

# Opera-F

## Optical Parametric Amplifier for Yb Systems

The Opera-F is an optical parametric amplifier (OPA) that extends the performance of Coherent's Monaco and Monaco HE amplifiers. Opera-F delivers a broad tuning range, 650 nm to 900 nm and 1200 nm to 2500 nm. Opera-F is a two stage OPA seeded by a white-light continuum and pumped by the second harmonic of the Monaco. Opera-F uses a non-collinear first stage to generate broad bandwidth and a collinear second stage to generate the large tunable range. The signal output of the Opera-F can be compressed to <math><75\text{ fs}</math> using a prism-based compressor, and the idler pulses to <math><100\text{ fs}</math>, using a bulk compressor.

Pumped by 60 W at up to 4 MHz and pulse energies up to 80  $\mu\text{J}$  from a Monaco amplifier, Opera-F can deliver >6 W signal + idler. Opera-F can also be configured for up to 2 mJ pump energies from Monaco HE. The high power, high repetition rate capabilities of the Opera-F pumped by a Monaco or Monaco HE is a superior tool delivering high energies or high repetition rates for demanding experiments.

### FEATURES & BENEFITS

- Up to 60 W pump power and up to 2 mJ pulse energy
- Conversion efficiency >10% (signal + idler)
- Wavelength range 650 nm to 900 nm (signal), 1200 nm to 2500 nm (idler)
- Pulse widths <math><100\text{ fs}</math> (with optional compressor)

### APPLICATIONS

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

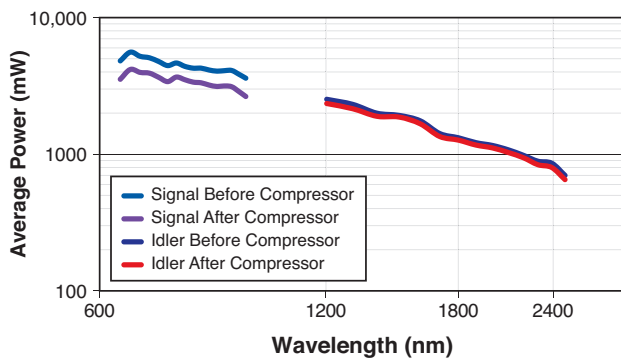


SPECIFICATIONS <sup>1,2</sup>	Opera-F
Wavelength Range (nm) Signal Idler	650 to 900 1200 to 2500
Conversion Efficiency <sup>3</sup> (%)	>10
Pulse Bandwidth (cm <sup>-1</sup> ) 650 nm to 900 nm 1200 nm to 2000 nm	200 to 600 150 to 500
Pulse Duration Before Compressor (fs)	<250
After Compression <sup>4</sup> (fs) 650 nm to 900 nm 1200 nm to 2000 nm	50 ±25 70 ±30
Compressor Transmission <sup>4</sup> (%) 700 nm to 900 nm 1200 nm to 2000 nm	50 to 70 70 to 80
Pump Laser	Monaco

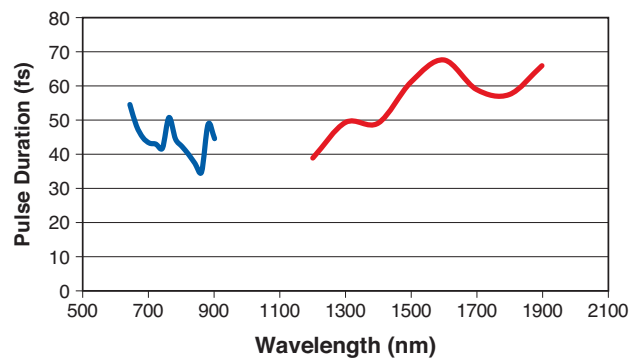
1 All specifications are based on pumping with >15 µJ from Monaco.  
 2 For other pump energies, contact factory.  
 3 Efficiency given at peak of tuning curve, second stage signal + idler, before optional compressor.  
 4 Optional compressor includes two prism compressor for signal, and bulk compressor for idler.

## TYPICAL PERFORMANCE DATA

**Opera-F Pumped by 60W,  
2 MHz from Monaco**

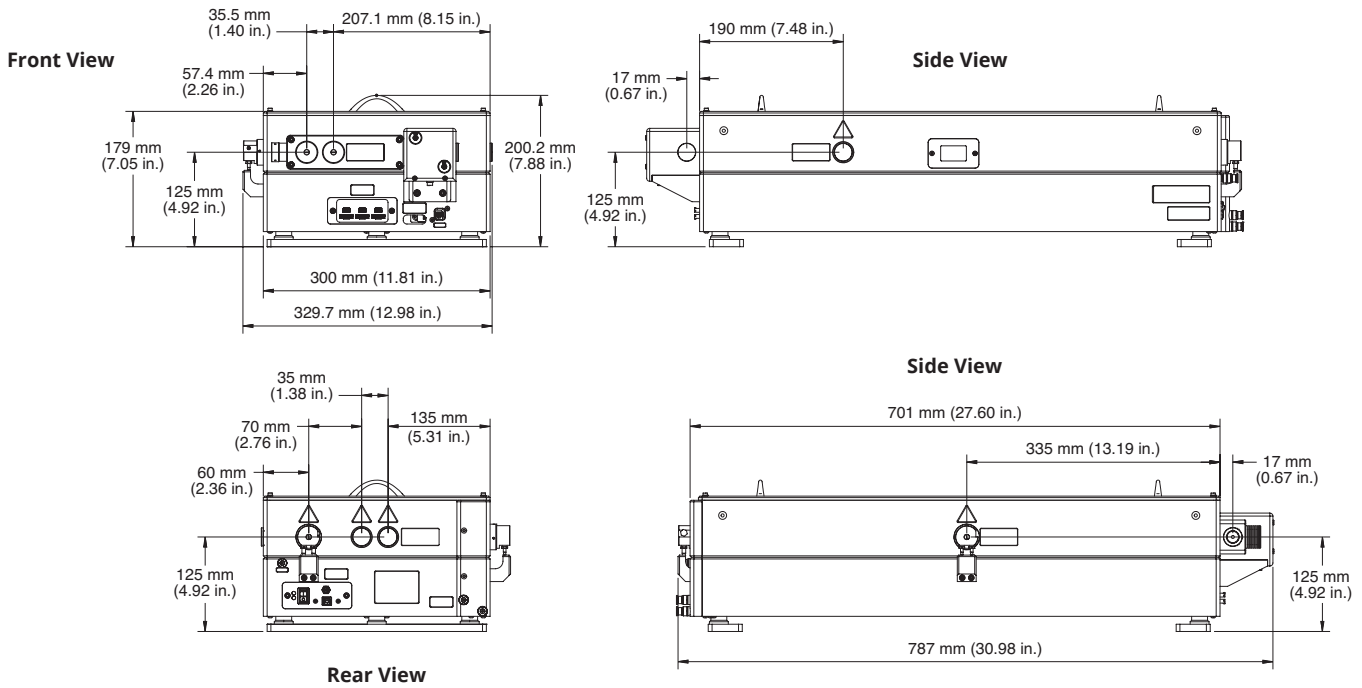


**Opera-F Pulse Width,  
After Optional Compressor**



## MECHANICAL SPECIFICATIONS

### Opera-F



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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-F 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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