The LDX-3500B Series Laser Diode Drivers are a family of low noise high stability current sources specifically for precision control of low to high power laser diodes. Three models with a full scale output current range from 200 mA to 6 A operate in constant current or constant optical power modes to cover a wide range of laser diode testing and control applications. In addition to precision current control, the LDX-3500B Series drivers also feature photodiode current measurement for constant power control, analog modulation for power and wavelength tuning, and an analog output for remote monitoring.

All of ILX Lightwave’s proven laser diode protection strategies are designed into each model, which include adjustable current limits, shorting relays, slow turn-on circuits, and transient protection during power up and laser operation.

The front panel was designed for quick and easy operation. Parameters and instrument modes are grouped without confusing multi-function keys or menus. Informative error indicators such as open circuit and current and power limit let you resolve set up and operating problems quickly.

The USB interface and control software allows for fast, repeatable instrument control during R&D and manufacturing testing and other automated control applications.
PRECISION LASER DIODE TESTING
Each LDX-3500B Series Laser Diode Driver was designed as a current source specifically for low to high power laser diodes. Stable, precision low noise current control with a set point accuracy of 0.1% is delivered to the laser during R&D or manufacturing testing including L-I testing, qualification testing, or automated testing and control applications.

A CHOICE OF LASER CONTROL MODES
The LDX-3500B Series Laser Diode Drivers control the current to the laser diode in one of three modes:
1. Constant Current low bandwidth
2. Constant Current high bandwidth
3. Constant Optical Power
The Constant Current, low bandwidth mode offers improved noise performance and is optimized for DC operation.
In Constant Current high bandwidth mode, the output stage supports higher modulation frequencies, up to 500 kHz, for dithering the laser current for power and wavelength tuning. For laser protection, the modulation input is implemented as a differential input, allowing the modulation control voltage and laser outputs to use different grounds.
The Constant Power mode provides constant optical power operation of your laser diode by using the photocurrent from the laser’s rear facet photodiode or from an external photodiode measuring front facet light in a feedback control loop to the current source for precise and stable optical power control.

DESIGNED TO PROTECT YOUR LASER DIODE
The LDX-3500B Series Laser Diode Driver provides multiple laser diode protection features such as independent hardware current limits, slow-start turn-on circuits, and isolated supplies. The output of the drivers are bound by fully independent current limits.
A “clamping” circuit topology prevents the limits from being exceeded under any condition including current modulation. An output shorting switch provides a safe method of switching the output on and off during operation while protecting the laser during load/unload or connect/disconnect operations.

A CHOICE OF LASER CONTROL MODES
Also, if the instrument senses an open circuit, the output will immediately shut off followed by the illumination of the appropriate fault indicator.
During AC power-up, the laser is protected from current transients by power line filters, double shielded transformers and hardware and firmware turn-on sequencing. When the output is enabled, slow start circuits gradually open shorting FETs allowing current to slowly be diverted to the laser. Transients from normal instrument operation such as output on/off have been thoroughly tested and minimized as well as transients from inadvertent instrument operation (such as mode switching).

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AUTOMATE LASER DIODE CONTROL AND TESTING
Remote instrument operation is available on all LDX-3500B Series Laser Diode Drivers through a USB 2.0 serial interface. All instrument controls and functions are accessible through the serial interface for easy remote programming and control in automated test and control systems where repeatable and accurate test sequencing, measurements, and data handling are required.
LabVIEW™ software drivers are available with each instrument, facilitating instrument set up and control. Through these drivers, instrument controls are organized similar to the front panel for easy, intuitive remote control and monitoring.

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 up by industry leading after sales support. For more information about the LDX-3500B Series Current Sources and our complete family of laser diode instrumentation and test systems, call us today or visit www.newport.com/ilxlightwave.

EASE OF OPERATION
The LDX-3500B Series Laser Diode Drivers are microprocessor controlled instruments. The front panel of the LDX-3500B Series was designed for quick and easy instrument operation and information display.

Whether the application is data intensive L-I testing or control in R&D manufacturing testing, remote operation of the LDX-3500B saves time and ensures systematic data collection and instrument operation.

SIMPLIFY ROUTINE MAINTENANCE
The LDX-3500B architecture simplifies routine maintenance; calibration of the laser current source can be performed via the front panel or remotely through the USB 2.0 interface, without opening the instrument up or manual adjustments. A calibration mode is entered through unique push button combinations or control commands, and all calibration data is easily entered via the front panel with the adjust knob or commands. Calibration data is automatically stored in on-board non-volatile memory.

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The USB interface allows for quick, effortless remote control for fast, repeatable instrument control during L-I testing and R&D or manufacturing control applications.
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A bright five digit, green LED display is easy to read from a distance, even with laser safety glasses. Parameters and instrument modes are grouped without confusing multi-function keys. Informative error indicators such as open circuit, current and power limit let the user resolve set-up and operational problems quickly.

**PUT OUR EXPERTISE TO WORK**

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Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>LDX-3525B</th>
<th>LDX-3545B</th>
<th>LDX-3565B</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRENT OUTPUT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Current Range</td>
<td>200mA / 500mA</td>
<td>1000mA / 3000mA</td>
<td>2000mA / 6000mA</td>
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<tr>
<td>Short Term Stability</td>
<td>±1%</td>
<td>±1%</td>
<td>±0.5%</td>
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<tr>
<td>Temperature Tolerance</td>
<td>±1.5°C</td>
<td>±1.5°C</td>
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<tr>
<td>DRIVE CURRENT LIMIT SETTINGS</td>
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<tr>
<td>Setpoint Range</td>
<td>0–100mA</td>
<td>0–100mA</td>
<td>0–100mA</td>
</tr>
<tr>
<td>Setpoint Accuracy (% of FS)</td>
<td>±0.01%</td>
<td>±0.01%</td>
<td>±0.01%</td>
</tr>
<tr>
<td>PHOTODIODE FEEDBACK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Differential</td>
<td>Differential</td>
<td>Differential</td>
</tr>
<tr>
<td>Reverse Bias</td>
<td>0–5 V, adjustable</td>
<td>0–5 V, adjustable</td>
<td>0–5 V, adjustable</td>
</tr>
<tr>
<td>Photodiode Current Range</td>
<td>0–500 µA</td>
<td>5–9999 µA</td>
<td>0.01–25mA</td>
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<tr>
<td>Photodiode Current Resolution</td>
<td>1µA</td>
<td>1µA</td>
<td>1µA</td>
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<tr>
<td>Photodiode Resposivity Range</td>
<td>0.001–1.000 mA/mW</td>
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<tr>
<td>GENERAL</td>
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<tr>
<td>DC Power Requirement, W (50–60Hz)</td>
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<td>Power Cord</td>
<td>100-240 V, 50–60Hz</td>
<td>100-240 V, 50–60Hz</td>
<td>100-240 V, 50–60Hz</td>
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<td>Dimensions, HxWxD</td>
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<tr>
<td>Notes</td>
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</table>

Product Features

Three models with source current output up to 6A
High stability, low noise current output with multi-layered laser diode protection
Constant current and constant power operating modes
Analog modulation
USB 2.0 serial interface