

IQS-12001B

R&D AND MANUFACTURING—OPTICAL



Provides the most accurate insertion loss and reflectance measurements on the market for components and cable assemblies

- High-sensitivity, mandrel-free reflectance measurements down to -75 dB, meeting requirements for the most demanding FTTH applications
- Simultaneous measurement on four wavelength (1310, 1490, 1550 and 1625 nm)
- Open architecture allows for customizable controls and remote configuration
- Compatible with simplex, duplex, multifiber, bundle, hybrid and fanout cable assemblies, as well as PLC splitters and planar arrays

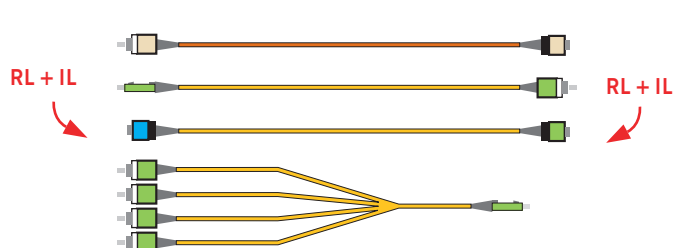
Platform compatibility

- IQS-600 Integrated Qualification System
- IQS-500 Intelligent Test System

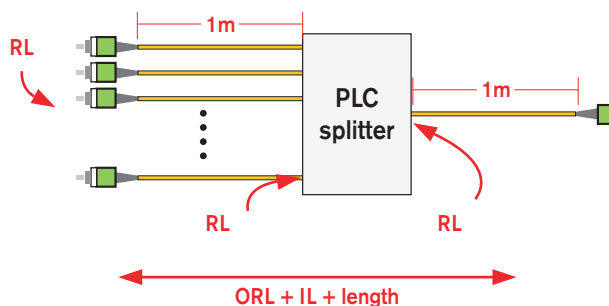


Fully Integrated Cable Assembly and Component Testing

Maximize production throughput for insertion loss (IL) and mandrel-free reflection testing for all types of fiber-optic interconnect cable and component assemblies with the IQS-12001B Cable Assembly and Component Test System. This fast and accurate system comes with the most complete single-software package available, delivering truly integrated testing for simplex, duplex, multifiber, hybrid and fanout fiber assemblies, as well as for components such as PLC splitters used in FTTx systems.



Simplex, duplex, multifiber and fanout, with or without hybrid connectors.
(RL = reflectance; IL = insertion loss)



Component testing.
(ORL = optical return loss; RL = reflectance; IL = insertion loss)

Key Features

Turnkey software for manufacturing environments



Key Benefits

Ready-to-use box (plug and play) to start your manufacturing

Mandrel-free reflectance measurement



Ideal for non-bendable and/or multimode fibers

Highest reflectance sensitivity: -75 dB



Optimized for FTTx-component qualification

Automated four-wavelength testing capability and one-meter resolution capability for splitter testing



Faster testing time for all FTTx configurations

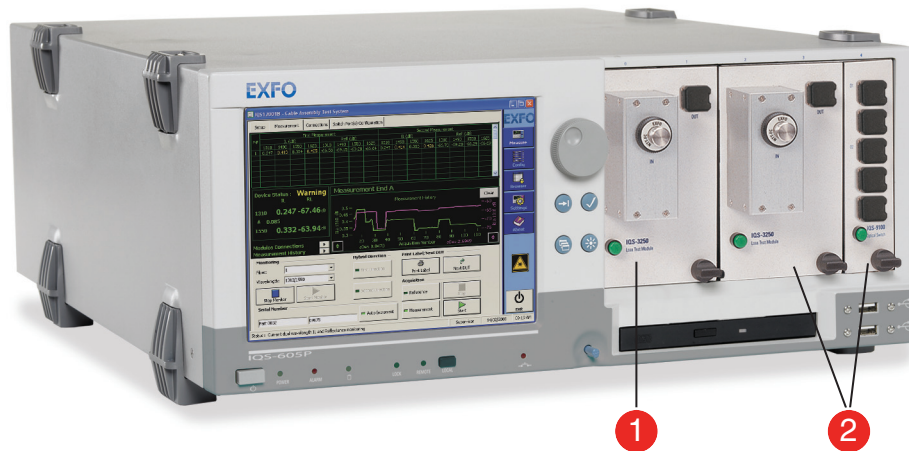
Optical switch integration



Fast and automated tests for multifiber and/or hybrid cable assembly support

System overview

The IQS-12001B system features a loss test module (IQS-3250/3250B), optional optical switches and a software package that integrates and manages test sequences, the database and its results, as well as the peripherals such as bar code reader, label printers and foot switches used in production environments.



1 Loss and reflectance measurements

The IQS-3250/3250B Loss Test Module is based on advanced time-domain technology with a wide-aperture integrating cavity detector. The module's internal monitoring channel ensures IL measurement accuracy while its internal reflectance reference significantly improves multimode and singlemode reflectance measurement performance; in singlemode assembly, it also accounts for the effects of Rayleigh backscattering in each measurement. Combined with EXFO's advanced detection electronics and algorithms, the IQS-3250/3250B provides highly accurate mandrel-free reflectance measurements for even the most difficult-to-test APC connectors.

2 Customizable modular architecture

The IQS-12001B's unique architecture allows you to add and remove modules to meet your testing needs. Mix and match different wavelength combinations, test singlemode and multimode cable assemblies, and add switches to convert your simplex configuration into a multifiber test system—thanks to the system's unified software and powerful database, which protect your valuable production data.

Supported accessories



Label printer



Bar code reader

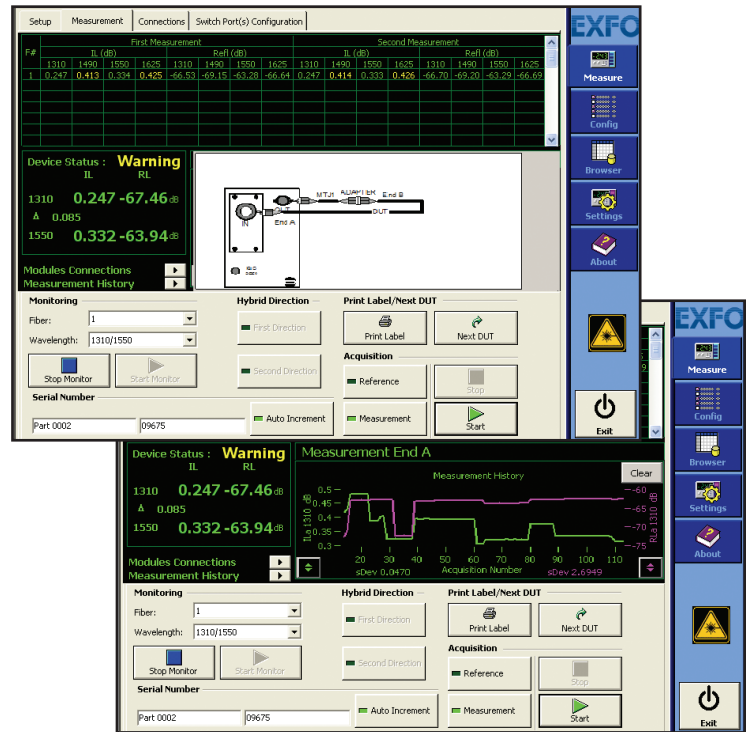


Foot switch

User-Friendly Turnkey Software

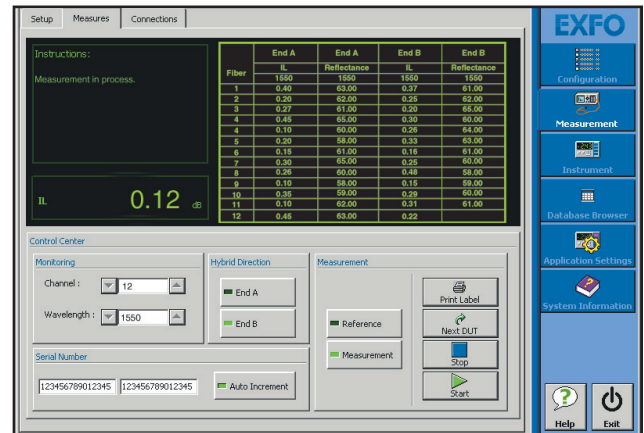
Comprehensive software

- On-screen instructions with graphical display of the connections
- IL and reflectance live monitoring in the main window
- Display of the last 100 results in a real-time chart



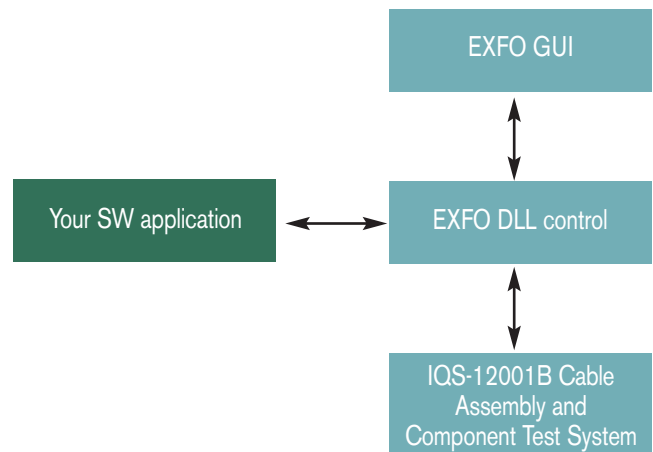
Post-processing made easy

- Integrated, centralized database to save and manage results, and to generate reports and statistics
- Direct integration with bar code reader, foot switch and label printers
- Label printing utility, allowing users to design their own labels



Customize it to fit your needs

The IQS-12001B comes with DLL interfaces that enable you to create your own applications and remotely control your system. These system-level commands ensure smooth, efficient application creation without compromising the system's measurement accuracy and speed. A simple Visual Basic demo is provided to help you get started with your own application.



Best Performance in the Industry

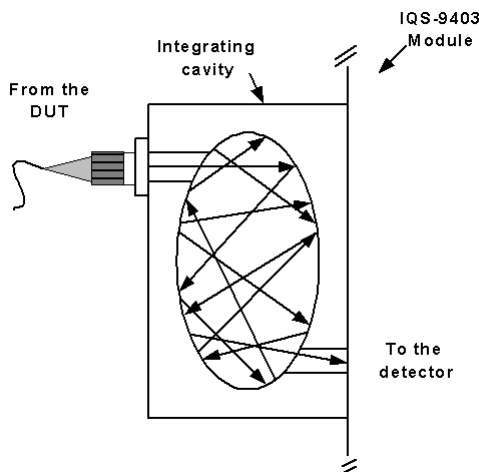
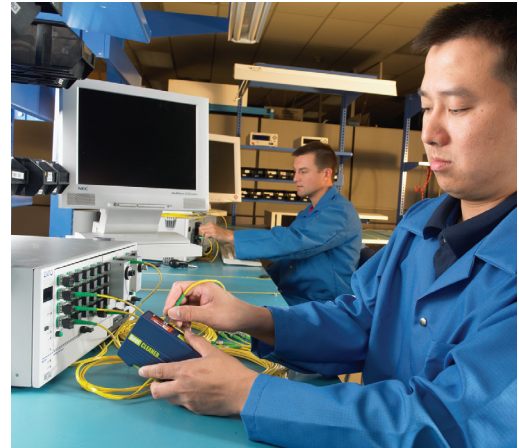
Test faster, increase your productivity

Cable assembly testing

- Insertion loss and reflectance measurements on four wavelengths in ten seconds flat
- Mandrel-free reflectance measurement
- Capability to measure singlemode reflectance (discreet reflection) down to -75 dB, meeting the requirements of even the most demanding FTTH applications

Component testing (singlemode only, through DLL interfaces)

- One sequence for insertion loss, reflectance, optical return loss and fiber length measurements for all wavelengths
- Mandrel-free measurement with one-meter resolution



Integrating cavity diagram.

Accurate, repeatable and flexible

EXFO has developed an innovative detector assembly for the IQS-12001B. Using wide-aperture integrating cavity packaging, the detector has many properties that make it ideal for interconnect testing. The wide aperture allows it to be used for simplex and multifiber connectors. Because it uses integrating cavity technology, connector alignment is less critical and polarization dependence is negligible. The end result is increased accuracy, repeatability and flexibility.

Combining an integrating cavity with a detector and the right diameter input port provides a major advantage: power measurements are independent of the fiber's numerical aperture, ferrule polish (PC or APC) and alignment, since the cavity scatters all incident light, with the same average power reaching the detector. Integrating cavity technology is a built-in feature of the two detectors used with the IQS-12001B Cable Assembly and Component Test System, the IQS-3250/3250B Loss Test Module and the IQS-9403 Loss Meter.

Calibration verification tool

Reflectance referencing can also be achieved through the CKT-30 Singlemode Reflectance Reference module. Using the IQS-12001B's reflectance verification wizard, you can perform a step-by-step verification of your system's reflectance calibration. As long as it is within ≤ 0.5 dB to that of the CKT-30, you know your system meets calibration specifications and don't need to send it to EXFO for verification—avoiding unnecessary downtime.

Configure Your System for Optimal Performance

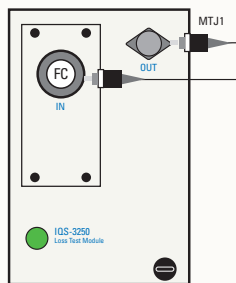
The IQS-12001B Cable Assembly Test System is available in two configurations: Standard and High-Throughput. The Standard configuration includes only the minimal hardware necessary to get the job done. It keeps costs in check, while providing fast and accurate measurements in a user-friendly format.

The High-Throughput (HT) configuration minimizes the handling required, reducing the overall testing time and increasing the productivity. This mode of operation is particularly well-suited to hybrid assembly and/or multiwavelength testing. The IQS-12001B can accommodate additional switch ports and loss meters, enabling hybrid assemblies to be tested in one sequence. External optical switches can be controlled by the IQS-12001B GPIB interface for test applications requiring more than 32 channels.

The IQS-12001B lets you dedicate switch ports to specific connector types, which avoids having to disconnect the launch fiber, saving valuable setup time. For example, with a 1x32 switch, you can dedicate ports 1 to 24 to MTP connectors (male and female), ports 25 to 28 to MT-RJ connectors (male and female), and still have room for FC, ST, SC and MU connectors. Depending on the device under test (DUT), the system uses the appropriate port.

Standard Configuration

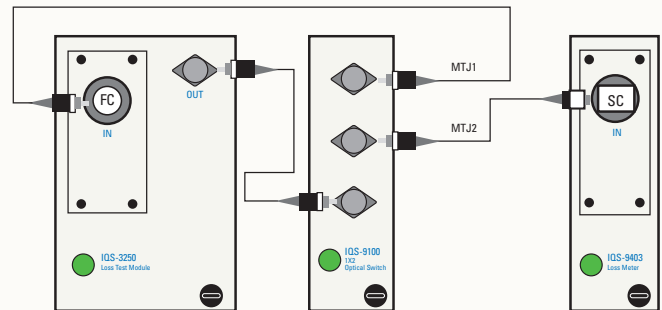
Simplex



Basic configuration for testing simplex and multifiber bundles.

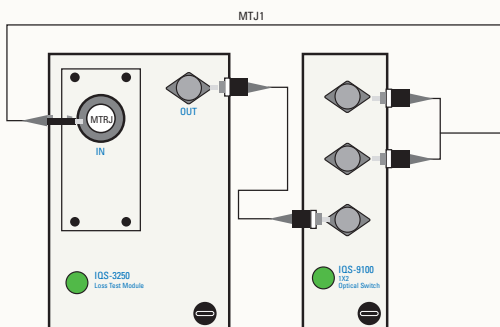
High-Throughput Configuration

Simplex



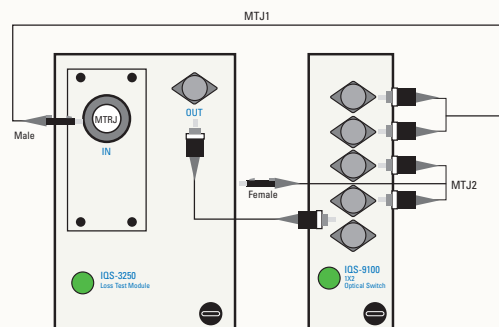
With an additional loss meter and a 1x2 optical switch, hybrid simplex assemblies can be efficiently tested. The two master test jumpers and detectors are configured for the different connectors of the hybrid assembly.

Multifiber Connector



Basic configuration for testing multifiber connectors such as MTP and MT-RJ.

Multifiber Connector



By doubling the number of switch ports, the system can be configured to accept both male and female multifiber connectors. The end result is faster and simpler testing in a single sequence.

Standard and High-Throughput configurations are also available for testing bundle, duplex and multifiber to fanout assemblies.

SPECIFICATIONS ^a

	Singlemode ^b (1310/1550 nm)	Singlemode ^b (1490/1625 nm)	Multimode ^c
Testing time ^d (s)	< 6	< 6	< 6
Cable assembly length (m)	1.8 to 1500	1.8 to 1500	1.8 to 500
Insertion loss measurement uncertainty	± 0.03 ^e	± 0.03 ^e	± 0.07 ^f
Insertion loss measurement stability ^g (dB)	< 0.005	< 0.005	< 0.028
Reflectance range (dB)	-30 to -75	-30 to -75	-10 to -50
Reflectance measurement uncertainty (dB)	±1 (-30 to -70)	±1 (-30 to -70)	± 1.2 (-10 to -30)
	±2.2/±1.7 (-70 to -75)	±1.7 (-70 to -75)	± 1.5 (-30 to -40)
			± 1.6 (-40 to -43)
			± 2.9 (-43 to -50)
Reflectance measurement repeatability ^h (dB)	±0.1 (-30 to -65)	±0.1 (-30 to -65)	± 0.2 (-10 to -30)
	±0.2 (-65 to -70)	±0.2 (-65 to -70)	± 0.4 (-30 to -40)
	±0.4 (-70 to -75)	±0.5 (-70 to -75)	± 0.6 (-40 to -43)
			± 1.8 (-43 to -50)
Wavelengths (nm)	1310/1550	1490/1625	850/1300
Output channels	Up to 32 channels	Up to 32 channels	Up to 32 channels
Test method	End-to-end/bidirectional	End-to-end/bidirectional	End-to-end/bidirectional

Notes

- a. Calculated and measured with the following considerations:
 - Based on recommended procedure for ORL measurements
 - The FOA-300 series' uncertainty is included in all uncertainty values
 - Although tests are possible with other fiber-optic adapters, these specifications are only valid with the FOA-300 series
 - Cable assemblies < 1.8 m can be tested using a non-reflective termination
 - With 15 minute warm-up time
- b. For SMF-28 fiber. At 23 °C ± 1 °C in High-Sensitivity Reflectance mode with no switch.
- c. At 850 nm and 1300 nm. For 62.5/125 µm fibers. At 23 °C ± 1 °C, after 30 minutes warmup. Switch module connectorized with FC/PC connectors. Uncertainty due to launching conditions not included.
- d. Calculation and storage time for simplex, dual-wavelength IL/reflectance end-to-end measurements (Standard Reflectance Sensitivity mode, 500 meter range); does not include referencing and connection time.
- e. For simplex measurements using FOA-322 adapter. Uncertainty for MTP to MTP, MT-RJ to MT-RJ, MTP to fanout and MT-RJ to fanout is ± 0.06 dB (reported with a level of confidence of 95 %). This does not include uncertainties due to connector, connector adapter or switch PDL.
- f. For simplex measurement using FOA-322 adapter. Uncertainty for MTP to MTP, MT-RJ to MT-RJ, MTP to fanout and MT-RJ to fanout is ± 0.08 dB (calculated for a level of confidence of 95 %). Does not include uncertainties due to connector, connector adapter or uncertainties due to mode dependence of the switch.
- g. For a stable connection, over 15 minutes, at constant temperature.
- h. For a stable connection, over 10 measurements.

GENERAL SPECIFICATIONS

Communication interfaces	General-purpose interface bus (GPIO)	
	Ethernet (10/100 Base-T)	
	RS-232	
Temperature	Operating	0 °C to 40 °C (32 °F to 104 °F)
	Storage	-40 °C to 60 °C (-40 °F to 140 °F)
Relative humidity	80 % maximum, non-condensing	
Laser Safety		
21 CFR 1040.10	CLASS 1 LASER PRODUCT	
IEC 60825-1:2001	CLASS 1 LASER PRODUCT	

Standard Accessories

Expansion units as required, user guide, certificate of compliance, custom report, label generator, IQS-12001B software and EU-89 FC narrow key connector.

ORDERING INFORMATION

IQS-12001B-XX-XX-X-XX-XX-XX-XX-XX-XX-XX

Model ■

IQS-12001B-05-S5-B = IQS-605P, 1310/1550 nm, IL/RL, optional switch 9/125 μm, APC connector
 IQS-12001B-05-S6-B = IQS-605P, 1490/1625 nm, IL/RL, optional switch 9/125 μm, APC connector
 IQS-12001B-05-S7-B = IQS-605P, 1490 nm, IL/RL, optional switch 9/125 μm, APC connector
 IQS-12001B-05-S8-B = IQS-605P, 1310/1550 and 1490/1625 nm, IL/RL with 1x2 optical switch, optional switch 9/125 μm, APC connector
 IQS-12001B-10-S5-B = IQS-610P, 1310/1550 nm, IL/RL, optional switch 9/125 μm, APC connector
 IQS-12001B-10-S6-B = IQS-610P, 1490/1625 nm, IL/RL, optional switch 9/125 μm, APC connector
 IQS-12001B-10-S7-B = IQS-610P, 1490 nm, IL/RL, optional switch 9/125 μm, APC connector
 IQS-12001B-10-S8-B = IQS-610P, 1310/1550 and 1490/1625 nm, IL/RL with 1x2 optical switch, optional switch 9/125 μm, APC connector
 IQS-12001B-05-S1-C = IQS-605P, 850/1300 nm, IL only, optional switch 50/125 μm, PC connector
 IQS-12001B-05-S1-D = IQS-605P, 850/1300 nm, IL only, optional switch 62.5/125 μm, PC connector
 IQS-12001B-05-S2-C = IQS-605P, 850/1300 nm, IL/RL, optional switch 50/125 μm, PC connector
 IQS-12001B-05-S2-D = IQS-605P, 850/1300 nm, IL/RL, optional switch 62.5/125 μm, PC connector
 IQS-12001B-10-S1-C = IQS-610P, 850/1300 nm, IL only, optional switch 50/125 μm, PC connector
 IQS-12001B-10-S1-D = IQS-610P, 850/1300 nm, IL only, optional switch 62.5/125 μm, PC connector
 IQS-12001B-10-S2-C = IQS-610P, 850/1300 nm, IL/RL, optional switch 50/125 μm, PC connector
 IQS-12001B-10-S2-D = IQS-610P, 850/1300 nm, IL/RL, optional switch 62.5/125 μm, PC connector

Hard Disk ■

00 = Standard hard disk
 RHD = RAID 1 second hard drive

Channel Count ■

00 = Without switch
 1-02 = 1x2 switch
 1-04 = 1x4 switch
 1-12 = 1x12 switch
 1-24 = 1x24 switch
 1-32 = 1x32 switch
 - Singlemode switch with FC/APC connector
 - Multimode switch with FC/PC connector
 - Other connectors available: contact EXFO for special order

Example: IQS-12001B-10-S5-B-RHD-FOA-322-I3-SCM

Optional Accessories

FIP-400-USB2-DUAL: Video fiber inspection probe with USB 2.0 converter and software.
FOA-U12: Universal 1.25 mm ferrule
FOA-U25: Universal 2.5 mm ferrule

Additional Loss Meter

00 = Without additional loss meter
 PM01 = With one additional loss meter

Connector Adapter

FOA-316 = Ultra-low reflection SMA 906
 FOA-322 = Ultra-low reflection FC
 FOA-328 = Ultra-low reflection DIN 47256
 FOA-332 = Ultra-low reflection ST
 FOA-340 = Ultra-low reflection HMS-0, HFS-3
 FOA-354 = Ultra-low reflection SC
 FOA-376 = Ultra-low reflection HMS, HFS-10/AG
 FOA-384 = Ultra-low reflection HMS-10/HP, HFS
 FOA-392 = Ultra-low reflection MTP
 FOA-393 = Ultra-low reflection MTRJ
 FOA-396 = Ultra-low reflection E-2000
 FOA-397 = Ultra-low reflection LX.5
 FOA-398 = Ultra-low reflection LC
 FOA-399 = Ultra-low reflection MU
 FOA-3000 = Adapter for BFA-3000

Reflectance Reference ■

00 = Without reflectance reference
 CKT-30 = With reflectance reference singlemode

GPiB Card ■

00 = Without GPiB card
 I3 = GPiB master slave/card

Short Component ■

00 = Without short component measurement option
 SCM = With short component measurement option

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EXFO is certified ISO 9001 and attests to the quality of these products. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. EXFO has made every effort to ensure that the information contained in this specification sheet is accurate. However, we accept no responsibility for any errors or omissions, and we reserve the right to modify design, characteristics and products at any time without obligation. Units of measurement in this document conform to SI standards and practices. In addition, all of EXFO's manufactured products are compliant with the European Union's WEEE directive. For more information, please visit www.EXFO.com/recycle. Contact EXFO for prices and availability or to obtain the phone number of your local EXFO distributor.

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