



Narrow Linewidth Diode Laser System

DLNE Series

Data Sheet



Overview

The DLNE series is a line of UV, visible and near IR CW diode lasers with ultra-narrow spectral linewidth $<0.03\text{nm}$ and can deliver up to 120 mW output power. The laser features narrow spectral linewidth, stable wavelength, ultra-compact design, long operating lifetime, easy operation and FDA-compliant system with driver. The laser is widely used in precision measurement, high resolution spectrum analysis, and many other applications.

Features

- Wide range of wavelengths from 375nm to 1060nm
- CW operating mode
- Optical output power 5mW to 120mW
- Narrow spectral linewidth $<0.03\text{nm}$
- Ultra-compact design
- FDA compliant

Applications

- Precision measurement
- High resolution spectrum analysis

375-514.5 nm Specifications

| Parameter | DLNE375 | DLNE400 | DLNE405 | DLNE410 | DLNE488 | DLNE514 |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--|-----------------------------|
| Wavelength | 375±0.5 nm | 400±1 nm | 405±1 nm | 410±1 nm | 488±0.5 nm | 514.5±0.5 nm |
| Output power | >10 mW, >20 mW | >30 mW, >50 mW | >30 mW, >50 mW | >30 mW, >50 mW | >10 mW, >20 mW, >30 mW, >50 mW, >70 mW | >10 mW, >20 mW |
| Transverse mode | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ |
| Operating mode | CW | CW | CW | CW | CW | CW |
| Power stability (rms, over 4 hours) | <1% | <1% | <1% | <1% | <1% | <1% |
| Spectral linewidth | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm |
| Beam diameter at aperture (1/e ²) | ~3.0 mm | ~1.3 mm | ~1.3 mm | ~1.3 mm | ~2.0 mm | ~2.5 mm |
| Beam divergence, full angle | <0.5 mrad | <1.5 mrad | <1.5 mrad | <1.5 mrad | ~1.5 mrad | <1.5 mrad |
| Polarization ratio | >10:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree |
| Warm-up time | <5 min | <5 min | <5 min | <5 min | <5 min | <5 min |
| Operating temperature | 20-30°C | 20-30°C | 20-30°C | 20-30°C | 20-30°C | 20-30°C |
| Expected lifetime | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours |
| Warranty period | 10 months | 10 months | 10 months | 10 months | 10 months | 10 months |

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

520-642 nm Specifications

| Parameter | DLNE520 | DLNE633 | DLNE635 | DLNE637 | DLNE640 | DLNE642 |
|---|-----------------------------|--------------------------------|-----------------------------|--------------------------------|-----------------------------|-----------------------------|
| Wavelength | 520±5 nm | 633±0.5 nm | 635±5 nm | 637±5 nm | 640±5 nm | 642±5 nm |
| Output power | >5 mW, >10 mW | >10 mW, >20 mW, >50 mW, >80 mW | >10 mW, >30 mW | >10 mW, >30 mW, >50 mW, >80 mW | >10 mW, >30 mW | >10 mW, >30 mW |
| Transverse mode | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ |
| Operating mode | CW | CW | CW | CW | CW | CW |
| Power stability (rms, over 4 hours) | <1% | <1% | <1% | <1% | <1% | <1% |
| Spectral linewidth | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm |
| Beam diameter at aperture (1/e ²) | ~3.0 mm | ~2.0 mm | ~3.0 mm | ~3.0 mm | ~3.0 mm | ~3.0 mm |
| Beam divergence, full angle | <1.0 mrad | <1.5 mrad | <1.0 mrad | <1.0 mrad | <1.0 mrad | <1.0 mrad |
| Polarization ratio | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree |
| Warm-up time | <5 min | <5 min | <5 min | <5 min | <5 min | <5 min |
| Operating temperature | 20-30°C | 20-30°C | 20-30°C | 20-30°C | 20-30°C | 20-30°C |
| Expected lifetime | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours |
| Warranty period | 10 months | 10 months | 10 months | 10 months | 10 months | 10 months |

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

650-785 nm Specifications

| Parameter | DLNE650 | DLNE655 | DLNE660 | DLNE705 | DLNE730 | DLNE785 |
|---|-----------------------------|-----------------------------|-----------------------------|------------------------|------------------------|------------------------|
| Wavelength | 650±10 nm | 655±10 nm | 660±0.5 nm | 705±10 nm | 730±3 nm | 785±0.5 nm |
| Output power | >10 mW, >30 mW | >10 mW, >30 mW | >10 mW, >30 mW | >5 mW, >10 mW | >5 mW, >10 mW | >10 mW, >30 mW, >50 mW |
| Transverse mode | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ |
| Operating mode | CW | CW | CW | CW | CW | CW |
| Power stability (rms, over 4 hours) | <1% | <1% | <1% | <1% | <1% | <1% |
| Spectral linewidth | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm |
| Beam diameter at aperture (1/e ²) | ~3.0 mm | ~3.0 mm | ~1.0 mm | ~3.0 mm | ~2.0 mm | ~2.0 mm |
| Beam divergence, full angle | <1.0 mrad | <1.0 mrad | ~1.0 mrad | <1.0 mrad | <1.5 mrad | <1.0 mrad |
| Polarization ratio | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree | >50:1, Horizontal ±5 degree | / | / | / |
| Warm-up time | <5 min | <5 min | <5 min | <5 min | <5 min | <5 min |
| Operating temperature | 20-30°C | 20-30°C | 20-30°C | 20-30°C | 20-30°C | 20-30°C |
| Expected lifetime | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours |
| Warranty period | 10 months | 10 months | 10 months | 10 months | 10 months | 10 months |

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

808-975 nm Specifications

| Parameter | DLNE808 | DLNE830 | DLNE852 | DLNE915 | DLNE940 | DLNE975 |
|---|-----------------------------|------------------------|--------------------------|------------------------|------------------------|-----------------------------|
| Wavelength | 808±0.5 nm | 830±0.5 nm | 852±0.5 nm | 915±5 nm | 940±5 nm | 975±5 nm |
| Output power | >10 mW, >20 mW | >10 mW, >20 mW, >30 mW | >50 mW, >100 mW, >120 mW | >10 mW, >30 mW | >10 mW, >30 mW | >10 mW, >20 mW, >30 mW |
| Transverse mode | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ | Near TEM ₀₀ |
| Operating mode | CW | CW | CW | CW | CW | CW |
| Power stability (rms, over 4 hours) | <1% | <1% | <1% | <1% | <1% | <1% |
| Spectral linewidth | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm |
| Beam diameter at aperture (1/e ²) | ~3.0 mm | ~3.5 mm | ~2.0 mm | ~3.0 mm | ~3.5 mm | ~3.5 mm |
| Beam divergence, full angle | <1.5 mrad | <1.5 mrad | <2.0 mrad | <1.0 mrad | <1.0 mrad | <1.0 mrad |
| Polarization ratio | >50:1, Horizontal ±5 degree | / | / | / | / | >10:1, Horizontal ±5 degree |
| Warm-up time | <5 min | <5 min | <5 min | <5 min | <5 min | <5 min |
| Operating temperature | 20-30°C | 20-30°C | 20-30°C | 20-30°C | 20-30°C | 20-30°C |
| Expected lifetime | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours | 10,000 hours |
| Warranty period | 10 months | 10 months | 10 months | 10 months | 10 months | 10 months |

Remarks:

- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

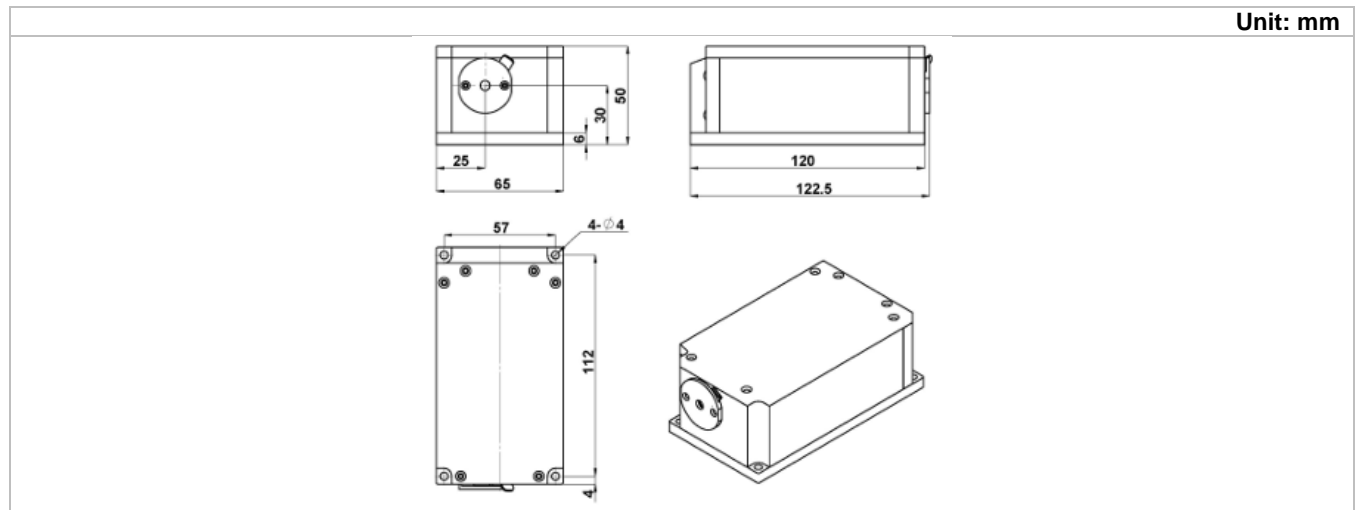
980-1060 nm Specifications

| Parameter | DLNE980 | DLNE1060 |
|---|-----------------------------|------------------------|
| Wavelength (nm) | 980±0.5 nm | 1060±10 nm |
| Output power (mW) | >10 mW, >20 mW, >30 mW | >10 mW, >20 mW, >40 mW |
| Transverse mode | Near TEM ₀₀ | Near TEM ₀₀ |
| Operating mode | CW | CW |
| Power stability (rms, over 4 hours) | <1% | <1% |
| Spectral linewidth (nm) | <0.06 nm, <0.03 nm | <0.06 nm, <0.03 nm |
| Beam diameter at aperture (1/e ² , mm) | ~2.5 mm | ~3.5 mm |
| Beam divergence, full angle (mrad) | ~2.5 mrad | <1.0 mrad |
| Polarization ratio | >10:1, Horizontal ±5 degree | / |
| Warm-up time (minutes) | <5 min | <5 min |
| Operating temperature (°C) | 20-30°C | 20-30°C |
| Expected lifetime | 10,000 hours | 10,000 hours |
| Warranty period | 10 months | 10 months |

Remarks:

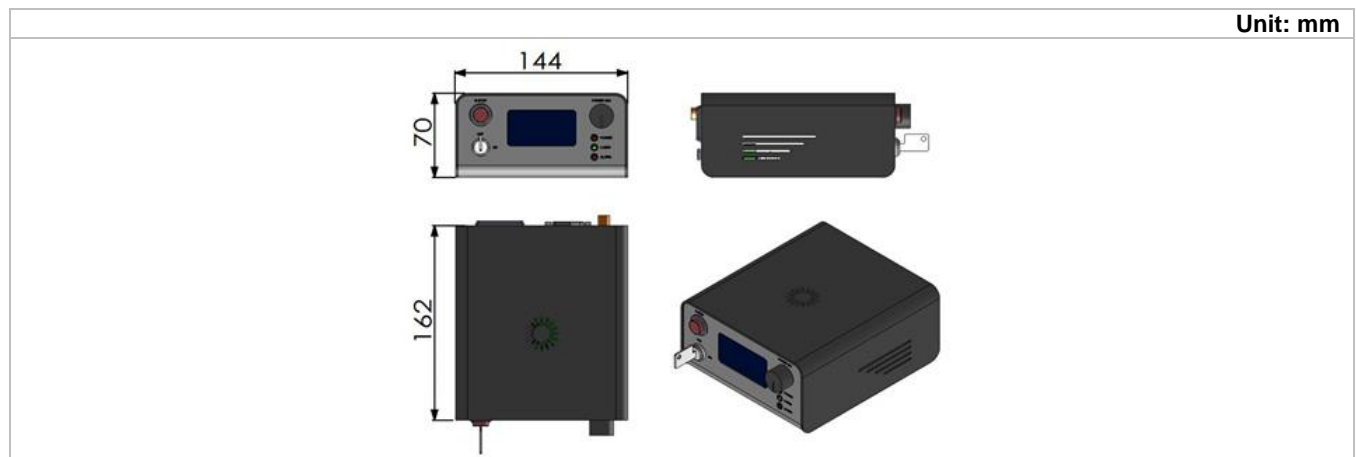
- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.
- Specifications are subject to change without notice.

DLNE Series Laser Head Dimensions



| Parameter | DLNE Series |
|-----------------------------|---------------------------------------|
| Dimensions | 122.5(L)×65(W) ×50(H) mm ³ |
| Weight | 1.0 kg |
| Beam height from base plate | 30 mm |

DLNE Series Power Supply Dimensions



| Parameter | A Version Elite Power Supply |
|---------------|---------------------------------------|
| Dimensions | 162(L) ×144(W) ×70(H) mm ³ |
| Weight | 1.0 kg |
| Input voltage | 100-240VAC |

Ordering Information

For more information, please contact Lasermate directly at sales@lasermate.com.

| Part Number Configuration DLNE[1][2][3][4][5] | | | | | |
|--|------------------|---|--|-----------------------|--------------------------|
| DLNE = Laser Model Series | [1] = Wavelength | [2] = Output Power | [3] = Power Supply | [4] = Power Stability | [5] = Spectral Linewidth |
| | | 5= >5mW 10= >10mW 20= >20mW 30= >30mW 50= >50mW 70= >70mW 80= >80mW 100= >100mW 120= >120mW | T= A Version Laboratory Power Supply | D= <1% | M= <0.06nm N= <0.03nm |

Note: The above specifications are subject to change without notice.