

Chameleon Discovery NX/LX

High-Power, Widely Tunable Femtosecond Laser

Chameleon Discovery series offers next-generation automated, ultrafast tunable lasers designed to meet the most demanding requirements in two-photon imaging and spectroscopy.

Discovery NX delivers the highest power to enable deep in-vivo excitation of all popular fluorescent probes, with the expanded dispersion precompensation range that ensures the shortest pulses at the sample plane across diverse microscopy configurations.

Its octave spanning tuning range is especially advantageous for ultrafast spectroscopy applications, and pairs seamlessly with Harmonic generation accessories, assuring gap-free, automated tuning from 330 nm to 1320 nm. The second output provides a high power 1040 nm beam for multi-wavelength excitation.

Discovery LX model provides a high power tunable output for setups where secondary beam is not required.



FEATURES

- Automated control for hands-free operation
- Highest average power for deepest imaging
- High dispersion precompensation range for optimized peak power
- Secondary output at 1040 nm for multi-wavelength excitation
- Synchronized output pulse trains
- Industrial design for high uptime and reliability
- Can be upgraded with built-in fast power modulation with Total Power Control (TPC)

APPLICATIONS

- Multiphoton Excitation Microscopy
- Optogenetics
- Ultrafast Spectroscopy
- Non-Linear Optics
- Second- and Third-Harmonic Generation Imaging
- CARS/SRS Microscopy

Chameleon Discovery NX/LX

Optical Output A	Chameleon Discovery NX	Chameleon Discovery LX
Tuning Range (nm)	660 to 1320	680 to 1080
Average Output Power (mW)		
680 nm	-	1200
700 nm	2000	1800
800 nm	3600	3200
900 nm	3200	2800
1000 nm	2700	2200
1080 nm	-	1800
1200 nm	2300	-
1300 nm	1900	-
Pulse Duration ^{1,2} (fs)	100	
Repetition Rate (MHz)	80 ±0.5	
Beam Mode ¹	M ² <1.2	
Beam Diameter ¹ (mm)	1.2 ±0.2	
Ellipticity ¹	0.8 to 1.2	
Astigmatism ¹ (%)	<20	
Polarization	Linear, Horizontal	
Noise ^{1,3} (%)	<0.5	
Power Stability ⁴ (%)	±1	
Tuning Speed ⁵ (nm/s)	>50	
Pointing Accuracy ⁶ (μrad)	<350	
Dispersion Compensation Range (fs ²)		
680 nm	0 to -50,000	0 to -50,000
800 nm	0 to -27,000	0 to -27,000
950 nm	0 to -16,000	0 to -16,000
1050 nm	0 to -12,000	0 to -12,000
1300 nm	0 to -10,000	-
Optical Output B		
Wavelength (nm)	1040	
Average Output Power (mW)	>3500	
Pulse Duration ² (fs)	140	
Repetition Rate ⁷ (MHz)	80 ±0.5	
Beam Mode	M ² <1.2	
Beam Diameter (mm)	1.2 ±0.2	
Ellipticity	0.8 to 1.2	
Astigmatism (%)	<25	
Polarization	Linear, Horizontal	
Noise ³ (%)	<0.25	
Power Stability ⁴ (%)	±1	
Dispersion Precompensation ⁸	Optional	

Notes:

1. At 900 nm.
2. Assumes sech² pulse shape.
3. RMS, 10 Hz to 10 MHz.
4. Power drift in a 2 hour period after 1 hour warm-up and ±1°C ambient temperature change.
5. Averaged over entire tuning range.
6. Maximum deviation over entire GDD dispersion adjustment and wavelength range.
7. Phase locked to Output A.
8. External CPC 1040 module.

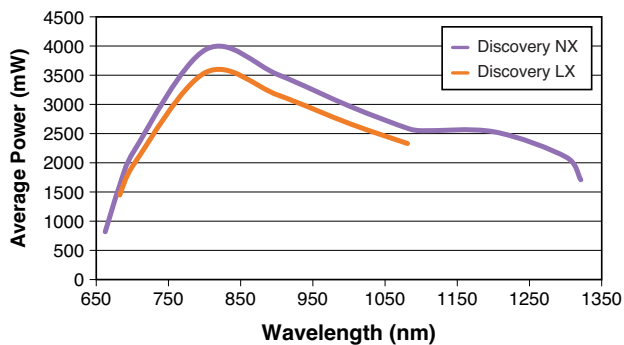
Utility Requirements		Chameleon Discovery NX/LX	
Operating Voltage (VAC)		90 to 250 (auto ranging)	
Maximum Operating Current (A)		<8 at 90 VAC <14 at 90 VAC <2 at 90 VAC	
System Power Consumption (W)		2300	
Line Frequency (Hz)		47 to 63	
Communications/Control Interfaces ¹		RS-232, USB, PC required	
Environmental Requirements			
Operating Temperature Range		15 to 35°C (59 to 95°F)	
Storage Temperature Range		0 to 40°C (32 to 104°F)	
Humidity		Non-condensing	
Altitude (m)		<2000	
Mechanical Specifications			
Power Supply		19" unit, 3U	
Chiller		19" unit, 6U	
MRU		19" unit, 2U	

Notes:

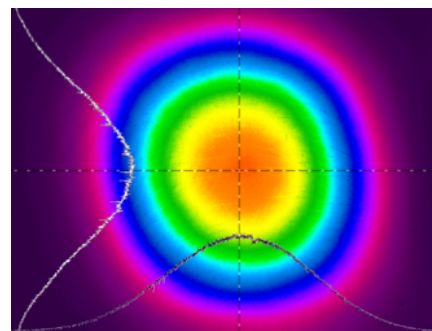
1. PC required.

Typical Performance Data

Chameleon Discovery NX/LX:
Typical Tuning and Power



Chameleon Discovery NX/LX:
Beam Profile at 900 nm



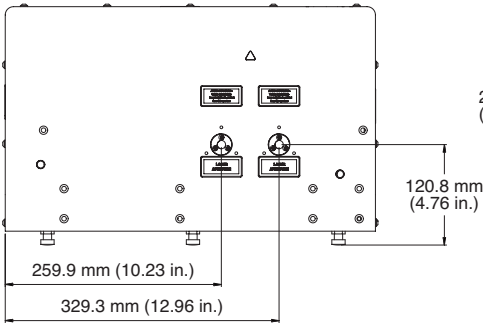
Mechanical Specifications

Chameleon Discovery NX/LX

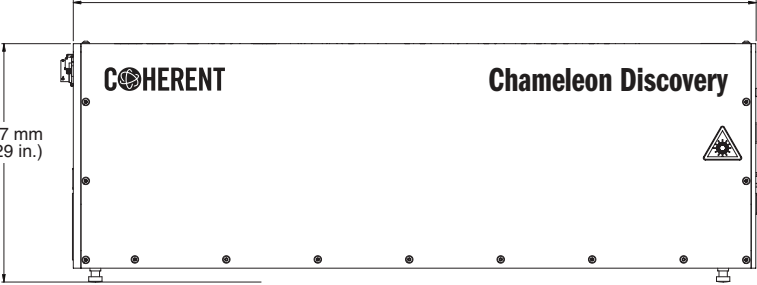
Top View



Front View



820.8 mm (32.31 in.)

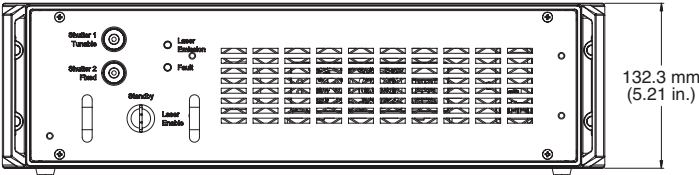
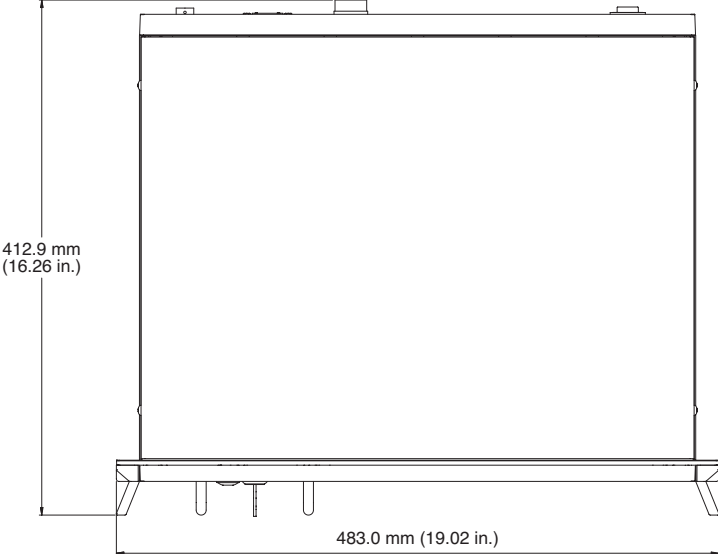


Side View

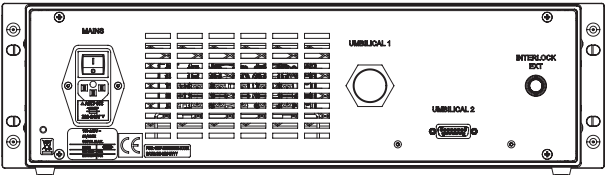
Mechanical Specifications

Chameleon Discovery NX/LX Power Supply

Top View



Front View



Rear View



ISO 9001 Registered