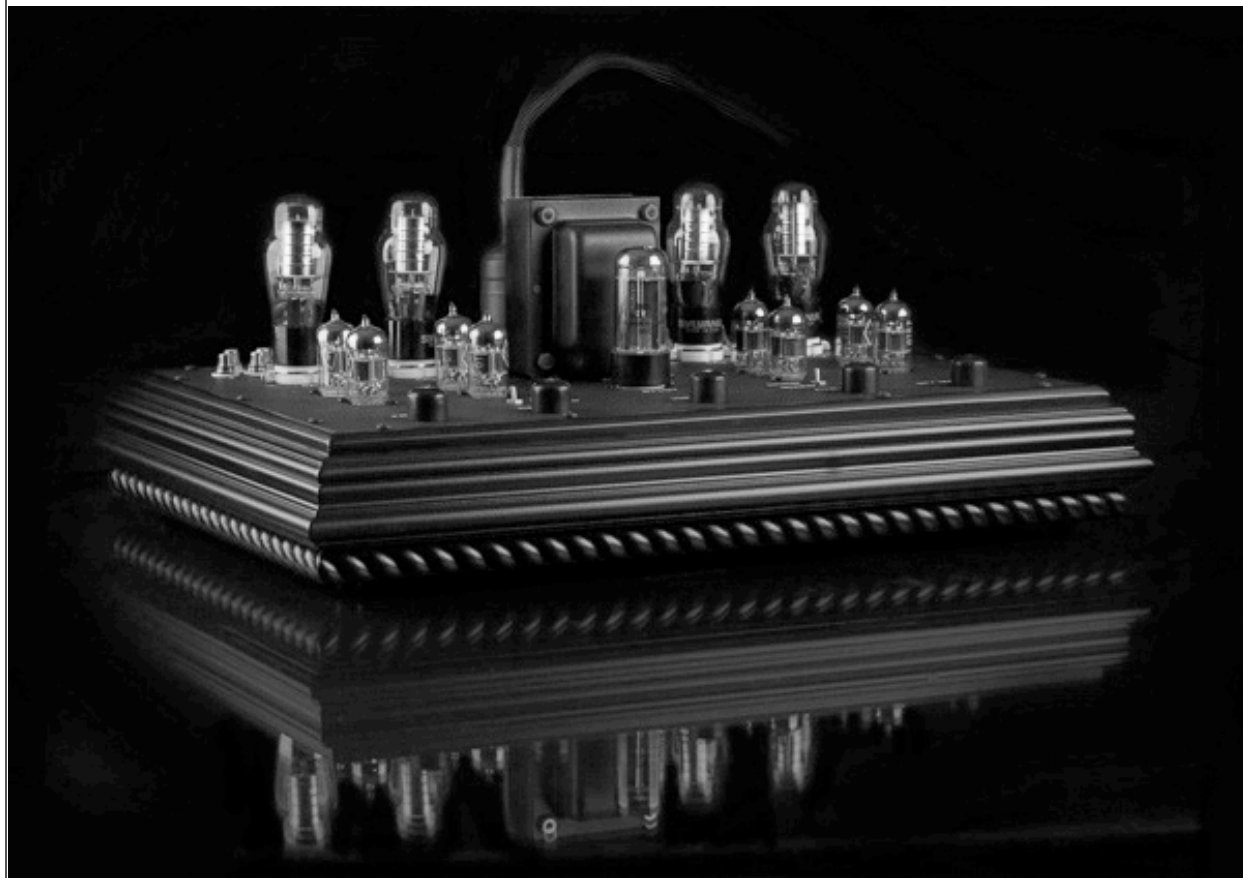


# OWNERS MANUAL

MANUAL NO. 01

REV. DATE: 7/2011

## *The ZEN ULTRA*



6 Channel Vacuum Tube Pre~Amplifier

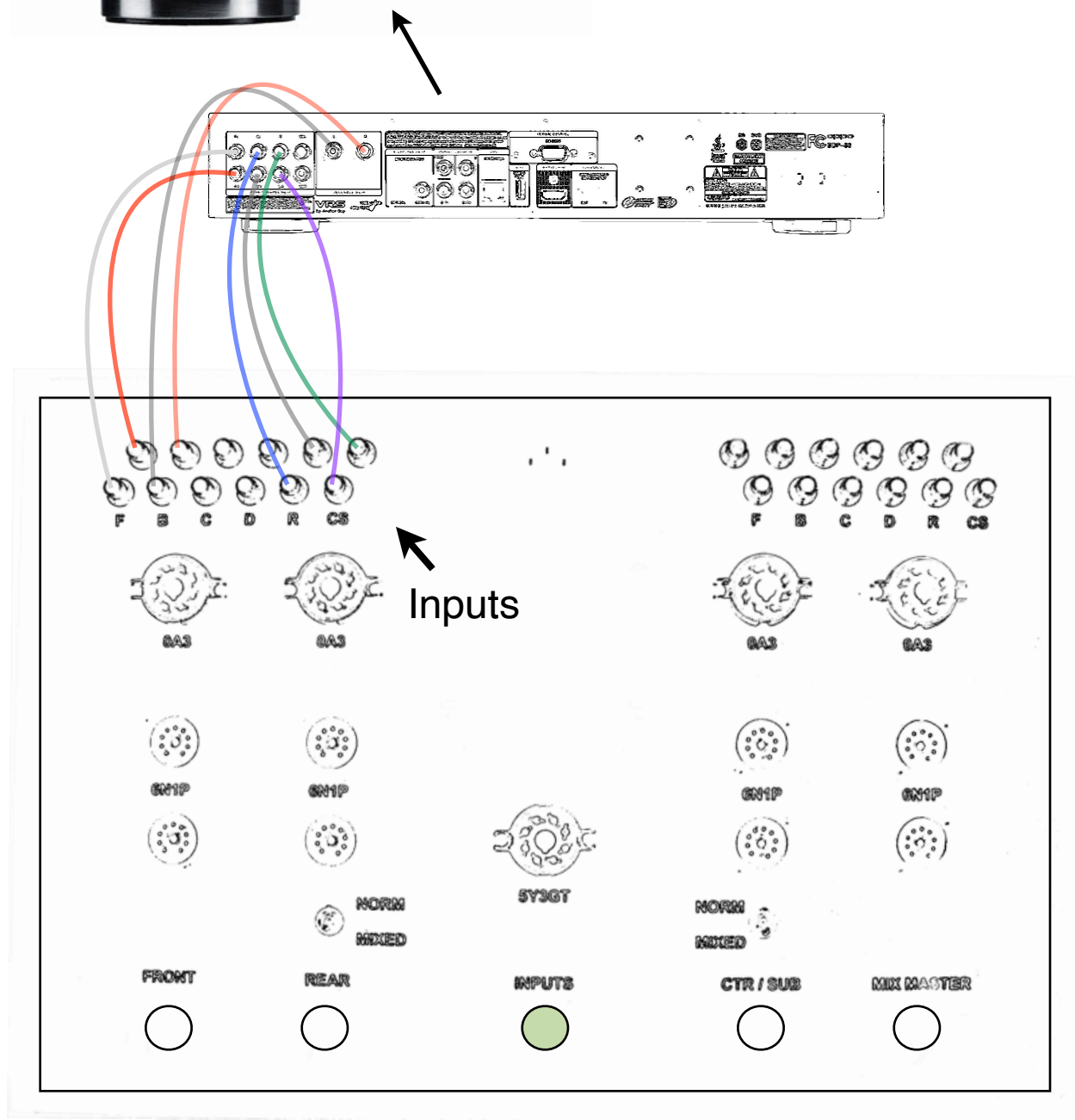
**MODEL ULTRA**

 **DECWARE**

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Connect from the output channels of your Blu-ray or DVD player to the **input channels** of the Zen Ultra.



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## **CONNECTING THE INPUTS of the ZEN ULTRA**

The Zen Ultra has 4 pair of stereo inputs with a rotary input selector located front center and marked light green in the picture above.

Rotating the selector fully to the left will select the inputs labeled “F”. (“F” stands for Front Main Channels)

Rotating the selector one click to the right selects the inputs labeled “B”, “C” and finally “D”.

We hook up the front main channels from the DVD/BLURAY player to the inputs labeled “F”. These will be active during 5.1 channel surround sound. The player will also have a regular pair of stereo output jacks that we connect to the Ultra’s inputs labeled “B”.

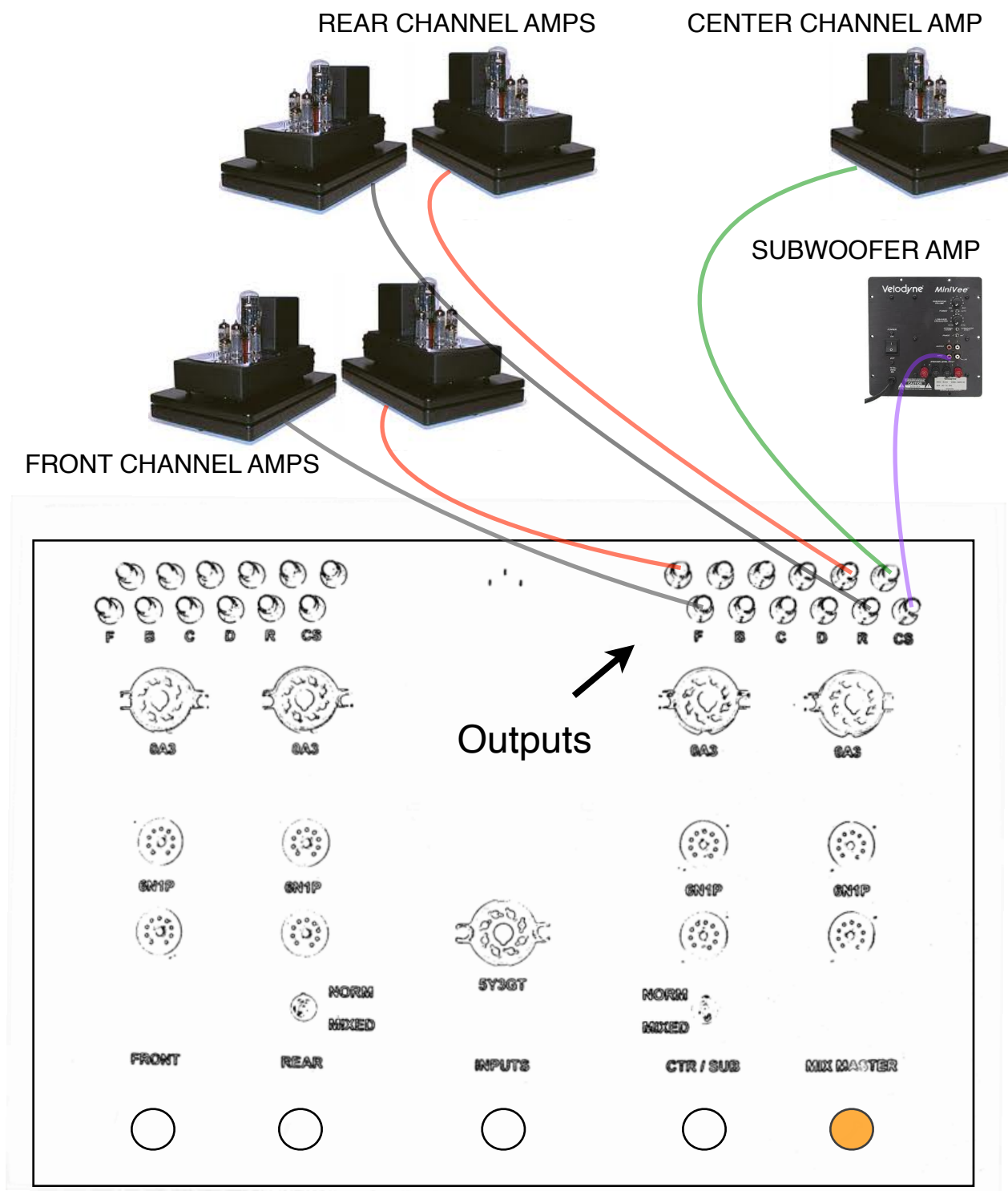
Additional stereo sources can be connected to the Ultra’s inputs labeled “C” and “D”.

## **SURROUND INPUTS**

In addition to the 4 main pair of inputs, the Ultra also has two additional stereo pairs of inputs that are typically connected to the REAR channels (Left and Right) from your DVD/BLURAY player AND to the CENTER and SUB channel respectively. These additional inputs are typically only used for watching movies in 5.1 surround.

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Connecting the **output channels** of the Zen Ultra.



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## CONNECTING THE OUTPUTS of the ZEN ULTRA

The output jacks on the Ultra are on the right side and have the same layout and labeling as the input jacks.

You will note that the outputs labeled “F”, “B”, “C” & “D” all have the SAME SIGNAL going out of them. This was done for those rare instances when the front main speakers are bi-amped (use “F” & “B”), tri-amped (use “F”, “B” & “C”) or quad-amped (use “F”, “B”, “C” & “D”).

## SURROUND OUTPUTS

The remaining outputs are labeled “R” for rears (Left and Right) and “C” for center and “S” for subwoofer.

## MIXING FROM A STEREO SOURCE

The knob labeled “Mix Master” (orange colored in the illustration) is the master volume control for whatever channels you decide to mix from the stereo source. That means if you mix a portion of the sound to the rear channels, and or a portion of the sound to the front channels, your “mix” ratio is preserved as the “Mix Master” control will raise and lower the volume of both at the same time.

## HOW TO MIX

Ok, let's explain that a bit more... You are listening to the front main channels in stereo from your favorite 2 channel source. You have the volume (labeled “FRONT”) where you like it. You decide to add some rear speakers, so you flip the “NORM / MIXED” switch above the “REAR” volume control to the “MIXED” position. Then you slowly raise the volume control for the rears until you have the level just where you want it. You then do the same thing for your “CTR/SUB” (center and subwoofer) channels until you get the volume of those just right... Since this often takes a bit of time, once you have the ratio of rears and center correct, you don't want to lose it. (If you don't want the subwoofer in the mix, simply turn the subwoofer amplifier OFF) Using the “Mix Master” volume control allows you to turn up and down all of the added channels as a group without effecting the volume of your main front speakers.

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## MOVIES

If you don't like the way a 5.1 soundtrack sounds in a particular movie, you can use the prior mentioned procedure to:

- A) Send front channel information to the rears at a reduced volume for ambience without center channel dialog.
- B) Rotate the selector one position to the right so you are now using the "B" inputs and send a stereo signal to the rears at a reduced volume for ambience with center channel dialog.
- C) Leave the selector where it is so you're still using the "B" inputs and send a stereo signal to the center channel. The Ultra will take information from both the left and right channels to create a monaural signal for the center and or subwoofer automatically.
- D) Or do both B and C by leaving the input selector fully to the left and creating a stereo mix on your front main speakers by finding the set up menu for the movie and telling it to play in stereo.

## SUBWOOFER

The Ultra ties the center channel volume and the subwoofer channel volume together, meaning that both are turned up and down together. You can not adjust only the center or only the subwoofer volume. This is on purpose and the result of several years of field testing the Ultra on movies. Any time the center channel is raised, the low frequency effect (subwoofer) channel also needs to be raised. Since in movies the subwoofer only creates low frequency effects, it is not on during much of the soundtrack. Therefore you would have no way to turn the sub up or down while the movie is playing unless you wait for explosions in the movie or something else to trigger the subwoofer. Trying to guess is futile as the next action scene will either have you straining to hear if there was any additional bass, or have you running for your subwoofer to turn it down. Having the volume tied with the center channel keeps this from happening and ensures that the subwoofer level is always correct.

Initial setup when hooking up your subwoofer should be done when you have sound coming from your center and sub channel so that you can turn the gain control on the subwoofer amplifier up or down relative to the center channel's volume. Or if the center channel amp has a gain control, you could adjust that relative to the subwoofer volume.

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## CALIBRATION

If your amplifiers have gain controls that will allow you to adjust how loud each amp gets with a given amount of signal, set the Ultra up to take a stereo signal and mix it to the rear channels and the center/sub channels. Turn the “Mix Master” control all the way up. Turn the remaining three volume controls to the half way point and then simply adjust the gain controls of each amplifier until they all sound equally loud.

If your amplifier doesn't have gain controls of any kind, it's not a problem. The Ultra has a volume for the Front Main channels amplifier, one for the Rear channels amplifier, and one for the Center/Sub channel amplifiers. That means that it is possible to use different non-matching amplifiers and still be able to balance out the volumes of each. If for example your front channel amplifier is 250 watts and needs only 1 volt of signal to come to full power and your rear channel amp is 50 watts with a similar input sensitivity, you'll no doubt have the volume dial for the REAR channels set much higher than the one for the FRONT channels to get equal volume from both. This is normal.

As far as the Ultra itself, there is no calibration required. Just make sure you have eight good preamp tubes (6922 or 6N1P-EV or ECC88) and you're good to go for up to two years of regular use.

## TUBES

Besides the 8 pin rectifier and voltage regulator tubes (largest ones) the Ultra has eight 9 pin preamp tubes that are all the same so that there are no worries about putting tubes in the wrong spot.

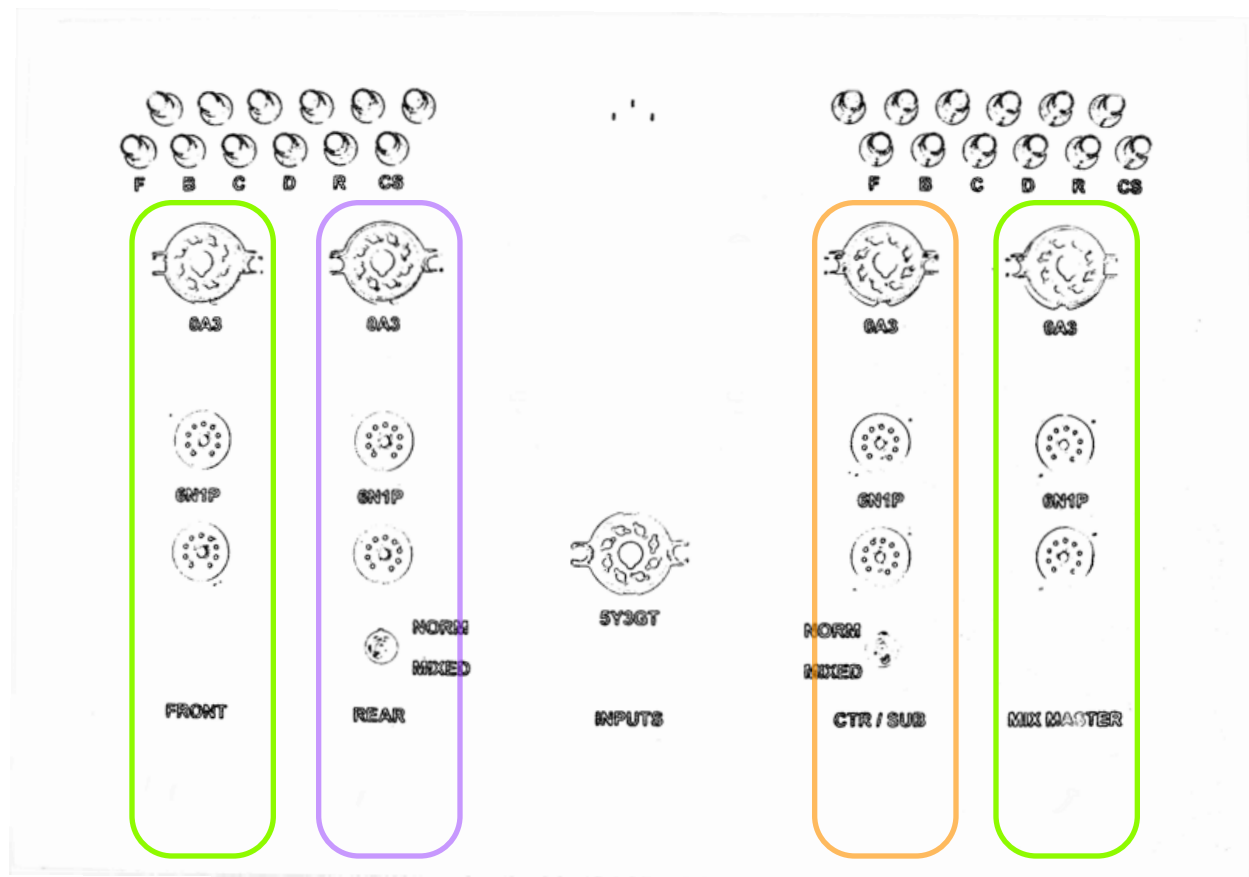
The rectifier tube can be one of the following: 5U4, 5AR4, 5Y3GT or compatible replacement. Rectifiers usually last for many years. However, if the Ultra is on and you have a nearby lightning strike causing a huge power surge, the rectifier tube will fail to protect the Ultra from any internal damage. This rarely happens, but if the Ultra had solid state diodes instead it would mean a trip back to the manufacturer for repair.

There is no user serviceable parts inside the Ultra, nor anything in there that would typically ever fail. Any problems including noise would be tube related and easily corrected with good tubes.

The OA3 (VR75) tubes do not effect the sound. They also are the only tubes on the Ultra that stay cool to the touch. These tubes will have a delay when turning the Ultra on and will flash several times after the Ultra has been turned off. This is normal operation of these tubes.

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## Tubes Continued.



Tubes to check if Front Main Channels act up.



Tubes to check if Rear Channels act up.



Tubes to check if Center/Sub Channels act up.



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## **TWO CHANNEL USE**

For those who will never use the Ultra to watch a movie there are some interesting things that can be done. For example, you could have a listening room set up with a system at either end and easily be able to switch from one to the other without even interrupting the music.

In direct mode the center and sub channels are just two channels - basically a stereo pair so these could be used for a third system.

In Mixed mode, the center and sub channels are each converted to mono.

The Ultra can be three separate two channel preamps. Some notes about that:

Preamp 1 - "FRONT Main Channels" - two gain stages and two followers in the signal path for a total of four tubes.

Preamp 2 - "REAR Channels" - one stage and one follower in the signal path for a total of two tubes.

Preamp 3 - "CTR/SUB Channels" - same as preamp 2 with only two tubes in the signal path.

You will find preamp 1 to have more "love" than preamps 2 and 3 due to the additional tube stages. This is particularly good for digital.

You could even hook the outputs of one preamp into the inputs of another without problems.

## **TRI-AMPING a two channel RIG.**

One obvious advantage of the Ultra is for people who bi-amp or tri-amp their speakers. With the Ultra you have control over the individual amplifiers making it easy to adjust the volume of your bass, midrange or highs independently of each other.

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## **CABLES**

The Ultra can drive unbalanced cables around 30 feet long without issues. Since setting up a 6 channel home theater can involve a lot of cables and often longer cables, Decware recommends RG6U 100% copper solid center conductor with a 95% solid copper braided shield for the ground. This cable is surprisingly smooth and rich sounding and very cost effective. We can make these cables in standard and custom lengths up to 50 foot. See our web site for details or call.

If your components are in a rack and long cable lengths are not needed you can still have custom lengths of our RG6U cables made. These are shielded and work well to preserve a nice black background in a magnetically active environment such as a rack full of equipment that could possibly create a noise problem with un-shielded cables.

## **POWER CORD**

The Ultra despite its built-in power filtering via four voltage regulator tubes, will benefit from the use of a good power cord. We recommend our DHC-1 high-current Silver / Teflon power cords plugged into a hospital-grade outlet or Leviton's new **Surge Protection Receptacle (ACSR6)**.

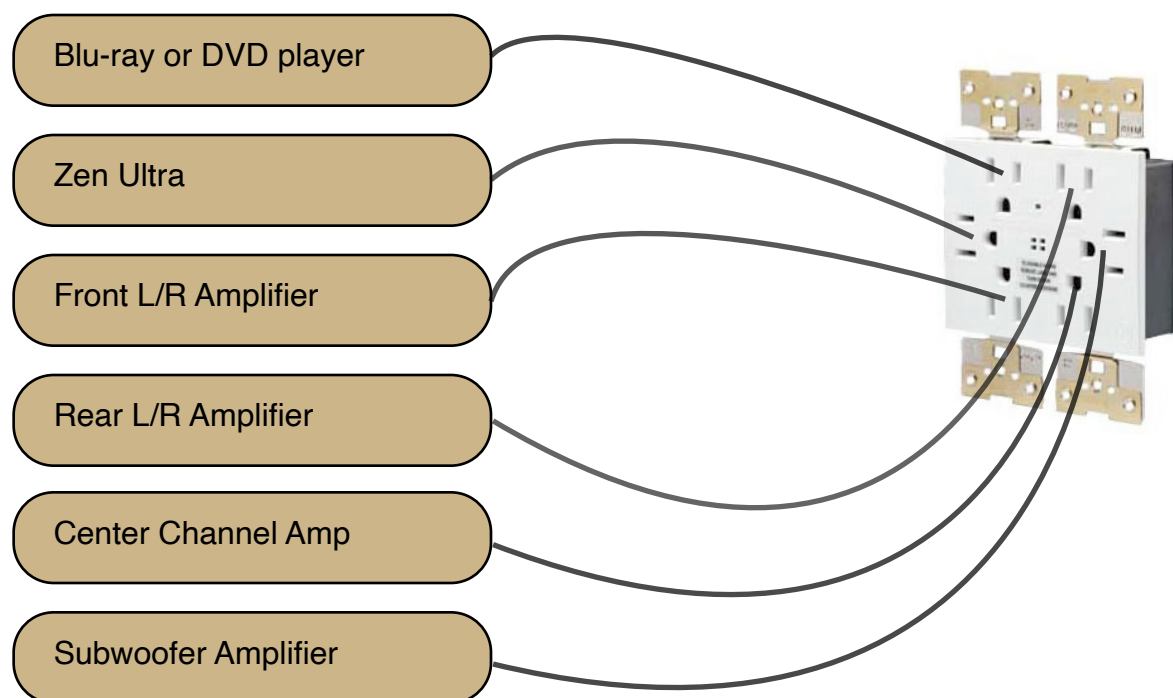
## **POWER CONDITIONING**

The Ultra has some of the best power conditioning ever created - built right into the product. It is the four OA3 tubes.

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## OUTLETS

It's a very wise idea to have an outlet as close as possible to your audio rack so that you don't have to use a power strip. Plug every audio component that will be hooked together (Sources, Ultra, Amplifiers) into the same outlet and be sure the outlet is operated from a single breaker. Following this advise will prevent ground loops from developing between components causing 60 or 120 cycle hum.



The example above is ideal. If you have additional sources, you'll want to have two of these types of receptacles. The idea is to keep the receptacles as close together as possible and with the least number of wiring connections. This creates a nearly ideal "single point ground". Most tube amplifiers that are 50 watts or less draw only an amp or two and source components even less. This sample would estimate a 10 amp draw that would be OK for a single 15 amp circuit breaker.

**Acenti Sixplex Surge Protection Receptacle (ACSR6)**