

## Broad-Bandwidth MIR Optical Parametric Amplifier

Broad-bandwidth MIR pulses  
at high repetition rates

Continuously tunable from  
2500 to 15 000 nm

Pumped by industrial-grade  
lasers for high stability

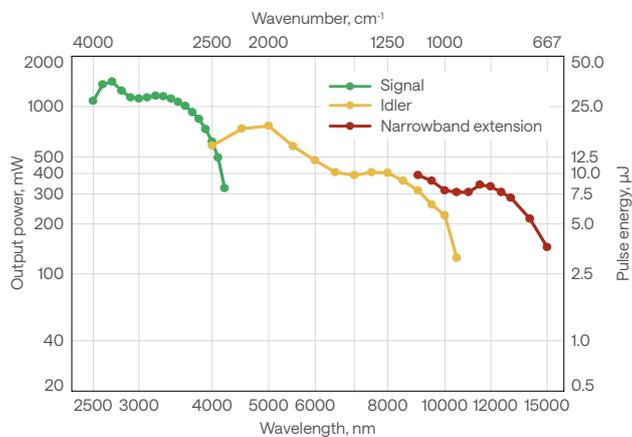
CEP-stable option

NEW

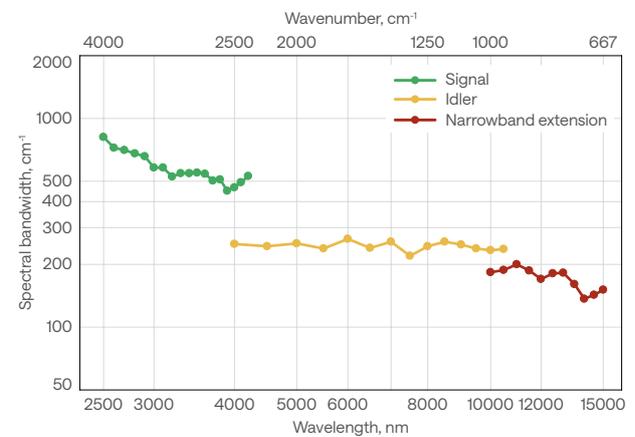
New housing for high output stability



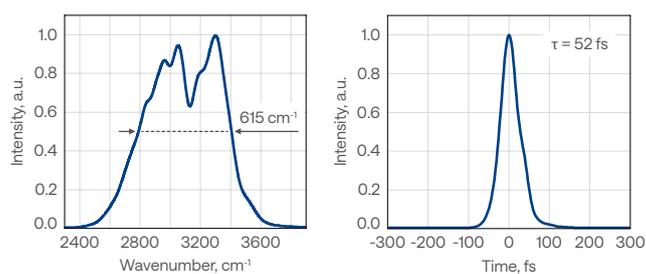
ORPHEUS-MIR typical tuning curves  
Pump: 80 W, 2 mJ, 40 kHz



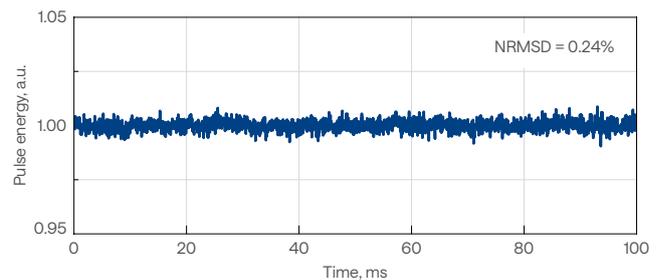
ORPHEUS-MIR typical spectral bandwidth



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



ORPHEUS-MIR pulse-to-pulse energy stability  
measured at  $\approx 3000$  nm



# Specifications

## MAIN OUTPUT (2500 – 10 000 nm)

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

## AUXILIARY OUTPUT (2000 nm)

Output wavelength <sup>6)</sup>	2000 $\pm$ 100 nm
Pulse duration	< 50 fs
Conversion efficiency <sup>3)</sup>	> 8%
Spectral bandwidth	> 350 $\text{cm}^{-1}$

## WAVELENGTH EXTENSION (10 000 – 15 000 nm)

Tuning range	10 000 – 15 000 nm	n/a
Conversion efficiency <sup>3)</sup>	> 0.2% @ 12 000 nm	
Spectral bandwidth	> 100 $\text{cm}^{-1}$	

## PUMP LASER, ENVIRONMENTAL & UTILITY REQUIREMENTS

Refer to [lightcon.com](http://lightcon.com)

<sup>1)</sup> Collinear mode is achieved with an additional external separator box. Dispersion compensation is optional.

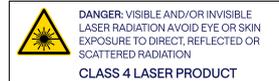
<sup>2)</sup> Signal output is realized in non-collinear configuration.

<sup>3)</sup> Specified as a percentage of pump power.

<sup>4)</sup> Full width at half maximum (FWHM).

<sup>5)</sup> Expressed as normalized root mean squared deviation (NRMSD)

<sup>6)</sup> Not tunable, optimized for best overall performance. Not simultaneous to OPA output.



## Drawings

### ORPHEUS-MIR

