



## RAEA single-box femtosecond amplifier

The RAEA II is the **highest performance ultrafast high-power ti:sapphire laser system on the market**. Using our unique cryocooled architecture, this single-stage regenerative or multipass MOPA system can generate up to **16 W output power**, in a single stage of amplification. Using our fourth-generation Permacool™ mounting of the ti:sapphire crystal, the RAEA can uniquely be used over a range of repetition rates—nominally 5-30 kHz—with simple adjustment of the laser, and minimal change in output beam characteristics and average power. This allows the user to determine the pulse energy requirements for their application, and then set the repetition-rate to obtain experimental data at the highest rate possible. For example, in driving the high-order harmonic generation process, the RAEA II is uniquely capable of generating coherent light at 13.5 nm driven by 3 mJ pulse energy at 5 kHz. Pulse duration, using rigorous FROG characterization, is 25-35 fs depending on configuration.

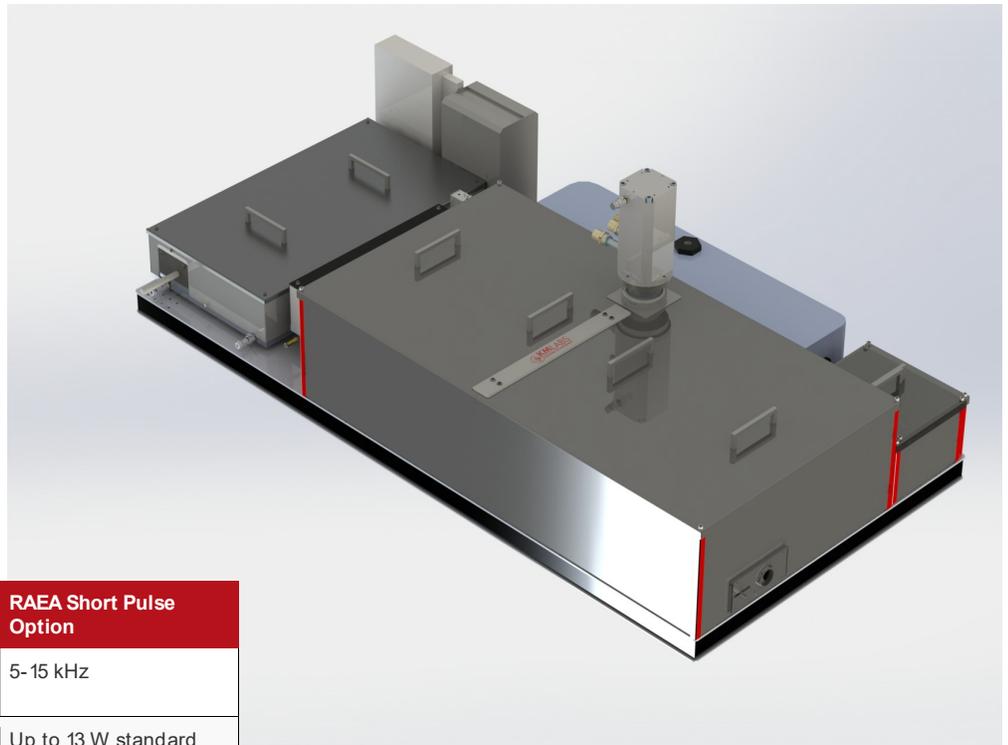
### Applications

- High-harmonic generation
- Attosecond science
- Femtochemistry
- THz generation
- Pump-probe experiments

### Options

- Short Pulse - 25fs
- Pulse Shaper Module
- Pulse picker

The RAEA II is designed using an ultrastable, flexible and modular approach, expressly for heavy use up to 24/7—a **facility class** ultrafast laser system. KMLabs has supplied 2- and 3-stage ti:sapphire systems delivering TW peak power at kHz repetition-rates and average powers exceeding 30W. The ultimate performance limits for this technology have yet to be explored, so if you have extraordinary requirements, we welcome a challenge.



Specifications	RAEA	RAEA Short Pulse Option
Software Tunable PRF Range	5-30 kHz	5-15 kHz
Average Power	Up to 16 W standard	Up to 13 W standard
Pulse Energy	3 mJ @ 5 kHz 1.6 mJ @ 10 kHz 0.6 mJ @ 20 kHz	2 mJ @ 5 kHz 1.3 mJ @ 10 kHz
Pulse Width	35 fs	25 fs
Spatial Mode	Near TEM <sub>00</sub> , M <sup>2</sup> < 1.25	Near TEM <sub>00</sub> , M <sup>2</sup> < 1.3
Power Stability	<1% RMS over 12 hours	



Laser Focus World 2018 Innovation Award  
Platinum Winner