8-Channel Laser Diode Controller

8-Channel Laser Diode Controller

Specifications

**GENERAL**
- **Chassis Ground:** 4 mm Banana jack
- **GPIB Connector:** 24-pin IEEE-488
- **RS-232 Connector:** 9-pin D-sub
- **Power Requirements:** Selectable voltage: 110 - 130 VAC; 60 Hz / 210 - 240 VAC; 50 - 60 Hz
- **Size (HxWxD):** 133 mm x 482 mm x 389 mm; 5.25” x 18.98” x 15.3”
- **Weight (typical):**
  - Mainframe only: 20 kg / 44 lbs.
  - With 8 modules: 24 kg / 52 lbs.
- **Operating Temperature:** 0°C to 40°C
- **Storage Temperature:** -40°C to +70°C
- **Humidity:** 20-85%, non-condensing
- **Laser Safety Features:** Keyswitch, Interlock, Output Delay (Meets 21CFR1040.10)
- **Display:** Vacuum fluorescent, 64 x 128 pixels; 83 mm x 41 mm

**MAINFRAME NOTES**
1. Based on the vacuum fluorescent display specification.

**ORDERING INFORMATION**
- **LDC-3908** 8-Channel Laser Diode Controller Mainframe
- **LDC-3916** 16-Channel Laser Diode Controller Mainframe
- **LDC-3916372** 500mA/9W Controller Module
- **LDC-3916374** 1A/9W Controller Module
- **LDC-3916376** 1.5A/9W Controller Module
- **LDC-3916332** 500mA/500mA Dual Current Source Module
- **LDC-3916334** 1A/1A Dual Current Source Module
- **LDC-3916336** 3A Current Source Module
- **LDC-3916550** 9W/9W Dual Temperature (TEC) Controller Module
- **LDC-3916558** 3A (24W) Temperature (TEC) Controller Module
- **RM-137** Rack Mount Kit, 20.5” hole spacing
- **RM-138** Rack Mount Kit, 25” hole spacing
- **CC-305S** Current Source/Laser Diode Mount Interconnect Cable
- **CC-306S** Current Source/Unterminated Interconnect Cable
- **CC-316M** Laser Current Cables (Bundle of 8)
- **CC-501S** TE Controller/Laser Diode Mount Interconnect Cable
- **CC-505S** TE Controller/Laser Diode Mount Interconnect Cable
- **CC-516M** TE Controller Cables (Bundle of 8)
- **LNF-320** Low Noise Filter
- **UCA-350** Unipolar Heater Control Adapter

LabVIEW® Instrument Driver; LabVIEW® is a registered trademark of National Instruments.

This product has passed all CE requirements and bears the CE mark.

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

8 Channels of Laser Diode Control

**Product Features**

- **8 independent, isolated channels for laser and TEC control**
- **Wide variety of laser controller modules (current and temperature) with up to 3A available per channel**
- **Dual channel laser current or temperature control modules for control of up to 16 laser diodes with one mainframe**
- **Laser current sources feature low noise and high stability and operate in constant current or constant power operating modes with direct modulation up to 1MHz**
- **Temperature controllers operate in constant temperature or constant resistance mode with expanded gain setting from 1 to 127**
- **GPIB / IEEE488 or RS-232 remote control interface**

The LDC-3908 8-Channel Laser Diode Controller has all of the same great features as the popular LDC-3916 16-Channel Laser Diode Controller, with interchangeable modules between the two instruments. The smaller size and lighter weight of the LDC-3908 makes it an ideal instrument for smaller channel count applications such as R&D or production test of EDFAs and Raman amplifiers.

Handles on the front panel and flip-up feet on the bottom facilitate bench-top use, while flanges allow for installation into standard 19" instrument racks. "Smart" modules include controller modules with up to 1.5A of laser current source and 9W of TEC control, dual current source modules with two isolated currents of up to 1A, a dual 9W TEC module, a 3A laser current module, and a 3A 24W TEC module.

Remote operation for independent control of all 8 channels is provided through the IEEE488 GPIB port or RS-232 serial interface.

For more information contact 1-800-459-9459

www.newport.com/ilxlightwave
The LDC-3908 8-Channel Laser Diode Controller provides all of ILX Lightwave's proven laser protection features like independent current limits, slow-start turn-on circuits, and isolated power supplies. The adjustable compliance voltage capability brings even greater levels of protection to your devices. Designed for time-critical production test needs, the LDC-3908 will satisfy your test requirements with fast, reliable, and secure laser diode control.

PUT OUR EXPERTISE TO WORK
ILX Lightwave is a recognized world leader in Laser Diode Instrumentation and Test Systems. Our products are not only renowned for their reliability, quality, and value; they're backed by industry leading after sales support.

For more information about the LDC-3908 8-Channel Laser Diode Controller, call us today or visit us online at www.newport.com/ilxlightwave.
FRONT PANEL INTERFACE PROVIDES SIMPLE OPERATION

The front panel interface features a bright vacuum fluorescent display, making the information readable from almost any angle. Simple and intuitive menus, supported by screen-specific soft-keys, allow for quick configuration and operation of each channel. Menu depths have been intentionally limited to keep the front panel operation concise, while more sophisticated operations are available using the GPIB interface. Setpoints and other values can be entered through a choice of numeric keypad entry, up/down arrow keys, or a rotary adjustment knob.

POWERFUL GPIB INTERFACE OFFERS ROBUST, AUTOMATED CONTROL

A powerful processor platform drives the LDC-3908 8-Channel Laser Diode Controller. When coupled with GPIB technology from National Instruments HS488 TNT chipset, you get all the processing capability needed for mission-critical production testing. With microprocessors on each module, the mainframe engine manages eight independent control channels quickly and reliably. Free LabVIEW® instrument drivers are available upon request or by downloading them from www.newport.com/ilxlightwave.

HIGH PERFORMANCE MODULES SUPPORT FUTURE SYSTEM EXPANSION

Designed to provide the cleanest, safest power available for laser diode control, each module control function is handled locally and communicated quickly to the host processor. On-board intelligence simplifies future addition of modules, since all operation and calibration data is stored in the module. Simply plug in the new module and power up the system. The mainframe never needs to leave the rack. This simplicity, coupled with low noise, high stability outputs, and state-of-the-art laser diode protection yields ultimate performance.

STATE-OF-THE-ART CURRENT SOURCE DESIGN BRINGS NEW LEVELS OF PERFORMANCE

The LDC-3908 current source topology uses an innovative, proprietary control loop and incorporates the latest techniques for signal filtering and circuit board shielding. These advancements provide unbeatable stability and unparalleled noise performance, ideal for the most demanding production test applications. This design also incorporates adjustable compliance voltage and faster shutoff, helping prevent dangerous reconnect transients that can occur from intermittent connections between the controller and your laser diode. This level of protection adds to our proven list of reliable features: independent current limits, output shorting circuits, and a slow start turn-on feature.

Operational modes including constant current, constant current high-bandwidth, or constant optical power are selectable from the front panel or via the GPIB interface. Measurement of your laser diode’s forward voltage is possible with 4-wire accuracy, which can be helpful in production environments where longer cable runs are common. A single, rear panel modulation port can individually enable direct modulation of each channel’s laser current. This current source design supports modulation bandwidths of up to 1.2MHz (small signal) and also includes reverse photodiode bias capabilities, especially important for telecom wavelength devices.

FLEXIBLE CONTROL OVER A WIDE RANGE OF APPLICATIONS

By combining true modularity with high channel density, the LDC-3908 easily grows with your applications. For even higher channel counts, add another controller to your rack. If your device driver specifications change, look to ILX Lightwave for new modules that can be easily added to your system in the future.

HIGH STABILITY TEC CONTROL KEEPS YOUR DEVICE TEMPERATURE IN CHECK

Equipped with a smart integrator control loop and an expanded gain setting range, the temperature control circuits optimize setting times. These modules also provide voltage measurement of your TEC and allow internal selection of thermistor current ranges via front panel or GPIB. Achieve unparalleled temperature stabilities with ultra-stable design topology and low noise bipolar output stages.

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Remote operation for independent control of all 8 channels is provided through the IEEE488 GPIB port or RS-232 serial interface.

8 independent, isolated channels for laser and TEC control

Wide variety of laser controller modules (current and temperature) with up to 3A available per channel

Dual channel laser current or temperature control modules for control of up to 16 laser diodes with one mainframe

Laser current sources feature low noise and high stability and operate in constant current or constant power operating modes with direct modulation up to 1MHz

Temperature controllers operate in constant temperature or constant resistance mode with expanded gain setting from 1 to 127

GPIB / IEEE488 or RS-232 remote control interface

Specifications

**GENERAL**

Chassis Ground: 4 mm Banana jack

GPIB Connector: 24-pin IEEE-488

RS-232 Connector: 9-pin D-sub

Power Requirements: Selectable voltage

110 - 130 VAC, 60 Hz / 210 - 240 VAC, 50 - 60 Hz

Size (HxWxD): 133 mm x 482 mm x 389 mm; 5.25" x 18.98" x 15.32"

Weight (typical)

- Mainframe only: 20 kg, 44 lbs.
- With 8 modules: 24 kg, 52 lbs.

Operating Temperature: 0°C to 40°C

Storage Temperature: -40°C to +70°C

Humidity: 20-85%, non-condensing

Laser Safety Features: Keyswitch, Interlock, Output Delay (Meets 21CFR1040.10)

Display: Vacuum fluorescent, 64 x 128 pixels; 83 mm x 41 mm

**Ordering Information**

- **LDC-3908** 8-Channel Laser Diode Controller Mainframe
- **LDC-3916** 16-Channel Laser Diode Controller Mainframe
- **LDC-3916472** 500mA/9W Controller Module
- **LDC-3916474** 1A/9W Controller Module
- **LDC-3916476** 1.5A/9W Controller Module
- **LDC-3916432** 500mA/500mA Dual Current Source Module
- **LDC-3916434** 1A/1A Dual Current Source Module
- **LDC-3916630** 3A Current Source Module
- **LDC-3916650** 9W/9W Dual Temperature (TEC) Controller Module
- **LDC-3915558** 3A (24W) Temperature (TEC) Controller Module
- **RM-137** Rack Mount Kit, 20.5" hole spacing
- **RM-138** Rack Mount Kit, 25" hole spacing
- **CC-308** Current Source/Laser Diode Mount Interconnect Cable
- **CC-305S** Current Source/Laser Diode Mount Interconnect Cable
- **CC-316M** Laser Current Cables (Bundle of 8)
- **CC-501S** TE Controller/Laser Diode Mount Interconnect Cable
- **CC-505S** TE Controller/Laser Diode Mount Interconnect Cable
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- **LNF-320** Low Noise Filter
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For information call
1-800-459-9459

LabVIEW®

Rev 07/19
LASER DIODE CONTROLLER MODULE

**LASER CURRENT OUTPUT**
- 0-500 mA
- 1000 mA
- 0-1500 mA

**Setpoint Resolution:**
- 10 μA
- 20 μA
- 40 μA

**Setpoint Accuracy:**
- ±5.1% of FS
- ±5.1% of FS
- ±5.1% of FS

**Temperature Coefficients:**
- ±500μ°C
- ±500μ°C
- ±500μ°C

**Short Term Stability (1 hr.):**
- ±20ppm
- ±20ppm
- ±20ppm

**Long Term Stability (24 hrs.):**
- ±200ppm
- ±200ppm
- ±200ppm

**Output Current Range:**
- 0-500 mA
- 1000 mA
- 1500 mA

**Output Resolution:**
- 0.01 mA
- 0.01 mA
- 0.01 mA

**Output Current Accuracy:**
- ±0.05% of FS
- ±0.05% of FS
- ±0.05% of FS

**Photodiode Feedback**
- Type: Differential 10X input, Selectable Zero Bias, or 5V Reverse Bias
- Photodiode Current Range: 0-500μA
- Output Stability: ±0.11% of FS
- Setpoint Accuracy: ±0.1% of FS

**EXTERNAL ANALOG MODULATION**
- Input: 0-10V, 50kΩ
- Transfer Function: 50 mV
- High Bandwidth Mode: DC to 1.2MHz
- Small Signal Bandwidth: DC to 1MHz
- Low Bandwidth Mode: DC to 30kHz

**LASER CURRENT MEASUREMENT (DISPLAY)**
- Output Current Range: 0-500.0 mA
- Output Resolution: 0.01 mA
- Output Current Accuracy: ±0.05% of FS (0°C to 25°C)
- Photodiode Current Range: 0-5000μA
- Resolution: 0.1 μA
- Accuracy: ±5.2μA (0°C to 25°C)

**Forward Voltage Resolution:**
- 10mV (1mV through GPIB)
- 10mV (1mV through GPIB)
- 10mV (1mV through GPIB)

**Forward Voltage Accuracy:**
- ±7μV (±2μV through GPIB)
- ±7μV (±2μV through GPIB)
- ±7μV (±2μV through GPIB)

**TEMPERATURE CONTROL MODULES**

**TEMPERATURE CONTROL OUTPUT**
- Temperature Control Range: -99°C to 150°C
- Temperature Setpoint Resolution: (0°C to 20°C): ±0.1°C
- Accuracy (-20°C to 20°C): ±0.2°C
- Resolution (20°C to 50°C): ±0.1°C
- Accuracy (25°C to 50°C): ±0.2°C
- Short Term Stability (1 hr.): ±0.007°C
- Long Term Stability (24 hrs.): ±0.01°C

**Output Types:**
- Bipolar current source

**Compliance Voltage:**
- Maximum Output Current: 1.5A
- Maximum Output Power: 9W
- Current Noise and Ripple: <1mA rms
- Current Limit Range: 0-1.5A
- Current Limit Accuracy: ±0.15A
- Control Algorithm: Smart Integrator, Hybrid PI, Gain adjustable from 1-127

**TEMPERATURE SENSOR**
- Thermostat Sensing Current: 10100μA
- User Calibration: Steinhart-Hart, 3 constants

**TEC MEASUREMENT (DISPLAY)**
- Temperature Range: -99.9°C to 199.9°C
- Temperature Accuracy: ±0.5°C
- Thermostat Resistance Range: 100μΩ to 500Ω
- Accuracy (100μΩ): ±0.05mil
- Accuracy (50Ω): ±0.005mil
- TEC Current Range: ±1.50 to 1.90A
- TEC Current Accuracy: ±0.01A
- Voltage Range: ±10V, ±7.5V
- Voltage Resolution: ±10mV
- Voltage Accuracy: ±70mV

**PHOTODIODE FEEDBACK**
- Photodiode Responsivity Range:
  - 0.00-1000.00 mW
  - 0.00-1000.00 mW
  - 0.00-1000.00 mW

**Optical Power Range:**
- 0.0-5000.00 mW
- 0.0-5000.00 mW
- 0.0-5000.00 mW

**Forward Voltage Range:**
- 0.00-7.5 V
- 0.00-7.5 V
- 0.00-7.5 V

**Forward Voltage Resolution:**
- 10mV (1mV through GPIB)
- 10mV (1mV through GPIB)
- 10mV (1mV through GPIB)

**Forward Voltage Accuracy:**
- ±7μV (±2μV through GPIB)
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**TEMPERATURE CONTROL OUTPUT**
- Temperature Control Range: -99°C to 150°C
- Temperature Setpoint Resolution: (0°C to 20°C): ±0.1°C
- Accuracy (-20°C to 20°C): ±0.2°C
- Resolution (20°C to 50°C): ±0.1°C
- Accuracy (25°C to 50°C): ±0.2°C
- Short Term Stability (1 hr.): ±0.007°C
- Long Term Stability (24 hrs.): ±0.01°C

**Output Types:**
- Bipolar current source

**Compliance Voltage:**
- Maximum Output Current: 1.5A
- Maximum Output Power: 9W
- Current Noise and Ripple: <1mA rms
- Current Limit Range: 0-1.5A
- Current Limit Accuracy: ±0.15A
- Control Algorithm: Smart Integrator, Hybrid PI, Gain adjustable from 1-127
### LDC 3908

#### 8-Channel Laser Diode Controller

**Specifications**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Values</th>
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</thead>
<tbody>
<tr>
<td>Laser Drive Limit Settings</td>
<td></td>
</tr>
<tr>
<td>Current Limit Range</td>
<td>0-500 mA</td>
</tr>
<tr>
<td>Current Limit Resolution</td>
<td>0.2 mA</td>
</tr>
<tr>
<td>Current Limit Setpoint Accuracy</td>
<td>±0.7 mA</td>
</tr>
<tr>
<td>Voltage Limit Range</td>
<td>0-5 V</td>
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<tr>
<td>Voltage Limit Resolution</td>
<td>0.1 V</td>
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<td>Voltage Limit Setpoint Accuracy</td>
<td>±0.2 V</td>
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**Photodiode Feedback**

<table>
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<tr>
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<tbody>
<tr>
<td>Photodiode Current Range</td>
<td>0-5000 μA</td>
</tr>
<tr>
<td>Photodiode Output Stability</td>
<td>±0.1% of FS</td>
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<tr>
<td>Setpoint Accuracy</td>
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**External Analog Modulation**

<table>
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<tr>
<th>Parameters</th>
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<tbody>
<tr>
<td>Small Signal Bandwidth</td>
<td>DC to 1.2 MHz</td>
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<tr>
<td>Large Signal Bandwidth</td>
<td>DC to 1.0 MHz</td>
</tr>
<tr>
<td>Low Bandwidth Mode</td>
<td>DC to 300 kHz</td>
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**Laser Current Measurement (Display)**

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<td>Output Current Range</td>
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<td>0.1 mA</td>
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<tr>
<td>Photodiode Responsivity Range</td>
<td>0.00-10.0000 μA/W</td>
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<tr>
<td>Photodiode Resolution</td>
<td>0.01 μA/W</td>
</tr>
<tr>
<td>Optical Power Range</td>
<td>0.0-50.0000 mW</td>
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For information call 1-800-459-9459

email: sales@ilxlightwave.com

IP address has been blocked.

NORTHFIELD ROAD, HOLLAND, MI 49423 * PHONE: 616-355-9130 * FAX: 616-355-9135

www.newport.com/ilxlightwave
Specifications

LASER DIODE CONTROLLER MODULE

LASER CURRENT OUTPUT
- Output Current Range: 0-500 mA
- Setpoint Resolution: 0.1 mA
- Setpoint Accuracy: ±0.05% of FS
- Compliance Voltage: 6V
- Temperature Coefficiency: <50ppm/°C
- Output Current Accuracy: ±0.1% of FS
- Short-Term Stability (1 hr): ±<0.007°C
- Long-Term Stability (24 hrs): ±0.02°C

LASER DRIVE LIMIT SETTINGS
- Current Limit Range: 0-500 mA
- Current Limit Resolution: 0.1 mA
- Current Limit Accuracy: ±0.05% of FS

PHOTODIODE FEEDBACK
- Type: Selectable Zero Bias, Reverse Bias
- Photodiode Current Range: 0-50 μA
- Output Stability: ±0.1% of FS
- Setpoint Accuracy: ±0.1% of FS

EXTERNAL ANALOG MODULATION
- Input: 0-10V, 50 Ohm
- Transfer Function: 50 mV
- High Bandwidth Mode: DC to 1.2 MHz
- Large Signal Bandwidth: DC to 1.0 MHz
- Low Bandwidth Mode: DC to 30 kHz

LASER CURRENT MEASUREMENT (DISPLAY)
- Output Current Range: 0-500 mA
- Output Current Accuracy: ±0.05% of FS ( @ 25°C)
- Photodiode Current Range: 0-50 μA
- Resolution: ±0.1 mA
- Accuracy: ±0.1% of FS
- Photodiode Responsivity Range: 0.00-1000 μA/mW
- Resolution: ±0.1 μA/mW
- Optical Power Range: 0.0-5000 mW
- Resolution: ±0.1 mW
- Forward Voltage Range: 0.00-7.5 V
- Optical Power Resolution: ±0.01 mW
- Forward Voltage Resolution: ±7 mV
- Forward Voltage Accuracy: ±7 mV (1mV through GPIB)

TEMPERATURE CONTROL OUTPUT
- Temperature Control Range: -9°C to 150°C
- Temperature Setpoint: Resolution (20°C to 20°C): ±0.1°C
- Accuracy (20°C to 20°C): ±0.2°C
- Resolution (20°C to 50°C): ±0.1°C
- Accuracy (25°C to 50°C): ±0.2°C
- Short-Term Stability (1 hr): ±<0.007°C
- Long-Term Stability (24 hrs): ±0.02°C
- Output Type: Bipolar current source
- Compliance Voltage: >7V DC
- Maximum Output Current: 1.5A
- Maximum Output Power: 9W
- Current Noise and Ripple: <1mA rms
- Current Limit Range: 0-1.5A
- Current Limit Accuracy: ±0.15A
- Control Algorithm: Smart Integrator, Hybrid PI, Gain adjustable from 1-127

TEMPERATURE SENSOR
- Types: Thermistor (2-wire NTC)
- User Calibration: Steinhart-Hart, 3 constants

TEC MEASUREMENT (DISPLAY)
- Temperature Range: 8°C to 199.9°C
- Temperature Accuracy: ±0.5°C
- Thermistor Resistance Range: 0.001-45.000 kΩ
- Thermistor Accuracy: ±0.005 kΩ
- Photodiode Current Range: 0-5000 μA
- Photodiode Current Resolution: ±0.01 μA
- Photodiode Current Accuracy: ±0.005 μA
- Photodiode Responsivity Range: 0.00-1000 μA/mW
- Photodiode Responsivity Resolution: ±0.01 μA/mW
- Photodiode Responsivity Accuracy: ±0.005 μA/mW
- Optical Power Range: 0-5000 mW
- Optical Power Resolution: ±0.01 mW
- Optical Power Accuracy: ±0.005 mW
- Forward Voltage Range: 0.00-7.5 V
- Forward Voltage Resolution: ±7 mV
- Forward Voltage Accuracy: ±7 mV (1mV through GPIB)

TEC CURRENT MEASUREMENT (DISPLAY)
- TEC Current Range: -1.50 to 1.50 A
- TEC Current Resolution: ±0.01 A
- TEC Current Accuracy: ±0.02 A
- Voltage Range: 0-10V, 50 Ohm
- Voltage Resolution: ±100mV (1mV in GPIB)
- Voltage Accuracy: ±70mV

TEMPERATURE CONTROL MODULES
- TEMPERATURE CONTROL OUTPUT
- TEMPERATURE CONTROL OUTPUT
- TEMPERATURE CONTROL OUTPUT

8-Channel Laser Diode Controller

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<td><strong>TEMPERATURE SENSOR</strong></td>
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<tr>
<td>Types: Theremior (2-wire NTC) &amp; Theremior (2-wire NTC)</td>
</tr>
<tr>
<td>Usable Theremior Range: 25-450.000°C, typical</td>
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<tr>
<td>User Calibration: Steinhart-Hart, 3 constants</td>
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<tr>
<td><strong>TEC MEASUREMENT (DISPLAY)</strong></td>
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<tr>
<td>Temperature Range: -99°C to 199°C</td>
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<tr>
<td>Temperature Accuracy: ±0.2°C ±0.5°C</td>
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<tr>
<td><strong>CURRENT SOURCE MODULES</strong></td>
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<tr>
<td><strong>3916550 DUAL 9W</strong></td>
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<tr>
<td><strong>3916558 SINGLE 24W (3A)</strong></td>
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<tr>
<td><strong>TEMPERATURE CONTROL NOTES</strong></td>
</tr>
<tr>
<td>All values after a one-hour warm-up period.</td>
</tr>
<tr>
<td>Over any one-hour period, half scale output.</td>
</tr>
<tr>
<td>Over any 24-hour period, half scale output.</td>
</tr>
<tr>
<td>Measured output current range is 1.4GHz laser diode to a photodetector with 19kHz bandwidth.</td>
</tr>
<tr>
<td>Maximum output current transist resulting from normal operational situations (e.g. power supply on/off) as well as accidental situations (e.g. power line plug removed).</td>
</tr>
<tr>
<td>Maximum output current transist resulting from a 1000V power line transient spike. Tested to ILX Lightwave Technical Standard LDC-00196. Request ILX Application Note #5 for “Protecting Your Laser Diode”.</td>
</tr>
<tr>
<td>Maximum detector photocurrent drift over any 30-minute period. Assumes zero drift in responsivity of photoactive.</td>
</tr>
<tr>
<td>Modulation input is 50Ω terminated inside the mainsite.</td>
</tr>
<tr>
<td>25mA source, 50mA modulation current, 10 load.</td>
</tr>
<tr>
<td>1mA modulation at half-scale output. 0.5mA load. 3mA modulation at full-scale output. 2mA load.</td>
</tr>
<tr>
<td>Responsivity value is typically defined and is used to calculate the optical power.</td>
</tr>
<tr>
<td>1mA through GPIB.</td>
</tr>
<tr>
<td>1mA peak power measured while driving the calibration load. Specifications are valid for values above 10mA. Accuracy is ±5mA through GPIB.</td>
</tr>
<tr>
<td>10mA current accuracy is ±2mA above 1mA after a one-hour warm-up period.</td>
</tr>
<tr>
<td><strong>LASER DRIVE LIMIT SETTINGS</strong></td>
</tr>
<tr>
<td>Current Limit Range: 0.500mA to 10.000mA</td>
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<tr>
<td>Current Limit Resolution: 0.01mA</td>
</tr>
<tr>
<td>Current Limit Accuracy: ±10% ±1mA ±2mA</td>
</tr>
<tr>
<td>Voltage Limit Range: 0.75V to 17.5V</td>
</tr>
<tr>
<td>Voltage Limit Resolution: 0.1V</td>
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<tr>
<td>Voltage Limit Accuracy: ±500mV ±250mV ±500mV</td>
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<tr>
<td><strong>PHOTODIODE FEEDBACK</strong></td>
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<tr>
<td>Photodiode Current Range: 0-5000μA</td>
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<tr>
<td>Photodiode Current Resolution: 0.1μA</td>
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<tr>
<td>Photodiode Current Accuracy: ±50μA ±50μA ±50μA</td>
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<tr>
<td>Photodiode Responsivity Range: 0.01-1000.00μW/mW</td>
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<tr>
<td>Photodiode Responsivity Resolution: 0.01μW/mW</td>
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<tr>
<td>Photodiode Responsivity Accuracy: ±5μW/mW ±5μW/mW ±5μW/mW</td>
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<tr>
<td><strong>LASER CURRENT MEASUREMENT (DISPLAY)</strong></td>
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<tr>
<td>Output Current Range: 0-500mA</td>
</tr>
<tr>
<td>Output Current Resolution: 0.01mA</td>
</tr>
<tr>
<td>Output Current Accuracy: ±2.5% of FS (±1mA) ±5% of FS (±1mA) ±10% of FS (±1mA)</td>
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<td><strong>TEMPERATURE SENSOR</strong></td>
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<td>Types: Theremior (2-wire NTC) &amp; Theremior (2-wire NTC)</td>
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<tr>
<td>Temperature Range: -99°C to 199°C</td>
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<tr>
<td>Temperature Accuracy: ±0.2°C ±0.5°C</td>
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**LDC 3908**

8-Channel Laser Diode Controller

Specifications

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<td><strong>391632x DUAL 500mA</strong></td>
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<tr>
<td><strong>3916354 DUAL 1A</strong></td>
</tr>
<tr>
<td><strong>3916358 SINGLE 3A</strong></td>
</tr>
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</table>

**LASER CURRENT OUTPUT**

- **Output Current** Range: 0-500 mA
- **Setpoint Resolution**: 0.01 mA
- **Setpoint Accuracy**: ±1% of FS ±1% of FS ±1% of FS
- **Compliance Voltage**: 6V (adjustable voltage limit) 6V (adjustable voltage limit)
- **Temperature Coefficient**: ±50ppm/°C ±50ppm/°C ±150ppm/°C
- **Short Term Stability (1 hr.)**: 50ppm 50ppm 50ppm
- **Long Term Stability (24 hrs.)**: 250ppm 250ppm 750ppm

**TEC MEASUREMENT (DISPLAY)**

- **Temperature Range**: -99°C to 199°C
- **Temperature Accuracy**: ±0.2°C ±0.5°C

**CURRENT SOURCE NOTES**

1. All values 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 output current range is a 1400nm laser diode to a photodetector with 19kHz bandwidth.
5. Maximum output current transist resulting from normal operational situations (e.g. power supply on/off) as well as accidental situations (e.g. power line plug removed).
7. Maximum detector photocurrent drift over any 30-minute period. Assumes zero drift in responsivity of photoactive.
8. Modulation input is 50Ω terminated inside the mainsite.
9. 25mA source, 50mA modulation current, 10 load.
10. 1mA modulation at mid-scale output. 0.5mA load.
11. Responsivity value is user-defined and is used to calculate the optical power.
12. 1mA through GPIB.
13. 1mA peak power measured while driving the calibration load. Specifications are valid for values above 10mA. Accuracy is ±5mA through GPIB.
14. 10mA current accuracy is ±2mA above 1mA after a one-hour warm-up period.

**TEMPERATURE CONTROL NOTES**

1. All values after a one-hour warm-up period.
2. Software limits of range. Actual range possible depends on the physical load, thermistor type, and TEC module.
3. Accuracy figures are quoted for a typical 10k thermistor and 100μA current setting for 25°C to 30°C and typical 10k thermistor and 10μA current setting for 25°C to 30°C. Accuracy figures are relative to the calibration standard. Both resolution and accuracy are dependent upon the user-defined configuration of this instrument.
4. Over any one-hour period, half scale output, controlling an LDM-4412 mount at 25°C with a 10k thermistor on a 10A setting.
5. Over any 24-hour period, half scale output, controlling an LDM-4412 mount at 25°C with a 10k thermistor on a 10A setting.
6. Measured at 1A output over a bandwidth of 10kHz to 20kHz. 3916558 module measured as 2A output over a bandwidth of DC to 50kHz.
7. Thermistor current range software selectable by front panel or GPIB.
8. Software limits of display range.
9. Using a 10k thermistor, controlling an LDM-4412 mount over -50°C to 65°C (-200-2kW or a 100k thermistor controlling an LDM-4412 mount over 10°C to 65°C) or a 10k thermistor controlling an LDM-4412 mount over -5°C to 65°C.
10. Using a 10k thermistor, controlling an LDM-4412 mount over -5°C to 65°C (-200-2kW).
11. Using a 10k thermistor, controlling an LDM-4412 mount over -5°C to 65°C.
12. Voltage measurement accuracy while driving the calibration load. Accuracy is dependent upon load. Accuracy of ±20mW through GPIB.

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