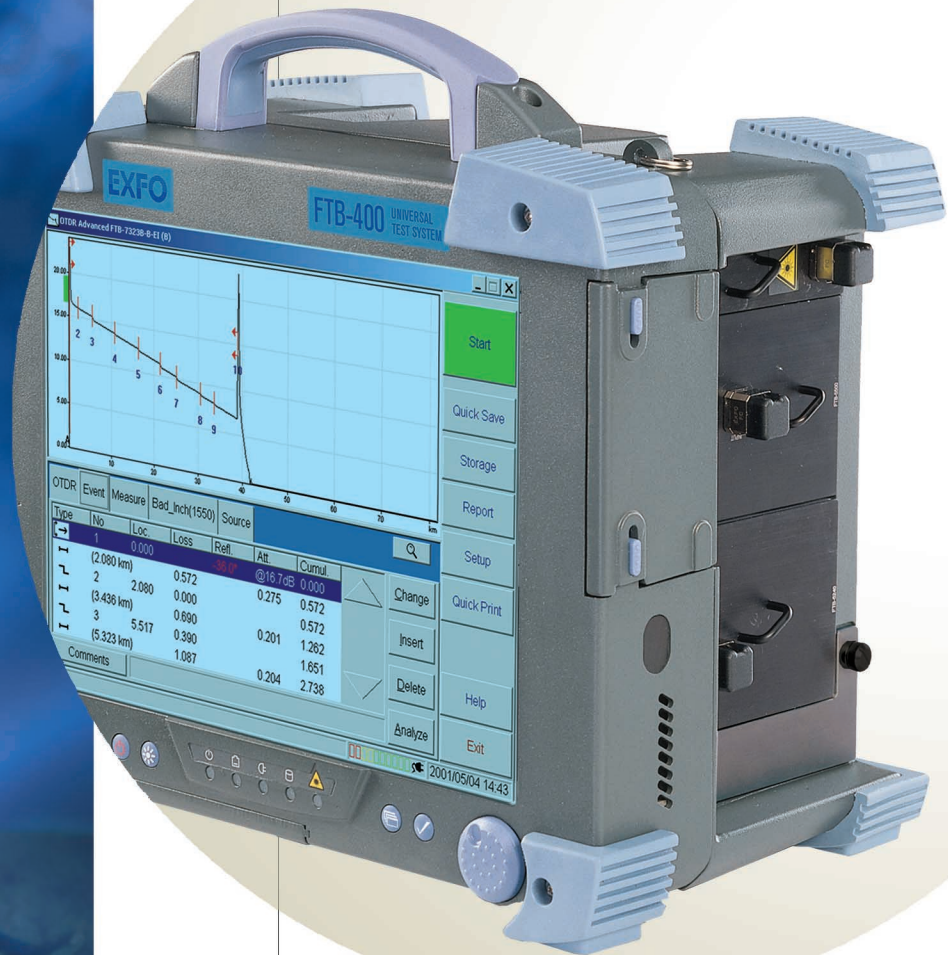


Universal Test System

FTB-400



Advanced test technology for deploying, maintaining and managing optical networks



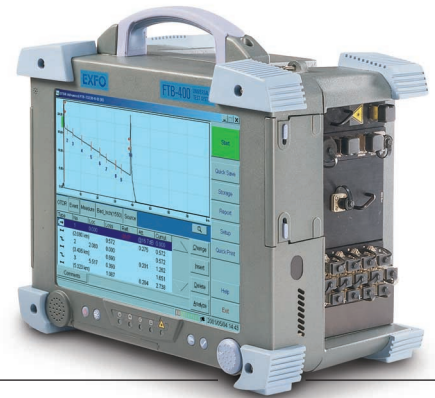
Fiber-optic T&M,
monitoring, manufacturing
and assembly solutions

Pioneering Technology to Transform Your Testing Paradigm

Technologically speaking, today's networks are more complex than ever. Thousands of components have to work in harmony, and deployment specialists are responsible for tuning entire systems for optimal network performance and ensuring that records are up to date. At the same time, fiber counts are skyrocketing, and DWDM is entrenched in long-haul applications, moving into metro.

New architectures. New deliverables. New documentation needs. A brand-new paradigm. Now, how do you rise to the challenge?

With the tough and proven FTB-400 Universal Test System from EXFO. This revolutionary test platform streamlines field-based test and measurement operations onto a single powerful platform. Welcome to multitasking in the field.



One Platform, Four Configurations, Dozens of Options

The FTB-400 Universal Test System comes in four configurations to expand your testing possibilities.

Bus-Protector Configuration

- Ultra-slim bus protector lets you use the FTB-400 as a dedicated portable computer

Two-Slot Configuration

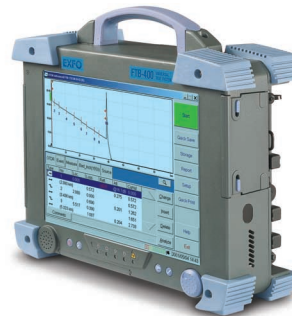
- Dedicated OTDR, loss and GigE testing with OTDR, MultiTest and Packet Blazer modules
- Over 500 OTDR and loss testing combinations

Seven-Slot Configuration

- Extensible basic and advanced fiber-optic test applications, including DWDM and dispersion analysis
- Over 1000 testing combinations—CD, PMD, OSA, MWM modules, ribbon test kits, switches for high-fiber-count testing, OTDR and loss testing, and datacom (10/100/GigE) testing

SONET/SDH

- SONET/SDH and T-Carrier/PDH testing
- Special design configuration gives you the choice of simply using the bus protector or adding the 2- or the 7-slot receptacle



Precision Testing from EXFO

For markets and customers in over 70 countries, EXFO provides exactly what the entire chain of fiber-optic telecommunications needs to keep the Internet and high bandwidth growing. We provide industry-leading test, measurement and monitoring instruments that enable our customers to ramp up for speed, bandwidth and automation. With EXFO, you get solutions that are easy to deploy and easy to manage, delivering reliability and repeatability every step of the way.

Test with Speed and Efficiency

Choice on the Move

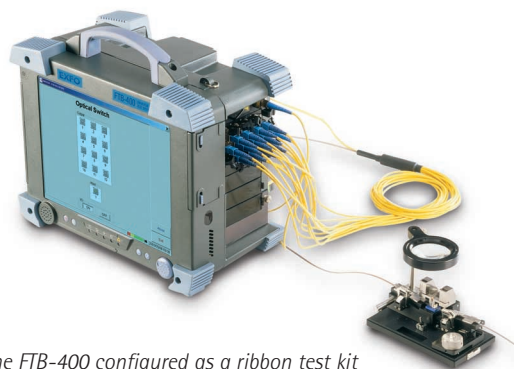
Choose from a wide variety of high-performance test modules. Modules are swapped easily, which means you get to customize your test set and configure your field equipment to meet evolving needs. Perform the right tests. Get the right data. And end up with integrated test reports for a global overview of your network's performance.

Module Choices

- Over 20 OTDR modules: four singlemode and two multimode wavelengths
- Over 30 OLTS modules for testing optical return loss (ORL) and insertion loss (IL)
- Chromatic dispersion (CD) analyzer
- Polarization mode dispersion (PMD) analyzer
- Optical spectrum analyzer (OSA)
- Multiwavelength meter (MWM)
- SONET/SDH tester
- Datacom (10/100/GigE) tester
- Switch module: faster automated acquisitions by switching between one common port and multiple input/output ports
- Modular printer for field use
- Modular pulse-suppressor boxes (singlemode and multimode)



The FTB-400 with print function and external printer.



The FTB-400 configured as a ribbon test kit for OTDR testing in a high-fiber-count environment.

Configuration Choices

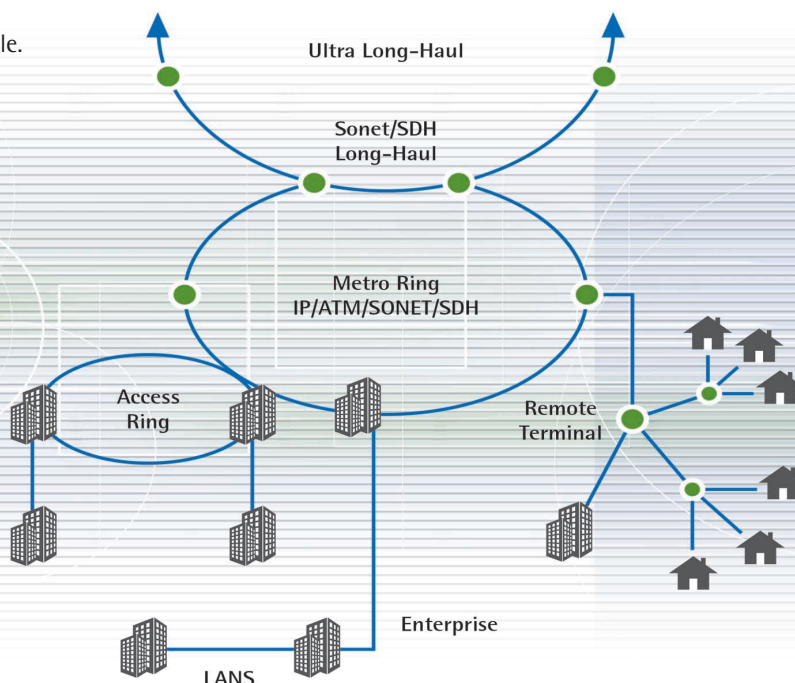
Long-Haul and Metro Network Testing

If you're looking for powerful equipment dedicated to OTDR, ORL and loss testing, the two-slot configuration is your solution. It hosts two OTDR modules or an OTDR and a MultiTest module. It can also host the single-slot FTB-8500 Packet Blazer, enabling service-level agreement (SLA) verification of Ethernet-based packet services.

DWDM and High-Fiber-Count Testing

The seven-slot configuration is for customers looking for simultaneous support of multiple testing applications.

Configurations are interchangeable.



The All-in-One Solution

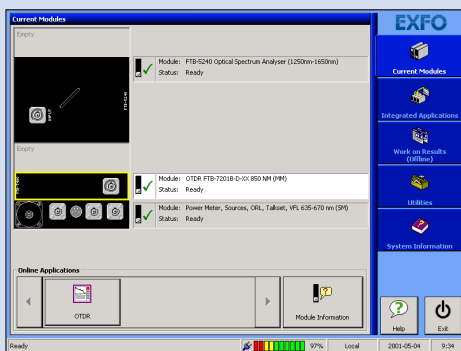
If you're looking for efficiency, the FTB-400 Universal Test System is the answer. Benefit from advanced test operations in outside-plant installation, maintenance and troubleshooting.

Core Functionality

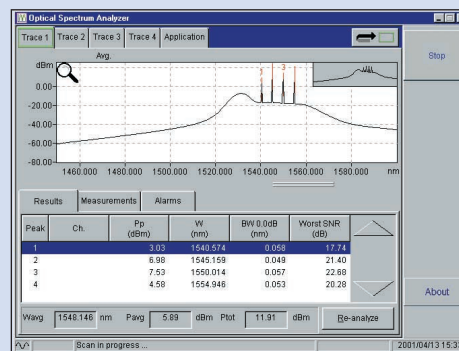
Multitasking

Evolve with the latest technologies. From power readings and OTDR testing to optical switching, CD and PMD analysis, DWDM testing, protocol, datacom and data post-processing—the FTB-400 Universal Test System does it all. More importantly, the FTB line of swappable test modules continues to expand with new test applications and accelerated test routines.

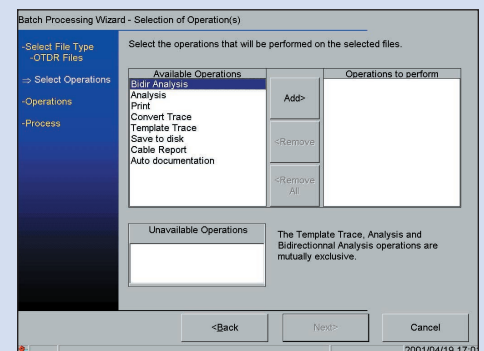
The powerful FTB-400 can perform simultaneous acquisitions and data post-processing.



ToolBox 6 main interface.



Data acquisition through OSA application.



Post-processing OTDR files with ToolBox Office Pro.

Rugged

The FTB-400 UTS complies with GR-196-CORE drop-test standards (76-cm drops on all six sides and eight corners). Plus, the tough shell and rubber bumpers mean that the FTB-400 and its precision modules survive splashes, knocks and temperature extremes.

Screen

- 12.1-inch TFT large color screen option, or standard color STN LCD
- Easy to view, even in direct sunlight
- Largest on the market
- 800 x 600 pixel resolution

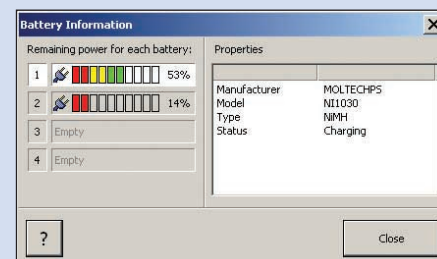


The FTB-400's rugged components include a tough, efficient touchscreen interface.

Powerful

Power management is a snap, thanks to the ToolBox 6 software. The EXFO FTB-400 is based on the Windows® 2000 operating system, run by a Pentium II processor with up to 512 MB of SDRAM.

- Fast, intuitive sleep mode for power conservation
- Far-ranging operating time
- Automated power management

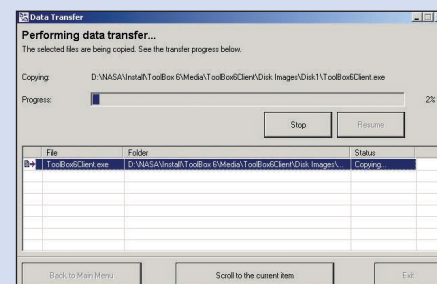


Accurate battery information window.

Rapid

Get moving faster; get results faster. New-generation processing power means acquisitions and data analysis are quicker than ever. And enjoy the advantage of EXFO's exclusive online data post-processing.

- Quick, easy data transfer
- Extremely fast acquisitions
- Efficient data post-processing
- 2 USB ports
- Infrared (IrDA) port
- PCMCIA type III
- Writable CD-ROM



Quick, easy and effective data transfer.

Extensible

Choose between basic and advanced testing. The two-slot configuration enables compact, dedicated loss, ORL, OTDR testing and GigE. The fully equipped seven-slot configuration provides space for optical switching for high-fiber-count applications, dispersion analysis and DWDM testing. Configurations are interchangeable.



Two-slot FTB-400



Seven-slot FTB-400

Modular

Choose your range of test applications. The FTB-400 Universal Test System combines a series of high-performance test modules in a powerful platform. The test set simultaneously runs up to seven single-slot field-interchangeable modules.

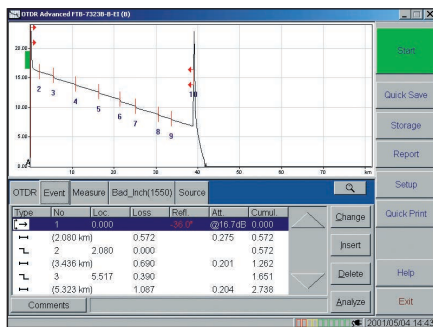


Plug in your choice of test modules.

Testing Tools: A Complete Range*

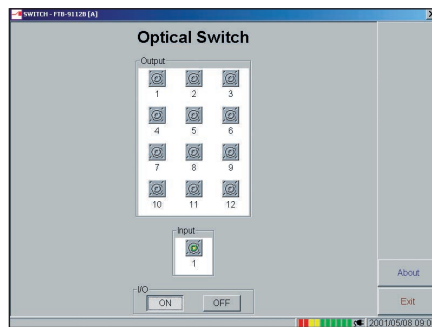
FTB-7000B Singlemode and Multimode OTDRs

These OTDR modules detect, locate and analyze splices, connectors and breaks. Use them for cable acceptance testing, troubleshooting and more. Also, estimate loss budgets on singlemode or multimode fibers. Dynamic range reaches 45 dB for singlemode modules. Up to 52 000 sampling points deliver high-resolution measurements. Singlemode modules offer the choice of four different wavelengths: 1310 nm, 1550 nm, 1625 nm and 1410 nm. Multimode modules at 850 nm and 1300 nm.



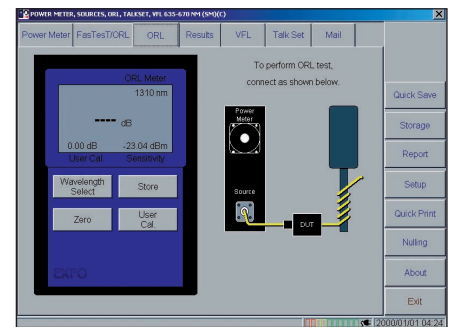
FTB-9100 Optical Switch

Multiply your measurement power with the Optical Switch series. Obtain fast, repeatable measurements between one common port and multiple input/output ports. Automate data acquisition sessions with specialized programmable functions. Use with OTDR FTB-7000B series. Choose between singlemode and multimode 1x12 switches; several connector types are available.



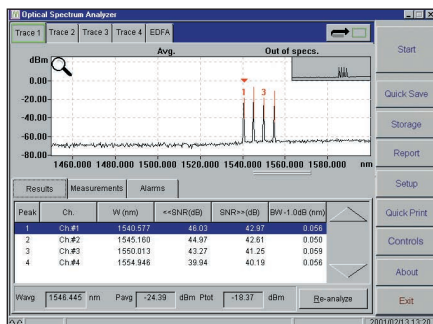
FTB-1400 and FTB-3920 MultiTest

MultiTest modules are customizable loss testers—perfect for estimating loss budgets. Integrate your choice of power meter and light source, exclusive FasTest automated loss test set, ORL tester, visual fault locator (VFL), and digital talk set.



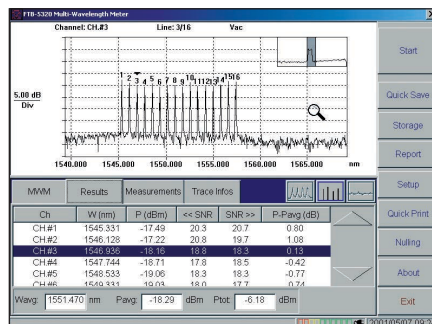
FTB-5240 and FTB-5240B Optical Spectrum Analyzers (OSA)

The essential DWDM tool, the FTB-5240 Optical Spectrum Analyzer delivers lab-quality specs for field testing advanced networks. Accurately monitor optical wavelength channels within a fiber. High optical rejection ratio, top-of-the-line wavelength accuracy and wide spectral range.



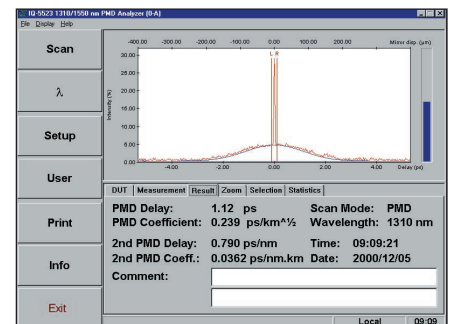
FTB-5320 Multi-Wavelength Meter

The FTB-5320 is the perfect test instrument to precisely measure the optical channel output power for each fiber of your network. EXFO's FTB-5320 features 0.003 nm measurement accuracy, practical monitoring over time and user-friendly software with an intuitive graphical interface.



FTB-5500 Polarization Mode Dispersion (PMD) Analyzer

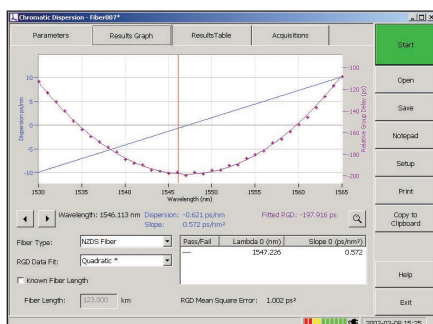
For testing PMD in crucial high-speed fiber links, the FTB-5500 PMD Analyzer is the solution. Dynamic range reaches 50 dB. Plus, get second-order PMD calculations and benefit from the wide analysis range (0.05 to 200 ps).



* Note: The FTB-400 is compatible with existing modules in the EXFO product line. Please call to verify compatibility with legacy products no longer being manufactured.

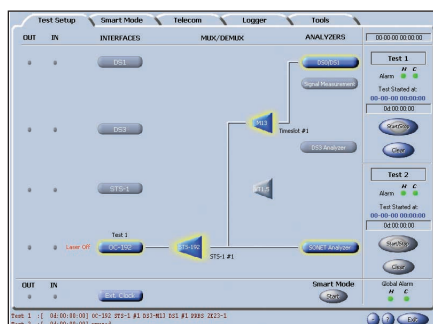
FTB-5800 Chromatic Dispersion Analyzer

Using the proven phase-shift method, this patent-pending design allows measurement of chromatic dispersion with high speed and high accuracy. Up to 475 test points can be acquired for improved and unmatched accuracy. In addition, test through devices such as EDFAs, for testing of entire links, not mere sections. Our unique design requires only one fiber for testing: no need for a second fiber dedicated to communication.



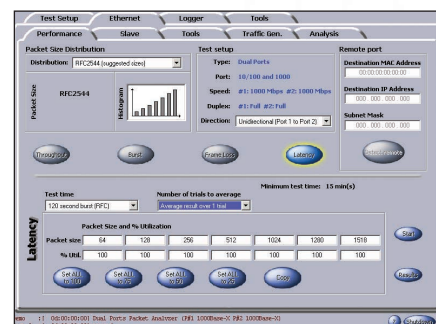
FTB-8000 SONET/SDH 10 Gb/s Test Modules

These modules include a full-fledged suite of test functions for turning up DS0/E0 to OC-192c/STM-64c services. With the FTB-8000 Series functionality integrated into the FTB-400, EXFO now offers physical-, optical- and protocol-layer testing as part of a single test platform.



FTB-8500 Packet Blazer™

Offered as an option with EXFO's FTB-400, STG™ Series and Network Guardian™ G2, the Packet Blazer™ Ethernet test module brings service-level agreement (SLA) verification to Ethernet-based packet services. Packet Blazer tests transparent connectivity in its native format: 10/100/1000 Base-T, 1000 Base-SX and 1000 Base-LX for LAN-to-LAN services delivered via ATM, frame relay, packet over SONET/SDH (PoS), SONET/SDH hybrid multiplexers, inverse multiplexers, switched Ethernet, VLANs, dark fiber, DWDM or other means.



Wide-Open Test Applications

Processing power, speed and flexibility—all great features. What's even better? Amazing benefits. While acquiring OTDR data on one set of fibers, you can perform DWDM testing with an optical spectrum analyzer on other fibers in the cable. Then, print out concise reports on both tests. Today, this is simply the best way to streamline test and measurement operations. You'll work more effectively, speed up your test procedures in the field and save hours in the process.

You're responsible for installing non-zero dispersion-shifted fiber (NZDSF), qualifying DWDM SONET/SDH transmission equipment, maintaining fiber networks and qualifying each and every splice in long-haul data networks. What you need is the FTB-400. Insert any combination of optical spectrum analyzer, PMD analyzer, OTDR, power meter, multiwavelength meter, ribbon fiber test kit or high-density optical switch in the two-slot or seven-slot FTB-400 UTS and perform all your tests simultaneously.

Apply the same concepts to new access networks as well as passive optical networks (PONs). Though transmission rates are considerably lower compared to long-haul systems (OC-3/12 vs. OC-192/768; STM 1/4 vs. STM 64/256), the density and architecture of the networks (point-to-multipoint instead of point-to-point) vary enormously. The FTB-400 offers solutions adapted to all possible applications.

Multitasking

What does multitasking mean? It's the revolutionary ability to combine several applications to meet the wide range of test and measurement needs that are out there. Running these applications simultaneously is the meaning of multitasking. Examples are listed below.

Example 1:

DWDM Testing (seven slots):

Monitor wavelength channels within a fiber.

- FTB-5240 and FTB-5240B Optical Spectrum Analyzers
- FTB-5320 Multi-Wavelength Meter
- FTB-7534B OTDR

Example 2:

DWDM Testing (seven slots):

DWDM, PMD analysis and OTDR testing on long-haul fibers.

- FTB-5240 and FTB-5240B Optical Spectrum Analyzers
- FTB-5500 Polarization Mode Dispersion Analyzer
- FTB-7534B OTDR

Example 3:

Installation and Maintenance (two slots):

OTDR and ORL testing on long-haul and metro fiber links.

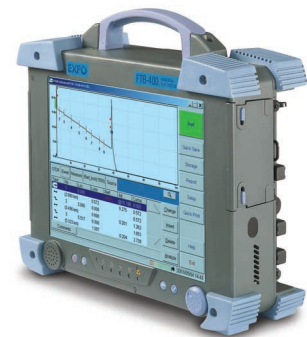
- FTB-7534B OTDR
- FTB-3920 MultiTest

Example 4:

Installation and Maintenance for High-Fiber-Count Applications (seven slots):

OTDR and ORL testing on long-haul and metro fiber links in a high-fiber-count environment.

- FTB-7534B OTDR
- FTB-7402B OTDR
- FTB-3920 MultiTest
- FTB-9100 Optical Switch
- GP-273 Internal Printer



Data Post-Processing: Field and Desktop Efficiency

The FTB-400 Software Suite for EXFO's Universal Test System

The FTB-400 Software Suite for field use comes installed with the Universal Test System and test modules. These software applications post-process data files one at a time. Software packages support EXFO's OTDR, MultiTest, Switch, OSA, PMD, CD and MWM modules.

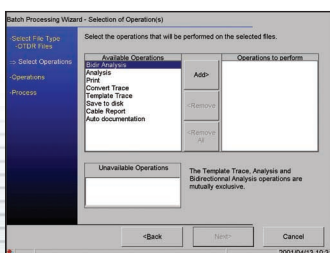
Software Suite for Desktops

The FTB-400 Software Suite is also PC-installable. Use your PC to process and print out acquired data while you keep the FTB-400 ready for field duty. Software packages work for EXFO's OTDR, MultiTest, Switch, OSA, PMD, CD and MWM applications.

Plus, there's ToolBox Office Pro 6. Designed for desktop PC use, ToolBox Office Pro dramatically speeds up OTDR data post-processing through a Batch Processor and Cable Report Generator. On high-fiber-count projects, these utilities cut post-processing time by up to 90 %. Operations that used to take hours or days can now be performed in minutes.

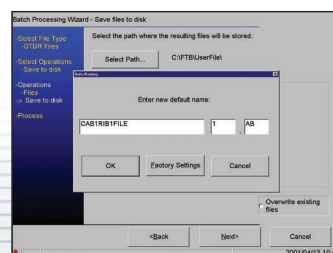
Here are a few examples:

1- ToolBox Office Pro



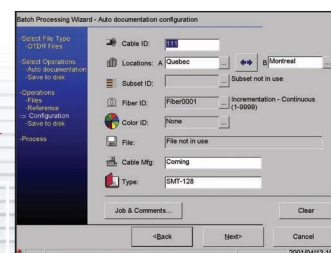
ToolBox Office Pro

2- Batch save-to-disk function



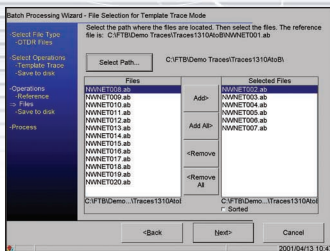
Batch-save to disk and rename files if necessary.

3- Batch auto-documentation



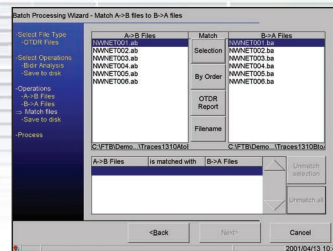
Change documentation if necessary.

4- Batch template trace



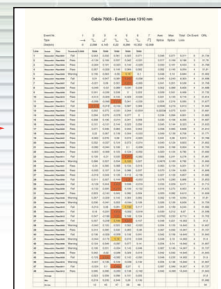
Compare reference trace to others, add or delete trace events, create new files and save template traces. Ensure consistent results for the entire cable.

5- Batch bidirectional analysis



Match and align bidirectional groups of template traces. This operation automatically creates and saves new files.

6- Cable report

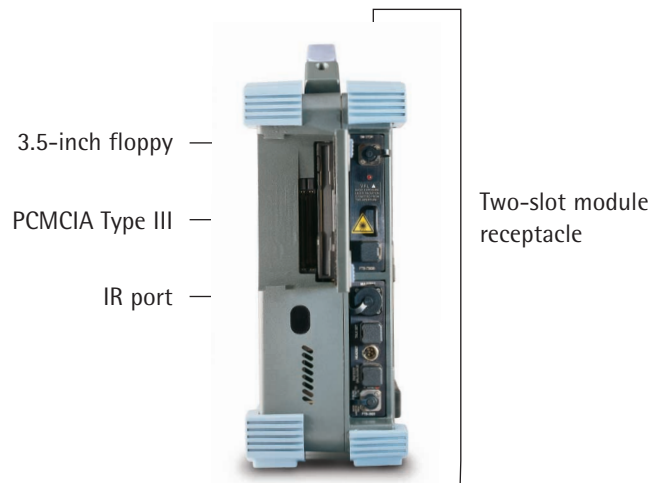
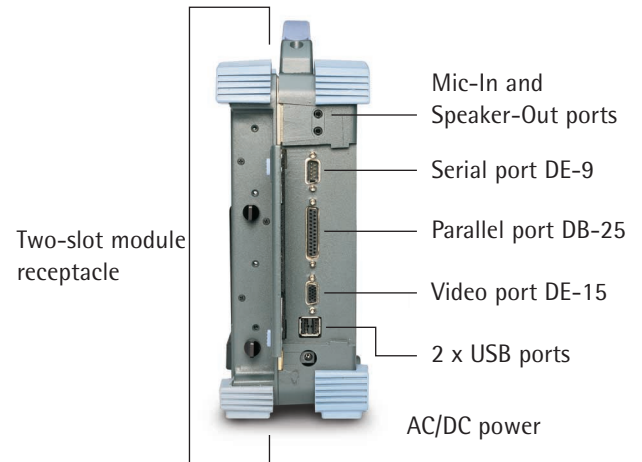
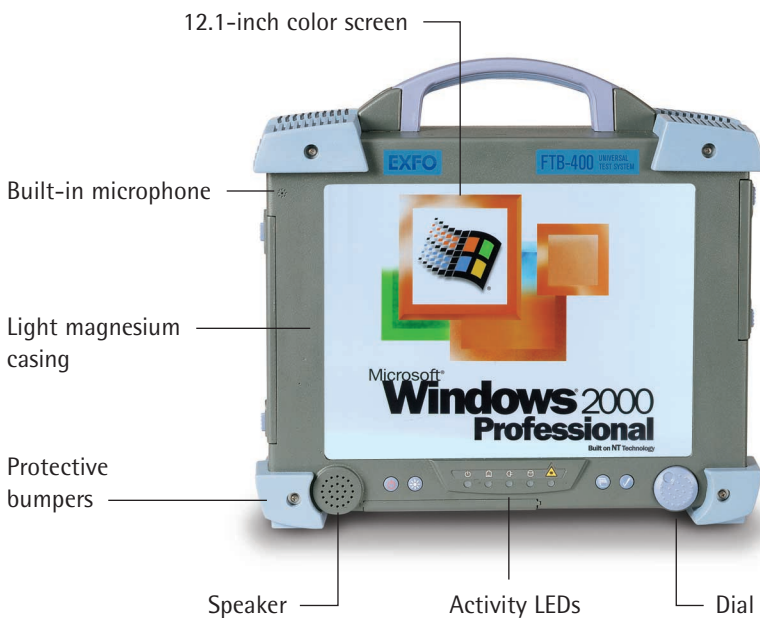


Generate cable reports in Excel or PDF formats.

Multimedia Advantages for Today's Optical Technology

- Pentium-series processor. Essential for speed and multitasking operations.
- PCMCIA Type III device (two-slot) supports.
- Flash memory cards (16 MB to 160 MB) (optional).
- Ethernet/Fast Ethernet (10/100 Mb/s) network card for remote control from a PC or another FTB-400 (optional).
- Fax modem (56.6 Kb/s) (optional).
- Up to 512 MB SDRAM. Quick access to internal memory.
- IrDA port and two USB ports. Speed up data transfer.
- Internal 3.5-inch 1.44 MB floppy drive.

- Serial and parallel port. Printer and other peripherals.
- 12.1-inch color touchscreen resists spills and splashes. High-resolution, especially under bright light conditions.
- Dial. Quick-select software functions.
- External monitor port.
- Microphone port. Built-in or external.
- Sound card and speaker. Audible alarms.
- Lightweight magnesium casing. Splash-proof protection of optical and electronic components.
- EXFO headset interface.



Specifications

Display	Touchscreen, color, 800 x 600 full dot LCD 12.1 in Touchscreen, color, 800 x 600 TFT 12.1 in (optional)
Interfaces	Serial RS-232 Parallel port External monitor 2 USB ports Infrared (IrDA) port Audio microphone In 3.5 mm Audio speaker Out 3.5 mm 2 PCMCIA type II or 1 PCAMCIA type III
Storage	Internal 20 GB hard drive minimum (over 500 000 OTDR test files) Internal 3.5 in 1.44 MB floppy drive External USB read/write CD-ROM (optional) Flash memory cards (16, 32, 80, 160 MB) (optional) NTFS file system
Batteries ²	Rechargeable NiMH battery pack (2 batteries for 2-slot, 4 for 7-slot receptacle) > 8 h of continuous operation as per Bellcore TR-NWT-001138
Power supply	100–240 VAC, 50/60 Hz, and 12–24 VDC

General Specifications

Temperature ⁵	operating	0 °C to 50 °C	(32 °F to 122 °F)
	storage	-40 °C to 60 °C	(-40 °F to 140 °F)
Relative humidity		0 % to 95 % (non-condensing)	
Size (HxWxD)		mainframe + 2-slot module receptacle: 31.1 cm x 34.3 cm x 10.2 cm (12 1/4 in x 13 1/2 in x 4 in) mainframe + 7-slot module receptacle: 31.1 cm x 34.3 cm x 20.3 cm (12 1/4 in x 13 1/2 in x 8 in)	
Weight ³		mainframe + 2-slot module receptacle: 6.1 kg (13.4 lb) mainframe + 7-slot module receptacle: 8.1 kg (17.9 lb)	
Vibration (g)		> 1.5 g at 10 Hz to 500 Hz (on 3 main axes)	
Mechanical shock ⁴		> 76 cm on 6 sides and 8 main edges (according to GR-196-CORE)	
Isolation		Spill-proof and splash-proof	
CE compliance		Class A certification	

Notes

- All specifications valid at 23 °C (73 °F).
- Standard recharge time is 5 h. Recharge temperature: 0 °C to 35 °C (32 °F to 95 °F).
- Platform with batteries, no modules included.
- 2-slot receptacle.
- Not including internal batteries. Battery maximum storage temperature 40 °C (104 °F).

Accessories

GP-299	PCMCIA PSTN 56.6 kb/s	GP-310	Headset adapter
GP-298	PCMCIA Fast Ethernet LAN (10/100 MB auto detect)	GP-402	Additional 2-slot receptacle
GP-234	PCMCIA Combo (PSTN + LAN)	GP-407	Additional 7-slot receptacle
GP-281	PCMCIA Flash Memory Card 16 MB (same as FTB-100B)	GP-297	Canon BJC-85 (external printer—standard on the FTB-300 also)
GP-282	PCMCIA Flash Memory Card 32 MB (same as FTB-100B)	GP-2000	PC bus protector
GP-283	PCMCIA Flash Memory Card 80 MB (same as FTB-100B)	Carrying Cases:	
GP-284	PCMCIA Flash Memory Card 160 MB (same as FTB-100B)	GP-10-047	Soft case for mainframe + 2-slot
GP-304	Writable CD-ROM	GP-10-056	Soft case for mainframe + 7-slot
GP-273	Internal printer module	GP-10-048	Hard case for mainframe + 2-slot
GP-285	Spare NiMH Smart battery for FTB-400	GP-10-049	Hard case for mainframe + 7-slot (light)
GP-302	USB mouse	GP-10-050	Hard case for mainframe + 2- and 7-slot (full), includes storage area for FOT-920 or FLS-110, second headset, all accessories, etc
GP-2001	USB keyboard		
GP-309	DC adapter for lighter plug		
GP-308	Car lighter booster		
GP-305	Spare power adapter		
GP-307	EXFO headset + adapter (allows connection of EXFO headset to microphone and speaker port)		

Ordering Information

FTB-400-NX-DX-XX-X

Model _____
FTB-400 = Modular main frame unit
FTB-400-HC = Modular main frame unit high capacity hard disk

Memory _____
N8 = Standard 128 MB
N10 = Additional 128 MB (total of 256 MB)
N12 = Additional 384 MB (total of 512 MB)

Display _____
D3 = STN LCD Passive color touchscreen
D4 = TFT Active color touchscreen

Operating system language

A = English
C = Chinese (simplified)
E = Spanish
F = French
G = German
I = Italian
R = Russian²
X = Czech²
K = Korean²
J = Japanese²
V = Chinese (traditional)

Receptacle

00 = Two-slot receptacle (GP-402)
H = Seven-slot receptacle (GP-407)
BP = Bus Protector (GP-2000)

Example: FTB-400-N10-D4-H-A

Notes

- Software test applications might not support all languages listed above.
Call factory for information on supported software languages.
- Call EXFO for details.

Find out more about EXFO's extensive line of high-performance portable instruments by visiting our Web site at www.exfo.com



Rugged Handheld Solutions

- OLTS
- Power Meter
- Light Source
- Talk Set



UNIVERSAL TEST SYSTEM

- OTDR
- OLTS
- ORL
- Switch

Optical Fiber

- OSA
- PMD
- Chromatic Dispersion Analyzer
- Multiwavelength Meter

DWDM Test Systems

Protocol

- 10/100 and Gigabit Ethernet
- SONET/SDH (DS0 to OC-192c)
- SDH/PDH (64 Kb/s to STM-64c)

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