

Unico **NEW**

1-Color Gain-Switched Picosecond Laser

- 40 % fiber coupling efficiency for all available colors
- Compact, stand-alone, affordable
- ps and ns Pulsed, CW operation, and fast CW switching.
- Full computer control



Applications

- Time-resolved imaging
- Fluorescence lifetime measurements
- Diffusion measurements
- Testing & semiconductor diagnostics

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	
Power stability within 8h	< 1% (rms)
Warm-up time for power and pulse shape stabilisation	< 2 min
Optical rise / fall time (Gating)	< 3 ns
Beam circularity	0.5...1.0
Transversale mode M	≤ 1.4
Average beam dimension ¹	0.8 ± 0.30 mm
Polarization	linear, vertical
Polarization Extinction Ratio (PER)	> 30:1 (typical >100:1)
Coupling efficiency (single-mode pm fibre)	> 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 depending on the performance of diodes on stock. Please contact us for more information. All measurements shown may be subject to a 10 % calibration 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.

Operation	
Internal repetition rate	1 kHz to 999 kHz (step size 1 kHz) 1 MHz to 200 MHz (step size 1 MHz)
External range	0 Hz to 200 MHz
External trigger level	-1V ... +5V into 50 Ohm
Timing Jitter	< 12 ps (rms)
Trigger out	NIM
ON Time Gate	freely adjustable from < 10 ns to 1 ms
OFF Time Gate (as a factor of ON Time Gate)	freely adjustable from 1 to 255
Temperature range	15 – 35 °C
Humidity range	< 80% (non condensing)
Maximum power consumption	< 30 W
Dimension	
Dimensions (W X H X L) mm	75 x 83 x 140 mm
Weight	approx. 1 kg
Interface	
PC Connector	USB 2.0
Connector	USB-C
Operating system	Windows 10 and 11

Wavelengths

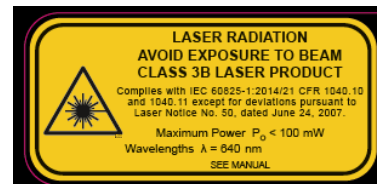
Wavelength (± 6) [nm]	Type OEM Stand alone	Pulse width ² (FWHM) [ps]	avg. power ³ Narrow Pulse [mW]	avg. power ⁴ Broad Pulse [mW]	Max CW power [mW]
450	Unico-450	80 ± 15	3	10	50
488	Unico-488	110 ± 20	3	10	50
515	Unico-515	130 ± 30	3	10	50
640	Unico-640	80 ± 15	3	10	50

¹ Measured at 1 m distance from laser aperture.

² Shortest pulse width at optimal intensity setting above laser threshold (standard factory setting).
Pulses are deconvoluted with 30 ps detection IRF. Shorter pulse widths are available on demand.

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

⁴ 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.



PicoQuant GmbH
Rudower Chaussee 29 (IGZ)
12489 Berlin
Germany

Phone +49-(0)30-1208820-0
Telefax +49-(0)30-1208820-90
Email info@picoquant.com
Web www.picoquant.com