Photonics Industries International, Inc.

DX UV/Green Long Pulse Nanosecond Lasers

www.photonix.com

Overview

A pioneer of intracavity generation with 28+ years of manufacturing experience and tens of thousands of shipments worldwide, Photonics Industries offers the broadest nanosecond (ns) UV product selection from 1W* to 55W at 355nm and Green product selection from 2W* to 100W at 532nm.

Our DX Series Long Pulse Nanosecond Lasers have smaller form factor, higher performance, and more flexibility in pulse width compared to its ancestor, the DSH series, providing the most compact UV output powers from 15W to 30W and Green output powers from 30W to 50W in a longer pulse configuration. Shorter pulse versions are available.**

Owing to key patented technologies that provide non-consumable THG crystals with no indexing required, intracavity harmonic generation is an inherently more efficient harmonic conversion that provides better pulse-to-pulse stability and mode quality in a simple, compact laser configuration.

With standard Total Pulse Control features such as PEC and Duty Control, pulse energy and pulse width, which can be held constant over wide ranges of repetition rates for tight process control at fast speeds. Higher power and faster throughput contribute to a low cost of operation.

The All-In-One (AIO) design combines common optical, electrical and command interfaces in a rugged industrial package for simple integration into 24/7 precision micromachining in extended production cycle environments.

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Features – *The Advantage of Photonics Industries*

- **High power (up to 30W) UV and (up to 50W) green long pulse laser****
- **The most compact, rugged, All-In-One ns laser**
- **The highest wall plug efficiency ns laser ranging from ~10% for UV to ~17% for green**
- **Widest selection of pulse widths from 10ns** to >200ns, differing from any other commercially available single laser platform**
- **Patented intracavity UV and green generation**
- **Highest pulse energy UV ns laser in the market at >1mJ at 50kHz**
- **Excellent TEM_{00} beam with typical M^2<1.1**
- **Superior pulse stability, typically <2%**
- **Exceptional beam pointing stability <25 µrad**
- **Total pulse control (PEC, Duty Control, etc.)**

Applications

- **ITO Patterning**
- **Flex PCB de-paneling, cutting and PCB drilling**
- **Via Hole Drilling**
- **Ceramic scribing, cutting, and drilling**
- **Solar Cell Scribing and PERC Processing**
- **Silicon Wafer Scribing and Singulation (Full cut wafer dicing, Low-k dielectric grooving)**
- **UV reel to reel on the fly Converting process**
- **Metal foil cutting and Copper processing**
- **Glass and ceramic processing, cutting**
- **UV Welding Carbon Fiber (CFRP)**

* For lower power models, please see the DX Air-Cooled Series

** For shorter pulse width models, please see the DX Series Short Pulse Nanosecond Lasers

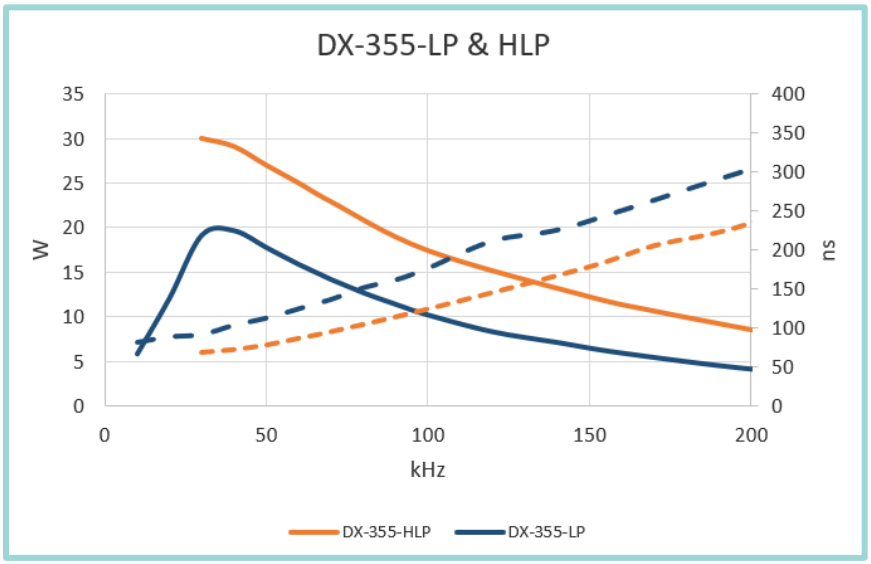
System Specifications – UV/Green-LP,-HLP Series

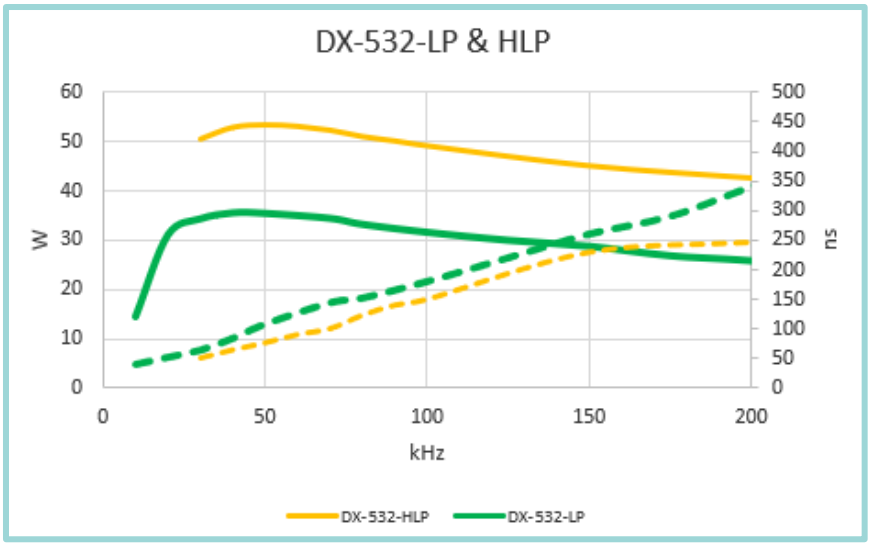
Specifications	Model			
	DX-355-LP	DX-355-HLP	DX-532-LP	DX-532-HLP
Output Characteristics				
Wavelength (nm)	355 nm		532 nm	
Average Power (W)	16 at 40 kHz 4 at 200 kHz	28 at 40 kHz 7 at 200 kHz	35 at 40 kHz 25 at 200 kHz	48 at 40 kHz 40 at 200 kHz
Pulse Width (ns)	~95 at 40 kHz ~300 at 200 kHz	~70 at 40 kHz ~220 at 200 kHz	~85 at 40 kHz ~340 at 200 kHz	~65 at 40 kHz ~250 at 200 kHz
Repitition Rate*	Single shot to 200 kHz	Single shot to 250 kHz	Single shot to 200 kHz	Single shot to 250 kHz
Pulse to Pulse Stability	< 1.5% rms			
Long Term Stability‡	±2%			
Beam Characteristics				
Polarization Ratio	Horizontal; 100:1		Vertical; 100:1	
Beam Diameter at exit	~0.8 mm		~1 mm	
Beam Divergence	~1.7 mrad		~2 mrad	
Beam Circularity	> 95%			
Spatial Mode (M2)	TEM_{00} M^2<1.2			
Beam Pointing Stability	< 25 µrad			
Operating Specifications				
Interface	Ethernet / RS 232 / GUI / External TTL Triggering			
Warm-up Time	< 15 min from stanby, < 30 minutes from cold start			
Electrical Requirement	100 to 240 V AC; or 32 V DC, 15 A			
Line Frequency	50 to 60 Hz			
Power Consumption (Typical) (w/o Chiller)	< 300 W	< 400 W	< 300 W	< 400 W
Ambient Temperature	15°C to 35°C (59°F to 95°F) Operating Range, RH 90% Max, non-condensing			
Storage Conditions	-10°C to 40°C; Sea Level to 12,000 m; 0% to 90% RH, non-condensing			
Physical Characteristics				
Dimensions (LxWxH)	22.5 in x 7.5 in x 3.75 in			
Weight	49 lbs			
Cooling System	Water-Cooled			

*Lower rep rates (<30 kHz) performance achieved by pulse energy capping

‡ 8 hours ± 1°C

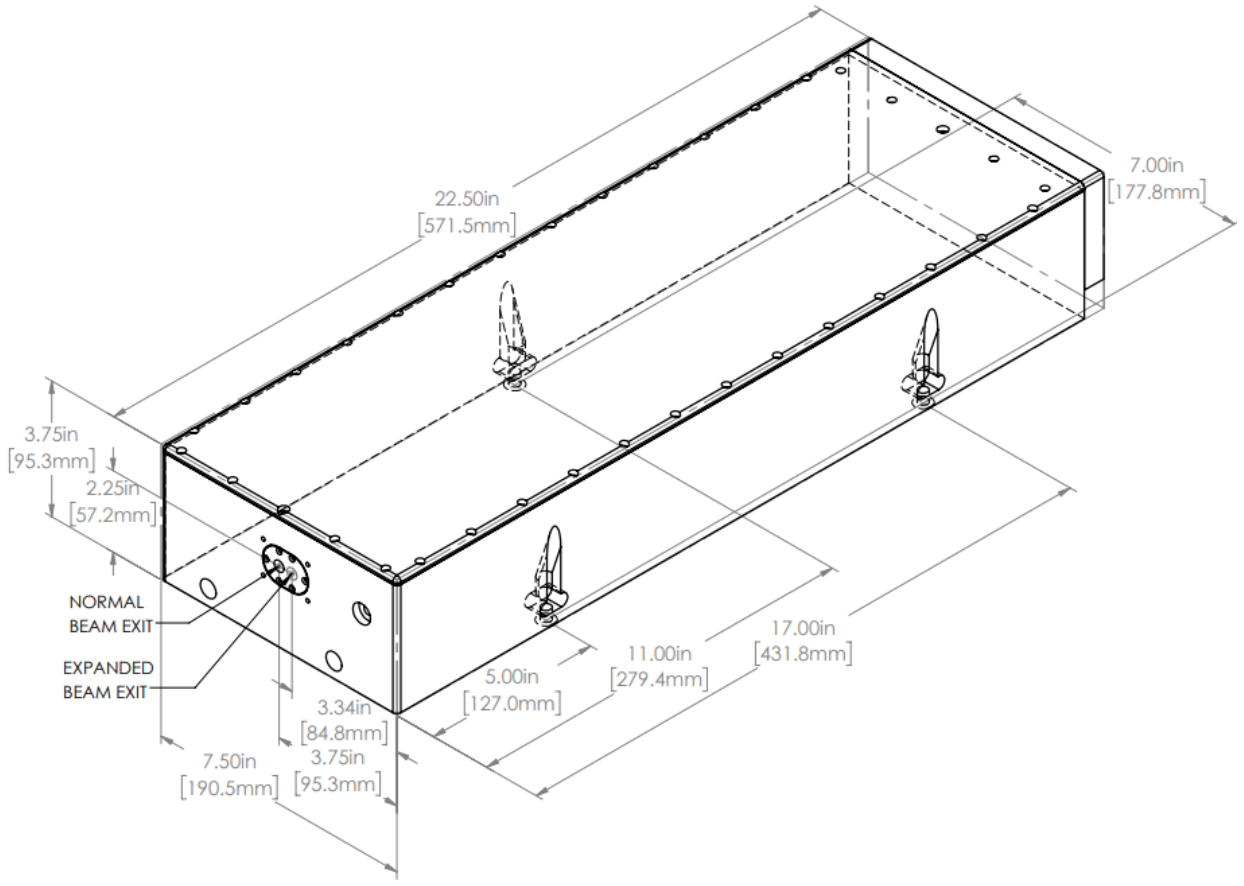
Performance Curves – UV/Green-LP,-HLP Series





Dimensional Drawings

DX-355-LP, - HLP; DX-532-LP, -HLP



Due to Photonics Industries' commitment to continuous product improvement, specifications and 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: 9,882,335, 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, 6,587,487, 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

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

Photonics Industries International 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 industrial, scientific, defense, and medical industries. Check out our products and see how we can help you apply our lasers to your needs!

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LASER RADIATION

Photonics Industries International, Inc.