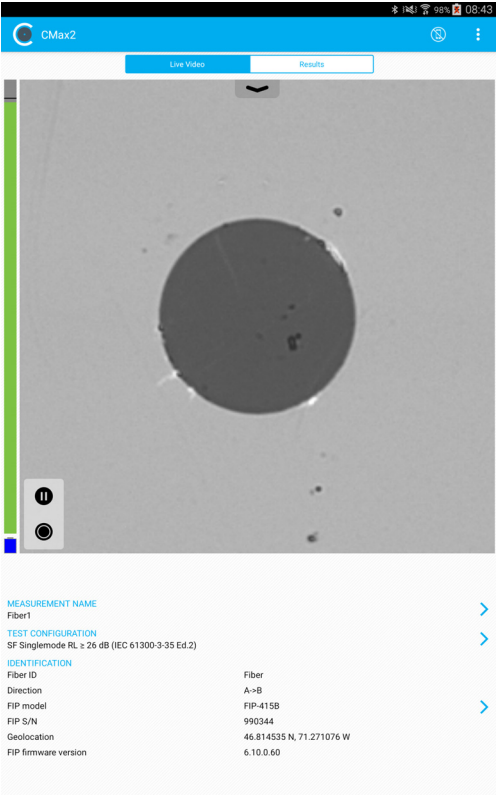


FIP-400B

Fiber Inspection Probe and ConnectorMax2 Mobile (Android)



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Units of Measurement

Units of measurement in this publication conform to SI standards and practices.

Patents

Feature(s) of this product is/are protected by one or more of: US design patent D751434 and equivalents in other countries; US design patent D742394; US design patent D866575; US patent 9,841,579 and equivalent patent(s) pending and/or granted in other countries; US patent 9,921,373; patent appl. US 2017/0003195 A1 and equivalent patent(s) pending and/or granted in other countries; US 2019/0170610 A1 and equivalent patent(s) pending and/or granted in other countries; and/or other US design patent pending.

Version number: 23.0.0.1

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FIP-400B Fiber Inspection Probe Regulatory Information

FIP-400B Fiber Inspection Probe Regulatory Information

Canada and USA Electromagnetic Interference Regulatory Statement

Electronic test and measurement equipment is exempt from FCC part 15, subpart B compliance in the United States of America and from ICES-003 compliance in Canada. However, EXFO Inc. makes reasonable efforts to ensure compliance to the applicable standards.

The limits set by these standards are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user documentation, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

European Electromagnetic Compatibility Regulatory Statement

Warning: This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures. Your product is certified for (or is suitable for) use in industrial electromagnetic environments.

FIP-400B Fiber Inspection Probe Regulatory Information

General Wireless Compliance Related Information

The wireless probe comes with an internal wireless module (adapter) and antenna for which the information hereafter applies:

This product does not contain any wireless user-serviceable components. Any unauthorized product changes or modifications will invalidate warranty and all applicable regulatory certifications and approvals.

Canada and USA Wireless Compliance Related Information

The wireless probe comes with an internal wireless module (adapter) and antenna for which the information hereafter applies:

- This device complies with Part 15 of the FCC Rules.
- This device complies with Innovation, Sciences and Economic Development Canada license-exempt RSS standards.
- Operation is subject to the following two conditions:
 - (1) This device may not cause harmful interference
 - and
 - (2) this device must accept any interference received, including interference that may cause undesired operation.

Use in Specific Environments:

- The use of wireless products in hazardous locations is limited by the constraints posed by the safety directors of such environments.
- The use of wireless products on airplanes is governed by the Federal Aviation Administration (FAA).
- The use of wireless products in hospitals is restricted to the limits set forth by each hospital.
- Do not operate a portable transmitter near unshielded blasting caps or in an explosive environment.

FIP-400B Fiber Inspection Probe Regulatory Information

Radiation Exposure Statement:

- The product complies with the US/Canada portable RF exposure limit set forth for an uncontrolled environment and is safe for intended operation as described in this user documentation.
- Further RF exposure reduction can be achieved if the device can be kept as far as possible from the user's body.

European Community Wireless Compliance Related Information

The information about the Wi-Fi frequency bands is as follows:

Between the frequencies 2400.0 MHz - 2483.5 MHz.

The maximum output power is 15 dBm.

This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy, the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying access to telecommunications and/or network services.

This device may not be used for setting up radio links in France, and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 - 2483.5 MHz. For detailed information, the end-user should contact the national spectrum authority in France.

FIP-400B Fiber Inspection Probe Regulatory Information

Local Restrictions on 802.11a, 802.11b, 802.11d, 802.11g, 802.11n, and 802.11ac Radio Usage

Due to the fact that the frequencies used by 802.11a, 802.11b, 802.11d, 802.11g, 802.11n, and 802.11ac wireless LAN devices may not yet be harmonized in all countries, 802.11a, 802.11b, 802.11d, 802.11g, 802.11n, and 802.11ac products are designed for use only in specific countries, and are not allowed to be operated in countries other than those of designated use. As a user of these products, you are responsible for ensuring that the products are used only in the countries for which they were intended and for verifying that they are configured with the correct selection of frequency and channel for the country of use.

European Declaration of Conformity

Hereby, EXFO declares that the radio equipment type “Wideband Data Transmission” is in compliance with European Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following Internet address: www.exfo.com/en/resources/legal-documentation.

Japanese Technical Conformity Mark for Radio Law

Technical parameters:

- Standards: IEEE 802.11b/g/n
- Operation Frequency: 2412 ~ 2483.5 MHz
- Throughput: 150 Mbps, 1T1R



018-160052

Multifiber Source Regulatory Information

Multifiber Source Regulatory Information

Canada and USA Electromagnetic Interference Regulatory Statement

Electronic test and measurement equipment is exempt from FCC part 15, subpart B compliance in the United States of America and from ICES-003 compliance in Canada. However, EXFO Inc. makes reasonable efforts to ensure compliance to the applicable standards.

The limits set by these standards are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user documentation, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

European Electromagnetic Compatibility Regulatory Statement

Warning: This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures. Your product is certified for (or is suitable for) use in industrial electromagnetic environments.

European Declaration of Conformity

The full text of the EU declaration of conformity is available at the following Internet address: www.exfo.com/en/resources/legal-documentation.

1 **Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile**

The FIP-400B Fiber Inspection Probe is a portable video microscope used to inspect fiber ends. Unlike traditional microscopes, the FIP-400B facilitates the examination of patchcord connectors and also hard-to-reach connectors on the back of patch panels and bulkhead adapters.

There are two different types of probes:

- USB-wired probes, that are connected to platforms
- wireless probes, that can be connected with a Wi-Fi or USB connection to platforms or with a Wi-Fi connection to a mobile smart device (Android or iOS)
 - standard wireless probes can inspect single fibers and transceivers
 - MF-Ready probes can inspect single fibers, transceivers and multifiber connectors. This type of probe allows you to use a Multifiber Source (MFS) which produces a light pattern that, once injected into a fiber, is detectable by the EXFO's Fiber Inspection Probe equipped with an MPO tip (12 or 24 fibers). With the MFS, the probe will test the continuity and polarity of the link under test. See *Working with a Multifiber Source* on page 101 for details.

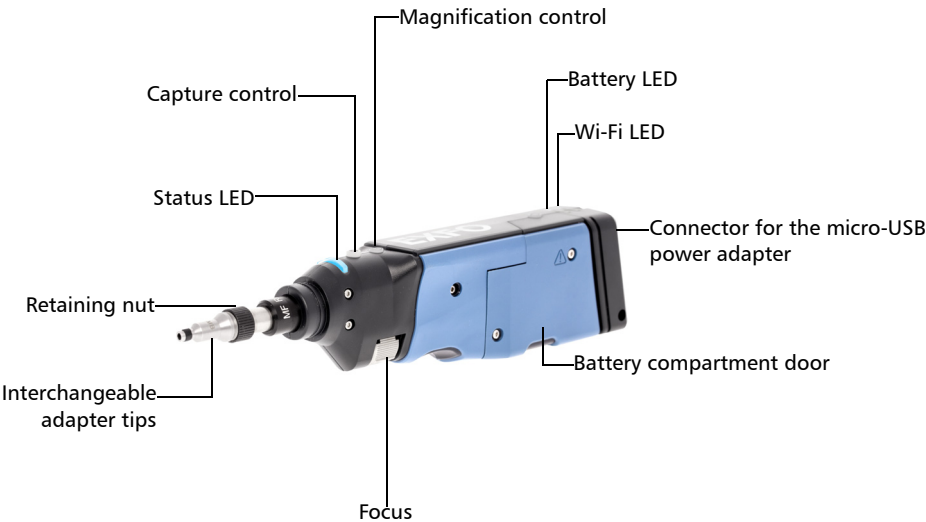
Note: *The appearance and the orientation (portrait or landscape) of the application may vary depending on the smart device used.*

Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Probe

Probe

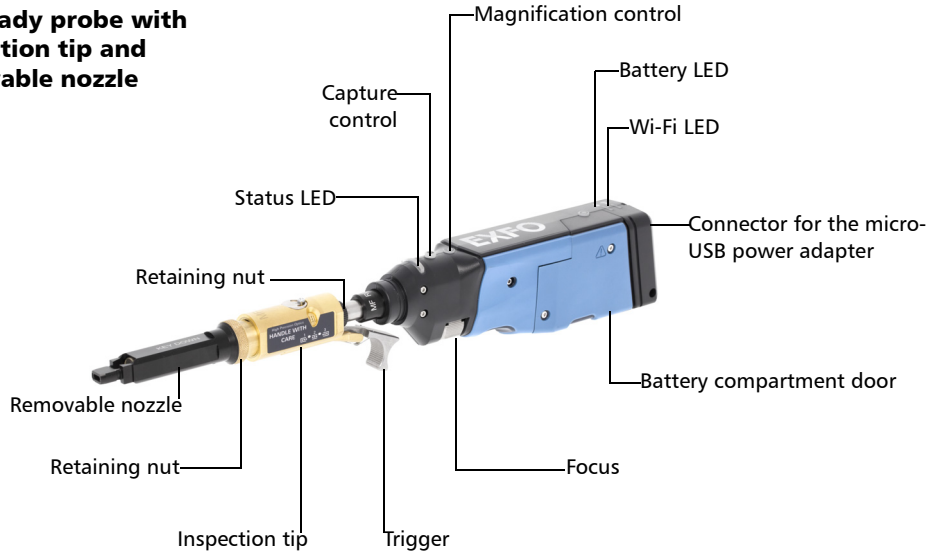
The FIP-400B is designed to be an intuitive, easy-to-use piece of equipment. This video microscope is used for inspecting fiber ends.



Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Probe

MF-Ready probe with inspection tip and removable nozzle



- The focus knob can be turned in either direction to focus the image.
- The magnification control button allows you to shift between three levels of magnification. When pressed for one second, it activates the auto focus. See *Analyzing Captures* on page 83 for details.
- The capture control button allows you to capture an image, perform an analysis, or return to the live video mode.
- The retaining nut holds tips securely in place, ensuring they are always fastened in the correct position.

Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Probe

- The status LED gives you information about the probe or the analysis results. See *Probe LED Indicators* on page 8 for details.
- The battery LED indicates the charge status of the probe. See *Probe LED Indicators* on page 8 for details.
- The Wi-Fi LED gives you information about the transmission process. See *Probe LED Indicators* on page 8 for details.
- The interchangeable adapter tips give you the possibility to use various tips depending on the type of connector you are inspecting. See *Changing the Fiber Inspection Probe Tip* on page 27 for details.
- Removable nozzles can be used with MF-Ready probes to inspect multifiber dense panels. See *Changing the FIP Nozzle (MF-Ready Probes Only)* on page 28 for details.
- The micro-USB power adapter recharges the battery of the probe when it is low. You can recharge the battery with the provided USB cable and the power adapter that you connect to a power outlet. You can also use the provided USB cable alone that you connect to a USB port of a computer. See *Recharging the Battery* on page 113 for details.

When the probe is connected to a power outlet or to a USB port, it still works via Wi-Fi.

- The battery compartment door is for battery replacement. See *Replacing the Battery* on page 115 for details.
- The trigger allows you to inspect single-row or dual-row multifiber connectors.
- The design of the inspection tip enables you to connect any of the interchangeable nozzles.

The probe comes equipped with a protective cap that fits over basic tips; therefore, you do not need to remove the tip before putting the cap on.

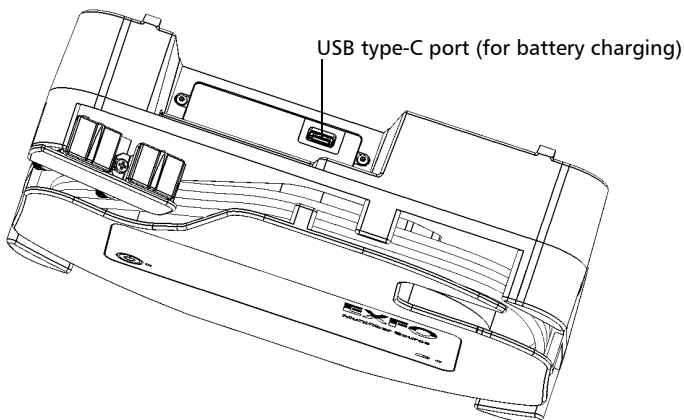
Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Multifiber Source

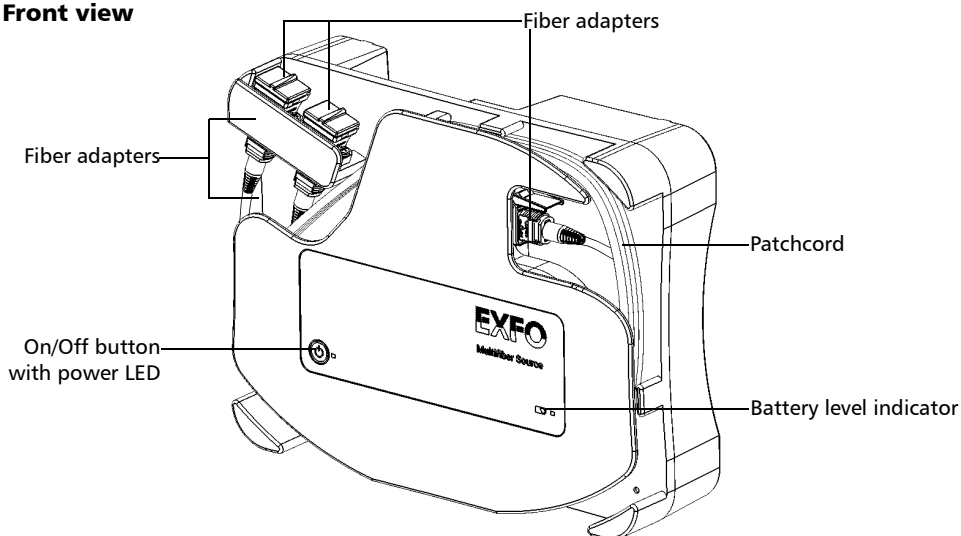
Multifiber Source

MFS-24 model shown

Top view



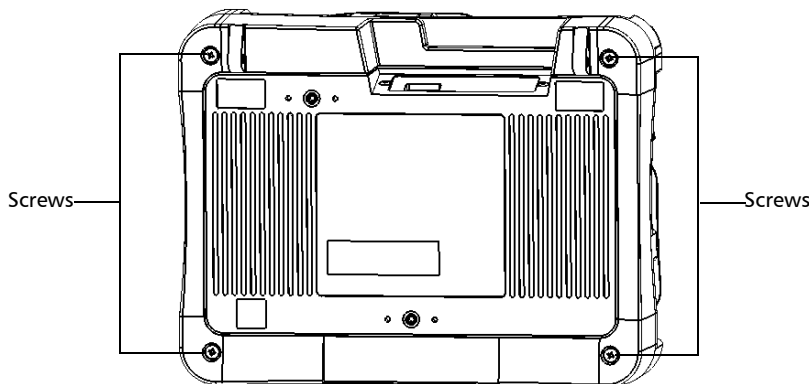
Front view



Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Multifiber Source

Back view



- When the battery of the MFS is low, you can recharge it with the provided USB cable and the USB power adapter that you connect to a power outlet. You can also use the provided USB cable alone that you connect to a USB port of a computer. See *Recharging the Battery of the Multifiber Source* on page 114 for details.
- The fiber adapters allow you to connect the MPO connectors. See *Setting up the Multifiber Source* on page 103 for details.
- The patchcord is wrapped around the unit. This cable management system allows you to use a patchcord as connector savers for the MPO connectors on the MFS. Changing the patchcord also allows you to use the same unit to test:
 - APC and UPC connectors
 - Male (pinned) and female (unpinned) connectors
 - Singlemode and multimode cables

With the MFS-24, you can use a split (Y) cable to test MPO connectors with 12 fibers. See *Setting up the Multifiber Source* on page 103 for details.

- The battery LED indicates the charge status of the MFS. See *Multifiber Source LED Indicators* on page 10 for details.

Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Available Probe Models

- The power status of the MFS is provided by the on/off button.
See *Multifiber Source LED Indicators* on page 10 for details.
- The four screws need to be removed if you want to replace the battery.
See *Replacing the Battery of the Multifiber Source* on page 117 for details.

Available Probe Models

The features available for your probe are automatically detected when you connect it to your smart device.

Note: When the internal temperature of the FIP-415B and FIP-435B is too low, the probe performs a warmup that can last up to a minute.

The table below shows which feature is available for each model.

Models	Inspection	Auto analysis	Auto centering	Auto focus	Auto capture	Wireless	Continuity and polarity (MFS)
FIP-415B MF-Ready	X	X ^a	X ^b	X	X ^b	X	X
FIP-425B	X	X	X	-	-	X	-
FIP-425B MF-Ready	X	X	X ^b	-	-	X	X
FIP-435B	X	X	X	X	X	X	-
FIP-435B MF-Ready	X	X	X ^b	X	X ^b	X	X

- a. Contact EXFO to purchase this option.
- b. This feature is available when testing single fibers and transceivers. It is disabled when multifiber connectors are inspected.

Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Probe Tips

The FIP-400B comes with two interchangeable tips included in two different packages (UPC or APC). Additional models are also available.

- UPC package:
 - FIPT-400-FC-SC: FC-SC Bulkhead tip
 - FIPT-400-U25M: Universal patchcord tip (2.5 mm ferrule)
- APC package:
 - FIPT-400-SC-APC: SC APC tip for bulkhead adapter
 - FIPT-400-U25MA: Universal patchcord tip for 2.5 mm ferrules

Other tip models are available for various bulkhead adapters and patchcord connectors. For more information about tips and their use, see the *Fiber Inspection Probe Tip Compatibility Chart* on page 137, or visit the EXFO Web site.

Probe LED Indicators

The LEDs located on the probe give you information about the probe or the analysis results.



Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile*Probe LED Indicators*

Status LED	Meaning
Flashing blue	Processing data.
Flashing red	<ul style="list-style-type: none">➤ There is a problem with the probe. Follow the instructions on screen.➤ The auto focus operation has timed out.➤ There is an analysis error.
Blue	The probe is ready and operational.
Red	When the probe is connected, indicates that the status of the displayed measurement is Fail. Note: <i>Indicates the status of the file selected in the Measurements window.</i>
Green	When the probe is connected, indicates that the status of the displayed measurement is Pass. Note: <i>Indicates the status of the file selected in the Measurements window.</i>

Battery LED	Meaning
Flashing blue	USB connected, battery charging.
Blue	USB connected, battery fully charged.
Red	Battery error (only visible when connected to a USB cable).
Flashing yellow	USB connected, battery not charging because its temperature does not allow the charging process.
Yellow	USB not connected, battery level is critical.
Not lit	USB not connected, battery above low level.

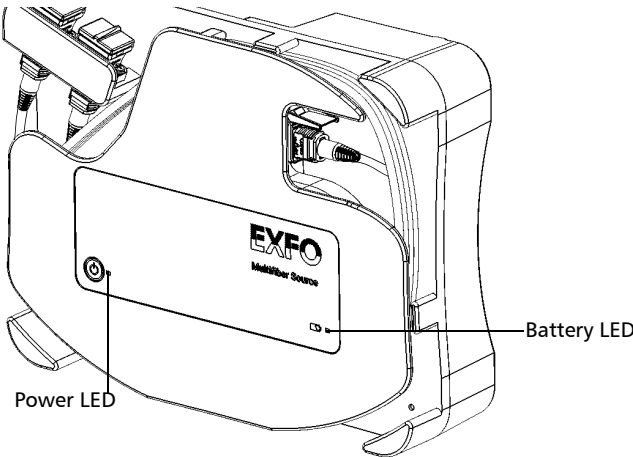
Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Multifiber Source LED Indicators

Wi-Fi LED	Meaning
Blue	<ul style="list-style-type: none">➤ Ready to transmit.➤ Wireless transmission in progress.
Red	Transmission error.
Not lit	<ul style="list-style-type: none">➤ Probe is off.OR➤ Probe is initializing.

Multifiber Source LED Indicators

The LEDs located on the MFS give you information about the battery and the power status.



Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Using Your Unit with TestFlow

Power LED	Meaning
Green	Power is on.
Flashing red	➤ MFS internal temperature is too high. ➤ Battery level is critical.
Red	Battery level is too low.
Not lit	Power is off.

Battery LED	Meaning
Slow-flashing blue	Battery level is low.
Fast-flashing blue	Battery is charging.
Blue	Battery is fully charged.

Using Your Unit with TestFlow

You can use this product for your test jobs in the TestFlow application. For more information about using TestFlow or other instruments as part of your tests, refer to the corresponding user documentation.

Note: *Some of the features for your product are not available while in TestFlow mode.*

Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

ConnectorMax2 Mobile Software

ConnectorMax2 Mobile Software

ConnectorMax2 Mobile is the application used to view the fiber inspections. You can also use specific test configurations and analyze the fibers automatically upon capturing a picture.

Note: *If you have an FIP-415B, you can activate the auto analysis option if you have purchased it from EXFO.*

Focus indicator

To disconnect the probe

To make a capture

Battery status

Name of the file resulting from the autonaming

CMa2

Live Video

Results

MEASUREMENT NAME
Fiber1

TEST CONFIGURATION
SF Singlemode RL < 26 dB (IEC 61300-3-35 Ed 2)

IDENTIFICATION

Fiber ID
Direction
FIP model
FIP S/N
Geolocation
FIP firmware version

Fiber
A->B
FIP-415B
990344
46.814535 N, 71.271076 W
6.10.0.60

User preferences

Can be found in the menu button depending on the smart device used.

To customize the capture parameters

Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Technical Specifications

FIP-415B/425B/435B
MF-Ready probes testing
multifiber connectors

Focus indicator

To disconnect the probe

To make a capture

Battery status

Icons indicating the order to follow to perform the 3 captures. The icons on screen must match the icons on the movable part of the inspection tip.

Name of the file resulting from the autonaming

The screenshot shows the CMax2 mobile application interface. At the top, there's a status bar with signal, battery, and time (15:28). Below it, a blue header bar contains the 'CMax2' logo and a menu icon. The main area is split into two tabs: 'Live Video' and 'Results'. The 'Live Video' tab is active, showing a dark, grainy video feed of a fiber connector with four bright spots. On the left side of the video, there's a vertical green bar with a white circle at the top, a red circle in the middle, and a blue circle at the bottom. Below the video, there's a row of three icons: a blue circle with a white dot, a red circle with a white dot, and a blue circle with a white dot. Below these icons, there's a table with two columns: 'MEASUREMENT NAME' and 'TEST CONFIGURATION'. The table contains the following data:

MEASUREMENT NAME	TEST CONFIGURATION
<10_Fiber 1_EXFO	MF Singlemode RL ± 26 dB (IEC 61300-3-35 Ed.2)
Key Up - 1x12 [12 □]	
IDENTIFICATION	
Job ID	Fiber 1
Company	EXFO
Direction	A->B
Platform S/N	Samsung SM-T700
FIP model	FIP-435B
FIP S/N	955791
Geolocation	46.814434 N, 71.270319 W
FIP firmware version	6.3.0.21

User preferences

Can be found in the menu button depending on the smart device used.

To customize the capture parameters

Technical Specifications

To obtain this product’s technical specifications, visit the EXFO Web site at www.exfo.com.

Introducing the FIP-400B Fiber Inspection Probe and ConnectorMax2 Mobile

Conventions

Conventions

Before using the product described in this guide, you should understand the following conventions:



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in *death or serious injury*. Do not proceed unless you understand and meet the required conditions.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in *minor or moderate injury*. Do not proceed unless you understand and meet the required conditions.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in *component damage*. Do not proceed unless you understand and meet the required conditions.



IMPORTANT

Refers to information about this product you should not overlook.

2 *Safety Information*



WARNING

Do not install or terminate fibers while a light source is active. Never look directly into a live fiber and ensure that your eyes are protected at all times.



WARNING

The use of controls, adjustments and procedures, namely for operation and maintenance, other than those specified herein may result in hazardous radiation exposure or impair the protection provided by this unit.



WARNING

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.



WARNING

Use only accessories designed for your unit and approved by EXFO. For a complete list of accessories available for your unit, refer to its technical specifications or contact EXFO.

Safety Information




IMPORTANT

Refer to the documentation provided by the manufacturers of any accessories used with your EXFO product. It may contain environmental and/or operating conditions limiting their use.




IMPORTANT

When you see the following symbol on your unit , make sure that you refer to the instructions provided in your user documentation. Ensure that you understand and meet the required conditions before using your product.



IMPORTANT

When you see the following symbol on your unit , it indicates that the unit is equipped with a laser source, or that it can be used with instruments equipped with a laser source. These instruments include, but are not limited to, modules and external optical units.



IMPORTANT

Other safety instructions relevant for your product are located throughout this documentation, depending on the action to perform. Make sure to read them carefully when they apply to your situation.



CAUTION











Do not use the fiber probe outdoors in wet locations.

Safety Information

Other Safety Symbols on Your Unit

Other Safety Symbols on Your Unit

One or more of the following symbols may also appear on your unit.

Symbol	Meaning
	Direct current
	Alternating current
	The unit is equipped with an earth (ground) terminal.
	The unit is equipped with a protective conductor terminal.
	The unit is equipped with a frame or chassis terminal.
	On (Power)
	Off (Power)
 OR 	On/off (Power)
	Fuse

Safety Information

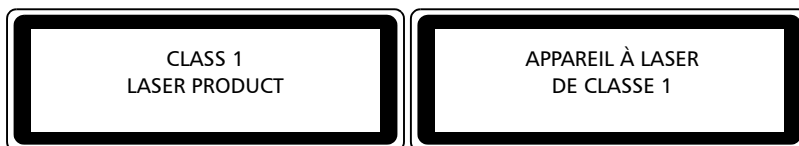
Laser Safety Information for the Multifiber Source

Laser Safety Information for the Multifiber Source

Your instrument is in compliance with standards IEC 60825-1: 2007 and 2014.

Laser radiation may be encountered at the optical output port.

The following labels indicate that a product contains a Class 1 source:



Complies with standards 21 CFR 1040.10, except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

Safety Information

Electrical Safety Information

Electrical Safety Information



WARNING

- If you need to ensure that the unit is completely turned off, disconnect the USB cable and remove the battery. For more information on how to remove the battery, see the section about replacing the battery in this user documentation.
- Use the external electrical power supply (USB power adapter) indoors only.
- Never connect the unit to the AC mains (with the USB power adapter) when it is used outdoors.
- Never connect the unit to a computer with the USB cable when it is used outdoors.
- To avoid electrical shock, do not operate the unit if any part of the outer surface (covers, panels, etc.) is damaged.
- Only authorized personnel should carry out adjustments, maintenance or repair of opened units under voltage. A person qualified in first aid must also be present. Do not replace any components while the USB cable and battery are connected.

Safety Information

Electrical Safety Information



WARNING

- Unless otherwise specified, all interfaces are intended for connection to Safety Extra Low Voltage (SELV) circuits only.
- Capacitors inside the unit may be charged even if the unit has been disconnected from its electrical supply.
- Use only the listed and certified USB power adapter provided by EXFO with your unit. It provides reinforced insulation between primary and secondary, and is suitably rated for the country where the unit is sold.
- When you use the unit outdoors, ensure that it is protected from liquids, dust, direct sunlight, precipitation, and full wind pressure.



CAUTION

- Position the unit so that the air can circulate freely around it.
- The use of voltages higher than those indicated on the label affixed to your unit may damage the unit.

Safety Information*Electrical Safety Information***Equipment Ratings for FIP-415B/FIP-425B/FIP-435B**

Equipment Ratings	
Temperature	
➤ Operation	➤ Unit powered by batteries: -10 °C to 40 °C (14 °F to 104 °F)
	➤ Unit connected to USB power adapter: 0 °C to 40 °C (32 °F to 104 °F)
➤ Storage	➤ Unit without batteries: -40 °C to 70 °C (-40 °F to 158 °F)
	➤ Unit with batteries: -20 °C to 60 °C (-4 °F to 140 °F)
Relative humidity ^a	➤ unit: ≤ 95 % non-condensing
	➤ USB power adapter: 5 % to 95 % for storage and 8 % to 90 % for operating temperature
Maximum operation altitude	➤ 2000 m (6562 ft) (unit connected to USB power adapter)
	➤ 3000 m (9843 ft) (unit operated from batteries)
Pollution degree	➤ 2 (unit connected to external USB power adapter)
	➤ 3 (unit operated from batteries) ^b
Overvoltage category	➤ unit: I
	➤ USB power adapter: II
Measurement category	Not rated for measurement categories II, III, or IV
Input power ^c	➤ unit: --- 5 VDC; 1.8 A
	➤ USB power adapter: ~ 100 - 240 Vac; 50 Hz to 60 Hz; 0.4 A Max

a. Measured in 0 °C to 31 °C (32 °F to 87.8 °F) range, decreasing linearly to 50 % at 40 °C (104 °F).

b. Equipment must be normally protected against exposure to direct sunlight, precipitation and full wind pressure.

c. Not exceeding ± 10 % of the nominal voltage.

Safety Information

Electrical Safety Information

Equipment Ratings for Multifiber Source

Equipment Ratings	
Temperature	
➤ Operation	➤ Unit powered by batteries: -10 °C to 50 °C (14 °F to 122 °F) ➤ Unit connected to USB power adapter: 0 °C to 40 °C (32 °F to 104 °F)
➤ Storage	➤ Unit: -40 °C to 70 °C (-40 °F to 158 °F) ➤ USB power adapter: -20 °C to 85 °C (-4 °F to 185 °F)
Relative humidity ^a	0 % to 95 % non-condensing
Maximum operation altitude	2000 m (6562 ft) (unit connected to USB power adapter)
Pollution degree	➤ 2 (unit connected to external USB power adapter) ➤ 3 (unit operated from batteries) ^b
Overvoltage category	➤ unit: I ➤ USB power adapter: II
Measurement category	Not rated for measurement categories II, III, or IV
Input power ^c	➤ unit: --- 5 V; 2 A ➤ USB power adapter: ~ 100 - 240 Vac; 50 Hz to 60 Hz; 0.4 A Max

- a. Measured in 0 °C to 31 °C (32 °F to 87.8 °F) range, decreasing linearly to 50 % at 40 °C (104 °F).
- b. Equipment must be normally protected against exposure to direct sunlight, precipitation and full wind pressure.
- c. Not exceeding ± 10 % of the nominal voltage.

3 **Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile**

When you receive your wireless probe, and before you start working, you need to download the ConnectorMax2 Mobile application on your smart device.

You can change several settings in ConnectorMax2 Mobile, such as the automated file name. These settings are kept for future work sessions.

Preparing to Use the Mobile Application

Before you start working with your wireless probe, there are two steps to perform.

- You need to install ConnectorMax2 Mobile on your smart device.



IMPORTANT

The ConnectorMax2 Mobile application is available for free in Google Play Store. You need to have a Google account to download the application. For more information, refer to www.google.com.

- Once the application is installed, you have to connect your wireless probe by Wi-Fi.

Note: *You need to have access to an external Wi-Fi network to install ConnectorMax2 Mobile. The Wi-Fi needs to be set to ON on your smart device.*

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Connecting or Disconnecting the Wireless Probe

To install ConnectorMax2 Mobile:

1. Ensure that you have access to an Internet connection.
2. Tap the **Google Play Store** icon.
3. In the **Google Play Store** (or **Play Store**) application, search for EXFO or ConnectorMax2 Mobile.
4. Follow the instructions on-screen.

Once the ConnectorMax2 Mobile application is installed, you can now activate the wireless probe.

Connecting or Disconnecting the Wireless Probe

When your wireless probe is detected, it is added to the list of the available probes. The probes are identified by their serial numbers and type.

It is also possible to disconnect the probe if you want to perform the following:

- Work with another probe
- Work with another smart device

Note: *Once a connection has been established with a wireless probe, the latter remains connected as long as you do not disconnect it. However, when the application is in standby mode, the connection is lost. The application will try to reconnect automatically when the image reappears on screen.*

When the ConnectorMax2 Mobile application is installed on your smart device, you have to connect your wireless probe by Wi-Fi. When your wireless probe is connected it is added to the list of the available probes. It remains available for future tests.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Connecting or Disconnecting the Wireless Probe

You have to disconnect the probe first if you want to perform the following:

- Work with another probe
- Use the probe with another smart device
- Share files with third-party applications. Since the third-party applications do not have Internet access, the files cannot be transferred and they are buffered. See *Transferring Results With Third-Party Applications* on page 93 for details.

Upon connecting the wireless probe, geolocation information may be retrieved and associated to individual tests if the geolocation service is available on your smart device. When you disconnect the probe and with an Internet access, the application can even pinpoint the location of the measurement on a map.

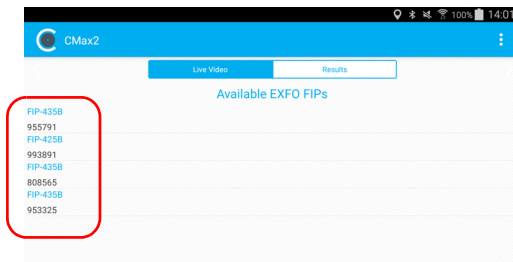
To connect the wireless probe:

- 1.** Ensure that the power saving mode is disabled on your smart device.
- 2.** Turn on the probe by pressing the **ON** button.
- 3.** Ensure that the Wi-Fi is activated on your smart device.
- 4.** Start the ConnectorMax2 Mobile application.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Connecting or Disconnecting the Wireless Probe

5. Select the wireless probe you want to work with.




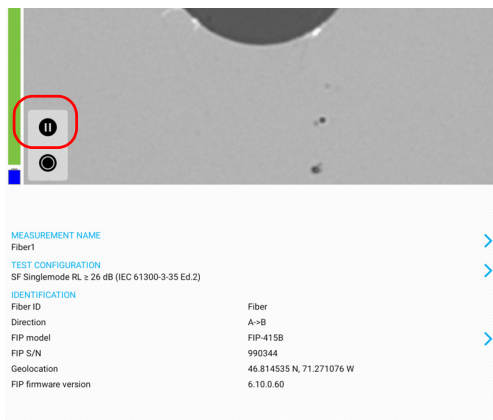
Note: When a wireless probe is selected, the 3G, 4G and LTE data communications are disabled automatically.

Note: The probes are identified by their serial numbers and type.

Note: The probe can be selected from the Wi-Fi configuration on the smart device.

To disconnect the wireless probe:

From the main window, tap  .



Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Changing the Fiber Inspection Probe Tip

Changing the Fiber Inspection Probe Tip

You can use various tips depending on the type of connector you are inspecting. For more information about tips you can use, see the *Fiber Inspection Probe Tip Compatibility Chart* on page 137, or [contact your vendor for additional information](#).

To inspect single fibers or transceivers with MF-Ready probes, you need to remove the inspection tip first. You also need to select the tip corresponding to the type of connector you want to inspect. See *Changing the FIP Nozzle (MF-Ready Probes Only)* on page 28 for details.



To change a tip:

1. Untighten the tip's retaining nut.
2. Remove the tip.
3. Insert a new tip on the probe by aligning the key of the probe with the notch of the tip.
4. Retighten the retaining nut.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

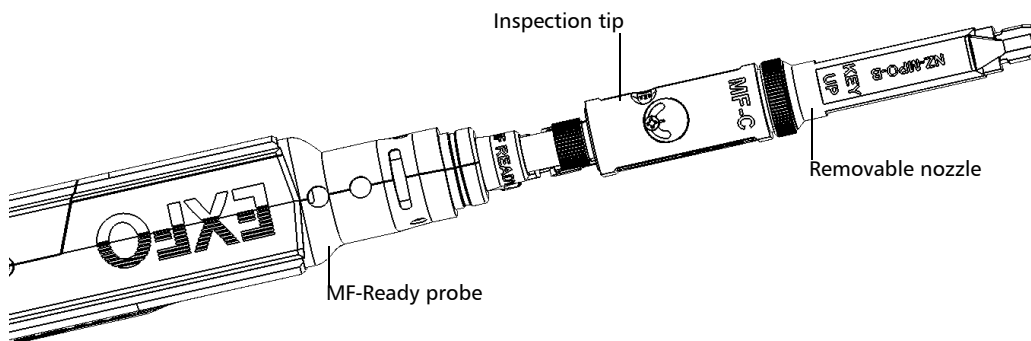
Changing the FIP Nozzle (MF-Ready Probes Only)

Changing the FIP Nozzle (MF-Ready Probes Only)

The MF-Ready probe, which is composed of a removable nozzle and an inspection tip, allows you to inspect various multifiber connector models. The nozzle is interchangeable but it must always be installed on the inspection tip first. Depending on the patch panel you are inspecting, the nozzle can be inserted in two different ways (key up or key down).

If you decide to inspect single fibers and transceivers, you can also remove the inspection tip and work with the MF-Ready probe as you would with the standard probe. See *Changing the Fiber Inspection Probe Tip* on page 27 for details.

For more information about tips you can use, see the *Fiber Inspection Probe Tip Compatibility Chart* on page 137, or [contact your vendor for additional information](#).



IMPORTANT

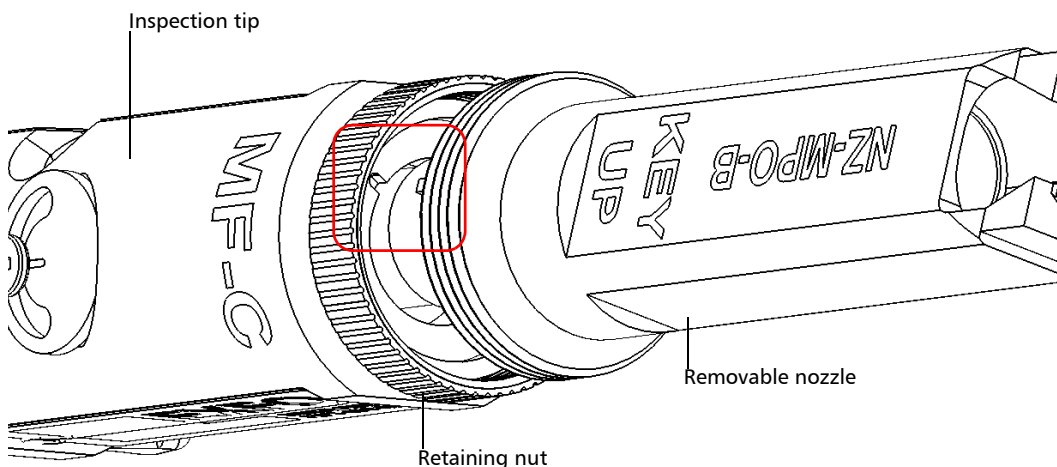
To facilitate the installation process of all components, EXFO recommends to install the removable nozzle on the inspection tip first.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Changing the FIP Nozzle (MF-Ready Probes Only)

To install the removable nozzle and the inspection tip on the MF-Ready probe:

1. Depending on the patch panel you are inspecting, insert the removable nozzle on the metal rod of the inspection tip key up or key down (as written on the nozzle).
2. Align the key of the nozzle with the notch of the inspection tip until you feel it click in place. When this step is performed adequately, you cannot move the nozzle freely.



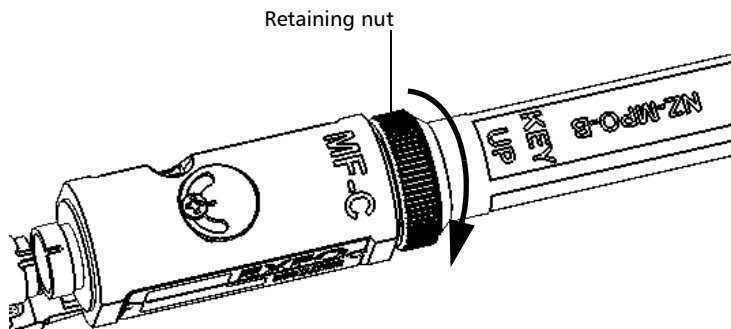
IMPORTANT

The key of the nozzle, whether it is installed key up or key down, **MUST BE** aligned with the notch of the inspection tip. Otherwise, it will be impossible to perform an acquisition.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

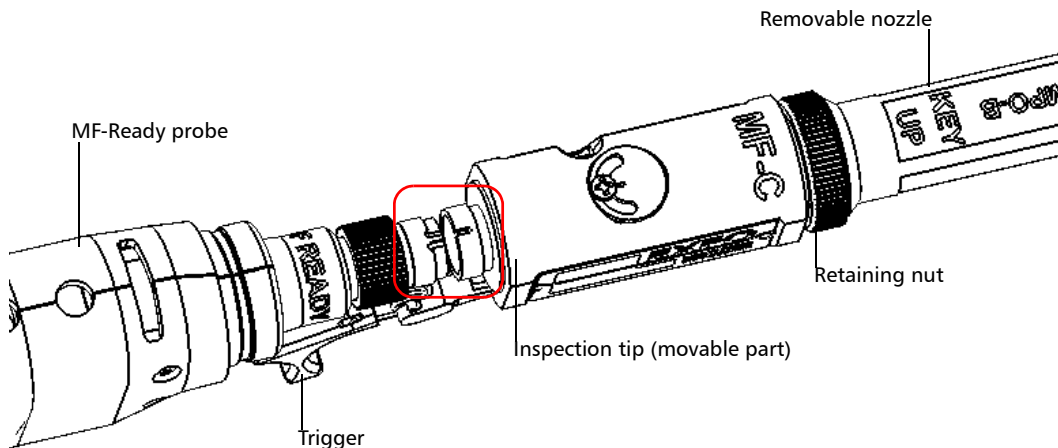
Changing the FIP Nozzle (MF-Ready Probes Only)

3. Tighten the retaining nut clockwise.



4. Insert the inspection tip on the MF-Ready probe by aligning the key of the probe with the notch of the inspection tip.

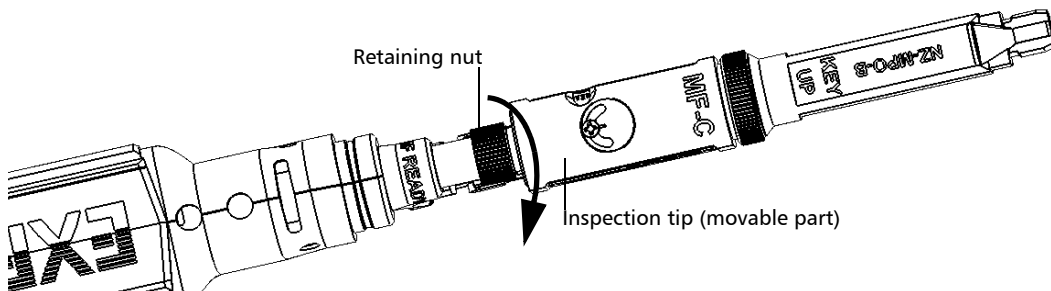
Note: *If you cannot see the notch of the inspection tip, slide the movable part of the inspection tip with the trigger towards the nozzle.*



Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Changing the FIP Nozzle (MF-Ready Probes Only)

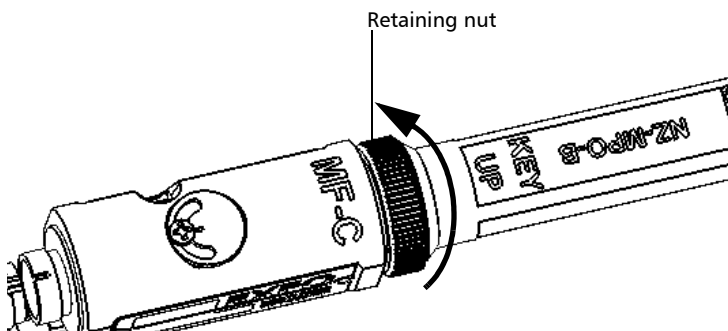
5. Tighten the retaining nut clockwise.



You are now ready to perform a multifiber capture.

To change the removable nozzle:

1. Untighten the retaining nut counterclockwise.

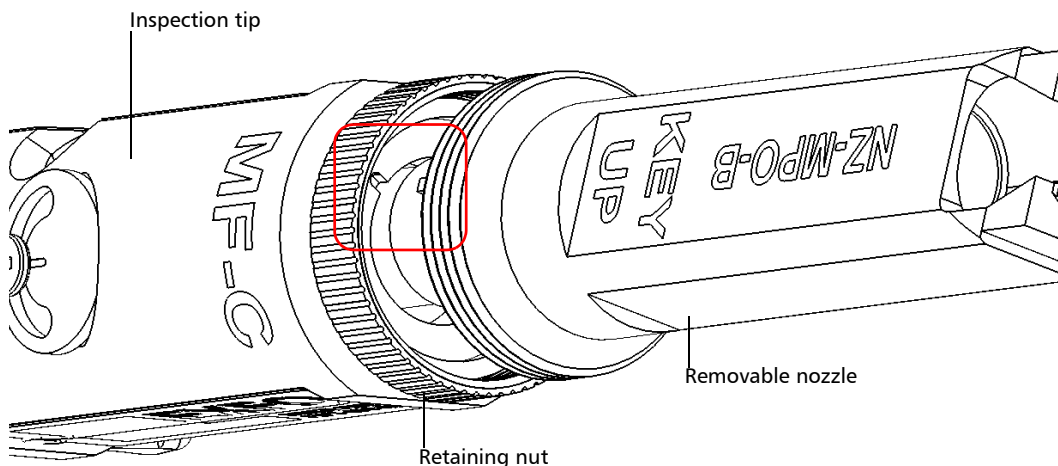


2. Remove the nozzle from the inspection tip.
3. Depending on the patch panel you are inspecting, insert a removable nozzle on the metal rod of the inspection tip key up or key down (as written on the nozzle).

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Changing the FIP Nozzle (MF-Ready Probes Only)

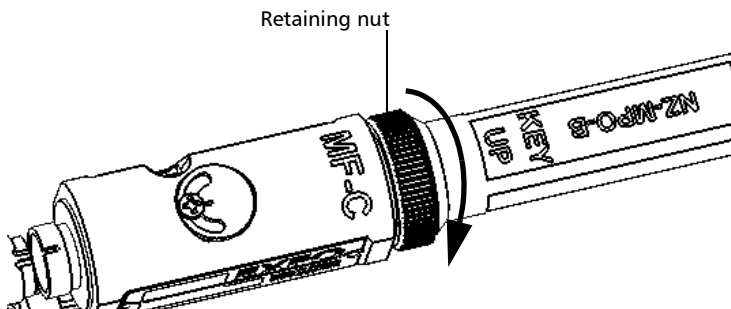
4. Align the key of the nozzle with the notch of the inspection tip until you feel it click in place. When this step is performed adequately, you cannot move the nozzle freely.



IMPORTANT

The key of the nozzle, whether it is installed key up or key down, **MUST BE** aligned with the notch of the inspection tip. Otherwise, it will be impossible to perform an acquisition.

5. Retighten the retaining nut clockwise.

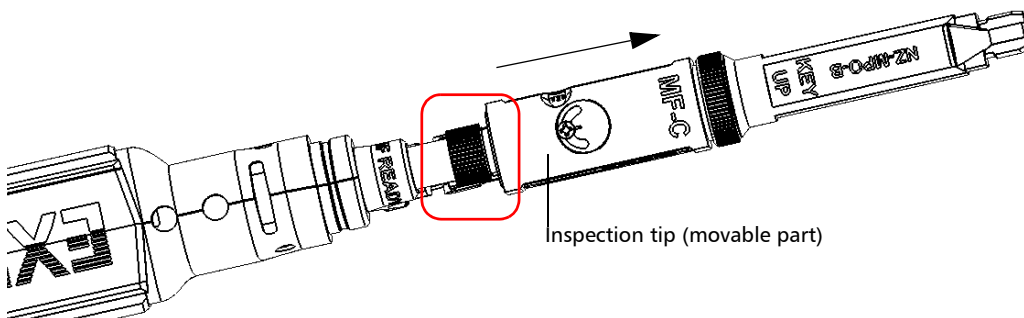


Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Changing the FIP Nozzle (MF-Ready Probes Only)

To remove the inspection tip:

1. To expose the retaining nut, slide the movable part of the inspection tip, using the trigger, until it stops.



2. Untighten the retaining nut counterclockwise.
3. Remove the inspection tip from the MF-Ready probe.

You can insert a tip which is not dedicated to multifiber inspection on your MF-Ready probe. See *Changing the Fiber Inspection Probe Tip* on page 27 for details.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Adjusting Brightness

Adjusting Brightness

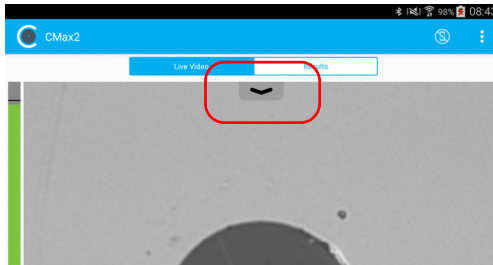
Note: When testing multifiber connectors, the brightness is adjusted automatically.

Once the probe is connected to a fiber, you can adjust brightness in order to better view the fiber under inspection.

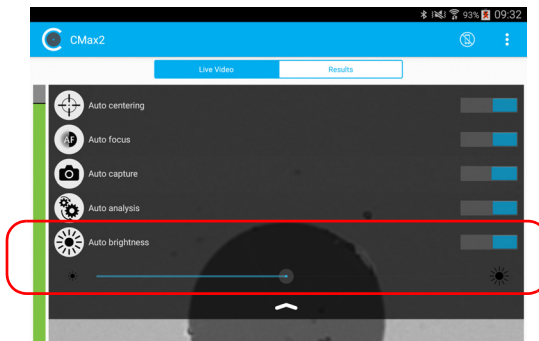
Note: The brightness level is persisted according to the serial number of the probe.

To adjust brightness:

1. In live video mode, tap the arrow.



2. Deactivate the **Auto brightness** feature and use the brightness slider to set the levels to suit your needs.



Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

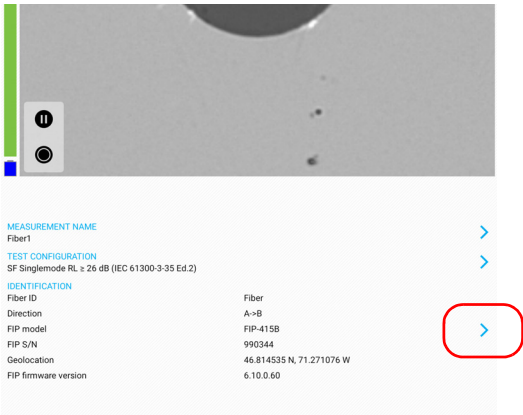
Setting up Identification


Setting up Identification

In order to have information on the tests to be performed, it is possible to customize some fields such as the cable ID, the fiber ID, the location (A and/or B), the connector ID, or the frame.

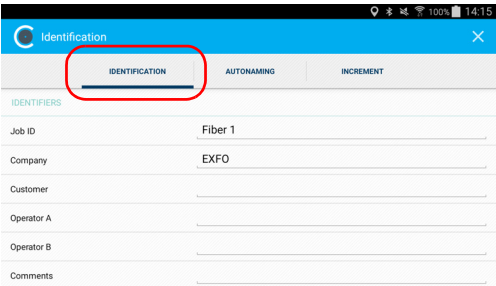
To configure the identification:

1. From the main window, tap  to access the **Identification** window.



Note: You can also tap  at the end of the **Measurement Name** row.

2. If necessary, select the **Identification** tab.



Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Setting up Identification

3. Enter all the information as follows:

3a. Locate the row corresponding to the identifier that you want to modify.


3b. Tap on the line next to the identifier that you want to modify.

Note: *You can edit information either with the virtual keyboard or with the microphone. A microphone is part of the virtual keyboard on your smart device.*

OR

For the cable ID, fiber ID, location (A and/or B) or connector ID, tap directly on the identifier, and navigate through the list by scrolling through the words that are greyed.

3c. Tap **OK** to confirm your choice.

4. Tap  to confirm your new settings and to return to the main window.

The new settings will apply the next time you perform a capture.

Note: *Some identifiers are also displayed as read-only information.*

Note: *You can modify the editable identifiers even after a capture has been made.*

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Setting up the Incrementation

Setting up the Incrementation

The file name is made of one or more static parts (alphanumeric) and one or more variable parts (numeric) that will be incremented or decremented, according to your selection, as follows:

If you choose incrementation...	If you choose decrementation...
Variable part increases until it reaches the <i>highest possible value</i> with the selected number of digits, then restarts at 1.	Variable part decreases until it reaches 1, then restarts at the <i>highest possible value</i> with the selected number of digits.

Note: *To decrement values, the start number must be higher than the stop number.*

The file name can be incremented using one or more identifiers. Selecting a single identifier will follow the incrementation (or decrementation) value you have set.

When selecting more than one identifier, the latter appear sequentially in the order that you have set, and the incrementation will start with the last item in the list (the one with the farthest indentation). For example, if you have a file name with the location, cable and fiber identifiers, in that order, the first item to be incremented is the fiber identifier, then cable, then location:

- Location 1, Cable 1, Fiber 1
- Location 1, Cable 1, Fiber 2
- Location 1, Cable 2, Fiber 1
- Location 1, Cable 2, Fiber 2
- and so forth.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Setting up the Incrementation

After a result is saved, you have to return to the live video mode so that the application prepares the next file name by incrementing (or decrementing) the suffix.

Note: *If you choose not to save a particular file, the suggested file name remains available for the next capture. This applies to all type of connectors.*

You can select the number of digits displayed for the incremented or decremented values.

Select "#" if you want to keep the value exactly in the same format as defined in the start and stop values. If a value is to be incremented from 1 to 10, it becomes 1, 2, 3, ... 9, 10. One "#" is the default format.

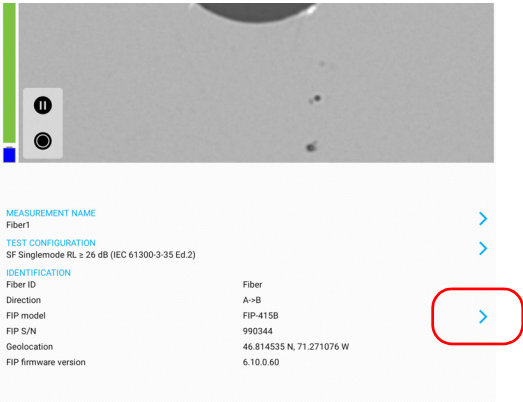
Select two, three, or four "#" if you want all values to be expressed with the same number of digits. The application fills the empty spaces with zeros before the increment or decrement to ensure that the appropriate format is displayed. For example, if you select two "#" and the value is to be incremented from 1 to 10, it becomes 01, 02, 03, ... 09, 10.


Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Setting up the Incrementation

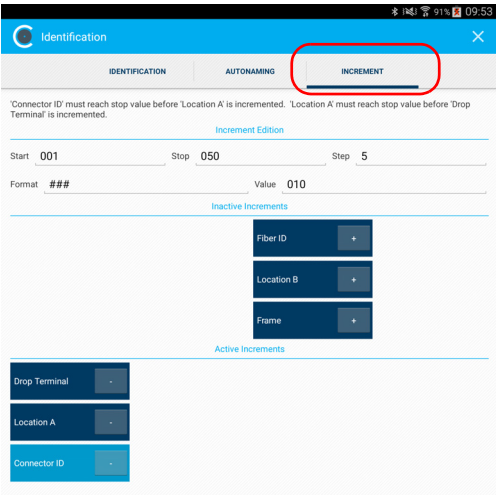
To configure the incrementation:

1.
- From the main window, tap  to access the **Identification** window.



Note: You can also tap  at the end of the **Measurement Name** row.

2.
- If necessary, select the **Increment** tab.



Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile


Setting up the Incrementation

3. Move the increments from the **Inactive Increments** to the **Active Increments** space by tapping **+**. You can remove the identifiers by tapping **-**. You can also move the identifiers with the drag and drop gesture.

Note: *Only the identifiers with values are displayed.*

4. When an increment is moved to the **Active Increments**, enter the start, stop and increment values as desired.

Note: *To decrement values, the start number must be higher than the stop number.*

5. Tap  to confirm your new settings and to return to the main window.

The new settings will apply the next time you perform a capture.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Setting up Autonaming

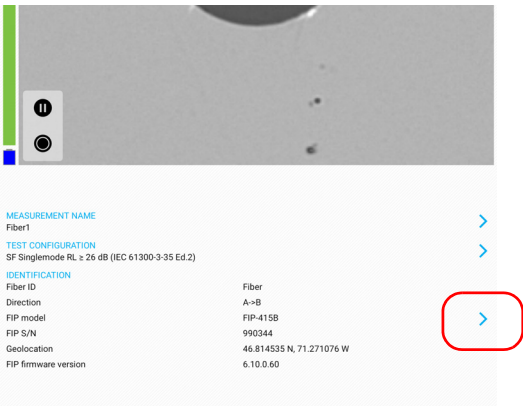
Setting up Autonaming


The autonaming feature is useful to make a relevant naming scheme for your tests. This also ensures that you do not overwrite files by mistake. You can select which item goes in the file name, as well as the type of separator you want to use in between.

A preview is available to show you the final output of the file name.

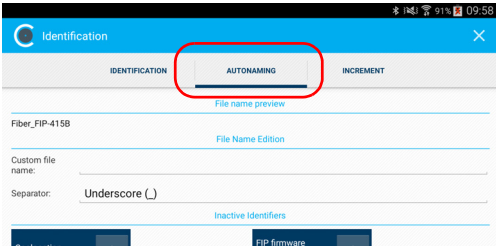
To configure the automatic file naming:

1. From the main window, tap  to access the **Identification** window.



Note: You can also tap  at the end of the *Measurement Name* row.

2. Select the **Autonaming** tab.



Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile


Setting up Autonaming

3. Move the identifiers from the **Inactive Identifiers** to the **Active Identifiers** space by tapping **+**. You can remove the identifiers by tapping **-**. You can also move the identifiers with the drag and drop gesture.

Note: *Only the identifiers with values are displayed.*

4. Under **File Name Edition**, you can customize the information displayed next to **Custom file name**.

Note: *You can edit information either with the virtual keyboard or with the microphone. A microphone is part of the virtual keyboard on your smart device.*

5. If you want to select the separator in the automatic numbering section, tap the line next to **Separator**.
 - 5a. Navigate through the separators by scrolling through the words that are greyed.
 - 5b. Tap **OK** to confirm your choice.
6. Tap  to confirm your new settings and to return to the main window.

The new settings will apply the next time you perform a capture.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Setting up Auto Capture

Setting up Auto Capture

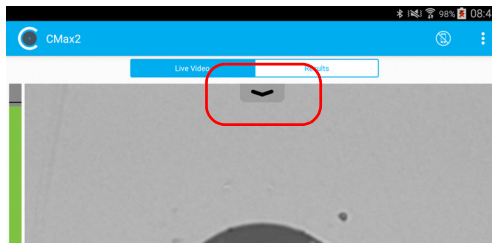
Note: The auto capture is a feature available for FIP-415B and FIP-435B probes only. However, you cannot use this feature when testing multifiber connectors. See Available Probe Models on page 7 for details.

When this feature is enabled, a capture is automatically made in live video mode as soon as the focus reaches an acceptable level.

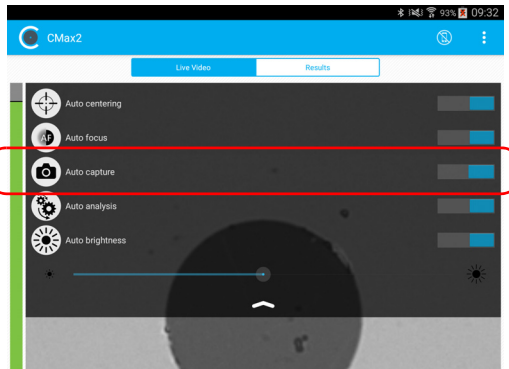
Note: The auto capture is only possible in high magnification.

To enable the auto capture:

1. In live video mode, tap the arrow.



2. Activate the **Auto capture** feature by sliding the button.



Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Managing and Selecting Test Configurations

You can select specific test configurations according to the type of fiber you are analyzing, the connector type you are using or the type of anomaly you are looking for.

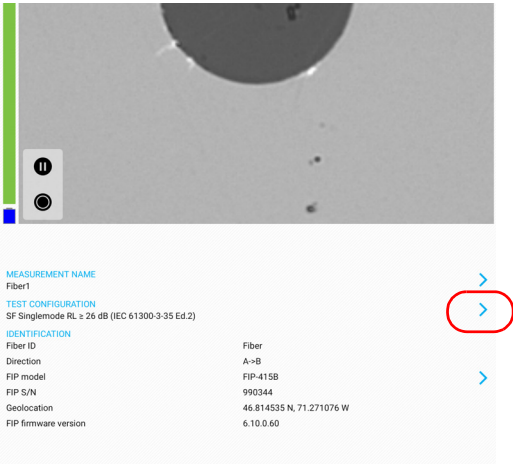
You can import test configurations from a third-party application.

Note: Only the test configurations that are imported can be deleted.

You can manage how the list of available test configurations looks when you access the edition mode.


To select a test configuration:

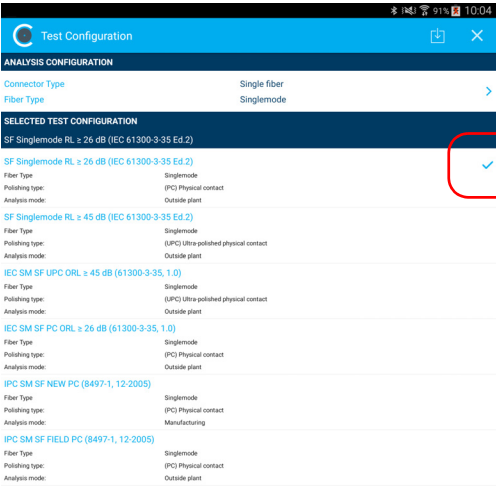
1. From the main window, tap  at the end of the **Test Configuration** row.




Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Managing and Selecting Test Configurations

2. Select the test configuration you want to use in the list of available choices. A  at the end of the row indicates the configuration is selected.



Note: You cannot select the current test configuration.

3. Tap  to return to the main window.

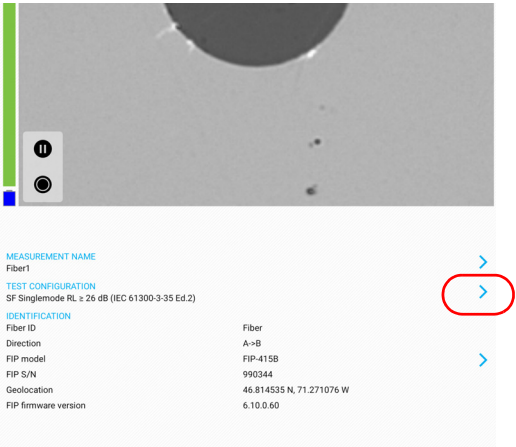
Note: The test configuration list is updated according to the connector type and fiber type you have selected.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Managing and Selecting Test Configurations

To delete a test configuration:


- 1. From the main window, tap  at the end of the **Test Configuration** row.



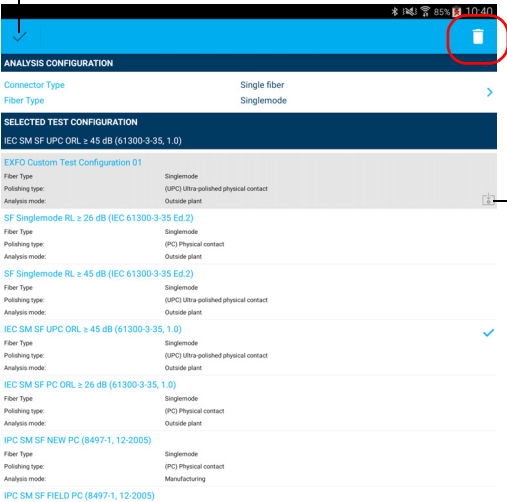
- 2. To enter the edition mode, press and hold any test configuration in the **Test Configuration** window.
- 3. Tap the test configuration you want to delete.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile



Managing and Selecting Test Configurations

4. Tap  to delete the test configuration.

Indicates you are working in edition mode.



Indicates a test configuration has been imported. Only these test configurations can be deleted.

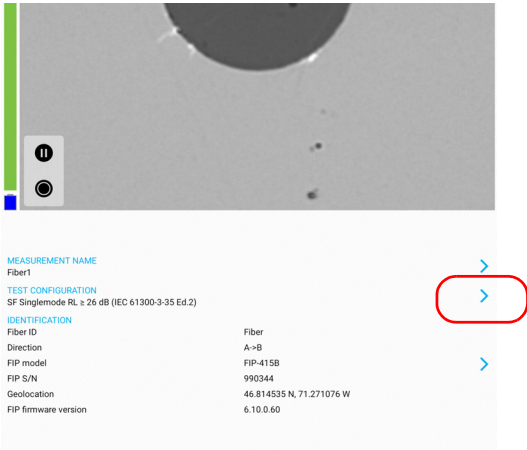
5. When the application prompts you, tap **Yes** or **No**.
6. Tap  to exit the edition mode.
7. Tap  to return to the main window.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

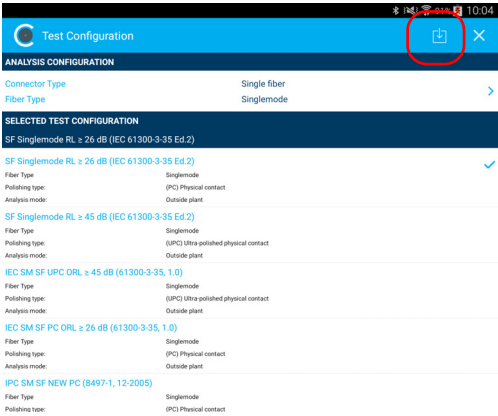
Managing and Selecting Test Configurations

To import a test configuration:

1. From the main window, tap  at the end of the **Test Configuration** row.



2. In the **Test Configuration** window, tap .



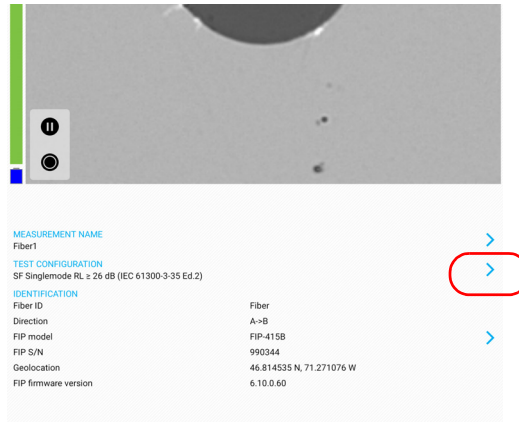
3. Follow the instructions on-screen.


Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Managing and Selecting Test Configurations

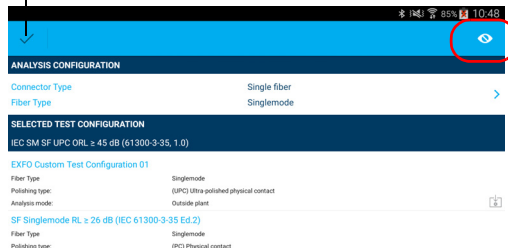
To hide test configurations:



1. From the main window, tap  at the end of the **Test Configuration** row.



2. To enter the edition mode, press and hold any test configuration in the **Test Configuration** window.
3. Tap the test configuration you want to hide.
4. Tap  to hide the test configuration.

Indicates you are working in edition mode.



5. Tap  to exit the edition mode.
6. Tap  to return to the main window.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Managing and Selecting Test Configurations

To remove test configurations from the hidden list:


1. From the main window, tap  at the end of the **Test Configuration** row.



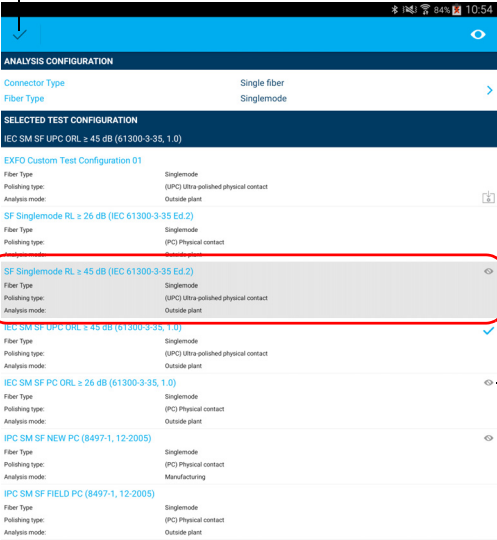
2. To enter the edition mode, press and hold any test configuration in the **Test Configuration** window.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile




Managing and Selecting Test Configurations

3. Select a test configuration with a  icon.

Indicates you are working in edition mode.



Indicates the test configuration has been hidden.

4. Tap  to remove the test configuration from the hidden list.
5. Tap  to exit the edition mode.
6. Tap  to return to the main window.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile


Modifying the File Format

Modifying the File Format

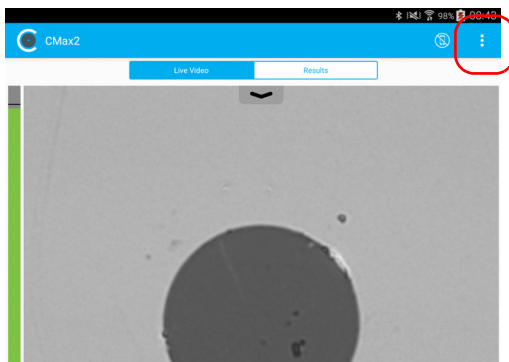
The data that can be shared with third-party applications are measurement files (.cmax2) and images (.png).

By default, you will be prompted to select the file format with which you want to work.

To modify the file format:

1. From the main window, tap .

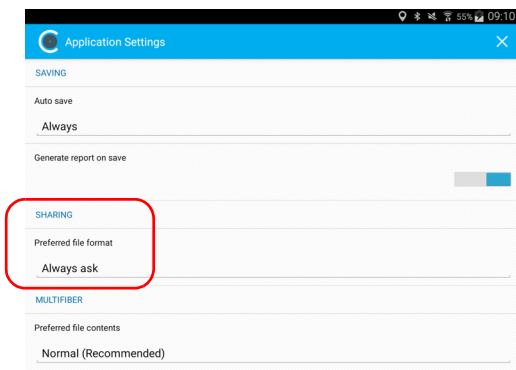
Note: Depending on the smart device you are using, the application settings can be found in the menu button instead.




Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Modifying the File Format

2. Select **Application Settings**.
3. Under **Sharing**, tap **Preferred file format**.



4. Navigate through the preferred file format by scrolling through the words that are greyed.
5. Tap **OK** to confirm your choice.
6. Tap  to return to the main window.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

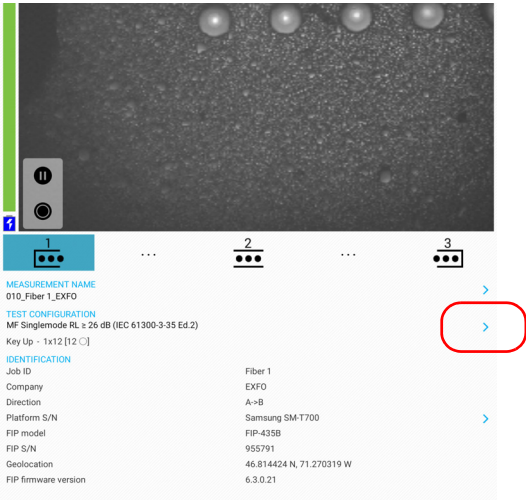
Stopping the Analysis Process on First Fail

Stopping the Analysis Process on First Fail

When inspecting multifiber connectors with an MF-Ready probe, you can choose to stop the analysis process as soon as the application detects a fail status on a fiber. This feature is particularly useful when you need to test many fibers in the connector because you do not have to wait for the analysis process to complete and you can clean the connector end right away.

To stop the analysis process on the first fail:

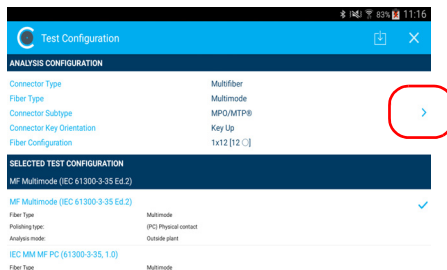
- 1. From the main window, tap > at the end of the Test Configuration row.



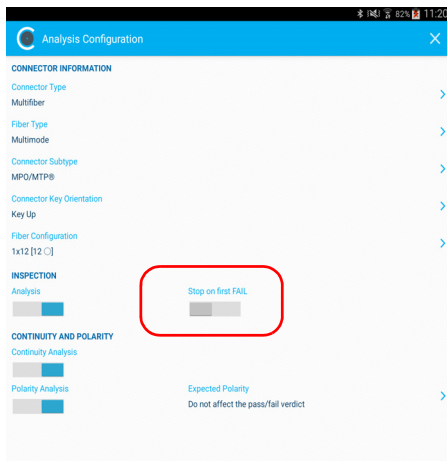
Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile



Stopping the Analysis Process on First Fail

2. Tap  to access the **Analysis Configuration** window.



3. Under **Inspection**, activate the **Stop on first FAIL** option.



4. Tap  to exit the **Analysis Configuration** window.
5. Tap  to return to the main window.


Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Restoring to Default Settings

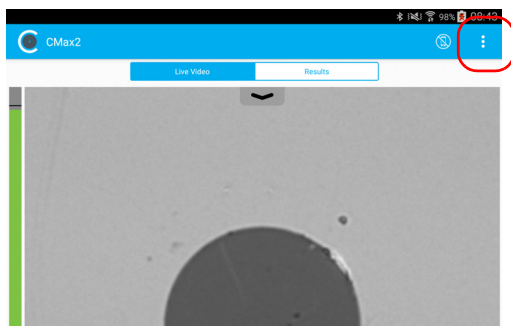
Restoring to Default Settings

At any time, you can restore to default settings in your smart device.

To restore to default settings:

1. From the main window, tap .

Note: Depending on the smart device you are using, the application settings can be found in the menu button instead.

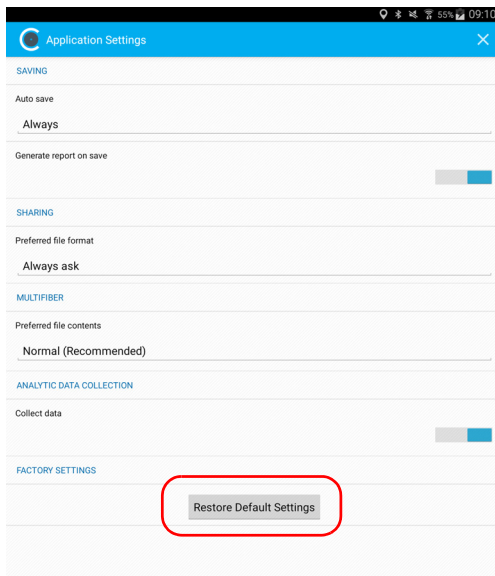



2. Select **Application Settings**.

Setting up Your Fiber Inspection Probe and ConnectorMax2 Mobile

Restoring to Default Settings

3. Tap the **Restore Default Settings** button.



4. When the application prompts you, tap **Yes** or **No**.
5. Tap  to return to the main window.

4 *Inspecting Fiber Ends*

Viewing the fiber inspection is done using ConnectorMax2 Mobile. You can start the application before or after connecting the probe, and the view on-screen will be automatically updated.



WARNING

Never look directly into a live fiber. It could cause serious eye damage. Always use your FIP-400B Fiber Inspection Probe.

Inspecting Fiber Ends (Single Fiber and Transceiver - Fiber Receptacles)

When you connect the FIP-400B Fiber Inspection Probe to your smart device, you can view and inspect fiber ends right away. This direct viewing mode is known as the *live video* mode.

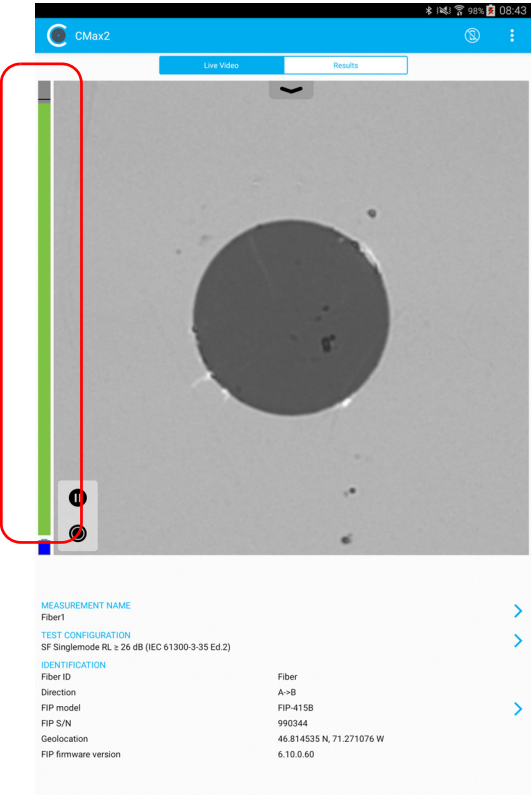
Note: *When the internal temperature of the FIP-415B and FIP-435B is too low, the probe performs a warmup that can last up to a minute.*

Note: *A digital watermark is added to the images generated by the application.*

Inspecting Fiber Ends

Inspecting Fiber Ends (Single Fiber and Transceiver - Fiber Receptacles)

The focus indicator, which is displayed in the left part of the main window, shows whether the current view is optimized for a capture. A green indicator shows a picture that can be captured and analyzed. Analysis will be more difficult with a yellow indicator, and impossible with a red indicator. A black bar displays the peak focus level.



For more information on analyses, see *Analyzing Captures* on page 83.

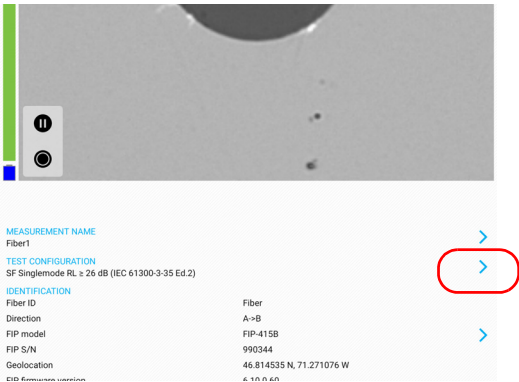
Inspecting Fiber Ends

Inspecting Fiber Ends (Single Fiber and Transceiver - Fiber Receptacles)

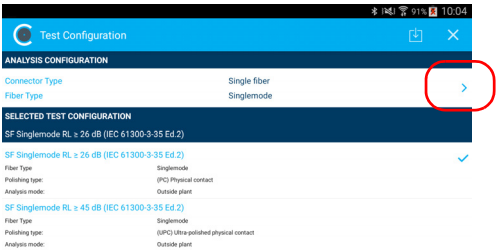
To inspect fiber ends (single fibers and transceivers):

- 1. Install a probe tip (see *Changing the Fiber Inspection Probe Tip* on page 27 for details).
- 2. Insert the fiber into the probe tip.
- 3. Start ConnectorMax2 Mobile if it is not already started.
- 4. Configure the automatic file naming as needed (see *Setting up Autonaming* on page 41 for details).
- 5. In live video mode, to specify whether you are using an SF or a transceiver connector, proceed as follows:

5a. Tap > at the end of the **Test Configuration** row.



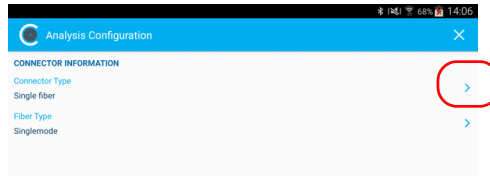
5b. Tap > to access the **Analysis Configuration** window.



Inspecting Fiber Ends

Inspecting Fiber Ends (Single Fiber and Transceiver - Fiber Receptacles)

- 5c.** In the **Analysis Configuration** window, tap  to change the connector type.




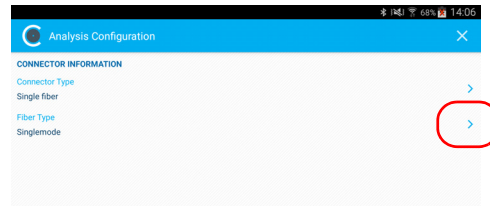
- 5d.** Select **Single fiber** or **Transceiver**.

- 5e.** Tap  to exit the **Connector Type** window.

Note: If you are using a probe which is not MF-Ready, the multifiber connector option is not displayed.

- 6.** To specify the fiber type you want to use, proceed as follows:

- 6a.** Tap  at the end of the **Fiber Type** row.



- 6b.** Select a fiber type.

- 6c.** Tap  to return to the **Analysis Configuration** window.

- 6d.** Tap  to exit the **Analysis Configuration** window.

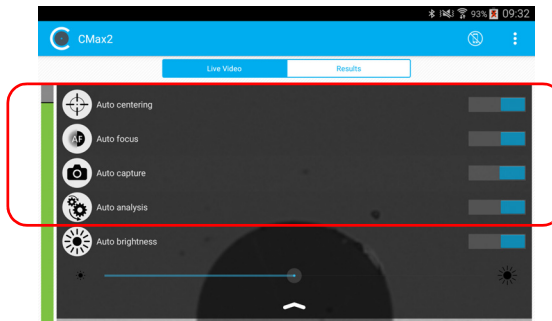
- 7.** In the **Test Configuration** window, tap the configuration you want to use for your inspection and tap  to return in live video mode.

Note: The test configuration list is updated according to the connector type and fiber type you have selected.


Inspecting Fiber Ends

Inspecting Fiber Ends (Single Fiber and Transceiver - Fiber Receptacles)

8. In live video mode, tap the arrow and then proceed as follows according to your probe model:
 - If you have an FIP-415B, select the auto centering, the auto focus, and the auto capture. You can also activate the auto analysis option if you have purchased it from EXFO.
 - If you have an FIP-425B, select the auto analysis and the auto centering as needed.
 - If you have an FIP-435B, select the auto analysis, the auto centering, the auto focus, and the auto capture as needed.



For more information, see *Analyzing Captures* on page 83.

9. If the fiber end is dirty, remove the fiber from the probe, clean the fiber end, and reinspect it.
10. Once you are satisfied with the inspection, while in high-magnification level, tap .
OR
Press the Fiber Inspection Probe capture control button.
11. Go to the next connector or close the application.

Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

The multifiber inspection allows you to see multiple fibers at a time.

When you connect an MF-Ready probe to your smart device, you can view and inspect multiple fiber ends right away. This direct viewing mode is known as the *live video* mode.

Note: *The multiple fiber ends inspection is only possible with MF-Ready probes. If you want to inspect single fibers and transceivers with an MF-Ready probe, see Inspecting Fiber Ends (Single Fiber and Transceiver - Fiber Receptacles) on page 59 for details.*

The multiple fiber ends inspection requires three captures. As soon as the third capture is performed, the analysis process starts.

Note: *If you only want to inspect a connector without testing polarity and continuity, ensure that the MFS is turned off before proceeding. Otherwise, the light emitted by the MFS could be mistaken for dirt which would result in an erroneous fail status.*

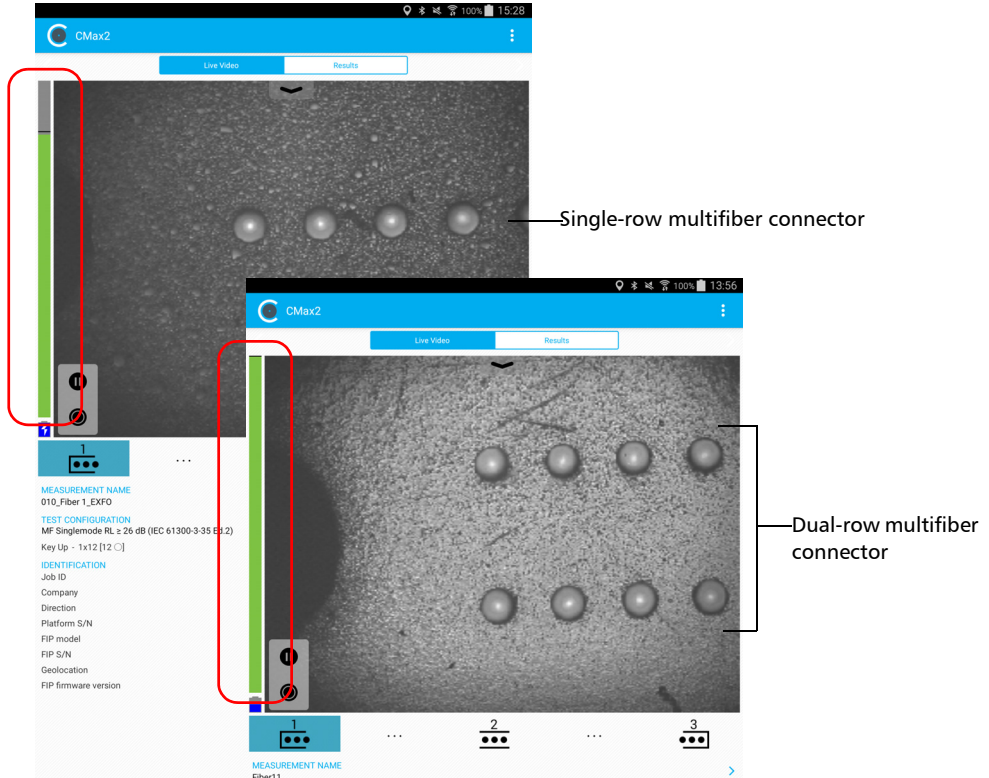
Note: *When the internal temperature of the FIP-415B and FIP-435B is too low, the probe performs a warmup that can last up to a minute.*

Note: *A digital watermark is added to the images generated by the application.*

Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

The focus indicator, which is displayed in the left part of the main window, shows whether the current view is optimized for a capture. A green indicator shows a picture that can be captured and analyzed. Analysis will be more difficult with a yellow indicator, and impossible with a red indicator. A black bar displays the peak focus level.




For more information on analyses, see *Analyzing Captures* on page 83.

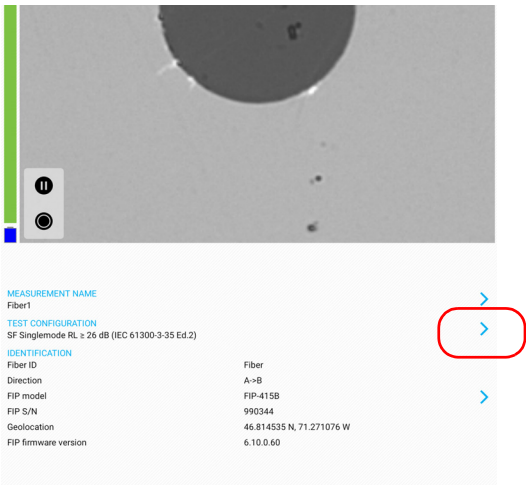
Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

To inspect fiber ends (multiple fibers):

- 1. Install a removable nozzle on the MF-Ready probe (see *Changing the FIP Nozzle (MF-Ready Probes Only)* on page 28 for details).
- 2. Insert the connector into the removable nozzle.
- 3. Start ConnectorMax2 Mobile if it is not already started.
- 4. Configure the automatic file naming as needed (see *Setting up Autonaming* on page 41 for details).
- 5. Enable or disable the feature allowing you to stop an inspection as soon as a fail status is detected. See *Stopping the Analysis Process on First Fail* on page 54 for details.
- 6. In live video mode, choose the multiple fiber connector, as shown below:

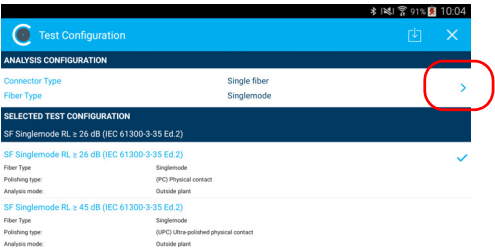
6a. Tap  at the end of the **Test Configuration** row.



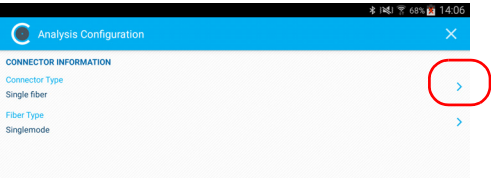
Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

6b. Tap  to access the **Analysis Configuration** window.




6c. In the **Analysis Configuration** window, tap  to change the connector type.

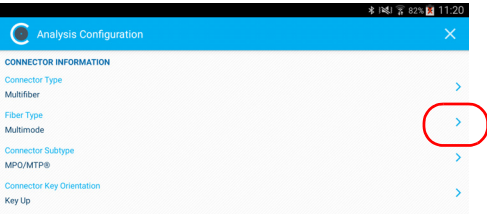


6d. Select **Multifiber**.

6e. Tap  to exit the **Connector Type** window.

7. To specify the fiber type, proceed as follows:

7a. Tap  at the end of the **Fiber Type** row.




7b. Select a fiber type.

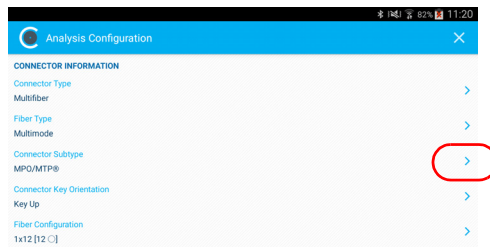
7c. Tap  to return to the **Analysis Configuration** window.

Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

8. To specify the connector subtype, proceed as follows:

8a. Tap  at the end of the **Connector Subtype** row.

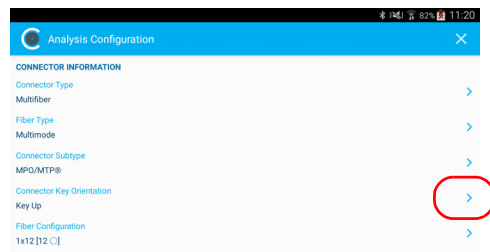


8b. Select a connector subtype.

8c. Tap  to return to the **Analysis Configuration** window.

9. To indicate if you have inserted the removable nozzle key up or key down, proceed as follows:

9a. Tap  at the end of the **Connector Key Orientation** row.



Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

9b. Select **Key Up** or **Key Down**.




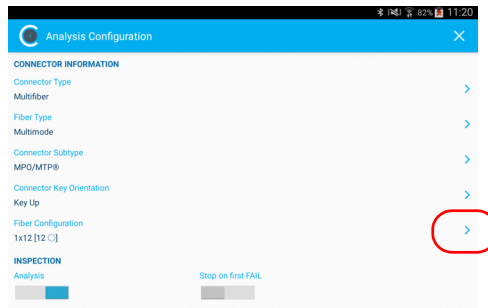
IMPORTANT

Ensure that the connector key orientation you select in the application matches the position (key up or key down) of the removable nozzle inserted on the metal rod. See *Changing the FIP Nozzle (MF-Ready Probes Only)* on page 28 for details. Failure to do so may have an impact on polarity results.

9c. Tap  to return to the **Analysis Configuration** window.

10. To select the fiber configuration on the connector inserted into the removable nozzle, proceed as follows:

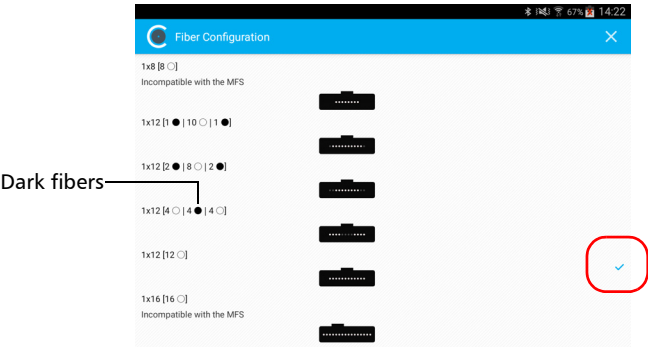
10a. Tap  at the end of the **Fiber Configuration** row.



Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

10b. Select the fiber configuration applying to the connector you use for your inspection.

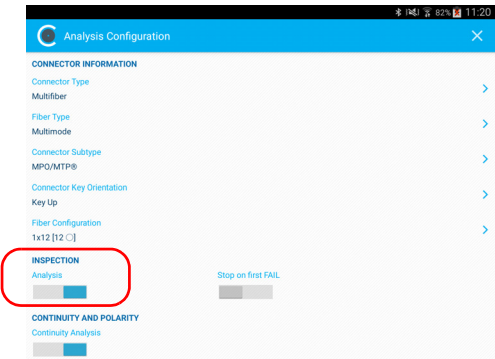


Note: The application does not analyze dark fibers even if they do appear in live video mode.

Note: Some fiber configurations are not compatible with the MFS. These fiber configurations are clearly identified in the interface.

10c. Tap  to return to the **Analysis Configuration** window.

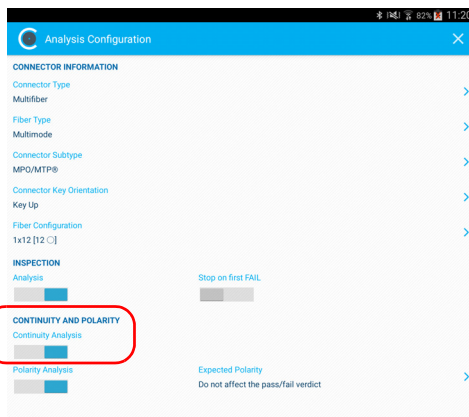
11. To validate the cleanliness of the fibers of the connector, activate the option.



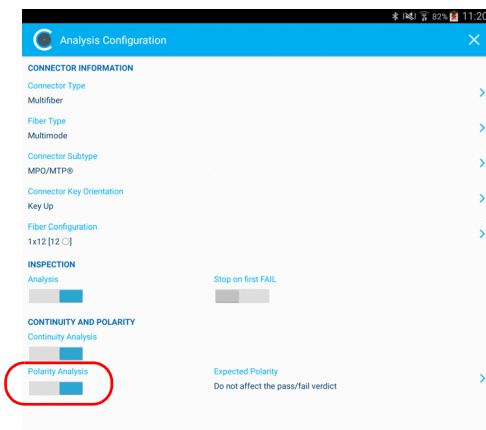
Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

- 12.** To determine on which fibers the discontinuities are found, activate the option. See *Understanding Fiber Continuity* on page 106 for details.




- 13.** To determine which polarity type defines the multifiber patchcord, activate the option. See *Understanding Fiber Polarity* on page 107 for details.

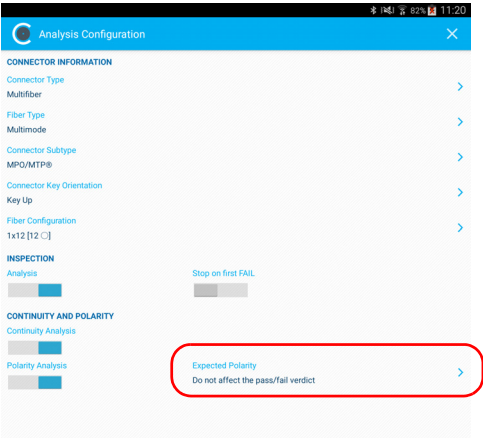


Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

14. To define how the polarity result should affect the global status, proceed as follows:

14a. Tap  next to **Expected Polarity**.



14b. Select the expected polarity in the list, according to your needs.

14c. Tap  to return to the **Analysis Configuration** window.

14d. Tap  to exit the **Analysis Configuration** window.

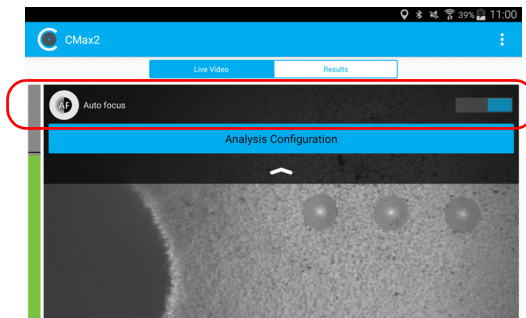
15. In the **Test Configuration** window, tap the configuration you want to use for your inspection and tap  to return in live video mode.

Note: *The test configuration list is updated according to the connector type and fiber type you have selected.*

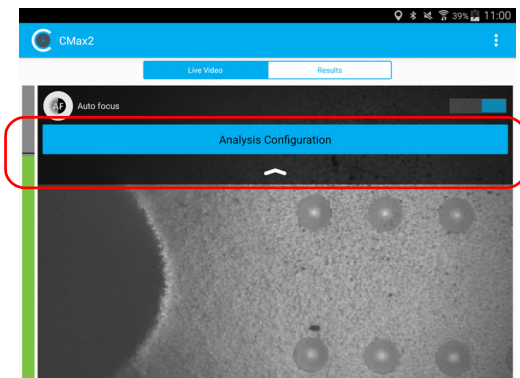
Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

- 16.** If you are working with an FIP-415B or FIP-435B, you can activate the auto focus feature.



- 17.** If desired, you can validate the features you have activated for your test by tapping the **Analysis Configuration** button.



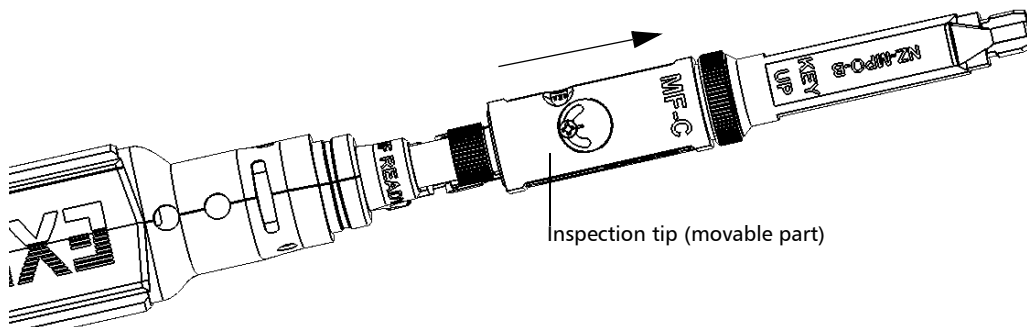
- 18.** If the connector is dirty, remove the fiber from the probe, clean the fiber end, and reinspect it.


Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

19. To perform the first capture (out of three), proceed as follows:



19a. Using the trigger, slide the movable part of the inspection tip towards the nozzle until it stops.



19b. Once you are satisfied with the inspection, tap .

OR


Press the Fiber Inspection Probe capture control button.

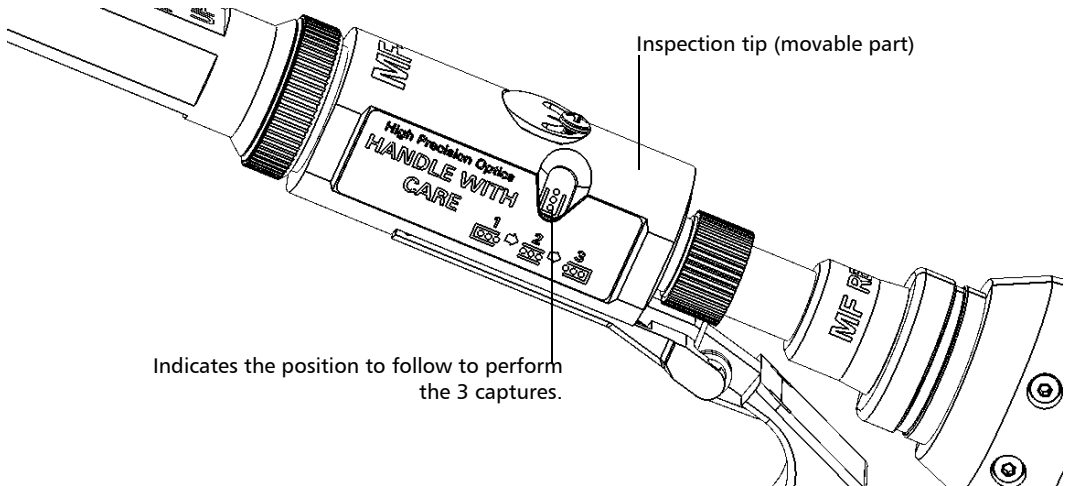
Note: If you are not satisfied with capture number one, you can take it again. When the first capture is done, the application automatically switches to . Tap  to perform capture number one again.


Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

20. To perform the second capture, proceed as follows:



20a. Using the trigger, slide the movable part of the inspection tip at position 2 (halfway between position 1 and 3). Position 2 is illustrated with this icon  on the MF-Ready probe.



20b. Once you are satisfied with the inspection, tap .

OR

Press the Fiber Inspection Probe capture control button.

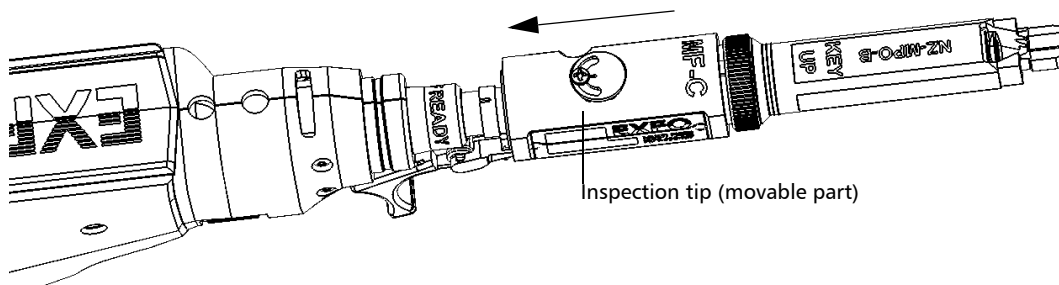
Note: *If you are not satisfied with capture number two, you can take it again. When the second capture is done, the application automatically switches to . Tap  to perform capture number two again. As long as the third capture is not performed, you can retake the first and second captures. Redoing capture one when capture two was already made means that you will have to redo capture two as well.*


Inspecting Fiber Ends

Inspecting Multiple Fiber Ends (MF-Ready Probes Only)

21. To perform the third and last capture, proceed as follows:

21a. Using the trigger, slide the movable part of the inspection tip until it stops to hide the retaining nut.



21b. Once you are satisfied with the inspection, tap .

OR

Press the Fiber Inspection Probe capture control button.

When the last capture is performed, the analysis starts immediately.

Saving Files

You can save the acquisition files manually for future reference.

You can also set ConnectorMax2 Mobile so that it saves the capture automatically only if the result is Pass, only if the result is Fail, or regardless of the status. When it is not possible to save a file, the application displays a message.

All the files (saved manually or automatically) are stored in the following folder: Storage/Emulated/0/Documents/EXFO/cmax2. For smart devices supporting Android 4.4 (KitKat) and above, the files are sent to the following folder: /Android/data/com.exfo.cmax2.mobile.android/files/.


Note: *Saving a file manually or automatically after performing the first and second captures of the multiple fiber connector is not possible.*

Note: *When you return to the live video mode, your file name structure will be automatically incremented or decremented so that you do not overwrite your work.*

Inspecting Fiber Ends

Saving Files

To save file manually:

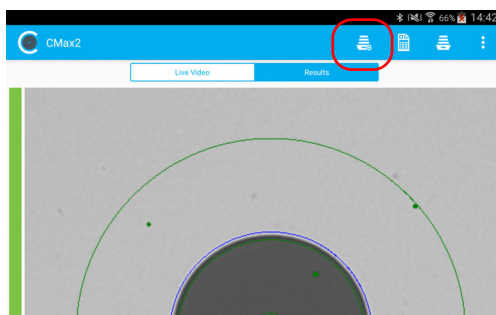
1. In live video mode, tap  .



OR

If you are using an MF-Ready probe and you are inspecting a multifiber connector, perform the three captures. See *Inspecting Multiple Fiber Ends (MF-Ready Probes Only)* on page 64 for details.

2. In the **Results** tab, tap  .




Note: To save a file manually, the **Auto save** feature in the **Application Settings** must be set to **Never**.

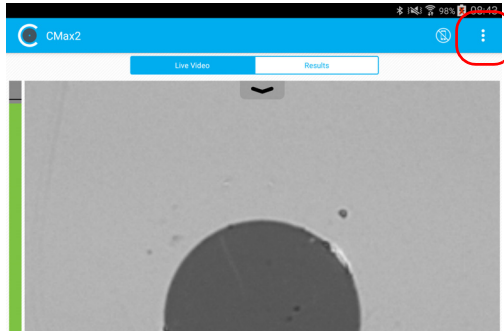
Inspecting Fiber Ends

Saving Files

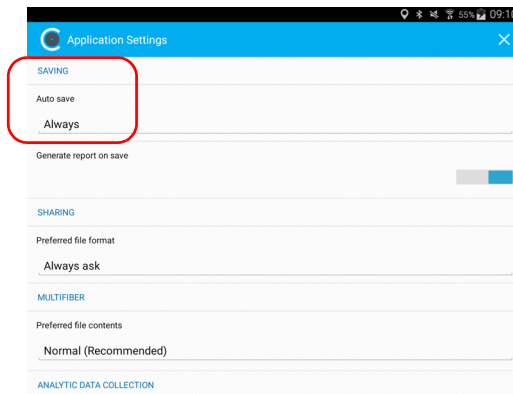
To save file automatically:


1. From the main window, tap .

Note: Depending on the smart device you are using, the application settings can be found in the menu button instead.



2. Select **Application Settings**.
3. Under **Saving**, tap on **Auto save** and navigate through the list by scrolling through the words that are greyed.



4. Tap **OK** to confirm your choice.
5. Tap  to exit the **Application Settings** window.

Inspecting Fiber Ends

Managing Files

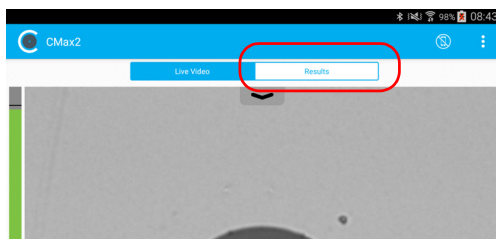
You can open captured files directly from the smart device to view them. All saved measurements are available in Archive mode. The application scans the smart device periodically and store the .cmax2 files here: Storage/Emulated/0/Documents/EXFO/cmax2. For smart devices supporting Android 4.4 (KitKat) and above, the files are sent to the following folder: /Android/data/com.exfo.cmax2.mobile.android/files/.


You can also delete unwanted files.

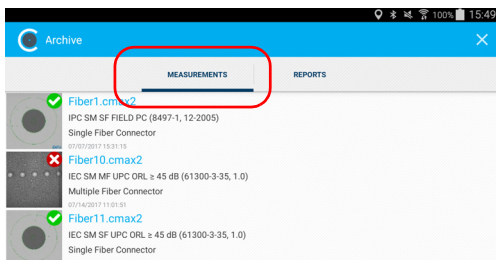
To share files, see *Transferring Results With Third-Party Applications* on page 93 for details.

To open a file:

1. From the main window, select the **Results** tab.



2. Tap .
3. In the **Archive** window, select **Measurements**.



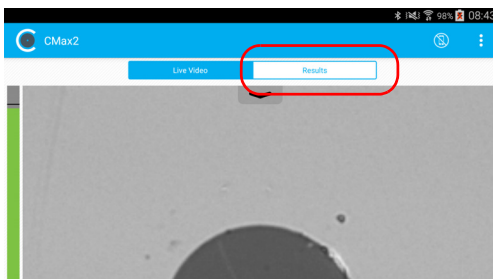
4. Tap the selected file to open it.


Inspecting Fiber Ends

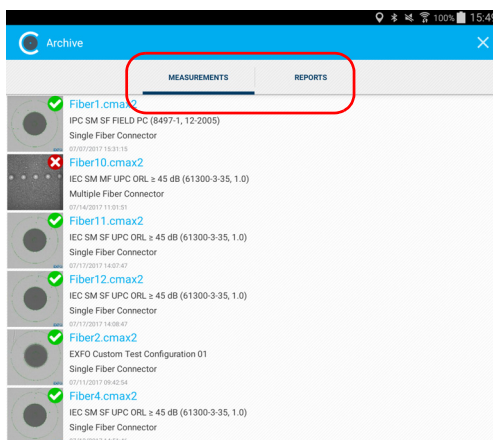
Managing Files

To delete a file:

1. From the main window, select the **Results** tab.



2. Tap .
3. In the **Archive** window, tap **Measurements** or **Reports**.



4. To enter the edition mode, press and hold any file in the **Archive** window.

**IMPORTANT**

If you select files for deletion and you change your mind, ensure that the files you want to keep are unselected.

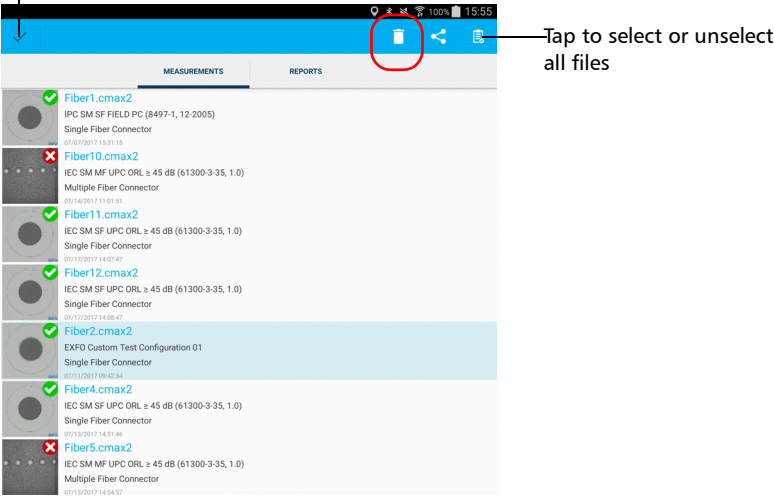
Inspecting Fiber Ends

Managing Files


5. Select the file you want to delete.


6. Tap .

Indicates you are working in edition mode.



7. When the application prompts you, tap **OK** or **Cancel**.

8. Tap  to exit the edition mode.

9. Tap  to exit the **Archive** window.

Inspecting Fiber Ends

Analyzing Captures

Analyzing Captures

With the capture analysis option, you can perform automated pass/fail analyses according to the criteria you have set.

Depending on the probe that you have, you may have access to the following features:

- Auto centering: displays the fiber in the middle of the image. It is compatible with connector and fibers with a cladding of 125 μm . The auto centering is enabled only in high magnification. Working with this feature can be useful with standard connectors. The auto centering is automatically activated when the auto focus is enabled.

Note: *The auto centering feature is not available when testing multifiber connectors.*

- Auto focus: focuses on the connector image. It is enabled only in high magnification. The auto focus is only possible in live video mode, and if the focus is not done manually. It starts automatically when you insert an optical fiber connector. For more information, see the *Fiber Inspection Probe Tip Compatibility Chart* on page 137.

Note: *The auto focus feature is not available for FIP-425B MF-Ready probes when testing multifiber connectors.*

- Auto capture: is possible with an acceptable focus level. It is enabled if the auto centering and auto focus are activated. The auto capture is possible only in high magnification. For more information, see *Setting up Auto Capture* on page 43.

Note: *The auto capture feature is not available when testing multifiber connectors.*

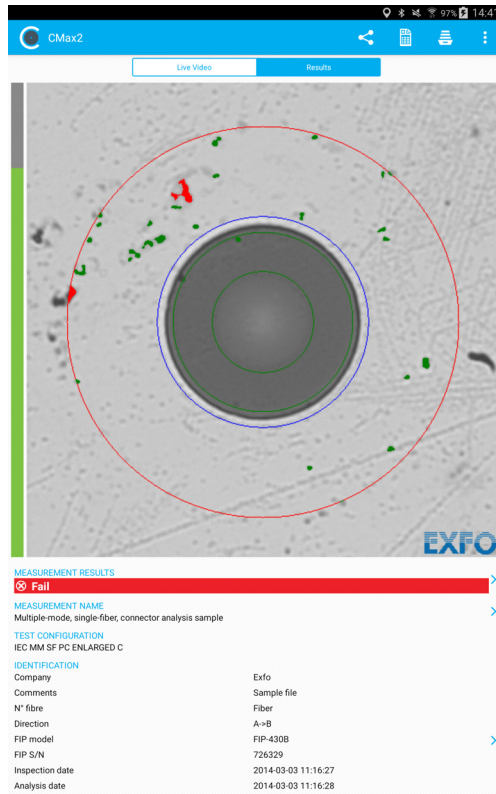
- Auto analysis: displays 4 inspection zones (core, cladding, adhesive, and contact). It is enabled only in high magnification and with a good focus.

Inspecting Fiber Ends

Analyzing Captures

The results are available as an image or in a detailed table.

- The **Image** shows the snapshot of what has been captured. You can see all the anomalies that have been detected.



- The overlay shows the status of the analysis, the status per zone, the analysis zones, any anomaly (defects, scratches) found on the fiber endface. The color of the circles shows the status of the analysis zone:
 - Green: pass
 - Blue: no analysis was performed or the function is disabled
 - Red: fail

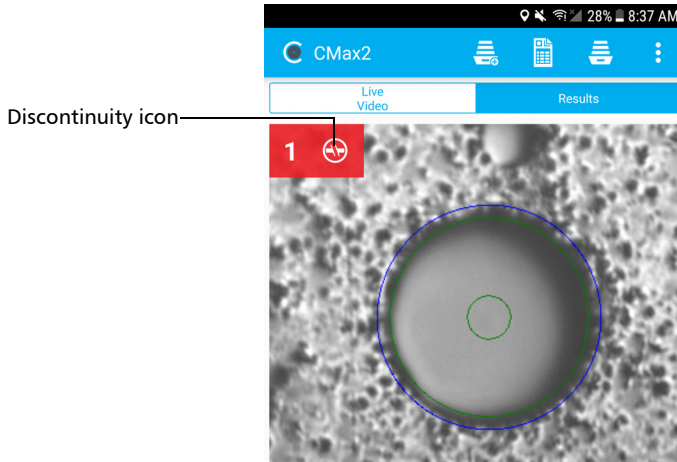
Inspecting Fiber Ends

Analyzing Captures

By default, the overlay is shown after an analysis, but you can hide it by tapping the image on screen.

If you have activated the continuity feature (see *Inspecting Multiple Fiber Ends (MF-Ready Probes Only)* on page 64 for details), an icon is displayed on a red background to clearly identify the fibers where discontinuities are found. See *Understanding Fiber Continuity* on page 106 for details.

A red background with no discontinuity icon means that the inspection status of the fiber is fail and the light signal on this specific fiber is continuous.

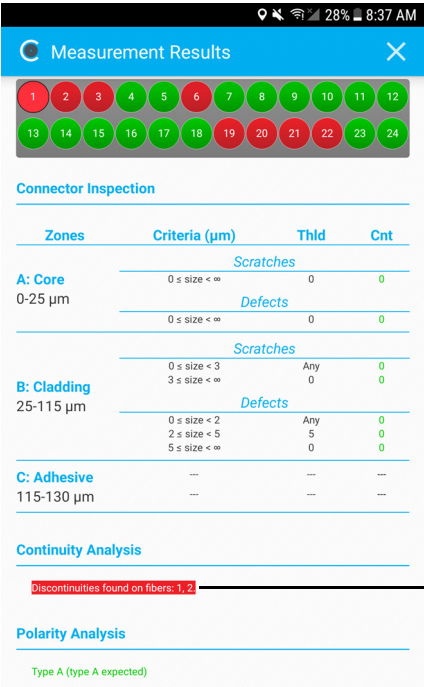


A fail status either on the inspection of the connector, the polarity or continuity will result in a global fail status.

Inspecting Fiber Ends

Analyzing Captures

- The **Results** show detailed information for scratches and defects detected in each test zone and the corresponding test status.




Discontinuities found on fibers are displayed in red.

Inspecting Fiber Ends

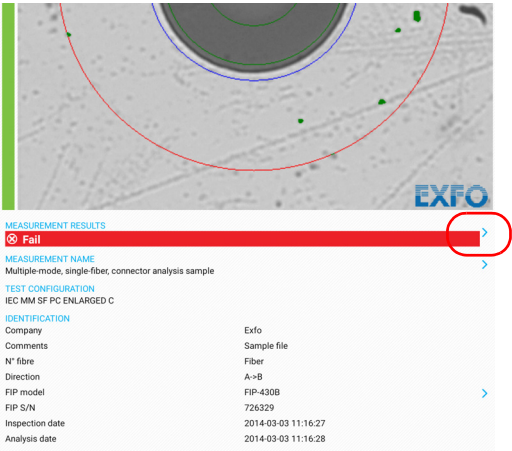
Analyzing Captures


To view the results (single fiber or transceiver):

1. In live video mode, tap .



2. In the **Results** window, tap  at the end of the **Measurement Results** row.



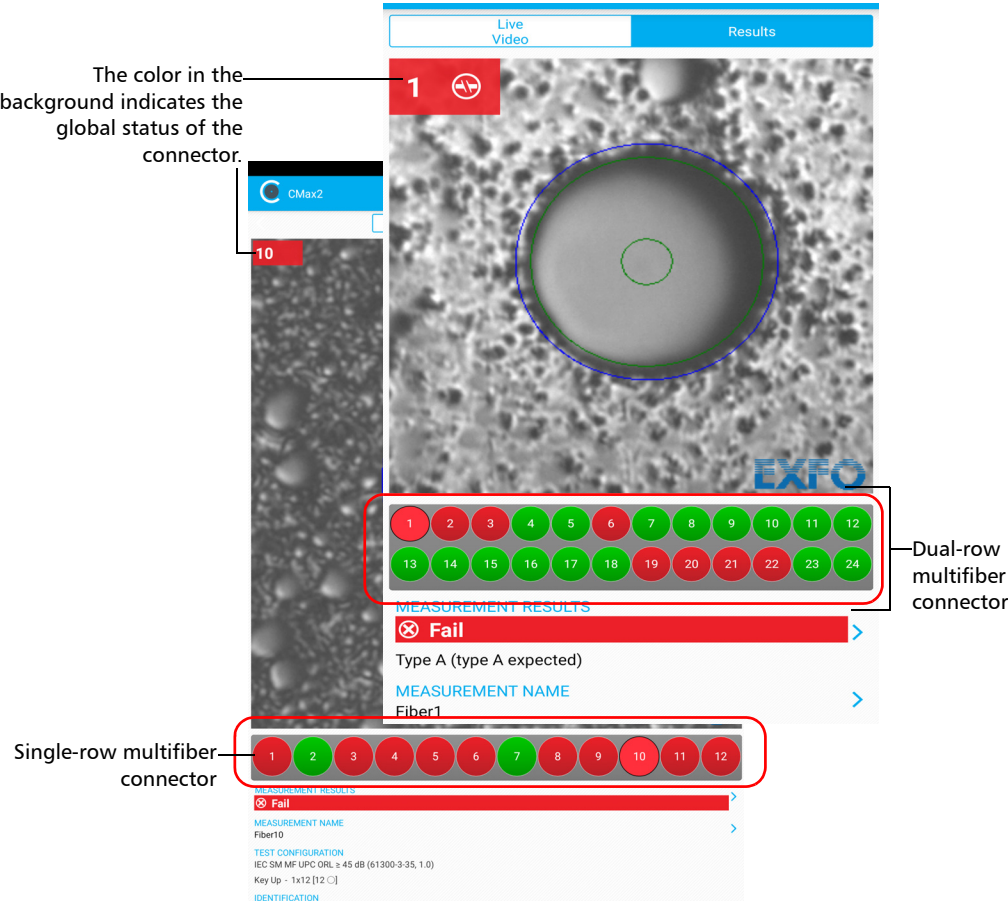
3. From the **Measurement Results** window, tap  to return to the **Results** window.

Inspecting Fiber Ends

Analyzing Captures

To view the results (multifiber connector):

- 1. Perform the three captures. See *Inspecting Multiple Fiber Ends (MF-Ready Probes Only)* on page 64 for details.
- 2. In the **Results** window, tap the number of the fiber you want to view.




OR

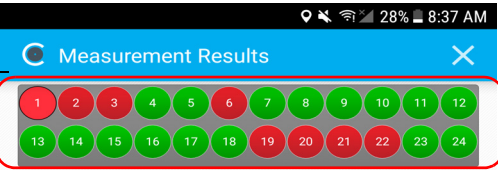
Swipe directly on the screen to make your selection.

Inspecting Fiber Ends

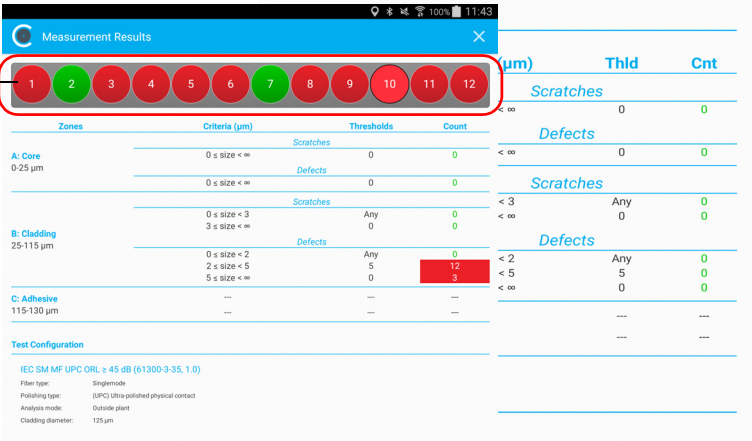
Analyzing Captures


3. Tap  at the end of the **Measurement Results** row.
4. From the **Measurement Results** window, you can select another fiber you want to view by tapping on its number.

Dual-row multifiber connector



Single-row multifiber connector



5. Tap  to return to the **Results** window.

Inspecting Fiber Ends

Creating and Viewing Reports


You can create a report based on the current inspection and analysis results. This report can be saved in PDF.

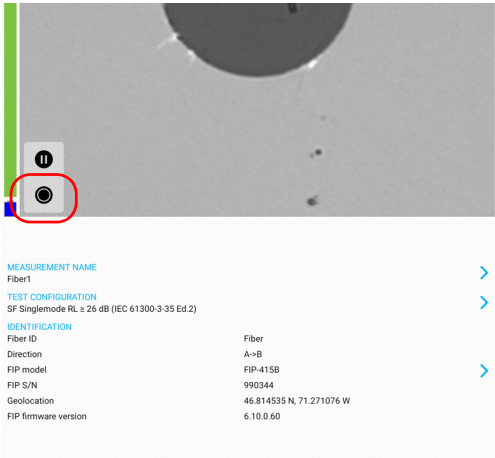
You can view the report as soon as it is generated, or you can select it in the Archive mode, or you can retrieve it here:

Storage/Emulated/0/Documents/EXFO/cmax2. For smart devices supporting Android 4.4 (KitKat) and above, the files are sent to the following folder: /Android/data/com.exfo.cmax2.mobile.android/files/.

Note: The report creation is available only in the **Results** tab.

To create a report manually:

1. In live video mode, tap .



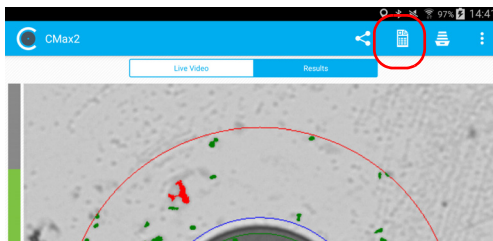
OR

If you are using an MF-Ready probe and you are inspecting a multifiber connector, perform the three captures. See *Inspecting Multiple Fiber Ends (MF-Ready Probes Only)* on page 64 for details.

Inspecting Fiber Ends


Creating and Viewing Reports

2. If you want to generate a report, in the **Results** window, tap .

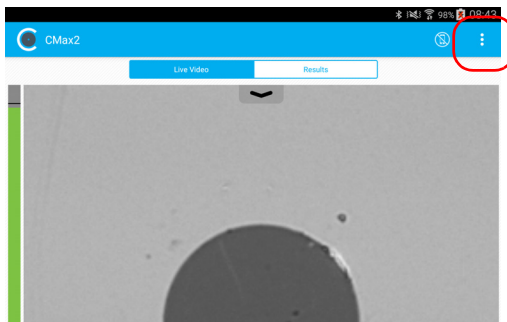


Note: To create a report manually, the **Generate report on save** feature in the **Application Settings** must be disabled.

To activate automated report creation:

1. From the main window, tap .

Note: Depending on the smart device you are using, the application settings can be found in the menu button instead.

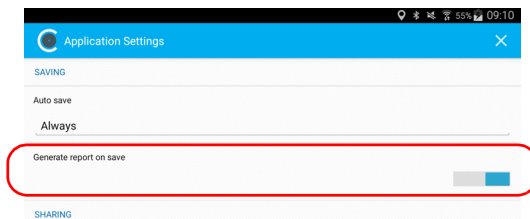


2. Select **Application Settings**.

Inspecting Fiber Ends

Creating and Viewing Reports

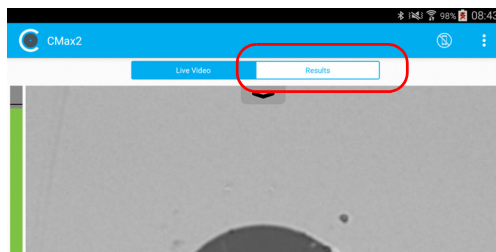
3. Activate the button next to the **Generate report on save** option.




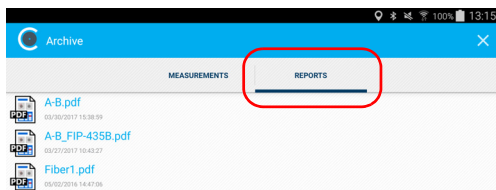
4. Tap  to exit the **Application Settings** window.


To view an existing report:

1. If you do not want to view the report as soon as it is generated, in live video mode, tap the **Results** tab.



2. Tap .
3. In Archive mode, tap **Reports**.



4. Tap the selected file to open it.
5. Tap  to return to the **Results** tab.

Inspecting Fiber Ends*Transferring Results With Third-Party Applications*

Transferring Results With Third-Party Applications

Third-party applications, such as Google Drive and Dropbox, are useful when you want to share measurement files with other users. The data that can be shared are measurement files (.cmax2) and images (.png).

By default, you will be prompted to select the application with which you want to work.

It is possible to share the FIP measurements as soon as the result of the analysis is displayed on screen and in Archive mode only. The live video mode does not allow it.

You need to disconnect the probe first if you want to share data with the smart device. Otherwise, the application buffers the FIP measurements.



IMPORTANT

If you want to transfer results with a third-party application, ensure that you first follow the steps related to the sharing process of the application you want to use, such as creating an account.


When an image (.png) is send by e-mail, the e-mail is already pre-formatted with a summary of the information concerning the capture made. Information such as the file name and the inspection result is displayed.

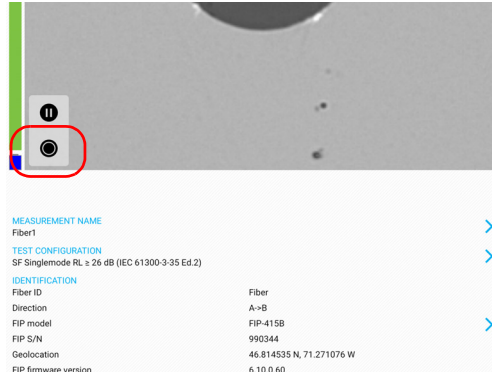
Measurement files (.cmax2) and images (.png) can also be sent via SMS.

Inspecting Fiber Ends

Transferring Results With Third-Party Applications

To transfer the current result:

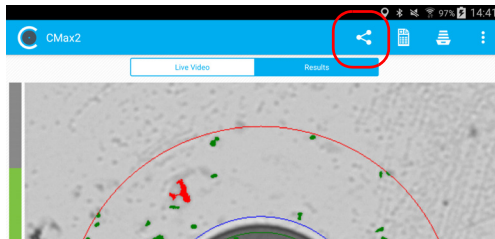
1. Ensure that the Wi-Fi is activated on your smart device.
2. Ensure that you are connected to a Wi-Fi network.
3. In live video mode, tap  .



OR

If you are using an MF-Ready probe and you are inspecting a multifiber connector, perform the three captures. See *Inspecting Multiple Fiber Ends (MF-Ready Probes Only)* on page 64 for details.

4. In the **Results** tab, tap  .



Note: To transfer a file, the **Auto save** feature in the **Application Settings** must be set to **Always**.

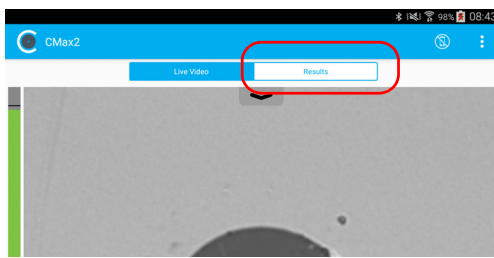
Inspecting Fiber Ends


Transferring Results With Third-Party Applications

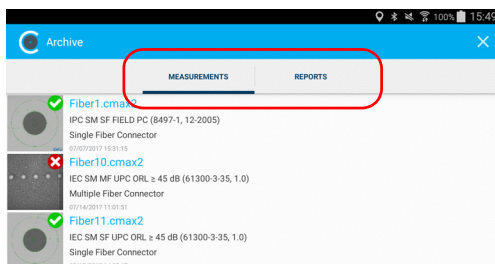
5. Select the type of file (.cmax2 or .png) you want to share.
6. Select the third-party application you want to work with.
7. Follow the instructions on-screen.

To transfer one or more results from the Archive mode:

1. Ensure that the Wi-Fi is activated on your smart device.
2. Ensure that you are connected to a Wi-Fi network.
3. Tap the **Results** tab.



4. Tap .
5. In the Archive window, tap **Measurements** or **Reports**.



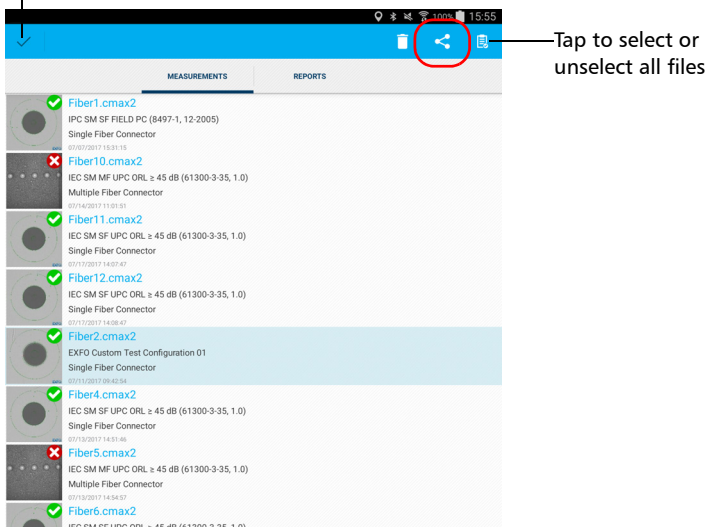
6. Select the measurement files you want to share by pressing and holding your finger on the screen.

Inspecting Fiber Ends

Transferring Results With Third-Party Applications

7. Tap .

Indicates you are working in edition mode.



8. Select the type of file (.cmax2 or .png) you want to share.

Note: If you share a report, the type of file (PDF) is selected by default.

9. Select the third-party application you want to work with (Google Drive or Dropbox for example).
10. Follow the instructions on-screen.

Inspecting Fiber Ends

Using the Probe in Standalone Mode

Using the Probe in Standalone Mode

If you only need to have a quick status (pass or fail) for each fiber you inspect, you can use the wireless probe without remaining connected to a smart device. However, you will not have detailed information such as the number of scratches and defects detected in each test zone. The pass or fail status is based on the criteria you have set upon using the probe in standalone mode.

Note: *You cannot use the probe in standalone mode when testing multifiber connectors.*

Note: *You cannot save the acquisitions performed in standalone mode.*

As soon as the probe is in standalone mode, it is disconnected from the ConnectorMax2 Mobile application. The probe remains in this mode even if it is turned off and turned back on. To use your probe in association with the smart device again, you need to establish a connection between the probe and the ConnectorMax2 Mobile application. See *Connecting or Disconnecting the Wireless Probe* on page 24 for details.


Inspecting Fiber Ends

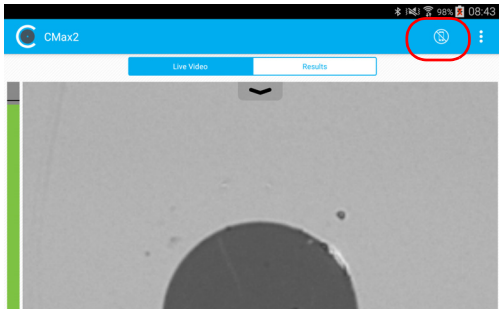
Using the Probe in Standalone Mode

The status LED provides you with information specific to the standalone mode.

Status LED	Meaning
Magenta, blinking	The probe is in standalone mode.
Blue, slow blinking	The probe is ready to perform a new capture.
Blue, fast blinking	The probe is performing an auto focus or processing data.
Red, blinking	<ul style="list-style-type: none">➤ The auto focus operation has timed out.➤ The probe cannot perform the auto focus because the connector may be damaged or dirty.
Red, steady	The analysis result is fail.
Green, steady	The analysis result is pass.

To use the probe in standalone mode:

1. From the main window, tap .



2. As soon as the status LED displays a pass or fail status, press the Fiber Inspection Probe capture control button to perform another inspection.

Updating the Firmware

The FIP-400B is designed to provide firmware updates whenever necessary. This allows you to benefit from the updates of your unit each time you use it. The firmware updates can be recommended or required.

To notify you, a message box appears each time a firmware update is recommended or required.

- In the case of a recommended firmware update, you can perform the update directly via Wi-Fi with your smart device.
- For required firmware updates, you need to contact the technical support team.



CAUTION

Do not disconnect the probe or turn off the unit when an update is in progress.

Once an update is started, follow the indications to complete the process.

To perform a recommended or required firmware update:

When the application prompts you, follow the instructions on-screen.

Note: *The application returns in live video mode as soon as the update is performed.*

5 Working with a Multifiber Source

The Multifiber Source (MFS) produces a light pattern that, once injected into a fiber, is detectable by the EXFO's Fiber Inspection Probe equipped with an MPO tip (12 or 24 fibers). With the MFS, the probe will test the continuity and polarity of the link under test in addition to performing the connector inspection.

Note: *If you only want to inspect a connector without testing polarity and continuity, ensure that the MFS is turned off before proceeding. Otherwise, the light emitted by the MFS could be mistaken for dirt which would result in an erroneous fail status.*



IMPORTANT

It will be impossible to test the continuity and polarity of a link under test if you do not perform all required firmware updates. See *Updating the Firmware* on page 99 for details.

Only the probes identified as MF-Ready (FIP-415B, FIP-425B and FIP-435B) allow you to use the MFS or the MPO tip.

Depending on the model you are using (MFS-12 or MFS-24), 12 or 24 lasers will produce light. The MFS-12 supports MPO connectors with 12 fibers. The MFS-24 supports MPO connectors with 12 (using a split (Y) cable) or 24 fibers. This cable management system allows you, by changing the patchcord, to test:

- singlemode and multimode cables
- UPC and APC connectors
- pinned and unpinned MPO connectors

Note: *The model you have purchased may differ slightly from the images presented in this documentation.*

Working with a Multifiber Source

Turning On or Off the Multifiber Source

Turning On or Off the Multifiber Source

When you turn the MFS on, you may use it immediately. The LED located next to the on/off button gives you information about the power of the unit. See *Multifiber Source LED Indicators* on page 10 for details.

To turn on or off the MFS:

Press the on/off button for about one second. The power LED is lit when the unit is on.



Working with a Multifiber Source

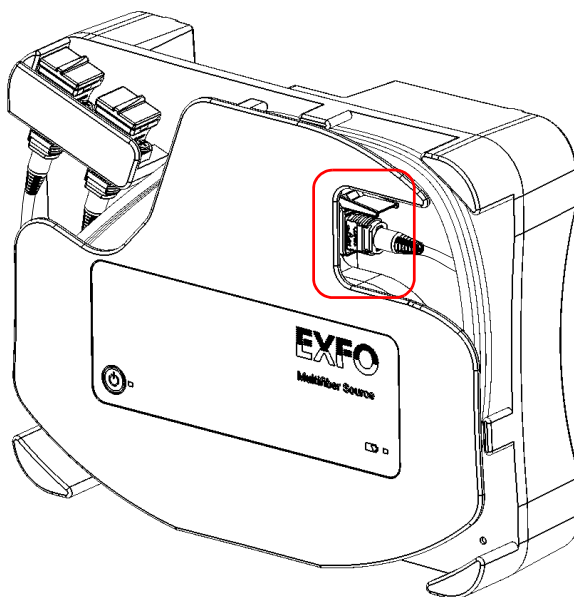
Setting up the Multifiber Source

Setting up the Multifiber Source

The MFS allows you to test continuity and polarity (based on A, B, or C polarity types) on multifiber links terminated with MPO connectors. Its design includes a cable management system that allows you to use a patchcord as a connector saver for the MPO connector on the MFS.

To set up the MFS:

1. Connect the MFS-12 or MFS-24 APC connector of the patchcord to the adapter.



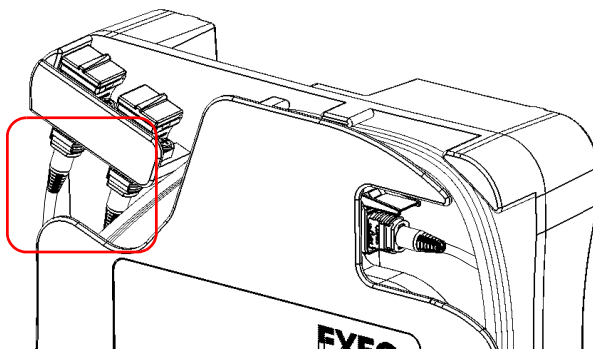
Working with a Multifiber Source

Setting up the Multifiber Source

2. Secure the patchcord in place by wrapping it around the unit.



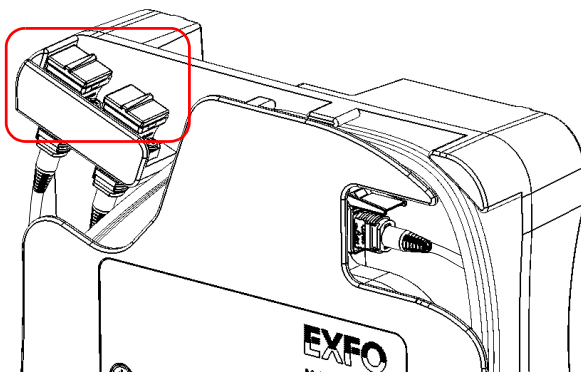
3. If you are using a patchcord having a single MPO-12 or MPO-24 connector, you can connect it to any of the two adapters. With an MPO-24 split (Y) patchcord, you must connect each of its ends to one of the adapters.



Working with a Multifiber Source

Setting up the Multifiber Source

4. Open the dust cap and connect the DUT to the appropriate adapter according to the connections you made at step 3. If you have connected an MPO-24 split patchcord, you will have to connect the DUT, in turn, to each of the two adapters.



5. Connect the other end of the DUT to the removable nozzle of the probe. See *Changing the FIP Nozzle (MF-Ready Probes Only)* on page 28 for details.

Working with a Multifiber Source

Understanding Fiber Continuity

Understanding Fiber Continuity

The continuity in a fiber refers to the ability for each fiber of a multifiber patchcord to conduct the light from one end to the other. With the Fiber Inspection Probe at the receiving end, it is possible to determine on which fibers discontinuities are found. An icon displayed on a red background clearly identifies the fibers where discontinuities are found.

Note: *The application does not analyze dark fibers even if they do appear in live video mode.*

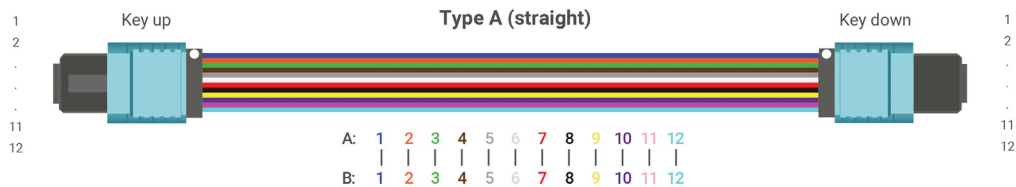
You can choose to activate or deactivate the fiber continuity analysis feature according to your needs. See *Inspecting Multiple Fiber Ends (MF-Ready Probes Only)* on page 64 for details.

After the inspection is performed, the results are available as an image or in a detailed table. See *Analyzing Captures* on page 83 for details.

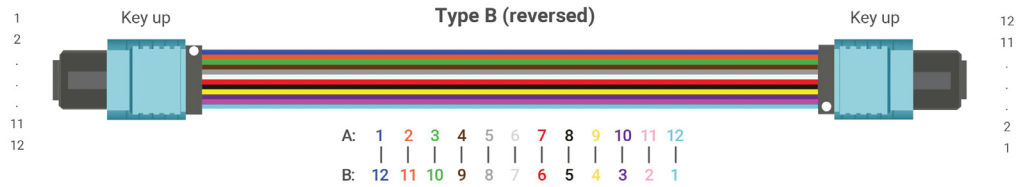
Understanding Fiber Polarity

The polarity of a multifiber patchcord refers to how the fibers are linked between the transmitting (Tx) and receiving (Rx) connectors. The application refers to the TIA 568 standard which defines three polarity types: A, B, and C. Any other fiber mappings in a multifiber patchcord will result in an unknown polarity type.

- Type A: An MPO connector is inserted key up on one end of the cable and key down on the other end. The fiber sequence is the same at each end of the cable (1-1, 2-2, 3-3, and so on).



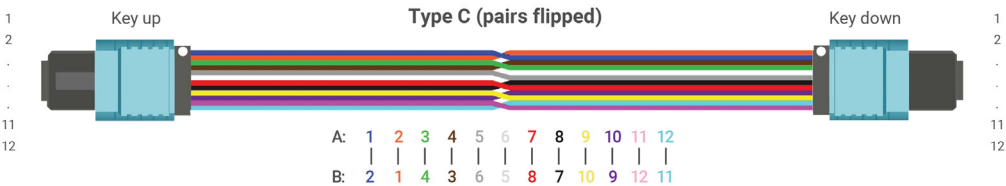
- Type B: Both MPO connectors, on each end of the cable, are inserted key up. The fiber positions are reversed at each end of the cable (fiber 1 is mated to fiber 12, fiber 2 arrives at fiber 11, and so on).



Working with a Multifiber Source

Understanding Fiber Polarity

- Type C: The MPO connectors are inserted as in type A, but each adjacent pair of fibers at one end of the cable are reversed at the other end (fiber 1 is mated to fiber 2, fiber 2 arrives at fiber 1, and so on).



You can activate or deactivate the fiber polarity analysis feature according to your needs. See *Inspecting Multiple Fiber Ends (MF-Ready Probes Only)* on page 64 for details.

You can also define how the polarity results should affect the global status based on the expected results. See *Inspecting Multiple Fiber Ends (MF-Ready Probes Only)* on page 64 for details.

After the inspection is performed, the results are available as an image or in a detailed table. See *Analyzing Captures* on page 83 for details.

6 *Maintenance*

General Maintenance

To help ensure long, trouble-free operation:

- Always inspect fiber-optic connectors before using them and clean them if necessary.
- Keep the unit free of dust.
- Clean the unit casing with a cloth slightly dampened with water.
- Store unit at room temperature in a clean and dry area. Keep the unit out of direct sunlight.
- Avoid high humidity or significant temperature fluctuations.
- Avoid unnecessary shocks and vibrations.
- If any liquids are spilled on or into the unit, turn off the power immediately, disconnect from any external power source, remove the batteries and let the unit dry completely.



WARNING

The use of controls, adjustments and procedures, namely for operation and maintenance, other than those specified herein may result in hazardous radiation exposure or impair the protection provided by this unit.

Maintenance

Battery Safety Recommendations

Battery Safety Recommendations



WARNING

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.



WARNING

Do not throw batteries into fire or water and do not short-circuit the battery electrical contacts. Do not disassemble.



IMPORTANT

Recycle or dispose of used batteries properly, in accordance with local regulations. Do not dispose of them in ordinary garbage receptacles. For more information, see the section about recycling and disposal in this user documentation.

Cleaning MPO-Type Connectors

MPO-type connectors are fixed on your unit and can be cleaned using a multifiber mechanical cleaner.



WARNING

Never look directly into a live fiber. It could cause serious eye damage. Always use your FIP-400B Fiber Inspection Probe.

To clean an MPO-type connector using a multifiber mechanical cleaner:

1. Insert the cleaning tip into the optical adapter, and push the outer shell into the cleaner.

Note: *The cleaner makes a clicking sound to indicate that the cleaning is done.*

2. Verify connector surface with a Fiber Inspection Probe (for example, EXFO's FIP).

Maintenance

Cleaning Lenses

Cleaning Lenses

Lenses are part of the Fiber Inspection Probe. To help you with the cleaning process:

- With a filtered air blower or a soft bristled brush, remove as much dust and dirt as possible.
- Apply a few drops of cleaning solution, which is used to clean camera lenses, on a lens tissue, a cleaning cloth or a cotton swab. The lens cleaning solution especially manufactured by camera lens manufacturers can be used safely. Reagent grade isopropyl alcohol as well as deionized water can also be used safely.
- Gently remove oil, fingerprints and grime from the lens surface, using a circular motion from the center outwards.

Recharging the Battery

The battery in your Fiber Inspection Probe is a Li-ion polymer battery with three-cell format. The charge status is shown with the LEDs on the Fiber Inspection Probe. The application also indicates the charge status.



CAUTION

Only charge the battery with the USB cable and USB power adapter provided by EXFO with your unit.

You can purchase a new battery from EXFO.



IMPORTANT

- The battery is not charged at the factory. You must fully charge it before using the unit for the first time. The battery is fully charged after a few hours or when the battery LED indicator stops flashing (see *Probe LED Indicators* on page 8 for details). The charge cycle starts and stops automatically.
- The time required to charge the battery depends on various factors such as the ambient temperature.
- To ensure that the battery functions or charges properly, keep it within operation and storage temperature range.

The micro-USB power adapter recharges the battery of the probe when it is low. You can recharge the battery with the provided USB cable and the USB power adapter that you connect to a power outlet. You can also use the provided USB cable alone that you connect to a USB port of a computer. It is possible to recharge the battery of the probe when it is connected to the USB port of a computer (500 mA).

When the probe is connected to a power outlet or to a USB port, it still works via Wi-Fi.

Maintenance

Recharging the Battery of the Multifiber Source

Recharging the Battery of the Multifiber Source

The MFS operates with the following power sources:

- Indoor use only: USB power adapter connected to a power outlet.

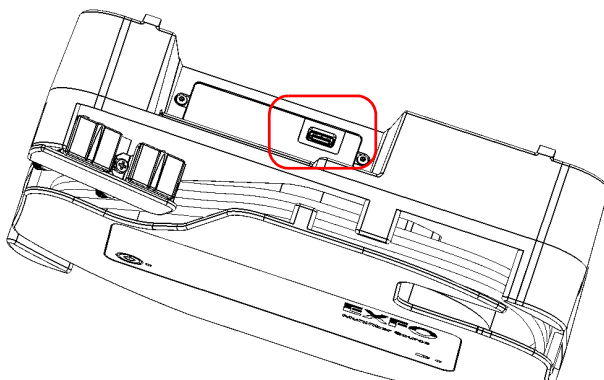
OR

USB cable connected to a standard USB port on a computer.

- Indoor and outdoor use: Rechargeable Li-ion polymer battery. The charge status is shown with the LED on the MFS. See *Multifiber Source LED Indicators* on page 10 for details.

To recharge the battery of the MFS:

1. Connect the USB cable to the USB port located at the top of the unit.



2. Connect the other end of the USB cable to the USB power adapter, and then connect the adapter to a power outlet.

OR

Connect the other end of the USB cable to the USB port of your computer.

Replacing the Battery

Your probe is powered by a Li-ion polymer rechargeable battery.



WARNING

- Your unit uses a three-cell battery that has been especially designed for EXFO. For this reason, you can only replace it with a battery of the same type and model. The use of other batteries may damage your unit and compromise your safety.
- Battery replacement should only be done by a qualified technician with the appropriate tools on an electronic bench or similar environment.



CAUTION

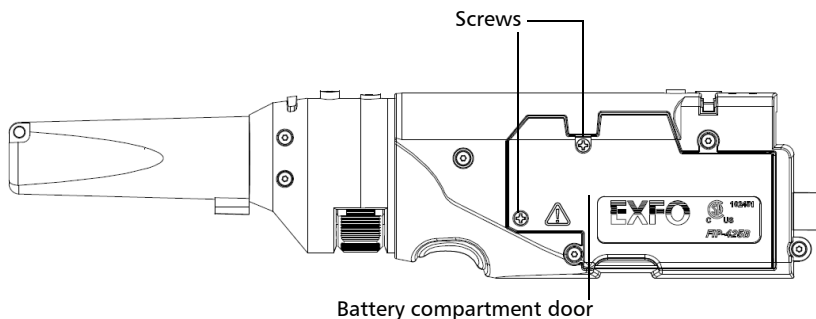
To avoid irremediable damage to the battery, always remove the battery compartment door carefully, ensuring that the battery does not fall.

Maintenance

Replacing the Battery

To replace the battery:

1. Turn off the probe.
2. Disconnect any power cable and fibers.
3. Using a screwdriver, remove the two screws that are located on the side of the probe.



4. Remove the battery compartment door.

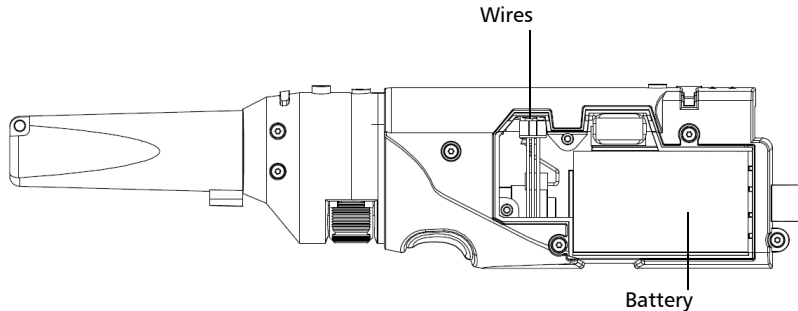


CAUTION

Gently pull on the battery to avoid damaging the wires.

Maintenance*Replacing the Battery of the Multifiber Source*

5. Remove the battery.



6. Replace the battery, respecting the polarity (black, yellow, and red wires).
7. Close the battery compartment door.
8. Using a screwdriver, put the screws that you have removed at step 3 back in place.

Replacing the Battery of the Multifiber Source

Your MFS is powered by a Li-ion polymer rechargeable battery.



WARNING

Your unit uses a smart lithium-ion (Li-ion) battery with built-in protection that has been especially designed for EXFO. For this reason, you can only replace it with a battery of the same type and model. You can purchase new batteries from EXFO.



CAUTION

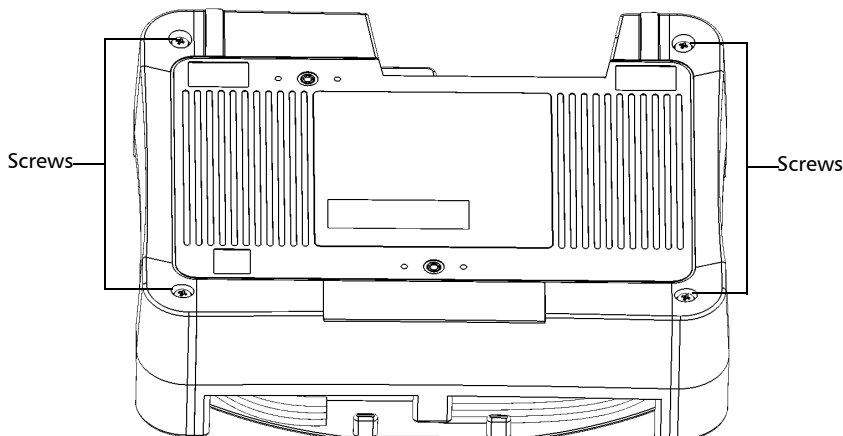
All the components that you should be handling are identified in the procedure hereafter. Do not touch any other component inside the unit either with tools or your fingers.

Maintenance

Replacing the Battery of the Multifiber Source

To replace the battery of the MFS:

1. Turn off the MFS.
2. Disconnect any power cable and fibers that are connected to the source.
3. Position the MFS so that its front panel rests on a flat surface such as a table.
4. Use a screwdriver to remove the four screws that are located on the back panel.



CAUTION

Ensure that the front cover stays in place when you turn the MFS over so that the battery does not fall.

5. While firmly holding the front and back covers together, turn the MFS over, and position it so that the unit rests on a flat surface such as a table.

Maintenance

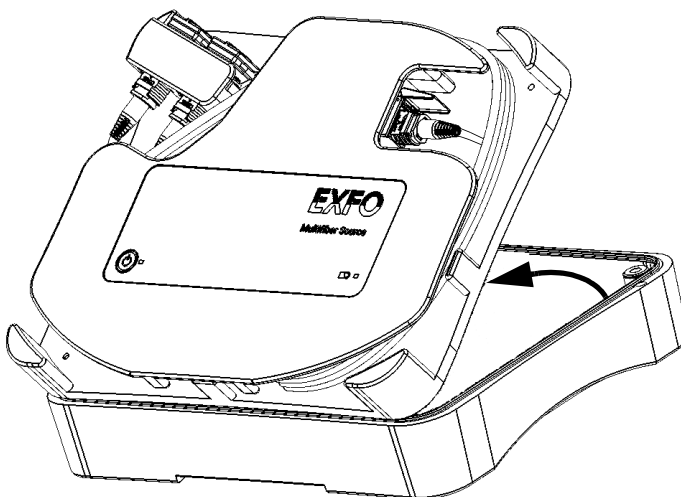
Replacing the Battery of the Multifiber Source



CAUTION

To avoid damaging the MPO cable and the flex membrane that remain attached to the unit, fold the front cover down very carefully.

6. Hold the front cover of the unit by its sides and fold it down carefully until it rests completely flat.



Maintenance

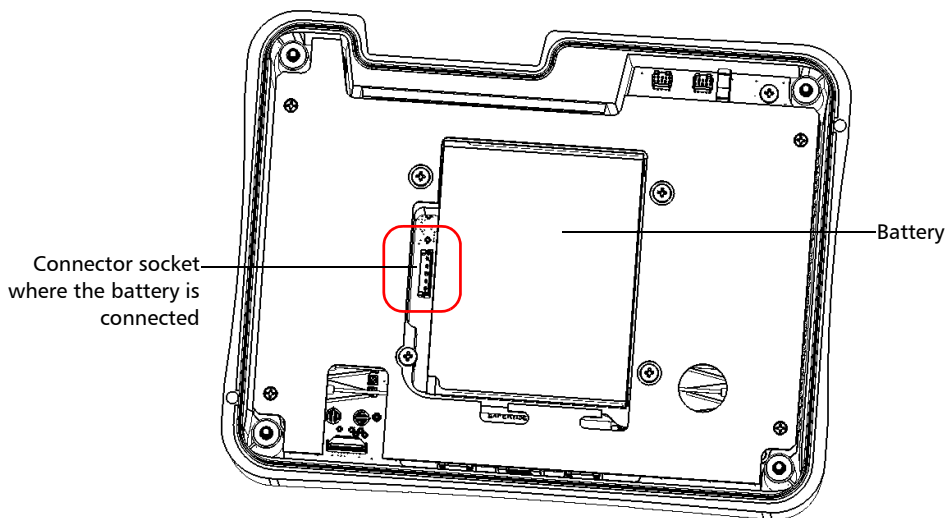
Replacing the Battery of the Multifiber Source



CAUTION

Be careful not to touch any component inside the unit when you disconnect the battery cable.

7. Disconnect the battery cable from the unit by pulling on its connector.



Note: To simplify the illustration, the battery cable and several other components do not appear.

8. Remove the battery from the unit.



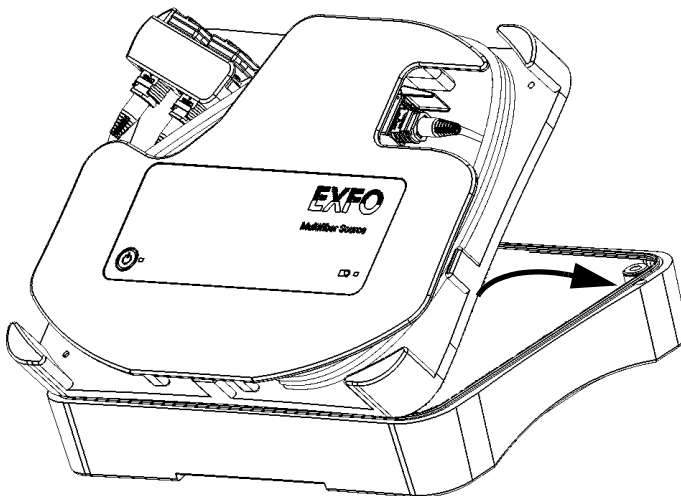
CAUTION

Gently pull on the battery to avoid damaging the wires.

9. Position the new battery so that its connector and wires are on its left side, and then place the new battery in the unit.

Maintenance*Replacing the Battery of the Multifiber Source*

- 10.** Connect the battery to the unit by pushing its connector in place.
- 11.** Hold the front of the unit by its sides and place it back on the unit carefully.

**CAUTION**

Ensure that the front cover stays in place when you turn the MFS over so that the battery does not fall.

- 12.** While firmly holding the front and back covers together, turn the MFS over, and position it so that it rests on a flat surface such as a table.
- 13.** Using a screwdriver, put back in place the screws that you have removed at step 4.

Maintenance

Recycling and Disposal

Recycling and Disposal



This symbol on the product means that you should recycle or dispose of your product (including electric and electronic accessories) properly, in accordance with local regulations. Do not dispose of it in ordinary garbage receptacles.

For complete recycling/disposal information, visit the EXFO Web site at www.exfo.com/recycle.

7 Troubleshooting

Solving Common Problems

The table below presents common problems and their solutions.

Problem	Solution
I cannot analyze an image.	<ul style="list-style-type: none"> ➤ The image is not focused properly; use the focus knob on the probe until the focus indicator displays the best value available. Yellow indicates an acceptable range, and green shows the preferred range. ➤ Ensure that the connector is aligned properly. When testing a multifiber connector with an MF-Ready probe, ensure that the key of the nozzle is properly aligned with the notch of the inspection tip (see <i>Changing the FIP Nozzle (MF-Ready Probes Only)</i> on page 28 for details). ➤ Ensure that the focus value is sufficient to perform the analysis. ➤ Ensure that you are using a high magnitude level.
I cannot see the fiber on-screen.	<ul style="list-style-type: none"> ➤ Verify the probe connection status to see if ConnectorMax2 Mobile is detecting the probe properly. If the probe is connected properly, close ConnectorMax2 Mobile and open it again. ➤ Ensure that the Wi-Fi is on. ➤ Ensure that the probe is on.
The FIP internal temperature is too high.	Let the FIP cool down.
The auto centering does not function properly.	<ul style="list-style-type: none"> ➤ Clean the connector. ➤ Adjust the image focus.
A connection error occurred.	<ul style="list-style-type: none"> ➤ Ensure that the probe is not currently in use by another application. ➤ Try to connect to the probe again.

Troubleshooting

Solving Common Problems

Problem	Solution
An APC fiber is connected to an FIP-415B or FIP-435B probe, the blue LED is blinking and the motor is not running.	Try to put the fiber back in place.
Refresh rate is very low.	<ul style="list-style-type: none"> ➤ Ensure that the power saving mode is deactivated. ➤ On your smart device, close the applications that are not in use. ➤ Reduce the number of probes operating in the vicinity. ➤ Bring the probe and the smart device closer together.
The FIP status LED blinks red for 2 seconds in live video mode and turns from unlit to blue (auto focus timeout).	Try to put the fiber back in place.
The FIP status LED blinks red for 2 seconds when a capture is performed and no analysis results are available.	There was an analysis error. Repeat the inspection process.
The user interface displayed in the application is truncated.	Change font size in the smart device settings to facilitate reading comprehension.
The list of available FIPs is empty.	<ul style="list-style-type: none"> ➤ Ensure that the Wi-Fi is on. ➤ Ensure that the probe is on. ➤ Ensure that the location setting of your smart device is activated.

Troubleshooting*Solving Common Problems*

Problem	Solution
A probe is no longer listed among the list of available FIPs for connection.	<ul style="list-style-type: none"> ➤ Wait a few minutes for the probe to appear in the list of available FIPs. ➤ Connect the Wi-Fi probe with a USB cable.
The FIP measurement is corrupted when it is imported from a computer to the smart device via a USB cable.	<ul style="list-style-type: none"> ➤ The corruption seems to be caused by the smart device drivers. This is not caused by the ConnectorMax2 Mobile application. ➤ Try to transfer the files to the smart device using a cloud application such as Google Drive.
The ConnectorMax2 Mobile application icon is not available in the list of the applications displayed.	<ul style="list-style-type: none"> ➤ Ensure that the smart device is not in Safe Mode. If so, restart the smart device. ➤ Ensure that the ConnectorMax2 Mobile application was installed from the current user account (not from another account).
You see a message indicating that there is a problem with the connection.	<ul style="list-style-type: none"> ➤ If the probe is already in use by another device, disconnect the probe from the device and try to connect it again. ➤ If the probe is connected via USB to a computer or EXFO platform and the ConnectorMax2 Mobile application is in use, disconnect the probe from the USB port and close ConnectorMax2 Mobile on the computer, then try to connect the probe again. ➤ If the device cannot connect via Wi-Fi to the probe and connects to the previous Wi-Fi connection, use the device settings to connect to the probe instead of connecting the probe via the ConnectorMax2 Mobile application. To return to the previous connection, use the device settings as well.
The image displayed in live video mode is blinking.	Ensure that the type of connector selected matches the type of connector connected to the probe.

Troubleshooting

Solving Common Problems


Problem	Solution
A message box indicates that you need to perform a required firmware update.	Contact EXFO for technical support.
The wireless probe is properly connected in the Wi-Fi settings but it is impossible to connect to the probe in the ConnectorMax2 Mobile application with an Android smart device.	<ul style="list-style-type: none"> ➤ Ensure that your Android smart device is <i>not</i> configured to connect automatically to a mobile data network. (You can consult the documentation that came with your Android smart device to configure the settings properly.) ➤ Contact EXFO for technical support if the problem still persists.
The status LED blinks magenta at startup.	The probe is in standalone mode. From ConnectorMax2 Mobile, connect to the probe to return to standard mode.
The capture button is not available.	<ul style="list-style-type: none"> ➤ Ensure that the type of connector selected matches the type of connector connected to the probe. ➤ Ensure that the focus value is sufficient to perform the analysis. Use the focus knob on the probe until the focus indicator displays the best value available. Yellow indicates an acceptable range, and green shows the preferred range.

Changing the File Contents

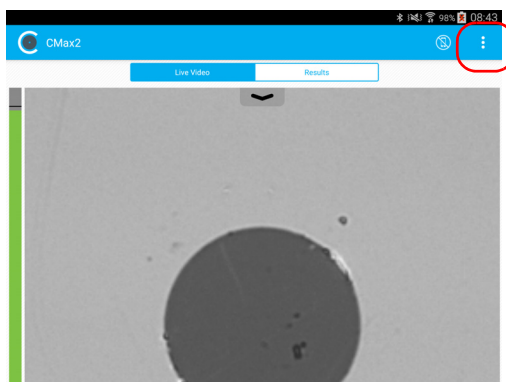
The application allows you to choose between two different file formats. Each format is used for different purposes.

- enhanced format: used to troubleshoot problems. This format should only be selected when recommended by technical support, as it increases significantly the file size.
- normal format: selected by default.

To change the file contents:

1. From the main window, tap .

Note: Depending on the smart device you are using, the application settings can be found in the menu button instead.

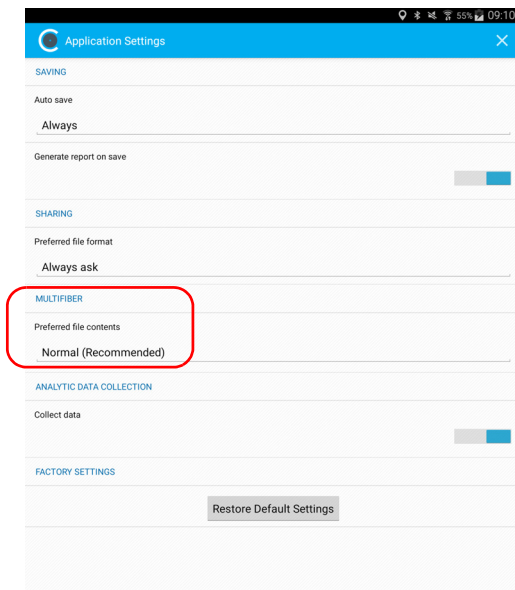



2. Select **Application Settings**.

Troubleshooting

Changing the File Contents

- Under **Multifiber**, tap **Preferred file contents**.



- Select **Normal (Recommended)** or **Enhanced**.
- Tap **OK** to confirm your choice.
- Tap  to exit the **Application Settings** window.

Troubleshooting

Contacting the Technical Support Group

Contacting the Technical Support Group

To obtain after-sales service or technical support for this product, contact EXFO at one of the following numbers. The Technical Support Group is available to take your calls from Monday to Friday, 8:00 a.m. to 7:00 p.m. (Eastern Time in North America).

Technical Support Group

400 Godin Avenue
Quebec (Quebec) G1M 2K2
CANADA

1 866 683-0155 (USA and Canada)
Tel.: 1 418 683-5498
Fax: 1 418 683-9224
support@exfo.com

For detailed information about technical support, and for a list of other worldwide locations, visit the EXFO Web site at www.exfo.com.

If you have comments or suggestions about this user documentation, you can send them to customer.feedback.manual@exfo.com.

To accelerate the process, please have information such as the name and the serial number (see the product identification label), as well as a description of your problem, close at hand.


Troubleshooting

Viewing Information About ConnectorMax2 Mobile

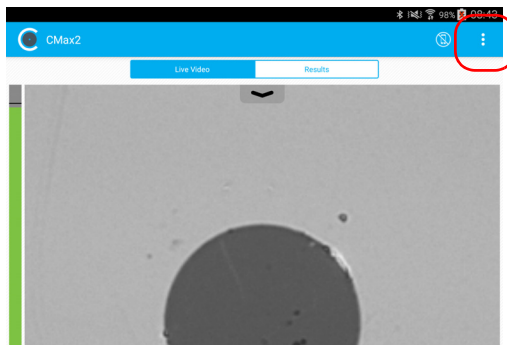
Viewing Information About ConnectorMax2 Mobile


You can view information about ConnectorMax2 Mobile such as the version number and different policies on your smart device.

To view ConnectorMax2 Mobile information:

1. From the main window, tap .

Note: Depending on the smart device you are using, the about button can be found in the menu button instead.




2. Select **About**.
3. Under **Version Information** and **General Information**, select the information you want to view.
4. Tap  to exit the **About** window.

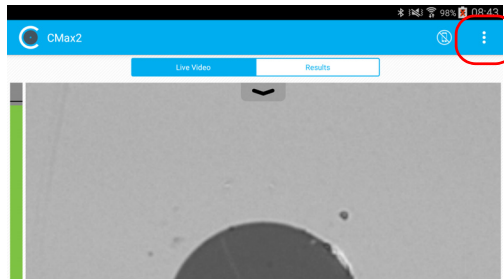
Viewing Online Help


You can view the online help for ConnectorMax2 Mobile at any time.

To view the online help:

1. From the main window, tap .

Note: Depending on the smart device you are using, the about button can be found in the menu button instead.



2. Select **Help**.
3. Under **Guides**, select the document you want to view.
4. Tap  to exit the **Help** window.

Transportation

Maintain a temperature range within specifications when transporting the unit. Transportation damage can occur from improper handling. The following steps are recommended to minimize the possibility of damage:

- Pack the unit in its original packing material when shipping.
- Avoid high humidity or large temperature fluctuations.
- Keep the unit out of direct sunlight.
- Avoid unnecessary shocks and vibrations.

8 **Warranty**

General Information

EXFO Inc. (EXFO) warrants this equipment against defects in material and workmanship for a period of one year from the date of original shipment. EXFO also warrants that this equipment will meet applicable specifications under normal use.

During the warranty period, EXFO will, at its discretion, repair, replace, or issue credit for any defective product, as well as verify and adjust the product free of charge should the equipment need to be repaired or if the original calibration is erroneous. If the equipment is sent back for verification of calibration during the warranty period and found to meet all published specifications, EXFO will charge standard calibration fees.



IMPORTANT

The warranty can become null and void if:

- unit has been tampered with, repaired, or worked upon by unauthorized individuals or non-EXFO personnel.
- warranty sticker has been removed.
- case screws, other than those specified in this guide, have been removed.
- case has been opened, other than as explained in this guide.
- unit serial number has been altered, erased, or removed.
- unit has been misused, neglected, or damaged by accident.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL EXFO BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

Warranty

Liability

Liability

EXFO shall not be liable for damages resulting from the use of the product, nor shall be responsible for any failure in the performance of other items to which the product is connected or the operation of any system of which the product may be a part.

EXFO shall not be liable for damages resulting from improper usage or unauthorized modification of the product, its accompanying accessories and software.

Exclusions

EXFO reserves the right to make changes in the design or construction of any of its products at any time without incurring obligation to make any changes whatsoever on units purchased. Accessories, including but not limited to fuses, pilot lamps, batteries and universal interfaces (EUI) used with EXFO products are not covered by this warranty.

This warranty excludes failure resulting from: improper use or installation, normal wear and tear, accident, abuse, neglect, fire, water, lightning or other acts of nature, causes external to the product or other factors beyond the control of EXFO.



IMPORTANT

In the case of products equipped with optical connectors, EXFO will charge a fee for replacing connectors that were damaged due to misuse or bad cleaning.

Certification

EXFO certifies that this equipment met its published specifications at the time of shipment from the factory.

Service and Repairs

EXFO commits to providing product service and repair for five years following the date of purchase.

To send any equipment for service or repair:

1. Call one of EXFO's authorized service centers (see *EXFO Service Centers Worldwide* on page 136). Support personnel will determine if the equipment requires service, repair, or calibration.
2. If equipment must be returned to EXFO or an authorized service center, support personnel will issue a Return Merchandise Authorization (RMA) number and provide an address for return.
3. If possible, back up your data before sending the unit for repair.
4. Pack the equipment in its original shipping material. Be sure to include a statement or report fully detailing the defect and the conditions under which it was observed.
5. Return the equipment, prepaid, to the address given to you by support personnel. Be sure to write the RMA number on the shipping slip. *EXFO will refuse and return any package that does not bear an RMA number.*

Note: *A test setup fee will apply to any returned unit that, after test, is found to meet the applicable specifications.*

After repair, the equipment will be returned with a repair report. If the equipment is not under warranty, you will be invoiced for the cost appearing on this report. EXFO will pay return-to-customer shipping costs for equipment under warranty. Shipping insurance is at your expense.

Routine recalibration is not included in any of the warranty plans. Since calibrations/verifications are not covered by the basic or extended warranties, you may elect to purchase FlexCare Calibration/Verification Packages for a definite period of time. Contact an authorized service center (see *EXFO Service Centers Worldwide* on page 136).

Warranty

EXFO Service Centers Worldwide

EXFO Service Centers Worldwide

If your product requires servicing, contact your nearest authorized service center.

EXFO Headquarters Service Center

400 Godin Avenue
Quebec (Quebec) G1M 2K2
CANADA

1 866 683-0155 (USA and Canada)
Tel.: 1 418 683-5498
Fax: 1 418 683-9224
support@exfo.com

EXFO Europe Service Center

Winchester House, School Lane
Chandlers Ford, Hampshire S053 4DG
ENGLAND

Tel.: +44 2380 246800
Fax: +44 2380 246801
support.europe@exfo.com

EXFO Telecom Equipment (Shenzhen) Ltd.

3rd Floor, Building C,
FuNing Hi-Tech Industrial Park, No. 71-3,
Xintian Avenue,
Fuhai, Bao'An District,
Shenzhen, China, 518103

Tel: +86 (755) 2955 3100
Fax: +86 (755) 2955 3101
support.asia@exfo.com

To view EXFO's network of partner-operated Certified Service Centers nearest you, please consult EXFO's corporate website for the complete list of service partners:

<http://www.exfo.com/support/services/instrument-services/exfo-service-centers>.

A

Fiber Inspection Probe Tip Compatibility Chart

With some tips that include lenses, and before performing an automatic focus, you must adjust the focus manually for the first inspection.

Note: *The tips for which the probe requires a manual focus before the first inspection are listed in the table below.*

To reach the focus level manually:

1. Bring the focus manually close to the focal point.
2. Activate the auto focus or press the magnification control button on the probe and hold it down until the auto focus is activated again.

The table below establishes the Fiber Inspection Probe tip compatibility with the different operations: fiber inspection, auto analysis (option), auto focus (option), and auto detection (option) provided with the ConnectorMax2 Mobile application.

Note: *You can install the tips described below on FIP-415B, FIP-425B and FIP-435B MF-Ready probes. For more information on the features available for your probe, see Available Probe Models on page 7.*

Tip Description	Tip Code	Inspection (all models)	Analysis (FIP-415B/ FIP-425B/ FIP-435B)	Auto focus (FIP-415B/ FIP-435B)	Connector Auto detection (FIP-415B/ FIP-435B)
Uni.2.5mm for PC connector	FIPT-400-U25M	OK	OK	OK	OK
Uni.2.5mm for APC connector	FIPT-400-U25MA	OK	OK	OK	OK
Uni.1.25mm for PC Connector	FIPT-400-U12M	OK	OK	OK	OK

Fiber Inspection Probe Tip Compatibility Chart

Tip Description	Tip Code	Inspection (all models)	Analysis (FIP-415B/ FIP-425B/ FIP-435B)	Auto focus (FIP-415B/ FIP-435B)	Connector Auto detection (FIP-415B/ FIP-435B)
Uni.1.25mm for APC connector	FIPT-400-U12MA	OK	OK	OK	OK
FC APC tip for bulkhead adapter	FIPT-400-FC-APC	OK	OK	OK	OK
FC and SC tip for bulkhead adapter	FIPT-400-FC-SC	OK	OK	OK	OK
ST for UPC bulkhead adapter	FIPT-400-ST	OK	OK	OK	OK
E-2000 for PC bulkhead	FIPT-400-E2000	OK	OK	OK	OK ^a
E-2000 for APC bulkhead adapter	FIPT-400-E2000-APC	OK	OK ^a	OK	OK ^a
FIPT-400-FC-SC-A6 bulkhead adapter	FIPT-400-FC-SC-A6	OK	OK	OK	NO
MU for UPC bulkhead adapter	FIPT-400-MU	OK	OK	OK	OK
MU-L for UPC bulkhead adapter	FIPT-400-MU-L	OK	OK	OK	OK
149 mm, Extended MU tip for PC bulkhead adapter	FIPT-400-MU-L-149	OK	OK	OK ^b	NO
ODC 4 Pin Plug (female) Guide tip	FIPT-400-ODC-4PIN-P	OK	OK	OK	OK
ODC Socket (male) tip	FIPT-400-ODC-S	OK	OK	OK	OK

Fiber Inspection Probe Tip Compatibility Chart

Tip Description	Tip Code	Inspection (all models)	Analysis (FIP-415B/ FIP-425B/ FIP-435B)	Auto focus (FIP-415B/ FIP-435B)	Connector Auto detection (FIP-415B/ FIP-435B)
ODC Universal Guide tip	FIPT-400-ODC-U	OK	OK	OK	OK
ODC 2 Pin Plug (female) Guide tip	FIPT-400-ODC-2PIN-P	OK	OK	OK	OK
D4 bulkhead adapter	FIPT-400-D4	OK	OK	OK	OK
FIPT-400-U20M2 is for male ferule connector	FIPT-400-U20M2	OK	OK	OK	OK
FIPT-400-Lemo for bulkhead adapter	FIPT-400-Lemo	OK	OK	OK	OK
OptiTap for APC bulkhead adapter	FIPT-400-OTAP-APC	OK	OK	OK	OK
LC for PC bulkhead	FIPT-400-LC	OK	OK	OK	OK
LC for APC bulkhead adapter	FIPT-400-LC-APC	OK	OK	OK	OK
LC for bulkhead adapter 60 Degree Angled	FIPT-400-LC-A6	OK	OK	OK	NO
Extended LC tip for PC bulkhead adapter	FIPT-400-LC-L	OK	OK	OK ^b	OK ^a
137 mm, Extended LC tip for PC bulkhead adapter	FIPT-400-LC-L-137	OK	OK	OK ^b	NO
LX5 for UPC bulkhead adapter	FIPT-400-LX.5	OK	OK	OK	OK

Fiber Inspection Probe Tip Compatibility Chart

Tip Description	Tip Code	Inspection (all models)	Analysis (FIP-415B/ FIP-425B/ FIP-435B)	Auto focus (FIP-415B/ FIP-435B)	Connector Auto detection (FIP-415B/ FIP-435B)
LX5 for APC bulkhead adapter	FIPT-400-LX5-APC	OK	NO	OK	OK
Bulkhead adapter Westover	FIPT-400-ADAPTER	OK	N/A	N/A	N/A
SMA bulkhead adapter	FIPT-400-SMA	OK	NO	OK ^c	OK ^c
SMA male connector	FIPT-400-SMAM	OK	NO	OK ^c	OK ^c
Uni. 1.6 for PC connector	FIPT-400-U16M	OK	NO	OK	OK
MTRJ bulkhead adapter	FIPT-400-MTRJ	OK	NO	NO	NO
SC APC for bulkhead	FIPT-400-SC-APC	OK	OK	OK	OK
Extended SC tip for PC bulkhead adapter	FIPT-400-SC-L	OK	OK	OK ^b	OK ^a

Fiber Inspection Probe Tip Compatibility Chart

Tip Description	Tip Code	Inspection (all models)	Analysis (FIP-415B/ FIP-425B/ FIP-435B)	Auto focus (FIP-415B/ FIP-435B)	Connector Auto detection (FIP-415B/ FIP-435B)
149 mm Extended SC tip for PC bulkhead adapter	FIPT-400-SC-L- 149	OK	OK	OK ^b	NO
SC for APC bulkhead adapter – extended	FIPT-400-SC- APC-L	OK	OK ^a	OK	OK ^a

- a. Use version B of the tip or higher.
- b. A manual focus is required for the first inspection.
- c. Only with a 125 μm ferrule.

Contact your vendor for additional information regarding the most recent Fiber Inspection Probe tips that are not listed above.

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