# 25 Amp Laser Diode Driver, 64 Volt Compliance Range

**ENHANCED PROTECTION FOR HIGH VOLTAGE PUMP LASER DIODES**

300 millisecond soft start current ramp to set-point

Over-voltage burst & surge clamps

Fast open circuit detection & shut-down

## 25 Amp, 64 Volt Laser Diode Driver High Power Laser Bars and Arrays

o Current up to 25 A, Voltage up to 64 V

o Optimized for High Power Laser Diodes from nLight, II-VI, Lumentum, Coherent/Dilas, Lumics

o CW Mode and Integrated Quasi-CW Pulse Generator; Pulse Widths from 30µs to CW

o Front-Panel Control and RS232 Remote Control; USB Optional

o Open Circuit Detection and Fast Shut-Down with Analog Control Loop

**LASER DIODE DRIVERS**

Laser Lab Source
a division of Research Lab Source Corporation

www.LaserLabSource.com
phone: 800-887-5065

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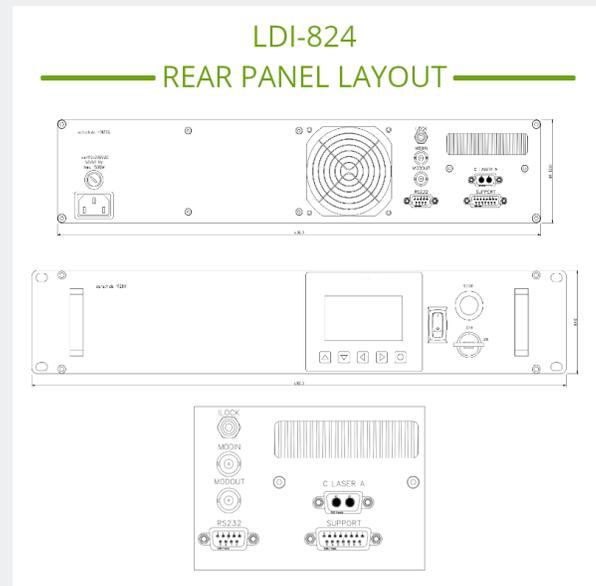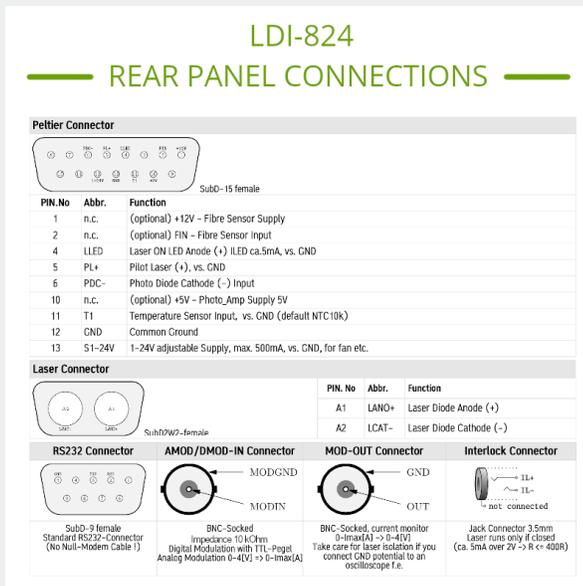Bozeman, MT 59718

## LDI-824 High Power Laser Diode Driver Overview

The LDI-824 laser diode driver is designed to precisely and safely bias a wide range of laser diodes connected in series, laser diode stacks and multi-emitter devices such as those from nLight, Lumentum, Coherent / DILAS, and II-IV. This driver is ideal for 808 - 915 - 940 - 976nm high power pump Laser applications.

## Modulation, Internal Function Generator, and QCW Pulse Modes

The LDI-824 operates in CW (continuous wave) mode, and also provides flexible modulation capabilities and a QCW mode. On the backpanel is the BNC input for an analog or TTL digital modulation (10k Ω input impedance).

The integrated function generator can be programmed to generate QCW pulses from 30 microseconds to CW. The QCW pulse mode feature is capable of delivering continuous pulses, single pulses, and pulse bursts which are internally or externally triggered.

### LDI-824
### REAR PANEL CONNECTIONS

**Peltier Connector**

SubD-15 female

| PIN.No | Abbr. | Function |
|--------|-------|----------|
| 1 | n.c. | (optional) +12V – Fibre Sensor Supply |
| 2 | n.c. | (optional) FIN – Fibre Sensor Input |
| 4 | LLED | Laser ON LED Anode (+) ILED ca.5mA, vs. GND |
| 5 | PL+ | Pilot Laser (+), vs. GND |
| 6 | PDC– | Photo Diode Cathode (–) Input |
| 10 | n.c. | (optional) +5V – Photo_Amp Supply 5V |
| 11 | T1 | Temperature Sensor Input, vs. GND (default NTC10k) |
| 12 | GND | Common Ground |
| 13 | S1–24V | 1–24V adjustable Supply, max. 500mA, vs. GND, for fan etc. |

**Laser Connector**

SubD2W2-female

| PIN. No | Abbr. | Function |
|---------|-------|----------|
| A1 | LANO+ | Laser Diode Anode (+) |
| A2 | LCAT– | Laser Diode Cathode (–) |

| RS232 Connector | AMOD/DMOD-IN Connector | MOD-OUT Connector | Interlock Connector |
|-----------------|------------------------|-------------------|---------------------|
| | MODGND / MODIN | GND / OUT | IL+ / IL– / not connected |
| SubD-9 female Standard RS232-Connector (No Null–Modem Cable !) | BNC-Socked Impedance 10 kOhm Digital Modulation with TTL–Pegel Analog Modulation 0–4[V] => 0–Imax[A] | BNC-Socked, current monitor 0–Imax[A] –> 0–4[V] Take care for laser isolation if you connect GND potential to an oscilloscope f.e. | Jack Connector 3.5mm Laser runs only if closed (ca. 5mA over 2V –> R <= 400R) |

### LDI-824
### REAR PANEL LAYOUT

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## Laser Diode Protection Features

These current sources feature multiple levels of built-in laser diode protection which have been optimized for high power bars, arrays, stacks, and multi-emitter devices. Soft-start current, programmable current and temperature limits, and a fast and safe shut-down sequence keep your device protected at all times. Additionally, transient filters and AC line filters protect the laser against brown-out or black-out power conditions.
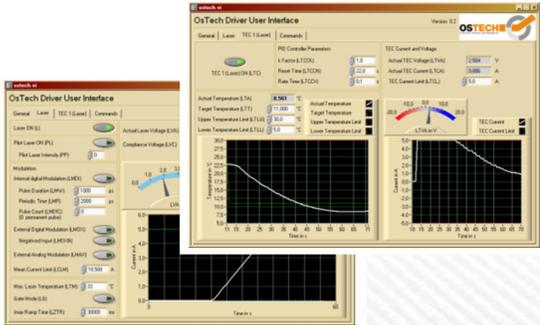
A back-panel safety interlock connector and safey key-switch ensure that the laser diode current is not switched on until the user has determined it is safe to do so.

The 15-pin D-sub provides access to a range of ancillary control functions, including external photodiode measurement, pilot laser, Laser-On Indicator LED, temperature sensor input, and an external cooling fan control.

### Optimized for High Voltage Multi-Chip Laser Diodes

nLight Element

Lumics LuOcean

Lumentum ST Series

II-VI Multimode Pump

nLight Pearl

Coherent | Dilas Pump

### LABVIEW DRIVERS

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# LDI-824 High Power Laser Diode Driver Specifications

## LASER DIODE CURRENT AND VOLTAGE OUTPUT (CW / QCW)

- Compliance Voltage Range: 0.12 - 64.00 Volts
- Output Current Range: 0.00 - 25.00 Amps
- Current Noise & Ripple (rms): < ± 0.5% ( of full scale current )
- Current Setpoint Resolution: 18 mA
- Current Setpoint Accuracy: ± 0.5%
- Current Limit Setpoint Accuracy: ± 2%
- Photodiode Current Measurement Accuracy: ± 0.5%
- Photodiode Current Measurement Range: 0.00 - 700 μA

## INTEGRATED LASER DIODE PROTECTION FEATURES

- Soft-Start Current Ramp Factory Default Set to 300 Milliseconds; User Adjustable
- User-Programmable Current Limit
- Fast Open-Circuit Detection and Shut-Down
- ESD and Power Surge Clamp, AC Line Filter
- Reverse Voltage Transient Clamp
- Rear Panel Keylock Switch and Safety Interlock
- Short Circuit when Laser Diode Current Turned OFF
- Front Panel e-Stop Button Emergency Shut-Down

## MODULATION & QCW PULSING MODE

- QCW Pulse Width Range: 30 μs to CW, 10%-90% se
- Integrated QCW Pulse Generator, also Accepts External Trigger (Rising Edge) for QCW Pulses
- QCW Pulse Time Base Accuracy: ± 1.0%
- Modulation Input: BNC, Digital (TTL) or Analog, 10kΩ Impedance
- External Modulation Input Voltage Range: 0 ~ 4 Volts

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## LDI-824 High Power Laser Diode Driver Specifications

### AUXILIARY FUNCTIONS AND CONNECTIONS

- Optional Fiber Sensor Input
- Output for Laser On External Indicator
- Pilot Laser Output
- External Temperature Sensor Input
- Adjustable Auxiliary Output for External Cooling Fan

### USER INTERFACE AND CONNECTORS

- Front Panel: Alphanumeric LCD with Key Pad
- RS232 Standard
- LabView Drivers Included
- Laser Diode Connector: SubD-2W2, Female
- Auxiliary Functions Connector: SubD-15, Female
- RS232 Connector: SubD-9, Female
- Safety Interlock: Jack Connector, Stereo 3.5mm

### DIMENSIONS AND POWER INPUT

- Power Input: Universal 100V ~ 240 VAC, 50/60 Hz
- Dimensions: 89 mm (H) x 482 mm (W) x 266 mm (L)
- Chassis Height: 2U (Standard Rack-Mount Units)

### RECOMMENDED ACCESSORIES

- kab-39 Unterminated Connecting Cable -or-
  kab-231 Terminated Connecting Cable
- kab-286 Unterminated Power Cable -or-
  kab-297 Terminated Power Cable
- acc-417 USB-RS232 Converter

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## 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 warrantied to be free from defects in material and/or workmanship for a period of one year from the date of shipment.
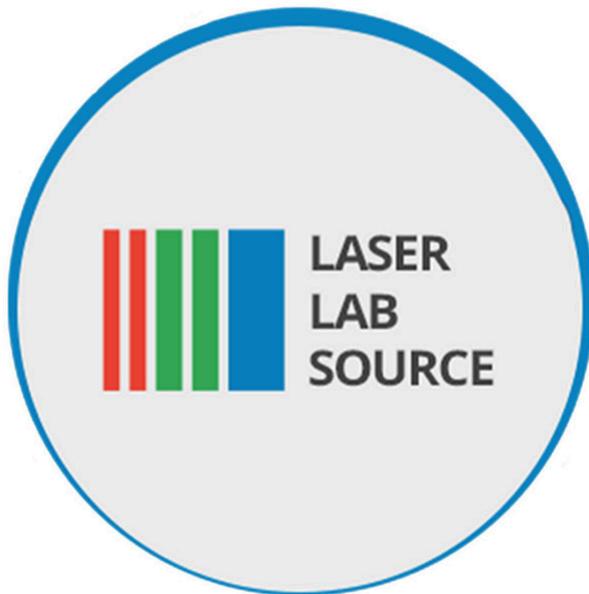
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