

## DX Air-Cooled Series Nanosecond Lasers

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Photonics Industries' DX Air-Cooled Series nanosecond DPSS lasers, with a small, air-cooled form factor (275 in<sup>3</sup>, ~15.5 lbs or ~7 kg), offer the highest powers air-cooled in the market, with up to 10 W UV and up to 20 W green. The extra small DX Air-Cooled Series (152.1 in<sup>3</sup>, ~10 lbs or ~4.5 kg), outputs average powers of 1 W UV and up to 2 W green. The DX Air-Cooled Series combines capabilities in power, air-cooling, and a small mechanical footprint for optimal integration in industrial laser microprocessing systems. As an exceptionally small DPSS laser, the DX Air-Cooled Series nanosecond laser is the ideal laser source solution from micron-precision marking, to solar cell processing, and to many more industrial laser microprocessing applications.



### Applications

- Cutting, drilling, welding, scribing, marking, intra-marking, patterning, dielectric grooving, annealing, repair
- Laser Marking on-the-fly (MOTF), Laser Etching, Laser Patterning, Short Pulse Marking, High Precision Marking, DPSS Laser Marking Systems
- Flat Panel Display Repair
- Solar Cell Laser Structuring, P1 & P3 Solar Cell Processing
- Stereolithography (SLA), Rapid Prototyping 3D Printing, UV Laser 3D Printing
- Mass Spectrometry Systems, MALDI
- LIDAR, Autonomous Systems, 3-D Scanning Systems
- Thin Display Cutting & Drilling, Thin Film Transistor (TFT) Drilling

### Features

- Highest powers air-cooled in the market  
Up to 10 W, UV, Air-Cooled  
Up to 20 W, Green, Air-Cooled
- Short pulse widths:  
~15 ns at 50 kHz  
~20 ns at 100 kHz
- Wider repetition rate range than leading competitors, fulfilling higher throughput criteria:  
Single shot up to 300 kHz, UV  
Single shot up to 500 kHz, Green
- Reliable, low COO, non-consumable design  
Patented intracavity harmonic UV & Green generation, no damaging indexing of the harmonic crystals
- Small, air-cooled form factor  
Water-cooling option available
- Excellent TEM00 beam quality:  
Typical M<sup>2</sup> < 1.1
- Total Pulse Control:  
Duty Control to change output power while allowing for longer pulse widths than the standard operating values  
PEC (Power or Pulse Energy Control)

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CONTACT US

Specifications – **DX Air-Cooled Series Nanosecond Lasers, UV Models**

	<b>DX-355-1</b>	<b>DX-355-5</b>	<b>DX-355-8</b>	<b>DX-355-10</b>
<b>Beam and output specifications</b>				
Wavelength	355 nm			
Average power	0.8 W at 20 kHz 1 W at 50 kHz	5 W at 50 kHz 4 W at 100 kHz	8 W at 50 kHz 7 W at 100 kHz	10 W at 50 kHz 8 W at 100 kHz
Pulse energy	~20 µJ	~100 µJ	~150 µJ	~200 µJ
Pulse width	< 15 ns at 50 kHz 20 ns at 100 kHz			
Pulse repetition rate	Single shot to 200 kHz (option up to 300 kHz)			
Pulse-to-pulse stability <sup>1</sup>	< 2% rms			
Long term power stability <sup>2</sup>	< 2% rms			
Beam spatial mode	TEM <sub>00</sub> M <sup>2</sup> < 1.1			
Beam pointing stability	< 20 µrad			
Beam divergence	< 2.5 mrad			
Beam roundness	~90%			
Beam diameter, at exit	~0.3 mm	~0.45 mm		
Polarization ratio	Horizontal; 100:1			
<b>Operational specifications and system characteristics</b>				
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; or 32 V DC, 15 A			
Line frequency	50-60 Hz			
Ambient temperature <sup>3</sup>	Ambient 10°C to 30°C (50°F to 86°F) Operating Range, Relative Humidity 90% Max., non-condensing			
Storage conditions	-10°C to 40°C; Sea Level to 12,000 m; 0% to 90% Relative Humidity, non-condensing			
Power consumption	~50 W	~130 W		
Dimensions (LxWxH)	9 x 5 x 3.38 in	11 x 5 x 5 in		
Weight	~10 lbs (~4.5 kg)	~15.5 lbs (~7 kg)		
Cooling system <sup>4</sup>	Air-cooled			

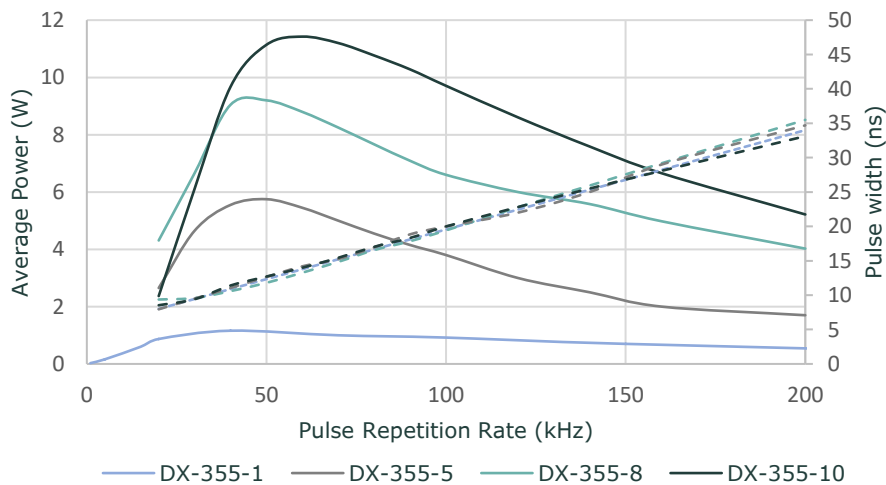
1. Measured at ambient temperature ± 2°C

2. Measured over 8 hours ± 1°C

3. For operation of the laser outside of the specified temperature range, contact us

4. For water-cooled heatsink option, contact us

DX-355, Average power (W) and pulse width (ns) as a function of pulse repetition rate (kHz)



Specifications – **DX Air-Cooled Series Nanosecond Lasers**, GRN Models

	<b>DX-532-2</b>	<b>DX-532-10</b>	<b>DX-532-15</b>	<b>DX-532-20</b>
<b>Beam and output specifications</b>				
Wavelength	532 nm			
Average power	2 W at 50 kHz 2 W at 100 kHz	10 W at 50 kHz 10 W at 100 kHz	15 W at 50 kHz 15 W at 100 kHz	20 W at 50 kHz 20 W at 100 kHz
Pulse energy	~40 µJ	~200 µJ	~300 µJ	~400 µJ
Pulse width	~15 ns at 50 kHz ~20 ns at 100 kHz			
Pulse repetition rate	Single shot to 300 kHz (option up to 500 kHz)			
Pulse-to-pulse stability <sup>1</sup>	< 2% rms			
Long term power stability <sup>2</sup>	< 2% rms			
Beam spatial mode	TEM <sub>00</sub> M <sup>2</sup> < 1.1			
Beam pointing stability	< 20 µrad			
Beam divergence	< 2.5 mrad			
Beam roundness	~90%			
Beam diameter, at exit	~0.3 mm	~0.45 mm		
Polarization ratio	Vertical; 100:1			
<b>Operational specifications and system characteristics</b>				
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; or 32 V DC, 15 A			
Line frequency	50-60 Hz			
Ambient temperature <sup>3</sup>	Ambient 10°C to 30°C (50°F to 86°F) Operating Range, Relative Humidity 90% Max., non-condensing			
Storage conditions	-10°C to 40°C; Sea Level to 12,000 m; 0% to 90% Relative Humidity, non-condensing			
Power consumption	~50 W	~130 W		
Dimensions (LxWxH)	9 x 5 x 3.38 in	11 x 5 x 5 in		
Weight	~10 lbs (~4.5 kg)	~15.5 lbs (~7 kg)		
Cooling system <sup>4</sup>	Air-cooled			

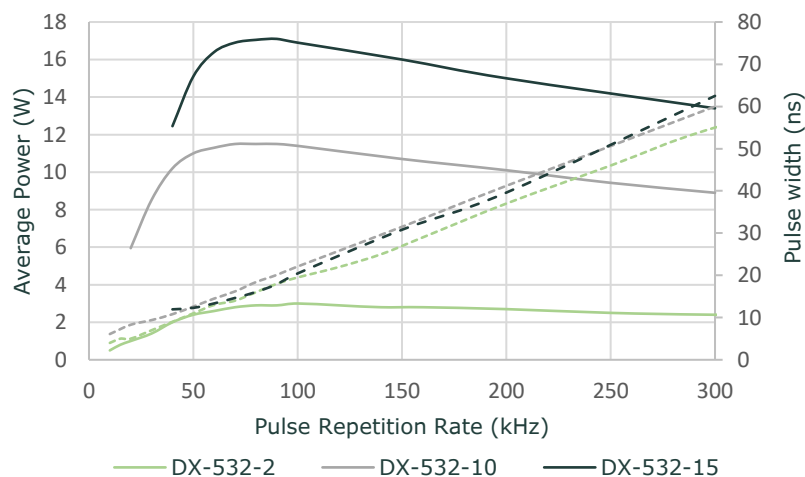
1. Measured at ambient temperature ± 2°C

2. Measured over 8 hours ± 1°C

3. For operation of the laser outside of the specified temperature range, contact us

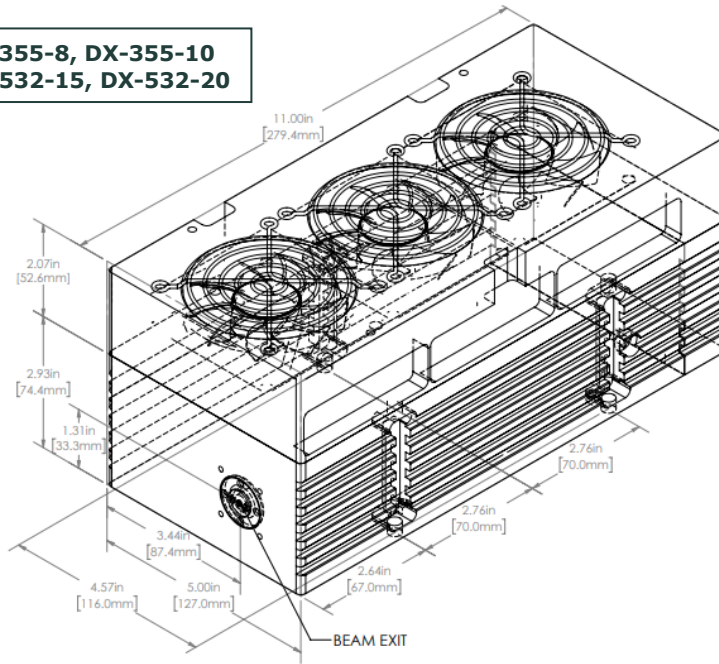
4. For water-cooled heatsink option, contact us

DX-532, Average power (W) and pulse width (ns) as a function of pulse repetition rate (kHz)

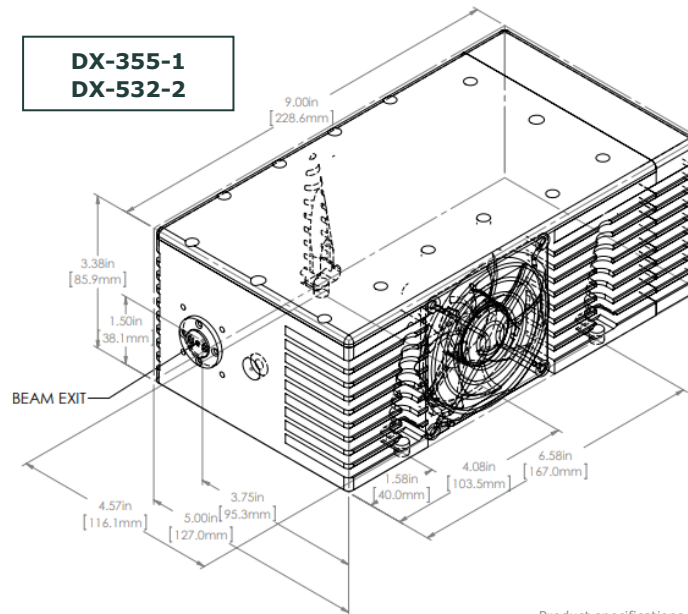


## Dimensional Drawings

**DX-355-5, DX-355-8, DX-355-10  
DX-532-10, DX-532-15, DX-532-20**



**DX-355-1  
DX-532-2**



Product specifications, characteristics, and dimensional drawings are subject to change without notice.

Photonics Industries conforms to provisions of US 21 CFR 1040.10 & 1040.11 and is made under one or more US patents listed below:  
9,531,147, 8,817,831, 7,869,471, 7,346,092, 7,082,149, 7,079,557, 6,999,483, 6,980,574, 6,961,355, 6,842,293, 6,762,405, 6,690,692, 6,587,487, 6,584,134, 6,366,596, 6,356,578, 6,327,281, 6,246,707, 6,229,829, 6,108,356, 6,061,370, 6,028,620, 5,936,983, 5,898,717 and Pending Patents

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