

# IQ-206 Expansion Unit

## Instruction Manual

November 1995  
P/N: MAN-057-I .2AN

Second Edition

Software Version 1.0

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## General Safety Information

The following safety precautions must be observed during the operation and servicing of the unit. Failure to comply with these precautions or with specific indications elsewhere in this manual violates safety standards of intended use of the unit. EXFO assumes no liability for the user's failure to comply with these requirements.

This is a Safety Class 1 instrument manufactured and tested according to international safety standards.

### Safety Precautions

Before powering ON, we strongly suggest that you read and comply with the recommendations given in the sections *General Safety Information* and *Module Setup*. These instructions and indications must be followed to ensure safe operation of the unit.

In addition, please follow the safety precautions listed below:

- Unit covers cannot be removed during operation.
- Before powering ON the unit, all grounding terminals, extension cords, and devices connected to it should be connected to a protective ground via a ground socket. Any interruption of the protective grounding will cause a potential shock hazard and possible personal injury.
- Whenever the ground protection is impaired, the unit must not be used and be secured against any accidental or unintended operation.
- Only fuses with the required rated current and specified type (normal blow, time delay, etc.) may be used for replacement. Do not use repaired fuses or short-circuit fuseholders.

## GENERAL SAFETY INFORMATION

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- Any adjustments, maintenance, and repair of opened units under voltage should be avoided and carried out only by skilled personnel aware of the hazard involved. Do not attempt internal service or adjustment unless another person qualified in first aid is present. Do not replace any components while power cable is connected.
- Operation of any electrical instrument around flammable gases or fumes constitutes a major safety hazard.
- Installation of substitute parts or modification of the unit should be carried out by authorized personnel only.
- Capacitors inside the unit may be charged even if the unit has been disconnected from its electrical supply.

### WARNING

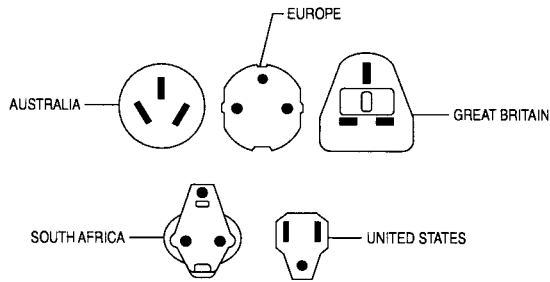
*To avoid electrical shock, do not operate the unit if there are signs of damage to any part of the outer surface (covers, panels, etc.).*

### AC Requirements

The IQ-203/IQ-206 can operate from any single-phase AC power source between 100 V and 260 V for the IQ-203 (47 to 63 Hz), and 100 V to 120 V and 200 V to 240 V for the IQ-206 (50/60 Hz). The maximum power consumption is 85 VA for the IQ-203 and 210 VA for the IQ-206, with all options installed.

## Power Cable

This unit uses an international safety standard three-wire power cable. This cable serves as a ground when connected to an appropriate AC power receptacle. The type of power cable supplied with each unit is determined according to the country of destination. The figure below illustrates the different power cables available.



*Power Cable Plug Identification*

**WARNING**

*To avoid serious injury, the following precautions must be observed before powering ON the unit.*

- *If the unit is to be powered via an auto transformer for voltage reduction, the common terminal must be connected to the grounded power source pole.*
- *Insert the power cable plug into a power outlet with a protective ground contact. Do not use an extension cord without a protective conductor.*
- *Before powering ON the unit, the protective ground terminal of the unit must be connected to a protective conductor using the unit power cord.*
- *Do not tamper with the protective ground terminal.*

The following work should be carried out by a qualified electrician:

- The color coding used in the cable depends on the cable. If a new plug is being connected, it should meet the local safety requirements and include the following features:
  1. Adequate load-carrying capacity
  2. Ground connection
  3. Cable clamp

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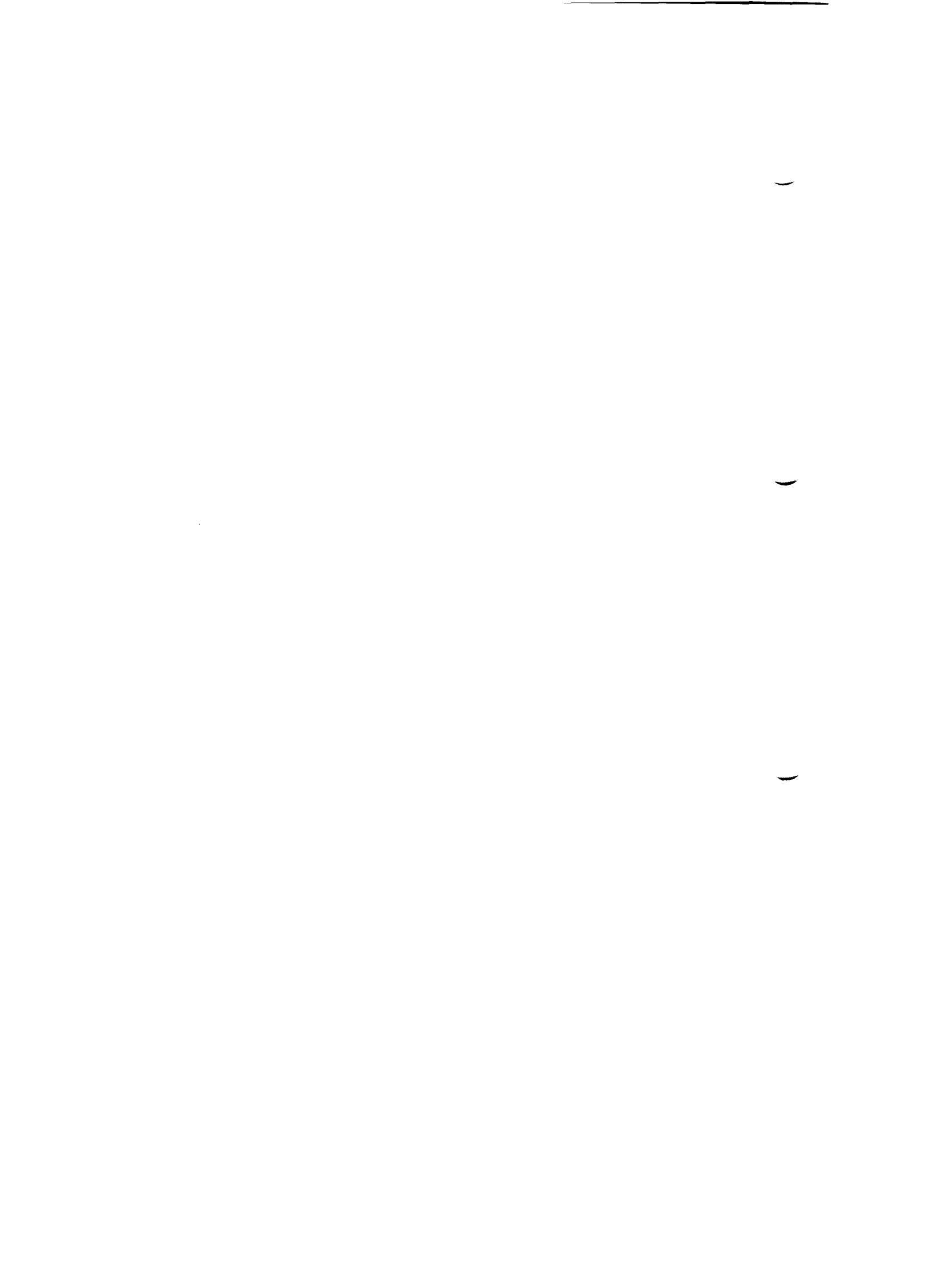
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## **1 INTRODUCTION**

### **1.1 IQ-200 Product Line**

EXFO E.O. Engineering Inc. (EXFO) is pleased to introduce the IQ-206 Expansion Unit as part of the Optical Test System IQ-200 Integrated PC/WINDOWS™ modular test system family. The IQ-200 product line consists of the IQ-203 Optical Test System mainframe, the IQ-206 Expansion Unit, and the IQ Series modules.

- Refer to the IQ-206 and IQ Series modules instruction manuals for specific operating instructions on these products.

EXFO's commitment to superior design in all its fiber-optic instrumentation is respected throughout the industry and is based on four goals:

1. Simple operation.
2. Extensive features.
3. Reliable performance.
4. Dedicated interest in customer needs.

The IQ-206 Expansion Unit will provide many years of reliable operation. In order to benefit fully from the many features offered by the IQ-206, it is important to read the contents of this instruction manual carefully.

## INTRODUCTION

### *List of Abbreviations*

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#### **1.2 List of Abbreviations**

The following abbreviations are used throughout this manual:

AC	Alternating Current
FOA	Fiber-Optic Adapter
GPIB	General Purpose Interface Bus
LED	Light Emitting Diode
VA	Voltampere
VAC	Volt per Alternating Current

#### **1.3 Unpacking and Inspection**

The IQ-206 is delivered with the following standard items:

- IQ-206 Expansion Unit
- IQ-206 Instruction Manual
- Interface (expansion) cable
- Two IQ User's Guide binders with dividers
- AC power cord

The IQ-206 Expansion Unit has been thoroughly inspected before shipment. If any damage has occurred during transportation or if any item is missing, please notify EXFO immediately.

The following items are optional (please verify invoice):

- IQ Series modules with their respective FOAs and test jumpers
- IQ-203 Optical Test System

## 1.4 Safety Conventions

### **WARNING, CAUTION, and IMPORTANT**

The following conventions should be clearly understood before operating the unit:

**WARNING** Refers to a potential personal hazard. It requires a procedure which, if not correctly followed, may result in bodily harm or injury. Do not proceed beyond a **WARNING** unless the required conditions are fully understood and met.

**CAUTION** Refers to a potential product hazard. It requires a procedure which, if not correctly followed, may result in irreparable component damage. Do not proceed beyond a **CAUTION** unless the required conditions are fully understood and met.

**IMPORTANT** Refers to any information regarding the operation of the product which should not be overlooked.

## INTRODUCTION

### *Getting Help*

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#### **1.5 Getting Help**

If any difficulty is encountered while operating the unit, please call EXFO at one of the offices listed below. The Product Support Group is available from 7:30 a.m. to 8:00 p.m. EST, Monday to Friday.

#### **Product Support Group**

- USA and Canada  
Tel.: 1-800-663-EXFO  
Fax: 1-418-683-2170
- International  
Tel.: 418-683-0211  
Fax: 418-683-2170

E-Mail Address: [exfo@riq.qc.ca](mailto:exfo@riq.qc.ca)

#### **EXFO Europe**

Tel.: 33-1-34.63.00.20  
Fax: 33-1-34.65.90.93

E-Mail Address: [exfoeur@ibm.net](mailto:exfoeur@ibm.net)

## 2 PRODUCT OVERVIEW

### 2.1 Description of the IQ-206 Expansion Unit

The IQ-206 Expansion Unit can integrate six IQ series modules. Up to four IQ-206 Expansion Units can be linked to an IQ-203 Optical Test System. The IQ-206 Expansion Unit is dependent on the IQ-203 and cannot function without it.

The product nameplate, shown in Figure 2-1, is located on the rear panel of the IQ-206. The nameplate provides:

- the detailed part number (**P/N**) identifying configuration and options
- the serial number (**S/N**)
- the date of manufacture (**Mfg. date**)
- the product version (**Ver.**)



Figure 2-1. Product Nameplate

## PRODUCT OVERVIEW

### Front Panel Description

#### 2.2 Front Panel Description

Figure 2-2 illustrates the IQ-206 front panel characteristics.

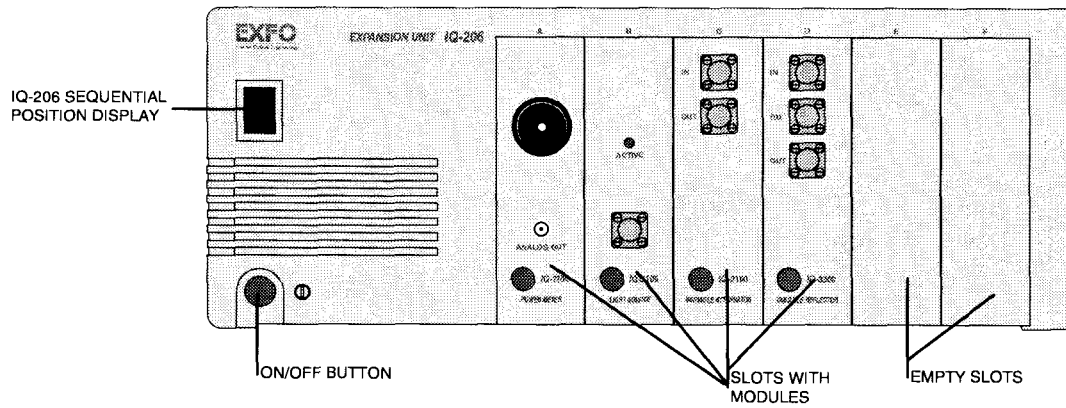


Figure 2-2. IQ-206 Front Panel

Front Panel Items	Description
ON/OFF Button	Press this button to power the unit ON/OFF.
IQ-206 Sequential Position Display	Indicates the sequential position of the unit within a complete IQ-203 + IQ-206 system (position from 1 to 4). Refer to IQ-203 instruction manual.



**2.3 Back Panel Description**

Figure 2-3 illustrates the IQ-206 back panel.

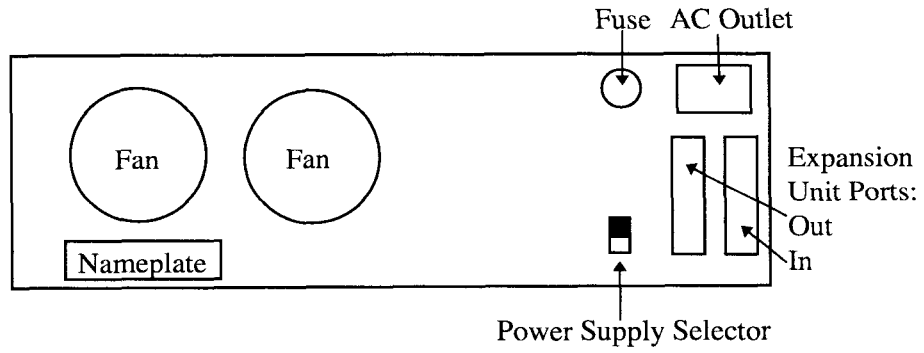


Figure 2-3. IQ-206 Back Panel

- Use the power supply selector shown in Figure 2-3 to choose the appropriate power supply: 110 V or 220 V, as indicated.



### 3 INSTALLATION

#### 3.1 IQ-206 Installation

##### **CAUTION**

***NEVER INSERT OR REMOVE ANY MODULE WHEN THE IQ-203/  
IQ-206 IS POWERED ON. THIS WILL RESULT IN IMMEDIATE  
IRREPARABLE DAMAGE TO THE MODULE AND THE IQ-203/IQ-206.***

##### **To install the IQ-206:**

1. Connect the IQ-206 AC power cords
2. Connect interface cables to IQ-203 Optical Test System and other (if any) IQ-206 Expansion Unit:
  - Connect interface cable from IQ-203 into IQ-206 “IN” port.
  - Connect interface cable for next IQ-206 unit to “OUT” port of first IQ-206 unit and to “IN” port of second IQ-206 unit. Repeat for additional IQ-206 Expansion Units.
3. Keep IQ-206 and IQ-203 powered OFF.

## INSTALLATION

### *IQ-203 Positioning and Cooling*

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#### **3.2 IQ-203 Positioning and Cooling**

The IQ-206 has two internal rear cooling fans. Mount or position the unit so that air can circulate through it freely. When operating the unit, choose a location which provides at least 75 mm (3 inches) of rear clearance and 25 mm (1 inch) of clearance on each side, as shown in Figure 3-1. Failure to provide adequate air clearance may result in excessive internal temperature, thus reducing unit reliability.

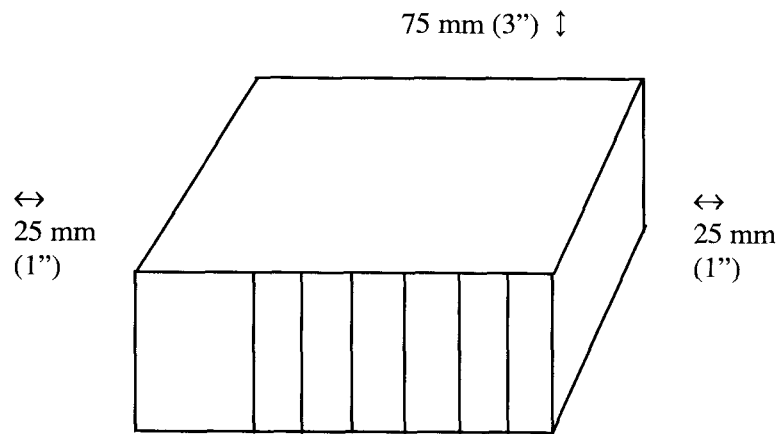


Figure 3-1. IQ-206 Positioning and Cooling

### 3.3 IQ Series Module Installation

#### To install the IQ Series modules in the IQ-206:

1. Be sure the IQ-206 is powered OFF.
2. Remove the cover plate of any unused IQ-206 module slot, prior to installing a module. To remove a cover plate, pull the plate by its bottom groove (see Figure 3-2) and remove it completely.
3. Insert the IQ Series module into its slot and push it in firmly until it is flush with the IQ-206 front panel.
4. Repeat steps 1 to 3 for any other module.

#### CAUTION

***NEVER INSERT OR REMOVE ANY MODULE WHEN THE IQ-203/  
IQ-206 IS POWERED ON. THIS WILL RESULT IN IMMEDIATE  
IRREPARABLE DAMAGE TO THE MODULE AND THE IQ-203/IQ-206.***

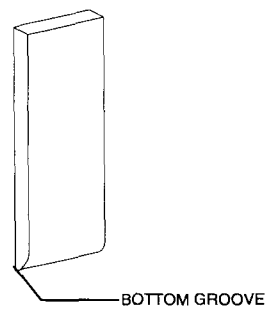


Figure 3-2. IQ-206 Cover Plate Bottom Groove

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## 4 OPERATION

### 4.1 Activation

To activate the IQ-206 unit proceed as follows:

1. Be sure that all the installed modules are secured in place before powering ON the IQ-206.
2. Power ON the IQ-203, then power ON the IQ-206 by pushing the ON/OFF button located at the bottom left corner of the IQ-206 (see Figure 2-2).

### IMPORTANT

*Always power ON the IQ-203 before powering ON the IQ-206. After powering ON, the IQ-206 will perform a self test during which the IQ module LED push-buttons should light up in sequence, thus demonstrating that the modules are electrically connected and that the IQ-203 bus is in communication with them.*

Refer to IQ-203 instruction manual for further information regarding bench top and rack mount installations.





**5 MODULES**

**5.1 IQ Series Modules**

<b>IQ Module</b>	<b>Description</b>
<b>IQ-1100</b>	1 Channel Power Meter
<b>IQ-1200</b>	4-Channel Power Meter
<b>IQ-1300**</b>	Multi-Channel Power Meter
<b>IQ-1500*</b>	Calibration Power Meter
<b>IQ-1800**</b>	Remote Head
<b>IQ-2100</b>	Light Source
<b>IQ-2500*</b>	DFB Laser
<b>IQ-3100</b>	Variable Attenuator
<b>IQ-3200</b>	Return Loss Meter
<b>IQ-3300</b>	Variable Reflector
<b>IQ-5200**</b>	Optical Spectrum Analyzer
<b>IQ-5300**</b>	Optical Multimeter
<b>IQ-6100**</b>	Optical Fiber Amplifier
<b>IQ-9100</b>	Optical Switch

\* IQ Series modules available for first quarter of 1996.

\*\* IQ Series modules available for second quarter of 1996.

Please contact EXFO for further details.



## **6 MAINTENANCE AND TROUBLESHOOTING**

### **6.1 Maintenance**

The IQ-206 is maintenance free. The unit has been designed to require a minimum of maintenance and to provide accurate operation for many years to come. Should any failure occur during operation, consult the troubleshooting list below. If no solution is found, then call EXFO for assistance at 1-800-663-EXFO (or 1-418-683-0211).

### **6.2 Fuse Replacement**

The IQ-206 contains a single 250 V fast blow fuse. The fuse holder is located on the IQ-206 back panel (refer to Figure 2-3).

#### **To replace the fuse:**

1. Release the fuse holder by using the blade of a flat-headed screwdriver to unscrew the holder.
2. Pull out the holder.
3. Verify and replace the fuse if necessary
4. Make sure the fuse is firmly in the holder prior to insertion.
5. Place the holder in the IQ-206 by screwing it back into place.

## MAINTENANCE AND TROUBLESHOOTING

### *Troubleshooting*

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#### 6.3 Troubleshooting

<b>Problem</b>	<b>Probable Cause</b>	<b>Recommended Action</b>
IQ-206 does not power ON	AC Power not applied  Fuse blown	Verify AC power cord connection, then power ON IQ-206  Verify the fuse (see section 6.2, <i>Fuse Replacement</i> )
IQ-206 Sequential Position Display indicates "E"	IQ-206 not connected to IQ-203	Power OFF IQ-203 and IQ-206; and properly connect interface cable; then power ON IQ-203, followed by IQ-206

- In all cases, if problem persists after performing recommended action, call EXFO (refer to *Getting Help*).

**7 IQ-206 TECHNICAL SPECIFICATIONS**

**7.1 Specifications Page**

<b>Electrical Specifications</b>	
Power	175 VA at: 100 to 130 VAC / 200 to 250 VAC (60/50 Hz)
Fuse	250 V, 5 A Fast Blow

<b>Mechanical Specifications</b>	
Slots	6
Dimensions	Width: 14.25" / 36 cm) Height: 5.75" / (14.5 cm) Length: 12" / 30.5 cm
Weight	7.7 lb / 3.5 kg

<b>Operating Environment</b>	
Operating temperature	14 to 131 °F / 0 °C to +55 °C ≤ 95% non-condensing relative humidity
Storage temperature	-40 to 158 °F / -40 to +70 °C ≤ 95% non-condensing relative humidity

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## 8 GENERAL INFORMATION

### 8.1 Warranty

EXFO E.O. Engineering (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. This warranty also covers recalibration during the first year if the equipment is repaired or if the original calibration is erroneous.

#### IMPORTANT

*The warranty can become null and void if:*

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

## GENERAL INFORMATION

### *Liability*

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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.

#### **8.2 Liability**

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

#### **8.3 Exclusions**

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



**8.4 Certification**

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

**8.5 Service and Repairs (Under Warranty or Other)**

To obtain service or repair for any equipment, follow the procedure below.

- Call the EXFO Product Support Group. Support personnel will determine if the equipment requires service, repair, or calibration.

**Product Support Group:**

USA and Canada

Tel.: 1-800-663-EXFO

Fax: 1-418-683-2170

International

Tel.: 1-418-683-0211

Fax: 1-418-683-2170

EXFO Europe

Tel.: 33-1-34.63.00.20

Fax: 33-1-34.65.90.93

- If the equipment must be returned to EXFO or an authorized service center, support personnel will issue a Return Merchandise Authorization (RMA) and an address for return.
- 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.

## GENERAL INFORMATION

### *Transportation and Storage*

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#### IMPORTANT

***Never send any unit or accessory back to EXFO without a Return Merchandise Authorization (RMA).***

- Return the equipment, prepaid, to the address given by the support personnel. Be sure to write the RMA on the shipping slip. EXFO will refuse and return any package which does not bear an RMA.

***Note:*** A test setup fee will apply to any returned unit which, 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, the customer will be invoiced for the cost appearing on this report. Return-to-customer shipping costs will be paid by EXFO for equipment under warranty. However, shipping insurance is at the customer's expense.

#### **8.6 Transportation and Storage**

Stay within a temperature range of -35 to +70°C when transporting or storing the unit. Transportation damage can occur from improper handling. Therefore, the following steps are recommended to minimize the possibility of damage.

- If the unit is to be shipped, pack it in the original packing material for best protection.
- When not in use, store unit at room temperature in a clean and dry area. Avoid high humidity or large temperature fluctuations.
- Keep the unit out of direct sunlight.
- Avoid unnecessary shock and vibration.

**9 CUSTOMER COMMENTS**

**9.1 IQ Comments**

At EXFO, we are continuously looking for ways to improve our products. We would appreciate any comments or suggestions that you may have concerning the operation and service of the IQ Product Line. Please contact our Product Support Group at 1-800-663-EXFO (fax: 1-418-683-2170). When calling, please provide the following information:

- 1) Part Number: IQ-\_\_\_\_\_ Serial Number: \_\_\_\_\_
  
- 2) Product/Software Version: \_\_\_\_\_  
(indicated in **About** IQ-203 window)
  
- 3) User Name: \_\_\_\_\_  
  
Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
- Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_
  
- 4) Brief description of the product application.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
- 5) Comments or description of problems (if any).  
\_\_\_\_\_  
\_\_\_\_\_  
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