DX Long Pulse Series

DX Nanosecond Lasers

Solid State DPSS, TEM_{00}, Q-Switched Lasers

The DX Long Pulse Series Lasers are nanosecond lasers, offering a compact, industrial-grade solution with high pulse energy and fast repetition rates. The combination of short pulse duration and high pulse energy in the 50 to 200kHz domain make the DX Series ideal for demanding applications requiring high material removal rates with precision beam quality.

Available as active chiller water cooling, the DX Long Pulse lasers provide complete flexibility for OEM integration. A full suite of pulse frequency and pulse energy controls also ensures that the laser output is tailored precisely to a variety of applications.

APPLICATIONS

- Material Removal & Surface Etching
- Texturing for Enhanced Adhesion
- Wafer Dicing and Scribing
- Diamond Cutting
- Bio-Material Patterning
- Edge Isolation and Grooving
- Glass and Sapphire Marking
- Laser Trimming

FEATURES

- Up to ~1mJ Pulse Energy at 50 kHz
- True TEM_{00} Output
- Short Pulse Widths
- Water Cooled
- Robust & Compact Form Factor
- Dynamic **P**ulse **E**nergy **C**ontrol - **PEC**
- **P**osition **S**ynchronized **O**utput - **PSO**
- Power Monitoring and Self-Calibration

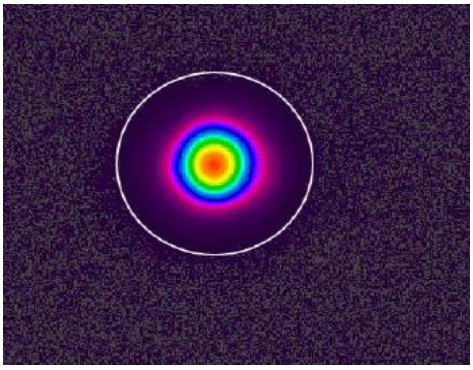
Specifications – **DX Long Pulse Series**		
	DX-532-LP	**DX-532-HLP**
Wavelength (nm)	532	
Average Power	35W @ 40kHz 25W @200kHz	48W @ 40kHz 40W @200kHz
Pulse Energy	~700µJ @ 40kHz ~125µJ @ 200kHz	~1mJ @ 40kHz ~200µJ @ 200kHz
Pulse Width	~85ns @ 40kHz ~340ns @ 200kHz	~65ns @ 40kHz ~250ns @ 200kHz
Pulse repetition rate [1]	Single shot to 300 kHz	
Pulse-to-pulse stability (% RMS) [2]	<1.5	
Long-term power stability (% RMS) [3]	±2	
Beam spatial mode & M^2	TEM_{00} - M^2 <1.2	
Beam divergence (nominal) (mrad)	~ 3	
Beam diameter at exit (nominal) (mm)	~1.25	
Beam roundness (%)	~90	
Beam pointing stability (µrad)	<25	
Polarization ratio	Vertical; >100:1	
	Operational Specifications and Characteristics	
Interface	RS232, Ethernet, Software GUI, External TTL Triggering	
Warm-up time	< 5 minutes from standby, <10 minutes from cold start	
Electrical requirement	100-240 V AC - 32V DC, 15 A [PSU Included]	
Line frequency (Hz)	50-60	
Power consumption (W)	~400	
Dimensions	22.5 x 7.5 x 3.75in [571.5 x 190.5 x 95.25mm]	
Weight	~49 lbs [~22.2kg]	
	Environmental Requirements	
Ambient temperature	Ambient 15°C to 30°C (59°F to 86°F) Operating Range	
	Relative humidity 0% to 80% max, non-condensing	
Storage conditions	-10°C to 40°C; sea level to 12000 m	
	0% to 80% relative Humidity, non-condensing	
Cooling system	Water-Cooled	

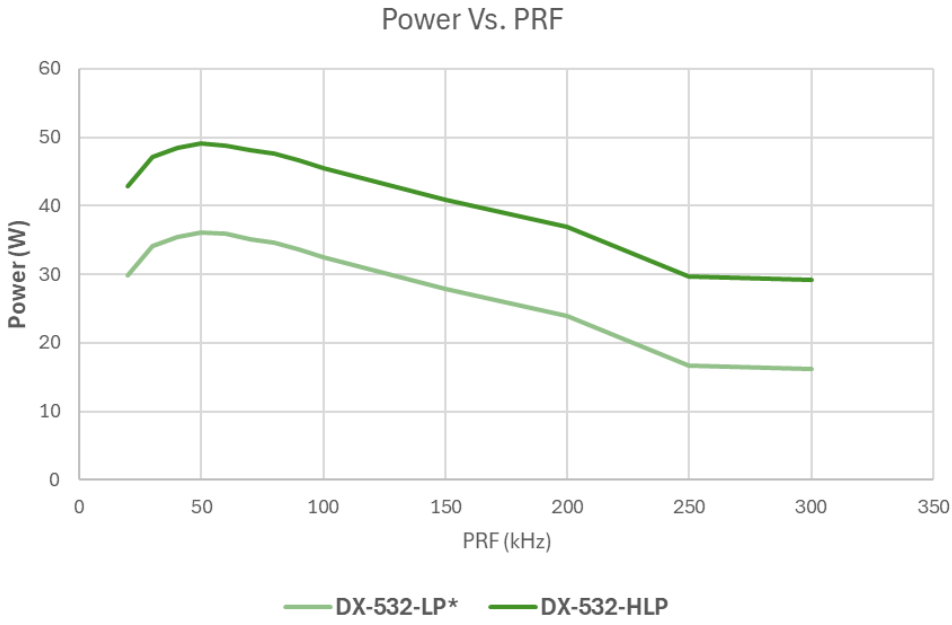
[1.] Lower pulse repetition rates (down to < 20 kHz) performance achieved by pulse energy capping. [2.] Measured at ambient temperature ± 2°C. [3.] Measured over 8 hours ± 1°C.*Illustration includes some simulated data for conceptual visualization.

Specifications – **DX Long Pulse Series**			
	DX-355-LP	**DX-355-HLP**	**DX-355-35-HLP**
Wavelength (nm)	355nm		
Average Power	16W @ 40kHz 4W @ 200kHz	28W @ 40kHz 7W @ 200kHz	35W @ 40kHz 12W @ 200kHz
Pulse Energy	~320µJ @ 40kHz ~20µJ @ 200kHz	~560µJ @ 40kHz ~35µJ @ 200kHz	~700µJ @ 40kHz ~60µJ @ 200kHz
Pulse Width	~95ns @ 40kHz ~250ns @ 200kHz	~70ns @ 40kHz ~220ns @ 200kHz	~60ns @ 40kHz ~185ns @ 200kHz
Pulse repetition rate [1]	Single shot to 200 kHz		Single shot to 250 kHz
Pulse-to-pulse stability (% RMS) [2]	<1.5		
Long-term power stability (% RMS) [3]	±2		
Beam spatial mode & M^2	TEM_{00} - M^2 <1.2		TEM_{00} - M^2 <1.1
Beam divergence (nominal) (mrad)	~ 1.7		~ 2
Beam diameter at exit (nominal) (mm)	~ 0.8		
Beam roundness (%)	~90		
Beam pointing stability (µrad)	<25		
Polarization ratio	Horizontal; >100:1		
	Operational Specifications and Characteristics		
Interface	RS232, Ethernet, Software GUI, External TTL Triggering		
Warm-up time	< 15 minutes from standby, <30 minutes from cold start		
Electrical requirement	100-240 V AC - 32V DC, 15 A [PSU Included]		
Line frequency (Hz)	50-60		
Power consumption (W)	<400		<500
Dimensions	22.5 x 7.5 x 3.75 [571.5 x 190.5 x 95.25mm]		
Weight	~49 lbs [~22.2kg]		
	Environmental Requirements		
Ambient temperature	Ambient 15°C to 30°C (59°F to 86°F) Operating Range		
	Relative humidity 0% to 80% max, non-condensing		
Storage conditions	-10°C to 40°C; sea level to 12000 m		
	0% to 80% relative Humidity, non-condensing		
Cooling system	Water-Cooled		

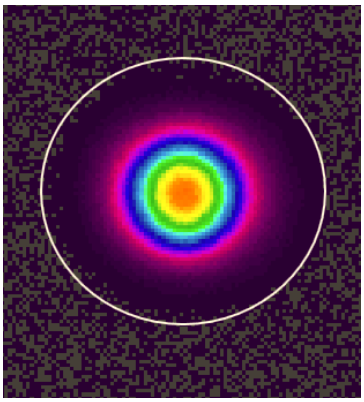
[1.] Lower pulse repetition rates (down to < 30 kHz) performance achieved by pulse energy capping. [2.] Measured at ambient temperature ± 2°C. [3.] Measured over 8 hours ± 1°C. [4.] Larger beam diameters at the exit for UV models (up to ~2.5 mm) are available with the expansion option. *Illustration includes some simulated data for conceptual visualization.

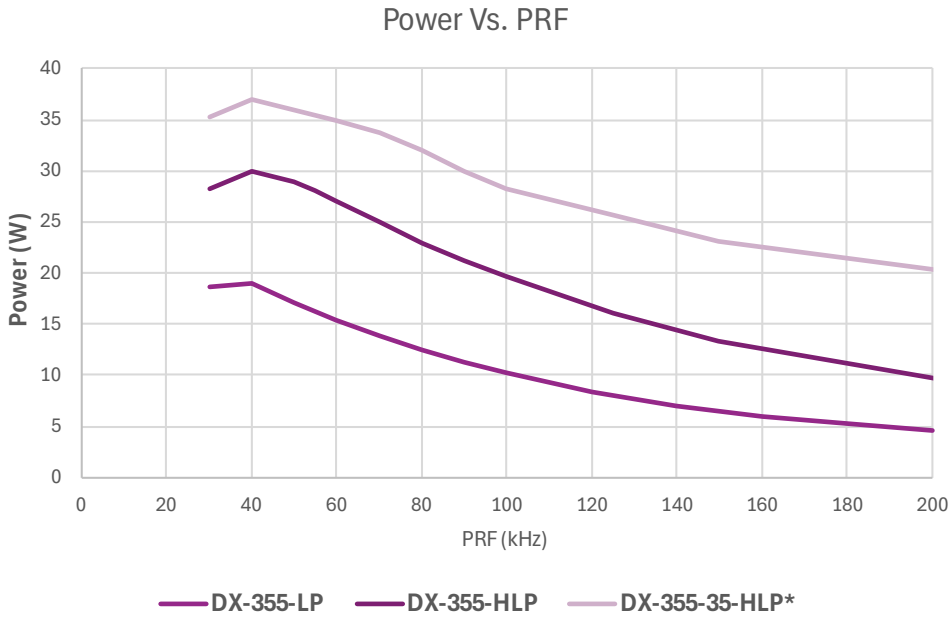
Typical Beam Profile





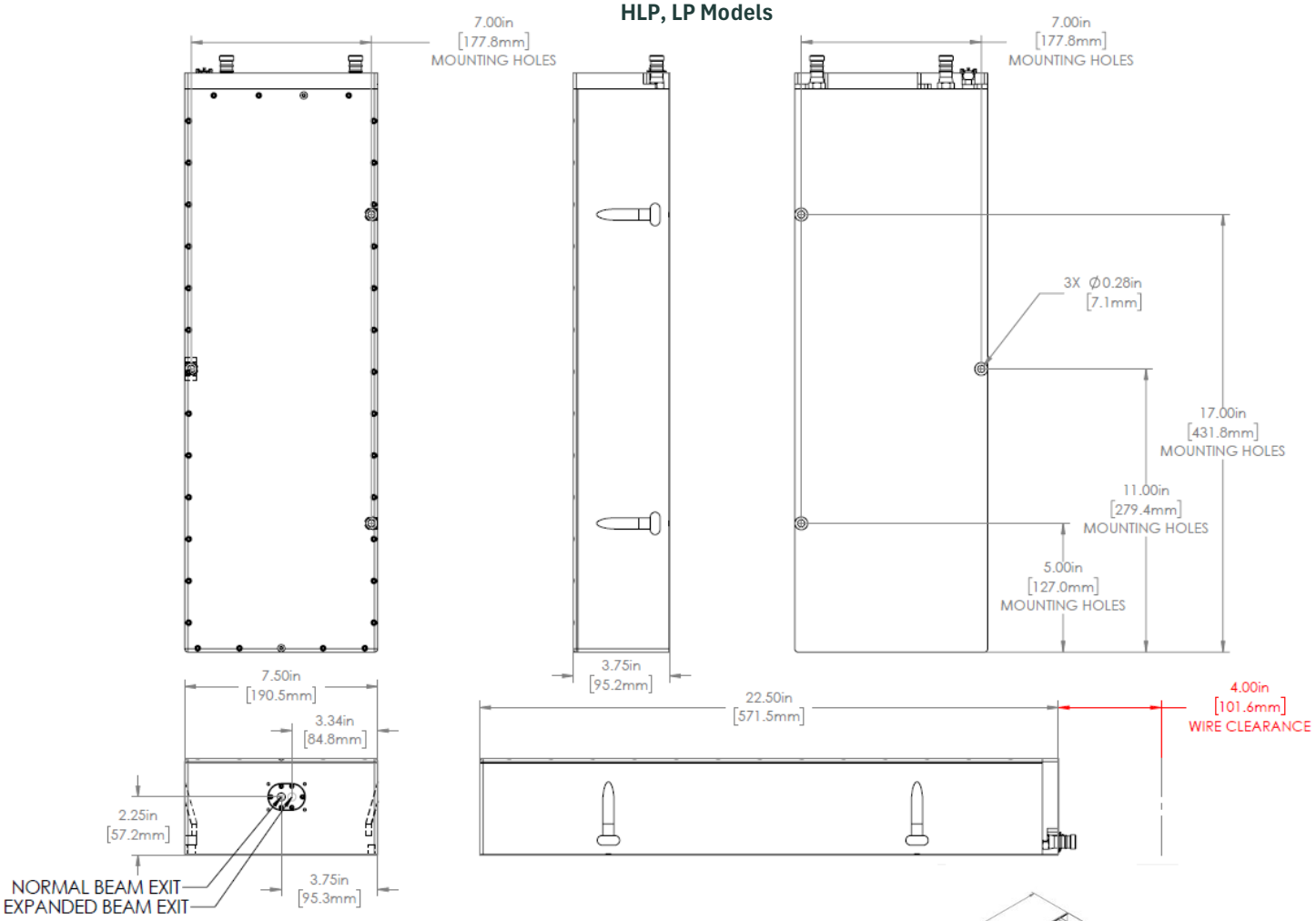
Typical Beam Profile

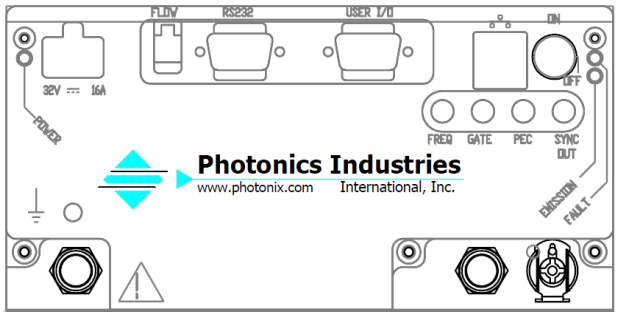


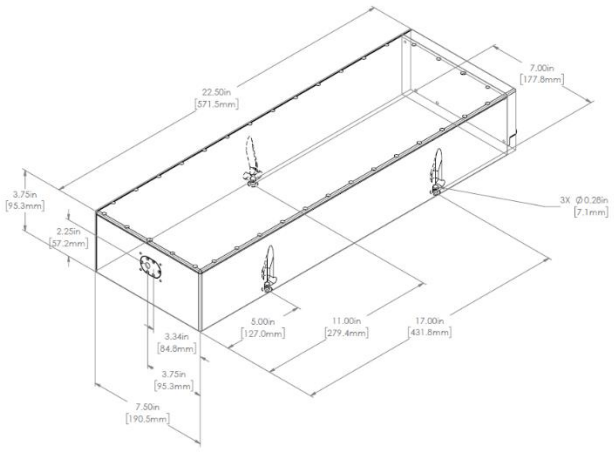


Dimensional Drawings

HLP, LP Models







Our ongoing policy is to improve the design and specification of our products. The information provided is non-binding.

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Photonics Industries International Inc. is the pioneer of intracavity harmonic lasers and is at the forefront of developing, manufacturing, and marketing a wide range of nanosecond, sub-nanosecond, picosecond, and femtosecond lasers for the industrial, scientific, defense and medical industries.

For more information www.photonix.com

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