The new LDP-3840B Precision Pulsed current source is a microprocessor-based instrument specifically designed for pulse testing and characterizing laser diodes. The LDP-3840B provides up to 3A of peak pulse current with adjustable pulse widths from 100ns to 10ms.

Careful attention to design for clean pulses at laser diode load levels provides a low noise pulsed current with fast rise times while maintaining overshoot of less than 5%.

Testing and characterization can be automated with the 3840B through the GPIB/IEEE interface. For basic system integration, a trigger can be used to control pulses and initiate corresponding measurements without a command program.

Like all ILX Lightwave laser diode control instruments, the LDP-3840B incorporates laser diode protection and safety features such as current limits, output shorting circuits, AC line filters, and double-shielded transformers to help suppress laser damaging transients.

**Product Features**

- Precision pulsed current to 3A
- Clean current pulses with fast rise times (<50nS) and low overshoot (<5%)
- Built-in laser diode protection
- Adjustable pulse width, duty cycle, and frequency
- User-selectable pulse polarity
- Accepts external trigger to control pulses and provides a trigger to initiate corresponding measurements
- GPIB/IEEE-488 interface

An Affordable Precision Pulsed Current Source for Testing and Characterizing Laser Diodes
Precision Pulsed Current Source

LDP 3840B

Precision Pulse Control for Laser Diodes

At the heart of the LDP-3840B is a precision pulsed current source that delivers clean pulses with low overshoot and fast rise and fall times. The 3840B’s low noise, transient-suppressed output is designed specifically for laser diode load levels. Digital control of pulse width, duty cycle and frequency provide quick and easy control of pulse parameters for maximum flexibility in varying test applications.

For accurate monitoring of laser drive parameters in LIV applications, laser diode mounting boards are available with 50Ω terminated connections for voltage and current monitoring.

Laser Diode Protection

One of the most important features of the LDP-3840B is ILX Lightwave’s proven laser diode protection features including current limits and redundant output shorting circuits. During power up, the laser diode is protected from current transients by a careful turn-on sequence. AC line filters and double shielded transformers provide further transient protection during laser operation.

Pulse Tuning for Optimum Performance

The LDP-3840B offers a method to optimize the pulse response of the instrument to the laser diode load. By matching the source to load impedance at the laser diode under test, the LDP-3840B allows the output polarity to be quickly configured for either anode or cathode grounded devices from the front panel or through the GPIB/IEEE interface. ILX’s laser diode mounting board can be configured for either polarity with the laser correctly installed.

Complete System Integration

Speed up data gathering with more repeatable, accurate control for automated testing and characterization of laser diodes with the GPIB/IEEE-488 interface. All instrument functions accessible from the front panel are also accessible through the GPIB interface.

TNT

Tuned response of the LDP-3840B.

Pulse Amplifier

Output Current Range: 0 to 3000 mA
Setpoint Resolution: 100 μA
Setpoint Accuracy (% of FS): ±3.25%
Compliance Voltage: 10 V maximum
Overshoot: <5%
Noise and Ripple (μA rms): 500 μA

Pulse Parameters

Pulse Width
Range: 100 ns to 10 ms
Resolution: 100 ns
Accuracy: ±35 to 10% ±0.01% of FS
Rise/Fall Time: ≤50 ns
Polarity: Positive or negative

Pulse Repetition Interval (PRI)

Type: TTL
Connector: BNC
Delay: 290 ns ±20 ns

Trigger Input

Type: TTL
Connector: BNC
Jitter: ≤100 ns
Delay: 290 ns ±20 ns

Analog Output

Transfer Function: 3.33 V/A, 10 V full scale
Connector: BNC

Specifications

Pulse Amplitude

Output Current Range: 0 to 3000 mA
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Jitter: ≤100 ns
Delay: 290 ns ±20 ns

Analog Output

Transfer Function: 3.33 V/A, 10 V full scale
Connector: BNC

General

Chassis Ground: 4 mm banana jack
Power Requirements: 50/60 Hz
100-120 VAC ±10%
220-240 VAC ±10%
Size (HxWxD): 8.5 mm x 184 mm x 304 mm
(3.5” x 7.3” x 12”)
Weight: 3.6 kg (8 lbs)
Operating Temperature: 0°C to 40°C
Storage Temperature: -40°C to 70°C
Humidity: <85% relative
Laser Safety Features: Interclock

Notes

1. All specifications measured at 25°C after a one-hour warm-up period with an ILX LPB Laser Mounting Board, unless otherwise specified.
2. Accuracy measurements from 10% to full scale output.
3. Measured from 10% to 90% points at full scale output with the typical being 25 ns.
4. Polarity selected via the front panel or through GPIB.

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

Ordering Information

LDP-3840B-120V* Precision Pulsed Current Source, 3A, 120V
LDP-3840B-230V* Precision Pulsed Current Source, 3A, 230V
LPB-380 Laser Mounting Board
LPC-388 Current/Voltage Monitor Cable
CC-380 Output Cable 3 ft
LabVIEW Instrument Driver

LabVIEW is a registered trademark of National Instruments.

*Each LDP-3840B comes with an LPB-380 Mounting Board and a CC-380 3 ft Output Cable. Additional mounting boards and output cables can be ordered.

For information call
1-800-469-9459
International Inquiries: 406-586-1244
e-mail: sales@ilxlightwave.com
31950 Frontage Road, Bozeman, MT 59715 FAX: 406-586-9405
www.newport.com/ilxlightwave
Precision Pulse Control for Laser Diodes

At the heart of the LDP-3840B is a precision pulsed current source that delivers clean pulses with low overshoot and fast rise and fall times. The 3840B’s low noise, transient-suppressed output is designed specifically for laser diode load levels. Digital control of pulse width, duty cycle and frequency provide quick and easy control of pulse parameters for maximum flexibility in varying test applications.

For accurate monitoring of laser drive parameters in LIV applications, laser diode mounting boards are available with 50Ω terminated connections for voltage and current monitoring.

Laser Diode Protection

One of the most important features of the LDP-3840B is ILX Lightwave’s proven laser diode protection features including current limits and redundant output shorting circuits. During power up, the laser diode is protected from current transients by a careful turn-on sequence. AC line filters and double shielded transformers provide further transient protection during laser operation.

Pulse Tuning for Optimum Performance

The LDP-3840B offers a method to optimize the pulse response of the instrument to the laser diode load. By matching the source to load impedance at the laser diode under test, the LDP-3840B allows the output polarity to be quickly configured for either anode or cathode grounded devices from the front panel or through the GPIB/IEEE interface. ILX’s laser diode mounting board can be configured for either polarity with the laser correctly installed.

Select Pulse Polarity

Depending on the configuration of the laser diode under test, the LDP-3840B allows the output polarity to be quickly configured for either anode or cathode grounded devices from the front panel or through the GPIB/IEEE interface. ILX’s laser diode mounting board can be configured for either polarity with the laser correctly installed.

Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PULSE AMPLITUDE</strong></td>
</tr>
<tr>
<td>Output Current Range: 0 to 3000mA</td>
</tr>
<tr>
<td>Setpoint Resolution: 1000μA</td>
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<tr>
<td>Setpoint Accuracy (% of FS): ±2.5%</td>
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<tr>
<td>Compliance Voltage: 10V maximum</td>
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<tr>
<td>Overshoot: &lt;5%</td>
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<tr>
<td>Noise and Ripple (μA rms): 500μA</td>
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<tr>
<td><strong>PULSE PARAMETERS</strong></td>
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<tr>
<td>Pulse Width Range: 100ns to 10ms</td>
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<tr>
<td>Resolution: 100ns</td>
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<tr>
<td>Accuracy: ±35 to 10ns ±0.01% of FS</td>
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<tr>
<td>Rise/Fall Time: &lt;50ns</td>
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<tr>
<td>Polarity: Positive or negative</td>
</tr>
<tr>
<td><strong>PULSE REPEITION INTERVAL (PRI)</strong></td>
</tr>
<tr>
<td>Range Internal: 1µs to 100ms</td>
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<tr>
<td>External: 1µs to single shot</td>
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<tr>
<td>Resolution: 1µs</td>
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<tr>
<td>Accuracy: 20ns ±0.01%</td>
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<tr>
<td>Duty Cycle: 10% maximum</td>
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<tr>
<td><strong>TRIGGER OUTPUT</strong></td>
</tr>
<tr>
<td>Type: TTL</td>
</tr>
<tr>
<td>Connector: BNC</td>
</tr>
<tr>
<td>Jitter: ≤5ns</td>
</tr>
<tr>
<td>Display: 100ms ±10ns</td>
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<tr>
<td><strong>TRIGGER INPUT</strong></td>
</tr>
<tr>
<td>Type: TTL</td>
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<tr>
<td>Connector: BNC</td>
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<tr>
<td>Jitter: ≤100ns</td>
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<tr>
<td>Delay: 250µs ±20ns</td>
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<td><strong>ANALOG OUTPUT</strong></td>
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<tr>
<td>Transfer Function: 3.33V/1A, 10V full scale</td>
</tr>
<tr>
<td>Connector: BNC</td>
</tr>
</tbody>
</table>

**GENERAL**

- Chassis Ground: 4mm banana jack
- Power Requirements: 50/60Hz
  - 100-120VAC ±10%
  - 220-240VAC ±10%
- Size (HxWxD): 85mm X 180mm X 304mm
  - (3.3" x 7.1" x 12.0")
- Weight: 3.6kg (8lbs)
- Operating Temperature: 0°C to 40°C
- Storage Temperature: -40°C to 70°C
- Humidity: <85% relative
- Laser Safety Features: Interlock

**NOTES**

1. All specifications measured at 25°C after a one-hour warm-up period with an ILX LPB Laser Mounting Board, unless otherwise specified.
2. Accuracy measurements from 10% to full scale output.
3. Measured from 15% to 85% percent of full scale output with the typical being 25 ns.
4. Polarity selected via the front panel or through GPIB.

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

**ORDERING INFORMATION**

- LDP-3840B-120V: Precision Pulsed Current Source, 3A, 120V
- LDP-3840B-220V: Precision Pulsed Current Source, 3A, 220V
- LPB-380: Laser Mounting Board
- LPC-388: Current/Voltage Monitor Cable
- CC-380: Output Cable 3x1

**LabVIEW® Instrument Driver**

LabVIEW® is a registered trademark of National Instruments.

*Each LDP-3840B comes with an LPB-380 Mounting Board and a CC-380 3x1 Output Cable. Additional mounting boards and output cables can be ordered.*