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Data Sheet

August 14, 2026

ILX LIGHTWAVE

ILX Lightwave LDC-3742: 1/3 A Laser Diode Controller, LDC-3700 Series

The ILX Lightwave LDC-3742 is a precision 1/3 A laser diode controller, part of the LDC-3700 series. It offers stable and accurate control of laser diode current and temperature, ensuring reliable operation and precise optical output. Ideal for laboratory and research applications.



MODEL

**ILX Lightwave
LDC-3742**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

LDC-3742

LISTING

<https://aumictechlabs.com/products/lcd-3742-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The ILX Lightwave LDC-3742 is a precision laser diode controller from the LDC-3700 Series that delivers stable, accurate control of laser diode current and temperature in a single benchtop instrument. Built for laboratory, research, and industrial environments, it combines a low-noise current source with an integrated 32 W thermoelectric cooler controller. The instrument operates in Constant Current, Constant Optical Power, and High Bandwidth modes, protecting sensitive laser diodes through slow start, adjustable current limiting, compliance voltage control, intermittent contact protection, and independent power supplies for laser and TEC circuits. Technical Specifications Current output: 2 A / 4 A dual range Current accuracy: 0.05% Current noise: As low as 1.5 μ A Temperature controller: 32 W thermoelectric cooler Temperature stability: $\pm 0.004^{\circ}\text{C}$ Temperature resolution: 0.01°C Temperature measurement accuracy: 0.05°C (with

calibrated sensor) Analog modulation bandwidth: Up to 1 MHz Laser forward voltage measurement: 4-wire configuration Key Features Three operating modes for diverse application requirements: Constant Current, Constant Optical Power (with photodiode feedback), and High Bandwidth for external modulation Integrated temperature measurement supports thermistor, IC sensors (AD590, LM335), and RTD inputs Photodiode monitor input for power feedback and control TE voltage measurement capability Multiple laser diode protection mechanisms minimize device degradation and failure risk Typical Applications Precision laser diode characterization, optical communication system development, fiber-coupled laser modules, research instrumentation, and industrial laser systems requiring synchronized thermal and electrical control. Compatibility & Integration GPIB/IEEE-488 remote interface standard USB support on LDC-3700C variants Benchtop form factor, approximately 35–45 lbs

LDC3742 Characteristics / Specifications

PARAMETER	VALUE
Laser Current Ranges	0 to 2000 mA and 0 to 4000 mA
Current Source Dual Range	2 A / 4 A
Instrument Family	LDC-3700 series
TEC Integration	integrated temperature controller
Operating Modes	constant current, high bandwidth, constant optical power
Photodiode Feedback	yes for constant optical power mode
Remote Interface	GPIO IEEE-488
Laser Protection Slow Start	yes
Laser Protection Shorting Relay	yes
Laser Protection Adjustable Current Limit	yes
Laser Protection Adjustable Voltage Limit	yes
Display Laser	front panel laser section
Display TEC	front panel TEC section
Sensor Compatibility Class	thermistor IC and RTD class on series TEC
Temperature Stability Class Series	0.004 C to 0.01 C class on LDC-3700B/C literature
TEC Power Class Series Low Medium	32 W class on related 3700 models with TEC
Compliance Voltage Class High Current Models	elevated compliance versus low-current siblings
Modulation Support	external modulation supported in current modes
Isolation	independent supplies for laser and TE current
Intended Current Class	high power laser diodes to 4 A
Form Factor	benchtop laser diode controller
Manufacturer	ILX Lightwave / Newport lineage

LDC3742 Specifications

PARAMETER	VALUE
Applications	Medium to high power laser diode drive to 4 A, TEC-stabilized laser characterization, and automated laser diode test over GPIB.
Key Features	Dual range 2 A / 4 A laser current source
Technical Specifications	Laser Current Ranges: 0 to 2000 mA and 0 to 4000 mA

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
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Notes	
Model current ranges from ILX LDC-3700 series comparison tables listing LDC-3742 as 2/4A. TEC wattage and fine accuracy matrices vary by A/B/C revision; use the matching LDC-3700 manual for the faceplate revision.	

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.