

ILX Lightwave LDC-3900
Laser Diode Controller



\$3995.00

In Stock

Qty Available: 5+

Used and in Excellent Condition

Open Web Page

<https://www.artisantg.com/50295-1>

All trademarks, brandnames, and brands appearing herein are the property of their respective owners.



Your **definitive** source
for quality pre-owned
equipment.

Artisan Technology Group

(217) 352-9330 | sales@artisantg.com | artisantg.com

- Critical and expedited services
- In stock / Ready-to-ship

- We buy your excess, underutilized, and idle equipment
- Full-service, independent repair center

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

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.

LDC 3900

Modular Laser Diode Controller



Flexible, Comprehensive Control of Laser Diodes

ILX Lightwave
Photonic Test & Measurement Instrumentation

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

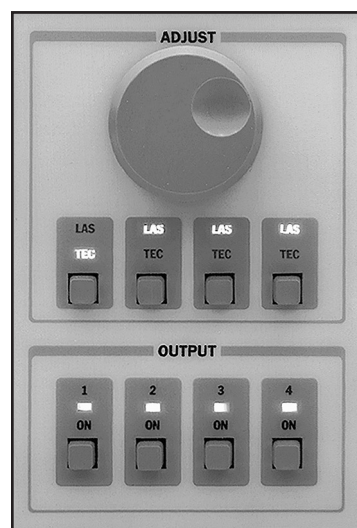
your choice of current source, up to 2 A, in one module. By using several of these modules, you can control up to four packaged lasers simultaneously.

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 read-out 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.



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

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."

LDC 3900

Modular Laser Diode Controller

Specifications

Current Source Modules¹

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 μ A	10 μ A	100 μ A	100 μ A	125 μ A
Setpoint Accuracy:	$\pm 0.1\%$ of FS	$\pm 0.1\%$ of FS	$\pm 0.1\%$ of FS	$\pm 0.1\%$ of FS	$\pm 0.1\%$ 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/ $^{\circ}$ C	<60 ppm/ $^{\circ}$ C	<100 ppm/ $^{\circ}$ C	<100 ppm/ $^{\circ}$ C	<100 ppm/ $^{\circ}$ 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 (μ A rms) ⁴					
High Bandwidth Mode:	<3 μ A	<5 μ A	<10 μ A	<15 μ A	<120 μ A
Low Bandwidth Mode:	<2.5 μ A	<3 μ A	<5 μ A	<5 μ A	<110 μ A
Low Bandwidth CW Mode: ⁵	<1 μ A	<1.5 μ A	<2.5 μ A	<3 μ A	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:	$\pm 0.05\%$ of FS	$\pm 0.05\%$ of FS	$\pm 0.05\%$ of FS	$\pm 0.1\%$ of FS	$\pm 0.1\%$ of FS
EXTERNAL ANALOG MODULATION					
Input:	0–10 V, 10 k Ω	0–10 V, 10 k Ω	0–10 V, 10 k Ω	0–10 V, 10 Ω	0–10 V, 10 Ω
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	Coax BNC	Coax BNC	Coax BNC	Coax BNC
	inst. amp. input	inst. amp. input	inst. amp. input	inst. amp. input	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	$\pm 0.05\%$ of FS	$\pm 0.1\%$ of FS	$\pm 0.1\%$ of FS	$\pm 0.1\%$ of FS	$\pm 0.1\%$ FS
Photodiode Current Range:	0–5000 μ A	0–5000 μ A	0–10,000 μ A	0–20,000 μ A	0–20,000 μ A
Photodiode Current Resolution:	1 μ A	1 μ A	1 μ A	1 μ A	1 μ A
Photodiode Current Accuracy: ¹¹	± 2 μ A	± 2 μ A	± 2 μ A	± 4 μ A	± 4 μ A
Photodiode Responsivity					
Range(μ A/mW): ¹²	0.00–600.00	0.00–600.00	0.00–600.00	0.00–600.00	0.00–1000.00
Resolution (μ A/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

- All values relate to a one-hour warm-up period.
- Over any one-hour period, half-scale output, at 25 $^{\circ}$ C ambient.
- Over any 24-hour period, half-scale output, at 25 $^{\circ}$ C ambient.
- 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.
- With model 320 low-noise CW filter enabled.
- 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.
- Maximum output current transient resulting from a 1000 V power line transient spike. Tested to ILX Lightwave Technical Standard #LDC-00196.

- Maximum monitor photodiode current drift over any 30 min. period. Assumes zero drift in responsivity of photodiode.
- 50% modulation at mid-scale output.
- Displayed on LDC-3900 mainframe front panel "LASER" section.
- Measured at 25 $^{\circ}$ C.
- Responsivity value is user-defined and is used to calculate the optical power.
- Voltage measurement accuracy while driving calibration load. Connected at the rear panel connector. Accuracy may vary depending on load and cable length used.
- 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.
- Model 39800 8 A module uses two rear-panel module bays.

LDC 3900

Modular Laser Diode Controller

Specifications

TEC Modules¹

39032/39034¹⁵

TEMPERATURE CONTROL

Temperature Control Range:² -99.9°C to 199.9°C

Thermistor Setpoint

Resolution and Accuracy:³

-20°C to 20°C

20°C to 50°C

AD590 and LM335 Setpoint

Resolution and Accuracy:⁴

-20°C to 50°C

Short Term Stability (1 hr.):⁵

Long Term Stability (24 hrs.):⁶

Resolution

0.1°C

0.2°C

Accuracy

±0.2°C

±0.2°C

Resolution

0.01°C

Accuracy

±0.1°C

<±0.004°C

<±0.01°C

TEC OUTPUT⁷

Output Type:

Isolation:

Bipolar, constant current source

Isolated from other modules and earth

ground

>8 V

Compliance Voltage:

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 mA⁹

Usable Thermistor Range:

25-450,000 Ω, typical

Typical Sensor Output¹⁰

AD590 Current Output:

I (25°C) = 298.2 μA, I_t = 1 μA/K

LM335 Voltage Output:

V (25°C) = 2.73 V, V_t = 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:

Range¹²

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 VOLTAGE¹⁵

Voltage Range:

-9.999 to 9.999 V

Voltage Resolution:

1 mV

Voltage Accuracy:

±30 mV¹⁶

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, I_t and V_t, 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

 **ILX Lightwave**
Photonic Test & Measurement Instrumentation
P.O. Box 6310, Bozeman, MT 59771 • FAX: 406-586-9405

www.ilxlightwave.com

For information call
1-800-459-9459

International Inquiries: 406-586-1244
email: sales@ilxlightwave.com



Rev. 4/1/02

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 OUTPUT¹					
Output Current Range: ⁹	0–200 mA	0–500 mA	0–500 mA	0–1000 mA	0–2000 mA
Setpoint Resolution:	10 μ A	10 μ A	10 μ A	100 μ A	100 μ A
Setpoint Accuracy:	$\pm 0.05\%$ of FS	$\pm 0.05\%$ of FS	$\pm 0.05\%$ of FS	$\pm 0.05\%$ of FS	$\pm 0.05\%$ of FS
Compliance Voltage:	6 V	6 V	6 V	6 V	5 V
Temperature Coefficient:	100 ppm/ $^{\circ}$ C	100 ppm/ $^{\circ}$ C	100 ppm/ $^{\circ}$ C	100 ppm/ $^{\circ}$ C	100 ppm/ $^{\circ}$ 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 (μ A/rms) ⁴					
Unfiltered:	< 2.5 μ A	< 4 μ A	< 4 μ A	< 4 μ A	< 10 μ A
With model 320 Filter: ⁵	< 1 μ A	< 1.5 μ A	< 1.5 μ A	< 1.5 μ A	< 2 μ A
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 μ A	20–2000 μ A	20–4000 μ A	20–4000 μ A	20–5000 μ A
Output Stability ⁸ :	± 2 μ A	± 2 μ A	N/A	N/A	± 2 μ A
Setpoint Accuracy:	± 2 μ A	± 2 μ A	N/A	N/A	± 5 μ A
EXTERNAL ANALOG MODULATION					
Input:	N/A	N/A	0–10 V, 10 k Ω	0–10 V, 10 k Ω	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	± 0.1 mA	± 0.5 mA	± 0.5 mA	± 1 mA
Photodiode Current Range:	0–2000 μ A	0–2000 μ A	0–4000 μ A	0–4000 μ A	0–5000 μ A
PD Current Resolution:	1 μ A	1 μ A	1 μ A	1 μ A	1 μ A
PD Responsivity Range:	0.00–1000.00 μ A/mW		0.00–1000.00 μ A/mW	0.00–1000.00 μ A/mW	0.00–1000.00 μ A/mW
0.00–1000.00 μ A/mW					
PD Responsivity Resolution:	0.01 μ A/mW	0.01 μ A/mW	0.01 μ A/mW	0.01 μ A/mW	0.01 μ A/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 μ W	10 μ W	10 μ W	10 μ W	100 μ W
TEMPERATURE CONTROL OUTPUT⁹					
Temperature Control Range: ¹¹	–99.9 $^{\circ}$ C to 99.9 $^{\circ}$ C	–99.9 $^{\circ}$ C to 99.9 $^{\circ}$ C	–99.9 $^{\circ}$ C to 99.9 $^{\circ}$ C	–99.9 $^{\circ}$ C to 99.9 $^{\circ}$ C	–99.9 $^{\circ}$ C to 99.9 $^{\circ}$ C
Thermistor Setpoint					
Resolution and Accuracy ¹²	Res. Acc.	Res. Acc.	Res. Acc.	Res. Acc.	Res. Acc.
–20 $^{\circ}$ C to +20 $^{\circ}$ C:	0.1 $^{\circ}$ C	$\pm 0.2^{\circ}$ C 0.1 $^{\circ}$ C	$\pm 0.2^{\circ}$ C 0.1 $^{\circ}$ C	$\pm 0.2^{\circ}$ C 0.1 $^{\circ}$ C	$\pm 0.2^{\circ}$ C 0.1 $^{\circ}$ C
$\pm 0.2^{\circ}$ C					
+20 $^{\circ}$ C to +50 $^{\circ}$ C:	0.2 $^{\circ}$ C	$\pm 0.2^{\circ}$ C 0.2 $^{\circ}$ C	$\pm 0.2^{\circ}$ C 0.2 $^{\circ}$ C	$\pm 0.2^{\circ}$ C 0.2 $^{\circ}$ C	$\pm 0.2^{\circ}$ C 0.2 $^{\circ}$ C
$\pm 0.2^{\circ}$ C					
Short Term Stability (1 hr.): ¹³	$\leq \pm 0.05^{\circ}$ C	$\leq \pm 0.05^{\circ}$ C	$\leq \pm 0.05^{\circ}$ C	$\leq \pm 0.05^{\circ}$ C	$\leq \pm 0.05^{\circ}$ C
Long Term Stability (24 hrs.): ¹⁴	$\leq \pm 0.1^{\circ}$ C	$\leq \pm 0.1^{\circ}$ C	$\leq \pm 0.1^{\circ}$ C	$\leq \pm 0.1^{\circ}$ C	$\leq \pm 0.1^{\circ}$ 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 A	0.05 A	0.05 A
Control Algorithm:		Smart Integrator, Hybrid PI, all modules			

LDC 3900

Modular Laser Diode Controller

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.

 **ILX Lightwave**
Photonic Test & Measurement Instrumentation
P.O. Box 6310 Bozeman, MT 59771 • FAX: 406-586-9405

For information call
1-800-459-9459

International Inquiries: 406-586-1244
email: sales@ilxlightwave.com



www.ilxlightwave.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisan-tg.com

Rev. 6/5/01

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at [artisan^{tg}.com](https://www.artisantg.com) for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisan^{tg}.com | [artisan^{tg}.com](https://www.artisantg.com)

