



The Desktop Millet Hybrid Amp

headphone amplifier and DAC
Owner's Manual



Get ready for the lush life! If you've never owned a tube amp before, you're in for a real treat. In general, tubes have a lot more second harmonic distortion than transistors, and fewer high order distortion products. What that sounds like is a luscious wash of color in the music. The great advantage of an amp with this kind of coloration is that it makes ragged and low fidelity recordings sound better. This is a great amp for your old rock and jazz recordings, as well as a lot of the more current dance and remix tracks that sometimes tend toward being harsh.

Our long time relationship with Pete Millett (designer of the infamous Wheatfield HA2 headphone amp) has allowed us to spend a bit of time together co-developing a HeadRoom flavored version of his widely acclaimed hybrid tube amp. While the output stage of this amp is still solid state buffer (Intersil HA5002) just like our other amps, internally the audio passes through a low voltage tube line stage to lovingly flavor your audio. So, if this is your first experience rolling tubes: welcome! Don't burn your fingers! Slip on your cotton gloves, or just use a tissue, and start swapping tubes.

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The Desktop Hybrid Millett Amp



Hybrid Millett front panel

1. Power Switch Turn the switch up to turn your Desktop Hybrid Millet Amp on. The green LED will illuminate in the center of the HeadRoom logo in the upper left hand corner of the amp.

2. Headphone Outputs The headphone out is where you plug in your headphones. The Desktop Hybrid Millet Amp is equipped with a 1/4" jack as well as an 1/8" jack, to accommodate various types of headphones.

3. Rear Output Switch The Rear Output Switch mutes or enables the audio signal. If you are using the amp as a pre-amp, turn to the switch on. If you are only listening to headphones, turn the switch off.

4. Tube Selector Switch Your hybrid amp is unboxed with three different types of tubes, the tube selector switch has optimised settings for each tube.

5. Crossfeed Switch This switch engages the crossfeed circuit. Audio imaging 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.

6. Gain Switch The 3-position Gain Switch accommodates various headphones' power needs. For instance, the Low Gain setting would be used for in-ear monitors, allowing a larger range on the volume control pot. Experimenting with your headphones and the gain switch may help you to determine which setting you prefer. If you have any questions regarding your headphones, feel free to call and ask us.

7. Volume Control 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.) You also need to turn the amp OFF or ALL THE WAY DOWN before plugging in or unplugging your headphones to avoid short-circuiting the amp. As you turn the volume control knob clockwise, the volume increases.

The Millett Hybrid Amp Rear Panel



1. Analog Input Selector You may want to plug more than one analog source into your Desktop Amp. Whether you are using one input or both, you will need to indicate which analog inputs you want to listen to by choosing either '1' or '2' with the analog input selector.

2. Analog Inputs There are two sets of analog inputs, both are RCA inputs, with the top connector being 'left' and the bottom connector 'right'. The left-most column is 'input 1' and the middle column is 'input 2'. The analog inputs are where you will plug in your non-digital source, such as a stationary or portable CD player. If your player has an 1/8" line out plug, you will use a portable cable (mini-RCA); if it has an RCA out (left and right) then you will use a link interconnect (RCA -RCA). See the 'cables' area in our website to purchase some of these cables.

3. Analog Output If you want to use your Desktop Amp as a preamplifier, plug your output into a powered amplifier or powered speakers.

4. +/- 15VDC Power Input Plug in your power supply here. The 'brick' power supply included with the Desktop amp, as well as the Desktop Power Supply, will use this connector. See pg 8 for more info on the Power Supply.

Millett Hybrid's Tubes

Tube Selection

There are three tubes that can be installed in the Millett Hybrid Amp: 12FM6, 12AE6A, and 12FK6. The tubes were designed for car radios and are designed to operate over a wide voltage range and therefore there is no need to bias each tube individually or precisely. Still, each tube model has a slightly different bias requirement, and this front panel switch adjusts the bias for each type. Simply set the switch to select the tube you are going to use.

Changing Tubes

Each of the three tubes included with your amp have their own sound. Over time you will have your own description of the differences between tubes, but we've found the 12FM6 a laid back, warm sounding tube; the 12AE6A a liquid midrange tube; and the 12FK6 more neutral and well extended in the extremes (it's our favorite). But don't let our opinion stop you, do your own tube rolling and find the one that's right for you or enjoy them all for various music and moods.

Rule number one with tube amps is never to touch the tubes. With the little tubes that came with your Millett Hybrid it doesn't really matter that much, but with big tubes that run hotter, oil from your fingers left on the glass may cause the tubes to not get rid of heat as efficiently and the lifetime will be reduced. If you don't have any cotton gloves (you can get them at photography supply houses), just get a clean sock out of the drawer and use that.

MAKE SURE THE POWER IS OFF. Then gently pull and rock the tube from side to side; it will pull straight out. Put them back in their box. Switch the bias setting to the tube you wish to install. Look at the bottom of the tube and look for the gap in the pins. Line up the gap on the tube with the gap in the socket. Gently push in the tube, rocking from side to side. Repeat with the other tube. Turn on your amp, strap on your headphones, and float away on the luscious tunes.

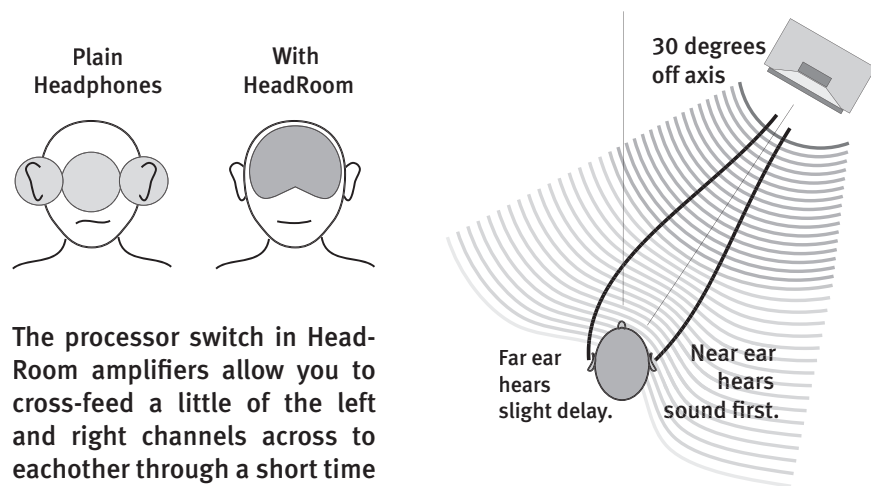


What is the HeadRoom Crossfeed?

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 miliSeconds. 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 processor 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 processor 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.

How to Connect Your Millett Hybrid Amp

To an Analog Source

You will need a portable cable or RCA interconnect to connect your analog source to the Desktop Amp. Plug the RCA inputs into the back of the Desktop Amp, using either input 1 (far left RCAs) or input 2 (middle RCAs), with the other end connected to the line output of your analog source (or a headphone jack if there is no line out available.) Don't forget to select the appropriate input with the analog input select switch.



Portable CD Player

Shown to above is a portable CD player, using the line out of the CD player to the analog input 1 of the Desktop Hybrid Millett Amp.



Hard-Drive MP3 Player

The Hybrid Millett Amp is shown connected to an MP3 player via the line out of the player to the analog input.

The Millett Hybrid Amp and the Desktop Power Supply.



Power Supply Upgrade

All our amps come with a surprisingly good, but still inexpensive, power supply. Any audiophile will tell you that the power supply is as, or almost as important as the audio electronics themselves. This is true. While we think the other upgrades available for the amps may be slightly more important, the Desktop Supply will get every last drop of performance out of the amp you buy.



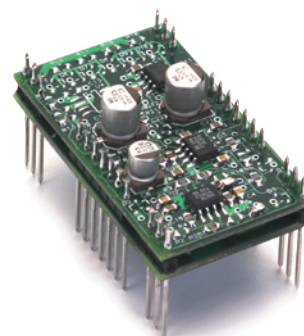
1. Ground Lift The Ground Lift separates the audio signal ground from the power supply ground. Usually, you will want the Ground Lift Switch to be set to 'normal', but if you hear a slight buzzing noise in your system, then turn the Ground Lift Switch to 'float'.

2. Power Entry Module The Power Entry Module is where the Power Supply is plugged into the wall. The power entry module can also be easily changed into other common international voltages. Using a coin or screw driver, open the module on the right side, and turn the voltage indicator around to read the appropriate voltage for your region.

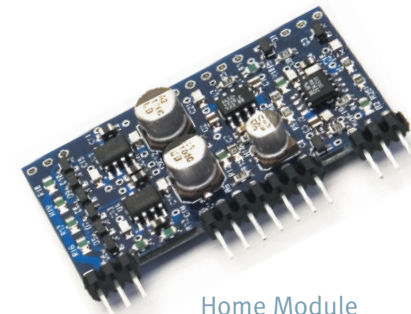
3. Power Outputs There are 6 power outputs on the Desktop Power Supply, and is appropriate for use with any of the HeadRoom Desktop or Micro Line of amps and DACs.

Electronics Module Upgrade

Desktop Electronics Module & Upgrade Options



Desktop Module



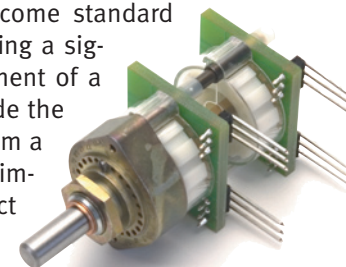
Home Module

It is possible to upgrade your Millett Hybrid with a special version of our Home Module. This module includes class "A" biasing for a cleaner sound, and adding a second buffer in parallel in the output stage for tighter dynamics. Due to the class "A" biasing this module uses significantly more power and requires that you also buy the Desktop Power Supply to fulfill the additional current requirement.

Desktop Volume & Stepped Attenuator Upgrade Option

Our Desktop and Home line of amplifiers come standard with a very good Nobel potentiometer. Putting a signal through the wipers and conductive element of a potentiometer, however, does slightly degrade the sound. One way to get rid of degradation from a pot is to use a stepped attenuator, which is simply a multi-pole switch that allows you to select one of a series of resistors to adjust the volume. There are a couple of different ways to build a stepped attenuator; we built a shunt attenuator where the voltage is divided between a single fixed resistor on the circuit board and the resistor selected by the stepped attenuator. We prefer this method as it keeps the number of contacts the audio signal has to go through to a minimum.

We use parts from the well regarded Elma Type 04, 24-position switch, but we manufacture our own Electroless Nickel/Immersion Gold (ENIG) switch contact circuit boards. This is just a fancy way of saying that these boards are highly corrosion resistant, and have a very heavy gold plating---significantly heavier than normal circuit board gold coatings. This is important for the increased lifetime of the switch.



stepped attenuator

Desktop Millett Hybrid Amp 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!

HeadRoom Manufactured Products under Warranty:

The HeadRoom Desktop Millett Hybrid amp is warrantied for two years. If any-time within the first two years of your purchase you have a problem with your Desktop Millett Hybrid amp, 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

Non warranty repairs are assessed at an hourly rate of \$50 per hour plus parts, and are only conducted on HeadRoom products. If the cost of the repair is over \$100, we will call you with an estimate. If you have an older HeadRoom amp that is out of production, we may not be able to repair the amp, however please contact us and we will let you know if we are able to. When we receive the equipment, we will initiate repairs and upgrades within 1-2 weeks and return the unit to you. The customer pays for shipping to HeadRoom and we pay for return shipping.

30 Day Guaranty

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 shipping box!

Return Products to:
HeadRoom
Attn: Returns
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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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