

High-Repetition-Rate Wavelength-Tunable Femtosecond Lasers

Watt-level output at high repetition rates for fast imaging

NEW

One or two tunable and one fixed output for simultaneous multibeam excitation

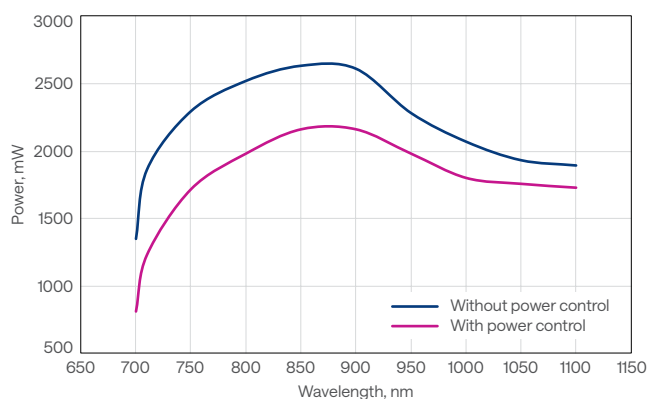
Automated GDD control for the shortest pulses at the sample

Feedback-based output power and wavelength stabilization

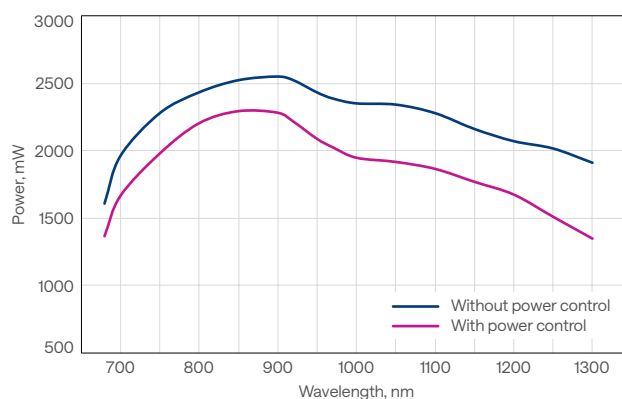
Beam steering & power locking



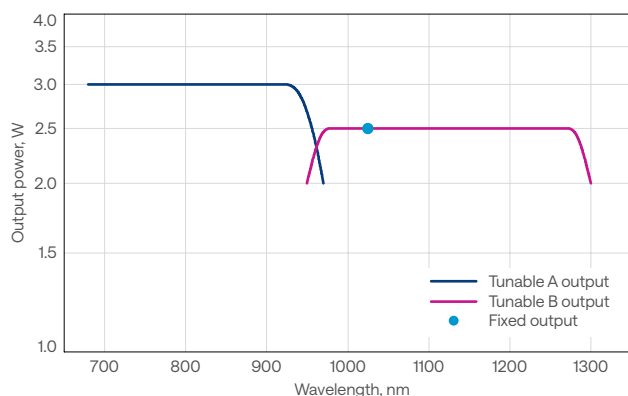
CRONUS-2P typical output power



CRONUS-2P-XR typical output power



CRONUS-2P-DUAL tuning curve



Specifications

NEW

NEW

Model	CRONUS-2P		CRONUS-2P-XR	
Output	Tunable	Fixed	Tunable	Fixed
Tuning range	700 – 1100 nm	1025 ± 10 nm	680 – 1300 nm	1025 ± 10 nm
Output power ¹⁾	> 2.5 W @ 900 nm	> 1.5 W	> 1.5 W @ 700 nm > 2 W @ 800 nm > 2.5 W @ 900 nm > 2 W @ 1100 nm > 1.7 W @ 1200 nm > 1.2 W @ 1300 nm	> 2 W
Pulse duration ^{2) 3)}	< 120 fs	< 130 fs	< 100 fs	< 130 fs
Repetition rate	80 ± 0.5 MHz			
Beam quality, M ² ³⁾	< 1.2			
Polarization	Linear, horizontal			
Beam divergence, full angle ³⁾	< 1.5 mrad			
Beam diameter, 1/e ² ³⁾	1.2 ± 0.2 mm			
Beam ellipticity ³⁾	> 0.8			
Beam astigmatism ³⁾	< 20%			
Beam pointing stability ⁴⁾	< 200 µrad	n/a	< 200 µrad	n/a
Long-term power stability, 8 h ^{3) 5)}	< 1%			
GDD control range	–5000 to –40 000 fs ² @ 710 nm –3000 to –25 000 fs ² @ 800 nm 0 to –15 000 fs ² @ 900 nm –3000 to –10 000 fs ² @ 1000 nm –3000 to –10 000 fs ² @ 1100 nm	n/a	–5000 to –40 000 fs ² @ 700 nm 0 to –15 000 fs ² @ 900 nm 0 to –10 000 fs ² @ 1100 nm 0 to –8000 fs ² @ 1300 nm	n/a

OPTIONAL POWER CONTROL

Output power ⁶⁾	> 2 W @ 900 nm	> 1.5 W	> 1 W @ 700 nm > 1.5 W @ 800 nm > 2 W @ 900 nm > 1.7 W @ 1100 nm > 1.5 W @ 1200 nm > 1 W @ 1300 nm	> 2 W
Rise/fall time ⁷⁾	< 300 ns	n/a	< 300 ns	n/a
Contrast ratio	1000 : 1	n/a	1000 : 1	n/a
GDD control range	0 to –40 000 fs ² @ 710 nm 0 to –20 000 fs ² @ 800 nm 0 to –10 000 fs ² @ 900 nm 0 to –7000 fs ² @ 1000 nm 0 to –5000 fs ² @ 1100 nm	n/a	0 to –40 000 fs ² @ 700 nm 0 to –10 000 fs ² @ 900 nm 0 to –5000 fs ² @ 1100 nm 0 to –4000 fs ² @ 1300 nm	n/a

OPTIONAL WAVELENGTH EXTENSIONS (UV – VIS)

Second harmonic tuning range ⁸⁾	375 – 550 nm	n/a	375 – 600 nm	n/a
Conversion efficiency at peak	> 30%	n/a	> 30%	n/a

DIMENSIONS

Laser head (L × W × H)	633 × 230 × 406 mm	633 × 325 × 406 mm
Power supply (L × W × H)	352 × 75 × 195 mm	
Chiller water-to-air (L × W × H)	400 × 430 × 265 mm	
Chiller water-to-water (L × W × H)	400 × 430 × 220 mm	

ENVIRONMENTAL & UTILITY REQUIREMENTS

Refer to lightcon.com

¹⁾ Power control using AOM is applicable, see the affected specifications below.

²⁾ Pulse duration determined assuming sech² shape.

³⁾ Specified at 900 nm and 1025 nm for CRONUS-2P and CRONUS-2P-XR, respectively.

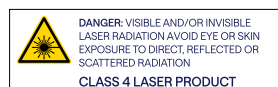
⁴⁾ Beam pointing deviation over the entire tuning and GDD control range.

⁵⁾ Expressed as normalized root mean squared deviation (NRMSD), with less than ±1 °C temperature change after 1 h warm up.

⁶⁾ AOM not available for fixed outputs.

⁷⁾ Specified from 5% to 95%.

⁸⁾ Extended second harmonic tuning range available upon request. For more information contact sales@lightcon.com.



Specifications

Model	CRONUS-2P-DUAL ¹⁾		
Output	Tunable A	Tunable B	Fixed
Tuning range	680 – 960 nm	940 – 1300 nm	1025 ± 10 nm
Output power ²⁾	> 3 W @ 900 nm ³⁾	> 2.5 W @ 1100 nm ³⁾	> 2.5 W
Pulse duration ^{4) 5)}	< 160 fs		
Repetition rate	77 ± 1 MHz		
Beam quality, M ² ⁵⁾	< 1.2		
Polarization	Linear, horizontal		
Beam divergence, full angle ⁵⁾	< 1 mrad		< 1.5 mrad
Beam diameter, 1/e ² ⁵⁾	3.0 ± 0.4 mm	3.2 ± 0.4 mm	2.8 ± 0.4 mm
Beam ellipticity ⁵⁾	> 0.8		
Beam astigmatism ⁵⁾	< 20%		
Beam pointing stability ⁶⁾	< 200 µrad		n/a
Long-term power stability, 8 h ^{5) 7)}	< 1%		
GDD control range	-10 000 to -35 000 fs ² @ 700 nm -3000 to -20 000 fs ² @ 800 nm 0 to -10 000 fs ² @ 900 nm	0 to -10 000 fs ² @ 960 nm -3000 to -10 000 fs ² @ 1100 nm -8000 to -12 000 fs ² @ 1300 nm	n/a

OPTIONAL POWER CONTROL ⁸⁾

Output power	> 2 W @ 900 nm	> 2 W @ 1100 nm	> 2 W
Rise/fall time ⁹⁾	< 300 ns		
Contrast ratio	1000 : 1		
GDD control range	0 to -27 000 fs ² @ 700 nm 0 to -25 000 fs ² @ 800 nm 0 to -6500 fs ² @ 900 nm	0 to -8000 fs ² @ 1100 nm 0 to -10 000 fs ² @ 1300 nm	n/a

OPTIONAL WAVELENGTH EXTENSIONS (UV – VIS)

Second harmonic tuning range ¹⁰⁾	375 – 480 nm	480 – 600 nm	n/a
Conversion efficiency at peak	> 30%		n/a

DIMENSIONS

Laser head (L × W × H)	806 × 528 × 310 mm
Power supply (L × W × H)	378 × 445 × 178 mm
Chiller water-to-air (L × W × H)	400 × 430 × 265 mm
Chiller water-to-water (L × W × H)	400 × 430 × 220 mm

ENVIRONMENTAL & UTILITY REQUIREMENTS

Refer to lightcon.com

¹⁾ Configurations with either dual-output A or dual-output B are also available for CRONUS-2P-DUAL model. A and B channels can be tuned independently.

²⁾ Power control using AOM is applicable, see the affected specifications below.

³⁾ Simultaneous mode: > 1 W @ 900 nm, > 1 W @ 1100 nm, and > 2.5 W @ 1025 nm.

⁴⁾ Pulse duration determined assuming sech² shape.

⁵⁾ Specified at 900 nm, 1100 nm, and 1025 nm.

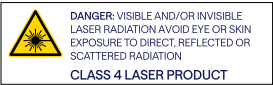
⁶⁾ Beam pointing deviation over the entire tuning and GDD control range.

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

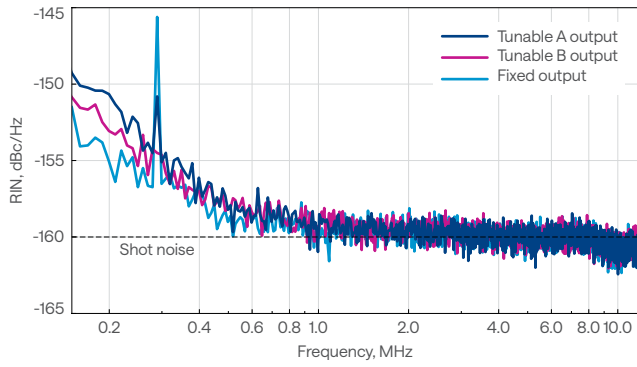
⁸⁾ Power control module for CRONUS-2P-DUAL is external.

⁹⁾ Specified from 5% to 95%.

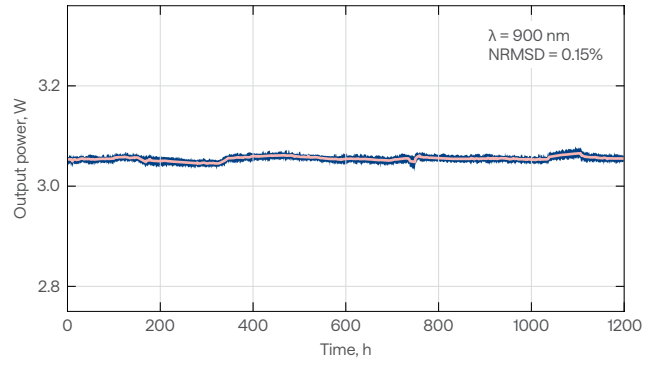
¹⁰⁾ Extended second harmonic tuning range available upon request. For more information contact sales@lightcon.com.



CRONUS-2P-DUAL relative intensity noise (RIN)

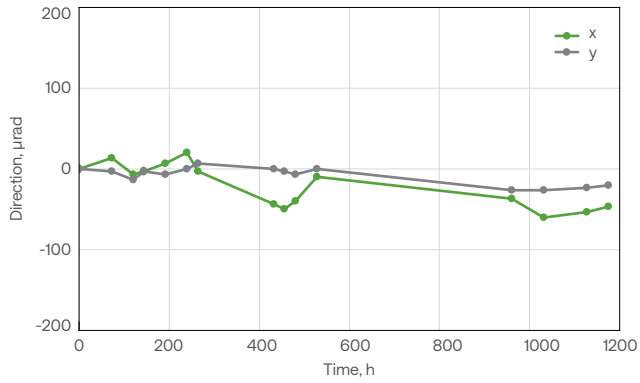


CRONUS-2P-DUAL typical output power stability at 900 nm



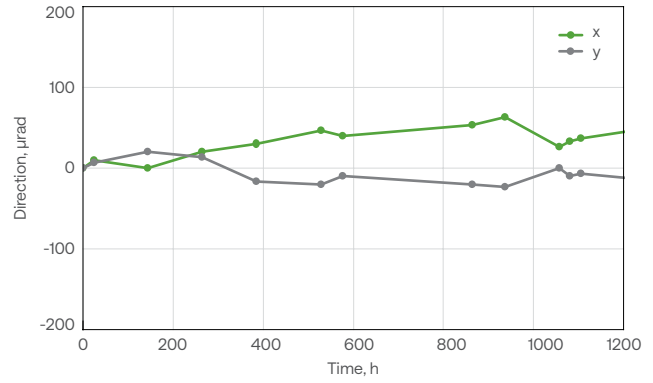
CRONUS-2P-DUAL

Long-term beam direction stability at 950 nm



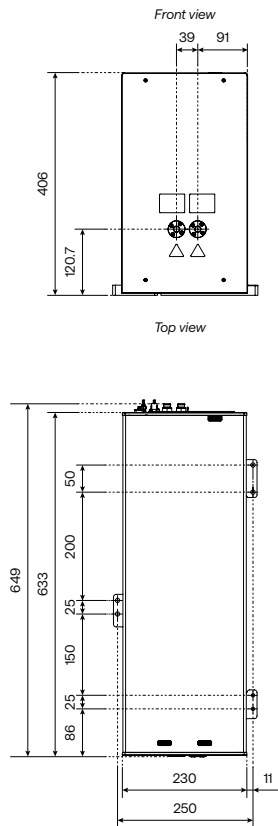
CRONUS-2P-DUAL

Long-term beam direction stability at 1100 nm

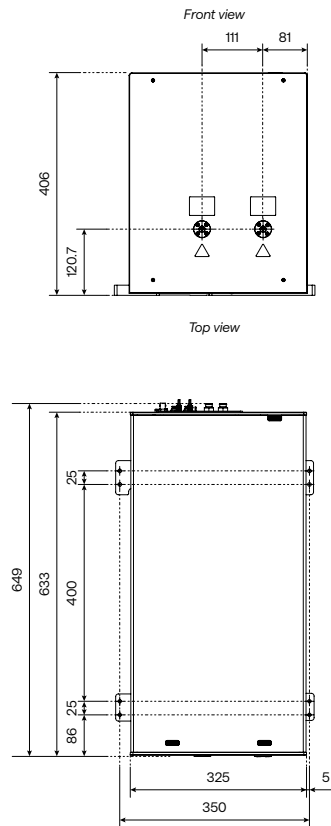


Drawings

CRONUS-2P



CRONUS-2P-XR



CRONUS-2P-DUAL

