LTB
LASERTECHNIK BERLIN

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

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.

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.

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 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.

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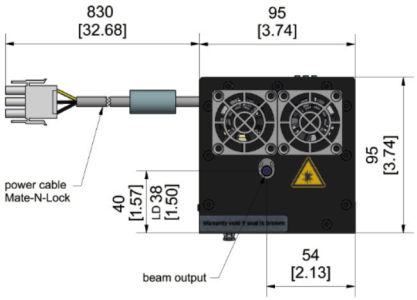
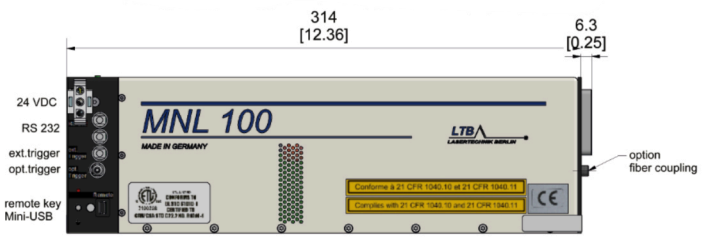
Specifications

			103-PD	106-PD	103-LD	106-LD
General	Wavelength	nm	337.1			
	Spectral bandwidth	nm	0.1			
	Pulse halfwidth FWHM, typ.	ns	3			
	Energy stability SD/<E> (for all rep. rates)	%	≤ 2			
	Guaranteed pulse quantity	Mio	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 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]

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