

Unico NEW

1-Color Gain-Switched Picosecond Laser

- Compact, stand-alone, affordable
- ps- and ns-Pulsed, Continuous wave (CW) and fast CW switching operation modes
- Triggerable internally and externally, up to 200 MHz
- Fully computer controlled
- 40 % coupling efficiency (single-mode PM fiber) for all available colors



Applications

- For materials science, life science and chemical research
- Photoluminescence and fluorescence lifetime measurements
- Quantum yield measurements
- Time-resolved microscopy and single molecule detection (FLIM, FRET, PIE-FRET, FCS)

Introducing our state-of-the-art Gain-Switched Picosecond Laser, a compact, stand-alone solution designed to meet the rigorous demands of life science and materials science applications. This laser system is engineered to deliver precise, high-quality pulses in the picosecond range, making it an ideal tool for time-resolved fluorescence spectroscopy and imaging. Our laser system is designed to be both compact and self-contained, ensuring easy integration into various experimental setups with a minimal footprint. The laser delivers a single, stable wavelength, ensuring consistent performance and reliability for your specific application need. Choose from four critical wavelengths 450 nm, 488 nm, 515 nm, or 640 nm. These wavelengths are essential for a wide range of applications in life sciences and material sciences.

Specifications

Optical output	
Available wavelengths ¹	450, 488, 515, 640
Polarization	linear, vertical
Polarization Extinction Ratio (PER)	typ. > 30:1 (> 15 dB)
Power stability (12 hours) (ΔT (ambient) < 0.5 K)	< 3 % rms
Average beam dimension ²	1.0 ± 0.30 mm
Average beam circularity	> 0.3
Transversal mode M^2	< 1.5
Coupling efficiency (single-mode PM fiber)	> 40%

Repetition rates	
Internal	
Range	User selectable 1 kHz to 200 MHz 1000 increments of 1 kHz from 1 to 999 kHz 200 increments of 1 MHz from 1 to 200 MHz
External	
Range	single shot to 200 MHz
Trigger level	-1V ... +1V into 50 Ohm
Trigger voltage	-3V to +5V into 50 Ohm
Jitter	< 12 ps (rms)
Connector	SMA
Synchronization output	
Amplitude	< -800 mV into 50 Ohm (NIM)
Connector	SMA
Gating	
Rise / Fall Time	< 3 ns
ON Time (or inverted: OFF Time)	freely adjustable from < 10 ns to 1 ms
OFF Time (or inverted: ON Time)	freely adjustable factor from 1 to 255 of ON (or OFF) Time
Impedance	10 kOhm with pull-up 50 Ohm with pull-down
Connector	SMA
Dimension	
Dimensions (W X H X L) mm	75 x 83 x 140 mm
Weight	approx. 1 kg
Operation	
Temperature range	10 – 35 °C
Humidity range	< 80 % (non condensing)
Maximum power consumption	< 30 W
Interface	
PC Interface	USB 2.0
Connector	USB-C
Operating system	Windows™ 10 and 11

¹ Typical value in Pulsed mode. A slight shift to longer wavelengths in CW mode.

² Measured at 1 m distance from laser aperture

Wavelengths

Wavelength (± 8) [nm]	Type Stand alone	Pulse width ¹ (FWHM) [ps]	avg. power Narrow Pulse ² [mW]	avg. power Broad Pulse ³ [mW]	Max CW power [mW]
450	Unico-450	<130	3	10	50
488	Unico-488	<170	3	10	50
515	Unico-515	<170	3	10	50
640	Unico-640	<130	3	10	50

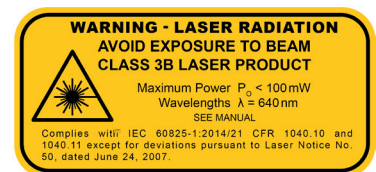
¹ Shortest pulse width at Narrow Pulse operation mode

Pulses are deconvoluted with 30 ps detection IRF. Shorter pulse widths are available on demand.

² This is the maximum average power at Narrow Pulse mode setting and max repetition rate.

³ This is the maximum average power at Broad Pulse mode setting and max repetition rate.

A pulse broadening up to 500 ps FWHM is possible at maximum intensity setting



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