

Measurement & Spectroscopy



LaserBoxx

One platform for all colors

SLM CW Monolithic DPSS benefits

- Interchangeable controller
- Low profile laser head (32mm) & up to 500mW
- Tailored beam diameter capability (0.6 up to 1.4mm)
- Graphic User Interface with remote diagnostics

VBG stabilized Laser Diode modules benefits

- Controllers integrated into laser head
- Proprietary SLM locking routine
- Enhanced beam quality versions
- Remote ControlBoxx with power display (CDRH)

Raman Spectroscopy
Brillouin Scattering
Interferometry
Photoluminescence
Holography
Laser Doppler Velocimetry
Laser Ultrasonic
Dynamic Light Scattering

Common key features

- Single Longitudinal mode
- TEM₀₀ beam
- Beam pointing < 5 μm/°C
- USB and RS232 computer interface
- SM/PM/MM fiber coupling options
- Industry standard footprint (100x40 mm²)

532

553

561

633

785

830

Specifications

	LMX-532S	LMX-553S	LMX-561S	LBX-633S	LBX-785S	LBX-830S
Technology	DPSS			Stabilized laser diode		
Optical characteristics						
Emission wavelengths	532 nm	553 nm	561 nm	633 nm	785 nm	830 nm
Wavelength range	± 1 nm					
Wavelength Stability over 8 hours and ±3°K	≤ 1 pm			≤ 10 pm		
Linewidth	≤ 1 MHz			≤ 100 MHz typ.		
Coherence Length	≥ 100 m			≥ 1 m typ.		
Nominal output power, continuous wave	50 mW to 500 mW	50 mW to 300 mW	50 mW to 500 mW	40 mW	100 mW	100 mW
Control mode	Automatic power control (APC)			Automatic current control (ACC)		
Power stability over 8 hours and ±3°K	± 1%					
Optical noise % RMS, 10Hz - 20MHz bandwidth	≤ 0.2%					
Transverse singlemode free-space beam (*)						
Beam waist diameter (typ.) at 1/e ² , 50mm from output aperture	0.5 to 0.7 mm			0.5 to 1.0 mm		
Beam divergence at 1/e ² , full angle, in far field	1.0 to 1.3 mrad			2 to 4 mrad		
Beam quality factor (M ²)	≤ 1.1			≤ 1.9		
Beam circularity in far field	≥ 90%			≥ 65%		
Beam pointing stability	≤ 5 μrad/°K					
Polarization state	linear, vertical					
Polarization extinction ratio (typ.)	1000:1			100:1		
PM fiber coupling option (*)						
Nominal output power	35 mW to 350 mW	35 mW to 210 mW	35 mW to 350 mW	20 mW	40 mW	40 mW

(*) Specifications at nominal power

DPSS Monolithic Resonator

Technology

The unique feature of the LaserBoxx DPSS is a proprietary, Alignment-free Monolithic Resonator (AMR). The elements of resonator are assembled into a single ultra-low-loss optical subsystem, using a proprietary crystal bonding technique.

A highly transparent compound, deposited on chemically activated end-faces of two crystals, creates a bond that is extremely robust over time, temperature variations, and insensitive to mechanical vibrations. Dielectric mirrors coated at the end-faces of the crystals complete the monolithic assembly with no moving parts.



Benefits of the AMR

The Oxixus AMR technology offer the highest spectral quality of the market and a high robustness over the time. The LMX lasers are insensitive to temperature variations and mechanical vibrations. High stability and reliability.

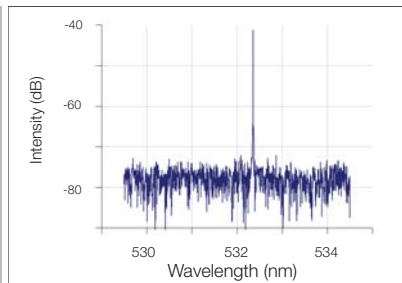
LBX-S Platform

Technology

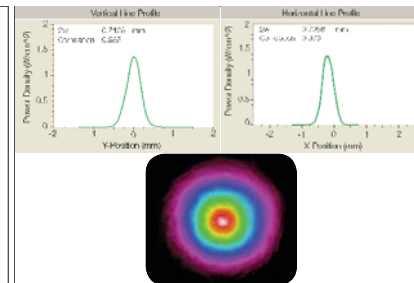
The LBX-S line is a performing driver integrated platform for Volume Bragg Grating stabilized laser diode.

Benefits

The LBX-S delivers ultra narrow linewidth thanks to its excellent temperature stability and low noise current. The Oxixus proprietary embedded firmware locks the laser on same mode at each start up.

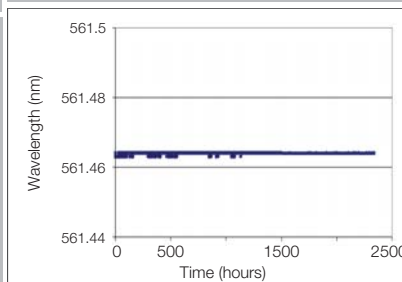


Single Longitudinal Mode
LMX-532S spectrum

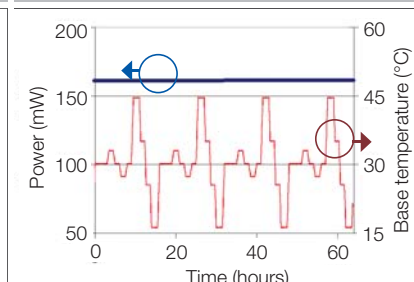


Beam Profile
LMX-553S-200

Wavelength Stability
LMX-561S wavelength vs time



Power Stability
LMX-561S power vs temperature



Single Frequency Lasers

System Specifications

Package	LMX / DPSS		LBX-S / Stabilized laser diode		Units
	P&P	OEM	P&P	OEM	
Laser Head					
Operating temperature measured at base, non condensing	10 - 45		10 - 50		°C
Start up time	< 10		< 2		min
Heat dissipation	Heatsink provided	< 20	< 10		W
Dimensions ¹ (LxWxH)	160 x 40 x 76	100 x 40 x 32	100 x 40 x 40		mm ³
Controller					
Input Voltage	115 - 230 V AC	4 - 5.5 V DC	115 - 230 V AC	5 - 6.5 V DC	V
Input Current	-	< 8	-	< 2.5	A
Power Consumption	< 30	-	< 10	-	W
Dimensions ¹ (LxWxH) interfacing	135 x 97 x 70	135 x 97 x 30	See ControlBoxx	Integrated in laser head	mm ³
	RS232, USB, Analog				

¹ Without heatsink
P&P versions are CDRH compliant

Isolator Output option



The Isolator Output option offers an efficient, compact and cost effective optical feedback protection to LMX or LBX-S lasers at 532, 553, 561 nm. The isolation is > 25dB and the transmission is > 85%. The output polarization is vertical.

The isolator is shipped aligned and mounted with the laser.

Custom Capabilities

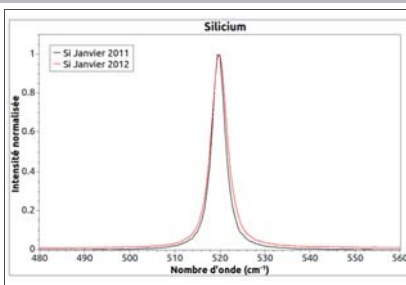
If your particular application requires additional features to take full benefit of the Oxixus laser performance, we would be happy to assist you with the design, development and production of these features.

Here are examples of what we offer :

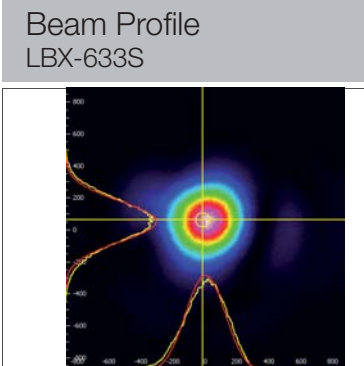
- o Power adjustment
- o Wavelength tunability
- o Wavelength selection
- o Custom wavelengths (526nm, 543nm, ...)
- o Opto-mechanical Subassemblies including:
 - Wavelengths combiner (LBX-4C)
 - AO modulator and AOTF
 - Specific beam diameter and beam shaping
- o Custom control interface
- o Extended operational temperature range



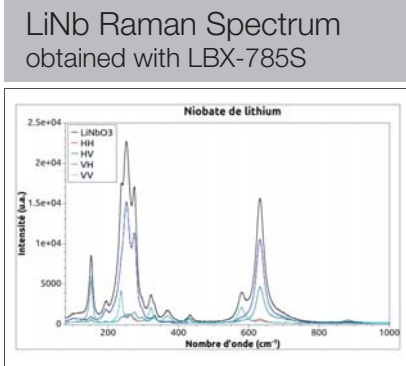
Single Longitudinal Mode LBX-785S spectrum



Si Raman Spectrum obtained with LBX-785S



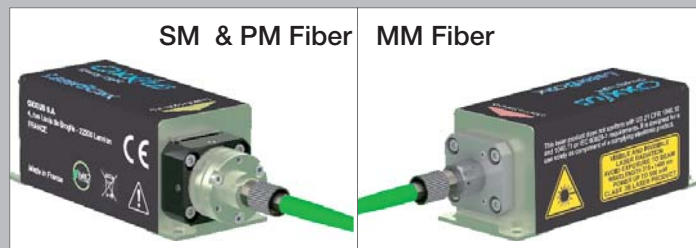
Beam Profile LBX-633S



LiNb Raman Spectrum obtained with LBX-785S

Fiber coupling options

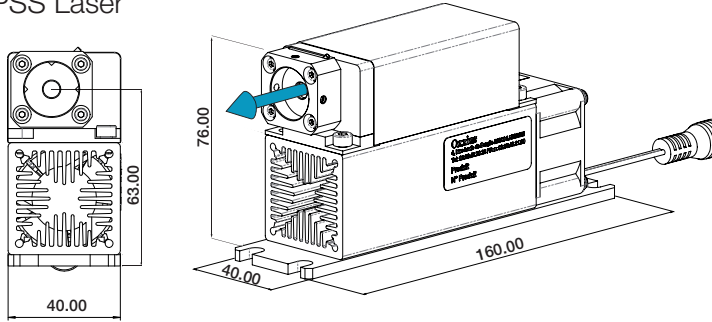
Fiber coupling options offer rugged and compact solutions to couple LaserBoxx into polarization maintaining, standard monomode fiber or multimode fiber.



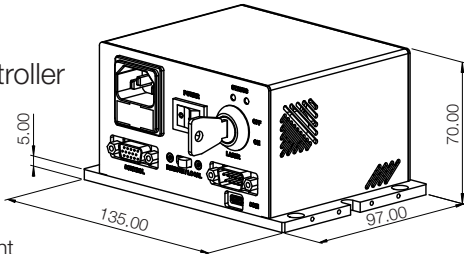
Specifications		
SM and PM Fiber		MM Fiber (50 μm, 0.22 NA)
> 70 %	Coupling Efficiency (LMX only)	> 80 %
100:1	Polarization Ratio (PMF only)	n/a
FC-APC	Fiber Output Connector	SMA
± 2 %	Power Stability over 8 hours, ± 1.5 °C	± 2 %
1.5 m	Fiber length	1.5 m

Mechanical Drawings

LMX series, PP
DPSS Laser

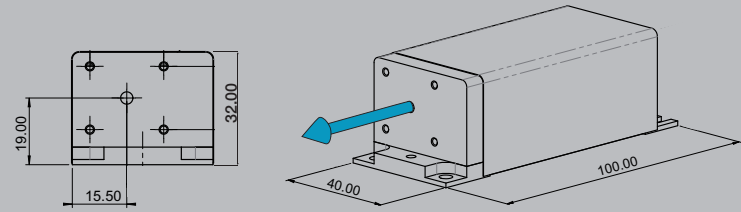


P&P Controller

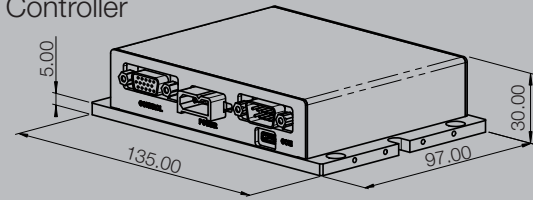


CDRH compliant

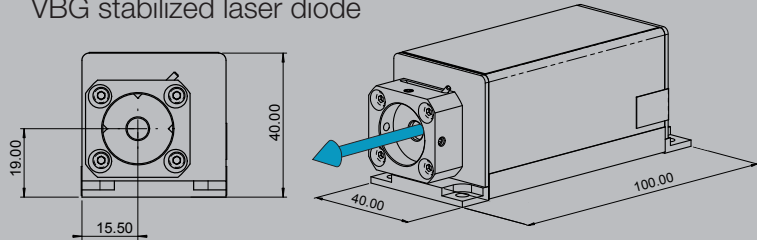
LMX series, OEM
DPSS Laser



OEM Controller

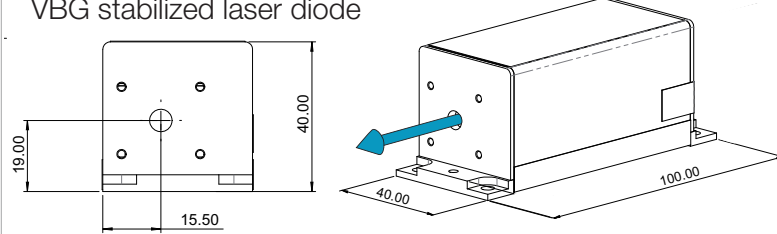


LBX-S series, PP
VBG stabilized laser diode

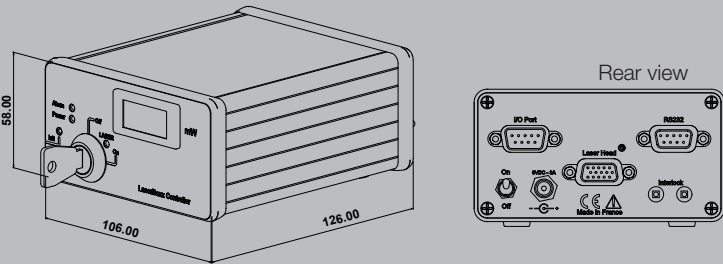


The heatsink is optional

LBX-S series, OEM
VBG stabilized laser diode



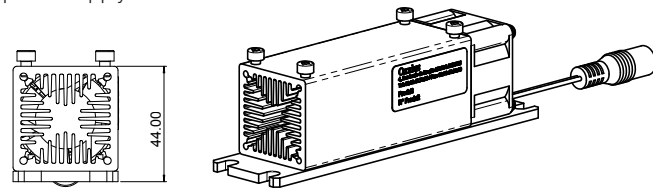
P&P remote ControlBoxx S



CDRH compliant

Optional heatsink for LMX series & LBX series

Optional air-forced heat sink for maximum ambient temperature of 38°C. Including power supply.



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