

FEMTO* „All-in-One Block“ Femtosecond Laser

Rugged Design. Compact. Superior Quality.

The FEMTO extends our broad product portfolio of Q-switched DPSS lasers with a novel type of industrial ultra short pulse laser. The all fiber based USP laser is engineered for demanding 24/7 applications that require outstanding performance. Laser head and power supply are integrated in a rugged, compact „All-in-One Block“ of strengthened, machined alu-

minum for highest stability. The new design cuts down system costs significantly without any trade-offs in quality or laser lifetime. 48 VDC operating voltage and InnoLas Photonics' field proven Laser Control Interface enable a simple and easy integration of the system. An integrated pulse picker is included for fast pulse and power control commands.

Applications

- * Microfluidics, 3D Structuring of Glass, Brittle Materials
- * 3D Structuring of Silicon, MEMS, SEMI, Silicon Photonics
- * Resonant Ablation of Polymers, Microfeatures, Security
- * OPV, PV and OLED Structuring and Processing
- * Spectroscopy and Gas Sensing
- * Medical Surgery

Features

- * Rugged & compact „All-in-One Block“ design
- * Easy integration & 48 VDC supply voltage
- * Industrial engineering for 24/7 use
- * Integrated pulse picker
- * Short pulse and long pulse versions available
- * Rep Rate from single shot to several MHz

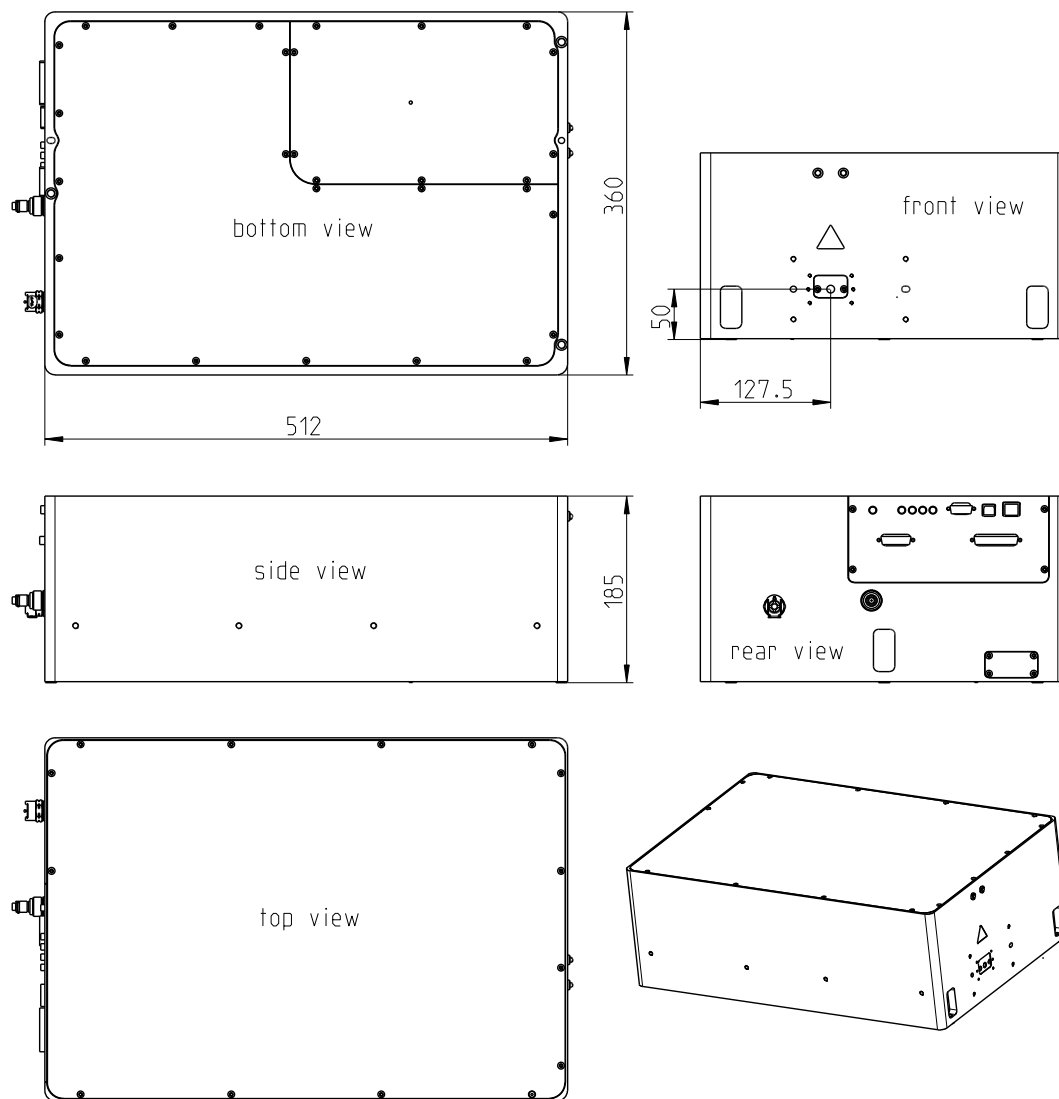


(i) The new FEMTO is an excellent tool for demanding 24/7 industrial use. A Pulse width down to 500 fs together with a wavelength of 1950 nm is a brand new set up in the laser industry. A new thinking for totally new kinds of applications is now possible.



Technical Drawing

Laser Head



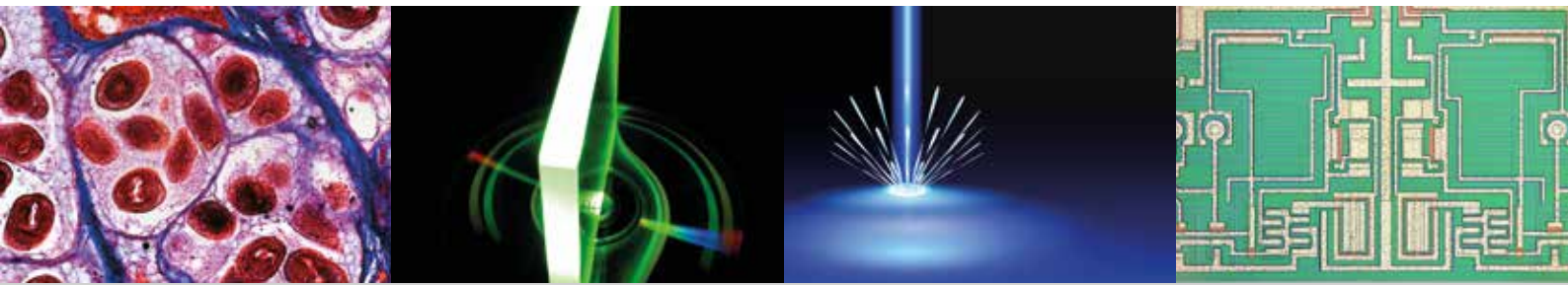


Specifications

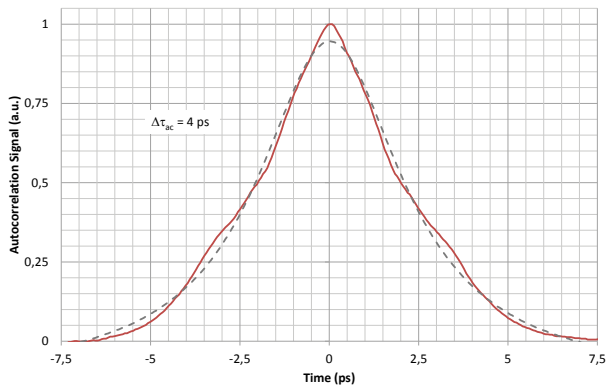
FEMTO 1950

Model	1950-8-T-2500	1950-8-T-2500-LP
Laser Medium	Thulium, all fiber	Thulium, all fiber
Wavelength	1950 nm	1950 nm
Nominal Power	8 W @ 2500 kHz	8 W @ 2500 kHz
Repetition Rate	Single Shot to 2500 kHz	Single Shot to 2500 kHz
Pulse Width	500 fs +/- 100 fs	4 ps +/- 1 ps
Pulse Energy	4 μJ @ 2000 kHz	4 μJ @ 2000 kHz
Peak Power	8 MW	1 MW
Pulse-to-Pulse Stability	< 3%	< 3%
Power Stability (rms, 8h)	< 3%	< 3%
Spatial Mode	$M^2 < 1.5$, TEM ₀₀	$M^2 < 1.5$, TEM ₀₀
Nominal Beam Diameter (at waist)	0.5 mm	0.5 mm
Nominal Waist Location (from output)	-300 mm	-300 mm
Beam Divergence (full angle)	4.0 mrad	4.0 mrad
Nominal Beam Diameter (at output)	2.0 mm	2.0 mm
Polarization	Horizontal, > 100:1	Horizontal, > 100:1
Circularity	> 90%	> 90%
Warm-up Time	< 20 min	< 20 min
Operating Voltage	48 VDC	48 VDC
Laser Power Consumption	< 500 W	< 500 W
Cooling	Water	Water
Ambient Temperature	15-30 °C, non condensing	15-30 °C, non condensing
External Control	RS232, USB, TTL, Analog Modulation	RS232, USB, TTL, Analog Modulation
Dimensions Laser Head	512 x 360 x 185 mm	512 x 360 x 185 mm
Dimensions Power Supply	n. a.	n. a.
Weight Laser Head	50 kg	50 kg
Weight Power Supply	n. a.	n. a.

InnoLas follows a policy of continuous product improvement. All specifications are subject to change without notice. Rev. 1.0, 06/2017. InnoLas Photonics GmbH is DIN EN ISO 9001 certified.

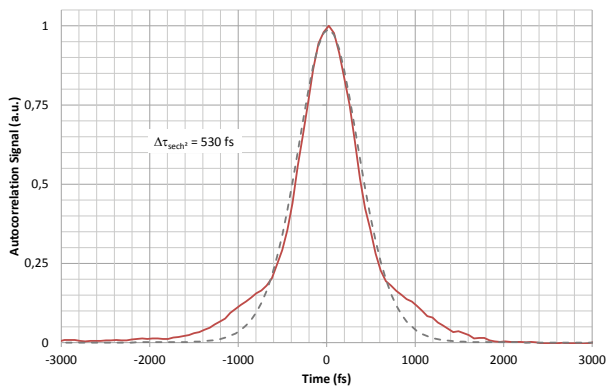


Options & Customization



Available Options

- * Pulse on demand
- * Beam delivery optics
- * Purge units
- * Beam expander box
- * Scan head adapter flanges
- * Water-to-water or water-to-air chiller



Customization

- * Customized laser performance
- * Branded laser design
- * Laser interfacing
- * Branded laser control software
- * Special laser developments



Since today's demanding applications deserve optimized laser parameters, we do not only sell off-the-shelf products. We can tailor our laser performance, design, interfacing or software to perfectly fit your individual application needs.

