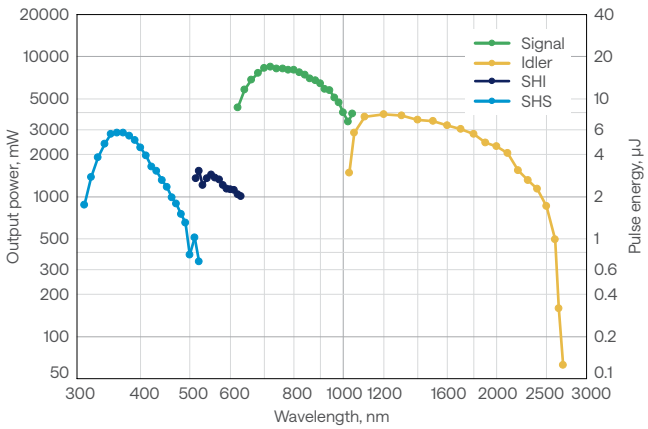
ORPHEUS

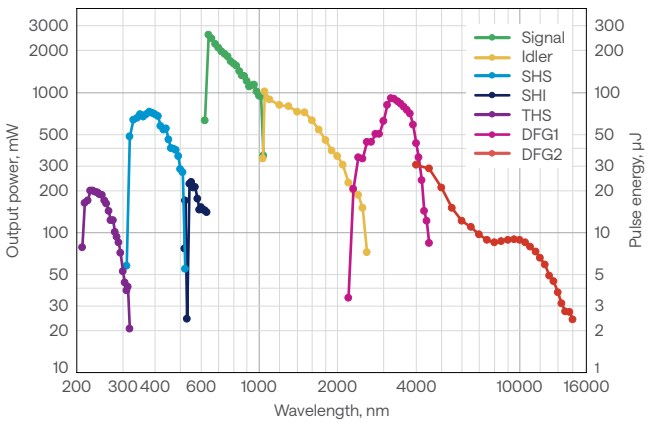
Collinear Optical Parametric Amplifier

- Continuous tunability from UV to MIR, 190 – 16 000 nm
- High energy and high power models
- 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 µJ, 500 kHz



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



Optics Toolbox

Specifications

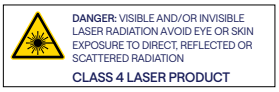
Model	ORPHEUS-HP		ORPHEUS-HE
MAIN OUTPUT (630 – 2600 nm)			
Tuning range	630 –1030 nm (signal) 1030 – 2600 nm (idler)		
Maximum pump power	80 W		
Pump pulse energy	8 – 20 µJ	20 – 400 µJ	400 – 2000 µJ
Conversion efficiency at peak	> 4.5% (signal) > 2% (idler)	> 9% (signal) > 4% (idler)	
Pulse duration	120 – 400 fs		
Spectral bandwidth @ 700 – 960 nm	60 – 220 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 – 16 000 nm)			
Pump pulse energy	8 – 20 µJ	20 – 400 µJ	400 – 2000 µJ
315 – 630 nm (SHS/SHI)	> 1.2% @ 350 nm	> 2.4% @ 350 nm	
210 – 315 nm (THS)	> 0.4% @ 250 nm [2]	> 0.8% @ 250 nm [2]	
190 – 215 nm (DUV)	n/a	> 0.3% @ 200 nm [3]	Contact sales@lightcon.com
2200 – 4200 nm (DFG1)	> 1.5% @ 3000 nm	> 3% @ 3000 nm	
4000 – 16 000 nm (DFG2)	> 0.1% @ 10 000 nm	> 0.2% @ 10 000 nm	
PUPM LASER REQUIREMENTS			
Pump laser	PHAROS or CARBIDE		
Center wavelength	1030 ± 10 nm		
Maximum pump power	80 W		
Maximum repetition rate	2 MHz	200 kHz	
Pump pulse energy	8 – 400 µJ	400 – 2000 µJ	
Pump pulse duration [4]	180 – 500 fs		
ENVIRONMENTAL & UTILITY REQUIREMENTS			
	Refer to www.lightcon.com		

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

[2] *Maximum output power of 400 mW.*

[3] *DUV conversion efficiency is specified for pump power up to 10 W and frequencies up to 200 kHz. In case of higher pump power, conversion efficiency decreases. The maximum output power is 40 mW at 200 nm.*

[4] *Full width at half maximum (FWHM), assuming a Gaussian pulse shape.*



Drawings

ORPHEUS-HP