

DECWARE

ZEN TORII MK III

MANUAL



# Zen Torii Mk III Amplifier

26watts dual mono  
Push Pull Class A amplifier

Manufactured by High Fidelity Engineering Co.

[WWW.DECWARE.COM](http://WWW.DECWARE.COM)

**GETTING STARTED**

The TORII MKIII is two completely separate mono amplifiers built side by side into the same chassis. The only common thing they share is the power cord and front mounted gain control.

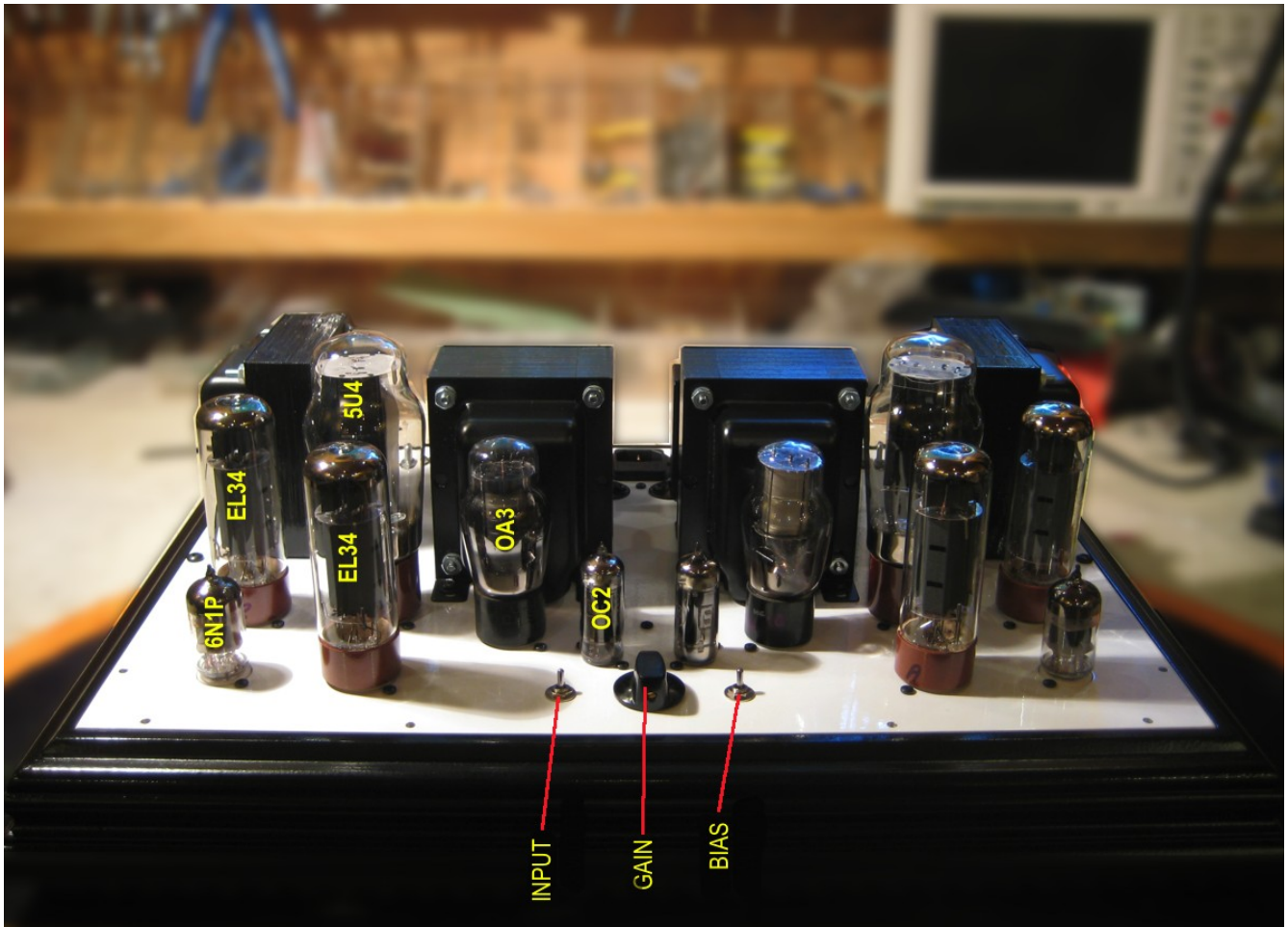
This amplifier was built in two halves. Each half is a mirror image of the other. This includes the jacks on the back and even all the parts on the inside. There are two power switches, one for each side. Below the switches and jacks have been labeled in the picture. The non-labeled side is a mirror image of the labeled side.



*TORII MK III – Rear View*

**TUBING YOUR AMP UP FOR IT'S FIRST TEST**

Use the image below to determine the tube locations.



The input switch (located to the left of the gain control) switches between the inside and outside pair of input jacks. For example, on the left pair of input jacks, use the right hand jack and on the right pair of input jacks use the left hand jack.



***TUBE SUBSTITUTIONS***

Starting with the input tube 6N1P you may also try 6DJ8 or 6922. 6N1P is often the warmer of the three, while 6922 is often the most dynamic and 6DJ8 a bit leaner with the most detail.

Unlike the TORII MK II that used EL34, KT77, 6550 or KT88 without re-biasing the TORII MK III uses our new Hazen Grid Technology to push the transparency, speed, tightness to a level that greatly surpasses the alternate tubes. Since this is the case, extra voicing was used to get the maximum sonics from the EL34 at the cost of making any of the above listed alternates a waste of time because they will not sound as good.

The 5U4 rectifiers can be replaced with 5AR4 and 5Y3GT. 5U4 and 5AR4 typically give the best performance.

The Voltage regulation tubes OA3 (aka VR75) can be replaced with only another brand of OA3/VR75 if the sound of the amp is not to change. However you can experiment with VR90's and VR150's as this will alter the grid voltage of the output tubes and change how they sound. The overall gain of the amplifier will drop slightly with these alternates.

The Voltage regulation tubes OC2 are used to feed the input stage of the amplifier, and can not be changed except to another brand without changing the sound of the amp. However, just like before, you can substitute OB2 and others with some interesting results.

***BIAS SWITCH***

The switch located to the right side of the gain control is the bias switch that adjusts the bias of the output tubes. In one position the bias is lower and in the other the bias is higher. The amount of difference between the two is subtle. You can adjust this switch while you listen. SWITCH TOWARDS THE FRONT is the higher of the two settings. The higher bias gives a warmer sound with more weight. The lower bias gives a drier sound with less weight. Which sounds better will depend on your loudspeakers and room acoustics.

The EL34 will be biased slightly warm sounding in the high position and neutral sounding in the lower setting.

**START UP**

Before starting your amp for the first time, be sure all the tubes are installed in the correct locations. Hook up your speakers to the amplifier. Do not hook anything to the inputs of the amplifier at this time. Power up one side of the amp first and then power up the other side. Listen for noise and hum from each speaker. Whatever sound you hear should be about the same on both channels. New tubes can make noise intermittently or on start up while the impurities burn off the plates. This is normal.

Now that amplifier is on, and the gain control is all the way down, hook up your source or preamp to the inputs. Start your recording and slowly raise the gain control until you reach the desired volume.

**FUSES**

There is a single 5 amp fuse in the TORII MK III located inside the IEC connector for the removable power cord. The fuse holder cleverly holds a spare fuse as well. If you ever blow a fuse the most likely cause is one of the rectifier tubes arced on startup or simply shorted. If a fuse blows, remove both rectifier tubes, replace the fuse and turn the amp back on without the rectifier tubes installed. If the output tubes and the input tube light up, turn the amp back off and install the rectifiers. If the fuse blows after the rectifier is re-installed, then the rectifier tube is bad and must be replaced. Rectifiers can last for 30 years or fail for no reason at any time, or so it would appear. Of course there is always a reason. Sometimes it's that the tube was beat around pretty hard during shipping and had an early failure as the result. Sometimes it's a thunderstorm or some other issue that caused a large voltage spike that makes them fail.

**PREAMPS**

If you plan to use an active preamp with your TORII MK III, you may find the best sound is with the gain control on the TORII somewhere below "all the way up". As a general rule you can add weight to a recording by turning the preamp up higher and the gain on the amp lower. The reverse is also true if a recording is too thick, just turn the gain on the amp higher and the volume on the preamp lower.

Many users will find the transparency of the TORII MKIII to be so spectacular that only the finest preamps will preserve it... this is why we designed the amp with a gain control so that it can be used straight up with any line level source. Sometimes eliminating the preamp is the answer.

**OUTPUT TRANSFORMERS and IMPEDANCE**

The TORII MK III comes stock with 4 and 8 ohm selections for your speakers via a switch next to the speaker jacks on each side of the amplifier. It can also be factory configured at the customer's request to operate with 8 and 16 ohm speakers. There is also a 150 and 300 ohm tap available for custom applications.

It is important to understand that regardless of your speaker's rated impedance, you listen to it on both settings to determine which one sounds and performs best. This can often mean running a 4 ohm speaker on the 8 ohm setting and *visa versa*.

**BREAK-IN**

During the first few hours or days with your amplifier you will no doubt wonder about break-in, if for no other reason than hearing about it constantly every time you read about new amplifiers.

If you're new to tube gear the amp will sound *so good right out of the box* that you will have a hard time worrying about break-in, so don't.

If you've been around the block a few times, the fastest way to break in the amp is 5 hours on with music and 5 hours off. Repeat this process 5 times. This process will speed the seating of the dielectric in the coupling caps and you can then expect the amp to bloom in the very near future.

Beyond this, the amplifier will continue to improve and become more and more refined over the next 200 hours or so. After that, the output transformers and wire will season with age. That means that an amplifier that is 5 years old will always sound better than an amplifier that is 1 year old. Yes, it just keeps getting sweeter as time goes by.

**WEAK LINKS**

Please, if even only for an evening, lift some of the handicaps you've placed on your new amplifier so you can hear more of its inner magic. The fidelity of your amplifier is limited by the weakest sounding link in your system. The quality of your source component and interconnect cables is of paramount importance because you now have an amplifier so good it will never become the weak link. You can't spend enough money on a source to hear how good the amplifier actually is, so each time you upgrade your source the amp will blow your mind all over again.

***WEAK LINKS (CONTINUED)***

Make sure you pull your speakers well out into the room set up in a triangle with the listening chair. In this arrangement you will be able to hear the music go holographic with outrageous depth and width. Amuse yourself with how well your speakers disappear.

Statistically most owners of Zen amps have never heard the real potential and inner magic the amp is capable of. Because it sounds better than what they had, they stop exploring. Room acoustics are what create the boundary between potentials with this amplifier. Even with a 7 figure DAC as your source, you will not get to the magic place I'm talking about in an un-treated room unless by sheer luck.

It is possible to take a spare bedroom of smallish size and create a dedicated listening space that literally sounds like it's 8 times larger than it really is. Imagine perfectly rendered 3D space throughout as if your walls didn't exist. If more people realized this is possible with diffusion and absorption I think you would see a lot more treated listening spaces and a lot less equipment swapping.

***MAINTENANCE***

Cleaning should be done with the amplifier OFF and at room temperature. Tubes should be removed prior to cleaning. A damp towel with alcohol is ideal for removing any smudge marks.

Input jacks can also be cleaned with an alcohol soaked Q-Tip inserted into the jack and rotated. If the Q-Tip comes out with dark stains on it, your jacks were dirty. Jacks can get dirty after only a single insertion of a non-cleaned interconnect cable. Having clean connections is important. Finger oils do not help the sound.

Products like Caig DeOxit, ProGold and other contact cleaners/enhancers can also be used as a part of a regular maintenance program. The volume control should not need cleaning as the chassis for this amp is sealed to keep dust and smoke out of the inside of the amplifier.

The amp is self-biasing so there is no maintenance or adjustments to make after you install new tubes.

***POWER CORDS and CONDITIONING***

Upgraded power cords can and do make a difference when the overall strength of the audio chain begins to show a sock power cord as the weak link. We hear nice improvements with the use of silver/Teflon DHC-1 power cords.

***TWEAKS***

The biggest thing regarding tweaking the amplifier itself is going to be tubes. Every tube will sound a bit different. Rolling tubes, in particular the input tube, with your favorite NOS (New Old Stock) can yield some very synergistic effects. Beyond tubes, a good power cord and clean power, the only thing left is vibration control. This amp will suffer from vibration less than most due to the heavy steel it's built from. Things like tube dampers and high mass stands can further improve focus.

***SERVICE and REPAIR***

Your amp is covered parts and labor for the lifetime of the original owner. Should it ever need repair or you just want it checked, contact us or fill out the RA form on our web site and include it with your amp when you ship. We'll contact you after it has arrived and let you know what we've found and determine exactly what caused it. So far less than 1% of Decware amps have required service since they started shipping in 1998.

***GETTING THE MOST FROM YOUR ZEN TORII MK III***

Your amplifier comes with a lifetime warranty. Probably one of the only amplifiers in production that has one. Decware is a small enough company to consider these hand built amplifiers to be like our pets. We like to keep tabs on them and make sure their healthy and happy at all times. We don't want to see one get stuffed in a closet and go unused.

If you're not getting the sound you're after or grow tired of your amp we already know the 26 reasons that could have created this effect and would be pleased to offer some free consulting.

There are also over 100 articles written on the web site to this effect and active support forums for you to participate in.

**SPECIFICATIONS**

INPUT TUBE CHOICES: 6922, 6DJ8, 6N1P

OUTPUT TUBE CHOICES: EL34

INPUTS: 2 RCA TYPE INPUT JACKS FOR EACH CHANNEL

OUTPUTS: 1 PAIR HEAVY Gold BINDING POSTS PER CHANNEL

OUTPUT STAGE TOPOLOGY: GND-CATHODE TRANSFORMER

RKRLOAD PLATE TO PLATE: 6600 OHMS

IDLE CURRENT: 47 MILS PER OUTPUT TUBE

HIGH B+ VOLTAGE: 410 VDC CHOKE REGULATED PER CHANNEL

INPUT IMPEDANCE: 100 K OHMS

INPUT SENSITIVITY: FULL POWER @ 2.0 VOLTS

POWER INTO 3.5 OR 8 OHMS: 24.6 WATTS RMS PER CHANNEL

NOISE: -9d0dB

OPERATION: CLASS A1

GRID REGULATION: ONE OA3-OD3 PER CHANNEL

INPUT STAGE REGULATION: ONE VR75~VR150 PER CHANNEL

RECTIFICATION: ONE 5Y3GT or 5AR4 or 5U4 PER CHANNEL

INPUT STAGE: ONE 6N1P or 6922 or 6DJ8 PER CHANNEL

OUTPUT STAGE: TWO MATCHED EL34 PER CHANNEL

SIZE: 19-1/8 "WIDE x 13-3/4 "DEEP x 7-3/4 "HIGH

NET WEIGHT: 36.8 lbs.

WARRANTY: LIFETIME TO ORIGINAL OWNER / 90 DAYS ON TUBES

SHIPS WITH:

PREMIUM MATCHED WINGED "C" EL34 OUTPUT TUBES

SOVTEK 5Y3GT or 5U4 RECTIFIERS

6922, 6DJ8, 6N1P PREMIUM INPUT TUBES

N.O.S. VOLTAGE REGULATION

REMOVABLE POWER CORD

**COMMENTS FROM THE DESIGNER**

This amplifier was designed to give you the single-ended / single tube transparency of our smaller amps but without the power restrictions.

Normally if you want single-ended transparency AND lots of power you simply use a larger output tube. Problem is that you also require a larger voltage swing to drive that tube and that means running two stages of gain rather than one in front of the output tube. Doubling the number of stages and parts is seldom a good way of preserving transparency. With the push pull topology used in the TORII MKIII we are able to drive the output stage with a single tube and only one coupling cap. In fact the parts count in the signal path is the same as our 2 watt Zen Triode amp, 1 capacitor and 2 resistors.

The output tube choice for this amp was based purely on fidelity, not popularity. We choose to use the British EL34 pentode as the factory tube in this amp for many reasons not the least of which is that this is the only true pentode that does not have internally connected suppressor grids. That means it can be wired as a true triode, a true pentode, or any number of unique ways not possible with regular TRIODES or TETRODES.

There are several additional things that make this amplifier special, too many to list here so I would refer you to the white paper on the TORII MK II, this amps predecessor. As good as it was, the MK III has taken the solid foundation of the MK II and pushed it to a level that now makes the two amps almost non-comparable. This wasn't accomplished with standard tweaking, ie, different coupling caps, resistors, etc., instead it was accomplished with a completely new internal layout, including a new ground buss design and some slick manipulation of the suppressor grids that reduce or eliminate chaotic secondary electrons inside the output tubes. (*Hazen Grid Mods*)

Of course what makes this amplifier fundamentally unique is the fact that the output stage is wired as a true pentode without negative feedback. Tube regulation is in part what makes this possible. This gives the amp speed and attack that is just not possible with triodes.

Another new feature to give the amp hi-end performance against the difficult impedance curves found in some speakers, the TORII MK III uses your speakers voice coil to determine the frequencies and amplitudes of the peaks in your speakers impedance curve. The amp puts the voice coil in parallel with the cathode resistor of the class A input stage. As the music plays the amplifier auto adjusts its gain in real time (*almost at the speed of light*) to the exact impedance curve of the loudspeaker it's connected to. This results in better linearity than is possible if negative feedback were used and keeps the bass and dynamics perfectly tight even at full power. This alone was a radical improvement in the design of the amplifier allowing the loudspeaker and amplifier to literally become one so that synergy is unavoidable and unmistakable when you hear it.

**COMMENTS (CONT.)**

Listening to this amplifier can be a demonstration of near perfection in every category. If you have the room and the source to support it, the sound stage depth is infinite. The width is equally impressive creating an arc that comes back to your shoulders, many feet past the speakers position. The sound is big. It's full, the dynamics are convincingly real as is the midrange and the top end seems to extend forever. Micro detail is almost twice as resolved as our single ended triode amps. Focus is not unlike owning the best Nikon camera lenses. I'm telling you this not because I've tallied up over 4000 hours in the design since the first prototype back in 2002, but instead to make you aware of what to expect from this amplifier. That way if you're not getting this result, you can be certain that either your room acoustics, your source, your cables, or your speaker choice or location is preventing it from happening. These weak links in the chain will determine what you hear. As an example, It's not uncommon for people to get an amplifier this good and be less than impressed with it because it only let them hear how mediocre their source actually was, while at the same time the source made the amp sound not that much different from what they were using before. If your imaging isn't perfect, if the frequency balance isn't perfect, if you detect grain or any sense of dryness, sharpness, or your speakers aren't doing a complete disappearing act, then something other than this amp is likely at fault and I invite you to call and chat with me personally so we can analyse the variables in your system, identify and correct weak links, and maximize the setup options available to us.

My only wish is that this amp become your spaceship so that it takes you to some of the out-of-body locations it has taken me, reduce you level of stress and improve your health for your entire lifetime without disappointments.

Steve Deckert