



75 Amp High Power Laser Diode Control Electronics and Mounting System

- Turn-Key Control Electronics & Mounting System with Pre-Configured Laser Diode Mounting Plate
- 75 Amp Current Source & 336 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-700X DATA SHEET

WORLD LEADING PRODUCTS
FOR LASER SCIENTISTS AND ENGINEERS

DATA SHEET

LDC-700X Product Overview:

The model LDC-700X control system was designed to accurately and safely control high power laser diodes. These systems include everything you need to bias and thermally control your laser diode. They integrate a precision 75 Amp laser diode driver, a 336 Watt TEC controller, a TEC cooled laser mounting plate, a fan cooled heat sink and all cables. The > 300 Watt temperature controller keeps the laser at a stable temperature while allowing the user to drive the laser in CW or QCW mode at current levels up to 75 Amps.

High Power TEC Based Temperature Stabilization:

The laser diode heat sink is actively cooled with integrated high efficiency TEC/Peltier elements. The Peltier coolers are located below the mounting plate. They remove the heat from the device under test. The fans in the heat sink dissipate the waste heat away from the load allowing the TEC's to precisely maintain the temperature set point. The mounting plate is pre-configured for your exact package style and includes pre-tapped mounting holes as well as a graphite thermal pad to assist the heat transfer. Standard mounting hole footprint patterns for many modules and package styles. Custom mounting hole patterns are available upon request. The LDC-700X offers a convenient and high performance solution for cooling and temperature stabilization of your device.



LDC-700X SPECIFICATIONS

LASER DIODE DRIVER (CURRENT SOURCE)

Output Current Range:	0.00 - 75.00 Amps
Compliance Voltage Range:	5.00 Volts
Current Noise & Ripple (rms):	< 1% of Full Scale Current
Current Setpoint Resolution:	18 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 - 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
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:	336 Watts
TEC Output Current Range (bipolar):	± 7.00 Amps
TEC Output Voltage Range (bipolar) :	± 48.00 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-700X 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 (@ 30°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 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

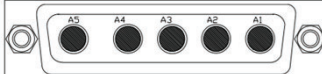
Power Input:	Universal 90 ~ 230 VAC, 50/60 Hz
System Weight (total):	~ 15 kg
Controller Dimensions:	275mm x 200mm x 127mm

DATA SHEET



CONTROLLER CONNECTORS

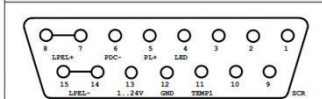
Laser Connector



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

