

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 μm . 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 μm
- 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 ^{1,2}	Opera-HP
Wavelength Range (nm) Signal Idler	635 to 1025 1045 to 2600
Conversion Efficiency ³ (%)	>10
Pulse Bandwidth (cm ⁻¹) 700 nm to 960 nm	70 to 120
Pump Laser	Monaco
OPTIONAL WAVELENGTH EXTENSIONS	
SHS/SHI	
Wavelength Range (nm) Signal Idler Conversion Efficiency ⁴ (%)	315 to 510 525 to 630 >2.5
THS⁵	
Wavelength Range (nm) Conversion Efficiency ^{4,6} (%)	210 to 315 >0.5
DFG1	
Wavelength Range (nm) Conversion Efficiency ⁴ (%)	2200 to 5000 >2 at 3000 nm
DFG2	
Wavelength Range (nm) Conversion Efficiency ⁴ (%)	5000 to 16,000 >0.15 at 10,000 nm

1 All specifications are based on pumping with >20 μ J 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.

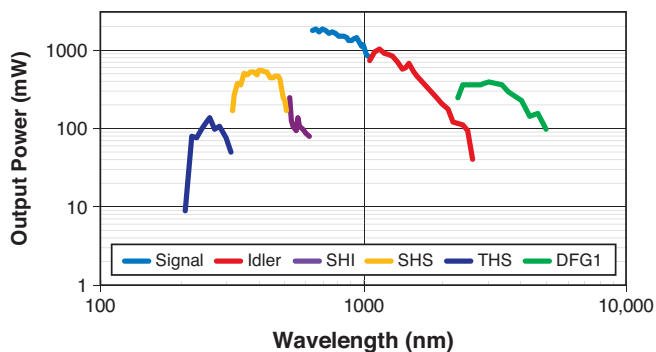
4 Efficiency given at peak of tuning curve.

5 THS package includes SHS/SHI option.

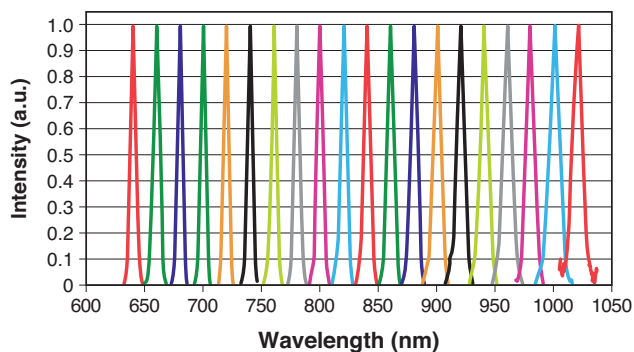
6 Maximum 400 mW output at peak.

TYPICAL PERFORMANCE DATA

Opera-HP Tuning Curve
Pump 40 μ J at 500 kHz



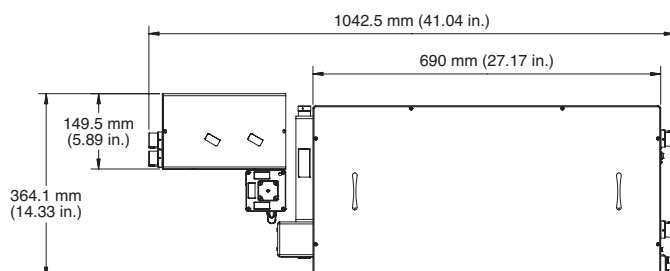
Opera-HP
Signal Spectra



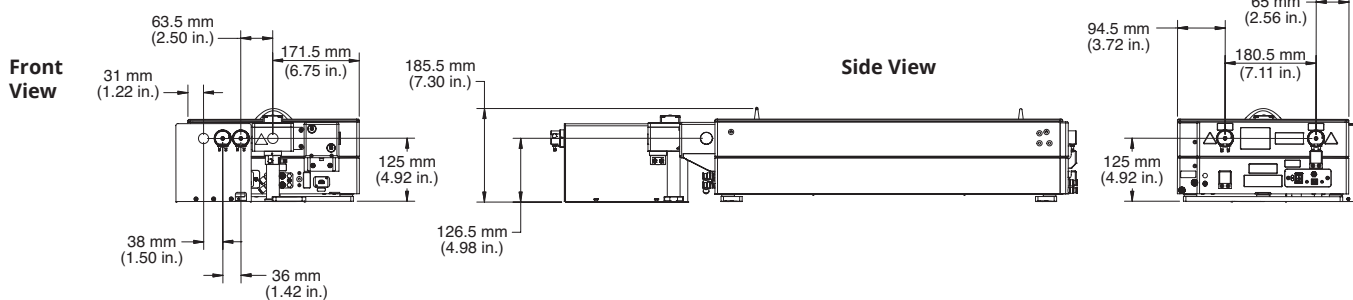
MECHANICAL SPECIFICATIONS

Opera-HP

Top View



Side View



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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 or contact your local Sales or Service Representative.
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