

# CASSIOPEIA & LYRA

## USER MANUAL



## Precautions



### **WARNING: High Voltage**

- Risk of electric shock.
- Refer service to qualified service staff only.
- Do not expose this device to rain or moisture.
- Do not use this device near water, e.g. swimming pool, bathtub or wet basement.



### **CAUTION: Temperature**

- Surfaces of the device may become hot during operation.
- Do not install this device near any heat source such as radiators, stoves or other heat sources.
- Always allow enough ventilation space around the unit for air circulation.
- Do not cover circulation vents.



### **CAUTION: Connecting & Mounting**

- Never connect the output of a power amplifier to this device.
- Place the unit on a rigid board or place it in an appropriate rack.
- Use the device according to this manual only.



### **CAUTION: Humidity**

- If this device is moved from a cold place to a warm room, condensation can occur inside the device. To avoid damaging the unit, please allow it to reach room temperature before switching it on.

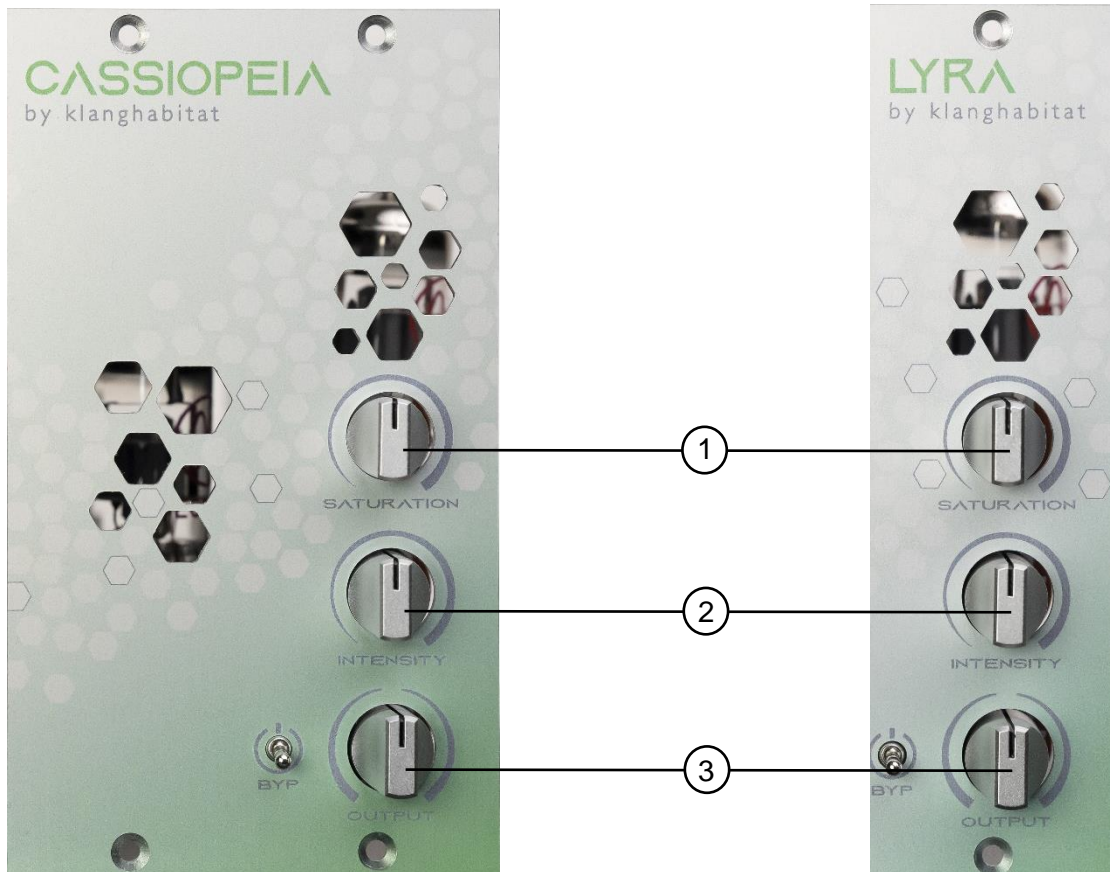
## The unique sound of tube saturation

You're about to explore the unique sounds of tube saturation. Cassiopeia & Lyra are composed around vacuum tubes to add the missing bit to a sound source. In order to do so, the vacuum tubes are driven out of spec, which means in a mode of saturation. The resulting effect is the creation of overtones and harmonics which are different to transistor or digital approaches; less sharp but more pleasing.

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## CONTROLS



### 1 SATURATION

Determines how much the vacuum tubes goes into saturation. Clockwise gives more saturation.

### 2 INTENSITY

This control is basically a wet/dry control which determines how much of the processed signal you want to blend in. In full clockwise position, 100 % of the saturated signal is fed to the output, while in full counterclockwise position just the input signal is available at the output.

### 3 OUTPUT

Gives – 12 dB in Counterclockwise and + 12 dB in Clockwise position. In center position the output is unity gain.

## HOW TO USE

To use Cassiopeia & Lyra all you need to do is run audio files your choice through them. Depending on the intended result, the most important control is the **SATURATION** control. This control will determine how the vacuum tube reacts to the incoming audio signal. The more this dial is turned clockwise, the more the signal is processed. The tube's backlight will give feedback on how much the tube reacts during processing.

The outgoing signal depends on the position of the **SENSITIVITY** dial. The more this dial is turned clockwise, the more of the processed signal will be forwarded to the output. In the case where the dial is fully clockwise, the output will represent 100 % of the process path. In most cases, this dial will be used to dial in the exact amount of processed signal to the output.

Last, the **OUTPUT** control is used to gain match devices in the signal chain and operate all elements at their best performing signal levels

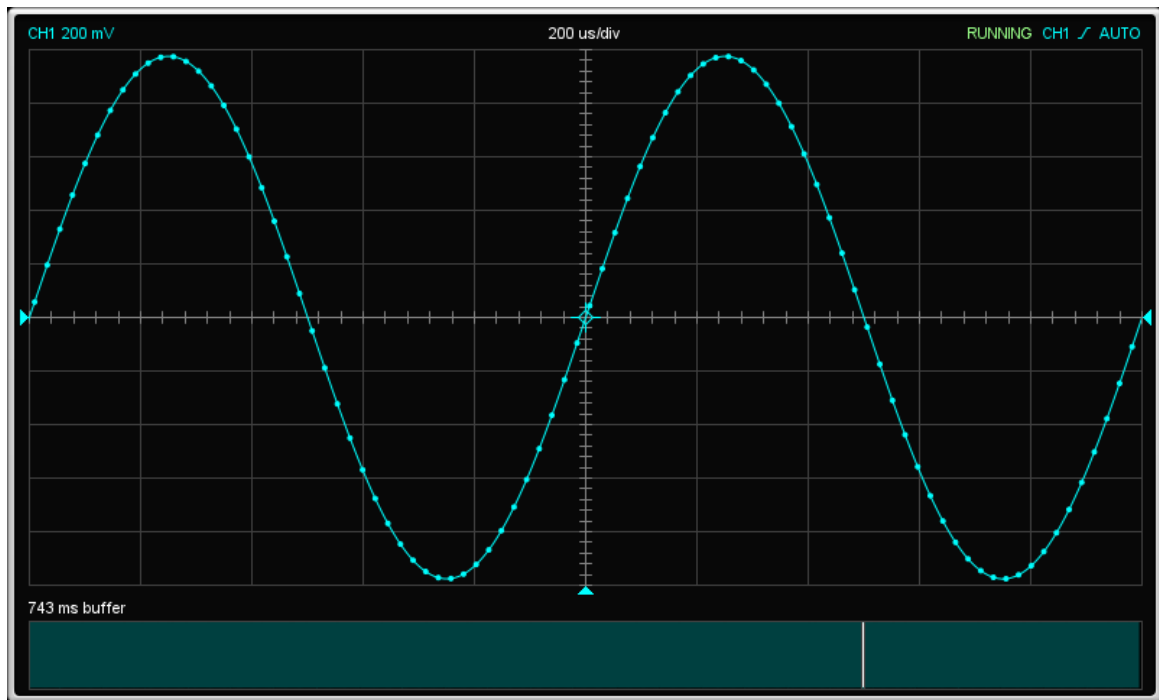
## HOW IT WORKS

Cassiopeia & Lyra make use of the “natural” characteristics of vacuum tubes operated in saturation. In other words, these tubes are operated outside their originally designed specifications.

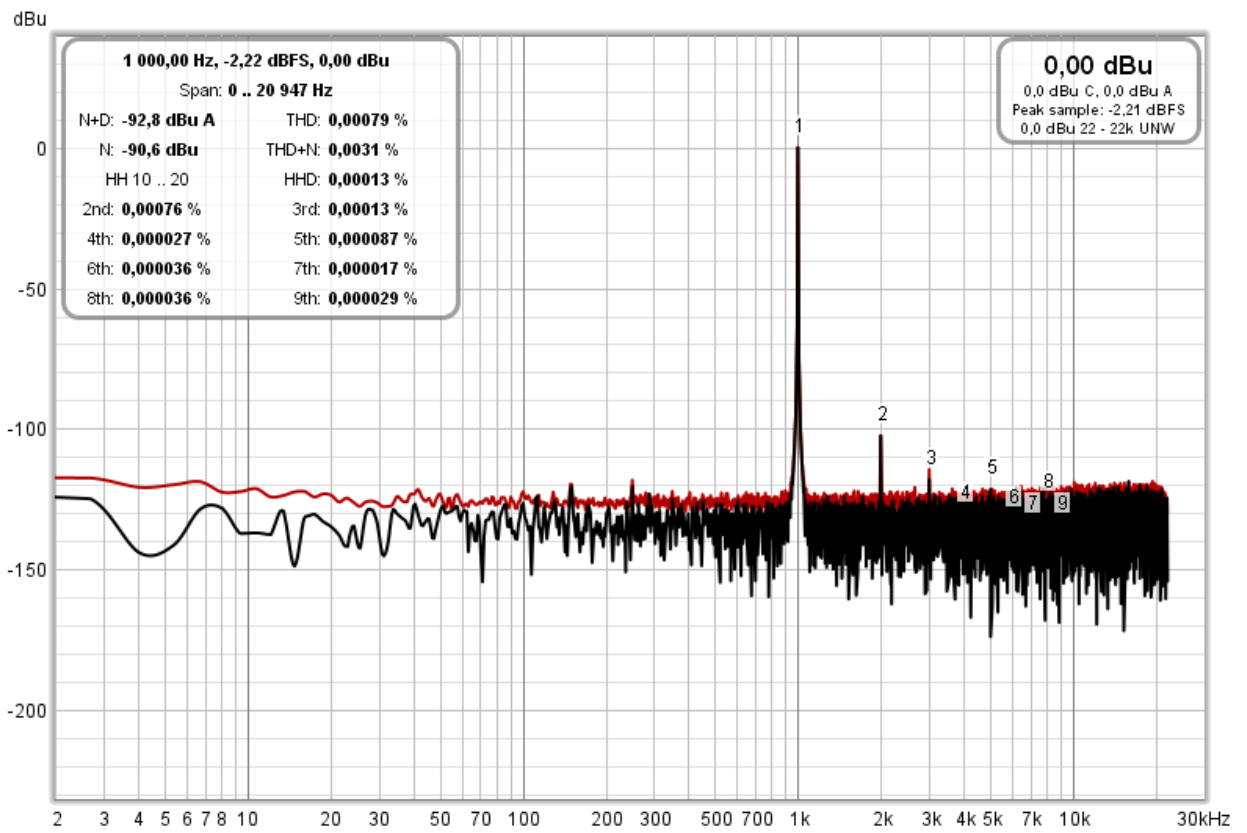
This is achieved by using the **SATURATION** potentiometer for the incoming signal. The more this control is turned clockwise, the less the vacuum tube can operate inside spec. The resulting effect is beneficial because it creates overtones. The beautiful thing about using tubes in this context is the reason that clipping occurs in a soft way.

The **INTENSITY** control gives the option to blend in the saturated signal with the original unprocessed signal. This is very handy in cases where the **SATURATION** control is cranked up but just a small amount of the wet signal is beneficial to the output.

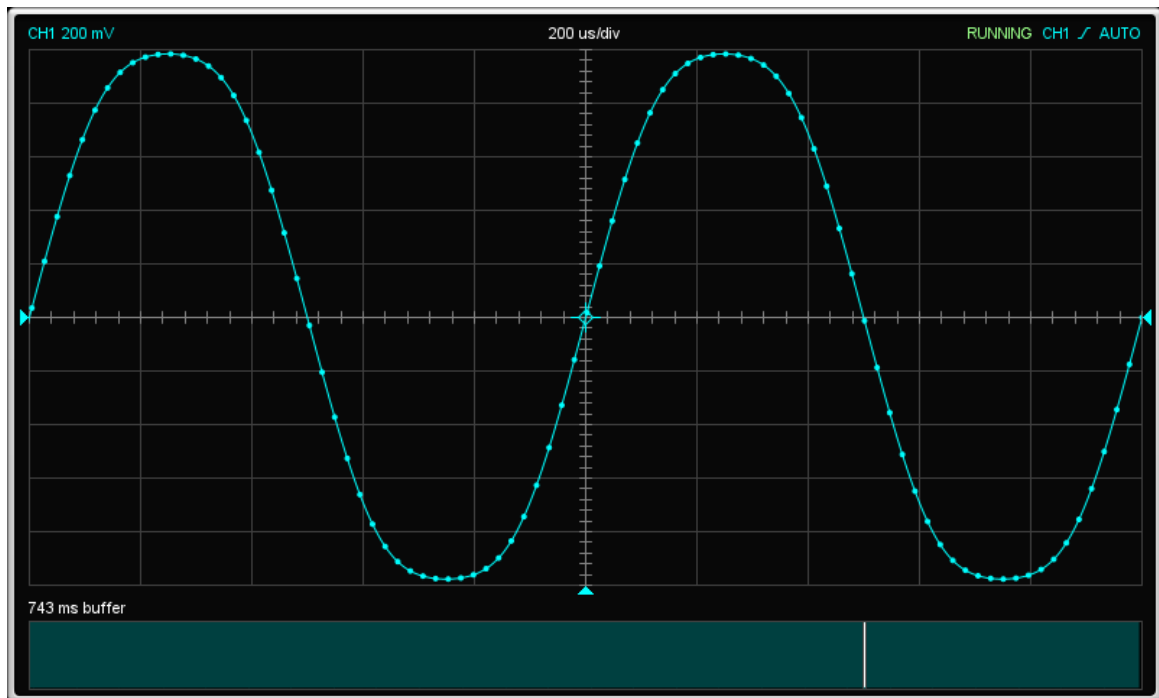
The last element needed is the **OUTPUT** control, which allows the user to give the correct level to the following device in the entire signal chain.



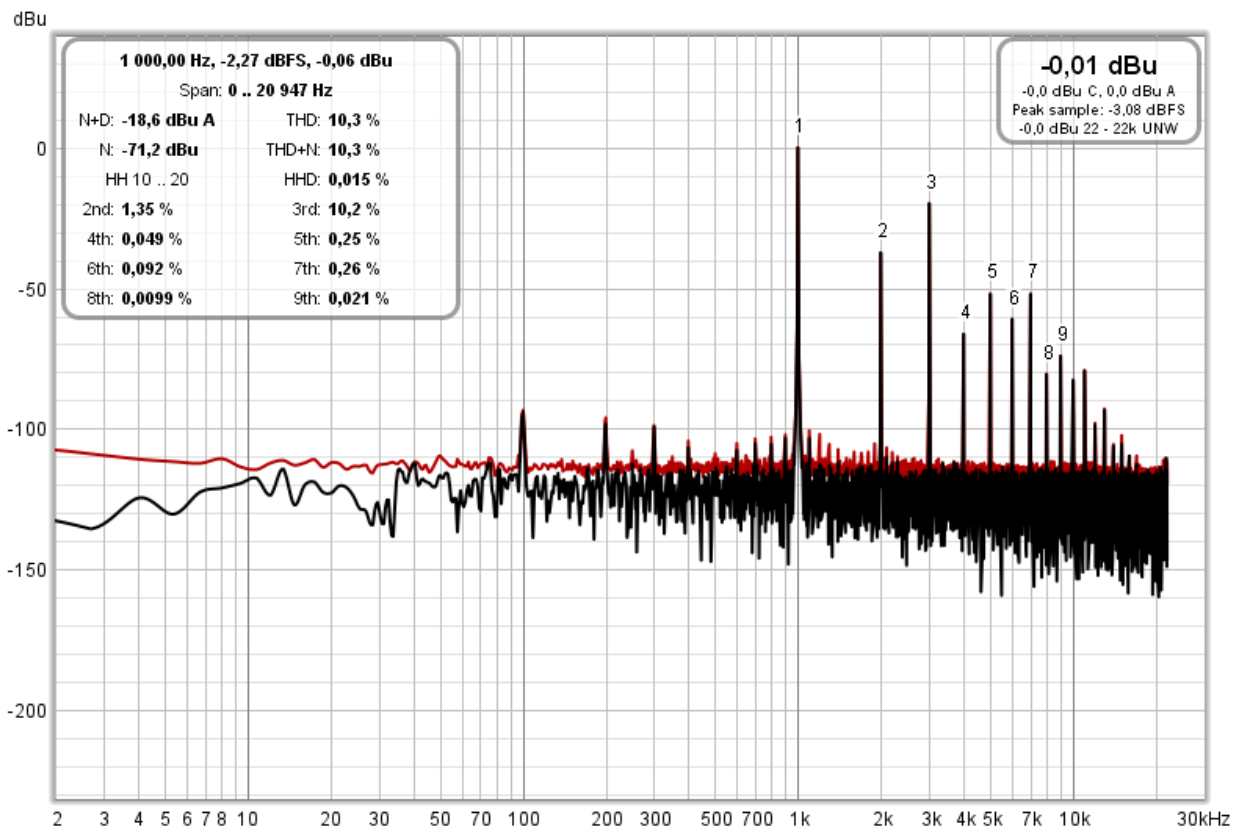
Saturation 0%



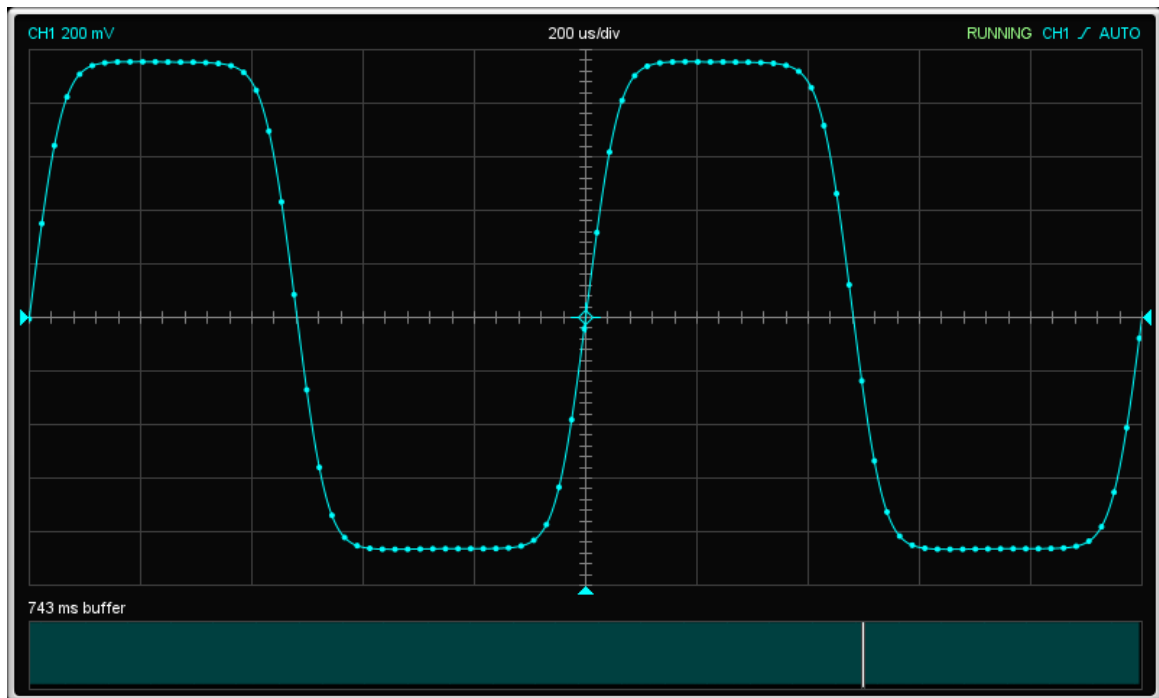
Saturation 0%



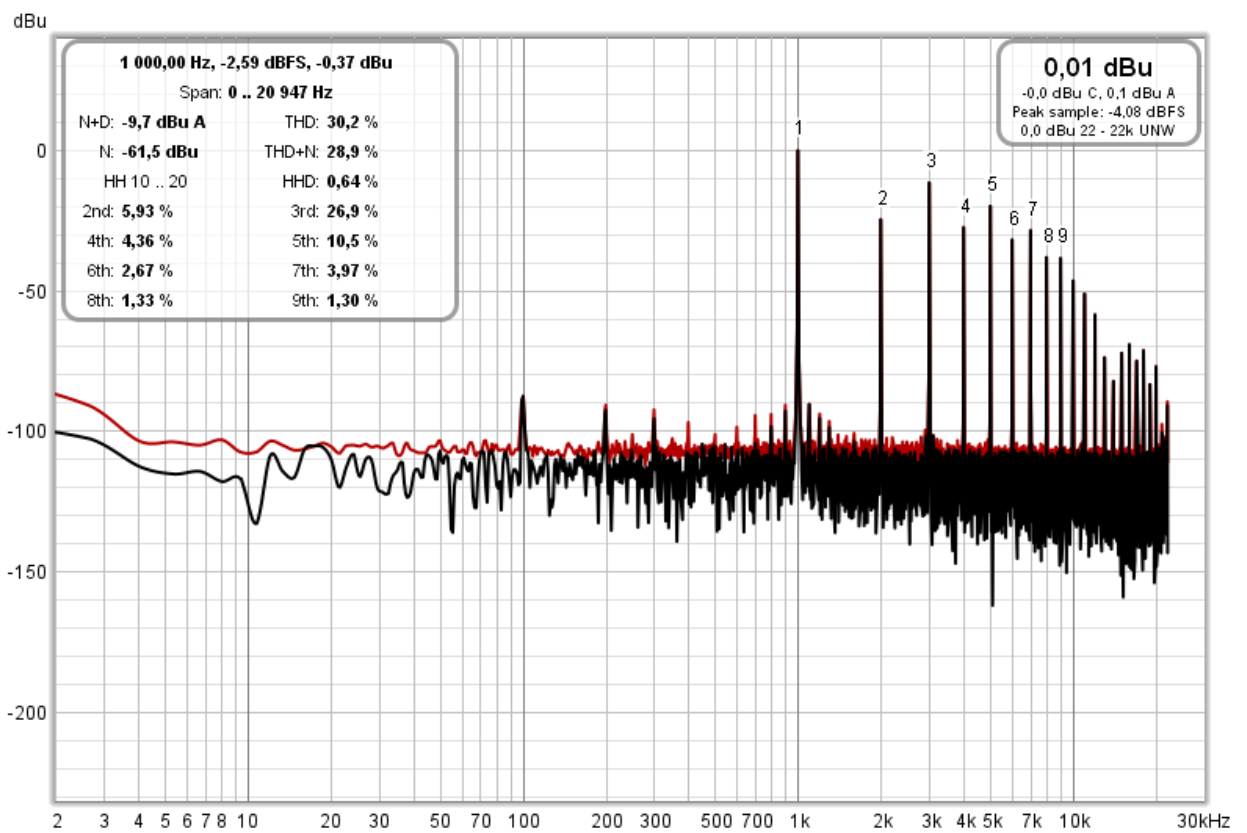
Saturation 50 %



Saturation 50%



Saturation 90 %



Saturation 90%



## TECHNICAL DETAILS

<b>Frequency response:</b>	<10 Hz – 22 kHz
<b>INTENSITY (0 %) THD+N:</b> @ 0 dBu @ +10 dBu	0.0031% 0.01 %
<b>INTENSITY (100 %) THD+N:</b> @ 0 dBu Saturation 0 % @ 0 dBu Saturation 100 %	0.024 % 26.3 %
<b>Noise floor 20 Hz - 22kHz:</b> INTENSITY (0 %) INTENSITY (100 %)	-90 dBu -88 dBu
<b>Dynamic range, 20 Hz – 22 kHz:</b> Max input level Max output level  input impedance output impedance	+20 dBu +20 dBu  10 kOhm 68 Ohm

## BLOCK DIAGRAM

