

LDX 3412

Low Cost Precision Laser Diode Driver

Product Features

Low cost laser diode driver:
0 - 200 mA output range

Versatile control: constant current
and constant power modes

Laser diode protection

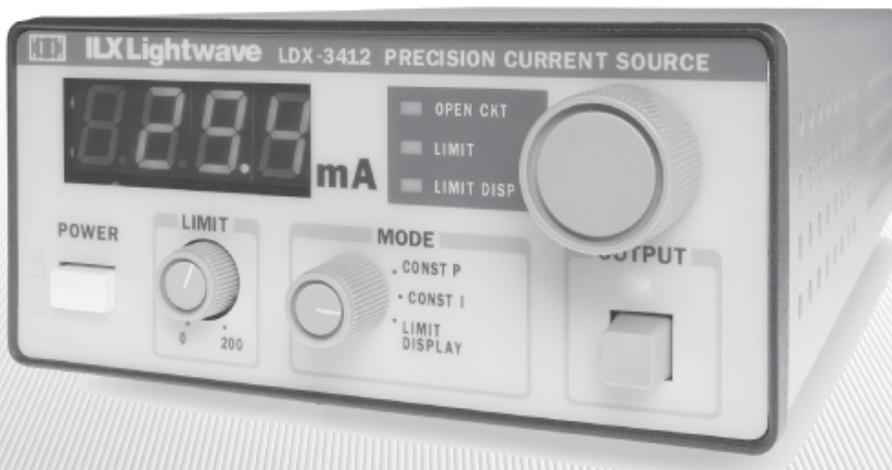
Fully independent, precision current
limit control

Easy connection to lasers and LEDs

The LDX-3412 Low Cost Precision Laser Diode Driver is designed for current controlling general purpose laser diodes. This 0-200 mA driver has the outstanding performance expected from ILX Lightwave, at an attractive price. Our industry-leading laser diode protection circuits are included, along with user-adjustable photodiode feedback capability.

The LDX-3412 is an easy to operate, precision current source optimized for controlling laser diodes and LEDs. An intuitive front panel with a highly visible LED display simplifies operation, and the innovative voltage source / constant current output stage design makes operation dependable. For many applications, the LDX-3412 offers the right features at the right price.

When laser diode applications require stable, low-noise current performance, but are restrained by a limited budget, the LDX-3412 is the ideal solution. This laser diode driver delivers a stable, low-noise current in both constant current and constant light operating modes, and offers ILX Lightwave's proven protection and safety features to safeguard lasers.



A Precision Current Source
Designed to Fit Every Budget

LDX 3412

Low Cost
Precision
Laser Diode
Driver

Versatile Operation Modes

The LDX-3412 features three operation/display modes. (1) Constant Current, which delivers a stable precision current up to 200 mA at up to 6V to the laser diode. (2) Constant Power, which uses a photodiode feedback signal to control the current output, ensuring a constant light level, despite varying junction. (3) Limit Display, which conveniently displays the current limit set point level.

Unique Laser Diode Protection

Like other ILX Lightwave laser diode drivers, the LDX-3412 employs our unique output off/on switch technology. When the output switch is enabled, the output is turned on safely by slowly switching the shunt to a high impedance state. When turned off, the output switch returns the semiconductor shunting device to a low impedance state, thereby shorting the output terminals while suppressing potentially damaging current transients. Also a double-shielded transformer reduces AC line noise, and suppresses potentially damaging line transients.

By incorporating our voltage source/constant current output stage design, the 3412 provides a greater level of laser protection than other current

sources. The output stage is actually a voltage source, controlled by a slow feedback loop to maintain a constant output current.

The LDX-3412 also employs our proven current limit circuit, which allows current adjustment without over-driving. This allows the current limit to be safely set, even while the unit is actively driving a laser at a lower current level, which is independent of the output compliance voltage.

Connect to Any Laser or LED Package

The output terminals of the LDX-3412 are fully floating, allowing either side to be grounded if necessary. For constant power operation, an instrumentation amplifier is used at the 3412's input from the external monitor photodiode. This allows connection to any laser/LED package pin configuration.

Low Noise and High Stability

The LDX-3412 output broadband noise is less than 0.01% rms, and temperature coefficient stability is better than 100 ppm/°C. Under typical laboratory conditions, output current drift is less than 50 ppm over a 30-minute period, in constant current mode.

Specifications¹

OUTPUT

| | |
|---|-------------|
| Output Current Range: | 0-200 mA |
| Compliance Voltage: | ≥6V |
| Temperature Coefficient: | ≤100 ppm/°C |
| Short Term Stability (1 hour): ² | <50 ppm |
| Noise and Ripple: ³ | <2 μA rms |
| Transients: ⁴ | <100 μA |

DRIVE CURRENT LIMIT SETTINGS

| | |
|-----------|-------------|
| Range: | 1 to 200 mA |
| Accuracy: | ±3 mA |

PHOTODIODE FEEDBACK

| | |
|-------------------------|------------------|
| Reverse Bias: | 0-5V, adjustable |
| PD Current Input Range: | 20 μA to 2 mA |
| Stability: ⁵ | ±0.1% |

MEASUREMENT (DISPLAY)

| | |
|---------------------------------------|-----------------------|
| Type: | 3 1/2 digit green LED |
| Output Current Range: | 0 to 199.9 mA |
| Output Current Accuracy: ⁶ | ±0.2 mA |

GENERAL

| | |
|-------------------------|--|
| Power Requirements VAC: | 90-125; 210-250 (50-60 Hz) |
| Size (HxWxD): | 66mm x 140mm x 267mm; 2.6" x 5.5" x 10.5" |
| Weight: | 1.8 kg (4.0 lbs.) |
| Operating Temperature: | 0°C to 50°C |
| Storage Temperature: | -40°C to 70°C |
| Humidity: | <85% relative, non-condensing |
| Laser Safety: | Interlock, Output Delay (meets CDRH, US21, CFR 1040.10) |

CONNECTORS

| | |
|------------------------|-----------------------------|
| Current Source Output: | 9-pin D-sub |
| PD Input: | 9-pin D-sub laser connector |
| Chassis Ground: | 4mm Banana Jack |
| Interlock: | 9-pin D-sub laser connector |

NOTES

1. All values relate to a two hour warm up period with output enabled.
2. Over 10 to 30 minutes, half-scale output @ 25°C ambient.
3. Half-scale output, measured electrically, with a resistive load evaluating AC coupled rms value over a 100 kHz bandwidth.
4. Maximum output current resulting from normal operational situations (i.e. power on-off, current on-off), as well as accidental situations (i.e. power line plug removal). Tested to ILX Technical Standard #LDC-00196.
5. Maximum monitor photodiode current drift over any 30-minute period. Assumes zero drift in photodiode responsivity.
6. Measured at 25°C.

ORDERING INFORMATION

| | |
|---------------|---|
| LDX-3412-120V | Low Cost Precision Current Source, 120V |
| LDX-3412-240V | Low Cost Precision Current Source, 240V |
| LDX-3412-220V | Low Cost Precision Current Source, 220V |
| LDX-3412-100V | Low Cost Precision Current Source, 100V |
| LDM-4405 | Low Cost TO-Can Laser Diode Mount |
| CC-305S | Current Source / Laser Diode Mount Interconnect Cable |
| CC-306S | Current Source / Unterminated Interconnect Cable |
| LNF-320 | Low Noise Filter |

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



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