



## Laser Diode Control Electronics and Mounting System, Current Source + TEC Controller + Mounting Plate & Heat Sink

- All-Inclusive Control Electronics and Mounting System with Pre-Configured Mounting Plate
- Current & TEC Controller + Cooled Mount + Cables
- Customer Specified Laser Package Mounting Plate
- Precision 8 Amp Laser Driver with 128W TEC Controller
- Standard Models Available for Most Fiber Coupled Package Styles
- USB and LabView Drivers Available
- Offered by Laser Lab Source Worldwide

### LDC-600X DATA SHEET

WORLD LEADING PRODUCTS  
FOR LASER SCIENTISTS AND ENGINEERS

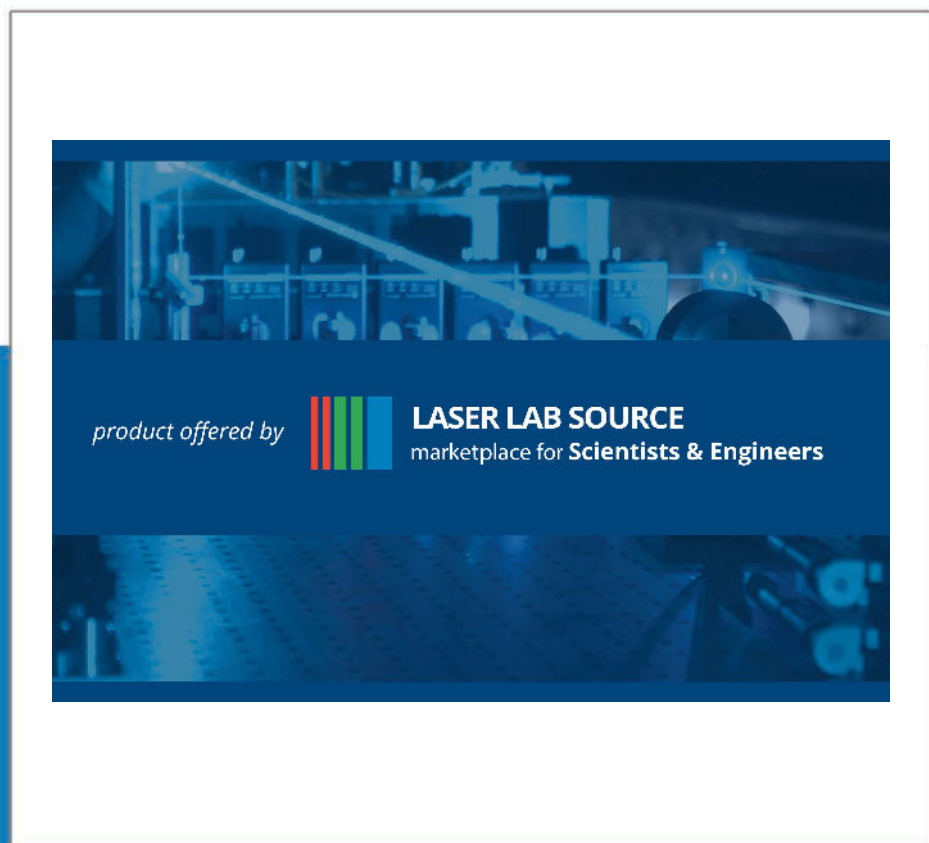
## DATA SHEET

### **LDC-650X Product Overview:**

This all-inclusive control electronics and mounting system is optimized for laser diodes 750 mW to 5 Watt range. Mounting plates are available for free space and fiber coupled lasers. This system offers a convenient, affordable solution for laboratory R&D applications . The LDC-600X offers precise control of the bias drive current to the laser in CW mode, and includes Quasi-CW mode functions. The current can be modulated by a digital or analog input signal and includes an on-board pulse generator for QCW pulses. Standard mounting hole footprint patterns are available for most fiber coupled package styles. Custom mounting hole patterns are available on request. Please send us your laser's data sheet and we will send you a quote with the correct mounting plate option part number. These control systems are also available to ship pre-configured and pre-tested with your laser diode module. Contact us for more details.

### **TEC Cooled Heat Sink and Mounting Plate:**

The LDC-600X controller unit has an integrated TEC controller which will source and sink power to the Peltier element embedded below the mounting plate. The Peltier cooler works with the heat sink fan to provide fast heat removal and stable temperature control. The mounting plate ships with a graphite thermal pad to maximize heat dissipation and remove the potential for any air gaps between the laser diode package and the mount surface. The anodized aluminum mount surface is machined with high surface flatness and finish to ensure the best thermal performance.



## LDC-600X SPECIFICATIONS

### LASER DIODE CURRENT SOURCE

Output Current Range:	0.00 - 8.00 Amps
Compliance Voltage Range:	20.00 Volts
Current Noise & Ripple (rms):	< 1% of Full Scale Current
Current Setpoint Resolution:	2.0 mA
Current Setpoint Accuracy:	± 0.5%
Current Stability (4 hours):	≤ 100 ppm (@ full scale)
Current Limit Setpoint Accuracy:	± 2%
Photodiode Current Measurement Accuracy:	± 0.5%
Photodiode Current Measurement Range:	0.00 - 700 μA

### 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	
Temperature Limits (Upper and Lower)	
Open Circuit Detection	
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:	128 Watts
TEC Output Current Range (bipolar):	± 8.00 Amps
TEC Output Voltage Range (bipolar) :	± 16.00 Volts
Temperature Sensor Inputs:	10 kΩ 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:	± 0.01°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-600X SPECIFICATIONS

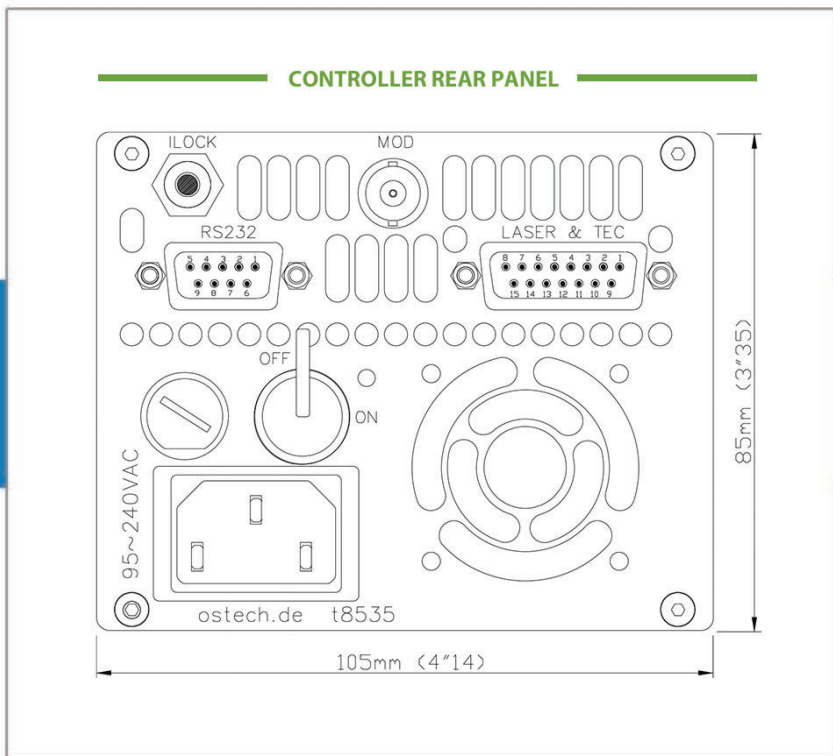
### MOUNTING PLATE, HEAT SINK & CABLES

Cooling Method:	TEC-Peltier Cooler, Fan for Waste Heat Removal
TEC Rating (max):	9 Amps, 17 Volts
Heat Sink Thermal Load Maximum:	38 Watts (@25°C)
Fan Rated Input Voltage 24 VDC (supplied by controller)	
Fan Rated Input Current:	300 mA (supplied by controller)
Mounting Plate Material:	Anodized Aluminum
Mounting Plate Area:	105 mm x 75mm
Mounting Plate Hole Footprint:	Customer Specified Package Style
Mounting Plate Integrated Thermistor:	10 kΩ
Electrical Connector to Controller:	DSUB, 15-pin
System Includes 1 x 1.5 meter Current Interface Cable (50A rated)	
System Includes 1 x 1.5 meter TEC Control Interface Cable (20A rated)	

### MODULATION & QCW PULSE MODE

QCW Pulse Width Rise Time:	15 μs
Pulse Time Base Accuracy:	± 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
MODULATION BNC Input Impedance:	10K ohm
MODULATION Input Voltage Range:	0 ~ 4 Volts (4V = Max Current)

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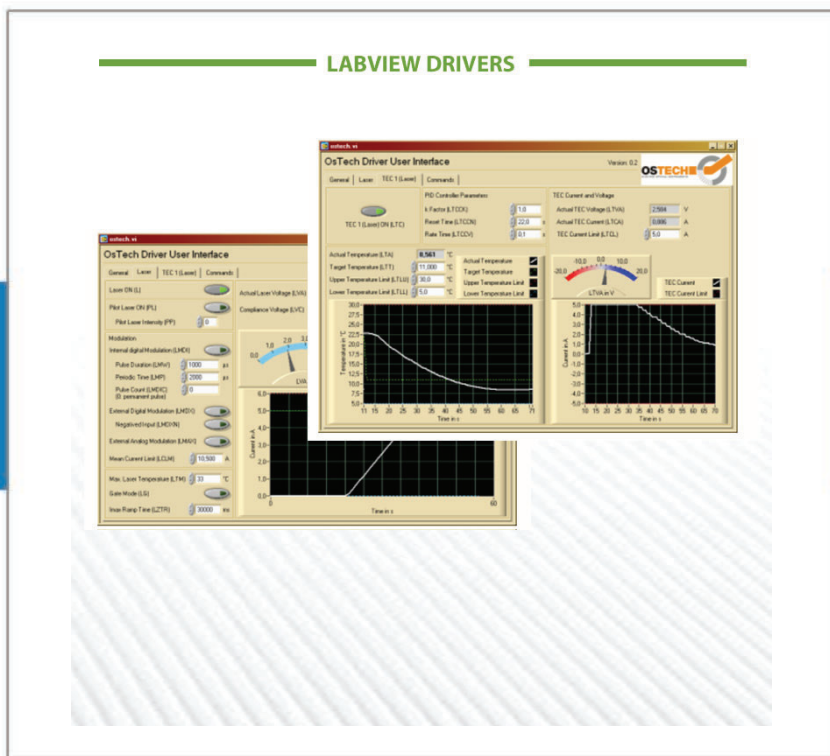


**REAR PANEL LASER DIODE BIAS AND TEC CONNECTOR**  
current and TEC controller connectors, 15 pin female DSUB

PIN.No	Abbr.	Function
1;2	LAND+	Laser Diode Anode (+)
3	T2	Temperature Sensor 2 Input, default NTC10kΩ, v.s. GND
4	LLED	Laser Active LED - Anode (+), 5V over 470R, v.s. GND
5	PL+	Pilot Laser (+), v.s. GND
6	PDC-	Photo Diode Cathode (-) <sup>1)</sup>
8	PEL+	Peltier element (+) TEC +
9;10	LCAT-	Laser Diode Cathode (-)
11	T1	Temperature Sensor 1 Input, default NTC10kΩ, v.s. GND
12	GND	Common Ground
13	1-24V	1 to 24V Supply, max. 500mA, vs. GND, supports fan
15	PEL-	Peltier element (-) TEC -

**MODULATION INPUT**  
BNC, 10kOhm impedance

- digital modulation TTL
- analog modulation 0 ~ 4V (4V = max current)



## Product Warranty:

In addition to the standard full one year warranty, this product is offered with an additional 3 months of extended warranty for a total of 15 months of warranty coverage. The warranty includes all parts and labor. The warranty does not include customer induced product damage.

## Our Customer Commitment:



### You Get Direct, Fast Tech-Support from a Product ENGINEER ... Not a Sales Person

You get DIRECT access to the correct factory engineer for your product. We eliminate the sales person "middle-man" back and forth time delays resolving technical issues. No more "Contact Us" forms. Every product has an assigned engineer in our auto-messaging data base to give you direct, immediate access to the correct tech-support info.



### You Get an Extended Warranty

All products from Laser Lab Source come with a 12 month factory warranty. Additionally, we offer and extra 3 months of warranty on top of the standard warranty. Warranty does not include customer induced product damage.



### You Get the Lowest Factory-Direct Prices Worldwide

All of our 3rd party global suppliers set & quote their own direct pricing. There are NO Mark-Up's. You get their lowest direct price.