



Laser Diode Controller - 22 A, 24 Volt Laser Output 192 Watt Thermoelectric Temperature Controller

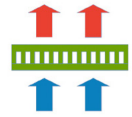


22 Amp, 24 Volt Laser Diode Driver 192 Watt TEC Controller

- o Laser Current to 22 A, Voltage up to 24 V
- o Bipolar Temperature Controller up to 192 W
- o Optimized for Multi-Chip Laser Diodes from Coherent/DILAS, nLight, Lumentum, and II-VI
- o CW Mode and Integrated Quasi-CW Pulse Generator, External Modulation Source
- o Full Complement of Protection Features



LASER
DIODE
CONTROLLERS





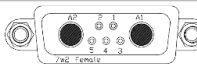
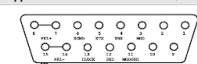
LDC-592 Controller for Laser Diode Bars and Arrays

These high current and voltage current driver modules for laser diodes are designed to provide current and temperature control for multi-chip emitters and devices connected in series. They are high stability current sources with industry-leading protection features for semiconductor lasers.

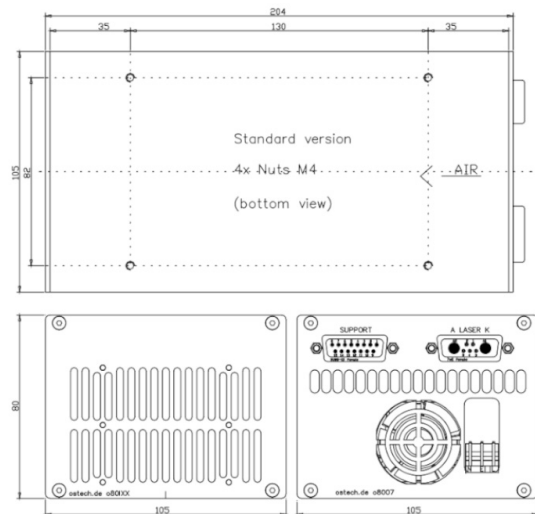
Internal Function Generator & QCW Pulse Modes

The laser driver can be run in a continuous wave (CW) or a pulsed (QCW) mode and has an integrated QCW pulse generator which generates microsecond to CW pulse widths. These modules will also work in with analog or digital modulation which can be applied through the rear panel DSUB connector.

LDC-592 REAR PANEL CONNECTIONS

Laser Connector		
	PIN.No	Abbr. Function
	A1	LDC- Laser Diode Cathode
	A2	LDA+ Laser Diode Anode
	1	PILOT Pilot Laser Supply
	2	PHD Photo Diode Cathode vs. GND
	3	T1 Temp. Sensor 1 vs. GND
	4	GND
	5	LUF Supply 800mA 2..24V for fan vs. GND
Support & TEC-Connector Sub-D 15, female		
	Mains Connector	MAINS INPUT: 3 Pin, 5,08mm, with Friction Lock, 18-24 AWG MOLEX HousingNo:10013036 TerminalNo:8701031
Pin.No	Abbr.	Function
3	MOD	Modulation Input
4	XRX	RS232-RX
5	XTX	RS232-TX
6	XGND	RS232-GND
7:8	PEL+	Peltier element (+) if TEC is on Board
11	MODCND	Modulation CND
12	GND	Common Ground
13	ILOCK	Interlock vs. GND
14:15	PEL-	Peltier element (-) if TEC is on Board
1,9,10,11	n.c.	may carry Signals depending on Type
	SCR	Common Screen

LDC-592 REAR PANEL LAYOUT

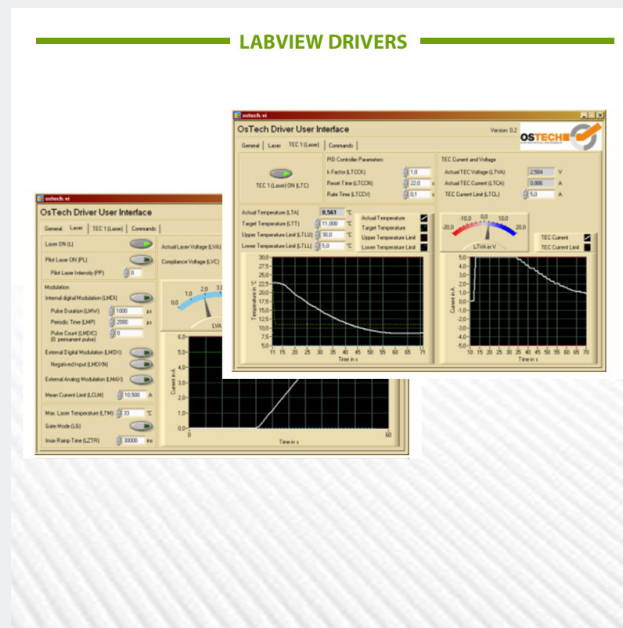


Bipolar Temperature Controller Features

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 Multi-Chip Laser Diodes

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.





LDC-592 Laser Diode Controller Specifications

LASER DIODE DRIVE CURRENT OUTPUT

- Compliance Voltage Range: 0.12 - 24.00 Volts
- Output Current Range: 0.00 - 22.00 Amps
- Current Noise & Ripple (rms): $< \pm 0.5\%$ of Full Scale
- Current Setpoint Accuracy: $\pm 0.5\%$
- Current Setpoint Resolution: 6 mA
- Current Stability (4 hours): ≤ 100 ppm
- Current Limit Setpoint Accuracy: $\pm 2\%$
- Photodiode Current Measurement Accuracy: $\pm 0.5\%$
- Photodiode Current Measurement Range: 0.00 - 700 μ A

INTEGRATED LASER DIODE PROTECTION FEATURES

- Soft-Start Current Ramp to Setpoint (User Programmable)
- Soft-Start Current Ramp Factory Default Set to 300 Milliseconds
- User-Programmable Current Limit
- Open Circuit Detection; Short Circuit when Laser Diode Current Turned OFF
- ESD and Power Surge Clamp, AC Line Filter
- Reverse Voltage Transient Clamp
- Safety Interlock Connection
- Programmable Temperature Limits (Upper and Lower)

TEC TEMPERATURE CONTROLLER

- TEC Output Power Total: 192 Watts
- TEC Output Current Range (bipolar): ± 8.00 Amps
- TEC Output Voltage Range (bipolar) : ± 24.00 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
- TEC Output Stability: $\pm 0.01^{\circ}$ C (subject to ambient temp. stability)
- 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-592 Laser Diode Controller Specifications

QCW PULSE MODE AND MODULATION

- QCW Pulse Width: 25 μ sec to CW
- Pulse Time Base Accuracy: \pm 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, 10k Ω Impedance
- -----
- Modulation Input Voltage Range: 0 ~ 4 Volts (4V = Max Current)
- Analog Modulation Bandwidth: 1 Hz – 20 kHz

AUXILIARY FUNCTIONS

- Temperature Sensor Input: 10k Ω NTC Thermistor
- Photodiode Cathode (Analog Connected to Gnd)
- Pilot Laser Anode, vs. Ground: (4 - 5V, 150 mA)
- Modulation Input
- Electronic Safety Interlock
- RS232 Connections
- External Fan Control Circuit, 2 - 24V, 800mA (max)

USER INTERFACE AND CONNECTORS

- RS232 Standard
- LabView Drivers Included
- Laser Connector: DB-7W2, Female
- Support and Peltier Connector: SubD-15, Female
- Main Power Connector: MOLEX Housing 10013036; Terminal 8701031

DIMENSIONS AND POWER INPUT

- Power Input: Universal 90V ~ 230 VAC, 50/60 Hz
- Dimensions: 85 mm (H) x 105 mm (W) x 204 mm (L)

RECOMMENDED ACCESSORIES

- kab-39 Unterminated Connecting Cable -or-
kab-231 Terminated Connecting Cable



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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