

ORPHEUS | NEO



Next-Generation Optical Parametric Amplifier

FEATURES

- UV – NIR or enhanced IR
- Continuous power monitoring and diagnostics
- Single-shot – 2 MHz repetition rate
- Up to 80 W, 800 μJ pump power
- Fully integrated wavelength extensions
- Second repetition rate pump option
- Exceptional output stability

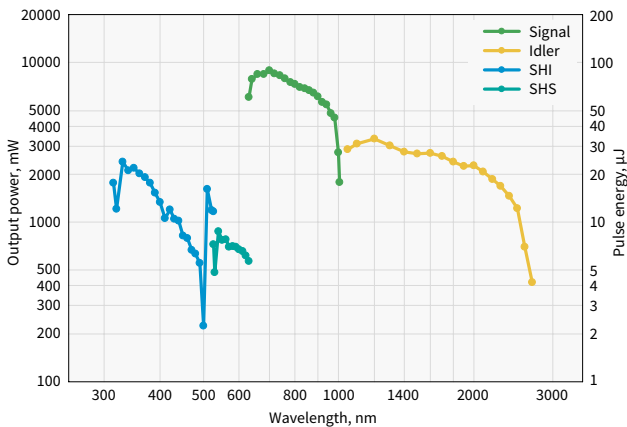


ORPHEUS-NEO is the next-generation optical parametric amplifier. With its simple-to-use and hassle-free design, ORPHEUS-NEO emerges as an invaluable tool in even the most demanding scientific applications.

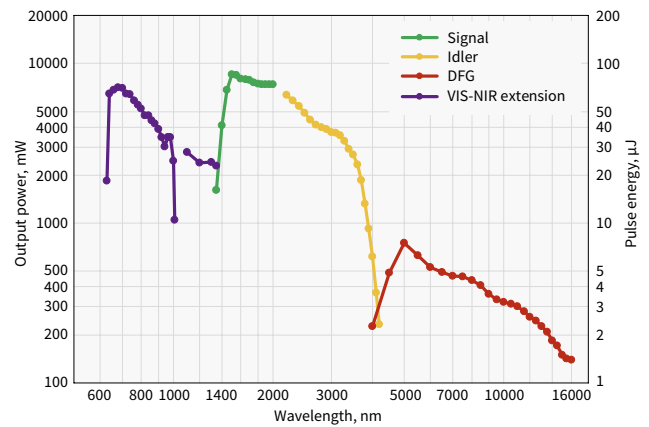
The ORPHEUS-NEO is available in several different configurations providing high power UV – NIR output (320 – 2600 nm) or enhanced IR output (640 – 16000 nm). Thanks to its robust industrial-grade mechanical design, both configurations ensure remarkable long-term stability. Most

importantly, the device is equipped with multiple detectors for pump beam position tracking and continuous monitoring of output parameters. This results in the fastest remote diagnostics and troubleshooting capability.

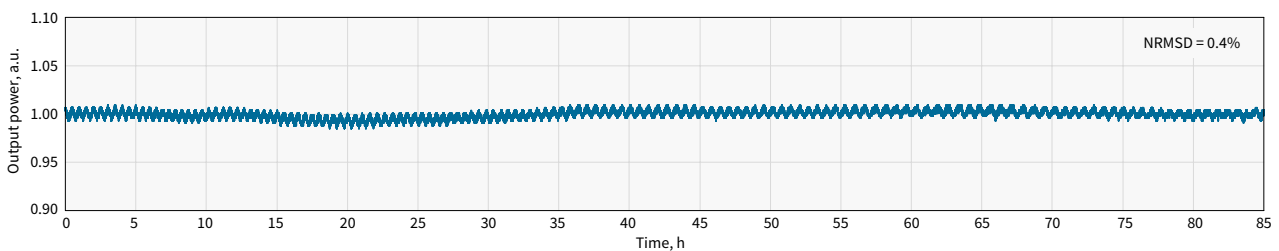
Inspired by the most demanding users, ORPHEUS-NEO has been engineered to become the most stable and versatile tool in multiphoton microscopy, ultrafast spectroscopy, and many other scientific applications.



Typical tuning curves of **ORPHEUS-NEO** in HP configuration.
Pump: 80 W, 800 μJ, 100 kHz



Typical tuning curves of **ORPHEUS-NEO** in ONE configuration.
Pump: 80 W, 800 μJ, 100 kHz



Typical long-term power stability of **ORPHEUS-NEO** at 800 nm

SPECIFICATIONS

Model	ORPHEUS-NEO-HP	ORPHEUS-NEO-ONE
Configuration	ORPHEUS-HP	ORPHEUS ONE
Pump power	Up to 80 W	
Pump pulse energy	20 – 800 μ J	
Repetition rate ¹⁾	Up to 2 MHz	
Tuning range	640 – 1010 nm (Signal) 1050 – 2600 nm (Idler)	1350 – 2000 nm (Signal) 2100 – 4500 nm (Idler)
Conversion efficiency	> 7% @ 700 nm (40 – 800 μ J pump; up to 1 MHz)	> 9% @ 1550 nm (40 – 800 μ J pump; up to 1 MHz)
	> 3.5% @ 700 nm (20 – 40 μ J pump; up to 2 MHz)	> 6% @ 1550 nm (20 – 40 μ J pump; up to 2 MHz)
Spectral bandwidth	80 – 220 cm^{-1} @ 700 – 960 nm	60 – 150 cm^{-1} @ 1450 – 2000 nm
Pulse duration ²⁾	120 – 250 fs	100 – 300 fs
Long-term power stability, 8 h	< 1% @ 800 nm	< 1% @ 1550 nm
Pulse-to-pulse energy stability, 1 min	< 1% @ 800 nm	< 1% @ 1550 nm
Wavelength extension options	320 – 505 nm (SHS) ³⁾ 525 – 640 nm (SHI) ³⁾	640 – 1010 nm and 1050 – 1350 nm ⁴⁾ 4500 – 16000 nm (DFG) ⁵⁾

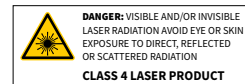
¹⁾ Second repetition rate pump option (up to 20 μ J) is available for signal and extension range in HP configuration; contact sales@lightcon.com

²⁾ Output pulse duration depends on selected wavelength and pump laser pulse duration.

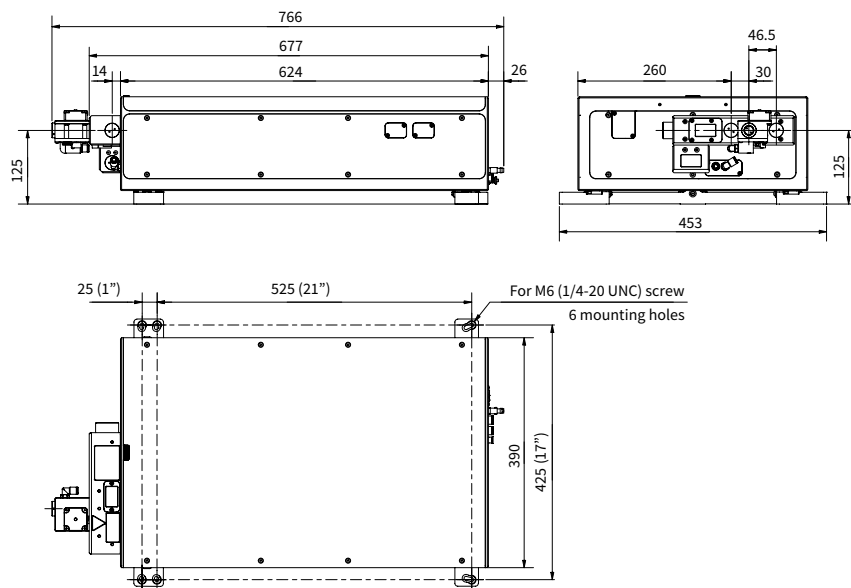
³⁾ Conversion efficiency is 1.2% at peak; specified as the percentage of pump power.

⁴⁾ Conversion efficiency is 7% at 700 nm; specified as the percentage of pump power.

⁵⁾ Conversion efficiency is 0.3% at 10000 nm for 30 – 2000 μ J pump; specified as the percentage of pump power.



DRAWINGS



ORPHEUS-NEO drawings