High Power Laser Diode Control Electronics and Mounting System

- Turn-Key Control Electronics & Mounting System with Pre-Configured Laser Diode Mounting Plate
- 14 Amp Current Source & 216 Watt TEC Controller + Cooled Mount + Cables
- Customer Specified Laser Package Mounting Plate
- CW and QCW Pulsed Modes of Operation
- Models Available for Most High Power LD Package Styles

LDC-578X DATA SHEET

DATA SHEET

Product Overview:

The model LDC-578X control system was designed to accurately and safely control high power pump laser diodes which emit optical power in the range of 10 watts to 100 watts. These systems include everything you need to bias and thermally control your high power pump laser diode. They integrate a precision 14 Amp laser diode driver, a 216 Watt TEC controller, a TEC cooled laser mounting plate, a fan cooled heat sink and all cables. The > 200 Watt temperature controller keeps the laser at a stable temperature while allowing the user to drive the laser in CW or QCW mode at bias power levels up to 14 Amps and 20 Volts.

Pre-Configured Mounting Plate for your Laser Diode: The LDC-578X comes with a Peltier / TEC cooled mounting plate which is configured for your specific laser diode package. The mounting plate holes are drilled to the module footprint and all of the interconnect cables are terminated for your laser's pin diameters. Simply submit your laser diode data sheet with your quote request or with your order to get the correct mounting plate part number.

LDC-578X SPECIFICATIONS

LASER DIODE DRIVER (CURRENT SOURCE)

Output Current Range:	0.00 - 14.00 Amps
Compliance Voltage Range:	20.00 Volts
Current Noise & Ripple (rms):	< ± 0.5% of Full Scale Current
Current Setpoint Resolution:	4 mA
Current Setpoint Accuracy:	± 0.5%
Current Stability (4 hours):	≤ 100 ppm
Current Limit Setpoint Accuracy:	± 2%
Photodiode Current Measurement Accuracy:	± 0.5%
Photodiode Current Measurement Range:	0.00 - 4,000 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
- 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 CONTROLLER

TEC Output Power Total:	216 Watts
TEC Output Current Range (bipolar):	± 12.00 Amps
TEC Output Voltage Range (bipolar) :	± 18.00 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
Temperature Range:	-25°C to 150°C
Factory Set Default Lower Temperature Limit:	5°C
Factory Set Default Upper Temperature Limit:	35°C

LDC-578X SPECIFICATIONS

MOUNTING PLATE, HEAT SINK & CABLES

Cooling Method:	TEC-Peltier Coolers, Dual Fans for Waste Heat Removal
TEC Ratings (max per TEC element):	6 Amps, 11 Volts
Heat Sink Thermal Load Maximum:	105 Watts (@ 30ºC)
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 75 mm
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 (90A rated)	
System Includes 1 x 1.5 meter TEC Control Interface Cable	

MODULATION & QCW PULSE MODE

QCW Pulse Width Rise Time:	25 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)

CONTROLLER COMPUTER INTERFACE

RS232 Standard LabView Drivers Included	
USB Optional:	$95.00 (Option SVC-USB)
LabView Drivers Included	

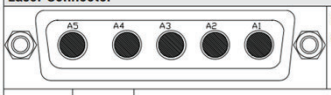
POWER SUPPLY, WEIGHT AND DIMENSIONS

Power Input:	Universal 90 ~ 230 VAC, 50/60 Hz
System Weight (total):	~ 15 kg
Controller Dimensions:	275mm x 200mm x 127mm

DATA SHEET

CONTROLLER CONNECTORS

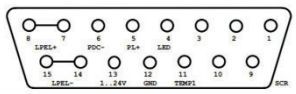
Laser Connector



Sub-5W5, female Type
as viewed from backside

PIN.No	Abbr.	Function
A3;A4	LDA+	Laser Diode Anode (+)
A1;A2	LDC-	Laser Diode Cathode (-)

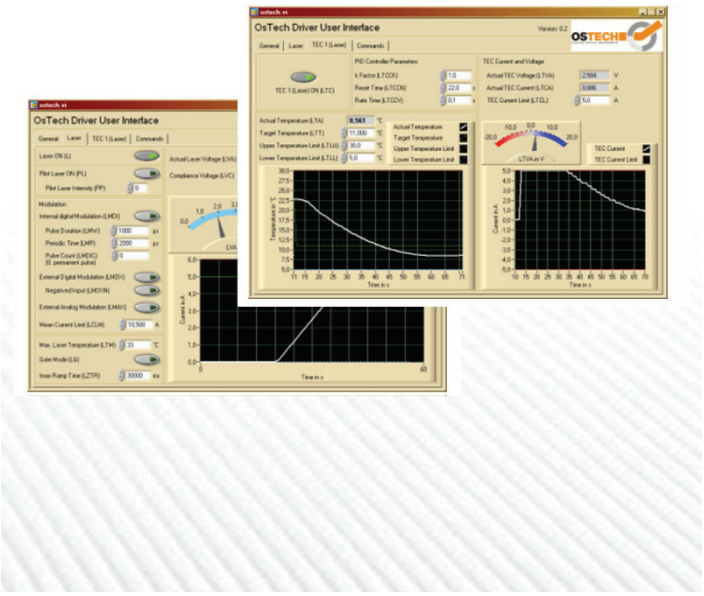
Peltier Connector



Sub-D 15, female Type as viewed from backside

PIN.No	Abbr.	Function
4	LED	LASER-RUN LED
5	PL+	PILOTLASER+ Pin
6	PDC-	Photo-Diode cathode (connect Anode to GND)
7;8	LPEL+	„L" Peltier element (+)
11	TEMP1	Temperature Sensor Input vs. GND
12	GND	Common Ground
13	1..24V	1..24V Supply, max. 800mA (vs GND) supports fan etc.
14;15	LPEL-	„L" Peltier element (-)
1;2;9;10	n.c.	
	SCR	Common Screen

LABVIEW DRIVERS



Product Warranty:

In addition to the standard full one year waranty, this product is offered with an additional 3 months of extended warranty for a total of 15 months of waranty 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.