OXXIUS
Laser Matters

MixWave
By Oxxius

Product range	Laser Diode Illuminators (LDI)
Product name	LDI-G2-4 Laser Diode Illuminator
Reference	LDI-G2-4
Description 	The LDI-G2-4 Laser Diode Illuminator represents a significant leap forward from the original LDI-4 platform. By adopting a single 400 µm fiber output, compared to the bifurcated configuration of Gen1, the G2 architecture concentrates the same optical power into a smaller core, delivering higher power density at the sample plane. Combined with a tenfold improvement in CW stability (< 0.2%) and intensity control down to 0.1% steps, the LDI-G2-4 sets a new benchmark for quantitative fluorescence imaging. It is fully compliant with the QUAREP-LiMi WG1 standard, making it the reference choice for reproducible, publication-grade confocal, TIRF, PALM/STORM, and live-cell imaging workflows. Formerly part of the 89 North product line, the LDI-G2-4 is now manufactured and supported by Oxxius. **Key features** • 4 laser lines covering the most widely used fluorescence probes • Up to 1000 mW output power per line • Feedback-controlled optical stability • Optional 488 nm & 577 nm lasers • No user alignment required • TTL & Analog control

Product Variations

Part Number	Combined wavelengths
LDI-G2-4	405 / 470 / 555 / 640
LDI-G2-4-577	405 / 470 / 577 / 640
LDI-G2-4-488	405 / 488 / 555 / 640
LDI-G2-4-488-577	405 / 488 / 577 / 640

Performance by Wavelength

Wavelength	Optical Power Min [1]	CW Stability (typ.) [2]	Max Rise Time (typ.) [3]	Max On/Off Frequency [4]
405	300 mW	0.2 %	5 µs	>1000 Hz
470 or 488	1000 mW[5]	0.2 %	5 µs	>1000 Hz
555 or 577	700 or 500 mW[6]	0.2 %	2 ms	100 Hz
640	400 mW	0.2 %	5 µs	>1000 Hz

Legends

1. Optical Power Min: Defined in accordance with the QUAREP-LiMi WG 1 standard, “Illumination Power, Stability, and Linearity Measurements for Confocal and Widefield Microscopes V.2”, Section 8, with power output measured at the fiber output.

2. CW Stability (typ.): Measured at 100 % intensity, 23 °C ± 2 °C.

3. Max Rise Time (typ.): Defined in accordance with the QUAREP-LiMi WG 1 standard, “Illumination Power, Stability, and Linearity Measurements for Confocal and Widefield Microscopes V.2”, Section 8, with power output measured at the fiber output.

4. Max On/Off Frequency: Measured at 100 % intensity, 50 % duty cycle

5. 470 or 488 - Optical Power Min: 488 nm optical power min preliminary estimate. Actual output power pending product release.

6. 555 or 577 - Optical Power Min: 577 nm optical power min preliminary estimate. Actual output power pending product release.

Optical Characteristics

Output Power	Up to 1000 mW per line + higher power density via 400 µm single fiber
Optical Stability	Active feedback control 0.2 % CW stability (10× improvement)
Intensity Control	0.1 % steps (10× finer) Full linear range
Laser Lines	Up to 7 lines: 405 / 445 / 470 or 488 520 / 555 or 577 / 640 / 730 nm
NIR Channel (730 nm)	✔ Deep-tissue imaging Extended spectral range beyond visible
Beam Quality	Improved beam quality Cleaner, more stable output profile
Fiber Output	400 µm single → higher power density
User Alignment	Not required

LDI-G2-4 Laser Diode Illuminator General specifications

Output Options	Optical fiber (400 µm single, 0.39 NA)
Control Options	TTL (> 2.3 V) | Analog (0–5 V) USB–DSP (virtual COM port)
Safety	Interlocked housing | Key interlock IEC 60825 compliant
QUAREP-LiMi WG1	✔ Compliant
Dimensions	318 × 234 × 146 mm (12.5" × 9.2" × 5.75")
Weight	~4 kg (~9 lbs)
Operating Temp.	15 to 30 °C
Storage Temp.	-18 to 50 °C
Humidity	80 % non-condensing
Voltage	90–220 V AC, 50–60 Hz
Warranty	2 years

Options

Fiber sets
LDI Breakout Box
Fiber Bend Box
External Despeckler

Applications / Techniques

Confocal Microscopy
Spinning Disk Microscopy
Widefield Microscopy
Light Sheet Microscopy
Structured Illumination Microscopy (SIM)
Super Resolution Imaging
TIRF
PALM / STORM / DNA-PAINT
FRAP
Photoactivation / Photoconversion
Photoablation
Optogenetics
Neuroscience / Physiology
Cellular Biology
Single Molecule FISH (smFISH)
Spatial Transcriptomics / Proteomics
Digital Pathology

Oxxius has a policy of continuous product improvement. Specifications may change without notice.