

ORPHEUS

Collinear Optical Parametric Amplifier

FEATURES

- 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

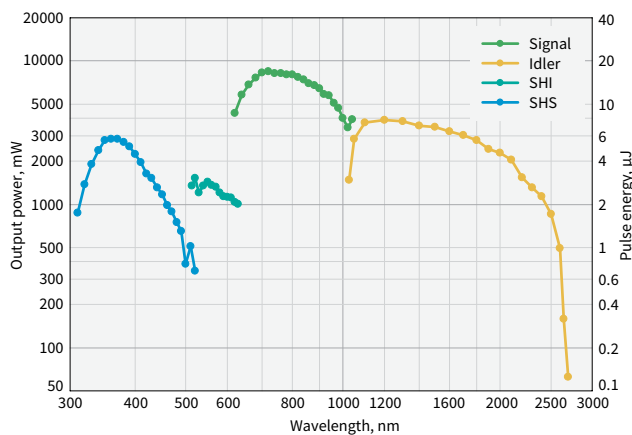


ORPHEUS is a collinear optical parametric amplifier (OPA). Coupled with a PHAROS or CARBIDE femtosecond laser, ORPHEUS emits femtosecond pulses tunable from UV to MIR at a repetition rate of up to 2 MHz. Thus, it is an invaluable tool for ultrafast spectroscopy, nonlinear microscopy, and microstructuring applications.

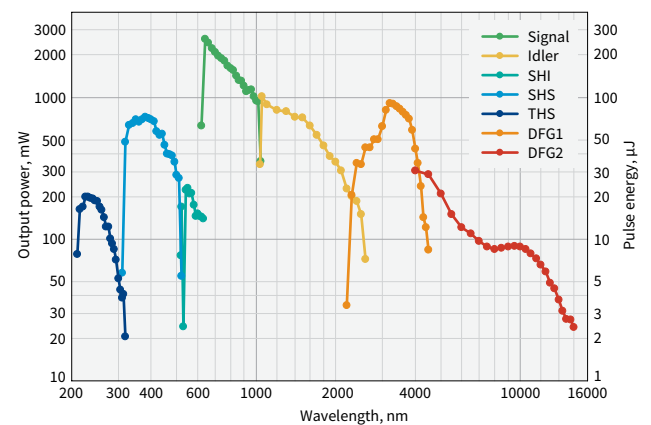
The ORPHEUS collinear OPA comes in different configurations to perfectly match the scientific needs. The ORPHEUS-HP accepts high-power pump and provides a wide tuning

range from 630 to 2600 nm, which is extendable from 210 to 16000 nm using wavelength extensions option integrated into a thermally-stabilized housing. Its wavelength tuning and separation is completely hands-free. The ORPHEUS-HE configuration brings the aforementioned automation but also accepts high pulse energy and goes down to 190 nm with DUV extension.

For compact single-box solution, refer to I-OPA. For the PHAROS-UP ultrashort-pulse laser, refer to ORPHEUS-NEO.



Typical tuning curves of **ORPHEUS-HP**.
Pump: 80 W, 160 µJ, 500 kHz



Typical tuning curves of **ORPHEUS-HE**.
Pump: 20 W, 2 mJ, 10 kHz

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

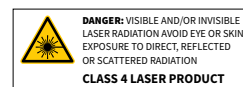
SPECIFICATIONS

Model	ORPHEUS-HP		ORPHEUS-HE
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 μ J	20 – 400 μ J	400 – 2000 μ J
Conversion efficiency at peak	> 4.5% (Signal) > 2% (Idler)	> 9% (Signal) > 4% (Idler)	
Pulse duration	120 – 250 fs		
Spectral bandwidth @ 700 – 960 nm	75 – 220 cm^{-1}		
Long-term power stability, 8 h ¹⁾	< 2% @ 800 nm		
Pulse-to-pulse energy stability, 1 min ¹⁾	< 2% @ 800 nm		
WAVELENGTH EXTENSIONS (190 – 16000 nm)			
Pump pulse energy	8 – 20 μ J	20 – 400 μ J	400 – 2000 μ J
SH package at peak			
315 – 515 nm (SHS)	> 1.2%	> 2.4%	
515 – 630 nm (SHI)			
210 – 315 nm (THS)	> 0.4% ²⁾	> 0.8% ²⁾	
190 – 215 nm (DUV)	n/a	> 0.3% ³⁾	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	

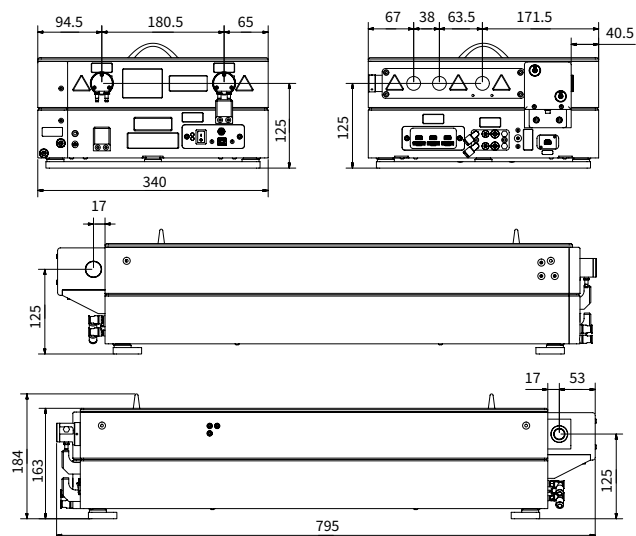
¹⁾ Expressed as NRMSD (normalized root mean squared deviation).

²⁾ Maximum output power of 400 mW.

³⁾ 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.



DRAWINGS



ORPHEUS-HP drawings