

# Opera-HP

## Optical Parametric Amplifier for Yb Systems

The Opera-HP is an optical parametric amplifier (OPA) used to extend the performance of Coherent's Monaco and Monaco HE amplifiers. Opera-HP is a white light seeded two stage collinear OPA, delivering <300 fs pulses. Associated wavelength extension packages, offer a broad tuning range covering 210 nm to 16  $\mu\text{m}$ . Outputs from the UV to Near-IR (210 nm to 2600 nm) are delivered via hands-free, computer-controlled, automated tuning and wavelength selection ensuring the same position and direction.

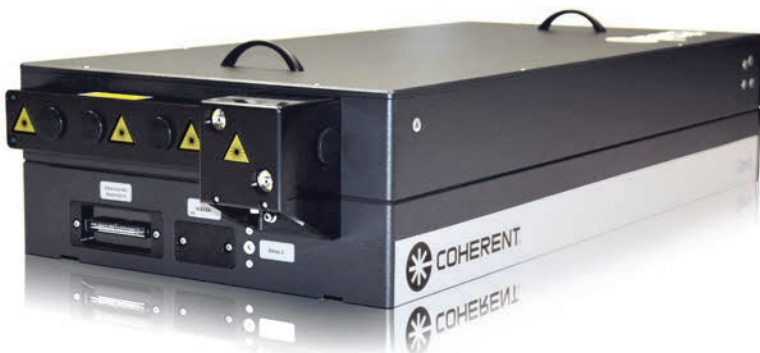
Pumped by 60 W at 1 MHz from a Monaco amplifier, Opera-HP can deliver >6 W signal + idler at the peak. Opera-HP can also be configured for up to 1 mJ pump energies from Monaco HE. The high power, high repetition rate capabilities of the Opera-HP pumped by a Monaco or Monaco HE is a powerful tool delivering high energies or high repetition rates for demanding experiments.

### FEATURES & BENEFITS

- Up to 60 W pump power and up to 1 mJ pulse energy
- Conversion efficiency >10% (signal + idler)
- Wavelength range 630 nm to 1025 nm (signal), 1045 nm to 2600 nm (idler)
- Wavelength extensions covering 210 nm to 16  $\mu\text{m}$
- Pulse widths 150 fs to 300 fs
- Automated tuning and wavelength selection from UV to Near IR

### APPLICATIONS

- Multiphoton Excitation (MPE) Microscopy
- Optogenetics (Photo Activation)
- Time-resolved Spectroscopy
- Multidimensional Spectroscopy
- Surface Spectroscopy

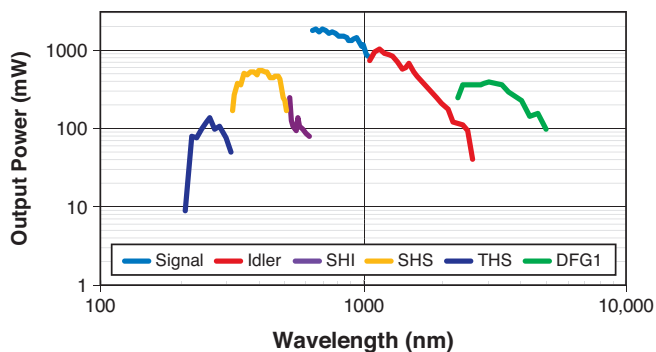


SPECIFICATIONS <sup>1,2</sup>	Opera-HP
Wavelength Range (nm) Signal Idler	635 to 1025 1045 to 2600
Conversion Efficiency <sup>3</sup> (%)	>10
Pulse Bandwidth (cm <sup>-1</sup> ) 700 nm to 960 nm	70 to 120
Pump Laser	Monaco
OPTIONAL WAVELENGTH EXTENSIONS	
<b>SHS/SHI</b> Wavelength Range (nm) Signal Idler Conversion Efficiency <sup>4</sup> (%)	315 to 510 525 to 630 >2.5
<b>THS<sup>5</sup></b> Wavelength Range (nm) Conversion Efficiency <sup>4,6</sup> (%)	210 to 315 >0.5
<b>DFG1</b> Wavelength Range (nm) Conversion Efficiency <sup>4</sup> (%)	2200 to 5000 >2 at 3000 nm
<b>DFG2</b> Wavelength Range (nm) Conversion Efficiency <sup>4</sup> (%)	5000 to 16,000 >0.15 at 10,000 nm

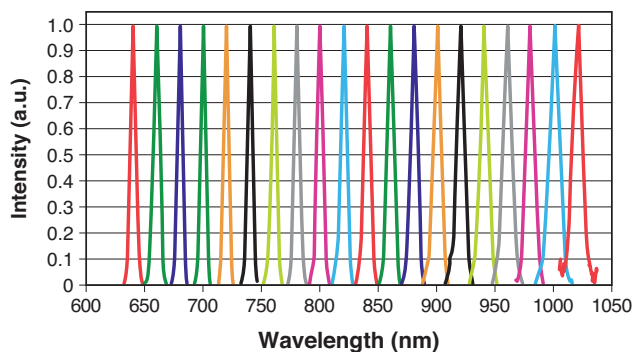
1 All specifications are based on pumping with >20 uJ from Monaco.  
 2 For other pump energies, contact factory.  
 3 Efficiency given at peak of tuning curve, second stage signal + idler, calculated as percentage of input power to Opera-HP.  
 4 Efficiency given at peak of tuning curve.  
 5 THS package includes SHS/SHI option.  
 6 Maximum 400 mW output at peak.

## TYPICAL PERFORMANCE DATA

**Opera-HP Tuning Curve**  
Pump 40 μJ at 500 kHz



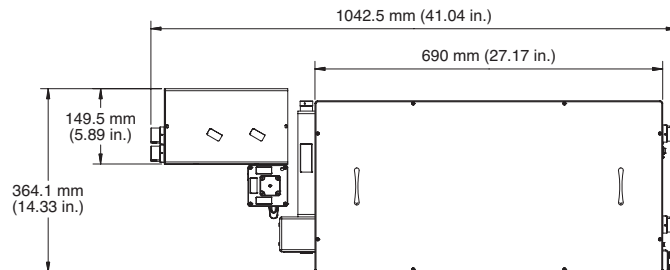
**Opera-HP Signal Spectra**



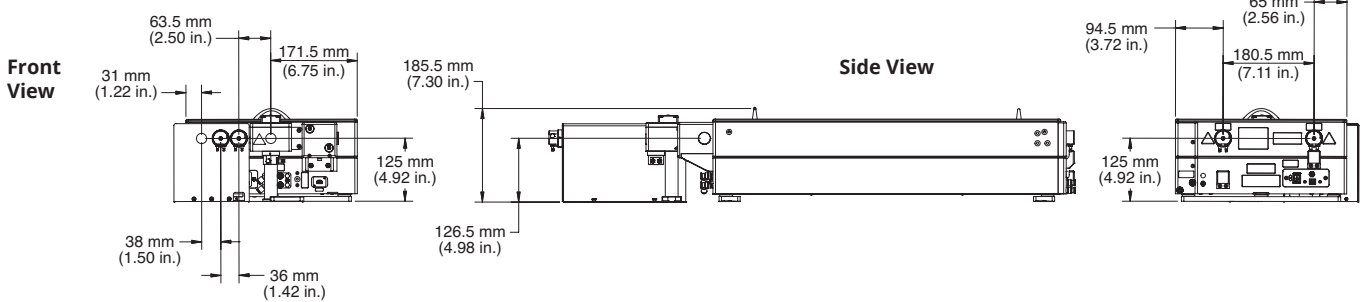
## MECHANICAL SPECIFICATIONS

### Opera-HP

Top View



Side View



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Opera-HP Amplifiers. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative.  
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