

**Aumictech**

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Data Sheet

August 13, 2026

ILX LIGHTWAVE

ILX Lightwave TCM-39034: 4-CH TEC Module

Key Features - TEC voltage measurement via remote (not on TCM-39032) - Closed-case calibration stored on the module - Smart integrator hybrid PI - Save/Recall with the LDC-3900 - Isolated from other modules and earth ground - 15-pin D-sub TEC connector

Technical Specifications Model: TCM-39034 Manufacturer: ILX Lightwave (Newport / MKS) Instrument Type: 32 W temperature control module Alias: TCM39034; 39034 Host mainframe: LDC-3900 (any of four rear slots) Firmware required: LDC-3900 version 3.5 or newer Temperature control range: -99.9 C to 199.9 C (software limits) Thermistor setpoint minus 20 to 20 C: 0.1 C resolution; ± 0.2 C accuracy Thermistor setpoint 20 to 50 C: 0.2 C resolution; ± 0.2 C accuracy AD590 LM335 setpoint minus 20 to 50 C: 0.1 C resolution; ± 0.2 C accuracy Short term stability: less than ± 0 .



MODEL

**ILX Lightwave
TCM-39034**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

TCM-39034

LISTING

<https://aumictechlabs.com/products/tcm-39034-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The ILX Lightwave TCM-39034 is a 4-channel thermoelectric cooler (TEC) module engineered for precision temperature control of laser diodes, photodetectors, and temperature-sensitive optical components within the LDC-3900 Modular Laser Diode Controller. The module delivers stable thermal management across an extended range of -99.9°C to 199.9°C, maintaining short-term stability better than $\pm 0.004^{\circ}\text{C}$ over 1 hour and long-term stability better than $\pm 0.01^{\circ}\text{C}$ over 24

hours. Each channel operates as an isolated bipolar constant current source, enabling independent control without ground loop interference.

Technical Specifications

Temperature Control
Control range: -99.9°C to 199.9°C
Setpoint resolution (thermistor, -20°C to 20°C): 0.1°C
Accuracy (thermistor, -20°C to 20°C): $\pm 0.2^\circ\text{C}$
Resolution (thermistor, 20°C to 50°C): 0.2°C
Accuracy (thermistor, 20°C to 50°C): $\pm 0.2^\circ\text{C}$
Setpoint resolution (AD590/LM335, -20°C to 50°C): 0.1°C
Accuracy (AD590/LM335, -20°C to 50°C): $\pm 0.2^\circ\text{C}$
Short-term stability (1 hour): $< \pm 0.004^\circ\text{C}$
Long-term stability (24 hours): 8 V

Current limit range: 0–4 A
Current limit accuracy: $\pm 50\text{ mA}$
Ripple/noise: $< 1\text{ mA rms}$
Isolation: Floating from all other modules and earth ground

Sensor Support
Compatible sensors: NTC thermistor (2-wire), AD590, LM335, Pt100/100 Ω RTD
Thermistor sensing current: 10 μA or 100 μA
Usable thermistor range: 25–450,000 Ω
AD590 bias: 8 V; LM335 bias: 1 mA; RTD bias: 0.8 mA
AD590 output (25°C): 298.2 $\mu\text{A/K}$
LM335 output (25°C): 2.73 V; temperature coefficient: 10 mV/K

Control algorithm: Smart Integrator, Hybrid PI

Key Features
Four independent isolated TEC channels
High-resolution temperature measurement and control
Supports multiple sensor types with automatic calibration storage
Eliminates ground loops in multi-channel laser systems
GPIB/IEEE-488.2 remote control and TEC voltage calibration capability

Typical Applications
Multi-channel laser diode temperature stabilization
Photodetector thermal management
Wavelength and power stabilization in optical systems
Automated test and characterization of temperature-dependent devices

Compatibility & Integration
The TCM-39034 mounts in one of four rear-loading bays within the LDC-3900 mainframe. Module calibration data is stored internally and retained during system reconfigurations. Full compatibility with GPIB interfaces enables remote operation and automated control of all TEC functions.

Features & description

From manufacturer datasheet

Features

- TEC voltage measurement via remote (not on TCM-39032)
- Closed-case calibration stored on the module
- Smart integrator hybrid PI
- Save/Recall with the LDC-3900
- Isolated from other modules and earth ground
- 15-pin D-sub TEC connector

TCM39034 Characteristics / Specifications

PARAMETER	VALUE
Model	TCM-39034
Manufacturer	ILX Lightwave (Newport / MKS)
Instrument Type	32 W temperature control module
Alias	TCM39034; 39034
Host mainframe	LDC-3900 (any of four rear slots)
Firmware required	LDC-3900 version 3.5 or newer
Temperature control range	-99.9 C to 199.9 C (software limits)
Thermistor setpoint minus 20 to 20 C	0.1 C resolution; ± 0.2 C accuracy
Thermistor setpoint 20 to 50 C	0.2 C resolution; ± 0.2 C accuracy
AD590 LM335 setpoint minus 20 to 50 C	0.1 C resolution; ± 0.2 C accuracy
Short term stability	less than ± 0.004 C (1 hour)
Long term stability	less than ± 0.01 C (24 hours)
Output type	bipolar constant current source
Isolation	isolated from other modules and earth ground
Compliance voltage	greater than 8 V
Maximum current output	4 A
Maximum output power	32 W
Current limit range	0 to 4 A
Current limit set accuracy	± 50 mA
Ripple noise	less than 1 mA rms
Control algorithm	smart integrator, hybrid PI
Sensor thermistor	NTC 2-wire
Sensor IC	AD590 / LM335
Sensor RTD	Pt100 / other 100 ohm RTD (TSC-599 converter)
Thermistor sensing current	10 μ A / 100 μ A

PARAMETER	VALUE
Sensor bias AD5	8 V
Sensor bias LM3	1 mA
Sensor bias RTD	0.8 mA
Usable thermistor range	25 to 450000 ohm typical
AD590 at 25 C	298.2 uA; 1 uA perK LM335 at 25 C: 2.73 V; 10 mV perK RTD PT100 at 25 C: 109.73 ohm
User calibration	Steinhart-Hart thermistor; two-point IC/RTD
TEC connector	15-pin D-sub
Display temperature 10 uA	-99.99 C to 199.99 C; 0.01 C; ± 0.1 C
Display temperature 100 uA	-99.99 C to 199.99 C; 0.01 C; ± 0.05 C
Thermistor 10 uA range	0.0 to 480.00 kohm; 0.01 kohm; ± 0.05 kohm
TE current display	-4.000 to 4.000 A; 0.001 A; ± 0.04 A
TE voltage range	-9.999 to 9.999 V
TE voltage resolution	1 mV
TE voltage accuracy	± 30 mV
TE voltage access	GPIB only
Operating temperature	0 C to 40 C
Storage temperature	-40 C to 70 C
Humidity	less than 80% RH non-condensing
Altitude	3000 m max
Spec condition	1 hour warm-up

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Storage temperature	40 C to 70 C
Operating temperature	0 C to 40 C
Operating Temperature	0 C to 40 C
Humidity	less than 80% RH non-condensing
Altitude	3000 m max
Spec condition	1 hour warm-up Notes Specs from ILX Lightwave TCM-39034 user manual (70028004) and LDC-3900 family TEC-module table. TCM-39032 is the 32 W module without TE voltage measurement. RTD on 39034 uses TSC-599; do not confuse with TSC-595 used on 39032.

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	TCM-39034
Manufacturer	ILX Lightwave (Newport / MKS)
Instrument Type	32 W temperature control module
Alias	TCM39034; 39034
Host mainframe	LDC-3900 (any of four rear slots)
Firmware required	LDC-3900 version 3.5 or newer
Temperature control range	-99.9 C to 199.9 C (software limits)
Thermistor setpoint minus 20 to 20 C	0.1 C resolution; ±0.2 C accuracy
Thermistor setpoint 20 to 50 C	0.2 C resolution; ±0.2 C accuracy
AD590 LM335 setpoint minus 20 to 50 C: 0.1 C resolution; ±0.2 C accuracy	
Specifications	
PARAMETER	VALUE
Short term stability	less than ±0.004 C (1 hour)
Long term stability	less than ±0.01 C (24 hours)
Output type	bipolar constant current source
Isolation	isolated from other modules and earth ground
Compliance voltage	greater than 8 V
Maximum current output	4 A
Maximum output power	32 W
Current limit range	0 to 4 A
Current limit set accuracy	±50 mA
Ripple noise	less than 1 mA rms
Control algorithm	smart integrator, hybrid PI
Sensor thermistor	NTC 2-wire
Sensor IC	AD590 / LM335

PARAMETER	VALUE
Sensor RTD	Pt100 / other 100 ohm RTD (TSC-599 converter)
Thermistor sensing current	10 uA / 100 uA
Sensor bias AD590	8 V
Sensor bias LM335	1 mA
Sensor bias RTD	0.8 mA
Usable thermistor range	25 to 450000 ohm typical
AD590 at 25 C	298.2 uA; 1 uA perKLM335 at 25 C: 2.73 V; 10 mV perKRTD PT100 at 25 C: 109.73 ohm
User calibration	Steinhart-Hart thermistor; two-point IC/RTD
TEC connector	15-pin D-sub
Display temperature 10 uA	-99.99 C to 199.99 C; 0.01 C; ± 0.1 C
Display temperature 100 uA	-99.99 C to 199.99 C; 0.01 C; ± 0.05 C
Thermistor 10 uA range	0.0 to 480.00 kohm; 0.01 kohm; ± 0.05 kohm
TE current display	-4.000 to 4.000 A; 0.001 A; ± 0.04 A
TE voltage range	-9.999 to 9.999 V
TE voltage resolution	1 mV
TE voltage accuracy	± 30 mV
TE voltage access	GPIB only
Operating temperature	0 C to 40 C
Storage temperature	-40 C to 70 C
Humidity	less than 80% RH non-condensing
Altitude	3000 m max
Spec condition	1 hour warm-up

Notes

Specs from ILX Lightwave TCM-39034 user manual (70028004) and LDC-3900 family TEC-module table. TCM-39032 is the 32 W module without TE voltage measurement. RTD on 39034 uses TSC-599; do not confuse with TSC-595 used on 39032.

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.