



Trance Audio, Inc.
Applied Magic for Musicians

The Inducer Stereo Contact Microphone System

Thank you for purchasing a custom-built Inducer! Here's what you need to know -

Plugging into either one (or both) of the inputs will power up the unit. The LED on the top is the battery life indicator. It will be out (or very dim) during operation, and when the battery voltage gets down to about 6 volts, it will start to flash at 1 second intervals, to let you know that it's time to change the batteries. Always be sure to unplug all cables from the unit when changing the batteries, and be sure to fasten the bottom lid securely to shield the electronics after the battery change. This is a high gain, high impedance unit, and if the lid is loose or off you may pick up excessive hum and buzz from devices around you. Unplugging both transducers from the inputs will power down the unit, and preserve battery life. The unit is powered from 2 9Volt batteries, which are held in place with the clips on the side of the unit. The batteries are secure for normal use, but may come loose during rough travel, so it is recommended that you remove them from the unit before shipping.

The inputs are open if no transducer is plugged in, so if you use only one transducer and leave the other input unplugged, be sure to turn the gain for the unused channel completely down (fully CCW) so that it won't make noise or oscillate, which can affect the quality of the channel in use. Always be sure to turn down the mixer or headphone levels before connecting or disconnecting the pickups, as loud pops or noise may occur.

The gain controls are actual preamp gain (not volume controls in that they don't completely shut off the output) and vary the gain up to almost 60dB (with some noise, of course). The taper is set so the control varies the gain smoothly from low to high.

Both the XLR and the TRS outs are balanced 600 ohm sends, and can be used simultaneously if desired. The positive output is pin 2 on the XLR, and the Tip on the TRS outputs when the associated PHASE switch is in the DOWN position. When the switch is up, the phase is reversed for that channel. You can plug a MONO cable into either TRS output if desired, but this unbalances the XLR output as well, since they are connected together.

The Specs: (@30dB gain)

Noise floor typically better than -100dB (A wtd)
S/N Ratio typically better than -118dB (A wtd)
Frequency Response typically +/- .06dB 10hz-20Khz (-3dB @ >70K)
THD typically better than .005% THD @ -20dB signal

We have also included some samples of the special double-stick tape we use to attach the transducer to instruments; you could use a similar arrangement to attach the transducer to other surfaces. We've heard that sticky putties (like poster putty) work nicely, and there are other double-stick tapes (i.e.: carpet tape) that you could use as well.

Please let us know if you have any questions!

TRANCE AUDIO INDUCER™

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Warranty

This warranty covers all defects in materials and workmanship for a period of one year from the date of purchase by the original owner.

Trance Audio does not cover:

- Damages due to improper or inadequate maintenance, accident, abuse, misuse, alteration, unauthorized repairs, tampering, or failure to follow normal operating procedures as outlined in the owner's manual.
- Deterioration or damage of the cabinet.
- Damages occurring during any shipment of the product for any reason.
- Any product that has been modified by anyone other than Trance Audio, Inc.

Limitation of Implied Warranties

No warranty is expressed or implied. Trance Audio specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

Exclusion of Certain Damages

Trance Audio's liability for a product found defective is limited to repair or replacement of the unit, at our option. In no event shall Trance Audio be liable for damages based on inconvenience, whether incidental or consequential, loss of use of the unit, loss of time, interrupted operation or commercial loss, or any other consequential damages.

Some states do not allow limitation of the duration of implied warranties or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

How To Obtain Warranty Service

All Trance Audio products are manufactured with the highest standards of quality. If you find that your transducer or preamp does require service, it may be done by an authorized Trance Audio service center. Please contact Trance Audio at (831) 688-9699 or email info@tranceaudio.com. We will either refer you to an authorized service center or ask that you return your transducer or preamp to the factory. When returning a product to the factory, you will be issued a Return Authorization number. Please label all cartons, shipping documents and correspondence with this number.



The Inducer Stereo Contact Microphone System: How to get the best from your system

The Inducer uses a stereo pair of our Acoustic Lens transducers, which are VERY high impedance devices (greater than 15M ohm). What these effectively look like to a preamp input is something like an open cable that's been plugged in, and they are very heavily shielded to reduce noise, hum, and any other types of interference. The preamps are designed to match them correctly and deliver a low impedance balanced or unbalanced signal to your recorder, mixer, or other audio device with very low noise. Even with all of the shielding and the low noise preamps, there may be situations where you will amplify the signals from the transducers enough to encounter noise or hum in the signal. Here are some pointers to help you get the most from your system.

The larger the signal from the transducer, the less you will need to amplify it, and the lower the noise floor will be. The quality of contact between the transducer and the vibrating surface is key in getting the largest signal possible. The condition and type of tape used to attach the transducer can play a large role here, and different adhesives can be better or worse at coupling vibration to the transducer. There are a variety of double-sided tapes out there, and it can be useful to have choices in your tool kit for different situations. Cloth and fiberglass backed carpet tape can be useful, as well as different types of VHB and UHB tapes of different thicknesses. Don't use any adhesive material that will leave an oily residue behind, as this may soak into the epoxy sensing surface and make it difficult or impossible to attach the transducers in the future. The position chosen for the transducer can also make a big difference in signal level. A flat surface will provide the biggest contact area with the transducers, and moving the positioning can sometimes find a stronger nodal point of the vibrating surface which will boost the output and improve the noise floor. The more a surface is vibrating, the larger the signal the transducers can create. Some sound design involves working with sources that are barely vibrating, and these are the types of situations where an immense amount of amplification may be required to capture this tiny signal, and noise and hum will of course be amplified as well.

The entire Inducer system has been carefully shielded to combat interference from external sources (typically hum, but this can be other noises from nearby devices such as computers). This shielding will work best when the system is connected to a proper earth ground. This allows the noise captured by the shield to be shunted to ground, and away from the sensitive signals picked up by the transducers. Not all audio devices have a proper earth ground as it is typically more expensive to make a system this way, and it is generally not as important to lower impedance devices to keep them quiet. It makes a big difference for higher impedance systems like the Inducer though, and **we have provided a ground lug to allow for an easy earth ground connection if needed via a standard banana plug**. If your mixer or recorder has a 3-prong power cable, then that usually means that the system can be properly earth grounded if it is plugged into an appropriately grounded outlet (not all 3-prong outlets are really grounded though...if you are in doubt, you can buy a tester from most electronics stores that will show the status of the outlet it's plugged into). If your audio device has a 2-prong AC cable or uses a 2-prong AC adapter, then it very likely has a non-earth ground system, sometimes referred to as a "floating" ground. This type of system will be much more likely to pick up hum and other interference, and using a properly connected ground to the provided connector on the Inducer (marked "GND") will be helpful in reducing noise levels. Portable field recorders may be more susceptible to this problem. The different interfaces used have varying types of construction and can be more or less successful at noise rejection, depending on the unit and circumstances.

Proper gain staging of the Inducer will also help reduce noise levels. The output is considered to be line level so plugging it into a mic input with a fair amount of gain will raise the noise floor unnecessarily. Better results are often obtained by raising the gain at the Inducer, and using a line input in the mixer (or using a mic input with the gain turned down). For small, difficult to amplify signals, you can also add gain at the mic preamp or mixer input, but this will also raise the noise floor accordingly.

Careful placement of the Inducer preamp and the transducer cables away from noise-generating sources like transformers, AC adapters, computer monitors and the like can also help to lower noise levels that might be picked up. The transducer cables will usually pick up less interference if they are not coiled, which can make them behave more like antennas.

Any residual noise, hum or other interference can be dealt with in post-production through the use of such tools as the Waves or Isotope noise reduction tools. Be sure leave enough blank signal at the beginnings of your recordings to allow these programs to acquire a sonic “footprint” of any interference to be removed.

A note about batteries:

Batteries aren't made as well as they used to be. Recently we've seen intermittent connections at the battery clips, which can cause pops and clicks in the sound, especially when you're moving the preamp. You can make sure that the battery connections are secure by rotating the battery connector 90 degrees and plugging together each of the connections separately to check for a firm connection. If you find that one (or both) of the connections is loose, then you can use a pair of needle-nosed pliers to lightly squeeze together the “petals” of the female battery connection slightly to make the connection secure when plugged together. If one of the connections is loose, it can *seem* like the battery snaps in place securely, but you will have one connection which can be intermittent. Checking each connection separately just takes a few seconds but can eliminate any potential problems.