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RETURN LOSS METER

IQS-3200

R&D AND MANUFACTURING–OPTICAL



- Sensitivity of –80 dB
- Complete data reporting
- Easy integration with automated component-testing software

Meeting the Demanding Needs of Laboratory and Manufacturing Environments

Performing consistent, reliable component/network optical return loss (ORL) and reflectance measurements requires high sensitivity and accuracy–which is what EXFO's IQS-3200 Return Loss Meter offers. The IQS-3200 uses a low-drift InGaAs photodetector coupled to a source port and a measurement port. When connected to any stable source (0 dBm output power), it enables measurements down to an impressive –80 dB. Based on state-of-the-art optical components, sophisticated signal processing, a dark current nulling function and a detailed calibration procedure, the IQS-3200 provides accurate (± 0.35 dB), linear (± 0.015 dB), high-resolution (0.001 dB) measurements, ideal for demanding lab and production-floor applications.



WHY MEASURE BACKREFLECTION?

Backreflection contributes to overall power loss, degrades laser performance and interferes with voice and video signal processing. In order to maintain system and component integrity, measuring and controlling backreflection is therefore a must. Two terms are used to quantify backreflection: reflectance and ORL. Reflectance typically designates the reflection at a single interface or reflection site (e.g., connector or splice). It is specific to a single system component. ORL is made up of the combined reflections of a fiber-optic system or subsystem as measured from a specific point. It includes the reflectance of each system component, along with reflections generated along the fiber itself. EXFO's IQS-3200 Return Loss Meter measures both reflectance and ORL, and is an invaluable instrument for system or component design, manufacturing, testing and troubleshooting.



THE IQS SOLUTION

EXFO's IQS-3200 Return Loss Meter is one of the many modules housed in the flexible, versatile IQS-500 Intelligent Test System. Combine it with the IQS-2100 ORL Light Source and benefit from a first-class connector test station. Change the ORL source for the IQS-2300 ASE Broadband Source and perform return loss measurements over the WDM wavelength range. The IQS-3200 can also be an integral part of larger, more complex, integrated measurement systems found in research and development environments.

Testing Tip

When performing return loss measurements, connector cleanliness is key. Connectors contaminated with dirt, dust, fingerprints, etc. will cause erroneous readings. EXFO recommends connectors be thoroughly cleaned with isopropyl alcohol to ensure measurement accuracy.

TYPICAL MANUFACTURING AND R&D APPLICATIONS

- System or component return loss measurements
- Quality control and inspection
- System or component troubleshooting
- Bidirectional reflectance measurements

INTUITIVE, FLEXIBLE GUI

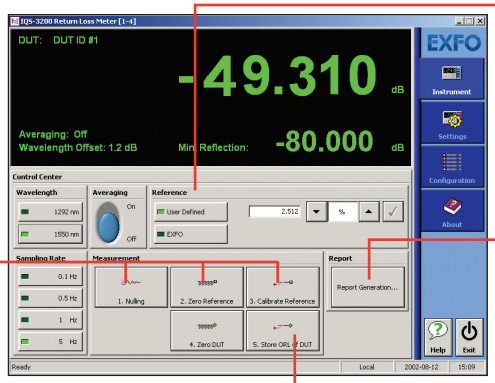
The IQS-3200's Windows-based graphical user interface (GUI) offers easy control with software buttons, front panel keys or keyboard. It provides multiple-user configuration storage as well as online help, and lets you launch various applications simultaneously, enabling true multitasking.

Calibration

Null - Eliminates electronic offsets and dark currents. This helps improve accuracy and temperature stability.

Zero - Eliminates parasitic reflections occurring between the internal detector and the point of measurement. Improves accuracy and allows you to make measurements beyond known reflection sites.

Cal - Calibrates to the selected reflection reference.



Practically Unlimited Data Storage

Stores up to 100 values for each wavelength and for each device under test. Since data is saved to either the floppy disk or the hard disk, all test data can be saved and subsequently catalogued.

Flexible Reference Calibration

Calibrates using the highly stable EXFO reflection reference or any other known reflection reference.

Detailed Test Reports

Produces detailed test reports that include instrumentation identification, environmental information and up to 100 stored measurements for each device under test.

EXCEPTIONAL PERFORMANCE IN A MODULAR PACKAGE

With a dynamic range of 0 to –80 dB, the IQS-3200 brings you top performance, whether for measuring the reflectance of components typically showing extremely low backreflection, or for performing measurements beyond known reflection generators (e.g., when testing multiple components along a fiber connection).

- Accuracy of ± 0.35 dB
- Linearity of ± 0.015 dB
- Spectral range of 1250 to 1630 nm (at 1 nm)
- Resolution of 0.001 dB
- Low polarization sensitivity
- Stable reflection reference

OPTICAL SPECIFICATIONS

Fiber type (µm)	9/125 (Corning SMF-28)
Detector type	InGaAs
Spectral range (nm)	1250 to 1630
Spectral resolution (nm)	1
Dynamic range [a, b] (dB)	0 to –80
Insertion loss [c] (dB)	≤ 5
Resolution (dB)	0.001
Linearity [a, b] (dB)	± 0.015 (–10 dB to –50 dB) ± 0.1 (–50 dB to –60 dB) ± 0.2 (–60 dB to –70 dB)
Uncertainty (accuracy) [a, b, d, e] (dB)	± 0.35 (–10 dB to –50 dB) ± 0.50 (–50 dB to –60 dB) ± 0.65 (–60 dB to –70 dB)
Polarization sensitivity [b] (dB)	± 0.15
Maximum power [f] (dBm)	25
Reflection reference [g] (dB)	14.65 ± 0.2 dB at 1310 nm 14.70 ± 0.2 dB at 1550 nm
Reflection reference stability [h] (dB)	± 0.02

GENERAL SPECIFICATIONS

Temperature		
operating	0 °C to 40 °C	(32 °F to 104 °F)
storage	–40 °C to 70 °C	(–40 °F to 158 °F)
Relative humidity [i]	0 % to 95 % non-condensing	
Dimensions (H x W x D)	125 mm x 36 mm x 282 mm	(4 15/16 in x 1 8/16 in x 11 1/8 in)
Weight	0.68 kg	(1.5 lb)

Standard Accessories

User Guide, reflection reference, test jumper, calibration mandrel, Certificate of Compliance

Optional Accessories

LabVIEW drivers available, OCX controls available in IQ-SDK

NOTES

a. Using a 0 dBm optically isolated source with ± 0.005 dB stability. The linearity specification is based on the internal power meter linearity.

b. At 1310 nm ± 40 nm and 1550 nm ± 40 nm.

c. Includes optical ports and connectors.

d. Includes linearity and connector repeatibility. The uncertainty is reported with a level of confidence of 95 %.

e. Throughout the temperature range while performing a calibration at each new temperature.

f. Assuming a –14 dB reflection.

g. The reflector's reference value is reported with a level of confidence of 95 %.

h. Calculation based on burn-in at 40 °C/104 °F, 60 hours.

i. Measured in 0 °C to 40 °C (32 °F to 104 °F).

ORDERING INFORMATION

MODULE

IQS-3200-X-XX

Fiber Code
B = 9/125 mm singlemode

Connector code
EA-EUI-89 = APC/FC narrow key
EA-EUI-91 = APC/SC
EA-EUI-95 = APC/E-2000

Example: IQS-3200-B-EA-EUI-89

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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. All of EXFO's manufactured products are compliant with the European Union's WEEE directive. For more information, please visit **www.EXFO.com/recycle**. 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. **Contact EXFO for prices and availability or to obtain the phone number of your local EXFO distributor.**

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