LDX SERIES LASER DIODE SYSTEMS

LASER LAB SOURCE

Advanced performance products for laser scientists and engineers.

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LDX Series Laser Diode System with Integrated Nichia Laser Diode

The LDX series laser diode systems are precision-engineered to provide excellent beam quality, low noise, and high stability for use in research lab environments. These systems are based on an integrated single mode Nichia laser diode which is thermally controller by a Peltier cooler. They include the driver and TEC controller unit as well as the required controller unit power supply. The laser diode output is through a collimating lens located at the output aperture.

TECHNICAL QUESTIONS AND INSTALLATION SUPPORT 800.887.5065

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Bozeman, MT, 59715

User-Adjustable Output Power and Modulation

The is able to control the integrated Nichia laser diode using the included controller unit. The LDX series systems come with a controller unit that is a low noise laser diode driver and TEC controller. The user can control the laser output power using the knob on the front panel of the controller unit. The user also has the ability to control the laser diode by an analog voltage signal through a d-Sub connector on the controller unit.

Included Driver & TEC / Temperature Controller

Pre-set current & temperature limits + driver unit
ESD & power surge clamp circuits protect the laser

User adjustable laser output power adjustment knob

Control unit interface cable included

MULTI-LAYER **SAFEGUARDS** FOR INTEGRATED **LASER DIODE**

Integrated Laser Diode Protection

These systems offer multiple layers of protection for the internal laser diode. They have an integrated LASORB diode on the current supply board which provides a physical layer shunt to protect against over-voltage. It eliminates the possibility of power surges and ESD damaging the laser. Integrated current limit, voltage limit and temperature limit features keep laser diode protected at all times. The over-temperature shut down feature is based on feedback from a 10Kohm sensor located against the Nichia laser diode package header.

Optional Fiber-Coupled Output

The laser diode module can be ordered with a factory installed optional fiber-coupled output adapter. Multiple fiber core sizes are available. Please note that there is a power loss (relative to the free-space model) associated with choosing the fiber-coupled output option. These LDX laser diode systems exhibit power loss associated with the fiber-coupling which is on the order of 10 to 20% of the total power in a free-space configuration.

FIBER-COUPLED OUTPUT OPTION AVAILABLE
option: KVAFC (see details below)
laser diode output coupled into fiber;
FC/PC connector; includes collimator adapter

specifications

OPTICAL SPECIFICATIONS

- Center Wavelength: 405 nm
- Center Wavelength Tolerance: ±5 nm
- User Adjustable Output Power: 0 - 200mW
- Beam Quality Factor: M^2: ~ 1.1
- Beam Structure: Single Transversal Mode
- Power Stability (@ambient ± 2 °C): < 0.5 % (8hrs)
- Spectral Linewidth: < 1 nm
- Beam Diameter (@ $1/e^2$): 4 mm
- Beam Divergence (half angle, mrad): 0.15mrad
- Polarization: Linear
- Polarization Ratio: 100:1
- Polarization Azimuth Tolerance: ± 5 degrees
- Pointing Stability (1 hour, CW): < ±100 µrad
- Output Window Beam Centering: < ±1 mm
- Beam Perpendicularity: < ±1 degree
- Minimum Operating Temperature: 5°C
- Maximum Operating Temperature: 40°C

LASER CONTROL MODES AND MODULATION

- Potentiometer / Control Knob
- Analog Input
- Analog input signal: 0 - 5V
- Analog/TTL input impedance: 5 kΩ

DIMENSIONS / LIFETIME / CLASSIFICATION

- Laser Head dimensions 84 x 120 x 46 mm
- Expected Lifetime: 10,000 hours
- Laser Class: 3B

Includes Driver & TEC Controller Unit
User adjustable laser output
power knob & analog controls

Two Year Full Warranty

The LDC series laser diode controllers are warranted against defects in materials and workmanship for a period of two years from the date of shipment. The warranty is honored and transacted by Laser Lab Source. The warranty does not include customer induced damage to the product.

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