



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

- o Current up to 125 A, Voltage up to 12 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 29 μ s 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**



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-344 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 13WV, female T-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 (+) ILED ca.5mA ref. to GND (not supported)
5	TSEN	Temperature 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



SubD-9 female Standard RS232-Connector 9600-Baud-8N1 (No Null-Modem Cable 1)

AMOD/DMOD-IN Connector



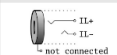
BNC-Socketed Impedance 10kOhm Digital Modulation with TTL-Peak Analog Modulation 0-4[V] to 0-5max[A]

MOD-OUT Connector



BNC-Socketed, current monitor 0-5max[A] to 0-4[V] Take care for Laser Isolation if you connect GND potential to an oscilloscope f.e.

Interlock Connector



Jack Connector 3.5mm Laser runs only if closed (ca. 5mA over 2V -> R < 400R) not connected

LDI-344

AUXILIARY CONNECTIONS

Support Connector - Isolated Industrial Interface - 2nd version



SubD-25 female

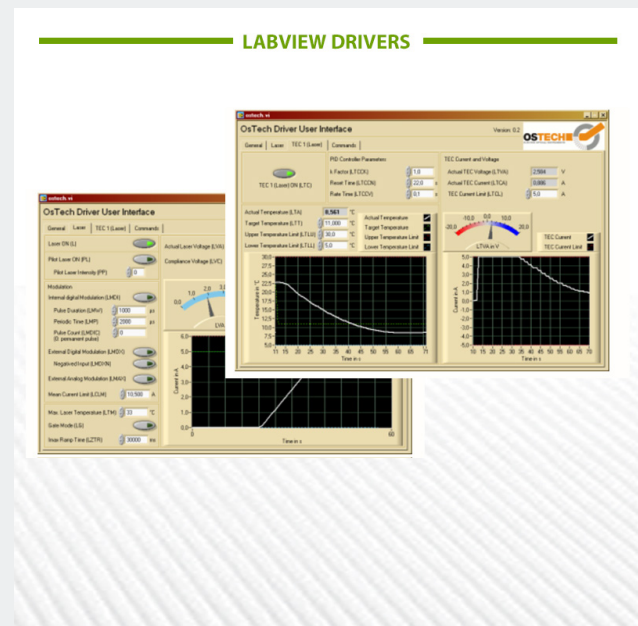
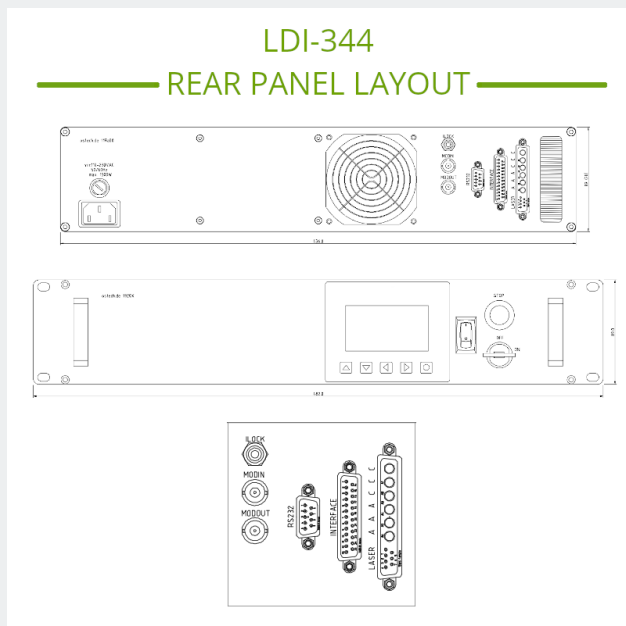
PIN.No	Abbr.	Function
1	ILOCKO	out Output Interlock Output max. 12V 10mA (connect to pin14) to close Interlock
2	LON	out Output Laser On - High = Laser is in On State ¹⁾
3	SYSOK	out Output System Ok - High = System OK - Laser Ready for Operation ¹⁾
4	LACTIVE	out Output Laser Active - High = Laser is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

¹⁾ Logic Output, High Level = XLEVEL (default +5V), LOW Level = 0V, see ⁸⁾
²⁾ vs. XICND
³⁾ Input internally pulled-up, Input is tolerant up to 24V for High-level
⁴⁾ vs. MCND
⁵⁾ 5V - 10V max (0-110Ohm), for a 0-10V input signal out 100Ohm in series
⁶⁾ XLEVEL is default 5V + TL-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. ICND 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 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): $< \pm 0.5\%$ (of full scale current)
- Current Setpoint Resolution: 30 mA
- Current Setpoint Accuracy: $\pm 0.5\%$
- Current Stability (4 hours): ≤ 300 ppm
- Current Limit Setpoint Accuracy: $\pm 2\%$

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 μ s to CW, 10%-90%
- Integrated QCW Pulse Generator, also Accepts External Trigger for QCW Pulses
- Pulse Time Base Accuracy: $\pm 1.0\%$
- Modulation Input & Output: BNC, Digital (TTL) or Analog, 10k Ω 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 10k Ω @ 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 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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