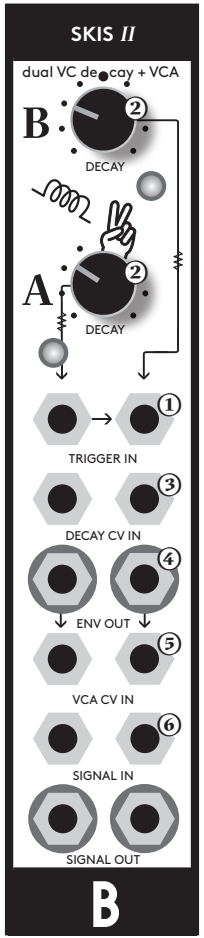
B

DUAL VC DECAY + VCA



BASTL

Skis II

Skis II is a dual voltage controlled decay envelope with a dual VCA. Both envelopes and VCAs are normalised, but they can be used independently. The decay envelopes are exponential and they can also be set up as release envelopes. Both VCAs are linear.
A typical application of Skis is to take two signals (noises, for example) and generate percussive sounds with adjustable DECAY from them with a TRIGGER signal.
Skis II is a complete makeover of the original Skis module. It has more robust and cleaner VCA architecture, new dynamic voltage controlled decay envelope and a few more little tweaks.

instruction

❶
The TRIGGER input initiates the DECAY envelope. The TRIGGER of channel A is normalized to the input of channel B. This means if no cable is inserted to channel B both envelopes would be triggered with a signal connected to channel A.
The trigger threshold is around 1V. Triggers shorter than 2ms might have an effect on the envelope amplitude because the envelope has a natural attack of about 2ms.
This input can work either in trigger (decay) or gate (release) mode – see jumper A for more information.

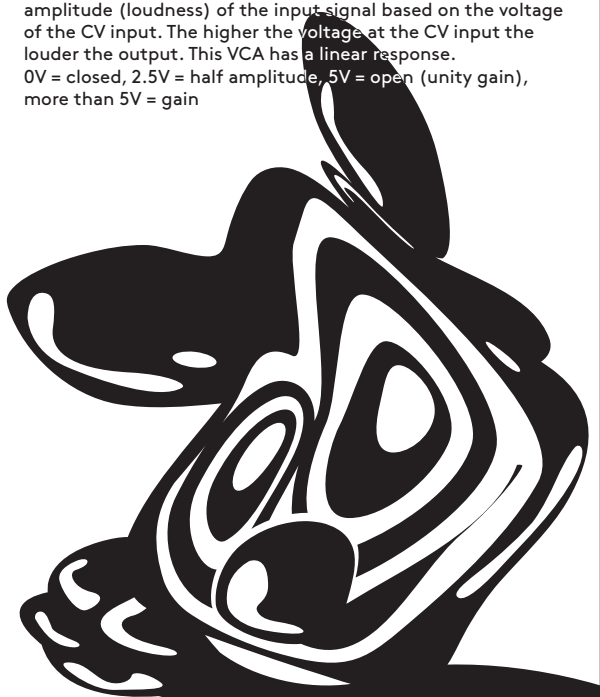
❷
The A and B decay knobs set the decay time of each envelope. The first half of the knob renders detailed short envelopes and past 12 o'clock the envelope enters the "open hi-hat" domain and maxes at about 3 seconds. The minimum is at about 8ms.

❸
DECAY CV INput sets the decay time by CV. It is scaled so that the full range of the DECAY knob can be achieved by 5V signal.

❹
ENV OUT is the output of the envelope. Envelopes peak at about 6V and rest at about -0.5V. The actual outputs of the envelopes are indicated by the LEDs.

❺
VCA CV IN is the control voltage input of the VCA. The output of the envelope is normalized to this input. By plugging a cable to this input, the envelope gets disconnected and the VCA can be used independently. The VCA is set in such a way that 5V at the CV input makes the output amplitude the same as the amplitude of the input (unity gain).

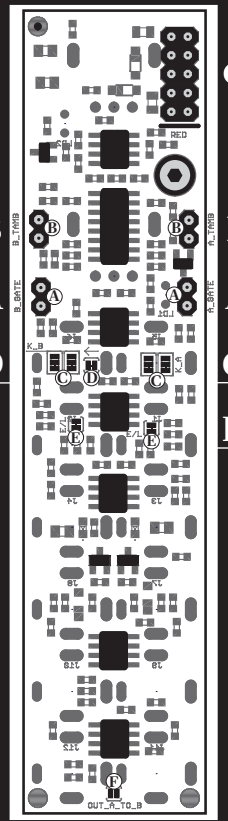
❻
VCA
The VCA is a voltage controlled amplifier and it changes the amplitude (loudness) of the input signal based on the voltage of the CV input. The higher the voltage at the CV input the louder the output. This VCA has a linear response.
0V = closed, 2.5V = half amplitude, 5V = open (unity gain), more than 5V = gain



At the front of every ski, there is a curve similar to the decay envelope. The Skis II module has two channels, A and B, and each of them consists of a voltage controlled decay envelope with knob control and a VCA. A typical application of Skis is to take any continuous signal (noise, for example) and generate percussive sounds with adjustable decay by a trigger signal. Channels A and B can be used together or independently and the VCAs can be also used independently of the envelopes.

PCB

BASTL



B normalised to A (default)

no normalisation

attenuator knob scheme

Mix knob scheme (default)

exponential

linear

nothing mixes (default)

both channels are mixed at B output if A not connected

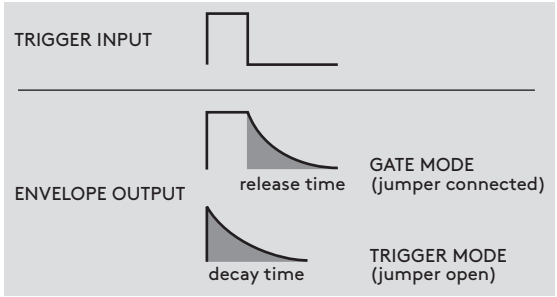
Take it Carefully

BASTL

A

Gate mode

The TRIGGER input can be set to GATE mode by closing the jumper A on the back side (it is closed by default). In GATE mode, the envelope output renders a RELEASE envelope. This means if a signal is HIGH on the trigger input the envelope output stays HIGH until the input drops and then the decay (release) envelope is rendered.



B

Closing the TAMB jumper will make the VCA cell resonate/self-oscillate at a high-pitch frequency. When processing a noise signal the setting may make it sound like a tambourine. This is an accidental feature found during development of the module. You can see this as circuit-bent by design. Please note that the circuit may self-oscillate at a high frequency which could be annoying to dogs (and some other species including audio equipment too).

Solder/Cut Jumpers

WARNING: Altering these jumpers voids the warranty! These jumpers offer more flexibility for hackers and they accommodate less common use cases and user experiences. To change their configurations you need some basic skill in soldering (or precise cutting with a sharp knife).

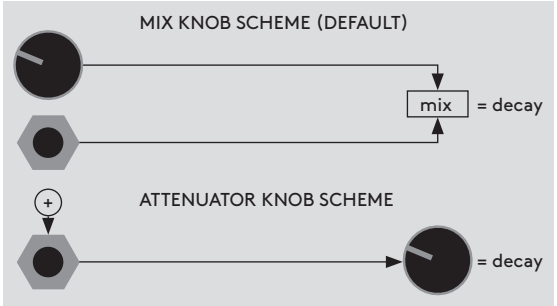
C

K_A

Knob control scheme

By default the CV input is added to the knob position. By scratching and re-connecting solder jumpers on the back side the knob scheme can be changed.

The second option is that with no cable inserted in the DECAY CV INput, the knob acts normally and as soon as there is a cable inserted the KNOB turns into an attenuator of the DECAY CV INput signal. This could be useful in smaller systems.



D

←

Normalization from TRIGGER A input to TRIGGER B input can be canceled by cutting the trace on this solder jumper.

E

E/L

By default, the decay envelope has exponential shape. It can be changed to linear shape by cutting the trace on this jumper.

F

OUT_A_TO_B

Closing this jumper will mix both VCA outputs to the output of channel B unless a cable is inserted in the A input. This would break the normalization and both outputs would be independent.

features

- dual voltage controlled decay envelope
- decay times range from 8ms to 3s
- gate/release mode for the envelope (by jumper)
- normalized triggers
- LED indication of the envelopes
- dual linear VCA (ENV OUT is normalised to VCA CV IN)
- tambourine bend jumper
- solder jumpers for further hacking

technical details

- 5HP width
- 24mm deep (skiff friendly)
- power consumption: +12: 40mA, -12: 35mA
- PTC fuse and diode protected 10-pin power connector

connecting module to your system

Before connecting the ribbon cable to this module disconnect your system from power !

Before connecting the ribbon cable to this module disconnect your system from power! Double check the polarity of the ribbon cable and that it is not shifted in any direction. The red cable should match the -12V rail both on the module and on the bus board!

please make sure of the following

- **you have a standard pinout eurorack bus board**
- **you have +12V and -12V rails on that bus board**
- **the power rails are not overloaded by current**

Although we put protection circuits in the device, we do not take any responsibility for damages caused by wrong power supply connection.

After you connected everything, double-checked it and closed your system, so no power lines can be touched by hand, turn on your system and test the module.