

## Collinear Optical Parametric Amplifier



Continuous tunability  
from UV to MIR, 190 – 16000 nm

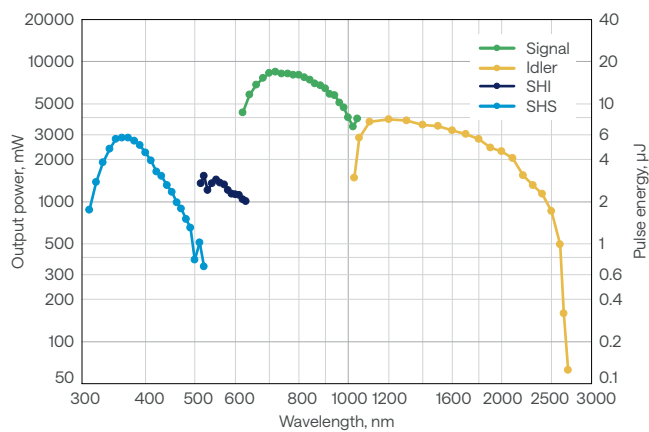
High energy and high power  
models for all needs

Single-shot – 2 MHz  
repetition rate

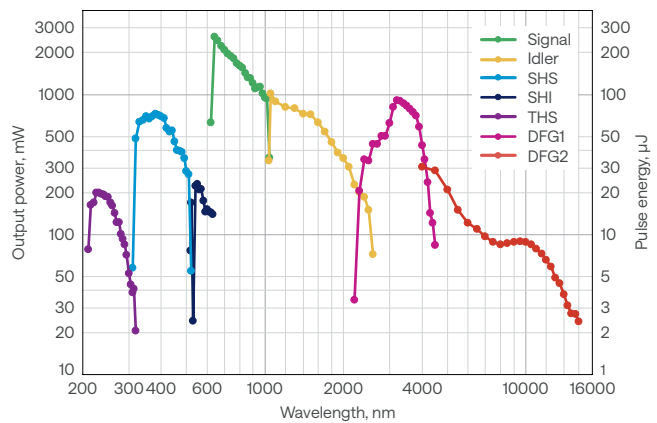
Up to 80 W pump power

Up to 2 mJ pump pulse energy

ORPHEUS-HP typical tuning curves.  
Pump: 80 W, 160  $\mu$ J, 500 kHz



ORPHEUS-HE typical tuning curves.  
Pump: 20 W, 2 mJ, 10 kHz



For custom tuning curves visit  
<http://toolbox.lightcon.com/tools/tuningcurves>

# Specifications

Model	ORPHEUS-HP	ORPHEUS-HE
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## MAIN OUTPUT (630 – 2600 nm)

Tuning range	630 – 1030 nm (signal) 1030 – 2600 nm (idler)		
Maximum pump power	80 W		
Pump pulse energy	8 – 20 $\mu$ J	20 – 400 $\mu$ J	400 – 2000 $\mu$ J
Conversion efficiency at peak	> 4.5% (signal) > 2% (idler)	> 9% (signal) > 4% (idler)	
Pulse duration	120 – 400 fs		
Spectral bandwidth @ 700 – 960 nm	60 – 220 $\text{cm}^{-1}$		
Long-term power stability, 8 h <sup>1)</sup>	< 2% @ 800 nm		
Pulse-to-pulse energy stability, 1 min <sup>1)</sup>	< 2% @ 800 nm		

## WAVELENGTH EXTENSIONS (190 – 16000 nm)

Pump pulse energy	8 – 20 $\mu$ J	20 – 400 $\mu$ J	400 – 2000 $\mu$ J
315 – 630 nm (SHS/SHI)	> 1.2% @ 350 nm	> 2.4% @ 350 nm	
210 – 315 nm (THS)	> 0.4% @ 250 nm <sup>2)</sup>	> 0.8% @ 250 nm <sup>2)</sup>	
190 – 215 nm (DUV)	n/a	> 0.3% @ 200 nm <sup>3)</sup>	Contact sales@lightcon.com
2200 – 4200 nm (DFG1)	> 1.5% @ 3000 nm	> 3% @ 3000 nm	
4000 – 16 000 nm (DFG2)	> 0.1% @ 10000 nm	> 0.2% @ 10000 nm	

## PUPM LASER REQUIREMENTS

Pump laser	PHAROS or CARBIDE		
Center wavelength	1030 $\pm$ 10 nm		
Maximum pump power	80 W		
Maximum repetition rate	2 MHz	200 kHz	
Pump pulse energy	8 – 400 $\mu$ J	400 – 2000 $\mu$ J	
Pulse duration <sup>4)</sup>	180 – 500 fs		

## ENVIRONMENTAL & UTILITY REQUIREMENTS

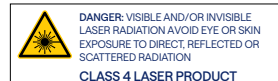
Refer to [www.lightcon.com](http://www.lightcon.com)

<sup>1)</sup> Expressed as normalized root mean squared deviation (NRMSD).

<sup>2)</sup> Maximum output power of 400 mW.

<sup>3)</sup> DUV conversion efficiency is specified for pump power up to 10 W and up to 200 kHz. In case of higher pump power, conversion efficiency decreases. Maximum output power of 40 mW @ 200 nm.

<sup>4)</sup> FWHM, assuming Gaussian pulse shape.



# Drawings

## ORPHEUS-HP/HE drawings

