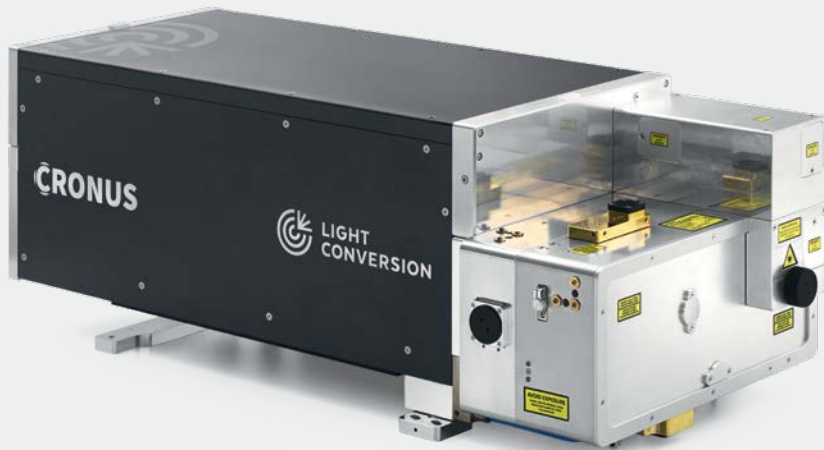


Laser Source for Advanced Nonlinear Microscopy



High pulse energy for deep imaging

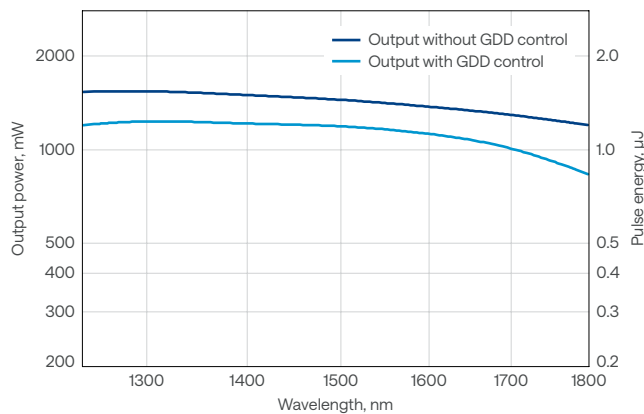
1250 – 1800 nm tuning range for 3P imaging

Down to 50 fs pulse duration for high peak power

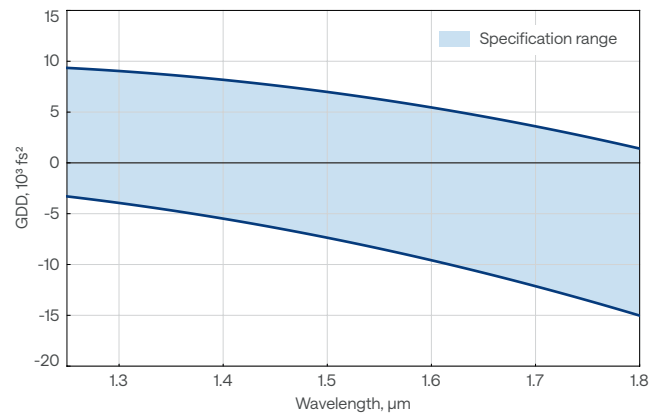
Automated wavelength and GDD control for optimal signal

Market-leading pulse-to-pulse energy stability

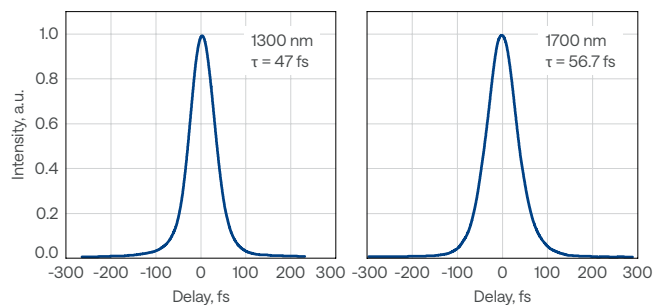
CRONUS-3P output power and pulse energy vs wavelength, at 1 MHz



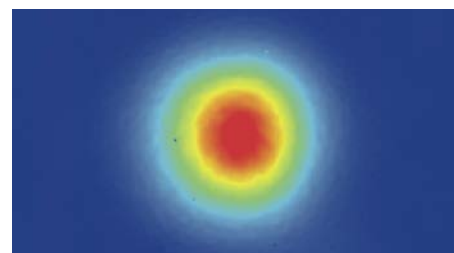
CRONUS-3P GDD control range



CRONUS-3P typical pulse duration at 1300 nm and 1700 nm



CRONUS-3P beam profile at 1300 nm



Specifications

Model	CRONUS-3P		CRONUS-3P with power control	
Tuning range	1250 – 1800 nm			
Repetition rate ¹⁾	Single-shot – 1 MHz or 2 MHz			
	1300 nm	1700 nm	1300 nm	1700 nm
Pulse duration	< 50 fs	< 65 fs	< 50 fs	< 65 fs
Output power	> 1100 mW @ 1 MHz > 800 mW @ 2 MHz	> 800 mW @ 1 MHz > 500 mW @ 2 MHz	> 1000 mW @ 1 MHz > 700 mW @ 2 MHz	> 700 mW @ 1 MHz > 400 mW @ 2 MHz
GDD control range ²⁾	-4 000 to +9 000 fs ²	-12 000 to +3 500 fs ²	-4 000 to +9 000 fs ²	-12 000 to +3 500 fs ²
Beam diameter ³⁾	2 – 4 mm			
Beam quality, M ²	< 1.2			
Beam ellipticity	> 0.8			
Beam divergence	< 1 mrad			
Beam pointing stability	< 100 μ rad			
Long-term power stability, 24 h ⁴⁾	< 1%			
Pulse-to-pulse energy stability, 1 min ⁴⁾	< 1%			

MAIN OUTPUT WITHOUT GDD CONTROL

Output power ⁵⁾	> 1500 mW @ 1 MHz > 1000 mW @ 2 MHz	> 1050 mW @ 1 MHz > 700 mW @ 2 MHz	n/a
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ADDITIONAL OUTPUTS

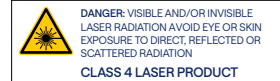
Auxiliary 1030 nm amplifier output	1030 \pm 10 nm, up to 40 W, up to 2 MHz, < 250 fs
Optional 680 – 920 nm amplifier output	680 – 920 nm, > 1500 mW @ 1 MHz or > 1000 mW @ 2 MHz (@ 920 nm), < 290 fs (compressible to < 50 fs) ⁶⁾
Optional 1030 nm oscillator output	1030 \pm 10 nm, up to 500 mW, \approx 65 MHz, \approx 200 fs

ENVIRONMENTAL REQUIREMENTS & DIMENSIONS

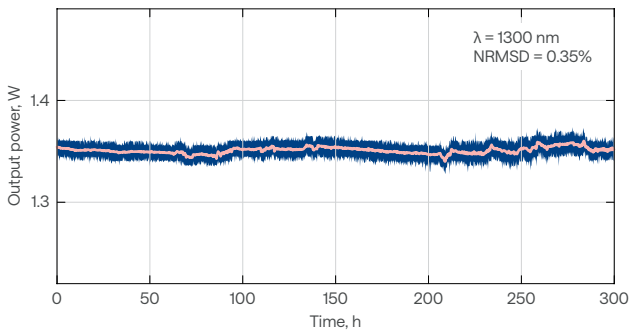
Refer to www.lightcon.com

- ¹⁾ Lower repetition rate with a higher pulse energy option available.
²⁾ Continuous dispersion control; -4000 fs² compensates a microscope with +4000 fs².
³⁾ 1/e², measured at compressor output.
⁴⁾ Expressed as normalized root mean squared deviation (NRMSD).

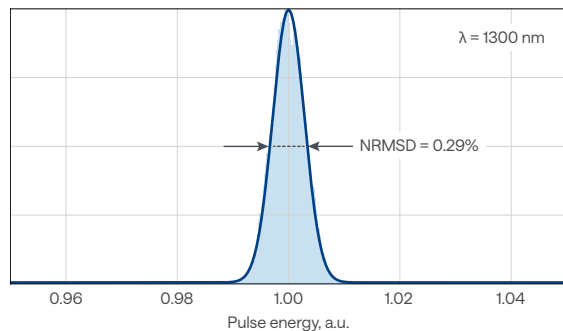
- ⁵⁾ Available only for v1. Contact sales@lightcon.com for more details.
⁶⁾ With external compressor without GDD control, < 70% transmission at 920 nm.



CRONUS-3P typical long-term power stability at 1300 nm

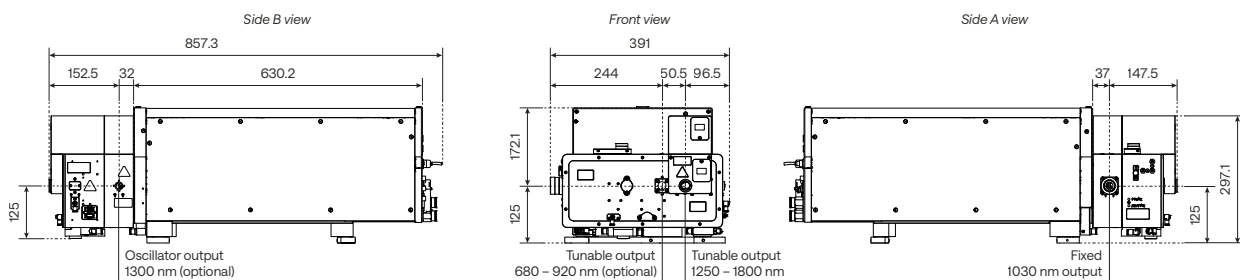


CRONUS-3P typical pulse-to-pulse energy distribution at 1300 nm



Drawings

CRONUS-3P drawing



Three-Channel Wavelength-Tunable Femtosecond Laser



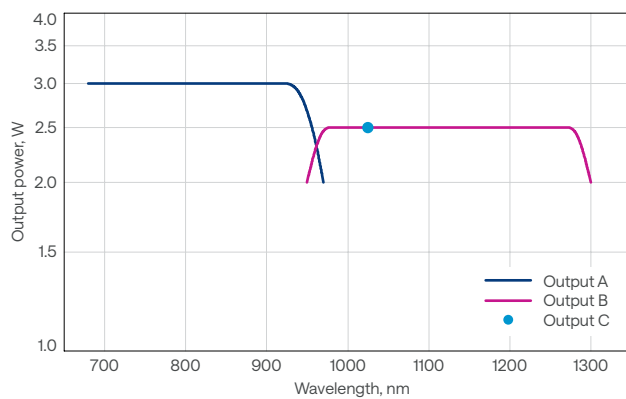
Watt-level output at high repetition rate for fast imaging

Two tunable and one fixed output for simultaneous multibeam excitation

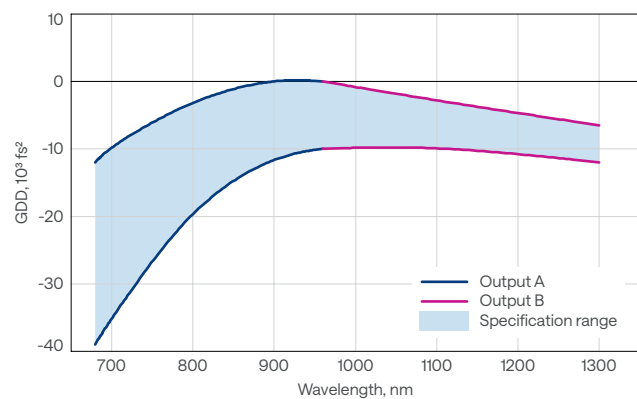
Automated GDD control for shortest pulses at the sample

Industrial-grade design for high power and beam stability

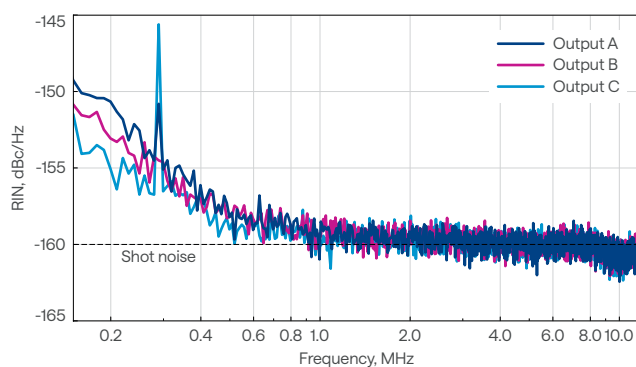
CRONUS-2P tuning curve



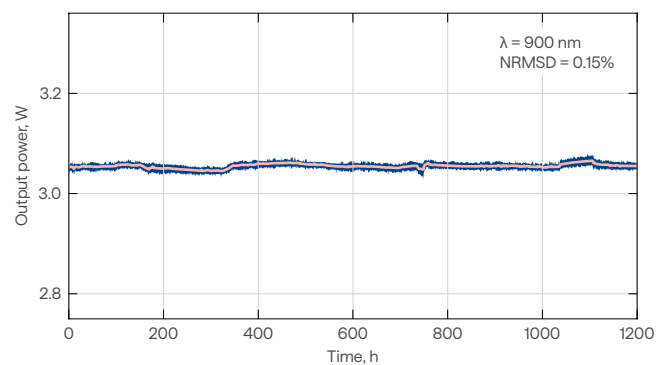
CRONUS-2P GDD control range



CRONUS-2P relative intensity noise (RIN)



CRONUS-2P typical output power stability at 900 nm



Specifications

Model	CRONUS-2P		
	Output A	Output B	Output C
Tuning range ¹⁾	680 – 960 nm	940 – 1300 nm	1025 ± 10 nm (fixed)
Output power ²⁾³⁾	> 3 W @ 920 nm	> 2.5 W @ 1100 nm	> 2.5 W
Pulse duration ⁴⁾⁵⁾	< 160 fs		
Repetition rate	77 ± 1 MHz		
Beam quality, M^2 ³⁾⁴⁾	< 1.2		
Polarization	Linear, horizontal		
Beam divergence, full angle	< 1 mrad		< 1.5 mrad
Beam diameter ⁴⁾ (1/e ²)	3.0 ± 0.4 mm	3.2 ± 0.4 mm	2.8 ± 0.4 mm
Beam ellipticity ⁴⁾	> 0.8		
Beam astigmatism ⁴⁾	< 20%		
Beam pointing stability ⁶⁾	< 200 μrad		n/a
Long-term power stability, 24 h ⁴⁾⁷⁾	< 1%		
GDD control range	-10 000 to -35 000 fs ² @ 700 nm -3 000 to -20 000 fs ² @ 800 nm 0 to -10 000 fs ² @ 920 nm	0 to -10 000 fs ² @ 960 nm -3 000 to -10 000 fs ² @ 1100 nm -8 000 to -12 000 fs ² @ 1300 nm	n/a

OPTIONAL POWER CONTROL

Tuning range ⁸⁾	680 – 960 nm	940 – 1300 nm	1025 ± 10 nm (fixed)
Output power ⁹⁾	> 2 W @ 920 nm	> 2 W @ 1100 nm	> 1.5 W
Rise/fall time ¹⁰⁾	< 300 ns		
Contrast ratio	1000:1		
GDD control range	0 to -6 500 fs ² @ 920 nm	0 to -10 000 fs ² @ 1100 nm	n/a

OPTIONAL WAVELENGTH EXTENSIONS (UV – VIS)

Second harmonic tuning range	340 – 480 nm ¹¹⁾	480 – 650 nm ¹¹⁾	n/a
Conversion efficiency at peak	> 30%		

ENVIRONMENTAL REQUIREMENTS & DIMENSIONS

Refer to www.lightcon.com

¹⁾ Configuration with dual-output A or dual-output B is also available.

²⁾ Simultaneous mode: > 1 W @ 920 nm, > 1 W @ 1100 nm, and > 2.5 W @ 1025 nm.

³⁾ Power control using AOM is applicable, specifications below.

⁴⁾ Specified at 920 nm, 1100 nm, and 1025 nm, respectively.

⁵⁾ IR pulse duration determined assuming sech² shape.

⁶⁾ Beam pointing deviation over the entire tuning and GDD control range.

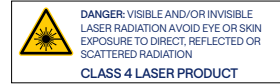
⁷⁾ Expressed as normalized root mean squared deviation (NRMSD); with less than ±1 °C temperature change after 1 h warm up.

⁸⁾ Configuration with dual-output A or dual-output B is also available.

⁹⁾ Simultaneous mode: > 0.7 W @ 920 nm, > 0.7 W @ 1100 nm, and > 1.5 W @ 1025 nm.

¹⁰⁾ Specified from 5% to 95%.

¹¹⁾ Multiple second harmonic configurations available. For more information contact sales@lightcon.com.



Drawings

CRONUS-2P drawing

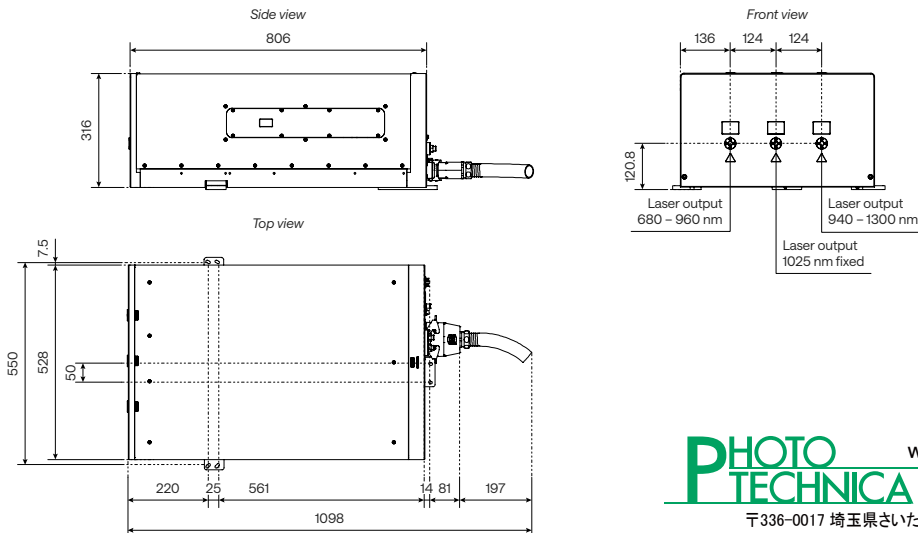


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