

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 lasers 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

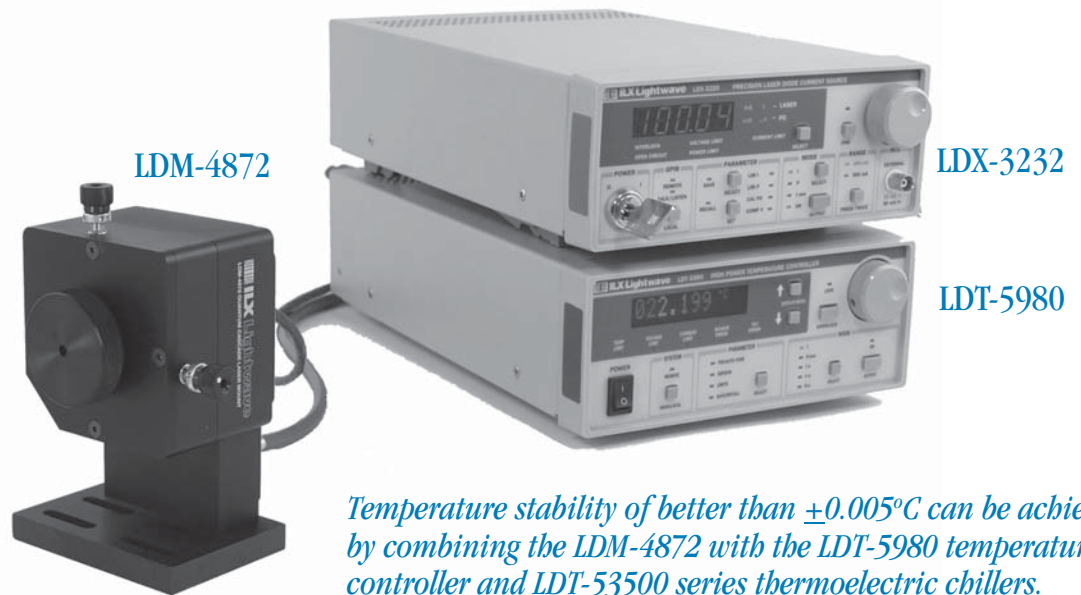
 **ILX Lightwave**
Laser Diode Instrumentation & Test Systems

LDM 4872

Quantum Cascade Laser Mount

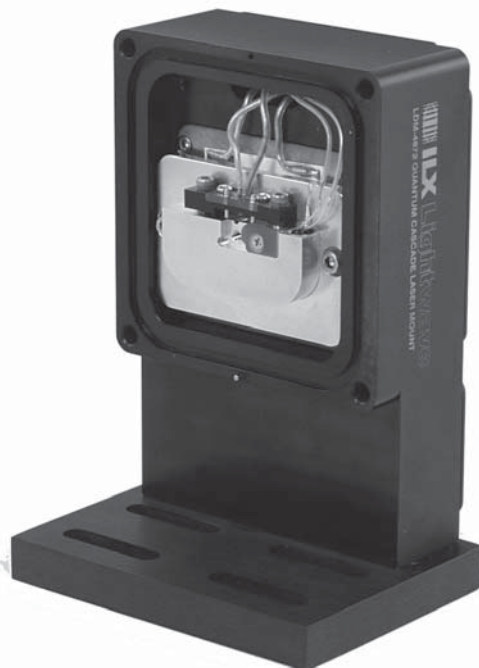
LDM 4872

Quantum
Cascade Laser
Mount



CONVENIENT MOUNTING OF QCL

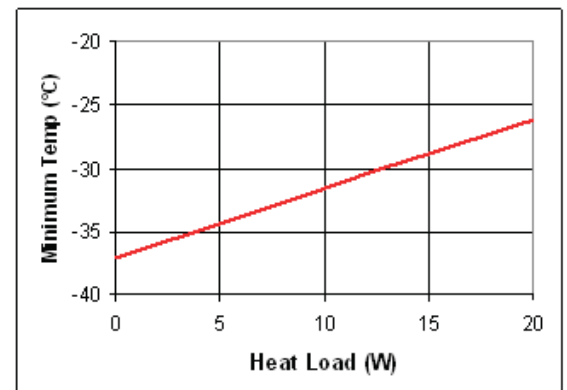
The LDM-4872 is designed to support various QCL manufacturers' devices including C-Mount (C-Block), Alpes COC, and customer proprietary QCL packages. Careful attention to the design of the optional XYZ stage with MID-IR lens and optional MID-IR window allow the 4872 to be operated in either a vacuum 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°C to 30°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 Mount

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 μ 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 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 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 Mount, and our complete family of Laser Diode Instrumentation and Test Systems, call us today or visit www.ilxlightwave.com.

LDM 4872

Quantum Cascade Laser Mount

Specifications

Laser Packages: C-Block, Alpes COC, and customer proprietary 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 Ω thermistor
Maximum TEC Current 10A
Maximum Thermal Load 10W
Temperature Range¹ -30°C to 30°C
Contact Thermal Resistance² 0.10°C-in²-W⁻¹
Accuracy \pm 0.5°C
Stability³ <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")
Weight⁴ 1.7 kg (3.8 lb.)
Regulatory Compliance RoHS, CE
Water Pressure Drop 10 PSI at 3.5 LMP

LDM-487213 XYZ STAGE

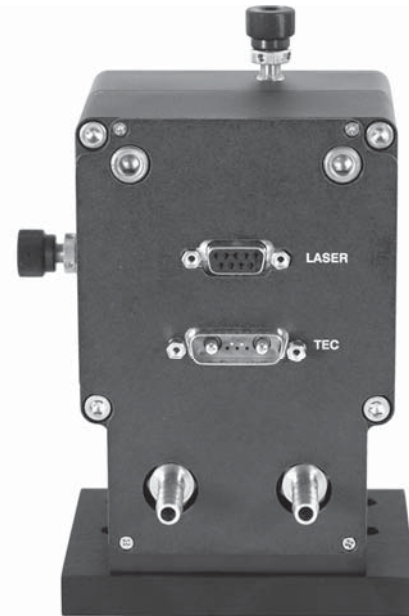
XY Stage Differential adjustment screw, locking
Travel 3.0 mm
Sensitivity 318 μ m/rev coarse, 25 μ m/rev fine
Z Stage
Travel 5.0 mm
Sensitivity 397 μ m/rev

LDM-403x LENS

Lens Aspheric
Diameter 2.5 mm
Working Distance 3.05 mm
Outer Diameter 6.5 mm
Numerical Aperture⁵ 0.56
Effective Focal Length 4.0 mm
Material Molded chalcogenide glass
Optional AR Coatings LDM-4030: uncoated
LDM-4031: 1.75 - 3 μ m
LDM-4032: 2-6 μ m
LDM-4033: 7-14 μ 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



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-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 μ m, 95% transmission
LDM-4032 6.5mm diameter, 4.0mm FL Mid-IR Lens, AR Coating 3-5 μ m, 95% transmission
LDM-4033 6.5mm diameter, 4.0mm FL Mid-IR Lens, AR Coating 7-14 μ m, 95% transmission
LDM-487201 C-Block (C-Mount) Mounting Block
LDM-487202 Alpes Mounting Block
LDX-3232 High Compliance Current Source
LDT-5545B 50W Thermoelectric Temperature Controller
LDT-5948 60W Precision Temperature Controller
LDT-5980 120W Thermoelectric Temperature Controller
LDT-53520/2 200W Laser Diode Thermoelectric Chiller
LDT-53540/2 375W Laser Diode Thermoelectric Chiller
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.

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

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