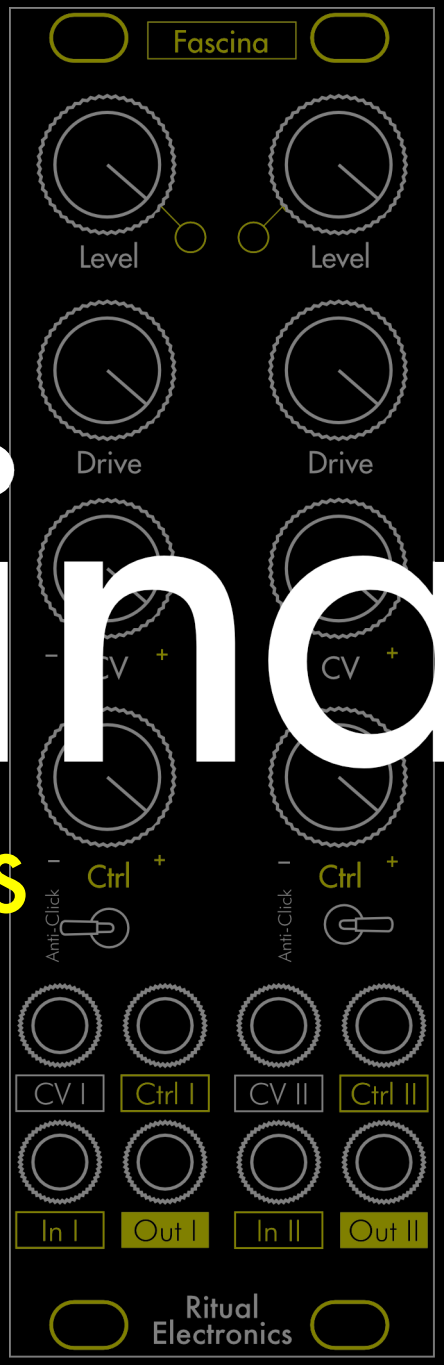
Fascina

Ritual Electronics



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Thank you for purchasing Ritual Electronics Fascina.
Your module has been assembled with care in our studio in the heart of Provence, France.

You can find your module on Modulargrid:
https://www.modulargrid.net/e/ritual-electronics-fascina

For any remarks and informations, contact us at:
contact@ritualelectronics.com

For video demos and patch ideas check:
https://www.instagram.com/ritualelectronics/

Limited warranty

Ritual Electronics warrants this product to be free of defects in materials or construction for a period of one year from the date of purchase.

Malfunction resulting from wrong power supply voltages, backwards or reversed eurorack bus board cable connection, abuse of the product or any other causes determined by Ritual Electronics to be the fault of the user are not covered by this warranty, and normal service rates will apply.

During the warranty period, any defective products will be repaired or replaced, at the option of Ritual Electronics, on a return-to-Ritual Electronics basis with the customer paying the transit cost to Ritual Electronics. The return of your module is on us.

Ritual Electronics implies and accepts no responsibility for harm to person or apparatus caused through operation of this product.

Installation

Always power off your Eurorack case before installing or removing a module.

Avoid touching any electrical contacts when connecting the Eurorack bus cable.

Ensure the red stripe on the 10-pin power cable is aligned with the red stripe marking on the PCB.

Power requirements *(maximum values under intensive use)*:

+12V: XX mA

–12V: XX mA

+5V: 0 mA

Mechanical specifications:

Fascina requires 8HP of space in a standard 3U Eurorack row.

Module depth is 25 mm, including the power connector.

Overview

Fascina is a dual VCA with anti-click dynamics, CV & audio control, and hard hitting gain.

The anti-click circuit preserves clean VCA behaviour even with ultra-snappy envelopes, making Fascina especially well-suited for tight basslines and percussive sounds.

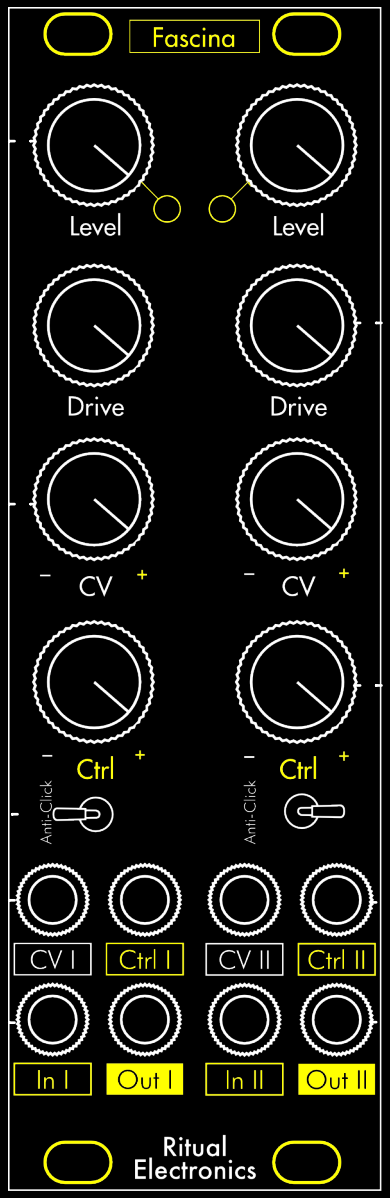
CV attenuverters allow precise level control and make it easy to turn levels up or dynamically duck pads and drones using CV.

The audio control input lets another audio signal modulate the VCA. With its dedicated attenuverter, this signal can be used for either ducking or expansion, opening the door to complex dynamics and side-chaining effects.

In true Ritual Electronics fashion, Fascina offers generous gain, allowing it to double as a powerful voltage-controlled saturator and hard limiter.

The different blocs making up Fascina make it a very patch programmable VCA.

Fascina controls



Level knob
Sets the initial level

Drive knob
Pushes the VCA into the limiter

CV attenuverter knob
Attenuate and/or invert the CV input signal

Ctrl attenuverter knob
Attenuate and/or invert the Ctrl input signal

Anti-click on/off switch
Toggles the anti-click system

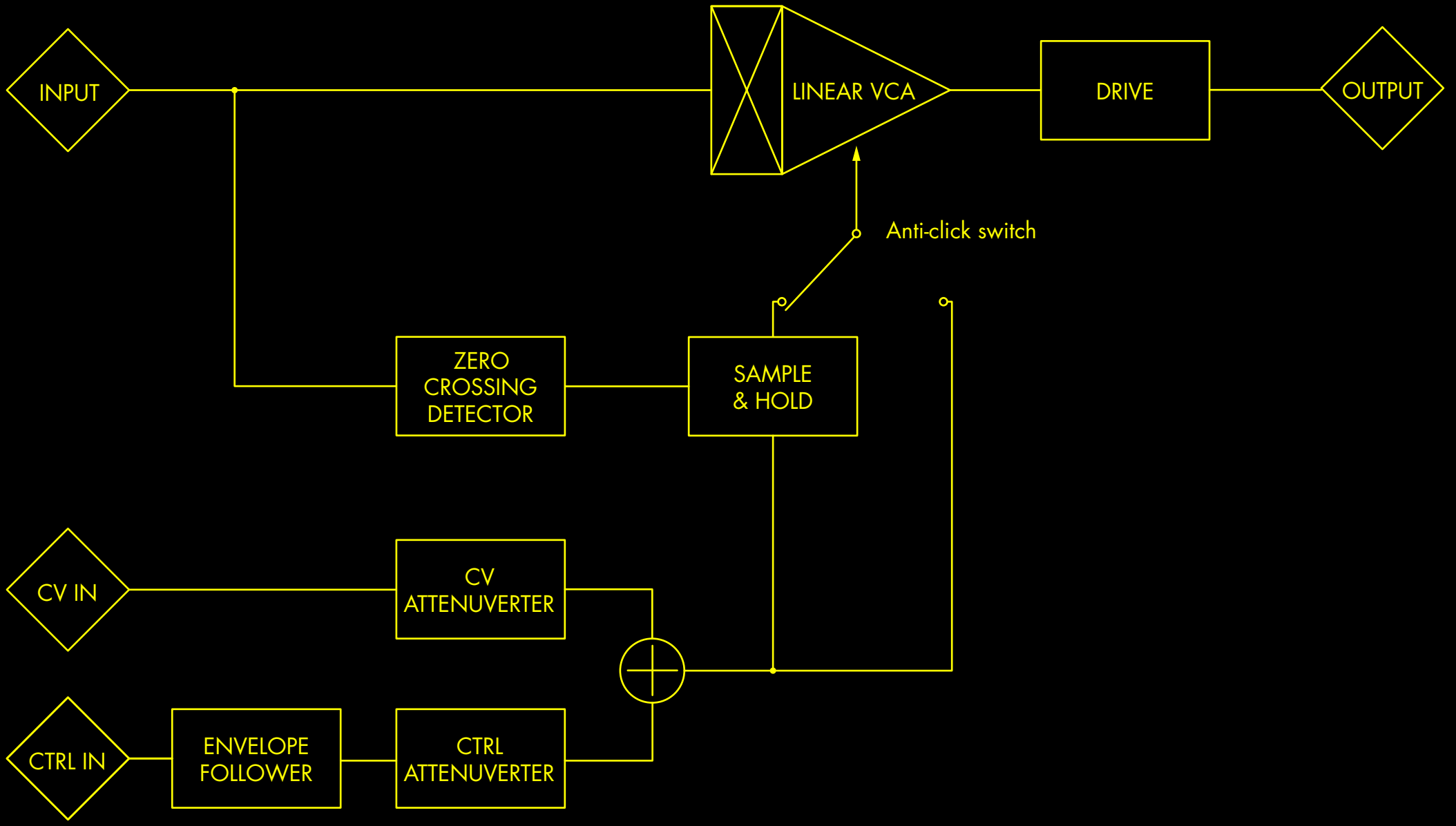
VCA CV Input
Toggles the anti-click system

Control Input
Audio input to the control VCA input

VCA Input
Audio or CV input to the VCA

VCA Output
Audio or CV output of the VCA

Block Diagram



Basic dynamics

The Level knob sets the VCA's base gain (or bias, if you prefer). Fully counter-clockwise, the gain is 0 and the VCA is silent when no CV or Control signals are applied. Fully clockwise, the signal is amplified up to 1.2×.

The CV knob attenuates and/or inverts the incoming CV signal. This processed CV is summed with the base level set by the Level knob.

The Control knob attenuates and/or inverts the Ctrl input, which is typically an audio signal. This signal is passed through an envelope follower with fixed attack and release times, and the resulting envelope is summed with the base level.

The Drive stage is located after the VCA and is used to push the modulated signal into an unapologetic zener limiter for bold, saturated results.

Control input

The Control input (labeled Ctrl on the module) is one of Fascina's defining features. It is primarily designed for audio signals, though CV sources can also be used effectively and creatively.

The incoming Ctrl signal is processed by an envelope follower, which extracts its amplitude over time. For example, feeding a kick drum into the Control input will generate a control signal that follows the kick's amplitude envelope. Effectively turning audio into CV.

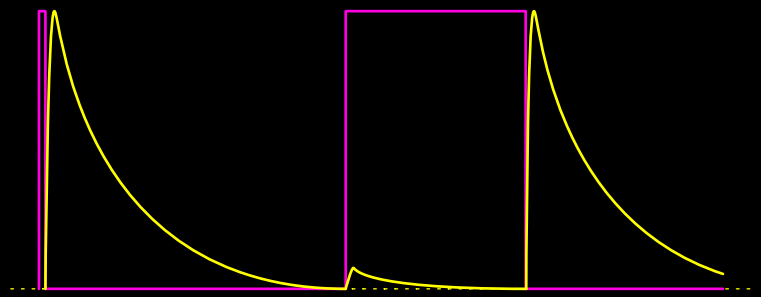
This is the same type of circuit found in compressors and sidechain paths. While such circuits often provide adjustable attack and release times, Fascina uses fixed values—keeping the behaviour simpler, predictable, and focused on its role as a VCA.

The attack time is roughly 5ms.

The release time is about 200ms.

When using the Control input with CV, think of it as a full-wave rectifier followed by a slew limiter with fixed attack and release times. A 50 Hz high-pass filter immediately after the input prevents sub frequencies from overwhelming the detection circuit, DC CV will be strongly affected by the filtering.

That said, feeding a straight gate into the Ctrl input works beautifully for percussive effects.



When sent a trigger Fascina Ctrl input creates an envelope from the falling edge. Same when sent a gate.

Anti-click system

Perhaps even more mysterious than the Ctrl input is the Anti-click toggle switch.

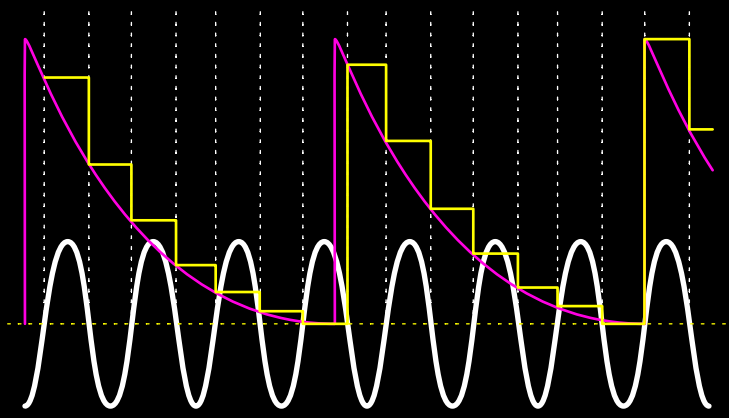
When set to the left, the system is engaged. The anti-click is an analog version of the zero-crossing detector usually found in digital audio generation.

The system samples and updates the CV level (Level + CV in + Ctrl in) every time the VCA's input crosses 0V. This prevents the VCA from opening at non-zero voltage, which would create a sudden DC jump—perceived as an audible thud or click. This effect is especially noticeable with bass-heavy inputs and ultra-snappy envelopes.

Because the system waits for zero crossings, extremely low-frequency signals can introduce a tiny delay. For example, a simple 30 Hz wave (square, triangle, saw etc.) has a zero crossing every 16.66 ms, which can slightly lag the enveloped response.

In practice, the anti-click is usually paired with slower CV sources (like envelopes or LFOs) while the VCA is processing a VCO. Faster CV inputs can produce all sorts of glitches—sometimes delightfully musical, sometimes chaotic—so experiment at your own risk.

I've even started to love the clicks now that I know I can get rid of them whenever I feel like it.



The white sine [input] is cycling at 30Hz - very very low.

The pink envelope [CV] is fast at 8Hz.

The stepped envelope from the anti-click is thus updated at 60Hz.

The stepped nature of the anti-clicked envelope is not perceptible.

Drive

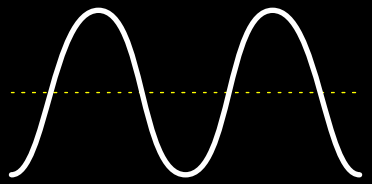
The Drive circuit in Fascina is based on a Zener diode hard limiter. As the VCA's output signal approaches 12 Vpp, the diodes conduct and "chop" the peaks—while also slightly rounding them.

This type of distortion is entirely amplitude-dependent. By modulating the signal's level (how convinient with a VCA), you can create voltage-controlled distortion, turning Fascina into a dynamic, expressive saturator.

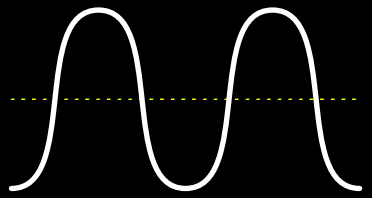
When Fascina is used as a compressor thanks to its Ctrl input, Drive can also turn into a handy makeup gain.

It also works well as a preamp for line level instruments and even guitars and basses.

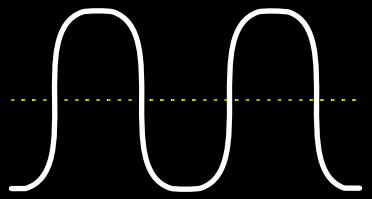
From the illustrations on the right you may think it is not doing much - do not trust the scope here, the Drive adds tons of harmonics without going fully squared and sterile.



Drive knob at 0%
10Vpp sine



Drive knob at 50%
11.8Vpp flattened sine



Drive knob at 100%
11.8Vpp rounded square

Normalization

During Fascina's development, we experimented with various ways to normalize the two channels. Most approaches led to awkward interactions if an attenuverter wasn't set to the 12 o'clock (0) position—so we kept it simple.

Fascina uses a classic dual-VCA mixing scheme on Channel II. If no cable is connected to Channel I Output, its signal is automatically mixed with Channel II's output at the Channel II Output jack, effectively turning Fascina in a two channel mixer.

Compression / Expansion

Fascina's Ctrl input allows for two simple yet extremely effective forms of compression, using the internal envelope follower.

Feed back compression

Patch the VCA output to the Ctrl input using a mult. Set the Level control to around 100% and turn the Ctrl attenuverter toward the negative side. As the signal gets louder, it increasingly attenuates itself. By balancing the Level and Ctrl controls, a wide range of compression behaviours can be achieved despite the fixed attack and release times.

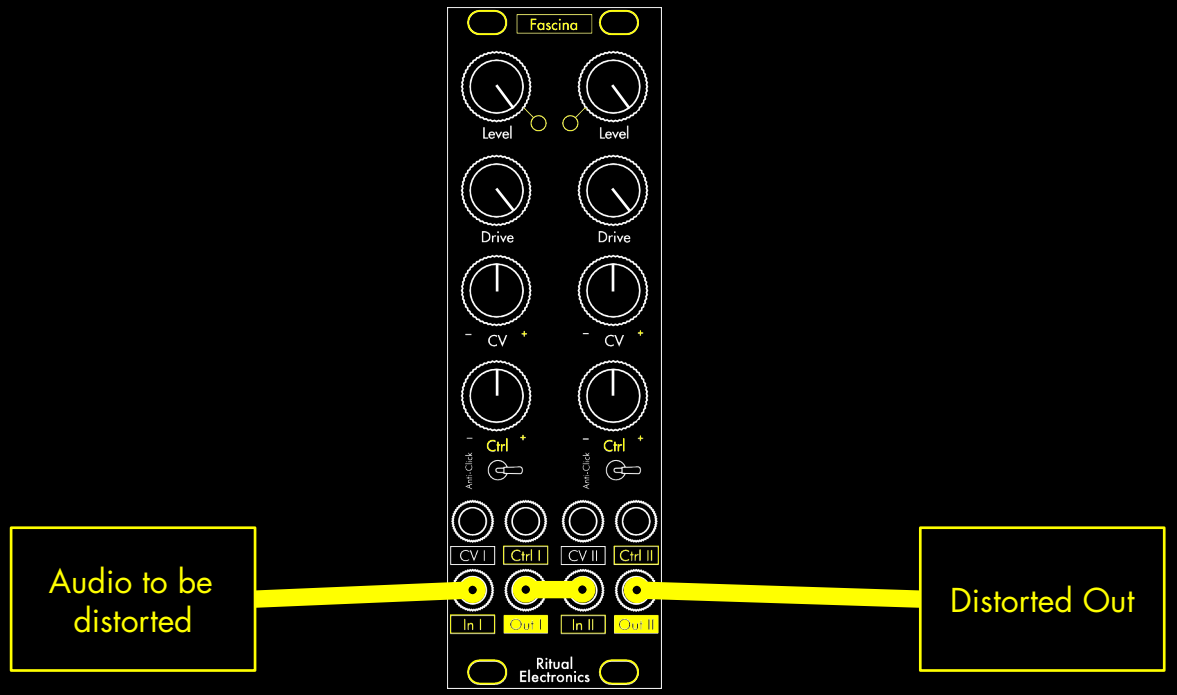
Feed forward compression

The principle is the same, but this time mult the VCA input to the Ctrl input. This configuration allows for much more extreme compression. You can turn the Level control very low and set the Ctrl attenuverter close to –100% to achieve very aggressive compression. The Drive stage can then be used as makeup gain. It remains clean until the signal approaches approximately 11 Vpp, providing ample headroom before saturation occurs.

Expansion

Expansion is the inverse of compression: louder signals become louder instead of quieter. The patching is identical to the compression examples—simply turn the Ctrl attenuverter toward the positive side. Expansion is particularly effective on drones and noisy textures with limited natural dynamics, where it can introduce movement and articulation.

Patch Example 11 - Double Drive

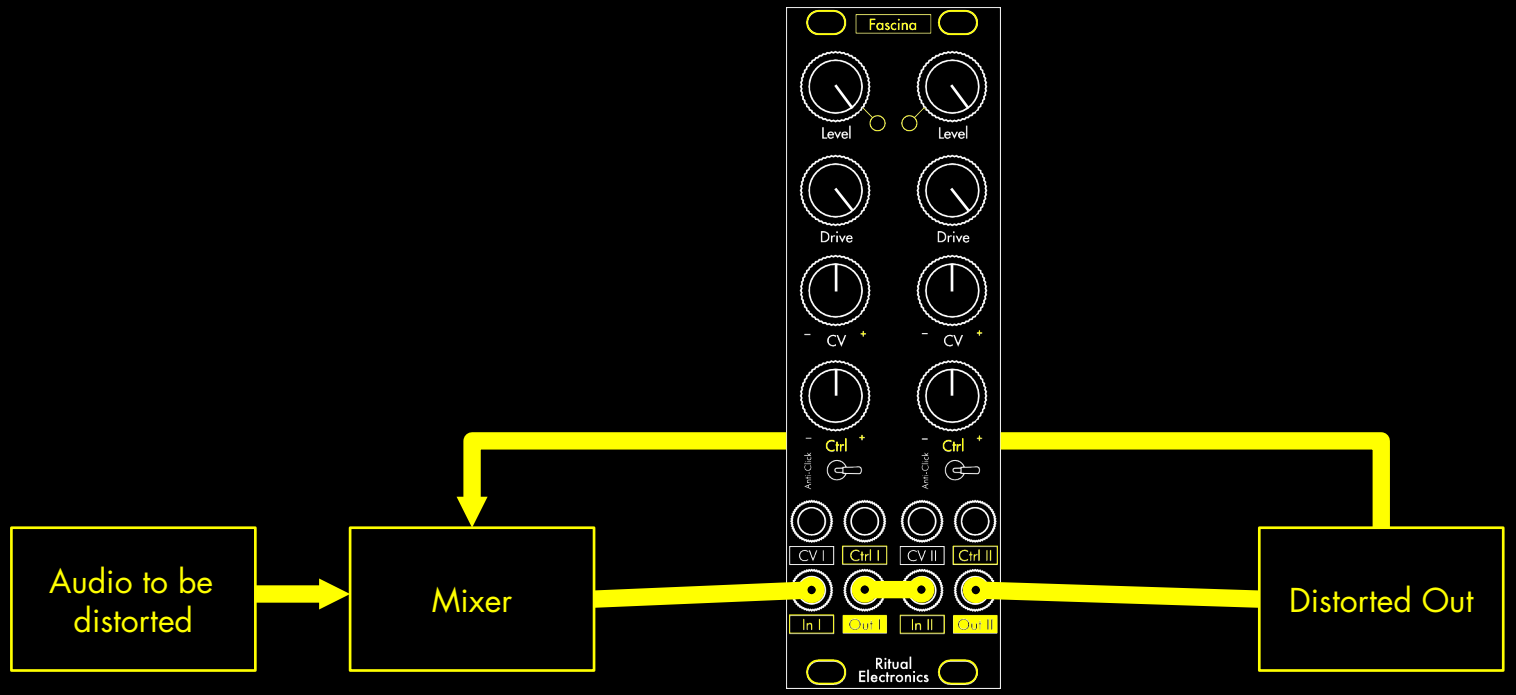


Sometimes, more distortion is exactly what's needed. By placing Fascina's two channels in series, you can push the signal further into saturation.

For more adventurous or sound-design-oriented results, insert a filter between the two channels to shape which frequencies are driven hardest.

Animating each channel with different modulation sources adds movement and complexity, turning static distortion into something alive.

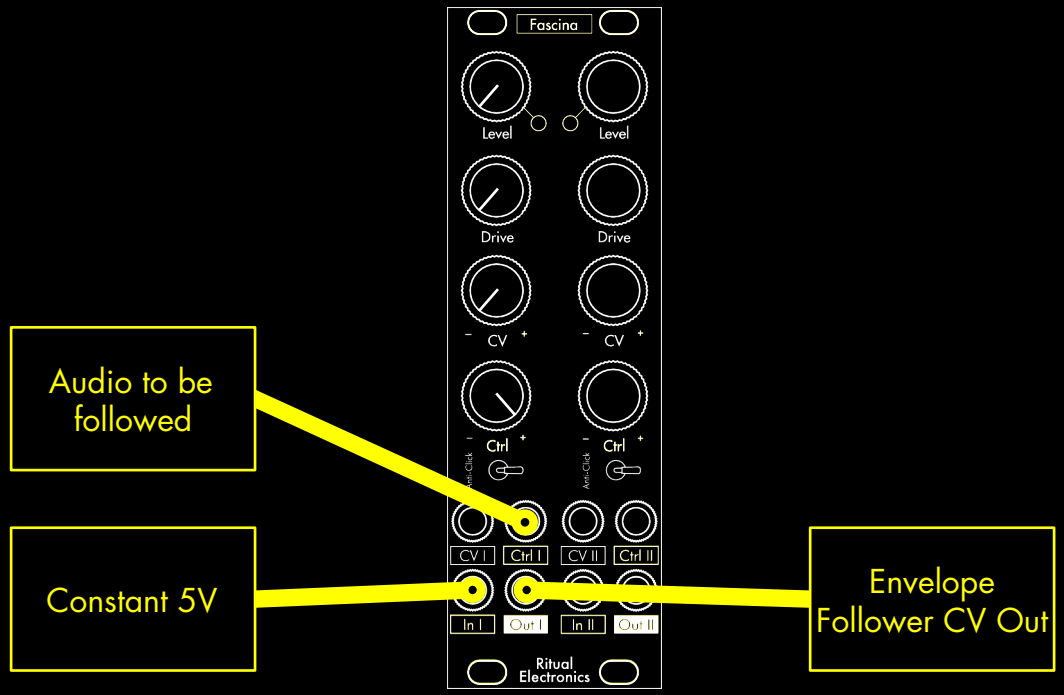
Patch Example 12 - Double Drive with Feedback



Sometimes, more distortion is not enough. You want that extra extra extra grit. Patch back the output in the input. Feedback is always the answer.

Once again, patching another module in the feedback path is highly recommended. Try patching a delay like Crypta. Instant wall of amps feeling.

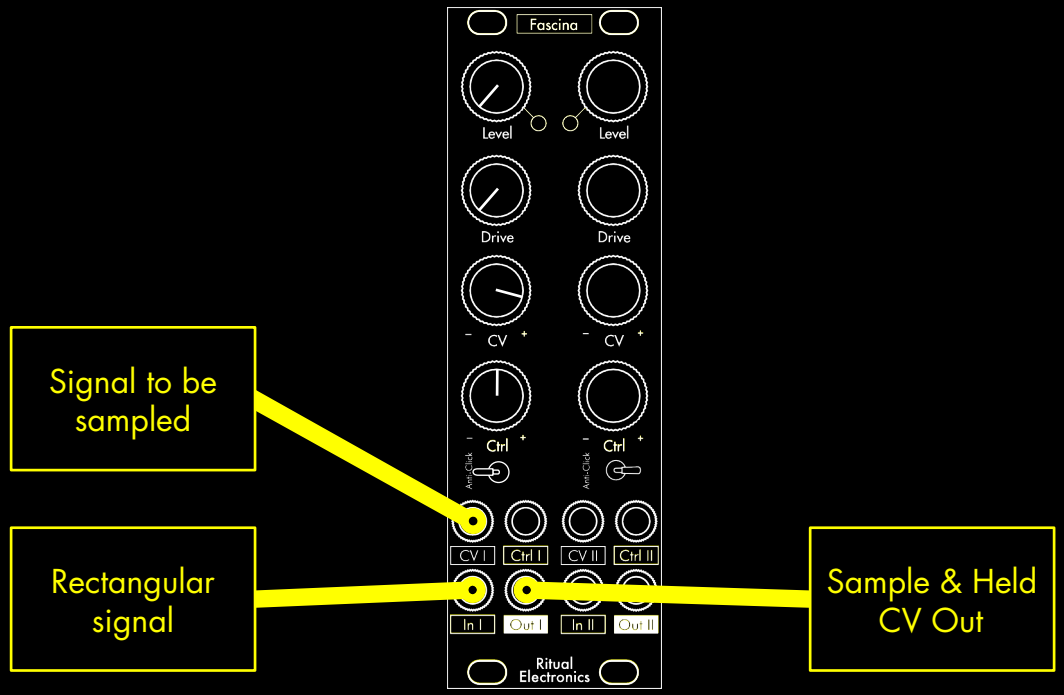
Patch Example 13 - Envelope Follower CV Out



Patching a constant voltage in Fascina's input and modulating it with an audio signal in the Ctrl input gives you a pretty good CV output of the internal envelope follower.

You can then play with the Ctrl attenuverter for different envelope strengths. Add Drive to square the CV up. Fixed timing but very playable.

Patch Example 14 - Sample & Hold CV Out



You can get a CV Out from the internal Sample & Hold by patching the signal you want to sample into the CV input and the clock into the audio input.

For classic Sample & Hold behaviour, a clock with pulse-width control is recommended. A 50% duty-cycle square wave spends half its time at 0V, during which the VCA cannot output anything other than 0V.

Using a rectangular wave with a high duty cycle (90% or more) limits the time spent at 0 V to short pulses. These brief zero crossings are enough to trigger the zero-crossing detector, which in turn clocks the Sample & Hold circuit - resulting in proper, traditional S&H operation.

Add a signal in the Ctrl input if you want to flavor your S&H!