

## Product Features

Supports C-Block, COC,  
or customer proprietary  
QCL packages

Compatible with the LDX-3232  
CW QCL Driver

Active temperature control from  
-30°C to 30°C

Ports for vacuum evacuation or  
nitrogen purge

Optional XYZ stage with multiple  
ZnSe lens options

The LDM-4872 Series Quantum Cascade Laser Mounts provide convenient mounting for quantum cascade lasers in a vacuum or nitrogen purged environment. The 4872 Series mounts are offered with a standard mounting plate for C-Mount (C-Block) quantum cascade lasers, a standard mounting block for Alpes COC quantum cascade lasers or custom mounting blocks for customer proprietary QCL packages.

A wide temperature control range is accomplished by an integrated thermoelectric module and a high performance water-cooled cold plate which provides for an active control range of -30°C to 30°C with heat loads up to 10W.

Fixture design and precision machining result in low, repeatable thermal resistance between the QCL and LDM-4872 mounts minimizing the temperature difference between the laser and the fixture.

The LDM-4872 mounts are compatible with ILX Lightwave current sources and temperature controllers through interconnect cabling for quick setup. Optical table mounting is made possible through ANSI and metric spaced mounting holes on the base of the mount.



## Convenient Mounting for Quantum Cascade Lasers

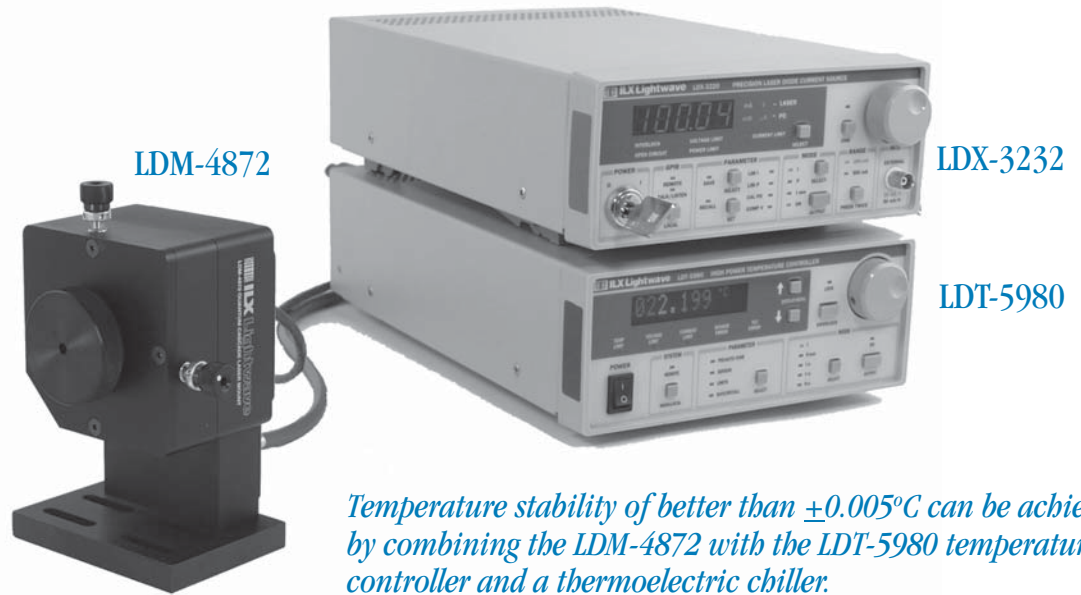
 **ILX Lightwave**<sup>®</sup>  
A Newport Corporation Brand

# LDM 4872 Series

## Quantum Cascade Laser Mounts

# LDM 4872 Series

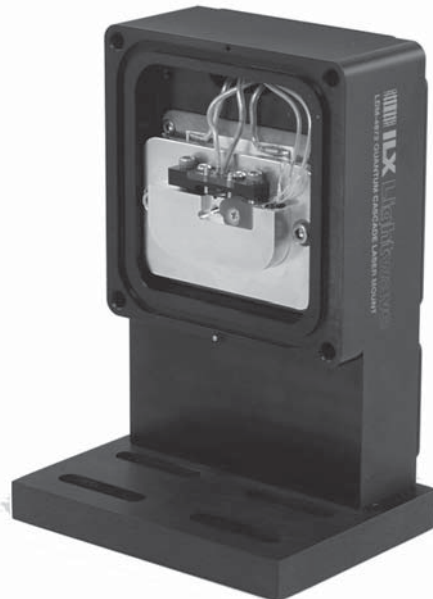
Quantum  
Cascade Laser  
Mounts



*Temperature stability of better than  $\pm 0.005^{\circ}\text{C}$  can be achieved by combining the LDM-4872 with the LDT-5980 temperature controller and a thermoelectric chiller.*

## CONVENIENT MOUNTING OF QCL

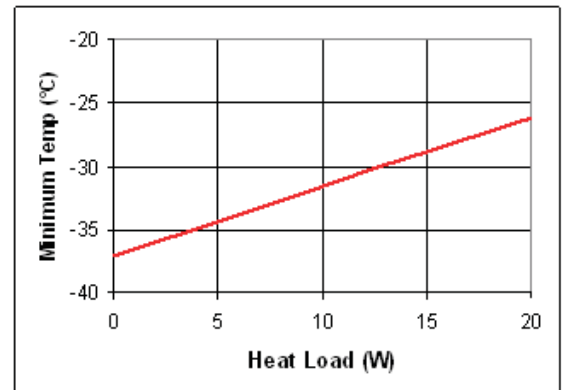
The LDM-4872 mounts are designed to support various QCL manufacturers' devices. The LDM-487201 supports C-Mount (C-Block) and the LDM-487202 supports Alpes COC. ILX can fabricate custom mounting blocks for customer proprietary QCL packages. Careful attention to the design of the optional XYZ stage with MID-IR lens and optional MID-IR window allow the 4872 mounts to be operated in either a vacuum or nitrogen environment. Contact an ILX Lightwave sales engineer if you have any questions concerning mounting of your QCL package to a 4872 mount.



*C-Block Mounting Block*

## ACTIVE TEMPERATURE CONTROL

The LDM-4872 mounts come with an integrated 120W TEC and water-cooled cold plate. The high power TEC has the thermal performance to dissipate the waste heat from inefficient quantum cascade lasers over a wide temperature range of  $-30^{\circ}\text{C}$  to  $30^{\circ}\text{C}$  with thermal loads up to 10W.



## REPEATABLE, LOW THERMAL RESISTANCE

Careful attention to the LDM-4872 mounts mechanical design results in a low thermal resistance between the quantum cascade laser and the mounting plate. Torquing the device to the recommended value provides constant and repeatable clamping pressure on the package. Low thermal resistance eliminates temperature measurement inconsistency which ensures the QCL is being operated at a safe temperature.

# LDM 4872 Series

Quantum  
Cascade Laser  
Mounts

## PRECISION XYZ STAGE AND MID-IR LENS OPTION

The optional XYZ stage with lens provides precise adjustment even when the LDM-4872 mounts are under vacuum. Precision differential adjustment screws for the X and Y axis provide 25 $\mu$ m/rev of fine adjustment. The knurled lens cartridge has 64 threads per inch for precise Z adjustment. For your specific wavelength we have four standard aspheric 6.5mm lens options to cover a wide MID-IR wavelength range. Please contact an ILX Lightwave sales engineer to discuss our lens options.



*XYZ Stage*

## ZINC SELINDE WINDOW OPTION

For quantum cascade lasers not requiring collimation a MID-IR window is available. The QCL output is located 1.5 mm from the 12.7mm diameter ZnSe window.

## EASY CONNECTIONS FOR QUICK SET UP

The LDM-4872 mounts are compatible with most ILX current sources including the LDX-3232 High Compliance Laser Diode Driver. Additionally, the LDX-4872 mounts are compatible with ILX temperature controllers. All connections including electrical, water, and vacuum/nitrogen purge are conveniently located on the back of LDM-4872 mounts.

Standard interconnect cables interface with connectors for laser current and case control on the mount.

## OPTICAL TABLE MOUNTING

Optical table mounting is made possible through standard 1" spaced mounting holes on the base of the mount. Additionally, the LDM-4872 mounts are designed for integration into optical test systems with unobstructed access to the front of the quantum cascade laser mount.



*Zinc Selenide Window*

## 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 by industry-leading after sales support. For more information about the LDM-4872 Quantum Cascade Laser Mounts, and our complete family of Laser Diode Instrumentation and Test Systems, visit [www.newport.com/ilxlightwave](http://www.newport.com/ilxlightwave).

# LDM 4872 Series

Quantum  
Cascade Laser  
Mounts

## Specifications

### CONNECTORS

CW Laser Diode Current	DB9, female
Case Temperature Control	Hybrid D-sub, 7W2, male
Vacuum/Nitrogen Purge	2 x 1/8" NPT female, supplied with compression fittings for 1/4" OD tubing installed
Cooling Water Inlet and Outlet	1/4" barbed fittings

### TEMPERATURE CONTROL

Temperature Control	Solid State, Thermoelectric
Sensor Type	Calibrated 10 K $\Omega$ thermistor
Maximum TEC Current	14.0A
Maximum TEC Voltage	14.0V
Maximum Thermal Load	10W
Temperature Range <sup>1</sup>	-30°C to 30°C
Contact Thermal Resistance <sup>2</sup>	0.10°C-in <sup>2</sup> -W <sup>-1</sup>
Accuracy	$\pm$ 0.5°C
Stability <sup>3</sup>	<0.005°C

### CURRENT

Maximum Laser Current	2.0A
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### GENERAL

Size (L x W x H)	11.4 cm x 10.1 cm x 16.5 cm 4.5" x 4.0" x 5.75"
Beam Height	101.6 mm (4.0")
Weight <sup>4</sup>	1.7 kg (3.8 lb.)
Regulatory Compliance	RoHS, CE
Water Pressure Drop	10 PSI at 3.5 LMP

### LDM-48723X XYZ STAGE

XY Stage	Differential adjustment screw, locking
Travel	3.0 mm
Sensitivity	318 $\mu$ m/rev coarse, 25 $\mu$ m/rev fine
Z Stage	
Travel	5.0 mm
Sensitivity	397 $\mu$ m/rev

### LDM-48723X LENS SPECIFICATIONS

Lens	Aspheric
Diameter	2.5 mm
Working Distance	3.05 mm
Outer Diameter	6.5 mm
Numerical Aperture <sup>5</sup>	0.56
Effective Focal Length	4.0 mm
Material	Molded chalcogenide glass
Optional AR Coatings	LDM-487230: uncoated LDM-487231: 1.75 - 3 $\mu$ m LDM-487232: 2-6 $\mu$ m LDM-487233: 7-14 $\mu$ m

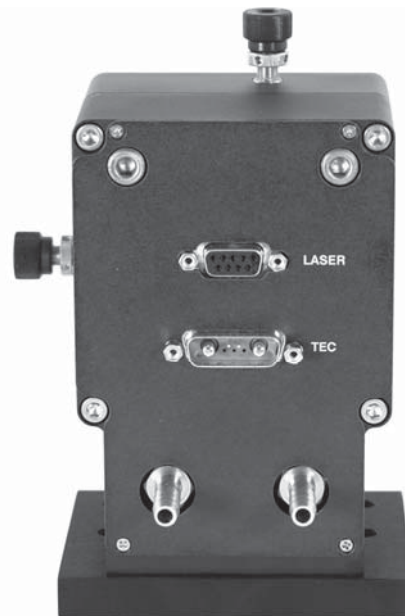
### LDM-487212 WINDOW ASSEMBLY

Minimum Distance to Front Facet	5.8mm
Window	
Dimensions	12.7 mm diameter, 3 mm thickness
Material	Zinc Selenide, IR coated



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Back View  
of LDM-4872

### LDM-487201 C-MOUNT MOUNTING BLOCK

Laser Package	C-Mount
Dimensions	Package Width: 6.35 +/- 1 mm Flying Lead Length: 7.75 +/- 1 mm Package Depth: 2.18 mm - 3.16 mm

### LDM-487202 ALPES MOUNTING BLOCK

Laser Package	Alpes NS and ST
Dimensions	Package Width: 19 mm Package Height: 2.5 mm Package Depth: 7 mm

### NOTES

1. Minimum temperature at 10W, 10°C cooling water, 2 LPM flow rate
2. CTR = (Laser case temperature - mount temperature) / laser waste heat
3. Stability measured at -25°C with a 5W load under 100 mTorr vacuum using LDT-5980 temperature controller.
4. Weight with XYZ stage
5. Based on calculation of index of refraction in air

### ORDERING INFORMATION

LDM-487201	QCL Mount, Water-Cooled Base, C-Block
LDM-487202	QCL Mount, Water-Cooled Base, Alpes Package
LDM-487212	Mid-IR Window
LDM-487230	XYZ Stage and 6.5mm diameter, 4.0mm FL Mid-IR Lens, 80% transmission
LDM-487231	XYZ Stage and 6.5mm diameter, 4.0mm FL Mid-IR Lens, AR Coating 1.75-3 $\mu$ m, 95% transmission
LDM-487232	XYZ Stage and 6.5mm diameter, 4.0mm FL Mid-IR Lens, AR Coating 2-6 $\mu$ m, 95% transmission
LDM-487233	XYZ Stage and 6.5mm diameter, 4.0mm FL Mid-IR Lens, AR Coating 7-14 $\mu$ m, 95% transmission
LDX-3232	High Compliance Current Source
LDT-5545B	50W Thermoelectric Temperature Controller
LDT-5940C	60W Thermoelectric Temperature Controller
LDT-5948	60W Precision Temperature Controller
LDT-5980	120W Thermoelectric Temperature Controller
CC-305S	Current Source/Laser Diode Mount Interconnect Cable
CC-501HT	6A TE Interconnect Cable, 15-Pin to 7W2
CC-596H	10A TEC Interconnect Cable, 25 pin d-sub to 7W2

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

For information call  
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