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Find the *Exfo IQ-3100-BWEI* at our website: *Click HERE*

Variable Attenuator

IQ-3100







- Excellent spectral uniformity of ± 0.1 dB
- 100 dB maximum attenuation
- Monitor output
- Ultra-low insertion loss
- Ideal for EDFA testing



EXFO

Fiber-optic test, measurement and monitoring instruments

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A Fully Programmable IQ Solution

Optical system 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 IQ-3100 Variable Attenuator combines innovative design techniques, high-quality components and meticulous calibration procedure.

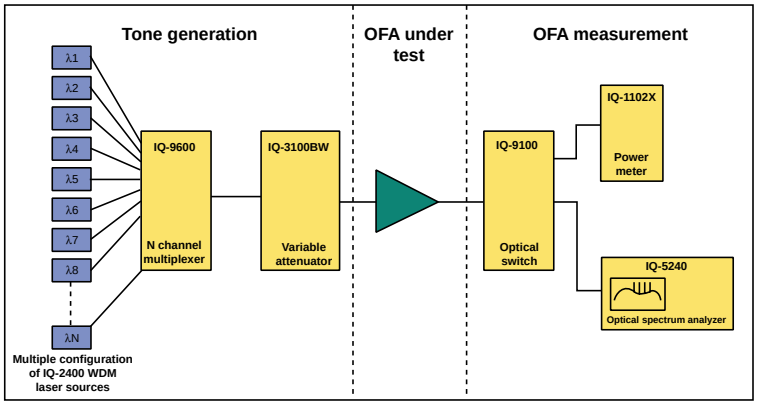
Reliability and repeatable performance. That's what the IQ-3100 offers, in a flexible and fully programmable module. Choose from three attenuation modes: absolute, relative and X+B. Cycle through a repeatable sequence of up to 100 attenuation steps, with a dwell time of up to 1000 hours per step. Add a user-friendly Windows environment, and you've got a first-class variable attenuator.



Core Functionality

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

Optical Fiber Amplifier Characterization



Typical EDFA characterization setup

Use the IQ-3100-BW to effectively characterize OFAs. Modify the total input power sent to the DUT while maintaining spectral uniformity in a multichannel setup, as shown on the left.

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A Simple, Flexible and User-Friendly GUI

- Windows-based environment
- Easy control with software buttons, front panel keys or keyboard
- Multiple configuration storage
- True multitasking
- Online help
- Ideal for standard or custom multimodule applications

Practical program mode

Create an automatic attenuation scan. Program up to 100 steps with a dwell time of up to 1000 hours, for excellent flexibility.

Customized parameters

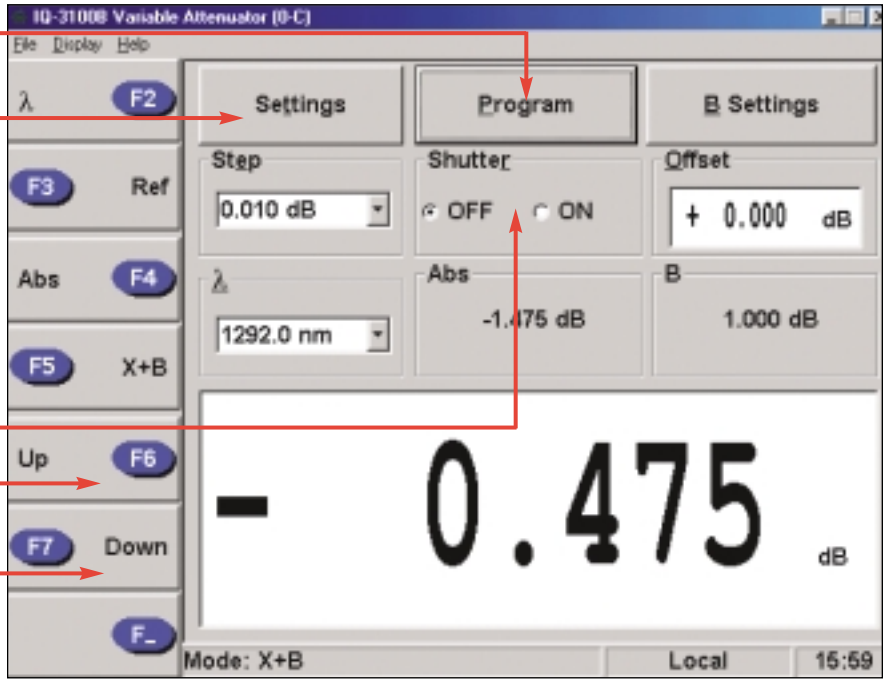
Easily customize wavelength and step size parameters according to specific requirements.

High-isolation shutter

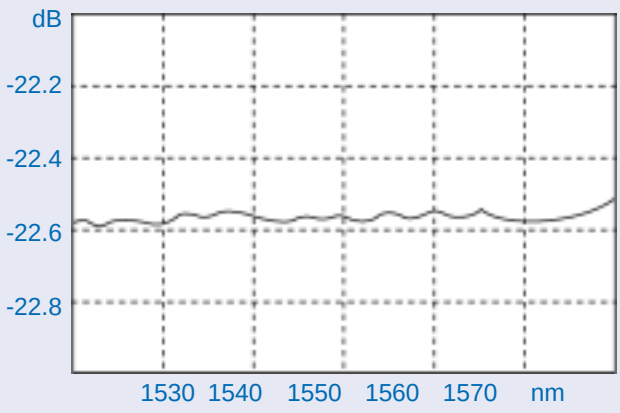
Protect personnel and sensitive components from unnecessary exposure with a > 100 dB attenuation.

Fine-tuned attenuation settings

Scroll up or down the attenuation setting range.



Typical Spectral Uniformity



- **100 dB maximum attenuation**
  Introduce attenuation from minimum insertion loss (typically 1.5 dB) to 100 dB according to operating wavelength.
- **± 0.03 dB repeatability**
  Ensure recurring attenuation (± 0.03 dB) each time you select a specific setting at a specific wavelength.
- **± 0.1 dB spectral uniformity in the WDM range**
  Maintain an attenuation value within ± 0.1 dB throughout the complete WDM spectrum, simultaneously for all channels from 1520 nm to 1570 nm.
- **0.1 nm spectral resolution**
  Achieve high-precision spectral tuning, with a resolution of 0.1 nm.
- **± 0.1 dB linearity**
  Calibrate, characterize and verify component linearity with the IQ-3100.

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Specifications

General Specifications[1]

Models	IQ-3100-B	IQ-3100-BM	IQ-3100-BW	IQ-3100-BWM
Fiber type (µm)	9/125	9/125	9/125	9/125
Wavelength range[2] (nm)	1200 to 1650	1270 to 1350 1510 to 1590	1200 to 1650	1270 to 1350 1510 to 1590
Wavelength resolution (nm)	0.1	0.1	0.1	0.1
Max. attenuation (dB)	≥ 100 (1200 nm to 1350 nm) ≥ 80 (1350 nm to 1600 nm) ≥ 70 (1600 nm to 1650 nm)	≥ 100 (1270 nm to 1350 nm) ≥ 80 (1510 nm to 1590 nm)	≥ 75 (1200 nm to 1400 nm) ≥ 70 (1400 nm to 1600 nm) ≥ 65 (1600 nm to 1650 nm)	≥ 75 (1270 nm to 1350 nm) ≥ 70 (1510 nm to 1590 nm)
Insertion loss[3,4] (dB)				
Typical	1.5	3.0	1.5	2.0
Maximum	1.8	3.3	1.8	3.0
Resolution (dB)	0.005	0.005	0.005	0.005
Linearity[5] (dB)	± 0.1	± 0.1	± 0.1	± 0.1
Spectral uniformity[6] (dB)				
≤ 20 dB	-	-	± 0.1	± 0.1
≤ 40 dB	-	-	± 0.25	± 0.25
≤ 50 dB	-	-	± 0.35	± 0.35
Max. repeatability (dB)	± 0.03	± 0.03	± 0.03	± 0.03
Typ. return loss[3,7] (dB)	≥ 55	≥ 50	≥ 50	≥ 50
Max. input power[8] (dBm)	25	25	25	25
Max. PDL[9](dB)				
for a 20 dB attenuation	0.2	0.2	0.2	0.2
for a 50 dB attenuation	0.2	0.2	0.3	0.3
Shutter isolation (dB)	> 100	> 100	> 100	> 100
Typ. monitor output (dB)	-	14.5	-	14.5

Models	IQ-3100-C	IQ-3100-D	IQ-3100-DM	IQ-3100-E
Fiber type (µm)	50/125	62.5/125	62.5/125	100/140
Wavelength range[2] (nm)	700 to 1350	700 to 1350	700 to 1350	700 to 1350
Wavelength resolution (nm)	0.1	0.1	0.1	0.1
Max. attenuation (dB)	≥ 100 (700 nm to 1000 nm) ≥ 65 (1000 nm to 1350 nm)	≥ 100 (700 nm to 1000 nm) ≥ 65 (1000 nm to 1350 nm)	≥ 100 (700 nm to 1000 nm) ≥ 65 (1000 nm to 1350 nm)	≥ 100 (700 nm to 1000 nm) ≥ 65 (1000 nm to 1350 nm)
Insertion loss[3,4] (dB)				
Typical	1.5	1.5	3.0	1.5
Maximum	2.0	2.0	4.5	2.0
Resolution (dB)	0.01	0.01	0.01	0.01
Linearity[5] (dB)	± 0.1	± 0.1	± 0.12	± 0.1
Max. repeatability (dB)	± 0.03	± 0.03	± 0.03	± 0.03
Typ. return loss[7] (dB)	≥ 25	≥ 25	≥ 25	≥ 25
Max. intput power[8] (dBm)	25	25	25	25
Shutter isolation (dB)	> 100	> 100	> 100	> 100
Typ. monitor output (dB)	-	-	13	-

Notes

1. At 23 °C ± 2 °C.
2. Calibrated at 1310 nm and 1550 nm for singlemode fiber; calibrated at 1300 nm for multimode fiber.
3. Measured at 1310 nm and 1550 nm for singlemode fiber; measured at 1300 nm for multimode fiber. The insertion loss is dependent on the input numerical aperture.
4. Measured with FC/UPC connectors for singlemode fiber and FC/PC for multimode fiber.
5. Using a light source of 0.002 dB stability for a 15-minute period (source accuracy of ± 0.5 nm), non-polarized light, at a calibrated wavelength and an attenuation of up to 60 dB.
6. Measured between 1520 nm and 1570 nm.
7. The return loss is limited by the return loss of the connectors. The connectors used are FC/APC for the IQ-3100-B and IQ-3100-BM, FC/UPC for the IQ-3100-BW and the IQ-3100-BWM, and FC/PC for multimode fiber.
8. Input power above this limit may damage the unit. The linearity may be higher than specified.
9. Peak-to-peak value. Measured at 1550 nm.

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General Specifications

Size (H X W X D)		12 cm X 3.8 cm X 26.2 cm	(4 3/4 in X 1 1/2 in X 10 5/16 in)
Weight		0.75 kg	(1.65 lb)
Temperature			
	Operating	0 °C to 50 °C	(32 °F to 122 °F)
	Storage	-40 °C to 70 °C	(-40 °F to 158 °F)
Relative humidity[1]		0 to 80 % non condensing	

Notes

1. Measured in the 0 °C to 31 °C (32 °F to 87.8 °F) range decreasing linearly to approximately 50 % at 40 °C.

Instrument Drivers

Labview® drivers and OCX controls.

Standard Accessories

Instruction manual and Certificate of Compliance.

Ordering Information

IQ-3100-XXX

Option

B = 9/125 µm
BM = 9/125 µm with monitor output
BW = 9/125 µm optimized for spectral flatness
BWM = 9/125 µm optimized for spectral flatness with a monitor output
C = 50/125 µm
D = 62.5/125 µm
DM = 62.5/125 µm with monitor output
E = 100/140 µm

The fixed baseplate (EI or EA) must be ordered with a removable universal connector adapter EUI-XX. Please specify an EUI from the following list:

EUI-28 = DIN 47256
EUI-76 = HMS-10/AG (EI only)
EUI-89 = FC narrow key
EUI-90 = ST (EI only)
EUI-91 = SC
EUI-95 = E-2000

Connector code

EI = EXFO PC/UPC interface
EA = EXFO APC interface

Also available for the IQ-200 Optical Test System

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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.
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