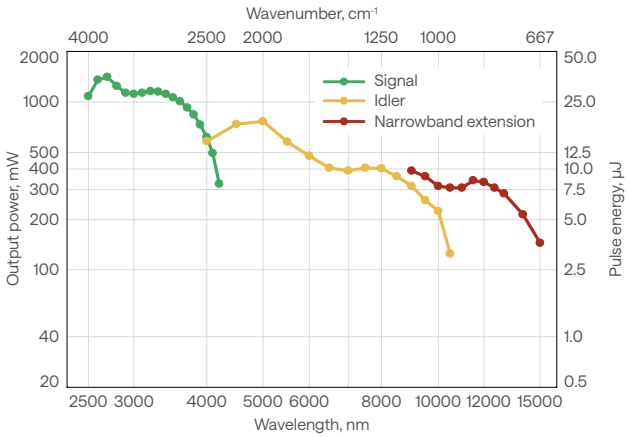
ORPHEUS | MIR

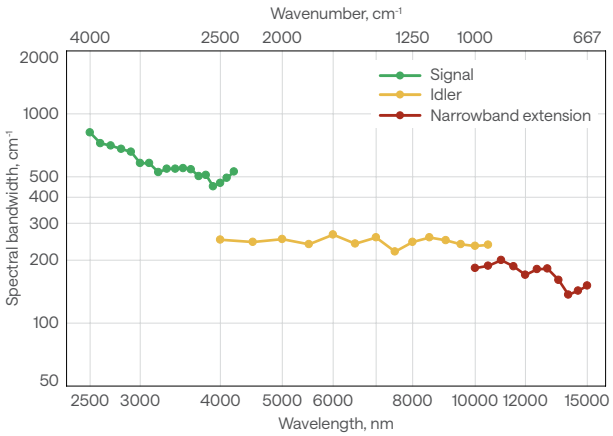
Broad-Bandwidth MIR Optical Parametric Amplifiers

- Broad-bandwidth MIR pulses at high repetition rates
- Continuously tunable from 2500 to 15 000 nm
- Pumped by industrial-grade lasers for high stability
- CEP-stable option
- NEW New housing for high output stability

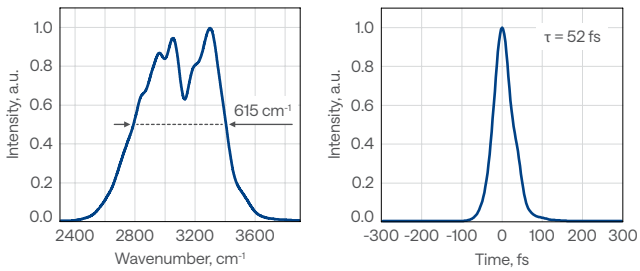
ORPHEUS-MIR typical tuning curves
Pump: 80 W, 2 mJ, 40 kHz



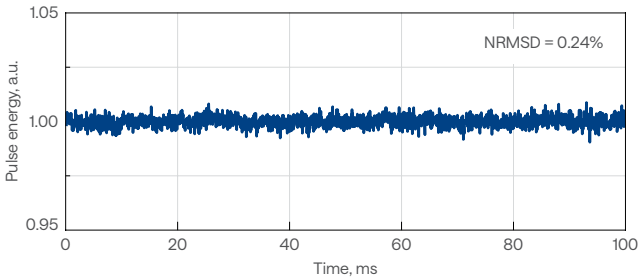
ORPHEUS-MIR typical spectral bandwidth



ORPHEUS-MIR typical output spectrum (left) and pulse duration (right) measured at ≈ 3000 nm



ORPHEUS-MIR pulse-to-pulse energy stability measured at ≈ 3000 nm



Specifications

MAIN OUTPUT (2500 – 10 000 nm)

Mode of operation	Non-collinear	Collinear [1]
Tuning range	2500 – 4000 nm (signal) 4000 – 10 000 nm (idler)	2500 – 4500 nm (signal) [2] 4500 – 10 000 nm (idler)
Maximum pump power	80 W	
Pump pulse energy	200 µJ – 3 mJ	
Maximum repetition rate	100 kHz	
Pulse duration	< 100 fs	< 400 fs (< 100 fs with dispersion compensation) [1]
Conversion efficiency [3]	> 1.2% @ 3000 nm > 1.0% @ 3500 nm > 0.6% @ 5000 nm > 0.3% @ 9000 nm	
Spectral bandwidth [4]	> 300 cm^{-1} @ 3000 – 4000 nm > 200 cm^{-1} @ 4000 – 10 000 nm	
Long-term power stability, 8 h [5]	< 2% @ 5000 nm	
Pulse-to-pulse energy stability, 1 min [5]	< 2% @ 5000 nm	

AUXILIARY OUTPUT (2000 nm)

Output wavelength [6]	2000 ± 100 nm
Pulse duration	< 50 fs
Conversion efficiency [3]	> 8%
Spectral bandwidth	> 350 cm^{-1}

WAVELENGTH EXTENSION (10 000 – 15 000 nm)

Tuning range	10 000 – 15 000 nm	n/a
Conversion efficiency [3]	> 0.2% @ 12 000 nm	
Spectral bandwidth	> 100 cm^{-1}	

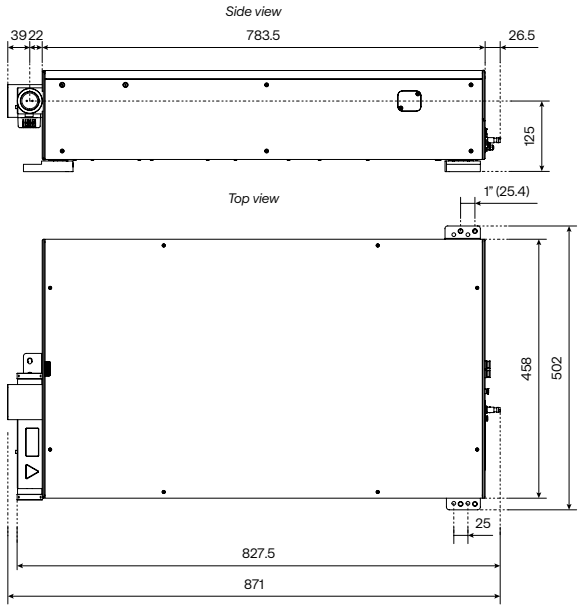
PUMP LASER, ENVIRONMENTAL & UTILITY REQUIREMENTS

Refer to lightcon.com

[1] *Collinear mode is achieved with an additional external separator box. Dispersion compensation is optional.*
[2] *Signal output is realized in non-collinear configuration.*
[3] *Specified as a percentage of pump power.*
[4] *Full width at half maximum (FWHM).*
[5] *Expressed as normalized root mean squared deviation (NRMSD).*
[6] *Not tunable, optimized for best overall performance. Not simultaneous to OPA output.*

Drawings

ORPHEUS-MIR



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