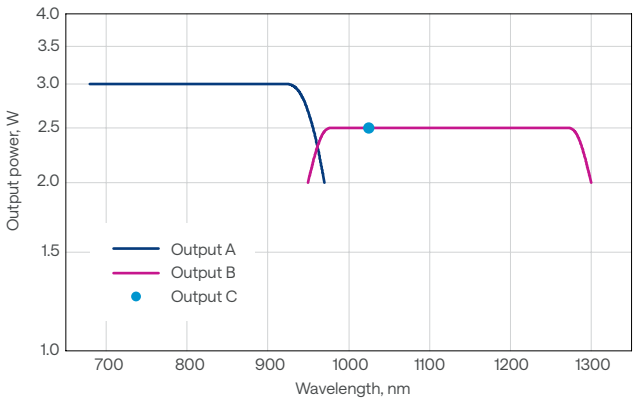
CRONUS | 2P

NEW

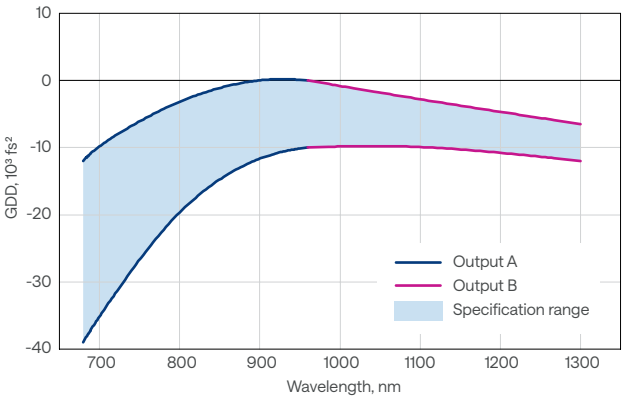
Three-Channel Wavelength-Tunable Femtosecond Laser

- 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

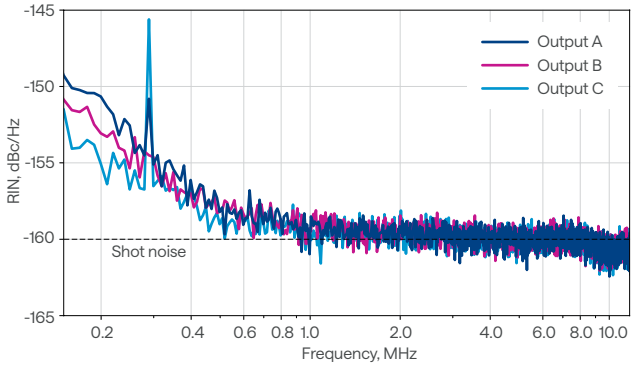
CRONUS-2P tuning curve



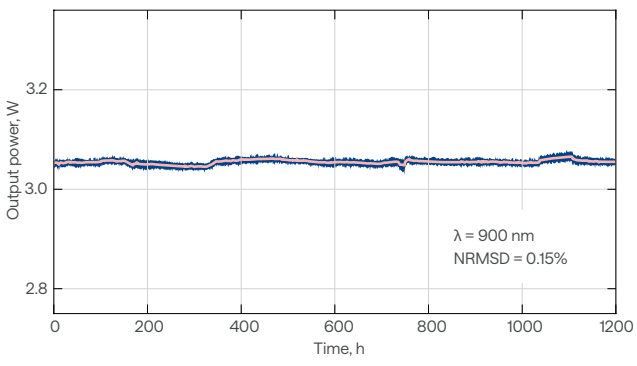
CRONUS-2P GDD control range



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	960 – 1300 nm	1025 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	−10000 to −35000 fs^2 @ 700 nm −3000 to −20 000 fs^2 @ 800 nm 0 to −10 000 fs^2 @ 920 nm	0 to −10 000 fs^2 @ 960 nm −3000 to −10 000 fs^2 @ 1100 nm −6 000 to −12 000 fs^2 @ 1300 nm	n/a

OPTIONAL POWER CONTROL

Tuning range [8]	680 – 960 nm	960 – 1300 nm	1025 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

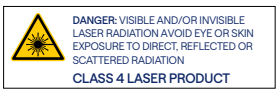
OPTIONAL WAVELENGTH EXTENSIONS (UV – VIS)

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

ENVIRONMENTAL REQUIREMENTS & DIMENSIONS

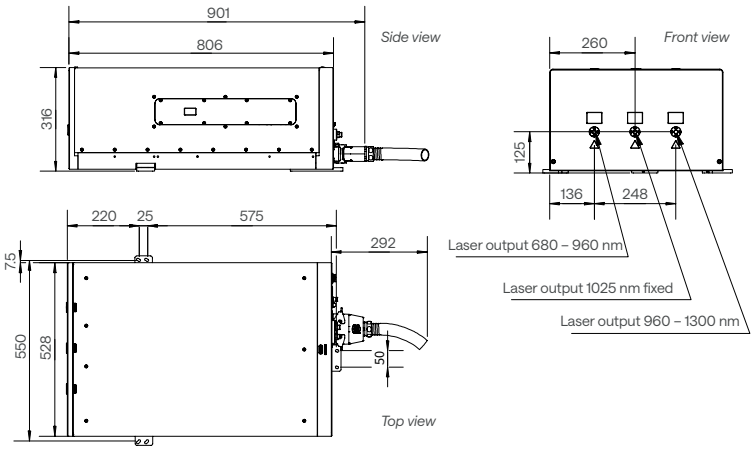
Refer to www.lightcon.com

[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] *Speficied 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 NRMSD (normalized root mean squared deviation); 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%.*



Drawings

CRONUS-2P drawing



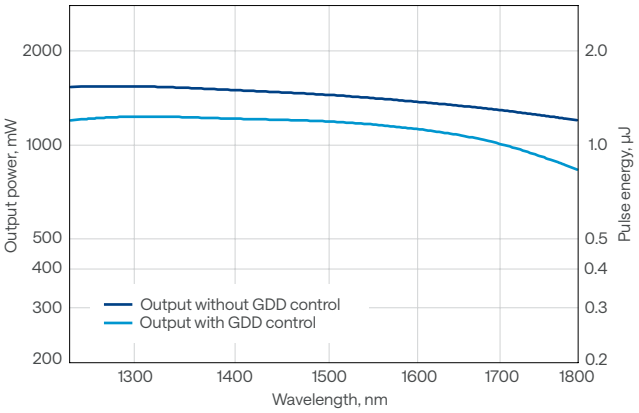
CRONUS | 3P

NEW

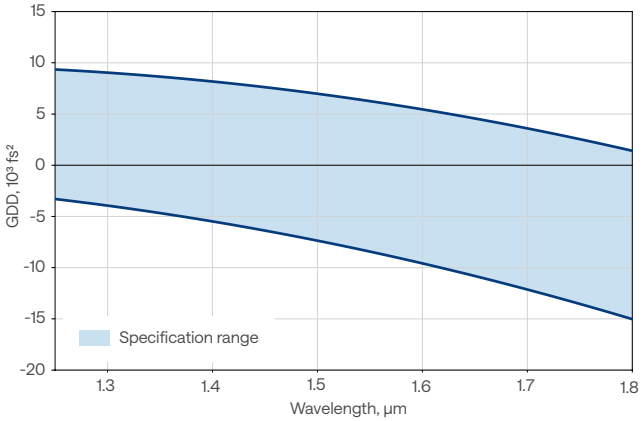
Laser Source for Advanced Nonlinear Microscopy

- 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

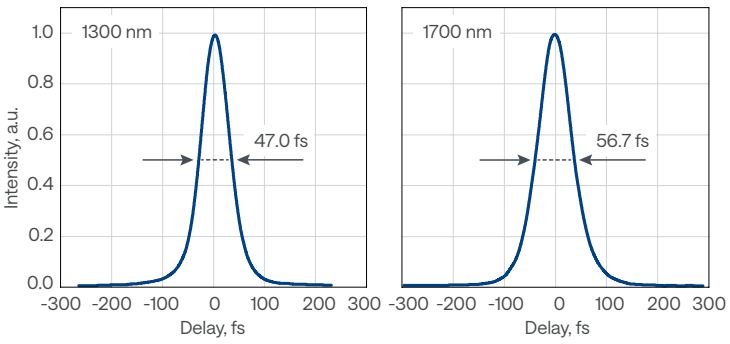
CRONUS-3P output power and pulse energy vs wavelength, at 1 MHz



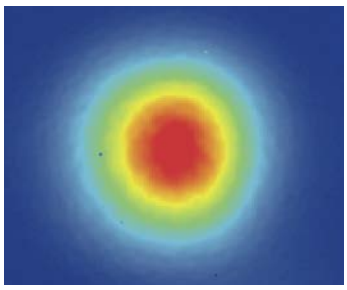
CRONUS-3P GDD control range



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



CRONUS-3P beam profile at 1300 nm



Specifications

NEW

Model	CRONUS-3P		CRONUS-3P with power control	
Tuning range	1250 – 1800 nm			
Repetition rate [1]	Single-shot – 1 MHz or 2MHz			
	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]	−4000 to +9000 fs²	−12000 to +3500 fs²	−4000 to +9000 fs²	−12000 to +3500 fs²
Beam diameter [3]	2 – 4 mm			
Beam quality (M^2)	< 1.2			
Beam ellipticity	> 0.8			
Beam divergence	< 1 mrad			
Beam pointing stability	< 100 µrad			
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

ADDITIONAL OUTPUTS

Auxiliary 1030 nm amplifier output	1030 ± 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 ± 10 nm, up to 500 mW, ≈ 65 MHz, ≈ 200 fs

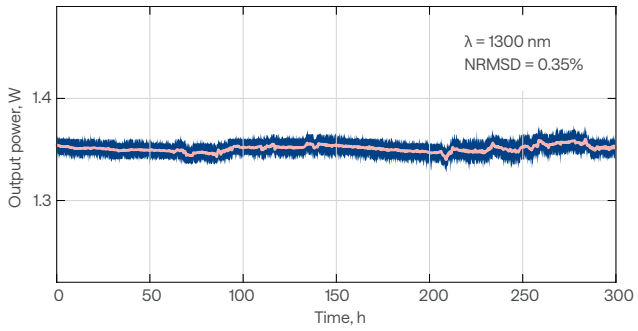
ENVIRONMENTAL REQUIREMENTS & DIMENSIONS

Refer to www.lightcon.com

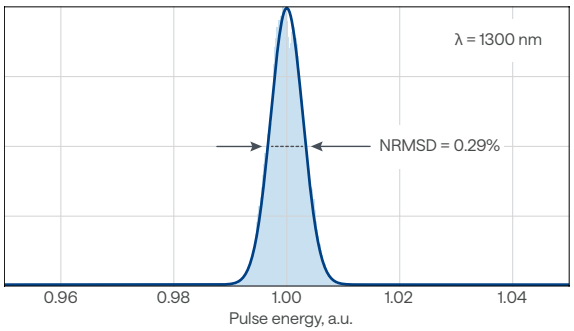
[1] *Lower repetition rate with higher pulse energy option available.*
[2] *Continuous dispersion control; −4000 fs² compensates a microscope with +4000 fs².*
[3] *1/e², measured at compressor output.*
[4] *Expressed as NRMSD (normalized root mean squared deviation).*
[5] *Available only for v1. Contact sales@lightcon.com for more details.*
[6] *With external compressor without GDD control, < 70% transmission at 920 nm.*

DANGER: VISIBLE AND/OR INVISIBLE LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT, REFLECTED OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT

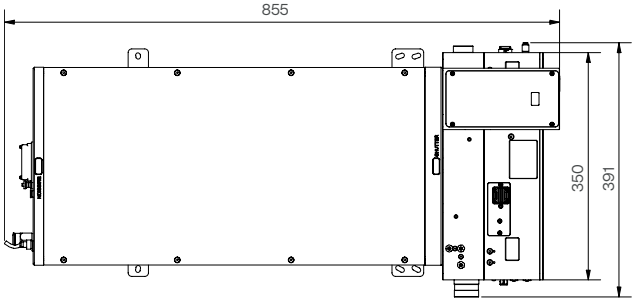
CRONUS-3P typical long-term power stability at 1300 nm



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



CRONUS-3P drawing



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