IQS-3150

LAB AND MANUFACTURING–OPTICAL

- Outstanding spectral uniformity (±0.03 dB)
- Ideal for BER testing and characterization of EDFAs
- Integrated power monitoring options (on both singlemode and multimode models), for easy power setting and improved stability
- Designed for 24/7 production, with minimal maintenance
- Fast settling time for optimized efficiency

A Fully Programmable Solution

Optical system vendors and transceiver manufacturers know that variable attenuators are essential in order to keep their test systems running smoothly. They look for performance, user-friendliness, complete control of test parameters and advanced programming capability. EXFO's IQS-3150 Variable Attenuator combines innovative design techniques, high-quality components and meticulous calibration procedure.

With or without the power monitoring option, the IQS-3150 module only occupies one slot in the IQS-500 platform.

New option: automatic power monitoring

The power monitoring option allows the attenuator output power level to be set directly. When enabled, this function ensures power stability, even if the source power fluctuates. This option also simplifies test setups, eliminating the need for an external power meter.

Rugged and reliable

Flexible, fully programmable and built both for singlemode and multimode applications, the IQS-3150 features an extremely rugged design that only uses two moving parts–a rotating motor for the shutter and a linear motor for the filter–and state-of-the-art electronics.

The attenuator's optomechanical assembly was tested at its highest operating temperature, at a very high relative humidity level, and with a continuous incident optical power of 23 dBm at 1550 nm–the equivalent of eight years of operation in typical BER testing conditions. Results showed that the IQS-3150 can endure 24/7 operation for years without requiring maintenance.

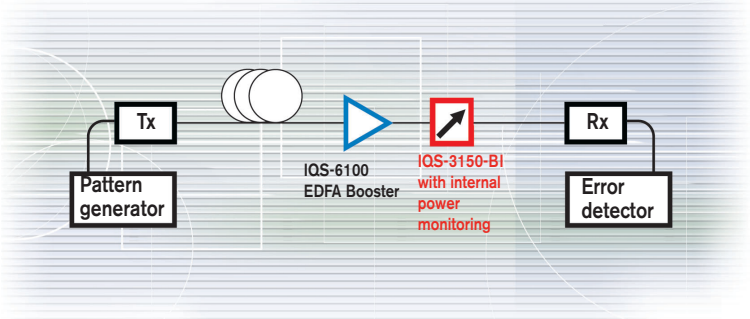
Attenuation modes

Choose from three attenuation modes: absolute, relative and X+B (complete user calibration offset features). Cycle through a repeatable sequence of customized attenuation steps. These modes apply to both singlemode and multimode fiber applications. What's more, the IQS-3150 offers a user-friendly Windows environment, making for a first-class variable attenuator.

Applications

- BER testing
- EDFA characterization
- System or component loss simulation
- Accurate power-level monitoring
- Instrument calibration
- Linearity measurement
- High-precision variable optical source output
- Optical margin analysis

Bit-error-rate measurement



Typical BERT setup.

Featuring integrated power monitoring, the IQS-3150-BI allows you to precisely control the amount of power your receiver (Rx) under test detects and, therefore, to achieve proper BER measurements. The IQS-3150-CI or IQS-3150-DI enable similar characterization for multimode applications.

When calibrating your system, you can choose from two offsets. The first one is wavelength-independent and can be used to account for loss in the test setup, if applied to the attenuation or power setting. The second offset acts as a calibration factor, ensuring wavelength-specific correction levels and compensating for loss due to patchcords and connectors.

A Simple, Flexible and User-Friendly GUI

- Windows-based environment
- Easy control with software buttons, front panel keys or keyboard
- Possibility to program and save multiple configurations
- True multitasking
- Online help
- Ideal for standard or custom multimodule applications

Customized parameters

Easily customize wavelength and step-size parameters according to specific requirements.

High-isolation shutter

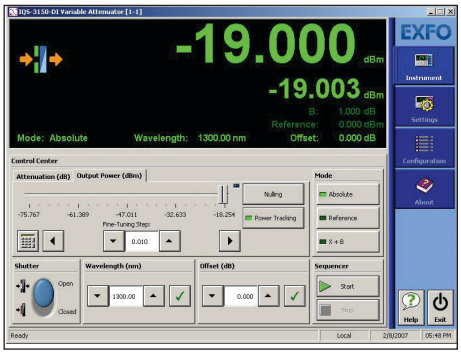
Protect personnel and sensitive components from unnecessary exposure with a > 100 dB attenuation.

Fine-tuned attenuation/power settings

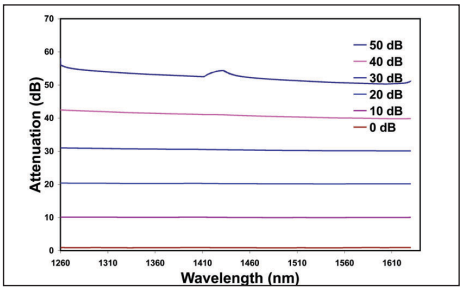
Scroll up or down the attenuation or power setting range.

Fully compatible

The IQS-3150 is fully compatible with previous versions of the module, namely the IQS-3100B, BW, C and D models, providing for true plug-and-play upgrades of your previously owned 3100 series variable attenuators. While previous 3100 series models featured a monitor port, the IQS-3150 now comes with an integrated power monitor, avoiding the need for an external device.



The IQS-3150's graphical user interface.



The spectral flatness of the IQS-3150-B is well suited for any CWDM or DWDM transmitter testing.

SPECIFICATIONS [a]

Singlemode Configurations

Description	Without power monitoring	With power monitoring
Models	**IQS-3150-B**	**IQS-3150-BI**
Fiber type (µm)	9/125	9/125
Wavelength range (nm)	1250 to 1650	1250 to 1650
Max. attenuation [b] (dB)	≥ 65	≥ 65
Insertion loss [c,d] (dB)		
Typical	1.0	1.5
Max.	1.5	2.2
Attenuation setting resolution (dB), typical	0.002	0.002
Attenuation linearity [e] (dB)	±0.1	±0.1
Attenuation repeatability [f] (dB), 2σ	±0.01	±0.01
Spectral uniformity, 1510 nm to 1605 nm [g] (dB)	±0.05	±0.05
Spectral uniformity, 1450 nm to 1630 nm [g] (dB), typical	±0.09	±0.09
Power meter linearity [h] (dB)	N/A	±0.03
Power setting repeatability (dB), 2σ	N/A	±0.015
PDL [i] (dB) peak-to-peak	0.15	0.2
Return loss [c, j] (dB), typical	60	60
Max. input power (dBm)	23	23
Settling time, including command processing time [k] (ms), typical	90 for 0.1 dB step	90 for 0.1 dB step
Transition speed (dB/s), typical	up to 23	up to 23
Shutter isolation (dB)	> 100	> 100

Multimode Configurations

Description	Without power monitoring	With power monitoring
Models	**IQS-3150-C; D**	**IQS-3150-CI; DI**
Fiber type (µm)	50/125, 62.5/125	50/125, 62.5/125
Wavelength range (nm)	700 to 1350	700 to 1350
Max. attenuation (dB)	≥ 60	≥ 60
Insertion loss [c,d] (dB)		
Typical	1.3	1.5
Max.	2.0	3.0
Attenuation setting resolution (dB), typical	0.002	0.002
Attenuation linearity [e] (dB)	±0.1	±0.1
Attenuation repeatability [f] (dB), 2σ	±0.01	±0.01
Power meter linearity [l] (dB)	N/A	±0.03
Power setting repeatability (dB), 2σ	N/A	±0.015
Return loss [c, d] (dB), typical	40	40
Max. input power (dBm)	20	20
Settling time, including command processing time [k] (ms), typical	90 for 0.1 dB step	90 for 0.1 dB step
Transition speed (dB/s), typical	up to 23	up to 23
Shutter isolation (dB), typical	> 90	> 90

NOTES

a. At 23 °C ± 1 °C.
b. At 1550 nm and below.
c. Measured at 1310 nm and 1550 nm for singlemode units, measured at 850 nm for multimode units.
d. Excluding connectors.
e. Measured at 1310 nm and 1550 nm (up to 60 dB) for singlemode units and at 850 nm and 1300 nm (up to 50 dB) for multimode units, with non-polarized light.
f. Up to 45 dB attenuation.
g. For 20 dB attenuation relative to 0 dB attenuation.
h. At 1550 nm, after a 30-minute warm-up and an offset nulling, for an input power between 15 dBm and –45 dBm.
i. Up to 20 dB attenuation. At 1550 nm.
j. For FC/APC connectors.
k Includes time for command transfer via GPIB, interpretation and attenuation settling (185 ms for 1 dB step, 3 s for full range).
l. At 1300 nm, after a 30-minute warm-up and an offset nulling, for an input power between 15 dBm and –50 dBm.

GENERAL SPECIFICATIONS

Size (H X W X D)	125 mm X 36 mm X 282 mm	(4 15/16 in X 1 7/16 in X 11 1/8 in)
Weight	0.7 kg	(1.6 lb)
Temperature		
Operating	0 °C to 40 °C	(32 °F to 122 °F)
Storage	–40 °C to 70 °C	(–40 °F to 158 °F)
Relative humidity	0 % to 80 % non-condensing	

Instrument Drivers

LabVIEW™ drivers and SCPI commands.

Remote Control

With IQS-500: GPIB (IEEE488.1, IEEE488.2), Ethernet and RS-232.

Standard Accessories

User guide, Certificate of Compliance and Certificate of Calibration.

ORDERING INFORMATION

IQS-3150-XX-XX

Model

IQS-3150-B = Singlemode 9/125 µm
IQS-3150-BI = Singlemode 9/125 µm with power monitoring
IQS-3150-C = Multimode 50/125 µm
IQS-3150-CI = Multimode 50/125 µm with power monitoring
IQS-3150-D = Multimode 62.5/125 µm
IQS-3150-DI = Multimode 62.5/125 µm with power monitoring

Example: IQS-3150-CI-EI-EUI-95

NOTE

a. Only available for singlemode models.

Connector

EI-EUI-28 = UPC/DIN 47256
EI-EUI-76 = UPC/HMS-10/AG
EI-EUI-89 = UPC/FC narrow key
EI-EUI-90 = UPC/ST
EI-EUI-91 = UPC/SC
EI-EUI-95 = UPC/E-2000
EA-EUI-28 = APC/DIN 47256 [a]
EA-EUI-89 = APC/FC narrow key [a]
EA-EUI-91 = APC/SC [a]
EA-EUI-95 = APC/E-2000 [a]

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