

Sanzaku

Tube hybrid headphone amplifier / line amp

Instructions

www.apexhifi.com



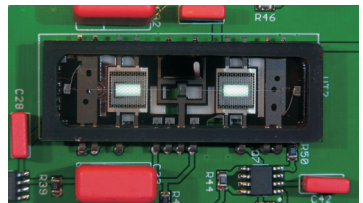
The Apex HiFi Sangaku

“Sangaku” is one of many words that means “Mountain” in Japanese. It is also the name of a national park in Japan that encompasses part of the “Japan Alps”, a beautiful mountainous area in central Honshu.

The Sangaku headphone amplifier is a tube hybrid headphone amplifier (meaning that it uses both vacuum tube and solid-state technology). It employs the “NuTube” device from Korg Incorporated in Japan, which is a newly developed dual triode vacuum tube.

The NuTube device provides true directly-heated triode characteristics in a small package. It requires very little power, at lower voltages, than other tubes. This enables the Sangaku to provide true DHT sound at an unprecedented small size and low cost.

For more information about the NuTube, please visit Korg at www.korgnutube.com.



In the Sangaku circuitry, the NuTube device is used in a single-ended configuration to provide the needed voltage gain. Solid state buffers provide both unbalanced and balanced outputs with a very low output impedance to drive the headphones. The Sangaku can drive any headphones, from 16 ohms to 600 ohms, and has enough gain for even inefficient headphones.

To keep the footprint small and the audio path direct, all audio switching and routing is done using relays, and control is done with simple buttons on the front panel.

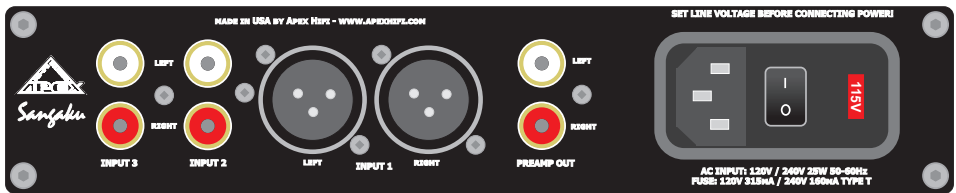
Specifications

Power input: 115-125V or 230-250V, 50-60Hz, 25W maximum

Dimensions: 8.75” wide x 10” deep x 2.4” tall (including knobs, connectors, and feet)

Inputs: Three - one balanced input (3-pin XLR jacks), two unbalanced (RCA jacks)

Outputs: Three - unbalanced headphone (1/4” jack), balanced headphone (4-pin XLR jack), and unbalanced line out (RCA jacks)



Rear Panel Connections

Power

Before connecting a power cord to the amp, make sure that the line voltage is set correctly for your area. To change the voltage setting, open the door containing the voltage selector by prying it open on the right side using a small screwdriver. Then, remove the red voltage selector assembly, again by prying it out using a small screwdriver. Orient it so that the correct voltage, again by prying through the opening in the door, and press it firmly into place, then snap the door closed.

The Sangaku is not supplied with a power cord. It has a standard IEC power inlet.

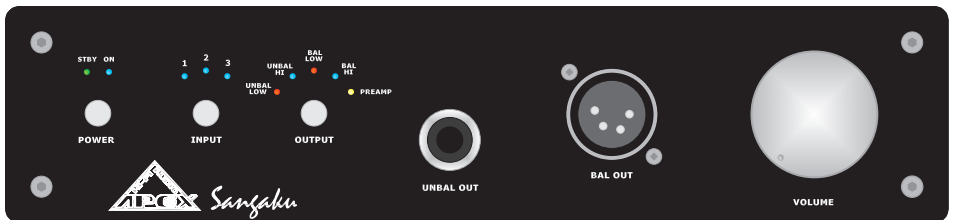
The power switch on the back of the amplifier disconnects all power, similar to unplugging it. Normally, this power switch can be left in the on position ("I") and the front panel power button can be used to turn the amp on and off.

Audio Inputs

There is one balanced line input (using 3-pin XLR connectors), and two unbalanced line inputs (using RCA connectors), located on the back of the Sangaku. They are labeled "INPUT 1", "INPUT 2", and "INPUT 3", which corresponds to the input selected from the front panel.

Audio Output

RCA jacks for the preamp (line) output are located on the rear panel.

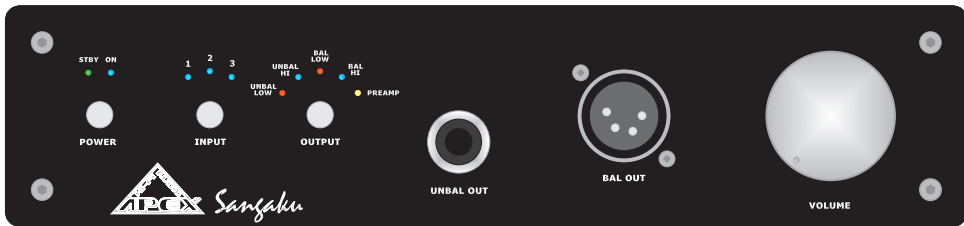


Front Panel Connections

Headphone Outputs

There are separate outputs for unbalanced headphones (using a standard 1/4" stereo jack) and balanced headphones (using a 4-pin XLR connector).

Only one of the headphone outputs is active at a time, depending on the setting of the "OUTPUT" switch.



Operation

Power-On and Off

The Sangaku is powered on or off by pressing the “POWER” button on the front panel.

When in standby mode (with the rear power switch on), the green “STBY” LED is illuminated. In standby mode, the outputs are disabled, and all internal power to the amplifier circuitry (including to the tubes) is turned off.

Pressing the “POWER” button causes the unit to enter a 10-second warm-up period for the tubes to heat up and electronics to stabilize. During warm-up, the blue “ON” LED will blink. After the warmup period is complete, the blue “ON” LED will be illuminated and the outputs will be enabled.

Input Selection

The Sangaku has three inputs. Pressing the “INPUT” button will advance the input selection to the next input. For example, if you are currently on input 1, pressing the button will advance to input 2. If you are on input 3, pressing it will return back to input one.

The blue LED corresponding to the selected input will be illuminated.

Output Selection

The “OUTPUT” button controls which of the Sangaku outputs are active, and also sets the gain of the amplifier.

The “UNBAL LOW” setting provides a maximum gain of 0dB, and routes the output to the 1/4” jack. “UNBAL HI” has a gain of 15dB to the 1/4” jack. “BAL LOW” has a gain of 0dB, and a balanced signal is routed to the 4-pin XLR connector. “BAL HI” has a gain of 15dB to the XLR jack. The “PREAMP” setting routes an unbalanced signal to the rear-panel RCA jacks, and has a gain of 0dB.

Note that only the gain changes between the “LOW” and “HI” settings. The output impedance to the headphone jacks is the same - about 1 ohm - in all settings.

The “LOW” setting is appropriate for sensitive headphones and IEMs. The “HI” settings work best with inefficient headphones. You can try both and use whatever setting sounds better to you. Note that with efficient headphones, you may hear more noise on the “HI” settings.