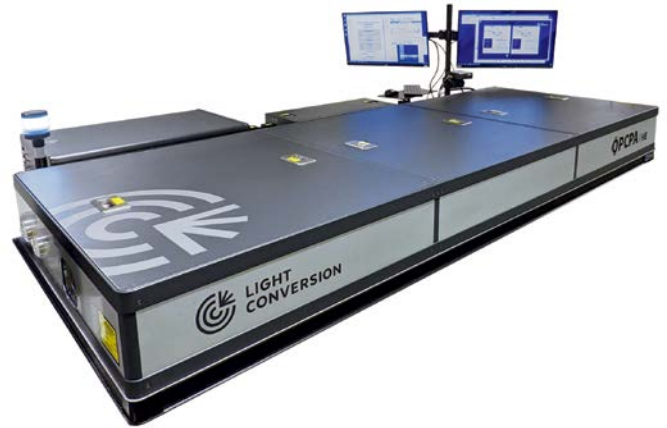


OPCPA | HE

High-Energy OPCPA Systems

FEATURES

- Multi-TW peak-power pulses at up to 1 kHz
- 800 nm, 1600 nm, or 2000 nm output
- Few-cycle pulse duration and high pre-pulse contrast
- Robust design with < 1-hour warm-up time
- Exceptional CEP and pulse energy stability
- Spectral-temporal pulse shaping options
- Dual output option



Applications like high-energy attosecond pulse generation, generation of high harmonics from solid targets, and laser electron acceleration all benefit from few-cycle pulse durations and excellent pulse contrast while requiring multi-millijoule pulse energy. Our most powerful high-energy OPCPA systems are scalable to multi-TW peak powers at kHz repetition rates while maintaining few-cycle pulse durations. Thus, they fit the

most demanding requirements while providing stability and reliability unprecedented for systems of this scale. Furthermore, $> 10^{12}$ pre-pulse contrast is obtained without complex and lossy nonlinear pulse cleaning techniques, while < 250 mrad CEP stability and $< 1.5\%$ pulse energy stability are maintained throughout a full day of operation, making it a robust and reliable multi-TW system.

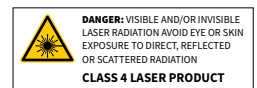
SPECIFICATIONS

Model	OPCPA-HE		
Center wavelength	800 nm	1600 nm	2000 nm
Pump source	Picosecond Nd:YAG lasers, seeded by ORPHEUS-OPCPA		
Repetition rate	10 Hz – 1 kHz		
Maximum output pulse energy ¹⁾	250 mJ	100 mJ	50 mJ
Pulse duration ¹⁾	< 9 fs	< 50 fs	< 30 fs
CEP stability, 1h ¹⁾²⁾	< 250 mrad		
Long-term power stability, 8 h ¹⁾³⁾	< 1.5%		
Pulse-to-pulse energy stability, 1 min ¹⁾³⁾	< 1.5%		

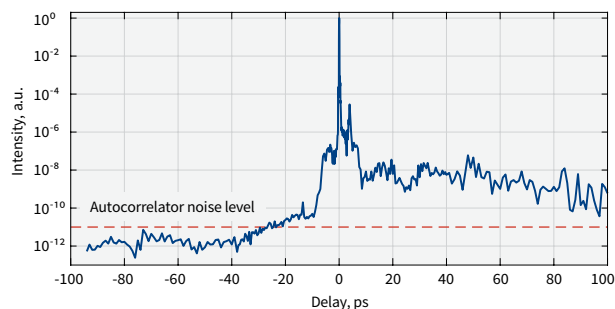
¹⁾ Typical values. For custom inquiries, contact sales@lightcon.com.

²⁾ CEP values calculated from unaveraged, single-shot measurements.

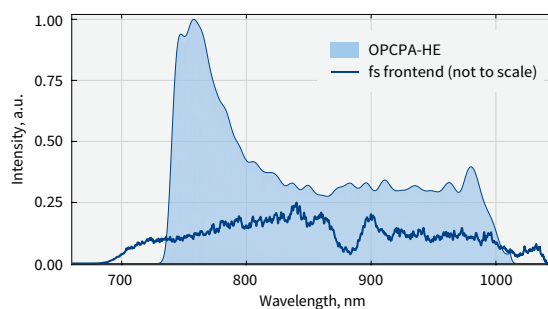
³⁾ Expressed as as normalized root mean squared deviation (NRMSD).



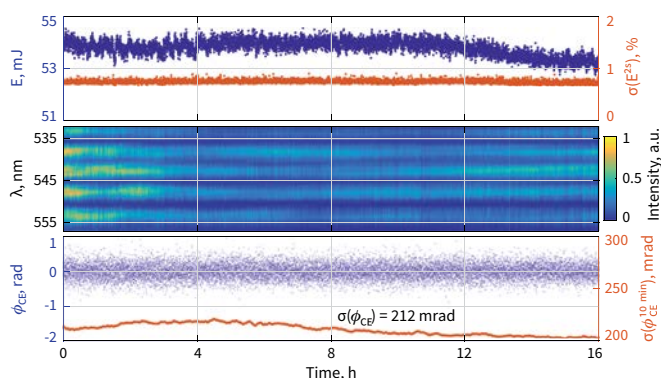
Performance at 800 nm



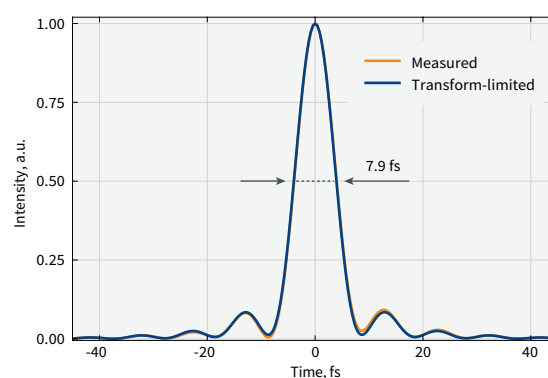
High-dynamic-range third order autocorrelation measurement of an OPCPA-HE system



OPCPA-HE output spectrum

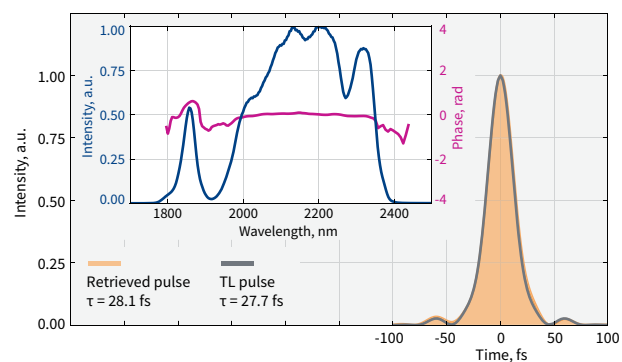


OPCPA-HE pulse energy, f-2f interferogram and CEP stability measured over 16 h

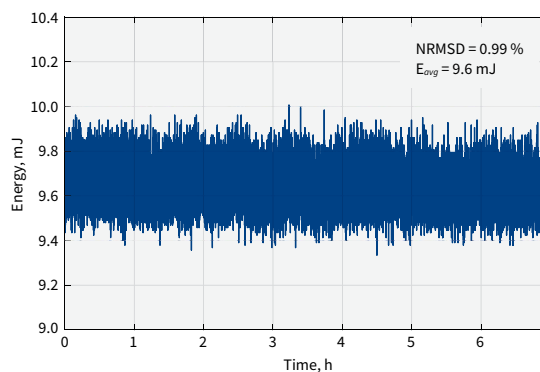


Temporal profile of OPCPA-HE output pulses measured with a self-referenced spectral interferometry device

Performance at 2000 nm



Temporal profile of OPCPA-HE output pulses at 2 μ m



Pulse-to-pulse energy stability of OPCPA-HE at 2 μ m