



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 width¹ (up to ~340 ns), high repetition rate (up to 250 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 pulse¹ 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

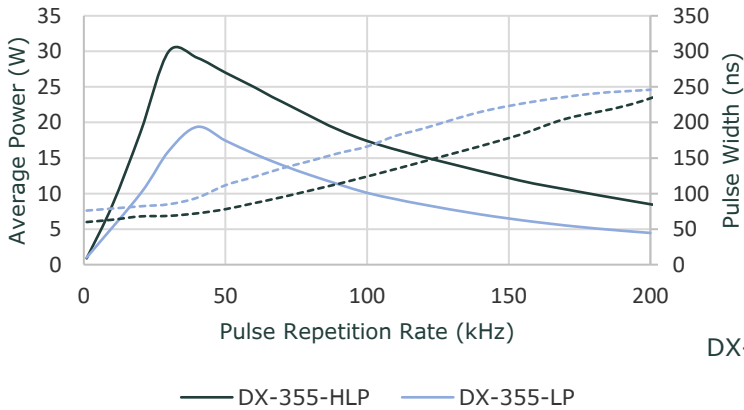
	DX-355-LP	DX-355-HLP	DX-532-LP	DX-532-HLP
Beam and output specifications				
Wavelength	355 nm		532 nm	
Average power	16 W at 40 kHz 4 W at 200 kHz	28 W at 40 kHz 7 W at 200 kHz	35 W at 40 kHz 25 W at 200 kHz	48 W at 40 kHz 40 W at 200 kHz
Pulse width	~95 ns at 40 kHz ~250 ns at 200 kHz	~70 ns at 40 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 (option up to 300 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	> 95%			
Beam diameter, 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

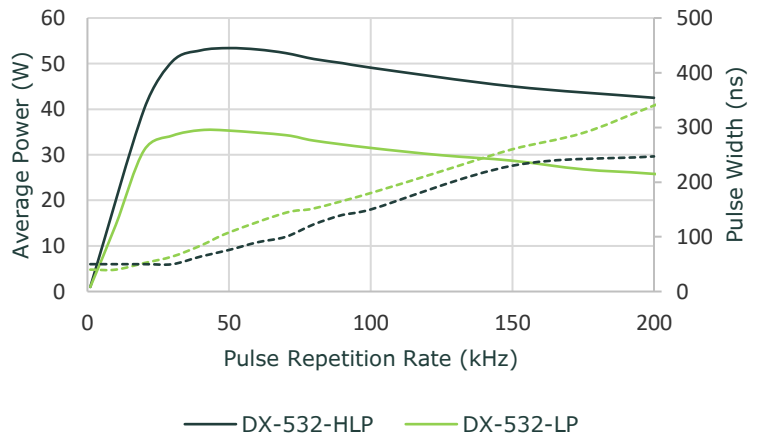
2. Measured at ambient temperature ± 2°C

3. Measured over 8 hours ± 1°C

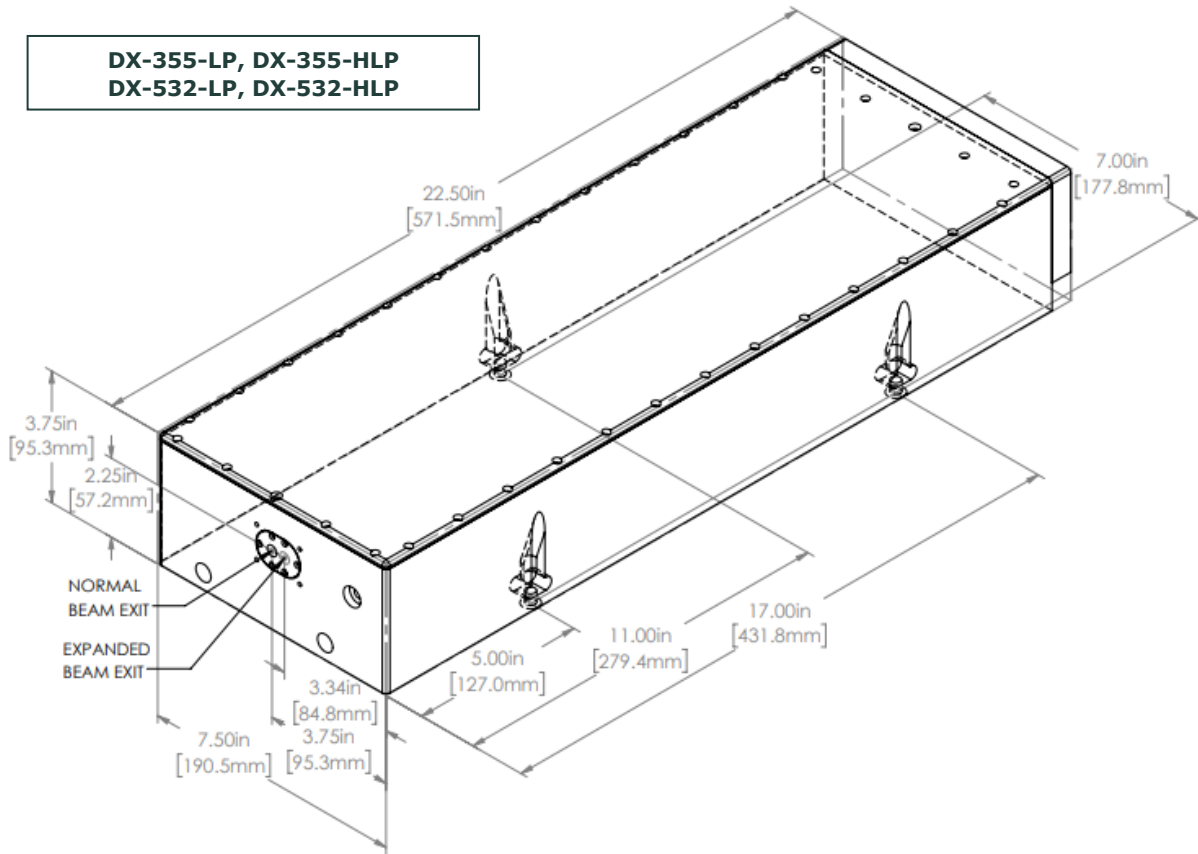
DX-355, Average power (W) and pulse width (ns) as a function of pulse repetition rate (kHz)



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



Dimensional Drawings



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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