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LDP 3840B

Precision Pulsed Current Source

Product Features

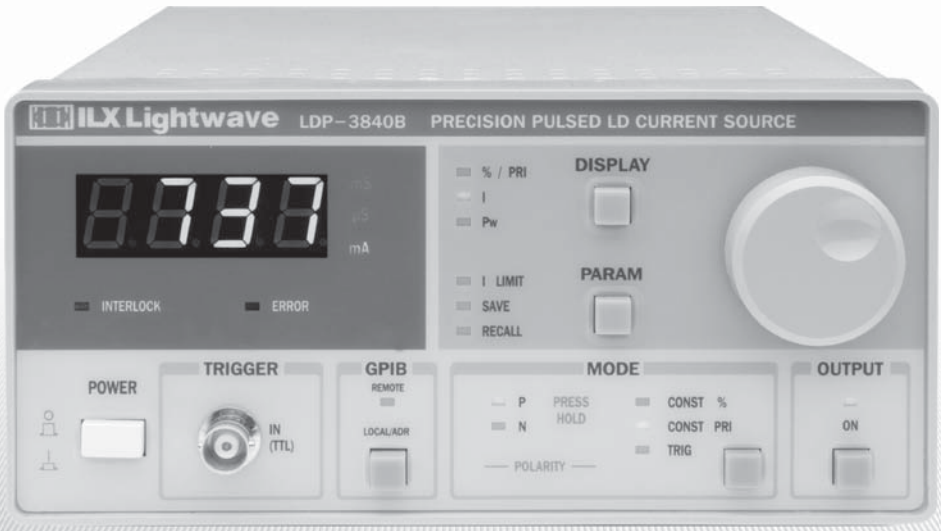
- Precision pulsed current to 3A
- Clean current pulses with fast rise times (<50nS) and low overshoot (<5%)
- Built-in laser diode protection
- Adjustable pulse width, duty cycle, and frequency
- User-selectable pulse polarity
- Accepts external trigger to control pulses and provides a trigger to initiate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

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.



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

ILX Lightwave®
A Newport Corporation Brand

LDP 3840B

Precision Pulsed Current Source

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.

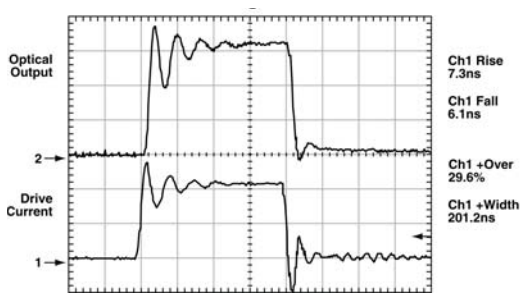
For accurate monitoring of laser drive parameters in LIV applications, laser diode mounting boards are available with 50Ω terminated connections for voltage and current monitoring.

Laser Diode Protection

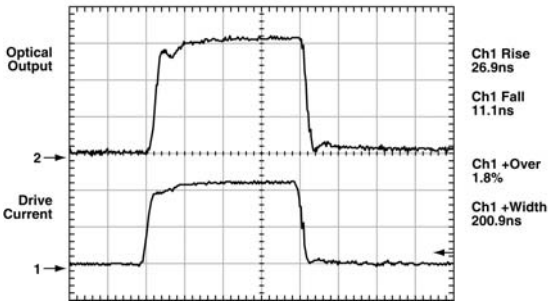
One of the most important features of the LDP-3840B is ILX Lightwave's proven laser diode protection features including current limits and redundant output shorting circuits. During power up, the laser diode is protected from current transients by a careful turn-on sequence. AC line filters and double 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 through the addition of a small series resistance, unwanted parasitic effects can be compensated for to reduce ringing and overshoot on the pulse. In conjunction with the 3840B, ILX Lightwave has developed a laser mounting board to easily fixture the laser diode and to aid in tuning for optimal pulses.



Untuned pulsed output.



Tuned response of the LDP-3840B.

Convenient Features Make Your Work Easier and More Reliable

The intuitive front panel of the LDP-3840B is designed for quick and easy instrument operation permitting precise pulse control. Pulse modes and parameters are logically grouped together without confusing multifunction keys allowing easy adjustment of pulse width, duty cycle and frequency. A selection of instrument operating modes includes pulse polarity, constant duty cycle and constant pulse repetition interval (PRI). In constant duty cycle mode, the set duty cycle is maintained while adjusting pulse widths. In constant PRI mode, the set pulse interval is maintained while adjusting pulse width.

The bright 4-digit LED display is easy to view in laboratory environments. Precision digital tuning is easy with the front panel adjustment knob.

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.

TTL level triggers are incorporated into the LDP-3840B to control output pulses and to initiate corresponding measurements from other instruments without a command program.

Selectable 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.

LDP 3840B

Precision Pulsed Current Source

Specifications[1]

PULSE AMPLITUDE

Output Current Range:	0 to 3000mA
Setpoint Resolution:	1000µA
Setpoint Accuracy (% of FS):[2]	±2.5%
Compliance Voltage:	10V maximum
Overshoot:	<5%
Noise and Ripple (µA rms):	500µA

PULSE PARAMETERS

Pulse Width	
Range:	100ns to 10ms
Resolution:	100ns
Accuracy:	-35 to 10ns ±0.01% of FS
Rise/Fall Time:[3]	≤50ns
Polarity:[4]	Positive or negative

PULSE REPETITION INTERVAL (PRI)

Range	
Internal:	1µs to 100ms
External:	1µs to single shot
Resolution:	1µs
Accuracy:	20ns ±0.01%
Duty Cycle:	10% maximum

TRIGGER OUTPUT

Type:	TTL
Connector:	BNC
Jitter:	±5ns
Display:	100ns ±10ns

TRIGGER INPUT

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

ANALOG OUTPUT

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

GENERAL

Chassis Ground:	4mm banana jack
Power Requirements:	50/60Hz 100-120VAC ±10% 220-240VAC ±10%
Size (HxWxD):	88mm X 185mm X 304mm (3.5" x 7.3" x 12")
Weight:	3.6kg (8lbs)
Operating Temperature:	10°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 10% to 90% points at half 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 3Ω

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 3Ω Output Cable. Additional mounting boards and output cables can be ordered.

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Rev04 050713

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