularly in dead zones. APC connectors provide better performance than UPC connectors, thereby improving testing efficiency.

For best results, APC connectors are mandatory with the iOLM application.

Note: UPC connectors are also available. Simply replace EA-XX by EI-XX in the ordering part number. Additional connector available: EI-EUI-90 (UPC/ST).

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