

# FTBx-88400NGE Power Blazer

## MULTISERVICE TEST MODULE



Most compact 400G multiservice test module for lab and field applications

### KEY FEATURES AND BENEFITS

400G Ethernet testing capabilities based on the draft IEEE 802.3bs standard

FlexE (Flex Ethernet) testing capabilities with low- and high-speed Ethernet clients

Integrated CFP8, SFP28/56 and 4 x QSFP28 interfaces to facilitate the testing of next-generation 400G networks with support for 25G and 50G Ethernet testing

SFP28 interface to address the new 25G Ethernet signals and FC32X for added versatility

SFP56 PAM-4 interface with support for 50G Ethernet testing

Compatible with EXFO's LTB-8 Rackmount Platform featuring hot-swap capability for lab use and best-in-class 400G port density with up to two modules running simultaneously

Compatible with the portable FTB-4 Pro Platform to release the most compact 400G solution—ready for the lab-to-field transition

Supported by EXFO Multilink, a web-based application for easy multi-user management and remote access

Supports quick optical transceiver validation and sanity check using iOptics, an intelligent pluggable optics test application

Supports EXFO TFv—Test Function Virtualization, including FTB Anywhere floating licenses and FTB OnDemand time-based licenses for ultimate flexibility

### RELATED PRODUCTS AND ACCESSORIES



Rackmount Platform  
LTB-8



Platform  
FTB-4 Pro



Multi-User Interface  
EXFO Multilink



## 400G TO THE RESCUE

Network infrastructure planners must deal with skyrocketing demands for more bandwidth, including in the data center interconnect (DCI) or even in core and metro networks. Network equipment manufacturers (NEMs) continue to push the limits of technology, developing increasingly innovative 400G solutions. Service providers are constantly expanding their networks, looking for more efficient and cost-effective ways to deploy those high-speed circuits. High-speed transceivers (pluggables) are being designed to be smaller and consume less power in order to meet the requirements of delivering high port density at a low cost. In the upcoming 400G world, transceiver testing is of critical importance.

## COMPATIBLE WITH PORTABLE AND RACKMOUNT PLATFORMS

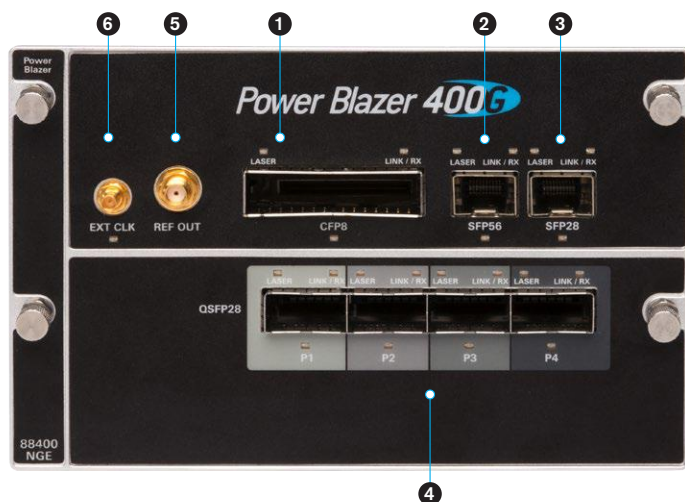
The new, compact FTBx-88400NGE Power Blazer module offers a complete suite of 400GE testing capabilities, addressing early adopters' requirements from in-lab innovation to testing in the field. In addition, when portability is needed the FTBx-88400NGE module can be inserted into the FTB-4 Pro. The module can also serve for rackmount applications, where not only one but two FTBx-88400NGE modules can be inserted into the high-performance LTB-8 rackmount chassis to deliver up to 800G of Ethernet traffic. The LTB-8 rackmount platform provides users with added versatility and power for today's complex networks.

### 400G TESTING MODULE

#### FTBx-88400NGE Power Blazer



The 400G high-speed module is based on IEEE 802.3bs with RS (544,514) FEC capabilities. Ethernet testing including 400G Ethernet using a CFP8 port with MAC and PCS layer support in addition to advanced FlexE with multiple QSFP28 ports for intra-data center and router-to-transport applications. This module is also OTUCn and FlexO (Flex OTN)-ready.



### DESIGNED FOR EFFICIENCY

- 1 CFP8 interface supporting 400G
- 2 SFP56 interface
- 3 SFP28 interface
- 4 4xQSFP28 ports supporting FlexE up to 400G
- 5 REF CLOCK OUT SMB interface
- 6 Synchronization SMA interface

## 400G ETHERNET

400G Ethernet is the promising replacement for 100G Ethernet. FTBx-88400NGE offers advanced Ethernet testing capabilities, including forward error correction monitoring and validation.

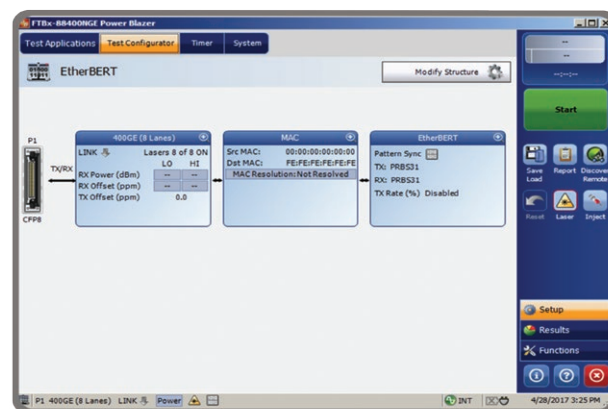
### 400G Ethernet testing capabilities

- › 400G Ethernet MAC PCS/PMA/PMD layer testing
- › FEC KP4 RS(544,514) decoding and error correction
- › Test pattern monitoring
- › MDIO read/write
- › Alarms/errors generation and monitoring



### Advanced testing capabilities

- › Skew measurement per lane
- › FEC testing
- › PCS validation
- › BER monitoring
- › High bit error rate (hi-BER)
- › Degraded SER support
- › SDT measurement
- › Capture and filter



## FlexE (FLEX ETHERNET)

The Flex Ethernet (FlexE) supports one or more bonded 100GBASE-R PHYs supporting multiple Ethernet MAC operating at a rate of 10, 40, or  $n \times 25$  Gbit/s. Flex Ethernet is a key technology for data centers, helping them deliver links that are faster than emerging 400G solutions. It will also support sub-rate links i.e., 10G, 25G and 50G, which are essential for data centers but also for carriers that need to isolate their traffic.

### FlexE testing capabilities

- › FlexE groups
- › Mixed Ethernet client types
- › Client ID edition
- › FlexE shim configuration
- › FlexE alarms/errors generation and monitoring
- › Alignment marker corruption and substitution





### TRANSCEIVERS

SFP28	LR	28 Gbit/s small form-factor pluggable	25 Gbit/s
SFP56	SR/FR/LR	50G PAM-4 links for MMF/SMF module form-factors	50 Gbit/s
QSFP28	SR4/LR4/CWDM4/CLR4	28 Gbit/s QSFP+ quad form-factor pluggable	100 Gbit/s
CFP8	FR8/LR8	SMF (8 x 50G) PAM-4 and SR-16 MMF (16 x 25G)NRZ	400 Gbit/s

## iOptics

iOptics is an intelligent pluggable optics test application and first-alert test that can be used in the field or lab environment to efficiently evaluate the proper operation of an optical device, with minimal user configuration required. This test application performs the validation using several subtests, monitors optical device power consumption and temperature and reports an individual verdict for each subtest and monitoring task. iOptics now supports the latest pluggables, and automatically collects device manufacturing information so the user knows that the right device has been tested.

25G: SFP28



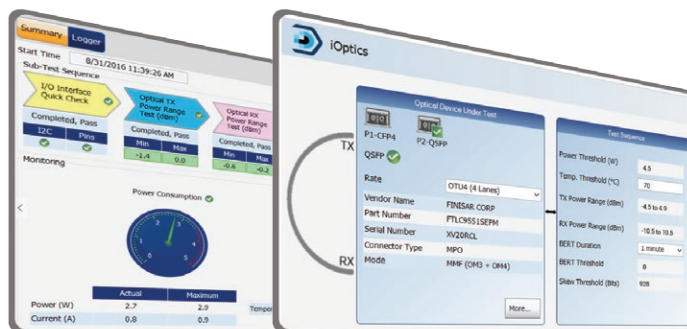
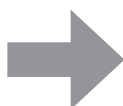
50G: SFP56



100G: QSFP28



400G: CFP8



## SOFTWARE TEST TOOLS

These platform-based software testing tools enhance the value of the LTB-8 and FTB-4 Pro platforms, providing additional monitoring and inspection testing capabilities.

### SOFTWARE APPLICATIONS

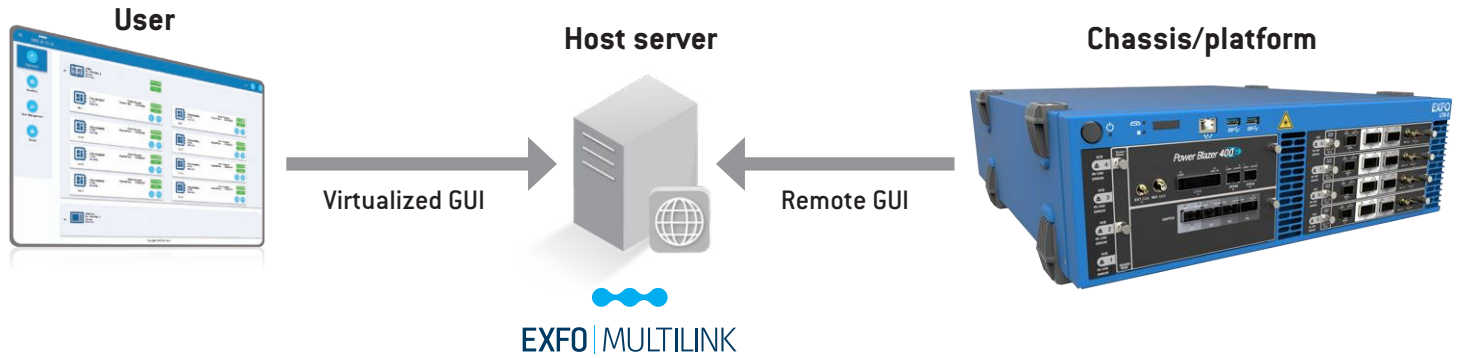
**ConnectorMax2**  
ANALYSIS SOFTWARE

Providing lightning-fast results in the first step of fiber link testing, ConnectorMax2 is a powerful platform-based, automated inspection application. It delivers quick pass/fail assessment of connector endfaces and is designed to save time and money, in the field and in the lab.



## EXFO | MULTILINK

The value of connectivity comes from the ability to connect your platform anywhere, at any time. The EXFO Multilink **multi-module, multi-user and multi-chassis** application enables the remote control access of each chassis and module through a centralized network.





# EXFO | C<sub>o</sub>nnect

## EXFO CONNECT MAKES YOUR DATA MEAN BUSINESS

EXFO Connect completely redefines integrated testing with its cloud-hosted solution. Equipped with powerful database and application technologies, EXFO Connect provides an automated, secure environment that links together your EXFO test instruments and centralizes captured data across your organization. With its powerful correlation engine, EXFO Connect enables you to convert captured data into actionable information through customized test-data reporting and features that streamline test operations from build-out to maintenance.

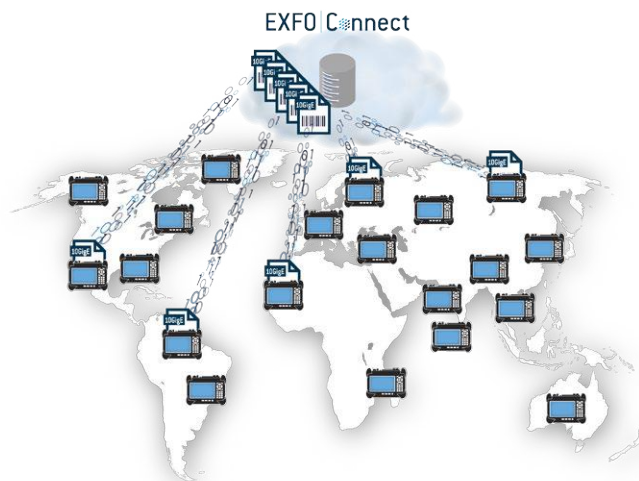
### Test Equipment Manager

EXFO Connect's Test Equipment Manager is an automated application that centralizes the management of all EXFO test instruments. A repository for software loads, licenses and platform profiles, it helps managers handle the constant demand for software updates. It also keeps track of equipment and ensures field technicians are equipped with up-to-date capabilities.



### FTB Anywhere: Floating Test Licenses

FTB Anywhere™ is a shared test-license capability for the award-winning FTB Ecosystem. This unique approach to delivering advanced test applications enables network operators to purchase a specific number of cloud-hosted licenses that can be shared instantly with their technicians, wherever they happen to be.



**MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS****FTB-88400NGE Power Blazer module**

Size (H x W x D)	118x100x160	(4 <sup>5</sup> / <sub>8</sub> x 4 x 6 <sup>3</sup> / <sub>8</sub> )	
Weight	1.7 kg	3.75 lb	
Temperature	Operating Storage	0 °C to 40 °C -40 °C to 70 °C	(32 °F to 104 °F) (-40 °F to 158 °F)