

MiXXWave

By Oxxius

Laser Diode Illuminators

LDI

Unlock precise, quantitative imaging with our LDI high-power laser illuminator — engineered for performance, simplicity and repeatability.



- Up to 7 channels
- Up to 1000 mW output power per laser line via multimode fiber
- LED light engine pricing, solid-state laser performance
- Feedback-controlled stability for consistent, reproducible results
- 100:1 linear dynamic range for quantitative and ratiometric imaging
- Plug & Play and ready to use: zero alignment required

Illuminate Today. Transform Tomorrow.

Oxxius High Performance Laser Diode Illuminators

The LDI is a **multiline, solid-state laser illuminator** offering **up to 1000 mW** of output power per laser line via a multimode fiber at the price of a low power LED light engine. With feedback controlled output stability and **up to a 100:1 linear dynamic range**, the LDI is the ideal light source **for quantitative imaging, ratiometric imaging** and more repeatable **optogenetics** experiments.

Why trust the LDI?

- › Up to 1000 mW output power per laser line
- › From 405 nm to 730 nm
- › Feedback-controlled stability < 1% across all wavelengths
- › Up to 100:1 linear dynamic range
- › Combinable multi-LDI configurations into a single fiber output
- › TTL, analog and USB control ; SDK available
- › No alignment, easy to use and maintain



LDI-G2: the next generation of illumination

The new LDI-G2 Series builds on our proven LDI platform with breakthrough improvements in control, stability, and power delivery. Designed for researchers pushing the limits of fluorescence and live-cell imaging, the LDI-G2 delivers the illumination performance they need, without compromise.

HIGH POWER DENSITY

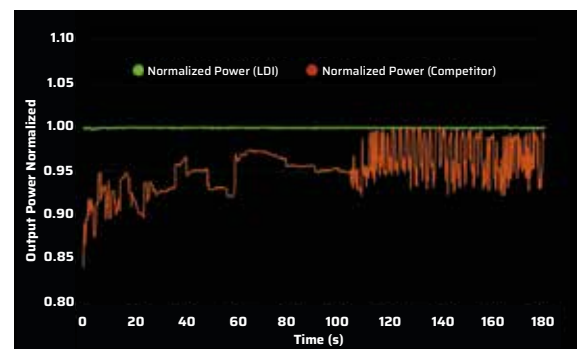
For brighter, faster and more efficient imaging

- › Single 400 μm fiber output concentrating optical power into a smaller area
- › Higher power density and uniform illumination

ROCK-SOLID STABILITY

For quantitative confidence and reproducible results

- › Upgraded active feedback system for 99.8% illumination stability
- › Data reflects real biology, not light-source fluctuation
- › Reliable for quantitative imaging and long time-lapse studies
- › Aligned with QUAREP-LiMi WG1 standards



LDI-G2 stability vs. Competitor: our stability means fluctuations are not introduced into your research.

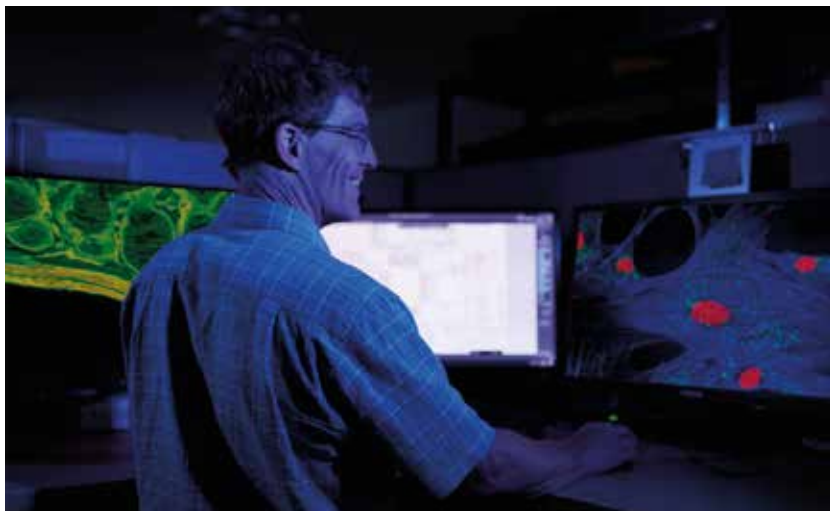
FINER INTENSITY CONTROL

For greater experimental precision

- › Laser power control in 0.1% increment
- › Precise tuning for sensitive samples
- › Minimize photobleaching and phototoxicity

Who benefits?

- › **Cell and/or spatial biologists** studying dynamic or delicate processes where signal consistency is critical.
- › **Neuroscientists** conducting optogenetics or calcium imaging requiring precise, stable illumination.
- › **Microscopists** using super-resolution methods (STORM, PALM, SIM).
- › **Core facilities** standardizing instrumentation under QUAREP-LiMi stability standards.
- › **OEM System Developers** seeking high-performance illumination for integrated imaging platforms — with a flexible SDK and multiple control interfaces (TTL, Analog, USB) for seamless integration, backed by a dedicated technical support team.

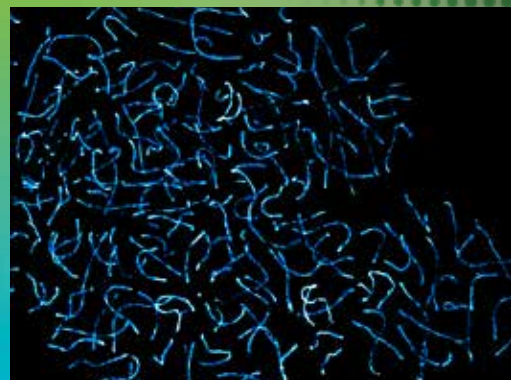
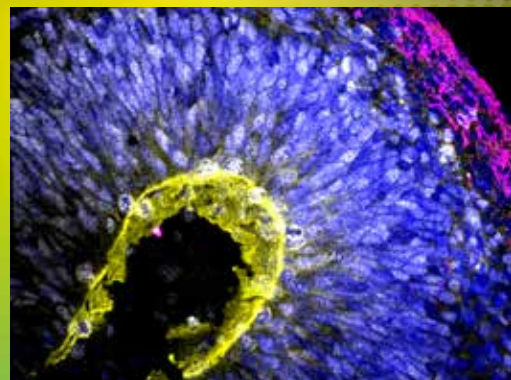


Single 400 μm fiber output: shorter exposure times, better signal-to-background ratio, ready for HCS, STORM, PALM and cleared-sample imaging.

Applications at a Glance

Our light engines can be deployed across a wide range of scientific applications and techniques including:

- › Spinning Disk Confocal Microscopy
- › Super Resolution SIM Imaging
- › PALM/STORM
- › Optogenetics
- › Photoactivation/Photoconversion
- › FRAP
- › Spatial Biology
- › High-Content Screening



Test Our LDIs!

We offer standard demo units so you can validate performance in your own environment before moving forward.



›› Contact us to check availability, lead times and the best configuration for your application.

LDI-G2 Specifications

Pushing the limits of fluorescence and live-cell imaging

The LDI families covers a full range of laser lines, including 488 nm, 577 nm and into the NIR. Other laser lines are available upon request.

LDI-G2 family product line Overview

			CHOOSE BETWEEN				CHOOSE BETWEEN			
	405 nm	445 nm	470 nm	488 nm	520 nm	528 nm	555 nm	577 nm	640 nm	730 nm
LDI-G2-4 Series	300		1000	1000			700	450	500	
LDI-G2-5 Series	450		1000	1000			700	450	1000	750
LDI-G2-7 Series	300	1000	1000	1000	500	450	700	450	500	
LDI-G2-NIR Series	450	1000	1000	1000	500		700	450	1000	750

Units shown in the interior of the table above are milliwatts (mW) and are measured at the fiber.

LDI-G2 Specifications

Laser Line	405 nm	445 nm	470 nm	488 nm	520 nm	528 nm	555 nm	577 nm	640 nm	730 nm
Width Average FWHM (nm)	1.1	1.0	1.1	1.8	3.1	2.6	0.4	0.4	1.5	1.2
Centroid Wavelength Range (nm) ⁽¹⁾	397-408	435-450	463-470	482-494	514-524	526-535	552-557	574-580	632-644	722-738
Continuous Wave Stability ⁽²⁾	≤ 0.2 %									
Max Rise Time ⁽¹⁾	<5 μs						<2 ms		<5 μs	
Max On/Off Frequency (Hz) ⁽³⁾	>1000						100		>1000	
Output Options	optical fiber ⁽⁴⁾									
Control Options	TTL (>2.3 V) Analog (0-5 V) USB-DSP (virtual COM port) - SDK available upon request									
Safety	Interlocked housing Safety interlock Key interlock IEC 60825 compliant									
Operating Temperature	15 to 30 °C									
Storage Temperature	-18 to 50 °C									
Humidity	<80 % non-condensing									
Voltage	90-220 V AC, 50-60 Hz									
Fuse	None									
Warranty	2 years									
Weight	~4 kg (-9 lbs)									
Dimensions	318 × 234 × 146 mm (12.5 × 9.2 × 5.75 in)									

⁽¹⁾ Typical values measured at 100 % intensity, 23 °C ± 2 °C ⁽²⁾ Typical CW stability value, calculation based on QUAREP LiMi WG 1 Illumination stability measurement at 100 % intensity, 23 °C ± 2 °C ⁽³⁾ Measured at 100 % intensity, 50 % duty cycle ⁽⁴⁾ Recommended output fiber is 400 μm, 0.39 NA fiber

Available options

Extend Your Performances

FIBER SET

LDI-G2 uses one fiber:
Fiber Optic, 400 μ m, 0.39NA, FC-SMA.
Other fibers are available upon request.

BREAKOUT BOX

The Breakout Box is an LDI interface accessory that provides external analog intensity control and TTL shutter control connections for each of the channels in the LDI and routes them to the appropriate pins of the LDI's interface connector.

The Breakout Box connects to the LDI unit with the supplied DB25 male-to-male cable. BNC connectors are provided to connect to the customer supplied equipment (BNC cables not included).

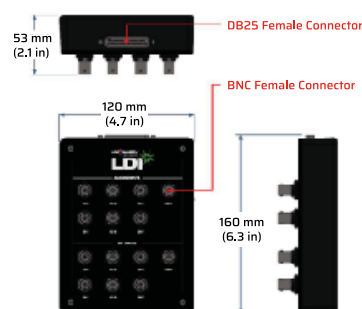
FIBER BEND BOX

A compact accessory designed to create a controlled bend in metal-clad fiber optic cables, ensuring proper routing without compromising signal integrity.

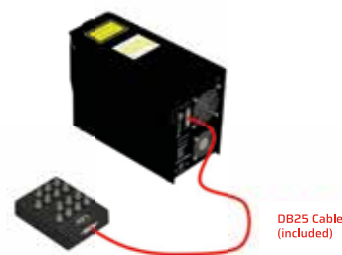
EXTERNAL DESPECKLER

The External Despeckler maximizes image quality when paired with an LDI system. Operating at an impressive 10,000 Hz, it significantly exceeds the performance of the integrated ~80 Hz despeckler inside the LDI. By averaging modal noise more effectively, it provides the highest level of speckle reduction available.

Breakout Box specifications ▼



Breakout Box connecting to LDI ▼



Need Other Wavelengths? Meet our L4Cc & L6Cc laser combiners

MixxWave is Oxxius' complete multi-laser illumination platform.

Alongside the high-power LDI laser diode illuminators, the MixxWave range includes **fully customizable laser combiners**.

Available in 4-line (L4Cc) and 6-line (L6Cc) configurations with **single-mode fiber output**, our **laser combiners** are the ideal choice when your application calls for a **tailored wavelength combination** at lower power levels.



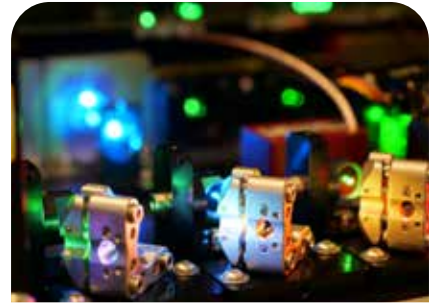
When laser matters, innovation happens.

Rely on Oxxius' stable and compact lasers to speed your development in life science, metrology and industrial applications.

Oxxius develops, designs and delivers powerful, high-performance, spectrally pure visible lasers, built to evolve with your needs.

Our compact, ultra-stable, ISO 9001-certified solutions speed development, simplify integration, and enable breakthroughs in medical diagnostics, research, semiconductor inspection, and more. Every system is backed by fast iteration, proven reliability and dedicated customer support.

Let's configure the right laser for your application: contact us for technical guidance, lead times and demo options at sales@oxxius.com.



Global sales network

Our distributors are worldwide, making Oxxius products easy to access wherever you are. See the full list of partners and locations at www.oxxius.com.

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