

LIGHT. PRECISION. ANALYTICS

Wavelength: **337.1 nm**
 Pulse Energy: **Up to 130 μJ**
 Pulse Duration: **~3 ns**
 Peak Power: **Up to 43 kW**
 Repetition Rate: **Up to 60 Hz**



MNL 100 - UV Laser

Mini -Nitrogen-Laser



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

The MNL 100 UV laser is an advanced, compact OEM laser designed for applications requiring UV output at 337.1 nm. Utilizing a nitrogen-based design, it operates without an external gas supply, making it a highly reliable and maintenance-free solution for demanding environments. Weighing approximately 3.5 kg with a total volume of less than 3 liters, this laser is ideal for applications where space and portability are critical.



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

Long Life Operation:

The MNL 100 guarantees minimum of 60 million laser pulses or 2 years of maintenance-free operation. This lifespan is achieved through two LTB innovations:

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



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

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.



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

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.



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

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).



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

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

		103-PD	106-PD	103-LD	106-LD	
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			60		
	Guaranteed pulse energy ¹	μJ	130	110	75	55
	Typ. pulse energy @ pulse quantity	μJ @ Mio	120 @ 100	100 @ 100	65 @ 100	50 @ 100
	Pulse power, typ.	kW	43	37	25	18
	Repetition rate up to ²	Hz	30	60	30	60
	Beam dimensions, vertical x horizontal, typ.	mm	3 x 4		4 x 2.5	
	Beam divergence, vertical x horizontal ³	mrad	≤ 3.5 x ≤ 3		≤ 0.5 x ≤ 0.3	
	Focus stability ⁴	μm	≤ 15		< 25	
	Beam exit angle, vertical / horizontal, typ.	grad	+ 0.5 (± 0.2) / 0 ± 0.1		0 ± 0.1 / 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 or software (DLL) via integrated controller				
Certifications	CE, CB, ETL (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.

