

LIGHT. PRECISION. ANALYTICS

Wavelength: **337.1 nm**
 Pulse Energy: **Up to 110 µJ**
 Pulse Duration: **~3 ns**
 Peak Power: **Up to 37 kW**
 Repetition Rate: **Up to 200 Hz**



MNL X00 - UV Laser
Mini -Nitrogen-Laser



MALDI-Imaging
 Imaging method for analysing chemical compounds and their spatial distribution.



TR-FRET / TRF
 Molecular interaction studies in cell biology and drug discovery.



MALDI-TOF MS
 Efficient ionization for mass spectrometry in proteomics and biochemical research.



Laser-Induced Fluorescence (LIF)
 Sensitive detection of organic and biochemical compounds.



UV Microscopy
 Enhanced resolution for imaging fine biological and material structures.



µ-LIBS
 Precise elemental analysis through micro-ablation in materials science and forensics.



Acoustic Wave Spectroscopy
 Fast and non-destructive testing of coatings and surfaces.

The MNL X00 UV laser series offers a high-performance, compact solution designed for applications requiring UV output at 337.1 nm, utilizing a nitrogen-based design. With flexible pulse energy options and high repetition rates of up to 200 Hz, these lasers provide powerful, reliable performance with minimal maintenance. The robust design ensures long-term stability and precise operation, backed by an extended warranty of up to 400 million pulses or 4 years, making them ideal for demanding environments where both power and precision are critical.

Long Life Operation:

The MNL X00 series guarantees a minimum of **100 million laser pulses** or **2 years** of maintenance-free operation, with some models offering up to **400 million pulses** or **4 years** of service life. This extended lifespan is achieved mainly through two key innovations:

- **Redesigned Sealed metal-ceramic laser tube** for long-term stability and low energy decay over long time.
- **Solid-state power switch** for precise energy control and longevity.

Performance Features:

- **Integrated Controller:** Offers a wide range of preset configurations and easy adaptation to different applications.
- **Firmware-Controlled Adjustments:** Full control of laser functions and parameters via PC interface, enabling power fine-tuning for specialized use cases.
- **Precise Trigger:** Ensures reliable operation with fixed delay and jitter (< 2.5 ns) for critical timing applications.
- **Air-Cooled Design:** Efficient heat management via air cooling ensures consistent performance in extended use.
- **Shutter:** Provides precise control over beam exposure for applications requiring intermittent or timed UV output.

Optional Add-Ons:

- **Energy Monitoring:** Integrated energy monitor for real-time output feedback.
- **Attenuation:** Integrated continuous attenuator with a ratio up to 1:10,000.
- **Sync Out:** Electrical pretrigger output with jitter < 200 ps.
- **Fiber Coupling:** Integrated option for fiber coupling (200–1,000 µm).
- **Low divergent:** Small focus spot sizes for precise long-distance targeting.

Power and Connectivity:

- **Power Supply:** Operates on a 24 V DC input, with an included wide-range AC adapter (90–260 V, 50–60 Hz).
- **Interface Options:** Includes serial bus protocol and DLL, with optional standalone operation (no PC required).

Certifications:

The MNL 100 meets all relevant international standards, including CE, UKCA, CB, ETL (UL, CSA, VDE, Semco), ROHS and FDA, making it suitable for global markets.

Specifications

		X06	X12	X15	X20	
General	Wavelength			337.1		
	Spectral bandwidth			0.1		
	Pulse halfwidth FWHM, typ.			3		
	Energy stability SD/<E> (for all rep. rates)			≤ 2		
	Guaranteed pulse quantity	Mio	400	120	150	200
	Guaranteed pulse energy ¹	μJ	110	70	60	30
	Typ. pulse energy @ pulse quantity	μJ @ Mio	110 @ 100	60 @ 200	50 @ 200	30 @ 200
	Pulse power, typ.	kW	37	23	20	10
	Repetition rate up to ²	Hz	60	120	150	200
	Beam dimensions, vertical x horizontal, typ.	mm			3 x 4	
	Beam divergence, vertical x horizontal ³	mrad			≤ 3.5 x ≤ 3	
	Focus stability ⁴	μm			≤ 15	
	Beam exit angle, vertical / horizontal, typ.	grad			+ 0.5 (± 0.2) / 0 ± 0.1	
	Trigger In				Optical or electrical (TTL)	
	Jitter: ext. trigger - laser pulse	ns			± 2.5	
	Pulse delay: ext. Trigger - laser pulse	ns			1300 ± 10 %	
	Sync Out (optional):				3.5 ns before the laser pulse (U > 4 V)	
	Jitter: electr. Trigger exit - laser pulse	ns			≤ 0.2	
	Warm-up time ⁵	s			< 20	
	Control		AUTOMODE of software (DLL) via integrated controller			
Certifications		CE, CB, ELT (UL, CSA, VDE, Semco), FDA, UKCA				
Laser class		3B / IIIb				
Electrical Interface	Power Supply	V DC	24			
	Periodic peak current	A	2.4			
	Periodic peak power = max. power	W	60 (40)			
	Average current	A	1.6			
	Average power	W	40			
Environment and conditions of use	Operating temperature	°C	+ 15 ... + 38			
	Storage temperature	°C	- 10 ... + 60			
	Max. Relative humidity (non-condensing)	%	85			
	Air pressure	mbar	750 ... 1300			
	Dimensions laser (L x W x H) max.	mm	335 x 95 x 95			
	Weight laser	kg	3.5			
	Dimensions power supply (L x W x H) max.	mm	180 x 80 x 50			
	Weight power supply	kg	0.6			

¹ higher energies on request

² higher repetition rates on request

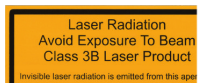
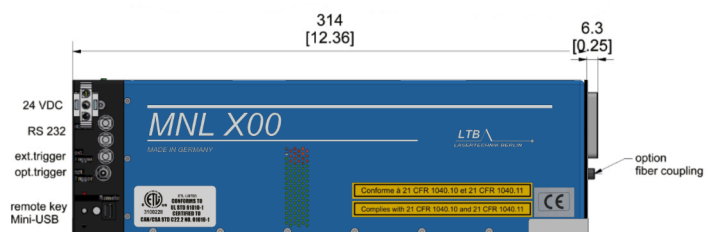
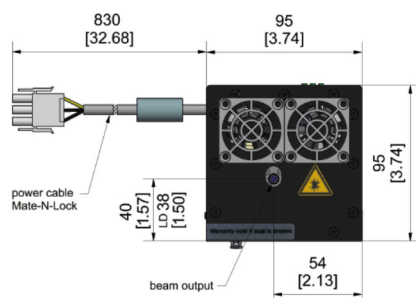
³ at max. rep. rate; measuring at 5 m distance

⁴ based on focusing of 200 mm @ constant rep. rate

⁵ time from turning on to the first laser pulse

⁶ via external wide-range power supply (100 ... 240 V AC) - (part of the delivery)

Subject to technical changes.



Dimensions: mm [inch]