



## 15 Amp Laser Diode Driver, 24 Volt Compliance Range



### 15 Amp, 24 Volt Laser Diode Driver for High Power Multi-Mode Lasers

- o Current up to 15 A, Voltage up to 24 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 25 $\mu$ s to CW
- o User-Programmable Soft-Start Current Ramp to Laser Diode Current Setpoint
- o Open Circuit Detection and Fast Shut-Down with Analog Control Loop



**LASER  
DIODE  
DRIVERS**

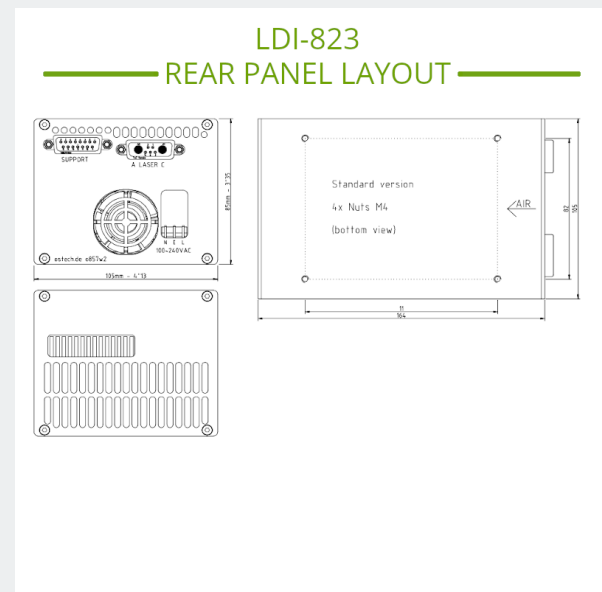
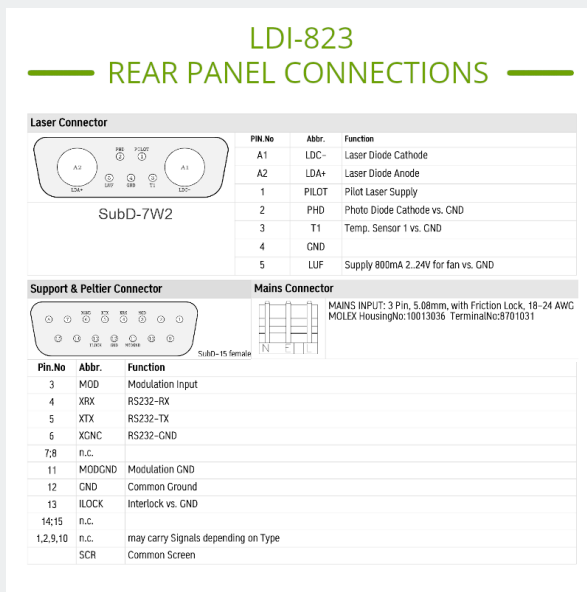
## LDI-823 High Power Laser Diode Driver Overview

The LDC-823 high power laser diode driver offers a maximum output of up to 330 Watts and can operate in constant current CW or pulsed Quasi-CW mode. These units feature a high efficiency design with high reliability components to offer long-life operation, and are integrated into industrial lasers systems used in harsh environments as well as laboratory R&D applications.

## Modulation, Internal Function Generator, and QCW Pulse Modes

The LDI-823 operates in CW (continuous wave) mode, and also provides flexible modulation capabilities and a QCW mode. On the backpanel is the BNC input for an analog or TTL digital modulation (10k  $\Omega$  input impedance).

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.









## 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. Soft-start current, programmable current and temperature limits, and a fast and safe shut-down sequence keep your device protected at all times. Additionally, transient filters and AC line filters protect the laser against brown-out or black-out power conditions.

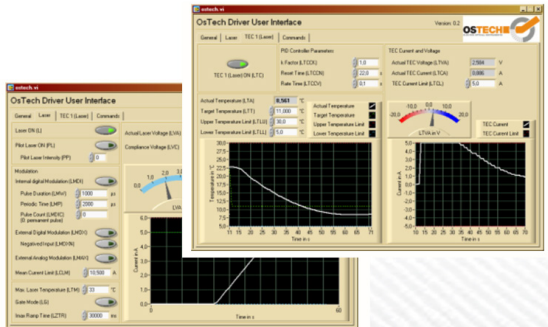
A back-panel safety interlock connector must be installed to prevent the laser diode current being switched on. The interlock allows the user to ensure the environment is safe for the laser and the user.

The 15-pin D-sub provides access to a range of ancillary control functions, including external photodiode measurement, pilot laser, Laser-On Indicator LED, temperature sensor input, and an external cooling fan control.

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

|                                                                                                                 |                                                                                                           |                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <p>nLight Element</p>        | <p>Lumics LuOcean</p>  | <p>Lumentum ST Series</p>     |
| <p>II-VI Multimode Pump</p>  | <p>nLight Pearl</p>    | <p>Coherent   Dilas Pump</p>  |

**LABVIEW DRIVERS**



The screenshot displays the OsTech Driver User Interface, a LabVIEW-based control software. It features a 'General' tab with various control parameters such as 'Laser On/Off', 'Pulse Width Modulation (PWM)', 'Pulse Frequency (kHz)', 'Pulse Duty Cycle (%)', 'Pulse Current (mA)', 'Pulse Voltage (V)', 'Pulse Rise Time (ns)', 'Pulse Fall Time (ns)', 'Pulse Delay (ns)', 'Pulse Width (ns)', 'Pulse Period (ns)', 'Pulse Width Error (ns)', 'Pulse Frequency Error (kHz)', 'Pulse Duty Cycle Error (%)', 'Pulse Current Error (mA)', 'Pulse Voltage Error (V)', 'Pulse Rise Time Error (ns)', 'Pulse Fall Time Error (ns)', 'Pulse Delay Error (ns)', 'Pulse Width Error (ns)', 'Pulse Period Error (ns)', 'Pulse Width Error (ns)', 'Pulse Frequency Error (kHz)', 'Pulse Duty Cycle Error (%)', 'Pulse Current Error (mA)', 'Pulse Voltage Error (V)', 'Pulse Rise Time Error (ns)', 'Pulse Fall Time Error (ns)', 'Pulse Delay Error (ns)', 'Pulse Width Error (ns)', 'Pulse Period Error (ns)'. It also includes a 'Temperature' section with 'Actual Temperature (°C)', 'Target Temperature (°C)', 'Upper Temperature Limit (°C)', 'Lower Temperature Limit (°C)', and 'TEC Current (mA)'. The interface includes several graphs showing temperature and current over time, and a 'TEC Control' section with 'TEC Current (mA)' and 'TEC Current Limit (mA)'.



## LDI-823 High Power Laser Diode Driver Specifications

### LASER DIODE DRIVER CURRENT OUTPUT

- Compliance Voltage Range: 0.12 - 24.00 Volts
- Output Current Range: 0.00 - 15.00 Amps
- Current Noise & Ripple (rms): < 1% of Full Scale Current
- Current Setpoint Resolution: 4 mA
- Current Setpoint Accuracy:  $\pm 0.5\%$
- Current Stability (4 hours):  $\leq 100$  ppm
- Current Limit Setpoint Accuracy:  $\pm 2\%$
- Photodiode Current Measurement Accuracy:  $\pm 0.5\%$
- Photodiode Current Measurement Range: 0.00 - 700  $\mu\text{A}$

### INTEGRATED LASER DIODE PROTECTION FEATURES

- Soft-Start Current Ramp to Setpoint (User Programmable)
- Soft-Start Current Ramp Factory Default Set to 300 Milliseconds
- Current Limit
- Open Circuit Detection
- ESD and Power Surge Clamp
- Reverse Voltage Transient Clamp
- AC Line Filter
- Rear Panel Keylock Switch and Safety Interlock
- Short Circuit when Laser Diode Current Turned OFF

### QCW PULSE MODE AND MODULATION

- Pulse Rise / Fall Time: < 25 $\mu\text{s}$  (<5 $\mu\text{s}$  on request), 10%-90%  
MODULATION Input Voltage Range: 0 ~ 4 Volts (4V = Max Current)
- Integrated QCW Pulse Function Generator or External Trigger
- MODULATION Input (BNC): Digital (TTL) or Analog
- MODULATION BNC Input Impedance: 10K ohm
- MODULATION Input Voltage Range: 0 ~ 4 Volts (4V = Max Current)
- Integrated QCW Pulse Generator, Also Accepts External Trigger for QCW Pulses



## LDI-823 High Power Laser Diode Driver Specifications

### AUXILIARY FUNCTIONS

- Temperature Sensor Input: 10k $\Omega$  NTC Thermistor
- Photodiode Cathode (Analog Connected to Gnd)
- Pilot Laser Anode, vs. Ground: (4 - 5V, 150 mA)
- Modulation Input
- Electronic Safety Interlock Connection
- 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 164 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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