



## Portable Desktop Amp

headphone amplifier  
Owner's Manual

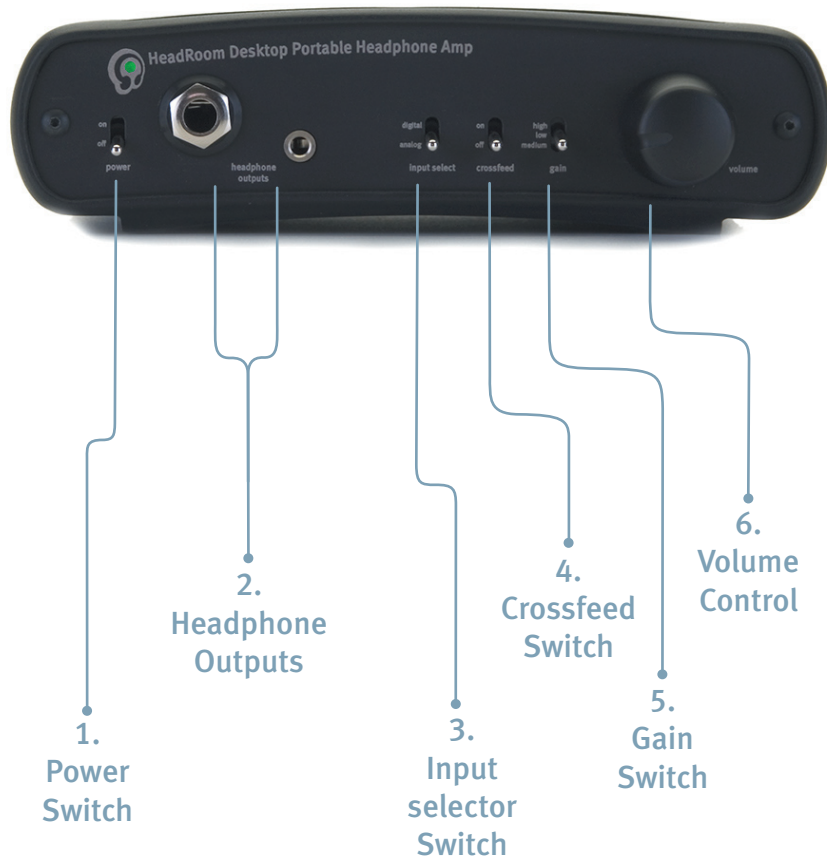


Congratulations on the arrival of your new Portable Desktop Amp. The slender and curvaceous amp you now hold in your hands is the most current result of a 15 year long quest to build the world's finest portable headphone amplifier. It's equally comfortable in your big rig at home or on the tray table in front of you at 30,000 feet. It will take an analog or digital input from a \$10,000 cd player, laptop, or iPod, and drive your high quality headphones with authority and aplomb. It's a little slice of your big rig you can take with you anywhere you roam; an Audiophile's movable feast. And now it's yours! Thank you, we're so happy to help you get it right between your ears.

Toll Free: 800-828-8184  
Phone: 406-587-9466  
Fax: 406-587-9484

2020 Gilkerson Drive  
Bozeman, MT 59715  
[www.headphone.com](http://www.headphone.com)

## The Portable Desktop Amp Front Panel



## Front Panel Descriptions

**1. Power Switch** When the power is set to 'on'; the green LED will illuminate in the center of the HeadRoom logo in the upper left hand corner of the amp. **We recommend turning the amp off when not in use to avoid draining the batteries.**

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

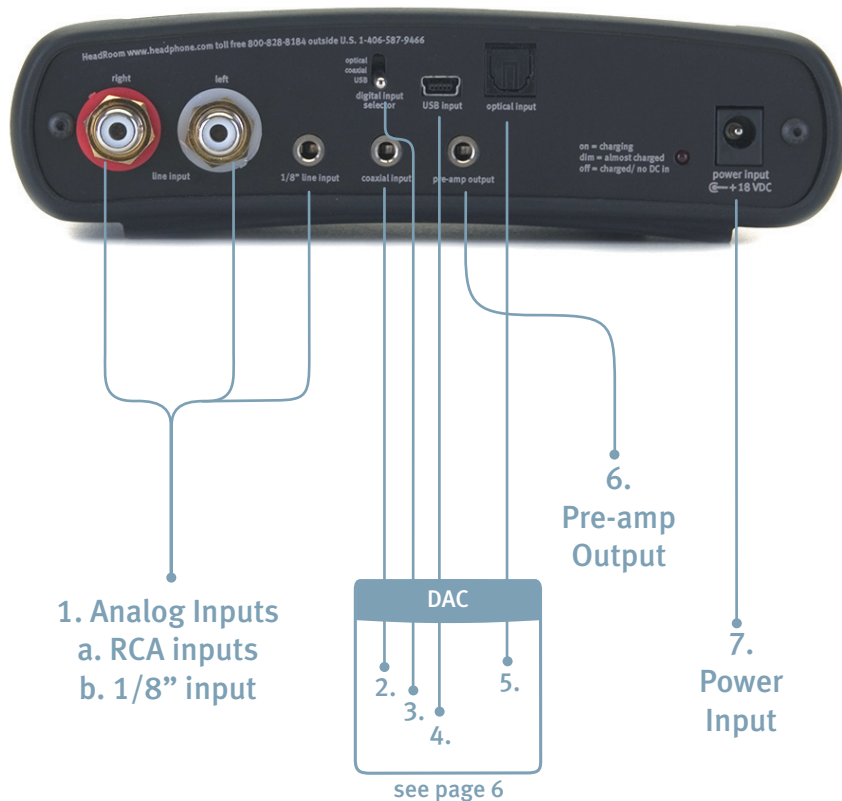
**3. Input Selector Switch** Choose between analog or digital inputs with the flick of this switch.

**4. 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. See pg. 7 for more info on the HeadRoom crossfeed.

**5. Gain Switch** The 3-position Gain Switch accommodates various headphones' power needs. For instance, the Low Gain setting would be used for ear canal headphones, 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 have any questions regarding your headphones, feel free to call and ask us.

**6. 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.

## The Portable Desktop Amp Rear Panel



1. Analog Inputs  
a. RCA inputs  
b. 1/8" input

6.  
Pre-amp  
Output

7.  
Power  
Input

see page 6

## Rear Panel & Electronics Module

### Rear Panel Description

**1. Analog Inputs** These connections are in parallel and can *only be used one at a time!*

**a. RCA Analog Inputs** There is one set of RCA inputs on the back of the Portable Desktop Amp. The analog inputs are where you will plug in your non-digital source, such as a stationary or portable CD player.

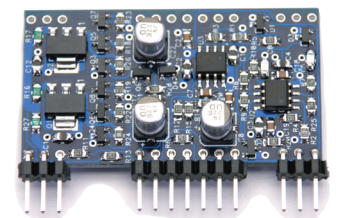
**b. 1/8" Analog Input** The 1/8" input is a typical line input connector. You can connect your analog source by using a mini-mini cable from the line out (or headphone jack) of your source into this connector.

**6. Pre-amp Output** The Pre-Amp output on the rear of the Portable Desktop is an excellent way to provide a volume controlled output to your desktop speakers. It can also be used as a second headphone jack (*do not however, use it as a third headphone jack! Only plug two pair of headphones into your amp at any given time.*)

**7. Power Input** Recharge the battery of your Portable Desktop by plugging in the charging unit here. After approximately 3 hours, your battery should be fully charged and ready to go. You may listen to the amplifier while it's charging. The battery on your Portable Desktop will last anywhere from 15-20 hours (if you're using the DAC on your Portable Desktop, the battery life will be lower versus using only the analog portion of your amp). The lithium-ion batteries in the Portable Desktop will last approximately 300 charges, at which point you will need to send your amp back to HeadRoom so new batteries can be installed. The 2 year HeadRoom warranty (see pg.10) covers battery replacement; if your battery fails after this point we will replace it for a small fee. Please contact us for details.

### The Home Electronics Module

This little blue module contains all the electronics for a Desktop Headphone Amp. There are two 4-layer circuit boards (one each for the left and right channel) that are connected with a series of header pins used to solder the module to the main circuit board. It uses TI 2134 op-amps for the internal input buffer, crossfeed, summer, and power amp voltage gain stage. The output current amplifier is our version of the highly regarded Diamond Buffer discrete transistor design by Walt Jung. Resistors are 1% metal thin film, and caps in the signal chain are polyphenylenesulfide (poly film); these are MUCH higher quality parts than you'd ever find in a typical consumer electronics product.

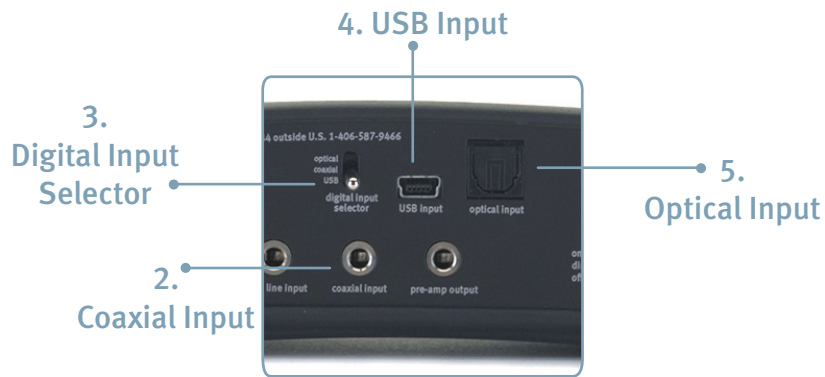


## The Digital-Analog Convertor

### Portable Desktop DAC

The Portable Desktop DAC is a clean, well-balanced, and natural sounding converter. It uses the Cirrus Logic's flagship CS4398 24bit/192kHz, 120dB dynamic range digital to analog converter. Coupled with extensive power supply isolation and regulation this DAC will take virtually any digital source and turn it into a quality listening experience.

The Portable Desktop DAC board uses the well regarded Burr-Brown 134 in single packages; only metal thin film resistors and polyphenylenesulfide (poly film) capacitors are used anywhere near the audio circuits. Three low-noise, ultra-low dropout power supply regulators isolate the various digital, analog, and mixed signal circuits.



**2. Coaxial Input** The coaxial input is your typical coaxial connector. We recommend using a 75 ohm digital cable when using the coaxial input.

**3. Digital Input Selector** When using the DAC, the digital input selector allows you to choose which digital input you would like to listen to.

**4. USB Input** The USB input gets its signal from a computer: laptop or desktop; PC, Mac, or Unix.

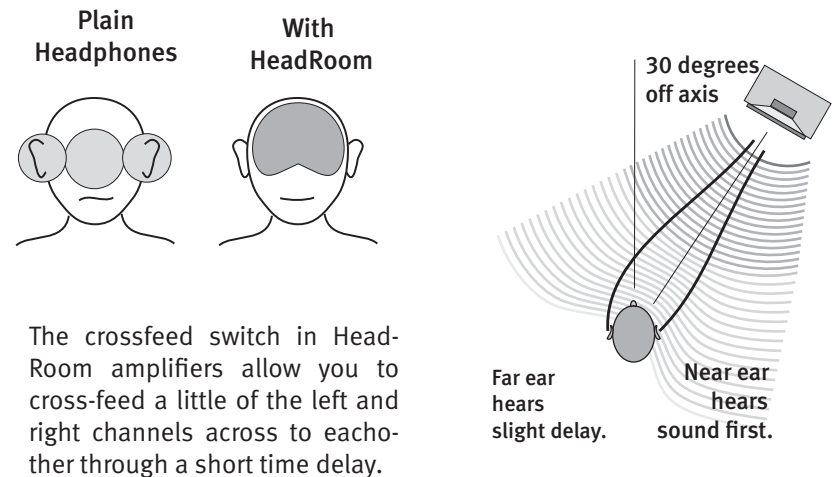
**5. Optical Input** The optical input is your typical Toslink connector. You get this input signal from the optical output of your player. Not so many portable audio players have optical outputs anymore, but many portable DVD players and some hard disk drive players do. Of course, you can get this signal from many pieces of home equipment.

## 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 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.



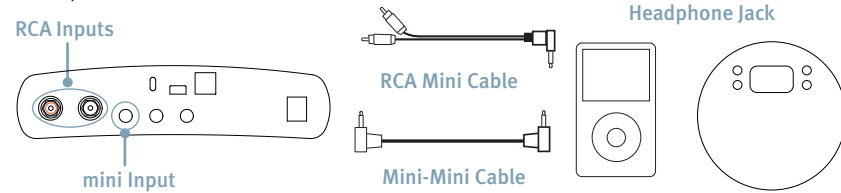
The crossfeed switch in HeadRoom amplifiers allow you to cross-feed a little of the left and right channels across to each other through a short time delay.

## How to Connect your Portable Desktop Amp

### #1 To a portable player via Headphone jack or line out.

All hard drive & CD players provide a headphone jack.\* An RCA to Mini Cable will allow you to connect the headphone jack/line out of your player into the RCA inputs on the Portable Desktop and a mini to mini cable will allow you to connect to the mini outputs on the Portable Desktop. Be sure to note that as always, red or 'R', designates right channel on RCA inputs. On the front panel, switch the Source Selector Switch to *analog*.

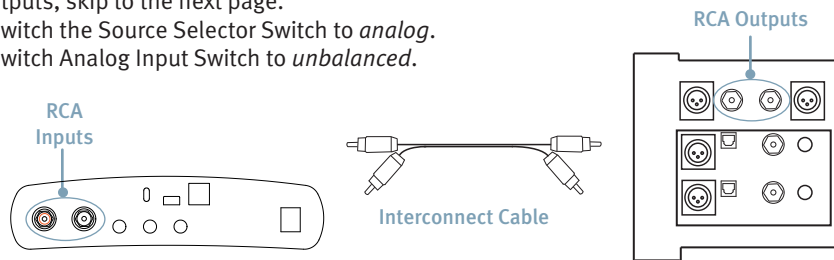
\*Use line out if your player has it. Line out bypasses the player's volume control completely; use the amp's instead.



### #2 To a home CD player or other Analog Sources via RCA outputs

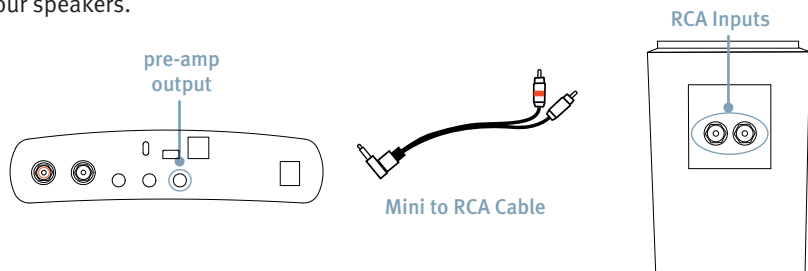
If your source has RCA outputs, an RCA to RCA interconnect cable will connect the Portable Desktop. Plug the RCA inputs into the back of the Portable Desktop Amp, and connect the other end to the line output of your analog source. If your source only has an 1/8in line out or a headphone jack, then go up to #1. If your CD player has digital outputs, skip to the next page.

- Switch the Source Selector Switch to *analog*.
- Switch Analog Input Switch to *unbalanced*.



### #3 Using Self Powered Speakers with the Desktop Portable

Most self-powered speakers have RCA inputs, in which case you will use a 1/8in mini to RCA cable to attach to the Portable Desktop Amp. Attach the cable to the pre-amp output on the rear of the Portable Desktop Amp. Plug the other end into the input of your speakers.



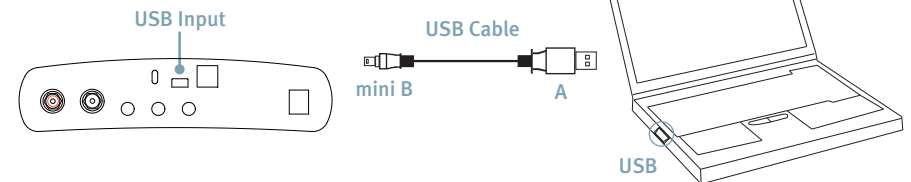
## How to Connect Your Portable Desktop Amp

### #4 DAC Option: To your Computer or other digital source via USB, coaxial, or optical output

#### Connecting to your Computer:

The most convenient and common way to get a high quality signal out of your computer or UMPC is with the USB output. (If you have optical or coaxial outputs on your machine, then skip to the next section.) Simply plug a USB cable into your computer, and plug the smaller end into the back of the amp. In most cases your computer will instantly recognize the amplifier, but you will need to restart your music management program. If your computer does not recognize the device, restart; if it still is not recognized, you may need to go into your control panel/audio devices or system preferences/sound output and select 'USB Audio Codec' as your default audio device.

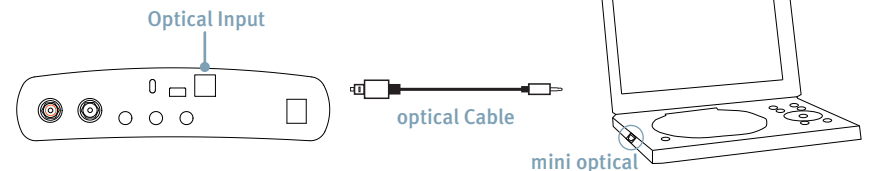
- Switch the Source Selector Switch to *'digital'*.
- Switch the Digital Input Selector Switch to *'USB'*.



#### To A portable DVD player with Optical outputs:

You will need an appropriate optical cable, visit [headphone.com](http://headphone.com) to purchase a cable. Plug one end into your source and connect the other end into the appropriate input on the back of the amp.

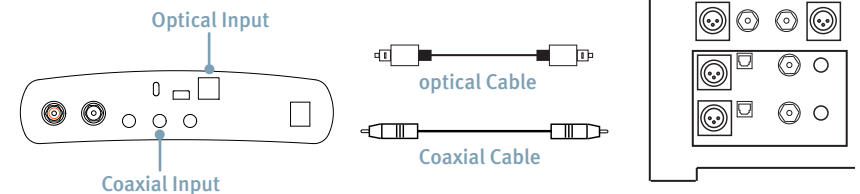
- Switch the Source Selector Switch to *'digital'*.
- Switch the Digital Input Selector Switch to *'optical'*.



#### To A home CD player with Optical/Coaxial outputs:

You will need an appropriate coaxial or optical cable, visit [headphone.com](http://headphone.com) to purchase a cable. Plug one end into your source and connect the other end into the appropriate input on the back of the amp.

- Switch the Source Selector Switch to *'digital'*.
- Switch the Digital Input Selector Switch to *'coaxial'* or *'optical'*.



## 30 Day Guaranty & Warranty Info

### 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!

### Portable Desktop Amp Warranty

The HeadRoom Portable Desktop Amp is warrantied for two years. If anytime within the first two years of your purchase you have a problem with your amp, you can return it for repairs under the terms of our warranty. 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

Toll Free: 800-828-8184  
Phone: 406-587-9466  
Fax: 406-587-9484

2020 Gilkerson Drive  
Bozeman, MT 59715  
[www.headphone.com](http://www.headphone.com)