

DX Long Pulse Series

DX Nanosecond Lasers

Solid State DPSS, TEM₀₀, 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

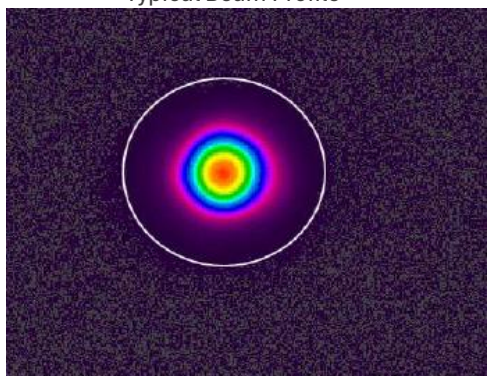
FEATURES

- Up to ~1mJ Pulse Energy at 50 kHz
- True TEM₀₀ Output
- Short Pulse Widths
- Water Cooled
- Robust & Compact Form Factor
- Dynamic **Pulse Energy Control - PEC**
- **Position Synchronized Output - PSO**
- Power Monitoring and Self-Calibration

Specifications – DX Long Pulse Series		
	DX-532-LP	DX-532-HLP
Wavelength	532nm	
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 ²	<1.5% rms	
Long-term power stability ³	±2% rms	
Beam spatial mode & M ²	TEM ₀₀ - M ² <1.2	
Beam divergence (nominal)	~ 3 mrad	
Beam diameter at exit (nominal)	~1.25 mm	
Beam roundness	~90%	
Beam pointing stability	<25 urad	
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	50-60 Hz	
Power consumption	~400W	
Dimensions	22.5 x 7.5 x 3.75in	
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	

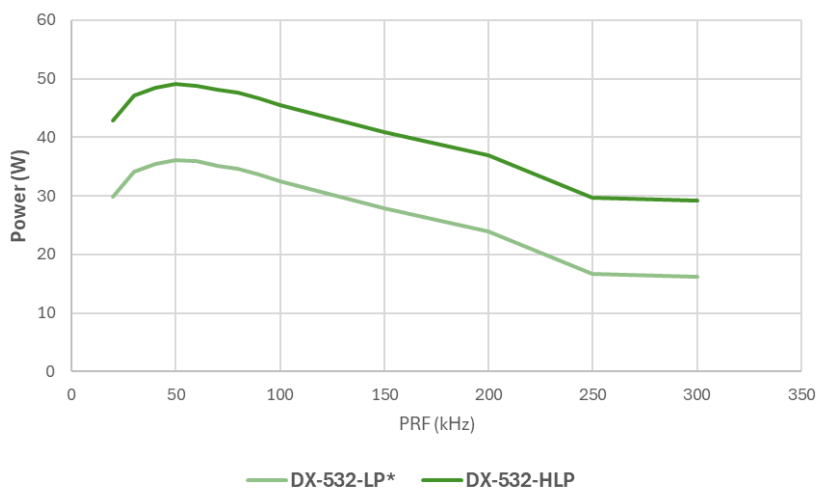
[1.] Lower pulse repetition rates (down to < 20 kHz) performance achieved by pulse energy capping. [2.] Measured at ambient temperature ± 2°C. [3.] Measured over 8 hours ± 1°C. *Illustration includes some simulated data for conceptual visualization.

Typical Beam Profile



DX-532-HLP

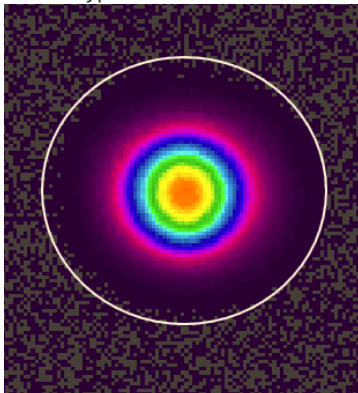
Power Vs. PRF



Specifications – DX Long Pulse Series			
	DX-355-LP	DX-355-HLP	DX-355-35-HLP
Wavelength	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 ²	<1.5% rms		
Long-term power stability ³	±2% rms		
Beam spatial mode & M ²	TEM ₀₀ - M ² <1.2		TEM ₀₀ - M ² <1.1
Beam divergence (nominal)	~ 1.7mrad		~ 2mrad
Beam diameter ⁴ at exit (nominal)	~ 0.8mm		
Beam roundness	~90%		
Beam pointing stability	<25 urad		
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	50-60 Hz		
Power consumption	<400W		<500W
Dimensions	22.5 x 7.5 x 3.75		
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		

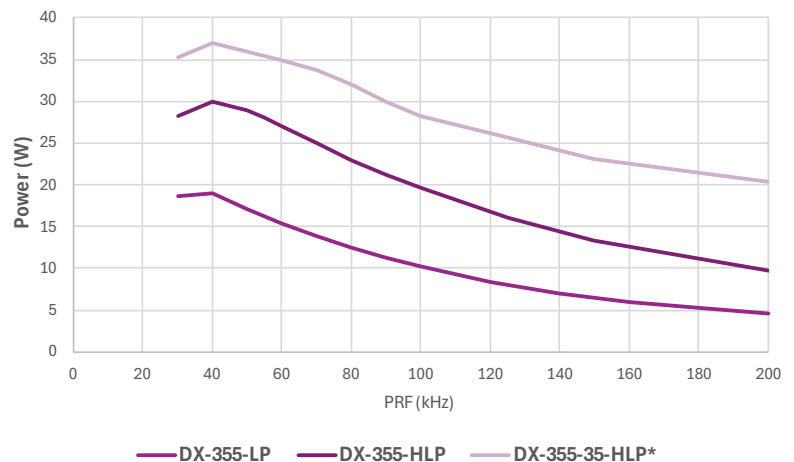
[1.] Lower pulse repetition rates (down to < 30 kHz) performance achieved by pulse energy capping. [2.] Measured at ambient temperature ± 2°C. [3.] Measured over 8 hours ± 1°C. [4.] Larger beam diameters at the exit for UV models (up to ~2.5 mm) are available with the expansion option. *Illustration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

Typical Beam Profile



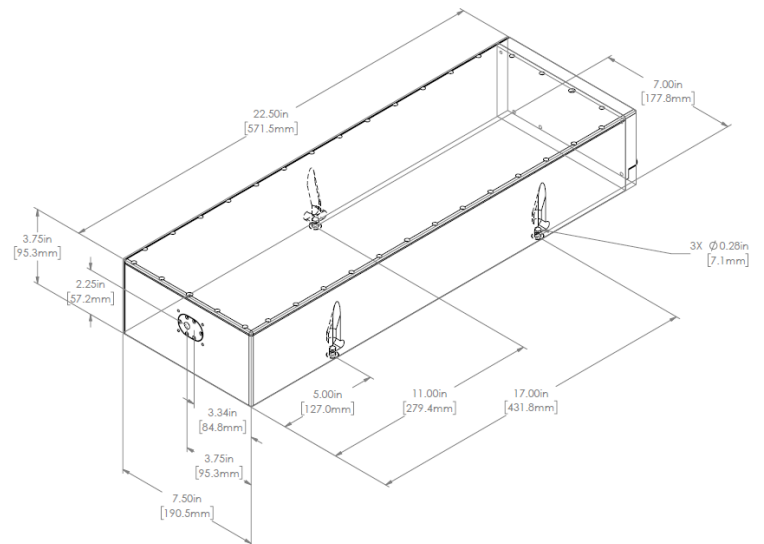
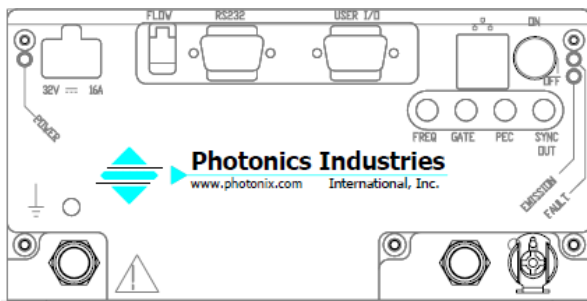
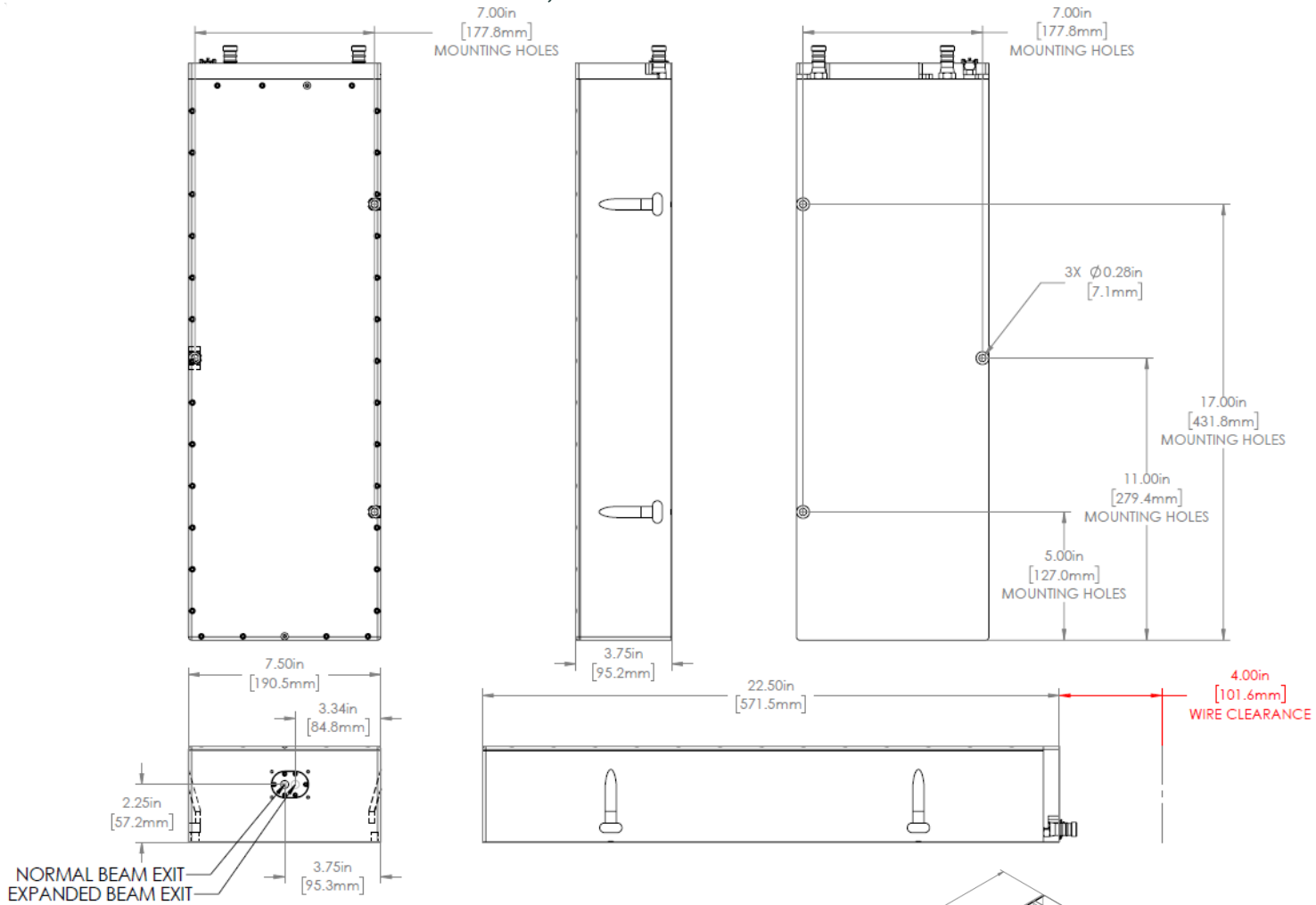
DX-355-LP

Power Vs. PRF



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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Headquarters: 1800 Ocean Ave, Ronkonkoma, New York 11779, United States

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.

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