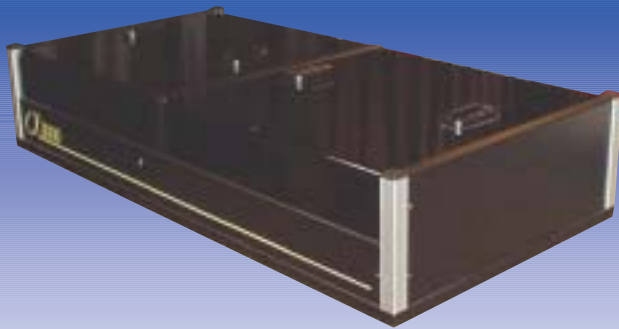


Alpha 1000/S

Ultrafast kHz Series



High Repetition Rate
Modular Design
Ti:sapphire

Alpha 1000/S series is our compact amplifier based on the titanium doped sapphire technology for scientific applications.

Alpha 1000/S Ti:sapphire regenerative amplifier produces femtosecond pulses at the millijoule pulse energy¹ level at 1 kHz repetition rate. The amplifier is pumped with a high power diode-pumped Nd:YLF laser characterized by its outstanding stability.

Operating at a pulsewidth < 100 fs, pulses are stretched prior amplification and then recompressed into a single dedicated enclosure providing optimum efficiency.

Seeded with any femtosecond oscillator² exhibiting a spectrum in excess of 15 nm FWHM, Alpha 1000/S provides amplified pulses with the pulse characteristics and bandwidths required for the broadest range of applications.

¹Higher pulse energy is available upon specific request.

²Alpha 1000/S accepts a large number of ultrafast oscillators.

Features

- Up to 2 mJ @ 1 kHz, 800 nm
- Operation < 100 fs or 1.5 ps
- Flexible, modular set-up
- Excellent mode quality
- Various femtosecond oscillators compliant
- No satellite pulses in ps time regime

Applications

- High harmonic generation
- Optical parametric amplification
- EUV generation
- Time-resolved spectroscopy
- Holograms marking

Output Specifications

Model	Standard	Picosecond Extension
Repetition rate (kHz)	1	
Wavelength (nm)	800 ± 20 (1)	
Pulse duration	< 100 fs (2)	< 1.5 ps (3)
Energy per pulse	800 µJ up to 2 mJ (4)	> 600 µJ
Pulse-to-pulse stability (% rms)	< 1.3	
Pre-pulse contrast ratio	> 500 : 1	
Post-pulse contrast ratio	> 100 : 1	
Typical picosecond contrast	> 1,000 : 1 @ 1 ps > 10,000 : 1 @ 5 ps > 100,000 : 1 @ 10 ps	
Typical time-bandwidth product	1.5 x Fourier-transform limit	
Beam profile before compressor	Gaussian	
Typical M ²	< 1.3	
Pump system	JADE	

*High Contrast Extension upon request.
Dual 10 Hz/kHz option available.*

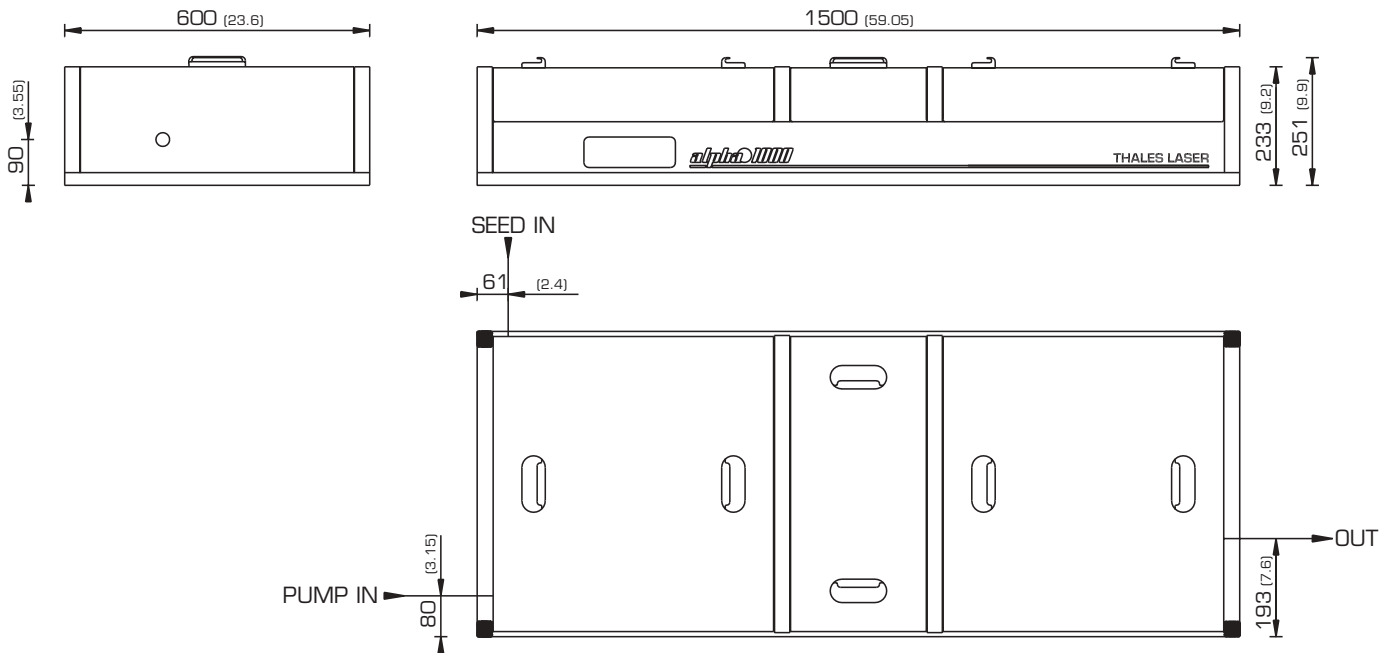
(1) Tunability of the standard system is possible on demand, requiring a tunable oscillator exhibiting an average power > 500 mW.

(2) Assuming an oscillator exhibiting a spectrum in excess of 15 nm FWHM. Alpha 1000/S accepts a large number of femtosecond oscillators.

(3) Assuming an oscillator exhibiting a spectrum in excess of 2 nm FWHM.

(4) Higher energy is available on demand.

Typical Alpha 1000/S @ 800 µJ Layout



Dimensions are given in mm (in).

Due to Thales Laser continuous product improvement policy, specifications are subject to change without notice.

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