

# OWNERS MANUAL

MANUAL NO. 02

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## Personal Battery Operated Headphone Amplifier



 **DECWARE**

[www.decware.com](http://www.decware.com)

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## DESCRIPTION

The Zen Head Model ZH-1 is a world-class battery powered headphone amplifier. It was designed to work with and exploit the virtues of high quality headphones and earbuds. Run from a single 9 volt battery, this unit is free of the grain and noise found in AC powered equipment, not to mention a power cord making it portable. You can get 24 hours of continuous listening (a long plane flight perhaps) or up to 50 hours of intermittent listening a few hours at a time. A simple high quality on/off switch and volume control are all you have to remember how to use because that's all there is on the exterior of the ZH-1. Of course for audiophiles we have several internal set up switches that can be used to voice the unit to your liking.



Outfitted with standard 3.5mm stereo jacks and a power ON LED light the Zen Head couldn't be easier to operate. With world-class design, audiophile parts, Burr Brown Operational Amplifiers and a fully anti-resonant machined aluminum chassis you can expect a lifetime of satisfaction from this 100% hand soldered headphone amplifier.

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## SETUP

The ZH-1 is pre-configured at the factory with the most popular internal switch settings so nothing needs to be done to try out your new Zen Head. Even a new high quality battery is pre-installed so all you have to do is plug in your source and a favorite set of headphones and enjoy.



Just use the included 3.5mm stereo cable between your IPOD or portable device and the input jack on the ZH-1 labeled "SOURCE"

Plug your headphones into the jack labeled "PHONES"

Turn the VOLUME control all the way down (counter-clockwise) before you turn on the ZH-1. Once you see the green LED light come on, you can slowly raise the VOLUME control to the desired listening level.

## BATTERY

A single 9 volt battery is used and easily accessible from the rear by a simple press of the thumb. You can use either Alkaline or Rechargeable batteries. If your using this with a hi-end source you may find Alkaline to sound better than rechargeable batteries. If selecting between different types of Alkaline batteries, always go with the highest current rating. Battery life is dependent on how loud you play the ZH-1 and the quality of the battery, but at a normal listening level you can expect around 50 hours.

**THE BATTERY SHOULD BE REPLACED IF** the sound easily distorts when you raise the volume or if the green LED light is dim.

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The battery is accessed by sliding the rear panel over until it stops with your thumb. Then just lift it off and out of the way.

To remove the battery, gently work it out of the container with a small flat object or your fingernail. It's a snug fit as the battery compartment is felt lined to eliminate vibrations.



## DESKTOP USE

If you need to use your Zen Head continuously and don't want to replace or recharge batteries we have found products like the "9V Battery Eliminator" to work rather well with the ZH-1. This particular product and others like it are fully regulated 9VDC supplies and available on the Internet.

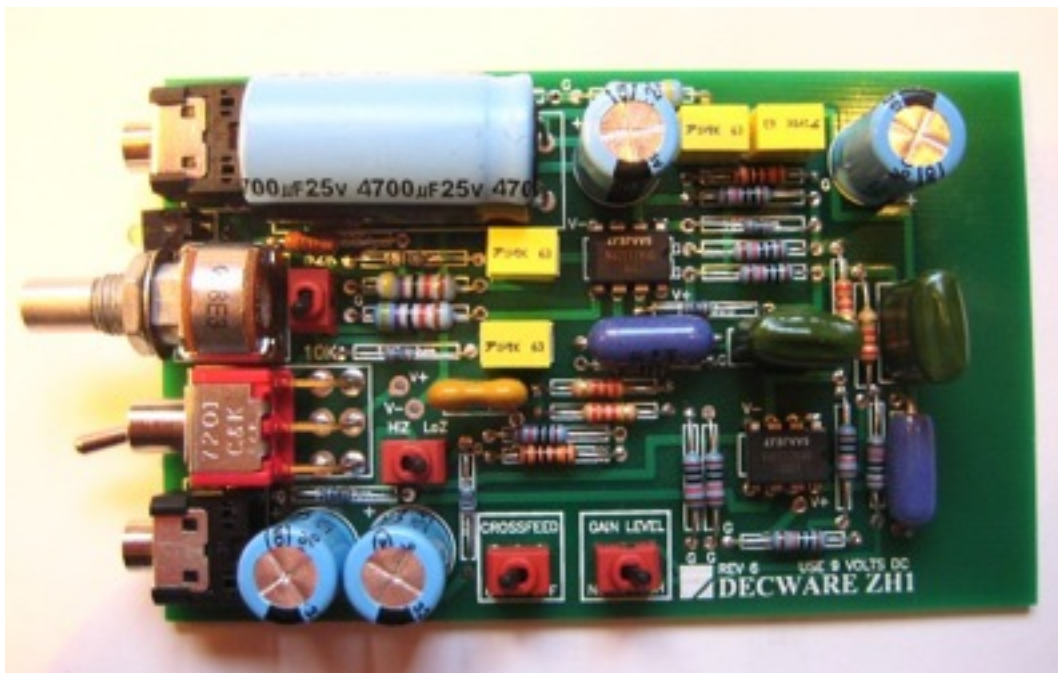
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## INTERNAL ADJUSTMENTS

The ZH-1 has 4 red switches inside that can be used to change how your Zen Head sounds. To access these switches you will have to first remove the 9V battery and then remove the two screws in the faceplate. Once removed, you can slide the faceplate and circuit board away from the chassis exposing the switches inside. NOTE: If you want to completely remove the board from the chassis, you will also have to remove the two screws from the battery holder and then remove the battery holder completely.

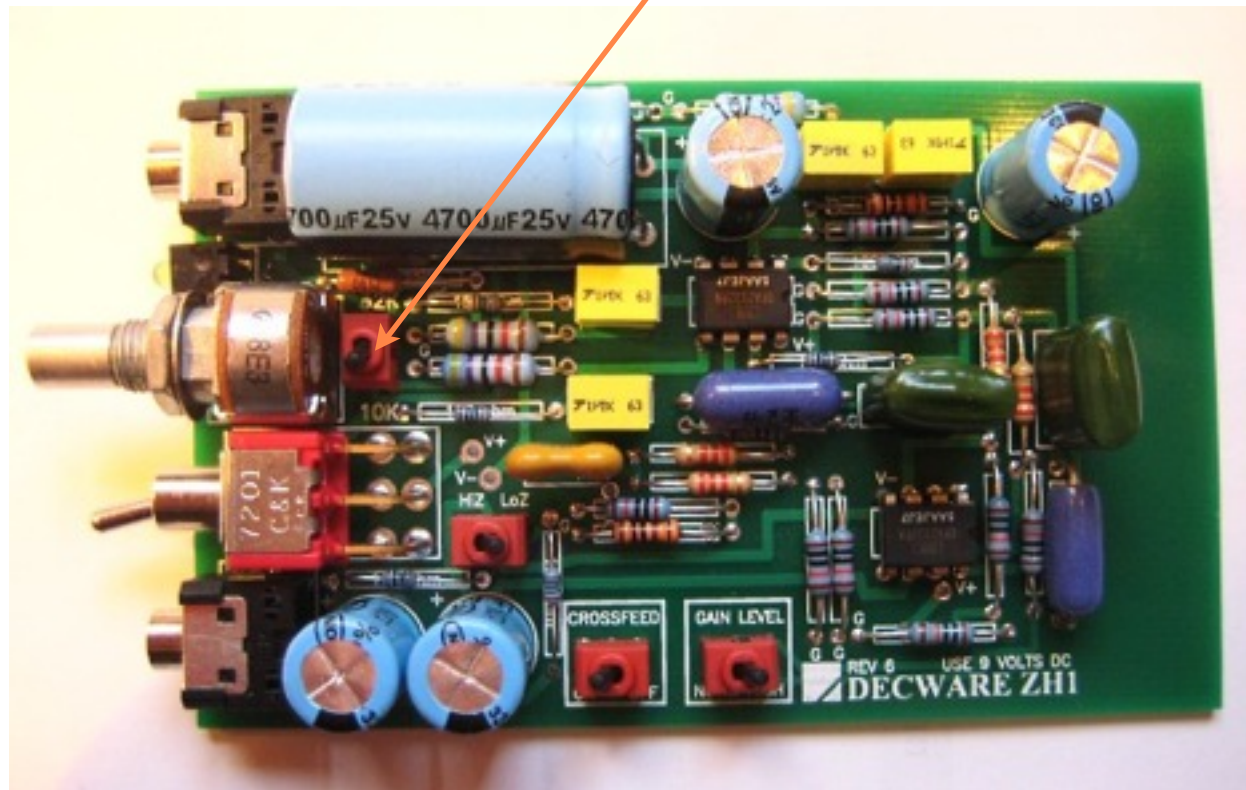
Your ZH-1 will look similar to the picture below, except that on yours the faceplate will remain connected to the board. Yours will also have two battery wires connected to it just behind the power switch.



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## SWITCH SETTINGS

The first switch to experiment with is located just behind the volume control. Called the Impedance switch.

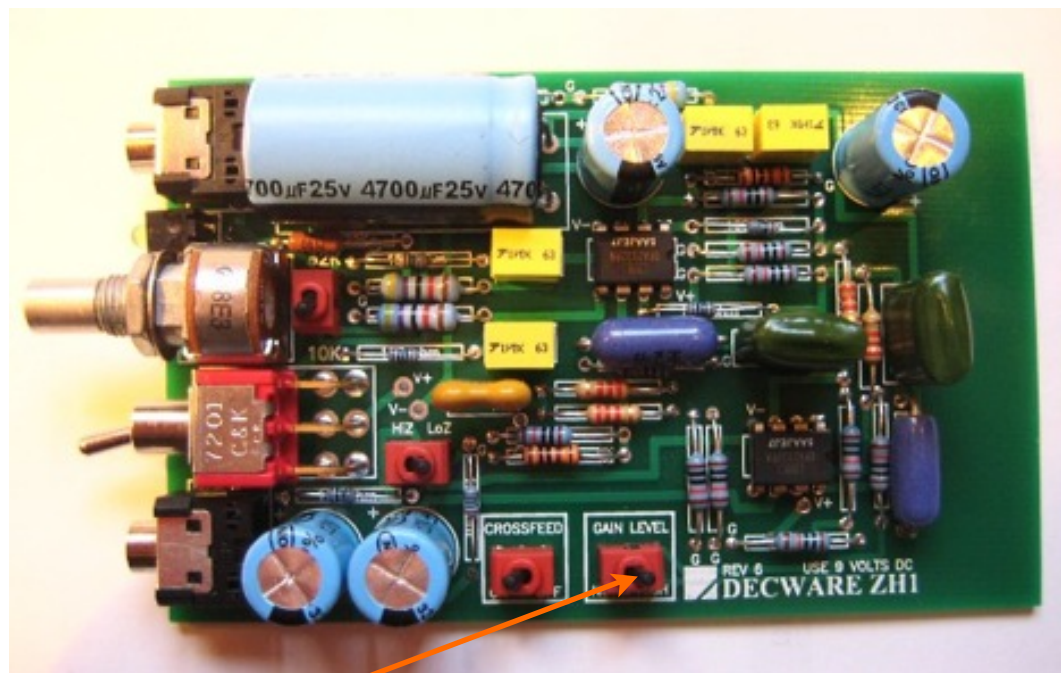


This switch is labeled 10K and 32K. These numbers represent the input impedance of the ZH-1. In the 10K position the ZH-1 will get twice as loud so be sure to have the volume adjusted very low if you have the headphones on and are listening to music when you flip this switch. The 32K position is ideal for 2 volt sources such as the CD player or DAC that you might find in your listening room. As you experiment with this switch you'll no doubt find that either position can be used in most cases, the 10K position simply having much more dynamics.



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The next switch to experiment with is the Interstage Gain switch.

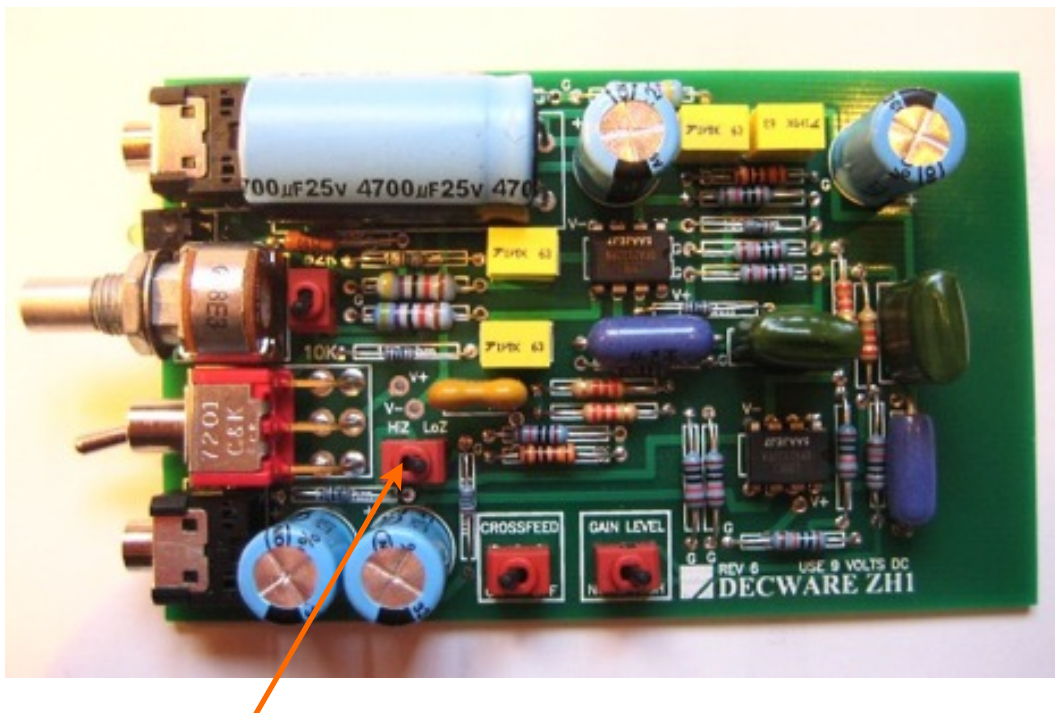


It is located here and is best adjusted during a serious listening session because what it does is subtle. The ZH-1 has two stages of gain, hence two Burr Brown Operational amplifiers. This switch adjusts the amount of dynamics that are allowed from the first stage to the second. Usually the best approach is to set this switch to “HIGH” if the Impedance switch is set to 32K or to “LOW” if set to 10K.

While you are doing your serious listening to try and hear what the Interstage gain switch does, once you settle on the best setting for it, you may as well check out the CROSSFEED switch located right next to it. If you don't know or care what crossfeed is, leave the switch set to “ON”. In fact we can't think of too many reasons not to have this switch set to “ON” at all times, because the crossfeed is what makes headphones image properly. Without it, you have a brighter sound that is both too wide and coming from the center of your head. Not all crossfeed circuits are alike. If you think you don't like crossfeed, please take this opportunity to hear it done right.

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The remaining switch is called the Output Impedance switch. This is usually the last switch you should adjust, because the already huge difference in sound it makes will be even larger after you have the previous switches set to your liking.



This switch, located here, is labeled "HiZ" and "LoZ", short for High Impedance and Low Impedance with regard to the type of headphones you have connected to it. Typically phones that are rated at 50 ohms or less are considered Low Impedance, while everything else all the way up to 600 ohms is considered High Impedance. The ZH-1 will driver headphones from 30 ohms to 600 ohms in the HiZ setting and headphones from 10 ohms to 600 ohms in the LoZ setting. Because of this high overlap between the two settings it is likely you'll be able to use both. Choose the one that sounds best to your ears.

NOTE: In "HiZ" mode the output stage of the ZH-1 is direct coupled to the headphones and will sound more accurate and dry. In "LoZ" mode, the output stage is capacitor coupled to the headphones and will sound more juicy and spacious.



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## SOUND CHARACTER

Sometimes it helps to know the general sound character of a component so that you can spot troubles if the creep up. For example, the ZH-1 has jet black, noiseless backgrounds so if you hear any noise you know it's coming from your cable, your source, or is in the recording itself. The ZH-1 is grain free and musically involving. It has been specifically designed to be completely fatigue free even after all day use. So if your sound is dry, grainy or fatiguing in any way, again you'll know it's not the ZH-1.

The voicing that went into the ZH-1 took over a year to perfect and the result is a nearly perfect balance where nothing is featured that shouldn't be, your attention is drawn to where it should be, not to frequency or dynamic based anomalies. You can trust it's frequency balance, timbre and sense of timing.

## BONUS - A LINE LEVEL PREAMP TOO!

Unlike most headphone amplifiers, the ZH-1 has the ability and gain to be used as a line level preamplifier into impedances all the way up to 100KOhms. This unusual ability makes the ZH-1 a sleeper of a preamp for purists wanting to hook it to their favorite tube or solid state amplifier. In front of a great SET amplifier known for transparency, the ZH-1 is far from disappointing. The internal switches let you voice your amplifier with the same excellent options that you used with your headphones!

## IPOD USE

Many people will insist that the line level output coming off the 20 pin connector of your Ipod has better sound than the headphone jack. This requires an IPOD dock of some kind to convert the jack to RCA outputs via a ribbon cable. For that reason alone, the sound is usually worse. We designed the ZH-1 to sound best coming off the headphone jack of your IPOD. Of course all portable players and phones will also work fine with a ZH-1 via their headphone jack.

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## WHAT NOT TO DO

Keep it out of the water. While you can run over it with a car and expect it to still work fine, it does not like water. If it gets wet in clean water, just remove the battery and place the ZH-1 somewhere warm and dry (like in the sun) for a couple days and it will be fine.

Do not drop it on its volume knob as a perfectly aligned hit can cause the volume control to crack and you will have to send it in for a quick repair.

Do not underestimate its power. This device will get LOUD and then some. Make sure you always have the volume control most of the way down when you start listening.

Do not leave the battery in the unit for extended periods of time or in the sun. Put another way, take the battery out if you're not going to use the ZH-1 for several months.

Do not hook the battery up backwards. Your ZH-1 will fail instantly smoking both chips. This repair is not covered under warranty and is not cheap.

Do not use your toe to break the fall of the ZH-1 if you drop it. The unit is heavy and your toe will hurt like hell.

Do not use cheap batteries as they will not have enough power to keep the ZH-1 from having poor performance. Stick to name brand alkaline batteries. Rechargeables are OK as is Lithium.

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## WARRANTY

The ZH-1 is built to last from the finest American Parts available. Most portable units use surface mount technology because it's smaller and costs less. Even a simple on/off switch can cost a mere 30 cents. In the ZH-1, our C&K power switch has a wholesale cost of \$8.75 and a retail of \$21.00. This theme runs all the way through a Zen Head from start to finish. Discrete hand soldered parts of the highest quality make it possible to extend Decware's famous "LIFETIME" warranty to this product. Simply unheard of in the world of solid state audio gear!

If your ZH-1 fails do to defective parts or workmanship, send it back to us and we'll repair it at no charge. This warranty applies to the original owner and is non-transferrable.

## SEND TO:

DECWARE / High Fidelity Engineering Co.  
75 S. Riverview Dr. East Peoria IL 61611  
(309) 822 5255

Be sure to include the R.A. Form from our web site ([www.decware.com](http://www.decware.com)) or hand write your contact information and what's wrong with it on a piece of paper and include it with the ZH-1 so we'll know who's it is, why it's here and what's wrong with it. NOTE: Packages received without this contact information and description of the problem will not be processed.

## FEATURES

Features can be found on the next page.

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