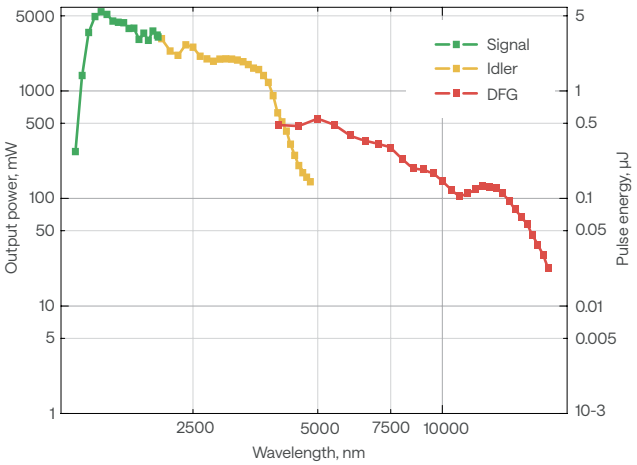
ORPHEUS | ONE

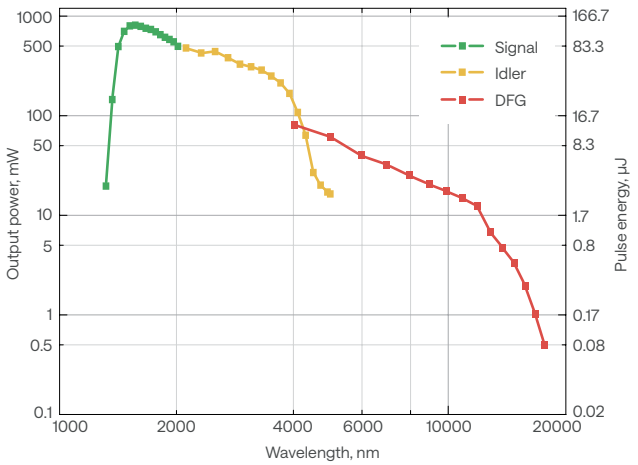
Mid-Infrared Collinear Optical Parametric Amplifier

- High conversion efficiency in MIR, 1350 – 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-ONE-HP typical tuning curves.
Pump: 40 W, 40 µJ, 1000 kHz



ORPHEUS-ONE-HE typical tuning curves.
Pump: 6 W, 1 mJ, 6 kHz

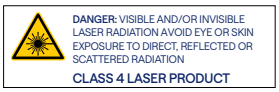


For custom tuning curves visit
http://toolbox.lightcon.com/tools/tuningcurves/

Specifications

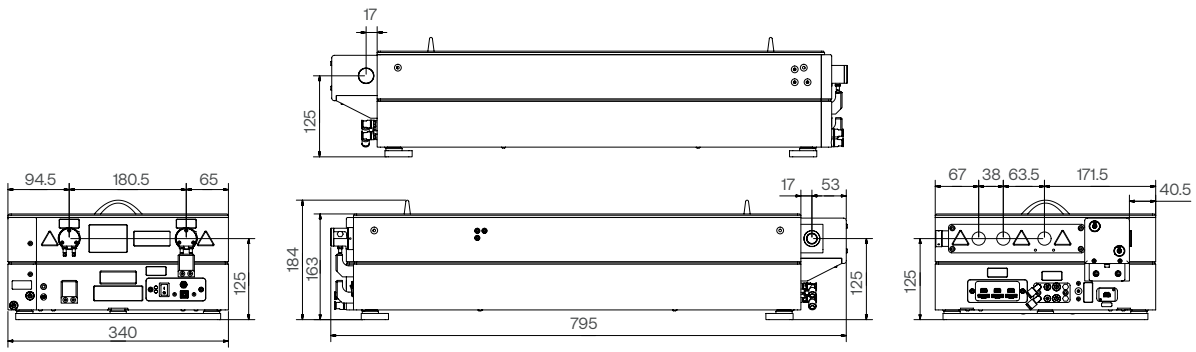
Model	ORPHEUS-ONE-HP	ORPHEUS-ONE-HE
MAIN OUTPUT		
Tuning range	1400 – 2000 nm (signal) 2100 – 4200 nm (idler)	
Maximum pump power	80 W	
Pump pulse energy	12 – 400 µJ	400 – 2000 µJ
Conversion efficiency [1] @ 1550 nm	> 9%, 30 – 2000 µJ pump > 6%, 12 – 30 µJ pump	
Spectral bandwidth	50 – 150 cm^{-1} @ 1450 – 2000 nm	
Long-term power stability, 8 h [2]	< 2% @ 1550 nm	
Pulse-to-pulse energy stability, 1 min [2]	< 2% @ 1550 nm	
WAVELENGTH EXTENSION (MIR)		
Tuning range	4000 – 16000 nm (DFG)	
Conversion efficiency [1]	> 0.3% @ 10000 nm, 30 – 2000 µJ pump > 0.2% @ 10000 nm, 12 – 30 µJ pump	
Spectral bandwidth	50 – 120 cm^{-1} @ 5000 – 8000 nm	
PUMP 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	12 – 400 µJ	400 – 2000 µJ
Pulse duration [3]	180 – 500 fs	
ENVIRONMENTAL & UTILITY REQUIREMENTS		
Operating temperature [4]	19 – 25 °C (air conditioning recommended)	
Relative humidity [4]	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	

[1] *Specified as percentage of pump power.*
[2] *Expressed as NRMSD (normalized root mean squared deviation).*
[3] *FWHM, assuming Gaussian pulse shape.*
[4] *Specifications are guaranteed for a maximum temperature variation of ± 1 °C and humidity variation of ± 10%.*



Drawings

ORPHEUS-ONE-HP / HE drawings



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