



Innovative Ultrafast Laser Solutions

CPA-Series

Fiber-seeded Ultrashort Pulse Ti:Sapphire Regenerative Amplifier



ADVANTAGES

- Drift-free, NO TWEAK™ performance
- Er-doped, frequency-doubled fiber seed
- Smallest footprint in the industry
- Transportable
- Fully-integrated plug-and-play design
- Built-in computer control with embedded .Net DLL files
- Remote operation and monitoring capabilities
- Built-in electronic shutter for “pulse-on-demand” delivery of single or multiple pulses up to 64,000
- Over 10,000 hours of proven utility in micromachining applications

APPLICATIONS

- Nonlinear spectroscopy
- Micromachining
- Pumping OPA/NOPA
- Laser ablation spectroscopy/ mass-spectrometry

Our field-proven CPA-Series Ti:Sapphire lasers redefine user-friendliness in a low cost-of-ownership source of ultrashort pulses of light. It is a complete, fully-integrated, ultrashort pulse oscillator/amplifier system that can be controlled by an embedded touch-screen computer or from any Windows-based computer with a network connection.

The included software provides control of laser performance parameters such as power output, pulsewidth, pump power, timing, and selection of single pulse or groups of multiple pulses. A suite of diagnostics is also included to monitor laser performance. The simple, intuitive, user-friendly interface provides both status information and control from external network enabled devices. Resident .Net DLL files allow interfacing with your existing application-specific, custom software (LabView, MatLab, VisualBasic, etc.)

The CPA-Series provides the best of both worlds by combining the long life of telecom-qualified single-emitter pump diode with the low cost of operation of a single cw-lamp. The result is a laser with the lowest cost-of-ownership on the market today.

It is fully compatible with our NOPA series of optical parametric amplifiers providing tunable sub-50 fs pulses, TOPAS series of OPAs, STORC Harmonic Generators, and ShapeShifter ultrashort pulse nonlinear spectrometers (transient absorption, pump/probe, CARS, surface-specific SFG, SHG, THG, etc.)

Specifications:

	CPA-2101	CPA-2110	CPA-2161	CPA-2210
Pulse Energy	>0.8mJ	>1mJ at 1kHz >0.6mJ at 1-2kHz	2.5W, <i>Constant average power from 3 to 6kHz (customer chosen factory setting)</i>	>2mJ at 1kHz >1.5mJ at 1-2kHz
Beam Quality (M ²)	<1.5	1.2 +/- 0.1	1.2 +/- 0.1	1.2 +/- 0.1
Repetition rate	Up to 1kHz	Up to 2kHz	3-6kHz fixed	Up to 2kHz
Electrical	220VAC (20A)			

Pulsewidth	<150fs	Wavelength	775nm
TBP	<1.4 x TL (sech ²)	Polarization	Linear, Horizontal
Aspect Ratio	100:1	Transverse Mode	TEM ₀₀
Energy Stability	<1% RMS	Beam divergence	<100 microradians
Laser Head Dimensions	48"L x 20"W x 12"H	Power supply Dimensions	28"L x 23"W x 38"D
Controller Interface	Touchscreen, Ethernet	Electrical	220VAC (40A)

Notes:

- Er-doped, frequency doubled fiber seed oscillator
- Electronic shutter for pulses on demand and burst mode
- Optional oscillator output at 1550nm and 775nm
- Optional harmonic generation modules (Model STORC) are available
- Can pump several NOPAs for tunable output between 400-1600nm providing pulse duration down to 14fs (T. Wilhelm, J. Piel, and E. Riedle, "Sub-20-fs pulses tunable across the visible from a blue-pumped single-pass noncollinear parametric converter," *Opt. Lett.* 22, 1494, 1997)
- 1-year system warranty with 5-year full replacement warranty on oscillator



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