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

### 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 TEM\(00\) beam quality:
  - Typical M\(2\) < 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

### Beam and output specifications

<table>
<thead>
<tr>
<th></th>
<th>DX-355-LP</th>
<th>DX-355-HLP</th>
<th>DX-532-LP</th>
<th>DX-532-HLP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wavelength</strong></td>
<td>355 nm</td>
<td>532 nm</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Average power</strong></td>
<td>16 W at 40 kHz</td>
<td>28 W at 40 kHz</td>
<td>35 W at 40 kHz</td>
<td>48 W at 40 kHz</td>
</tr>
<tr>
<td></td>
<td>4 W at 200 kHz</td>
<td>7 W at 200 kHz</td>
<td>25 W at 200 kHz</td>
<td>40 W at 200 kHz</td>
</tr>
<tr>
<td><strong>Pulse width</strong></td>
<td>~95 ns at 40 kHz</td>
<td>~70 ns at 40 kHz</td>
<td>~85 ns at 40 kHz</td>
<td>~65 ns at 40 kHz</td>
</tr>
<tr>
<td></td>
<td>~250 ns at 200 kHz</td>
<td>~220 ns at 200 kHz</td>
<td>~340 ns at 200 kHz</td>
<td>~250 ns at 200 kHz</td>
</tr>
<tr>
<td><strong>Pulse repetition rate</strong></td>
<td>Single shot to 200 kHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pulse-to-pulse stability</strong></td>
<td>&lt; 1.5% rms</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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

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[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.

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**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)**
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