



Laser Diode Controller - 500 mA, 14 Volt Laser Output 28 Watt Thermoelectric Temperature Controller



0.5 Amp, 14 Volt Laser Diode Driver 28 Watt TEC Controller

- o Laser Current to 500 mA, Voltage up to 14 V
- o Bipolar Temperature Controller up to 28 W
- o Optimized for Butterfly 1064nm, 915nm, 940nm, and 980nm Pump Laser Diodes
- o CW Mode and Integrated Quasi-CW Pulse Generator; Pulse Widths from 30 μ s to CW
- o 2 μ s Pulse Rise Time
- o Full Complement of Protection Features



**LASER
DIODE
CONTROLLERS**

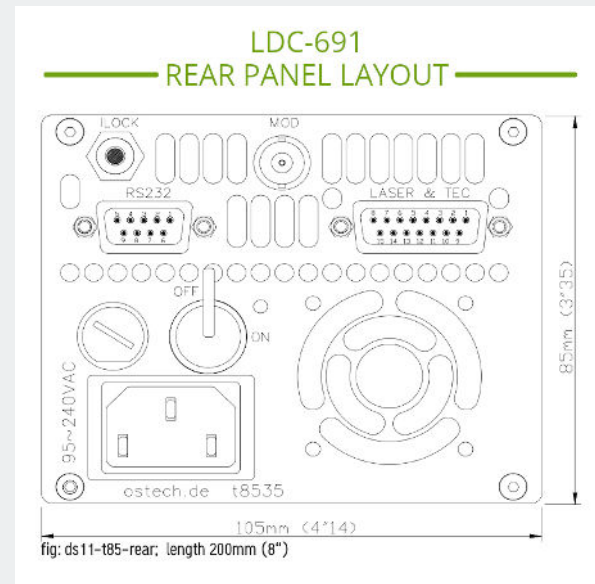
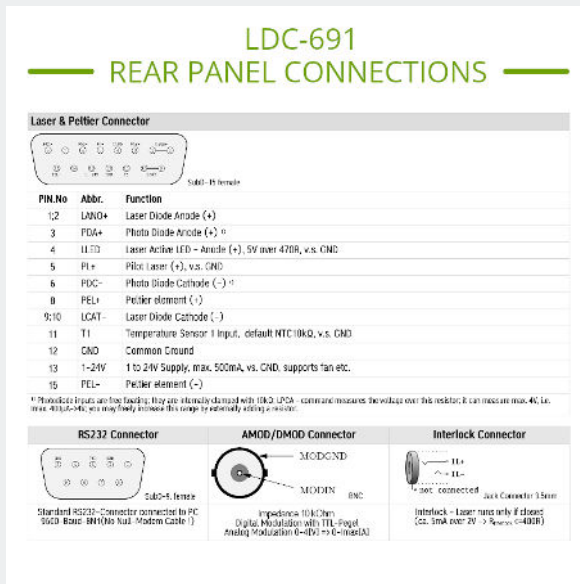


LDC-691 Butterfly Laser Diode Controller

The model LDC-691 is an affordable laser diode controller that provides precision current and bipolar temperature control to your laser diode. These units offer a 500 mA low noise laser diode bias current source with a 28 watt TEC temperature controller. Both functions are integrated into a simple to operate benchtop instrument.

Internal Function Generator & QCW Pulse Modes

In addition to CW (continuous wave) mode of operation, the LDC-691 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.



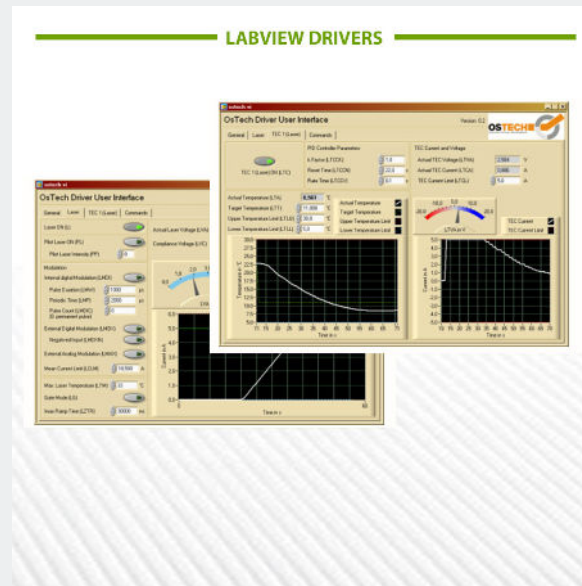


Bipolar Temperature Controller Features

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.

Laser Diode Protection Features

These units offer the best laser diode protection available to ensure that your device is protected at all times. Soft-start current, current and temperature limits, and a fast shut-down sequence protect your device at all times. Transient filters and AC line filters protect the laser and controller against brown-out or black-out power conditions. The precision TEC controller operates a full P.I.D. control loop for fast and efficient thermal stabilization. The back-panel safety interlock connector and key-switch ensure that the laser diode current is not switched on until the user has determined it is safe to do so.





LDC-691 Butterfly Pump Laser Diode Controller Specifications

LASER DIODE CURRENT SOURCE

- Output Current Range: 0.00 - 500.00 mA
- Compliance Voltage Range: 14.00 Volts
- Current Noise & Ripple (rms): $< \pm 0.2\%$ of Full Scale Current
- Current Setpoint Resolution: 300 μ A
- Current Setpoint Accuracy: $\pm 0.5\%$
- Current Stability (4 hours): ≤ 150 ppm (@ full scale)
- Current Limit Setpoint Accuracy: $\pm 2\%$
- Photodiode Current Measurement Accuracy: $\pm 0.5\%$
- Photodiode Current Measurement Range: 0.00 - 4,000 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 Set Current Limit
- User Set Temperature Limits (Upper and Lower)
- Open Circuit Detection and Fast Shut-Down
- Short Circuit when Laser Diode Current Turned OFF
- ESD and Power Surge Clamp
- Reverse Voltage Transient Clamp
- Factory Pre-Set Default Upper Temperature Limit: 35°C
- AC Line Filter
- Rear Panel Keylock Switch and Safety Interlock

TEC TEMPERATURE CONTROLLER

- TEC Output Power Total: 28 Watts
- TEC Output Current Range (bipolar): ± 2.00 Amps
- TEC Output Voltage Range (bipolar) : ± 14.00 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°C
- TEC Output Stability: $\pm 0.01^\circ\text{C}$ (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



LDC-691 Butterfly Pump Laser Diode Controller Specifications

MODULATION & QCW PULSE MODE

- QCW Pulse Width Rise and Fall Time: 2 μ s
- 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
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- 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
- 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
- RS232 Connector: SubD-9, Female
- Safety Interlock: Jack Connector, Stereo 3.5mm

DIMENSIONS AND POWER INPUT

- Universal 110V ~ 240 VAC Input
- Dimensions: 85 mm x 105 mm x 200 mm

RECOMMENDED ACCESSORIES

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