

## Product Features

Supports C-Block, COC,  
and 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 Quantum Cascade Laser Mount provides convenient mounting for quantum cascade laser diodes in a vacuum or nitrogen purged environment. The 4872 is offered with standard mounting plates for C-Mount (C-Block), Alpes COC, and customer proprietary quantum cascade lasers. 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 minimizing the temperature difference between the laser and the fixture.

The LDM-4872 mount is 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

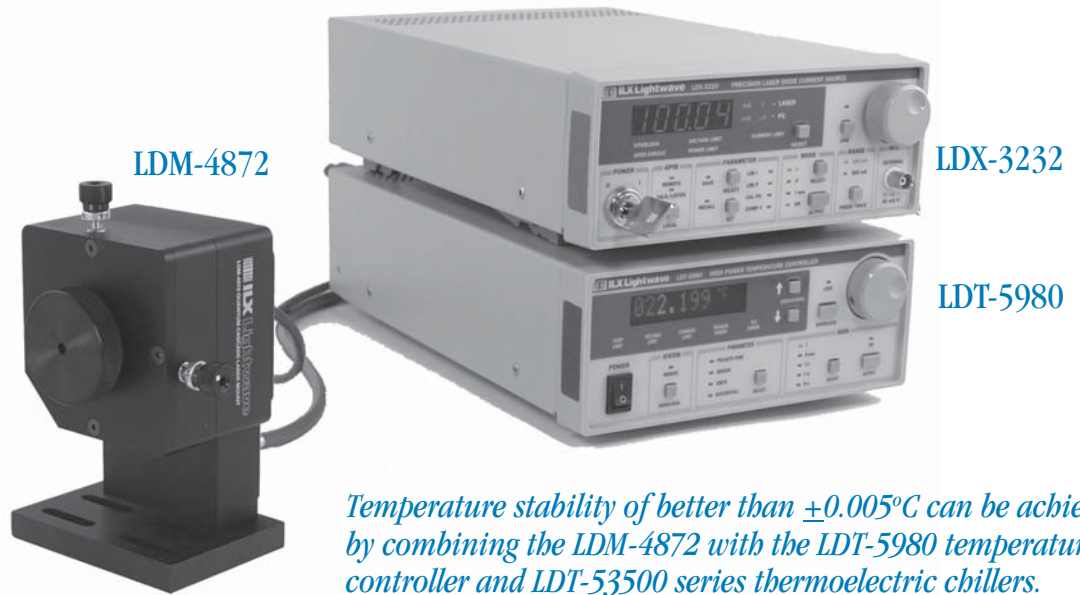
 **ILX Lightwave**  
Laser Diode Instrumentation & Test Systems

# LDM 4872

## Quantum Cascade Laser Diode Mount

# LDM 4872

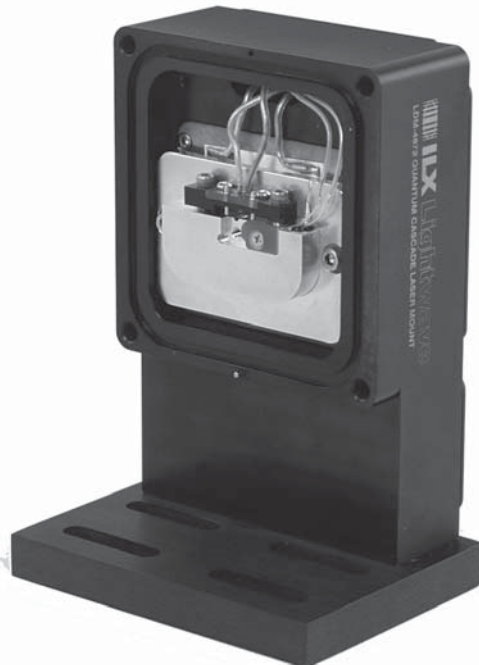
Quantum  
Cascade Laser  
Diode Mount



*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 LDT-53500 series thermoelectric chillers.*

## CONVENIENT MOUNTING OF QCL

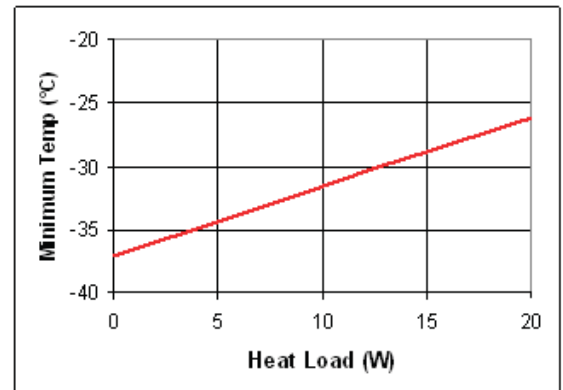
The LDM-4872 is designed to support various QCL manufacturers' devices including C-Mount (C-Block), Alpes COC, and customer proprietary QCL packages. Careful attention to the design of the optional XYZ stage with MID-IR lens and optional MID-IR window allow the 4872 to be operated in either a vacuum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



*C-Block Mounting Block*

## ACTIVE TEMPERATURE CONTROL

The LDM-4872 comes 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's 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

Quantum  
Cascade Laser  
Diode Mount



*XYZ Stage*

## PRECISION XYZ STAGE AND MID-IR LENS OPTION

The optional XYZ stage with lens provides precise adjustment even when the LDM-4872 is 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.

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

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 is designed for integration into optical test systems with unobstructed access to the front of the quantum cascade laser mount.



*Zinc Selinde 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 Mount, and our complete family of Laser Diode Instrumentation and Test Systems, call us today or visit [www.ilxlightwave.com](http://www.ilxlightwave.com).

# LDM 4872

## Quantum Cascade Laser Diode Mount

### Specifications

Laser Packages: C-Block, Alpes COC, and customer proprietary QCL packages

#### 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 10A  
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

#### 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-48721X XYZ STAGE

XY Stage Differential adjustment screw, locking  
Travel 3.0 mm  
Sensitivity 318  $\mu$ m/rev coarse, 24  $\mu$ m/rev fine  
Z Stage  
Travel 5.0 mm  
Sensitivity 397  $\mu$ m/rev  
Lens Aspheric  
Diameter 6.5 mm  
Effective Focal Length 4.0 mm  
Material Molded chalcogenide glass  
Optional AR Coatings 2-3  $\mu$ m, 3-5  $\mu$ m, 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

#### 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



*Back View of LDM-4872*

#### ORDERING INFORMATION

LDM-4872 QCL Mount, Water-Cooled Base  
LDM-487212 Mid-IR Window  
LDM-487213 XYZ Stage and Lens  
LDM-4030 6.5mm diameter, 4.0mm FL Mid-IR Lens, 80% transmission  
LDM-4031 6.5mm diameter, 4.0mm FL Mid-IR Lens, AR Coating 2-3  $\mu$ m, 95% transmission  
LDM-4032 6.5mm diameter, 4.0mm FL Mid-IR Lens, AR Coating 3-5  $\mu$ m, 95% transmission  
LDM-4033 6.5mm diameter, 4.0mm FL Mid-IR Lens, AR Coating 7-14  $\mu$ m, 95% transmission  
LDM-487201 C-Block (C-Mount) Mounting Block  
LDM-487202 Alpes Mounting Block

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

 **ILX Lightwave**  
Laser Diode Instrumentation & Test Systems

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Rev01.081909