DXG Air Cooled Series

DX Nanosecond Lasers

DPSS, TEM_{00}, Q-Switched Lasers

The DXG-AC Series Lasers are Nd: YAG nanosecond Laser Series, 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 5 to 15kHz domain make the DXG Series ideal for demanding applications requiring high material removal rates with precision beam quality.

Available as fully air-cooled or optional base plate cooled using a passive radiator or active chiller water cooling, the DXG-AC 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

- Marking & Scribing
- Silicon, PERC and Solar Cell
- PCB & Polymer Cutting & Drilling
- Selective Annealing and Doping
- Copper & Gold Sintering
- Gold & ITO Scribing
- Resistor Trimming
- LIDAR & Laser Ranging

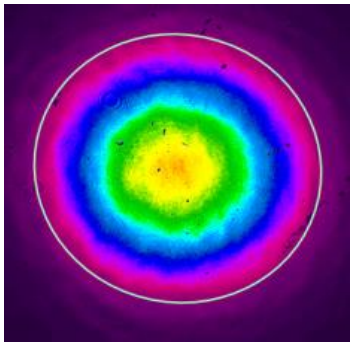
FEATURES

- Up to ~1mJ Pulse Energy at 10 kHz
- True TEM_{00} Output
- Short Pulse Widths
- Air-cooled with Radiator Cooled Option
- Robust & Compact Form Factor
- Dynamic **P**ulse **E**nergy **C**ontrol - **PEC**
- **P**osition **S**ynchronized **O**utput - **PSO**
- Power Monitoring and Self-Calibration

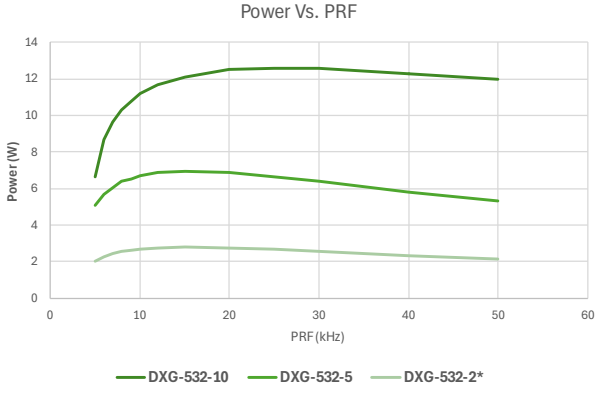
Specifications – **DXG-AC Series**			
	DXG-532-2	**DXG-532-5**	**DXG-532-10**
Wavelength (nm)	532		
Average Power (W) @10kHz	2	5	10
Pulse Energy (µJ) @10kHz	~200	~500	~1000
Pulse Width (ns) @10kHz	~15		
Pulse repetition rate[#]	Single shot to 50kHz		
Pulse-to-pulse stability (% RMS)	<3		
Long-term power stability (% RMS) [1]	<2		
Beam spatial mode & M^2	TEM_{00} - M^2 <1.2		
Beam divergence (nominal) (mrad)	< 3		
Beam diameter at exit (nominal) (mm)	~ 0.5		
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 - 15 V DC, 13.4 A [PSU Included]		
Line frequency (Hz)	50-60		
Power consumption (W)	~50	~130	
Dimensions	9 x 5 x 3.38 in [228.6 x 127 x 85.9]	11x5x5 in [279.4x127x127 mm]	
Weight	~15.5 lbs [~7 kg]		
	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	Air-Cooled / Base Plate Cooled [3]		

ALL beam parameters and stability are at specification 15kHz repetition rate measured at ambient temperature ± 2°C.
[1] Measured over 8 hours ± 2°C. [2] For operation of the laser outside of the specified temperature range, contact PI [3] For water-cooled heatsink option, contact PI.
*Illustration includes some simulated data for conceptual visualization. [#] When operating within the range of single shot to 5 kHz, the pulse undergoes a pruning effect.

Typical Beam Profile



Power Vs. PRF



Specifications – **DXG-AC Series**			
	DXG-355-1	**DXG-355-5**	**DXG-355-7**
Wavelength (nm)	355		
Average Power (W) @10kHz	1	5	7
Pulse Energy (µJ) @10kHz	~100	~500	~700
Pulse Width (ns) @10kHz	~15		
Pulse repetition rate[#]	Single shot to 50kHz		
Pulse-to-pulse stability (% RMS)	<3		
Long-term power stability (% RMS) [1]	<2		
Beam spatial mode & M^2	TEM_{00} - M^2 <1.2		
Beam divergence (nominal) (mrad)	< 3		
Beam diameter at exit (nominal) (mm)	~ 0.5		
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 - 15 V DC, 13.4 A [PSU Included]		
Line frequency (Hz)	50-60		
Power consumption (W)	~50	~130	
Dimensions	9 x 5 x 3.38 in [228.6 x 127 x 85.9]	11x5x5 in [279.4x127x127 mm]	
Weight	~15.5 lbs [~7 kg]		
	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	Air-Cooled / Base Plate Cooled [3]		

ALL beam parameters and stability are at specification 15kHz repetition rate measured at ambient temperature ± 2°C.
[1] Measured over 8 hours ± 2°C. [2] For operation of the laser outside of the specified temperature range, contact PI [3] For water-cooled heatsink option, contact PI.
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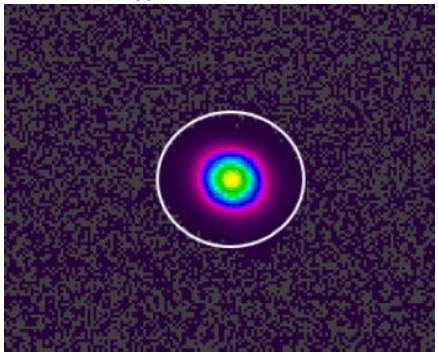
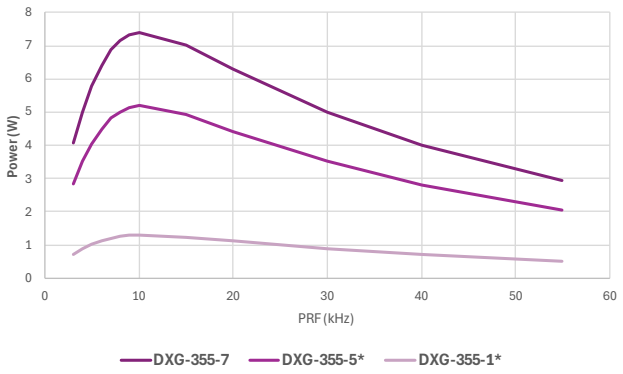
Typical Beam Profile



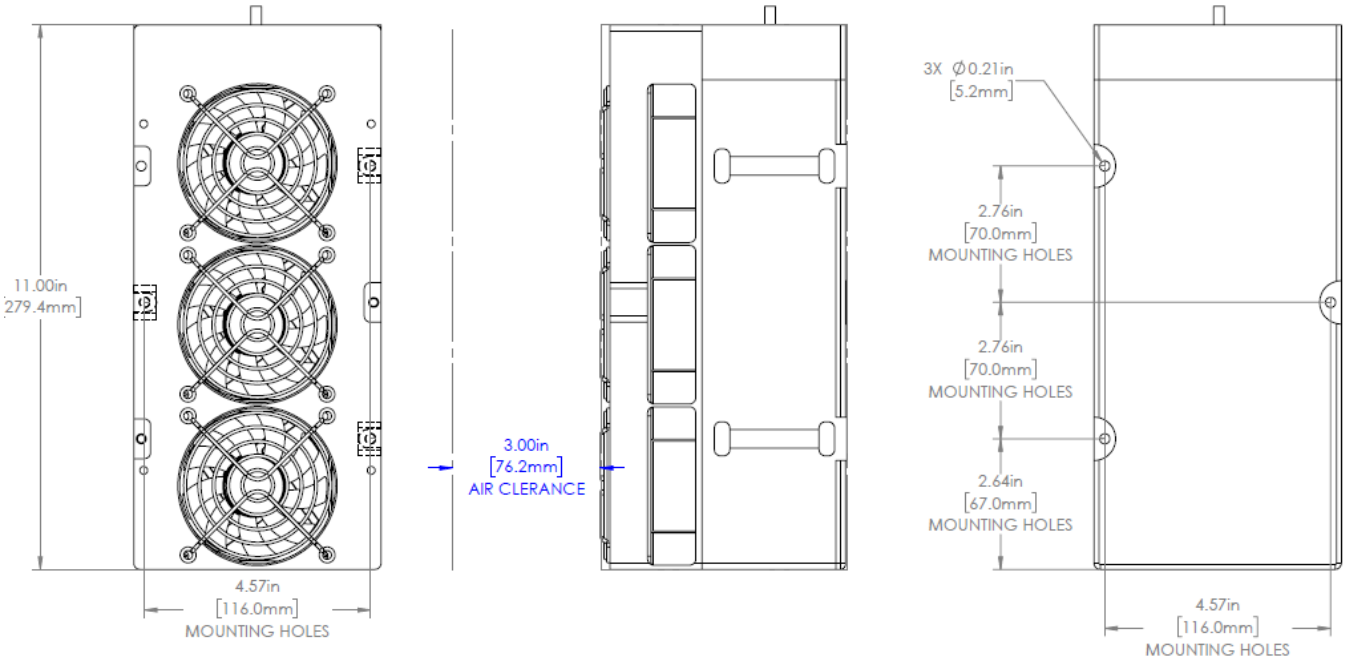
Power Vs. PRF

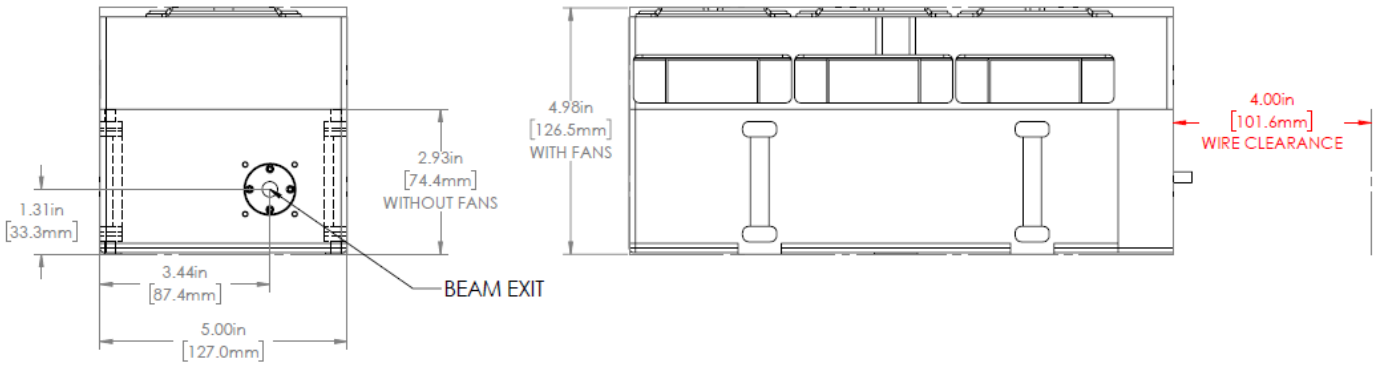


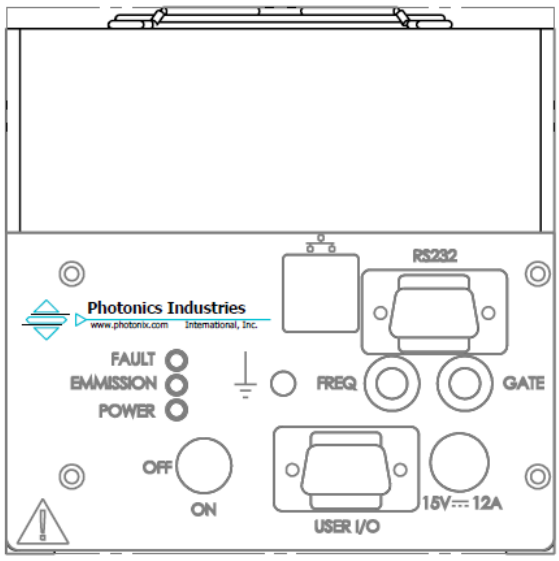
Dimensional Drawings

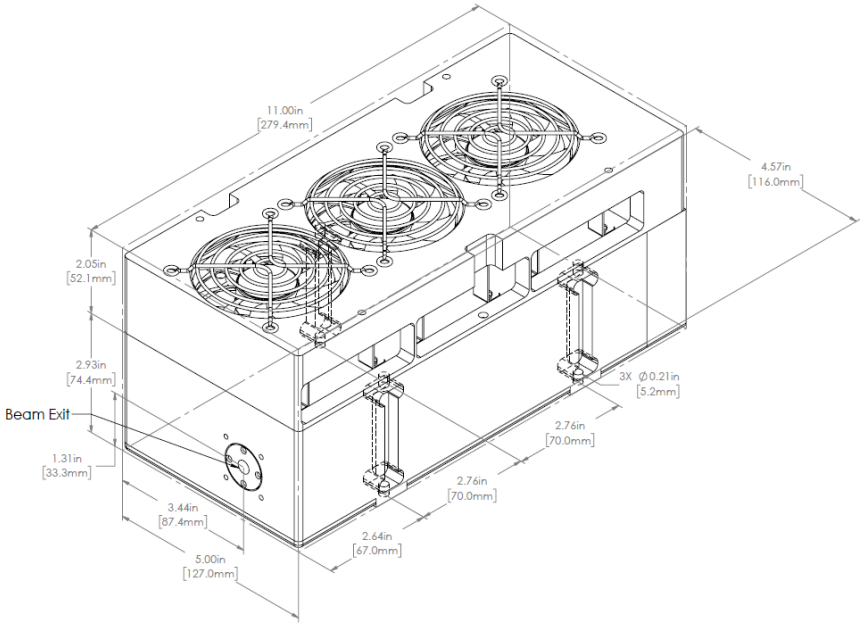
DXG-532-5 DXG-532-10

DXG-355-5, DXG-355-7



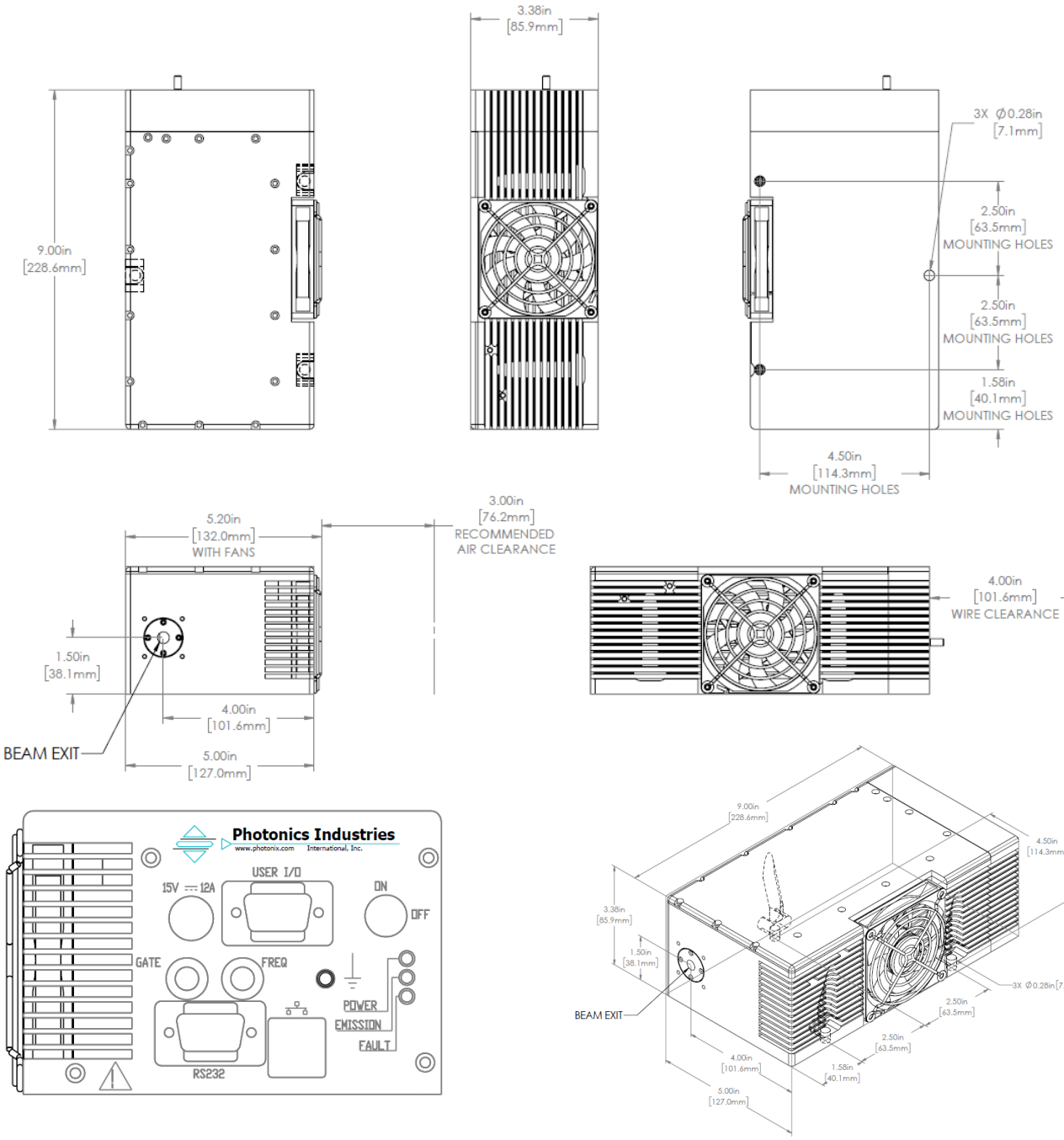






Dimensional Drawings

DXG-532-2, DXG-355-1



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.

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