

FTB-150

NETWORK TESTING – OPTICAL



A fast, powerful, lightweight solution from the industry's OTDR expert

- Houses any of EXFO's renowned OTDR configurations
 - Tests up to four wavelengths
 - Industry's fastest acquisition times
 - Multimode and singlemode testing
 - Shortest dead zones in the industry
- Touchscreen and shortcut functionality
- Future-proof connectivity
- Improved productivity
 - 4-second power-up time
 - Faster acquisition, processing and reporting
- Fiber inspection probe (optional)
- Optical power meter and VFL (optional)

A Complete Solution for Fiber Characterization

The FTB-150 Compact OTDR takes EXFO's world-renowned OTDR technology to the next level of user-friendliness. This small, lightweight OTDR-dedicated platform is factory-configured to house any EXFO OTDR configuration. Choose the model that best suits your test requirements and applications.

So, whether you need to carry out tier-2 certification of premises networks, characterize your links during construction and installation, or perform fast, efficient maintenance and troubleshooting testing, the FTB-150 Compact OTDR delivers the performance you're looking for.

Lightweight

- 3 kg/6.6 lb platform

Fast and powerful

- 4-second power-up time with Windows CE/mobile

Faster acquisition, processing and reporting

- Instantaneous AutoSync USB data transfer

Flexible connectivity

- File transfer and software upgrading through USB
- USB A/A-B, RJ-45 and Bluetooth flexibility
- Compact Flash (memory, Wi-Fi and Bluetooth)

Built for the outside plant

- Waterproof outer shell, sealed joints, door panels for extra port protection
- Advanced TFT transfective display, for great visibility under direct sunlight
- Rugged shortkeys and tracking knob
- GR-196-CORE
- Extended battery life of more than 8 hours



■ Numerous ports mean easy **connectivity** and convenient **upgrading** options

■ Choose your method: **touchscreen** or convenient **shortkeys**

Choose from a Wide Range of OTDR Configurations

CONFIGURATIONS

The FTB-150 can house any of EXFO's singlemode/multimode OTDR configurations designed to test at up to four wavelengths—choose from various combinations featuring the 850, 1300, 1310, 1490, 1550 and 1625 nm wavelengths—covering all fiber applications from long-haul and WDM to metro, FTTH and LAN networks. All EXFO OTDR configurations provide a stable light source, as well as the option of adding a visual fault locator.

All the OTDR Modes You Need

The FTB-150's OTDR software is both automated and easy to use. You can choose from three operating modes according to your specific requirements:

Auto Mode

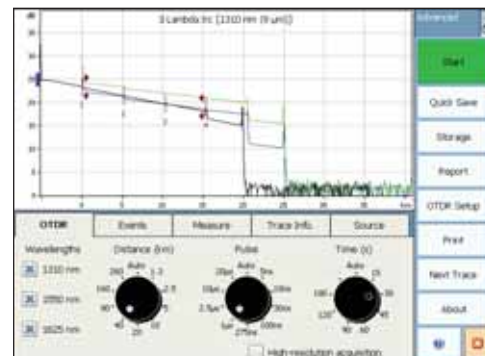
Lets you select acquisition parameters automatically. Perfect for basic, repetitive OTDR applications or for occasional users.

Advanced Mode

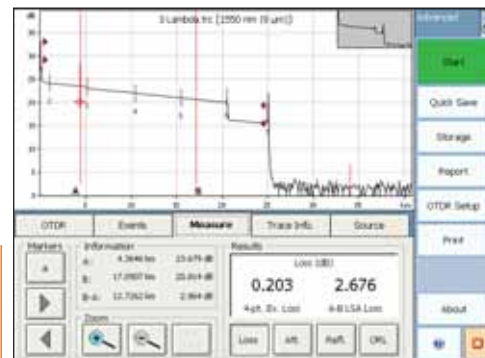
Offers multiple setup and measurement capabilities for increased flexibility. Change index of refraction and helix factor settings for optimal distance measurements.

Template Trace Mode

Compares each acquisition with a designated template for complete cable testing and documentation.



Triple-wavelength trace acquisition.



Loss measurements from the 1550 nm OTDR trace.



Perform full averaging in 45 seconds with the short-range OTDR configurations.

Short-range OTDRs

FTB-150-FTTx FTB-150-ACCESS

Ideal for access and FTTH network testing, the short-range OTDR configurations offer an exceptional 1 m event dead zone, letting you characterize all events between the transmitter and the central office's fiber distribution panel.

These configurations feature a highly efficient, lightning-fast trace acquisition routine, as full averaging is performed in 45 seconds. Thanks to next-generation OTDR software, they enable you to test through high-port-count splitters—even 1x32 splitters—perfect for passive optical network (PON) testing.

The FTB-150-FTTx configuration delivers triple-wavelength testing with a choice of wavelengths: 1310/1490/1550 nm, or 1310/1550/1625 nm.

- 1 m event dead zone: shortest in the industry
- Attenuation dead zone starting at 4 m
- Four-times-shorter testing time, for minimized testing costs
- FTTx ready: passive optical network (PON) testing capability
- Market-leading linearity of ± 0.03 dB/dB, for highly accurate event characterization
- Dynamic range of up to 38 dB

CONFIGURATIONS (CONT'D)

PREMISES NETWORK OTDRS

FTB-150-QUAD FTB-150-MM

Designed for enterprise/private network test applications, the premises network OTDR comes in two configurations: four-wavelength (singlemode and multimode) or two-wavelength (multimode).

The FTB-150-QUAD Four-Wavelength Configuration

Combining singlemode and multimode test functionalities, the FTB-150-QUAD features four wavelengths—850, 1300, 1310 and 1550 nm, with respective dynamic ranges of 26, 25, 36 and 35 dB—and an optional visual fault locator (VFL), for top flexibility and cost-effectiveness. Designed for real-life applications, it easily characterizes the high reflectance of field-installed connectors.

This module offers the shortest dead zones in the industry: an event dead zone of 1 m, and an attenuation dead zone of 4.5 m, for singlemode and multimode fiber. Its controlled launch conditions make for more accurate loss measurements. What's more, it is optimized for testing both 50 mm and 62.5 mm multimode fiber. Thanks to great all-around specifications, EXFO's FTB-150-QUAD provides pinpoint measurements—what you need for highly efficient multimode/singlemode OTDR performance.

- Built for enterprise/private network OTDR testing
- Four-wavelength model: two multimode wavelengths (850 and 1300 nm), and two singlemode wavelengths (1310 and 1550 nm)
- Two-wavelength model: 850 and 1300 nm (multimode)
- Best-in-class specifications



EXFO's premises network OTDR configurations offer the shortest dead zones in the industry, controlled launch conditions and, ultimately, pinpoint accuracy for loss measurements.



Long-range OTDRs display high-speed traces in as little as 10 seconds.

LONG-RANGE OTDRS

FTB-150-METRO FTB-150-LH

The FTB-150-METRO and FTB-150-LH configurations deliver accurate detection and analysis of fiber splices, connectors, breaks and other events along a fiber link. It lets you choose from dynamic ranges covering the greater distances in long-haul networks.

- Singlemode configurations at 1310, 1550 and 1625 nm
- Up to 52 000 acquisition points for sampling
- High-speed traces starting at 10 seconds
- Dynamic range of up to 45 dB

OPTIONAL FUNCTIONS

Power Meter

Offered with two detector types:

- GeX for high power measurement
- InGaAs for high dynamic range

Calibrated at 7 wavelengths

- Data saving capabilities

Tone recognition

Fiber Inspection Probe

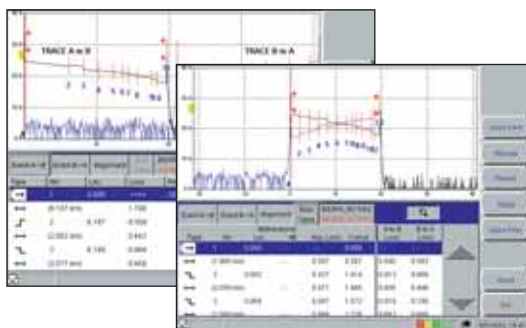
- Connector end face verification
- Image capture
- Compact, lightweight
- Compatible with EXFO FIP1-200X and FIP5-400X

Visual Fault Locator (VFL)

- Used for fiber IDs
- Pinpoints breaks and faulty connections
- Bright and powerful red laser



ToolBox Office PC Emulation Software for Post Processing



Performing data post-processing with optional ToolBox Office software gives you more OTDR processing functions.

Bidirectional Trace Analysis*

Improve the accuracy of your loss measurements with the bidirectional averaging feature, which uses OTDR acquisitions from both ends of a fiber span to average loss results for each event.

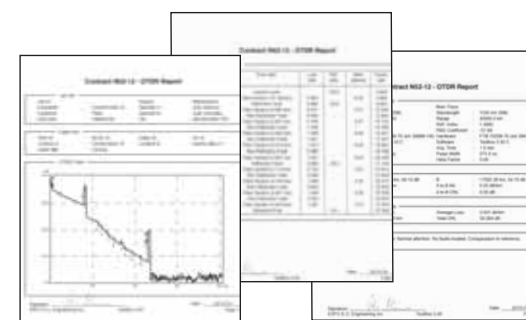
** Available on singlemode OTDRs only.*

Efficient Multifiber Testing with TemplateTrace

Reduce testing time when commissioning a large number of fibers by using the Template Trace mode. This mode dynamically compares new OTDR results with a trace you assign as a reference. Reference trace documentation is automatically pasted onto new acquisitions to save you time.

Professional Report Generation

User-configurable test reports and batch printing let you generate complete, professional OTDR reports quickly and efficiently.



EXPORT OTDR FILES IN BELLCORE OR ASCII FORMAT

Save and load OTDR test results in the Bellcore-standard OTDR record format. Export results in ASCII or ASCII+ format to spreadsheet or word-processing applications.

— Cable Report Function

Create cable acceptance reports and get down to specifics with:

1. Fiber Event Report

Complete event data in a compact format

2. Fiber Section Report

Get a close-up look at any fiber section

3. Fault Report

Faults feedback based on specified user-thresholds.



Fiber event report Fiber section report Fault report

— Batch Print Function

Choose from three print modes: Normal (full-size, multi-page OTDR report), Compressed (one-page report), or Multitrace (4, 6 or 8 traces per page). Plus, add report statistics such as event tables.

— Quick-Print Function

Print the on-screen OTDR trace and choose statistics.



Normal

Compressed

Multitrace

SPECIFICATIONS ^a

All specifications below apply to the FTB-150-QUAD multimode (MM)/singlemode (SM) model and the FTB-150-MM multimode-only version.

Model	Wavelength (nm)	Dynamic range ^{b, c} (dB)	Event dead zone ^d (m)	Attenuation dead zone ^d (m)
FTB-150-QUAD (E15)/FTB-150-MM (E16)	850 ± 20/1300 ± 20	27/26	1/1	3/4
	1310 ± 20/1550 ± 20	37/35	1/1	4.5/5
Distance range (km)	Multimode: 0.1, 0.3, 0.5, 1.3, 2.5, 5, 10, 20, 40 Singlemode: 1.3, 2.5, 5, 10, 20, 40, 80, 160, 260			
Pulse width (ns)	Multimode: 5, 10, 30, 100, 275, 1000 Singlemode: 5, 10, 30, 100, 275, 1000, 2500, 10 000, 20 000			
Launch conditions ^e	Class CPR 1 or 2			
Linearity (dB/dB)	±0.03			
Loss threshold (dB)	0.01			
Loss resolution (dB)	0.001			
Sampling resolution (m)	Multimode: 0.04 to 2.5 Singlemode: 0.04 to 5			
Sampling points	Up to 128 000			
Distance uncertainty ^f (m)	±(0.75 + 0.0025 % x distance)			
Measurement time	User-defined (60 min maximum)			
Real-time refresh (s)	Guaranteed: ≤ 0.4			
Stable source output power ^g (dBm)	-1.5 (1300 nm), -7 (1550 nm)			

Notes

- All specifications valid at 23 °C ± 2 °C (73.4 °F ± 3.6 °F) with an FC/PC connector, unless otherwise specified.
- Typical dynamic range with longest pulse and three-minute averaging at SNR = 1.
- Multimode dynamic range is specified for 62.5 µm fiber; a 3 dB reduction is seen when testing 50 µm fiber.
- Typical dead zone for multimode reflectance below -35 dB and singlemode reflectance below -45 dB, using a 5 ns pulse.
- Controlled launch conditions allow 50 µm and 62.5 µm multimode fiber testing.
- Does not include uncertainty due to fiber index and sampling resolution.
- Typical output power is given at 1300 nm for multimode output and 1550 nm for singlemode output.

SINGLEMODE OTDR MODULE SPECIFICATIONS ^h

Model	Wavelength (nm)	Dynamic range at 10 µs ⁱ (dB)	Dynamic range at 20 µs ⁱ (dB)	Event dead zone ^j (m)	Attenuation dead zone ^j (m)
FTB-150-ACCESS (E3)	1310 ± 20/1550 ± 20	35/34	37/35	1/1	4.5/5
FTB-150-FTTx (E4, E13, E14)	1310 ± 20/1490 ± 10/1550 ± 20/1625 ± 10	38/34/37/35	39/35/38/36	1/1/1/1	4.5/5.5/5/5
FTB-150-METRO (E5)	1310 ± 20/1550 ± 20	40/38	41.5/39.5	3/3	10/15
FTB-150-METRO (E10)	1310 ± 20/1550 ± 20/1625 ± 10	41/40/38	42.5/41.5/39.5	3/3/3	8/10/10
FTB-150-LH ^k (E7)	1310 ± 20/1550 ± 20	43.5/41.5	45/43	3/3	10/15

	FTB-150-ACCESS/FTB-150-FTTx	FTB-150-METRO/FTB-150-LH
Distance range (km)	1.25, 2.5, 5, 10, 20, 40, 80, 160, 260	1.25, 2.5, 5, 10, 20, 40, 80, 160, 260
Pulse width (ns)	5, 10, 30, 100, 275, 1000, 2500, 10 000, 20 000	10, 30, 100, 275, 1000, 2500, 10 000, 20 000
Linearity (dB/dB)	±0.03	±0.05
Loss threshold (dB)	0.01	0.01
Loss resolution (dB)	0.001	0.001
Sampling resolution (m)	0.04 to 5	0.08 to 5
Sampling points	Up to 128 000	Up to 52 000
Distance uncertainty ^l (m)	±(0.75 + 0.0025 % x distance)	±(1 + 0.0025 % x distance)
Measurement time	User-defined (60 min maximum)	User-defined (60 min maximum)
Real-time refresh (s)	Guaranteed: ≤0.4 Typical: ≤0.3	≤1
Stable source output power ^m (dBm)	-8 (-ACCESS), -4.5 (-FTTx)	-5
Visual fault locator (optional)	Laser, 650 nm ± 10 nm CW, typical P _{out} in 62.5/125 µm: 3 dBm (2 mW)	Laser, 650 nm ± 10 nm CW, P _{out} maximum: ≤800 µW

Notes

- All specifications valid at 23 °C ± 2 °C (73.4 °F ± 3.6 °F) with an FC/PC connector, unless otherwise specified.
- Typical dynamic range with a three-minute averaging at SNR = 1.
- Typical dead zone of singlemode modules for reflectance below -45 dB, using a 10 ns pulse (5 ns pulse for -ACCESS and -FTTx).
- Typical dynamic range on NZDS fiber with a three-minute averaging at SNR = 1.
- Does not include uncertainty due to fiber index and sampling resolution.
- Typical output power value at 1550 nm.

Safety



LASER SAFETY

21 CFR 1040.10 AND IEC 60825-1:1993+A2:2001

CLASS 1M WITHOUT VFL OPTION
CLASS 3R WITH VFL OPTION

SPECIFICATIONS ^a

Display	Touchscreen, color, 640 x 480 TFT 163 mm (6.4 in)	
Interfaces	USB A main	
	USB B remote	
	RJ-45 LAN 10/100 Mb/s	
	Compact Flash	
Storage	Fiber inspection probe connector port (video)	
	Internal (Flash)	
	USB sticks 1 GB and 2 GB (optional) Compact Flash cards (optional)	
Batteries ^b	Rechargeable Li-Ion 8 h of operation as per Bellcore TR-NWT-001138	
Power supply	AC/DC adapter, input 100-240 VAC, 50-60 Hz, 2 A max, output: 24 VDC, 90 W	

GENERAL SPECIFICATIONS

Temperature	operating	-5 °C to 50 °C	(23 °F to 122 °F)
	storage ^c	-40 °C to 70 °C	(-40 °F to 158 °F)
Relative humidity	0 % to 95 % non-condensing		
Size (H x W x D)	322 mm x 197 mm x 109 mm	(12 ¹¹ / ₁₆ in x 7 ³ / ₄ in x 4 ⁵ / ₁₆ in)	
Weight	3 kg	(6.6 lb)	
Vibration	< 1.5 g at 10 Hz to 500 Hz (on three main axes)		
Mechanical shock	< 760 mm on six sides and eight main edges (according to GR-196-CORE)		

ACCESSORIES

FP1	FP1 200X Fiber Inspection Probe	GP-2017	Spare battery
FP5	FP5 400X Fiber Inspection Probe	GP-2019	USB micro drive standard capacity
GP-10-069	Semi-rigid carrying case	GP-2021	Spare AC charger (requires AC external adapter/charger). (A-E-I-J-S-U) Specify: A-North America, E-Europe, I-India, J-Japan, S-Australia and New-Zealand, U-United-Kingdom
GP-302	USB mouse	GP-2023	Spare neck strap
GP-308	DC car adapter/inverter	GP-2024	Spare belt strap
GP-2001	USB keyboard	GP-2025	Spare battery door
GP-2011	Compact Flash Ethernet WiFi card	GP-2027	Portable printer
GP-2012	Compact Flash Bluetooth card	GP-2028	Computer security cable kit
GP-2014	Compact Flash memory 1 GB card		
GP-2015	Compact Flash memory 2 GB card		
GP-2016	10 feet RJ-45 LAN cable		

PM-200 BUILT-IN POWER METER SPECIFICATIONS ^d

Calibrated wavelengths (nm)	850, 1300, 1310, 1490, 1550, 1625, 1650	
Power range (dBm)	10 to -86 (InGaAs)	
	26 to -64 (GeX)	
Uncertainty (%) ^e	±(5 % + 3 pW) (InGaAs)	
	±(5 % + 0.4 nW) (GeX)	
Display resolution (dB)	InGaAs	0.01 = max to -76 dBm
		0.1 = -76 dBm to -86 dBm
	GeX	1 = -86 dBm to min
		0.01 = max to -54 dBm
		0.1 = -54 dBm to -64 dBm
		1 = -64 dBm to min
Automatic offset nulling range ^f	Max to -63 dBm for InGaAs Max to -40 dBm for GeX	
Tone detection (Hz)	270/1000/2000	

Notes

- All specifications valid at 23 °C (73 °F).
- Standard recharge time is 3 h. Recharge temperature: 0 °C to 35 °C (32 °F to 95 °F).
- Not including internal batteries. Battery maximum storage temperature 60 °C (140 °F).
- At 23 °C ± 1 °C, 1550 nm and FC connector. With modules in idle mode. Battery operated.
- Up to 5 dBm.
- For ±0.05 dB, from 18 °C to 28 °C.

ORDERING INFORMATION

FTB-150-XX-XX-XX-XX-XX-XX

Compact OTDR

Display

- S1 = TFT active screen
- S2 = Outdoor enhanced screen

Power meter

- 00 = Without power meter
- PM3 = Power meter: InGaAs detector
- PM2X = Power meter: high-power Ge detector

Connector adapter^b

- FOA-12 = Biconic
- FOA-14 = D4, D4/PC
- FOA-16 = SMA/905, SMA/906
- FOA-22 = FC (PC/SPC/UPC/APC), NEC-D3
- FOA-28 = DIN 47256 (LSA); DIN 47256 (PC/APC)
- FOA-32 = ST (PC/SPC/UPC)
- FOA-40 = Diamond HMS-0, HFS-3 (3.5 mm)
- FOA-54 = SC (PC/SPC/UPC/APC)
- FOA-76 = FSMA HMS-10/AG, HFS-10/AG
- FOA-78 = Radiall EC
- FOA-84 = Diamond HMS-10, HFS-13
- FOA-96B = E-2000
- FOA-98 = LC
- FOA-99 = MU

VFL (for the OTDR)

- 00 = Without visual fault locator
- VFL = With visual fault locator

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
- EI-EUI-28 = UPC/DIN 47256
- EI-EUI-76 = UPC/HMS-10/AG
- EI-EUI-89 = UPC/FC, narrow key
- EI-EUI-90 = UPC/ST
- EI-EUI-91 = UPC/SC
- EI-EUI-95 = UPC/E-2000

OTDR module

- E3 = FTB-150-ACCESS 1310/1550 nm (FTB-7200D-023B)
- E4 = FTB-150-FTTx 1310/1550 nm (FTB-7300D-023B)
- E5 = FTB-150-METRO 1310/1550 nm (FTB-7423B-B)
- E7 = FTB-150-LH 1310/1550 nm (FTB-7523B-B)
- E10 = FTB-150-METRO 1310/1550/1625 nm (FTB-74234C-B)
- E13 = FTB-150-FTTx 1310/1550/1625 nm (FTB-7300D-234B)
- E14 = FTB-150-FTTx 1310/1490/1550 nm (FTB-7300D-236B)
- E15* = FTB-150 QUAD 850/1300/1310/1550 nm (FTB-7200D-12CD-023B)
- E16* = FTB-150-MM 850/1300 nm (FTB-7200D-12CD)

Example: FTB-150-S1-PM2X-FOA-54-E3-EI-EUI-89-VFL

Notes

- a. EI connectors only
- b. With power meter option only

The FTB-150 is only available through [accredited distributors](#).

EXFO Corporate Headquarters > 400 Godin Avenue, Quebec City (Quebec) G1M 2K2 CANADA | Tel.: 1 418 683-0211 | Fax: 1 418 683-2170 | info@EXFO.com

Toll-free: 1 800 663-3936 (USA and Canada) | www.EXFO.com

EXFO Montreal	2650 Marie-Curie	St-Laurent (Quebec) H4S 2C3 CANADA	Tel.: 1 514 856-2222	Fax: 1 514 856-2232
EXFO Toronto	160 Drumlin Circle	Concord (Ontario) L4K 3E5 CANADA	Tel.: 1 905 738-3741	Fax: 1 905 738-3712
EXFO America	3701 Plano Parkway, Suite 160	Plano, TX 75075 USA	Tel.: 1 800 663-3936	Fax: 1 972 836-0164
EXFO Europe	PARIS > Le Dynasteur, 10/12 rue Andras Beck	92366 Meudon la Forêt Cedex FRANCE	Tel.: +33.1.40.83.85.85	Fax: +33.1.40.83.04.42
	SOUTHAMPTON > Omega Enterprise Park, Electron Way	Chandlers Ford, Hampshire SO53 4SE ENGLAND	Tel.: +44 2380 246810	Fax: +44 2380 246801
EXFO Asia	151 Chin Swee Road, #03-29 Manhattan House	SINGAPORE 169876	Tel.: +65 6333 8241	Fax: +65 6333 8242
EXFO China	No.88 Fuhua, First Road	Shenzhen 518048, CHINA	Tel.: +86 (755) 8203 2300	Fax: +86 (755) 8203 2306
	Central Tower, Room 801, Futian District			
	Beijing New Century Hotel Office Tower, Room 1754-1755	Beijing 100044 P. R. CHINA	Tel.: +86 (10) 6849 2738	Fax: +86 (10) 6849 2662
	No. 6 Southern Capital Gym Road			

EXFO is certified ISO 9001 and attests to the quality of these products. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. EXFO has made every effort to ensure that the information contained in this specification sheet is accurate. All of EXFO's manufactured products are compliant with the European Unions WEEE directive. For more information, please visit www.EXFO.com/recycle. However, we accept no responsibility for any errors or omissions, and we reserve the right to modify design, characteristics and products at any time without obligation. Units of measurement in this document conform to SI standards and practices. Contact EXFO for prices and availability or to obtain the phone number of your local EXFO distributor.

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In case of discrepancy the Web version takes precedence over any printed literature.