

**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 <sup>1</sup>	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 <sup>2</sup>	Hz	60	120	150	200
	Beam dimensions, vertical x horizontal, typ.	mm			3 x 4	
	Beam divergence, vertical x horizontal <sup>3</sup>	mrad			≤ 3.5 x ≤ 3	
	Focus stability <sup>4</sup>	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 <sup>5</sup>	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				

<sup>1</sup> higher energies on request

<sup>2</sup> higher repetition rates on request

<sup>3</sup> at max. rep. rate; measuring at 5 m distance

<sup>4</sup> based on focusing of 200 mm @ constant rep. rate

<sup>5</sup> time from turning on to the first laser pulse

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

Subject to technical changes.

