Photonics Industries
International, Inc.

DX Long Pulse Series Nanosecond Lasers

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Photonics Industries' DX Series long pulse nanosecond lasers provide industrial systems with a slim form factor, longer pulse width[1] (up to ~340 ns), high repetition rate (up to 200 kHz) Q-switched DPSS laser for long pulse, thermal-focused, and deeper depth microprocessing. Specially patented intracavity harmonic generation, with no damaging indexing on the harmonic crystals, allows for higher performance and higher reliability, fulfilling demanding production criteria.

Applications

- Cutting, drilling, welding, scribing, grooving, marking, intra-marking, patterning, de-paneling, annealing
- Selective Laser Annealing, Ohmic Contact Formation Systems
- Laser Grooving Systems, Laser Wafer Singulation Systems, Semiconductor Microprocessing
- Laser Thermal Processing (LTP) Systems, Annealing, Laser Heat-tempering Metal Marking, Laser Discoloration & Bleaching Plastic Marking

Features

- Long pulse[1] at high powers:
  Up to 30 W UV, ~12 to ~300 ns,
  Up to 50 W Green, ~65 to ~340 ns
- Longer pulses at high repetition rates:
  ~250 ns at 200 kHz for HLP model,
  ~340 ns at 200 kHz for LP model
- Reliable, low COO, non-consumable design
  Patented intracavity harmonic UV & Green generation, no damaging indexing of the harmonic crystals
- Unique long pulse DPSS nanosecond laser
  Unique in the market for long pulse needs
- Excellent TEM00 beam quality:
  Typical M2 < 1.2
- Superior pulse stability:
  Typical < 1.5 %
- Total Pulse Control for ultimate integrability into systems:
  Duty Control to change output power while allowing for longer pulse widths than the standard operating values
  PEC (Power or Pulse Energy Control)

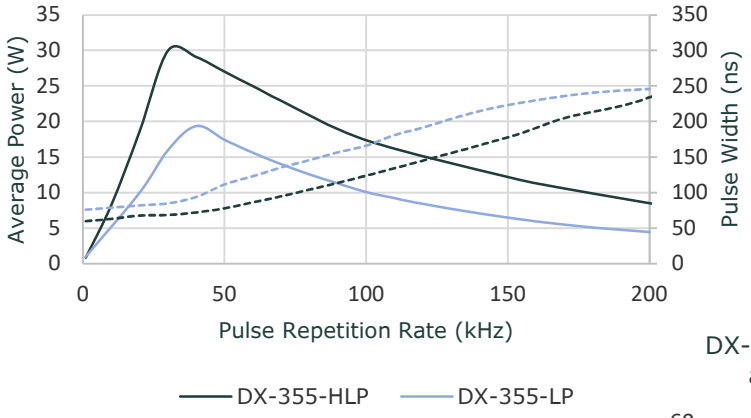
1. For shorter pulse width models, please see the DX Short Pulse Series Nanosecond Lasers brochure

Specifications – **DX Series Long Pulse Nanosecond Lasers**

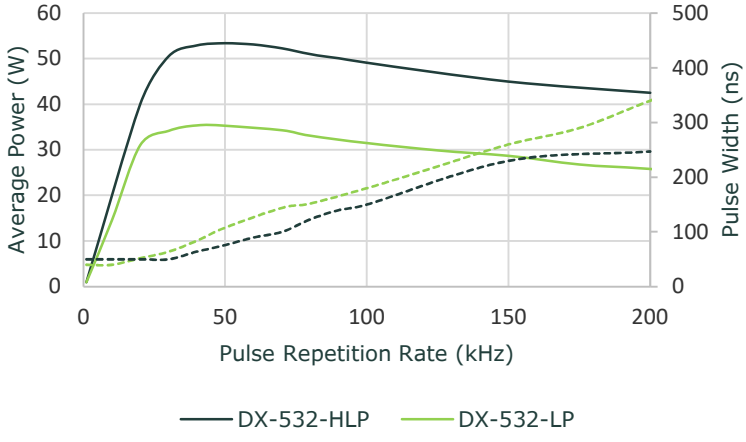
	DX-355-LP	DX-355-HLP	DX-532-LP	DX-532-HLP
Beam and output specifications				
Wavelength	355 nm		532 nm	
Average power	16 W at 40 kHz 4 W at 200 kHz	28 W at 40 kHz 7 W at 200 kHz	35 W at 40 kHz 25 W at 200 kHz	48 W at 40 kHz 40 W at 200 kHz
Pulse width	~95 ns at 40 kHz ~250 ns at 200 kHz	~70 ns at 40 kHz ~220 ns at 200 kHz	~85 ns at 40 kHz ~340 ns at 200 kHz	~65 ns at 40 kHz ~250 ns at 200 kHz
Pulse repetition rate[1]	Single shot to 200 kHz			
Pulse-to-pulse stability[2]	< 1.5% rms			
Long term power stability[3]	±2% rms			
Beam spatial mode	TEM_{00} M^2 < 1.2			
Beam pointing stability	< 25 µrad			
Beam divergence	~1.7 mrad		~2 mrad	
Beam roundness	~90%			
Beam diameter[4], at exit	~0.8 mm		~1 mm	
Polarization ratio	Horizontal; 100:1		Vertical; 100:1	
Operational specifications and system 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; or 32 V DC, 15 A			
Line frequency	50-60 Hz			
Ambient temperature	Ambient 15°C to 35°C (59°F to 95°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	< 400 W			
Dimensions (LxWxH)	22.5 x 7.5 x 3.75 in			
Weight	49 lbs (22.2 kg)			
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.

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



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



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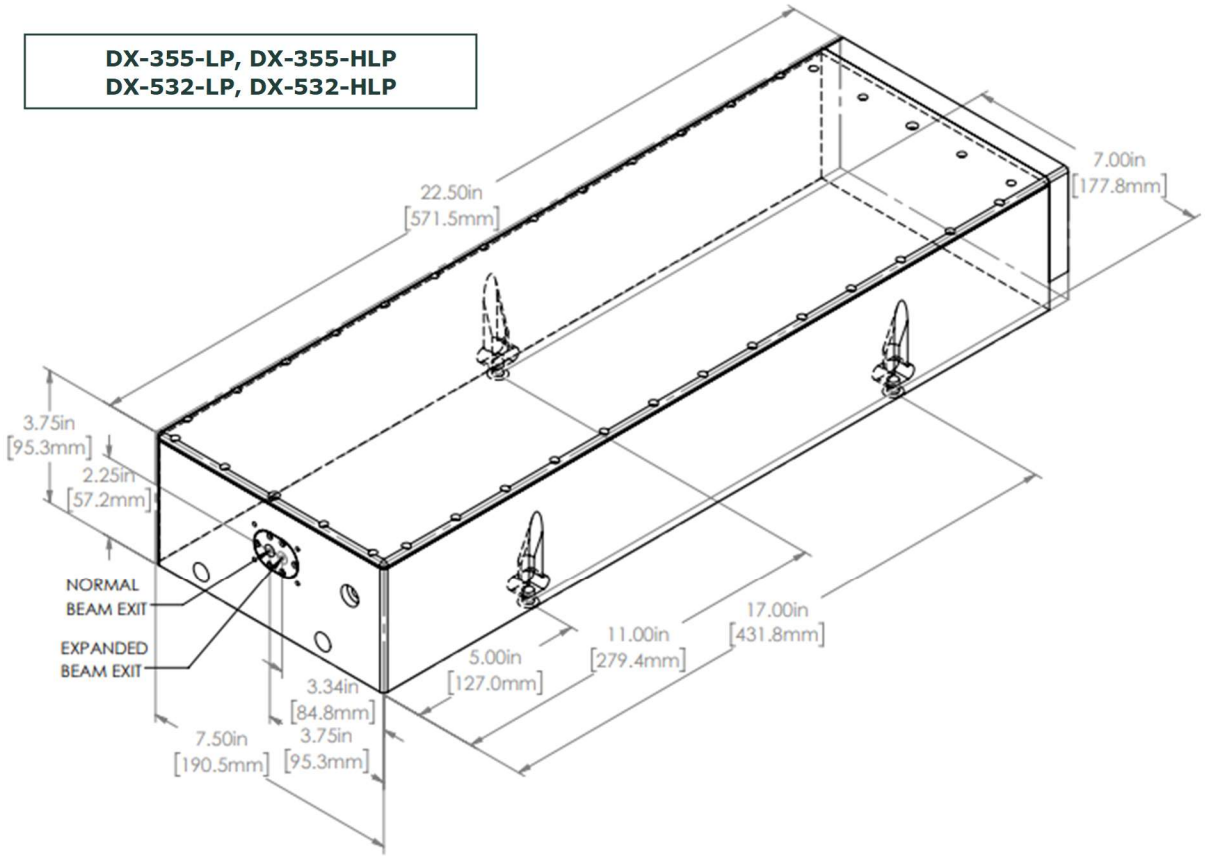
Dimensional Drawings

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



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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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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Rayture Systems

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