



Laser Diode Controller - 70 A, 5 Volt Laser Output 336 Watt Thermoelectric Temperature Controller

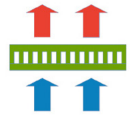


70 Amp, 5 Volt Laser Diode Driver 336 Watt TEC Controller

- o Laser Current to 70 A, Voltage up to 5 V
- o Bipolar Temperature Controller up to 336 W
- o Optimized for High Power Laser Diodes Bars and Arrays from Coherent/DILAS,
- o CW Mode and Integrated Quasi-CW Pulse Generator, External Modulation Source
- o Full Complement of Protection Features



LASER
DIODE
CONTROLLERS





LDC-296 Laser Diode Controller

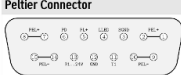
The LDC-296 can drive full CW power up to 70 Amps, and the integrated function generator can be programmed to generate QCW pulses from 25 microseconds to CW. The QCW pulse mode feature is capable of delivering continuous pulses, single pulses, and pulse bursts which are internally or externally triggered.

Internal Function Generator & QCW Pulse Modes

In addition to CW (continuous wave) mode of operation, the LDC-296 laser diode controller offers flexible modulation capabilities and a QCW mode. The rear panel of the controller has a BNC input for an analog or TTL digital modulation input with a 10 kΩ input impedance. The controller has an internal function generator which can be used to set the quasi-CW pulses. In QCW mode, the user can also set the 100μs to CW pulses from a remote TTL signal source.

LDC-296 REAR PANEL CONNECTIONS


Peltier Connector



SubD-15 female

PIN.No	Abbr.	Function
1;2;7;8	PEL+	Peltier TEC positive Output
3	SGND	Supply Ground
4	LLED	Laser ON LED Anode (+) ILED ca.5mA vs. GND
5	PL+	Pilot Laser (+), vs. GND
6	PD-	Photo Diode Cathode (-) input
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.
9;10;14;15	PEL-	Peltier TEC negativ Output

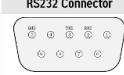
Laser Connector



SubD-5WS female


PIN.No	Abbr.	Function
A3; A4	LDA+	Laser Diode Anode (+)
A1; A2	LDC-	Laser Diode Cathode (-)
A5	n.c.	

RS232 Connector



SubD-9 female
Standard RS232-Connector
(No Null-Modem Cable!)


AMOD/DMOD-IN Connector



MODGND
MODIN

Impedance 10 kΩ
Digital Modulation with TTL -Preget
Analog Modulation 0-4[V] → 0-Imax[A]

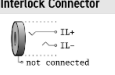
MOD-OUT Connector



GND
OUT

BNC-Socket, current monitor
0-Imax[A] → 0-4[V]
Take care for laser isolation if you
connect GND potential to an
oscilloscope i.e.

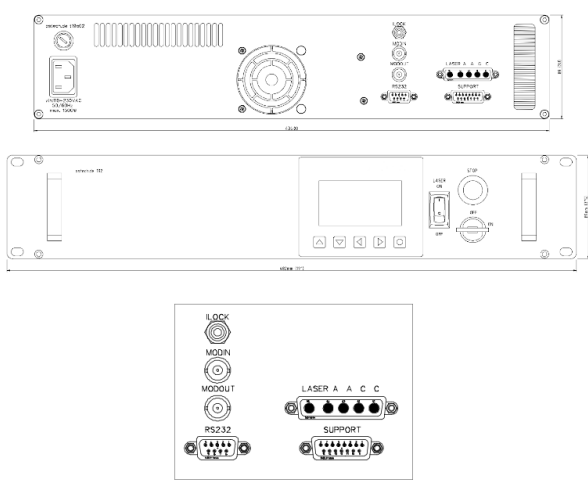
Interlock Connector



IL+
IL-
not connected

Jack Connector 3.5mm
Laser runs only if closed
(ca. 5mA over 2V → R < 400Ω)

LDC-296 REAR PANEL LAYOUT



The diagram shows the physical layout of the rear panel with dimensions in millimeters. It includes the location of the Peltier connector (SubD-15), Laser connector (SubD-5WS), RS232 connector (SubD-9), AMOD/DMOD-IN connector, MOD-OUT connector, and Interlock connector. A detailed view of the interlock connector shows a 3.5mm jack with pins labeled BLOCK, MODIN, MODOUT, RS232, and SUPPORT, and a laser diode symbol with pins labeled LASER A, A, C, C.



Bipolar Temperature Controller Features

The full PID 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 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.

Protection Features for Laser Diode Bars and Arrays

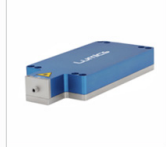
These current sources feature multiple levels of built-in laser diode protection which have been optimized for bars and arrays. One of the unique features is a user programmable soft-start ramp of the bias current to the device under test. The factory sets the ramp time to 300 milliseconds as a default, 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.

Optimized for High Voltage Multi-Chip Laser Diodes

nLight Element



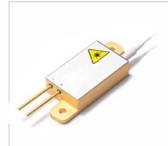
Lumics LuOcean



Lumentum ST Series



II-VI Multimode Pump



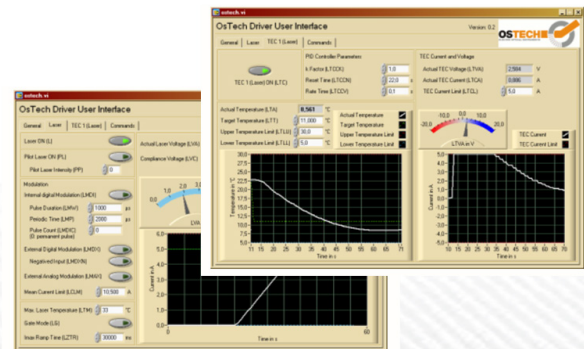
nLight Pearl



Coherent | Dilas Pump



LABVIEW DRIVERS





LDC-296 Laser Diode Controller Specifications

CURRENT & VOLTAGE SUPPLY TO LASER

- Laser Supply Current Range (CW): 0.00 - 70.00 Amps
- Laser Supply Voltage Range: 5 Volts
- Laser Current Noise & Ripple (rms): < 1% full scale
- Laser Current Setpoint Resolution: 18mA
- Laser Current Setpoint Accuracy: +/- 0.5%
- Includes Back Facet Monitor Photodiode bias and Measurement

INTEGRATED LASER DIODE PROTECTION

- Soft-Start Current Ramp Factory Default Set to 300 Milliseconds; User Adjustable
- User-Programmable Current Limit
- 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 Safety Interlock
- Front Panel e-Stop Button Emergency Shut-Down

LASER TEC TEMPERATURE CONTROLLER

- Internal TEC Output Power: 336 Watts (7 Amps, 48 Volts)
- TEC Output Current Range (bipolar): ± 7.00 Amps
- TEC Output Voltage Range (bipolar) : ± 48.00 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
- 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



LDC-296 Butterfly Pump Laser Diode Controller Specifications

MODULATION & QCW PULSING MODE

- Integrated Function Generator
- QCW Trigger: Internal or External
- Rise / Fall Time: < 25 μ s, 10%-90%
- Pulse Modes: Continuous, Single Pulses, Bursts
- Modulation Input: BNC, Digital (TTL) or Analog, 10k Ω Impedance
- MODULATION Input Voltage Range: 0 ~ 4 Volts (4V = Max Current)

AUXILIARY FUNCTIONS

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

USER INTERFACE AND CONNECTORS

- Front Panel: Alphanumeric LCD
- RS232 Standard
- USB Optional: \$95.00 (Option SVC-USB)
- LabView Drivers Included
- Peltier Connector: SubD-15, Female
- Laser Connector: SubD-5W5, 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-141 Power Cable, 80 Amp: Sub-D5W5 (male) - Cable Lugs
- acc-417 USB-RS232 Converter



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



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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 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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