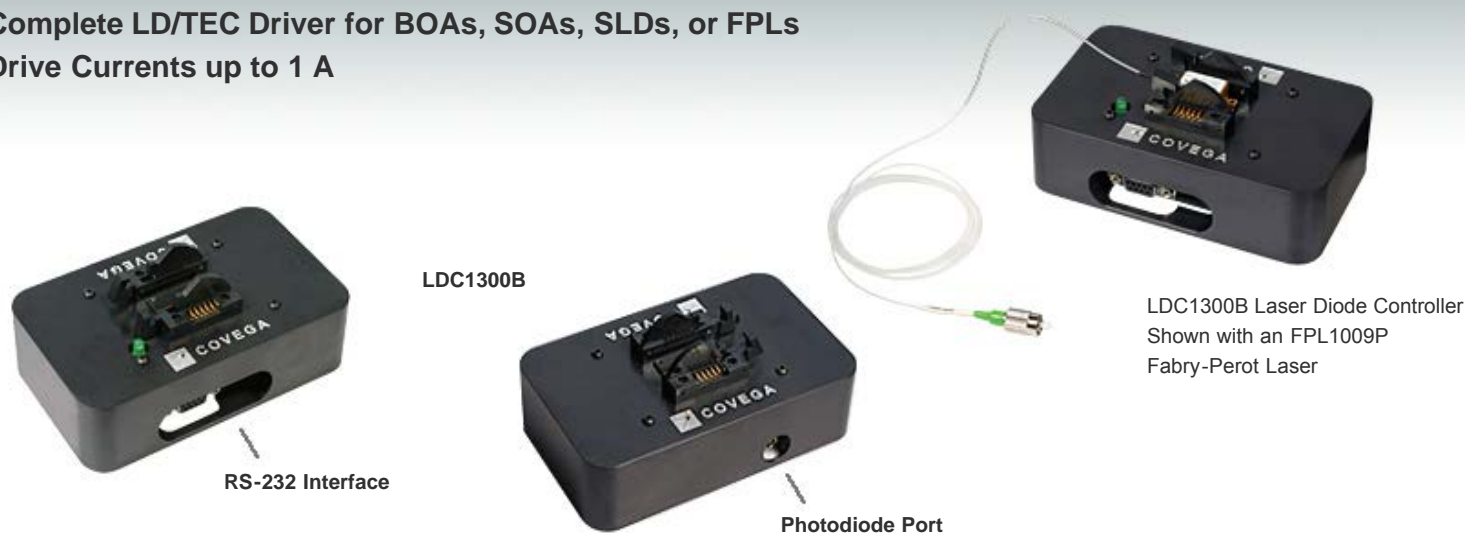


LDC1300B - May 27, 2015

Item # LDC1300B was discontinued on May 27, 2015. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

COMPLETE LD/TEC CONTROLLER WITH MOUNT

- ▶ 14-Pin Butterfly Package
- ▶ Complete LD/TEC Driver for BOAs, SOAs, SLDs, or FPLs
- ▶ Drive Currents up to 1 A



[Hide Overview](#)

OVERVIEW

Features

- Laser Diode Driver Integrated with TEC Controller
- 14-Pin Butterfly Mount
- Controlled via RS-232 Interface
- Laser-Enabled LED Indicator
- Suited for Use with BOAs, SOAs, SLDs, and FPLs

The LDC1300B Laser Diode Controller combines a laser driver, thermoelectric cooler (TEC) controller, and butterfly mount into a compact package that can be controlled through an RS-232 interface. The controller is well suited for use with our Fabry-Perot Lasers, Superluminescent Diodes, Semiconductor Optical Amplifiers (SOA), and Booster Optical Amplifiers (BOA) that have an integrated TEC in a 14-pin butterfly package.

The LDC drive board can deliver source currents up to 1 A and TEC currents of 2.5 A. The controller is adjusted for stable operation at 25 °C, assuming adequate heat sinking of the device. An LED indicator light is illuminated when the laser diode is enabled. The controller is also equipped with a monitor photodiode sensor that has an FC mating port that can be used to measure the output power (in either dBm or mW) of the device.

Each unit ships with an external 5 V power supply, location-specific power cord, RS-232 cable, driver software, and a manual. The included software provides complete computer control of the Laser Diode Controller System. If desired, all current settings for the connected device can be saved in non-volatile memory and implemented each time power is turned on. A drawing of the LDC1300B can be found in the attached spec sheet.

Thorlabs also manufactures customized, application-specific butterfly mounts for OEM customers. Please see the *OEM Modules* tab for details.

[Hide Specs](#)

S P E C S

Electrical Parameters	Min	Typical	Max
Supply Current			2.4 A
Supply Voltage	4.5 V	5 V	5.5 V
Compliance Voltage		4 V	
Drive Current			1000 mA
Drive Current Resolution		16 Bit	
TEC Set Point	10 °C		40 °C
TEC Step		0.1 °C	
TEC Current (Max)		≤2.5 A	
TEC Power (Max) ^a		≤2.5 A	
Update Rate		3 Hz	
Computer Interface			
Compatibility	Windows 95, 98, NT, 2000, or XP		
Interface	RS-232		
General			
Operation Temperature ^b	25 °C		
Footprint	85 mm x 140 mm (3.35" x 5.51")		

^a . Calculated using the maximum TEC current and compliance voltage.

^b . The chip temperature will be maintained by the TEC as long as the case is maintained at a temperature between 0 and 70 °C

SELECTION GUIDE

Laser Diode Controller Selection Guide

The tables below are designed to give a quick overview of the key specifications for our laser diode controllers and dual diode/temperature controllers. For more details and specifications, or to order a specific item, click on the appropriate item number below.

Current Controllers						
Item #	Drive Current	Compliance Voltage	CC ^a	CP ^b	Modulation	Package
LDC200CV	20 mA	6 V	✓	✓	External	Benchtop
VLDC002	25 mA	5 V	✓		Int/Ext	OEM
LDC201CU	100 mA	5 V	✓	✓	External	Benchtop
LD2000R	100 mA	3.5 V		✓	External	OEM
EK2000	100 mA	3.5 V		✓	External	OEM
LDC202C	200 mA	10 V	✓	✓	External	Benchtop
TLD001	200 mA	8 V	✓	✓	External	T-Cube
IP250-BV	250 mA	8 V ^c	✓	✓	External	OEM
LD1100	250 mA	6.5 V ^c		✓	--	OEM
LD1101	250 mA	6.5 V ^c		✓	--	OEM
EK1101	250 mA	6.5 V ^c		✓	--	OEM
EK1102	250 mA	6.5 V ^c		✓	--	OEM
LD1255R	250 mA	3.3 V	✓		External	OEM
LDC205C	500 mA	10 V	✓	✓	External	Benchtop
IP500	500 mA	3 V	✓	✓	External	OEM
LDC210C	1 A	10 V	✓	✓	External	Benchtop
LDC220C	2 A	4 V	✓	✓	External	Benchtop
LD3000	2.5 A	--	✓		External	OEM
LD3000R	2.5 A	--	✓		External	OEM
LDC240C	4 A	5 V	✓	✓	External	Benchtop
LDC4005	5 A	12 V	✓	✓	Int/Ext	Benchtop
LDC4020	20 A	11 V	✓	✓	Int/Ext	Benchtop

- . Constant current.
- . Constant power.
- . When using a 12 V power supply.

Dual Temperature and Current Controllers							
Item #	Drive Current	Compliance Voltage	TEC Power (Max)	CC ^a	CP ^b	Modulation	Package
VITC002	25 mA	5 V	>2 W	✓		Int/Ext	OEM
ITC102	200 mA	>4 V	12 W	✓	✓	Ext	OEM
LDC1300B	1 A	5 V	10 W ^c	✓	✓	--	OEM
ITC110	1 A	>4 V	12 W	✓	✓	Ext	OEM
ITC4001	1 A	11 V	>96 W	✓	✓	Int/Ext	Benchtop
CLD1010LP ^d	1.0 A	>7 V	>14.1 W	✓	✓	Ext	Benchtop
CLD1011LP ^e	1.0 A	>8 V	>14.1 W	✓	✓	Ext	Benchtop
CLD1015 ^f	1.5 A	>4 V	>14.1 W	✓	✓	Ext	Benchtop
ITC133	3 A	>4 V	18 W	✓	✓	Ext	OEM
ITC4005	5 A	12 V	>225 W	✓	✓	Int/Ext	Benchtop
ITC4005QCL ^g	5 A	20 V	>225 W	✓	✓	Int/Ext	Benchtop
ITC4020	20 A	11 V	>225 W	✓	✓	Int/Ext	Benchtop

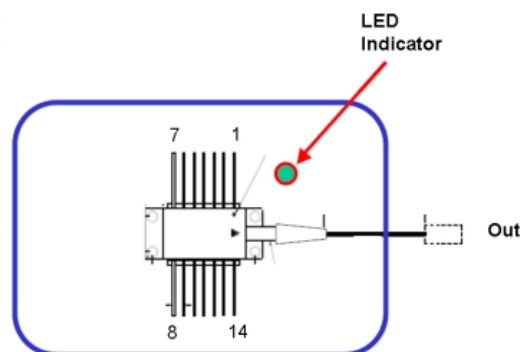
- . Constant current.
- . Constant power.
- . Calculated using the maximum TEC current and compliance voltage.
- . Combined controller and mount for pigtailed laser diodes in TO can packages with A, D, E, or G pin codes only.
- . Combined controller and mount for pigtailed laser diodes in TO can packages with B, C, or H pin codes only.
- . Combined controller and mount for laser diodes in butterfly packages only.
- . Enhanced compliance voltage for QCL operation.

We also offer a variety of OEM and rack-mounted laser diode current & temperature controllers (OEM Modules, TXP Rack Modules, PRO8 Current Control Rack Modules, and PRO8 Current and Temperature Control Rack Modules), as well as a complete laser diode operation starter set.

[Hide Pin Configuration](#)

PIN CONFIGURATION

Pin-to-Connector Configuration	
1	TEC Anode
2	Thermistor
3	No Contact
4	No Contact
5	Thermistor
6	No Contact
7	No Contact
8	No Contact
9	No Contact
10	Device Anode
11	Device Cathode
12	No Contact
13	Case
14	TEC Cathode



Please note that the device is mounted on the LDC board such that the output of the device is oriented towards the LED on the LDC board.

SOFTWARE

Software for the LDC1300B Controller

Software

Version 2.5

Standard software application packages, drivers, and programming guide.



PC Software Interface

Below is a full screen shot of the layout of the main Laser Diode Controller (LDC) window. The screen is divided into six main panels: Main Chart Display (upper left), Instantaneous Measurement (upper right), Current Source (lower left), TEC Drive, Communications, and Connection Status (bottom right). To establish communication between the PC and the Laser Diode Controller, choosing the correct COM port in the Connections window and pressing the "CONNECT" button. Once connected, the main LDC screen will update the device parameters continuously. Instantaneous measurements are displayed in the Measurement portion of the main screen, while a rolling chart of the active measurements is displayed in the main area. The user can select which measurements to display via toggle switches in the Measurements section. The graphs can also be easily re-scaled. To end the session, simply click on the "QUIT" button in the lower right-hand corner of the screen.



Figure 1. Full Screen Shot of the main Laser Diode Controller window

TEC Controller

Once a device is installed, the LDC main panel will immediately show the device temperature being monitored. The device set point can be changed either by typing the desired value directly into the "Set Temperature" box on the TEC Controller portion of the main screen or by using the up/down arrows to change the temperature in 0.1°C steps. The TEC tuner window is selected from the Functions menu as shown in Figure 2 to the right.

If the TEC's temperature is stable, temperature traces will settle to a steady value after a short period of time. If the temperature of the TEC is unstable, oscillations of increasing magnitude will be evident in the temperature trace.

The LDR features a safety lockout mechanism to reduce the risk of damage to the device as a result of improper TEC controller settings, incorrect TEC wiring, or inadequate heat sinking. If the temperature deviation is ever larger than 0.5 °C for a period of time exceeding the set "Lockout Time," then the TEC and current source are both locked out. The lockout time, which has a default setting of 30 units (about 10 s), can be adjusted by the user.

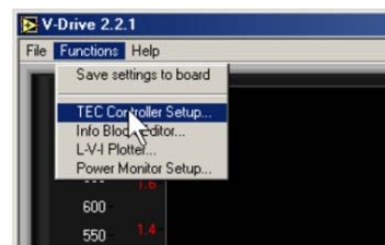


Figure 2. The TEC Controller Setup is located under the Functions menu.

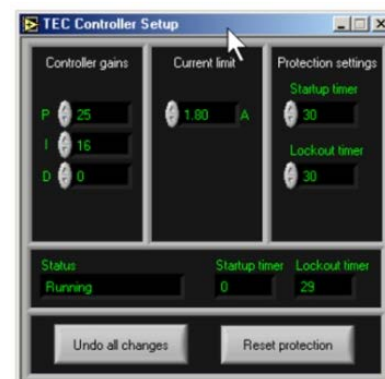


Figure 3. The TEC Controller Setup Screen

Current Source

The current source (refer to Fig. 1) is turned on/off by clicking the "ON" button. Upon activation, the set current is applied to the device, and the LED indicator light is illuminated.

Prior to activating the current source, set the current limit for the device. To change the set current, either directly type it into the box or use the slider button. As the current is changed, all monitored parameters will be displayed and automatically updated in the measurement panel and graphically in the main window.

If preferred, the current source can also be used in constant power mode. In this case, set the desired power in dBm (or mW). The driver will then try to maintain the set value using feedback from the photodiode.

Standalone Driver Configuration

The board can be used as a standalone driver. Under the Functions Menu, you can select "Save Settings" to save the state of the board to non-volatile memory. The driver will then boot up in this state every time power is applied.

Power-Voltage-Current Graphs

The software included with these controllers is capable of producing L-V-I [Optical Power (Light)-Voltage-Current] plots that can be viewed on the screen or exported in .csv (comma separated value) format for use with other programs such as Microsoft Excel.

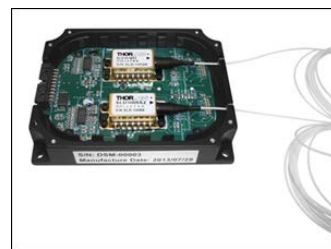
[Hide OEM Modules](#)

OEM MODULES

Thorlabs OEM Manufacturing

In addition to manufacturing a wide variety of active optical devices, Thorlabs is equipped to deliver customized laser diode, superluminescent diode, and semiconductor optical amplifier modules in OEM quantities. For example, the module shown to the right provides temperature and current control for two superluminescent diodes (SLDs) from an SPI interface. Because this module is designed for standard 14-pin butterfly packages, it is easily adapted for combinations of other optical devices, such as a pigtailed semiconductor laser with an optical amplifier.

As a manufacturer of III-V semiconductor devices, MEMS-VCSEL lasers, quantum cascade lasers, lithium niobate optical modulators, and other devices, we are intimately familiar with the operating requirements of driving lasers and related components. Please visit this webpage for an overview of our laser manufacturing facility, or contact us directly to discuss your application's needs.



Click to Enlarge
Custom Module for 14-Pin Butterfly Packages

[Contact Us](#)

[Hide Part Numbers](#)

Part Number	Description	Price	Availability
LDC1300B	Laser Diode Controller for Butterfly Packages	\$1,905.00	Lead Time

Visit the *Complete LD/TEC Controller with Mount* page for pricing and availability information:
http://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=3899

[http://www.thorlabs.com/newgrouppage9_pf.cfm?guide=10&category_id=220&objectgroup_id=3899\[5/27/2015 8:53:27 AM\]](http://www.thorlabs.com/newgrouppage9_pf.cfm?guide=10&category_id=220&objectgroup_id=3899[5/27/2015 8:53:27 AM])