

# 2700

## ECL TUNABLE LASER SOURCE

IQS-2700

R&D MANUFACTURING



- ECL tunable laser designed for production/manufacturing testing
- Up to 200 nm range for thorough CWDM and DWDM testing
- Fast, continuous sweep in a compact modular package
- 1425 to 1525 nm and 1525 to 1625 nm ranges
- High-power source option for C- and L-band coverage

# A High-Performance Tunable Laser Source

When it comes to testing components or network systems, tunable lasers are important elements of a fast, comprehensive setup. EXFO's state-of-the-art IQS-2700 ECL Tunable Laser Source comes in a small (2-slot) modular package, letting you benefit from the IQS-500 platform's functionalities—whether for remotely controlling an advanced test station or combining the source with other instruments such as attenuators, power meters, PDL meters, ORL meters, wavelength meters, etc., all in one box.



## Proven Technology

The IQS-2700 is an external cavity laser (ECL) source; based on a modified Littman-Metcalf configuration, it uses a semi-conductor laser diode as gain media and a mobile tuning element outside the gain media to select the wavelength of the emitted signal. Three models are available, optimized either for low-noise or high-power output, covering the most useful wavelength range.

## Low-Noise Option

The IQS-2700-ES-LN low-noise model covers the E and S bands (1425 to 1525 nm), while the IQS-2700-CL-LN covers the C and L bands (1525 to 1625 nm). These models are characterized by an excellent suppression of background noise:

- S/SSE ratio of  $\geq 55$  dB (1 to 3 nm from peak; RBW = 0.1 nm)
- S/SSE ratio of  $\geq 90$  dB (5 nm from peak; RBW = 0.2 nm)
- S/TSSE ratio of  $\geq 60$  dB

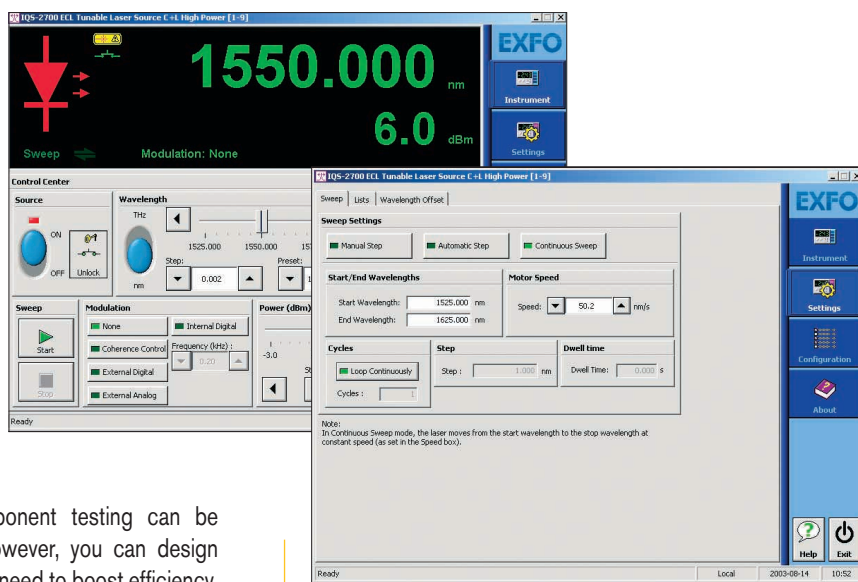
These models are optimized for passive-component testing: fiber Bragg gratings, as well as PON, CWDM, DWDM and other components.

## High-Power Option

Choose the high-power option for a power output of  $\geq 6$  dBm over the whole wavelength range (1525 to 1625 nm). Use the IQS-2700 source to emulate transmitters, and avoid having to keep costly spare transmitters. With internal or external modulation of up to 1 MHz, performing point-to-point network testing becomes a simple task. What's more, such high power enables you to split the signal among different test stations or through multiple devices.

## Continuous Sweep for First-Class Efficiency

EXFO's tunable laser sources can be swept over their defined wavelength range, ensuring the most efficient test stations. Using the graphical user interface or remote control via a complete SCPI commands library, choose between the continuous and step-by-step approaches, and enjoy mode-hop free performance over the entire tuning range.

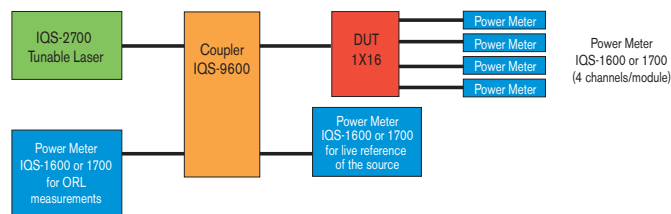


### Designed for Automation

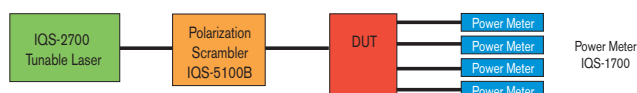
With a non-automated test station, passive component testing can be time-consuming. Using the right building blocks, however, you can design a test system that delivers the speed and flexibility you need to boost efficiency.

Combine the IQS-2700 with EXFO power meters or PDL meters, and easily characterize CWDM systems, isolators, attenuators, couplers or other devices that operate within the wavelength range of interest.

The IQS-2700's main user interface and sweep menu.



Typical setup for measuring insertion loss (IL) and optical return loss (ORL).



Typical setup for measuring polarization-dependent loss (PDL).

### KEY FEATURES AND BENEFITS

- Wavelength ranges optimized for CWDM testing: one source covers the 1425 to 1525 nm range, and a second source covers the 1525 to 1625 nm range, providing an interesting test solution for passive components.
- Fast (up to 50 nm/s), mode-hop free continuous tuning for optimal testing performance
- Signal to total SSE ratio of > 60 dB, for accurately measuring isolation in CWDM and DWDM components
- Excellent wavelength accuracy, stability and repeatability: improve testing efficiency while referencing the source less often
- Modulation of up to 1 MHz: emulate a transmitter and use the source at any wavelength within your network's range
- Polarization maintaining fiber (PMF) output: easily align signal polarization, using the connector's key as the reference
- ES model: optimized for Raman testing (1425 to 1525 nm)

SPECIFICATIONS<sup>1</sup>

Models	ES-LN	CL-LN	CL-H
<b>Wavelength</b>			
Wavelength tuning range (nm)	1425 to 1525	1525 to 1625	1525 to 1625
Wavelength uncertainty <sup>2</sup> (pm)	± 30	± 30	± 30
Wavelength resolution, stepped (pm)	10 (3 typ.)	10 (3 typ.)	10 (3 typ.)
Wavelength repeatability <sup>3</sup> (pm) over 10 measurements	± 10	± 10	± 10
Wavelength stability <sup>3</sup> (pm) over 1 hour	± 10 (3 typ.)	± 10 (3 typ.)	± 10 (3 typ.)
Mode hops while tuning	0	0	0
Tuning speed, swept (nm/s)	10 to 50	10 to 50	10 to 50
<b>Power</b>			
Output power over tuning range (dBm)	≥ 0	≥ 0	≥ 6
Power stability <sup>3</sup> (dB) over 1 hour	± 0.020	± 0.020	± 0.020
Power repeatability for a wavelength change <sup>3</sup> (dB) over 10 measurements	± 0.030	± 0.030	± 0.030
Power flatness stepped (dB)	± 0.150	± 0.150	± 0.150
Power flatness swept (dB)	± 0.500	± 0.500	± 0.500
<b>Noise</b>			
Signal to SSE (dB), 1 to 3 nm from peak, RBW = 0.1 nm	> 55	> 55	> 35
Signal to SSE (dB), > 5 nm from peak, RBW = 0.2 nm	> 90	> 90	
Signal to total SSE <sup>4</sup> (dB)	> 60	> 60	> 15
Sidemode suppression ratio (dBc)	> 45	> 45	> 45
Relative intensity noise (RIN) <sup>5</sup> (dBc/Hz)	≤ 135	≤ 135	≤ 135
Spectral bandwidth coherence control off (MHz)	≤ 100	≤ 100	≤ 100
Spectral bandwidth coherence control on (MHz)	≥ 100	≥ 100	≥ 100
<b>Modulation</b>			
External analog modulation	5 kHz to 1 MHz	5 kHz to 1 MHz	5 kHz to 1 MHz
External/internal digital modulation	200 Hz to 1 MHz	200 Hz to 1 MHz	200 Hz to 1 MHz
<b>Fiber output</b>			
Polarization extinction ratio (dB)	15	15	15

## ORDERING INFORMATION

## IQS-2700-XX-XX

Model

IQS-2700-CL-H = High-power C+L source

IQS-2700-ES-LN = Low-noise E+S source

IQS-2700-CL-LN = Low-noise C+L source

## Connector

EA-EUI-28 = APC/DIN 47256

EA-EUI-89 = APC/FC narrow key

EA-EUI-91 = APC/SC

EA-EUI-95 = APC/E-2000

Example: IQS-2700-ES-LN-EA-EUI-89

## GENERAL SPECIFICATIONS

Size (H x W x D) 12.5 cm x 7.4 cm x 28.2 cm (4 15/16 in x 2 15/16 in x 11 1/8 in)

Weight 1.8 kg (3.9 lb)

## Temperature

operating 10 °C to 35 °C (50 °F to 95 °F)

storage -20 °C to 70 °C (-4 °F to 158 °F)

Humidity 5 % to 80 % non-condensing

## SAFETY

CLASS 1 according to IEC 60825-1:1993+A1:1997+A2:2001 and CFR 1040.10

## NOTES

- Valid at 23 °C ± 1 °C, after 1 hour warm-up time. Measurements taken at maximum source power.
- After user calibration.
- Expressed as ± half the difference between the maximum and minimum values measured.
- Measured with fiber Bragg grating, centered at 1575 nm, integrated over the wavelength tuning range.
- Measurement taken at center wavelength, from 0.1 to 2.5 GHz.

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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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