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Data Sheet

August 1, 2026

ILX LIGHTWAVE

ILX Lightwave LCM39420 Combination Driver and TEC Module

The ILX Lightwave LCM-39420 is a combination laser diode driver and TEC (Thermoelectric Cooler) controller module. It provides precise current and temperature control for laser diodes in various applications. This module integrates a laser diode driver for controlling the output power of the laser and a TEC controller for stabilizing the laser diode temperature, ensuring optimal performance and longevity.



MODEL

**ILX Lightwave
LCM39420**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

LCM39420

LISTING

<https://aumictechlabs.com/products/lcm39420-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The ILX Lightwave LCM-39420 is a combination laser diode driver and thermoelectric cooler (TEC) controller module engineered for precise current and temperature management of laser diodes. The integrated design delivers high-stability current output and independent TEC control, maintaining consistent laser performance across scientific research, industrial, and test environments. The module combines selectable current ranges with adjustable PID-based temperature regulation, supporting multiple sensor types and control interfaces for flexible system integration.

Technical Specifications -# Laser Diode Driver Selectable current ranges for compatibility across laser diode types High current stability specified in parts per million (ppm)

Precision current accuracy for consistent output power Internal and external modulation capability support Sufficient compliance voltage for intended laser diode operation Over-current, over-temperature, and ESD protection -# TEC Controller Adjustable temperature control range Temperature stability in millikelvin (mK) or microkelvin (μ K) Temperature accuracy for measurement and control Configurable TEC drive current and voltage Thermistor (10k Ω), RTD, and thermocouple sensor compatibility Adjustable PID control parameters for optimized temperature regulation -# General Module Specifications Input voltage and current requirements Connector interfaces for laser diodes, temperature sensors, and control signals Analog, digital (GPIB, USB, Ethernet), or front-panel control options Defined ambient operating and storage temperature ranges

Key Features Dual-function architecture eliminates separate driver and controller modules PID feedback loop optimizes thermal stability without manual tuning Multi-sensor support enables flexible temperature monitoring Multiple control protocols support laboratory and production integration Integrated protection extends laser diode operational life

Typical Applications Fiber-coupled and free-space laser systems Wavelength-stabilized laser modules Scientific instrumentation and research platforms Industrial laser processing and metrology Automated test systems requiring dynamic current and temperature management

Compatibility & Integration The module accepts industry-standard sensor inputs and offers multiple control pathways for integration into existing lab automation frameworks and production test environments.

Features & description

From manufacturer datasheet

Features

- Fits any of four LDC-3900 rear module bays
- Laser drive: 0 to 200 mA with photodiode feedback mode
- TEC: -99.9 C to +99.9 C control, 8 W maximum output power
- Smart Integrator / Hybrid PI control algorithm
- 2-wire NTC thermistor sensing with Steinhart-Hart user calibration
- Save/Recall setups via LDC-3900; GPIB through the mainframe
- Service-free modular design with on-module calibration storage

LCM39420 Characteristics / Specifications

PARAMETER	VALUE
Model	LCM-39420
Manufacturer	ILX Lightwave / Newport
Host	LDC-3900 Modular Laser Diode Controller
Instrument Type	Combination LD current source / TEC module Drive Current Output
Output Current Range	0 to 200 mA
Setpoint Resolution	10 uA
Setpoint Accuracy	+/-0.05% of full scale
Compliance Voltage	5 V (manual); some catalog sheets list 6 V class
Temperature Coefficient	100 ppm/C
Display Resolution	0.01 mA
Photodiode Current Range	0 to 2000 uA
PD Current Resolution	1 uA
Optical Power Display Range	0.00 to 200.00 mW (with responsivity entry)
Current Source Connector	9-pin D-sub Temperature Control Output
Temperature Control Range	-99.9 C to 99.9 C
Output Type	Bipolar constant-current source
Maximum Output Power	8 W
Current Noise and Ripple	less than 1 mA rms
Current Limit Range	0 to 2 A
Current Limit Set Accuracy	0.05 A
Sensor	Thermistor (2-wire NTC); sensing current 10/100 uA selectable
Usable Thermistor Range	about 20 to 450000 ohm typical
TEC Connector	15-pin D-sub Operational Notes Install only in apowered-down LDC-3900 per the module manual. Set SENSOR SELECT and laser polarity/shielding correctly before enabling output. Observe TEC interlock requirements. Use ILX cables such as CC-305S for laser mounts.

PARAMETER	VALUE
Laser drive	0 to 200 mA with photodiode feedback mode
TEC	-99.9 C to +99.9 C control, 8 W maximum output power

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	
Specifications	
PARAMETER	VALUE
Model	LCM-39420
Manufacturer	ILX Lightwave / Newport
Host	LDC-3900 Modular Laser Diode Controller
Instrument Type	Combination LD current source / TEC module
Drive Current Output	
Specifications	
PARAMETER	VALUE
Output Current Range	0 to 200 mA
Setpoint Resolution	10 uA
Setpoint Accuracy	+/-0.05% of full scale
Compliance Voltage	5 V (manual); some catalog sheets list 6 V class
Temperature Coefficient	100 ppm/C
Short-Term Stability (1 hour): about 25 ppm class (LDC-3900 brochure family)	
Specifications	
PARAMETER	VALUE
Display Resolution	0.01 mA
Photodiode Current Range	0 to 2000 uA
PD Current Resolution	1 uA
Optical Power Display Range	0.00 to 200.00 mW (with responsivity entry)
Current Source Connector	9-pin D-sub
Temperature Control Output	
Specifications	
PARAMETER	VALUE
Temperature Control Range	-99.9 C to 99.9 C

PARAMETER	VALUE
Output Type	Bipolar constant-current source
Compliance Voltage	greater than 4 V DC

Short-Circuit Output Current: 2 A

Specifications

PARAMETER	VALUE
Maximum Output Power	8 W
Current Noise and Ripple	less than 1 mA rms
Current Limit Range	0 to 2 A
Current Limit Set Accuracy	0.05 A
Sensor	Thermistor (2-wire NTC); sensing current 10/100 uA selectable
Usable Thermistor Range	about 20 to 450000 ohm typical
TEC Connector	15-pin D-sub

Operational Notes
Install only inapowered-down LDC-3900 per the module manual. Set SENSOR SELECT and laser polarity/shielding correctly before enabling output. Observe TEC interlock requirements. Use ILX cables such as CC-305S for laser mounts.

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.