

# HI\_GAIN

*we believe in trash*

With the HI\_GAIN, you can enter a world of sharp corners, rusty springs, and broken floorboards.

*Enter a world of trash.*

A world of scraping hi-hats, smashed up kicks, beautiful clipped white noise, broken file cabinets, disused railway cars, and super acidic basslines.

Perfect for techno, for noise, for some punch, or for just plain experimenting, the HI\_GAIN is not for those seeking a clean, precise VCA, or for those on a quest for ultra-linear gain stages. In fact, if you need nice and clean, we recommend you stay away.



The HI\_GAIN was designed to create noise, to pump up the hiss, to boost asymmetrical happiness and to bring some color to your eurorack system. Like other Snazzy FX modules, the HI\_GAIN encourages *play* with capital P. Cross couple/feedback/mix outputs together, stick some CVs in, see what happens. Repeat.

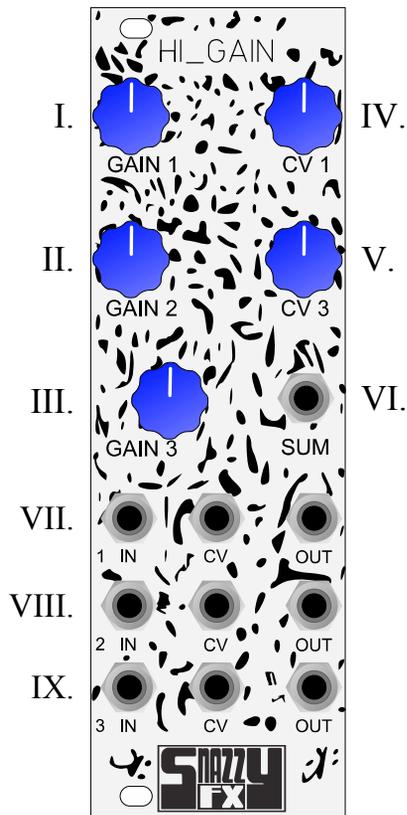
## **Features**

- Transistor based, voltage controlled gain stages that are super colorful and full of personality.
- All three stages are independent and usable for wavefolding, distortion, clipping, saturation, etc.
- Stages 1 and 2 work as aggressive VCAs with very unique tonality.
- Stage 3 is a CV controlled gain stage which controls DC bias in the summer output.
- Normalized inputs, allowing for instant processing through all three gain stages.
- Sum output allows the user to mix all three stages of saturation together.
- Sum output can be mixed in a mixer together with individual outputs for instant boosting and cancellation.
- Each stage works well on its own, but the real magic begins when you use the HI\_GAIN as a system.

**Current draw** 15mA

### Front panel

- I. Stage 1 gain
- II. Stage 2 gain/CV init
- III. Stage 3 gain
- IV. Stage 1 CV attenuator
- V. Stage 3 CV attenuator
- VI. Sum output



- VII. Audio IN, CV in, audio OUT – stage 1
- VIII. Audio IN, CV in, audio OUT – stage 2
- IX. Audio IN, CV in, audio OUT – stage 3

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### Stage 1

Works as a dirty VCA

IN is DC coupled

CV input is a good point to plug feedback from OUT 2, OUT 3 or SUM

OUT normals to stage 2 IN automatically

### Stage 2

Works as a dirty VCA

IN is DC coupled, normalized to IN 3

CV input works well with feedback from OUT 1, OUT 3 or SUM

OUT normals to stage 3 IN

### Stage 3

This stage gets louder with negative signals and quieter with positive ones

IN is DC coupled

CV input works well with feedback from OUT1, OUT 2 and SUM

## **Controls and Operation**

### **GAIN 1**

This pot controls the amount of gain of the first gain stage. If you are using a small signal, say less than +/- 5V, or a signal with biasing, this knob is important for dialing in the proper level, meaning you can use the HI\_GAIN with piezo contact mics, iPhones, with +2.5V DC biased signals, and so on. When doing so, you might encounter that you'll get max volume outside "10" on the pot – this is quite normal, as it will only give max volume at "10" with modular level signals.

### **Utilizing CV**

With no CV plugged in, it simply controls gain. With CV plugged in, the knob and the CV combine, making it act as an "initial" control. For max CV and no init level, turn gain to zero when using CV.

### **Tips on usage**

One common way to use the HI\_GAIN is as a triple gain stage, which is done in the following way: Plug your signal into IN 1, take the output from SUM OUT, turn GAIN 3 to max, turn GAIN 2 to about 60-70% and start adjusting GAIN 1 to taste (anywhere from 40% to 80% is the sweet spot for non-modular signals). You will then end up with a signal which is passing through all three stages of gain. What you can do further, is take the outs and patch them into other stages' CV inputs - or even more fun - take the output of each section, put it through a filter, chaos module, wavefolder, comparator, multiple, etc. and then patch it back into the next stage's audio or CV input for a radical feedback and distortion extravaganza!

Best advice when working with the HI\_GAIN is that whatever works, works. As you get to know the module better, you will realize that it has a special personality and that it behaves differently with different sorts of signals. Also, some sounds work better when passed around different sections than those they were originally plugged into.

### **CV 1 pot**

CV attenuator for the first gain stage, affecting the signal plugged in CV 1 input. Use this knob when in VCA mode, e.g. with envelopes. For feedback, simply plug OUTS 2, 3 or SUM directly, or through other modules first, into CV 1 input. Then use GAIN 1 and CV 1 knobs to adjust the amount of feedback and gain. When used as a VCA, use GAIN 1 as init and CV 1 as depth. Section one works extremely well as a hard hitting VCA.

Note: because of the nature of these discrete circuits and because the inputs are DC coupled, signals with AC content are loudest with GAIN 1 at around 45-70%. (Quiet signals from a phone, piezo discs, etc.) this is normal, do not be alarmed.

## **IN 1**

This input is DC coupled. It will handle almost any input. However, max volume will depend on what kind of signal is coming in. Simply turn the knob slowly until you find the max gain setting.

## **GAIN 2**

Section two gain / CV init knob, controls the signals plugged in input 2. This knob has a few uses:

A. With no signal plugged into IN 1, the output of section 1 normals (automatically passes) into section 2. In normal use with no CV plugged into CV 2 input, this knob either controls the gain of IN 2 or adds a second stage of saturation and overdrive to IN 1.

B. With CV plugged in, it becomes an init control, as this knob's value is summed with the incoming CV. **So, to have max CV for section 2, GAIN 2 must be set at zero.** This is very important.

## **GAIN 3**

Section 3 gain control: in normal use, this knob controls the gain of either the signal plugged in IN 3, or the output of stages 1 and 2, if a signal plugged into IN 1. Likewise, if a signal is plugged into IN 2 but not IN 3, this knob controls a second stage of saturation, using stage 1 separately, but stages 2 and 3 together.

## **CV 3 pot**

CV depth knob for section 3, connects to CV 3 input.

## **SUM OUT**

This jack is extremely important for using the HI\_GAIN as a gain or feedback system, as it allows one to create all manner of complex patches using the normal inputs, outputs and CV jacks, while simply taking the output of all three stages (in parallel) from the SUM jack. This is a very different sound than plugging into stage 1, allowing the sound to pass through all three stages and listening to the output of stage 3. (This is also possible, especially using a multiple or stack-cable to still allow for feedback from stage 3 to any of the other stages). The SUM stage can also be used for feedback to the other stages, but since it is an inverted output, it will not work in the same way as simply using the stages' direct outputs. the weighting of the summer favors stage 1 and 2 as “normal” signals and stage 3 as a “DC point shifting” input. This makes more sense when viewed on the scope. Basically, stages 1 and 2 set the amount of clipping and or asymmetrical feedback while stage 3 allows the user to move the waveform up and down around DC. Strange effects (and artifacts) are possible using the SUM output. Thick sounds are the order of the day.

One useful way to use the HI\_GAIN SUM out, is to utilize stages 1 and 2 as dirty VCAs: simply plugging signals into their respective inputs, and envelopes into their CV inputs. Then using stage 3 as either an additional stage of built in saturation for stage 2 or plugging in a third signal and adding saturation to it. Then taking the sum out will work as a mix out.

One other nice technique is to use the SUM OUT and the individual outs into say a 4 channel mixer. The SUM OUT is phase opposed to the individual outs, so you can set up a situation where you get cancellation of certain frequencies. This can sound very nice.