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Find the *Exfo IQ-2600BT-89* at our website: ***Click HERE***

Tunable Laser Source

IQ-2600B • FLS-2600B

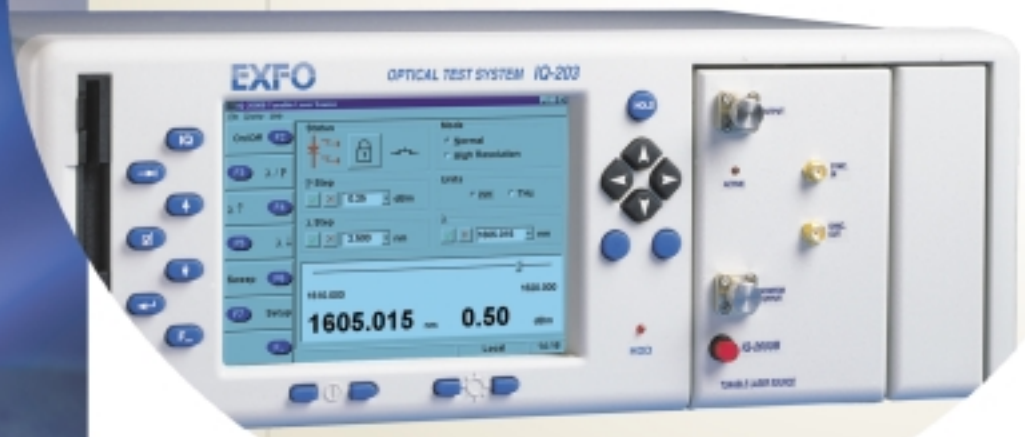






- 100 nm tuning range
- ± 15 pm uncertainty
- Inherent coherence control
- ± 0.005 dB power stability
- Low noise enabling outstanding dynamic range





Fiber-optic test, measurement and monitoring instruments

EXFO

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High-Performance Tunable Laser Source

On the production floor, time is money. You need fast cost-effective test instruments that maximize your production. The IQ-2600B and FLS-2600B Tunable Laser Sources are ideal for complete characterization of fiber-optic filters, multiplexers and other dense WDM components. They are the logical choice for instrumentation calibration and for measuring wavelength-dependent gain, noise contribution and the saturation properties of EDFAs.



Key Features and Benefits

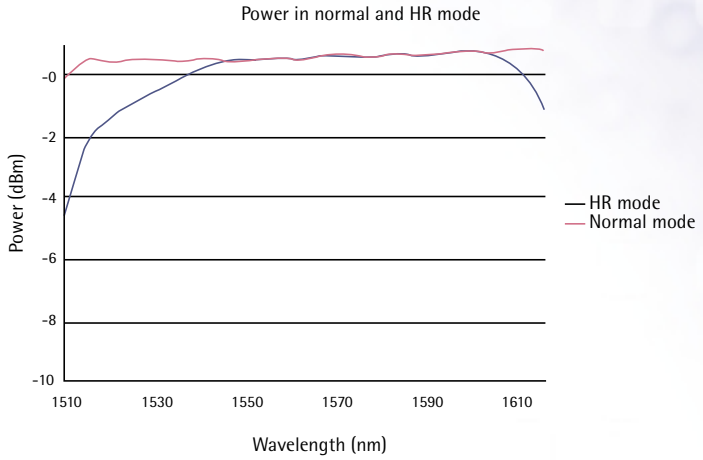
- Ideal for complete characterization (IL, ORL and PDL) of DWDM passive components.
- Naturally low spontaneous emission enabling > 60 dB dynamic range.
- Tuning range of > 100 nm covering both the C- and L- bands: wavelength tuning from 1510 nm to 1612 nm, output power is 0 dBm over the 1515 nm to 1610 nm range.
- Excellent wavelength accuracy and repeatability.
- Elimination of connector-induced and other parasitic interference: no mode-hop related measurement problems.
- Available as a module or benchtop instrument, the 2600B is perfect for just about any application.

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Second-Generation Specifications and Design

Greater Than 100 nm Tuning Range

This second-generation tunable erbium-doped fiber laser delivers exacting wavelength accuracy for long periods of use. Wavelength can now be tuned over a wide range—1510 nm to 1612 nm. Output power is greater than 0 dBm over the critical 1515 nm to 1610 nm range as shown on the right.



Power across the range in Normal mode and High-Resolution (HR) (blue line) mode.

Designed Around Your Testing Needs

The tunable laser source integrates both a monitor output port and a main output port. The monitor port, which is essentially a 5 % tap from the laser cavity, is useful for real-time wavelength monitoring in tests where optimum wavelength accuracy plays a major role. In addition, the main output is regulated in output power and can be attenuated over a 10 dB range.

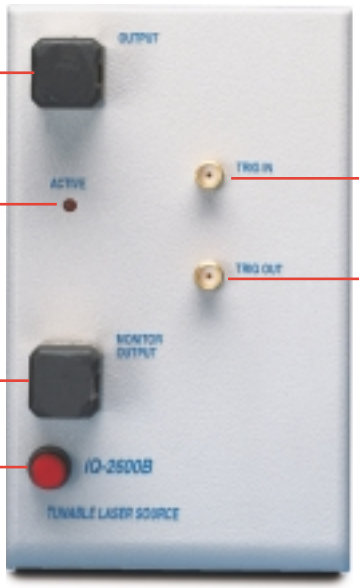
The triggering capability simplifies external synchronization with other instruments such as optical spectrum analyzers, power meters or simple oscilloscopes. All this in a two-slot plug-in module. The modular IQ-2600B configuration operates within the IQ test platform.

MAIN OUTPUT
Standard universal interface for easy cleaning (FC, SC, E-2000).

LED INDICATOR
Alerts user that source is on.

MONITOR OUTPUT
Approximately –12 dBm of power available for high-precision wavelength monitoring or calibration purposes.

ACCESS BUTTON
Activates source control software. Especially convenient when used with many other instrument modules.



TRIG IN
Accepts TTL pulse to start a new step or continuous sweep.

TRIG OUT
Sends trigger pulses to an external instrument to indicate next step or sweep.

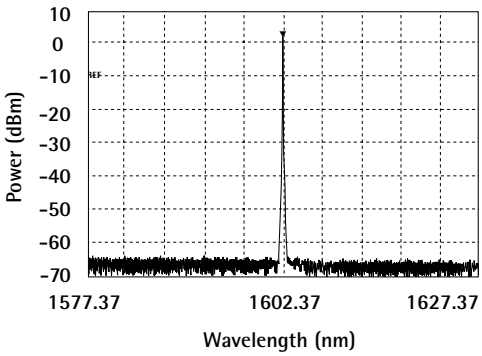
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Exceeding WDM Requirements

Low Spontaneous Noise Emission

Over the 1515 nm to 1610 nm range, the IQ-2600B and FLS-2600B provide more than 60 dB local noise suppression and more than 45 dB in signal-to-total-noise ratio, making them ideal for testing both stopband (notch) and passband filters.

When combined with the source's coherence properties, they are the best tunable lasers on the market for characterizing passive DWDM components.



Low ASE noise enables accurate isolation and crosstalk of DWDM components.

Fast GPIB and Wavelength Tuning

Maximize your efficiency by taking advantage of both fast tuning and effective remote control with the FLS-2600B stand-alone configuration. Use the GPIB access to complete a 50 pm step setup, including laser position confirmation, in about 60 ms! You will have more time for measurements, while reducing time spent on wavelength tuning.



100 nm tuning in a small package.

Step-by-Step or Continuous Sweep

Both IQ-2600B and FLS-2600B configurations support programmable sweep functions. Choose between continuous and step-by-step approaches, depending upon your specific application.

To obtain a loss profile, use continuous tuning at up to 50 nm/s in real time to perform optical alignments or maximize transmission during device processing. When coupled with one of EXFO's fast power meters, the result is an efficient and compact alignment station.

Optimum wavelength accuracy takes precedence over test time or the number of acquisition points in some situations. For example, testing WDM components for PDL at ITU grid wavelengths typically requires a stop and measure approach in step-by-step mode. Whichever sweep mode is used, the laser is mode-hop free over the entire tuning range.

Input and output triggering for synchronization is available on both IQ and FLS units. This function eases integration of the tunable laser source with external measuring devices, including oscilloscopes, voltmeters, optical spectrum analyzers or power meters.

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High-End Performance

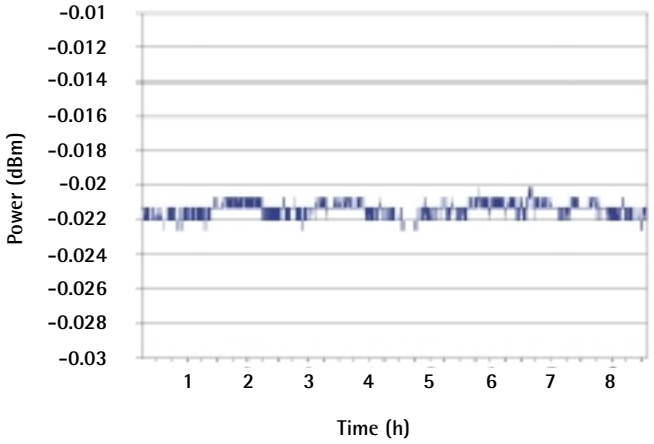
Natural Coherence Control

Are you looking for a product to solve your problems with coherence control and longitudinal mode hopping? This tunable laser source is the answer. Its linewidth is made up of several simultaneously present longitudinal modes (FWHM of less than 1.5 GHz at 1580 nm). The narrow, multimode structure creates high-frequency mode competition (> 10 MHz), which is well above the measurement bandwidth required in most passive component characterization setups. Mode-hop related problems are completely eliminated.

The inherent medium-coherence length (between 10 and 30 cm) eliminates connector-induced interference. You no longer have to worry about problems related to coherence control while in tuning or idle mode. There are no more interference-induced optical power fluctuations due to dirty connectors or other parasitic etalons.

Output Power Control

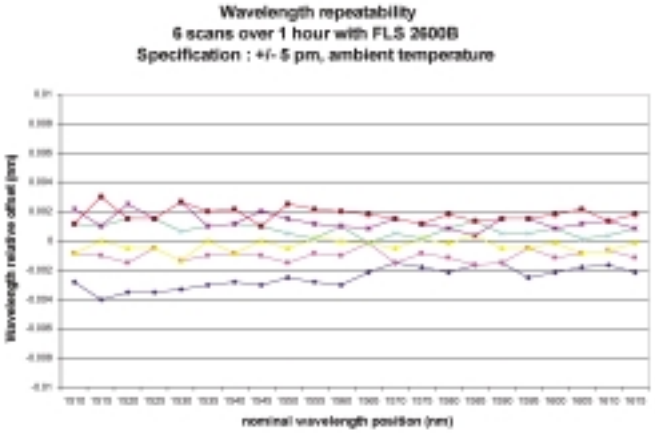
The internal variable optical attenuator (VOA) provides a 10 dB attenuation range. We integrated a fast-response VOA to maintain constant output power under all circumstances. With a minimum step of 0.01 dB, impressive linearity and fast response time (500 ms for a 10 dB change), this VOA can replace an external unit for basic power adjustments such as leveling, sensitivity measurement and optimizing input power for EDFA testing applications.



Power stability for eight hours at constant ambient temperature.

Repeatability to Guarantee Accuracy

Repeatability in wavelength and output power while tuning is a must for measuring WDM components. With a ± 5 pm repeatability for wavelength, the IQ-2600B and FLS-2600B Tunable Laser Sources are among the best products available today. The rugged design and precision-encoded DC motor ensures that the source will deliver consistent results, test after test, pass after pass.



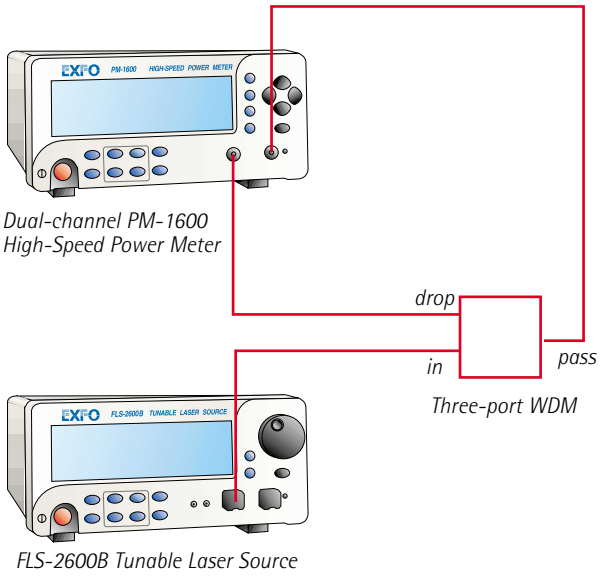
Applications

The FLS-2600B and IQ-2600B Tunable Laser Sources are ideal for a number of test applications.

Spectral Insertion Loss of Passive Components

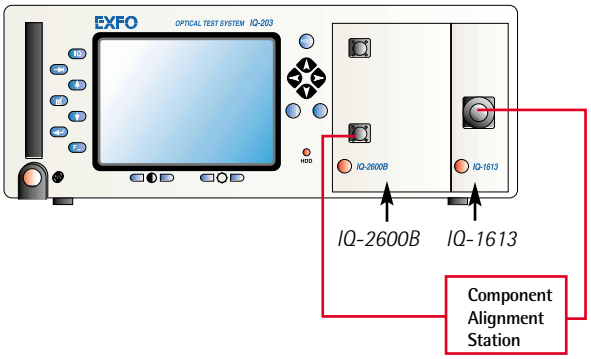
The stand-alone, GPIB-controlled FLS-2600B Tunable Laser Source and dual-channel PM-1600 High-Speed Power Meter provide a straightforward solution to quality control testing of three-port WDMs. Attain high measurement confidence due to insertion loss measurement at any number of wavelengths.

EXFO's IQ-12004B DWDM Passive Component Testing System uses the IQ-2600B Tunable Laser Source.



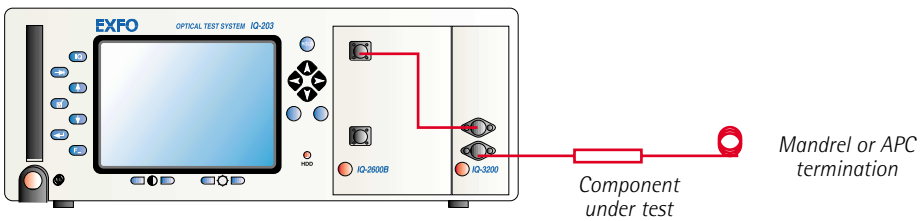
Filter Alignment Station

Combine the IQ-2600B Tunable Laser Source with the IQ-1600 High-Speed Power Meter to create an incredibly efficient alignment station. Save time and space thanks to fast and accurate tuning of the source and the lightning response of the power meter, all combined in a small footprint.



Spectral Optical Return Loss Measurements

Using the IQ or FLS-2600B with the IQ-3200 ORL Meter provides stable readouts, down to –75 dB. With the short coherence length of our tunable laser (approximately 15 cm, typical of a fiber laser) there are no interference-related problems between the signal from the 2600B source and the reflection. In an external cavity tunable laser, with a very long coherence length (typically a few meters with coherence control), interference may induce power variations up to a few dB.



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Specifications[1]

Wavelength

Range (nm)		1510 to 1612
Display resolution (pm)		1
Effective spectral linewidth FWHM[2] (GHz)	Typical	< 1.5
Repeatability[3] (pm)		± 5
Stability[3] (pm)		
	1 hour	± 10 (Δ = 20)
Uncertainty[4] (pm)		± 15
Sweep rate[5] (nm/s)		
	Maximum	50
	Minimum	2
Tuning time[6] (ms)		
	Typical	75

Power

Output power[7] (dBm)		
	From 1515 nm to 1610 nm	> 0
	From 1510 nm to 1612 nm	> -10
Stability[3] (dB)	15 minutes	± 0.005 (Δ = 0.01)
	1 hour	± 0.01 (Δ = 0.02)
Repeatability over wavelength[3] (dB)		± 0.02
Signal to SSE[8] (dB)		> 60
±1 nm from peak with RBW 0.2 nm		
Signal to total SSE (dB)		> 45
	Typical	50

Polarization

Degree of polarization (%)	> 99
Degree of polarization (%) with IQ or M-9734 (typical)	< 10

Internal variable attenuator

Attenuation range (dB)		10
Linearity with attenuation (dB)		
	Typical	0.05
Repeatability (dB)		
	Typical	± 0.005
Response time[9] (s)		
	Typical	0.5

Notes

1. Specifications are valid at 23 °C ± 1 °C after one-hour warmup time.
2. FWHM: full width at half maximum. The specification is valid at 1580 nm, where it corresponds to 12 pm.
   Given in HR mode.
   Typical 700 MHz at 1610 nm, 1.3 GHz at 1585 nm and 2 GHz at 1520 nm.
   Linewidth is Gaussian-like and produces a coherence length of about 15 cm when propagating into SMF-28 fiber type.
3. Room temperature variation not exceeding ± 3 °C. The stability is expressed as ± half the difference between the maximum and minimum values measured during the period.
4. User calibration may be required.
5. Operating in continuous sweep.
6. 1 nm step, one complete step through GPIB in manual mode with FLS-2600B.
7. In normal mode. Operating in high-resolution mode (HR) typically reduces power level at extreme wavelengths, therefore shortening the tuning range by a few nanometers.
8. In the 1515 nm to 1610 nm range.
   SSE: source spontaneous emission
   RBW: spectral resolution bandwidth
9. For 1 dB step 10 % to 90 % response time.

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General Specifications

Output fiber type	SMF-28	
Operating temperature	10 °C to 40 °C	(50 °F to 104 °F)
Storage temperature	-10 °C to 50 °C	(14 °F to 122 °F)
Dimensions	IQ	FLS
H x W x D	12.1 cm x 7.6 cm x 26.2 cm (4 3/4 in x 3 in x 10 5/16 in)	11.7 cm x 22.2 cm x 33.3 cm (4 5/8 in x 8 3/4 in x 13 3/8 in)
Weight	1.4 kg (3.1 lb)	3.4 kg (7.4 lb)

Safety

CLASS 1 LASER PRODUCT
21 CFR 1040.10 and 1040.11
IEC 60825-1:1993+A1:1997

Ordering Information

FLS-2600B-XX-XX
IQ-2600B-XX-XX

00 = Standard SMF-28 fiber

Connector code
EI = UPC universal interface
EA = APC universal interface

The fixed baseplate (EI or EA) must be ordered with a removable universal connector adapter (EUI-XX). Please specify one 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

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EXFO is certified ISO 9001 and attests to the quality of these products, which come with a 24-month warranty and after-sales support service. 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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