



Benchtop Laser Diode Source System

14 Amp Fiber-Coupled Pump Laser Diodes



14 A Fiber-Coupled Pump Laser Diode Benchtop Turn-Key Source System

- o Includes Fiber-Coupled Laser Diode
- o Pre-Configured and Fully Adjustable Operating Parameters and Safety Limits
- o CW Mode and Integrated Quasi-CW Pulse Generator; Wide Ranging Pulse Widths
- o User-Programmable Soft-Start Current Ramp to Laser Diode Current Setpoint
- o Comprehensive Safety Features to Protect the Laser Diode, Controller, and Operator



**LASER
DIODE
SOURCES**

LDX-500X Benchtop Fiber-Coupled Pump Laser Source System

The LDX-500X Benchtop laser diode source is a preconfigured, plug-and-play benchtop light-source solution. The system includes the laser diode driver, the Peltier-based mount controller, the mount, interconnect cables, and the custom-selected fiber-coupled pump laser diode. The system is fully configured before delivery, with safety limits pre-set, to provide plug-and-play operation upon delivery.

Modulation, Internal Function Generator, and QCW Pulse Modes

The source system operates in CW (continuous wave) mode, and also provides flexible modulation capabilities and a QCW mode. The controller has an internal function generator which can be used to drive quasi-CW pulses in continuous, single, and burst-mode. There is an input for analog or TTL digital modulation. In QCW mode, the user can also set pulses to trigger from a remote TTL signal source. The modulation bandwidth and pulse widths are based on the laser driver capabilities, defined in the specifications table.





Discrete System Components Provide Application Flexibility

This benchtop source system delivers a compact and flexible solution for laboratory and R&D applications. The system is easily operated by the intuitive front-panel and keypad, and can be controlled remotely via RS232 or by the optional USB interface. The open mount and fully accessible laser diode provides added flexibility, and even allows for changing the source laser as application requirements change.

Comprehensive Laser Diode Protection Features

These control systems provide a high degree of laser diode protection to ensure the laser is protected. Soft-start current, pre-programmed and adjustable current and temperature limits, and a fast and safe shut-down sequence keep the laser and the system protected at all times. Additionally, transient filters and AC line filters protect against damage from brown-out or black-out power conditions.

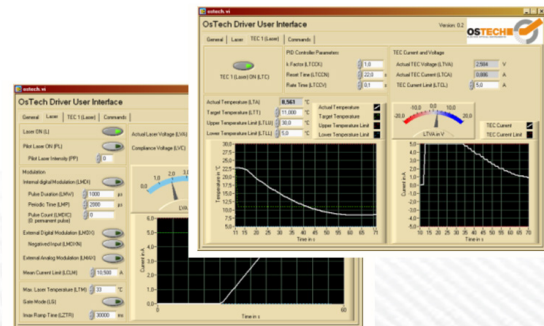
COMPLETE LASER DIODE PROTECTION

soft-start current ramp
ESD & power surge clamps
current & temperature limits



INTUITIVE FRONT PANEL CONTROLS
set & monitor all functions from main menu

LABVIEW DRIVERS





LDX-500X Benchtop Fiber-Coupled Pump Laser Source System

LASER DIODE CURRENT SOURCE

- Output Current Range: 0.00 - 14.00 Amps
- Compliance Voltage Range: 0.10 - 6.00 Volts
- Current Noise & Ripple (rms): < 1% of Full Scale Current
- Current Setpoint Resolution: 5.0 mA
- Current Setpoint Accuracy: $\pm 0.5\%$
- Current Stability (4 hours): ≤ 100 ppm (@ full scale)
- Current Limit Setpoint Accuracy: $\pm 2\%$
- Photodiode Current Measurement Accuracy: $\pm 0.5\%$
- Photodiode Current Measurement Range: 0.00 - 700 μ A



THERMOELECTRIC (TEC) TEMPERATURE CONTROLLER

- TEC Output Power Total: 112 Watts
- TEC Output Current Range (bipolar): ± 8.00 Amps
- TEC Output Voltage Range (bipolar) : ± 14.00 Volts
- Temperature Sensor Inputs: 10 k Ω Thermistor, NTC, PT100, PT1000
- TEC Control Loop Algorithm: Full P.I.D.
- P.I.D. Variables: User Adjustable to Optimize Temp. Settling Speed
- TEC Setpoint Resolution: 0.01 $^{\circ}$ C
- TEC Output Stability: $\pm 0.01^{\circ}$ C (subject to ambient temp. stability)
- Temperature Range: -25 $^{\circ}$ C to 150 $^{\circ}$ C
- Factory Set Default Lower Temperature Limit: 5 $^{\circ}$ C
- Factory Set Default Upper Temperature Limit: 35 $^{\circ}$ C

MOUNTING PLATE, HEAT SINK & CABLES

- Cooling Method: TEC-Peltier Cooler, Fan for Waste Heat Removal
- TEC Rating (max): 9 Amps, 17 Volts
- Heat Sink Thermal Load Maximum: 38 Watts (@25 $^{\circ}$ C)
- Fan Rated Input Voltage 24 VDC (supplied by controller)
- Fan Rated Input Current: 300 mA (supplied by controller)
- Mounting Plate Material: Anodized Aluminum
- Mounting Plate Area: 105 mm x 75mm
- Mounting Plate Hole Footprint: Customer Specified Package Style
- Mounting Plate Integrated Thermistor: 10 k Ω
- Electrical Connector to Controller: DSUB, 15-pin
- System Includes 1 x 1.5 meter Current Interface Cable (50A rated)
- System Includes 1 x 1.5 meter TEC Control Interface Cable (20A rated)



LDX-500X Benchtop Fiber-Coupled Pump Laser Source System

MODULATION & QCW PULSE MODE

- Internal Pulse Generator QCW Pulse Width Rise Time: 20 μ sec to CW
- Pulse Time Base Accuracy: \pm 1.0%
- QCW Mode 1: User Adjustable Pulse Width and Repetition Rate using Internal Pulse Generator
- QCW Mode 2: External Trigger to Internal Pulse Generator: Rising Edge Triggered QCW Pulse with Internally Adjusted Pulse Width
- Modulation Input (BNC): Digital (TTL) or Analog
- Modulation BNC Input Impedance: 10 k Ω Modulation Input
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- Modulation Input Voltage Range: 0 ~ 4 Volts (4V = Max Current)
- Analog Modulation Bandwidth: 1 Hz – 20 kHz

LASER DIODE PACKAGE STYLE PART NUMBERS

- LDX-500X/L4 (Lumentum L4)
- LDX-500X/TO-220 (Lumics 2-Pin)
- LDX-500X/HHL (Fiber Coupled HHL)
- LDX-500X/BMU (II-VI 2-pin)
- LDX-500X/CS (Customer Specified - Contact Us)

INTEGRATED LASER DIODE PROTECTION FEATURES

- User Programmable Soft-Start Current Ramp to Setpoint
- Soft-Start Current Ramp Default Set to 300 Milliseconds
- Preset and Programmable Current Limit
- Temperature Limits (Upper and Lower)
- Open Circuit Detection
- Short Circuit when Laser Diode Current Turned OFF
- ESD and Power Surge Clamp
- Reverse Voltage Transient Clamp
- Factory Pre-Set Default Upper Temperature Limit: 35°C
- AC Line Filter
- Rear Panel Keylock Switch and Interlock

CONTROLLER COMPUTER INTERFACE

- Front Panel LCD, Full Alphanumeric Display with Key Pad
- RS232 Standard, LabView Drivers Included
- USB Optional; Inquire
- GUI Control Software Included

POWER SUPPLY, WEIGHT AND DIMENSIONS

- Power Input: Universal 90 ~ 230 VAC, 50/60 Hz
- System Weight (total): ~ 10 kg
- Dimensions: 200mm x 105mm x 85mm



Product Sales and Service

Orders for this product are fulfilled by LaserDiodeControl.com, part of the Laser Lab Source group. It is manufactured for Laser Lab Source by OsTech, GmbH.

Product Warranty

This product is sold with a full one-year warranty. It is warranted to be free from defects in material and/or workmanship for a period of one year from the date of shipment.



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