QUANTRONIX
An Excel Technology Company

PRELIMINARY

SCIENTIFIC

Diode-Pumped Nd: YAG

Darwin-X Green 20 W Nd:YAG Lasers

Darwin-X Features & Benefits

Average Power more than 20 W @ 10 kHz

Repetition Rate from 1 kHz to 10 kHz

Superior Beam Profile

Fast and Easy field replaceable Diodes

Diode Warranty: 2 years or 10,000 hours

Compact and hermetically sealed laser head

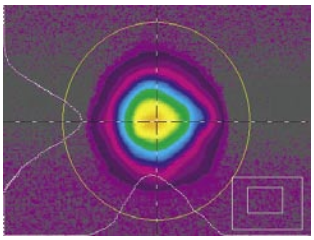
Darwin-X Specifications	
Wavelength (nm)	532
Transverse Mode	MM
Pulse Repetition Rate (kHz)	1 - 10
Average Power @ 10 kHz (W)	20
Pulsewidth (ns)	150
Pulse Stability-Amplitude (%RMS)	2
Pulse Stability-Energy (%RMS)	1.5
Beam Pointing Stability (µrad)	25
Beam Diameter at Output (mm)	2.0
Beam Quality (M^2)	<20
Beam Divergence (mrad)	10
Polarization (horizontal/vertical)	H

The *Darwin-X* is a diode-pumped, all-solid-state, frequency-doubled Nd: YAG laser, producing a high beam quality green (532 nm) output of 20 W @ 10 kHz. It features a compact and hermetically sealed laser-head design.

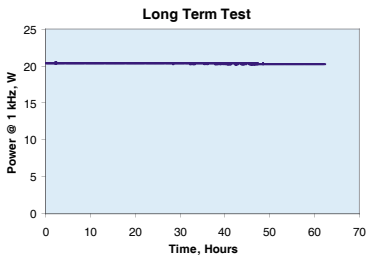
Our proprietary intracavity frequency doubling results in high conversion efficiency, without resorting to tight focusing (and possible optical damage) in the doubling crystal as would be necessary in an extracavity design. Our patented pumping chamber design further increases the overall efficiency. High pulse energy, excellent beam quality, and long component lifetime are all available in this extremely compact diode-pumped package.

The beam quality and long-term power stability make the *Darwin-X* the ideal pump source for regenerative and multipass Ti: Sapphire amplifiers in the range of 1 – 10 kHz.

Proprietary pump diode fabrication techniques allow for extended diode lifetime. Quantronix offers a 10,000-hour/2-year (whichever comes first) diode warranty on every *Darwin*. The *Darwin* also has a user-friendly interface for complete control of all laser functions and parameters.



TYPICAL BEAM PROFILE
at focal point with 500 mm Lens



AVERAGE POWER STABILITY
at 10 kHz – 60 Hours

NOTE

1. Due to continuous improvement of our products, all specifications are subject to change without notice

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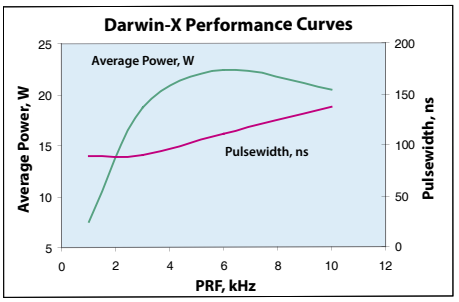
Darwin-X

Mechanical & Utilities Requirements

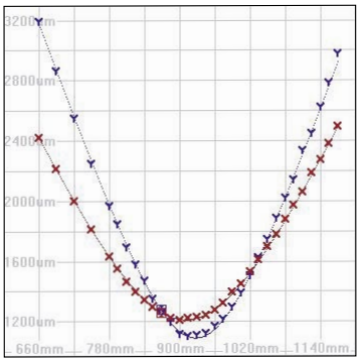
Size	Optical Head (LxWxH)	20 x 4 x 5 in (51 x 10.2 x 12.7 cm)
	Power Supply (LxWxH)	21 x 32 x 40 in (53 x 81 x 102 cm)
Weight	Optical Head	20 lbs. (9 kg)
	Power Supply	250 lbs. (113 kg)
Water	Service External	No external cooling required for standard models External water to water cooling available as option
Electrical	Service	230V +/-10% AC, 50/60 Hz, 30A
Consumption	Nominal	<2.5 kW
Controls	User Interface	Full-featured front panel controls
	Serial Interface	RS– 232
	Control Software	Windows-based *Laser Commander*™ software
Umbilical Length	Optical Head to Power Supply	10.0 ft (3 m)
Environmental Requirements	Operating Temperature Range	15-35˚C
	Storage Temperature Range	-20˚-50˚C
	Relative Humidity	8 - 80% non-condensing

Laser Characteristics

Typical Performance Curves



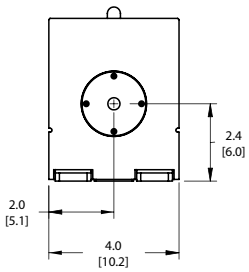
Typical Focusing Plot with 500 mm Lens



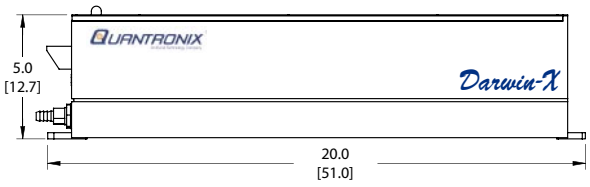
DARWIN-X PHYSICAL LAYOUT

All dimensions are in inches (cm)

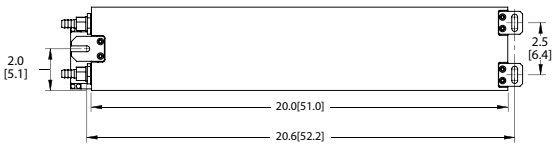
Front View



Side View

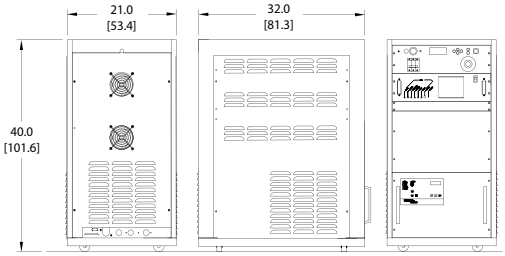


Bottom View



POWER SUPPLY

All dimensions are in Inches (cm)



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