THONK SYNTH T12 VCA OUT

VCA OUT is the final stage in your modular system, giving you the essential tools for finishing a patch. With control over dynamics, mixing and stereo placement, plus an integrated headphone/line output, it lets you monitor or record your patches directly from your rack. It features the same high quality VCA circuitry as the ***T03 DUAL VCA***, including linear/exponential CV responses and useful normalisation features.



HP / LINE OUT VOLUME

Two-stage LED indicators show the current audio level. **ORANGE LEDs** show that a signal is present. When the **WHITE LEDs** begin to flicker on then it indicates you have a healthy output level.

CV LEVEL KNOBS

These attenuate the CV inputs. When no CV signals are patched in, these work as simple level controls.

LINEAR / EXPONENTIAL SWITCHES

These select between linear and exponential CV responses for each VCA channel.

CV INPUTS

0V = VCA fully closed.

+5V = VCA fully open.

CV A is normalled to +5V, allowing the CV level knobs to open and close the VCA.

CV B is normalled to ***CV A***.

SIGNAL INPUTS

(MONO, EURORACK LEVEL)

The signal inputs to each VCA. When ***IN B*** is unpatched, it contains a copy of ***IN A***.

HEADPHONE / LINE OUTPUT

(STEREO, LINE LEVEL)

AC coupled headphone/line output, capable of driving all headphones types with impedances of 32Ω to 600Ω with ease.

AUXILIARY INPUT

(STEREO, LINE LEVEL)

Line level STEREO input that is mixed into the headphone/line output.

CV OFFSET KNOBS

Offset controls for each VCA independent of the CV inputs.

HP / LINE ROUTING SWITCHES

These switches control how each VCA is routed to the HP/line output. *Check the next page for more info.*

SIGNAL OUTPUTS

(MONO, EURORACK LEVEL)

The signal outputs from each VCA. Patching out of these does NOT effect the headphone output.

SPECS

Width 6HP
Depth 38mm (inc power connector)
+12V 32mA
-12V 32mA
+5V 0mA

Current specifications above reflect typical usage. Power consumption varies with headphone impedance and output level.

MODULE INSTALLATION

1. Ensure your Eurorack system is powered off
2. Locate the red stripe on the included power cable, and plug the 10 pin connector onto the power connector on the back of the module, making sure the red stripe lines up with the "**RED**" text on the back of the module.
3. Plug the other 16 pin end of the power connector into your busboard, double checking the orientation is correct.
4. Turn on your Eurorack system.

HEADPHONE / LINE OUTPUT

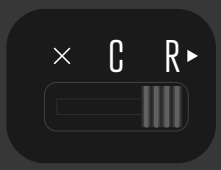
The maximum output level has been chosen as a compromise between clean line-level operation and practical headphone monitoring. It provides plenty of level for studio use, but is not intended as a high-power headphone amplifier for gigging use.

> ***To protect your hearing, always begin with the headphone level turned down and increase it gradually to a comfortable level. Avoid listening at high volumes for extended periods.***

OUTPUT ROUTING

Using the three-way slide switches on each VCA channel, you can decide how each channel is routed to the headphone/line output in the stereo space. These switches have no effect on each channel's mono VCA output.





VCA A

X = OFF - VCA A is not sent to the headphone output.

C = CENTRE - VCA A is sent to both ***LEFT*** and ***RIGHT*** output.

L = LEFT - VCA A is sent to only the ***LEFT*** output.

VCA B

X = OFF - VCA B is not sent to the headphone output.

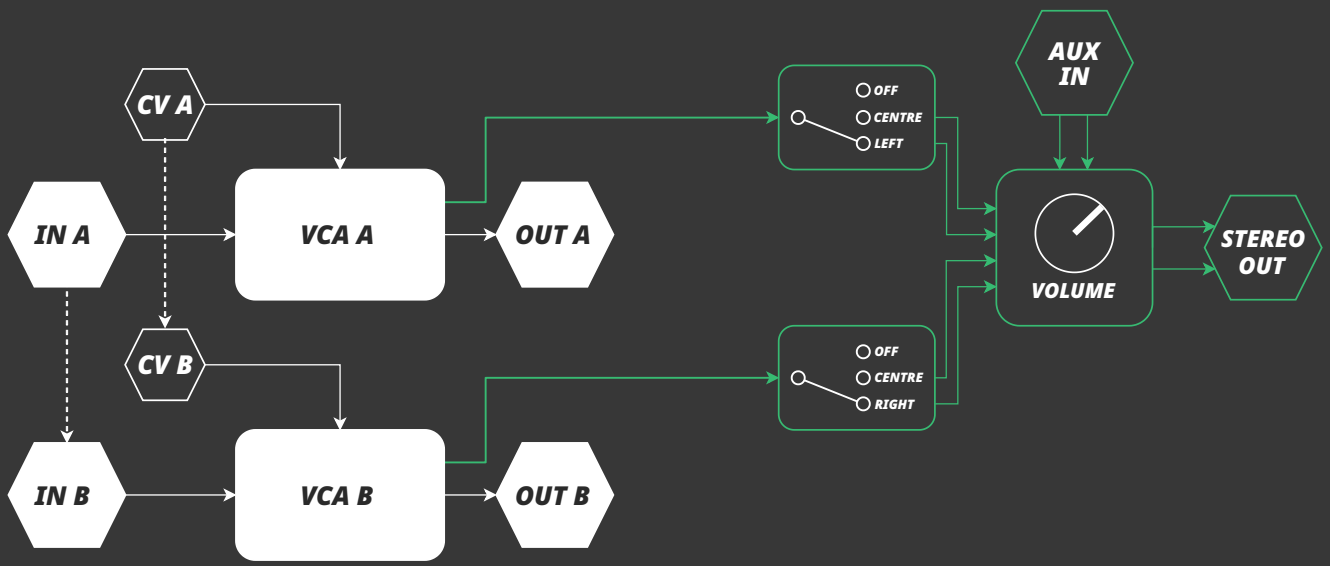
C = CENTRE - VCA B is sent to both ***LEFT*** and ***RIGHT*** output.

R = RIGHT - VCA B is sent to only the ***RIGHT*** output.

AUX INPUT

The AUXILIARY input is a line-level stereo input that is mixed into the headphone/line output BEFORE the volume control. Because this is a line level input, Eurorack level signals will be extremely loud - be careful when wearing headphones!

SIGNAL FLOW



VCA OPERATION

SIGNAL INPUTS

Each channel's signal input will accept +/-10V (20Vpp) before clipping. When not patched into IN B, it contains a copy of the signal at IN A.

SIGNAL OUTPUTS

Each channel's signal output works independently of each other and of the headphone/line output. Patching out from these do not effect the routing to the headphone/line output.

CV INPUTS

The CV inputs accept voltages between 0V and +5V. 0V = VCA fully closed, +5V = VCA fully open (unity gain). Voltages below 0V and above +5V are clamped to this range. When unpatched, the CV inputs are normalled to +5V.

The CV knobs act as attenuators for the CV inputs, meaning you can use them as simple level controls for each channel.

CV A is normalled to CV B, allowing you to control both channels by only patching into CV A.

LINEAR/EXPONENTIAL MODE

Both channels have a two-way slide switch to select between linear and exponential CV responses.



LINEAR

A simple linear response, ideal for when using exponential envelopes or modulation.



EXPONENTIAL

This is not a 'true' exponential curve, but a slightly engineered response tailored for playability and volume perception. Great for snappy and percussive sounds, when using linear envelopes, or for when using the VCAs as manual volume controls for mixing.

