



The Micro Amp & Ultra Micro Amp

headphone amplifier
Owner's Manual



Congratulations on your purchase of what's probably the highest performance per cubic-inch audio device on the planet! Your new Micro Amp will take up very little space on your desktop, but it will completely fill the space right between your ears with glorious music.

Because they are both functionally identical, this manual covers both the Micro Amp and the Ultra Micro Amp. The only difference between amps is that the excellent TI 134 op-amps in the standard Micro Amp are replaced with the amazingly excellent --- and shockingly expensive --- TI 627 op-amps. Other than that both amps are constructed using the same outstanding quality metal film resistors and poly-film caps.

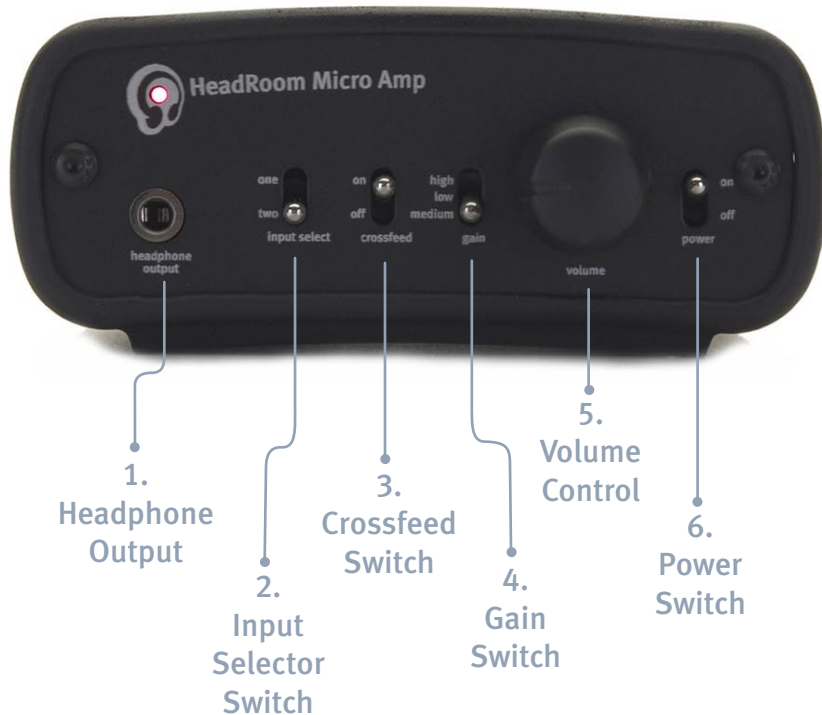
Enough with the front of the manual, already! Read on, set it up, and go have a great headphone listening session. And for those moments you may not need headphones, don't forget to use the pre-amp out on the rear panel as a source for desktop speaker power amp or self powered speakers.

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Bozeman, MT 59715
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The Micro & Ultra Micro Amp Front Panel

The Micro Amp and Ultra Micro Amp have all the same external features, the only difference you'll find other than the title is the difference you'll be hearing. See page 6 for more info about the Micro & Ultra Micro Amp's common features and differentiating characteristics.



Front Panel Description

1. Headphone Output The headphone out is where you plug in your headphones. If you want to use two pair of headphones, headphone splitters are available on our website. There isn't room for a full sized jack, but this 1/8" mini-plug will take the small plug of all 1/8" headphone jacks. We also sell a short flexible Grado 1/4"-1/8" adaptor as well as Cardas replacement cables with 1/8" inputs for certain headphones, please contact us or visit our website for more information.

2. Input Selector Switch Choose between inputs one or two with this switch. Leave both of your inputs hooked up (inputs are found on the rear of the amp) and simply switch between them with this handy feature. Be sure to turn the volume down before switching, as source impedance may vary greatly, and Micro volume control may need to be adjusted accordingly.

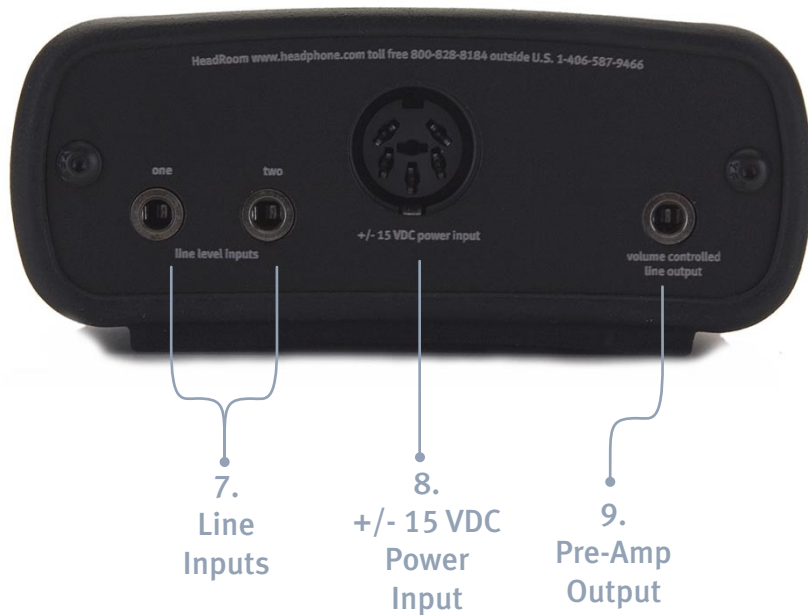
3. Crossfeed Switch This switch engages the crossfeed circuit. The audio image on headphones is often not very good; typically the image is a blob on the left, a blob on the right, and a blob in the middle. The HeadRoom crossfeed provides the natural acoustic cross-feed normally heard at the left and right ear as heard from the left and right speaker. Adding back the normally occurring cross-feed signal gives your brain enough information to build the stable and natural audio image needed to have a quality listening experience. See pg.7 for more info on the HeadRoom crossfeed.

4. Gain Switch The 3-position Gain Switch accomodates various headphones' power needs. For instance, the Low Gain setting would be used for ear canal headphones (which are extremely efficient), allowing a larger range on the volume control pot. Experimenting with your headphones and the gain switch will help you to determine which setting you prefer.

5. Volume Control As you turn the volume control knob clockwise, the volume increases. You never know where the volume control should be set as different headphones often have widely different impedances and efficiencies, so use your ears to choose your listening level, not the level on the dial. We recommend you choose a moderate level so as not to blow out your ears; a general rule of thumb is to adjust the volume only one or two notches above 'sounding too quiet'. It is important to turn the amp OFF or ALL THE WAY DOWN before plugging in or unplugging your headphones to avoid short-circuiting the amp.

6. Power Switch Use this switch to turn your Micro Amp on. The red LED will illuminate in the center of the HeadRoom logo in the upper left hand corner of the amp. There is nothing wrong with leaving your amp 'on' or 'off' for lengthy periods of time; however we recommed that you unplug your amplifier if you're storing it for a long period of time.

The Micro & Ultra Micro Amp Rear Panel



Rear Panel Description

7. Line Inputs Plug your source into the Micro Amp here, using either a mini-mini cable if your source has a line-out or a RCA-mini cable if your source has RCA outputs. If you're using the Micro DAC, you will use a mini-mini cable and run the Micro DAC into the amp here (see page 9 for more info on hooking up your Micro Amp). Note the two inputs on the Micro Amp, thus allowing you to have two sources plugged in at the same time, such as an iPod and your computer running through the Micro DAC, for example. The source that is playing will be determined by the input selector switch on the front of the unit.

8. +/- 15VDC Power Input Plug in your power supply here. The 'brick' power supply is included with the Micro Amp; upon purchase you will have chosen a voltage appropriate to your country's voltage requirement, either 110v (North America, Japan, Singapore and others) or 220v (Europe, Australia, China, etc). We also recommend the Astrodyne switching power supply or the larger Desktop Power Supply (both accommodate any country's voltage requirement) as available power upgrades, these upgrades are particularly useful with the Ultra Micro Amp. Visit our website for more information about these power supply upgrades.

9. Pre-Amp Output The Pre-Amp Output on the rear of the Micro Amp is an excellent way to provide a volume controlled output to your desktop self-powered speakers or as a source for a speaker power amp. The output is in parallel to the headphone jacks, so you will hear music from both your headphones and your speakers (although volume levels may vary). In true pre-amp fashion, the volume pot provides a variable-controlled signal output to speakers; the louder the volume setting, the louder your speaker signal. While this output can be used as a second headphone jack, avoid connecting two highly efficient ear canal headphones to each output, use a splitter from the front jack instead.



Included Power Supply

Features & Differences

Micro Amp & Ultra Micro Amp Common Features

Both the Micro Amp and the Ultra Micro Amp share the following common features:

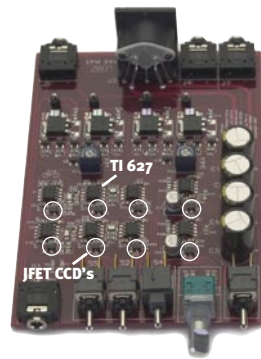
- Dual Input
- Headphone Output and rear Pre-Amp Output
- Selectable Gain settings (3)
- Selectable Crossfeed Function
- +/-15V Power Supply
- DC coupled signal path, from input to output
- Full dual mono design all the way back to the power supply
- Discrete emitter follower output stage, biased into class A operation (the Diamond buffer)
- Resistors are low noise, low drift .1% metal film types
- Local device decoupling with low-ESR, tight tolerance PPS film capacitors
- Power supply decoupling with ultra low ESR electrolytics
- Shortest signal path possible, PCB routed with high-speed signal integrity and low noise in mind
- Multi-layer PCB with dedicated, low impedance power and ground layers

“What’s the difference between the Micro Amp and Ultra Micro Amp?”

The major differences between the Micro Amp and Ultra Micro Amp is that the Ultra Micro Amp uses TI 627 op-amps instead of TI 134s op-amps, and that all the Ultra unit op-amps are fully biased into Class-A operation with JFET CCDs. The result is improved musical detail resolution, quicker dynamics, more precise tonal presentation, and better soundstage imaging. The standard Micro Amp remains in Class-A operation except for the gain stage which biased into an excellent ‘Class A/B’ topology.



Micro Amp



Ultra Micro Amp

What is the HeadRoom Crossfeed?

Imagine you are listening to a pair of speakers. If you turn off the left speaker, both ears hear the sound from the right speaker. But because the left ear is slight farther away than the right ear, it hears the speaker’s sound slightly after the right ear; about 300 microSeconds. This time difference is called the “inter-aural time difference” and it is the main thing your brain listens for in order to tell where to place sound left-to-right.

But in headphones if you turn off the left channel, only the right ear hears the sound. In headphones, if there is any sound that is only in the left channel, or only in the right channel, then only that ear hears the sound. This is not natural, and you brain becomes fatigued trying to figure out where sound is coming from when only one ear is hearing it. This tends to create an audio image that is a blob on the left, blob on the right and a blob in the middle.

HeadRoom amplifiers cure the problem by allowing you to cross-feed a little of the left and right channels across to each other through a short time delay using the crossfeed switch. The usefulness of the circuit varies depending on what type of recording you are listening to; mono and binaural recordings need no processor at all. Old studio recordings that have instruments panned hard left or right, benefit greatly from the processor. Live and classical recordings miked from a distance benefit somewhat less, and can often be listened to without the processor quite comfortably.

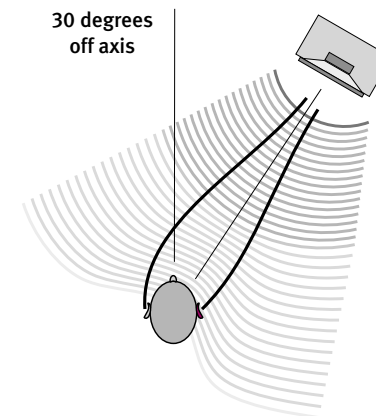
The crossfeed switch in HeadRoom amplifiers allow you to cross-feed a little of the left and right channels across to each other through a short time delay.



Plain Headphones



With HeadRoom



Far ear hears slight delay.

Near ear hears sound first.

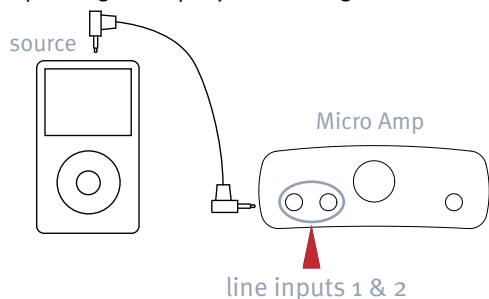
Connecting Your Micro Amp

Connecting the Micro Amp to Analog source:

Source with line out or headphone jack:

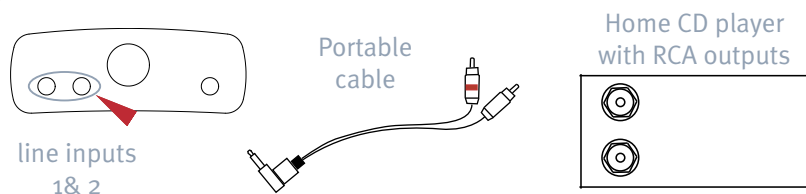
Hook the Micro Amp to your iPod, portable CD player, or any other source with a headphone jack using a *mini-mini cable*. If your source happens to have a line-output, then even better; use the line output rather than the headphone jack (using line-out will completely bypass the player's volume control).

Simply run the mini-mini cable from the line-out or headphone jack of your player into line input '1' or '2' on the back of the amp. On the front panel, switch the *input selector switch* to the corresponding line input you are using.

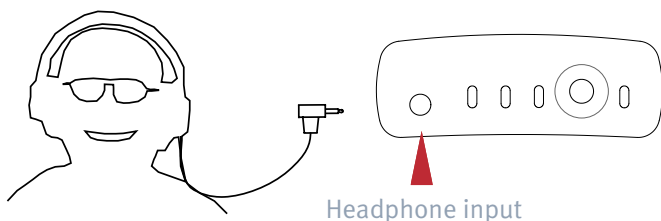


Source with RCA outputs:

If your CD player has a set of RCA outputs, an *RCA to Mini Cable* will allow you to connect the RCA outputs of your player into one of the line inputs on the Micro Amp. Be sure to note that as always, red or 'R', designates right channel on RCA inputs. On the front panel, switch the input selector switch to the corresponding line input you are using.



Now, for the best part: simply plug your headphones into the headphone jack on the front of the Micro Amp (be sure to turn the volume down first). If your headphone jack is a 1/4" termination, or if you need to power more than one pair of headphones, please see our explanation in #1 on page 2.

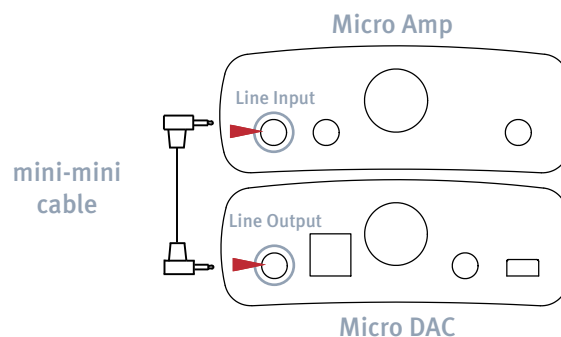


Connecting Your Micro Amp & Micro DAC

Using the Micro Amp with Micro DAC & a Digital Source

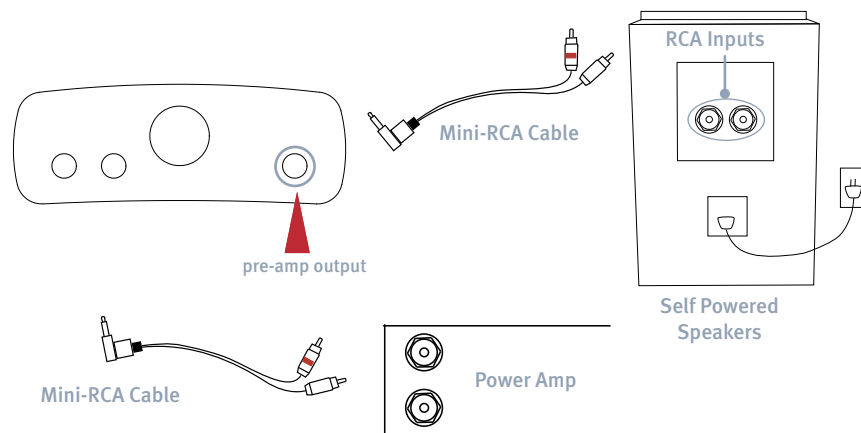
Connecting Micro Amp to Micro DAC:

If you have a source that provides a digital output (such as a computer), using HeadRoom's Micro DAC will provide even better sound quality. The Micro Amp and Micro DAC are designed to work together, and stack on top of each other to conserve desk space. To hook up your Micro Amp to the Micro DAC, just plug the mini-to-mini cable into the line input of the Amp and line output of the DAC. See your Micro DAC owner's manual for more information about hooking up the DAC to a digital source.



Using Self Powered Speakers with the Micro Amp

You can use your Micro Amp as a miniature pre-amp for self powered speakers or as a pre-amp to your power amp for powered speakers. Use a *mini-RCA cable* for connecting to a power amp. Most self-powered speakers have RCA inputs, in which case you will use a *mini-RCA cable* to attach to the Micro Amp. Attach the mini end of your cable to the pre-amp output of the Micro Amp. Plug the other RCA cables into the back of your speakers. If your self-powered speakers have a mini input, use a *mini-mini cable* to connect your Micro Amp.



30 Day Guaranty & Warranty

HeadRoom 30 Day Guaranty

Unless specifically stated otherwise, all HeadRoom purchases come with a 30-day satisfaction guaranty in order to give you the opportunity to evaluate your purchases. We're happy to provide you with the opportunity to refund or exchange your product, but to keep costs down we do have a few conditions. Products must be returned to us within 30 days of the date you receive the product. So make sure you try your purchase out right away! Products must be in "as-new" condition. This means that they're in pristine cosmetic condition, functioning perfectly, and include ALL materials (plastic bags, warranty cards, tie wraps, etc). In other words, please send products back exactly as you received them. If a product is returned within the 30-day return period, but is not in "as-new" condition, we will charge you a 15% restocking fee plus any labor and materials required to return the product to "as-new" condition. Sorry, but after your 30 day trial, products are no longer exchangeable or refundable.

If you're having trouble with a headphone amp or system, please contact us first to troubleshoot the problem. You can email Sales, (sales@headphone.com) or call 800.828.8184. If we can fix it while you've still got the product, everyone's happy!

Micro Amp & Ultra Micro Amp Warranty:

The HeadRoom Micro Amp and Ultra Micro Amp are warrantied for two years. If anytime within the first two years of your purchase you have a problem with your Micro Products, you can return it for repairs under the terms of our 30 Day Guaranty. HeadRoom is the only authorized service center for HeadRoom products, either in or out of warranty. If a unit is under warranty, there is no cost for the repair labor, parts, or shipping from HeadRoom back to you (i.e., You're responsible for paying the shipping charges to get the product to us).

Out of Warranty Repairs

If you have an older HeadRoom amp that is out of warranty, call us at 800.828.8184 ext.104 to speak with our Service Department to troubleshoot the problem.

The cost of repairing your out-of-warranty HeadRoom amp is a \$50 repair fee, plus parts and shipping costs. Additional costs will include replacement parts along with any additional labor beyond your first hour (the good news is that most repairs can be normally performed within one hour.) If the cost of your repair exceeds \$100, we will call or email you first with an estimate and we will then request your approval for work to continue.

Email us at service@headphone.com for more information. If you have an older HeadRoom amp BEFORE model year 2001-2002, it's imperative that you contact our Service Department first to confirm the amp can be repaired.

Exchanges & Returns

Equipment Exchanges

If you would like to exchange your purchase for another item, you have two options. You can simply purchase the item you want, and send the item you don't want back for refund within 30 days of the original purchase (don't forget to fill out the back of the Return & Exchange card and include it with your return). We will refund your credit card after we receive the item. Or, you can send your product back as an exchange, and indicate the product you would like on the Return card. We will adjust your credit card accordingly and ship you the new item. Replacement products are shipped to you as soon as possible, typically within 3-5 days provided the replacement item is in stock.

Defective Equipment Exchanges

In the uncommon event of receiving a defective product, contact us and we will ship out a replacement product to you at no cost as soon as possible, typically within 3-5 days provided the replacement item is in stock. You will receive the replacement item along with a return shipping label and a card to include with the defective item to return to HeadRoom. Important: Fill in your name and original invoice number of your order on the card and return the item to HeadRoom within 2 weeks. If we have not received the product after 2 weeks (allowing shipping time) we will charge your credit card the amount of the defective item. Please understand that we enforce this policy as an incentive for customers to get defective equipment back to us as soon as possible.

Shipping Products back to HeadRoom

Please ship products back in the original shipping box (or another that is comparable); please don't send headphones back in JUST the headphone box, as it's a sure bet that they will no longer be in "as-new" condition when we receive them! We HIGHLY recommend that you ship returns using an insured and "signature required" delivery method—we can't be responsible for lost or damaged packages. Finally, don't forget to include the completed Return & Exchange card and WRITE YOUR NAME on the outside of the box!

Return Products to:

HeadRoom
Attn: Returns
2020 Gilkerson Drive
Bozeman, MT 59715

Contact Us:

www.headphone.com
Toll Free: 800-828-8184
Phone: 406-587-9466
Fax: 406-586-9484



A Word About Your Hearing

People have a natural tendency to listen to music at much louder levels with headphones than they would with speakers. To avoid permanent hearing damage, it's important to be careful not to listen at extremely loud levels (or to listen for too long at moderately loud levels). Because HeadRoom amps need to be able to drive even the most inefficient dynamic headphones to satisfactory listening levels, they are also able to drive headphones of average or higher efficiencies to extremely high levels. As a result, even though the volume control on your HeadRoom amp may appear to be set to a low level, you may not be listening at a safe level. Generally speaking, when listening to headphones you should only turn up the volume to the point at which the sound isn't too quiet.

As a general rule, sound pressure levels under 80 decibels will not damage hearing, even if experienced continually. On the other hand, anything over 100 decibels may cause permanent damage very quickly. Sustained exposure to sound pressure levels anywhere in between can also be damaging—the louder the sound, the shorter the time required to cause permanent damage. Just to drive this message home, here's a bit of information about hearing damage. The most common type of damage caused by prolonged or excessively loud sound is called tinnitus. It manifests itself as a sustained buzzing and/or ringing in the ears, and can become a permanent condition.

If you find that your ears are ringing or that there is a sensation of pressure or fatigue, your body is trying to tell you that your ears need a break. Give them a rest for a few days (or until they feel fresh). If you ignore these symptoms, you're risking permanent hearing damage.

In addition, don't fool yourself into thinking that you either have full-blown tinnitus or you don't have it at all—there are different degrees of hearing damage. For example, you might have a mild case where you only notice ringing in your ears in the quiet of your bedroom at night. However, once you have a slight case of tinnitus, your ears are much more susceptible to further damage. So if you do experience mild symptoms, it's important to be much more careful about your exposure to loud sounds.

Sorry to sound so sobering, but a lifetime of musical enjoyment requires ears in tiptop shape. Now that we've told you to be careful, don't blame us if you blow it. If you have any more questions about hearing damage, call a doctor.

Contacting HeadRoom

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