

# LaserMount™

# 246

## USER'S MANUAL



TO-3 MOUNT

## Introduction

Thank you for choosing the **246 TO-3 LaserMount** from Arroyo Instruments. The **246 LaserMount** is designed for high performance and long term use.

For electrical connection, the **246 LaserMount** features a socket connector that is prewired for TO-3 devices, making electrical connection to the TO-3 a snap.

The **246 LaserMount** comes standard with an integrated fan for additional cooling capacity. When used with the **5300 Series TECSource** temperature controllers, no additional power supply is needed to power the fan, or use a standard external 12V DC power supply when connecting to other temperature controllers.

The **246 LaserMount** also offers all the features you would expect from a modern TO-3 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.
- Banana plug for case ground, which can be used as a wrist strap connection or to assure proper grounding to an optical table or test bench.



## Installation and Use

The **246 LaserMount** setup is very quick, simply follow the directions below.

### Earth Grounding Considerations:

When using the **246 LaserMount** with Arroyo Instruments' **LaserSource** or **TECSource** and cables, the **246** will be earth grounded through the cables and instrument. However, if you are using another vendor's cables or instruments, verify the earth ground path and that proper grounding techniques are used. The mount has a banana jack that provides a case connection which can be used for a wrist strap (if the case is earth grounded) or to tie the case to earth ground through something other than the laser driver or temperature controller.

### Internal Cooling Fan:

The **246 LaserMount** has an integrated cooling fan for the heat sink, which allows operation at high heat loads. If you are using an Arroyo Instruments **5300 Series TECSource** temperature controller, the fan supply is built directly into the **TECSource**. You will need to enable the fan supply in the **TECSource** menu – see the **TECSource** manual for additional details.

If you are using a third-party temperature controller, then you will need to provide a 12V DC power supply. The connection into the mount is a standard 2.1mm round plug with the center pin positive, and must be capable of supplying at least 150mA.

The fan +12V and ground connections are completely isolated from the rest of the fixture.

For quieter fan operation, the voltage can be reduced as low as 8VDC, although there will be a slight reduction in thermal capability due to the slower fan speed.

### **Connect to Laser Diode Driver and TEC Controller:**

Connect the **246 LaserMount** to your laser diode driver and temperature controller. Where possible, we recommend the use of Arroyo Instruments laser and TEC cables. Use p/n 1260 **TECSource** Cable for the temperature controller connection, and p/n 1220 **LaserSource** Cable for the laser connection.

#### **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**

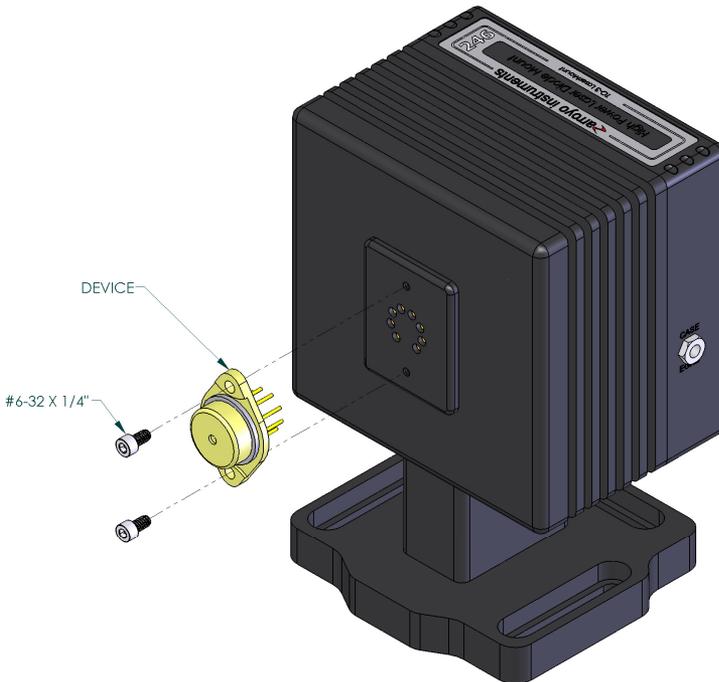
Be sure you are properly ESD protected before handling your laser. For additional information, read the section titled "Laser Diode Protection" later in this manual.

## Mounting your device:

Using the provided 6-32 screws, screw the device down to the mount using the two mounting holes on the face of the fixture. Tighten the screws sufficiently to provide good clamping force to the fixture, but do not over-tighten, as you may strip the threads.

For better thermal transfer, heat sink compound or a thermal pad may be used.

The drawing below illustrates how to load the device onto the **LaserMount**:



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

## Connector Pin-Outs



**246 TO-3 LaserMount Connectors**

DB-9 Pin	Description
1, 2 & 3	No Connection
4 & 5	Laser Cathode
6	Photodiode (PD) Cathode
7	Photodiode (PD) Anode
8 & 9	Laser Anode

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

DB-15 Pin	Description
1, 2, & 9	TE (+)
3, 4, & 10	TE (-)
5 & 6	No Connection
7	Sensor (+)
8	Sensor (-)
11	FAN (+)
12	FAN (-)
13 thru 15	No Connection

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

TO-3 Pin	Description
1	TEC (+)
2	Sensor (-)
3	Sensor (+)
4	Laser Cathode (-)
5	Laser Anode, Case (+)
6	Photodiode (PD) Anode
7	Photodiode (PD) Cathode
8	TEC (-)

**TO-3 Connector Pin-Out**

Connection	Description
Tip	+12VDC (8 to 12VDC)
Sleeve	Fan Ground

**12V Fan Connector Pin-Out**

## Technical Specifications

### 246 TO-3 LaserMount

#### LASER PACKAGE SUPPORTED

Package

TO-3

Mounting Holes

6-32 x 2

#### INPUT CONNECTOR

Laser Diode

DB-9, male

Temperature Controller

DB-15, male

Fan

2.1mm round, 8 to 12VDC

#### GENERAL

Size without base (H x W x D)

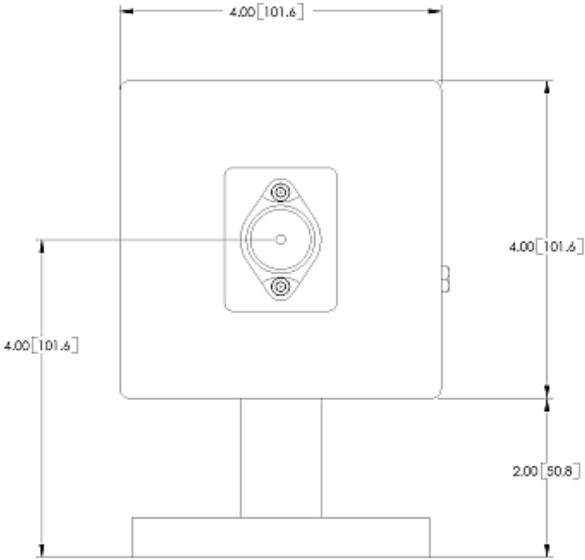
4.0 (101.6) x 4.0 (101.6) x 3.5 (76.2)

[in(mm)]

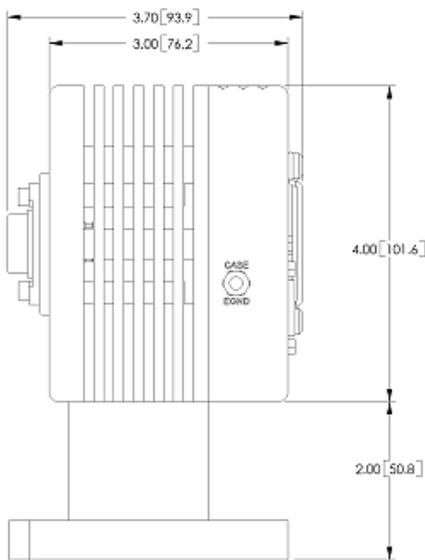
Mounting holes

Slotted holes for 1/4-20 (base)  
1/4-20 x 2 (for post mount)  
M6 (for post mount)

# Mechanical Specifications



**Front View**



**Side View**

## 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.

## 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

For service and support, contact your local distributor or Arroyo Instruments.

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