FTB-150
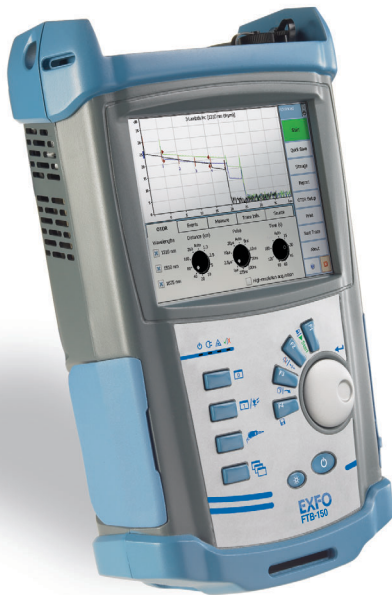
NETWORK TESTING – OPTICAL

WORLD LEADER
World's most renowned OTDR Series

A complete, rugged, simple solution for fiber characterization

- 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 shortkey functionality
- Improved productivity
  - Four-second power-up time
  - Faster acquisition, processing and reporting
- Fiber inspection probe
- Optical power meter and VFL
- Macrobend finder NEW
- Linear trace view NEW

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Telecom Test and Measurement

EXFO
EXPERTISE REACHING OUT

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

- 2.9 kg/6.4 lb

Fast and powerful

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

Faster acquisition, processing and reporting

- Instantaneous AutoSync USB data transfer
- Faster acquisitions—down to five seconds
- Remote control and virtual applications

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 transflective display, for great visibility under direct sunlight
- Rugged shortkeys and tracking knob
- GR-196-CORE-compliant
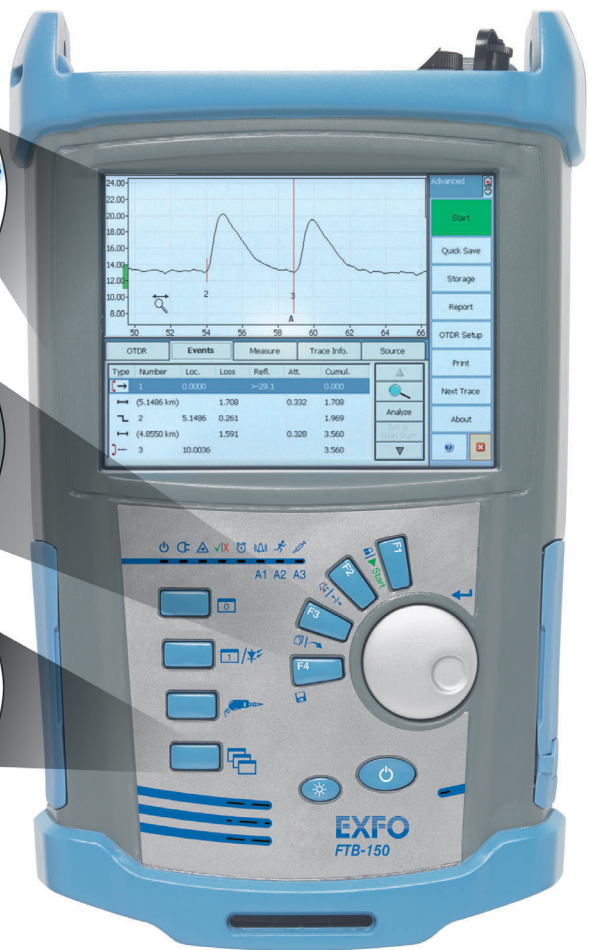- Extended battery autonomy of more than eight hours

Touchscreen for a wide of test combinations

Convenient **shortkeys**

One-key toggling for quick and easy multitasking

EXFO
FTB-150

Choose from a Wide Range of OTDR 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.

FTB-150 Summary Configuration Chart

OTDR Configuration	Wavelengths						Dynamic Range at 20 µs	Event Dead Zone	Attenuation Dead Zone	Multimode (MM)	Singlemode (SM)
	850	1300	1310	1490	1550	1625					
FTB-150-QUAD	X	X	X		X		27/26/37/35 dB	1/1	3/4/4.5/5	X	X
FTB-150-MM	X	X					27/26 dB	1/1	3/4	X	
FTB-150-FTTx			X	X	X	X	39/35/38/36 dB	1/1	4.5/5	X	
FTB-150-ACCESS			X		X		37/35 dB	1/1	4.5/5		X
FTB-150-METRO			X		X	X	42/41/41 dB	0.8	4/4.5/4.5		X
FTB-150-LH			X		X		45/43 dB	0.8	4/4.5		X

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 or two-wavelength.

- 1 m event dead zone: shortest in the industry
- Attenuation dead zone starting at 3 m
- 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

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. Designed for real-life applications, it easily characterizes the high reflectance of field-installed connectors.

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.

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 256 000 acquisition points for sampling
- High-speed traces starting at 5 seconds
- Dynamic range of up to 45 dB

Short-Range OTDRs
FTB-150-FTTx
FTB-150-ACCESS

Ideal for access and FTTH network testing, let you characterize all events between the transmitter and the central office's fiber distribution panel.

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

- Test through high-port-count splitters—even 1x32
- 1 m event dead zone: shortest in the industry
- Attenuation dead zone starting at 4.5 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 39 dB
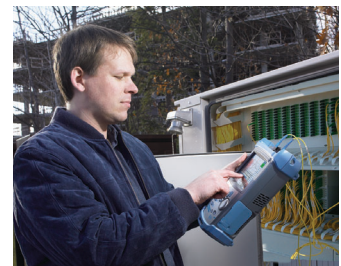
Diagnose the fiber under test quickly and easily.

Intuitive Interface Built for the Real World

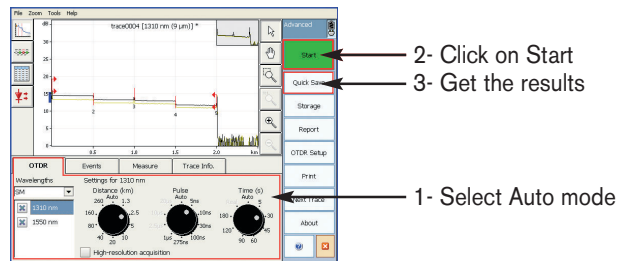## All the OTDR Modes You Need

The FTB-150's OTDR software is both automated and easy to use. Choose from four 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.

Parameter Setup–Simple as 1-2-3

- Minimal training required
- No need to browse through menus and submenus

2- Click on Start
3- Get the results
1- Select Auto mode

Advanced Mode

Offers multiple setup and measurement capabilities for increased flexibility. Control all parameters on a single page and optimize your measurement setup to pinpoint specific anomalies.

Fault Finder Mode *NEW*

Save valuable time when you don't need to perform a full link characterization

2- Click the start button

2.0003 km

1- Select OTDR Mode
3- Display the fiber length
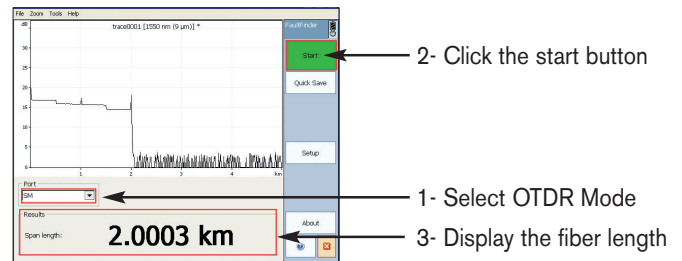
Template Trace Mode

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

Optional Tools: Packing More Functions in a Single Unit

Power Meter

- Offered with two detector types:
  - GeX for high-power measurement
  - InGaAs for high dynamic range
- Calibrated at seven wavelengths
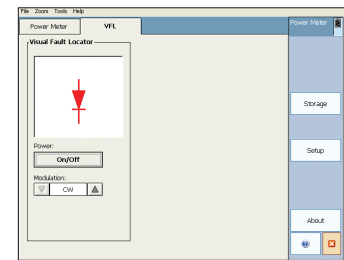 - Data-saving capabilities
- Tone recognition
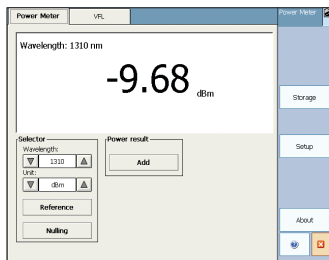
Fiber Inspection Probe

- Connector endface verification
- Image capture for documentation purposes
- Compact, lightweight
- 200X or 400X magnification

Visual Fault Locator (VFL)

- Simple fiber identification
- Pinpoints breaks and faulty connections
- Bright and powerful red laser
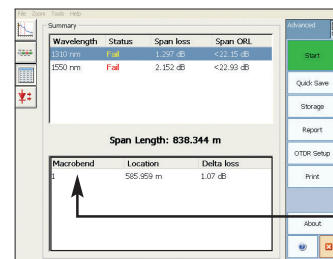
New Software Option: SmartKit

Linear trace view

- Virtually eliminates the need to analyze complicated OTDR traces
- Straightforward display and event table
- Easy toggling between OTDR traces and linear view
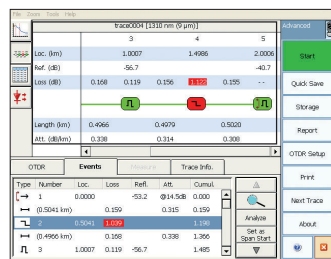
Macrobend finder

- Allows you to easily characterize macrobends
- View the data in the summary screen

Automated macrobend characterization

Data Post-Processing

Field Efficiency
### New software functions, for simpler, faster OTDR testing

Designed for boosting OTDR testing efficiency, whether for multimode or singlemode applications, from LAN to long-haul networks, the FTB-200's software now offers:

- **Full access to OTDR traces from major test equipment manufacturers**

  Based on the universal Bellcore format (.sor, Telcordia SR-4731), the new software lets you access OTDR traces from various test and measurement manufacturers. You can therefore seamlessly switch to the FTB-200 platform and still refer to your previously archived OTDR files.

- **Summary screen**

  View all your test results at once.
  Enjoy fail-safe OTDR post-analysis.
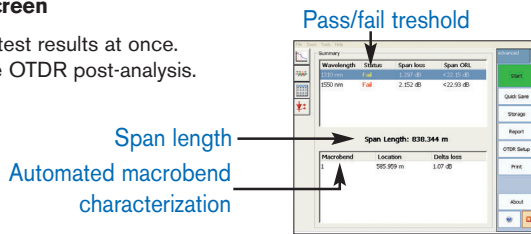
- **Faster acquisition–five seconds**

  Spend less time retrieving your OTDR traces, speeding up your test cycles.

- **Flexible Trace analysis**

  - Echo management
  - Measure and change fiber attenuation

- **Enhanced zoom function**

  - Simplify event pinpointing

Pass/fail treshold

Span length

Automated macrobend characterization

Fast-Track Data Post-Processing with FastReporter Software

Fast-Track Data Post-Processing with FastReporter Software

The **optional** FastReporter software package provides you with the post-processing tools and functionalities you need to achieve flexible, fully integrated data analysis, whatever the application. Designed for **off-line analysis of field-acquired data**, FastReporter offers a truly intuitive graphical user interface, which contributes to boosting productivity.

Powerful Batch Processing

Automate repetitive operations on large numbers of OTDR test files and optimize your productivity. Document an entire cable in a matter of seconds. Adjust your cable parameters and detection thresholds and perform batch analysis. Open OTDR files from various vendors' equipment and convert them to the universal Telcordia format.

Bidirectional Batch Analysis

Analyze an entire cable in just **two steps**. View data for all events on all fibers, and at each wavelength, on a single screen.

Bidirectionnal Batch Analysis

Live Templating for OTDR Testing

Benefit from one-step file management at any wavelength. Keep full control by adding or removing events manually, or add/remove events automatically using a reference. Get uniform, detailed cable reports.

Flexible Reporting

Choose from **various report templates**, including loss and ORL, OTDR, PMD, CD and fiber characterization. Generate comprehensive cable reports in **PDF, Excel** or **HTML format**.
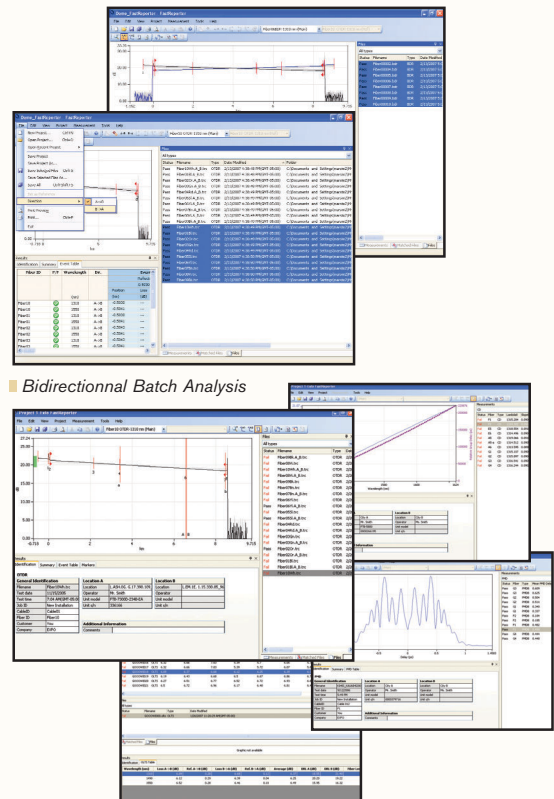
SPECIFICATIONS [a]

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

Model [b]	Wavelength (nm) [c]	Dynamic range [d, e] (dB)	Event dead zone [f] (m)	Attenuation dead zone [f] (m)
FTB-150-QUAD (E15)/	850 ± 20/1300 ± 20	27/26	1/1	3/4
FTB-150-MM (E16)	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 [g]	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 [h] (m)	±(0.75 + 0.0025 % x distance + sampling resolution)
Measurement time	User-defined (60 min maximum)
Real-time refresh (s)	Guaranteed: ≤ 0.4
Stable source output power [i] (dBm)	−1.5 (1300 nm), −7 (1550 nm)

Notes

a. All specifications valid at 23 °C ± 2 °C (73.4 °F ± 3.6 °F) with an FC/PC connector, unless otherwise specified.

b. For complete details on all configurations, refer to the ordering information.

c. Typical.

d. Typical dynamic range with longest pulse and three-minute averaging at SNR = 1.

e. Multimode dynamic range is specified for 62.5 μm fiber; a 3 dB reduction is seen when testing 50 μm fiber.

f. Typical dead zone for multimode reflectance below −35 dB and singlemode reflectance below −45 dB, using a 5 ns pulse.

g. Controlled launch conditions allow 50 μm and 62.5 μm multimode fiber testing.

h. Does not include uncertainty due to fiber index.

i. Typical output power is given at 1300 nm for multimode output and 1550 nm for singlemode output.

SINGLEMODE OTDR MODULE SPECIFICATIONS [j]

Model [k]	Wavelength [l] (nm)	Dynamic range at 20 μs [m] (dB)	Event dead zone [n] (m)	Attenuation dead zone [n] (m)
FTB-150-ACCESS (E3)	1310 ± 20/1550 ± 20	37/35	1/1	4.5/5
FTB-150-FTTx (E4, E13, E14)	1310 ± 20/1490 ± 10/1550 ± 20/1625 ± 10	39/35/38/36	1/1/1/1	4.5/5.5/5/5
FTB-150-METRO (E17)	1310 ± 20/1550 ± 20	42/41	0.8	4/4.5
FTB-150-METRO (E19)	1310 ± 20/1550 ± 20/1625 ± 10	42/41/41	0.8	4/4.5/4.5
FTB-150-LH (E18)	1310 ± 20/1550 ± 20	45/43	0.8	4/4.5

	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,	5, 10, 30, 100, 275, 1000, 2500,
	10 000, 20 000	10 000, 20 000
Linearity (dB/dB)	±0.03	±0.03
Loss threshold (dB)	0.01	0.01
Loss resolution (dB)	0.001	0.001
Sampling resolution (m)	0.04 to 5	0.04 to 5
Sampling points	Up to 128 000	Up to 256 000
Distance uncertainty [o] (m)	±(0.75 + 0.0025 % x distance + sampling resolution)	±(0.75 + 0.001 % x distance + sampling resolution)
Measurement time	User-defined (60 min maximum)	User-defined (60 min maximum)
Typical real-time refresh (Hz)	3	4
Stable source output power [p] (dBm)	−7 (−ACCESS), −3.5 (−FTTx)	−4.5 (METRO), 1 (LH)
Visual fault locator (optional)	Laser, 650 nm ± 10 nm	Laser, 650 nm ± 10 nm
	CW, typical P_{out} in 62.5/125 μm: 3 dBm (2 mW)	CW, typical P_{out} in 62.5/125 μm: 3 dBm (2 mW)

Notes

j. All specifications valid at 23 °C ± 2 °C (73.4 °F ± 3.6 °F) with an FC/PC connector, unless otherwise specified.

k. For complete details on all configurations, refer to the Ordering Information section.

l. Typical.

m. Typical dynamic range with a three-minute averaging at SNR = 1.

n. Typical dead zone of singlemode modules for reflectance below −45 dB, using a 5 ns pulse.

o. Does not include uncertainty due to fiber index.

p. Typical output power value at 1550 nm.

LASER SAFETY

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

IEC 60825-1 : 2001   21 CFR 1040.10
LASER RADIATION
DO NOT VIEW DIRECTLY
WITH OPTICAL INSTRUMENTS
CLASS 1M LASER PRODUCT
λ: 800-1200 nm, PW ? 1 μsec, Ppk ? 300 mW, Pavg ? 0.6 mW
λ: 1200-1700 nm, PW ? 20 μsec, Ppk ? 160 mW, Pavg ? 1.5 mW
QST572B

IEC 60825-1:1993+A2:2001
21 CFR 1040.10
LASER RADIATION
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT
λ: 650 ±10 nm
P_{out} maximum < 5mW (into free space)

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 Mbit/s
	Compact Flash
	Fiber inspection probe connector port (video)
Storage	Internal (Flash)
	USB sticks 1 Gbit/s and 2 Gbit/s (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-10-072	Semi-rigid carrying case FTB-200		GP-2021	Spare AC charger (requires AC external adapter/charger).
GP-302	USB mouse		(A-E-I-J-S-U)	Specify: A–North America, E–Europe, I–India, J–Japan,
GP-308	DC car adapter/inverter			S–Australia and New-Zealand, U–United-Kingdom
GP-2001	USB keyboard		GP-2023	Spare neck strap
GP-2011	Compact Flash Ethernet WiFi card		GP-2024	Spare belt strap
GP-2012	Compact Flash Bluetooth card		GP-2025	Spare battery door
GP-2014	Compact Flash memory 1 Gbit/s card		GP-2027	Portable printer
GP-2015	Compact Flash memory 2 Gbit/s card		GP-2028	Computer security cable kit
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
		1 = −86 dBm to min
	GeX	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

a. All specifications valid at 23 °C (73 °F).

b. Standard recharge time is 3 h. Recharge temperature: 0 °C to 35 °C (32 °F to 95 °F).

c. Not including internal batteries. Battery maximum storage temperature 60 °C (140 °F).

d. At 23 °C ± 1 °C, 1550 nm and FC connector. With modules in idle mode. Battery operated.

e. Up to 5 dBm.

f. For ±0.05 dB, from 18 °C to 28 °C.

ORDERING INFORMATION

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

Compact OTDR

Display
S1 = TFT active screen
S2 = Outdoor enhanced screen

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

Connector adapter [a]
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

Notes
a. With power meter option only.
b. Comes with FIPT-U25M for 2.5 mm connectors,
   FIPT-FC and FIPT-SC for bulkhead connectors.
c. EI connectors only.

Example: FTB-150-S1-PM2X-FOA-54-E3-EI-EUI-89-VFL-FP5-SK2

Software summary kit
00 = Without software summary kit
SK2 = IP testing
SK6 = Macro-bending detection and linear trace view

Fiber inspection probe
FP = Probe option and connection cable
FP1 = Probe connection cable and 200x probe [b]
FP5 = Probe connection cable and 200x/400x probe [b]

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)
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-23B) [c]
E16 = FTB-150-MM 850/1300 nm (FTB-7200D-12CD) [c]
E17 = FTB-150-METRO 1310/1550 nm (FTB-7400E-0023B)
E18 = FTB-150-LH 1310/1550 nm (FTB-7500E-0023B)
E19 = FTB-150-METRO 1310/1550/1625 nm (FTB-7400E-0234B)

Rugged Handheld Solutions

OPTICAL
- OTDRs
- OLTSs
- Power meters
- Light sources
- Talk sets

COPPER ACCESS
- ADSL/ADSL2+, SHDSL, VDSL test sets
- VoIP and IPTV test sets
- Ethernet test sets
- POTS test sets

Platform-Based Solutions

OPTICAL FIBER
- OTDRs
- OLTSs
- ORL meters
- Variable attenuators

DWDM TEST SYSTEMS
- OSAs
- PMD analyzers
- Chromatic dispersion analyzer

TRANSPORT AND DATACOM
- Next-generation SONET/SDH and OTN testers
- SONET/DSn (DS0 to OC-192) testers
- SDH/PDH (64 kbit/s to STM-64) testers
- T1/T3, E1 testers
- 10/100 Mbit/s and Gigabit Ethernet testers
- Fibre Channel testers
- 10 Gigabit Ethernet testers

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 America	3701 Plano Parkway, Suite 160	Plano, TX 75075 USA	Tel.: 1 800 663-3936	Fax: 1 972 836-0164
EXFO Europe	Omega Enterprise Park, Electron Way	Chandlers Ford, Hampshire S053 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			

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