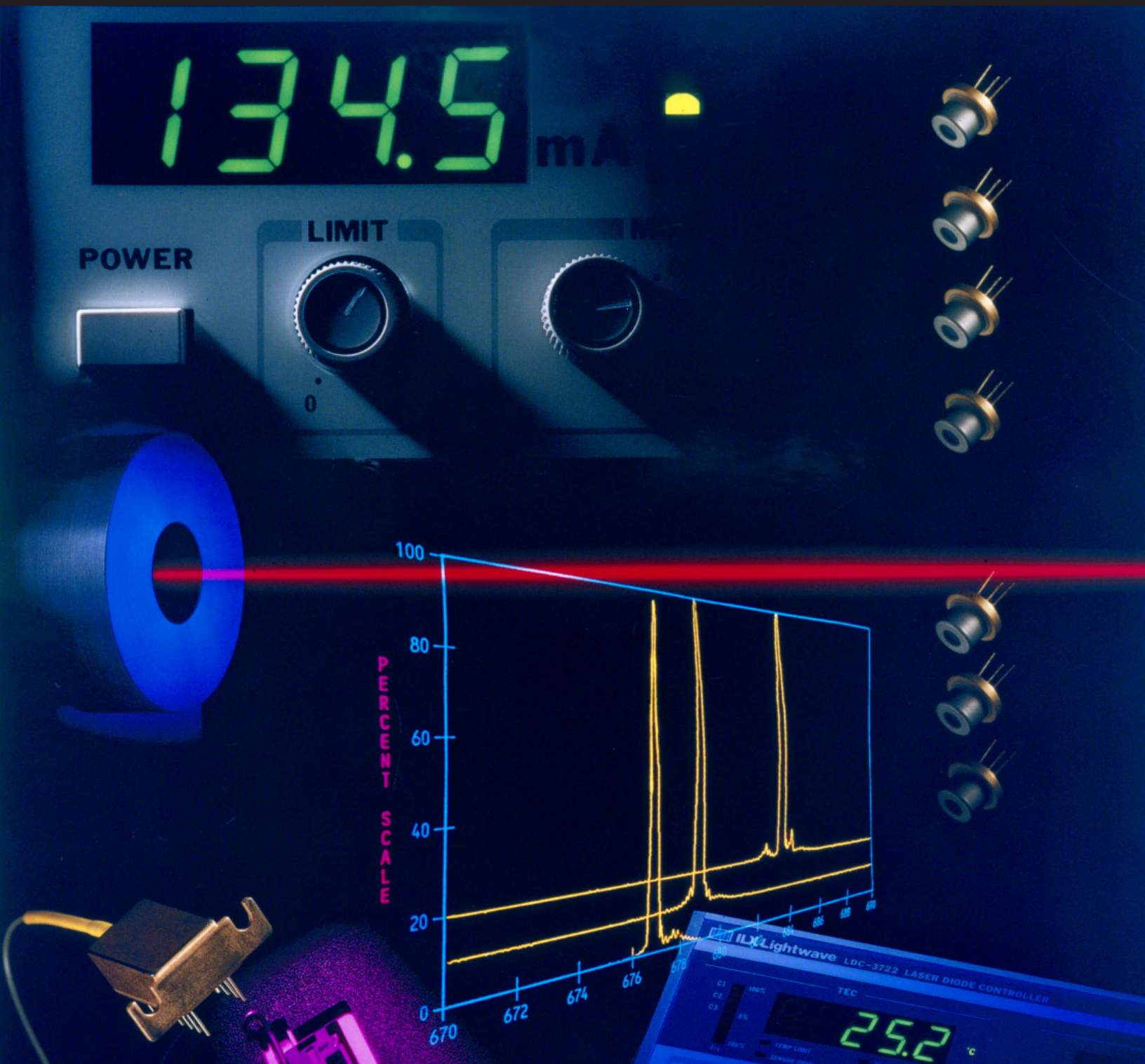
laser diode instrumentation laser diode test systems

ILX Lightwave

Product Selection Guide 2010 / 2011



about ILX Lightwave

For over twenty years, ILX Lightwave has been a pioneer in photonic test and measurement instrumentation, starting with the industry's first precision laser diode current source in 1986. Since then, we have continued to grow and evolve with the expanding photonic industry, building a tradition of innovation, quality, and customer service.

This tradition has pushed us to go beyond meeting customers' needs to exceeding their expectations. The highly technical nature and rapid evolution of the photonic industry requires a technically perceptive, customer focused approach. We not only deliver quality products, but we also provide unsurpassed technical support and customer service, ensuring that you receive the best return on your investment.

In addition to our instrumentation products, we offer application-focused laser diode test systems, which are designed to automate the testing process whether your application is research and development or production test. As photonic components become increasingly complex, ILX Lightwave is committed to providing high performance equipment that will improve manufacturing yields, reduce manufacturing cycle times, and lower overall cost of ownership. In addition to developing new instruments and systems, we are also advancing the underlying technologies to ensure that we can meet your test and measurement needs now and in the future.

Today, we are working hard to bring you new and innovative products in 2010 and beyond; products that we hope will serve your needs in new and better ways. Perhaps more importantly, we continue to place special emphasis on constantly improving our product designs, manufacturing processes, and customer support. We believe that quality is not just something you build into a product, it's something you build into everything you do. That's our commitment to excellence in photonics instrumentation.

Thank you for considering ILX Lightwave.

1986 Industry's first precision laser diode current source

1989 Industry's first commercial laser diode test system

1993 Industry's first optical power and wavelength meter

1996 Industry's first multi-channel fiber optic source system

table of contents

2000 Industry's first precision low PDR optical power meter

2003 Laser diode life-test and burn-in system

2006 High power laser diode current source

2007 High power laser diode life-test and burn-in system

ILX Lightwave
Laser Diode Instrumentation & Test Systems

www.ilxlightwave.com
1.800.459.9459

- High stability, low noise current source with integrated 32W temperature controller
- Three models available with up to 4A laser drive current
- Analog modulation capability to 1MHz
- Temperature controller compatible with thermistor, IC, and RTD temperature sensors
- USB and GPIB computer interface

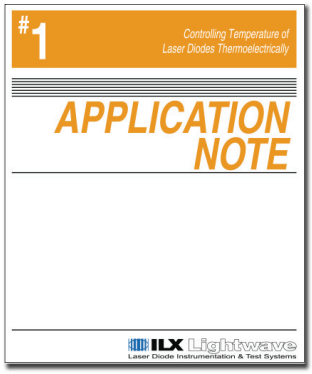
LDC-3700C Series Laser Diode Controller

	LDC-3714C	LDC-3724C	LDC-3744C
Maximum Current Output	50mA / 100mA	200mA / 500mA	2A / 4A
Set Point Accuracy	± 0.05%	± 0.05%	± 0.05%
Set Point Resolution	1µA / < 2µA	4µA / < 10µA	40µA / 80µA
Noise and Ripple	< 1.5µA / < 1.5µA	< 2µA / < 2µA	< 10µA / < 10µA
Short Term Stability	< 20ppm	< 20ppm	< 20ppm
Compliance Voltage	10V	10V	10V
Analog Modulation	Yes	Yes	Yes
Laser Diode Protection	- Slow start circuit - Normally closed shorting relay and semiconductor switch - Floating output - Adjustable current limit - Adjustable voltage limit - Power line surge and EFT transient protection; intermittent contact protection		
TEC Output Power	32W	32W	32W
TEC Output Current	4A	4A	4A
TEC Output Voltage	8V	8V	8V
Temperature Stability	<± 0.01°C	<± 0.01°C	<± 0.01°C
Temperature Control Range	-100°C to 199°C	-100°C to 199°C	-100°C to 199°C
Thermistor Sensor	Yes	Yes	Yes
IC Sensor	Yes	Yes	Yes
RTD	Yes	Yes	Yes
TEC Measurement	Temperature, current, resistance	Temperature, current, resistance	Temperature, current, resistance
TEC Control Loop	Hybrid P-I	Hybrid P-I	Hybrid P-I
TEC Voltage Measurement	Yes	Yes	Yes
Computer Interface	USB and GPIB	USB and GPIB	USB and GPIB

LDT-5500B Laser Diode Temperature Controller

- Five models with 4W to 120W control power
- Long term temperature stability as low as 0.005°C
- Adjustable TEC current limits
- Supports most thermistor, IC, and RTD temperature sensors
- Selectable sensor current
- Direct temperature display (°C) on most models
- USB or GPIB interface on most models

	LDT-5412	LDT-5525B	LDT-5545B	LDT-5948	LDT-5980
Output Power	4W	24W	50W	60W	120W
Output Current	2A	4A	5A	5A	10A
Output Voltage	2V	6V	10V	12V	12V
Temperature Stability	< ±0.05°C	< ±0.01°C	< ±0.01°C	< ±0.005°C	< ±0.005°C
Temperature Control Range	--------	-99°C to 199.99°C	-99°C to 199.99°C	-50°C to 250°C	-50°C to 250°C
Thermistor Sensor	Yes	Yes	Yes	Yes	Yes
IC Sensor	No	Yes	Yes	Yes	Yes
RTD	No	Yes	Yes	Yes	Yes
TEC Measurement	Current, resistance	Temperature, current, resistance	Temperature, current, resistance	Temperature, current, voltage, resistance	Temperature, current, voltage, resistance
AC Resistance Measurement	No	No	No	Yes	Yes
Control Loop	Hybrid P-I	Hybrid P-I	Hybrid P-I	Fully adjustable digital PID	Fully adjustable digital PID
Computer Interface	--------	USB	USB	GPIB	GPIB



Get temperature controller product information and our Application Note "Controlling Temperature of Laser Diodes Thermoelectrically" by visiting www.ilxlightwave.com or calling one of our sales engineers today at 1-800-459-9459.

- High stability, low noise output
- Dual output ranges on most models
- Constant current and constant power operating modes
- Multiple laser protection features
- Up to 15V compliance with 4-wire voltage measurement on select models
- Analog modulation on most models
- USB or GPIB interface on most models

LDX-3200 Series Precision Laser Diode Current Source

	LDX-3412	LDX-3210	LDX-3220	LDX-3232
Output Current	200mA	50mA / 100mA	200mA / 500mA	2000mA / 4000mA
Set point Accuracy	± 0.1%	± 0.05%	± 0.05%	± 0.15%
Set point Resolution	100µA	1µA / 2µA	4µA / 10µA	40µA / 80mA
Noise and Ripple	< 2µA	< 1.5µA / 1.5µA	< 2µA / 2µA	< 20µA / 20µA
Short Term Stability	< 50ppm	< 10ppm	< 10ppm	< 20ppm
Compliance Voltage	6V	10V	10V	15V
Analog Modulation	No	Yes	Yes	Yes
Operational Transients	< 100µA	< 1mA	< 1 mA	< 4 mA
Microprocessor Controlled	No	Yes	Yes	Yes
Laser Diode Protection	- Slow start circuit - Normally closed shorting relay and semiconductor switch - Floating output - Adjustable current limit - Adjustable voltage limit (available on most models) - Power line surge and EFT transient protection - Intermittent contact protection			
Computer Interface	--------	GPIB	GPIB	GPIB

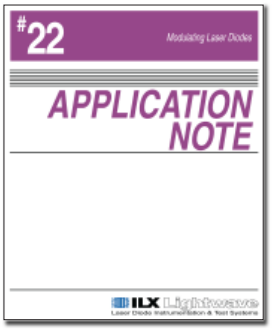
LDX-3545B 1A / 3A
Laser Diode Current Source

LDX-3412 Low Cost
Laser Diode Current Source

LDX-3232 Precision
Laser Diode Current Source

	LDX-3620B	LDX-3525B	LDX-3545B	LDX-3565B
Output Current	200mA / 500mA	200mA / 500mA	1000mA / 3000mA	2000mA / 6000mA
Set point Accuracy	± 0.05%	± 0.1%	± 0.1%	± 0.1%
Set point Resolution	10µA / 100µA	50µA / 125µA	250µA / 750µA	500µA / 1500µA
Noise and Ripple	< 50nA / 250nA*	< 2µA / 2µA	< 8µA / 8µA	< 15µA / 30µA
Short Term Stability	< 10ppm	< 20ppm	< 20ppm	< 20ppm
Compliance Voltage	5V	7V	6.5V	5V
Analog Modulation	Yes	Yes	Yes	Yes
Operational Transients	< 10µA	< 1mA	< 2mA / < 5mA	< 5mA / < 15mA
Microprocessor Controlled	No	Yes	Yes	Yes
Laser Diode Protection	- Slow start circuit - Normally closed shorting relay and semiconductor switch - Floating output - Adjustable current limit - Adjustable voltage limit (available on most models) - Power line surge and EFT transient protection; intermittent contact protection			
Computer Interface	--------	USB	USB	USB

* Battery operation



Get laser diode current source product information and our Application Note "Modulating Laser Diodes" by visiting us online at www.ilxlightwave.com or calling one of our sales engineers today at 1-800-459-9459.

LDX-36000 High Power
Laser Diode Current Source

- Output current up to 220A for driving high power laser diodes
- CW and QCW operating modes
- High set point accuracy and 4-wire forward voltage measurements for precision LIV testing
- Multiple laser diode protection features
- Event and pulse trigger input and output with programmable delays
- Temperature monitor with thermistor input
- Power monitor input for external photodiode measurements
- GPIB computer interface

	LDX-36010-12	LDX-36010-35	LDX-36010-70	LDX-36018-35	LDX-36018-70
Output Current CW	10A	10A	10A	18A	18A
Output Current QCW	20A	20A	20A	40A	40A
Set Point Accuracy	± 0.1%	± 0.1%	± 0.1%	± 0.1%	± 0.1%
Set Point Resolution	10mA	10mA	10mA	10mA	10mA
Noise and Ripple	< 5mA rms	< 10mA rms	< 10mA rms	< 10mA rms	< 10mA rms
Short Term Stability	± 100 ppm	± 100 ppm	± 100 ppm	± 100 ppm	± 100 ppm
Compliance voltage	12V	35V	70V	35V	70V
Laser Diode Protection	- Intermittent contact protection - Adjustable forward voltage limit - On / off shorting semiconductor switch - Slow start circuit - Floating output - Independent adjustable current limit - Power line surge and EFT transient protection				
Pulse Width	40µs to 2s	40µs to 2s	40µs to 2s	40µs to 2s	40µs to 2s
Rise / Fall Time	< 10µs	< 10µs	< 20µs	< 10µs	< 20µs
Overshoot	< 2%	< 2%	< 2%	< 2%	< 2%
Pulse Frequency	0.1 Hz to 1 kHz	0.1 Hz to 1 kHz	0.1 Hz to 1 kHz	0.1 Hz to 1 kHz	0.1 Hz to 1 kHz
Duty Cycle	0.5 to 90%	0.5 to 90%	0.5 to 90%	0.5 to 90%	0.5 to 90%
Temperature Monitor	Yes	Yes	Yes	Yes	Yes
PD measurement	Yes	Yes	Yes	Yes	Yes
Computer Interface	GPIB	GPIB	GPIB	GPIB	GPIB

LDX-36125-24 125A CW / 220A QCW
High Power Laser Diode Current Source

LDX-32420 10A / 20A Precision
High Power Laser Diode Current Source

LDX-36050-12 50A CW / 100A QCW
High Power Laser Diode Current Source

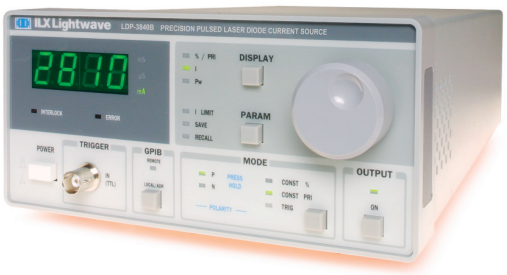
	LDX-32420	LDX-36025-12	LDX-36040-30	LDX-36040-70	LDX-36050-12
Output Current CW	10A / 20A	25A	40A	40A	50A
Output Current QCW	--------	50A	80A	80A	100A
Set Point Accuracy	± 0.1%	± 0.1%	± 0.1%	± 0.1%	± 0.1%
Set Point Resolution	1mA	10mA	10mA	10mA	10mA
Noise and Ripple	< 5mA	< 10mA rms	< 10mA rms	< 10mA rms	< 20mA rms
Short Term Stability	± 50ppm	± 100ppm	± 100ppm	± 100ppm	± 100ppm
Compliance voltage	4V	12V	30V	70V	12V
Laser Diode Protection	- Intermittent contact protection - Adjustable forward voltage limit - On / off shorting semiconductor switch - Slow start circuit - Floating output - Independent adjustable current limit - Power line surge and EFT transient protection				
Pulse Width	--------	40µs to 2s	40µs to 2s	40µs to 2s	40µs to 2s
Rise / Fall Time	--------	< 10µs	< 20µs	< 20µs	< 20µs
Overshoot	--------	< 2%	< 2%	< 2%	< 2%
Pulse Frequency	--------	0.1 Hz to 1 kHz	0.1 Hz to 1 kHz	0.1 Hz to 1 kHz	0.1 Hz to 1 kHz
Duty Cycle	--------	0.5 to 90%	0.5 to 90%	0.5 to 90%	0.5 to 90%
Temperature Monitor	No	Yes	Yes	Yes	Yes
PD Measurement	Yes	Yes	Yes	Yes	Yes
Computer Interface	USB and GPIB	GPIB	GPIB	GPIB	GPIB

LDX-32420 10A / 20A Precision High Power Laser Diode Current Source*

- Precision current control with 1mA set point resolution
- Constant current and constant power operating modes
- Precision laser forward voltage measurement
- Proven high power laser protection features including independent current limits, adjustable compliance voltage and intermittent contact protection
- Laser current modulation capability
- GPIB and USB computer interface

	LDX-36070-30	LDX-36085-12	LDX-36125-12	LDX-36125-24
Output Current CW	70A	85A	125A	125A
Output Current QCW	160A	170A	220A	220A
Set Point Accuracy	± 0.1%	± 0.1%	± 0.1%	± 0.1%
Set Point Resolution	10mA	10mA	10mA	10mA
Noise and Ripple	< 40mA rms	< 40mA rms	< 60mA rms	< 60mA rms
Short Term Stability	± 100ppm	± 100ppm	± 100ppm	± 100ppm
Compliance voltage	30V	12V	12V	24V
Laser Diode Protection	- Intermittent contact protection - Adjustable forward voltage limit - On / off shorting semiconductor switch - Slow start circuit - Floating output - Independent adjustable current limit - Power line surge and EFT transient protection			
Pulse Width	40µs to 2s	40µs to 2s	40µs to 2s	40µs to 2s
Rise / Fall Time	< 20µs	< 20µs	< 20µs	< 20µs
Overshoot	< 2%	< 2%	< 2%	< 2%
Pulse Frequency	0.1 Hz to 1 kHz	0.1 Hz to 1 kHz	0.1 Hz to 1 kHz	0.1 Hz to 1 kHz
Duty Cycle	0.5 to 90%	0.5 to 90%	0.5 to 90%	0.5 to 90%
Temperature Monitor	Yes	Yes	Yes	Yes
PD measurement	Yes	Yes	Yes	Yes
Computer Interface	GPIB	GPIB	GPIB	GPIB

* See page 7 for additional specifications



LDX-3840B Pulsed Laser Diode Current Source

- Clean current pulses with fast rise times and low overshoot
- Adjustable pulse width, duty cycle, and frequency
- DC bias (LDP-3832 only)
- Pulse width as low as 10ns
- Built-in laser diode protection
- Input and output triggers
- USB and GPIB computer interface

	LDP-3811	LDP-3832	LDP-3840
Output Current Pulse	200mA / 500mA	5A	3A
Output Current CW	200mA / 500mA	500mA	----------
Set Point Accuracy	± 0.5%	± 1%	± 2.5%
Set Point Resolution	10µA	10mA	1mA
Trigger In	Yes	Yes	Yes
Trigger Out	Yes	Yes	Yes
Compliance Voltage	25V	20V	10V
Pulse Width	100ns to 1ms	10ns to 1µs	100ns to 10ms
Rise / Fall Time	≤ 25ns	5ns	≤ 50ns
Overshoot	≤ 5%	≤ 5%	≤ 5%
Pulse Repetition Rate	1 kHz to 1 MHz	1 kHz to 2 MHz	10 kHz to 1 MHz
Duty Cycle	0.01 - 100%	0.1% - 5%	0 - 10%
Laser Diode Protection	- Slow start circuit - Normally closed output shorting relay and semiconductor switch - Adjustable current limit - Power line surge and EFT transient protection - Safety interlocks		
Remote Interface	GPIB	USB and GPIB	GPIB

Get more information on our complete line of pulsed current source products and our Application Note "Pulsing a Laser Diode" by calling us today at 1-800-459-9459 or visiting us online at www.ilxlightwave.com.

LDC-3916 Sixteen Channel
Laser Diode Controller

- 4, 8, or 16 independent, isolated channels for multiple laser and TE control
- Wide variety of laser and TE controller modules with up to 8A laser drive current, 48W TEC per channel
- Dual channel laser current or temperature control modules for control of up to 32 laser diodes per mainframe
- Laser current sources operate in constant current or constant power modes
- GPIB computer interface

	LDC-3900	LDC-3908	LDC-3916	LDC-3926
Number of Channels	Up to 4	Up to 8	Up to 16	Up to 16
Maximum Current Output	200mA to 8A	500mA to 3A	500mA to 3A	500mA to 6A
Noise and Ripple	< 5µA*	< 25µA	< 25µA	< 32µA
Short Term Stability	< 20ppm	< 20ppm	< 20ppm	< 50ppm
Compliance Voltage	Up to 7V	Up to 7V	Up to 7V	Up to 7V
Analog Modulation	Yes	Yes	Yes	Yes
Laser Diode Protection	- On / off shorting semiconductor switch - Slow start circuit - Floating output - Independent adjustable current limit - Power line surge and EFT transient protection - Intermittent contact protection			
TEC Output Power	8W to 32W	9W to 24W	9W to 24W	48W
TEC Output Current	2A to 4A	1.5A to 3A	1.5A to 3A	6A
TEC Output Voltage	4V to 8V	7V to 8V	7V to 8V	8V
Temperature Stability	± 0.004°C	± 0.007°C	± 0.007°C	± 0.007°C
Temperature Control Range	-99°C to 99°C	-99°C to 199°C	-99°C to 199°C	-99°C to 199°C
Temperature Sensor	Thermistor, IC, RTD	Thermistor	Thermistor	Thermistor
TEC Measurement	Temperature, Current, Resistance			
Control Loop	Hybrid P-I	Hybrid P-I	Hybrid P-I	Hybrid P-I
TEC Voltage Measurement	Yes	Yes	Yes	Yes
Computer Interface	GPIB	GPIB / RS-232	GPIB / RS-232	GPIB / RS-232

* with the exception of the 8A module

LDM-4980 Series Telecommunication Laser Diode Mounts

- Accommodates TO-can, DIL and butterfly packaged laser diodes and quantum cascade lasers
- Case temperature control option available on most models
- User configurable pin-out
- Easy insertion and removal of laser packages
- Standard laser current and temperature control connectors
- Bias-T modulation option available on select models

	LDM-4982	LDM-4982M	LDM-4983	LDM-4984	LDM-4984RF
Package Style	DIL	Mini-DIL	7 or 13-Pin Butterfly	14-Pin Butterfly	14-Pin Butterfly Bias-T Modulated
Case Temperature Control	Optional	Yes	Optional	Optional	Optional
Bias-T Option Available	Yes	No	No	Yes	No
Optical Table Mount	Optional	Standard	Optional	Optional	Optional

	LDM-4986	LDM-4989
Package Style	Fiber-Coupled Flanged	20- or 26-Pin Butterfly
Case Temperature Control	Standard	Optional
Bias-T Option Available	No	No
Optical Table Mount	Standard	Optional

	LDM-4405	LDM-4407	LDM-4412	LDM-4872	LDM-4990
Package Style	TO-can	TO-can	TO-can	QCL	TO-can
Case Temperature Control	Standard	Standard	Standard	Standard	Standard
Temperature Control Range	10°C to 85°C	0°C to 70°C	0°C to 70°C	-30°C to 30°C	-20°C to 85°C
Water Cooling	No	No	Optional	Standard	Yes
Nitrogen Purge Connection	Yes	Yes	Yes	Yes	Yes
Collimating Lens Option	No	No	Yes	Yes	No
X-Y-Z Adjustable Lens	No	No	Yes	Yes	No
Optical Table Mount	Post Mount	Yes	Yes	Yes	No

high power laser diode mounting fixtures

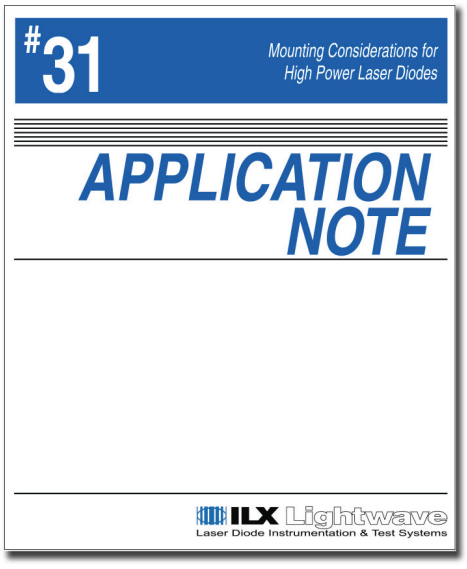
LDM-4415 Laser Diode Mount

- Compatible with many industry standard package styles
- 10W to 100W heat dissipation
- Compatible with ILX high power drivers and temperature controllers though interconnect cabling
- 7A to 100A maximum current
- Case temperature control available on most mounts
- Optical table mounting

	LDM-4409	LDM-4415	LDM-4442	LDM-49840	LDM-49860
Package Style	C-mount (C-block)	CS Bar	HHL, TO-3, other high power packages	6-pin, 8-pin, 14-pin high power butterfly	High power 2-pin modules
Maximum Current	10A	100A	7A	12A	20A
Maximum Power	10W	100W	50W	60W	40W
Cooling	Air / TEC	Water / TEC	Water	Water / TEC	Water / TEC
Case Temperature Control	Standard	Standard	--------	Optional	Optional
Temperature Range[1]	10°C to 85°C	20°C to 85°C	--------	15°C to 85°C	15°C to 85°C
Optical Table Mounting	Yes	Yes	Yes	Yes	Yes

1. Wider temperature ranges can be achieved at lower operating powers.

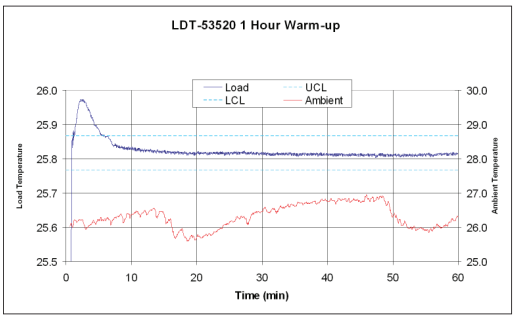
For more information on our complete line of laser diode mounting fixtures, visit us online at www.ilxlightwave.com or call one of our sales engineers at 1-800-459-9459.

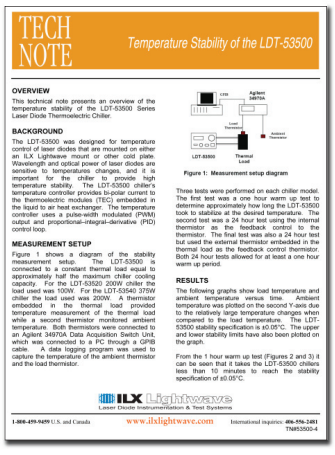


LDT-53500 Series Laser Diode Thermoelectric Chiller

- Recirculating chillers with 200W and 375W models
- TEC based temperature control from -5°C to 45°C with 0.05°C stability
- High power laser diode protection with multiple safety interlocks
- Variable speed fan for quiet operation
- Removable front panel for remote control
- Coolant flow measurement and readout
- USB computer interface

	LDT-53520	LDT-53540
Cooling Capacity	200W	375W
Control Temperature Range	-5°C to 45°C	-5°C to 45°C
Temperature Stability	± 0.05°C	± 0.05°C
Temperature Accuracy	± 0.2°C	± 0.2°C
Flow Rate	2 LPM @ 3 m H_20	2 LPM @ 3 m H_20
Fluid Type	Distilled water or distilled water mixed with <30% isopropyl alcohol or propylene glycol	
Reservoir Capacity	Up to 400 mL	Up to 400 mL
Error States	Water level low, flow stops, over temp set point, output off	
Computer Interface	USB	USB




TECH NOTE

Temperature Stability of the LDT-53500

OVERVIEW

This technical note presents an overview of the temperature stability of the LDT-53500 Series Laser Diode Thermoelectric Chiller.

BACKGROUND

The LDT-53500 was designed for temperature control of laser diodes that are mounted on either an ILX Lightwave mount or other cold plate. Wavelength and optical power of laser diodes are sensitive to temperatures changes, and it is important for the chiller to provide high temperature stability. The LDT-53500 chiller's temperature controller provides bi-polar current to the thermoelectric modules (TEC) embedded in the liquid to air heat exchanger. The temperature controller uses a pulse-width modulated (PWM) output and proportional–integral–derivative (PID) control loop.

MEASUREMENT SETUP

Figure 1 shows a diagram of the stability measurement setup. The LDT-53500 is connected to a constant thermal load equal to approximately half the maximum chiller cooling capacity. For the LDT-53520 200W chiller the load used was 100W. For the LDT-53540 375W chiller the load used was 200W. A thermistor embedded in the thermal load provided temperature measurement of the thermal load while a second thermistor monitored ambient temperature. Both thermistors were connected to an Agilent 34970A Data Acquisition Switch Unit, which was connected to a PC through a GPIB cable. A data logging program was used to capture the temperature of the ambient thermistor and the load thermistor.

Figure 1: Measurement setup diagram

Three tests were performed on each chiller model. The first test was a one hour warm up test to determine approximately how long the LDT-53500 took to stabilize at the desired temperature. The second test was a 24 hour test using the internal thermistor as the feedback control to the thermistor. The final test was also a 24 hour test but used the external thermistor embedded in the thermal load as the feedback control thermistor. Both 24 hour tests allowed for at least a one hour warm up period.

RESULTS

The following graphs show load temperature and ambient temperature versus time. Ambient temperature was plotted on the second Y-axis due to the relatively large temperature changes when compared to the load temperature. The LDT-53500 stability specification is ±0.05°C. The upper and lower stability limits have also been plotted on the graph.

From the 1 hour warm up test (Figures 2 and 3) it can be seen that it takes the LDT-53500 chillers less than 10 minutes to reach the stability specification of ±0.05°C.

ILX Lightwave
Laser Diode Instrumentation & Test Systems

1-800-459-9459 U.S. and Canada www.ilxlightwave.com International inquiries: 406-556-2481 TN#53500-A

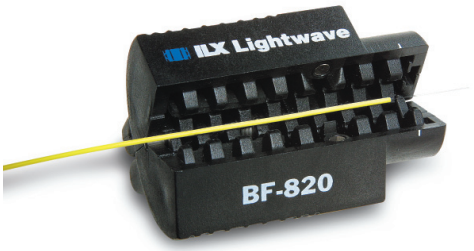
Get more information on the stability of the LDT-53500 Series of Laser Diode Thermoelectric Chillers by downloading "Temperature Stability of the LDT-53500" or calling one of our sales engineers at 1-800-459-9459.

FPM-8210 Fiber Optic Power Meter

- Free space and fiber based measurement
- NIST traceable calibration
- ±0.001dB typical polarization dependent response
- Single input port for both connectorized and bare fiber measurements
- Integrating sphere based measurement heads on select models
- GPIB computer interface

	OMM-6810B*	FPM-8200	FPM-8210	FPM-8210H
Power Measurement Range	-50 to +45dBm	-75 to 1.5dBm	-70 to +20dBm	-50 to +30dBm
Accuracy**	± 3.0%	± 2.5%	± 2.5%	± 2.5%
Wavelength Range	350 to 1650nm	800 to 1600nm	850 to 1650nm	850 to 1650nm
Wavelength Measurement	Yes	No	No	No
Integrating Sphere-Based Measurement Head	Yes	No	Yes	Yes
Free Space Measurement	Yes	No	No	No
Computer Interface	GPIB	GPIB	GPIB	GPIB

* Specifications depend on optical measurement head selected; refer to the optical measurement heads guide for more information
** Reference conditions



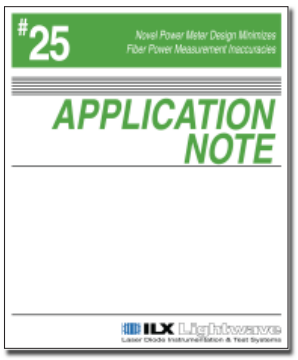
BF-820 Bare Fiber Holder

Get complete product information for ILX Lightwave optical power meters and our Tech Note "Repeatability of Power and Wavelength Measurements Using the OMM-6810B Optical Multimeter" by calling us today at 1-800-459-9459 or visiting www.ilxlightwave.com.

OMM-6810B Optical Power Meter
with OMH-6727B Power / Wavehead

- NIST traceable calibration
- Free space and fiber measurement heads
- Wavelength measurement from 350 nm to 1750nm
- Power measurement from 10nW to 30W (-50 to +45 dBm)
- Temperature-stabilized detectors
- Integrating sphere-based measurement heads

		General			Power Measurement		Wavelength Measurement	
		Aperture	Wavelength Range	Dimensions (mm)	Range	Accuracy	Range	Accuracy
Power Only	OMH-6703B Silicon	6mm	0.4 - 1.1µm	69 x 28	-40 to +30dBm	± 5.0%	NA	--------
	OMH-6708B InGaAs	6mm	0.8 - 1.6µm	69 x 28	-50 to +20dBm	± 5.0%	NA	--------
Power and Wavelength	OMH-6722B InGaAs	6mm	0.4 - 1.1µm	69 x 28	-40 to +30dBm	± 3.5%	-20 to +30dBm	± 1.0nm
	OMH-6727B InGaAs	6mm	0.95 - 1.65µm	69 x 28	-40 to +30dBm	± 5.0%	-20 to +30dBm	± 1.0nm
	OMH-6732B Short Wavelength	6mm	0.35 - 0.53µm	69 x 28	-40 to +30dBm	± 3.5%	-10 to +30dBm	± 0.5nm
	OMH-6780B Silicon	2.54mm fiber input	0.83 - 1.1µm	86 x 86 x 100	-40 to +30dBm	± 5.0%	-10 to +30dBm	± 0.2nm
	OMH-6790B 10W Silicon	2.54mm fiber input	0.83 - 1.1µm	86 x 86 x 100	-30 to +40dBm	± 5.0%	0 to 40 dBm	± 0.2nm
	OMH-6795B 10W InGaAs	2.54mm fiber input	1.2 - 1.65µm	86 x 86 x 100	-30 to +40dBm	± 5.0%	-10 to 40 dBm	± 2.0nm
	OMH-67452B 30W Silicon	2.54mm fiber input	0.8 - 1.1µm	86 x 86 x 100	3µW to 30W	± 5.0%	3mW to 30W	± 1.0nm

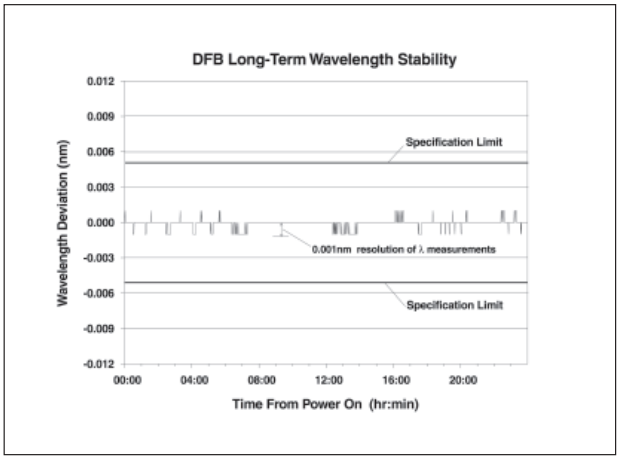


Get full optical power meter product information and our Application Note "Novel Power Meter Design Minimizes Fiber Power Measurement Inaccuracies" by visiting www.ilxlightwave.com or calling one of our sales engineers today at 1-800-459-9459.

FOM-7900B Multi-Channel
Fiber Optic Test System

- 8 channels of user-selectable laser sources
- Up to 30mW output power available per channel
- < ±3 pm wavelength stability
- < 0.005dB power stability
- Customer specified WDM DFB laser sources covering S, C, and L-band
- GPIB and RS-232 computer interface
- Control of up to 200 channels on one address

	FOM-7900B
Number of Channels	8
Wavelength	S, C, and L-band customer specified
Wavelength Accuracy	±50pm
Wavelength Set point Resolution	1pm
Wavelength Tuning Range	±0.85nm
Output Power	Up to 30 mW per channel
Power Stability	±0.03dB
Power Attenuation Accuracy	±0.1dB
Modulation	Yes
Computer Interface	GPIB / RS-232



Get full fiber optic source product information and our Application Note "Basic Test Methods for Passive Fiber Optic Components" by visiting www.ilxlightwave.com or calling one of our sales engineers today at 1-800-459-9459.

LDX-3232 High Compliance Quantum Cascade Laser Diode Driver

- Designed specifically for controlling quantum cascade lasers
- High stability, low noise driver with up to 15V compliance
- Laser current modulation to 250 kHz
- Laser diode protection including adjustable compliance voltage, independent current limits, and intermittent contact protection
- GPIB computer interface

- Supports C-Block, COC, and customer proprietary QCL packages
- Active temperature control from -30°C to 30°C
- Compatible with the LDX-3232 CW QCL Driver
- Ports for vacuum evacuation or nitrogen purge
- Optional XYZ stage with multiple ZnSe lens options

LDM-4872 Quantum Cascade Laser Diode Mount

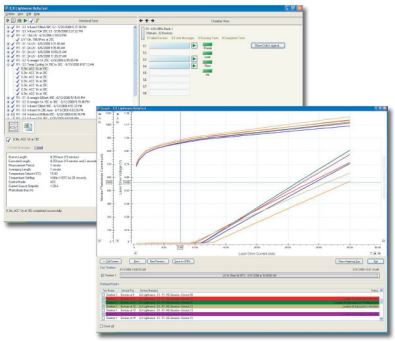
LDT-5900 Series Laser Diode Temperature Controller

- High power output up to 120W
- Precision set point resolution of 0.001°C
- Long term temperature stability as low as 0.005°C
- Adjustable TEC current limits
- Supports most thermistor, IC, and RTD temperature sensors
- Selectable sensor current
- Fully programmable PID control loop
- GPIB computer interface

LRS-9424B Laser Reliability and Burn-In Test System

- High density, low cost per channel
- Supports simultaneous multiple temperatures from 40°C to 150°C
- Optimized for TO-can and TOSA packages
- Standard current ranges available up to 400mA
- Monitored burn-in with ACC, APC, and LIV test modes
- Use internal photodiodes or front-facet photodiode array
- Modular design allows flexible configuration and future expansion
- Secure data management

- Easy-to-use Windows® based test system software
- Intuitive test creation and system management
- Robust data management for active and historical tests
- Powerful on demand graphic features
- Export test data in CSV format or Excel® for analysis



ReliaTest Supervisory Software

LRS-9550 High Power Life-Test and Burn-In System

- High density, low cost per channel
- Supports simultaneous multiple temperatures from 25°C to 85°C
- Optimized for C-Block and customer proprietary packages
- Standard current ranges available up to 20A
- Monitored burn-in with ACC and LIV test modes
- Integrating sphere based photodiode array
- Modular design allows flexible configuration and future expansion
- Secure data management

LPA-9080 Laser Diode Parameter Analyzer

- Fast and accurate LIV curve generation
- Internal power meter with 16-bit resolution
- Up to 5000 data points generated in seconds
- Laser drive current ranges up to 4A
- 32W integrated temperature controller
- Windows® and LabVIEW® software option
- Compatible with OMH-6700B Optical Power and Wavelength Measurement Heads

	LPA-9082	LPA-9084
Current Output	200mA / 500mA	2000mA / 4000mA
Set Point Resolution	4µA / 10µA	40µA / 80µA
Compliance Voltage	10V	10 V
Noise and Ripple	<2µA / 2µA	< 10µA / 10µA
Short Term Stability	≤ 20ppm	≤ 20ppm
TEC Output Power	32W	32W
Temperature Stability	< 0.01°C	< 0.01°C
Temperature Control Range	-100°C to 199.9°C	-100°C to 199.9°C
Temperature Sensor Input	Thermistor, IC Sensor, RTD	
Power Measurement Range	-50 to +40dBm	-50 to +40dBm
Power Measurement Accuracy	±3.0%	±3.0%
Wavelength Measurement Range	350 to 1700nm	350 to 1700nm
Wavelength Measurement Accuracy	as low as ±0.2nm	as low as ±0.2nm
Monitor Photodetector Current Range	0 to 5000mA	0 to 5000mA
Computer Interface	GPIB	GPIB

LTS-9110 Laser Diode Test System

Includes Dell computer, monitor, and customer choice of:

- LPA-9082 or LPA-9084
- Laser Diode Mount
- OMH-6700B Optical Power / Wavelength Measurement Head
- SPA-9000 Laser Diode Parametric Analysis Software and Control Computer

ILX Lightwave
Laser Diode Instrumentation & Test Systems

Application Notes

- App Note 1: Controlling Temperatures of Diode Lasers and Detectors Thermoelectrically
- App Note 2: Selecting and Using Thermistors for Temperature Control
- App Note 3: Protecting Your Laser Diode
- App Note 4: Thermistor Calibration and the Steinhart-Hart Equation
- App Note 5: An Overview of Laser Diode Characteristics
- App Note 6: Choosing the Right Laser Diode Mount for Your Application
- App Note 8: Mode Hopping in Semiconductor Lasers
- App Note 10: Optimize Testing for Threshold Calculation Repeatability
- App Note 11: Pulsing a Laser Diode
- App Note 12: The Differences Between Threshold Current Calculation Methods
- App Note 13: Testing Bond Quality by Measuring Thermal Resistance of Laser Diodes
- App Note 14: Optimizing TEC Drive Current
- App Note 16: Measuring a Wide Linewidth Source with the OMH-6700B Series Waveheads
- App Note 17: AD590 and LM335 Sensor Calibration
- App Note 18: Basic Test Methods for Passive Fiber Optic Components
- App Note 20: PID Control Loops in Thermoelectric Temperature Controllers
- App Note 21: High Performance Temperature Control in Laser Diode Test Applications
- App Note 22: Modulating Laser Diodes
- App Note 23: Laser Diode Burn-In and Reliability Testing
- App Note 25: Novel Power Meter Design Minimizes Fiber Power Measurement Inaccuracies
- App Note 26: ReliaTest L/I Threshold Calculations
- App Note 27: Intensity Noise Performance of Semiconductor Lasers
- App Note 28: Characterization of High Power Laser Diode Bars
- App Note 29: Accelerated Aging Test of 1310nm Laser Diodes
- App Note 30: Measuring High Power Laser Diode Junction Temperature and Package Thermal Impedance
- App Note 31: Mounting Considerations for High Power Laser Diodes
- App Note 32: Using a Power / Wavehead for Emitter Level Screening of High Power Laser Diode Bars
- App Note 33: Estimating Laser Diode Lifetimes and Activation Energy
- App Note 34: Using USB Through Virtual COM Ports

Technical Notes

- Vacuum Operation of the LDM-4872
- Temperature Stability of the LDT-53500 Laser Diode Thermoelectric Chiller
- Temperature Control Range of the LDM-4405
- Power Handling Capability of the OMH-67452B Power and Wavelength Head
- Effects of Cabling and Inductance When Pulsing High Power Laser Diodes
- Facility Power Requirements for the LDX-36000 Series Laser Diode Drivers
- USB Measuring Speed Capabilities of the LDX-3500B
- Thermal Resistance of the LRS-9550-4442B C-Mount Fixture
- LRS-9550 Water Quality Guidelines
- Temperature Transition Time of the LDT-53500 Laser Diode Thermoelectric Chiller
- Minimum Temperature Control Range and Stability of the LDM-4872
- Temperature Control Range of the LDM-49800T
- Four-Wire TEC Voltage Measurement with the LDT-5900 Series Temperature Controllers
- Heat Load and Temperature Capability of the LDM-4415
- Bandwidth of the OMM-6810B Optical Multimeter Analog Output

Visit our website for a complete list of all our reference materials.

Why Choose ILX Lightwave?

Experience.

For over twenty years, ILX Lightwave has been a pioneer in laser diode instrumentation and test systems, starting with the industry's first precision laser diode current source in 1986. Since then, we have continued to grow and evolve with the expanding photonic industry, building a tradition of innovation, quality, and customer service.

Quality.

ILX Lightwave has maintained ISO 9000 certification since 2001. Strong internal systems for problem identification and resolution have resulted in continuous improvement of our products and services. We believe that quality is not just something you build into a product, it's something you build into everything you do.

Commitment.

ILX Lightwave's mission is to be the world leader in laser diode instrumentation and test systems.

After Sales Support.

ILX understands the need for fast, technically accurate responses to all support requests. Our customers have direct access to technically qualified applications and service engineers to ensure the highest level of technical support.

PO Box 6310
31950 East Frontage Road
Bozeman, MT 59715
1-800-459-9459 US and CANADA
1-406-556-2481 INTERNATIONAL
1-406-586-9405 FAX
sales@ilxlightwave.com

www.ilxlightwave.com

CR.063005 REV03.111509