

CRONUS | 3P

Laser Source for Advanced Nonlinear Microscopy

FEATURES

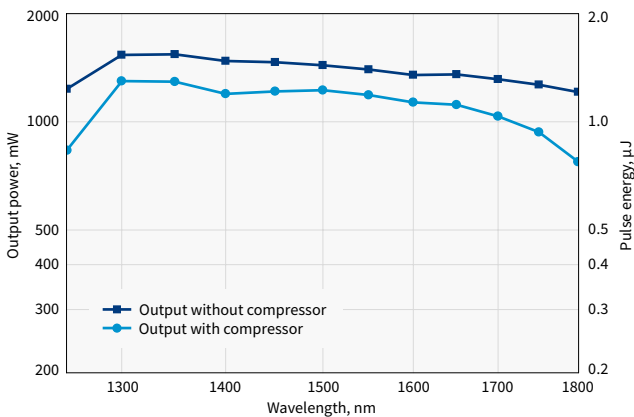
- High pulse energy, high repetition rate, and high average power
- 1250 – 1800 nm tuning range
- Down to 50 fs pulse duration
- Automated GDD control
- Industrial-grade design
- High output stability



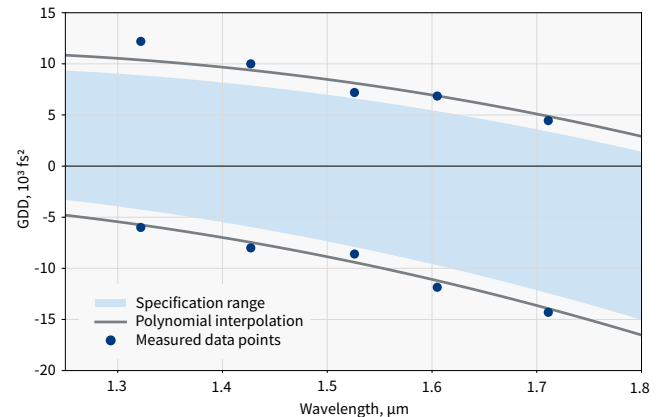
CRONUS-3P is a laser source developed specifically for advanced nonlinear microscopy. It provides μJ -level pulses down to 50 fs at repetition rates of up to 2 MHz and tunable in the short-wavelength infrared (SWIR) range from 1.25 to 1.8 μm , thus covering the biological transparency windows at 1.3 μm and 1.7 μm for three-photon microscopy.

Typically, multiphoton imaging in the SWIR range requires a complex multi-device laser system and, usually, a good portion of an optical table and skilled staff – this reality

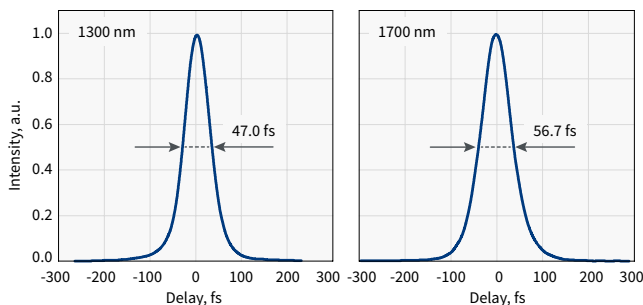
encumbers neuroscience and other biomedical applications – the CRONUS-3P system is a next-generation, industrial-grade, single-supplier solution that is more compact, more reliable, and more versatile, and achieves tunable femtosecond excitation with an integrated group delay dispersion (GDD) control, ensuring optimal pulse duration at the sample, and industrial-grade design to guarantee high short- and long-term output stability.



Output power and pulse energy vs wavelength.
Pump: 40 W, 1 MHz.



GDD control range



Typical pulse duration at 1300 nm and 1700 nm

SPECIFICATIONS

Model	CRONUS-3P	
Tuning range ¹⁾	1250 – 1800 nm	
Repetition rate ²⁾	Single-shot to 2 MHz	
	1300 nm	1700 nm
Pulse duration	< 50 fs	< 65 fs
Output power	> 1100 mW @ 1 MHz > 800 mW @ 2 MHz	> 800 mW @ 1 MHz > 500 mW @ 2 MHz
GDD control range ³⁾	-4000 to +9000 fs ²	-12000 to +3500 fs ²
Beam diameter ⁴⁾	3 – 5 mm	
Beam quality (M ²)	< 1.4	
Beam ellipticity	> 0.8	
Beam divergence	< 1 mrad	
Long-term power stability, 24 h ⁵⁾	< 1%	
Pulse-to-pulse energy stability, 1 min ⁵⁾	< 1%	

OUTPUT WITHOUT COMPRESSOR

Output power	> 1500 mW @ 1 MHz > 1000 mW @ 2 MHz	> 1050 mW @ 1 MHz > 700 mW @ 2 MHz
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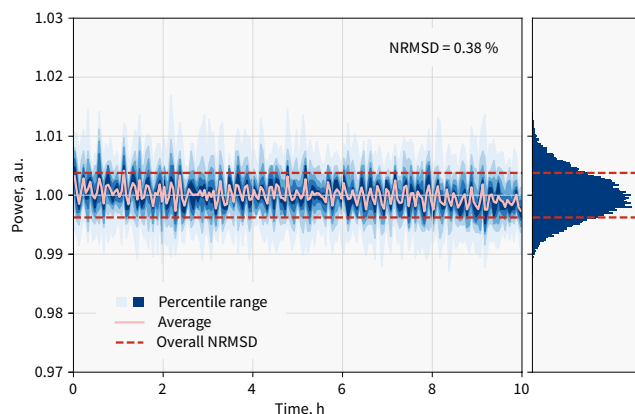
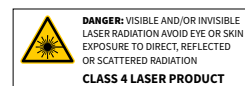
¹⁾ Alternative configuration with additional 920 nm output is available, contact sales@lightcon.com.

²⁾ Lower repetition rate and higher pulse energy options available.

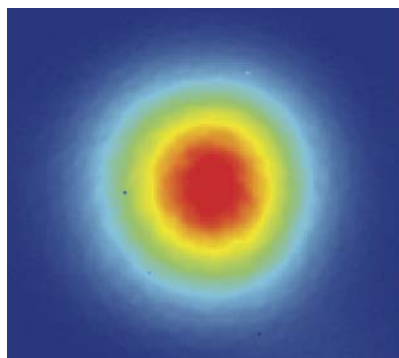
³⁾ Continuously controlled dispersion that can be added before the microscope, i.e., -3000 fs² compensates a microscope with +3000 fs².

⁴⁾ 1/e², measured at compressor output.

⁵⁾ Expressed as NRMSD (normalized root mean squared deviation).

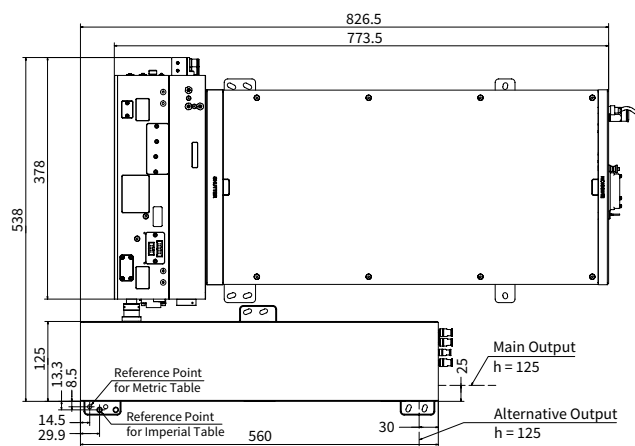


Long-term power stability, measured at 1700 nm over 10 h



Beam profile at 1300 nm, 4.2 mm diameter (1/e²)

DRAWINGS



CRONUS-3P drawing