

# LaserMount™

# 210 SERIES

## USER'S MANUAL



**DIL MOUNT**

## Introduction

Thank you for choosing the **DIL LaserMount** from Arroyo Instruments. The **DIL LaserMount** is designed for high performance and long term use.

For applications requiring case temperature control, the **214 TEC DIL LaserMount** integrates an 8W Peltier cooler for precise control of the package temperature. With an operating range of  $-5^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ , the **TEC DIL LaserMount** should cover most of your case temperature control needs.

Both **DIL LaserMounts** are heavily finned to provide the highest heat dissipation capability, allowing you to operate at more extreme conditions or higher powers. Both mounts also have an array of screw down mounting options available with the removable base.

The **212 DIL LaserMount** can also be used for mini-DIL devices, although it does not provide any heat sinking capability.

The **DIL LaserMount** also offers all the features you would expect from a modern DIL laser diode fixture, including:

- Designed to be quickly integrated with Arroyo's **LaserSource** and **TECSource** instruments.
- Industry-standard D-sub connectors and pin-outs allow for quick integration into existing laser applications.
- Screw terminals for all 8 or 14 pins of the device, allowing for easy, solder-less configuration of the fixture.
- The **214 TEC DIL LaserMount** features three standard connectors, eliminating the need for custom cabling to the two TEC interfaces.



## Installation and Use

**Wiring the mount to your device:** Start by configuring the wiring of the mount to match your DIL or mini-DIL laser. To do this, remove the four screws from the bottom of the fixture and lift off the base plate. This will give you access to the screw terminals inside the fixture.



**Internal Wiring Example**

Using the wiring guide below, connect the wires to the appropriate pins of the DIL or mini-DIL. The wires are color coded for easy identification.

Signal	Color
Laser Anode	Red
Laser Cathode	Black
Photodiode (PD) Anode	Green
Photodiode (PD) Cathode	White
Chassis Ground	Brown
TE (+)	Orange
TE (-)	Yellow
Thermistor	Blue
Thermistor	Violet

**Fixture Wiring Guide**

**CAUTION**

Make sure the LaserMount is earth grounded. The 1220 LaserSource and 1260 TECSource cables ground the fixture to earth ground through the shell connector. If you are not using 1220 and 1260 cables, make sure the LaserMount is grounded through the DB9 or DB15 connectors, or via the banana jack.

Your mount was shipped with four rubber feet, which can be used if the fixture will not be bolted to an optical bench or other mounting system. The feet prevent the fixture from skidding on a smooth surface. If you plan to use the feet, install them now in the four corners of the label side of the bottom plate.

Once you have wired the mount for your device and optionally installed the feet, place the base plate back on the mount and screw in the four screws.

**Connect to Laser Diode Driver and TEC Controller:** Next, connect the **DIL LaserMount** to your laser diode driver and temperature controller. For the **214 TEC DIL LaserMount**, you will need a second temperature controller for the case temperature control.

**NOTE**

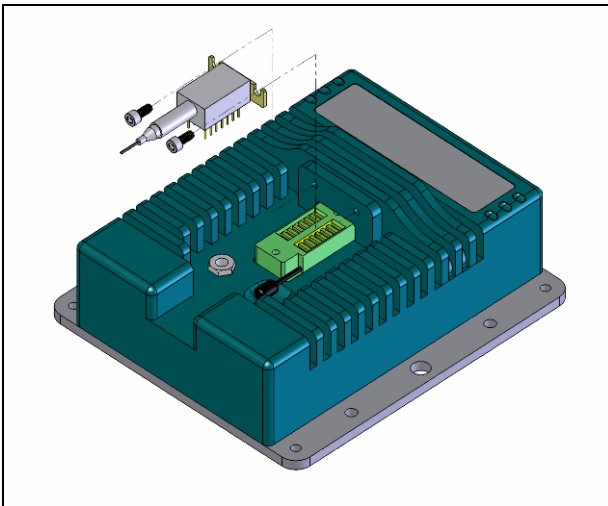
Arroyo Instruments offers Laser and TEC cables designed to connect directly between our **LaserSource** and **TECSource** products. If you use your own cables, ensure the connections are properly made between the instrument and the mount, and that proper grounding techniques are used. The pin-out of the connectors can be found later in this document.

## WARNING

Be sure you are properly ESD protected before handling your laser. For additional information, read the section titled "Laser Diode Protection" later in this manual.

**Mounting your device:** Remove the two small mounting screws from the DIL mounting plate, open the ZIF socket, and carefully place your DIL or mini-DIL laser into the ZIF socket. Make sure the fiber is exiting through the gap provided in the front of the mount.

For DIL devices, screw in the mounting screws, **but do not over tighten, as you can strip the threads in the mounting plate**. For mini-DIL devices, leave the screws out of the fixture. Close the ZIF socket.



**Loading of the Device**

Your mount is now ready for use. Additional technical information can be found below.

## Connector Pin-Outs



**212 DIL LaserMount Connectors**



**214 TEC DIL LaserMount Connectors**

DB-9 Pin	Description
1 & 2	No connection
3	Chassis Ground (GND)
4 & 5	Laser cathode
6	Photodiode cathode
7	Photodiode anode
8 & 9	Laser anode

**Laser DB-9 Connector Pin-Out**

On the 214 TEC DIL LaserMount, both TEC DB-15 connectors are pinned identically.

DB-15 Pin	Description
1 & 2	TE (+)
3 & 4	TE (-)
7	Thermistor
8	Thermistor
5, 6, 9 - 15	No connection

**TEC DB-15 Connector Pin-Out**

## Technical Specifications

### 212 DIL LaserMount

<b>LASER PACKAGE SUPPORTED</b>	
Package	14-pin DIL or 8-pin mini-DIL (mini-DIL electrical connection only)
<b>INPUT CONNECTOR</b>	
Laser Diode	DB-9, male
Laser TEC	DB-15, male

### 214 TEC DIL LaserMount

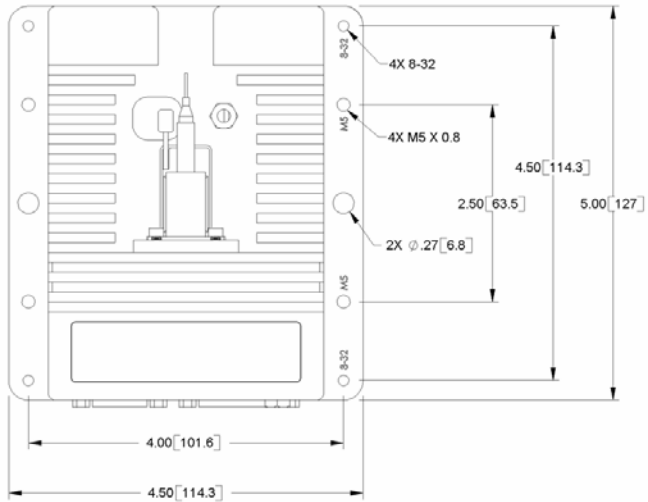
<b>TEMPERATURE CONTROL</b>	
Temperature Range (°C) <sup>1</sup>	-5 to +85
Sensor Type	10kΩ Thermistor
TE Module	I <sub>max</sub> = 3.9A V <sub>max</sub> = 3.75V Q <sub>max</sub> = 8.2W
<b>LASER PACKAGE SUPPORTED</b>	
Package	14-pin DIL
<b>INPUT CONNECTOR</b>	
Laser Diode	DB-9, male
Laser TEC	DB-15, male
Mount TEC	DB-15, male

### GENERAL

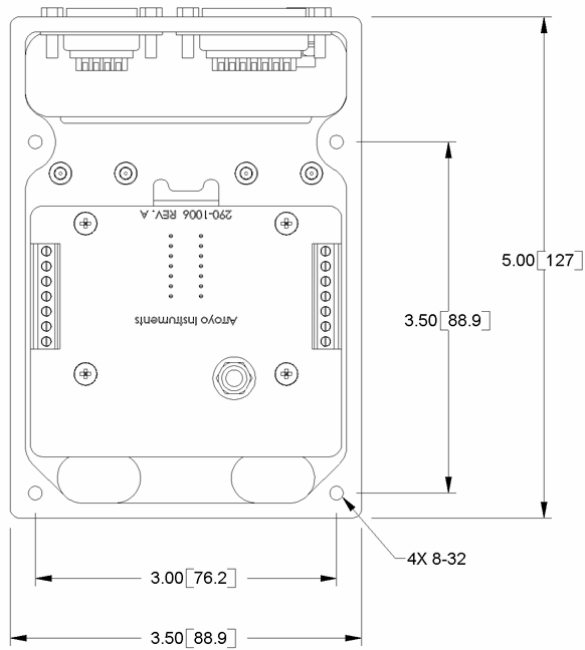
Size w/ base (H x W x D) [in(mm)]	1.55(38) x 4.50(114) x 5.00(127)
Size w/o base (H x W x D) [in(mm)]	1.35(34) x 3.50(97) x 5.00(127)
Mounting holes	¼-20 through-hole, 4" on center (x2) 8-32 threaded holes (x4) M5 threaded holes (x4)
Device mounting screws	4-40 x ¼" Socket Head Cap Screw

<sup>1</sup> Temperature control range is dependent on the power dissipated into the heat sink. Mounting fixture to an optical table will increase the heat dissipation capability.

# Mechanical Specifications



**Top View**



**Bottom View with Base Plate Removed**



## Laser Diode Protection

Electrostatic discharge and current spikes can be a significant cause of damage to laser diodes, but when proper precautions are taken, these risks can be greatly reduced or eliminated. Arroyo Instruments' controllers offer state-of-art laser diode protection, but no instrument can fully shield the laser from damage. Please take these considerations into account when operating your laser:

1. Always set the current limit at or below the maximum current your laser can handle. This prevents the device from accidentally driving the current too high, either via the set point or from the modulation port. This also provides additional current limiting protection from ESD.
2. Always work in an ESD safe operating environment, including the use of wrist straps, ESD grounded work surfaces and floors, and ESD-safe tools.
3. Where the AC power to the laser driver to temperature controller may be noisy, use isolation transformers or uninterruptible power supplies that provide isolation.
4. Make sure all cables are securely connected and fastening screws are screwed in tight.
5. Do not route power cords or other cables in parallel with the laser or temperature controller cables, as coupling may occur between the cables and inject noise into the laser diode.
6. While it is not possible to create a ground loop through the LaserSource because of it's isolation of all inputs, it is possible when using other equipment. Ensure that any other equipment is properly isolated to avoid any ground loop problems.

For additional ESD protection, adding 3.5 $\mu$ H (Mouser P/N 542-FB73-287) ferrite beads as close to the laser diode as possible is recommended. One ferrite bead should be used on each laser diode and photodiode diode anode and cathode, with the wire going through the bead at least twice (two turns).

## Warranty

Arroyo Instruments warrants this product to be free from defects in material and workmanship under normal use and service for a period of one (1) year from date of shipment. It does not apply when the product has been misused, altered or damaged by accident or abnormal conditions of operation. If found to be defective during the warranty period, the product will either be repaired or replaced at Arroyo Instruments's option.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. ARROYO INSTRUMENTS SHALL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE PURCHASE OR USE OF ITS PRODUCTS.

## Service and Support

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