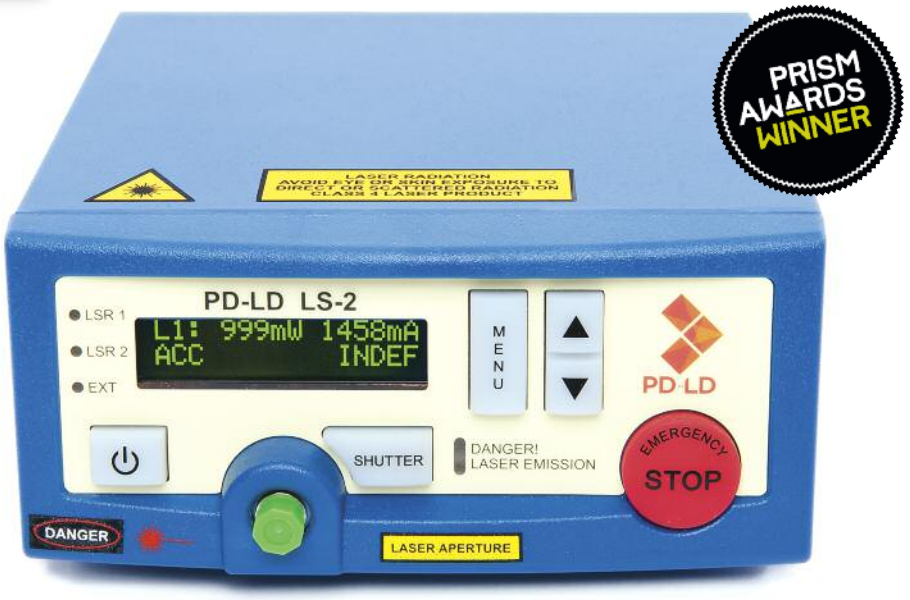
Wavelength Stabilized Instruments

LS Series

LS-2 VBG® -STABILIZED DUAL LASER SOURCE



Key Performance Features	Applications
• High Power Lasers, Up to 1 Watt • Narrow Line Width, < 0.1 nm • SERDS Option Available • Excellent Wavelength Stability, +/- 0.005 nm • Excellent Power Stability, +/- 0.5 % • Built-in Optical Switch and Shutter • Fully Programmable through USB Interface	• Shifted Excitation Raman Difference Spectroscopy • Bioinstrumentation • Cytometry • Dual Wavelength Metrology • Confocal Microscopy • Optical System Characterization

Standard Wavelengths (nm)	647 nm	785 nm	830 nm	1064 nm

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Optical Characteristics					
Standard Wavelengths (nm)	647	785	830	1064	Multimode laser
SERDS pairs available	yes	yes	yes		
SERDS pair [λ1 – λ 2] [nm]	0.5–1.0 (Custom adjustable)				
Center λ tolerance [nm	+/- 0.5				
Wavelength stability [nm]	+/- 0.005 over 8 hours				
Linewidth [nm]	Typ. 0.08; max. 0.10				
Linewidth [cm^{-1}]	Typ. 1.3; max. 2.4				
ASE suppression [dB]	>40				

Power Characteristics					
Output from fiber [mw]	>500	>600	>600	>800	Multimode laser
Adjustability % full power	10–100				
ACC Adjustment Resolution	1mA				
APC Adjustment Resolution	5mW				
Output power stability %	+/- 0.5 over 8 hours				
Noise RMS %	< 0.25				
Noise P – P %	< 1				
Digital modulation	10 kHz*				
Analog modulation	10 Hz**				
Power consumption [W]	30				
Warm up time [min]	1				

* Modulation is only available in ACC mode

** 10Hz in ACC mode only, APC mode is 0.5Hz

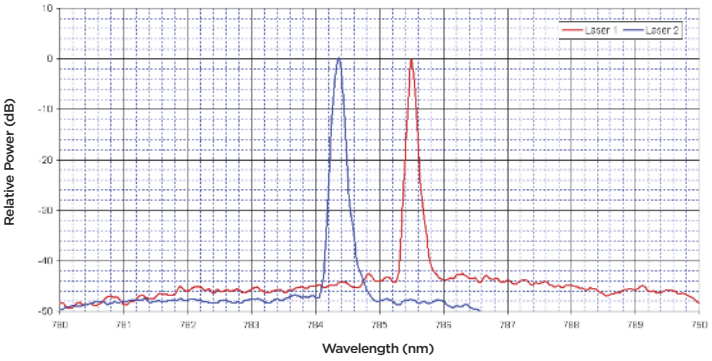
General and Environmental Characteristics	
CDRH classification	Class IV
Operating temperature C	10–40
Storage temperature C	-10–60
Humidity noncondensing %	< 95
Interfaces	USB 2.0, BNC

Output Fiber Characteristics	
Fiber type	105 um core; 0.22 NA (Other available)
Connector type	FC/PC standard (Other available)

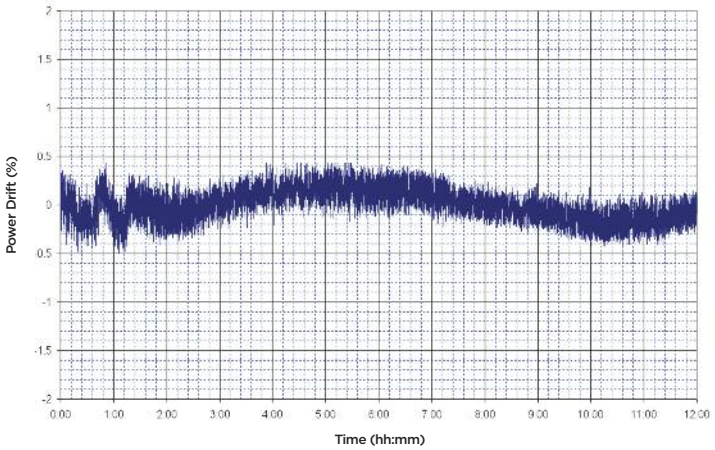
Electrical Characteristics	
Line Voltage	100–240 VAC 50/60Hz
Analog Input	0–5V
Modulation Input	5V Logic Level
Shutter Input	5V Logic Level

Optical Shutter Characteristics	
Switching time [ms]	< 10
Crosstalk [dB]	< -55

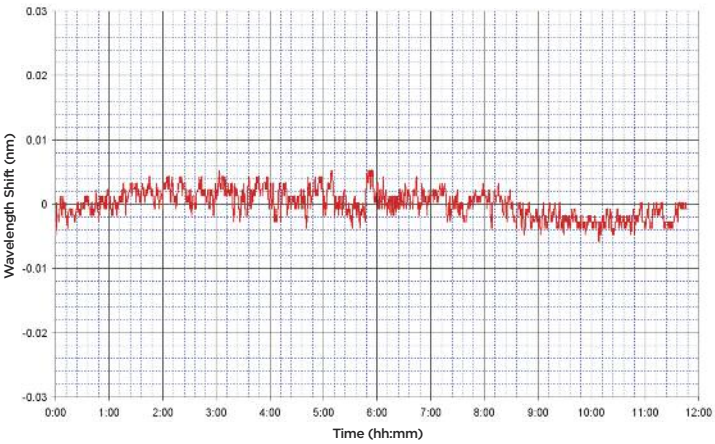
Example of SERDS Laser Pair: Center Wavelength Separation 1 nm



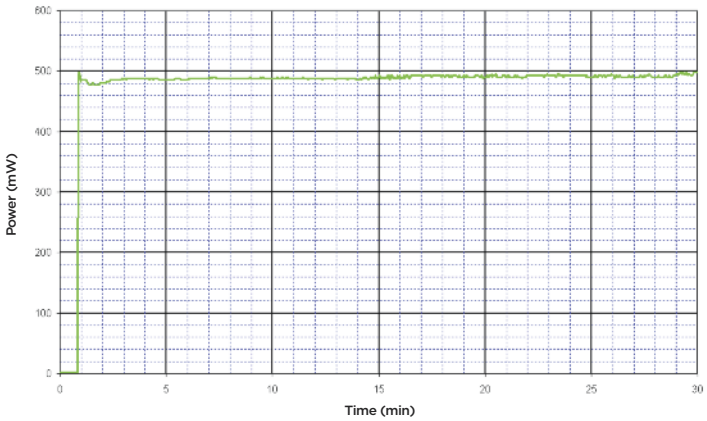
Power Stability Over 12 Hours



Wavelength Drift Over 12 Hours



Power Stabilization from Cold Start



Specifications Subject to Change

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Weight = ~1500 grams

Dimensions (mm) = 84 (h) x 174 (w) x 190 (d) Display size (mm) = 58 (w) x 12 (h)

LS-2 VBG®-Stabilized Dual Laser Source

PD-LD's VBG®-stabilized dual-laser source is based on fiber-coupled high-power laser diodes that are spectrally narrowed and wavelength-stabilized by use of VBG® technology. Combinations of any two lasers with standard wavelengths of 647, 785, 830 and 1064 nm are available, and other wavelengths may be produced upon request.

PD-LD also offers a unique SERDS module option, comprised of 2 laser sources with closely spaced wavelengths, ranging from 0.1 to about 1 nm apart. These modules are intended for Shifted Excitation Raman Difference Spectroscopy (SERDS), a method which greatly reduces the fluorescence interference in Raman spectroscopy measurements.

The LS-2 module contains a unique high-power fiber-optic switch with internal beam dump, which permits rapid switching between laser sources, while ensuring that no laser emission emerges from the output port in between the measurements.

The source is easy to operate either from the front panel or remotely via the USB interface. External modulation, shutter control and analog power control are available.

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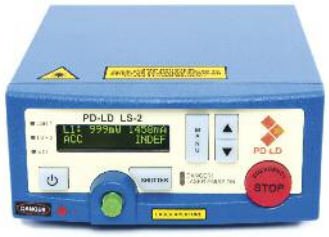


Ordering Information

LS-N S-$\lambda_1\lambda_1$ $\lambda_2\lambda_2$-F CC

***LS** = Laser Source*

***N** = Number of Lasers*
1 = 1 Laser
2 = 2 Lasers

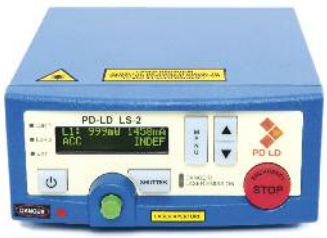
***S** = Separation of Lasers*
S = SERDS Spacing
A = Any Two Lasers

$\lambda_1\lambda_1$ = Laser 1 Wavelength
64 = 647 nm
78 = 785 nm
83 = 830 nm
10 = 1064 nm

***CC** = Connector Type*
FC = FC/PC
FA = FC/APC
SM = SMA

***F** = Fiber Size*
1 = 105 um core, 0.22 NA

$\lambda_2\lambda_2$ = Laser 2 Wavelength if applicable
64 = 647 nm
78 = 785 nm
83 = 830 nm
10 = 1064 nm



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