XTA-50
Optical Tunable Filter

Copyright Information

Trademarks

Units of Measurement

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

Patents

The exhaustive list of patents is available at www.EXFO.com/patent.

Version number: 3.0.0.2

Information in this document applies to the XTA-50 embedded software package version 3.0.x

Contents

Contents

Regulatory Information

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. 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.

Canada Electromagnetic Interference Regulatory Statement

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference.

Cet équipement génère, utilise et peut émettre de l'énergie radio-fréquence et, s'il n'est pas installé et utilisé conformément à la documentation de l'utilisateur, il peut occasionner une interférence néfaste aux communications radio. L'utilisation de cet équipement dans une zone résidentielle est susceptible d'occasionner une interférence néfaste.

Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

Attention: Cet appareil n'est pas destiné à être utilisé dans des environnements résidentiels et peut ne pas assurer la protection adéquate à la réception radioélectrique dans ce type d'environnements.

This is a class A, group 1 product.

➤ Class A equipment: Equipment that is, by virtue of its characteristics, highly unlikely to be used in a residential environment, including a home business shall be classified as class A and shall comply with the class A limits specified in the applicable ICES standard. Characteristics considered in this assessment include price, marketing and advertising methodology, the degree to which the functional design inhibits applications suitable to residential environments, or any combination of features that would effectively preclude the use of such equipment in a residential environment.

Classe A: Matériel qui, en raison de ses caractéristiques, ne sera fort probablement pas utilisé dans un milieu domiciliaire ni par des entreprises établies à domicile. Parmi les caractéristiques considérées dans cette évaluation, il y a le prix, les méthodes de commercialisation et de publicité, la mesure dans laquelle les fonctions de l'appareil font qu'il ne se prête pas à des applications convenant au milieu domiciliaire ou toute

combinaison de ces caractéristiques qui aurait pour conséquence d'en prévenir effectivement l'utilisation à domicile. Utilisé également pour indiquer les limites d'émission correspondantes qui s'appliquent à un tel matériel.

➤ Group 1 equipment: group 1 contains all equipment which is not classified as group 2 equipment, and includes equipment such as laboratory and scientific equipment, industrial process, measurement and control equipment.

Group 2 equipment: group 2 contains all ISM RF equipment in which radio-frequency energy in the frequency range 9 kHz to 400 GHz is intentionally generated and used or only used locally, in the form of electromagnetic radiation, inductive and/or capacitive coupling, for the treatment of material for inspection/analysis purposes, or for transfer of electromagnetic energy.

Appareils du groupe 1 : le groupe 1 réunit tous les appareils compris dans le domaine d'application de la présente Norme, qui ne sont pas classés comme étant des appareils du groupe 2. Le groupe 1 inclut les appareils scientifiques et de laboratoire, les processus industriels, appareils de mesure ou de contrôle.

Appareils du groupe 2 : le groupe 2 réunit tous les appareils ISM à fréquences radioélectriques dans lesquels de l'énergie à fréquences radioélectriques dans la plage de fréquences comprises entre 9 kHz et 400 GHz est produite et utilisée volontairement ou uniquement utilisée localement sous forme de rayonnement électromagnétique, de couplage inductif et/ou capacitif, pour le traitement de la matière, à des fins d'examen ou d'analyse ou pour le transfert d'énergie électromagnétique.

Supplier's Declaration of Conformity (SDoC)

The SDoC for your product is as follows:

CAN ICES-001 (A) / NMB-001 (A)

EU and UK 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 suitable for use in industrial electromagnetic environments.

EU and UK Declaration of Conformity

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

EU Economic Operator

EXFO Solutions SAS
2, rue Jacqueline Auriol,
Saint-Jacques-de-la-Lande,
35091 Rennes Cedex 9
FRANCE

1 Introducing the XTA-50

The XTA-50 is a flat-top tunable filter for fiber-optic component and system testing. It is designed for closely-spaced channel selection and extraction in DWDM applications.

When an optical signal is detected at the XTA-50 input port, the input wave is directed towards the output port after passing through the XTA-50 monochromator, which is tuned at the center wavelength via the XTA-50 software.

Each XTA-50 provides on-board touchscreen controls and user interface to drive both system common controls and parameters. All system operations are software-controlled from the XTA-50 user interface.

The XTA-50 system may also be remote-operated via an external screen or standard USB-B or Ethernet interfaces.

Technical Specifications

The following table lists the technical specifications of all XTA-50 models.

Optical Specifications

> **IMPORTANT**
>
> **The following technical specifications can change without notice. The information presented in this section is provided as a reference only. To obtain this product's most recent technical specifications, visit the EXFO Web site at *www.exfo.com*.**

All specifications are given at 21°± 3°C after 30 minutes warm-up.

	Standard	Ultrafine	O-band[a]	Wide
Wavelength Range	1450–1650 nm	1480–1620 nm	1260–1360 nm	1525–1610 nm
Wavelength Resolution	1 pm	1 pm	1 pm	1 pm
Wavelength Accuracy[b]	±30 pm	±30 pm	±30 pm	±30 pm
Wavelength Tuning Speed	1 s	1 s	1 s	1 s
Minimum Bandwidth (FWHM)	50 pm (6.25 GHz)	32 pm (4 GHz)	50 pm (8 GHz)	50 pm (6.25 GHz)
Maximum Bandwidth (FWHM)	950 pm (120 GHz)	650 pm (80 GHz)	900 pm (160 GHz)	5000 pm (625 GHz)
Bandwidth Resolution	1 pm	1 pm	1 pm	1 pm
Bandwidth Tuning Speed	1 s	1 s	1 s	1 s
Filter Edge Roll-off	500 dB/nm typical[c]	800 dB/nm typical	500 dB/nm typical[c]	500 dB/nm typical[d]
Insertion Loss	5 dB (4.5 dB typical)[e,f]	5 dB (4.0 dB typical)[f,g]	5 dB (4.5 dB typical)[f,h]	5 dB (4.5 dB typical)[i,j]
Flatness	0.2 dB[k]	0.2 dB[l]	0.3 dB[k,m]	0.2 dB[n]
Polarization Dependent Loss	±0.2 dB[e]	±0.2 dB[g]	±0.2 dB[h]	±0.2 dB[i]
Out-band Suppression (crosstalk)	40 dB (60 dB typical)[o]	40 dB (50 dB typical)[o]	40 dB (60 dB typical)[o]	40 dB (45 dB typical)[o]
Maximum Input Power	30 dBm			27 dBm

a   Specifications apply for wavelengths not equal to any water absorption line.
b   With "Backlash Suppression" setting enabled.
c   Between -3 and -40 dB for FWHM <800 pm.
d   Between -3 and -40 dB. Typically 550 dB/nm @ FWHM=50 pm, 450 dB/nm @ FWHM=1 nm, 225 dB/nm @ FWHM=5 nm.
e   From 1500 to 1600 nm & FWHM >100 pm.
f   At lowest FWHM the insertion loss is 7 dB typical.
g   From 1500 to 1600 nm & FWHM >60 pm.
h   From 1280 to 1340 nm & FWHM >100 pm.
i   For FWHM >100 pm.
j   At lowest FWHM the insertion loss is < 7.0 dB.
k   Centered width of FWHM - 150 pm. For 150 pm < FWHM < 650 pm.
l   Centered width of FWHM - 100 pm. For 100 pm < FWHM < 500 pm.
m   From 1280 to 1340 nm.
n   Centered width of FWHM - 150 pm. For 150 pm < FWHM < 2000 pm.
o   Measured 1 nm away from the -3 dB points.

Interface and Electrical Specifications

	Standard	Ultrafine	O-band	Wide
Optical interfaces				
Optical Connector	FC/PC or FC/APC			
Optical Fiber Type	SMF or PMF			SMF
Remote interfaces				
Ethernet RJ45 (x2)	1 Gb/s max. A shielded Ethernet cable is required.			
USB-B	115 kb/s max.			
Display and interfaces for external devices				
Display	7 inch resistive touch-screen (res. 800x480) color TFT-LCD			
External Display	HDMI and DisplayPort			
Mouse, keyboard	USB-A 3.2 (x3), USB-A 2.0 (x1)			
Electrical specifications				
Input Power	see *Electrical Safety Information* on page 11			
Fuse Type (x2)	2 A Slow-acting,High-breaking, 250 V, Ø5x20 mm (T2AH250V)			
Internal clock battery	3V CR2032 (replacement by service personnel only)			
Size				
Dimensions (W x D x H)	254 x 385 x 154 mm (10 in x 15 $^{1/8}$ in x 6 in)			
Weight	6.5 kg (14.33 lb)			

XTA-50 Overview

The XTA-50 is delivered with the following accessories:

➤ A power supply cord

➤ The calibration certificate and the test report

➤ A USB key containing the available drivers and user documentation

Cables for fiber-optic input/output are not provided.

Front Panel

Touch screen

Retractable Leg
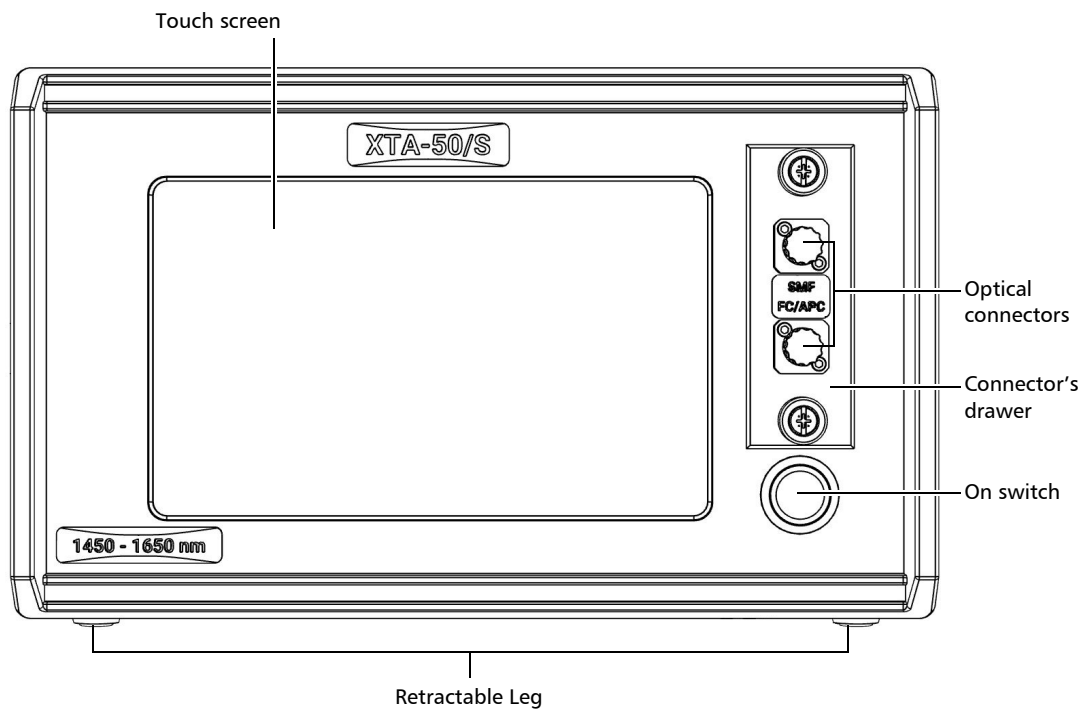
Touch Screen

The touch screen enables you to perform all possible operations on the XTA-50.

To select a parameter, command or function on the screen, touch the corresponding command with the tip of your finger or a touch screen stylus device.

If you apply simultaneous pressure with two or more fingers, the touchscreen will not function properly.

Optical Connectors

The two following optical connectors, protected by a dust cap, are located on the front panel:

➤ **IN**: channel filter input port.

➤ **OUT**: channel filter output port.

The two optical connectors are mounted on a drawer, which enables you to access the internal optical connectors for cleaning (see *Cleaning Optical Connectors* on page 53).

On Switch

The ⏻ label identifies the on button that enables you to turn on the XTA-50 (see *Turning on the XTA-50 and Accessing the Operating Modes* on page 18).

Retractable Legs

The retractable legs enable you to tilt the XTA-50 upward for convenient purpose, so that it stands on both front legs and the rear feet (see *Unpacking and Installing the XTA-50* on page 15).

Rear Panel

Cooling fan   USB-B port

Power switch

Fuse holder

Power cord connector

Ethernet port #1 (DHCP)

DisplayPort

Ethernet port #2

HDMI port

Audio port (unused)

USB-A ports (x4)

Cooling Fan

The cooling fan extracts warm air from inside. Ventilation holes for air input are located on the top and bottom sides of the XTA-50.

Power Input

The XTA-50 is equipped with a self regulating power supply.

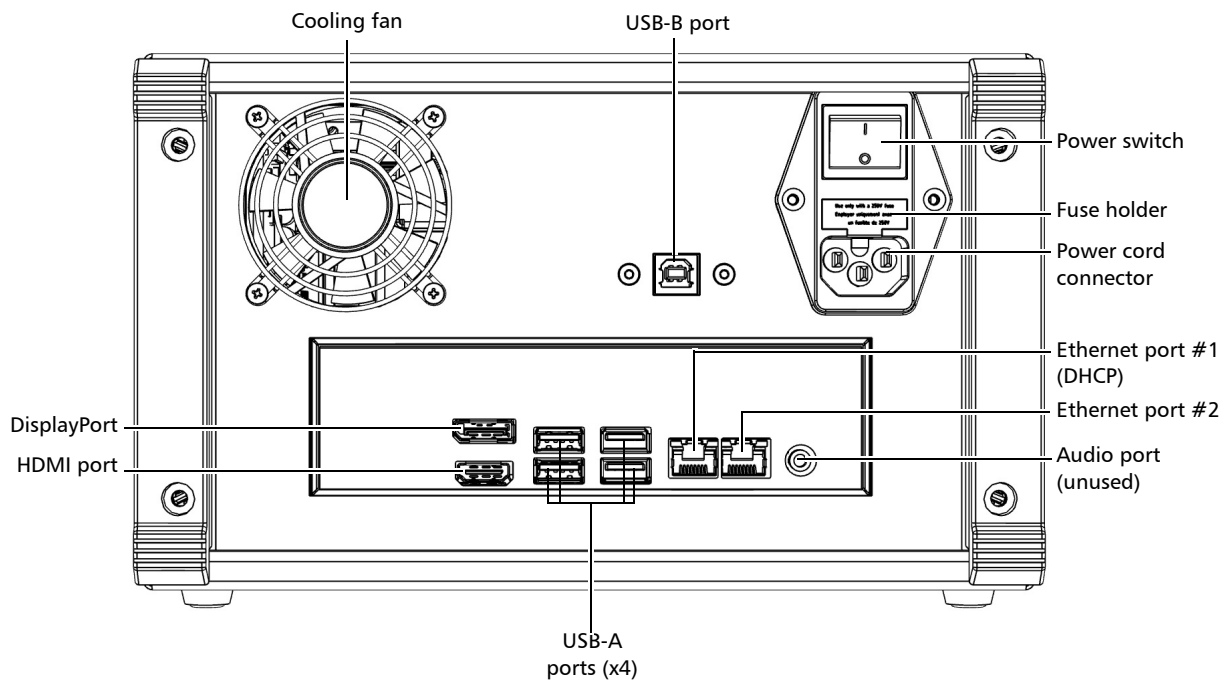The fuse holder contains two fuses to protect the XTA-50 from overcurrent (see *Technical Specifications* on page 1 for fuse type).

USB Ports

➤ **USB-A** ports enable you to connect a USB keyboard and a USB mouse. Do not connect a computer to this port.

    The $SS\overset{\leftarrow}{\rightarrow}$ label identifies the USB-A 3.0 ports, the $\overset{\leftarrow}{\rightarrow}$ identifies the USB-A 2.0 ports.

➤ **USB-B** port enables you to connect a computer for remote control via USB.

    For more details, see *Remotely Controlling the XTA-50 via USB-B* on page 39.

Ethernet Ports

The label identifies the Ethernet RJ45 port, which enables you to connect a computer/network for Ethernet remote control.

➤ Ethernet port #1:

    This port is associated with a DHCP server. It can be used to connect directly a computer that will be assigned automatically an IP address.

➤ Ethernet port #2:

You can configure this port manually or automatically through a remote DHCP server.

For more information, see *Remotely Controlling the XTA-50 via USB-B* on page 39.
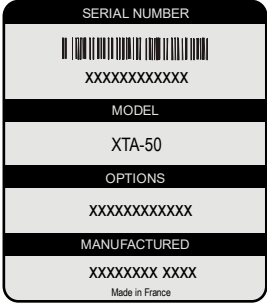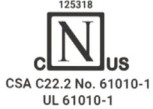
External Screen Connectors

You can connect two external screens to the following ports:

➤ **DisplayPort** port (x2)

➤ **HDMI** port (x2)

For more details, see *Connecting External Screens to the XTA-50* on page 21.

Labels and markings

Label	Description
SERIAL NUMBER XXXXXXXXXXXX MODEL XTA-50 OPTIONS XXXXXXXXXXXX MANUFACTURED XXXXXXXX XXXX Made in France	Identification of the product. Indicates serial number, model, options (if any) and date of manufacture.
Manufactured by: **EXFO** 4, rue Louis de Broglie www.EXFO.com 22300 LANNION Tel: +33 2 96 48 37 15 France Fax: +33 2 96 48 73 04	Manufacturer identification. Indicates contact information of the manufacturer.
⚠	Indicates an injury hazard. It appears on a location that requires special instructions for proper use: see *Safety Information* on page 9.
⊟	Fuse type. See *Technical Specifications* on page 1.
(10)	EFUP label (RoHS China). See *Chinese Regulation on Restriction of Hazardous Substances (RoHS)* on page 81.
🗑	WEEE symbol for recycling. See *Recycling and Disposal* on page 58.
125318 c[N]us CSA C22.2 No. 61010-1 UL 61010-1	Safety certification label.
CAN ICES-001 (A) / NMB-001 (A)	Canadian certification. See *Regulatory Information* on page v.
UK CA	UK conformity assessment. See *Regulatory Information* on page v.
CE	CE marking. See *Regulatory Information* on page v.
WINDOWS 10 Product Key: XXXXX - XXXXX - XXXXX - XXXXX - XXXXX	Windows license label The XTA-50 embeds Windows 10.
⚠ Warranty void if seal broken.	Warranty seal. The XTA-50 cover must not be open, otherwise the warranty is not valid anymore.

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.

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.**

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

Electrical Safety Information

This unit uses an international safety standard three-wire power cable. This cable serves as a ground when connected to an appropriate AC power outlet.

WARNING

➤ **If you need to ensure that the unit is completely turned off, disconnect the power cable.**

➤ **Use only the certified power cord that is suitably rated for the country where the unit is used.**

➤ **Replacing detachable MAINS supply cords by inadequately RATED cords may result in overheating of the cord and create a risk of fire.**

The color coding used in the electric cable depends on the cable. New plugs should meet the local safety requirements and include:

➤ adequate load-carrying capacity

➤ ground connection

➤ cable clamp

WARNING

➤ **Use this unit indoors only.**

➤ **Do not remove unit covers during operation.**

➤ **Operation of any electrical instrument around flammable gases or fumes constitutes a major safety hazard.**

➤ **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 power cable is connected.**

➤ **Your unit is equipped with an internal replaceable clock battery to keep time and date accurate. Only authorized personnel can replace this battery. Attempting to replace it yourself could seriously compromise your safety.**

➤ **Use only fuses with the required rated current and specified type (T2AH250V). Do not use repaired fuses or short-circuited fuse holders. For more information, see the section about replacing the fuses in this user documentation.**

➤ **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.**

CAUTION

Position the unit so that the air can circulate freely around it.

Equipment Ratings		
Temperature	Operation	+15 °C to +35 °C (+59 °F to +95 °F)
	Storage	-20 °C to +60 °C(-4 °F to 140 °F)
Performance guaranteed temperature		21°± 3°C after 30 minutes warm-up
Relative humidity		80 % for temperatures up to 31°C decreasing linearly to 50 % relative humidity at 40°C
Maximum operation altitude		< 2000 m (6562 ft)
Pollution degree		2
Overvoltage category		II
Measurement category		Not rated for measurement categories II, III, or IV
Input power[a]		100–240 V $\sim$; 50/60 Hz; 1.2–0.5 A

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

CAUTION

➤ **The use of voltages higher than those indicated on the label affixed to your unit may damage the unit.**

3 *Getting Started with Your XTA-50*

This section explains how to properly install and connect your XTA-50.

Unpacking and Installing the XTA-50

The XTA-50 is a bench-top instrument designed for indoor use only, and is not dedicated to wet locations. It is designed for use either in the horizontal or tilted position.

CAUTION

➤ **Make sure the location where the XTA-50 will be installed meets the environmental characteristics listed in *Electrical Safety Information* on page 11.**

➤ **Do not install the XTA-50 near any source of heat or cold.**

➤ **To ensure proper ventilation and cooling, make sure there is sufficient clearance below, and at the back of the XTA-50 in the place where it will be installed.**

To unpack and install the XTA-50:

1. Open the package with care and remove the protective foam.

IMPORTANT

When unpacking, handle the device with care and do not damage the original shipping container in case the XTA-50 needs to be returned to EXFO.

2. Pull out the XTA-50 vertically from its packaging and keep it horizontal.

3. Set he XTA-50 on a flat stable surface free of excessive vibration and make sure you can easily reach the rear of the instrument to remove the power supply cord if necessary.

4. Allow the flow of air to circulate freely around the XTA-50 and remove any equipment or paper that could block the air flow. Ventilation holes are located on the bottom side of the XTA-50.

Do not place anything under or at the rear of the XTA-50, as illustrated in the following figure.

5 cm or more

Air output from cooling fan

Rear   Front

Air input (ventilation holes)
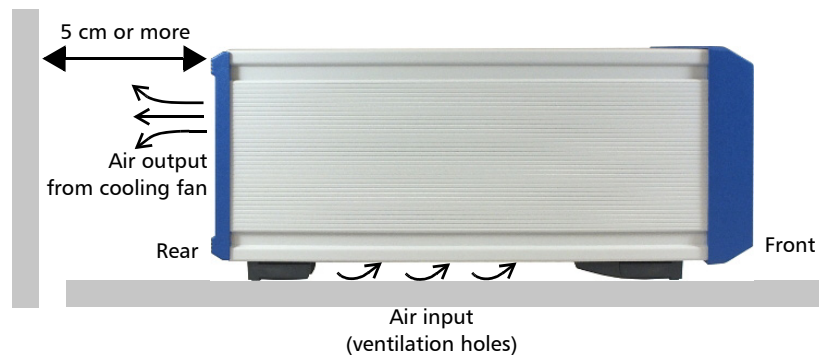
5. On the rear panel (see *Rear Panel* on page 5), make sure the power switch is set to **O**.

6. To tilt the XTA-50 upward (bench-top use only), deploy the two retractable legs located below it, as illustrated in the following figure.

Connecting the XTA-50 to a Power Source

The XTA-50 has a chassis connected to ground via the power supply cord. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation..

To connect the XTA-50 to a wall socket:

1. On the rear panel, make sure the power switch is set to **O**.

2. On the rear panel, connect the power supply cable provided with the instrument to the mains socket.

3. Plug the other end of the power supply cable to the proper voltage wall socket outlet (to know the voltage requirement, see *Technical Specifications* on page 1).

4. On the rear panel, set the power switch to **I**.

Connecting a Mouse and Keyboard to the XTA-50

To operate the XTA-50 GUI, you can use the touchscreen or connect a USB mouse and keyboard to the USB-A ports located on the rear panel of the XTA-50 (see *XTA-50 Overview* on page 3).

To connect a mouse and keyboard:

Connect the USB mouse and keyboard to one of the available USB-A ports of the XTA-50 mainframe (you do not need to restart the XTA-50).

All operations available using the multi-touch screen are also accessible using the mouse and keyboard (QWERTY keyboard).

Connecting Optical Devices to the XTA-50

CAUTION

➤ **Make sure you use the appropriate connector type, corresponding to the one mounted on your XTA-50 (see *Technical Specifications* on page 1 for available models).**

➤ **Make sure optical connectors are perfectly clean. It is essential to achieve optimum system performance (see *Cleaning Optical Connectors* on page 53).**

➤ **To prevent premature failure of the XTA-50 optical connectors due to frequent connections, always keep a fiber-optic jumper cable connected to the XTA-50 optical port while you use the jumper's free end to connect to other devices.**

To connect optical devices to the XTA-50

Remove the protective cap from the **IN** and **OUT** connectors and connect the appropriate jumper corresponding to the connector type mounted on your product, as indicated next to the connectors (see *Rear Panel* on page 5).

IMPORTANT

Keep protective caps on optical connectors when not in use..

Turning on the XTA-50 and Accessing the Operating Modes

The **Operating Mode** window enables you to access all XTA-50 functions.

To access the XTA-50 Operating Mode window

1. Make sure the XTA-50 is properly installed: see *Unpacking and Installing the XTA-50* on page 15.

2. Do one of the following:

➤ If the XTA-50 is turned off: on the XTA-50 front panel, press the on button (see *Front Panel* on page 3).

The button lights up and the initialization procedure starts.

CAUTION

Do not turn the XTA-50 off during the system initialization.

Once started, the **About** window is displayed for a few seconds before the **Operating Mode** window appears.

➤ If the XTA-50 is turned on and you have entered an operating mode or a configuration window, touch the [BACK] button to get back to the **Operating Mode** window.
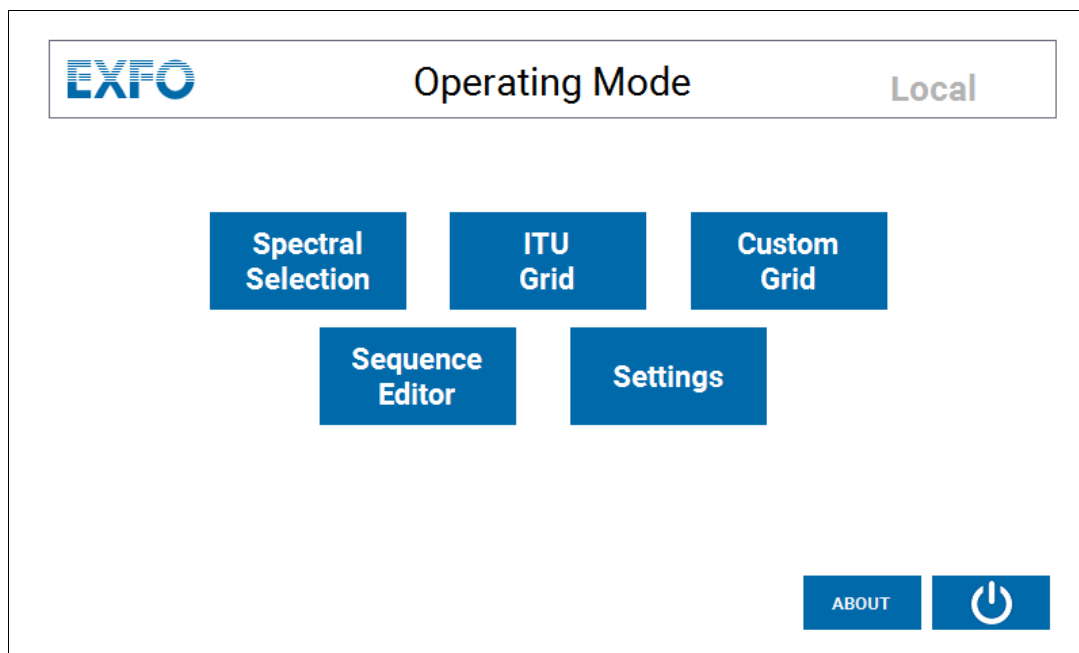
The **Operating Mode** window enables you to access the following functions:

Button	Description	Corresponding section
Spectral Selection	Enables you to manually set the wavelength/frequency and FWHM values.	*Manually Entering the Wavelength/Frequency and FWHM Values* on page 24.
ITU Grid	Enables you to select and use an ITU grid to rapidly select a channel (not available in the XTA-50 O-band model).	*Using a Predefined Grid to Select a Channel* on page 26.
Custom Grid	Enables you to create and use a custom grid.	*Using a Custom Grid to Select a Channel* on page 28.
Sequence Editor	Enables you to create and use sequences.	*Defining and Running a Sequence of Wavelength/Frequency and FWHM Values* on page 30.
Settings	Enables you to configure ports for remote control, define general parameters and access operating system.	➤ *Setting the XTA-50 Ethernet Ports* on page 42 ➤ *Enabling/Disabling the Backlash Suppression Mechanism* on page 35 ➤ *Setting the Screen Brightness* on page 20 ➤ *Updating the Operating System Version (Security Updates)* on page 51 ➤ *Accessing the Operating System* on page 52
ABOUT	Provides information about the XTA-50 model and version.	*Checking the Firmware Version* on page 60.
⏻	Turns the XTA-50 off.	*Turning off the XTA-50* on page 22.

Setting the Screen Brightness

You can control the screen brightness from the Settings window, as explained in the following procedure.

If you have connected an external screen to the XTA-50 (see *Controlling the XTA-50 Graphical Interface from an External Screen* on page 44), this function is not applicable.

To modify the brightness:

1. In the **Operating Mode** window, touch the **Settings** button.

The **Settings** window appears.

2. In the **Display** area, slide the **Backlight** cursor to increase or decrease the screen brightness.

3. Touch the **Apply** button.

Connecting an External Screen to the XTA-50

You can connect an external screen to the XTA-50 to display and control the graphical interface.

> # CAUTION
>
> **Never connect two external screens simultaneously to the XTA-50: you must only use one of the two available ports.**

To connect and control the XTA-50 from an external screen:

1. Connect your external screen to the DisplayPort or HDMI port located on the rear panel of the XTA-50 (see *Rear Panel* on page 5).

The XTA-50 graphical interface immediately appears on the external screen.

2. Do one of the following, depending on the type of screen you have connected:

➤ If you have connected a touchscreen, connect the USB-B port of your touchscreen to one of the USB-A ports of the XTA-50 to control the graphical interface by using touch screen gestures.

➤ If your screen is not a touchscreen, connect a mouse to one of the USB-A port located on the XTA-50 rear panel (see *Rear Panel* on page 5) to control the graphical interface.

3. To stop the remote display, disconnect the DisplayPort or HDMI cable from the XTA-50.

Turning off the XTA-50

The following procedure explains how to properly turn off the XTA-50.

> ## CAUTION
>
> **Never turn the XTA-50 off by directly setting the power switch to O or using the On switch located on the front panel**

To turn the XTA-50 off:

1. Access the **Operating Mode** window (see *Turning on the XTA-50 and Accessing the Operating Modes* on page 18).

2. In the **Operating Mode** window, touch the button.

> ## CAUTION
>
> **Do not unplug any power cord during the shutdown process.**

A confirmation message appears.

3. Touch the **Continue** button.

The XTA-50 stops

4. On the rear panel, set the power switch to **O**.

4 Setting the Wavelength/Frequency and FWHM Values

To define the center wavelength or frequency, you can manually enter a value or use a predefined ITU grid, as explained in the following sections.

FWHM Constrain on Central Wavelength:

As shown in the following, the minimum (and maximum) central wavelength reachable value is constrained by FWHM.

➤ λ_1 is the minimum central wavelength reachable with $FWHM_1$.

$\lambda_1 = \lambda_{min} + FWHM_1 / 2$.

➤ λ_2 is the minimum central wavelength reachable with $FWHM_2$.

$\lambda_2 = \lambda_{min} + FWHM_2 / 2.z$
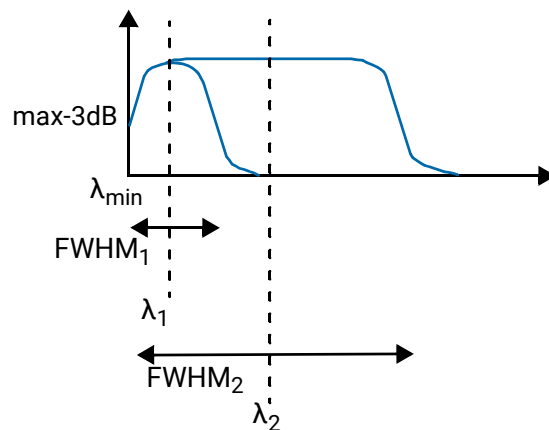
Manually Entering the Wavelength/Frequency and FWHM Values

The **Spectral Selection** function enables you to manually set the wavelength or frequency and FWHM values.

To set the wavelength/Frequency value:

1. In the **Operating Mode** window, touch the **Spectral Selection** button.

The **Spectral Selection** window appears.
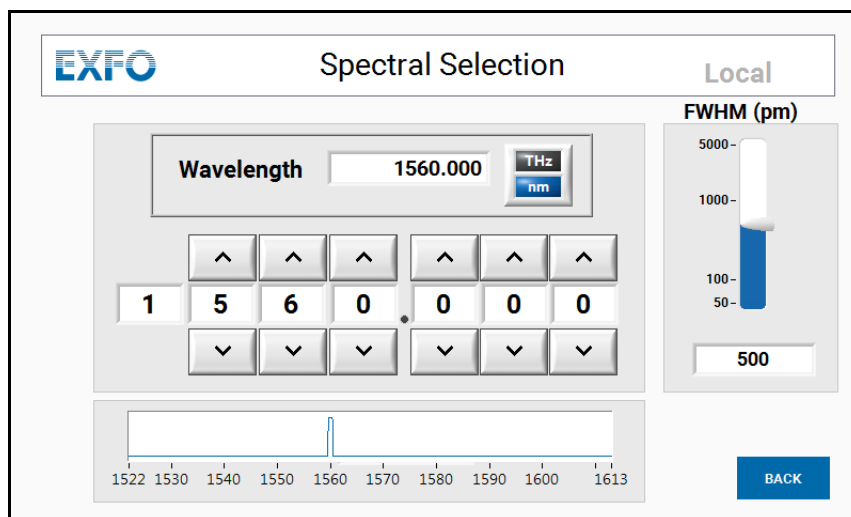
2. Specify the wanted spectral unit by touching the [THz/nm] button.

➤ In wavelength mode:

FWHM unit is pm (picometer).

Wavelength unit is nm (nanometer).

➤ In frequency mode:

FWHM unit is GHz (gigahertz).

Frequency unit is THz (terahertz).

3. Specify the wanted wavelength or frequency value by doing one of the following:

➤ Touch the **Wavelength** or **Frequency** field and using the virtual keypad appearing on screen, enter the wavelength/frequency value.

➤ Touch the [^] and [v] buttons to increment/decrement the displayed digits of the wavelength/frequency value.

➤ Touch one wavelength/frequency digit and using the virtual keypad appearing on screen, enter the wanted value for the digit.

The graph display the selected wavelength/frequency value.

The available wavelength values are detailed in *Technical Specifications* on page 1.

To set the FWHM:

IMPORTANT

FWHM can be constrained by wavelength/frequency value (see *FWHM Constrain on Central Wavelength:* on page 23 for reverse principle).

1. In the **FWHM** area, touch the gauge.

   The virtual keypad appearing on screen is initialized with the value corresponding to the point you have touched on the gauge.

2. Enter the wanted FWHM value using the virtual keypad.

   The available FWHM values are detailed in *Technical Specifications* on page 1.

Selecting a Channel by Using an ITU Grid

Using a Predefined Grid to Select a Channel

The **ITU Grid** function enables you to use a predefined ITU grid to quickly select a channel.

This function is not available for O-band models of the XTA-50.

To select a channel in the predefined ITU grid:

1. In the **Operating Mode** window, touch the **ITU Grid** button.

The **ITU Grid Selection** window appears.
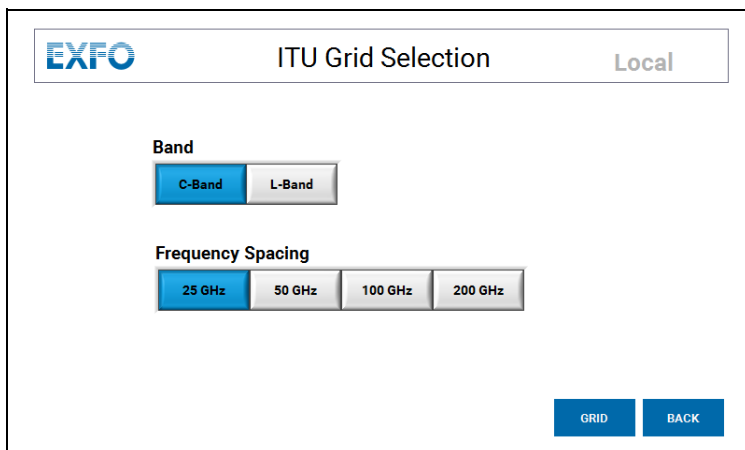
2. Set the predefined grid you want to use:

➤ **Band**: touch the button corresponding to the band you want to use.

➤ **Frequency Spacing**: touch the button corresponding to the wanted spacing between two channels of the grid.

3. Touch the **Grid** button to display the selected ITU grid.

The grid window appears: channels are organized in tables. Each tab corresponds to a table and the name of the tab is the first value of its table.
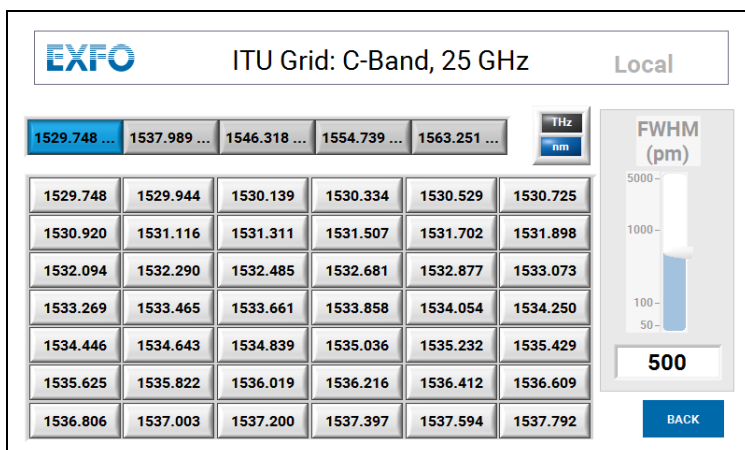
4. Specify the wanted spectral unit by touching the [THz / nm] button.

➤ In wavelength mode:

FWHM unit is pm (picometer).

Wavelength unit is nm (nanometer).

➤ In frequency mode:

FWHM unit is GHz (gigahertz).

Frequency unit is THz (terahertz).

5. Select the wanted channel:

5a. Touch the tab to display the corresponding table.

5b. In the table, select the value corresponding to the wanted channel.

To set the FWHM:

IMPORTANT

FWHM can be constrained by wavelength/frequency value (see *FWHM Constrain on Central Wavelength:* on page 23 for reverse principle).

1. In the **FWHM** area, touch the gauge.

The virtual keypad appearing on screen is initialized with the value corresponding to the point you have touched on the gauge.

2. Enter the wanted FWHM value using the virtual keypad.

The available FWHM values are detailed in *Technical Specifications* on page 1.

Using a Custom Grid to Select a Channel

The **Custom Grid** function enables you to create and use a custom grid to select a channel.

To specify your custom grid:

1. In the **Operating Mode** window, touch the **Custom Grid** button.

The **Custom Grid Selection** window appears.

2. Create your custom grid:

2a. Specify the wanted spectral unit by touching the [THz/nm] button.

2b. Specify the starting wavelength/frequency to use for the grid:

➤ Touch the **Start** field and enter the wavelength/frequency value by using the virtual keypad appearing on screen.

➤ In the **Start value** field, touch the [∧] and [∨] buttons to increment/decrement the displayed digits of the wavelength/frequency value.

➤ Touch one wavelength/frequency digit and enter the wanted value for the digit by using the virtual keypad appearing on screen.

2c. Touch the **Spacing** field to specify the spacing value between two channels of the grid using the virtual keypad appearing on screen.

The maximum available wavelength corresponding to your configuration appears in the **Max** field and the number of channels appears in the **Number of elements** field.

To display and use your custom grid:

1. Touch the **Grid** button to display the created grid.

The grid window appears: channels are organized in tables. Each tab corresponds to a table and the name of the tab is the first value of its table.
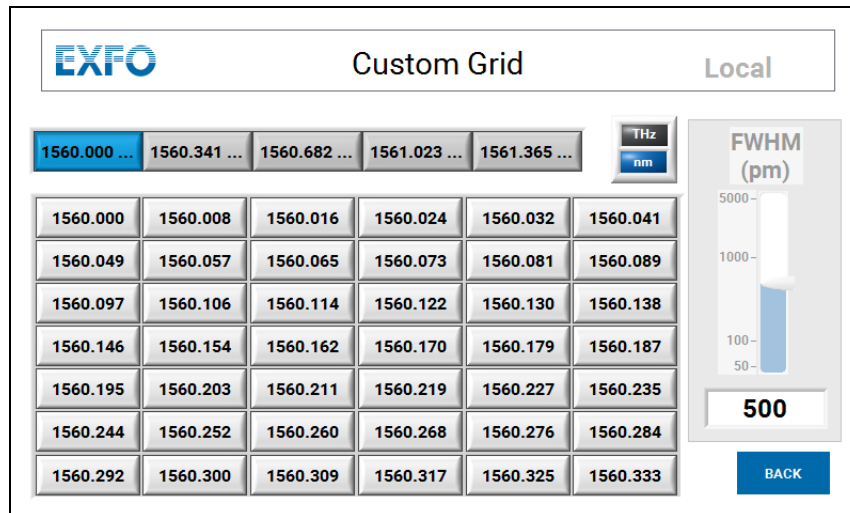
2. Specify the wanted spectral unit by touching the ⬛ button.

    ➤ In wavelength mode:

    FWHM unit is pm (picometer).

    Wavelength unit is nm (nanometer).

    ➤ In frequency mode:

    FWHM unit is GHz (gigahertz).

    Frequency unit is THz (terahertz).

3. Select the wanted channel:

    3a. Touch the tab to display the corresponding table.

    3b. In the table, select the value corresponding to the wanted channel.

To set the FWHM:

!IMPORTANT

FWHM can be constrained by wavelength/frequency value (see *FWHM Constrain on Central Wavelength:* on page 23 for reverse principle).

1. In the **FWHM** area, touch the gauge.

    The virtual keypad appearing on screen is initialized with the value corresponding to the point you have touched on the gauge.

2. Enter the wanted FWHM value using the virtual keypad.

    The available FWHM values are detailed in *Technical Specifications* on page 1.

Defining and Running a Sequence of Wavelength/Frequency and FWHM Values

The **Sequence Editor** function enables you to create a list of wavelength and FWHM values that the XTA-50 will be able to execute without supervision.

An instruction is composed of:

➤ a wavelength/frequency value

➤ FWHM

➤ duration of the instruction execution.

Each instruction can be triggered by a specific time. You can save, load and run sequences you have created, as explained in this section.

Creating a Sequence

To create a sequence:

1. In the **Operating Mode** window, touch the **Sequence Editor** button.

The **Sequence Editor** window appears.
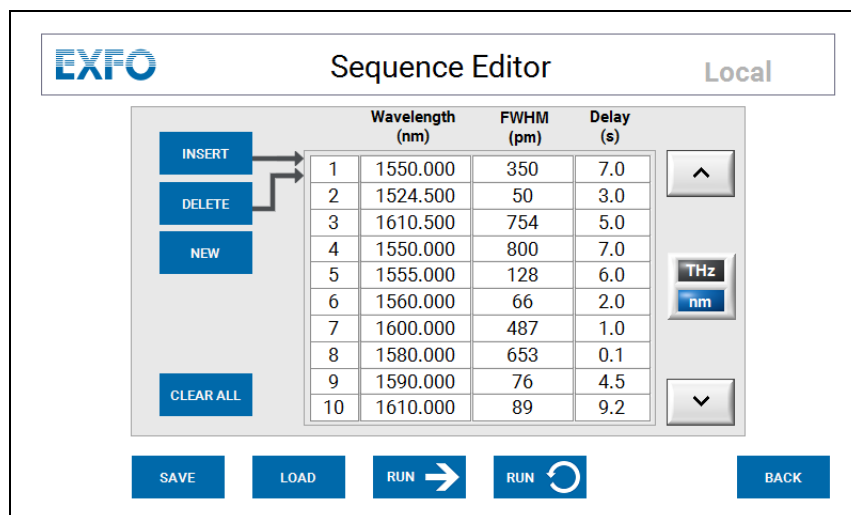
2. Specify the wanted spectral unit by touching the ⬛ button.

➤ In wavelength mode:

FWHM unit is pm (picometer).

Wavelength unit is nm (nanometer).

➤ In frequency mode:

FWHM unit is GHz (gigahertz).

Frequency unit is THz (terahertz).

3. Add instructions to the list by touching the following buttons:

Maximum instruction number is 200.

INSERT	Adds an instruction before the first instruction displayed in the list
NEW	Adds an instruction at the end of the list.
DELETE	Deletes the first instruction of the list.
∧ ∨	Enables you to navigate through the list.

4. For each instruction, specify the wanted values by touching the corresponding fields:

➤ **Wavelength/Frequency**

➤ **FWHM**

➤ **Delay**: period of time between instruction execution (in seconds).
Possible value: 0.1 to 100 seconds.

Running a Sequence

The XTA-50 provides two ways to execute a sequence:

➤ Executing a single run of the listed instructions

➤ Executing the listed instructions continuously.

To execute a single run:

1. In the **Sequence Editor** window, display the list of instructions you want to execute by creating (see *Creating a Sequence* on page 30) or loading (see *Loading a Sequence* on page 34) a sequence.

2. In the **Sequence Editor** window, touch the RUN ➡ button.

The **Running Single Sequence** window appears.
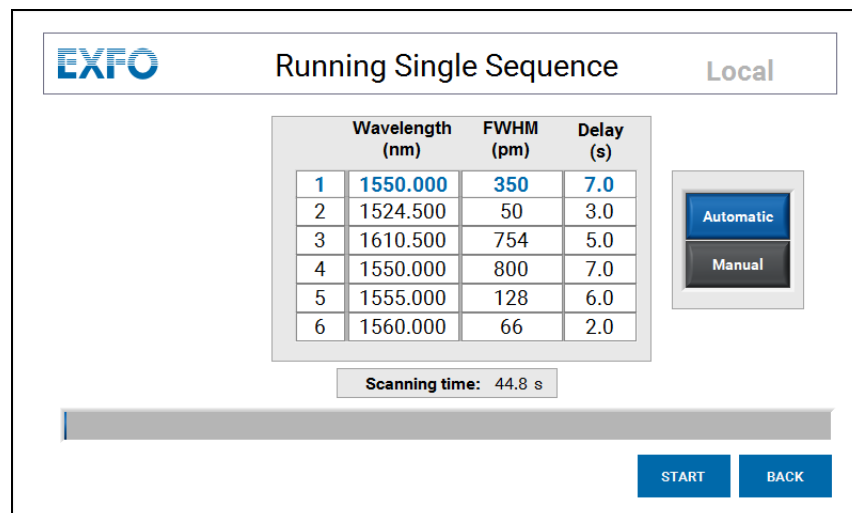
3. Select the sequence execution mode by touching one of the following buttons:

> ➤ **Automatic**: the entire sequence is automatically executed.

> ➤ **Manual**: this mode enables you to execute the sequence step by step. The first instruction is executed and the sequence execution stops until you touch the **Next** button.

4. Touch the **Start** button to begin the sequence execution.

> ➤ To stop the sequence execution touch the ⬛ BACK button.

> ➤ In Manual execution mode, the first instruction is executed. Touch the **Next** button to execute the following instruction.

5. To go back to the **Sequence Editor** page, touch the ⬛ BACK button.

Executing the Sequence Continuously

1. In the **Sequence Editor** window, touch the ⬛ RUN ↻ button.

The **Running Loop Sequence** window appears and the sequence is automatically started.
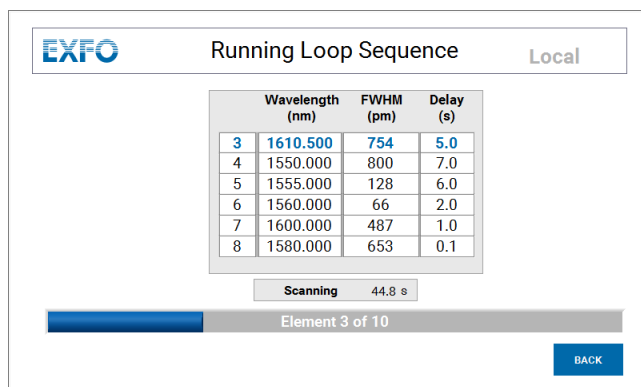
2. To stop the sequence execution touch the ⬛ BACK button.

3. To go back to the **Sequence Editor** page, touch the ⬛ BACK button again.

Saving a Sequence

You can save the sequence you have just created on the XTA-50 internal disk, as explained in the following procedure.

You cannot save sequences on an external device.

To save a sequence

1. In the **Sequence Editor** window, touch the [SAVE] button.

The **Save Sequence** window appears, displaying the previously saved sequences.

The default sequence name is YY.MM.DD_HH.MM
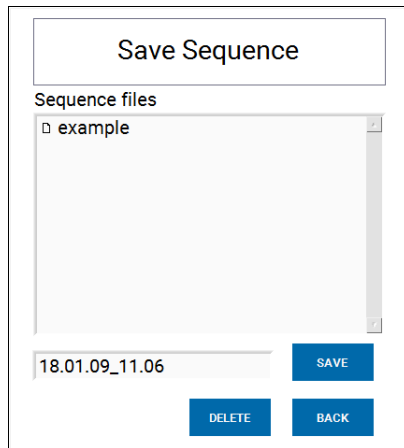
2. To modify the sequence name, touch the name field and using the virtual keyboard appearing on screen, enter the wanted sequence name and touch **OK**.

3. To delete a previously saved sequence, select the sequence name in the **Sequence files** list and touch the [DELETE] button.

4. Save the new sequence to the XTA-50 internal disk by touching the [SAVE] button.

Loading a Sequence

You can load a previously saved sequence, as explained in the following procedure.

You cannot load a sequence from an external device.

To load a sequence:

1. In the **Sequence Editor** window, touch the [LOAD] button.

The **Load Sequence** window appears, displaying the previously saved sequences.

The default sequence name is YY.MM.DD_HH.MM
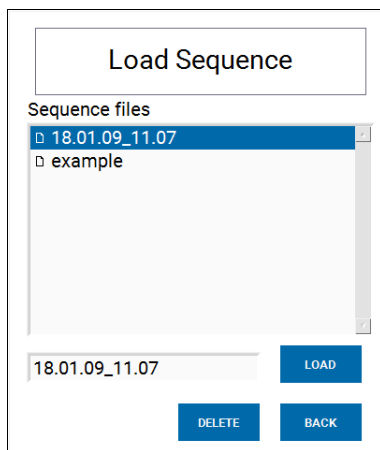
2. To delete a previously saved sequence, select the sequence name in the **Sequence files** list and touch the [DELETE] button.

3. Load the selected sequence by touching the [LOAD] button.

Enabling/Disabling the Backlash Suppression Mechanism

When you change the wavelength/frequency or FWHM value, the XTA-50 automatically operates the backlash suppression mechanism to eliminate the effect of mechanical backlash on the tuning wavelength actuator: it moves 5 nm lower than the wanted wavelength/frequency before going to the requested wavelength/frequency.

This mechanism is enabled after each startup of the XTA-50.

You may want to disable the backlash suppression mechanism for specific applications, as explained in the following procedure.

> # IMPORTANT
> **If you disable the backlash suppression, the wavelength/frequency accuracy specification is no longer guaranteed.**

To enable or disable the backlash mechanism:

1. In the **Operating Mode** window, touch the **Settings** button.

   The **Settings** window appears.

2. In the **Backlash Suppression** area:

   ➤ To disable the backlash suppression mechanism, touch the **Enabled** button.

   ➤ To enable the backlash suppression mechanism, touch the **Disabled** button

3. Touch the **Apply** button.

5 Remotely Controlling the XTA-50

You can remotely control the XTA-50 through the following interfaces located on the rear panel (see *Rear Panel* on page 5):

➤ **USB-B** (see *Remotely Controlling the XTA-50 via USB-B* on page 39)

➤ **Ethernet** (see *Remotely Controlling the XTA-50 via Ethernet* on page 42)

You can find all the commands and queries supported by the XTA-50 in *Command Reference* on page 67.

This section explains how to connect the XTA-50 to an external device such as PC for remote control and gives details on communication principles.

Installing/Updating and Starting the XTA-50 Remote Program

If LabVIEW is not installed on your computer or if you want to check the connection using a dedicated interface, you can install the XTA-50 Remote Client program, which enables you to remotely access the XTA-50.

If the XTA-50 Remote program is already installed on your computer and you want to update it, you do not need to uninstall it, just follow the installation procedure below.

To install or update the XTA-50 Remote program:

1. From the XTA-50 USB key or the EXFO website, copy the **Remote Client x.x.x** folder to a local directory on your computer.

2. Double-click the **setup.exe** file located in the **Remote Client x.x.x** folder.

   The installation wizard appears.

3. Follow the instructions displayed in the wizard window to install the program.

4. Restart your computer.

To start the XTA-50 Remote program:

1. To start the **Remote Client** software, double-click **XTA-50 Remote.exe** located in **C:\Program Files\EXFO\XTA-50 Remote** (default location).

2. If you want to remotely control the XTA-50 via USB-B, you must install the USB driver on your computer as explained in *Installing the USB Driver* on page 39 before using the **XTA-50 Remote** program.

Switching Between Remote and Local Mode

You can use the remote mode after initialization of the XTA-50 and after validation of the presentation page appearing at device start-up.

If a sequence is running, wavelength, frequency and FWHM remote assignment are disabled.

To enter the Remote mode:

1. Connect the XTA-50 to the external controller and make sure the port used is properly configured.

2. Do one of the following:

   ➤ Send a USB command to the XTA-50.

   ➤ Open an Ethernet session.

   When the XTA-50 enters the remote mode, the touch screen comes back to the main menu and all controls are disabled.
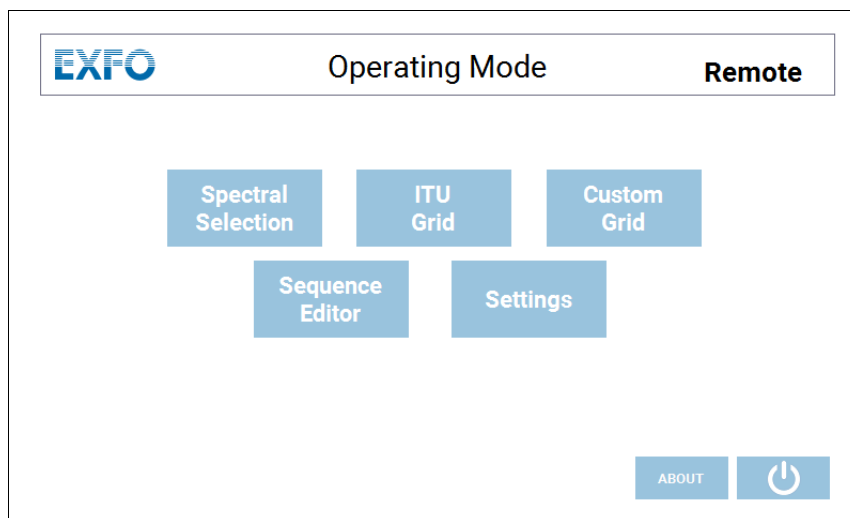
To switch back to Local mode:

In remote mode, the **Remote** label (at the top right corner) is available in the **Operating mode** window. To go back to the local mode, do one of the following:

➤ Click on the **Remote** label.

➤ Use the `LOCAL` remote command (see *Command Reference* on page 67).

➤ If using the Ethernet interface, close the Ethernet session using the remote application software.

The XTA-50 switches back to remote mode as soon as it receives a command.

Remotely Controlling the XTA-50 via USB-B

The USB-B port enables you to connect the XTA-50 to a computer to control it with remote commands. The XTA-50 can receive RS-232C commands at the USB-B port from a computer on which the appropriate USB driver is installed.

Installing the USB Driver

The XTA-50 USB Driver is available on the USB key provided with the product, or can be downloaded from the EXFO website.

You must install the XTA-50 USB Driver on your computer in order to make the XTA-50 USB-B port appear as an additional COM port available to the computer.

Application software can then access the USB port in the same way as it would access a standard COM port. Therefore, you can send RS-232C commands to the XTA-50 using a serial-communication terminal.

To install the USB driver:

1. Make sure your computer runs Windows 10 operating system.
   If not, the XTA-50 USB driver is not supported by your computer.

2. If a previous version of the XTA-50 USB driver is already installed on your computer, uninstall it.

3. Make sure you have a USB-B/USB-A cable.

USB-B   USB-A

4. Do one of the following:

   ➤ Connect the XTA-50 USB key to the USB-A port of your computer.

   ➤ From the EXFO website (http://www.exfo.com/software/exfo-apps), download the XTA-50 USB driver and unzip it to a temporary folder on your computer.

5. In the **XTA-50 USB Driver** folder, double-click one of the following files, depending on you Windows platform (if you select the wrong file, a message appears, prompting you to select the other file):

   ➤ 32-bit system: XTA-50 USB Driver Installer_x86.exe

   ➤ 64-bit system: XTA-50 USB Driver Installer_x64.exe

   The USB Driver installation wizard appears.

6. Follow the instructions displayed in the wizard window.

   The XTA-50 USB Driver is now installed on your computer.

7. Connect the USB B port of the XTA-50 (see *Rear Panel* on page 5) to the USB-A port of your computer using a USB-B/USB-A cable.

IMPORTANT

Do not connect your computer to the XTA-50 USB-A port. The USB remote mode is only available through the XTA-50 USB-B port.

The XTA-50 USB-B port is recognized as a COM port by the compruter.

8. To know the COM port number your computer use for the XTA-50, open the Windows **Device Manager** (**Control Panel**>**Devices and Printers**) and browse the **Ports (COM & LPT)** folder.

Controlling the XTA-50 via USB-B

To control the XTA-50, you can use LabVIEW or the Remote Client program provided with the XTA-50, as explained in the following procedures.

To control the XTA-50 using LabVIEW:

1. If LabVIEW is already installed on your computer, use the following files:

➤ **<XTA-50 USB key>\LabVIEW Example\XTA-50 Remote.lvproj**: this file contains the LabVIEW sample project.

➤ **<XTA-50 USB key>\LabVIEW Example\src\Clients.vi**: this file contains a sample LabVIEW program for either an Ethernet or USB interface.

➤ **<XTA-50 USB key>\LabVIEW Example\src\CP1202 UART USB**: this directory contains all the .vi files for USB control.

The following identifiers are required by the LabVIEW driver.

➤ PID (Product IDentifier): 0x8606

➤ Baud rate: 115200

➤ Parity: None

➤ Stop bits: 1 stop bit

➤ DSR: Status input

➤ DTR: Held inactive

➤ DCD: Status input

➤ CTS: Status input

➤ RTS: Held inactive

➤ xonxoff: false/OFF

2. Make sure you the XTA-50 USB Driver is installed on you computer (see *Installing the USB Driver* on page 39).

3. Connect the USB B port of the XTA-50 (see *Rear Panel* on page 5) to your computer with a USB-A to USB-B cable.

4. Use the authorized remote commands detailed in *Command Reference* on page 67 to remotely control the XTA-50.

To control the XTA-50 using the XTA-50 Remote Client:

1. Install and start the **XTA-50 Remote Client** program on your computer as explained in *Installing/Updating and Starting the XTA-50 Remote Program* on page 37.

If you don't intend to program with LabVIEW, you can use this software to check the connection between your computer and the XTA-50 via this interface.

2. Make sure you the XTA-50 USB Driver is installed on you computer (see *Installing the USB Driver* on page 39).

3. Connect the USB B port of the XTA-50 (see *Rear Panel* on page 5) to your computer with a USB-A to USB-B cable.

4. In the **XTA-50 Remote Client** program, select the **USB** tab.

5. In the **COM Port** field, select the computer COM port used for the XTA-50.

To know the COM port number your computer use for the XTA-50, open the Windows Device Manager (Control Panel>Devices and Printers) and browse the Ports (COM & LPT) folder.

6. Click the **Connect** button.

7. Use the **Command** and **Parameter** fields to send commands to the XTA-50.

8. Use the authorized remote commands detailed in *Command Reference* on page 67 to remotely control the XTA-50.

Remotely Controlling the XTA-50 via Ethernet

The Ethernet port enables you to connect the XTA-50 to a computer or to a network to control it with remote commands.

Setting the XTA-50 Ethernet Ports

To connect the XTA-50 to a computer or network via the Ethernet port, use the **Settings** window to configure the IP address as explained in the following procedure.
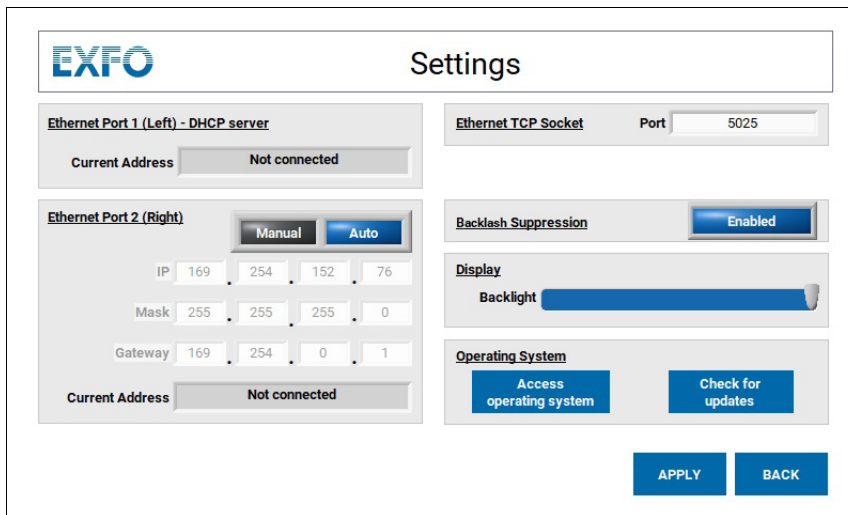
To set the XTA-50 Ethernet port:

1. Make sure you have an Ethernet RJ45 cable to link the XTA-50 to your computer.

2. In the **Operating Mode** window, touch the **Settings** button.

The **Settings** window appears.

3. In the **Ethernet TCP Socket** area, specify the TCP socket **Port**, which is the TCP destination port to be used by the socket to allow data transmission between the XTA-50 and the external controller.

Default value: 5025 (SCPI-RAW)

4. Make sure the firewall of your computer allows communication on this port.

5. Connect the RJ45 cable to the wanted port:

➤ Use port #1 (left) to directly connect a computer to the XTA-50. This port provides an automatic IP address configuration.

➤ Use port #2 (right) to remotely control the XTA-50 from a computer through your company network, or to directly connect a computer to the XTA-50 and manually configure the connection parameters.

6. Set the corresponding parameters as described in the following table.

Parameter	Description
Ethernet Port 1 (Left) - DHCP server	Displays the address automatically assigned to the XTA-50. Default XTA-50 IP address: 192.168.54.1
Ethernet Port 2 (Right)	Specify the wanted IP configuration mode by touching the Manual Auto button. ➤ **Auto**: the XTA-50 connection parameters (IP address, subnet mask and default gateway) are automatically retrieved from the connected network, and the connection is automatically established. You cannot modify the values. ➤ **Manual**: enables you to manually set the connection parameters. Touch a field to modify its value by using the virtual keypad appearing on screen: ➤ **IP**: IP address used by your company network. Default value: 192.168.0.5 ➤ **Mask**: subnet mask used by your company network. Default value: 255.255.255.0 ➤ **Gateway**: default gateway used by your company network. Default value: 192.168.0.1

If the XTA-50 is connected to a network and/or if you don't know which configuration to use, contact your network administrator.

7. Touch the **Apply** button.

The new IP configuration can take a few minutes to be operational.

Controlling the XTA-50 via Ethernet

The Ethernet port enables you to remotely control the XTA-50 via a direct connection to a computer or through a network.

To control the XTA-50, you can use LabVIEW or the Remote Client program provided with the XTA-50, as explained in the following procedures.

To control the XTA-50 using LabVIEW:

1. If LabVIEW is already installed on your computer, use the following files:

   ➤ **<XTA-50 USB key>\LabVIEW Example\XTA-50 Remote.lvproj**: this file contains the LabVIEW sample project.

   ➤ **<XTA-50 USB key>\LabVIEW Example\src\Clients.vi**: this file contains a sample LabVIEW program for either an Ethernet or USB interface.

   ➤ **<XTA-50 USB key>\LabVIEW vx.xx\src\Ethernet**: this directory contains all the .vi files related to Ethernet control.

2. Connect the LAN 1 or LAN 2 port of the XTA-50 (see *Rear Panel* on page 5) to a computer or network with an RJ45 cable.

3. Make sure the IP address is configured correctly (see *Setting the XTA-50 Ethernet Ports* on page 42).

4. Use the authorized remote commands detailed in *Command Reference* on page 67 to remotely control the XTA-50.

To control the XTA-50 using the XTA-50 Remote Client:

1. Install and start the **XTA-50 Remote Client** program on your computer as explained in *Installing/Updating and Starting the XTA-50 Remote Program* on page 37.

   If you don't intend to program with LabVIEW, you can use this software to check the connection between your computer and the XTA-50 via this interface.

2. Connect the LAN 1 or LAN 2 port of the XTA-50 (see *Rear Panel* on page 5) to a computer or network with an RJ45 cable.

3. Make sure the IP address is configured correctly (see *Setting the XTA-50 Ethernet Ports* on page 42).

4. Use the authorized remote commands detailed in *Command Reference* on page 67 to remotely control the XTA-50.

5. In the **XTA-50 Remote Client** program, select the **Ethernet** tab.

6. Fill-in the **IP** and **Port** fields according to the Ethernet configuration you set (see *Setting the XTA-50 Ethernet Ports* on page 42):

➤ **IP**: type the IP address displayed in the **Settings** screen of the XTA-50, in the **Current Address** field corresponding to the connected port.

➤ **Port**: type the TCP socket displayed in the **Settings** screen of the XTA-50, in the **Ethernet TCP Socket** field.

7. Click the **Connect** button.

8. Use the **Command** and **Parameter** fields to send commands to the XTA-50.

9. Use the authorized remote commands detailed in *Command Reference* on page 67 to remotely control the XTA-50.

CAUTION

Before disconnecting the XTA-50 from the computer or closing the LabVIEW driver, do one of the following otherwise an error message will appear.

➤ **Send the** `LOCAL` **command.**

➤ **On the XTA-50 screen, touch the Remote label on the top right corner.**

Command/Answer Syntax

The XTA-50 specific commands and syntax are identical in USB and Ethernet remote control modes.

Rules

In remote mode the XTA-50 is a slave. It replies to the computer but will never instigate a communication.

➤ A command is a string.

➤ The decimal separator is the dot.

➤ Spaces are treated as nothing: "L A M B DA ?   " is the same as "LAMBDA?"

➤ Commands are not case sensitive. All answers are in uppercase.

➤ Each command ends with the two following characters:

  ➤ CR: carriage return (0x0D)

  ➤ LF: line feed (0x0A).

Command Types

Setting Commands

Setting commands enable you to assign a new value to an internal parameter of the XTA-50. Name and value of parameters are returned.

➤ Command:

  ➤ Syntax: `<parameter name>=<value><CR><LF>`

  ➤ Example: `LAMBDA=1550.0000000<CR><LF>`

➤ Answer:

  ➤ Syntax: `<parameter name>=<value><CR><LF>`

  ➤ Example: `LAMBDA=1550.000<CR><LF>`

Query Commands

Query commands enable you to get the value of an internal parameter.
Name and value of parameters are returned.

➤ Command:

  ➤ Syntax: `<parameter name>?<CR><LF>`

  ➤ Example: `LAMBDA?<CR><LF>`

➤ Answer:

  ➤ Syntax: `<parameter name>=<value><CR><LF>`

  ➤ Example: `LAMBDA=1550.000<CR><LF>`

Action Commands

Action commands enable you to ask the XTA-50 to perform an action. Answer is the command.

➤ Command/Answer:

   ➤ Syntax: `<action identifier><CR><LF>`

   ➤ Example: `LOCAL<CR><LF>`

Command Error

If the XTA-50 is not able to understand a command, it resends it (in uppercase and without space) preceded by the character "?":

?<Command><CR><LF>

Error can come from a wrong parameter name, a wrong action identifier, a wrong value.

For one command all operators are not always available. A command sent with an unavailable operator will not be understood by the XTA-50.

IMPORTANT

Do not omit the two ending parameters <CR><LF>. Without them the XTA-50 does not understand a command.

6 Maintenance

User maintenance of the XTA-50 system is limited to basic maintenance tasks that do not require removing the instrument case-cover or accessing any internal component of the instrument.

> ## WARNING
> **To avoid the possibility of injury, never remove the protective cover of the chassis to perform servicing or maintenance operations to the XTA-50 internal parts and optical components.**

To help ensure long, trouble-free operation:

➤ Always keep the unit and its surroundings clean, free of dust and dirt, even if you are not using it.

➤ Keep the unit free of dust.

➤ Clean the unit casing and front panel with a cloth slightly dampened with water.

➤ Store the unit at room temperature in a clean and dry area, free of dust and 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 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.**

Updating the XTA-50 Firmware Version

The firmware version update package is a .pkg file named **XTA_Updater_x.xx.pkg** where x.xx is the firmware version. It is available on the EXFO website, from the EXFO Apps area.

CAUTION

Do not install a lower version of software than the current version installed on your product. EXFO cannot be held liable or be made responsible for problems caused by a software downgrade.

To update the XTA-50 system version:

1. Make sure you have a USB flash drive.

2. From the EXFO website (www.EXFO.com/en/exfo-apps), download the last XTA-50 firmware version update (.pkg file compressed into a *.zip file).

3. Make sure that the downloaded version is a higher version than the one installed on your product, and that it is compatible with your model of XTA-50 (see the readme file available on the EXFO website).

4. Unzip the package to a USB device, so that the necessary *.pkg file is located at the USB device root.

5. Connect the USB device to one of the available USB ports located on the rear panel (see *Rear Panel* on page 5).

6. Turn off the XTA-50 (see *Turning off the XTA-50* on page 22).

7. On the front panel, press the ⏻ button to turn on the XTA-50.

   The XTA-50 automatically detects the *.pkg file on the USB device and starts the update wizard.

CAUTION

To avoid serious system problems:

➤ **Do not turn the XTA-50 off during the system update.**

➤ **Do not remove the USB device before the end of the upgrade process.**

8. Follow the instructions displayed on screen to update the firmware version.

   Once the update is finished, the XTA-50 starts normally.

Updating the Operating System Version (Security Updates)

You should check for security updates regularly to keep the XTA-50 operating system version up to date for security reasons.

Updating the operating system may take a significant amount of time.

To update the operating system version:

1. Make sure that your XTA-50 is connected to the Internet with an Ethernet cable, on Ethernet port #2 (see *Rear Panel* on page 5).

2. Turn on the XTA-50 as explained in *Turning on the XTA-50 and Accessing the Operating Modes* on page 18.

3. In the **Operating Mode** window, touch the **Settings** button.

   The **Operating System** area enables you to update the operating system.
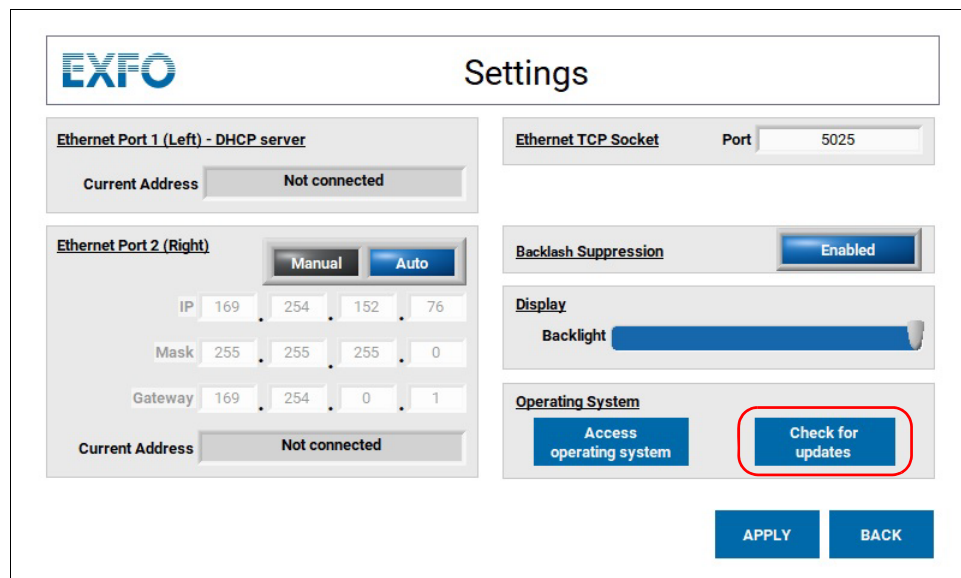
4. Click the **Check for updates** button.

   The XTA-50 verifies if your system is up to date. This operation might take time. If security updates are available, a message gives the list of available updates and prompts you to install them.

5. Click the **Download, install and restart** button to install the update(s).

   The XTA-50 downloads and installs the updates, and then restarts automatically.

6. Once the XTA-50 has restarted: in the **Settings** window, click the **Check for updates** button again to make sure that all updates have been installed.
   If all updates have not been installed, perform steps 1 to 5 again to install all the available updates.

Accessing the Operating System

You can access the XTA-50 operating system with administrator's permissions to perform Windows-specific operations, such as installing an anti-virus program or activate the remote desktop.

> # CAUTION
>
> **Do not perform modifications on the operating system that could affect the XTA-50 performances or the proper functioning of the XTA-50 application.**

Accessing the operating system closes the XTA-50 application. To open it again, you must restart the system.

To access the operating system:

1. Turn on the XTA-50 as explained in *Turning on the XTA-50 and Accessing the Operating Modes* on page 18.

2. In the **Operating Mode** window, touch the **Settings** button.

    The **Operating System** area enables you to update the operating system.
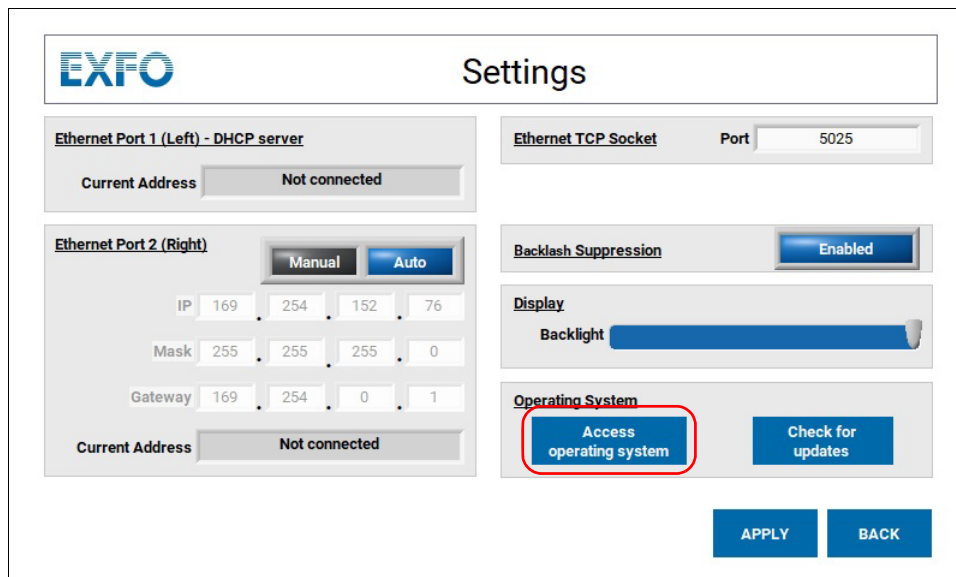
3. Click the **Access operating system** button.

    An information message appears..

4. Click the **Continue** button to close the XTA-50 application and access the operating system.

    The XTA-50 application is closed and the operating system is available.

5. To open the XTA-50 application again, restart the XTA-50.

Cleaning Optical Connectors

To ensure measurement accuracy and prevent loss of optical power, you must regularly verify that optical connectors are clean every time you connect a fiber.

Handle optical fiber with appropriate care and preserve the integrity of optical connectors by keeping them free of contamination.

IMPORTANT

To reduce the need for cleaning, immediately replace protective caps on the optical connectors when not in use.

The XTA-50 optical connectors are mounted on a drawer to ease the cleaning of internal connectors.

To clean the connectors:

1. Make sure you have the following material:

   ➤ Optical grade cleaning cotton swabs

   ➤ Canned air

   ➤ Isopropyl alcohol

   ➤ Fiberscope or similar if available

   ➤ Lint-free tissue or cleaning cartridges

   Use only high quality cleaning supplies that are non-abrasive and leave no residue

2. Turn the XTA-50 off (see *Turning off the XTA-50* on page 22) and unplug the power supply cord from the wall socket.

3. Turn off all the laser sources connected to the XTA-50 and make sure that no optical power is coming in or out the connector you want to clean.

4. On the front panel, make sure the protective caps of the connectors are in place.

5. On the front panel, use your fingers to unscrew the two screws of the connector drawer.

   Once unscrewed from the front panel, the two screws stay attached to the drawer.

6. Gently pull the drawer out of the front panel (no more than 70 mm) so that fiber ends are made visible, as illustrated in the following figure.

7. At the rear of the drawer plate, remove one connector end from the plate:

8. Gently clean the connector end, with the following instructions:

    8a. Hold the can of compressed air upright and spray the can into the air to purge any propellant.

    8b. Spray the clean compressed air on the connector to remove any loose particles or moisture.

    8c. Moisten a clean optical swab with isopropyl alcohol and lightly wipe the surfaces of the connector with gentle circular motion.

    8d. Spray the clean compressed air on the connector again to remove any loose particles or isopropyl alcohol.

    8e. Check that the connector is clean with a fiberscope (or similar).

9. Position the connector end back at the rear of the drawer plate: make sure the key of the connector is mated with that of the adapter and screw it back.

10. Perform steps 5 to 7 on the second connector.

11. Push the connector drawer back on the front panel and screw the drawer back in its location, making sure no fiber is trapped between the front panel and the drawer plate.

Cleaning the XTA-50

Cleaning the Cover of the XTA-50

If the external cover of the XTA-50 becomes dirty or dusty, clean it by following the instructions below.

> # CAUTION
> **Do not use chemically active or abrasive materials to clean the XTA-50.**

Material needed: lint free cleaning cloth

To clean the external cover of the XTA-50:

1. Turn the XTA-50 off (see *Turning off the XTA-50* on page 22) and unplug the power supply cable from the wall socket.

2. Gently swipe dirt and dust on the external cover of the XTA-50, without applying excessive force onto it.

Cleaning the Fan Grid

To ensure proper cooling of the XTA-50 from the fan, the cooling fan grid located on the rear panel (see *Rear Panel* on page 5) must not be dusty, you must clean it regularly.

> # CAUTION
> **Do not use a vacuum cleaner to clean the fan as this may apply excessive force to it and cause damage to the fan.**

To clean the fan grid:

1. Turn the XTA-50 off (see *Turning off the XTA-50* on page 22) and unplug the power supply cable from the wall socket.

2. Using a duster or a slightly moist cloth, gently clean the external grid of the fan without pressing it.

Cleaning the Touch Screen

To ensure proper functioning and accuracy of the touch screen, you must clean it regularly.

Material needed:

➤ Lint-free cleaning cloth

➤ Isopropyl alcohol

To clean the external cover of the XTA-50:

1. Turn the XTA-50 off (see *Turning off the XTA-50* on page 22) and unplug the power supply cable from the wall socket.

2. Using an lint-free cloth slightly damped with ethyl alcohol, gently swipe dirt on the screen.

   Make sure to avoid drops and prevent alcohol from entering the XTA-50.

Replacing Fuses

You must verify the power fuses in case you cannot turn on the XTA-50.

> # WARNING
>
> **To avoid fire hazard, only use the correct fuse type, voltage and current ratings.**

The unit contains two fuses (see *Technical Specifications* on page 3 for details). The fuse holder is located at the back of the unit, just above the power inlet.

Before starting:

Make sure you have the following equipment:

➤ 1 small flat-head screwdriver.

➤ 1 or 2 replacement fuses (for fuse type, see *Technical Specifications* on page 3).

To replace a fuse:

1. Turn off the unit and unplug the power cord.

2. Using a flat-head screwdriver as a lever, pull the fuse holder out of the unit.
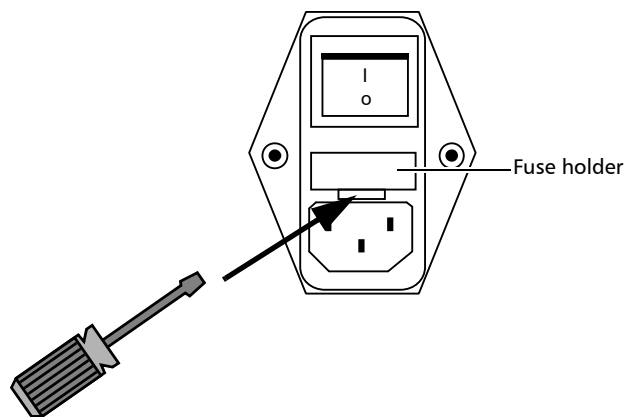
3. Check and replace the fuses if necessary.

4. Insert the new fuse into the fuse holder.
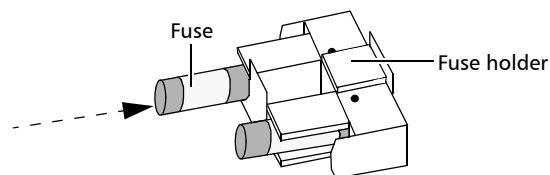
5. Make sure the fuses are placed firmly in the holder prior to reinsertion.

6. Firmly push the fuse holder into place.

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

Errors

This section lists all the possible error and warning messages, and how to handle them. Errors are classified by function.

Motor Errors

Motor Connection error. No driver detected

The motor driver has not been found during the initialization process.

➤ Restart the XTA-50.

If the error appears again, contact the EXFO customer service (see *Contacting the Technical Support Group* on page 61.

Motors Connection error. At least one motor is missing

At least one motor was not connected to the driver during initialization.

➤ Restart the XTA-50.

If the error appears again, contact the EXFO customer service (see *Contacting the Technical Support Group* on page 61.

Motors Communication error

Communication with one motor failed.

➤ Restart the XTA-50.

If the error appears again, contact the EXFO customer service (see *Contacting the Technical Support Group* on page 61.

Remote Interface Errors

USB interface error

The USB-B interface card has not been found during initialization.

➤ Restart the XTA-50.

If the error appears again, contact the EXFO customer service (see *Contacting the Technical Support Group* on page 61.

USB/Ethernet communication error

Communication has been lost during remote mode.

➤ Close and re-open the remote connection (see *Switching Between Remote and Local Mode* on page 38).

➤ Check cables.

➤ Check your computer configuration.

➤ Check IP address (see *Remotely Controlling the XTA-50* on page 37).

➤ Restart the XTA-50.

General Error Messages

Wavelength (and or FWHM) limit switch

One motor has reached one of its limits.

➤ Restart the XTA-50.

If the error appears again, contact the EXFO customer service (see *Contacting the Technical Support Group* on page 61.

Not a number or number too big! Try again

The number entered with the virtual keyboard is too long, or it is not a number.

➤ Enter a smaller value.

➤ Type only digits with one dot maximum.

An error occurred, selected sequence cannot be loaded

The sequence file is corrupted and cannot be loaded.

➤ Try again.

➤ Restart the XTA-50.

If the error appears again, the sequence file is lost. You must delete it and create a new one.

The sequence has been adjusted within the limits of the XTA-50

Some parameters of this sequence file are out of their range.

The sequence file has been loaded and parameters have been modified to fit to their range.

Checking the Firmware Version

The **About** window provides information on your XTA-50. It is displayed for a few seconds at system startup. You can also display it on demand as explain in the following procedure.

To display the firmware version:

1. Access the **Operating Mode** window (see section *Turning on the XTA-50 and Accessing the Operating Modes* on page 18).

2. In the **Operating Mode** window, touch the ABOUT button.

The **About** window appears and displays information on your XTA-50.

3. To go back to the **Operating Mode** window, touch the BACK button.

Displaying the User Documentation

The user guide is available in PDF format on the USB key delivered with the instrument and from the EXFO website: www.EXFO.com/en/resources/

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	1 866 683-0155 (USA and Canada)
Quebec (Quebec) G1M 2K2	Tel.: 1 418 683-5498
CANADA	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.

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.

For instructions on returning the XTA-50, please contact EXFO (see *Contacting the Technical Support Group* on page 61).

8 *Warranty*

General Information

EXFO Inc. (EXFO) warrants this equipment against defects in material and workmanship for a period of XX number of years XX 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.

Gray Market and Gray Market Products

Gray market is a market where products are traded through distribution channels that are legal but remain unofficial, unauthorized, or unintended by the original manufacturer. Intermediaries using such channels to distribute products are considered to be part of the gray market (hereafter unauthorized intermediary).

EXFO considers that a product originates from the gray market (hereafter gray market product) in the following situations:

A product is sold by an unauthorized intermediary.

A product is designed and destined for a particular market and sold on a second market.

A product is resold, despite being reported lost or stolen.

When products are purchased on the gray market, rather than through an authorized EXFO distribution channel, EXFO is unable to guarantee the source and quality of those products nor the local safety regulations and certifications (CE, UL, etc.).

EXFO will not honor warranty, install, maintain, repair, calibrate, provide technical support nor make any support contracts available for gray market products.

For complete information, refer to EXFO's policy regarding gray market products at www.exfo.com/en/how-to-buy/sales-terms-conditions/gray-market/

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 66). 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 66).

EXFO Service Centers Worldwide

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

EXFO Headquarters Service Center

400 Godin Avenue	1 866 683-0155 (USA and Canada)
Quebec (Quebec) G1M 2K2	Tel.: 1 418 683-5498
CANADA	Fax: 1 418 683-9224
	support@exfo.com

EXFO Europe Service Center

Winchester House, School Lane	Tel.: +44 2380 246800
Chandlers Ford, Hampshire S053 4DG	Fax: +44 2380 246801
ENGLAND	support.europe@exfo.com

EXFO Telecom Equipment (Shenzhen) Ltd.

3rd Floor, Building C,	Tel: +86 (755) 2955 3100
FuNing Hi-Tech Industrial Park, No. 71-3,	Fax: +86 (755) 2955 3101
Xintian Avenue,	support.asia@exfo.com
Fuhai, Bao'An District,	
Shenzhen, China, 518103	

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 Command Reference

This section presents detailed information about the command and queries supplied with your XTA-50. For more details on XTA-50 remote control procedures and syntax, see *Remotely Controlling the XTA-50* on page 37.

The XTA-50 specific commands and syntax are identical in USB, and Ethernet remote control modes.

The following table gives an overview of the available commands and queries.

	Command/Query	Section
General System Information	*IDN?	see *p. 68*
	SERIAL_NUMBER?	see *p. 68*
Wavelength/Frequency and FWHM Control	B_SUPPR=	see *p. 69*
	B_SUPPR?	see *p. 69*
	FREQ=	see *p. 70*
	FREQ?	see *p. 70*
	FWHM=	see *p. 71*
	FWHM?	see *p. 71*
	FWHM_F=	see *p. 72*
	FWHM_F?	see *p. 72*
	FWHM_MIN?	see *p. 73*
	FWHM_MAX?	see *p. 73*
	LAMBDA=	see *p. 74*
	LAMBDA?	see *p. 74*
	LAMBDA_MIN?	see *p. 75*
	LAMBDA_MAX?	see *p. 75*
	SEQUENCE_RUNNING?	see *p. 75*
Remote Mode Control	ETH_AUTO	see *p. 76*
	ETH_AUTO?	see *p. 76*
	ETH_GATEWAY=	see *p. 77*
	ETH_GATEWAY?	see *p. 77*
	ETH_IP=	see *p. 78*
	ETH_IP?	see *p. 78*
	ETH_MANUAL	see *p. 79*
	ETH_MANUAL?	see *p. 79*
	ETH_MASK=	see *p. 80*
	ETH_MASK?	see *p. 80*
	LOCAL	see *p. 80*

General System Information

*IDN?	
Description	The *IDN? query returns the unique identification of the device.
Syntax	*IDN?
Parameter(s)	None.
Response Syntax	<Identification>
Response(s)	*Identification:*
	The response is organized into four fields separated by commas. The field definitions are as follows:
	Field 1 (Manufacturer): EXFO Field 2 (Model): instrument model Field 3 (Serial number): instrument serial number Field 4 (Firmware level): instrument firmware version
Example(s)	*IDN? returns EXFO,XTA-50,EO123456789,x.x.x

SERIAL_NUMBER?	
Description	The SERIAL_NUMBER? query returns the serial number of the instrument.
Syntax	SERIAL_NUMBER?
Parameter(s)	None.
Response Syntax	<serial number>
Response(s)	*Serial number:*
	Instrument serial number.
Example(s)	SERIAL_NUMBER? returns EO123456789

Wavelength/Frequency and FWHM Control

B_SUPPR=

Description	This command sets the state of the backlash suppression mechanism.
Syntax	B_SUPPR=DISABLED|ENABLED
Parameter(s)	*DISABLED:* Disables the backlash suppression mechanism. *ENABLED:* Default value. Enables the backlash suppression mechanism.
Example(s)	B_SUPPR=ENABLED

B_SUPPR?

Description	This query returns the state of the backlash suppression mechanism.
Syntax	B_SUPPR?
Parameter(s)	None.
Response Syntax	DISABLED|ENABLED
Response(s)	*DISABLED:* The backlash suppression mechanism is disabled. *ENABLED:* The backlash suppression mechanism is enabled.
Example(s)	B_SUPPR? returns ENABLED

	FREQ=
Description	This command sets a new frequency value in THz.
Syntax	FREQ=<frequency>
Parameter(s)	*frequency:*
	String of a natural number, according to the frequency limits and the FWHM value. Available wavelength and FWHM values are detailed in *Technical Specifications* on page 1. FWHM can constrain wavelength/frequency value, as explained in *FWHM Constrain on Central Wavelength:* on page 23.
	The value really taken into account is returned in the answer.
	If a sequence is running, the frequency cannot be remotely assigned. In this case the XTA-50 answer is: SEQUENCE_RUNNING=TRUE
Example(s)	FREQ=193.415

	FREQ?
Description	This query returns the current frequency value in THz.
Syntax	FREQ?
Parameter(s)	None.
Response Syntax	<frequency>
Response(s)	*frequency:* Current frequency value in THz.
Example(s)	FREQ? returns 193.415

FWHM=

Description	This command sets a new FWHM value in nm.
Syntax	FWHM=<FWHM>
Parameter(s)	*FWHM:*
	String of a natural number, according to the FWHM limits. Available wavelength and FWHM values are detailed in *Technical Specifications* on page 1.
	This value can constrain wavelength and frequency values, as explained in section *FWHM Constrain on Central Wavelength:* on page 23
	If a sequence is running, the FWHM cannot be remotely assigned. In this case the XTA-50 answer is: SEQUENCE_RUNNING=TRUE
Example(s)	FWHM=0.065

FWHM?

Description	This query returns the current FWHM value in nm.
Syntax	FWHM?
Parameter(s)	None.
Response Syntax	<FWHM>
Response(s)	*FWHM:*
	Current FWHM value in nm.
Example(s)	FWHM? returns 0.065

FWHM_F=

Description	This command sets a new FWHM value in GHz.
Syntax	FWHM_F=<FWHM>
Parameter(s)	*FWHM:*
	String of a natural number, according to the FWHM limits. Available wavelength and FWHM values are detailed in *Technical Specifications* on page 1. This value can constrain wavelength and frequency values, as explained in section *FWHM Constrain on Central Wavelength:* on page 23
	If a sequence is running, the FWHM cannot be remotely assigned. In this case the XTA-50 answer is: SEQUENCE_RUNNING=TRUE
Example(s)	FWHM_F=8.11

FWHM_F?

Description	This query returns the current FWHM value in GHz.
Syntax	FWHM_F?
Parameter(s)	None.
Response Syntax	<FWHM>
Response(s)	*FWHM:*
	Current FWHM value in GHz.
Example(s)	FWHM_F? returns 8.11

FWHM_MIN?

Description	This query returns the instrument minimum FWHM value in nm.
Syntax	FWHM_MIN?
Parameter(s)	None.
Response Syntax	<minimum>
Response(s)	*minimum:* String of a natural number corresponding to the minimum possible FWHM value.
Example(s)	FWHM_MIN? returns 0.05

FWHM_MAX?

Description	This query returns the instrument maximum FWHM value in nm.
Syntax	FWHM_MAX?
Parameter(s)	None.
Response Syntax	<maximum>
Response(s)	*maximum:* String of a natural number corresponding to the maximum possible FWHM value.
Example(s)	FWHM_MAX? returns 0.9

	LAMBDA=
Description	This command sets a new wavelength value in nm.
Syntax	LAMBDA=<wavelength>
Parameter(s)	*wavelength:*
	String of a natural number, according to the wavelength limits and the FWHM value. Available wavelength and FWHM values are detailed in *Technical Specifications* on page 1. FWHM can constrain wavelength/frequency value, as explained in *FWHM Constrain on Central Wavelength:* on page 23.
	The value really taken into account is returned in the answer.
	If a sequence is running, the wavelength cannot be remotely assigned. In this case the XTA-50 answer is: SEQUENCE_RUNNING=TRUE
Example(s)	LAMBDA=1550.003

	LAMBDA?
Description	This query returns the current wavelength value in nm.
Syntax	LAMBDA?
Parameter(s)	None.
Response Syntax	<wavelength>
Response(s)	*wavelength:*
	Current wavelength value in nm.
Example(s)	LAMBDA? returns 1550.003

LAMBDA_MIN?

Description	This query returns the instrument minimum wavelength value in nm.
Syntax	LAMBDA_MIN?
Parameter(s)	None.
Response Syntax	<minimum>
Response(s)	*minimum:* String of a natural number corresponding to the minimum possible wavelength value.
Example(s)	LAMBDA_MIN? returns 1650

LAMBDA_MAX?

Description	This query returns the instrument maximum wavelength value in nm.
Syntax	LAMBDA_MAX?
Parameter(s)	None.
Response Syntax	<maximum>
Response(s)	*maximum:* String of a natural number corresponding to the maximum possible wavelength value.
Example(s)	LAMBDA_MAX? returns 1450

SEQUENCE_RUNNING?

Description	This query informs whether a sequence is currently running. In this case, the wavelength, frequency and FHWM cannot be remotely assigned.
Syntax	SEQUENCE_RUNNING?
Parameter(s)	None.
Response Syntax	TRUE|FALSE
Response(s)	*TRUE:* A sequence is currently running. *FALSE:* No sequence is currently running.
Example(s)	SEQUENCE_RUNNING? returns FALSE

Remote Mode Control

ETH_AUTO

Description	This command sets Ethernet parameters (IP, mask, gateway) automatically.
	They are configured by the network DHCP. The new configuration will be operational after few seconds/minutes.
Syntax	ETH_AUTO
Parameter(s)	None.
Example(s)	ETH_AUTO

ETH_AUTO?

Description	This query informs whether the XTA-50 Ethernet parameters are currently in automatic mode.
Syntax	ETH_AUTO?
Parameter(s)	None.
Response Syntax	TRUE|FALSE
Response(s)	*TRUE:*
	The XTA-50 Ethernet parameters are currently in automatic mode.
	FALSE:
	The XTA-50 Ethernet parameters are not currently in automatic mode.
Example(s)	ETH_AUTO? returns 192.168.0.1

ETH_GATEWAY=

Description	This command sets a new gateway (for more details, see section *Setting the XTA-50 Ethernet Ports* on page 42). The new value is only taken into account after calling ETH_MANUAL.
	We do not recommend to set this value using the Ethernet remote mode.
Syntax	ETH_GATEWAY=<value>.<value>.<value>.<value>
Parameter(s)	*Value:*
	Integer in the range 0 to 255.
Example(s)	ETH_GATEWAY=192.168.0.1

ETH_GATEWAY?

Description	This query returns the XTA-50 mask.
Syntax	ETH_GATEWAY?
Parameter(s)	None.
Response Syntax	<gateway>
Response(s)	*gateway:*
	Gateway of the XTA-50 as four integers (0 to 255) separated by dots.
Example(s)	ETH_GATEWAY? returns 192.168.0.1

ETH_IP=

Description	This command sets a new IP address (for more details, see section *Setting the XTA-50 Ethernet Ports* on page 42). The new value is only taken into account after calling ETH_MANUAL.
	We do not recommend to set this value using the Ethernet remote mode.
Syntax	ETH_IP=<value>.<value>.<value>.<value>
Parameter(s)	*Value:*
	Integer in the range 0 to 255.
Example(s)	ETH_IP=192.168.0.5

ETH_IP?

Description	This query returns the XTA-50 IP address set in manual mode on Port#2 (not the IP address currently used).
Syntax	ETH_IP?
Parameter(s)	None.
Response Syntax	<IP address>
Response(s)	*IP address:*
	IP address of the XTA-50 as four integers (0 to 255) separated by dots.
Example(s)	ETH_IP? returns 192.168.0.5

ETH_MANUAL

Description	This command uses the Ethernet parameters (IP, mask, gateway) set in manual mode.
	See ETH_IP (see *p. 78*), ETH_MASK (see *p. 80*), and ETH_GATEWAY (see *p. 77*) commands.
	The new configuration is operational after few seconds/minutes.
Syntax	ETH_MANUAL
Parameter(s)	None.
Example(s)	ETH_MANUAL

ETH_MANUAL?

Description	This query informs whether the Ethernet parameters currently used by the XTA-50 are the ones set in manual mode.
Syntax	ETH_MANUAL?
Parameter(s)	None.
Response Syntax	TRUE|FALSE
Response(s)	*TRUE:*
	The XTA-50 uses the Ethernet parameters set manually.
	FALSE:
	The XTA-50 does not use the Ethernet parameters set manually.
Example(s)	ETH_MANUAL? returns FALSE

ETH_MASK=

Description	This command sets a new mask for Ethernet connection (for more details, see section *Setting the XTA-50 Ethernet Ports* on page 42). The new value is only taken into account after calling ETH_MANUAL.
	We do not recommend to set this value using the Ethernet remote mode.
Syntax	ETH_MASK=<value>.<value>.<value>.<value>
Parameter(s)	*Value:*
	Integer in the range 0 to 255.
Example(s)	ETH_IP=255.255.255.0

ETH_MASK?

Description	This query returns the XTA-50 mask.
Syntax	ETH_MASK?
Parameter(s)	None.
Response Syntax	<mask>
Response(s)	*mask:*
	Mask of the XTA-50 as four integers (0 to 255) separated by dots.
Example(s)	ETH_MASK? returns 255.255.255.0

LOCAL

Description	This command ends remote mode, the XTA-50 comes back to local mode.
Syntax	LOCAL
Parameter(s)	None.
Example(s)	LOCAL

Chinese Regulation on Restriction of Hazardous Substances (RoHS)

中国关于危害物质限制的规定

NAMES AND CONTENTS OF THE TOXIC OR HAZARDOUS SUBSTANCES OR ELEMENTS CONTAINED IN THIS EXFO PRODUCT

包含在本 EXFO 产品中的有毒有害物质或元素的名称及含量

Part Name 部件名称	Lead 铅 (Pb)	Mercury 汞 (Hg)	Cadmium 镉 (Cd)	Hexavalent Chromium 六价铬 (Cr(VI)	Polybrominated biphenyls 多溴联苯 (PBB)	Polybrominated diphenyl ethers 多溴二苯醚 (PBDE)
Enclosure 外壳	O	O	O	O	O	O
Electronic and electrical sub-assembly 电子和电气组件	X	O	X	O	X	X
Optical sub-assembly[a] 光学组件[a]	X	O	O	O	O	O
Mechanical sub-assembly[a] 机械组件[a]	O	O	O	O	O	O

Note:

注:

This table is prepared in accordance with the provisions of SJ/T 11364.

本表依据SJ/T 11364 的规定编制。

O: Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

O:表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572 标准规定的限量要求以下。

X: indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572. Due to the limitations in current technologies, parts with the "X" mark cannot eliminate hazardous substances.

X:表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 标准规定的限量要求。

标记"X"的部件，皆因全球技术发展水平限制而无法实现有害物质的替代。

a. If applicable.

  如果适用。

MARKING REQUIREMENTS

标注要求

Product 产品	Environmental protection uses period (years) 环境保护使用期限（年）	Logo 标志
This EXFO product 本 EXFO 产品	10	🔟
Battery[a] 电池[a]	5	5️⃣

a. If applicable.

  如果适用。

EXFO