

## LIGHT. PRECISION. ANALYTICS

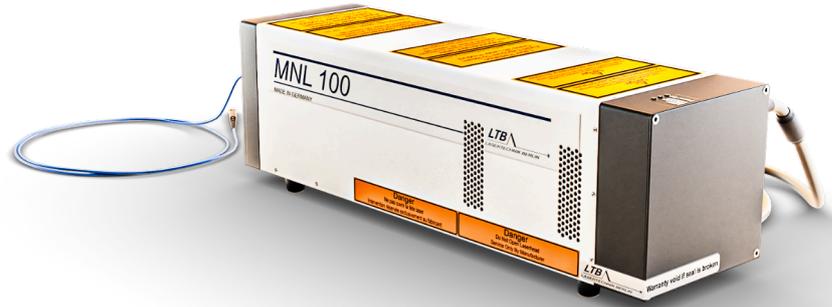
Wavelength: **337.1 nm**

Pulse Energy: **Up to 130  $\mu$ J**

Pulse Duration: **~3 ns**

Peak Power: **Up to 43 kW**

Repetition Rate: **Up to 60 Hz**



## MNL 100 - UV Laser

### Mini -Nitrogen-Laser

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.



#### 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.



#### $\mu$ -LIBS

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



#### Acoustic Wave Spectroscopy

Fast and non-destructive testing of coatings and surfaces.

### 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.

### 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  $\mu$ m).
- **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

		103-PD	106-PD	103-LD	106-LD	
<b>General</b>	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 <sup>1</sup>	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 <sup>2</sup>	Hz	30	60	30	60
	Beam dimensions, vertical x horizontal, typ.	mm	3 x 4		4 x 2.5	
	Beam divergence, vertical x horizontal <sup>3</sup>	mrad	≤ 3.5 x ≤ 3		≤ 0.5 x ≤ 0.3	
	Focus stability <sup>4</sup>	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 <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					
<b>Electrical Interface</b>	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		
<b>Environment and conditions of use</b>	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

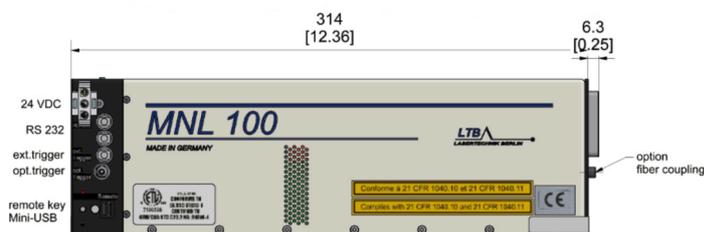
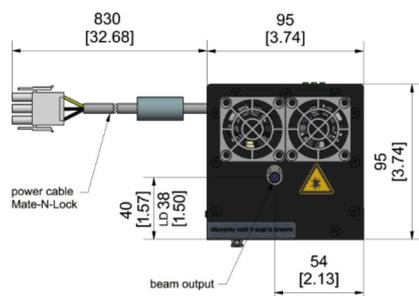
<sup>3</sup> at max. rep. rate; measuring at 5 m distance

<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.



Dimensions: mm [inch]