HY-FILTER4

VST is a trademark of Steinberg Media Technologies GmbH

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Table of Contents

Plugin Format

VST2, VST3 and AUv3 for Windows, macOS and Linux

*Mac version is 64bit only

System Requirements
Win: Windows7 or higher
Mac: OSX 10.11 or higher

Registration

There are 2 ways to register the plugin.
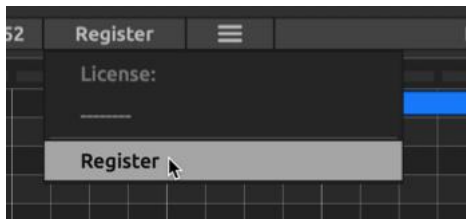
1, Drag and drop
Drag and drop your **keyfile** onto the plugin window directly.
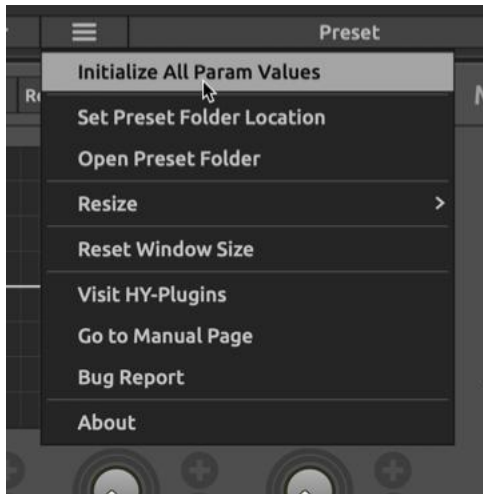
2, Copy&Paste
1. Open your **keyfile** with a text editor and copy the registration code.

2. Click "**Register**" button > select "**Register**" > paste the code > press "**Register**"

Once the plugin is registered, the "**Demo**" text will be replaced with the text "**Registered**".

Plugin Menu

Initialize All Param Values: Initializes all parameter values

Set Preset Folder:

If you want to change the plugin preset folder location, you need to set the new location using this menu option.

Open Preset Folder: Opens the preset folder

Resize: You can resize the plugin window with this menu instead of using the corner resizer

Reset Window Size: Resets the window size

Visit HY-Plugins: Jumps to the HY Plugin's homepage

Go to Manual Page: Jumps to the manual page

Resizing Plugin Window

You can change the plugin's size with this corner resizer.

Preset

You can load a stored preset file by clicking the preset button or by clicking the arrow buttons using your mouse.

Save: Overwrites the currently active preset
Save as: Save the current settings as a new preset

Default Preset Folder Location:
Mac : *Library/Audio/Presets/HY-Plugins/HY-Filter4*
Win : *C:\Users\user name\Documents\HY-Plugins\HY-Filter4*

Plugin Structure

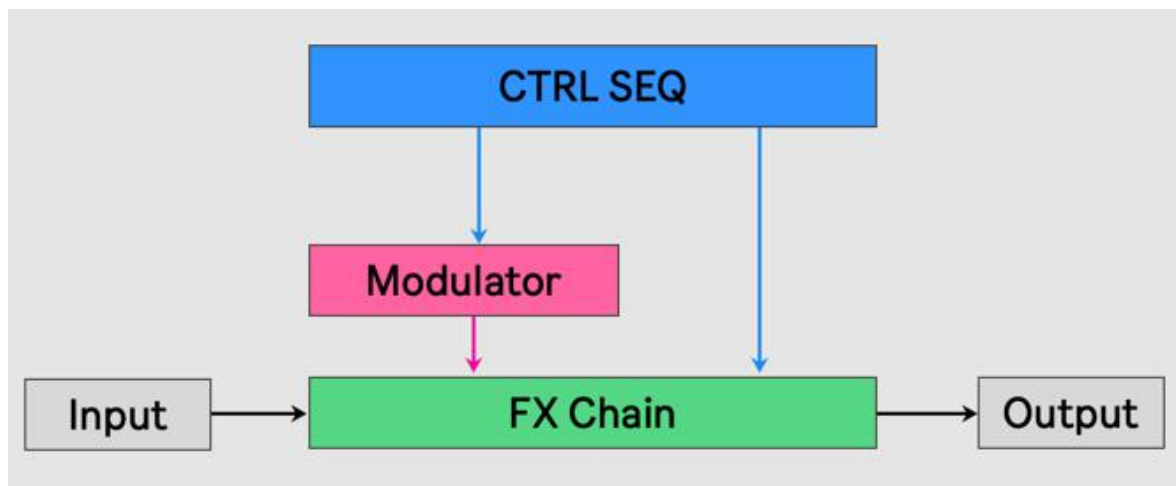The plugin is consists of 3 parts.

FX Chain: Processes the input signal

Modulator: Modulates the FX/Modulator parameters

CTRL SEQ: Controls the FX/Modulator units

Signal Path

The input signal will be processed by the FX chain section.

Modulators can modulate parameters of both the FX and Modulator units.

The CTRL SEQ is a step sequencer that can control both the FX and Modulator unit.

Main Panel
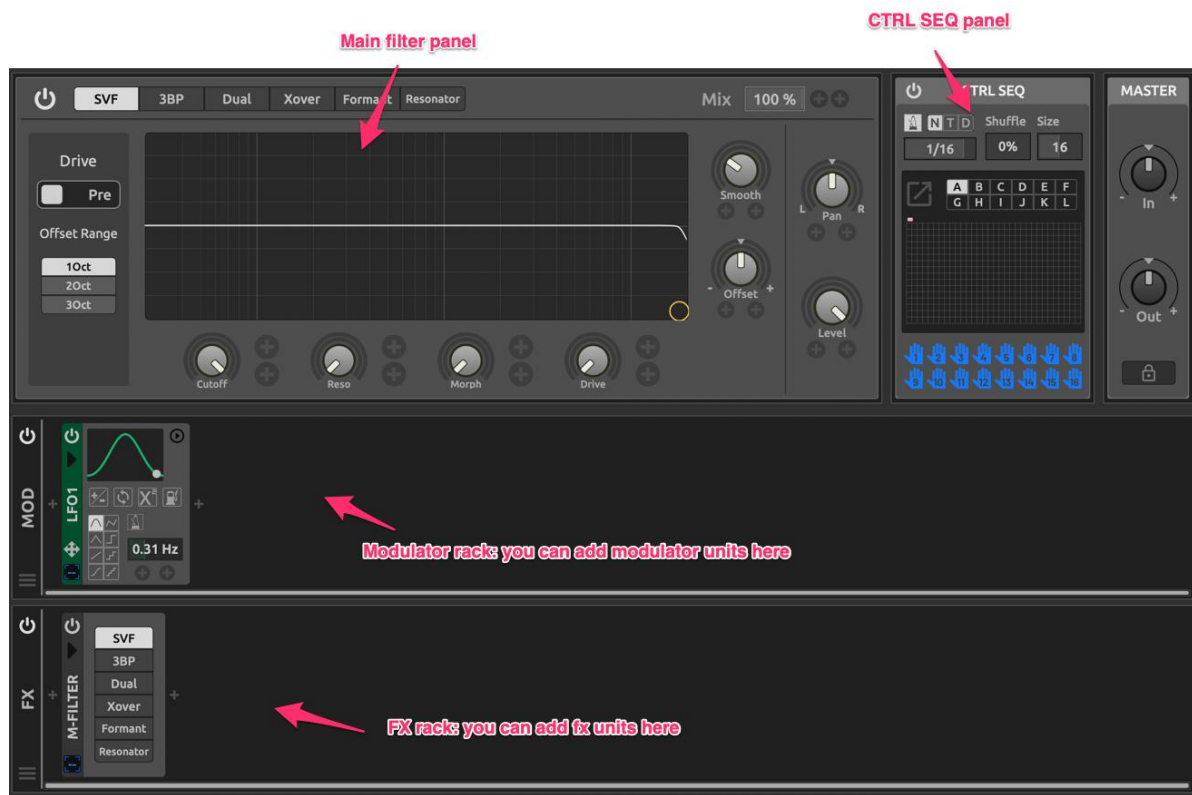
Main filter panel: Controls the parameters of the main filter

CTRL SEQ panel: Controls the parameter of the CTRL SEQ

Master panel: Controls the master in/out volumes

Modulator rack: you can add modulator units here

FX rack: you can add FX units here

Adding Modulator/FX unit
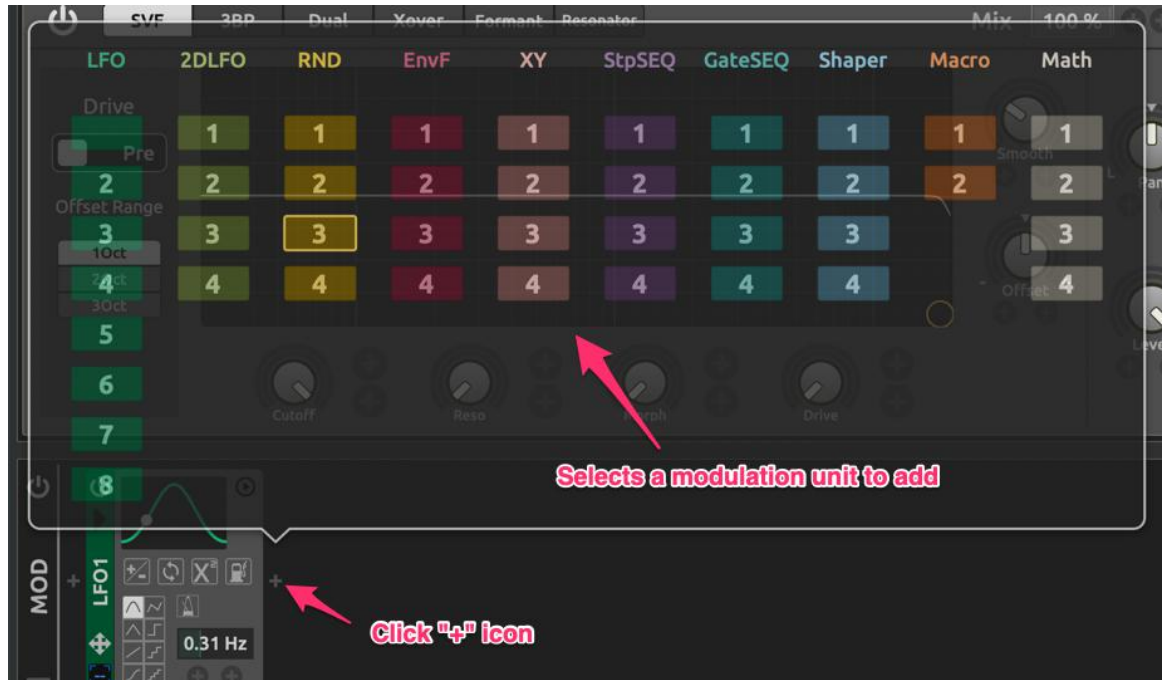
You can add a Modulator/FX unit by clicking the "+" icon and select a target unit.
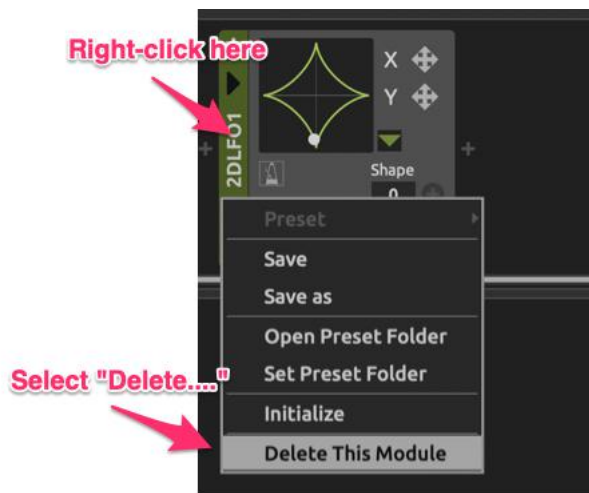
Deleting Modulator/FX unit

Right-click the left side of the panel and select "**Delete This......**" to delete the unit.

Unit Panel

On/Off: Toggles the unit on or off

Minimize: Minimize the unit panel

CTRL SEQ assign target: You can drag& drop a CTRL SEQ assign icon.

Unit Menu
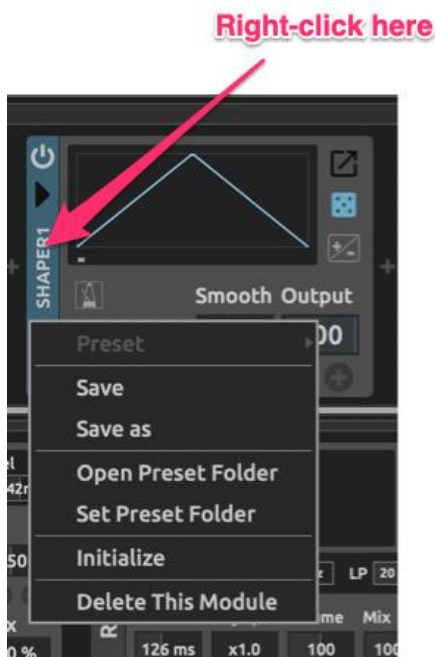
Unit menu appears by right-clicking the left side of a unit panel.

Save: Overwrites the currently active preset
Save as: Saves the current settings as a new preset
Set Preset Folder:

If you want to change the plugin preset folder location,

you need to first set the new location using this menu

option.

Open Preset Folder: Opens the preset folder

Initialize: Initializes unit parameters

Delete This Module: Deletes the Mod/FX unit

Modulator

Modulator units generate a control signal to modulate the plugin parameters.

Modulation Assignment

You can Drag & Drop the cross icon to a target parameter to make an assignment. Or you can right click the small cross icon of the target parameter to select the modulation source.

The color and number represent modulation source unit and curve line represents the modulation depth.

Available modulation sources

Right click

LFO

Bipolar switch

Invert switch

Square switch

Saturate switch

BPM sync
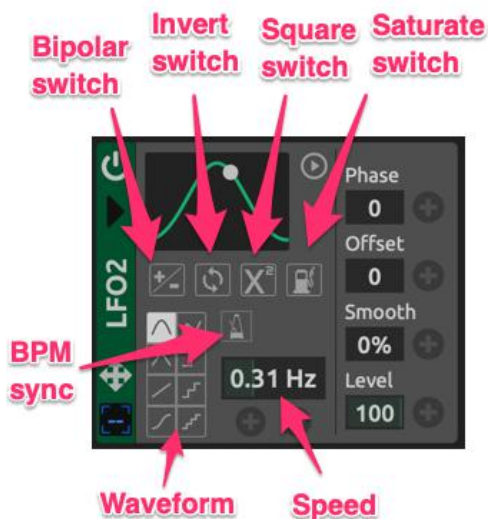
Waveform

Speed

Waveform: Selects a waveform shape (8 shapes)

Sync Switch: When active, the LFO speed will sync to the host BPM

Sync Mode

● N: Normal notes, 16/1 to 1/64

● T: Triplet notes, 16/1T to 1/64T

● D: Dotted notes, 16/1D to 1/64D

Bipolar: When this button is active, the output value range will become a range of -1 to +1

Invert Button: Inverts the LFO output

X2(Square) Button: Squares the LFO output

Saturate Button: Saturates the LFO output

Rate: Sets the speed of the LFO unit

Phase: Sets the start phase position of the LFO unit

Offset: Sets the offset level

Smooth: Controls the smoothness

Level: Controls the output level

2D LFO
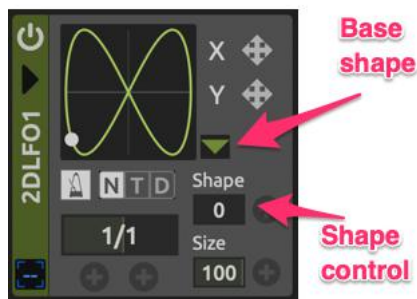
This is a LFO which can generate 2 modulation signal; one corresponds to the X axis, one corresponds to the Y axis.

You can select the base shape by clicking the arrow button.

RND

This module generates random modulation signals.

Linear Interpolation Button: When this button is active, the output signal will be interpolated between points.

Envelope Follower
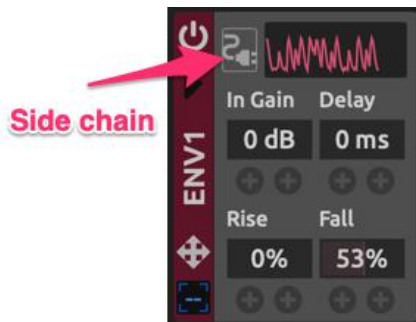
Side chain

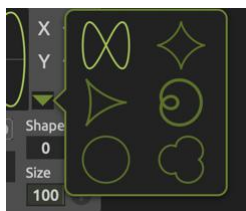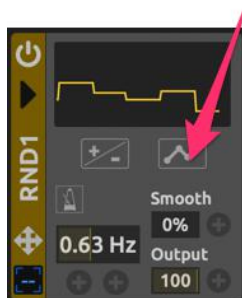This module generate a modulation signal based on the plugins input or side-chain input.

Side-chain Button: When this button is active, the audio source of this unit becomes side-chain input.

XY Pad

This module generate a 2-dimensional modulation signal.

Step SEQ
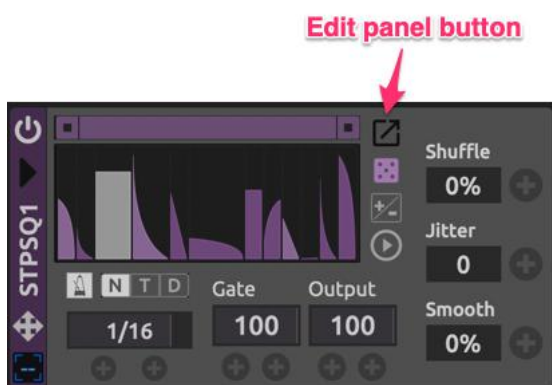
Edit panel button

This module is a step sequencer generator which generate the modulation signal based on the corresponding step's shape and value.

When the edit panel button is pressed,

The edit panel will be show up on the upper panel of the plugin like the below.
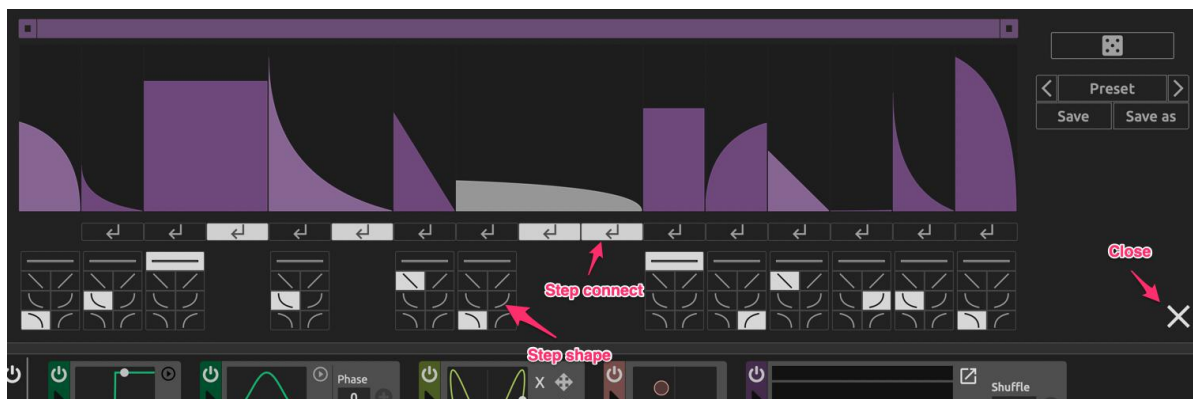
You can edit step's shape and also see the step connect of each step here.

When a step connect button is active, that step will be linked to the previous step.

Gate SEQ

This module is a step sequencer generator, which generates a 0 value when step is off and a 1 value when step is active.

Shaper
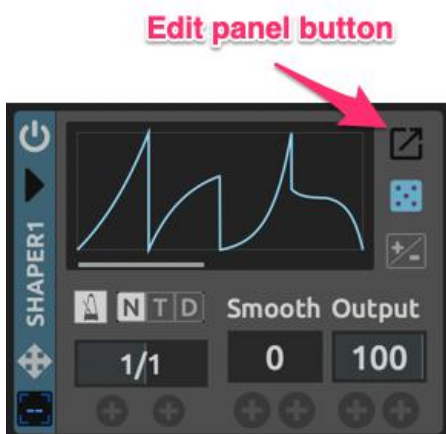
This module generate a signal based on a user defined shape.

You can draw the shape on the editor panel.
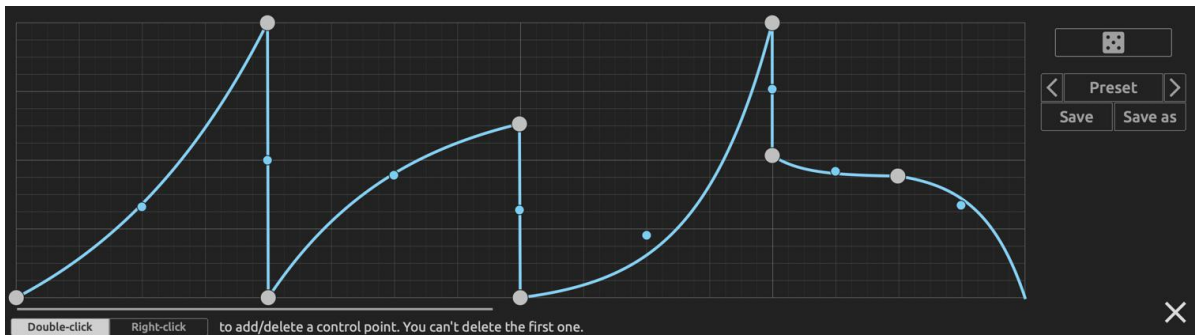
You can draw your own shape here.

Double-click or Right-click to add a control point. There is also a curve point between 2 control points. You can control the curve shape of the line with it.

Macro

Add/delete a macro knob/button

You can rename it

You can control multiple parameters at once using a macro knob/button.

You can add/delete a macro knob/button by clicking the "+/-" button.

Math

This module will process assigned modulation sources in multiple ways.

"**+**": Sums two modulation signal

"**-**": Subtracts one signal from the other

"*****": Multiples two modulation signals

FX

You can create an FX chain in the FX rack. In the case above, input signal will be processed by the Main Filter FX and then processed by the Simple Delay FX and Reverb FX.

You can add an FX unit by clicking "**+**" icon.

FX Chain Reordering

You can change the FX chain order using Drag & Drop.

1. Click and hold the side panel of the target FX unit

2. Drag & Drop the desired FX to the target position

FX Modules

Main Filter
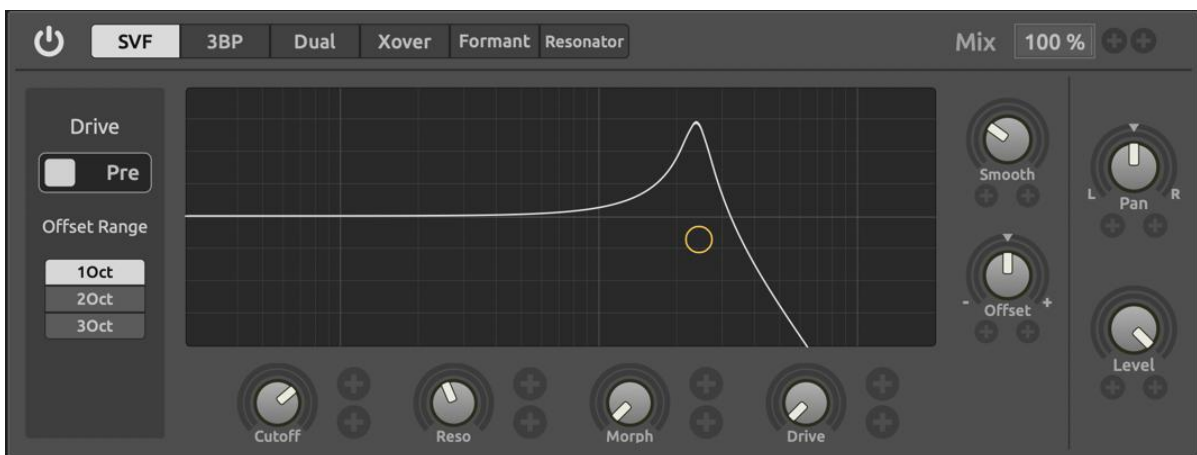
The Main Filter is the core feature of the plugin. It contains 6 different filter engines (SVF, 3BP, Dual, Xover, Formant and Resonator). This FX unit cannot be removed from the FX chain.

SVF
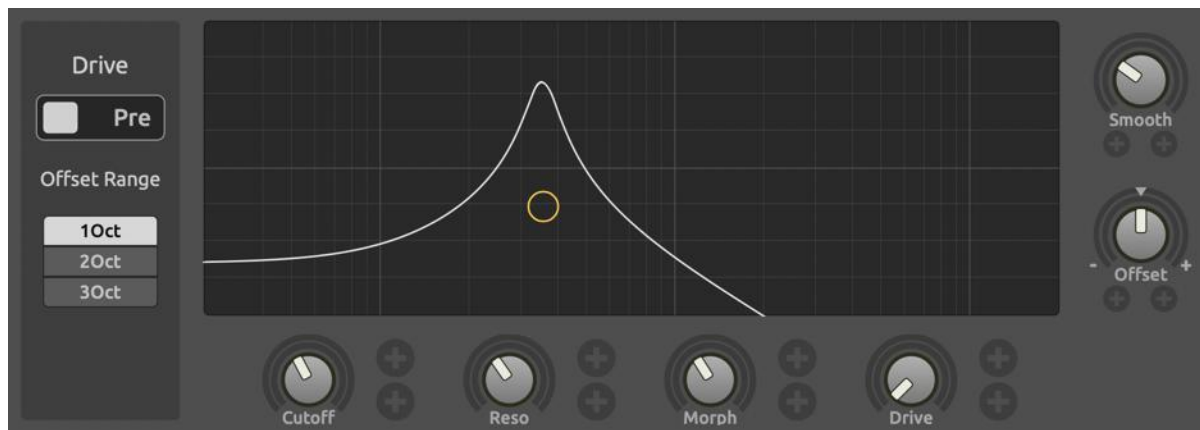
The SVF filter has 3 different types of filter outputs (lowpass, bandpass, highpass).

You can morph between these types with the "**Morph**" parameter.

Parameters:

Cutoff: Sets the cutoff frequency

Reso: Sets the resonance level

Morph: Morphs the outputs of lowpass, bandpass, highpass types

Drive: Sets the drive level

Smooth: Controls the smoothness of the cutoff changes

Offset: Controls the cutoff frequency offset between left and right

Drive Pre/Post: Changes the drive process position

Offset Range: Selects the range of the frequency offset parameter

3BP

With the 3BP filter,3 bandpass filters are connected in parallel. It has internal LFOs and an envelope follower. The internal LFOs will be connected differently to the cutoff frequency control of these 3 bandpass units depending on the mode state.

Parameters:

BP1/BP2/BP3: Sets the frequency of each bandpass filter unit

Freq Range: Defines the frequency range of the bandpass filters
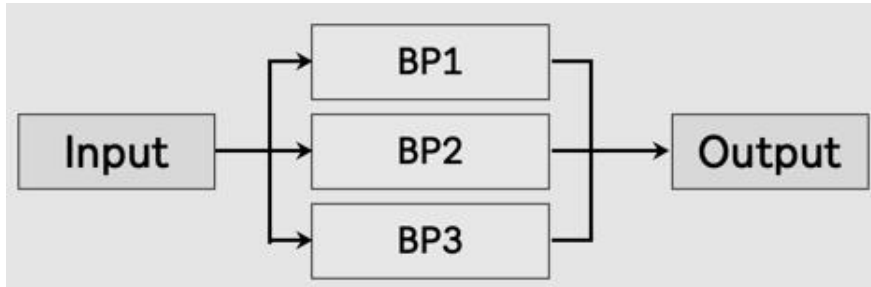
Reso: Sets the resonance level

Drive: Sets the drive level

Drive Pre/Post: Changes the drive process position

Smooth: Controls the smoothness of the cutoff changes

Stereo Pan: Sets the effect pan, BP1 will move to the left channel, BP3 will move to the right channel and BP2 will stay at the center.

Mode: There are 2 internal LFOs (LFO1, LFO2) in this filter.

The rate of LFO2 is about 30% faster the LFO1.

These LFO units will be routed differently depends on the mode to 3 bandpass filters

- Mode1: LFO1 will be routed to all 3 bandpass filters
- Mode2: LFO1 will be routed to BP1 and BP3, LFO2 will be routed to BP2
- Mode3: LFO1 will be routed to BP1, LFO1(inverted) will be routed to BP2 and LFO2 will be routed to BP3

Dual
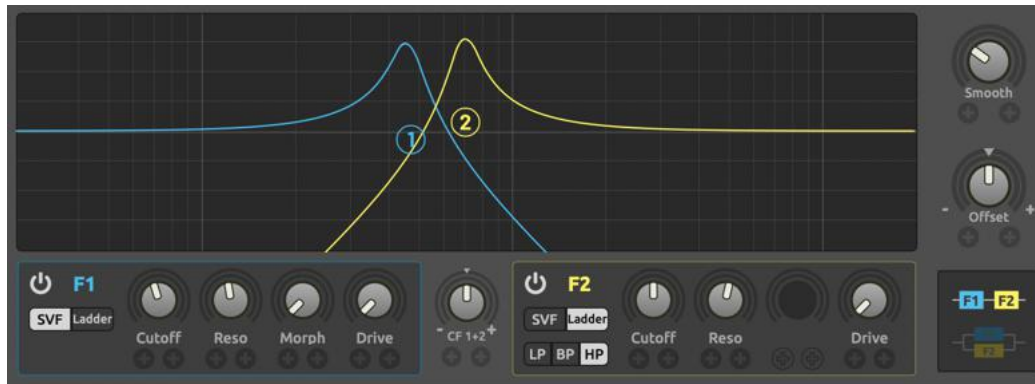
The Dual filter has two independent filter units which are routed either in serial or parallel.

Parameters:

SVF/Ladder: Selects the filter type

Cutoff: Sets the cutoff frequency

Reso: Set the resonance level

Morph: Morphs the outputs of lowpass, bandpass, highpass types (only available for SVF)

Drive: Sets the drive level

Smooth: Controls the smoothness of the cutoff changes

Offset: Controls the cutoff frequency offset between left and right

CF 1+2: Controls the cutoff frequency of both Filter1 and Filter2 at the same time

Xover

The Xover filter splits the input signal into 3 separate frequency bands. Then it processes those signals separately.

Parameters:

Drive: Sets the drive level

Pan: Controls the pan position

Haas: Adds a small delay to the left/right signal

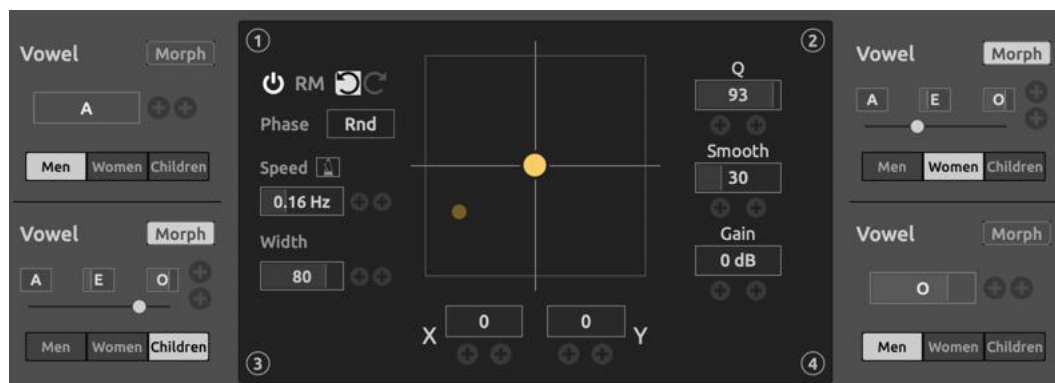**Level**: Sets the output level

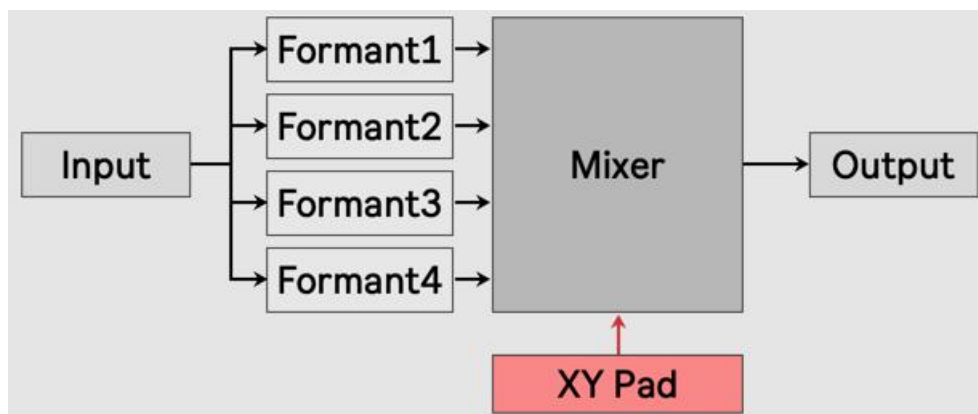**Mix**: Dry/Wet mix balance

M Button: Mute

S Button: Solo. When this button is active, the other 2 bands will be muted

B Button: Bypass

Formant

The Formant filter contains 4 independent formant filters and an XY control which is used to morph between the output of these different filters.

Formant unit
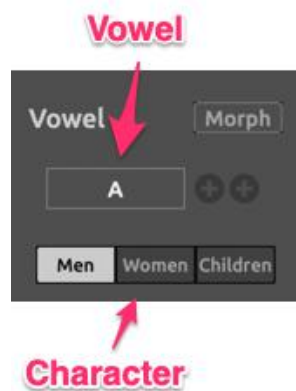
Vowel: Selects the vowel

Character: Selects the vowel character

Morph: When this button is pressed, the morph mode will be active

You can morph bwtweem 3 vowels with the slider control.

XY Panel
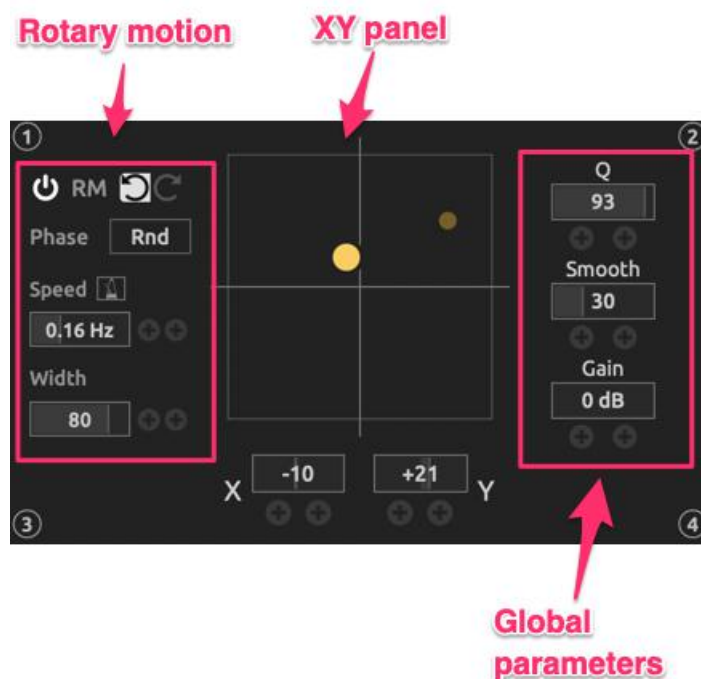
XY Panel: You can control the mix balance of the formant units output.

Rotary motion: When the power button is pressed to On, the rotary motion of the XY panel will be active. You will then see the XY panel control point start to rotate.

Parameters:

Direction: Sets the rotation direction

Phase: Sets the start phase position

Speed: rotating speed

Width: Sets the rotary width

Global parameters

These parameters are global parameters of formant filter units.

Q: Set the Q factor

Smooth: Sets the smoothness of the vowel changes

Gain: Sets the output gain of formant filter units

Resonator
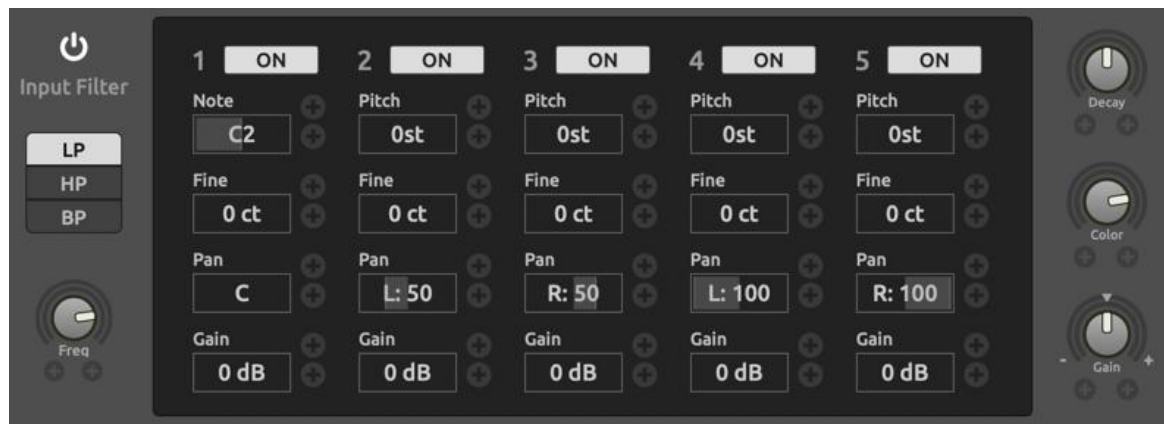
The Resonator filter consists of 5 resonators.
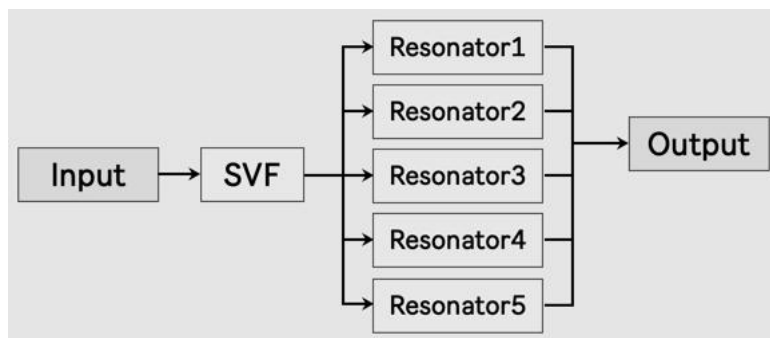
Input filter

This filter has 3 modes(LP, HP, BP). After passing through the filter, the audio signal will be processed by 5 resonators in parallel.

Resonators

Resonator Unit1 is the master of other resonator units. The note parameter of unit1 defines the base pitch note of all resonator units. Therefore, when changing this parameter, it will affect all the other units.

Parameters:

Decay: Sets the decay time of resonators

Color: Controls the sound color (brighter/darker)

Gain: Sets the output gain level

Delay

There are 5 types of delay FX available.

Simple Delay: Basic delay

Grain Delay: Basic delay + granular pitch shifter

Reso Delay: Basic delay + resonator

Mod Delay: Basic delay + chorus

Filter Delay: Basic delay + bandpass filter

Parameters:

PingPong: when this is active, the delayed signal bounces between left and right

Reverse: When active, the delayed signal will be played in reverse

Ducking: When the "Sens" value is not 0, you will begin to hear a ducking effect..

When it is active, the delayed signal will be attenuated by the input signal level.

Time: Sets the delay time

LR Offset: Sets the delay time offset between left and right

FB: Sets the feedback level

Input: Sets the input level

HP: Sets the cutoff frequency of the highpass filter

LP: Sets the cutoff frequency of the lowpass filter

Mix: Dry/Wet mix balance

Modulation

Chorus: Basic chorus effect

Tri Chorus: You can control the chorus depth independently for left, right and center signals

Vibrato: Vibrato effect

Flanger: Basic flanger effect

BBP Flanger: Special type of the flanger fx where the sweeping flanged sound moves in one direction
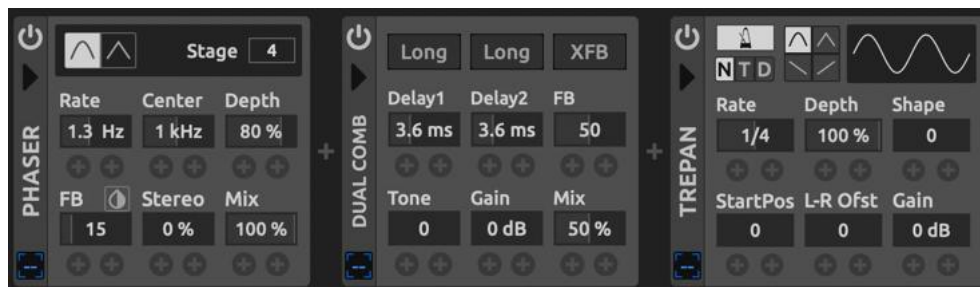
Phaser: Phaser effect

Dual Comb: Series of 2 comb filters

TrePan: Tremolo/Panner effect, when "**L-R ofst**" parameter value is not 0, the effect becomes a panner

Filter
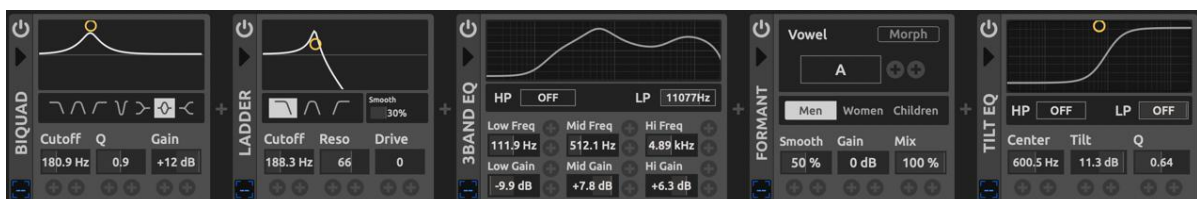
Biquad: The filter has 7 modes (lowpass, bandpass, highpass, bandstop, lowshelf, peaking

and highshelf)

Ladder: The Moog type multi-mode filter

3band EQ: Equalizer with 3 bands

Formant: Formant filter, this effect emulates the human vowel sounds

Tilt EQ: Combination of lowshelft and highshelf filters

Drive

Lofi: Lofi effect, samplerate reduction + bit crusher

Clipper: This effect has 4 characteristics of clipping shape(hard, soft, cubic and sine).

Od/Dist: This contains overdrive, distortion and saturation type drive effects

Foldback Distortion: Instead of clipping the overshoot signal, this effect folding back it.

Pulse Mod: Modulating the input signal with the series of pulse train

Pitch/Freq

Pitch Shifter: Granular pitch shifter which shifts the input signal up/down

Frequency Shifter: Shifts the frequency of the input signal

Dynamics
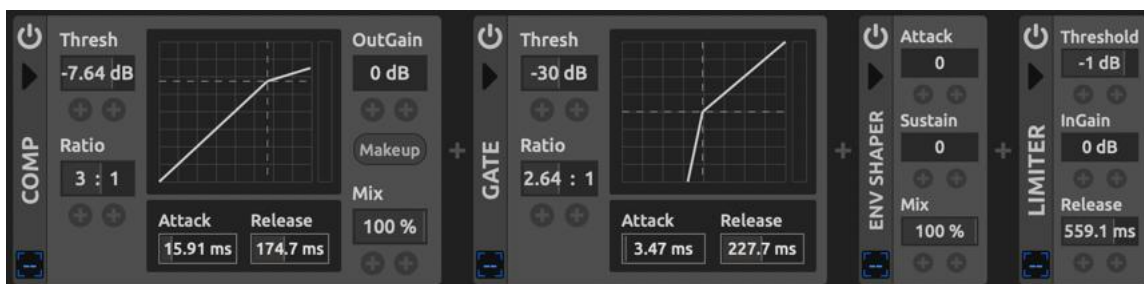
Compressor: This effect controls the volume of the input signal automatically

Gate: This effect attenuates the signal which level is below the threshold

Envelope Shaper: (De)Emphasizes the attack/sustain portion of the input signal

Limiter: Reduces the gain when the input signal exceeds the threshold level

Reverb
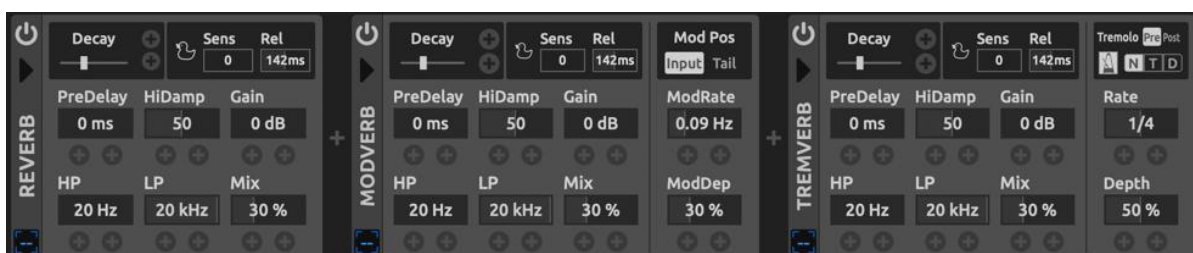
Reverb: Basic reverb effect

Modverb: Reverb + a chorus effect applied to the input or reverb tail signal

Tremverb: Reverb + a tremolo effect applied to the input or reverb tail signal

Buffer

Tape Stop

When the pause button is pressed, this activates the effect. Then input signal begin slowing down and eventually stops at the time defined by the "Time" parameter.

Repeat/Reverse
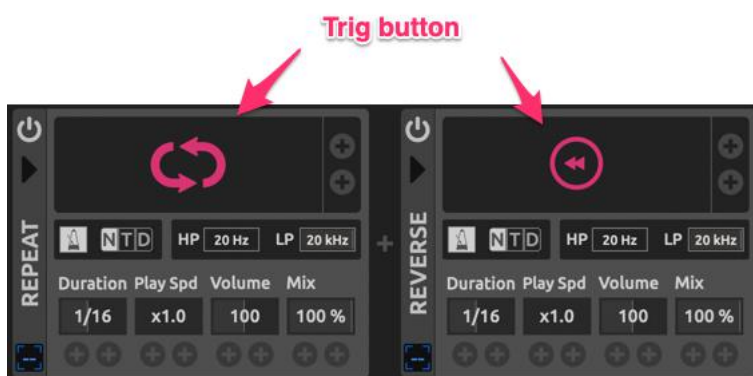
When the Trig button is pressed, the effect will start to record the input signal. When reaching the desired time as defined by the "Duration" parameter, the effect will begin a looped playback of the previously recorded sound.

Reverse FX will play it reversely.

Duration: Sets the recording time

Play Spd: Sets the playback speed

Volume: Sets the playback volume

Mix: Sets the Dry/Wet mix balance

Utils
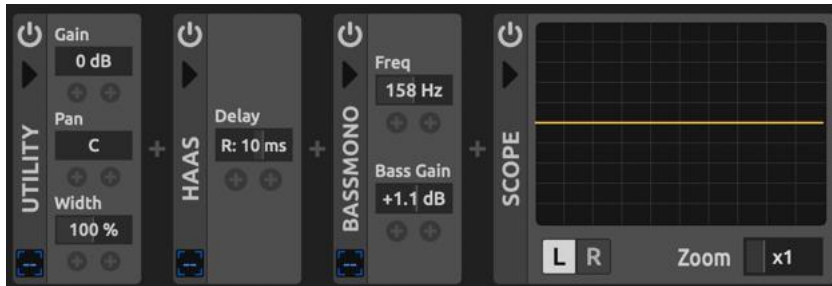
Utility: You can control the gain level, the pan position and the stereo width

Haas: Adds a small delay to the left/right signal

Bass Mono: Makes the audio signal below the specified frequency monaural

Scope: Visualizes input signal

CTRL SEQ

Grid pattern snapshot

Grid editor open button

Drag & drop this icon to make a assignment
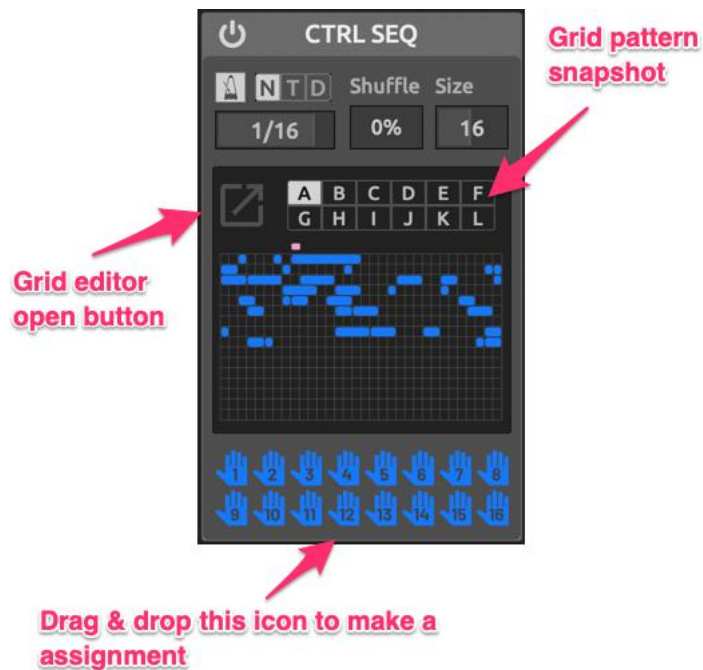
This is a grid sequencer for controlling the Modulator/FX units.

It has 16 grid tracks.

You can also make 12 snapshots.

Grid Editor Panel

You can rename it

Trigger probability

Left click = randomize, Right click = initialize

Pattern Snapshot
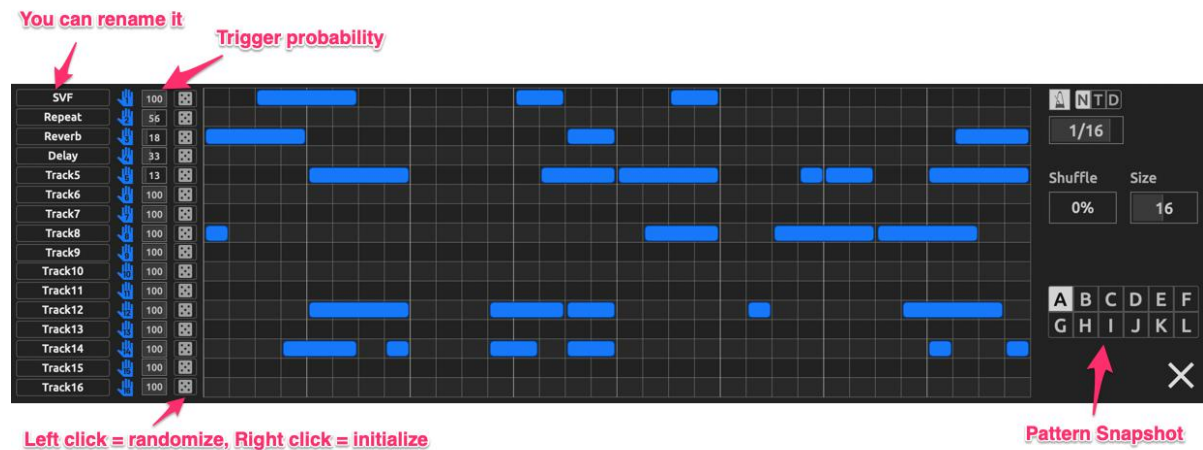
You can edit the grid state of CTRL SEQ tracks. Each track has an editable label and a trigger probability setting. You can also rename the labels by clicking them and typing a new name.

Making an assignment
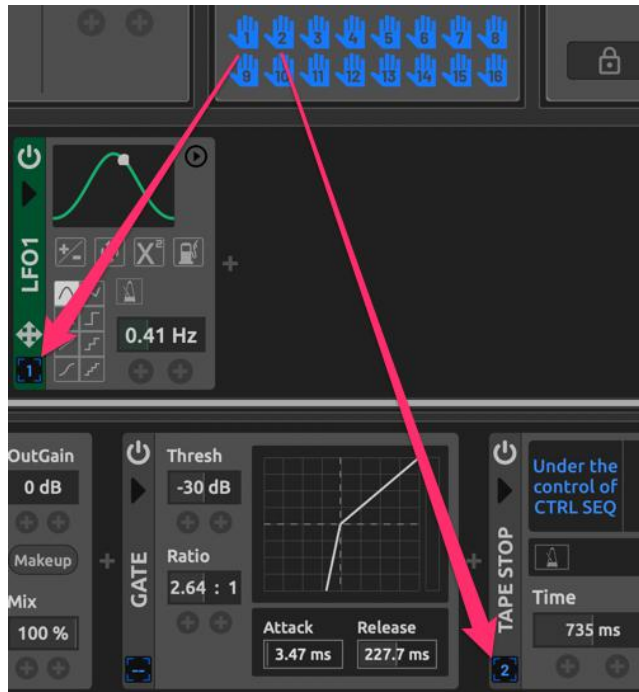
You can Drag & Drop a "hand" icon onto the square box in the bottom left corner of a target panel to make an assignment.

Once a CTRL SEQ track is assigned to a Modulator/FX unit, that unit will be under the control of the CTRL SEQ.

CTRL SEQ > Modulator Unit

When a modulator unit is in under the control of the CTRL SEQ, the output signal of the modulator unit is controlled by the assigned track.

For example, when Track16 of the CTRL SEQ is assigned to LFO2, the output of LFO2 is controlled by the step states of the Track16. In the example below, the sequencer step position is at 1~4 and 9~12, the step state of Track16 is active. Therefore LFO2 will output the modulation signal normally. On the other hand, when the step position at 5~8 and 13~16 are step state of Track16 is inactive. Therefore the LFO2 output will be muted.
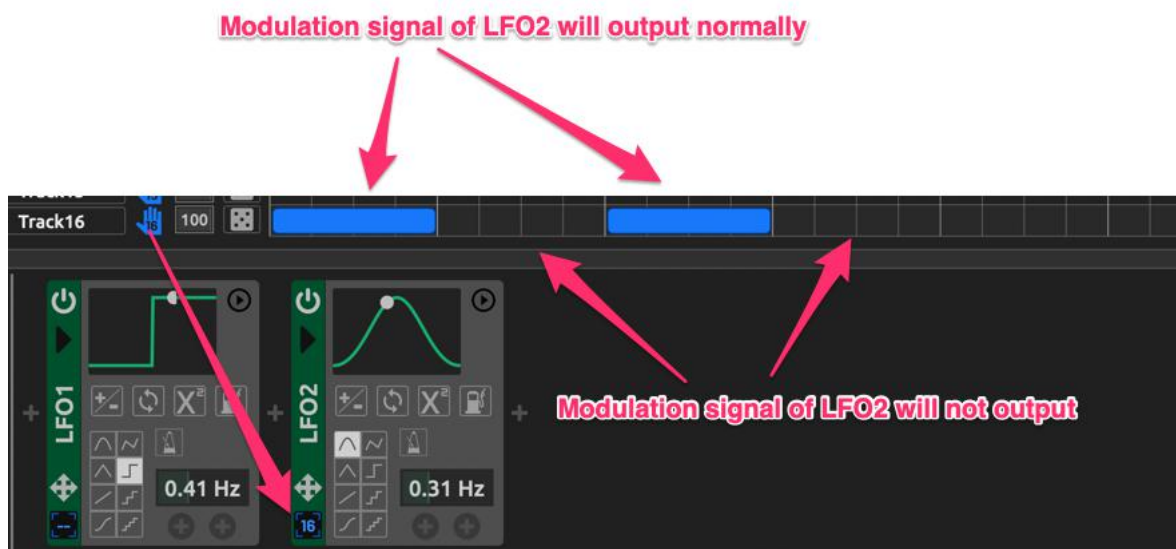
CTRL SEQ > FX Unit

When a CTRL SEQ track is assigned to an FX unit, the input of the FX unit will be controlled by the assigned track as shown below.
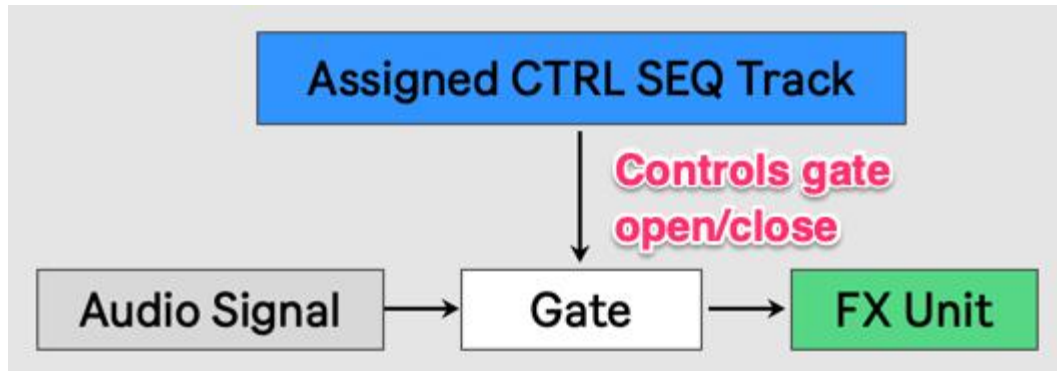
CTRL SEQ > Buffer FX

CTRL SEQ will work differently from other FX units when applied to the Buffer FX unit.
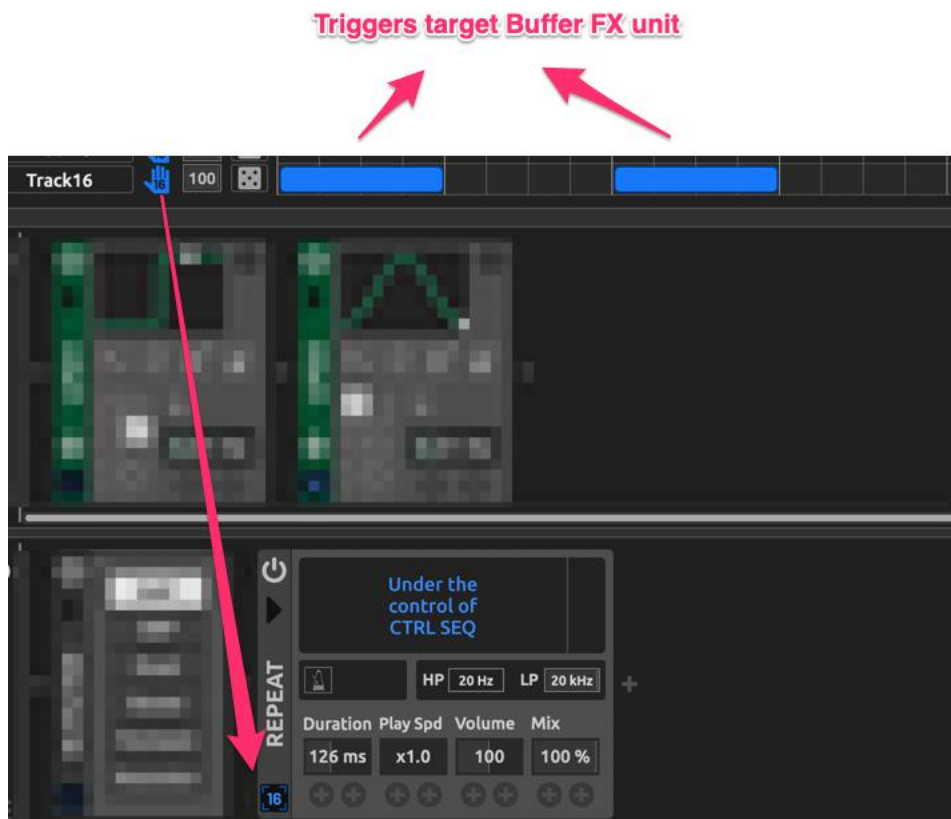
When a CTRL SEQ track is assigned to a Buffer FX unit, the FX trigger button of the Buffer FX will be controlled by the assigned CTRL SEQ track.

Master

You can control master In/Out gain here.

Parameters:

In: Sets the input gain

Out: Sets the output gain

Lock: when this button is active, the "In" and "Out" parameters will not be affected by a preset change.

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HY-Filter4

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