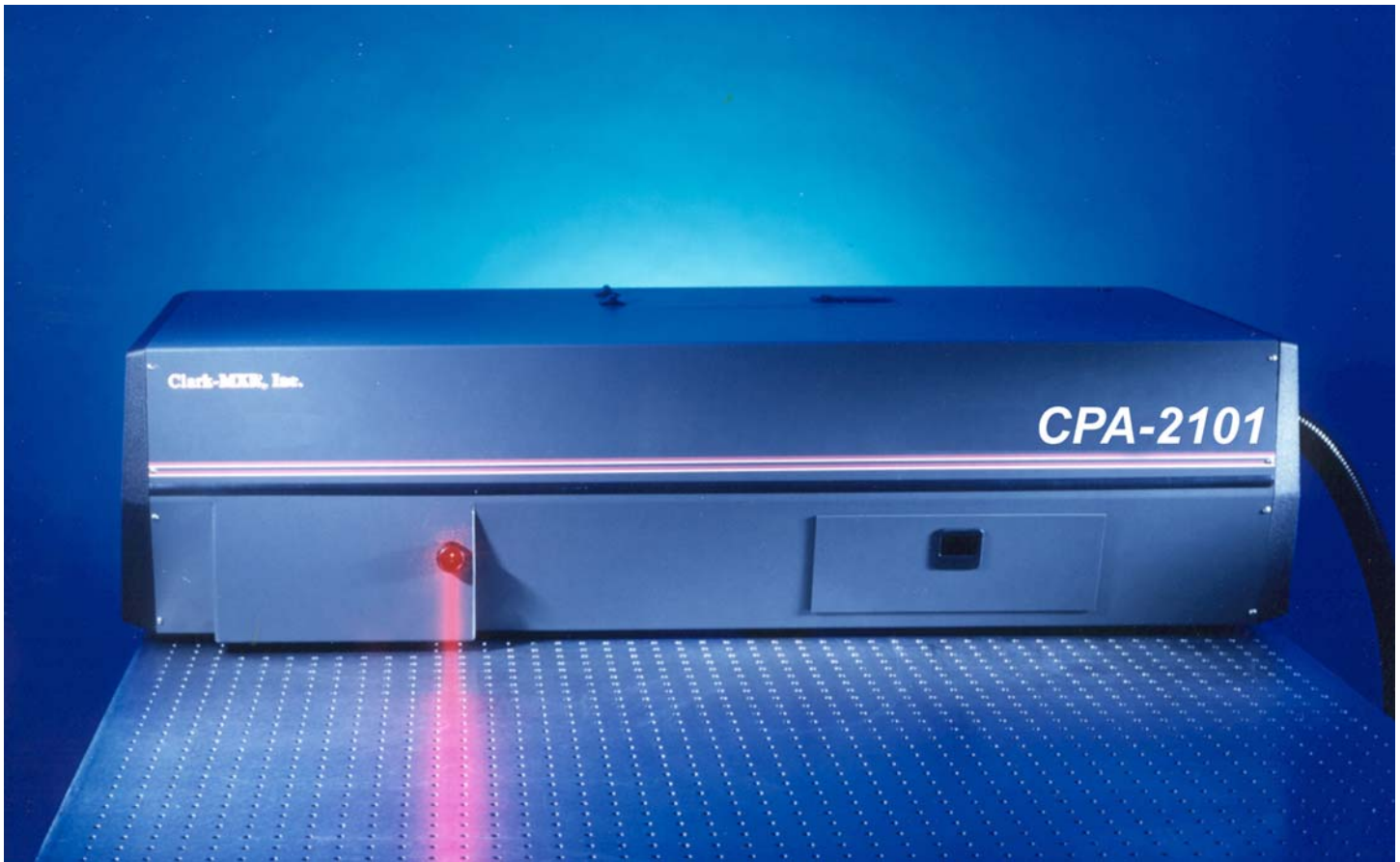


## CPA-2101 Amplified kHz Ti:Sapphire Laser System



- Complete computer control
- Fully-integrated system including
  - Telecom diode-pumped fiber oscillator with 20 year MTTF and 5-year warranty
  - Pulse stretcher
  - Regenerative amplifier
  - Hz to kHz pump laser
  - Pulse compressor
  - Built-in diagnostics
  - Complete thermal stabilization
- All the above in one compact enclosure
- User-adjustable rep rate 100 Hz to 2 kHz
- Built-in electronic shutter for “pulse-on-demand” delivery of single or multiple pulses up to 64,000 at selected rep rate.
- Smallest footprint in the industry
- Drift-free, NO TWEAK™ performance
- Transportable

Our field-proven CPA-Series Regenerative Amplifiers redefine user-friendliness in the only fully integrated system on the market today - with complete control of important functions via the included touch-screen controller or from any Windows®-based computer with a network connection.<sup>3</sup> The embedded software provides computer control of laser performance parameters such as power output, pulse width, pump power, timing, and selection of single pulse or groups of multiple pulses. A suite of diagnostics is included to monitor laser performance. The simple, intuitive, user-friendly interface provides both status information and control from external devices. A software development kit is also available for interfacing with your existing application-specific, custom software.

The system includes everything you need to generate high peak power femtosecond pulses in one box [i.e. seed laser and its associated diode laser pump, pulse stretcher, Ti:Sapphire regenerative amplifier and its associated pump laser, and pulse compressor]. It is fully compatible with our NOPA® visible and IR-OPA optical parametric amplifiers (OPAs) and STORC Harmonic Generators. For pump-probe experiments requiring two or more synchronized and independently-tunable colors, the CPA-2101 output beam can split to pump as many as four NOPAs that are synchronized to less than 1 femtosecond timing jitter.<sup>1</sup> The CPA-2101 is also available with a transform-limited picosecond pulsewidth option.

## Performance Parameters:

### Femtosecond Version:

Pulse energy: > 0.8 mJ at repetition rates  $\leq$  1 kHz.  
Pulsewidth: <150 fs  
TBWP: <1.4 x transform limit (sech<sup>2</sup>)

### Picosecond (Option):

Pulse energy: > 0.6 mJ at repetition rates  $\leq$  1 kHz.  
Linewidth: < 8 cm<sup>-1</sup>  
TBWP: < 1.2 x transform limit (Gaussian)

### Additional output options<sup>2</sup>:

Oscillator wavelength: Average power output > 10 mW, at 1550 nm  
or > 3 mW at 775 nm at nominal repetition rate of 30 MHz.

Amplifier pump laser: up to 10 mJ/pulse at circa 200 ns pulsewidth  
at 532 nm.

### General:

Wavelength: 775 nm  
Transverse mode: TEM<sub>00</sub>  
M<sup>2</sup>: < 1.5  
Rep. Rate: User-adjustable up to 1 kHz  
Polarization: Linear, horizontal  
Energy stability: < 1% rms  
Beam diameter: 4 – 6 mm  
Beam divergence: < 100 microradians

### Physical Dimensions:

Laser head: 48" L x 20" W x 12" H  
Power supply: 28" H x 23" W x 38" D

### Utility Requirements:

Electric: 110 VAC, 60 or 50 Hz, 10 A and  
208 VAC, 60 or 50 Hz, 40 A  
Water: Tap water, 4 gpm, 15-20°C, 30-50 psi

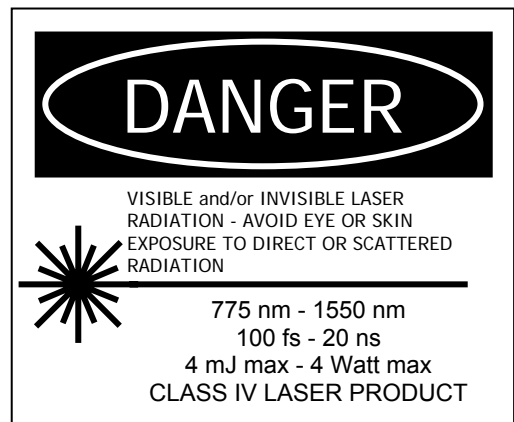
### Warranty

Oscillator parts, including the diode laser, are warranted for 40,000 hours or five (5) years, whichever comes first. For details, contact our sales department (sales@cmxr.com).

$\chi$

This product protected under US patent numbers:

5,530,582  
5,572,358  
5,592,327  
5,594,256



<sup>1</sup>Contact Clark-MXR at [sales@cmxr.com](mailto:sales@cmxr.com) for further details.

Version 090107  
Due to space limitations, only basic information and specification parameters are listed on this sheet.  
For more details, please visit our web site at <http://www.cmxr.com>.

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