# Laser Diode Controller - 16 Amp, 8 Volt Laser Output
# 112 Watt Thermoelectric Temperature Controller

**COMPLETE PROTECTION FOR YOUR LASER DIODE**

Soft-start current ramp to set-point
Power surge and transient clamps
Current and temperature limits


## 16 Amp, 8 Volt Laser Diode Driver
## 112 Watt TEC Controller

- Laser Current up to 16 A, Voltage up to 8 V
- Bipolar Temperature Controller up to 112 W
- Optimized for High Power 808nm, 915nm, 940nm, and 980nm Pump Laser Diodes
- CW Mode and Integrated Quasi-CW Pulse Generator; Pulse Widths from 30µs to CW
- Full Complement of Protection Features

**LASER DIODE CONTROLLERS**

## LDC-337 Laser Diode Controller

These high power current source and TEC controller instruments were designed to precisely control high power single emitter pump laser diodes from companies such as Lumentum, Lumics, Coherent and II-VI laser enterprise. These units offer a precision 16 amp current source to bias your laser diode as well as a full PID temperature controller.

## Internal Function Generator & QCW Pulse Modes

In addition to CW (continuous wave) mode of operation, the LDC-337 offers flexible modulation capabilities and a quasi-CW mode. The rear panel of the controller has a BNC input for an analog or TTL digital modulation input with a 10kΩ input impedance. The controller has an internal function generator which can be used to set the modulation signal or the quasi-CW pulses with a time base accuracy of 1.0%. In QCW mode, the user can also set the 20µs to CW pulses from a remote TTL signal source.

### LDC-337
### REAR PANEL CONNECTIONS

**Laser & Peltier Connector**

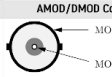
SubD-15 female

| PIN.No | Abbr. | Function |
|---|---|---|
| 1;2 | LANO+ | Laser Diode Anode(+) |
| 4 | LLED | Laser Active LED – Anode (+), 5V over 470R, v.s. GND |
| 5 | PL+ | Pilot Laser (+), v.s. GND |
| 6 | PDC- | Photo Diode Cathode (–), v.s. GND |
| 7;8 | PEL+ | Peltier element (+) |
| 9;10 | LCAT- | Laser Diode Cathode (–) |
| 11 | T1 | Temperature Sensor 1 Input, default NTC10kΩ, v.s. GND |
| 12 | GND | Common Ground |
| 13 | 1-24V | 1 to 24V Supply, max. 500mA, vs. GND, supports fan etc. |
| 14;15 | PEL- | Peltier element (–) |

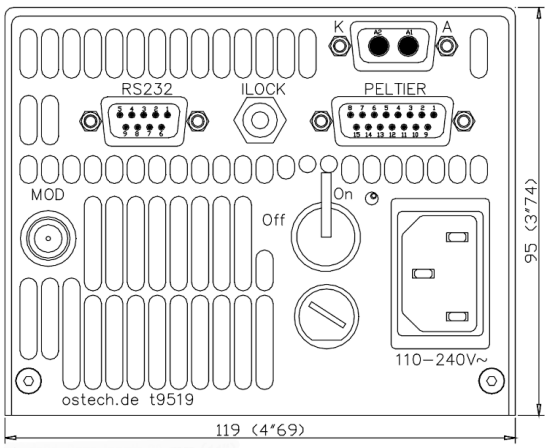
**Laser Connector**

SubD2W2-female

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

| RS232 Connector | AMOD/DMOD Connector | Interlock Connector |
|---|---|---|
|  SubD-9, female |  MODGND, MODIN, BNC |  IL+, IL-, not connected, Jack Connector 3.5mm |
| Standard RS232-Connector connected to PC 9600-Baud-8N1(No Null-Modem Cable !) | Impedance 10 kOhm<br>Digital Modulation with TTL-Pegel<br>Analog Modulation 0–4[V] => 0–Imax[A] | Interlock – Laser runs only if closed<br>(ca. 5mA over 2V -> $R_{Interlock}$ <=400R) |

### LDC-337
### REAR PANEL LAYOUT



## Temperature Controller Features

The integrated bipolar TEC controller drives thermoelectric cooler-based loads with up to 128 Watt output: ± 8.00 Amps and ± 16.00 Volts. The full PID control loop provides millidegree temperature stability, and can quickly stabilize high heat loads to the temperature set-point to reduce the risk of damage to your laser.

User-adjustable upper and lower temperature limits can be programmed to protect the laser diode and the Peltier device. Additionally, TEC output current limits are user-configured to protect the Peltier device from over-drive damage.

The TEC sensor input is suitable for use with 10kΩ Ohm NTC thermistors. There is an auxiliary control capable of 24 V and 800 mA output that can be used to drive an external cooling fan.

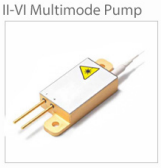
**Optimized for High Voltage Multi-Chip Laser Diodes**

nLight Element

Lumics LuOcean

Lumentum ST Series

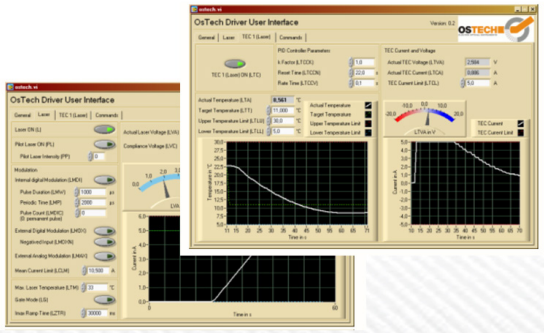
II-VI Multimode Pump



nLight Pearl

Coherent | Dilas Pump

**LABVIEW DRIVERS**



# LDC-337 High Power Laser Diode Driver Specifications

## LASER DIODE CURRENT SOURCE

- Output Current Range: 0.00 - 16.00 Amps
- Compliance Voltage Range: 0.10 - 8.00 Volts
- Current Noise & Ripple (rms): < 1% of Full Scale Current
- Current Setpoint Resolution: 5.0 mA
- Current Setpoint Accuracy: ± 0.5%
- Current Stability (4 hours): ≤ 100 ppm (@ full scale)
- Current Limit Setpoint Accuracy: ± 2%
- Photodiode Current Measurement Accuracy: ± 0.5%
- Photodiode Current Measurement Range: 0.00 - 4,000 µA

## THERMOELECTRIC (TEC) TEMPERATURE CONTROLLER

- TEC Output Power Total: 112 Watts
- TEC Output Current Range (bipolar): ± 8.00 Amps
- TEC Output Voltage Range (bipolar) : ± 16.00 Volts
- Temperature Sensor Inputs: 10 kΩ 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°C
- TEC Output Stability: ± 0.01°C (subject to ambient temp. stability)
- Temperature Range: -25°C to 150°C
- Factory Set Default Lower Temperature Limit: 5°C
- Factory Set Default Upper Temperature Limit: 35°C

## MODULATION & QCW PULSE MODE

- Internal Pulse Generator QCW Pulse Width Rise Time: 20 µsec to CW
- Pulse Time Base Accuracy: ± 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, 10kΩ Impedance
- Modulation Input Voltage Range: 0 ~ 4 Volts

# LDC-337 High Power Laser Diode Driver Specifications

## INTEGRATED PROTECTION FEATURES

- User Programmable Soft-Start Current Ramp to Setpoint (300ms Default)
- User-Set Laser Diode and TEC Current Limits
- User-Set Temperature Limits (Upper and Lower)
- Open Circuit Detection
- Short Circuit when Laser Diode Current Turned OFF
- ESD and Power Surge Clamp, AC Line Filter
- Reverse Voltage Transient Clamp
- Rear Panel Keylock Switch and Interlock

## AUXILIARY FUNCTIONS

- Temperature Sensor Input: 10kΩ NTC Thermistor
- External Fan Control Circuit, 1 - 24V, 500mA (max)
- Laser-On External LED Indicator: 5mA Output
- Pilot Laser Anode, vs. Ground: (5V, 150 mA)
- Photodiode Input (Anode and Cathode)

## USER INTERFACE AND CONNECTORS

- Front Panel: Alphanumeric LCD
- USB Optional: $95.00 (Option SVC-USB)
- LabView Drivers Included
- Laser and Peltier Connector: SubD-15, Female
- Laser Connector: SubD-2W2, Female
- RS232 Connector: SubD-9, Female
- Safety Interlock: Jack Connector, Stereo 3.5mm

## DIMENSIONS AND POWER INPUT

- Universal 110V ~ 240 VAC Input
- Dimensions: 95 mm x 119 mm x 280 mm

## RECOMMENDED ACCESSORIES

- kab-39 Unterminated Connecting Cable -or-
  kab-231 Terminated Connecting Cable
- kab-286 Unterminated Power Cable, 40 Amp -or-
  kab-297 Terminated Power Cable, 40 Amp
- 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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