Amplitude SYSTEMES

t-Pulse



Diode pumped femtosecond oscillator

A new generation of ultrafast lasers

t-Pulse is a compact, reliable and turn-key femtosecond laser oscillator with high average power, exceptional energy per pulse and excellent pulse-to-pulse stability

t-Pulse benefits from extensive developments in the field of laser materials and femtosecond technology, achieving new levels of performance and ease of use.

t-Pulse takes full advantage of high quality Ytterbium doped materials. Directly diode-pumping of Ytterbium lasers offers reliability, efficiency, a small footprint, a very high thermal efficiency, as well as the capability to generate femtosecond pulses with a high average power.

High performance pumping optics, a compact laser resonator, a self-starting, all solid-state mode locking system explain the exceptional specifications and high efficiency of the laser.

With its low electrical consumption and its internal cooling system, **t-Pulse** is designed for simple daily operation, a short warm-up time and an excellent repeatability.

It is the laser of choice for many demanding applications, such as multiphoton microscopy, photo-acoustic studies, amplifier seeding, or non linear optics.

Application examples:

- Multiphoton microscopy
- Photoacoustics
- Terahertz imaging
- Photopolymerization
- Nano-surgery
- Nano-machining

t-Pulse

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Application example :

Multiphoton microscopy

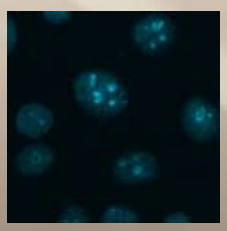


Multiphoton microscopy is a powerful and versatile technique, applied in numerous fields in biology, such as neurology or embryology. It relies on an ultrafast laser to excite fluorescent molecules or proteins.

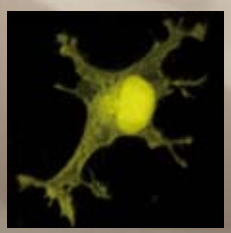
t-Pulse is an ideal excitation source for multiphoton microscopy. In addition to its small size and ease of use, its infrared wavelength minimizes autofluorescence, scattering in biological tissues and cell toxicity.

t-Pulse is optimized for new fluorophores such as DsRed, while maintaining a high efficiency on GFP. Moreover, **t-Pulse** optional wavelength extension, based on photonics crystal fibers, broadens the emission wavelength and enables the excitation of a wider range of fluorophores.

t-Pulse high energy per pulse improves signal to noise ratio and is ideal for in-depth imaging.



DAPI



YFP

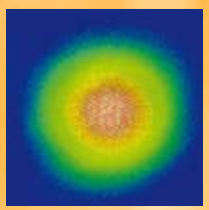
Specifications :

	t-Pulse 20	t-Pulse 200	t-Pulse 500
Average power	> 1 W	> 2 W	> 5 W
Pulse duration	< 200 fs	< 400 fs	< 500 fs
Pulse energy	20 nJ	200 nJ	500 nJ
Repetition rate	50 MHz	10 MHz	10 MHz
Wavelength	1030 nm	1030 nm	1030 nm
Beam quality	TEM_{00}	TEM_{00}	TEM_{00}
Dimensions	60 cm x 20 cm	60 cm x 20 cm	60 cm x 30 cm

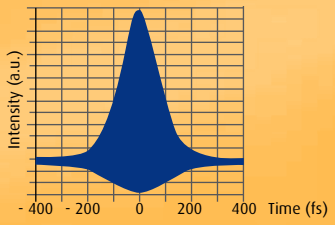
Other specifications available on request. Please consult us.

Typical data:

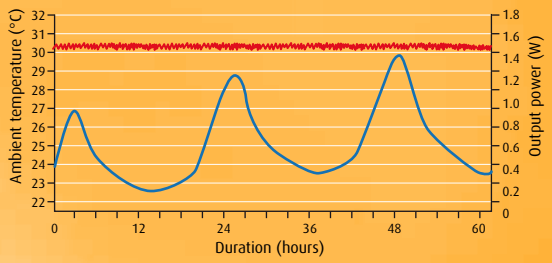
TEM_{00} beam profile



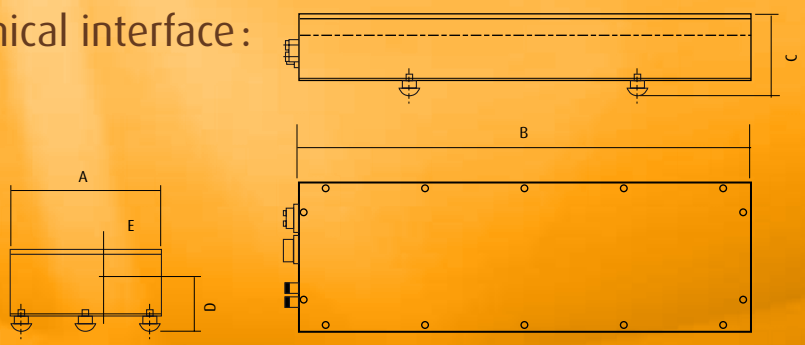
Pulse duration < 200 fs



Long term stability



Mechanical interface :



	A	B	C	D	E	F
t-Pulse 20	194 mm	585 mm	102 mm	87 mm	72,35 mm	75 mm
t-Pulse 200	194 mm	585 mm	118 mm	104 mm	72,35 mm	75,5 mm
t-Pulse 500	294 mm	585 mm	118 mm	104 mm	80 mm	75,5 mm

coupe-circuit Crédit photo : Studio Furax-Bordeaux. Specifications subject to change without notice.

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