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Find the *Newport / ILX Lightwave LDC-3900* at our website: ***Click HERE***

LDC 3900

Modular Laser Diode Controller

Product Features

- 4 Channels for interchangeable current source, TEC or combination modules
- LD current modules up to 8 A
- Controller Modules up to 2 A LD current with TE Control
- 32 W (8 V, 4 A) TEC modules
- Resistive heater adapters available for TEC modules

The LDC-3900 features a wide range of user-interchangeable modules and four rear-loading module bays, making it a cost-effective solution for controlling multiple outputs. Modules include current sources with maximum outputs from 200 mA to 8 A, a TE controller with up to 32 W of power, and special “2-in-1” current source/TEC combination modules.

The LDC-3900 adapts to multiple laser diode test and control conditions and is available with a wide range of both current and TEC modules. The modular design enables you to change components to meet your testing needs.

Every module incorporates low noise performance with high stability output and ILX Lightwave’s unmatched laser protection topologies. Sophisticated laser control or testing is easily accomplished with the powerful GPIB interface option. A LabVIEW® driver is also available.



Flexible, Comprehensive Control of Laser Diodes

ILX Lightwave

Photonic Test & Measurement Instrumentation

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LDC 3900

Modular Laser Diode Controller

Wide Range of Modules

Five current source modules, and five TEC/current combination modules make the LDC-3900 configurable for many applications. Each module is electrically floating–or fully isolated–from all other modules. This allows you to configure your laser diode system, without the worry of laser-damaging ground loops.

Current Source Modules

The LDC-3900 current source design offers superior laser protection and low-noise performance. Each current source module features analog modulation for dithering the laser current for wavelength tuning.

Five different current source modules can be driven in any one of the following modes:

1) Constant current, CW
2) Constant current, high-bandwidth
3) Constant optical power

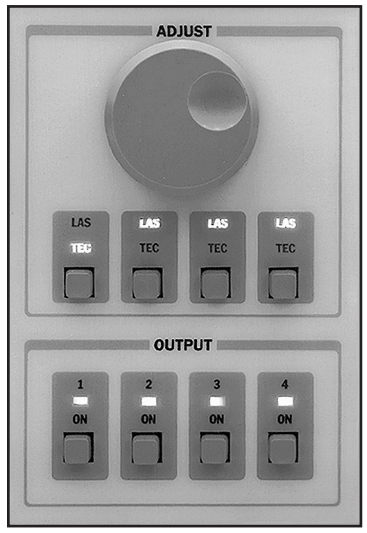
Highly Stable Temperature Control

The LDC-3900 controls temperature with up to 32 W of power. The TEC module extends temperature control, with a choice of temperature sensors and a powerful, low-noise, bipolar output. This new, ultra-stable topology achieves stabilities better than 0.005°C.

A smart integrator control loop delivers fast settling times. If temperature calibration constants are entered, the LDC-3900 displays actual laser temperature with 0.01°C resolution.

Combination Modules

Our space-saving combination modules incorporate a TE temperature controller and your choice of current source, up to 2 A, in one module. By using several of these modules, you can control up to four packaged lasers simultaneously.



Up to four modules can be easily adjusted and controlled from the LDC-3900 front panel.

Intuitive Front Panel

Divided into two sections, TEC and LASER, the control panel offers quick, easy operation without confusing multilayer menus. Each channel is directly accessible from the front panel "adjust" section. The display section monitors control parameters for all modules.

Powerful GPIB Interface

For automated control, an optional GPIB interface allows remote programming and readout from most computers. All instrument and module functions are accessible on the front panel and through the interface bus. This allows you to simultaneously and independently control several lasers from the same interface. A LabVIEW® instrument driver is available free, upon request.

Proven Laser Diode Protection

The LDC-3900 incorporates ILX Lightwave's proven laser protection features including exclusive clamping current limits, output shorting circuits, and slow-start turn-on. Power-line transients are suppressed with AC line filters and fully isolated modules to provide worry-free, fail-safe operation*

** Semiconductor lasers are sensitive devices. Always observe recommended handling procedures. Request Application Notes #3, "Protecting Your Laser Diode."*

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LDC 3900

Modular Laser Diode Controller

Specifications

Current Source Modules[1]

Current Source[1]	39020	39050	39100	39400	39800
DRIVE CURRENT OUTPUT					
Output Current Range:	0–200 mA	0– 500 mA	0–1000 mA	0–4000 mA	0–8000 mA
Setpoint Resolution:	10 µA	10 µA	100 µA	100 µA	125 µA
Setpoint Accuracy:	±0.1% of FS	±0.1% of FS	±0.1% of FS	±0.1% of FS	±0.1 % of FS
Compliance Voltage:	7 V	6.5 V	6 V	5 V	5 V at connector (4.5 V end of cable)
Temperature Coefficient:	<60 ppm/°C	<60 ppm/°C	<100 ppm/°C	<100 ppm/°C	<100 ppm/°C
Short-Term Stability (1 hr.):[2]	<20 ppm	<20 ppm	<20 ppm	<20 ppm	<20 ppm
Long-Term Stability (24 hr.):[3]	<50 ppm	<40 ppm	<40 ppm	<40 ppm	<40 ppm
Noise and Ripple (µA rms)[4]					
High Bandwidth Mode:	<3 µA	<5 µA	<10 µA	<15 µA	<120 µA
Low Bandwidth Mode:	<2.5 µA	<3 µA	<5 µA	<5 µA	<110 µA
Low Bandwidth CW Mode:[5]	<1 µA	<1.5 µA	<2.5 µA	<3 µA	N/A
Transients:					
Operational:[6]	<1 mA	<1 mA	<2 mA	<5 mA	<8 mA
Power-line spike induced:[7]	<5 mA/<8 mA	<5 mA/<8 mA	<5 mA/<8 mA	<10 mA/<20 mA	<20 mA/<40 mA
Isolation:	All modules isolated from other modules and earth ground				
DRIVE CURRENT LIMIT SETTINGS					
Range:	0–200 mA	0–500 mA	0–1000 mA	0–4000 mA	0–8000 mA
Resolution:	0.5 mA	2 mA	4 mA	16 mA	40 mA
Accuracy:	±2 mA	±5 mA	±10 mA	±40 mA	±80 mA
PHOTODIODE FEEDBACK					
Type:	Transimpedance	Transimpedance	Transimpedance	Transimpedance	Transimpedance
Reverse Bias:	0–5 V, adjustable	0–5 V, adjustable	0–5 V, adjustable	0–5 V, adjustable	0–5 V, adjustable
Photodiode Current Range:	0–5 mA	0–5 mA	0–10 mA	0–20 mA	0–20 mA
Output Stability:[8]	0.02%	0.02%	0.02%	0.02%	0.02%
Setpoint Accuracy:	±0.05% of FS	±0.05% of FS	±0.05% of FS	±0.1% of FS	±0.1% of FS
EXTERNAL ANALOG MODULATION					
Input:	0–10 V, 10 kΩ	0–10 V, 10 kΩ	0–10 V, 10 kΩ	0–10 V, 10Ω	0–10 V, 10Ω
Transfer Function:	20 mA/V	50 mA/V	100 mA/V	400 mA/V	800 mA/V
Bandwidth (3dB)					
High Bandwidth:[9]	DC to 500 kHz	DC to 200 kHz	DC to 200 kHz	DC to 50 kHz	DC to 50 kHz
Low Bandwidth:	DC to 5 kHz	DC to 5 kHz	DC to 5 kHz	DC to 2 kHz	DC to 2 kHz
Low Bandwidth CW:[5]	DC to 30 Hz	DC to 30 Hz	DC to 30 Hz	DC to 30 Hz	DC to 30 Hz
OUTPUT CONNECTORS					
Current Source Output:	9-pin, D-sub	9-pin, D-sub	9-pin, D-sub	9-pin, D-sub[14]	16-pin, Bulkhead
Photodiode Input:	Coax BNC	Coax BNC	Coax BNC	Coax BNC	Coax BNC
Analog Modulation Input:	Coax BNC inst. amp. input	Coax BNC inst. amp. input	Coax BNC inst. amp. input	Coax BNC inst. amp. input	Coax BNC inst. amp. input
MEASUREMENT (DISPLAY)[10]					
Output Current Range:	0–200.00 mA	0–500.00 mA	0–1000.0 mA	0–4000.0 mA	0–8000.0 mA
Output Current Resolution:	0.01 mA	0.01 mA	0.1 mA	0.1 mA	0.1 mA
Output Current Accuracy:[11]	±0.05% of FS	±0.1% of FS	±0.1% of FS	±0.1% of FS	±0.1% FS
Photodiode Current Range:	0–5000 µA	0–5000 µA	0–10,000 µA	0–20,000 µA	0–20,000 µA
Photodiode Current Resolution:	1 µA	1 µA	1 µA	1 µA	1 µA
Photodiode Current Accuracy:[11]	±2 µA	±2 µA	±2 µA	±4 µA	±4 µA
Photodiode Responsivity					
Range(µA/mW):[12]	0.00–600.00	0.00–600.00	0.00–600.00	0.00–600.00	0.00–1000.00
Resolution (µA/mW):	0.01	0.01	0.01	0.01	0.01
Optical Power Range (mW):	0.00–200.00	0.00–500.00	0.00–1000.0	0.00–5000.0	0.00–8000.0
Optical Power Resolution:	0.01 mW	0.1 mW	0.1 mW	0.1 mW	0.1 mW
Forward Voltage Range:	0.000–7.000 V	0.000–7.000 V	0.000– 7.000 V	0.000–5.000 V	0.000–5.000 V
Forward Voltage Resolution:	1 mV	1 mV	1 mV	1 mV	1 mV
Forward Voltage Accuracy:[13]	±3 mV	±3 mV	±3 mV	±3 mV	±5 mV

CURRENT SOURCES NOTES

1 All values relate to a one-hour warm-up period.
2 Over any one-hour period, half-scale output, at 25°C ambient.
3 Over any 24-hour period, half-scale output, at 25°C ambient.
4 Measured optically from resulting intensity fluctuations of a laser diode, with a 150 kHz bandwidth photodetector. Measurements made with 1 MHz detector are typically 10% higher.
5 With model 320 low-noise CW filter enabled.
6 Maximum output current transient resulting from normal operational situations (i.e., power on-off, current on-off), as well as accidental situations (i.e., power line plug removal). For more information, request ILX "Transient Test Standards" #LDC-00196.
7 Maximum output current transient resulting from a 1000 V power line transient spike. Tested to ILX Lightwave Technical Standard #LDC-00196.
8 Maximum monitor photodiode current drift over any 30 min. period. Assumes zero drift in responsivity of photodiode.
9 50% modulation at mid-scale output.
10 Displayed on LDC-3900 mainframe front panel "LASER" section.
11 Measured at 25°C.
12 Responsivity value is user-defined and is used to calculate the optical power.
13 Voltage measurement accuracy while driving calibration load. Connected at the rear panel connector. Accuracy may vary depending on load and cable length used.
14 Model 39400M module is also available for driving SDL-5760 Series and SDL-8630 Tunable Lasers. 39400M includes driver for external fan (12 VDC) and LED "on" indicator (50 mA). All other specifications identical to 39400 module with the exception of 15-pin high-density D-sub output connector.
15 Model 39800 8 A module uses two rear-panel module bays.

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LDC 3900

Modular Laser Diode Controller

Specifications

TEC Modules[1]

	39032/39034[15]	
TEMPERATURE CONTROL		
Temperature Control Range:[2]	–99.9°C to 199.9°C	
Thermistor Setpoint		
Resolution and Accuracy:[3]	Resolution	Accuracy
–20°C to 20°C	0.1°C	±0.2°C
20°C to 50°C	0.2°C	±0.2°C
AD590 and LM335 Setpoint		
Resolution and Accuracy:[4]	Resolution	Accuracy
–20°C to 50°C	0.01°C	±0.1°C
Short Term Stability (1 hr.):[5]	<±0.004°C	
Long Term Stability (24 hrs.):[6]	<±0.01°C	
TEC OUTPUT[7]		
Output Type:	Bipolar, constant current source	
Isolation:	Isolated from other modules and earth ground	
Compliance Voltage:	>8 V	
Short Circuit Output Current:	4 A	
Maximum Output Power:	32 W	
Current Limit Range:	0–4 A	
Current Limit Set Accuracy:	±50 mA	
Ripple/ Noise:[8]	<1 mA, rms	
Control Algorithm:	Smart Integrator, Hybrid PI	
TEMPERATURE SENSOR		
Types		
Thermistor:	NTC (2-wire)	
IC Temperature Sensor:	AD590/ LM335	
RTD Sensor:[9]	Pt100/other 100 Ω RTD	
Thermistor Sensing Current:	10/100 µA	
Sensor Bias:	AD590 = 8 V, LM335 = 1 mA, RTD = 0.8 mA[9]	
Usable Thermistor Range:	25–450,000 Ω , typical	
Typical Sensor Output[10]		
AD590 Current Output:	I (25°C) = 298.2 µA, It = 1 µA/K	
LM335 Voltage Output:	V (25°C) = 2.73 V, Vt = 10 mV/K	
RTD (PT100) Resistance:	R (25°C) = 109.73 Ω	
User Calibration:	Thermistor = Steinhart-Hart	
	IC Sensors, RTD = Two-point	

TEC OUTPUT CONNECTORS

Temperature Controller Output: 15-pin, D-sub

TEC MEASUREMENT (DISPLAY)[11]

Temperature:	Range[12]	Resolution	Accuracy
10 µA Setting:[13]	–99.99°C to 199.99°C	0.01°C	±0.1°C
100 µA Setting:[14]	–99.99°C to 199.99°C	0.01°C	±0.05°C
Thermistor Resistance:			
10 µA Setting:	0.0–480.00 kΩ	0.01 kΩ	±0.05 %
100 µA Setting:	0.0–48.000 kΩ	0.001 kΩ	±0.05 %
TE Current:	–4.000 to 4.000 A	0.001 A	±0.04 A

TE VOLTAGE[15]

Voltage Range: –9.999 to 9.999 V
Voltage Resolution: 1 mV
Voltage Accuracy: ±30 mV[16]

TEC MODULE NOTES:

1 All values relate to a one-hour warm-up period
2 Software limits of range. Actual range possible depends on the physical load, and thermistor type and TE module used.
3 Accuracy figures are quoted for a typical 10 kΩ thermistor and 100 µA current setting. Accuracy figures are relative to the calibration standard. Both resolution and accuracy are dependent upon the user-defined configuration of the instrument.
4 Accuracy depends upon the the sensor model selected, the calibration standard, and the user-defined configuration of the instrument.
5 Over any one-hour period, half-scale output, controlling an LDM-4412 mount @ 25°C, with 10 kΩ thermistor, on 100 µA setting.
6 Over any 24-hour period, half-scale output, controlling an LDM-4412 mount @ 25°C, with 10 kΩ thermistor, on 100 µA setting.
7 Into a 1 Ω load
8 Measured at 1 A output over a bandwidth of 10 Hz to 10 MHz
9 To use RTD sensor, model 39032 must be ordered with TSC595 Sensor Option. To use RTD sensors with model 39034, order TSC-599 Temperature Sensor Converter accessory.
10 Nominal temperature coefficients, It and Vt, apply over the rated IC temperature sensor range.
11 Displayed on LDC-3900 mainframe front panel "TEC" section
12 Software limits of display range.
13 Using a 100 kΩ thermistor, controlling an LDM-4412 mount over –30°C to 25°C.
14 Using a 10 kΩ thermistor, controlling an LDM-4412 mount over 0°C to 90°C.
15 Model 39034 has TEC Voltage measurement through GPIB only. Not available on Model 39032.
16 Voltage measurement accuracy while driving calibration load. Accuracy is dependent upon load used.

MAINFRAME / GENERAL

Chassis Ground:	4mm Banana jack
Power Requirements,	
50–60 Hz (V):	100 VAC, 120 VAC, 220 VAC,
(user selectable)	240 VAC, (+6% / -10%)
Size (HxWxD):	145 mm x 426 mm x 346 mm (5 5/8" x 16 3/4" x 13 5/8")
Weight	
Mainframe:	12.5 kg (27.5 lbs)
Module (each, typical):	1.05 kg (2.3 lbs)
Operating Temperature:	0°C to 50°C
Storage Temperature:	–40 to 70°C
Humidity:	<90%, noncondensing
Laser Safety Features:	Keyswitch, Interlock, Output Delay (Meets CDRH US21 CFR 1040.10)
Laser Display:	5-digit, Green LED
TEC Display:	5-digit, Green LED

ORDERING INFORMATION NOTES

* Model 39400M is required for driving SDL-5760. MOPA laser (amplifier section) and SDL-8630 Tunable lasers. Includes drive for fan and LED "on" indicator.
** Includes ILX model TS-520 calibrated 10 kΩ thermistor.

In keeping with our commitment to continuing improvement, ILX Lightwave reserves the right to change specifications at any time without notice and with out liability for such changes.

ORDERING INFORMATION

LDC-3900	Modular Laser Diode Controller Mainframe
CSM-39020	200 mA Current Source Module
CSM-39050	500 mA Current Source Module
CSM-39100	1 A Current Source Module
CSM-39400	4 A Current Source Module
CSM-39400M*	4 A Current Source Module (For SDL-7630 and SDL-8630 Tunable Lasers)
CMS-39800	8A Current Source Module (Module take two slots in LDC-3900)
TCM-39032**	32 W TEC Module
TCM-39034**	32 W TEC Module with Voltage Measurement
LCM-39420	Current/TEC Combination Module (200 mA Drive Current/8 W TEC)
LCM-39425	Current/TEC Combination Module (500 mA Drive Current/12 W TEC)
LCM-39427	Current/TEC Combination Module (500 mA Drive Current/12 W TEC) with Modulation
LCM-39437	Current/TEC Combination Module (1A Drive Current/12 W TEC) with Modulation
LCM-39440	Current/TEC Combination Module (2A Drive Current/8 W TEC)
CC-305S	Current Source/Laser Diode Mount Interconnect Cable
CC-306S	Current Source/Unterminated Interconnect Cable
CC-501S	TE Controller/Unterminated Interconnect Cable
CC-505S	TE Controller/Laser Diode Mount Interconnect Cable
TS-510	Calibrated 10 kΩ Thermistor
TS-520	Uncalibrated 10 kΩ Thermistor
TS-530	Uncalibrated AD590LH IC Temperature Sensor
TS-540	Uncalibrated LM335AH IC Temperature Sensor
TSC-595	RTD Temperature Sensor Control Option (for 39032 Module)
RM-103	Rack Mounting Kit
UCA-350	Unipolar Heater Control Adapter
LNF-320	Low Noise Filter
LabVIEW® Instrument Driver	

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LDC 3900

Modular Laser Diode Controller

Specifications

Combination Modules

	39420	39425	39427	39437	39440
ISOLATION: Each module is isolated from other modules and earth ground. TEC and current source independently isolated					
OUTPUT CONNECTORS					
Laser Drive Current I/O:	9-pin, D-sub	9-pin, D-sub	9-pin, D-sub	9-pin, D-sub	9-pin, D-sub
Temperature Controller I/O:	15-pin, D-sub	15-pin, D-sub	15-pin, D-sub	15-pin, D-sub	15-pin, D-sub
DRIVE CURRENT OUTPUT[1]					
Output Current Range:[9]	0–200 mA	0–500 mA	0–500 mA	0–1000 mA	0–2000 mA
Setpoint Resolution:	10 µA	10 µA	10 µA	100 µA	100 µA
Setpoint Accuracy:	±0.05% of FS	±0.05% of FS	±0.05% of FS	±0.05% of FS	±0.05% of FS
Compliance Voltage:	6 V	6 V	6 V	6 V	5 V
Temperature Coefficient:	100 ppm/°C	100 ppm/°C	100 ppm/°C	100 ppm/°C	100 ppm/°C
Short-Term Stability (1 hr.):[2]	25 ppm	25 ppm	25 ppm	25 ppm	25 ppm
Long-Term Stability (24 hr.):[3]	50 ppm	50 ppm	50 ppm	50 ppm	50 ppm
Noise and Ripple (µA/rms)[4]					
Unfiltered:	< 2.5 µA	< 4 µA	< 4 µA	< 4 µA	<10 µA
With model 320 Filter:[5]	< 1µA	<1.5 µA	<1.5 µA	<1.5 µA	< 2 µA
Transients:					
Operational:[6]	< 1 mA	< 1 mA	< 1 mA	< 1 mA	< 1 mA
1 kV EFT:	< 4 mA	< 4 mA	< 4 mA	< 4 mA	< 10 mA
Surge:[7]	< 7 mA	< 7 mA	< 7 mA	< 7 mA	< 8 mA
DRIVE CURRENT LIMIT SETTINGS					
Range:	0–200 mA	0–500 mA	0–500 mA	0–1000 mA	0–2000 mA
Accuracy:	±2 mA	±5 mA	±5 mA	±10 mA	±20 mA
PHOTODIODE FEEDBACK					
Type:		Current input differential, zero bias, all modules			
Range:	20–2000 µA	20–2000 µA	20–4000 µA	20–4000 µA	20–5000 µA
Output Stability[8]:	±2 µA	±2 µA	N/A	N/A	±2 µA
Setpoint Accuracy:	±2 µA	±2 µA	N/A	N/A	±5 µA
EXTERNAL ANALOG MODULATION					
Input:	N/A	N/A	0–10 V, 10 kΩ	0–10 V, 10 kΩ	N/A
Transfer Function:	N/A	N/A	50 mA/V	100 mA/V	N/A
Bandwidth (3dB):	N/A	N/A	DC to 250 kHz	DC to 200 kHz	N/A
DRIVE CURRENT MEASUREMENT (DISPLAY)					
Output Current Range:	0–200.00 mA	0–500.00 mA	0–500.00 mA	0–1000.00 mA	0– 2000.0 mA
Output Current Resolution:	0.01 mA	0.01 mA	0.01 mA	0.01 mA	0.1 mA
Output Current Accuracy:[10]	±0.1 mA	±0.5 mA	±0.5 mA	±0.5 mA	±1 mA
Photodiode Current Range:	0–2000 µA	0–2000 µA	0–4000 µA	0–4000 µA	0–5000 µA
PD Current Resolution:	1 µA	1 µA	1 µA	1 µA	1 µA
PD Responsivity Range: 0.00–1000.00µA/mW	0.00–1000.00µA/mW		0.00–1000.00µA/mW	0.00–1000.00µA/mW	0.00–1000.00µA/mW
PD Responsivity Resolution:	0.01 µA/mW	0.01 µA/mW	0.01 µA/mW	0.01 µA/mW	0.01 µA/mW
Optical Power Range:	0.00–200.00 mW	0.00–200.00 mW	0.00–1000.00 mW	0.00–1000.00 mW	0.00–2000.0 mW
Optical Power Resolution:	10 µW	10 µW	10 µW	10 µW	100 µW
TEMPERATURE CONTROL OUTPUT[9]					
Temperature Control Range:[11]	–99.9°C to 99.9°C	–99.9°C to 99.9°C	–99.9°C to 99.9°C	–99.9°C to 99.9°C	–99.9°C to 99.9°C
Thermistor Setpoint Resolution and Accuracy[12]	Res. Acc.	Res. Acc.	Res. Acc.	Res. Acc.	Res. Acc.
–20°C to +20°C: ±0.2°C	0.1°C	±0.2°C 0.1°C	±0.2°C 0.1°C	±0.2°C 0.1°C	±0.2°C 0.1°C
+20°C to +50°C: ±0.2°C	0.2°C	±0.2° C 0.2°C	±0.2°C 0.2°C	±0.2°C 0.2°C	±0.2°C 0.2°C
Short Term Stability (1 hr.):[13]	<±0.05°C	<±0.05°C	<± 0.05°C	<±0.05°C	<±0.05°C
Long Term Stability (24 hrs.):[14]	<±0.1° C	<±0.1°C	< ±0.1°C	<±0.1°C	<±0.1°C
Output Type:		Bipolar, constant current source, all modules			
Compliance Voltage:	>4 V DC	>6 V DC	>6 V DC	>6 V DC	>4 V DC
Short Circuit Output Current:	2 A	2 A	2 A	2 A	2 A
Maximum Output Power:	8 W	12 W	12 W	12 W	8 W
Current Noise and Ripple:	<1 mA rms	<1 mA rms	<1 mA rms	<1 mA rms	<1 mA rms
Current Limit Range:	0–2 A	0–2 A	0–2 A	0–2 A	0–2 A
Current Limit Set Accuracy:	0.05 A	0.05 A	0.05 As	0.05 A	0.05 A
Control Algorithm:		Smart Integrator, Hybrid PI, all modules			

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LDC 3900

Modular Laser Diode Controller

Specifications

	39420	39425	39427	39437	39440
TEMPERATURE SENSOR					
Types:	Thermistor (2-wire NTC)	Thermistor (2-wire NTC)	Thermistor (2-wire NTC)	Thermistor (2-wire NTC)	Thermistor (2-wire NTC)
Thermistor Sensing Current:	10/100µA (user-selectable)	10/100 µA (user-selectable)	10/100 µA (user-selectable)	10/100 µA (user-selectable)	10/100 µA (user-selectable)
Usable Thermistor Range:	25–450,000 Ω typical	25–450,000 Ω typical	25–450,000 Ω typical	25–450,000 Ω typical	25–450,000 Ω typical
User Calibration:	Steinhart-Hart	Steinhart-Hart	Steinhart-Hart	Steinhart-Hart	Steinhart-Hart
TEC MEASUREMENT (DISPLAY)					
Range					
Temperature:	–99.9°C to 99.9°C	–99.9 °C to 99.9°C	–99.9 °C to 99.9°C	–99.9 °C to 99.9°C	–99.9 °C to 99.9°C
Thermistor Resistance					
10 µA Setting:	0.00–450.00 kΩ	0.00–450.00 kΩ	0.00–450.00 kΩ	0.00–450.00 kΩ	0.00–450.00 kΩ
100 µA Setting:	0.000–45.000 kΩ	0.000–45.000 kΩ	0.000–45.000 kΩ	0.000–45.000 kΩ	0.000–45.000 kΩ
TE Current:	–2.000 to 2.000 A	–2.000 to 2.000 A	–2.000 to 2.000 A	–2.000 to 2.000 A	–2.000 to 2.000 A
Accuracy					
Temperature:	±0.5°C	±0.5°C	±0.5°C	±0.5°C	±0.5°C
Thermistor Resistance					
10 µA Setting:	±0.05 kΩ	±0.05 kΩ	±0.05 kΩ	±0.05 kΩ	±0.05 kΩ
100 µA Setting:	±0.005 kΩ	±0.005 kΩ	±0.005 kΩ	±0.005 kΩ	±0.005 kΩ
TE Current:	±0.01 A	±0.01 A	±0.01 A	±0.01 A	±0.01 A

COMBINATION MODULES NOTES:

1 All values measured after a one-hour warm-up period.
2 Over any one-hour period, half-scale output.
3 Over any 24-hour period, half-scale output.
4 Measured from resulting intensity fluctuations of a laser diode, measured optically with a 150 kHz bandwidth photodetector. Measurements made with 1 MHz detector are typically 10% higher.
5 ILX Lightwave model 320 low-noise filter option may be used, if lower noise performance is required.
6 Maximum output current transient resulting from normal operational situations (e.g., power on-off), as well as accidental situations (e.g., power line plug removal). For more information request ILX "Transient Test Standards" #LDC-00196.
7 Maximum output current transient resulting from a 1000V power line transient spike. Tested to ILX Lightwave Technical Standard #LDC-00196.
8 Maximum monitor photodiode current drift over any 30-minute period. Constant-power mode stability specification assumes zero drift in detector responsivity.
9 Output current rated into a 1 Ω load.
10 Measured at 25°C.
11 Software limits of range.
12 Accuracy figures quoted for a 10 kΩ thermistor. Accuracy figures are relative to calibration standard. Both resolution and accuracy are dependent on the user defined configuration of the instrument.
13 Over any one-hour period at 25 °C. Short-term temperature stability is a strong function of the thermal environment of the thermistor and TE module. Room air currents in particular can easily cause fluctuations of 0.1°C in an exposed mounting configuration.
14 Over any 24-hour period, at 25°C. Short-term temperature stability is a strong function of the thermal environment of the thermistor and TE module. Room air currents in particular can easily cause fluctuations of 0.1°C in an exposed mounting configuration.

In keeping with our commitment to continuing improvement, ILX Lightwave reserves the right to change specifications without notice and without liability for such changes.

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