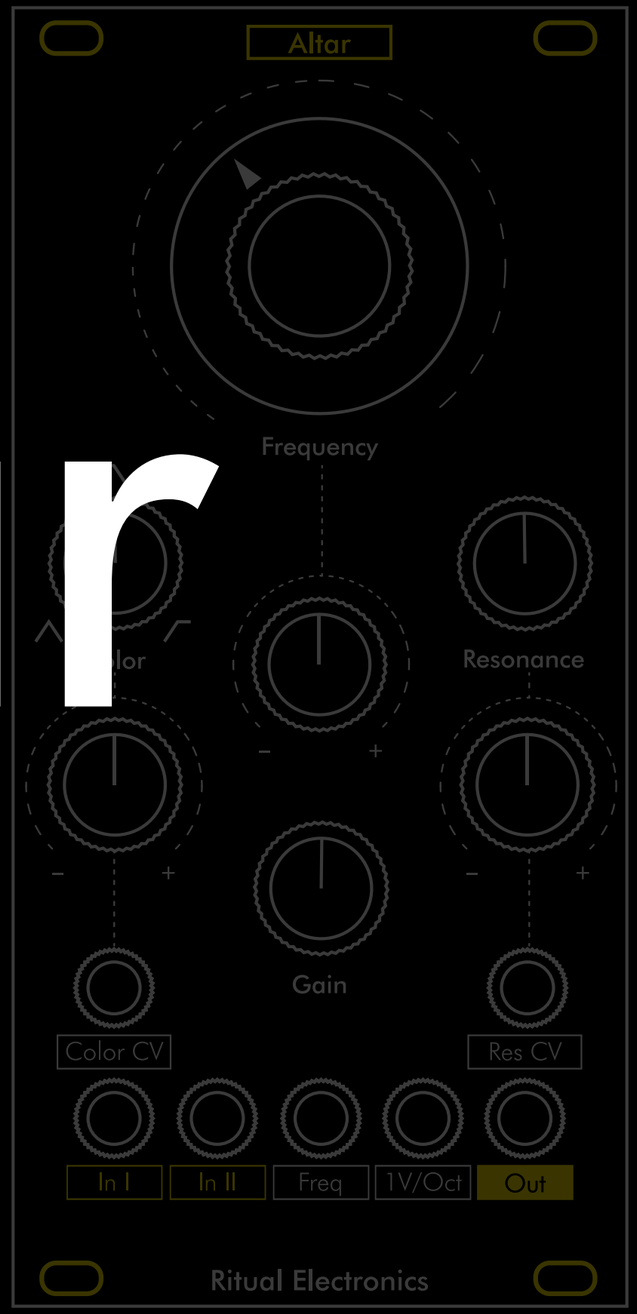
Altar

Ritual Electronics



Summary

Thank you for purchasing Ritual Electronics Altar.

Your module has been assembled with care in our studio in Marseille, France.

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

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 turn your eurorack case off before plugging or unplugging a module.

Do not touch any electrical terminals when attaching any Eurorack bus board cable.

Ritual Electronics Altar requires:
- 35mA on +12V
- 30mA on -12V
- 0mA on +5V

You will need 12HP of free space in your Eurorack case to install Altar. The module is 25mm deep.

Overview

Altar is a modern voltage controlled 3-pole, 18dB/ octave discrete state variable filter.

The configuration of the filter can be smoothly crossfaded from BP to LP to HP. This unusual filter type arrangement brings out very nice harmonics and nuances. It is really suited to CV control.
Resonance is under voltage control with attenuverter as well allowing for great timbre modulations. It is particularly useful to recreate accent patterns à la 303.
There is a gain at Altar input to beef up your signal which then distort the filter core.
The filter tracks 1V/oct for 4-5 octaves and can turn into a very sweet sine oscillator.
The newest revision features a second input and refined resonance and gain circuits.

Controls

- Cutoff frequency from 20Hz to 20kHz
- Resonance with attenuverter CV input
- Color smoothly crossfades between BP, LP and HP
- Input gain to overdrive the filter core
- 1V/Oct tracking with trimmer in the back

Technical characteristics

- All discrete filter core
- Brand new design - no vintage - no datasheet filter
- 3 pole, 18dB/Oct
- Diodes can be swapped in and out without the need of tools

Electrical characteristics

- 35 mA +12V
- 30 mA -12V
- 0 mA 5V

Dimensions

- 25 mm deep
- 12HP large
- 3U

Altar controls

Frequency attenuverter knob
Going left the CV input is subtracted from the Frequency knob value. To the right the CV input is added.

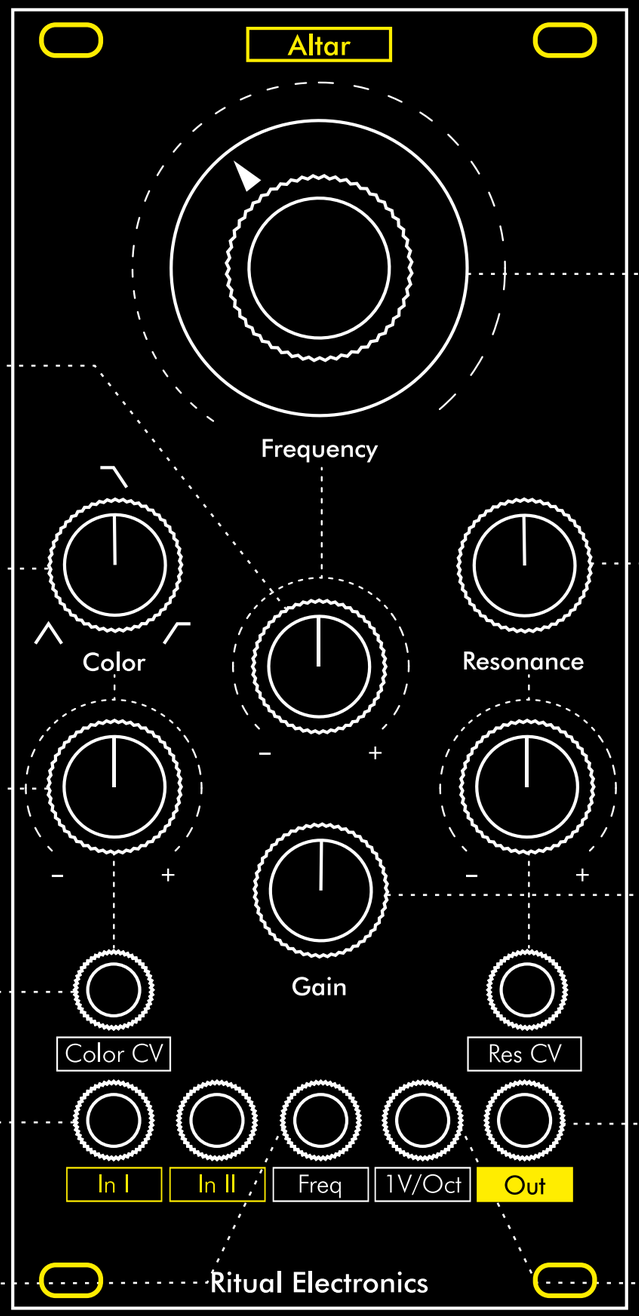
Color knob
Changes the state of the filter from band pass to low pass to high pass

Color & Resonance attenuverter knobs
Going left the CV input is subtracted from the Color/Resonance knob value. To the right the CV input is added.

Color & Res[onance] CV inputs
External control for each parameter

Audio inputs
In I goes to the gain knob
In II is fixed gain

Freq[uency] CV input
External control for the filter frequency



Frequency knob
Sets the filter's cutoff frequency

Resonance
Controls the resonance peak

Gain knob
Attenuate or amplify the input to generate different filter responses

Out
Outputs filtered signal

1V/Oct
Use the 1V/Oct calibrated input for pitch tracking

Character

Patched very simply Altar is a relatively smooth filter. It is not what you would expect from a noise worshipping company.

If you keep the gain relatively low, crank the resonance up a bit, you'll find throat singing like harmonic series hidden in the simplest square waves.

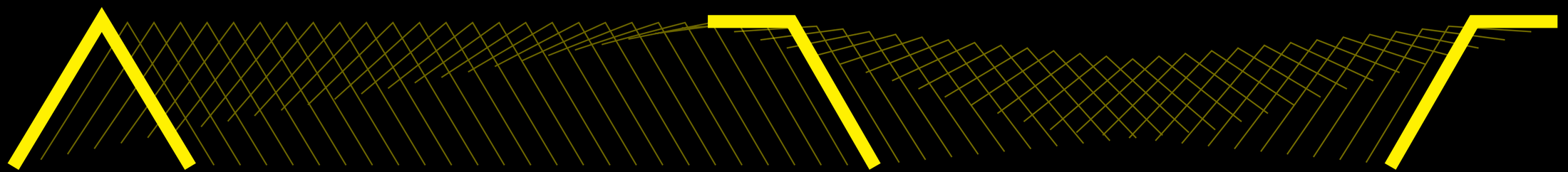
The resonance is not out of control and self oscillating until the last degrees of the pot. This way you can get nuanced frequency bumps.

If you want to unlock wilder timbres, self patching and audio rate modulations are your friends, as usual. More on this in the following pages.

Do not under estimate the gain knob. Its neutral position is around 12 o'clock.
This very knob changes the character of the filter quite a lot. Specially when used with resonance.

Be aware that less gain can result in less than the standard 10Vpp waveform. But it is worth exploring these sounds too.

Colors



The Colour act as a three input crossfader.
It transitions smoothly from band pass to low pass to high pass.

This unusual BP-LP-HP filter arrangement is very suited for voltage controlled transition giving a more pleasant sweep than the usual LP-BP-HP.

Signals balance

Altar's sound is very dependant on the Gain level. Let's investigate how and why.

Resonance is a feedback loop inside the filter. You basically send the ouput of the filter back into its input.
If you have played with feedback loops or even mix signals together before, you know the weaker signal can be drowned by a stronger signal, disappearing in the background.
This equilibrium is at play in Altar. The more you drive the input using the Gain knob, the less resonance you will hear.
On the contrary, lots of resonance and little gain will give you mostly the resonant sound.

1V/Oct

Altar's 1V/Oct input allows for filter tracking and sine oscillator functionality.

It tracks over 4-5 octaves. You can adjust the tracking using the onboard vertical trimmer, located on the right side of the PCB.

Calibration procedure

You'll need a way to measure frequency. The Spectrum or Tuner in Ableton Live can help you if you don't have an oscilloscope or multimeter.

Patch a stable 1V/Oct source in the input and play octaves. If the upper octaves are flat, turn the trimmer clockwise. If they are sharp, turn counter clockwise.

Usually the knob fully clockwise has given the best results!

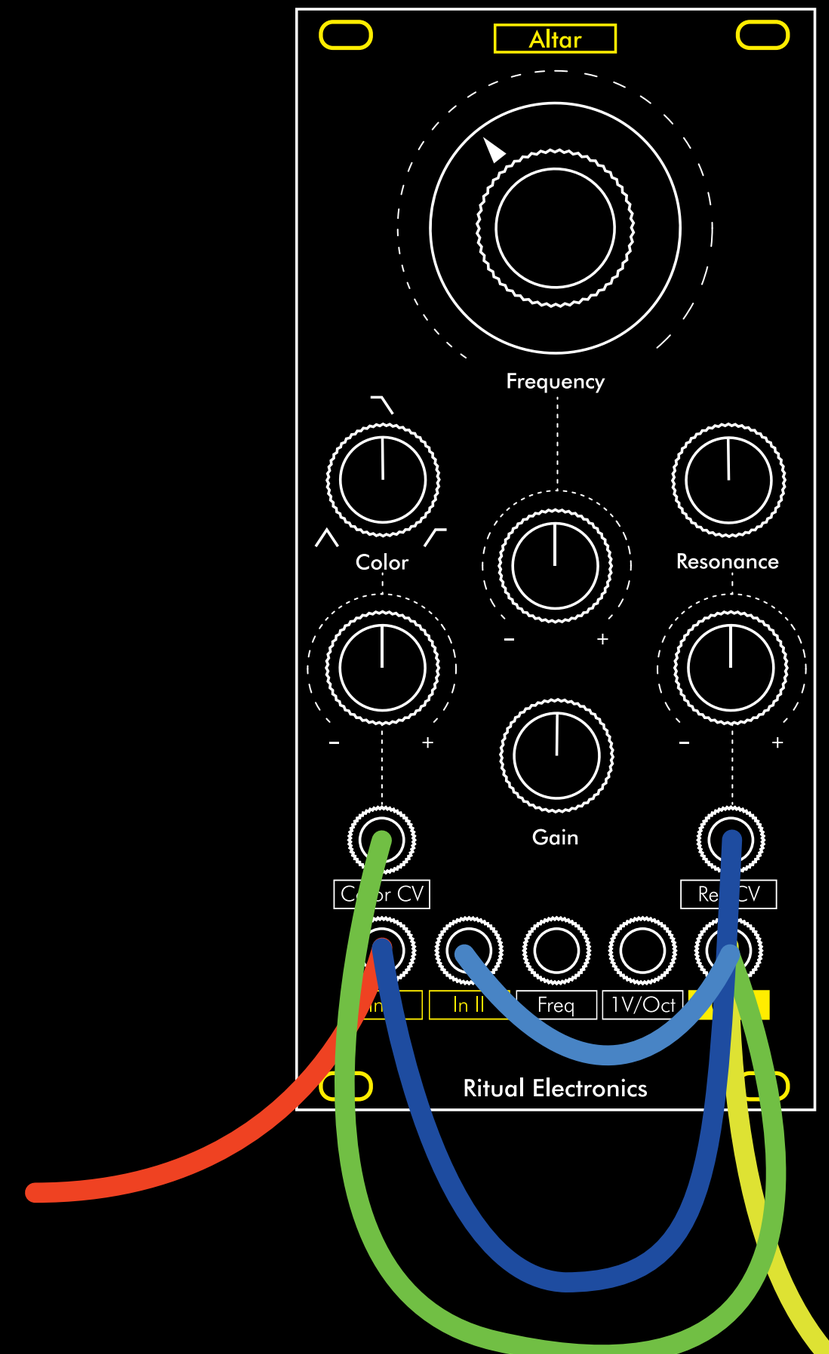
Self patching

New tones can be unlocked by patching the input or the output of the filter to its different CV inputs.

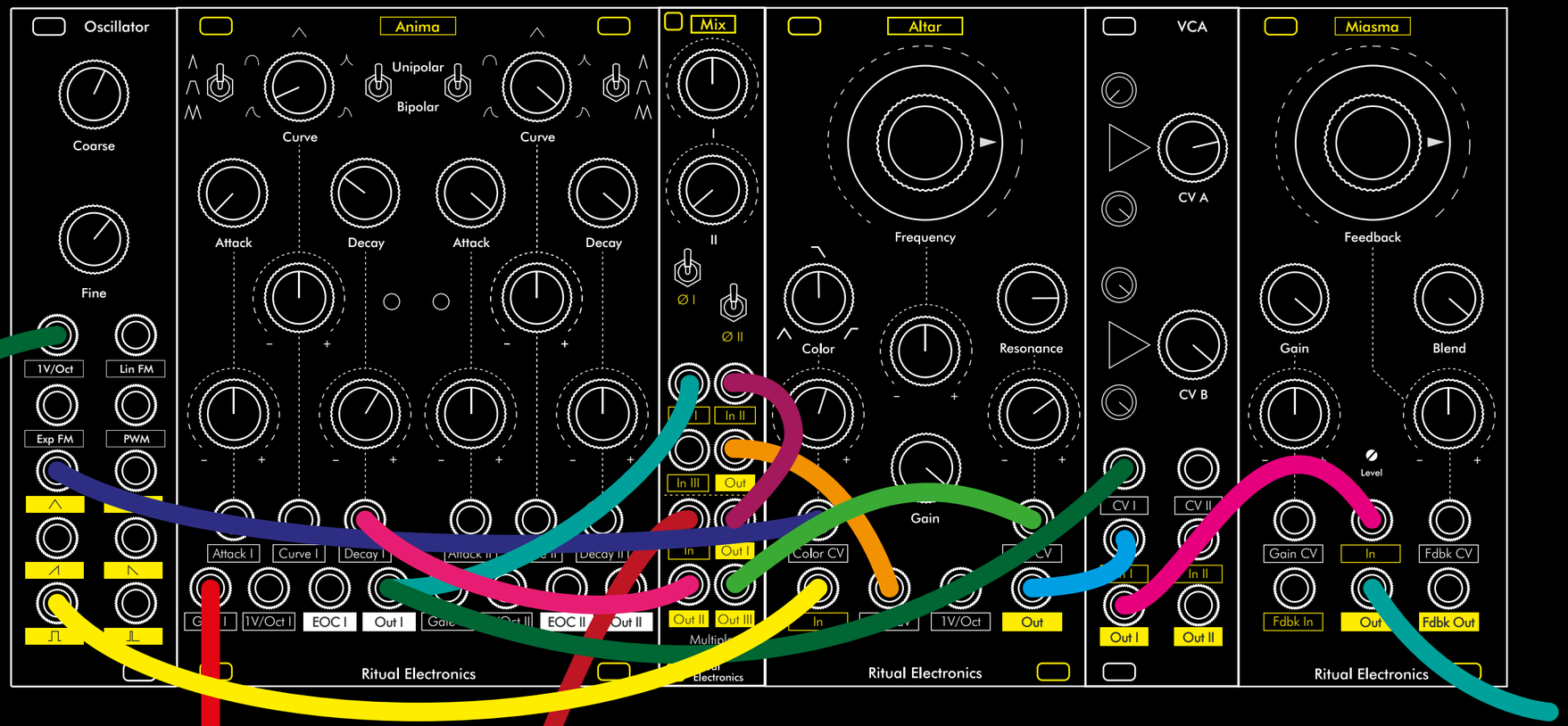
As all our modules, Altar shines when self patched.
Try patching its output in the Colour input to add thickness to the sound.
Use multiples and stackcables and experiment!
The newly added second input helps you in this quest for feedback.

Auto oscillation self patching trick

Altar does not provide a 10Vpp sine across the whole frequency range when oscillating. You can however patch the output in one of the Inputs to get a higher output. Prefer the low pass mode for such use and ride the gain. Careful, in band pass you can go as high as 22Vpp using this technique!
See Patch Idea #2 on page 12 for more.



Patch ideas



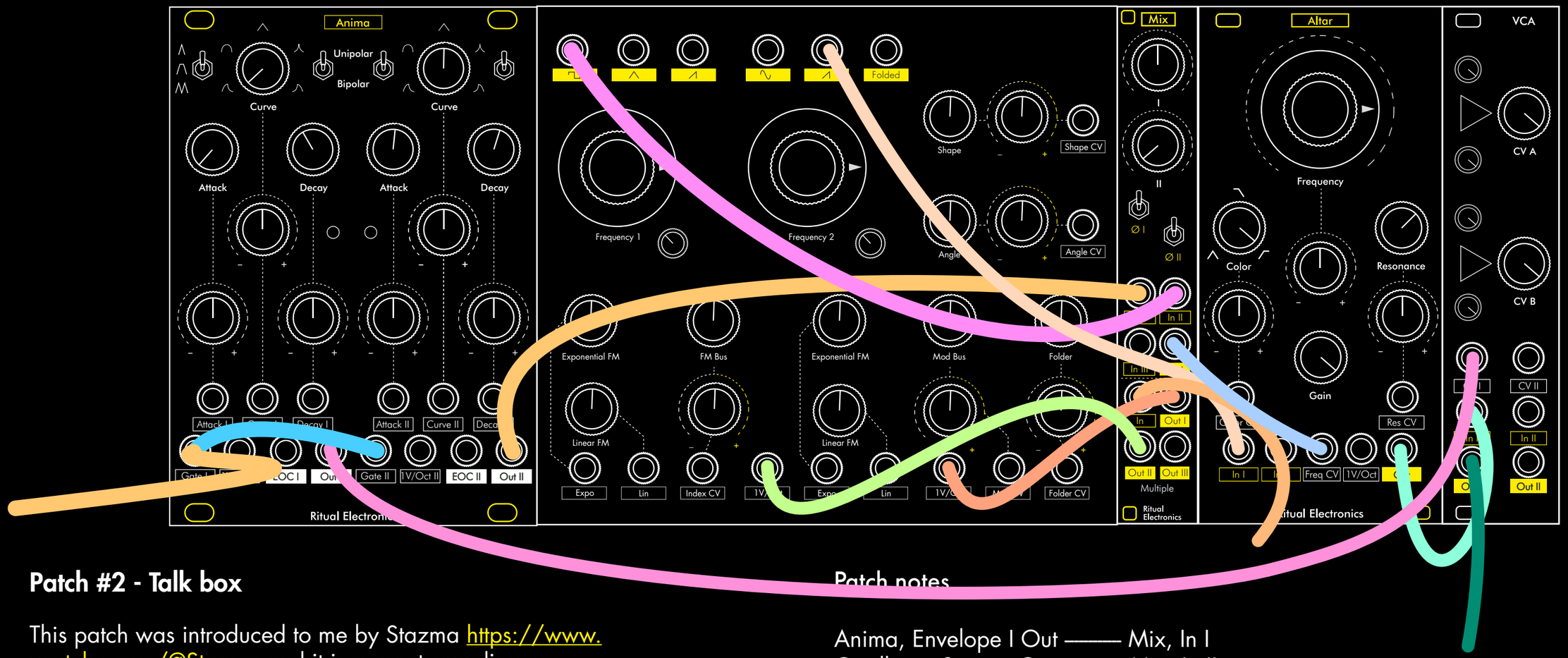
Patch #1 - 3Ø3

Using the Resonance attenuverter you can use a gate as a resonance accent. Mix it with the cutoff enveloppe to brighten the filter too. You can also patch it to the Decay CV of your enveloppe to make it slightly longer as in the original machine.
Try using the triangle waveform of your oscillator to modulate the Color CV of Altar for a slightly fizzier timbre.
Send this overly complicated mess to your favorite distortion to finish it off.

Patch notes

Oscillator, Out Square/Saw ——— Altar, In
Altar, out ——— VCA, In
VCA, Out ——— Miasma, In
Oscillator, Out Triangle ——— Altar, Color CV
Anima, Out ——— VCA, CV In
Anima, Out ——— Mixer, In I
Accent gate ——— Mixer, In II
Mixer, Out ——— Altar, Freq CV
Accent gate ——— Anima, Decay CV
Accent gate ——— Resonance CV

Patch ideas



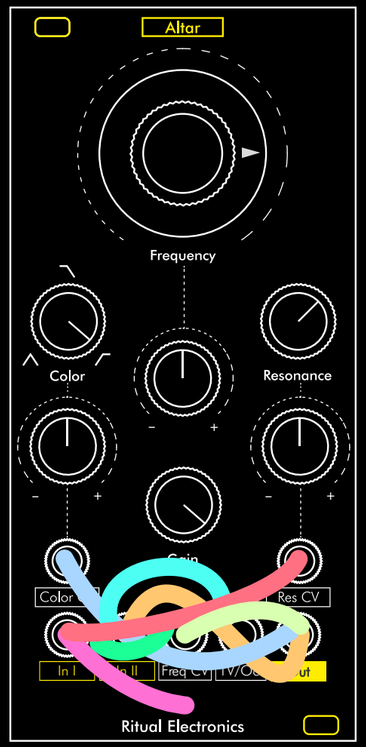
Patch #2 - Talk box

This patch was introduced to me by Stazma https://www.youtube.com/@Stazma and it is a great sounding one. It requires a bit of estate but it is worth it. It turns Altar into a formant like talking filter. One oscillator goes in Altar's input, the second FMs it, mixed with an enveloppe. Adjusting the modulating oscillator frequency adjusts the formant. The envelope mixed with it "opens the filter's mouth".

Patch notes

Anima, Envelope I Out ——— Mix, In I
Oscillator, Square Out ——— Mix, In II
Mix, Out —— Altar, Freq CV
Oscillator, Saw Out ——— Altar, In I
Altar, Out —— VCA, In
Anima, Envelope II Out ——— VCA, CV

Patch ideas



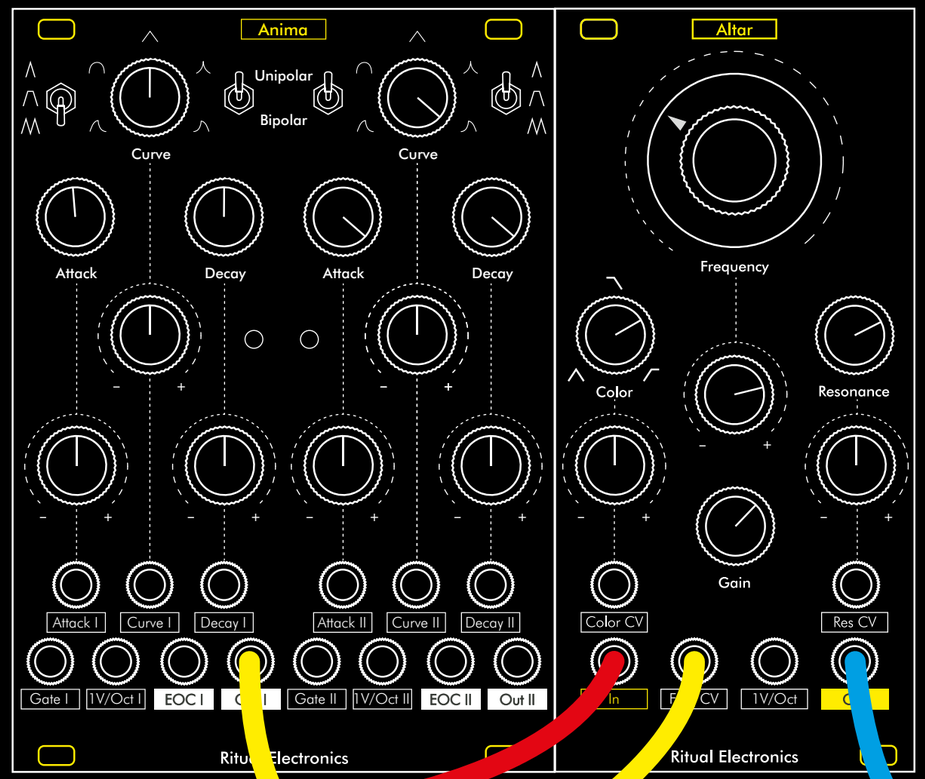
Patch #3 - Feedback bonanza

The extra Input allows for easy feedback patching or oscillations mixing. Patching Altar's output to its second input allows for a variety of new timbres.
The Input or the Output are great to modulate the other filter's parameters.

Patch notes

Get the stackables out and plug everything into everything.
Life advice right here.

Patch ideas



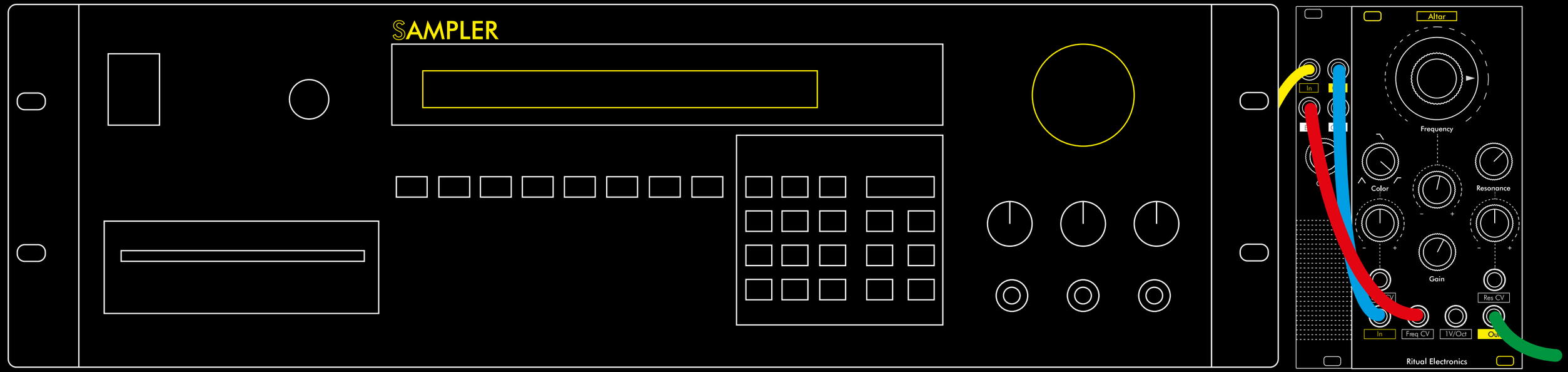
Patch #4 - Pseudo phaser

Right in between the Low Pass and High Pass lies a pseudo All Pass filter. It doesn't filter that much but it shifts the phase at the cutoff point. Add in resonance to taste to hear the effect. LFO the frequency and voilà, pseudo phaser for your Schulze needs.

Patch n es

Anima, LFO Out ——— Altar, Freq CV

Pay attention to the knobs positions



Patch #6 - French filtered house

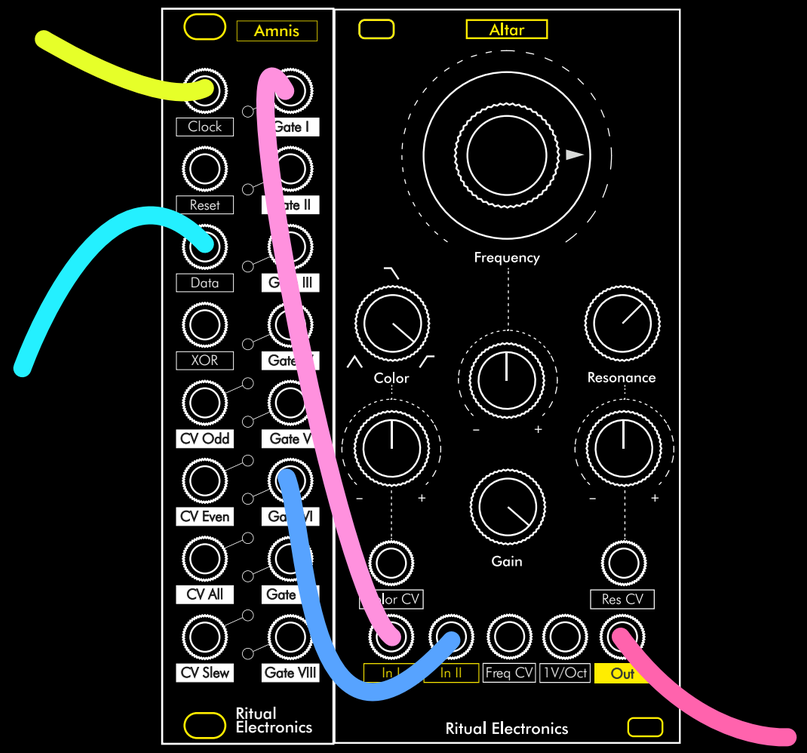
We dared. The high pass filter in Altar is sooo good you need to try filtering your favorite disco loops and 909 beats at least once.
Get that old sampler out or use one of the great eurorack ones. A touch of envelope following can add to the patch.
Keep it simple, with a healthy dose of resonance to achieve this great silky dance sound.
Cocorico.

Patch notes

Sampler, Out ——— Envelope Follower, In
Envelope Follower, Out ——— Altar, Freq CV
Sampler, Out ——— Preamp, In
Preamp, Out ——— Altar, In

Music sounds better with you

Patch ideas



Patch #7 - Pingpingping

While the seasoned modular users will see nothing new here I put this patch as a reminder that pinging a filter is GREAT. Altar does it great. Monitor the ouput of the filter, increase the Resonance until it self oscillates. Now back it up a notch until it doesn't. Plug a gate in Altar's input. It will create a short round almost aquatic percussion. Play around with Gain, gate duration, Color, add in a second gate in the second input... Ping more often.

Patch notes

Amnis, Gate Out ——— Altar, Ins