

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 wavelenghs 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%	

These tables are updated on a regular basis based on data of recently manufactured laser heads. Other specifications such as shorter pulse widths or higher powers than listed might be possible depening on the performance of diodes on stock. Please contact us for more information. All measurements shown may be subject to a 10 % callibration error. Each laser head undergoes an extensive burn-in test to ensure long-term stability and is shipped with a comprehensive set of test data. This test data is kept in our database, which already holds records of more than 18 years.

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		

 $^{\rm 1}$ Typical value in Pulsed mode. A slight shift to longer wavelengths in CW mode. $^{\rm 2}$ Measured at 1 m distance from laser aperture

These tables are updated on a regular basis based on data of recently manufactured laser heads. Other specifications such as shorter pulse widths or higher powers than listed might be possible depening on the performance of diodes on stock. Please contact us for more information. All measurements shown may be subject to a 10 % callibration error. Each laser head undergoes an extensive burn-in test to ensure long-term stability and is shipped with a comprehensive set of test data. This test data is kept in our database, which already holds records of more than 18 years.

Wavelengths

Wavelength (± 8) [nm]	Type Stand alone	Pulse width ¹ (FWHM) [ps]	avg. power Narrow Pulse²[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





Phone +49-(0)30-1208820-0 Email info@picoquant.com Web www.picoquant.com

All Information given here is reliable to our best knowledge. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications and external appearances are subject to change without notice. Trademarks or corporate names are used for explanation and identification, to the owner's benefit and without intent to infringe.