

## Non-Collinear Optical Parametric Amplifier



NOPA for the shortest tunable pulses

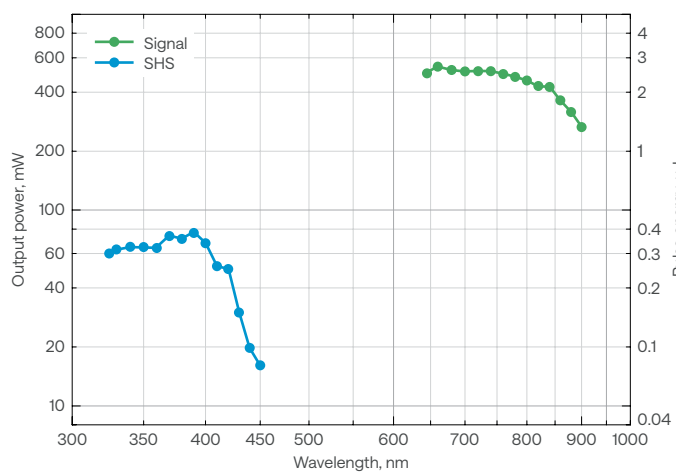
Pulse duration down to < 30 fs

Integrated prism compressor

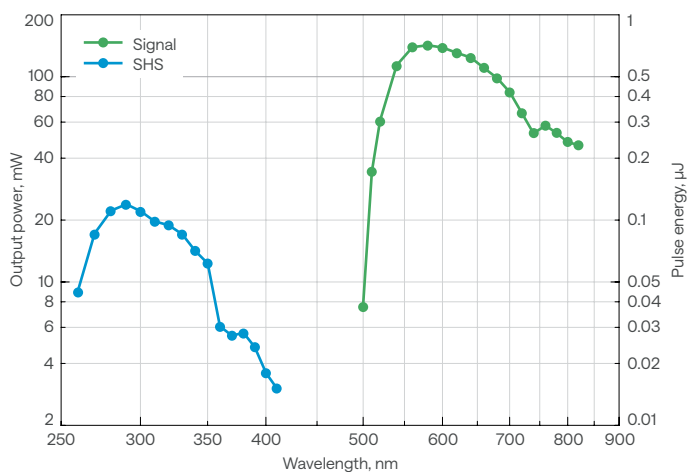
Adjustable spectral bandwidth and pulse duration

Wavelength feedback with internal spectrometer

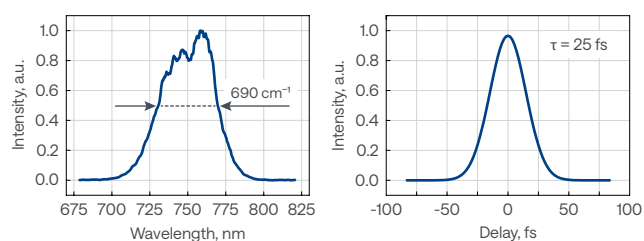
ORPHEUS-N-2H typical tuning curves  
Pump: 6 W, 30  $\mu$ J, 200 kHz



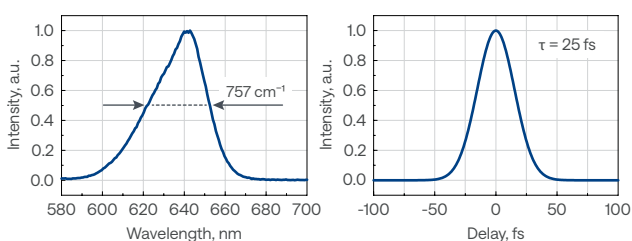
ORPHEUS-N-3H typical tuning curves  
Pump: 6 W, 30  $\mu$ J, 200 kHz



ORPHEUS-N-2H typical output



ORPHEUS-N-3H typical output



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

# Specifications

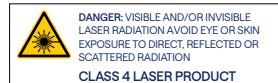
Model	ORPHEUS-N-2H	ORPHEUS-N-3H
<b>MAIN OUTPUT</b>		
Tuning range	650 – 900 nm (signal)	520 – 900 nm (signal)
Maximum pump power	8 W	
Pump pulse energy	10 – 200 $\mu$ J	12 – 200 $\mu$ J
Conversion efficiency	> 7% @ 700 nm > 5% @ 800 nm	> 1.3% @ 580 nm > 0.7% @ 700 nm > 0.3% @ 800 nm
Integrated 2H / 3H generation efficiency <sup>1)</sup>	> 35% (515 nm)	> 25% (343 nm)
Pulse duration after compressor	< 30 fs @ 700 – 850 nm	< 30 fs @ 540 – 660 nm < 70 fs @ 660 – 800 nm
Long-term power stability, 8 h <sup>2)</sup>	< 2% @ 800 nm	< 2% @ 580 nm
Pulse-to-pulse energy stability, 1 min <sup>2)</sup>	< 2% @ 800 nm	< 2% @ 580 nm
<b>WAVELENGTH EXTENSIONS</b>		
Tuning range (SHS)	325 – 450 nm	260 – 450 nm
Conversion efficiency	> 0.7% @ 350 nm	> 0.15% @ 290 nm
<b>PUMP LASER REQUIREMENTS</b>		
Pump laser	PHAROS or CARBIDE	
Center wavelength	1030 $\pm$ 10 nm	
Maximum pump power	8 W	
Repetition rate	Single-shot – 800 kHz	Single-shot – 600 kHz
Pump pulse energy	10 – 200 $\mu$ J	12 – 200 $\mu$ J
Pulse duration <sup>3)</sup>	180 – 500 fs	
<b>ENVIRONMENTAL &amp; UTILITY REQUIREMENTS</b>		
Operating temperature <sup>4)</sup>	19 – 25 °C (air conditioning recommended)	
Relative humidity <sup>4)</sup>	20 – 70% (non-condensing)	
Electrical requirements	100 – 240 V AC, 1.4 A; 50 – 60 Hz	
Rated power	120 W	
Power consumption	Standby: 10 W Max during wavelength tuning: 100 W	
Purging requirements	Nitrogen purge – optional	Nitrogen purge – required, 1 – 3 liters per minute

<sup>1)</sup> Not simultaneous to NOPA output.

<sup>2)</sup> Expressed as normalized root mean squared deviation (NRMSD).

<sup>3)</sup> FWHM, assuming Gaussian pulse shape.

<sup>4)</sup> Specifications are guaranteed for a maximum temperature variation of  $\pm$  1 °C and humidity variation of  $\pm$  10%.



## Drawings

### ORPHEUS-N drawings

