LASER LAB SOURCE
marketplace for **Scientists & Engineers**

*manufactured for Laser Lab Source by* OSTECH

# 125 Amp Laser Diode Driver, 12 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

## 125 Amp, 12 Volt Laser Diode Driver High Power Laser Bars and Arrays

- Current up to 125 A, Voltage up to 12 V
- Optimized for High Power Laser Diodes from nLight, II-VI, Lumentum, Coherent/Dilas, Lumics
- CW Mode and Integrated Quasi-CW Pulse Generator; Pulse Widths from 29µs to CW
- Front-Panel Control and RS232 Remote Control; USB Optional
- Open Circuit Detection and Fast Shut-Down with Analog Control Loop

LASER DIODE DRIVERS

## LDI-344 Very High Power Laser Diode Driver Overview

The LDI-344 series high power drivers for laser diodes offer up to 125 amps of bias current at a maximum voltage of 12V. These units offer CW, modulated, and Quasi-CW (QCW) slow pulsed modes and have an integrated function generator. Pulse width's as narrow as 29 microseconds are achievable. The driver is packaged in a rack-mount 19 inch width chassis, and have a front panel keypad for fast, simple set-up.

## Laser Driver Control User Interface

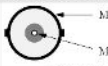
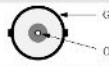
The LDI-334 front-panel controls provide fast and simple setup, and an RS232 interface with LabView drivers is included standard. The LabView GUI makes set-up and control of the system fast and simple. An optional USB digital interface is available; inquire for details on ordering the USB control option.

### LDI-344
### REAR PANEL CONNECTIONS

**Laser Connector**

Sub-D 15W6, female Type as viewed from backside

| PIN.No | Abbr. | Function |
|---|---|---|
| A4 A5 A6 | ANODE | Laser Anode |
| A1 A2 A3 | CATHODE | Laser Cathode |
| 1 | LEDA+ | Laser Run LED-Anode (+) (LED ca.5mA ref. to GND (not supported) |
| 5 | TSEN | Temperatur Sensor (default NTC10k) |
| 6 | GND | Common Ground |
| 7 | 1..24V | 1..24V adjustable Supply - fan supply, max. 800mA ref. to GND |
| 2 | PL+ | Pilot Laser Supply |
| | SCR | Common Screen |

| RS232 Connector | AMOD/DMOD-IN Connector | MOD-OUT Connector | Interlock Connector |
|---|---|---|---|
|  |   |   |   |
| SubD-9 female<br>Standard RS232-Connector<br>9600-Baud-8N1<br>(No Null-Modem Cable !) | BNC-Socked<br>Impedance 10 kOhm<br>Digital Modulation with TTL-Pegel<br>Analog Modulation 0-4[V] => 0-Imax[A] | BNC-Socked, current monitor<br>0-Imax[A] -> 0-4[V]<br>Take care for laser isolation if you connect GND potential to an oscilloscope f.e. | Jack Connector 3.5mm<br>Laser runs only if closed<br>(ca. 5mA over 2V -> R <= 400R) |

### LDI-344
### AUXILIARY CONNECTIONS

**Support Connector - isolated Industrial Interface - 2nd version**

SubD-25 female

| PIN.No | Abbr. | | Function |
|---|---|---|---|
| 1 | ILOCK0 | out | Output Interlock Output max. 12V 10mA (connect to pin14) to close Interlock |
| 2 | LON | out | Output Laser On - High = Laser is in On State [1] |
| 3 | SYSOK | out | Output System Ok - High = System OK - Laser Ready for Operation [1] |
| 4 | LACTIVE | out | Output Laser Active - High = Laser is Emitting [1] |
| 5 | PILOTOFF | in | If your Laser has a pointer device it's switched ON when - LOW [1] |
| 6 | -12V | sup | Supply Output -12V max. 250mA for free usage [2] |
| 7 | +12V | sup | Supply Output +12V max. 250mA for free usage [2] |
| 8 | +5V | sup | Supply Output +5V±1% max. 250mA for free usage [2] |
| 9 | AMODOFF | in | Input if LOW = xternal analogue modulation is ON (is changable) [1] |
| 10 | DMODOFF | in | Input if LOW = xternal digital modulation is ON (is changable) [1] |
| 11 | LOFF | in | Input Laser-OFF - Low = Laser is ON [1] |
| 12 | IFAN | sup | optional (Fan) Supply - 2V..22V up to 1A for external Fan vs. IGND [2] |
| 13 | IGND | sup | optional internal GND [2] |
| 14 | ILOCK0 | in | Interlock Input - has to be connected to ILOCK0 (PIN1) to close Interlock |
| 15 | MDMOD | in | Input Digital Modulation [3] |
| 16 | MGND | sup | Modulation GND |
| 17 | MAMOD | in | Input Analog Modulation 4[3] |
| 18 | TX | in | RS232-Tx [3] |
| 19 | RX | out | RS232-Rx [3] |
| 20,21 | XGND | sup | Xternal GND |
| 22 | n.c. | | |
| 23 | I4-20mA | in | Additional 4..20mA Analogue Modulation Input vs. IGND [4] |
| 24 | +24V | sup | Supply Output +24V max. 80mA for free usage [2] |
| 25 | XLEVEL | in | Input for Logical Output Level [4] |

[1] Logic Output, High Level = XLEVEL (default +5V), LOW Level < 1V, see [4]
[2] vs. XGND
[3] Input internally pulled-up, input is tolerant up to 24V for High-level
[4] vs. MGND
[5] 0-4V = 0-Imax (Ri = 10kOhm, for a 0-10V input signal put 15kOhm in series)
[6] XLEVEL is default 5V = TTL-Level, to change Output High level to 12V connect XLEVEL to +12V or to change Output High level to 24V connect XLEVEL to +24V
[7] vs. IGND Signals are NOT isolated! Take care!

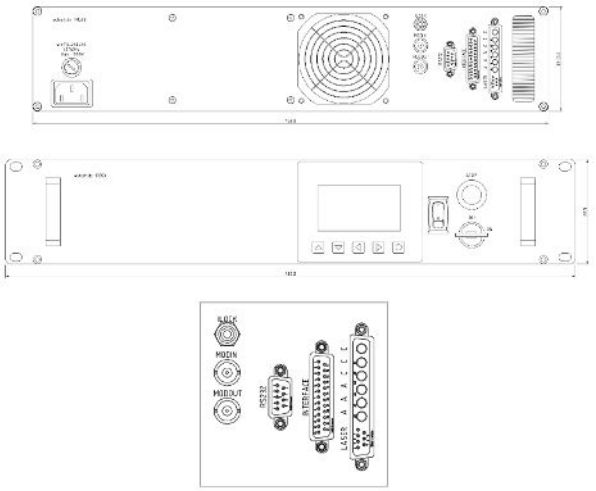
## Laser Diode Protection Features

These current sources feature multiple levels of built-in laser diode protection which have been optimized for high power bars and arrays. One of the unique features is a user programmable soft-start ramp of the bias current to the device under test. The factory sets the ramp time to 300 milliseconds as a default, but the user can adjust this time period from 1 millisecond up to 10's of seconds. This current ramp up and down function is designed to protect the laser from thermal shock during power up and down sequences.

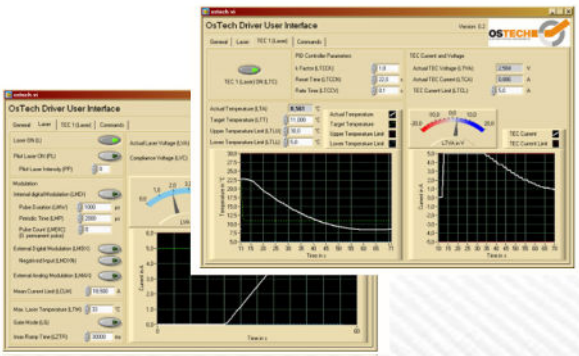
The LDC-334 also offers features such as current limit, a brown-out and black-out power surge clamp, AC line filters, and a fast response to shunt the current in the event of an open circuit. There is an interlock safety connection as well as a front panel Emergency-Stop kill switch to ensure the laser is operated only when the user has determined it is safe to do so.

LDI-344

REAR PANEL LAYOUT



LABVIEW DRIVERS



# LDI-344 High Power Laser Diode Driver Specifications

## LASER DIODE CURRENT OUTPUT (CW / QCW)

- Output Current Range: 125.00 Amps
- Compliance Voltage Range: 0.12 -12.00 Volts
- Current Noise & Ripple (rms): < ± 0.5% ( of full scale current )
- Current Setpoint Resolution: 30 mA
- Current Setpoint Accuracy: ± 0.5%
- Current Stability (4 hours): ≤ 300 ppm
- Current Limit Setpoint Accuracy: ± 2%

## INTEGRATED LASER DIODE PROTECTION FEATURES

- Soft-Start Current Ramp Factory Default Set to 300 Milliseconds; User Adjustable
- User-Programmable Current Limit
- Open Circuit Detection
- 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

## QCW PULSE MODE AND MODULATION

- QCW Pulse Width Rise/Fall Time: 29 µs to CW, 10%-90%
- Integrated QCW Pulse Generator, also Accepts External Trigger for QCW Pulses
- Pulse Time Base Accuracy: ± 1.0%
- Modulation Input & Output: BNC, Digital (TTL) or Analog, 10kΩ Impedance
- Modulation Input Voltage Range: 0 ~ 4 Volts (4V = Max Current)

# LDI-344 High Power Laser Diode Driver Specifications

## AUXILIARY FUNCTIONS AND CONNECTIONS

- Interlock Status Indication (12 V, 100 mA)
- Laser On/Off Status Indication (TTL; On = High)
- System OK Status Indication (TTL; Good = High)
- External 5V Reference Output
- Multiple Auxiliary Analog and TTL Signal Ports
- Pilot Laser Output; Pilot Laser On/Off
- External Cooling Fan Output (1 - 24V, 800 mA)
- External Temperature Sensor Input (NTC 10kΩ @ 25°C)
- External Safety Interlock Connector

## USER INTERFACE AND CONNECTORS

- Front Panel: Alphanumeric LCD with Key Pad
- RS232 Interface: SubD-9, Female
- USB Optional: $95.00 (Option SVC-USB)
- LabView Drivers Included
- Laser Diode Connector: SubD-13W6, Female
- Auxiliary Functions Connector: SubD-25 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

- acc-417 USB-RS232 Converter

## 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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