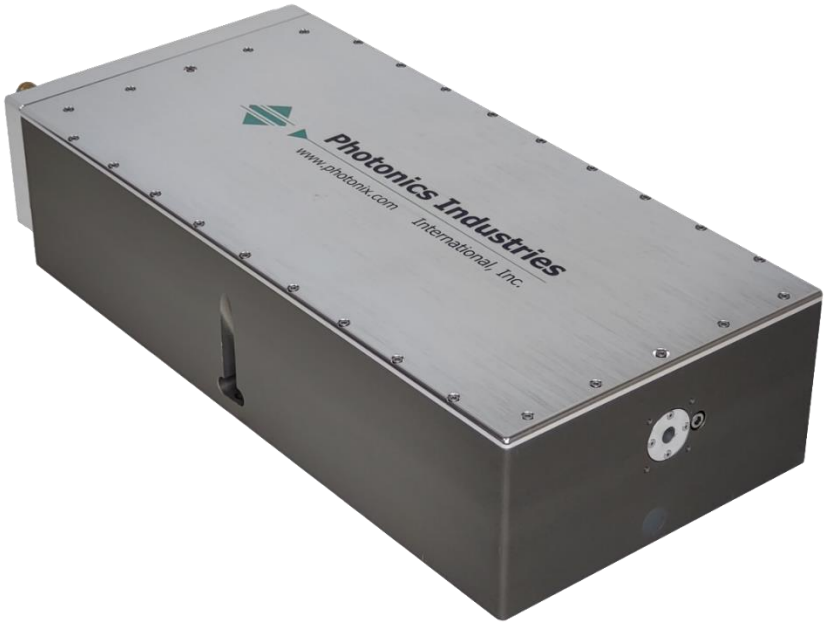
DX Short Pulse Series

DX Nanosecond Lasers

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

For over 30 years, Photonics Industries' DX Series short-pulse nanosecond lasers have set the standard for precision and performance in industrial systems. Compact and powerful, these lasers feature pulse widths as short as ~10 nanoseconds and repetition rates up to an impressive 1 MHz, delivering unparalleled speed and accuracy. Designed for high-production throughput, they are the ideal choice for industries that demand consistent, precision quality at scale.

With tens of thousands of units shipped worldwide, the DX Series has earned a reputation for reliability and innovation. Its patented intracavity harmonic generation technology eliminates harmful indexing on harmonic crystals, ensuring peak performance and extended lifespan. Whether your production needs call for precision micro-machining or high-output manufacturing, the DX Series is engineered to exceed your expectations and elevate your operations.



APPLICATIONS

- Semiconductor Wafer Marking
- Silicon, PERC and Solar Cell
- PCB & Polymer Cutting & Drilling
- Glass and Ceramics Processing
- Surface Cleaning and Ablation
- Microelectronics Fabrication
- Electrode Cutting and Structuring
- Precision Layer Removal for Additive Manufacturing

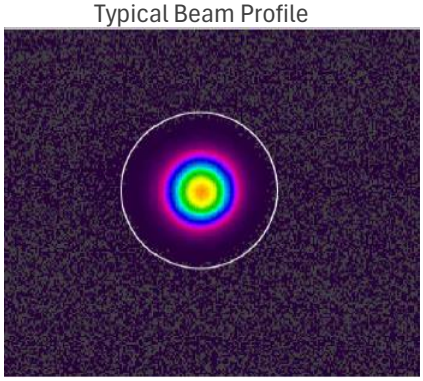
FEATURES

- Up to ~800µJ Pulse Energy at 100 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

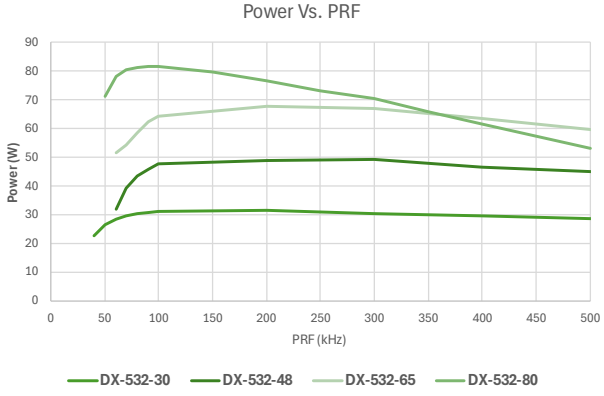
Specifications – **DX Short Pulse Series**				
	DX-532-30	**DX-532-48**	**DX-532-65**	**DX-532-80**
Wavelength (nm)	532			
Average Power (W) @100kHz	30	48	65	80
Pulse Energy (µJ) @100kHz	~500	~600	~700	~800
Pulse Width	~10ns @ 50kHz		~14ns @ 100kHz	~20ns @ 100kHz
Pulse repetition rate [1]	Single shot to 500 kHz (Option up to 1MHz)			
Pulse-to-pulse stability (% RMS) [2]	<2			
Long-term power stability (% RMS) [3]	<2			
Beam spatial mode & M^2	TEM_{00} - M^2 <1.1		TEM_{00} - M^2 <1.2	
Beam divergence (nominal) (mrad)	~ 2.5			
Beam diameter[4] at exit (nominal) (mm)	~ 0.7		~1	
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 - 32 V DC, 16 A [PSU Included]			
Line frequency (Hz)	50-60			
Power consumption (W)	~350		~400	~600
Dimensions	16 x 7.5 x 3.75in [406.4 x 190.5 x 95.25mm]			18 x 7.5 x 3.75in [457.2 x 190.5 x 95.25mm]
Weight	~29 lbs [~13.2kg]			~34.5lbs [15.6kg]
	Environmental Requirements			
Ambient temperature [2]	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.

Typical Beam Profile



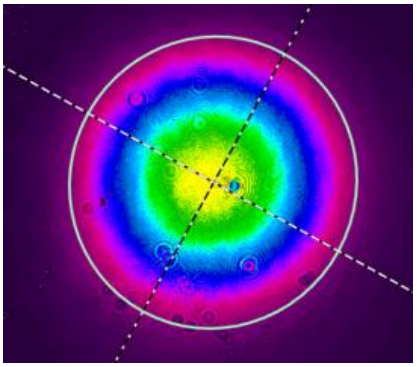
Power Vs. PRF



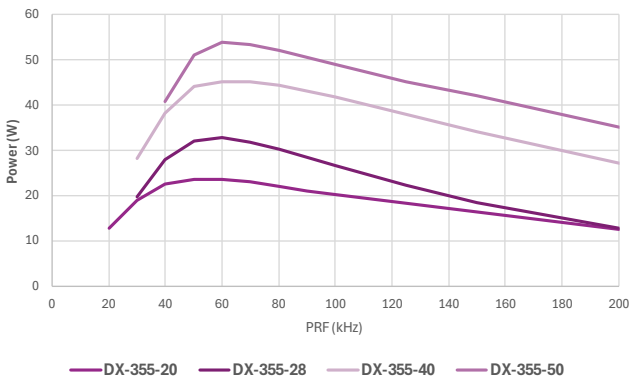
Specifications – **DX Short Pulse Series**				
	DX-355-20	**DX-355-28**	**DX-355-40**	**DX-355-50**
Wavelength (nm)	355			
Average Power (W) @100kHz	20	28	40	50
Pulse Energy (µJ) @50kHz	~400	~560	~800	~1000
Pulse Width (ns) @50kHz	~12			
Pulse repetition rate [1]	Single shot to 300 kHz (Option up to >500kHz)			
Pulse-to-pulse stability (% RMS) [2]	<2			
Long-term power stability (% RMS) [3]	<2			
Beam spatial mode & M^2	TEM_{00} - M^2 <1.1			TEM_{00} - M^2 <1.2
Beam divergence (nominal) (mrad)	< 1.5			
Beam diameter[4] at exit (nominal) (mm)	~ 0.6		~ 2.5	
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	< 5 minutes from standby, <10 minutes from cold start			
Electrical requirement	100-240 V AC - 32 V DC, 16 A [PSU Included]			
Line frequency (Hz)	50-60 Hz			
Power consumption (W)	~350		~400	~600
Dimensions	18 x 7.5 x 3.75 [457.2 x 190.5 x 95.25mm]			
Weight	~34.5lbs [15.6kg]			
	Environmental Requirements			
Ambient temperature [2]	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 (up to ~2.5 mm) are available with the expansion option.

Typical Beam Profile

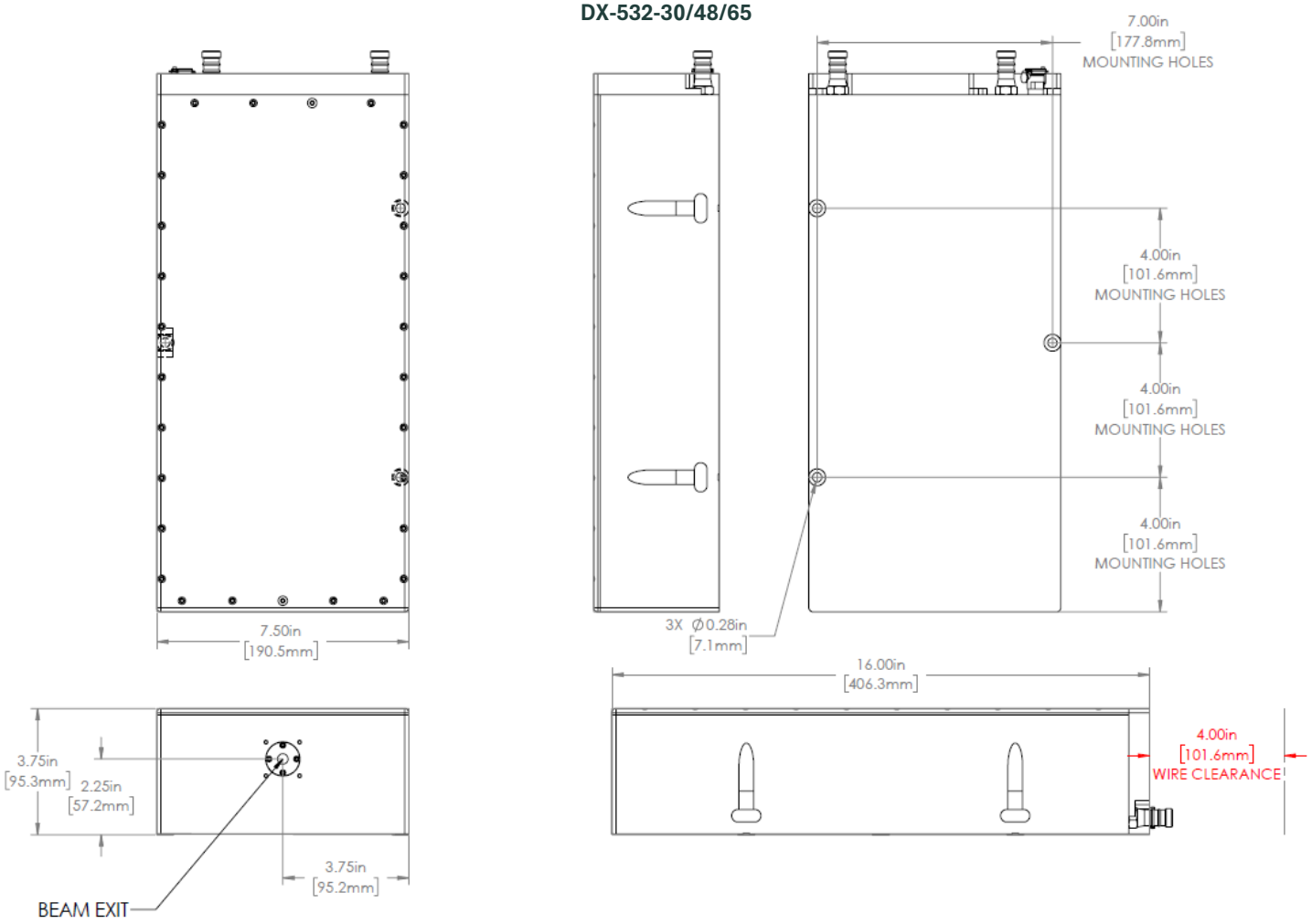


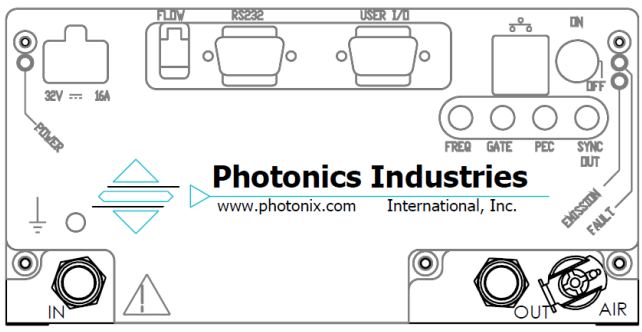
Power Vs. PRF

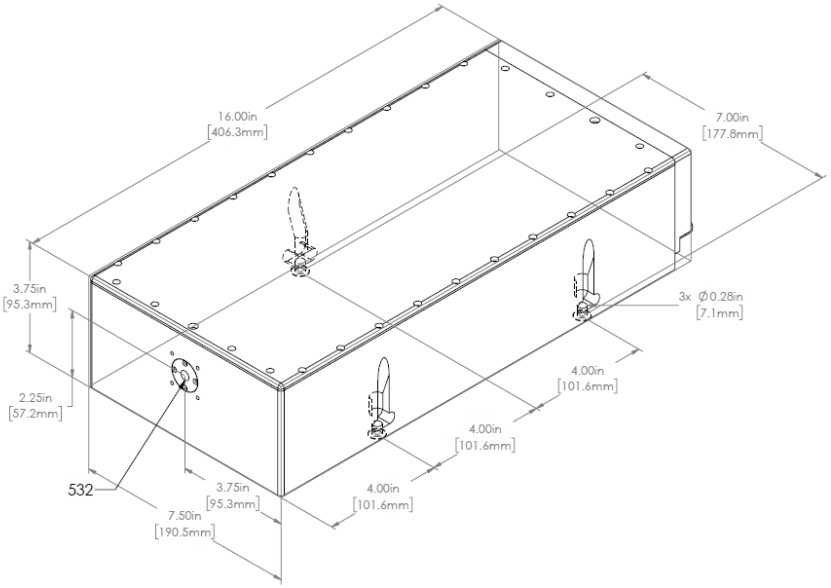


Dimensional Drawings

DX-532-30/48/65

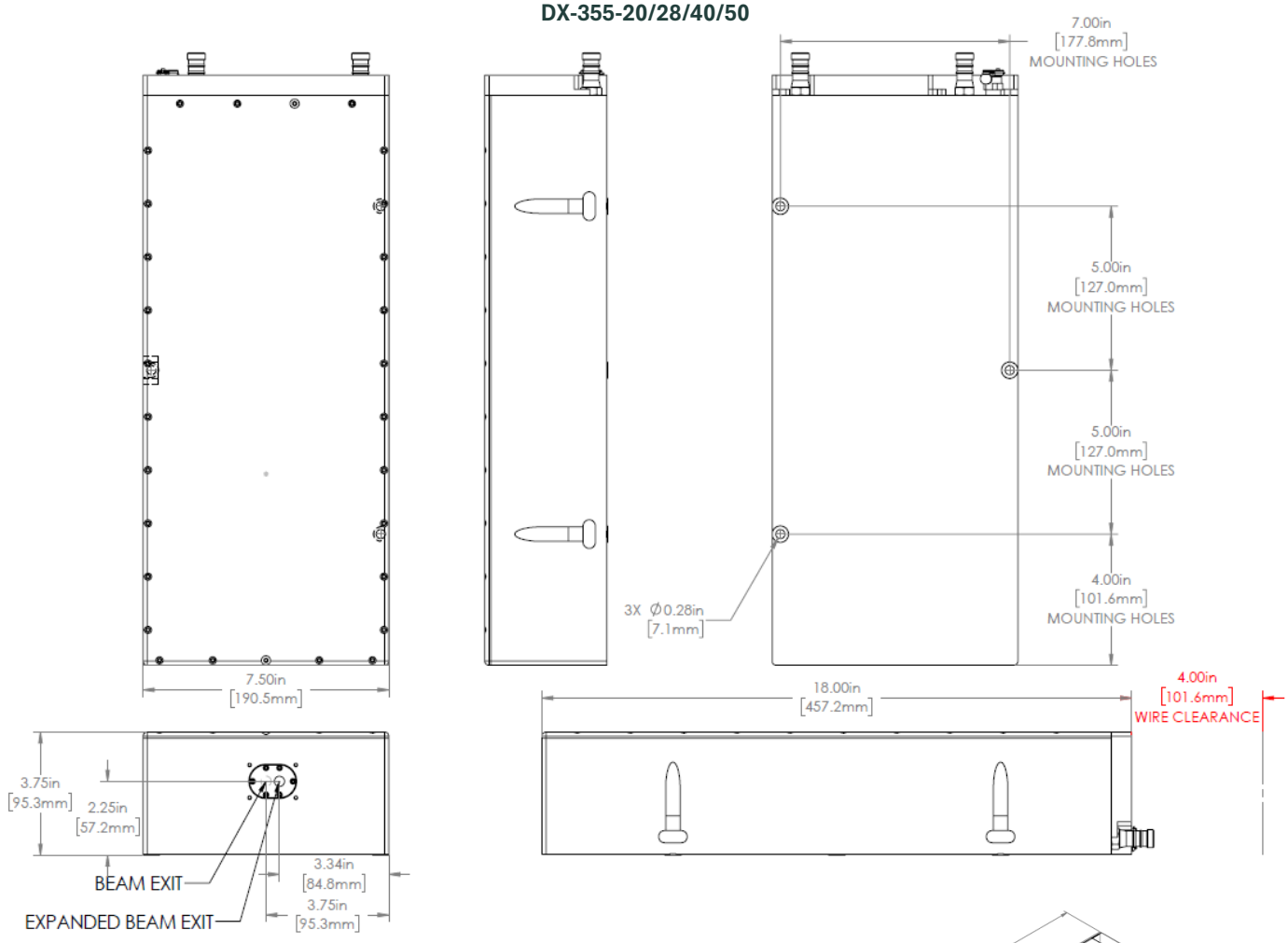


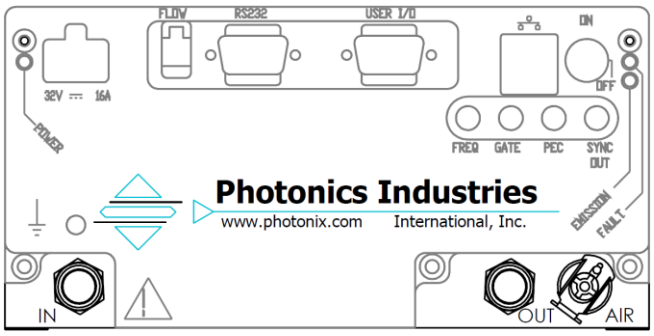


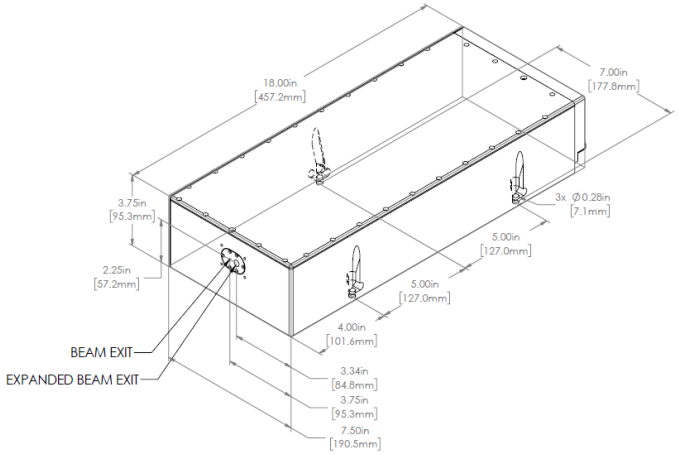


Dimensional Drawings

DX-532-80,
DX-355-20/28/40/50







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.

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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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