

# Fiber Optic Laser LabSources

## MODEL LS-1 AND LS-2



LS-1 and LS-2

### LabSource Advantages

- Integrated VBG Laboratory Modules
- Single and Dual-Laser Sources
- High Power (up to 500 mW)
- Narrow line width, <0.1nm
- Excellent Stability
- Wavelengths: 647, 785, 830, 1064nm

### APPLICATIONS

- Raman Spectroscopy
- SERDS Spectroscopy
- Bioinstrumentation
- Cytometry
- Other uses where high power, narrow linewidth, and stable output power are required
- Fully programmable through USB interface

Newport's LabSource benchtop module is available with single or dual laser sources. Both are compact, free-standing modules that can be easily integrated with existing laboratory equipment. Both the LS-1 and LS-2 utilize Volume Bragg Grating (VBG) technology for superior wavelength stability and spectrally narrow linewidths. The single-source LS-1 can be used to add Raman spectroscopy capabilities to analytical equipment. The dual-source LS-2 can be used for SERDS (Shifted Excitation Raman Difference Spectroscopy) analysis, a type of analysis that can be successfully performed in the presence of fluorescence. The LS-2 can also be configured with any two of the available wavelengths for extra flexibility.

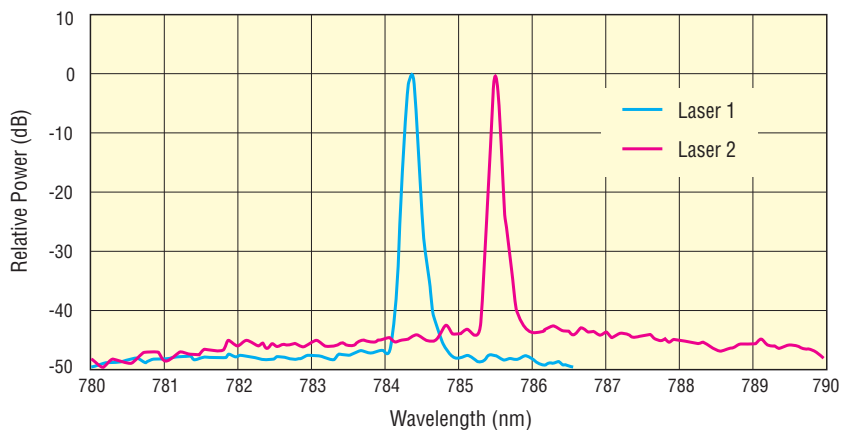
### Shifted Excitation Raman Difference Spectroscopy (SERDS)

For the LS-2 module, Newport offers a unique SERDS pair module option. This is comprised of two laser sources with closely spaced wavelengths, ranging from 0.1 to about 1nm apart. These modules are intended for SERDS, a method which greatly reduces the fluorescence interference in Raman Spectroscopy measurements. Please see the application note for more detailed information regarding SERDS.

SERDS pair [" $\lambda$ "1 – " $\lambda$ "2] = 0.5 - 1.0 nm (Typical)

For Example: Model LS-2-7878-FC has two Lasers centered around 785 nm. Laser 1 = 784.5 nm and Laser 2 = 785.5 nm.

### LabSource Center Wavelength Separation



# Fiber Optic Laser LabSources

## Power Characteristics

Model	LS-1 & LS-2
Output Power (fiber-coupled)	500 mW <sup>1</sup>
Current Resolution <sup>2</sup>	1 mA
Optical Power Resolution <sup>3</sup>	5 mW
Output Power Stability	+/- 0.5% <sup>4</sup>
Noise/Ripple (rms)	< 0.25%
Noise/Ripple (pk-pk)	< 1%
Digital Modulation Frequency	10 kHz <sup>5</sup>
Analog Modulation Frequency	10 Hz <sup>6</sup>
Power Consumption	30 W
Warm-up Time	1 min

<sup>1</sup>Multimode Fiber Output (200 mW for 647 nm)

<sup>4</sup>Over 8 Hours

<sup>2</sup>Automatic Current Control (ACC) Mode

<sup>5</sup>Modulation is only available in ACC mode

<sup>3</sup>Automatic Power Control (APC) Mode

<sup>6</sup>10Hz in ACC mode only, APC mode is 0.5 Hz

## Optical Characteristics

Model	LS-1 & LS-2
Available Wavelengths	647, 785, 830 and 1064 nm <sup>1</sup>
Center Wavelength Tolerance	+/- 0.5 nm
Wavelength Stability	+/- 0.005 nm <sup>2</sup>
Linewidth	0.08 nm (typ.); 0.10 nm (max)
ASE Suppression	> 40dB
CE Class	4
Interface	USB 2.0, BNC

<sup>1</sup>Multimode Lasers

<sup>2</sup>Over 8 Hours

## Optical Fiber Characteristics

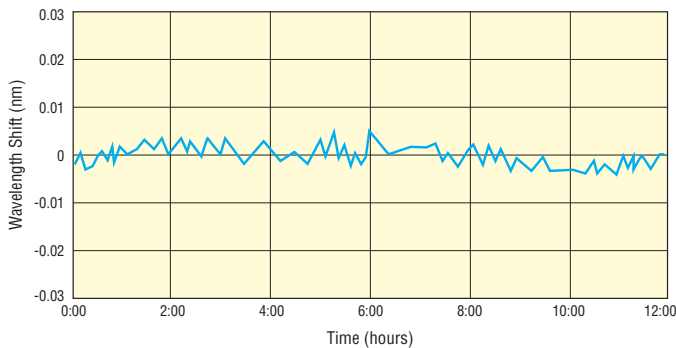
Model	LS-1 & LS-2
Fiber Type	Multimode
Fiber Core Diameter	105 μm
Fiber Cladding Size	125 μm
Numerical Aperture	0.22
Connector Type	FC/PC, FC/APC, or SMA

\*Specifications are Subject to Change

## General and Environmental Characteristics

Model	LS-1 & LS-2
CE Class	4
CDRH Class	IV
Operating Temperature Range	10 - 40 C
Interface	USB 2.0, BNC
Dimensions, l x w x h	190mm x 174mm x 84mm

## LabSource Wavelength Drift Over Time



## Laser LabSource Ordering Information

### LS - N - L1 L2 - F

**N** - Number of Lasers (**1** or **2**)

**L1** - Wavelength of Laser 1 (**64** = 647nm, **78** = 785 nm, **83** = 830 nm, **10** = 1064nm)

**L2** - Wavelength of Laser 2 (if applicable, same options as L1)

**F** - Connector type (**FC** = FC/PC, **FA** = FC/APC, **SM** = SMA)

**LS-2-7810-FC** = LS-2 Dual Laser LabSource with 785nm and 1064nm lasers and FC/PC

**LS-2-7878-FC** = LS-2 Dual Laser LabSource with 784.5nm and 785.5nm lasers and FC/PC



Newport Corporation, Global Headquarters  
1791 Deere Avenue, Irvine, CA 92606, USA

[www.newport.com](http://www.newport.com)

PHONE: 1-800-222-6440 1-949-863-3144 FAX: 1-949-253-1680 EMAIL: [sales@newport.com](mailto:sales@newport.com)

Complete listings for all global office locations are available online at [www.newport.com/contact](http://www.newport.com/contact)

	PHONE	EMAIL
Belgium	+32-(0)0800-11 257	<a href="mailto:belgium@newport.com">belgium@newport.com</a>
China	+86-10-6267-0065	<a href="mailto:china@newport.com">china@newport.com</a>
France	+33-(0)1-60-91-68-68	<a href="mailto:france@newport.com">france@newport.com</a>
Japan	+81-3-3794-5511	<a href="mailto:spectra-physics@splasers.co.jp">spectra-physics@splasers.co.jp</a>
Taiwan	+886 -(0)2-2508-4977	<a href="mailto:sales@newport.com.tw">sales@newport.com.tw</a>

	PHONE	EMAIL
Irvine, CA, USA	+1-800-222-6440	<a href="mailto:sales@newport.com">sales@newport.com</a>
Netherlands	+31-(0)30 6592111	<a href="mailto:netherlands@newport.com">netherlands@newport.com</a>
United Kingdom	+44-1235-432-710	<a href="mailto:uk@newport.com">uk@newport.com</a>
Germany / Austria / Switzerland	+49-(0)6151-708-0	<a href="mailto:germany@newport.com">germany@newport.com</a>

Newport Corporation, Irvine and Santa Clara, California and Franklin, Massachusetts;  
Evry and Beaune-La-Rolande, France; Stahnsdorf, Germany and Wuxi, China have  
all been certified compliant with ISO 9001 by the British Standards Institution.

DS-011402