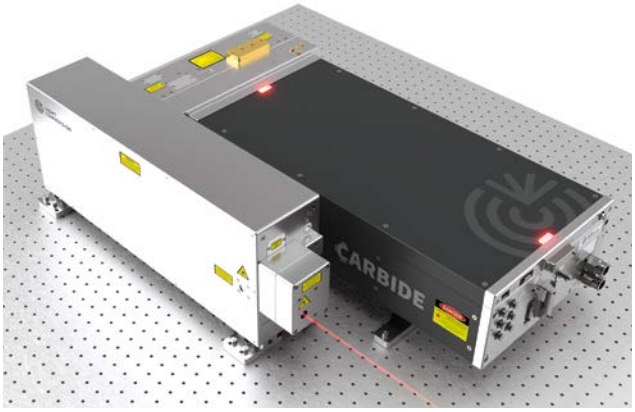
CRONUS | 3P

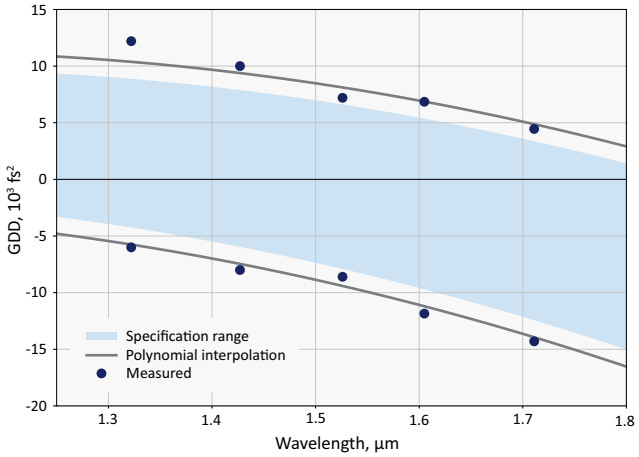
Laser Source for Advanced Microscopy

FEATURES

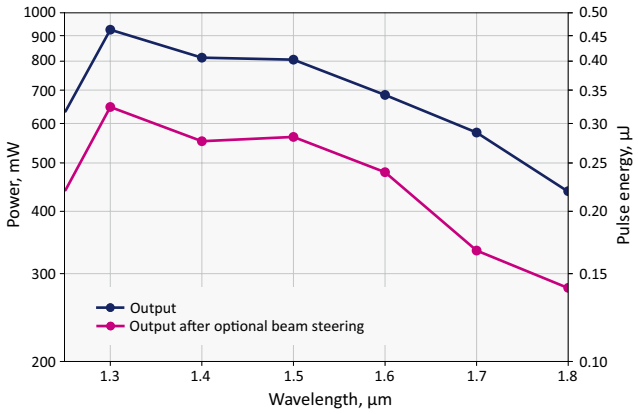
- High pulse energy, high repetition rate, and high average power
- Tunable from 1250 nm to 1800 nm
- Automated dispersion compensation
- < 85 fs pulse duration
- Automated beam resizing and collimation
- Automated average power attenuation
- Environmentally-sealed
- Integrated performance logging
- Optional beam steering



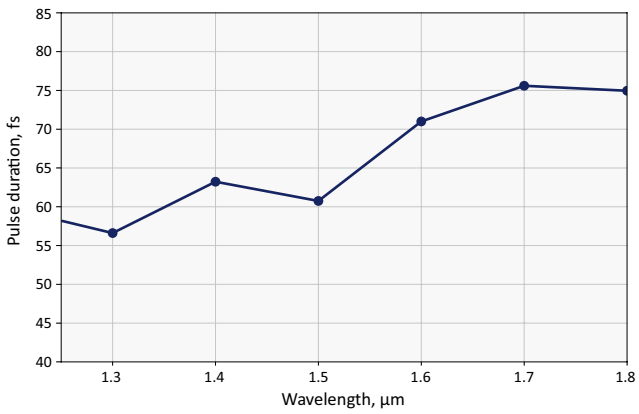
CRONUS-3P is an OPA-based laser source that was developed specifically for nonlinear microscopy. It provides µJ-level sub-85 fs pulses at repetition rates of up to 2 MHz and tunable from 1.25 to 1.8 µm, thus covering the biological transparency windows at 1.3 µm and 1.7 µm for 3PEF microscopy. CRONUS-3P has integrated group delay dispersion (GDD) compensation, ensuring optimal pulse duration at the sample, and optional automated beam steering to guarantee laser pointing stability.



GDD tuning range



Output power and energy vs wavelength.
Pump: 40 W, 2 MHz.



Typical pulse duration

LIGHT CONVERSION

SPECIFICATIONS

Model	CRONUS-3P	
Tuning range	1250 – 1800 nm	
Pulse duration	< 85 fs	
Repetition rate [1]	Single shot to 2 MHz	
	1300 nm	**1700 nm**
Output power	> 1200 mW @ 1 MHz > 800 mW @ 2 MHz	> 750 mW @ 1 MHz > 500 mW @ 2 MHz
GDD compensation	-4000 – 9000 fs^2	-12000 – 3500 fs^2
Beam diameter [2]	1.5 – 2.5 mm	
M^2, TEM_{00}	< 1.4	
Beam ellipticity	> 0.8	
Beam divergence	< 1 mrad	
Long term power stability, 8h [3]	< 1 %	

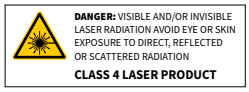
OUTPUT WITHOUT COMPRESSOR

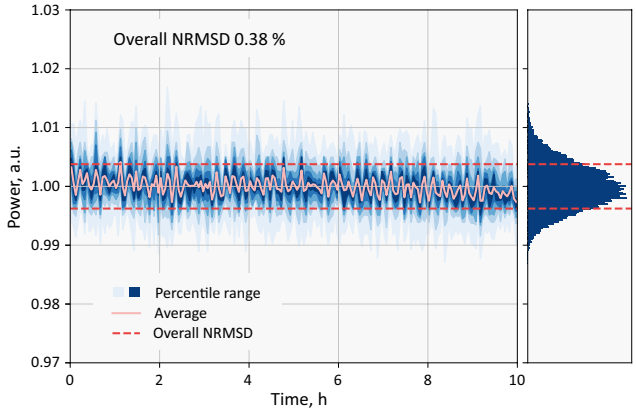
Output power	> 1500 mW @ 1 MHz > 1000 mW @ 2 MHz	> 1050 mW @ 1 MHz > 700 mW @ 2 MHz

OPTIONAL BEAM STEERING

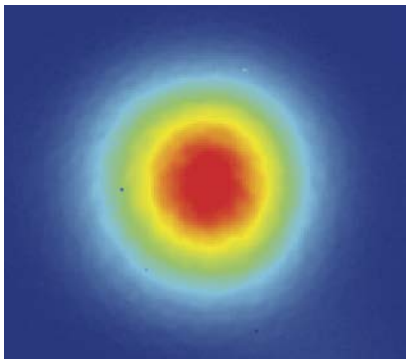
Transmission	> 75 %

[1] *Lower repetition rate and higher pulse energy options available.*
[2] *FWHM, measured at compressor output.*
[3] *Expressed as NRMSD (normalized root mean squared deviation), which is the RMS deviation from the mean divided by the mean and expressed in percent.*



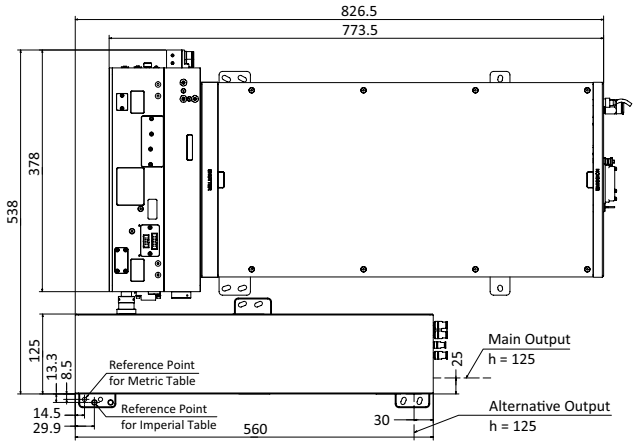


Long-term average power and pulse energy stability, measured at 1700 nm over 10 h

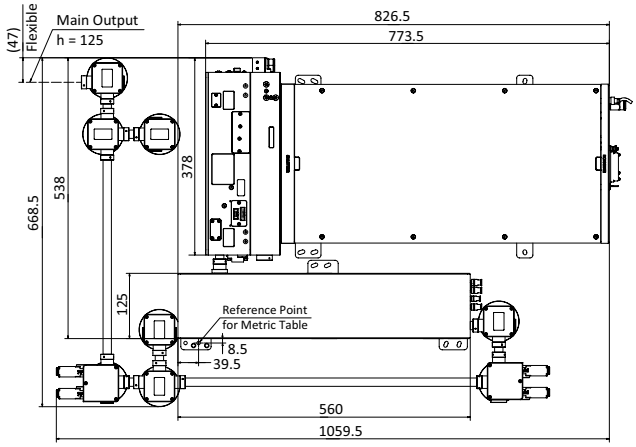


Typical beam profile, ~1.5 mm diameter; measured at 1300 nm

OUTLINE DRAWINGS



CRONUS-3P drawing



CRONUS-3P with optional beam steering drawing