Oxxius
Simply Light

LaserBoxx

Continuous and Modulated Lasers

Fluorescence Excitation
Confocal Microscopy
Super Resolution Imaging
Flow Cytometry
DNA Sequencing
Optogenetics
Polymer Curing
Material Analysis
Laser Marking
Wavelength Combination

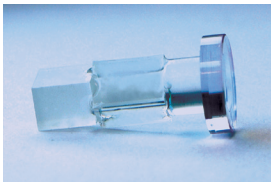
LaserBoxx

One platform for all colors

Technology

DPSS lasers

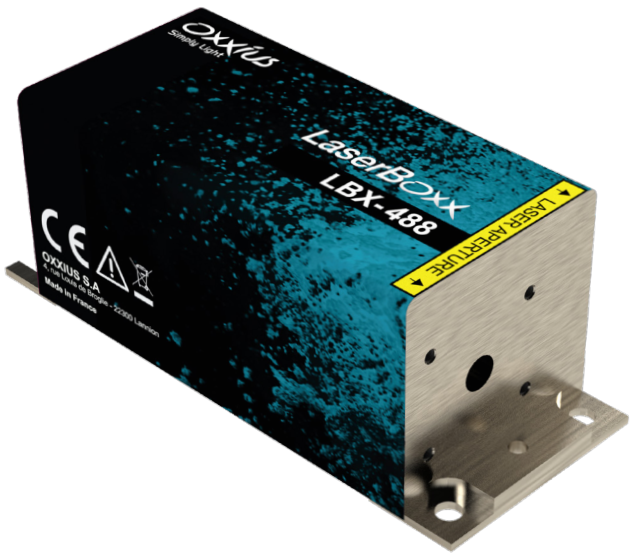
The LCX and LPX *LaserBoxx* are diode-pumped solid-state (DPSS) laser sources. The unique feature of these models is a proprietary, Alignement-free Monolithic Resonator (AMR).



The elements of the resonator are assembled into a single ultra-low-loss optical subsystem, using a proprietary crystal bonding technique.

Benefits of the AMR

This technology yields to highly efficient pump schemes and allows for the highest spectral quality and wavelength stability (≤ 1pm) on the market, as well as an important robustness over time. The LCX and LPX models are insentive to temperature variations and to mechanical vibrations.



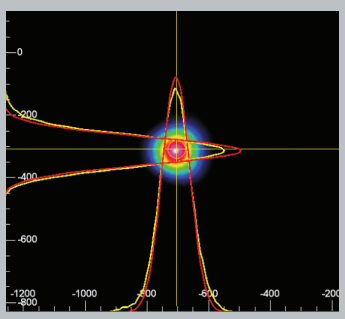
Diode lasers

The LBX models are based on integrating a temperature-stabilized laser diode.

The LBX ***LaserBoxx*** consists of a laser diode emitter with integrated control electronics. It provides a superior beam quality, an excellent stability and fast modulation capabilities.

Common key features

- TEM_{00} beam, up to 500 mW
- Ultra-low noise ≤ 0.2 % rms
- 100x40 mm industry standard footprint (LBX and LCX)
- Integrated control electronics
- Low profile laser head
- SM/PM/MM fiber coupling options
- USB and RS-232 interfaces
- Dedicated control software
- External controller with power display (Plug&Play versions, CDRH-compliant)



Beam profile
LCX-553L-200-CSB

Optical specifications

	Emission wavelength (Tolerance)	Linewidth (FWHM)	Output power (Continous wave)	Power stability over 8 h and ±3 K	Optical noise	Beam waist diameter (at 1/e²)	Beam quality factor (M^2)	Polarization extinction ratio[2]	Digital modulation Rise/fall time	Analog modulation bandwidth (- 3 dB)
LBX-375	375 nm (±5 nm)	≤ 1.5 nm	70 mW	± 0.5 % APC and ACC	≤ 0.2 %	0.7 mm	≤1.3	100:1	≤ 2 ns	≥ 3 MHz
LBX-395	395 nm (±5 nm)		120 mW			0.8 mm	≤1.25		≤ 4 ns	≥ 2.5 MHz
LBX-405	405 nm (±5 nm)		50/100/ 180/300 mW			0.7 mm	≤1.25		≤ 2 ns	≥ 3 MHz
LBX-415	415 nm (±5 nm)		120 mW			0.7 mm				
LBX-445	445 nm (±5 nm)		100/500 mW			0.7 mm				
LBX-450	450 nm (±10 nm)		100 mW			0.7 mm				
LBX-473	473 nm (±5 nm)	≤ 2 nm	100/300 mW			0.8 mm				
LBX-488	488 nm (±5 nm)		40/60/100/ 200/300 mW			0.7 mm				
LBX-505	505 nm (±5 nm)		70 mW			0.7 mm				
LBX-515	515 nm (±2 nm)		150 mW			0.8 mm				
LBX-522	522 nm (±2 nm)		70/100 mW			0.8 mm				
LCX-532L	532.3 nm (±0.3 nm)	≤ 0.1 nm	50/100/150/ 200/300 mW	± 1 % APC		0.7 mm	≤1.1	1000:1	Optional L1C-AOM 0 Hz - 3 MHz	
LPX-532L			500 mW		≤ 0.5 %					
LCX-553L	553 nm (±0.4 nm)		50/100/200 mW		≤ 0.2 %					
LCX-561L	561.4 nm (±0.4 nm)		50/100/ 150/200 mW							
LPX-561L			300 mW		≤ 0.5 %					
LPX-607L	607.5 nm (±1 nm)		100/200 mW		≤ 2 %					
LBX-633	633 nm (±3 nm)	≤ 1.2 nm	100 mW	± 0.5 % APC and ACC	≤ 0.2 %	0.8 mm	≤1.25	100:1	≤ 15 ns	≥ 3 MHz
LBX-638	638 nm (-6/+4 nm)		100/150/ 180 mW			0.9 mm		100:1 [1]	≤ 2 ns	
LBX-640L	639.7 nm (±1 nm)	≤ 0.3 nm	300/500 mW	± 1 % APC	≤ 2 %	0.7 mm	≤1.1	100:1	Optional L1C-AOM 0 Hz - 3 MHz	
LBX-642	642 nm (-7/+5 nm)	≤ 1.2 nm	140 mW	± 0.5 % APC and ACC	≤ 0.2 %	1 mm	≤1.25	100:1	≤ 2 ns	≥ 3 MHz
LBX-647	647 nm (-1/+4 nm)	≤ 1.2 nm	140 mW	± 0. 5% APC and ACC	≤ 0.2 %	1 mm	≤1.25	1000:1	≤ 2 ns	≥ 3 MHz
LBX-660	660 nm (-8/+5 nm)		100 mW			1 mm		100:1		
LBX-690	690 nm (±5 nm)		180 mW			1 mm			≤ 4 ns	≥ 2.4 MHz
LBX-730	730 nm (±10 nm)		40 mW	± 1 % ACC	≤ 1 %	0.8 mm			≤ 2 ns	≥ 3 MHz
LBX-785	785 nm (±10 nm)		100 mW 250/350 mW		≤ 0.2 %	0.7 mm 0.5 mm		100:1[1]		
LBX-808	808 nm (±10 nm)		200 mW			0.7 mm		100:1		
LBX-830	830 nm (±10 nm)		100 mW			0.9 mm				
LBX-915	915 nm (+/- 10nm)		200 mW		≤ 0.8 %			50:1		
LBX-980	980 nm (±10 nm)									
LBX-1064	1064 nm (±10 nm)			± 2 % ACC						

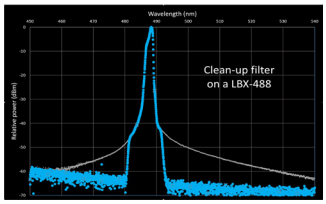
[1] Polarization ratio is not specified on LBX-638-180 and LBX-785-250/350 models
[2] The polarization state is linear, vertical (± 5°)
Power adjustment range: - Diode lasers: 0 - 100 %
- DPSS lasers: 0 to 100 % when mounted in a L1C-MPA platform.

Options

Electro-mechanical shutter

The ACX-SHTE is a compact electro-mechanical shutter. It is mounted directly on the LCX or LPX in place of the standard manual shutter, and is fully compatible with the fiber coupling and other options. The ACX-SHTE is actuated via the software commands or a standard TTL signal.

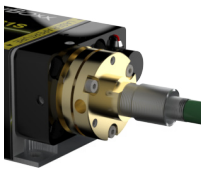
Clean-up filter



Fluorescence-based applications require to filter out the undesired optical power in order to improve the signal-to-noise ratio on the detection.

Oxxius' clean-up filters attenuate the background spontaneous emission (and other secondary peaks) 10 nm or 20 nm around the main emission peak.

Fiber coupling



A rugged and compact accessory that injects the laser beam into a single mode (SM) fiber, a polarization maintaining (PM) fiber, or a multimode (MM) fiber.

	SM and PM Fiber	MM fiber (50 µm, 0.22 NA)
Coupling Efficiency	≥ 70 %, 80% typical	≥ 80 %, 90% typical
Power Stability over 8 hours, ± 1.5 K	± 2 %	± 2 %
Polarization extinction ratio[1] (PMF only)	≥ 50:1	n/a
Available optical connectors	FC-APC FC-PC, FCP8	AR-coated SMA FC-APC
Fiber length	2.0 m	2.0 m

[1] Polarization ratio is not specified on LBX-638-180 and LBX-785-250/350

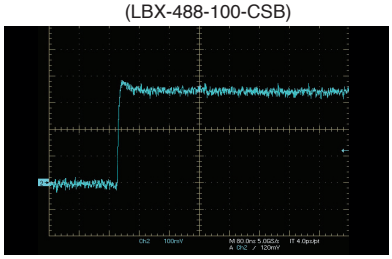
Customization and other options

- Specific wavelength selection
- Wavelength stabilization (infrared LBX)
- Wavelength combiners (L4Cc, L6Cc)
- Specific beam diameter or beam shaping
- Optical isolator

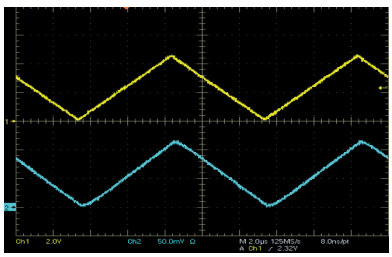
Performances

Diode Lasers

Digital modulation rise/fall times ≤ 2 ns
(LBX-488-100-CSB)

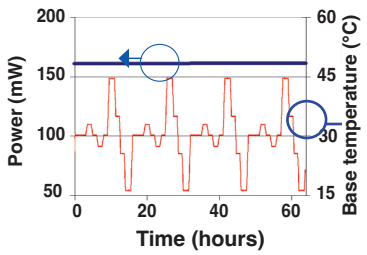


Analog modulation up to 3 MHz
(LBX-405-100-CSB)

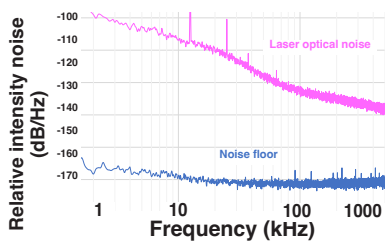


DPSS Lasers

Power stability versus temperature
(LCX-561)



Relative intensity noise
(LCX-561L-200)

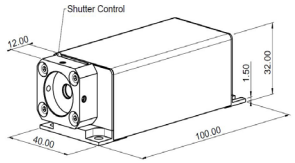


Environmental Specifications

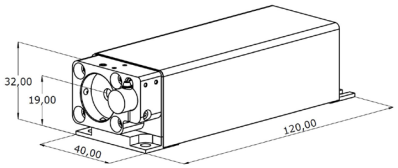
Plug and Play, CDRH-compliant versions

Dimensions in mm

LCX series
DPSS laser

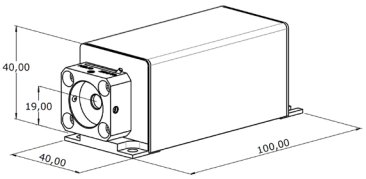


LPX series
DPSS laser



The electro-mechanical shutter is standard on LPX models

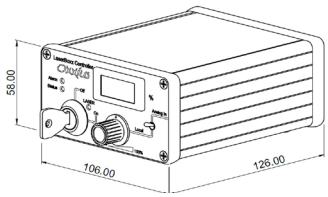
LBX series
Laser diode



Optional heatsink available

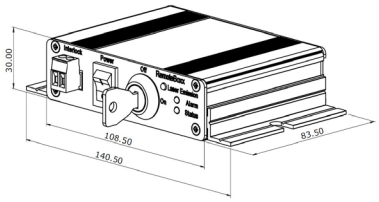
Power-adjustable versions (PPA)

PPA - ControlBoxx



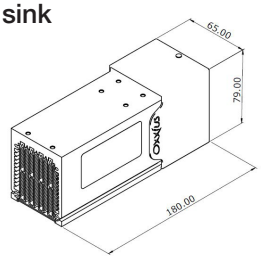
Fixed power versions (PPF)

PPF - RemoteBoxx



For improved stability

Heat sink



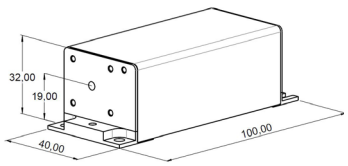
Compliance	CE and FDA 21 CFR 1040.10 / 1040.11
Operating temperature	10 to 38 °C (ambient air)
Power consumption	≤ 25 W
Storage temperature	0 to 60 °C

Supply voltage	100 to 240 VAC Power supply provided
Warm-up time	LCX, LPX: ≤ 10 minutes LBX: ≤ 2 minutes
Interfaces	Dedicated controller, USB, RS-232

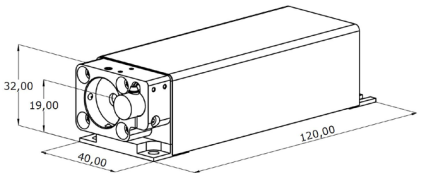
Stand-alone version for integrators

The control electronics are integrated into the laser head.

LCX series
DPSS Laser

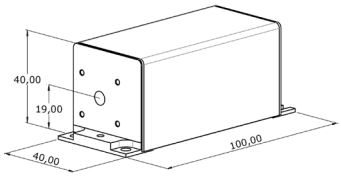


LPX series
DPSS Laser



The electro-mechanical shutter is standard on LPX

LBX series
Laser diode



	LCX and LPX	LBX
Compliance	FDA 21 CFR 1040.10 / 1040.11	
Operating temperature (baseplate)	10 to 50 °C	
Power consumption	≤ 25 W	≤ 10 W
Storage temperature	0 to 60 °C	
Supply voltage	5 to 12 VDC	
Warm-up time	≤ 10 minutes	≤ 2 minutes
Communication interfaces	USB, RS-232, dedicated electronic interface	

Our sales network

Our distributors are present all over the world, making our products easily accessible wherever you are.
To find the full list of our partners and their locations, visit our website: www.oxxius.com/contact-us.

About Oxxius

Founded in 2002, Oxxius develops, manufactures and sells advanced DPSS and laser diode modules across the ultraviolet, visible, and near-infrared spectra.
Our solutions deliver exceptional optical performance in an ultra-compact design, making them easy to integrate into instruments for life science, metrology, and manufacturing applications.
Oxxius also offers compact and versatile mutlicolor laser sources wavelength combiners, with up to 7 laser lines.

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