CRONUS | 2P

NEW

Three-Channel Wavelength-Tunable Femtosecond Laser

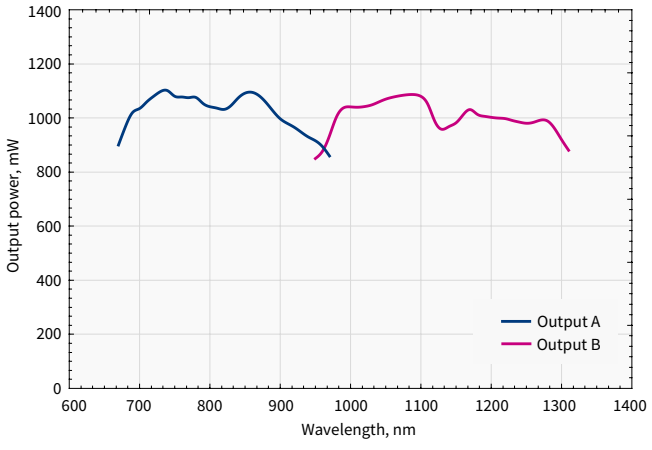
FEATURES

- Two tunable (680 – 960 nm, 960 – 1300 nm) and one fixed (1025 nm) simultaneous and synchronized outputs
- Automated dispersion compensation
- High repetition rate
- High output power
- Automated hands-free operation
- Industrial-grade design

CRONUS-2P is a femtosecond laser providing three simultaneous and synchronized outputs with high repetition rate, high output power, short pulse duration, and GDD control, making it the ultimate source for nonlinear microscopy. Two outputs are independently tunable in the 680 – 960 nm and 960 – 1300 nm ranges, while the third is fixed at 1025 nm. The CRONUS-2P can be used for simultaneous excitation of multiple fluorescent probes, calcium indicators, or opsins at their absorption maxima, whereas second- and third harmonic emission (SHG and THG) can be spectrally shifted for ease of detection or resonant enhancement.

The three simultaneous outputs also enable advanced coherent anti-Stokes and stimulated Raman scattering (CARS and SRS) applications with dual-band imaging, a broader selection of vibrational resonance frequencies, constant-difference dual beam tuning, resonant enhancement, and more.

CRONUS-2P is a fully automated and robust next-generation laser system built on over 25 years of experience in designing and manufacturing femtosecond lasers and wavelength-tunable sources.



CRONUS tuning curves

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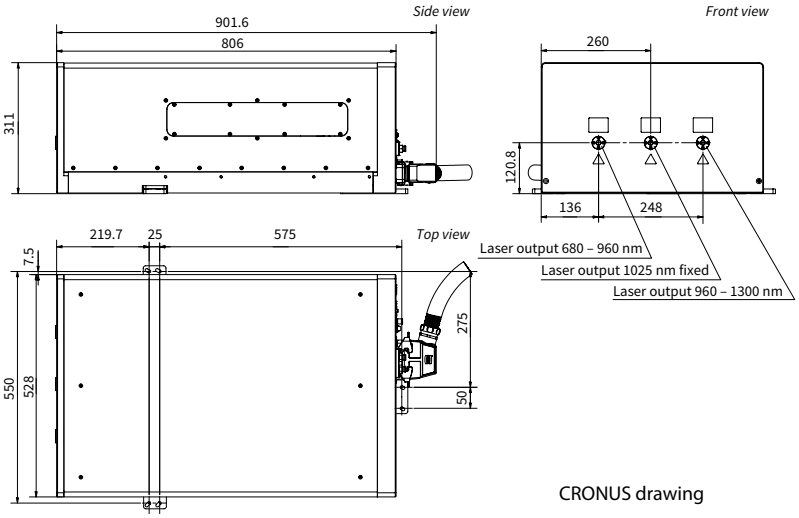
SPECIFICATIONS

	Output A	Output B	Output C
OUTPUT CHARACTERISTICS			
Tuning range	680 – 960 nm	960 – 1300 nm	1025 nm (fixed)
Output power	> 700 mW at 700 nm > 900 mW at 850 nm > 700 mW at 960 nm	> 700 mW at 960 nm > 800 mW at 1100 nm > 700 mW at 1300 nm	> 800 mW
Pulse duration [1) 2)]	< 160 fs		
Repetition rate	76.8 ± 1 MHz		
Power noise [2) 3)]	< 0.5%		
Long-term power stability [2) 4)]	< 1%		
Beam quality [2)]	TEM_{00}; M^2 < 1.2		
Polarization	Linear, horizontal		
Tuning speed [5)]	> 50 nm/s		
Beam divergence, full angle	< 1 mrad		< 1.5 mrad
Beam diameter [2)] **(1/e²)**	3.0 ± 0.4 mm	3.2 ± 0.4 mm	2.8 ± 0.4 mm
Beam ellipticity [2)]	0.8 – 1.2		
Beam astigmatism [2)]	< 20%		
Beam pointing stability [6)]	< 200 µrad		–
Pre-compensation GDD range	700 nm: −10 000 to −35 000 fs² 800 nm: −3000 to −20 000 fs² 960 nm: 0 to −10 000 fs²	960 nm: 0 to −10 000 fs² 1100 nm: −3000 to −10 000 fs² 1300 nm: −6 000 to −12 000 fs²	–
ENVIROMENTAL REQUIREMENTS			
Altitude	< 2000 m		
Temperature, operating	18 – 30 °C		
Temperature, storage	10 – 35 °C		
Relative humidity, operating	< 80% (non condensing)		
DIMENSIONS			
Laser head (L × W × H)	806 × 528 × 311 mm		
Rack for power supply and chiller (L × W × H)	642 × 553 × 673 mm		

1) IR pulse duration determined assuming sech2 *shape.*
2) At 850 nm, 1050 nm and 1025 nm, respectively.
3) Amplitude noise expressed as RMSE in a frequency range of 100 Hz to 10 MHz.
4) Expressed as NRMSD (normalized root mean squared deviation) over 2 hours with less than ±1 °C temperature change after 1-hour warm up.
5) Averaged over the entire tuning range in fast sweep mode.
6) Beam pointing deviation over the entire tuning and GDD range.

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

DRAWINGS



CRONUS drawing