OXXIUS
Simply Light

LaserBoxx

LASER DIODE MODULES

375 nm	638 nm	705 nm
405 nm	642 nm	730 nm
445 nm	660 nm	785 nm
488 nm		

- UV, Visible and IR Lasers
- TEM_{00} Circular Beam
- Outstanding Power Stability/Low Noise
- Temperature Stabilized
- USB and RS232 Interface
- Analog and Digital Modulation
- PM/SM/MM Fiber Coupling Options
- Industry Standard Footprint

- Confocal Microscopy
- Flow Cytometry
- Fluorescence Excitation
- Raman Spectroscopy (LBX-785S)
- Polymer Curing
- Metrology
- Light Scattering
- Material Analysis

Specifications

	LBX-375	LBX-405	LBX-445	LBX-488	LBX-638	LBX-642	LBX-660	LBX-705*	LBX-730*	LBX-785*	LBX-785S*[1]	Units
Optical specifications												
Wavelengths	375	405	445	488	638	642	660	705*	730*	785*	785 (SLM)*[1]	nm
Wavelength range	± 5	± 5	± 5	+ 2/- 5	+ 5/- 2	+ 3 /- 5	± 5	± 10	± 10	± 5	± 0.5	
Single Mode Laser Diode (TEM_{00})												
Output Power	**16**	**100 / *130****	**50**	**50 / 70**[2]	**100**	**130**	**100**	***30****	***30****	**60 / *130****	***100***	mW
Power Stability APC mode, over 8 hours and ±3°C, p-p	± 0.5										*± 1*	%
Optical Noise rms, 10Hz - 2MHz	< 0.5										*< 0.5*	%
Polarization Ratio Vertical +/- 3 Deg.	> 100:1										*> 50:1*	-
Beam Pointing stability	< 5										*< 5*	µrad/°C
Circular Beam version												
Beam Diameter (typ.) at 1/e2, at 50mm from aperture	1.3	0.9	1.0	1.2	1.3	1.2	1.2	*1.2*	*1.2*	1.2	*1.2*	mm
Beam Divergence (typ.) at 1/e2, full angle, in far field	0.6	0.6	0.6	0.6	0.6	0.6	0.7	*1.0*	*1.0*	1.0	*1.0*	mrad
Beam Circularity in far field	> 90											%
Beam Quality	< 1.35	< 1.25										M^2
Elliptical Beam version												
Beam Dimensions (typ.) at 1/e2, at 50mm from aperture	1.3 x 3.0	0.9 x 2.2	1.0 x 2.5	1.2 x 2.6	1.3 x 3.0	1.2 x 2.0	1.2 x 2.0	1.2 x 2.3	1.2 x 2.3	1.2 x 2.3	-	mm
Beam Divergences (typ.)	< 0.5		< 1								-	mrad
PM Fiber Coupling option												
Output Power FC/APC connectors, 1.5m fiber length	8[3]	70 / *90*[3]	35	35 / 50	70	90	70	*20*	*20*	40 / *90*	*70*	mW
High Power Multimode Laser Diode (HPE)												
Output Power	150	*500**	*900**	-	*400**	-					-	mW
Beam Dimensions* (typ.) at 1/e2, at exit	1.5 x 2.8	*1.3 x 2.8*	*1.0 x 2.8*	-	*1.2 x 4.7*	-					-	mm
System Specifications												
Digital Modulation (TTL)												
Rise / Fall time 10%-90%	< 25										-	ns
Extinction depth	100										-	%
Analog Modulation												
Bandwidth (APC) -3dB cut off frequency	> 0.4	> 1 (APC) / > 4 (ACC)									-	MHz
Rise / Fall time (APC) 10%-90%	< 700 (APC) / < 150 (ACC)										-	ns
Extinction depth	100										-	%
General Specifications and Requirements												
Laser Operation Modes	APC, ACC											-
Interfacing	USB, RS232, ANALOG											-
Start up time	< 2											min
Laser head dimensions	(L) 100 x (W) 40 x (H) 40											mm
Weight (Laser Head)	300											g
Heat Dissipation laser head, stationnary@50°C on base	< 10 (TEM_{00} LD) / *< 15* (HPE LD)*											W
Heatsink requirement for ambient temperature <35°C	< 1.2											°C/W
Operating Temperature measured at base, non condensing	10 to 50											°C
OEM version												
Input Voltage ripple <1%	5.0 - 6.5											V DC
Input Current at start up	< 2.5 (TEM_{00} LD) / *< 3* (HPE LD)*											A
Plug and Play version												
Input Voltage	115/230 V AC, 50/60 Hz											-

* and *italic writing* are for preliminary specifications - contact Oxxius representative

[1] LBX-785S is a Single Longitudinal Mode laser for Raman Spectroscopy. Linewidth is < 10 MHz.

[2] Only available in P&P version

[3] Fiber lifetime is reduced at 375 and 405nm.

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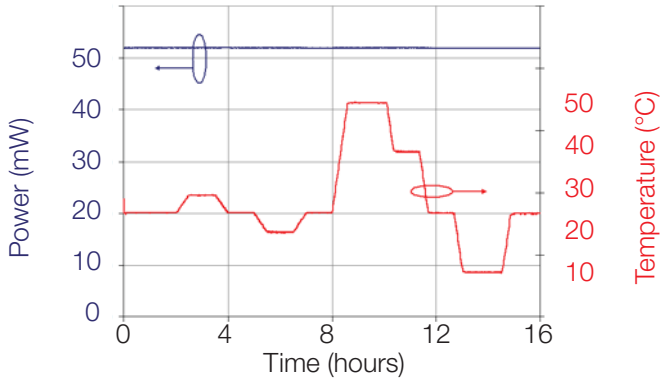
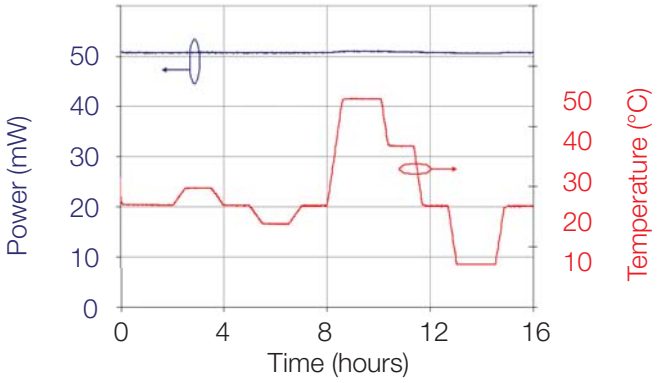
VISIBLE AND INVISIBLE LASER RADIATION
AVOID EXPOSURE TO BEAM
CLASS 3B LASER PRODUCT
Power up to 500 mW

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

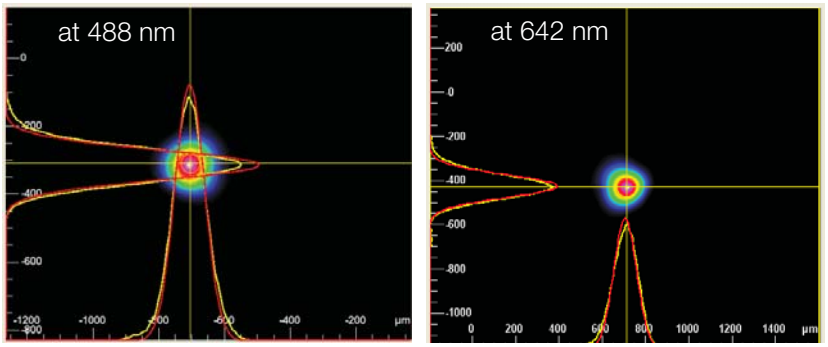
Power Stability vs Temperature, APC mode



Power Stability vs Temperature, ACC mode

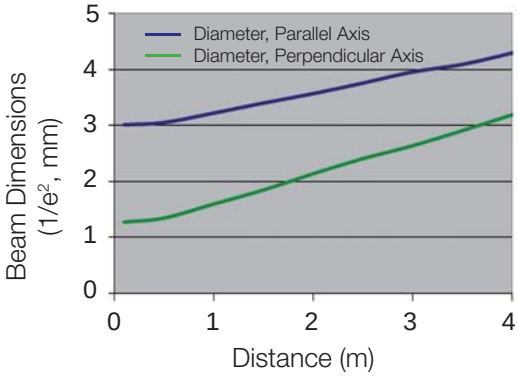


Circular Beam Profile

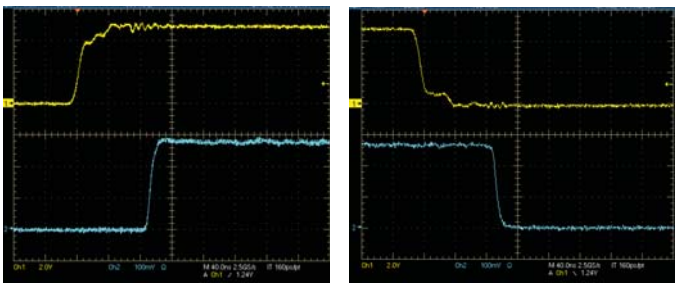


Circularity > 90%, M2 < 1.25

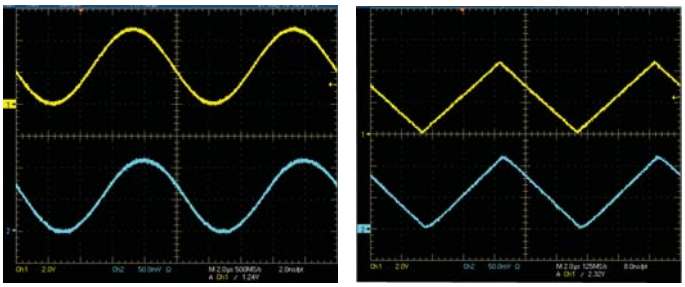
Elliptical Beam propagation



Digital Modulation, Rise / Fall times < 25 ns



Analog Modulation, up to 4 MHz



PM & SM Fiber Coupling Option

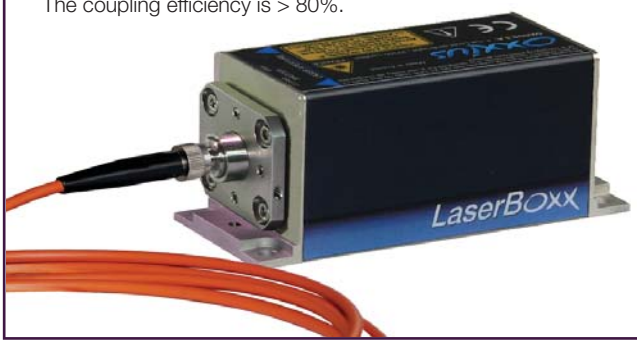
The LBX-FC-PM option offers efficient and highly stable coupling into single mode or polarization maintaining fiber. The coupler is removable for free space beam operation and the fiber patchcord is replaceable for cost effective maintenance.

The coupling efficiency is >70%.

Only proposed with Circular beam LaserBoxx version.

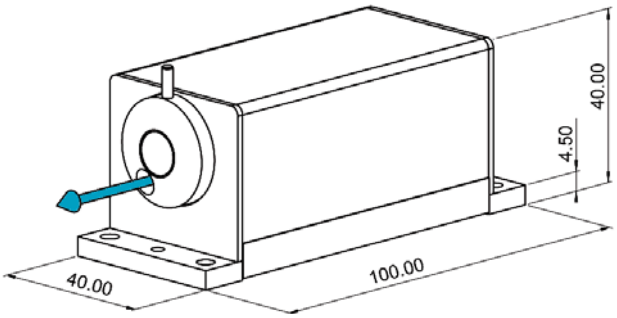
MM Fiber Coupling Option

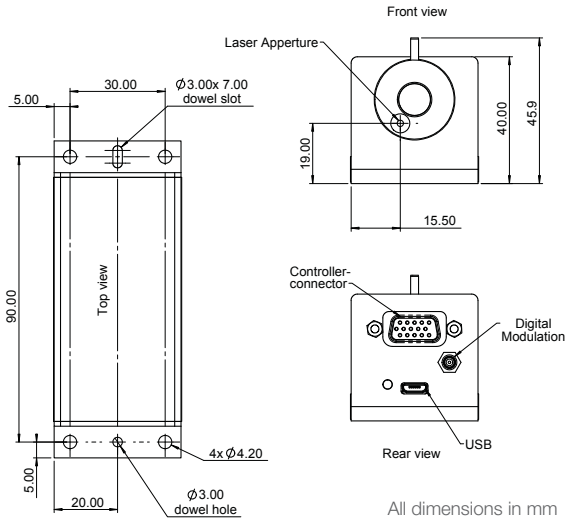
The LBX-FC-MM offer cost effective and compact way to couple LaserBoxx beam into multimode fiber with core diameter >50 µm and NA > 0.22. The coupling efficiency is > 80%.



Laser Head

All versions

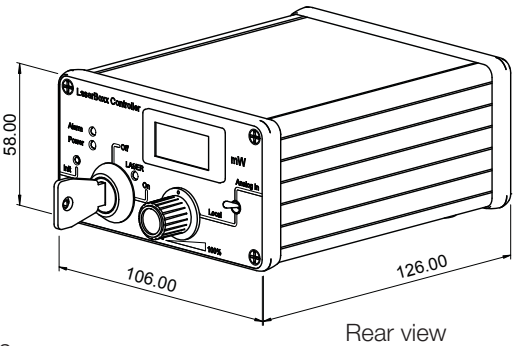




All dimensions in mm

ControlBoxx

Plug and Play version

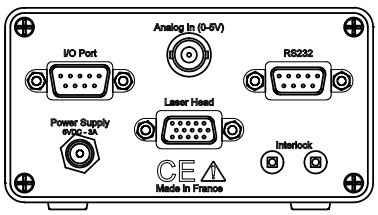


Each Plug and Play LaserBoxx comes with a remote controller including key switch, power display, power adjustment multi-turns knob and laser status LED indicators.

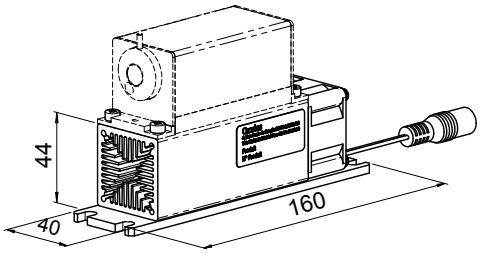
Interfacing connectors (RS232, analog, modulation inputs, interlock) are located at the back of the ControlBoxx.

The Plug and Play LaserBoxx is CDRH compliant.

Rear view



Optional Heat Sink



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

Oxxius lasers are registered with FDA. Accession numbers: 1020692-000.
Oxxius has a policy of continuous product improvement. Specifications may change without notice.

LaserBoxx Ordering Information

In order to request a laser, build the product code based on the following criteria:

Wavelenght-Power		
LBX-375-16	LBX-638-100	LBX-705-30
LBX-405-100	LBX-642-130	LBX-730-30
LBX-405-130	LBX-660-100	LBX-785-60
LBX-445-50		LBX-785-130
LBX-488-50		LBX-785S-100
LBX-488-70*		

Beam Delivery
-CIR for Circular beam
-ELL for Elliptical beam

Package
-PP for the Plug and Play version
-OE for the OEM version

* only available in P&P version

Examples:
LBX-405-100-CIR-PP for a LaserBoxx 405nm, 100mW, circularized beam, PP.
LBX-488-50-CIR-OE for a LaserBoxx 488nm, 50mW, circularized beam, OEM.
LBX-640-100-ELL-OE for a LaserBoxx 640nm, 100mW, elliptical beam, OEM.

The fiber coupling option is ordered separately, using the following references :
LBX-FC-PM for Polarization Maintaining Fiber. Only available with -CIR beam delivery.
LBX-FC-SM for Single Mode Fiber. Only available with -CIR beam delivery.
LBX-FC-MM for Multimode Fiber, core > 50+ µm and NA ≥ 0.22, coupling efficiency > 80%.

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Other countries on the website

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