MAX-FIP

INTELLIGENT CONNECTOR AND FIBER CERTIFIER

ConnectorMax2

Stk# 880X893

Rugged, tablet-inspired design featuring the latest innovations in automated connector and fiber certification. Ensures that workflow and best practices are followed by simplifying and speeding up the critical inspection phase.

SPEC SHEET

TEST SET KEY FEATURES

Bright, 7-inch touchscreen display

Rugged, compact, tablet-inspired form factor

Power meter and visual fault locator (VFL) (plug-and-play options)

Full-day, rechargeable Li-ion battery

Wi-Fi and Bluetooth connectivity (plug-and-play options)

INSPECTION PROBE KEY FEATURES

Fully automated, one-step process:

- Automatic fiber-connection detection
- Automatic image centering
- Automatic focus adjustment and optimization
- Automatic capture
- Automatic pass/fail analysis
- Automatic reporting

Onboard connector endface analysis (IEC, IPC or custom standards) via ConnectorMax2

Pass/fail LED indicator for immediate diagnosis of connector health

Optimal digital image quality with three levels of magnification

COMPLEMENTARY PRODUCTS

Data Post-Processing Software
FastReporter2

Cleaning Kits

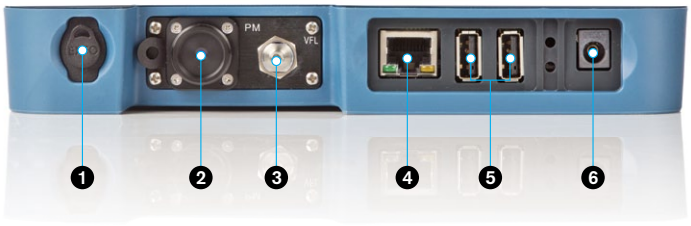
MAX-FIP TEST UNIT FEATURES AND CHARACTERISTICS

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

The MAX-FIP features the largest screen in the industry, providing the highest magnification level for precise viewing of even the smallest defects on fiber endfaces. Its tablet-inspired design featuring an icon-based GUI makes it easy to navigate and toggle between the different applications (inspection, connector analysis, power measurement and VFL troubleshooting). Additionally, its bright, 7-inch touchscreen ensures fast and easy operation of the instrument even in the brightest daylight, in turn eliminating eye fatigue associated with prolonged connector inspection (typically experienced during full-day fiber-patch panel-certification routines).

PACKAGED FOR EFFICIENCY

1. Stylus
2. Power meter
3. Visual fault locator
4. 10/100 Mbit/s Ethernet port
5. Two USB 2.0 ports
6. AC adapter
7. Home/switch application and screen capture (hold)
8. Power on/off/standby
9. Battery LED status
10. Built-in Wi-Fi/Bluetooth



EXFO

EXTENSIVE STORAGE CAPABILITY

The MAX-FIP standard 2 GB internal memory offers extensive storage of up to 4000 fiber certification results, and is expandable using USB memory sticks and optional Wi-Fi and Bluetooth capability for cloud-based storage.

BEST-IN-CLASS AUTONOMY

Take full advantage of the MAX-FIP's amazing 8-hour battery life, which will never let you down, enabling you to complete full-day jobs without having to recharge the unit. Also, save money by not having to pay expensive battery replacement costs associated with other handheld inspection kits on the market operating on standard alkaline batteries.

8 HOURS

PLUG-AND-PLAY OPTICAL OPTIONS

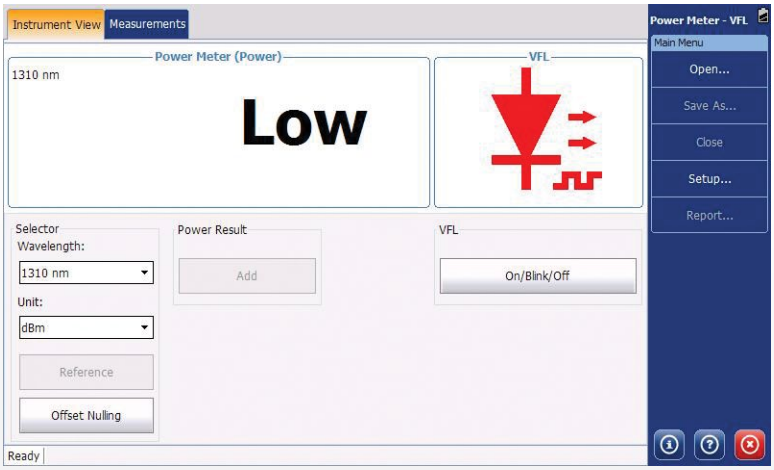
Integrated Optical Power Meter

- Extensive range of connectors
- Auto-Lambda and Auto-Switching
- Offers measurement storage and reporting
- Seven standard calibrated wavelengths

Visual Fault Locator

The integrated VFL easily identifies breaks, bends, faulty connectors and splices, in addition to other causes of signal loss. This basic, yet essential troubleshooting tool, should be part of every field technician's toolbox. Visually locating faults by creating a bright-red glow at the exact location of the fault on singlemode or multimode fibers, it can detect faults over distances of up to 5 km.

The power meter and VFL piece are offered as an easy-to-install option that's as simple as removing four screws.



The optical power meter (up to 27dBm) and visual fault locator (VFL) can be controlled directly from the main GUI, or using ConnectorMax2 software.

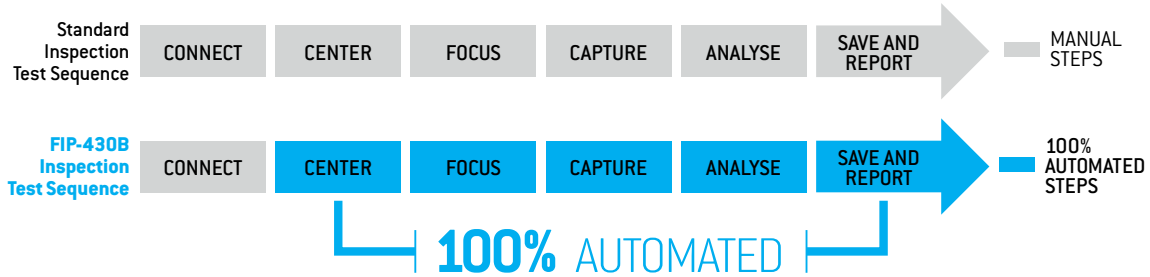
FIP-400B INSPECTION PROBE SERIES: FEATURES AND CHARACTERISTICS

Neglecting to clean, inspect and certify connectors can lead to serious, time-consuming problems accounting for up to 80% of network failures. Years of experience in the field have provided EXFO with the expertise to re-engineer a major, patent-pending fiber-inspection probe designed to both simplify and speed up this critical step of network construction and maintenance.

UNIQUE AUTOFOCUS FEATURE ENABLING FULLY AUTOMATED FIBER INSPECTION

Turning Fiber Inspection into a One-Step Process

Enabled by its unique automatic focus-adjustment system, the FIP-430B automates each operation in the test sequence, transforming the critical inspection step into a quick and simple one-step process accessible to technicians of any skill level.

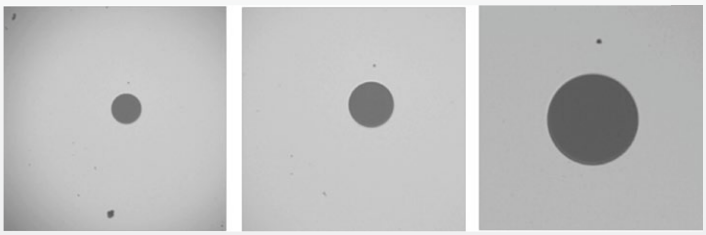


Automated focus adjustment: Ensures that each connector image is captured at maximum quality for enhanced identification of defects.

Focus protection: Prevents image capture in the event of improper focus adjustment, thereby ensuring that no defects or residues that affect performance are ignored by the analysis thus avoiding the reporting of false-positive results.

RE-ENGINEERED DESIGN

The rubber casing and controls are designed for intense field operation. The controls are strategicially positioned to make the inspection process easier. Plus, the very bright LED status can be easily viewed from different angles. The FIP-400B is designed for seamless handling by both right- and left-handed users.



Low magnification *Medium magnification* *High magnification*

TRIPLE MAGNIFICATION MODE

By optimizing the image size, users get a detailed view of all defects. This series features the only probes in the industry offering three magnification levels.

FAST-TRACKING CONNECTOR INSPECTION

When you outsource your fiber testing, you want to be certain that the technician will apply the best practices and properly certify every connector. Neglecting to do so, at this critical step, will lead to serious, time-consuming problems. The new FIP-400B Series is the result of years of fiber-inspection experience in the field. Its patent-pending, re-engineered design was developed from actual, end-user feedback for the purpose of optimizing and speeding up the inspection process.

THE FIP-400B'S HASSLE-FREE, AUTOMATIC IMAGE-CENTERING FEATURE SAVES PRECIOUS TIME

57%
shorter inspection time

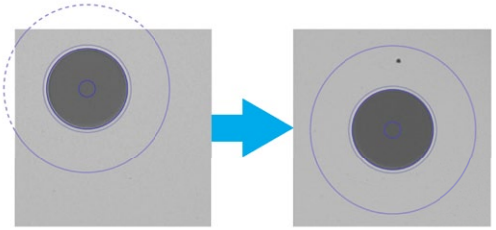
- Save over two hours on a typical FTTH cabinet inspection – 432 fibers
- 14-second inspection time per port (down from 32 seconds)*
- $25 000 in potential savings in one year based on one cabinet inspection per day at a cost of $50 per hour

** Data sourced from EXFO's case study, with calculation based on typical analysis time. Data based on time savings resulting exclusively from the automatic image centering function.*

AUTOMATIC, FIBER IMAGE CENTERING

This function cuts inspection time in half, because it automatically detects the fiber endface and instantly centers the image. The user simply has to focus and capture. This is especially handy when inspecting patch panels and hard-to-reach connectors. It also ensures that users will not miss defects in the critical zones of the connectors.

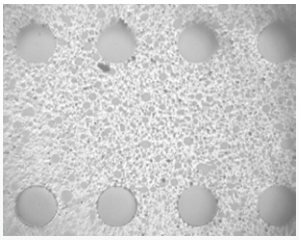
Hit the bull's-eye, every time.

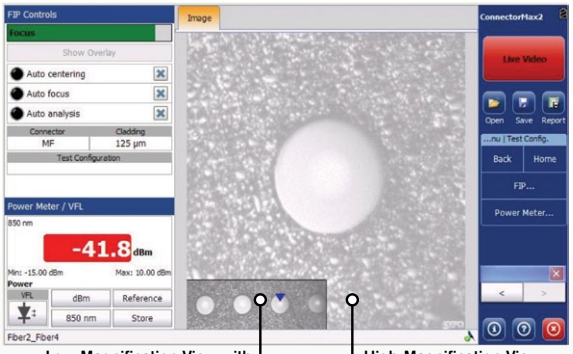


Off center *Centered*

SIMULTANEOUS MULTIFIBER VIEW WITH PICTURE-IN-PICTURE (PIP)

The FIP-430B's unique 912 µm x 912 µm FOV greatly facilitates visual MPO connector. Plus, ConnectorMax2 includes a picture-in-picture, low-magnification window that displays multiple fibers (4 or 8 at a time), ensuring that you never miss a fiber while scanning.





Low-Magnification View with Picture-in-Picture (PIP)
See and track which fiber is being inspected

High-Magnification View
Analyze each fiber for contamination and defects

THREE PROBE MODELS TO FIT YOUR BUDGET

The FIP-430B version offers the complete automated feature set, which includes the powerful fiber image-centering system, focus adjustment and optimization, and onboard pass/fail analysis. The semi-automated FIP-420B version offers the same features minus the automated focus adjustment, whereas the FIP-410B offers all of the basic inspection features required for manual inspection.

FEATURES

	Basic **FIP-410B**	Semi-Automated **FIP-420B**	Fully-Automated **FIP-430B**
Three magnification levels	√	√	√
Image capture	√	√	√
Five-megapixel CMOS capturing device	√	√	√
Automatic fiber image-centering function	X	√	√
Automatic focus function	X	X	√
On-board pass/fail analysis	X	√	√
Pass/fail LED indicator	X	√	√

AUTOMATIC PASS/FAIL CONNECTOR CERTIFICATION WITH CONNECTORMAX2 SOFTWARE

ConnectorMax2

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 recordkeeping

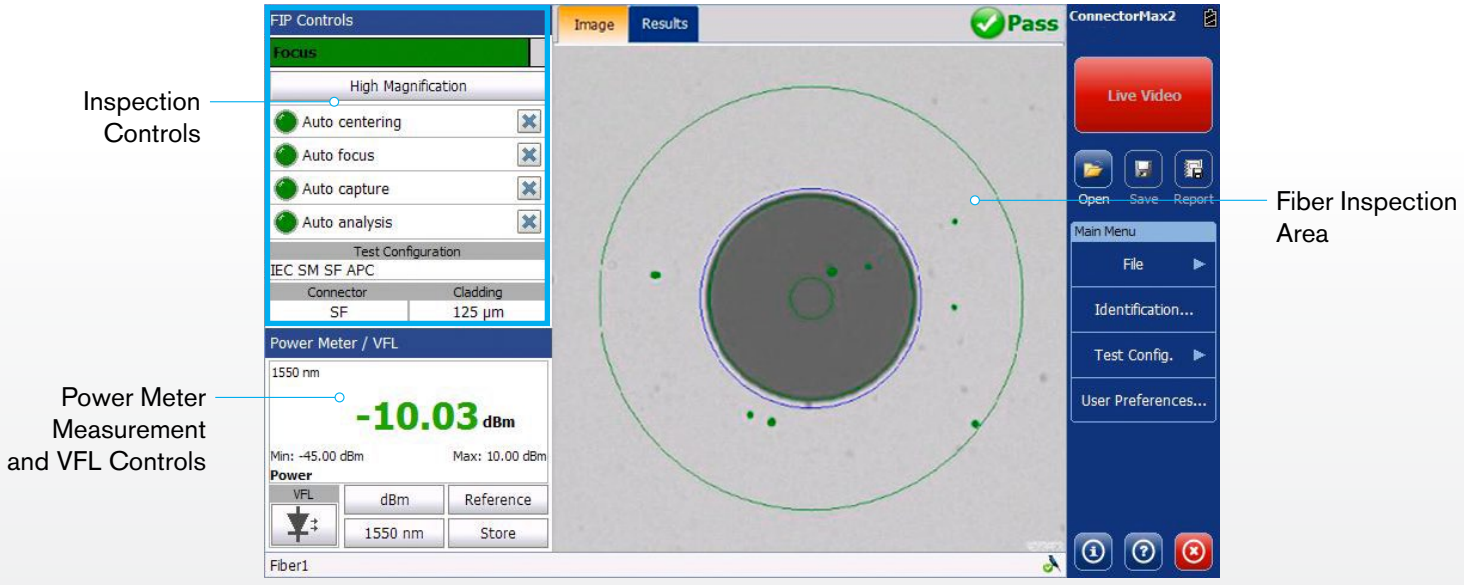
Delivering fast pass/fail assessment of connector endfaces, EXFO's ConnectorMax2 Software is designed to save both time and money in the field. The ConnectorMax2 automated inspection application eliminates guesswork by providing clear-cut connector endface analysis.

Using ConnectorMax2 in conjunction with FIP-400B series of fiber inspection probes (models with on-board analysis feature), field technicians are able to analyze defects and scratches, and measure their impact on connector performance. Results are then compared against preprogrammed IEC/IPC standards or user-defined criteria, leading to accurate pass/fail verdicts established right on-site.

Therefore, running a pass/fail analysis helps avoid two-time, money-draining situations (i.e., undetected connector defects requiring that technicians return to the site at a later date) and unnecessary replacement of connectors with slight defects too small to provide a "fail" verdict.

Thanks to the ConnectorMax2's newly redesigned interface, the unit features a unique all-in-one integrated GUI, with a touchscreen providing quick access to all of the instrument's main functionalities.

The ConnectorMax 2 Software is included with all FIP-400B Fiber inspection Probes Series as the default image viewer and results saving tool. Although, please note that the automated pass/fail analysis functionality is only enabled if used in conjunction with an FIP-420B or FIP-430B probe models, which offer on-board analysis feature.

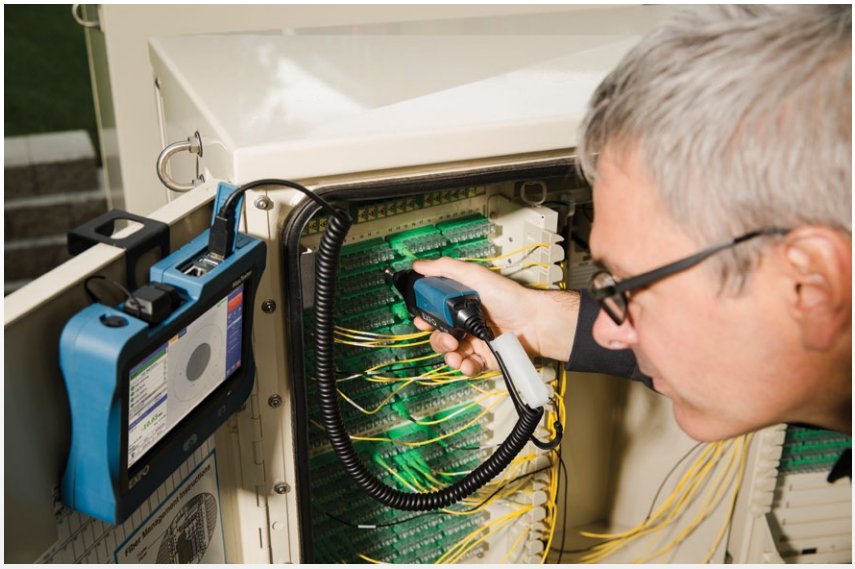


HANDS-FREE UTILITY BAG (OPTIONAL)

Inspecting fiber connectors on an occasional basis is one thing, but having to inspect numerous connectors day in and day out in the field (e.g., when installing an FTTH cabinet or inspecting crowded data-center patch panels) can be quite challenging. To help you optimize your test process and get maximum performance from your MAX-FIP solution, EXFO is offering a hands-free utility bag for secure, hands-free operation of the unit when working with fibers, connectors and inspection tools. In addition to protecting the unit from various environmental conditions, the utility bag accommodates all essential tools and accessories required for intensive certification work (connectors, inspection tips, cleaning devices, fiber jumpers, etc.) in one handy and lightweight soft bag.

MAX-FIP HOOK SUPPORT (OPTIONAL)

The MAX-FIP Hook support is an optional accessory that fits any type of fiber cabinet door perfectly, enabling hands-free operation for easier and faster fiber manipulation during the connector certification test process. Inspecting and analyzing fiber connector endfaces has never been easier thanks to this automated and intelligent digital fiber inspection probe.



MAX-FIP SPECIFICATIONS

Size (H x W x D)		200 mm x 155 mm x 50 mm (7 7/8 in x 6 1/8 in x 2 in)
Weight (base unit with battery)		1 kg (2.2 lb)
Temperature	Operating Storage	–10 °C to 50 °C (14 °F to 122 °F) –40 °C to 70 °C (–40 °F to 158 °F) [a]
Relative humidity		0 % to 95 % noncondensing

FIBER INSPECTION PROBE SPECIFICATIONS [b]

Size (H x W x D)	47 mm x 42 mm x 162 mm (1 7/8 in x 1 5/8 in x 6 3/8 in) [c]
Weight	0.3 kg (0.66 lb)
Resolution	0.55 µm
Camera sensor	Five-megapixel CMOS
Visual detection capability	<1 µm
Field of view	304 µm x 304 µm (high mag) 608 µm x 608 µm (mid mag) 912 µm x 912 µm (low mag)
Light source	Blue LED
Lighting technique	Coaxial
Capture button	Available on all models
Magnification button	Available on all models
Digital magnification	Three levels
Connector	Minimum USB 2.0

BUILT-IN POWER METER SPECIFICATIONS (GeX) (optional) [d]

Calibrated wavelengths (nm)	850, 1300, 1310, 1490, 1550, 1625, 1650
Power range (dBm) [b]	27 to –50
Uncertainty (%) [e]	±5 % ± 10 nW
Display resolution (dB)	0.01 = max to –40 dBm 0.1 = –40 dBm to –50 dBm
Automatic offset nulling range [b, f]	Max power to –34 dBm
Tone detection (Hz)	270/330/1000/2000

VISUAL FAULT LOCATOR (VFL) (OPTIONAL)

Laser, 650 nm ± 10 nm
CW/Modulate 1 Hz
Typical P_{out} in 62.5/125 µm: > –1.5 dBm (0.7 mW)
Laser safety: Class 2

LASER SAFETY

Notes

a. –20 °C to 60 °C (–4 °F to 140 °F) with the battery pack.
b. Typical.
c. Measurement excluding tip and including strain relief.
d. At 23 °C ± 1 °C, 1550 nm and FC connector. With modules in idle mode. Battery operated after 20-minute warm-up.
e. At calibration conditions.
f. For ±0.05 dB, from 10 °C to 30 °C.

ConnectorMax2 Software: PC Operating System Compatibility and Requirements

The following minimum requirements must be met in order to install and run ConnectorMax2 on a computer:

System Requirements	Minimum Requirements Windows XP (32 bit)	Minimum Requirements Windows 7 (32 and 64 bit)	Minimum Requirements Windows 8 (32 and 64 bit)
Processor	Pentium (800 MHz or higher recommended)	Pentium (1.6 GHz or higher recommended)	Pentium (1.6 GHz or higher recommended)
RAM	256 MB (512 MB recommended)	512 MB (2 GB recommended)	1 GB for 32; 2 GB for 64 (2 GB or more recommended)
Disk space	40 MB	40 MB	40 MB
Other	Latest version of .NET Framework 3.5 DirectX 9.0 USB 2.0, minimum	Latest version of .NET Framework 3.5 DirectX 9.0 USB 2.0, minimum	Desktop applications supported

FIP-400B Accessories

Video inspection probe (FIP-410B/420B/430B)	
Bulkhead and patch cord tips	
ConnectorMax2 Software	
GP-2175	Protective cap and cord assembly
FIPT-BOX	Compartmentalized plastic case for tips
GP-10-094	Soft pouch for FIP-400 and FIP-400B

MAX-FIP Optional Accessories

GP-302	USB mouse	GP-2176	Hook for MAX-FIP
GP-1008	VFL adapter (2.5 mm to 1.25 mm)	GP-2177	Hands-free bag for MAX-FIP
GP-2001	USB keyboard	GP-2205	DC vehicle battery-charging adaptor (12 V)
GP-2016	10-foot RJ-45 LAN cable	GP-10-072	Semi-Rigid Carrying Case
GP-2144	USB 16G microdrive	GP-10-061	Soft carrying case

Ordering Information

Stand-Alone Units

MAX-FIP-XX-XX-XX

Power meter
00 = Without power meter
P2X = Power meter; GeX detector
VP2X = VFL and power meter; GeX detector

Wi-Fi and Bluetooth
00 = Without RF components
RF = With RF capability (Wi-Fi and Bluetooth)

Connector adapter [a]
FOA-12 = Biconic
FOA-14 = NEC D4: PC, SPC, UPC
FOA-16 = SMA/905, SMA-906
FOA-22 = FC/PC, FC/SPC, FC/UPC, FC/APC
FOA-28 = DIN 47256, DIN 47256/APC
FOA-32 = ST: ST/PC, ST/SPC, ST/UPC
FOA-54 = SC: SC/PC, SC/SPC, SC/UPC, SC/APC
FOA-78 = Radiall EC
FOA-96B = E-2000/APC
FOA-98 = LC
FOA-99 = MU

Example: MAX-FIP-VP2X-FOA-54-RF

Note

a. Available if power meter selected.

ORDERING INFORMATION

KITS

TK-MAX-FIP-XX-XX-XX-XX-XX-XX

Power meter
00 = Without power meter
P2X = Power meter; GeX detector
VP2X = VFL and power meter; GeX detector

Connector adapter [a]
FOA-12 = Biconic
FOA-14 = NEC D4: PC, SPC, UPC
FOA-16 = SMA/905, SMA-906
FOA-22 = FC/PC, FC/SPC, FC/UPC, FC/APC
FOA-28 = DIN 47256, DIN 47256/APC
FOA-32 = ST: ST/PC, ST/SPC, ST/UPC
FOA-54 = SC: SC/PC, SC/SPC, SC/UPC, SC/APC
FOA-78 = Radiall EC
FOA-96B = E-2000/APC
FOA-98 = LC
FOA-99 = MU

Wi-Fi and Bluetooth
00 = Without RF components
RF = With RF capability (Wi-Fi and Bluetooth)

Inspection Probe Model [b]
FIP-410B = Digital Video Inspection Probe
Triple Magnification

FIP-420B = Analysis Digital Video Inspection Probe
Automated pass/fail analysis
Triple Magnification
AutoCentering

FIP-430B = Automated Analysis Digital Video Inspection Probe
Automated Focus
Automated pass/fail analysis
Triple Magnification
AutoCentering

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

Extra FIP-400B tips [c]

Bulkhead tips
FIPT-400-FC-APC = FCAPC tip for bulkhead adapter
FIPT-400-FC-SC = FC and SC tip for bulkhead adapter [d]
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 [e]
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 [d]
FIPT-400-U25MA = Universal patchcord tip for 2,5 mm ferrules APC [e]

Multifiber tips [f]
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 Multi-Row UPC tip for bulkhead adapter
FIPT-400-MTP-MTRA = MTP/MPO Multi-Row 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 1.25mm ferrules APC
FIPT-400-LC-K-APC = LC tip kit including: FIPT-400-LC-APC: LC/APC tip for bulkhead adapter and FIPT-400-U12MA: Universal patchcord tip for 1.25mm ferrules APC
FIPT-400-LC-K-UPC = LC tip kit including: FIPT-400-LC: LC tip for bulkhead adapters and FIPT-400-U12M: Universal patchcord tip for 1.25 mm ferrules
FIPT-400-MTP-MTR-K = MTP/MPO Multi-Row APC and UPC tip for bulkhead adapter [f]

Example: TK-MAX-FIP-VP2X-FOA-54-RF-FIP-420B-UPC-FIPT-400-FC-SC-FIPT-400-U25M

Notes

a. Available if power meter selected.
b. Includes ConnectorMax2 software.
c. 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 adaptors and kits to cover many more connector types and different applications. Please contact your local EXFO sales representative or visit **www.EXFO.com/FIPtips** for more information.
d. Included when UPC base tips are selected.
e. Included when APC base tips are selected.
f. Includes a bulkhead adapter for patch cord inspection.