

Alpha 1000/US

Ultrafast kHz Series



High Repetition Rate
Modular Design
Ti:sapphire

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

Alpha 1000/US offers a modular design and is specially built in consideration of the customer requirements. Its Ti:sapphire regenerative amplifier produces < 50 fs pulses at 1 kHz repetition rate. An extra multipass amplifier can be added in order to obtain up to 2 mJ^1 per pulse! In addition, pre-pulse contrast ratio can be enhanced to reach unmatched performance upon specific request.

Both amplifiers are pumped with a high power diode-pumped Nd:YLF laser characterized by its outstanding stability.

Seeded with any femtosecond oscillator² exhibiting a spectrum in excess of 45 nm FWHM, Alpha 1000/US provides amplified pulses with the pulse characteristics and bandwidths required for the broadest range of applications.

¹Higher pulse energy are available upon specific request.

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

Features

- Up to 2 mJ @ 1 kHz, 800 nm
- Pulse duration < 50 fs
- Flexible, modular set-up
- Excellent mode quality
- Various femtosecond oscillators compliant
- Pre-pulse contrast ratio of 500:1, high contrast extension upon request
- No satellite pulses in ps time regime

Applications

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

Output Specifications

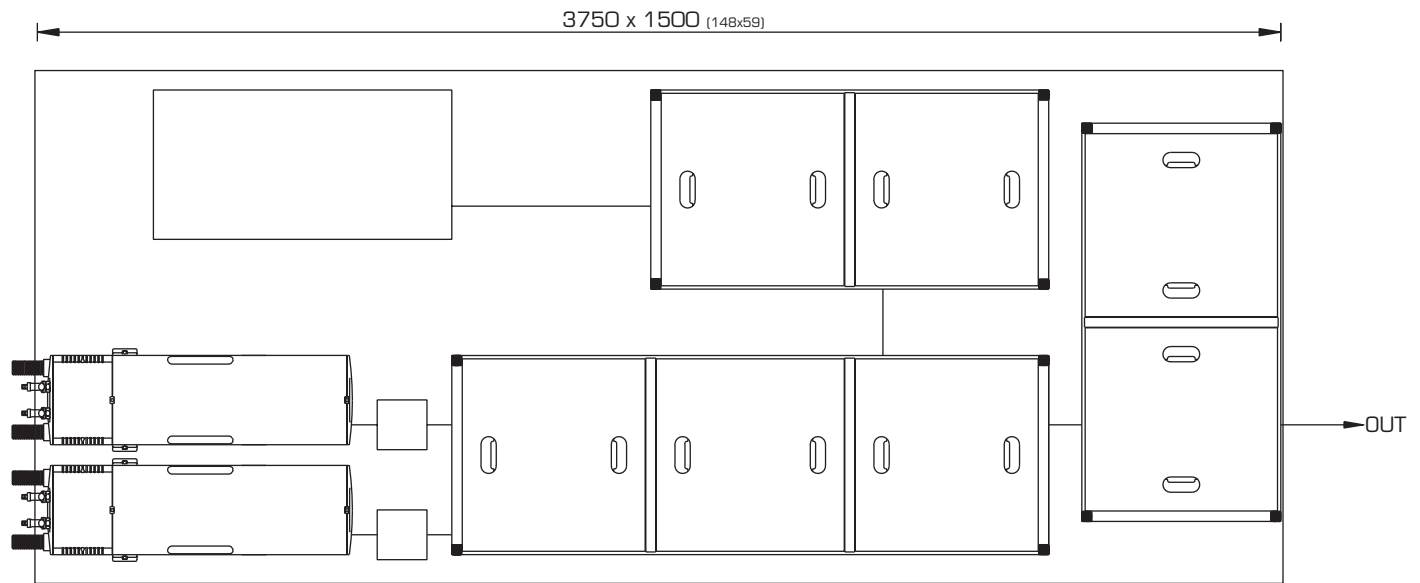
Repetition rate (kHz)	1
Wavelength (nm)	800 ± 10
Pulse duration (fs) (1)	< 50
Energy per pulse (2)	800 µJ up to 2 mJ
Pulse-to-pulse stability (% rms)	< 1.3
Pre-pulse contrast ratio	> 500 : 1
Post-pulse contrast ratio	> 100 : 1
Typical picosecond contrast	> 1,000 : 1 @ 1 ps
	> 10,000 : 1 @ 5 ps
	> 100,000 : 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) Assuming an oscillator exhibiting a spectrum in excess of 45 nm FWHM. Alpha 1000/US accepts a large number of femtosecond oscillators.

(2) Higher energy is available on demand.

Typical Alpha 1000/US @ 2 mJ 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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