

TRAM® TR50 Lavalier Microphone



When it was introduced, the TRAM® TR50 miniature microphone revolutionized the industry- it has become the standard in feature film, television production and other areas of the entertainment industry. In addition to its diminutive size and superior sound quality, the TR-50 offers a combination of features that are simply not offered by any other microphone.

The TRAM® TR50 miniature professional lavalier microphone answers the needs of even the most demanding sound recording engineer. It has been designed with the latest electret development and electronics technology, to provide high sound quality with little or no visibility. Its small size and unique design permit a variety of uses and fastening options, that make it ideal for unobtrusive appearance and hidden mic use. The tiny omni-directional capsule features minimum sound coloration and is therefore easily combined with boom mics during post production. A variety of accessories makes mounting the mic on or under clothing easy, with reliable results.

The extended frequency response range and omni-directional characteristics have been designed to satisfy the most stringent requirements in all professional audio fields, particularly film and TV production.

The TR50 is available with a variety of connectors (Micro-Mini, Lemo (4, 6 or 8pin), Mini Switchcraft (3, 4 or 5pin), Sony, Sennheiser, etc.) For direct attachment to any wireless microphone transmitter. In addition to its use with wireless transmitters, the TR-50 can be used as a low impedance hard-wired microphone with the TR-79 power supply. 12/48v phantom powering (in addition to internal powering) is available on all TR-50*PS microphones and TR-79+ positive bias power supplies.

The TR79 power supply provides a balanced transformer output to an XLR connector and uses an Eveready 357 battery. The battery compartment is designed to permit only one insertion direction, so the polarity cannot be reversed. This compartment is accessible by turning the black plastic end cap counter clockwise and pulling firmly. The battery is removed by pushing it out with a sharp object through the hole provided in the bottom of the compartment.

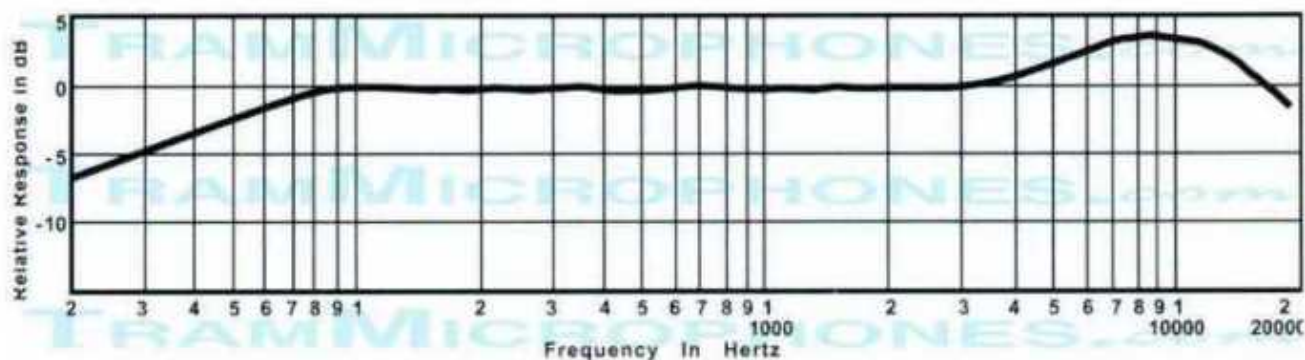
• TR50 Lavalier Mic Features:

- Miniature Electret Condenser Microphone
- Minimum sound coloration for universal use
- Easily combined with boom microphones
- Tiny, lightweight and compact; easily concealed

- Extensive range of mounting accessories
- Wide frequency response
- Very low rubbing noise
- Internal battery or 12-48V phantom power* (*with positive bias version only)
- Detachable 250 Q power supply
- Available in 4 colors: black, gray, white, tan
- Large range of connectors for direct use on a wireless transmitter
- Strong, durable and reliable
- One-year warranty

• **TR50 Specifications:**

- Size: .18" x .300" x .55"
- Type: Omni-directional electret condenser
- Freq. Response: 40 - 16,000 Hz
- Noise Level: 26dB equivalent SPL
- Maximum SPL: 134dB
- Output Level: -57dB
- Nominal Impedance: 3,000Ω (TR-79 Power Supply - 250Ω)
- Operating Voltage: 1.5V
- Current Drain: 20-30 microamps (TR-79: 80-100 microamps)
- Battery: 357 (SR44W/313)
- Isolated Mic Element: To reduce rubbing noise
- Bias: Negative and Positive
- Cable: Sturdy, Flexible (TR-50BPS – 9 ft. long)
- Available mic colors: Black, Gray, Tan, or White



• **TR50 Standard Accessories included with microphone (replace * with color):**

- Cable Holder with Vampire Pins (*CH)
- Clip on Holder with Vampire Pins (*COH)
- Tie Bar with Alligator Clip (*TB)
- Tie Tac (*TT)
- Windscreen (*WS)
- Tape Down (*TD)
- Carrying Case (*CC)
- Cable Reel (*CR) - PS versions only

When using the Clip On and Tape Down Holders under clothing, mount the mic with the back out (facing clothing), as the back of the microphone housing has less rubbing noise than the front grid. There will be no reduction in audio sensitivity. These accessories are available in Black, Gray, Tan or white.

• **TR50 Optional Accessories:**

- Boundary Layer Tape Down (BLTD)
- Double Tie Bar (BDTB)
- Mic Cage with Plain Back (MC1)
- Mic Cage with Vampire Pin Back (MC2)

TR79 Power Supply

Provides powering and balanced XLR output to the TR50 miniature microphone. Available in two powering configurations (microphone bias must match power supply bias.):

TR79

Negative bias, operates on internal battery only

TR79+

Positive bias, operates on internal battery or external 12-48V phantom power.

Connection between the TR50 and TR79 is through a connector of choice (from an extensive list), matching the connector used by an accompanying wireless



transmitter if required.

- **TR79 Features:**

- Tube-style power supply for TR50 mic
- Single Mallory RM675 or equivalent battery
- Balanced output on XLR connector
- 18mm x 85mm
- Output impedance 250Ω

TR79ML Detachable Power Supply With TB5M Connector For Use With TRAM TR50 Mics Wired For Lectrosonics



TR79 Power Supply Hard-Wired To TRAM TR50B Lavalier Mic

FAQ

Positive Bias or Negative Bias? What's the Difference?

This is an extremely popular question. [Click Here](#) for the answer.

Repairs

There are generally 3 types of repairs with TRAM® microphones:

- **Connector**

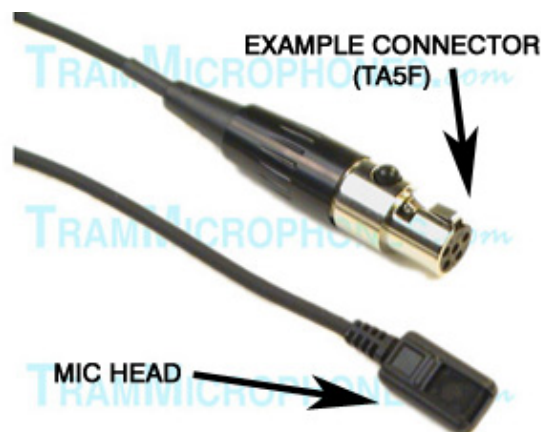
- Cable is intermittent at the connector end of the mic (or where the cable enters the power supply on a hard-wired mic). This is by far the most common problem. The solution is to cut the cable back about 1 inch from the connector and re-install connector. We provide this service for \$41 plus shipping with a turn-a-round of a couple of days (\$50 plus shipping for hard-wired mics to re-butt the cable where it enters the power supply). We can also replace the connector if it is damaged at that time- connector costs vary from connector to connector. To send us the mic for repair, please complete our [Repair Form](#).

- **Head**

- Cable is intermittent (or frayed or pulled out) where it enters the mic head (mic element). **This can not be fixed.** Any problem with or near the mic head (mic element) can not be repaired. The housing is assembled by a machine at the factory and therefore is not serviceable. Your only solution is to purchase a new mic. We offer the [mic only](#) with no case and no clips, and with or without a connector at a lower cost. **For mics that are hard wired into the power supply,** we can install a new mic head/cable assembly onto your old power supply ([here](#) is the approximate cost to replace a hardwired mic with a new head/cable assembly and you can send it to us using our [Repair Form](#)).

- **Power Supply**

- Power Supply is dead. First make sure you test the power supply with another known "good" mic. Second, make sure the bias of the microphone is the same as the power supply (See [FAQs](#) above about Bias). Third, make sure you are using a "good" battery. **It is very rare that we see a bad power supply** and the cause of the fault is generally one of the items just listed. If you have tried all three of those things and the power supply still doesn't work, then your only recourse is to purchase a new power supply as it is a non-serviceable item.
- Cable is intermittent or frayed where it enters the power supply on a hard-wired mic. This is repairable, see "Connector" type repairs above.



If you are still lost and have no idea whether it can be fixed or not or what component is at fault, you can send us everything and we can figure it out for you!

To Send us your TRAM® Microphone for Repair, please complete a [Repair Form](#). The address to ship to is on the form. The average repair cost is approximately \$45 plus shipping. We suggest you pre-authorize \$55, in case we need a few additional parts (new connector, etc.). Please Note that a \$22.00 service charge, plus return shipping (if you want it back) will apply to all **refused repair estimates**.

General

Manufacture Warranty

TRAM® microphones are warranted to the original purchaser to be free from defects in material and workmanship under normal use for a period of one year from date of purchase. During this one year period, and upon proof of purchase, your microphone will be repaired or replaced, at the

manufacture's option, without charge for either parts or labor, provided the microphone is sent prepaid to the manufacture. This warranty will not apply if the microphone has been misused, abused, incorrectly wired or altered. Warranty repair/replacement does not extend this warranty. To send in a warranty repair, you should **send it back to the dealer you purchased it from** along with a copy of your bill of sale. The dealer will then in-turn forward the mic back to TRAM for repair or replacement. TramMicrophones.com is not the manufacture, we are only an authorized distributor and therefore only handle warranty repairs on TRAM microphones that we have sold.

Ordering

You can order microphones directly from this website, or by phone, fax or email. Follow the links below for online ordering.

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TRAM® Lavalier Microphone Bias: Positive Bias vs Negative Bias

General Lavalier Microphone Theory

Before we discuss the difference between Bias, we need to review the basics of lavalier microphones. Electret Lavalier Microphones require power to operate. When a lavalier microphone is connected to a wireless transmitter, that transmitter provides power (usually 1.5VDC to 5VDC) to the lavalier for it to work. When you are using a lavalier microphone without a wireless system, you need some way to get power to the lavalier.

You cannot just connect a lavalier microphone to a camera or mixer's input and expect it work, even if your equipment supplies phantom power. Phantom Power is 48VDC, which is way too much voltage for a lavalier microphone, which usually wants between 1.5VDC to 5VDC. The solution is a lavalier power supply. A lavalier power supply looks like a long XLR connector or XLR Barrel. The power supply is about 3/4" in diameter, around 6" long and usually contains a battery. It has a 3pin XLR Male on one side. The other side of the power supply either has a wire coming out that has the lavalier mic attached to it (thus termed "hardwired to power supply"), or has a mating connector on it, so you can plug your lavalier microphone that has a connector on the end of it, into the power supply (thus termed "with detachable power supply"). With the latter configuration (with detachable power supply), you can use your lavalier microphone with your wireless system or have the option to go directly into a camera or mixer using the power supply. With the first configuration (hardwired to power supply) you always have to go "wired" into a camera or mixer.

What is Bias?

Now that we have covered the basics, lets discuss what Positive and Negative Bias is. Bias is basically which way power flows to the microphone. Think of any piece of electronic equipment that requires a battery to work. When you install the battery, you need to insert it the correct way. The positive(+) side and the negative(-) side of the battery needs to be inserted the proper way. If you insert the battery the wrong way it won't work.

Bias Must Match

If you are using a wireless microphone system or a lavalier power supply **that unit's bias and the bias of the lavalier must match for the microphone to work**. Some wireless system only offer negative bias, some only offer positive bias and some offer both bias options. The same goes for lavalier microphones, some can only be used with negative bias, some only with positive bias and some can be wired to be used either way. The ones that offer both options are of course the most versatile, but also the most confusing. Lectrosonics Wireless Systems and Tram Microphones are two examples that offer both bias options. So whether your Tram is wired for positive or negative bias, it will work either way with a Lectrosonics. The problem comes into play when you are using a "detachable lavalier power supply". If the power supply is positive bias, the microphone must be positive bias as well. If you attempt to connect a negative bias microphone into a positive bias power supply, it will not work.

Lavalier Power Supplies

Lavalier Power Supplies come in a couple of different varieties. Some require you to use an internal battery, some require phantom power (12VDC, 48VDC or either), and some work both ways either with a battery or phantom

Tram Negative Bias Power Supplies: Will operate only with the internal battery

Tram Positive Bias Power Supplies: Will operate with either the internal battery or 12-48VDC Phantom Power.

With Tram power supplies the positive bias version is the most versatile (giving you the option to use a battery or phantom power), but it is also a little more expensive.

Which Bias To Choose?

If you are using the most common components, a Lectrosonics Wireless System and a Tram Microphone, which bias do you choose? **We would recommend Positive Bias**. With a Wireless Application, the choice does not really make a difference. However, when the microphone is used in a "Wired" configuration with a lavalier power supply, positive bias is definitely preferred. If a lavalier is wired for Negative Bias the mic element is left ungrounded, which leaves it vulnerable to buzz and hum caused by RFI/EMI interference. Plus, in a hard-wired configuration, with a positive bias power supply you can either power the lavalier mic by the internal battery in the power supply or via +48VDC phantom power (a negative bias power supply will only work with the internal battery in the power supply and will not work with +48VDC phantom power).

One last thing to consider, if you already own Tram Mics

If you already own Tram lavalier mics and/or Tram power supplies and are looking to replace them with the same type, you may want to get the same bias. Using 2 microphones that are of the opposite bias will normally cause them to be out of phase with one another (Easily remedied phase reverse adapter barrel, but is an extra step). If you have 4 Trams wired for negative bias with detachable power supplies and 4 Trams wired of positive bias without a power supply, you will not be able to use the Tram positive bias mics with the negative bias power supplies... and your intern won't know that. They will attempt to mix-n-match mics with power supplies (because they all look the same) and determine that you have a lot of dead mics.

How to determine if the Tram Mics you already have are positive or negative bias?

There is no way to tell by looking at them, you need to disassemble the connector to see how it is wired (do not disassemble the power supply tube if you have one!). After disassembling the connector:

Tram Negative Bias Microphones: Red Wire & Shield are tied together and Black Wire is by itself

Tram Positive Bias Microphones: Black Wire & Shield are tied together and Red Wire is by itself

Most Tram microphones manufactured after 2005 have a small piece of red shrink tubing just behind the connector boot to notate that it is wired positive bias. Negative Bias mics do not have any sort of notation.

If your Tram only has a White Wire and a Shield, then you have a really old Tram! Back then, the Tram had to be manufactured either positive

or negative bias. In this case you need to look at the actual mic head. On the back of the head (the side opposite of the grille) there will be a circular indentation. If inside that indentation you see a "+" sign then the mic is positive bias... if you see nothing inside the circular indentation, then it is negative bias. Like we said, you have an old mic, so be sure you look hard at the indentation to be sure the "+" has not just rubbed off a little!

Most Tram power supplies manufactured after 2005 (and select earlier ones) have a Red Dot or Red Plus Sign on the plastic cap of the power supply to determine that it is positive bias. Negative Bias Supplies do not have any notation. The only other real way to determine the bias of the power supply is to connect a positive bias and a negative bias microphone to it to see which one works.

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