User's Guide

Modular Laser Diode Controller LDC-3900



ILX Lightwave Corporation • P. O. Box 6310 • Bozeman, MT, U.S.A. 59771 • U.S. & Canada: 1-800-459-9459 • International Inquiries: 406-556-2481 • Fax 406-586-9405

ilx.custhelp.com · www.ilxlightwave.com



INTRODUCTION AND SPECIFICATIONS

This manual contains operation and maintenance information for the LDC-3900 Modular Laser Diode Controller and optional Model 1231 GPIB/IEEE-488.2 Interface. If you want to get started right away, read Chapter 2, which covers Operation, first.

In the following chapters there are three areas of discussion, one for functions which are common to both the TEC and the Laser controller, one for the functions which pertain to the TEC controller only, and one for functions which pertain to the Laser current source only.

Product Overview

The LDC-3900 Modular Laser Diode Controller may be configured as a combination current source/temperature controller. It may also be configured with only current sources or only temperature controllers. The current sources provide high stability outputs with fully redundant current limit and multiple laser protection features. The temperature controllers can work with most thermistors and TE modules to deliver precision laser temperature control over a wide range of temperatures. The LDC-3900's fast, sophisticated GPIB lets you automate your experiment.

Available Options and Accessories

Options and accessories available for the LDC-3900 include the following:

Table 1.1 LDC-3900 Options

DESCRIPTION	MODEL NUMBER
100 mA Current Source Module	39010
200 mA Current Source Module	39020
500 mA Current Source Module	39050
1 Amp Current Source Module	39100
4 Amp Current Source Module	39400
4 Amp Current Source Module	39400M ¹
8 Amp Current Source Module	39800
32 Watt TEC Module	39032 ²
Combination Module (200 mA Current Source and 8 Watt TEC)	39420 ²
Combination Module (500 mA Current Source and 12 Watt TEC)	39425
Combination Module (500 mA Current Source and 12 Watt TEC, with modulation)	39427

1. Model 39400M is available for driving SDL-5760 MOPA laser (amplifier section) - includes drive for fan and LED "on" indicator.

2. Includes ILX model 510 calibrated 10 k Ohm thermistor.

Table 1.2 LDC-3900 Options and Accessories

DESCRIPTION	MODEL NUMBER
Combination Module (1000 mA Current Source and 12 Watt TEC, with modulation)	39437
Combination Module (2000 mA Current Source and 8 Watt TEC)	39440
Rack mount flange kit (enables installation into a standard 19 inch wide rack)	103
Temperature Controlled Laser Diode Mount	4407
Temperature Controlled Laser Diode Mount (available with collimating assembly)	4412
High Power Laser Diode Mount	4442
CW Filter Cable (included with Current Source Modules)	320
Current Source Interconnect Cable (unterminated)	301
Current Source / Laser Diode Mount Interconnect Cable	303
TEC Interconnect Cable (unterminated)	501
TEC / Laser Diode Mount Interconnect Cable	505
Calibrated 10 kΩ Thermistor	510
Uncalibrated 10 kΩ Thermistor	520
Uncalibrated AD590LH IC Temperature Sensor	530
Uncalibrated LM335AH IC Temperature Sensor	540
Blanking Plate (to cover unused mainframe bay)	391 ¹
LDC-3900 Virtual Instrument for LabVIEW	393 ²

1. Provided free of charge. Contact ILX Lightwave Sales Representative.

 Virtual Instrument software requires National Instruments LabVIEWTM for Windows, version 3.0 or higher. Call for Virtual Instrument availability.

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Specifications

The general specifications for the LDC-3900 are found on page 3. The specifications for each module are found in the instruction manual for that module.

Table 1.3 GPIB Specifications

Meets ANSI/IEEE Std 488.1-1987 and Std 488.2.2-1987

 Table 1.4
 General Specifications

GENERAL ¹	
Size	5.625" x 16.75" x 13.625", 145mm x 426mm x 346mm
Weight	
Mainframe	27.5 lbs (12.5 kg)
Module (each, typical)	2.3 lbs (1.05 kg)
Power Requirements	100 V ±10%, 120 V ±10%, 220 V ±10%, 230-240 V ±10%, 50-60 Hz
Temperature	0 to +40 °C operating; -40 to +70 °C storage
Humidity	< 95 % relative humidity, non-condensing.

1. The current source modules contain circuits that will turn off their outputs if a transient is detected.

CAUTION

There are no user serviceable parts in the instrument, including the external fuses in the AC power entry module. Contact ILX Customer Service (see Comments, Suggestions, and Problems on page xv for contact information) for information about servicing the instrument.

Line Voltage Selection

Line voltage selection is made by rotating the line voltage selector insert. The line voltage selector insert is located inside the power entry module cover. To open this cover, turn the slot slightly with a screwdriver. The cover will pop out, exposing the voltage selector insert. Pull out the selector insert, turn it until the desired voltage selection appears, and re-insert it into the power entry module.