

FEATURES

- Up to 40 W average power
- 1 to 10 kHz repetition rate
- Pulse duration down to 25 fs
- Unsurpassed energy stability
- Fully diode-pumped
- CEP stabilization option available

APPLICATIONS

- Attosecond physics
- High order harmonic generation
- Time resolved spectroscopy
- High energy OPA pumping

ALPHA kHz

Ultrafast Ti:Sa Laser Series





ALPHA kHz

Ultrafast Ti:Sa Laser Series

Up to 40 W with CEP stabilization

The ALPHA kHz is the outcome of THALES latest advances in ultrafast multikilohertz Ti:Sa systems for high level scientific research.

- Up to 40 W average power with THALES specific cryogenically cooled amplifier design,
- Full diode pumping to offer unsurpassed pulse to pulse and long term stability for improved repeatability and days of hands-off operation,
- Down to 25 fs pulse durations with our patented large spectral aperture stretcher/compressor and Dazzler A.O.P.D.F.,
- CEP stabilization at high energy with unique and reliable design based on regenerative or multi-pass amplifier and gratings stretcher/compressor.

The ALPHA kHz provides other unique benefits for research:

- The modular design offers flexibility and upgrade capabilities,
- Built-in diagnostics and supervision software for easy operation,

The ALPHA kHz pushes research limits even further with high average power at multi-kHz repetition rates for the fastest results.

Specifications

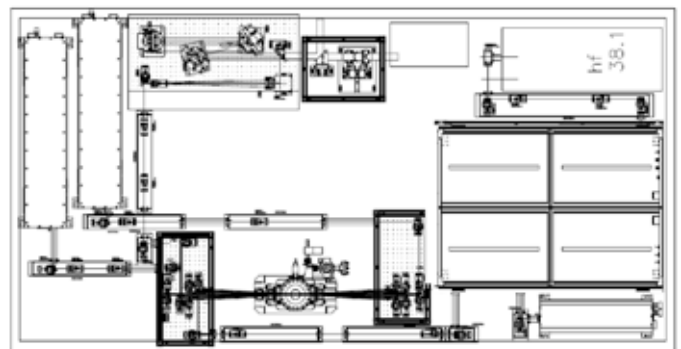
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|---|--------------------------------|
| Repetition rate (kHz) | 1 - 10 |
| Average Power (W) | Up to 40* |
| Pulse duration FWHM (fs) | Down to 25 |
| Pulse to pulse energy stability (% rms) | ≤ 1.3 |
| Contrast Ratio (ps) obtained with XPW | 1 : 10 ⁵ under 5 |
| | 1 : 10 ⁸ under 30 |
| | 1 : 10 ¹⁰ under 100 |
| M ² | <1.5 |

*Up to 100W with custom design

Physical characteristics

40 W / 5 kHz CEP stabilized typical layout (*):

Table size : 3.5 x 1.5m² (11.6 x 5ft²)

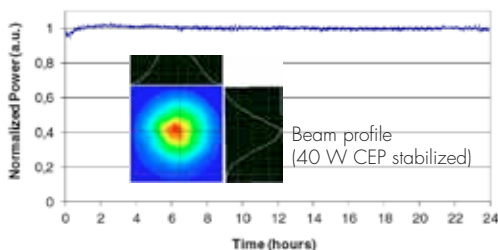


(*) Other configurations are available on request.
Specifications are dependent on the chosen configuration and options.

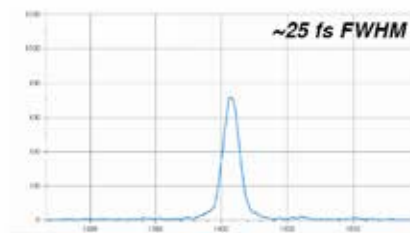
Available options

- Carrier Envelope Phase Stabilization (CEP)
- Crossed Polarized Wave (XPW)
- Closed Loop Beam Pointing Stabilization Units

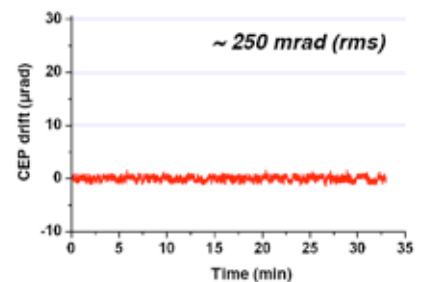
Typical measurements



Normalized long term stability



Pulse duration



CEP phase stability (40 W)

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