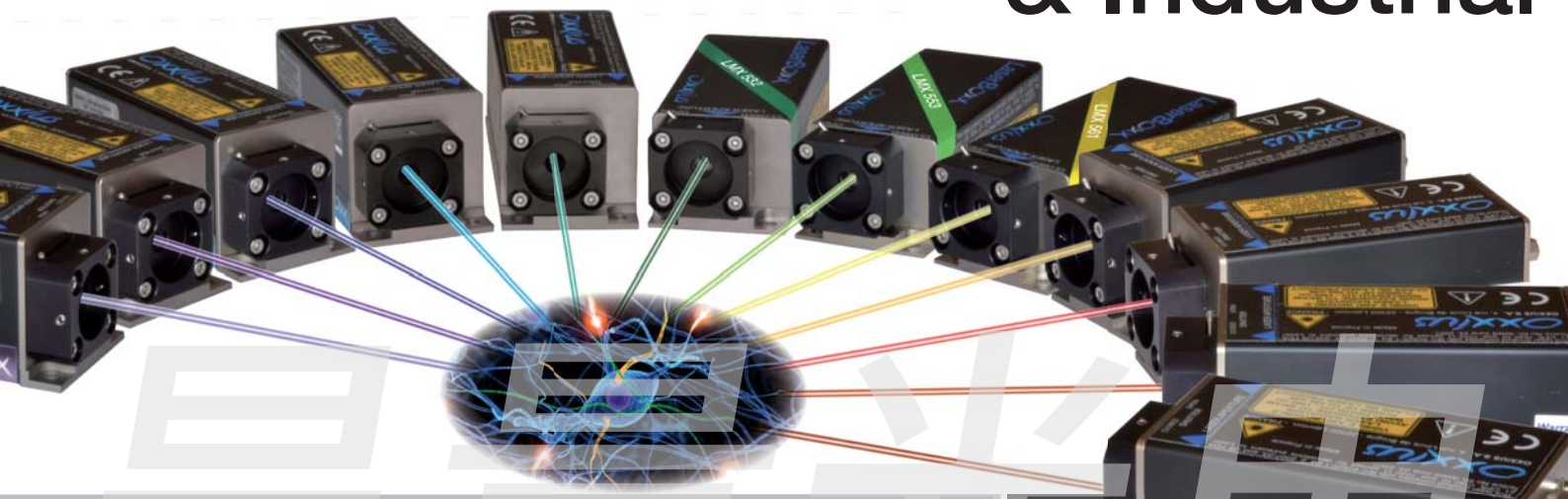
OXXIUS
Simply Light

2013

Biophotonics & Industrial



LaserBoxx

Same package for all colors

Low Noise CW Monolithic DPSS benefits
- Interchangeable controller
- Low profile laser head (32mm)
- Tailored beam diameter capability (0.6 up to 1.4mm)
- Graphic User Interface with remote diagnostics

Laser Diode modules benefits
- Controllers integrated into laser head
- Fast TTL and analog modulation
- Remote *ControlBoxx* with power display (CDRH)
- Optional clean up filter

Common key features
- TEM_{00} Beam
- Ultra Low Noise < 0.2% rms
- Beam pointing < 5 µm/°C
- USB and RS232 computer interface
- SM/PM/MM fiber coupling options
- Industry standard package (100x40x40 mm)

Super Resolution Imaging
Confocal Microscopy
Flow Cytometry
DNA Sequencing
Optogenetics
Fluorescence Excitation

Polymer Curing
Material Analysis
Laser Marking

375 405 445 473 488 515 532 553 561 594 640 660 705 730 785

Specifications

	LBX-375	LBX-405	LBX-445	LBX-473	LBX-488	LBX-515	LBX-532	LMX-532L	LMX-553L	LMX-561L	LBX-561*	LBX-594*	LBX-638
Optical specifications													
Package	LBX-LD							LMX-DPSS			LBX-LD		
Wavelengths	375	405	445	473	488	515	532	532	553	561	561*	594*	638
Wavelength range	± 5							± 1			± 2		+ 5/- 2
Linewidth	< 1.5							< 1			< 1		
Laser type	Laser Diode							DPSS			Doubled LD		
Single Mode (TEM_{00})													
Output Power	20, 70	50, 100 120, 300	100	100	50, 100 150, 200	80	50	100, 150 200, 300	25, 50 100, 200	25, 50, 100 200, 300	40		100, 150
Power Stability over 8 hours and ±3°C, p-p	± 0.5							± 1			± 0.5		± 0.5
Optical Noise rms, 10Hz - 20MHz	< 0.5							< 0.2			< 0.2		< 0.5
Beam Diameter (typ.) at 1/e2, at 50mm from aperture	1.3[2]	0.9 or 0.7[1]	1.0 or 0.7[1]	1.2 or 0.8[1]			1.0	0.7			0.7		0.8[1]
Beam Divergence (typ.) at 1/e2, full angle, in far field	0.6 or 1.0[1]						0.8	1.0			1.0		1.3[1]
Beam Circularity in far field	> 90												
Beam Quality (typ.)	< 1.35	< 1.25					< 1.2	< 1.1			< 1.25		< 1.25
Polarization Ratio Vertical	> 100:1												
Beam Pointing stability	< 5												
PM Fiber Coupling option													
Output Power FC/APC connectors, 1.5m fiber length	Call	35, 70 85, 210	70	70	35, 70 100, 140	55	35	70 to 210	17 to 140	17 to 210	28		70, 100
Modulation													
Digital Modulation													
Rise / Fall time 10% - 90%	<5[3]		<10					n/a			n/a		< 15
Extinction depth	100							n/a			n/a		100
Analog Modulation													
Bandwidth 3dB cut off frequency	> 0.4	> 1 (APC) / > 4 (ACC)					10 kHz	n/a			1		
Rise / Fall time 10% - 90%	< 700 (APC) / < 150 (ACC)						20 µs	n/a			< 700		
Extinction depth	100							n/a			100		100

[1] Beam diameters and divergences for Circular Small Beam (CSB) versions Dedicated for laser combiner

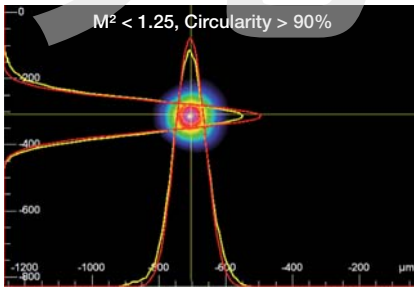
[2] Elliptical Beam version available

[3] 10 ns Rise/ Fall time for LBX 405-300

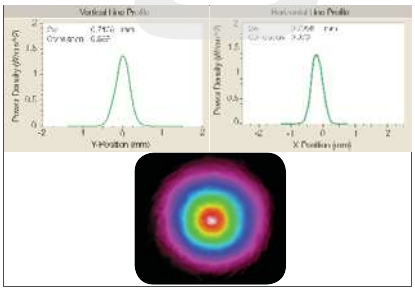
DPSS Monolithic Resonator

The unique feature of the LaserBoxx DPSS is a proprietary, alignment-free monolithic resonator. The elements in the cavity 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.

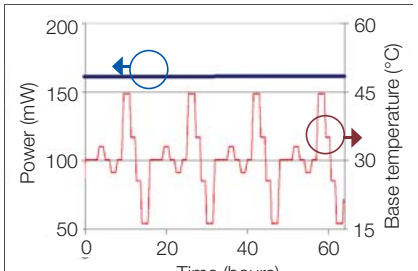


Beam Profile
LBX-488-100-CIR-OE

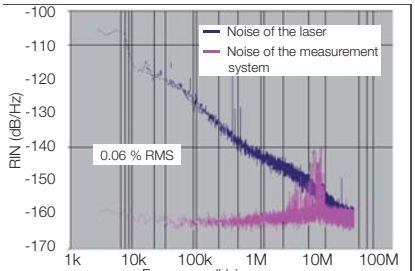


Beam Profile
LMX-553L-200-COL-PP

Power Stability
LMX-561L Power vs temperature



Relative Intensity Noise
LMX-561L-200



LBX-LD Plateform

The LBX-LD line is a performing controller integrated platform for laser diode and 532 nm, 50 mW DPSS modules in 100 x 40 x 40 mm^3 industry standard package. The LaserBoxx provides superior beam quality, excellent stability and fast modulation capabilities.

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LBX-642	LBX-660	LBX-705	LBX-730	LBX-785	Units
LBX-LD					
642	660	705	730	785	nm
+ 3 /- 5	± 5	± 10		± 5	
< 1.2		< 1.2			
Laser Diode					
130	100	30	30	130, 250*	mW
± 0.5					%
< 0.5					%
0.8[1]		1.2[1]			mm
1.3[1]		1.0			mrad
> 90					%
< 1.25					M^2
> 100:1					-
< 5					µrad/°C
90	70	20	20	90, 175*	mW
< 15					ns
100					%
> 1 (APC) / > 4 (ACC)					MHz
< 700 (APC) / < 150 (ACC)					ns
100					%

* Preliminary specifications

System Specifications

Package	LMX-DPSS		LBX-LD		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 (LxWxH)	160 x 40 x 84	100 x 40 x 40[1]			mm^3
Controller					
Input Voltage	80 - 240 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)	135 x 97 x 70	135 x 97 x 30	See ControlBoxx	Integrated into laser head	mm^3
interfacing	RS232, USB, Analog				

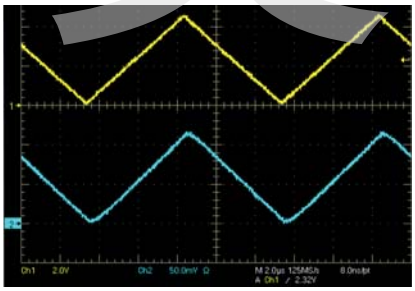
[1] Without heatsink
P&P versions are CDRH compliant

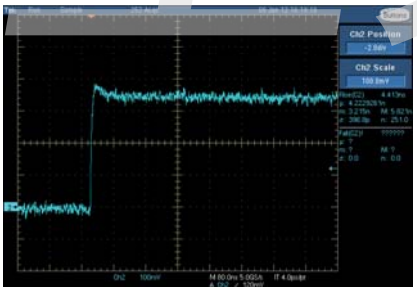
Custom Capabilities

If your particular application requires additional features to take full benefit of the Oxxius 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 :

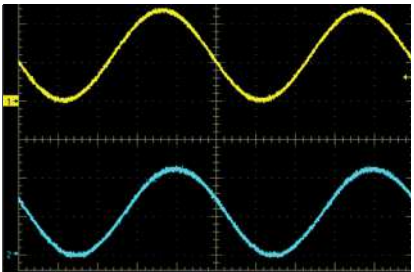
- o Power adjustment
- o Wavelength selection
- o Custom wavelengths
- o Opto-mechanical Subassemblies including:
  - • Wavelengths combiner (LBX-4C)
  - • AO modulator and AOTF
  - • Specific beam diameter and beam shaping
- o Custom control interface
- o Extended operational temperature range

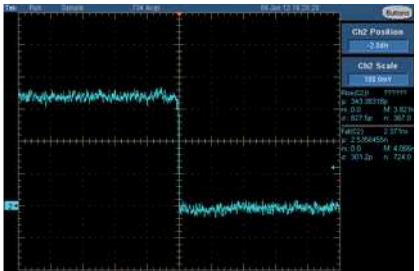




Analog Modulation
LBX-405-100-CIR
up to 4 MHz

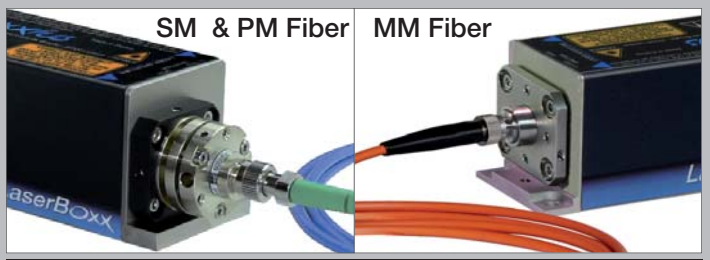
Digital Modulation
LBX-488-100-CIR
Rise / Fall times < 10 ns





Fiber coupling options

Fiber coupling options offer rugged and compact solutions to couple LaserBoxx into Polarization Maintaining, Standard Monomode fiber or MM Fiber.



Specifications

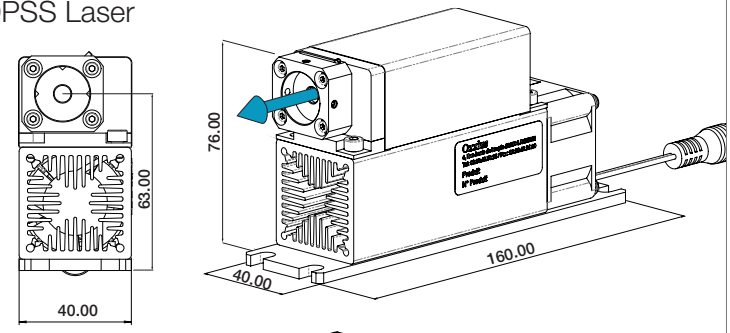
SM and PM Fiber		MM Fiber (50 µm, 0.22 NA)
> 70 %	Coupling Efficiency	> 80 %
100:1	Polarization Ratio	n/a
FC-APC	Fiber Output Connector	SMA
± 2 %	Power Stability over 8 hours, ± 1.5 °C	± 2 %
1.5 m	Fiber length	1.5 m

VISIBLE AND INVISIBLE LASER RADIATION
AVOID EXPOSURE TO BEAM
CLASS 3B LASER PRODUCT
Power up to 500 mW

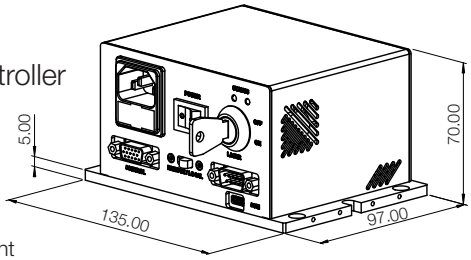
VISIBLE AND INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT

Mechanical Drawings

LMX series, PP
DPSS Laser

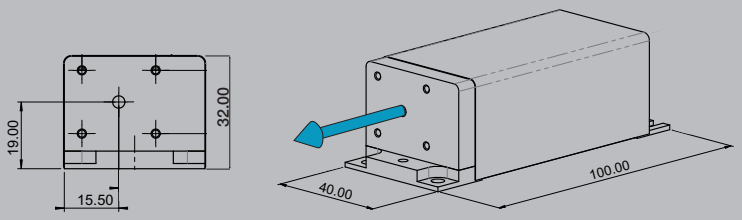


P&P Controller

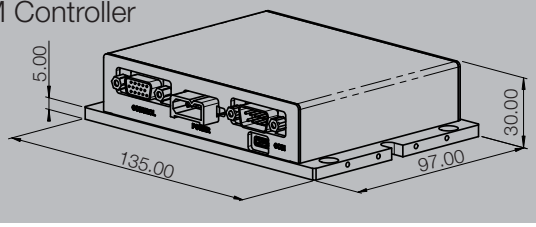


CDRH compliant

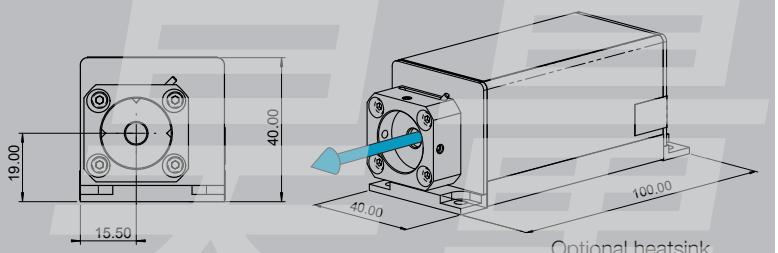
LMX series, OEM
DPSS Laser



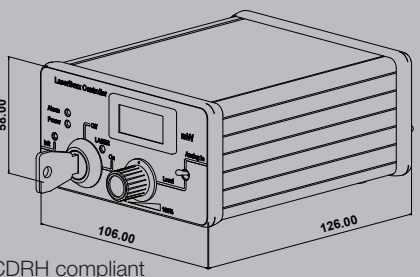
OEM Controller



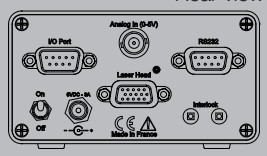
LBX-LD series, PP



P&P remote ControlBoxx

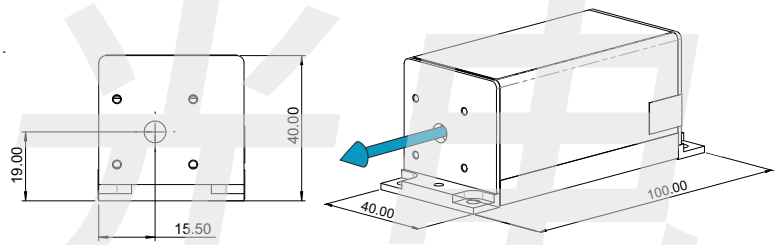


Rear view



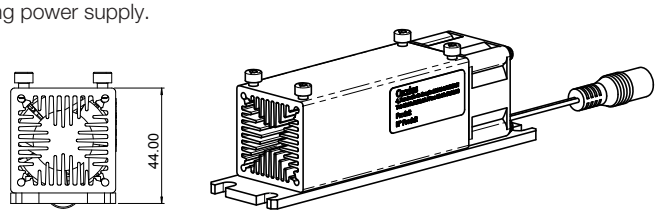
CDRH compliant

LBX-LD series, OEM



LaserBoxx optional heatsink

Optional air-forced heat sink for maximum ambient temperature of 35°C.
Including power supply.



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