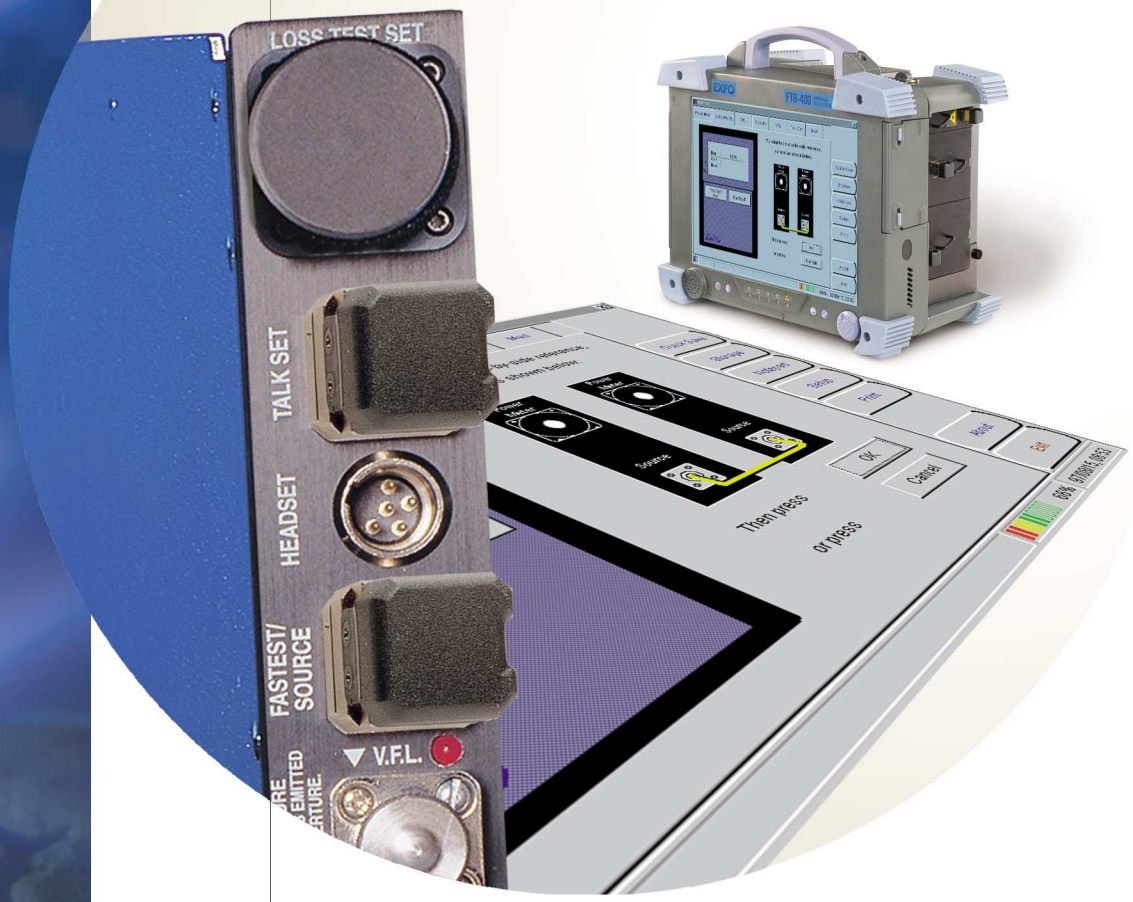
MultiTest Modules

FTB-3920 and FTB-1400

- 1625 nm light source
- FasTesT™ system
- Return loss test set
- Visual fault locator
- Digital talk set
- Ultra-High-Power™ power meter



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

EXFO

The FTB-3920 and FTB-1400: A Flexible Solution

Technicians working on metro and long-haul networks who need more than a handheld loss test set can count on the flexibility of EXFO's Universal Test System. Both the FTB-300 and FTB-400 modular test platforms provide a comprehensive range of testing options, from simple loss testing to ORL and OTDR measurement. The FTB-1400 and FTB-3920 MultiTest modules combine a power meter, light source, visual fault locator (vfl) and an optional optical return loss tester to meet a wide range of testing needs.

Key Features

- 1625 nm testing provides worst-case attenuation for the L band
- Fiber identifier detects 2 kHz signals
- Notepad feature documents power meter results in the field or in the office
- Power meter or optical loss test set uses manual or automated operation
- Singlemode or multimode, digital talk set, offers full-duplex hands-free communication
- Light source supports automated bidirectional loss and return loss testing
- Visual fault locator features 650 nm visible bright red source
- Ultra-High-Power power meter models

Power Meter Performance and Reliability

Two power meters have been developed for the MultiTest module: the FTB-1400 and the FTB-3920. The FTB-1400 is ideal for taking accurate absolute power measurements (in dBm and W) and loss measurements (in dB). The FTB-3920 series uses EXFO's patented FasTesT system* to take you beyond the basic power meter. FasTesT gives you the power of fully automated fiber-optic attenuation measurement. The FTB-3920 series offers an optional ORL test set for measuring component backreflection and system return loss.

Step Up to the Ultra-High-Power Models**

EXFO is introducing another industry first in the FTB-3920 and FTB-1400 MultiTest modules. Directly measure the absolute power of high-power signals in the field with its Ultra-High-Power capabilities. Accurately measure signals with power levels as high as 35 dBm without neglecting those at the lower end of the dBm range. The FTB-3920 and FTB-1400 MultiTest modules are the complete solution for advanced networks.

Leave Nothing to Chance

There is no substitute for practicing good laser safety. When handling high power, always take necessary precautions.

* Protected by US patent(s) 5,305,078 and/or 5,455,672.
** US patent pending, Publ. No. US-2004-0165274-A1.

Light Source Stability and Accuracy

EXFO light sources provide you with stability for reliable, accurate test results you can trust. Power meters can be combined with single- or dual-wavelength LED or laser light sources.

The FTB-3920 power meter series features a monitoring function to verify source stability over time and ensure accurate test results.

Digital Talk Set: Communication Made Easy

Digital signal encoding preserves voice clarity and message integrity for up to 45 dB of attenuation (1310 nm, 1550 nm and 1625 nm). The digital talk set does not require push-to-talk or voice-activated switching.

Seek function

The seek function automatically repeats a call until it is answered, so you can continue working while waiting for the call to go through. The talk set will automatically answer a call from another MultiTest module, a handheld VCS-20A Talk Set, a VCS-20PC Talk Set, or a FOT-920 MaxTester with the talk set option.

Talk and test function

Use the talk set to communicate while performing tests or running other applications. When the talk set detects an incoming signal, it lets you know by producing a distinctive ring. The digital talk set ensures clear voice transmission every time.

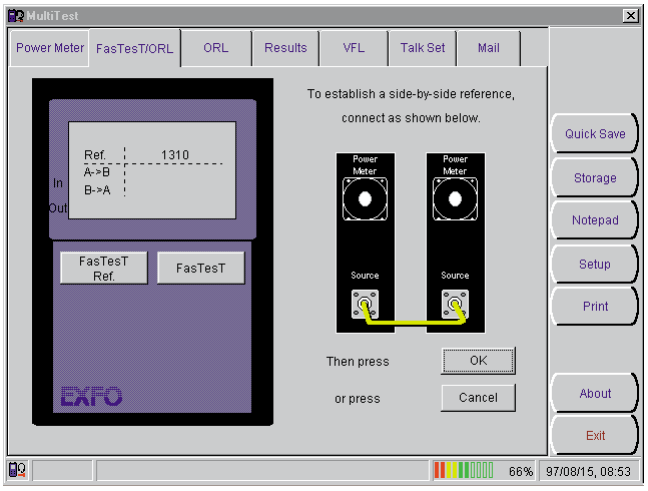
Visual Fault Locator

Using a VFL is the easiest way to perform end-to-end identification or to pinpoint breaks, bends, faulty connectors or splices over a distance of up to 5 km. This 650 nm VFL offers excellent visibility. In pulsed or continuous operating mode, it creates a bright red glow, visible through most yellow-jacketed (singlemode or multimode fibers), at the exact fault location.

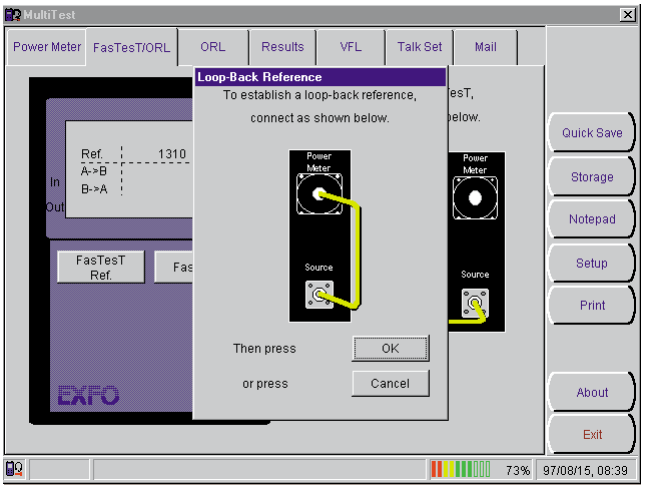
Easy Operation, Easy Integration

Step-by-step test guide

Our new ToolBox 6 software features detailed graphics to guide you through testing procedures. The FTB-400 Universal Test System screen gives step-by-step visual support at a glance for field instrument connection, helping you save training costs and time.



Once you've completed the setup, just press the appropriate button and let the unit do the work for you.



FasTesT Saves You Time at the Touch of a Button

FasTesT: The fastest automated bidirectional loss test

EXFO's FasTesT is simply the most advanced loss test system in the industry. It performs fully automated bidirectional loss testing at one, two or three wavelengths, at the touch of a single button, in under 30 seconds.

Fast and easy communication with the Mailbox function

Send a message through the fiber under test to another FTB-300 or FTB-400 unit with the Mailbox function, and improve interaction between test units for increased efficiency.

FasTesT automatic wavelength selection: an end to guesswork

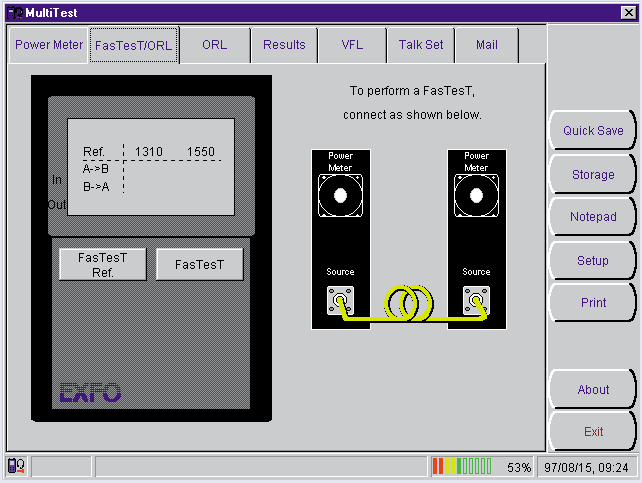
The FasTesT Automatic Wavelength Selection feature takes power readings exactly at the calibration wavelength on the first try. There are no more guessing games, and you never need to retest.

FasTesT saves you time and money

The FasTesT procedure saves you approximately 90 seconds per fiber compared to a manual loss test with a separate light source and power meter. Save over 3.5 hours when testing high installation fiber (144 fibers x 90 seconds per fiber = 12 960 seconds).

Add optical return loss measurement to your MultiTest module

Stringent transmission regulations for high-bandwidth applications require backreflection to be measured and documented for networks, components, and connectors. With the optical return loss (ORL) option, your FasTesT power meter becomes a complete attenuation/ORL test set. Backreflection from 0 to -65 dB can be precisely measured at 1310 nm, 1550 nm and 1625 nm.



Self-Reference Procedure Saves Setup Time

With FasTesT's simple loopback procedure, each unit sets its 0 dB reference independently and automatically so you can spend less time setting up and more time testing.

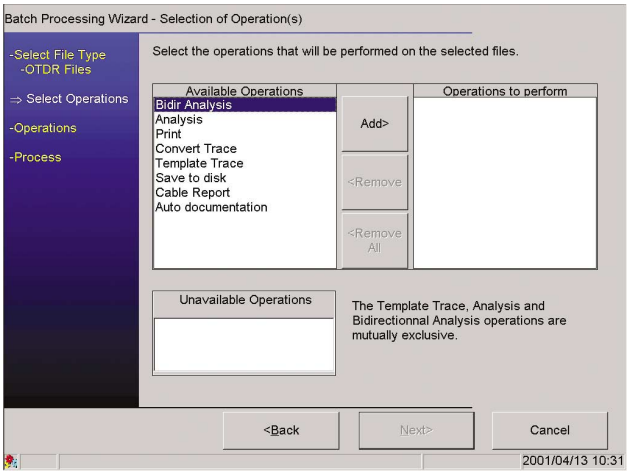
Why Is Bidirectional Testing So Important?

- Coupler attenuation can significantly differ depending on the direction of the test.
- Fiber core mismatches will have different attenuation levels, depending on the direction of the measurement.
- The quality of the connector varies at either end of the network. If you use wide-area detectors, the light at the endface of a scratched connector will be detected, but the fault will not appear.

An All-in-One Testing Solution

Complete Handheld Compatibility

The MultiTest module with FasTesT is fully compatible with other handheld equipment, such as the FOT-920 MaxTester. You can combine the module's talk set with a VCS-20A Talk Set. For loss testing, the MultiTest module can be matched with most existing EXFO handheld equipment—in particular, the FOT-90A Power Meter and FLS-210A Light Source.



The MultiTest Module: Customized to Fit Your Requirements

The MultiTest can be configured to meet your needs. It gives you the ability to perform a wide range of tests in the field, without having to carry separate stand-alone equipment. Whether you need a simple power meter or a fully equipped attenuation test set, EXFO will customize a MultiTest module for you.

Simple to use

The MultiTest module comes complete with test application software that lets you control all the module's functions. It runs in the ToolBox 6 environment, where an intuitive graphical user interface makes your work easy with icons, buttons and pictograms. All FTB-400 software features the same intuitive interface, to reduce startup time.

Specifications [1]

Power meter	-2	-2X	-3	-3X	
Detector type	Ge (2 mm)	GeX (2 mm)	InGaAs (2 mm)	InGaAs Ultra-High Power	
Power level	–	–	–	P1	P2
Wavelength range (nm)	780 to 1625	780 to 1625	840 to 1650	980 to 1625	980 to 1625
Measurement range (dBm) [2]	10 to –68	21 to -60	4 to -70	28 to -45	35 to -45
Uncertainty (%) [3,4]	± 5	± 5	± 5	± 6 [5]	± 6.5 [5,7]
Linearity (dB) [2,4]	± 0.06 (0 to –48 dBm)	± 0.06 (10 to –40 dBm)	± 0.06 (0 to –50 dBm)	± 0.1 [6]	± 0.1 [6]
Resolution (dB) [3]	0.01	0.01	0.01	0.01	0.01

Light source [4]	-12C	-12D	-23B	-23BL	-BR23BL	-34BL	-BR34BL
Emitter type	LED	LED	LED	laser	laser	laser	laser
Wavelengths (nm)	850 ± 30/ 1300 ± 30	850 ± 30/ 1300 ± 30	1310 ± 25/ 1550 ± 25	1310 ± 25/ 1550 ± 25	1310 ± 25/ 1550 ± 25	1550 ± 25/ 1625 ± 25	1550 ± 25/ 1625 ± 25
Spectral width (nm) [8]	≤ 50/80	≤ 50/80	≤ 80/80	≤ 5/5	≤ 5/5	≤ 5/10	≤ 5/10
Output power (dBm)	≥ -23/-19	≥ -20/-21	≥ -25/-30	≥ -3.5/-5.5	≥ -5/-7	≥ -5.5/-5.5	≥ -7/-7
Stability (8 hours) (dB) [9]	± 0.15	± 0.15	± 0.10	± 0.10	± 0.10	± 0.10	± 0.10

FasTesT [4]	-12C	-12D	-23B	-23BL	-BR23BL	-34BL	-BR34BL
Emitter type	LED	LED	LED	laser	laser	laser	laser
Wavelengths (nm)	850/1300	850/1300	1310/1550	1310/1550	1310/1550	1550/1625	1550/1625
Range (dB)	41	44	39	60	60	60/55	60/55
Maximum deviation (dB) [3,10]	± 0.5	± 0.5	± 0.35/± 0.5	± 0.35/± 0.5	± 0.35/± 0.5	± 0.35/± 0.5	± 0.35/± 0.5
Resolution (dB) [3]	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Optical return loss [11]	BR23BL	BR34BL
Range (dB)	65	65
Uncertainty (dB) [3,4]	± 0.4	± 0.4

Talk set [4]	-T02C	-T02BL	-T03BL
Emitter type	LED	laser	laser
Wavelength (nm)	1300 ± 25	1310 ± 25	1550 ± 25
Dynamic range (dB)	30	45	45
Distance range (approx.) (km)	50	128	180
Optimum fiber type (µm)	50/125	9/125	9/125

Visual fault locator	
Emitter type	laser
Wavelength (nm)	650 ± 10
Output power (CW) (dBm)	-1

General Specifications

Size (H x W x D)	9 cm x 2.5 cm x 26 cm	3 1/2 in x 1 in x 10 1/4 in
Weight (varies with options)	0.49 kg	1.08 lb
Temperature		
operating	-5 °C to 40 °C	23 °F to 104 °F
storage	-20 °C to 60 °C	-4 °F to 140 °F
Relative humidity	0 % to 95 % non-condensing	

Notes

1. At 23 °C ± 1 °C with FC/PC connector unless otherwise specified, with an offset nulling for the power meter.
2. At 1310 nm for power meter models -2, -2X, -3; at 1550 nm for -3X models.
3. Resolution and uncertainty are functions of input power; uncertainty is valid at calibration conditions.
4. After a warmup time of 20 minutes.
5. At all calibrated wavelengths except 1625 nm.
6. Between –30 dBm to 0 dBm; ± 0.15 dB from 0 dBm to 28 dBm; ± 0.3 dB from 28 dBm to 35 dBm (for FTB-3923X-P2 only); always referenced at 0 dBm.
7. When exposed to an input power higher than 28 dBm, uncertainty is valid for a maximum period of 15 minutes.
8. As defined by Telcordia TR-TSY-000887, rms for lasers and FWHM for LEDs.
9. The stability is expressed as ± half the difference between the maximum and minimum values measured during the period.
10. Maximum deviation between FastTest and manual measure, when loopback/side-by-side reference is taken. Maximum deviation is ± 0.45 dB/± 0.5 dB for Ultra-High-Power models.
11. Specifications with FC/APC connector.

Ordering Information

FTB-1400 Powermeter and Options

FTB-140XXXX-XXXXXX-XXXXX-XXXXXXXX-XXXX

Detector
2 = Ge
2X = GeX
3 = InGaAs
3XP1 = InGaAs +28dBm
3XP2 = InGaAs +35dBm

Source
12C = 850/1300nm LED 50/125
12D = 850/1300nm LED 62.5/125
23B = 1310/1550nm LED
23BL = 1310/1550nm laser
34BL = 1550/1625nm laser
NONE = none

Power Meter Adapter
FOA-12 = Biconic
FOA-22 = FC/UPC or FC/APC
FOA-28 = DIN
FOA-32 = ST
FOA-54 = SC/UPC or SC/APC
FOA-96B = E-2000
FOA-97 = LX.5
FOA-98 = LC
FOA-99 = MU

The type of connector selected on the fastest port will determine the power meter adapter type. Other connector adapters available upon request

EXAMPLE : FTB-3922-BR23BL-EI-EUI-89-T02BL-VFL-EI-EUI-89-FOA-22

Connector*
EI-EUI-28 = UPC/DIN 47256
EI-EUI-76 = UPC/HMS
EI-EUI-89 = UPC/FC
EI-EUI-90 = UPC/ST
EI-EUI-91 = UPC/SC
EI-EUI-95 = UPC/E2
EA-EUI-28 = APC/DIN 47256
EA-EUI-89 = APC/FC
EA-EUI-91 = APC/SC
EA-EUI-95 = APC/E2

Options
T02C = 1300nm LED Talk set
T02BL = 1310nm Talk set laser
T03BL = 1550nm Talk set laser
T02C/VFL = 1300nm LED Talk set + VFL
T02BL/VFL =1310nm Talk set laser +VFL
T03BL/VFL = 1310nm Talk set laser + VFL
NONE = none

The type of connector on the VFL with depend on the type of connector selected on the TS.

*EXFO Universal Interface is protected by US patent 6,612,750.

Safety

The emitter types for the backreflection, FasTesT, light source, and talk set comply with 21 CFR 1040.10, and comply with IEC 60825-1:1993+A1:1997.
CLASS 1 LASER PRODUCT
CLASS 1 LED PRODUCT
The VFL option of the FTB-3920 or FTB-1400 is a class 2 laser product. Actual power output level may be lower than specified on label. Refer to Specifications for output power and wavelength combinations.

Ordering information

FTB-3920 Powermeter, Sources and Options

FTB-392XXXX-XXXXXX-XXXXX-XXXXXXXX-XXXX

Detector
2 = Ge
2X = GeX
3 = InGaAs
3XP1 = InGaAs +28dBm
3XP2 = InGaAs +35dBm

Power Meter Adapter
FOA-12 = Biconic
FOA-22 = FC/UPC or FC/APC
FOA-28 = DIN
FOA-32 = ST
FOA-54 = SC/UPC or SC/APC
FOA-96B = E-2000
FOA-97 = LX.5
FOA-98 = LC
FOA-99 = MU

Source
12C = 850/1300nm LED 50/125
12D = 850/1300nm LED 62.5/125
23B = 1310/1550nm LED
23BL = 1310/1550nm laser
34BL = 1550/1625nm laser
BR23BL = 1310/1550nm laser + ORL option
BR34BL = 1310/1550nm laser + ORL option
04BL = 1625nm laser
BR04BL = 1625nm laser + ORL option

Connector
EI-EUI-28 = UPC/DIN 47256
EI-EUI-76 = UPC/HMS
EI-EUI-89 = UPC/FC narrow key
EI-EUI-90 = UPC/ST
EI-EUI-91 = UPC/SC
EI-EUI-95 = UPC/E2
EA-EUI-28 = APC/DIN 47256
EA-EUI-89 = APC/FC
EA-EUI-91 = APC/SC
EA-EUI-95 = APC/E2

Options
T02C = 1300nm LED Talk set
T02BL = 1310nm Talk set laser
T03BL = 1550nm Talk set laser
T02C/VFL = 1300nm LED Talk set + VFL
T02BL/VFL =1310nm Talk set laser +VFL
T03BL/VFL = 1310nm Talk set laser + VFL
NONE = none

*The type of connector selected on the fastest port will determine the power meter adapter type.
*Other connector adapters available upon request

*The type of connector on the VFL with depend on the type of connector selected on the TS.

EXAMPLE : FTB-3922-BR23BL-EI-EUI-89-T02BL-VFL-EI-EUI-89-FOA-22

CORPORATE HEADQUARTERS	400 Godin Avenue	Vanier (Quebec) G1M 2K2 CANADA	Tel.: 1 418 683-0211 . Fax: 1 418 683-2170
EXFO AMERICA	4275 Kellway Circle, Suite 122	Addison TX 75001 USA	Tel.: 1 800 663-3936 . Fax: 1 972 836-0164
EXFO EUROPE	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
EXFO ASIA-PACIFIC	151 Chin Swee Road, #03-29 Manhattan House	SINGAPORE 169876	Tel.: +65 6333 8241 . Fax: +65 6333 8242
EXFO CHINA	Beijing New Century Hotel Office Tower, Room 1754-1755 No. 6 Southern Capital Gym Road	Beijing 100044 P. R. China	Tel.: +86 (10) 6849 2738 · Fax: +86 (10) 6849 2662
TOLL-FREE (USA and Canada)	Tel.: 1 800 663-3936	www.exfo.com • info@exfo.com	

SPFTB3920/1400.3AN 02/05

CE ISO 9001

Printed in Canada

EXFO