

# ORPHEUS | N

## Non-Collinear Optical Parametric Amplifier

### FEATURES

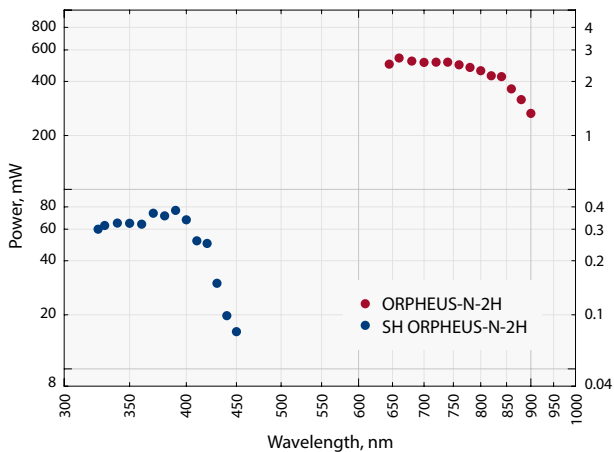
- < 30 fs pulse duration
- Integrated prism compressor
- Adjustable bandwidth and pulse duration
- Single-pulse – 1 MHz repetition rate
- Computer-controlled



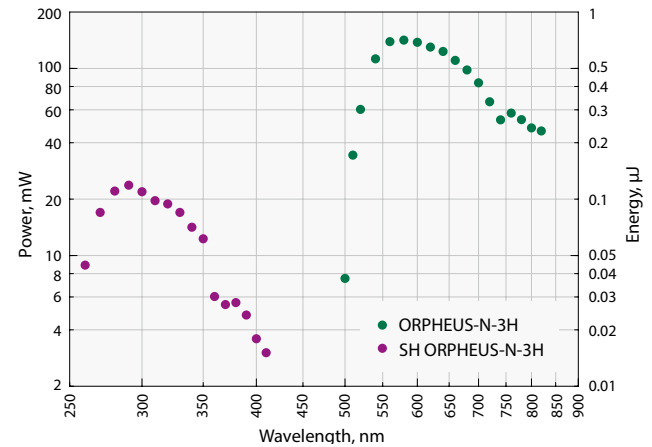
ORPHEUS-N is a non-collinear optical parametric amplifier (NOPA) pumped by a Ytterbium-based femtosecond laser amplifier. Depending on the ORPHEUS-N model, it has a built-in second or third harmonic generator producing 515 nm or 343 nm pump. ORPHEUS-N with second harmonic pump (ORPHEUS-N-2H) delivers pulses of less than 30 fs in the 700 – 850 nm range with average power of more than 0.5 W at 700 nm<sup>1)</sup>. ORPHEUS-N with third harmonic pump (ORPHEUS-N-3H) delivers pulses of less than 30 fs in the 530 – 670 nm range with average power of more than 0.2 W at 550 nm. ORPHEUS-N works at repetition rates of up to 1 MHz.

The device is equipped with computer-controlled stepping motor stages, allowing automatic tuning of the output wavelength. An optional signal's second harmonic generator is also available, extending the tuning range down to 250 – 450 nm. Featuring a state of the art built-in pulse compressor ORPHEUS-N is an invaluable instrument for time-resolved spectroscopy. More than one ORPHEUS-N systems can be operated simultaneously with a single amplifier providing several pump and/or probe channels with independent wavelength tuning.

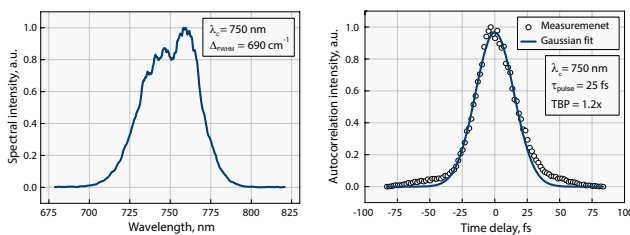
<sup>1)</sup> When pumped with 6 W @ 1030 nm, 200 kHz.



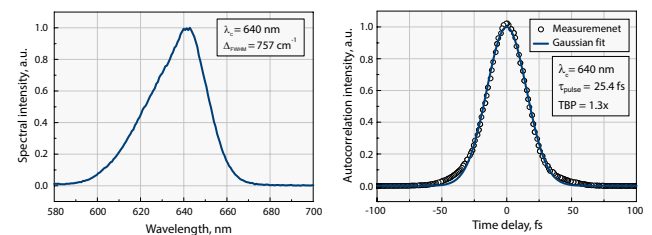
Typical tuning curve of **ORPHEUS-N-2H**  
Pump: 6 W, 30 µJ, 200 kHz



Typical tuning curve of **ORPHEUS-N-3H**  
Pump: 6 W, 30 µJ, 200 kHz



Typical output of **ORPHEUS-N-2H**

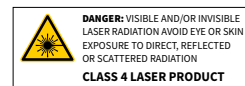


Typical output of **ORPHEUS-N-3H**

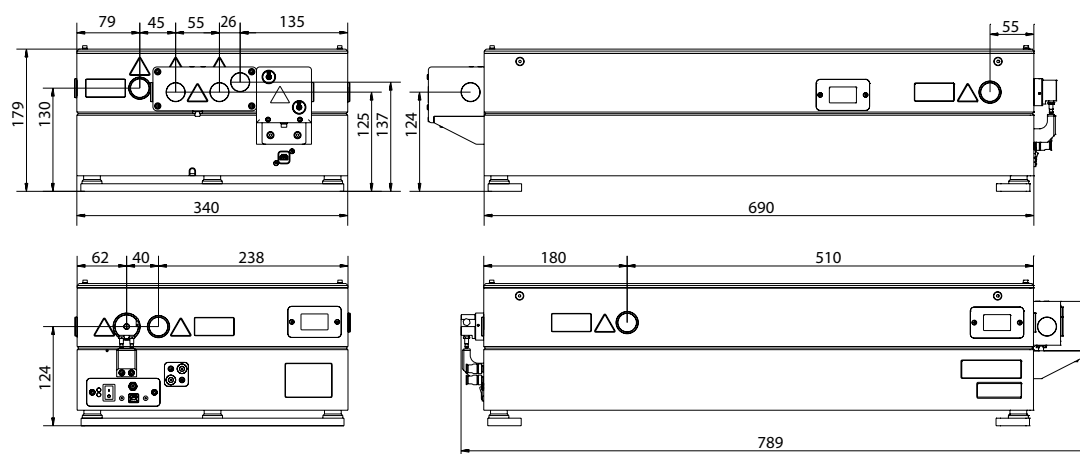
For custom tuning curve value visit <http://toolbox.lightcon.com/tools/tuningcurves/>

## SPECIFICATIONS

Model	ORPHEUS-N-2H		ORPHEUS-N-3H		
<b>OUTPUT FROM ORPHEUS-N</b>					
Tuning range	650 – 900 nm (Signal)		520 – 900 nm (Signal)		
Integrated second (third) harmonic generation efficiency	> 35 % (515 nm)		> 25 % (343 nm)		
Pump power (maximum)	8 W				
Pump pulse energy	10 – 200 $\mu$ J		12 – 200 $\mu$ J		
Conversion efficiency at peak	700 nm	800 nm	580 nm	700 nm	800 nm
	> 7 %	> 5 %	> 1.3 %	> 0.7 %	> 0.3 %
Pulse duration after compressor	< 30 fs (700 – 850 nm)		< 30 fs (530 – 670 nm) < 80 fs (670 – 900 nm)		
Long term power stability (8 h)	< 2 % @ 800 nm		< 2 % @ 580 nm		
Pulse energy stability (1 min)	< 2 % @ 800 nm		< 2 % @ 580 nm		
<b>WAVELENGTH EXTENSIONS</b>					
Tuning range (SH of Signal)	325 – 450 nm		260 – 450 nm		
Conversion efficiency at peak	> 10 % of Signal				



## OUTLINE DRAWINGS



ORPHEUS-N outline drawings



ORPHEUS-N setup example