

---

# FLS-5834B

## CD/PMD Analyzer Source



---

Copyright © 2022–2023 EXFO Inc. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form, be it electronically, mechanically, or by any other means such as photocopying, recording or otherwise, without the prior written permission of EXFO Inc. (EXFO).

Information provided by EXFO is believed to be accurate and reliable. However, no responsibility is assumed by EXFO for its use nor for any infringements of patents or other rights of third parties that may result from its use. No license is granted by implication or otherwise under any patent rights of EXFO.

EXFO's Commerce And Government Entities (CAGE) code under the North Atlantic Treaty Organization (NATO) is 0L8C3.

The information contained in this publication is subject to change without notice.

### ***Trademarks***

EXFO's trademarks have been identified as such. However, the presence or absence of such identification does not affect the legal status of any trademark.

Where applicable, the Bluetooth<sup>®</sup> word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by EXFO Inc. is under license. Other third party trademarks and trade names are those of their respective owners.

### ***Units of Measurement***

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

### ***Patents***

The exhaustive list of patents is available at [EXFO.com/patent](http://EXFO.com/patent).

Version number: 2.0.0.1

# Contents

Regulatory Information .....	v
<b>1 Introducing the FLS-5834B CD/PMD Analyzer Source .....</b>	<b>1</b>
Charge LED Description .....	4
Battery Status Icon Description .....	5
Power Sources .....	6
Technical Specifications .....	6
Conventions .....	7
<b>2 Safety Information .....</b>	<b>9</b>
Other Safety Symbols on Your Unit .....	11
LED Safety Information .....	12
Electrical Safety Information .....	12
<b>3 Setting up and Using Your CD/PMD Analyzer Source .....</b>	<b>15</b>
Attaching the Proper Prong Assembly to the AC/DC Power Adapter .....	15
Turning On and Off the Unit .....	16
Understanding the Main Window .....	17
Cleaning and Connecting Optical Fibers .....	18
Installing the EXFO Universal Interface (EUI) .....	20
Adjusting Display Brightness .....	21
Configuring the Auto-Off Value .....	22
Activating or Deactivating the Source .....	24
Using the Stand .....	26
Temperature Management .....	27
<b>4 Controlling the Source Remotely .....</b>	<b>29</b>
Preparing For Remote Control .....	29
Remote Commands .....	31
<b>5 Maintenance .....</b>	<b>33</b>
Cleaning the Touchscreen .....	33
Cleaning EUI Connectors .....	34
Recharging the Battery .....	36
Replacing the Battery .....	37
Recalibrating the Unit .....	38
Recycling and Disposal .....	39

# Contents

---

- 6 Troubleshooting .....41**
  - Accessing the Online Documentation .....41
  - Contacting the Technical Support Group .....45
  - Viewing System Information .....46
  - Transportation .....50
  
- 7 Warranty .....51**
  - General Information .....51
  - Gray Market and Gray Market Products .....52
  - Liability .....53
  - Exclusions .....53
  - Certification .....53
  - Service and Repairs .....54
  - EXFO Service Centers Worldwide .....55
  
- Index .....57**

## 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.

## Regulatory Information

---

**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.

Ceci est un produit de classe A, groupe 1.

- **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.

- **Class B equipment:** Equipment that cannot be classified as Class A shall comply with the Class B limits specified in the applicable ICES standard.

Classe B : Matériel qui ne peut pas être inclus dans la classe A. 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.

### **Simplified 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](http://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 *FLS-5834B* *CD/PMD Analyzer Source*

The FLS-5834B CD/PMD Analyzer Source is a portable, modulated, polarized broadband fiber-optic source that has been especially designed to be used with EXFO FTB-5800 Chromatic Dispersion Analyzer. It is also compatible with the EXFO FTB-5500B PMD Analyzer.

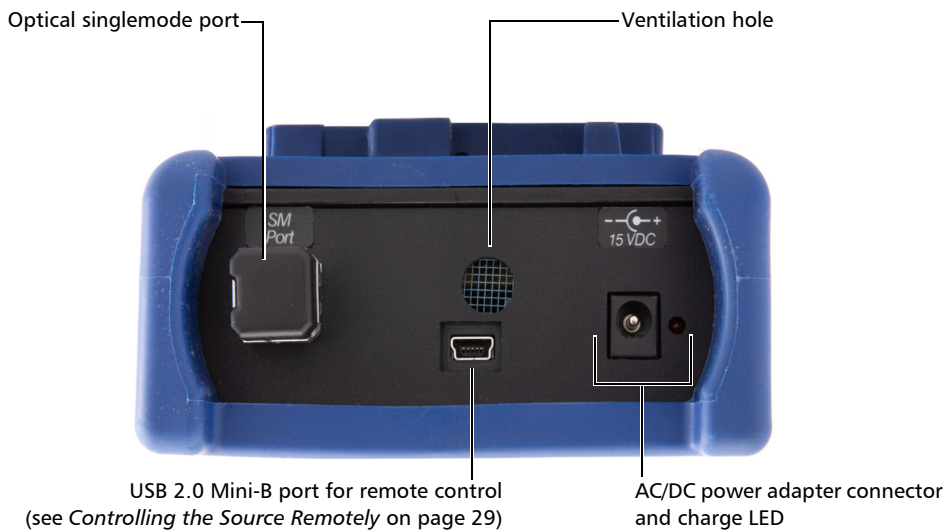
## Front panel



# Introducing the FLS-5834B CD/PMD Analyzer Source

---

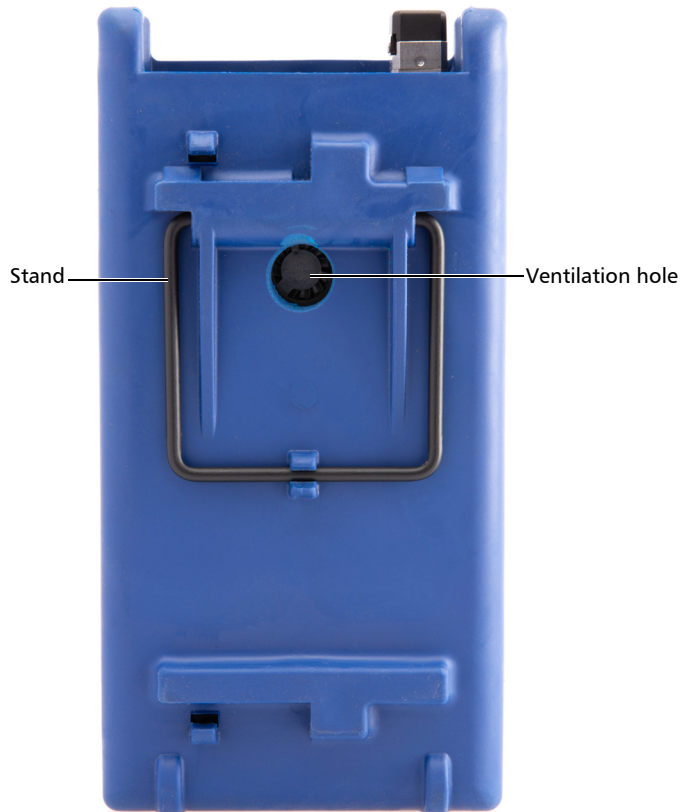
## Top panel



## Introducing the FLS-5834B CD/PMD Analyzer Source

---

### Back panel



### Charge LED Description




The charge LED, located next to the AC/DC power adapter connector, on the top of your unit, provides you with information about the battery status.

The table below indicates the possible statuses.

Charge LED	Meaning
Off	The unit is not connected to an external power source or the external power source does not provide sufficient power to charge the battery.
Red	The unit is connected to an external power source.

### Battery Status Icon Description

The battery status icon is shown in the upper right corner of the title bar. It complements the information provided by the charge LED.

Icon	Meaning
	The portion of the icon that appears in white in the title bar (in black here) reflects the current battery level.
	A red icon indicates that the battery level is running low and that you should connect the unit to a power outlet.
	A flash symbol indicates that the unit is connected to an external power source.

### Power Sources

The CD/PMD Analyzer Source operates with the following power sources:

- Indoor use only: AC/DC power adapter connected to a power outlet.
- Indoor and outdoor use:

One lithium-ion (Li-ion) rechargeable battery (automatically takes over if you disconnect the unit from its external power source).

Possible to switch from an external power source to battery power or vice versa without affecting operation.

**Note:** *The battery recharges automatically when the unit is connected to an external power source.*

**Note:** *You cannot replace the battery yourself.*



### WARNING

DO NOT attempt to charge the battery when the ambient temperature exceeds 45 °C (113 °F). Doing so could cause the battery to expand, ignite (that is, catch fire), or explode, resulting in serious injuries, damage to the battery, or premature wear of your unit.

For more information, see *Electrical Safety Information* on page 18.

### Technical Specifications

To obtain this product's technical specifications, visit the EXFO Web site at [www.exfo.com](http://www.exfo.com).

## 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

## Safety Information

### LED Safety Information

---

## LED Safety Information

Your instrument is in compliance with standard IEC 60825-1: 2014.

Laser radiation may be encountered at the optical output port.

The following label indicates that a product contains a Class 1 source:



## Electrical Safety Information



### **WARNING**

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



### WARNING

- Use the external power supply indoors only.
- Never connect the unit to the AC mains (with the AC/DC power adapter) when it is used outdoors.
- To avoid electrical shock, do not operate the unit if any part of the outer surface (covers, panels, etc.) is damaged.
- Only authorized personnel should carry out adjustments, maintenance or repair of opened units under voltage. A person qualified in first aid must also be present. Do not replace any components while the power cable and battery are connected.
- Unless otherwise specified, all interfaces are intended for connection to ES1 circuits only.
- Use only the listed and certified AC/DC power adapter provided by EXFO with your unit. It provides reinforced insulation between primary and secondary, and is suitably rated for the country where the unit is sold.
- 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.
- When you use the unit outdoors, ensure that it is protected from liquids, dust, direct sunlight, precipitation, and full wind pressure.



### CAUTION

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

## Safety Information

### Electrical Safety Information

---

Equipment Ratings	
Temperature	
➤ Operation	0 °C to 40 °C (32 °F to 104 °F) <sup>a</sup>
➤ Storage	-40 °C to 70 °C (-40 °F to 158 °F)
Relative humidity <sup>b</sup>	≤ 10 % to 80 % non-condensing
Maximum operation altitude	2000 m (6562 ft)
Input power <sup>c</sup>	➤ unit: 15 V $\overline{\text{---}}$ ; 1.2 A ➤ AC/DC power adapter: 100 - 240 V $\sim$ ; 50/60 Hz; 1 A max

- a. When the ambient temperature is below 0 °C (32 °F) or when it reaches or exceeds about 40 °C (104°F), the main battery can either charge more slowly than usual, or not charge at all, depending on the internal temperature of your unit.
- b. Measured in 0 °C to 31 °C (32 °F to 87.8 °F) range, decreasing linearly to 50 % at 40 °C (104 °F).
- c. Not exceeding  $\pm 10$  % of the nominal voltage.

# 3 **Setting up and Using Your CD/PMD Analyzer Source**

## **Attaching the Proper Prong Assembly to the AC/DC Power Adapter**

The AC/DC adapter provided with your unit comes with several prong assemblies that allow you to use it in many regions of the world. Before connecting your unit to an external power source, you must attach the proper prong assembly to the AC/DC power adapter.

**To attach the proper prong assembly to the AC/DC power adapter:**

1. Select the appropriate prong assembly for your region.



2. Align the prong assembly with the receptacle on the power adapter, and then slide the assembly until it latches into the plastic fork.

You are now ready to use the AC/DC power adapter with your unit.

**To remove a prong assembly from the AC/DC power adapter:**

Squeeze the plastic fork to release the prong assembly and remove it.

You are now ready to install another prong assembly for a new region.

## Setting up and Using Your CD/PMD Analyzer Source

### *Turning On and Off the Unit*

---

## Turning On and Off the Unit

Upon startup, the unit displays a splash screen and then displays the main window with the source deactivated.

When you turn off the unit, a shutdown message is displayed to indicate that the operation is in process. All your choices from the Settings menu are kept in memory even when you turn off the unit.

### **To turn on and off the unit:**

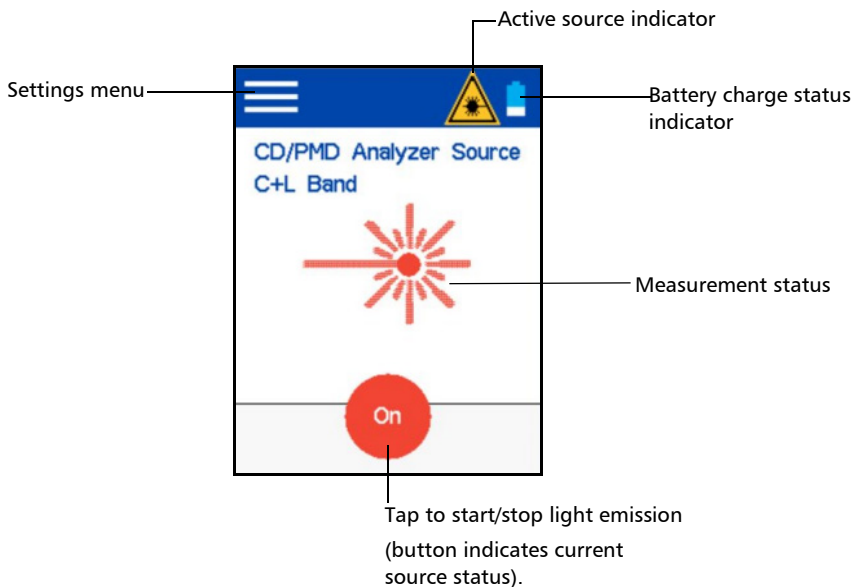
Press the physical button located at the bottom of the unit.





## Understanding the Main Window

Form the main window of your unit, you can get important information on the source with just one glance.



# Cleaning and Connecting Optical Fibers



## CAUTION

To ensure maximum power and to avoid erroneous readings:

- Always inspect fiber ends and make sure that they are clean as explained below before inserting them into the port. EXFO is not responsible for damage or errors caused by bad fiber cleaning or handling.
- Ensure that your patchcord has appropriate connectors. Joining mismatched connectors will damage the ferrules.

### ***To connect the fiber-optic cable to the port:***

- 1.** Inspect the fiber using a fiber inspection scope (or probe). If the fiber is clean, proceed to connecting it to the port. If the fiber is dirty, clean it as explained below.
- 2.** Clean the fiber ends as follows:
  - 2a.** Gently wipe the fiber end with a lint-free swab dipped in optical-grade liquid cleaner.
  - 2b.** Use a dry swab to dry the connector completely.
  - 2c.** Visually inspect the fiber end to ensure its cleanliness.

## Setting up and Using Your CD/PMD Analyzer Source

### *Cleaning and Connecting Optical Fibers*

---

3. Carefully align the connector and port to prevent the fiber end from touching the outside of the port or rubbing against other surfaces.

If your connector features a key, ensure that it is fully fitted into the port's corresponding notch.

4. Push the connector in so that the fiber-optic cable is firmly in place, thus ensuring adequate contact.

If your connector features a screw sleeve, tighten the connector enough to firmly maintain the fiber in place. Do not overtighten, as this will damage the fiber and the port.

**Note:** *If your fiber-optic cable is not properly aligned and/or connected, you will notice heavy loss and reflection.*

EXFO uses good quality connectors in compliance with EIA-455-21A standards.

To keep connectors clean and in good condition, EXFO strongly recommends inspecting them with a fiber inspection scope (or probe) before connecting them. Failure to do so may result in permanent damage to the connectors and degradation in measurements.

## Setting up and Using Your CD/PMD Analyzer Source

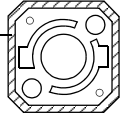
### Installing the EXFO Universal Interface (EUI)

---

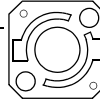
## Installing the EXFO Universal Interface (EUI)

The EUI fixed baseplate is available for connectors with angled (APC) or non-angled (UPC) polishing. The type of border around the baseplate indicates which type of connector it is designed for.

Green border  
indicates APC  
option

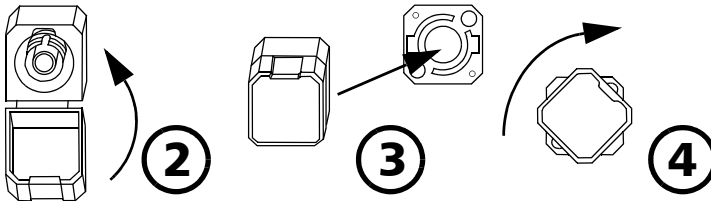


Bare metal, or a  
black or dark gray  
border indicates  
UPC option



### **To install an EUI connector adapter onto the EUI baseplate:**

1. Hold the EUI connector adapter so the dust cap opens downwards.



2. Close the dust cap in order to hold the connector adapter more firmly.
3. Insert the connector adapter into the baseplate.
4. While pushing firmly, turn the connector adapter clockwise on the baseplate to lock it in place.


## Adjusting Display Brightness

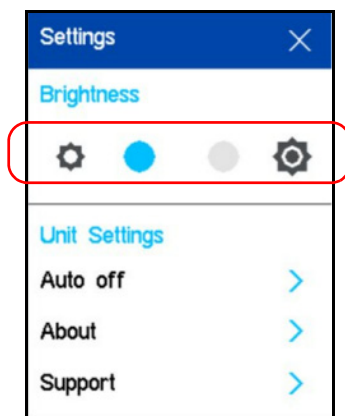
You may want to adjust the display brightness yourself to better fit your work environment or preferences.

You may also want to reduce the display brightness to save battery power (the higher the brightness level, the higher the power consumption).

The brightness value is kept in memory even when you turn the unit off.

### **To adjust the display brightness:**

1. From the main FLS-5834B page, tap  to access the menu.
2. Under **Brightness**, tap the dots until the screen appearance is to your liking. You can also tap the desired brightness icon to quickly set the brightness to the minimum or the maximum value.



The new brightness value is taken into account immediately.


## Configuring the Auto-Off Value

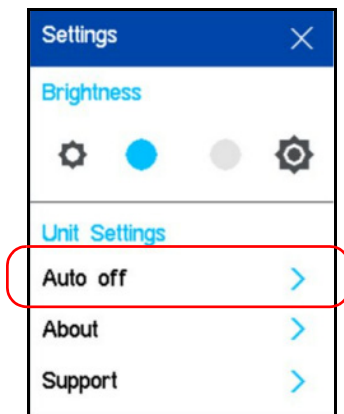
To help you get the optimum performance out of your unit, it comes with a predefined set of parameters to manage power.

By default, the unit is set to never go into sleep mode for optimum performance when it is controlled remotely. However, you can select a duration after which the unit will shut down automatically to save power when you do not use it.

The value that you set is kept in memory even when you turn the unit off.

### **To configure the auto-off value:**

1. From the main FLS-5834B page, tap  to access the menu.
2. Under **Unit Settings**, tap **Auto off**.

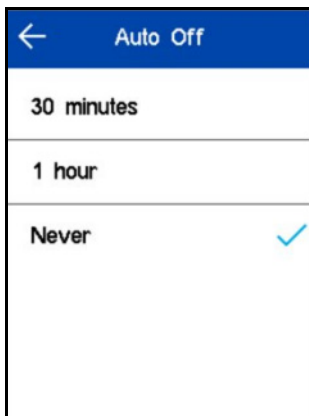


## Setting up and Using Your CD/PMD Analyzer Source

### *Configuring the Auto-Off Value*

---

3. Select the desired number of minutes.



The new value is taken into account immediately.

## Setting up and Using Your CD/PMD Analyzer Source

### Activating or Deactivating the Source

---

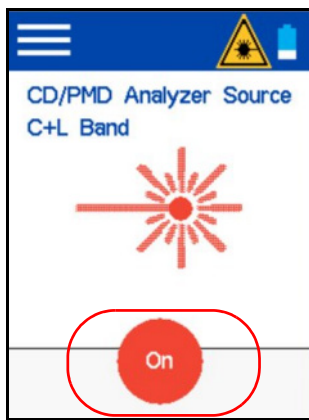


## WARNING

To protect your eyes, do not stare into the light that comes out of your unit.

### **To activate the source:**

Tap **On/Off** button. The laser indicator will blink at the top of the screen and the source indicator turns red to show that the laser is active.



### **To deactivate the source:**

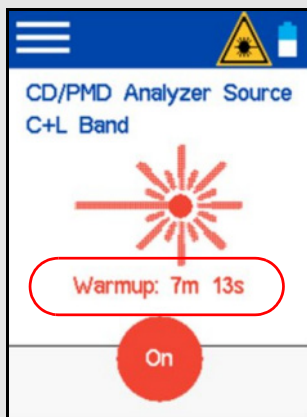
To deactivate the source, press the **On/Off** button again.





### IMPORTANT

To obtain optimum stability, let the source warm up for the period indicated on-screen. If you do not respect this warm-up time, the CD measurement will present an uncertainty of 0.15 ps/nm.



## Setting up and Using Your CD/PMD Analyzer Source

### *Using the Stand*

---

## Using the Stand

You can adjust the stand at the back of the unit to see the screen better as needed.

### ***To adjust the stand:***

Pull it out from the back of the unit.



### Temperature Management

The internal temperature of your unit will vary with the ambient temperature, but also with the intensity of the tests you perform.

Your unit has been designed to protect itself in high-temperature conditions. For this reason, if the temperature keeps rising and reaches the limit (60 °C (140 °F)), you will receive a warning message with a countdown. Your unit will turn off as self-protection at the end of the countdown.



#### IMPORTANT

For optimum performance of your unit:

- Ensure that it remains within the recommended operation and storage temperatures (see *Equipment Ratings* on page 14).
- Avoid leaving your unit in an overheated vehicle. You may have to let your unit cool down before being able to use it.
- Ensure that your unit is normally protected from direct sunlight (during use and storage).



# 4 **Controlling the Source Remotely**

You can control your unit remotely with the provided set of commands.

You will need a computer equipped with PuTTY, HyperTerminal, LabView, or another serial communication tool to be able to establish the communication between your unit and a computer.

## **Preparing For Remote Control**

To avoid interruptions when you control your unit remotely, you may want to ensure that the battery is full or to connect your unit to an external power source.

### ***To prepare for remote control:***

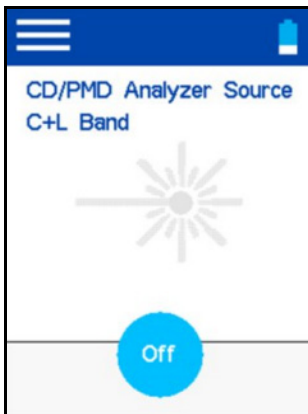
- 1.** If desired, connect your unit to an external power source with the provided AC/DC adapter. For more information on how to install the prong assembly, see *Attaching the Proper Prong Assembly to the AC/DC Power Adapter* on page 15.
- 2.** Turn on both your unit and the computer from which you want to control your unit.
- 3.** Connect the provided USB cable to your unit (Mini-B USB end) and to your computer (standard USB end).
- 4.** On your unit, ensure that the auto-off value is set to *Never*. For more information, see *Configuring the Auto-Off Value* on page 22.

## Controlling the Source Remotely

### Preparing For Remote Control

---

5. On your unit, ensure that the main window is visible.



6. On your computer, start the serial communication tool that you want to use.
7. In the serial communication software, ensure that the parameters are set as follows:

Parameter	Value
Speed (baud rate)	112500
Data bits	8
Stop bits	1
Parity	None
Flow control	XON/XOFF

You are now ready to start sending remote commands to your unit.

## Remote Commands

Your unit supports the text commands listed below.

**Note:** *The commands are not case-sensitive.*

### "SRC\_ON"

<b>Description</b>	This command activates the source (starts light emission).
--------------------	------------------------------------------------------------

<b>Response</b>	"SLED ON"
-----------------	-----------

### "SRC\_OFF"

<b>Description</b>	This command deactivates the source (stops light emission).
--------------------	-------------------------------------------------------------

<b>Response</b>	"SLED OFF"
-----------------	------------

### "SRC\_STAT"

<b>Description</b>	This command verifies if the source currently emits light (source is on) or not (source is off).
--------------------	--------------------------------------------------------------------------------------------------

<b>Response</b>	"SLED IS ON" or "SLED IS OFF"
-----------------	-------------------------------

### "SYST\_VERS"

<b>Description</b>	This command returns the version number of the firmware currently installed on your unit.
--------------------	-------------------------------------------------------------------------------------------

<b>Response</b>	Current version number
-----------------	------------------------

## Controlling the Source Remotely

### Remote Commands

---

#### "HELP|?"

**Description** This command lists all the commands that are available in remote control mode. You can either enter the keyword "HELP" or a question mark.

**Response** The list of provided commands.

---

#### "X"

**Description** This command allows you to exit the remote control mode.

**Response** The terminal window closes and the unit is no longer in remote control mode.

---



# 5 **Maintenance**

To help ensure long, trouble-free operation:

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

## **Cleaning the Touchscreen**

Clean the touchscreen with a soft, non-abrasive cloth, such as one used for cleaning reading glasses, dampened with water.



## **CAUTION**

Using anything else than water can damage the special coating of the touchscreen.

## Cleaning EUI Connectors

Regular cleaning of EUI connectors will help maintain optimum performance. There is no need to disassemble the unit.



### WARNING

Looking into the optical connector while the light source is active **WILL** result in permanent eye damage. EXFO strongly recommends to **TURN OFF** the unit before proceeding with the cleaning procedure.

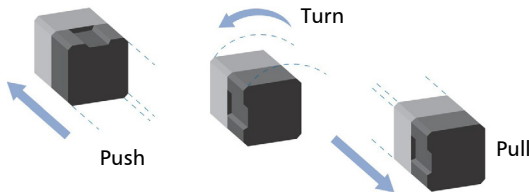


### IMPORTANT

If any damage occurs to internal connectors, the module casing will have to be opened and a new calibration will be required.

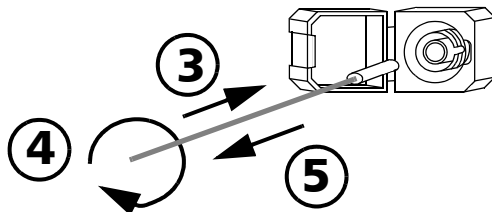
#### **To clean EUI connectors:**

1. Remove the EUI from the instrument to expose the connector baseplate and ferrule.



2. Moisten a 2.5 mm cleaning tip with *one drop* of optical-grade liquid cleaner.

3. Slowly insert the cleaning tip into the EUI adapter until it comes out on the other side (a slow clockwise rotating movement may help).



4. Gently turn the cleaning tip one full turn, then continue to turn as you withdraw it.
5. Repeat steps 3 to 4 with a dry cleaning tip.

**Note:** Make sure you don't touch the soft end of the cleaning tip.

6. Clean the ferrule in the connector port as follows:
  - 6a. Deposit *one drop* of optical-grade liquid cleaner on a lint-free wiping cloth.



## IMPORTANT

Avoid contact between the tip of the bottle and the wiping cloth, and dry the surface quickly.

- 6b. Gently wipe the connector and ferrule.
- 6c. With a dry lint-free wiping cloth, gently wipe the same surfaces to ensure that the connector and ferrule are perfectly dry.
- 6d. Verify connector surface with a fiber inspection probe (for example, EXFO's FIP).
7. Put the EUI back onto the instrument (push and turn clockwise).
8. Throw out cleaning tips and wiping cloths after one use.

## Recharging the Battery

Your unit uses one lithium-ion (Li-ion) battery.

The charge status is shown in the upper right corner of the title bar. A red icon indicates that the battery level is running low and that you should connect the unit to a power outlet. For more information, see *Battery Status Icon Description* on page 5.



### WARNING

Use only the listed and certified AC/DC power adapter provided by EXFO with your unit. It provides reinforced insulation between primary and secondary, and is suitably rated for the country where the unit is sold.



### WARNING

DO NOT attempt to charge the battery when the ambient temperature exceeds 45 °C (113 °F). Doing so could cause the battery to expand, ignite (that is, catch fire), or explode, resulting in serious injuries, damage to the battery, or premature wear of your unit.



### IMPORTANT

- The battery is not charged at the factory. You must fully charge it before using the unit for the first time. This takes a few hours.
- The time required to charge the battery depends on various factors such as the ambient temperature.
- To ensure that the battery functions properly, keep it in temperatures between -10 °C and 40 °C (14 °F and 104 °F). Store it between 10 °C to 35 °C (50 °F to 95 °F).



## **IMPORTANT**

- Do not leave a battery discharged for several days.
- After 300 cycles (approximately 18 months of use), you may want to have the battery replaced with a new one to maintain optimal operation conditions. Otherwise, the operating time might be reduced.
- If you need to store the unit for an extended period of time, ensure that the battery is charged at around 50 % of its capacity, and then turn the unit off (shutdown).
- Place the unit (or the battery) in a cool dry place, and ensure that the battery is charged at around 50 % of its capacity. Every three months during the storage period, verify the battery level. Recharge the battery when necessary, so that its charge level remains around 50 % of the total capacity. This will ensure that you get the optimum performance out of the battery.

### ***To recharge the battery:***

Connect the unit to a power outlet using the AC/DC power adapter.

The charge cycle will start and end automatically.

## **Replacing the Battery**

You cannot replace the battery yourself. Contact an authorized service center for assistance (see *EXFO Service Centers Worldwide* on page 55).

## Recalibrating the Unit

EXFO manufacturing and service center calibrations are based on the ISO/IEC 17025 standard (*General Requirements for the Competence of Testing and Calibration Laboratories*). This standard states that calibration documents must not contain a calibration interval and that the user is responsible for determining the re-calibration date according to the actual use of the instrument.

The validity of specifications depends on operating conditions. For example, the calibration validity period can be longer or shorter depending on the intensity of use, environmental conditions and unit maintenance, as well as the specific requirements for your application. All of these elements must be taken into consideration when determining the appropriate calibration interval of this particular EXFO unit.

Under normal use, the recommended interval for your FLS-5834B CD/PMD Analyzer Source is: one year.

For newly delivered units, EXFO has determined that the storage of this product for up to six months between calibration and shipment does not affect its performance.

To help you with calibration follow-up, EXFO provides a special calibration label that complies with the ISO/IEC 17025 standard and indicates the unit calibration date and provides space to indicate the due date. Unless you have already established a specific calibration interval based on your own empirical data and requirements, EXFO would recommend that the next calibration date be established according to the following equation:

**Next calibration date = Shipping date + Recommended calibration period (one year)**

To ensure that your unit conforms to the published specifications, calibration may be carried out at an EXFO service center or, depending on the product, at one of EXFO's certified service centers. Calibrations at EXFO are performed using standards traceable to national metrology institutes.

**Note:** *You may have purchased a FlexCare plan that covers calibrations. See the Service and Repairs section of this user documentation for more information on how to contact the service centers and to see if your plan qualifies.*

## 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](http://www.exfo.com/recycle).






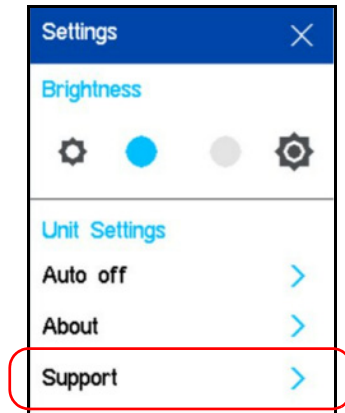
# 6 *Troubleshooting*

## Accessing the Online Documentation

- You can access the user guide at all times from a smart device or a computer:
  - by scanning the QR code displayed on your unit
  - by entering the corresponding link in a web browser
- You can also access the EXFO license agreement by scanning the corresponding QR code displayed on your unit.

### **To access the user guide:**

1. From the main FLS-5834B page, tap  to access the menu.
2. Under **Unit Settings**, tap **Support**.

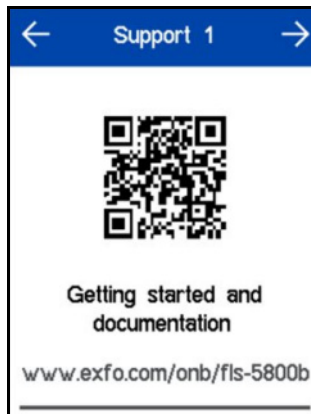



## Troubleshooting

### *Accessing the Online Documentation*


---

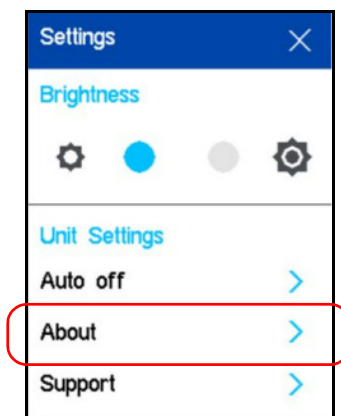
3. Scan the QR code with your smart device or enter the link on your web browser.



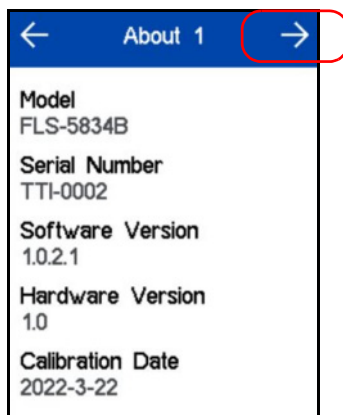
4. Tap  to return to the **Settings** page.

**To access the EXFO license agreement:**

1. From the main FLS-5834B page, tap  to access the menu.
2. Under **Unit Settings**, tap **About**.



3. From the **About 1** page, tap  to access the desired page.




## Troubleshooting

### *Accessing the Online Documentation*

---

4. Scan the QR code with your smart device.



5. Tap  twice to return to the **Settings** page.

## **Contacting the Technical Support Group**

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

### **Technical Support Group**

400 Godin Avenue  
Quebec (Quebec) G1M 2K2  
CANADA

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

For detailed information about technical support, and for a list of other worldwide locations, visit the EXFO Web site at [www.exfo.com](http://www.exfo.com).

If you have comments or suggestions about this user documentation, you can send them to [customer.feedback.manual@exfo.com](mailto:customer.feedback.manual@exfo.com).

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

## Troubleshooting


### Viewing System Information

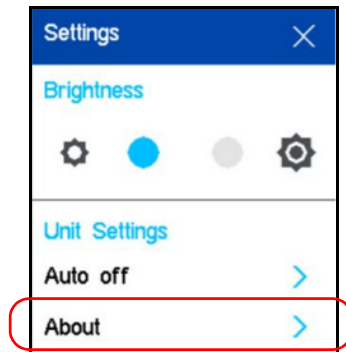
---

## Viewing System Information

You can easily access important information such as the model of your unit, the serial number, the software and hardware versions, as well as the latest hardware calibration, directly from your unit. You can also find the contact information if you ever need to reach EXFO.


### **To view the system information:**

1. From the main FLS-5834B page, tap  to access the menu.
2. Under **Unit Settings**, tap **About**.



The information that you want to view is displayed on screen.




3. Tap  to return to the **Settings** page.

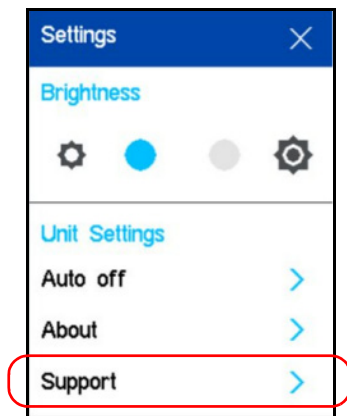
## Troubleshooting

### Viewing System Information

---

#### **To retrieve the contact information:**

1. From the main FLS-5834B page, tap  to access the menu.
2. Under **Unit Settings**, tap **Support**.

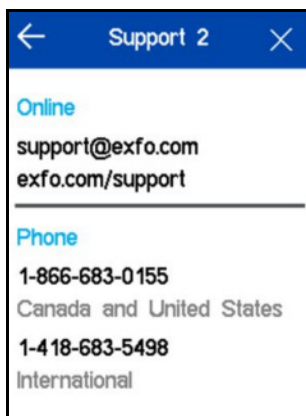



3. From the **Support 1** page, tap  to access the desired page.





The information you want to view is displayed on screen.



4. Tap  twice to return to the **Settings** page.

## 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.

# 7 **Warranty**

## **General Information**

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

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



### **IMPORTANT**

The warranty can become null and void if:

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

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

## Warranty

### *Gray Market and Gray Market Products*

---

## 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/](http://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 55). 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 55).

## **EXFO Service Centers Worldwide**

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

### **EXFO Headquarters Service Center**

400 Godin Avenue  
Quebec (Quebec) G1M 2K2  
CANADA

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

### **EXFO Europe Service Center**

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

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

### **EXFO Telecom Equipment (Shenzhen) Ltd.**

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

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

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

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





# Index

- A**
- AC requirements ..... 13, 14
  - AC/DC power adapter..... 6, 37
  - accessing
    - license agreement..... 43
    - online help..... 41
  - adapter ..... 13, 36
  - adjusting brightness..... 21
  - after-sales service ..... 45
- B**
- backlight, setting ..... 21
  - battery
    - level ..... 36
    - maintenance recommendations ..... 36
    - recharging ..... 6, 36, 37
    - replacing or removing ..... 37
    - status icons..... 5, 36
  - brightness
    - adjusting ..... 21
    - icon ..... 21
  - button, on/off ..... 1, 37
- C**
- capacitors..... 13
  - caution
    - of personal hazard..... 7
    - of product hazard..... 7
  - changing battery..... 37
  - charge
    - icon ..... 36
    - status of the battery ..... 36
  - charger..... 13, 36
  - cleaning
    - EUI connectors..... 34
    - fiber ends ..... 18
    - front panel ..... 33
    - touchscreen ..... 33
  - configuring
    - brightness ..... 21
    - delay before auto off ..... 22
  - connectors, cleaning..... 34
  - conventions, safety..... 7
  - current, electrical..... 14
  - customer service..... 54
- D**
- documentation..... 41
- E**
- end-user license agreement, viewing..... 43
  - equipment returns..... 54
  - EUI
    - baseplate ..... 20
    - connector adapter ..... 20
    - connectors, cleaning ..... 34
    - dust cap ..... 20
    - optical connector..... 1
  - EULA, viewing..... 43
  - EXFO license agreement ..... 43
  - EXFO universal interface. *see* EUI
  - external power supply ..... 13, 36
- F**
- fiber ends, cleaning ..... 18
  - front panel, cleaning ..... 33
- H**
- hazard, laser radiation..... 12
  - help, online ..... 41
  - high temperature ..... 27

# Index

---

## I

icon	
battery status .....	5, 36
brightness .....	21
identification label .....	45
indoor use .....	13
input current .....	14
inserting battery .....	37
installing unit .....	13
internal temperature .....	27

## L

label, identification .....	45
laser safety information .....	12
license agreement, viewing .....	43
Li-ion battery .....	6, 36

## M

main window .....	17
maintenance	
battery .....	36
EUI connectors .....	34
front panel .....	33
general information .....	33
screen .....	33
manuals .....	41
maximum input current .....	14
mounting EUI connector adapter .....	20

## N

non-volatile memory .....	16
---------------------------	----

## O

on/off button .....	1, 37
online help .....	41
optical port .....	1, 2

## P

port	
optical .....	1, 2
USB .....	2
power	
adapter .....	6, 37
button .....	1, 37
management .....	22
on/off .....	16
<i>see also</i> AC/DC power adapter	
<i>see also</i> battery	
sources .....	14
supply .....	13, 36
product	
identification label .....	45
specifications .....	6

## R

radiation hazard, laser .....	12
recharging the battery .....	6, 36, 37
regulatory information .....	v, viii
remote control .....	2
removing battery .....	37
repairing unit .....	13
replacing battery .....	37
return merchandise authorization (RMA) ....	54

## S

safety	
caution .....	7
conventions .....	7
information .....	12
warning .....	7
self-test .....	16
service and repairs .....	54
service centers .....	55
setting brightness .....	21
shipping to EXFO .....	54
singlemode optical connector .....	2
specifications, product .....	6

storage requirements ..... 33  
symbols, safety ..... 7

**T**

technical specifications ..... 6  
technical support ..... 45  
temperature for storage ..... 33  
temperature management ..... 27  
touchscreen  
    cleaning ..... 33  
    location ..... 1  
transportation requirements ..... 33, 50  
turning on/off unit ..... 16

**U**

understanding main window ..... 17  
unit  
    installing ..... 13  
    powering ..... 16  
    repairing ..... 13  
    unexpected shutdown ..... 27  
    ventilation ..... 13  
USB port ..... 2  
user guides ..... 41

**V**

ventilation ..... 13

**W**

warranty  
    certification ..... 53  
    exclusions ..... 53  
    general ..... 51  
    liability ..... 53  
    null and void ..... 51

CHINESE REGULATION ON RESTRICTION OF HAZARDOUS SUBSTANCES (RoHS)

中国关于有害物质限制的规定

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 <sup>a</sup> 光学组件 <sup>a</sup>	X	O	O	O	O	O
Mechanical sub-assembly <sup>a</sup> 机械组件 <sup>a</sup>	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 use period (years) 环境保护使用期限 (年)	Logo 标志
This EXFO product 本 EXFO 产品	10	
Battery <sup>a</sup> 电池	5	

a. If applicable.  
如果适用。

P/N: 2.0.0.1

[www.EXFO.com](http://www.EXFO.com) · [info@EXFO.com](mailto:info@EXFO.com)

**CORPORATE HEADQUARTERS** 400 Godin Avenue

Quebec (Quebec) G1M 2K2 CANADA  
Tel.: 1 418 683-0211 · Fax: 1 418 683-2170

**TOLL-FREE** (USA and Canada)

1 800 663-3936

© 2023 EXFO Inc. All rights reserved.  
Printed in Canada (2023-02)

