

Precision Laser Diode Controller, 500mA Current Source with 28 Watt TEC Controller

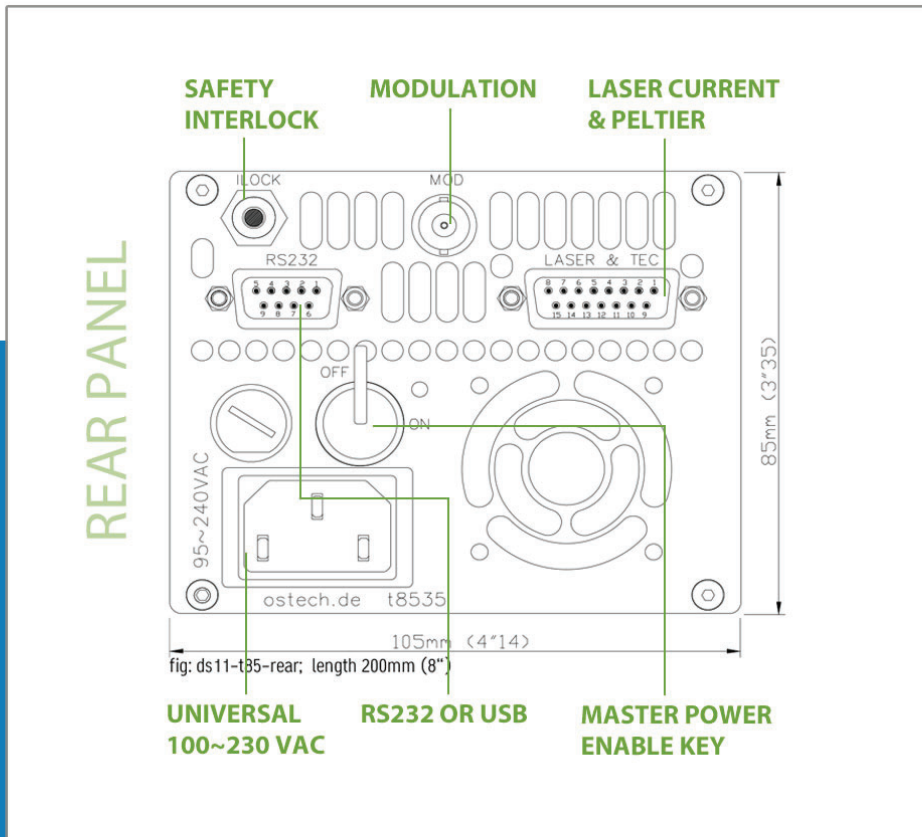
- Low Noise, High Current Stability 500mA Laser Diode Current Source; 28 Watt TEC / Peltier Temperature Controller
- Current and Temperature Limits, Soft-Start Current Ramp & Multiple Laser Diode Protection Features
- Integrated Pulse Generator, 2 μ s Rise / Fall Time
- Accepts Analog or Digital Modulation, 50 kHz BW
- RS232 and USB with LabView Drivers
- Manufactured by OsTech, fulfilled by Laser Lab Source

WORLD LEADING PRODUCTS
FOR LASER SCIENTISTS AND ENGINEERS

DATA SHEET

Product Overview:

These current and TEC controller instruments bring precision control to your laser diode at an affordable price. These units offer a 500 mA low noise current source paired with a high accuracy 28 watt TEC controller integrated into a bench-top chassis. These units offer the highest level laser diode protection available to ensure your device under test is protected at all times. Soft-start current, current and temperature limits, and a fast shut-down sequence keep your device protected at all times. Additionally, transient filters and line filters protect the device under test against brown-out or black-out power conditions. The precision temperature controller offers a full P.I.D. control loop for fast and efficient thermal stabilization. The LDC supports both analog or digital modulation inputs as well as an integrated QCW pulsed mode for slow pulsing applications. The front panel is designed to give users fast and simple control of all parameters. The front panel Menu structure is very intuitive. Additionally, these controllers can be operated remotely using an RS-232 or USB interface. GUI software is supplied with these units so that you can be up and running quickly.



LDC-158 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:	$\pm 0.2\%$
Current Stability (4 hours):	≤ 100 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
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:	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-150 SPECIFICATIONS

MODULATION & QCW PULSE MODE

QCW Pulse Width Rise Time:	15 μ s
Pulse Time Base Accuracy:	\pm 1.0%
QCW Trigger:	Internal (Integrated) Function Generator or External
MODULATION Input (BNC):	Digital (TTL) or Analog
MODULATION BNC Input Impedance:	10K ohm
MODULATION Input Voltage Range:	0 ~ 4 Volts (4V = Max Current)

CONTROLLER COMPUTER INTERFACE

RS232 Standard	
USB Optional:	\$100.00 (Option SVC-USB)
LabView Drivers Included	

POWER SUPPLY AND DIMENSIONS

Power Input:	Universal 90 ~ 230 VAC, 50/60 Hz C
Dimensions:	105mm (Width) x 65mm (Height) x 200mm (Depth)

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LASER DIODE AND PELTIER CONNECTOR



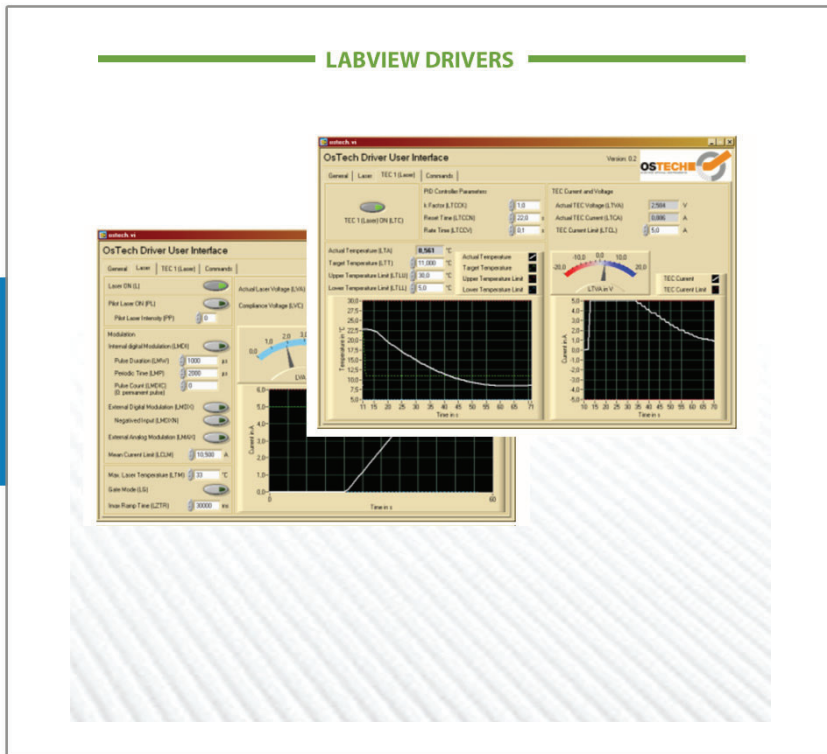
SubD-15 female

PIN.No	Abbr.	Function
1;2	LANO+	Laser Diode Anode (+)
3	PDA+	Photo Diode Anode (+) ¹⁾
4	LLED	Laser Active LED - Anode (+), 5V over 470R, v.s. GND
5	PL+	Pilot Laser (+), v.s. GND
6	PDC-	Photo Diode Cathode (-) ¹⁾
8	PEL+	Peltier element (+)
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 etc.
15	PEL-	Peltier element (-)

¹⁾ Photodiode inputs are free floating; they are internally clamped with 10kΩ; LPCA - command measures the voltage over this resistor; it can measure max. 4V, i.e. I_{max}: 400µA→4V; you may freely increase this range by externally adding a resistor.

MODULATION AND INTERLOCK

AMOD/DMOD Connector	Interlock Connector
<p>MODGND MODIN BNC</p>	<p>IL+ IL- not connected Jack Connector 3.5mm</p>
<p>10kOhm Digital Modulation with TTL-Pegel Analog Modulation 0-4[V] => 0-I_{max}[A]</p>	<p>Interlock - Laser runs only if closed (ca. 5mA over 2V -> R_{interlock} <=400R)</p>



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.