

# MaxTester 940/945 Telco OLTs

FULLY AUTOMATED FASTEST™ BIDIRECTIONAL MEASUREMENTS FOR INSERTION LOSS, OPTICAL RETURN LOSS AND FIBER LENGTH



- First tablet-inspired multifunction optical loss test set (OLTs) measuring insertion loss (IL), optical return loss (ORL) and fiber length at two wavelengths in 5 seconds via fully automated bidirectional FasTesT™ analysis.

EXFO | Connect

ConnectorMax



## KEY FEATURES

Unmatched FasTesT™ performances: 100% automated bidirectional test at two wavelengths under 5 seconds

100% automated fiber inspection: one-step process with pass/fail analysis at both fiber ends

Onboard assistant and diagnosis to eliminate reference errors

Bright, 7-inch high-resolution touchscreen display—the biggest in the market

Optical return loss (ORL) meter

Market-leading onboard PDF reporting solution and essential PC-based post-processing included for all users

Best-in-class singlemode distance range of 200 km

EXFO Connect-ready for cloud-based test assets management

WiFi and Bluetooth connectivity (optional)

## APPLICATIONS

FTTx construction

Telecommunications and outside plant network testing

Data centers

Enterprise structured cabling

## RELATED PRODUCTS



Fiber inspection scope  
FIP-400B (WiFi or USB)

FastReporter

Advanced data post-processing software  
FastReporter



Cleaning accessories

# THE NEXT GENERATION OF AUTOMATED OLTS: MORE FEATURES, GREATER PERFORMANCE

Ever since its introduction in 1996, the patented FasTesT™ technology revolutionized the industry by fully automating the test sequence, saving countless hours of testing and troubleshooting in the field. Proven in thousands of diverse network deployments across the globe, FasTesT™ truly enables CAPEX/OPEX savings.

The MaxTester 940/945 boasts a 7-inch touchscreen, the largest and most user-friendly display in the industry to simplify tasks for the technician. The MaxTester 940/945 also allows for 100% automated fiber inspection at both ends of the fiber link. Paired with the FIP-400B automated fiber inspection scopes and powered by FasTesT™, this OLTS brings the latest and the best in innovation and automation at your fingertips.

## THE BENEFITS

### Trustworthy test results

#### Fully automated fiber inspection

Fiber inspection is at the heart of ensuring that accurate references and measurements can be made. The MaxTester 940/945 integrates EXFO's fully automated line of fiber inspection scopes to assess and certify connector health within a few seconds. EXFO's FIP-430B (USB) and FIP-435B (wireless) rely on elaborate algorithms that do the hard work for you to automatically center, focus, capture and analyze the connector image. No user intervention needed: achieve repeatable and accurate inspection, 100% of the time.

#### Onboard step-by-step animated reference assistant

Accurate and repeatable test results start with proper test cord referencing. Accurate referencing greatly reduces common mistakes often encountered in the field. Thanks to the reference assistant's animated and interactive interface this step of the testing sequence is now as simple and easy as it can be.



#### Test shorter links than ever before

Thanks to highly accurate optics, this OLTS can test with extreme precision short links with very low loss.

#### EXFO's patent-pending one-cord simplex reference method

Greatly reduces test uncertainty for greater test accuracy which is a key factor when testing short fiber links such as drop fibers in FTTH networks.

### Test efficiency

- FasTesT™: acquisition time less than three seconds
- Online reporting–live from the field
- Maximum simplicity and fast learning curve with onboard user assistance:
  - **Port LED indicators:** guide the user through the referencing and testing processes. LED indicators show the user which optical port to connect to the fiber. A beep indicates that the connection is established to confirm continuity.
  - **Onboard diagnosis:** throughout the referencing and testing processes, the MaxTester delivers real-time information on test cord health as well as pass/fail results according to preset or custom criteria. When testing, the MaxTester delivers loss and length data, and can even identify the presence of a macrobend (refer to side picture).
  - **Margin meters:** indicate the result status as well as the margin according to preset thresholds.

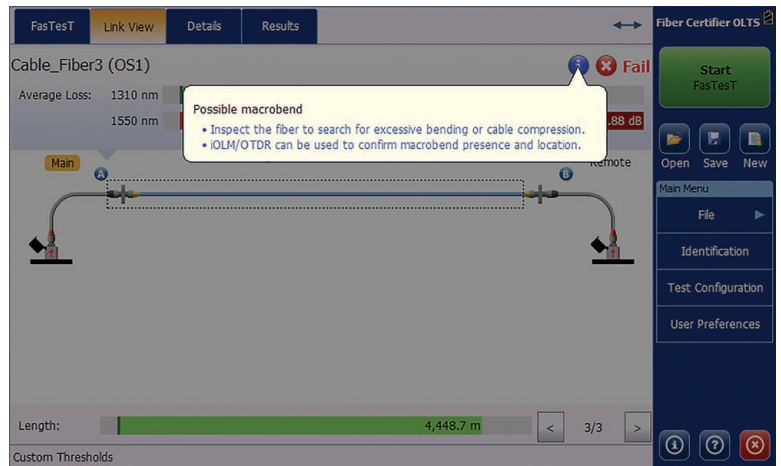
- The MaxTester 940/945 includes a *Test Again* feature allowing the user to retest failed fibers in three steps:
  1. Go back in test results
  2. Quickly and correctly identify the failed fiber by looking at the pass/fail status
  3. Press *Test Again*

### Optimized test sequence

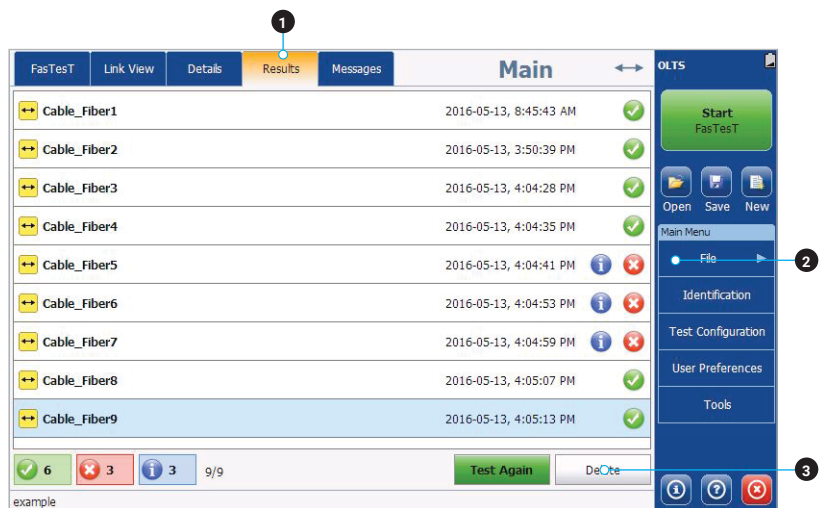
- **Real-time continuity feature:** the main and remote units emit visual and audible signals to let the technicians on both ends know that a connection has been established on the specific fiber under test. This also allows the technicians to start the test right away, saving time on each fiber tested.
- **Text messaging capabilities:** allows users to send text messages through the fiber under test faster than other test sets in the industry.

### ORL meter

The ORL meter allows the user to perform a single-ended ORL measurement of network components or a link section. This live meter shows measurement fluctuation in real time.

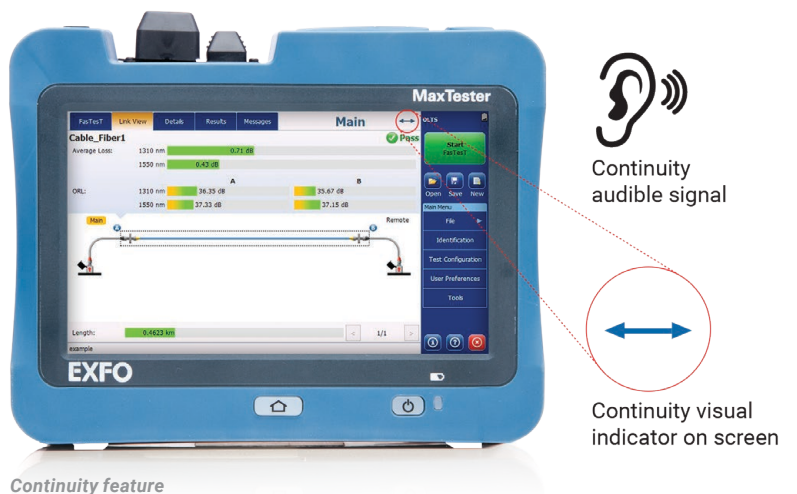


Onboard diagnosis helps the technician take proper action



See results clearly and test again easily

- 1 Results tab lists all the fibers tested in a cable
- 2 Pass/Fail status indicated under Results
- 3 Test Again button to retest a "failed fiber" using the same settings



Continuity feature

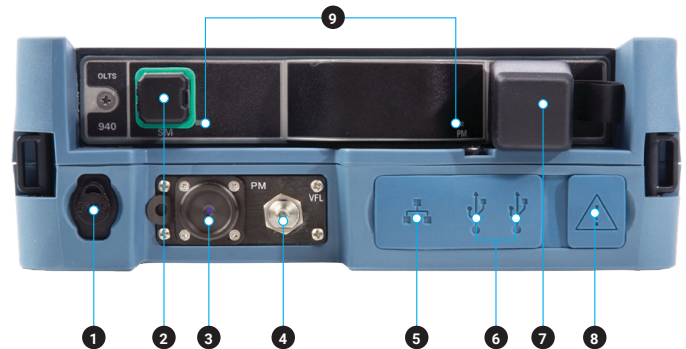
# SMALL ENOUGH TO BE HANDHELD. LARGE ENOUGH FOR FULL-SCREEN VIEWING.

## TABLET-INSPIRED DESIGN

With a 7-inch, high-resolution touchscreen—the most efficient display in the industry—the MaxTester 940/945 OLTS delivers an unprecedented user experience. It features integrated WiFi/Bluetooth connectivity and instant boot up. The MaxTester 940/945 OLTS also ensures a full day of field work with 12 hours of battery autonomy and its internal memory capacity for 150,000 test results.

## PACKAGED FOR EFFICIENCY

- |                                     |  |
|-------------------------------------|--|
| 1 Stylus                            | 8 AC adapter   |
| 2 FasTesT™ singlemode port          | 9 LED indicators                                     |
| 3 High-power power meter (optional) | 10 Home/switch application and screen capture (hold) |
| 4 Visual fault locator (optional)   | 11 Power on/off/stand by                             |
| 5 10/100 Mbit/s Ethernet port       | 12 Battery LED status                                |
| 6 Two USB 2.0 ports                 | 13 Built-in WiFi/Bluetooth (optional)                |
| 7 Standard power meter              | 14 Stand support                                     |





## DISCOVER THE INDUSTRY’S FIRST FULLY AUTOMATED FIBER INSPECTION SCOPES

Housing a unique automatic focus adjustment system, EXFO’s fiber inspection scope series automates each operation in the sequence of inspecting a connector endface. The result: **fiber inspection is now a quick, one-step process that can be performed by technicians of all skill levels.**

### Automated models

**The FIP-500:** wireless, autonomous and fully automated scope featuring the fastest inspection in the industry for both multi-fiber and single-fiber connectors. All-day testing without the need to recharge batteries or offload results.

**The FIP-435B:** connected to EXFO platforms or your smart device, this fully automated wireless scope enables connector certification in one step. View and store results on your EXFO platform or smart device.

**The FIP-430B:** fully automated inspection scope featuring USB wired connectivity to PC and EXFO platforms.

### Semi-automated and manual models

**The FIP-420B:** semi-automated scope featuring a manual focus adjustment. USB wired connectivity to PC and EXFO platforms.

**The FIP-410B:** basic inspection features for manual inspection. USB wired connectivity to PC and EXFO platforms.

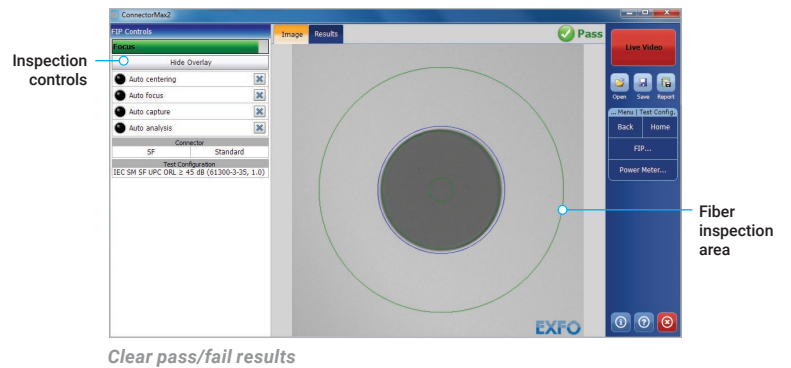


FEATURES	USB WIRED			WIRELESS	AUTONOMOUS
	FIP-410B	FIP-420B	FIP-430B	FIP-435B	FIP-500
Image capture	•	•	•	•	•
Five-megapixel CMOS capturing device	•	•	•	•	•
Automatic fiber image-centering function and focus adjustment		•	•	•	•
Automatic fiber image-focus adjustment			•	•	•
Onboard pass/fail analysis		•	•	•	•
Pass/fail LED indicator		•	•	•	•
USB connectivity to an EXFO platform or PC	•	•	•	•	
Wireless connectivity to an EXFO platform or PC				•	
Wireless connectivity to a smartphone				•	•
Semi-automated multifiber / MPO inspection	•	•	•	•	
Fully automated multifiber / MPO inspection					•
Onboard touch screen and data storage					•
SmarTips with automated thresholds and quick-connect mechanism					•

For more information, visit [www.EXFO.com/fiberinspection](http://www.EXFO.com/fiberinspection).

## POWERFUL CONNECTOR ENDFACE IMAGE VIEWING AND ANALYSIS SOFTWARE

- Automatic pass/fail analysis of the connector endfaces
- Lightning-fast results in seconds with simple one-touch operation
- Complete test reports for future referencing
- Stores images and results for record-keeping



## FastReporter

Data post-processing software

### GET ALL ADVANCED CAPABILITIES FOR FREE

FastReporter is a consolidated data management and post-processing solution designed to improve results quality as well as auditing and reporting productivity.

Download the latest version of FastReporter, launch the application and create your EXFO Exchange account to get the full range of capabilities, at no cost. EXFO Exchange automates and optimizes workflows, troubleshooting, field testing and reporting within a secured collaborative software platform for each step of network deployment.

FEATURES	FastReporter (version 3)	
	Basic	Full (now free with EXFO Exchange account)
Number of files	Up to 24 results	Unlimited
Measurement type	OTDR, iOLM, FIP, OLTS, OPM, CD, PMD	
Results viewer	•	•
Reporting – Basic (PDF)	•	•
Reporting – Advanced (Excel, PDF, custom)		•
Basic analysis – Bidir (OTDR and iOLM)	•	•
Advanced editing		•
Automated validation and results correction		•
Job management and identification edition	One file	Batch processing
Hundreds of additional features		•

Comparison of BASIC and FULL versions of FastReporter (version 3).

**POWER METER SPECIFICATIONS<sup>a</sup>**

Detector type	GeX
Uncertainty <sup>b</sup>	±(5 % + 10 nW)
Measurement range (dBm)	25 to -50 <sup>c</sup>
Wavelengths range (nm)	850, 1300, 1310, 1490, 1550, 1577, 1625, 1650
Tone detection (Hz)	270/330/1000/2000

**SOURCE SPECIFICATIONS<sup>a</sup>**

Output power (dBm) <sup>c</sup>	Multimode (850 nm/1300 nm): -25 SM1 (1310 nm/1550 nm): 2.5 SM3 (1310 nm/1550 nm/1625 nm): 1 / -1 / -5 SM4 (1310 nm/1490 nm/1550 nm): 1 / -5 / -1
Output power stability (dB)	±0.05 over 8 hours
Spectral width (FWHM) (nm)	850 nm: 30 to 60 1300 nm: 100 to 150

**FASTEST™ SPECIFICATIONS<sup>a</sup>**

Testing speed <sup>c</sup>	FasTesT™ Simplex: 3 seconds (two wavelengths, bidirectional, automated, IL + fiber length) FasTesT™ Simplex: 6 seconds (three wavelengths, bidirectional, automated, IL + ORL + fiber length)	
Wavelengths (nm) <sup>c</sup>	Multimode (LED) 850 ± 20 1300 ± 20	Singlemode (laser) 1310 ± 20 1490 ± 10 1550 ± 20 1625 ± 10
Launch condition <sup>d</sup>	Encircled Flux (EF) compliancy guaranteed at 50/125 µm multimode source port. Within TIA-526-14-B, ISO/IEC 14763-3 and IEC 61280-4-1 EF template limits at the end of an EXFO reference-grade 50/125 µm test cord.	
Loss range (dB) <sup>e</sup>	Multimode: 20 Singlemode simplex: 45 Singlemode duplex: 50	
Length measurement range (km) <sup>f</sup>	Multimode: 20 Singlemode: 200	
Length measurement uncertainty <sup>c</sup>	Duplex: ±(0.5 m + 0.5 % x length) Simplex: ±(1 m + 0.5 % x length)	
ORL measurement range (dB) <sup>c, g</sup>	50	
ORL measurement uncertainty (dB) <sup>c, g, h</sup>	±1	

**ORL METER<sup>a, g</sup>**

	All singlemode wavelengths
ORL range (APC/UPC link) (dB) <sup>c, i, j</sup>	65/55
ORL uncertainty (dB) <sup>c, i, k</sup>	±0.5
Resolution (dB)	0.01

a. All specifications valid at 23 °C ± 1 °C and 1550 nm, on batteries and after 15 minutes of warm up, unless otherwise specified.

b. Uncertainty is valid at calibration conditions.

c. Typical.

d. Measured at 850 nm with SC connector.

e. Typical value, at 850 nm for multimode and 1550 nm for singlemode.

f. At 1300 nm for multimode and 1550 nm for singlemode.

g. ORL measurement available on MaxTester 945 singlemode wavelengths only.

h. No discrete reflectance greater than -65 dB. Up to 45 dB.

i. After a manual reference and zero. Measurement made with 2-m reference patchcord with SC/APC connectors (all discrete reflectances ≤ -65 dB).

j. After a manual reference and zero. Measurement made with 2-m reference patchcord which has one SC/UPC connector on the fiber under test side (all discrete reflectances ≤ -55 dB).

k. Up to 45 dB.

**VISUAL FAULT LOCATOR (VFL) (optional)**

Laser, 650 nm $\pm$ 10 nm
CW/Modulate 1 Hz
Typical $P_{out}$ in 62.5/125 $\mu$ m: > -1.5 dBm (0.7 mW)
Laser safety: Class 2

**LASER SAFETY****ENVIRONMENTAL SPECIFICATIONS**

Temperature	Operating	-10 °C to 50 °C (14 °F to 122 °F)
	Storage	-30 °C to 70 °C (-22 °F to 158 °F) <sup>a</sup>
Relative humidity		0 % to 95 % non-condensing

**GENERAL SPECIFICATIONS**

Display	7-in (178-mm) outdoor-enhanced touchscreen, 800 x 480 TFT
Size (H x W x D)	166 mm x 200 mm x 68 mm (6 <sup>9</sup> / <sub>16</sub> in x 7 <sup>7</sup> / <sub>8</sub> in x 2 <sup>3</sup> / <sub>4</sub> in)
Weight (with battery)	1.5 kg (3.3 lb)
Interfaces	Two USB 2.0 ports RJ45 LAN 10/100 Mbit/s Optional WiFi/Bluetooth
Storage	6 GB internal memory (150 000 test results, typical)
Battery <sup>b</sup>	Rechargeable lithium-polymer battery 12 hours of operation
Power supply	AC/DC adapter, input 100-240 VAC, 50-60 Hz
Warranty	Three (3) years
Recommended recalibration period	Three (3) years

a. -20 °C to 60 °C (-4 °F to 140 °F) with the battery pack.

b. Typical.



## ORDERING INFORMATION

MAX-940-XX-XX-XX-XX-XX-XX-XX

**Optical configuration**

SM1 = Singlemode 1310/1550 nm, IL

**Connector**<sup>a</sup>

EI-EUI-28 = UPC/DIN 47256  
 EI-EUI-89 = UPC/FC narrow key  
 EI-EUI-90 = UPC/ST  
 EI-EUI-91 = UPC/SC  
 EI-EUI-95 = UPC/E-2000  
 EI-EUI-98 = UPC/LC  
 EA-EUI-28 = APC/DIN 47256  
 EA-EUI-89 = APC/FC narrow key  
 EA-EUI-91 = APC/SC  
 EA-EUI-95 = APC/E-2000  
 EA-EUI-98 = APC/LC

**VFL and power meter**

00 = Without VFL and power meter  
 VFL = With VFL  
 PM2X = With power meter; GeX detector  
 VPM2X = With VFL and power meter; GeX detector

**WiFi and Bluetooth**

00 = Without RF components  
 RF = With RF capability (WiFi and Bluetooth)

**Inspection scope model**<sup>b</sup>

00 = Without inspection scope  
 FP410B = Digital video inspection probe  
 Triple magnification  
 FP420B = Analysis digital video inspection probe  
 Automated pass/fail analysis  
 Triple magnification  
 Autocentering  
 FP430B = Automated analysis digital video inspection scope  
 Automated focus  
 Automated pass/fail analysis  
 Triple magnification  
 Autocentering  
 FP435B = Wireless analysis digital video inspection scope<sup>c</sup>  
 Automated focus  
 Automated pass/fail analysis  
 Triple magnification  
 Autocentering

Example: MAX-940-SM1-EI-EUI-89-VFL-RF-FP435B-UPC

**Extra FIPT-400B tips**<sup>d</sup>**Bulkhead tips**

FIPT-400-FC-APC = FC/APC tip for bulkhead adapter  
 FIPT-400-FC-SC = FC and SC tip for bulkhead adapter<sup>e</sup>  
 FIPT-400-LC = LC tip for bulkhead adapters  
 FIPT-400-LC-APC = LC/APC tip for bulkhead adapter  
 FIPT-400-MU = MU tip for bulkhead adapters  
 FIPT-400-SC-APC = SC/APC tip for bulkhead adapter<sup>f</sup>  
 FIPT-400-SC-UPC = SC/UPC tip for bulkhead adapter  
 FIPT-400-ST = ST tip for bulkhead adapter

**Patchcord tips**

FIPT-400-U12M = universal patchcord tip for 1.25 mm ferrules  
 FIPT-400-U12MA = universal patchcord tip for 1.25 mm ferrules APC  
 FIPT-400-U16M = universal patchcord tip for 1.6 mm ferrules  
 FIPT-400-U20M2 = universal patchcord tip for 2.0 mm ferrules (D4, Lemo)  
 FIPT-400-U25M = universal patchcord tip for 2.5 mm ferrules<sup>e</sup>  
 FIPT-400-U25MA = universal patchcord tip for 2.5 mm ferrules APC<sup>f</sup>

**Multifiber tips**<sup>g</sup>

FIPT-400-MTP2 = MTP/MPO UPC tip for bulkhead adapter  
 FIPT-400-MTPA2 = MTP/MPO APC tip for bulkhead adapter  
 FIPT-400-MTP-MTR = MTP/MPO multirow UPC tip for bulkhead adapter  
 FIPT-400-MTP-MTRA = MTP/MPO multirow APC tip for bulkhead adapter

**Tip kits**

FIPT-400-LC-K = LC tip kit including:  
 FIPT-400-LC: LC tip for bulkhead adapters,  
 FIPT-400-LC-APC: LC/APC tip for bulkhead adapter,  
 FIPT-400-U12M: universal patchcord tip for 1.25 mm ferrules,  
 FIPT-400-U12MA: universal patchcord tip for 1.25 mm ferrules APC  
 FIPT-400-LC-K-APC = LC tip kit including:  
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 FIPT-400-U12M: universal patchcord tip for 1.25 mm ferrules  
 FIPT-400-MTP-MTR-K = MTP/MPO multirow APC and UPC tip for bulkhead adapter<sup>g</sup>

**Base tips**

APC = Includes FIPT-400-U25MA and FIPT-400-SC-APC  
 UPC = Includes FIPT-400-U25M and FIPT-400-FC-SC

a. Power meter connector type is the same as the EUI connector type.

b. Includes ConnectorMax2 software.

c. RF option mandatory and included with this model.

d. This list represents a selection of fiber inspection tips that covers the most common connectors and applications but does not reflect all the tips available. EXFO offers a wide range of inspection tips, bulkhead adapters and kits to cover many more connector types and different applications. Please contact your local EXFO sales representative or visit [www.EXFO.com/FIPTips](http://www.EXFO.com/FIPTips) for more information.

e. Included when UPC base tips are selected.

f. Included when APC base tips are selected.

g. Includes a bulkhead adapter for patchcord inspection.

## ORDERING INFORMATION

MAX-945-XX-XX-XX-XX-XX-XX-XX

**Optical configuration**

SM1 = Singlemode 1310/1550 nm, IL and ORL  
 SM3 = Singlemode 1310/1550/1625 nm, IL and ORL  
 SM4 = Singlemode 1310/1490/1550 nm, IL and ORL  
 ICERT-Q1-QUAD = Quad  
 Port 1: 850/1300 nm IL and length measurement  
 Port 2: 1310/1550 nm IL, length and ORL measurement

**Connector**

EA-EUI-28 = APC/DIN 47256  
 EA-EUI-89 = APC/FC narrow key  
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00 = Without VFL and power meter  
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 FP435B = Wireless analysis digital video inspection scope<sup>c</sup>  
 Automated focus  
 Automated pass/fail analysis  
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Example: MAX-945-SM1-EI-EUI-89-VFL-RF-FP435B-UPC

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**Base tips**

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 UPC = Includes FIPT-400-U25M and FIPT-400-FC-SC

a. Connector adapters are the same on singlemode source ports, multimode source ports and power meter ports. Multimode connectors are always UPC.

b. Includes ConnectorMax2 software.

c. RF option mandatory and included with this model.

d. This list represents a selection of fiber inspection tips that covers the most common connectors and applications but does not reflect all the tips available. EXFO offers a wide range of inspection tips, bulkhead adapters and kits to cover many more connector types and different applications. Please contact your local EXFO sales representative or visit [www.EXFO.com/FIPTips](http://www.EXFO.com/FIPTips) for more information.

e. Included when UPC base tips are selected.

f. Included when APC base tips are selected.

g. Includes a bulkhead adapter for patch cord inspection.

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EXFO serves over 2000 customers in more than 100 countries. To find your local office contact details, please go to [www.EXFO.com/contact](http://www.EXFO.com/contact).

For the most recent patent marking information, please visit [www.EXFO.com/patent](http://www.EXFO.com/patent). EXFO is certified ISO 9001 and attests to the quality of these products. EXFO has made every effort to ensure that the information contained in this specification sheet is accurate. 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. In addition, all of EXFO's manufactured products are compliant with the European Union's WEEE directive. For more information, please visit [www.EXFO.com/recycle](http://www.EXFO.com/recycle). **Contact EXFO for prices and availability or to obtain the phone number of your local EXFO distributor.**

For the most recent version of this spec sheet, please go to [www.EXFO.com/specs](http://www.EXFO.com/specs).

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