

Gotharman's PolySpace



Polyphonic Synthesizer and Sampler

User Manual V 4.09

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Introduction

A polyphonic/multi-timbral synthesizer/sampler with analog filters.

Thank you very much for purchasing/consider to purchase a Gotharman's PolySpaze.

PolySpaze are a polyphonic/multi-timbral synthesizer/sampler with 4 voices.

Each voice has 2 oscillators, one of them with morphable waveforms and sample playback, a ringmodulator, two resonant 24 dB analog filters (HPF+LPF), a multimode resonant digital filter (DGF .when in "B" mode), a VCA, 2 ADSR envelopes and a random generator. It also has 4 LFO's, with morphable waveforms, that are global. Four effects processors are also present. Each of the effects processors can either be placed as a voice insert effect, or as a global send output effect.

It has a built-in sequencer with 4 note tracks and 8 controller tracks. Notes can be recorded in realtime, or placed in steps on the touch screen. Controller events can be drawn on the touch screen.

Different play modes are available.

The polyphonic modes lets you adjust the parameters for one voice, which is then polyphonically playable from an attached MIDI device.

The FilterBank mode melts all 8 analog filters and 4 digital filters together, to form a filterbank, with all the parameters of each filter adjustable.

Mono mode turns PolySpaze into one big mono synth, with the parameters of all 8 oscillators, 4 ring modulators, 8 analog filters, 4 digital filters, 4 VCA's, 8 ADSR envelopes, 4 LFO's and 4 effects processors separately adjustable.

In multi-timbral mode, the 4 voices forms 4 different synthesizers, each with their own settable key range and MIDI channel, and like in mono mode, the parameters of all the sound building blocks are separately adjustable.

In the special poly modes 3, 4 and 3 random, it plays the 4 voices polyphonically, with different sounds for each voice.

In PolyChain mode it is possible to polychain 2 PolySpazes, or PolySpaze and another synth.

For playback and tweaking of stereo samplings, a dual filterbank stereo mode is available. 4 stereo samplings can play back at a time, and the left and right channels are routed through each their own set of 4 analog filters and 2 digital filters.

The Morph function lets you create 2 different layers of sounds and sequences, and morph smoothly between these, using the Morph knob.

Performance controls includes Touch Screen Keyboard, 4 trigger buttons, the Morph Knob and 6 Quick Edit knobs, with 4 of them being assignable.

It also has a very sensitive capacitive touch screen, that is used for navigation, sequencer input, and as a touch keyboard.

To make everything work as fast and effective as possible, PolySpaze is not programmed behind any "OS". Everything is performed directly by the processor, and everything is programmed in assembly language, which is up to 30 times more effective than the C++ language, that most people program in, and it is programmed only to work with the PolySpaze hardware.

1024 preset slots and 1024 song slots are available, all user programmable.



This product is produced and tested to comply with the low voltage directive (2014/35/EU) and the electromagnetic compatibility directive (2014/30/EU).

Very special thanks to:

Christopher Rayce
Jody Schaible
Simon Allins

For supporting this project from the beginning. I really appreciate your trust. Without you, PolySpaze might not have been...

Gotharman October 2017

In the box

In the PolySpaze box should be:

- PolySpaze itself
- A power supply
- A stereo to 2x mono jack split cable

If any of these items are missing, please get in touch with Gotharman's.

Getting Started

Connecting:



On the right end panel of your PolySpaze, you will find the power switch, connection for power supply, stereo audio input and output, and USB. The audio inputs and outputs are stereo jacks.

You would probably want to connect the audio outputs to a mixer or an amplifier, or anything else that ends out in a speaker/a set of speakers. Since PolySpaze doesn't have built in speakers, it just needs to be connected to something, that can transfer its amazing sound to you. Note that in order to connect this to a mixer with mono input jacks, you will need a stereo to mono jack split cable, like the one that came with PolySpaze. If you connect a standard mono jack cable, the output will just act as a mono audio output.

Connect any line stereo/mono audio sources to the audio input, for sampling and/or processing through PolySpaze's analog/digital filters and effects. Note that in order to connect this to an audio source with mono output jacks, you will need a stereo to mono jack split cable, like the one that came with PolySpaze. If you connect a standard mono jack cable, the input will just act as a mono audio input.

To the USB connector, a USB drive can be connected.

This should be:
-Maximum 32 GB
-FAT formatted

With a USB drive connected, you can:

- Import, export and back up samples as .wav files
- Import deFormer .lds samples
- Import, export and back up PolySpaze presets and songs
- Update PolySpaze

To import a .wav file from another device, it must be:

- Mono or stereo
- 44.1 KHz sample rate – PolySpaze will import other sample rates, but they will play back in a wrong speed
- 16 bit native PCM
- It is not compatible with broadcast wav files. To convert broadcast wav files, found in many downloadable sample sets, to standard wavfiles, please use a program like NCH Wavepad or NCH Switch.



On the left end panel of your PolySpaze, you will find the MIDI in and out connectors. The optional CV inputs and outputs are also found here, if installed. Please notice, that the upper row of CV connectors are the outputs, and the lower row are the inputs. The upper MIDI connector are the input, and the lower are the output.

If the PolySpaze touch screen keyboard seems too limited, you might want to connect a MIDI keyboard to MIDI in, in order to take full advantage of PolySpaze's fully chromatically playable sounds. It is also possible to connect anything that transmits a MIDI clock, if you would like the sequencer of PolySpaze to sync to your setup.

On MIDI out, MIDI clock, MIDI CC's from the PolySpaze edit knobs, and notes and CC's from its sequencer are transmitted. Connect any MIDI gear to this, that you would like to control from PolySpaze.

Connect any CV voltage source to the 4 CV inputs. Each input can be set up to match the voltage range of any CV source, up to +/- 15 volts. The CV inputs can be set up to modulate many parameters and they can be set up to act as trigger sources. They also accept clocks, start/stop and reset pulses for the sequencer.

Via the CV outputs it is possible to control analog gear. Each CV output, outputs both an adjustable static voltage, plus a PolySpaze modulation source, so it is possible to both adjust t.ex. the cutoff frequency of a connected analog filter, and to add modulation to this. It is also possible to output the 4 triggers via these, to trigger external gear, and it is possible to make a sequencer controller track generate an analog clock.

Connect the supplied power adaptor to the Power input, and to a 100V to 240V power source.



It's a 9V, minimum 2.0A type with a 2.1 mm DC plug, with positive middle. The powersupply on the picture is only for reference. The actual one might look different.

Some PolySpaze's might have been shipped out with a power adaptor, that has multiple tips. If you have received one of these, you should use the tip with the blue ring, and make sure that the 2 parts are alligned to the text "Tip":

Please look at the picture, on the next page....



Turn it on

Push the “I” on the power switch. Your PolySpaze should now turn on.

The User Interface



PolySpaze has a highly sensitive capacitive touch display, 4 trigger buttons, a Morph Settings button and a Sequencer Start/Stop button. It has 4 Edit/Quick Edit Knobs for controlling and editing parameters and sending MIDI CC's, 2 additional Quick Edit Knobs, a Morph knob, and a volume knob.

Pushing the **Triggers 1-4** buttons will trigger the respective PolySpaze voice, except when in monophonic mode. In this mode any of the 4 trigger buttons will trigger all of the 4 PolySpaze voices at the same time. Each trigger button will send a settable note number (Settable in the Synth "Mode" section). When a trigger is triggered, the LED near it will light up.

The **Start/Stop** button will start and stop Sequencer playback. When the sequencer is playing back, the green LED above the Start/Stop button will light.

The **Morph Settings** button, will toggle the parameters on any Synth and Sequencer page, between 2 layers of parameters, A and B. The **Morph** knob will morph between the two layers of either Synth parameters or Sequencer parameters, as set up on the Morph Edit page, described later in this manual.

The **Volume** knob always adjusts the audio output volume.

The **Edit 1-4 Knobs** below the display, adjusts the parameters on each page. On the **Preset Select screen**, they acts as modulation sources, that controls any parameters that has knob1 to 4 set as modulator, and transmits MIDI CC's. Any Edit Knob, that has not been assigned as a modulator to any parameter, acts as a **Quick Edit Knob**.

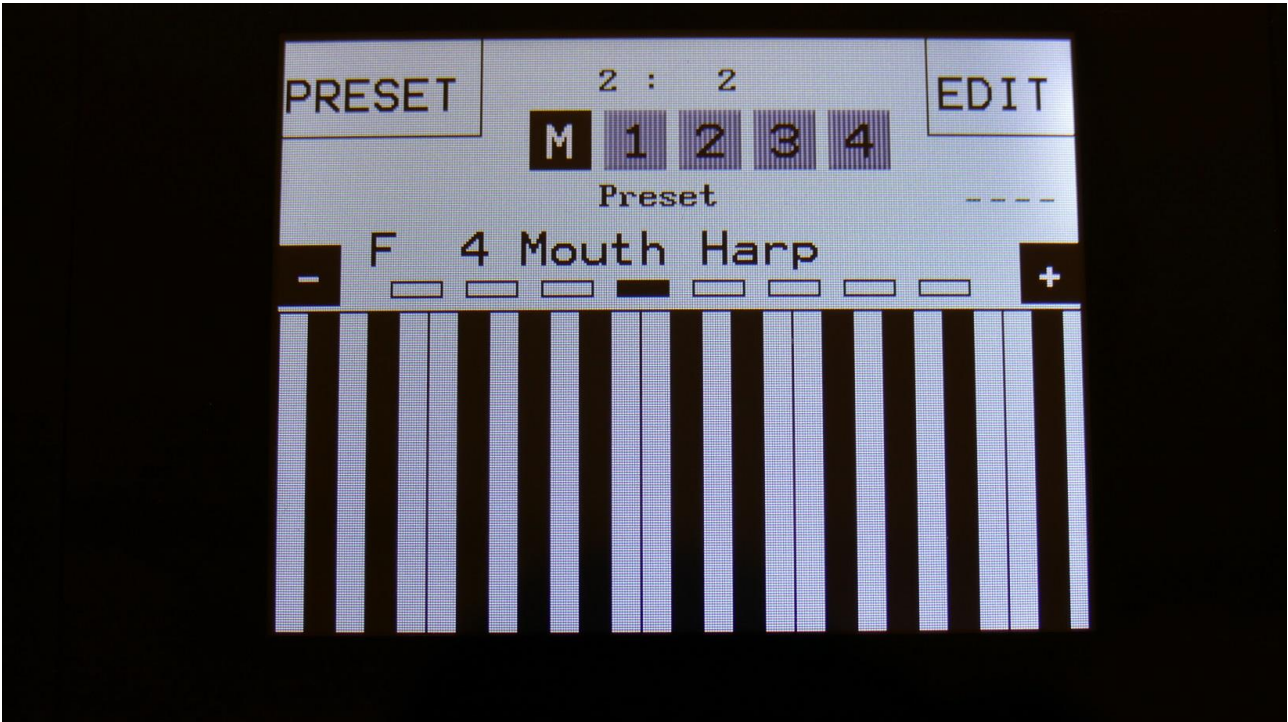
The Quick Edit Knobs controls:

- Edit Knob 1: Analog highpass filter resonance.
- Edit Knob 2: Analog lowpass filter resonance.
- Edit Knob 3: Analog filters FM (FFM).
- Edit Knob 4: VCA envelope release time.

The 2 additional **Quick Edit Knobs** always controls the Cut Off parameters of the analog highpass and lowpass filter,s and transmits MIDI CC's.

The Touch Screen Keyboard

The PolySpaze display is touch sensitive. The touch interface is used for navigating through the edit and settings pages, and in the bottom of most pages, a fully playable touch keyboard is present.



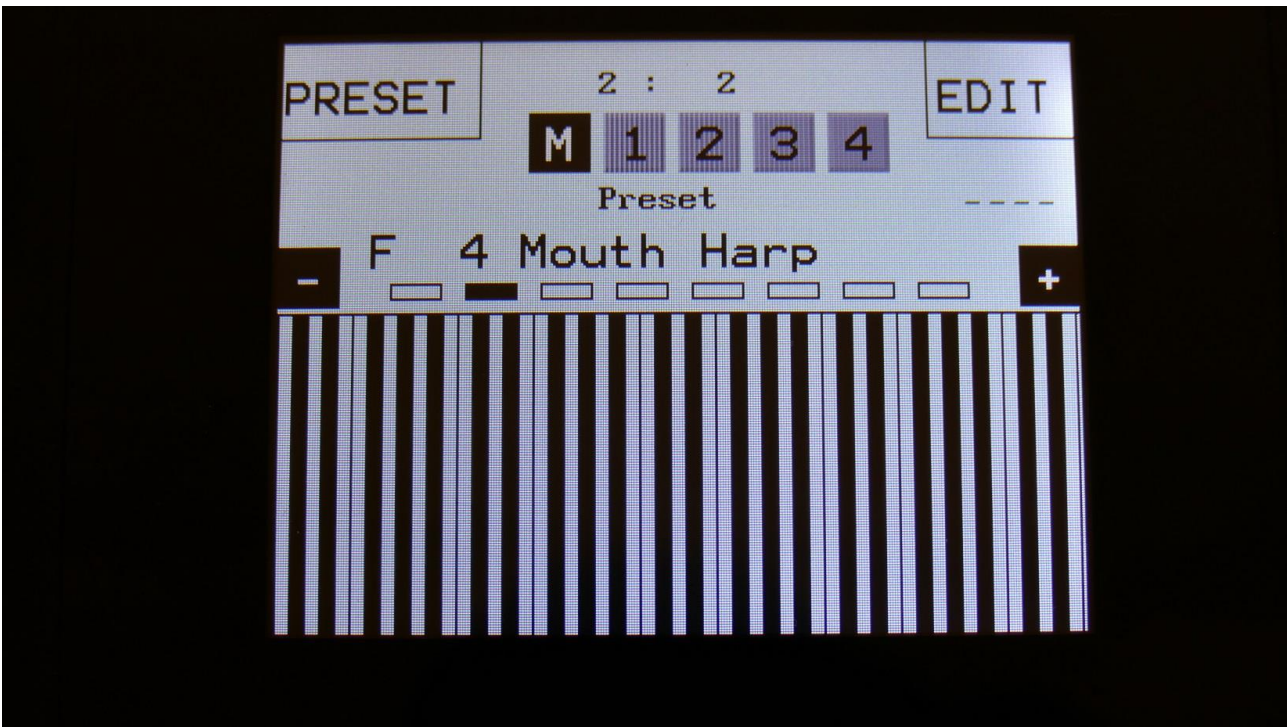
On the Preset and Song Select pages, it is, besides from playing notes on the touch keyboard, also possible to apply modulation to the sound, by placing your finger on different positions between the top and the bottom of the keyboard. This is referred to as Keyboard Y modulation. On any other pages, the keyboard only plays notes.

By touching any of the touch buttons marked M, 1, 2, 3 and 4, in the top of the Preset/Song select pages, it is possible to select which of PolySpaze's 4 synth parts, the touch keyboard should control. When part "M" is selected, the touch keyboard works in the same way as a connected MIDI keyboard that is set to the same MIDI channel as the PolySpaze global MIDI channel. Each of PolySpaze's 4 parts can be set up to work inside a specific note range. The keyboard will, when a note is played, activate the part that has been set up to be triggered by this note. The note ranges of the 4 voices can overlap each other, so it is possible to have each key playing more than one sound at a time.

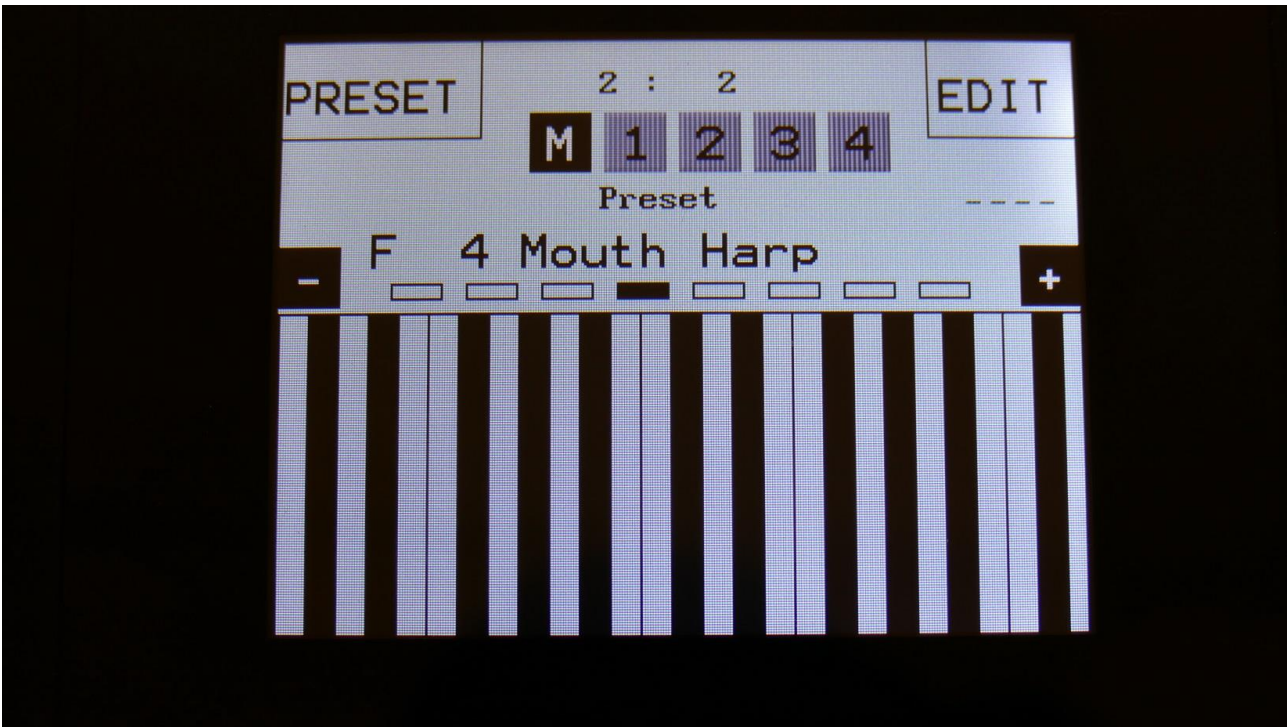
When part 1 to 4 is selected the whole range of the touch keyboard is controlling the selected part.

It is possible to select the keyboard octave, by touching any of the 8 squares just above the keyboard.

By touching the “-“ and “+” buttons, just above the keyboard, it is possible to adjust the keyboard size. The size can be from 1 to 8 octaves.



The Preset Select Screen



This is the first screen you will see, right after PolySpaze's start-up screen, unless you left your PolySpaze in Song mode, the last time it was turned off. Here you can change preset, jump to PolySpaze's edit and settings pages, and adjust the touch keyboard settings, as described on the previous pages.

On the top of this screen, the Sequencer bar/beat, that is currently being played back, is shown. Below this the touch buttons for selecting the touch keyboard part is located. Right below these, it says "Preset", if PolySpaze is currently in preset mode, or "Song" if it is currently in song mode.

Below this, the number and name of the currently selected preset/song is shown.

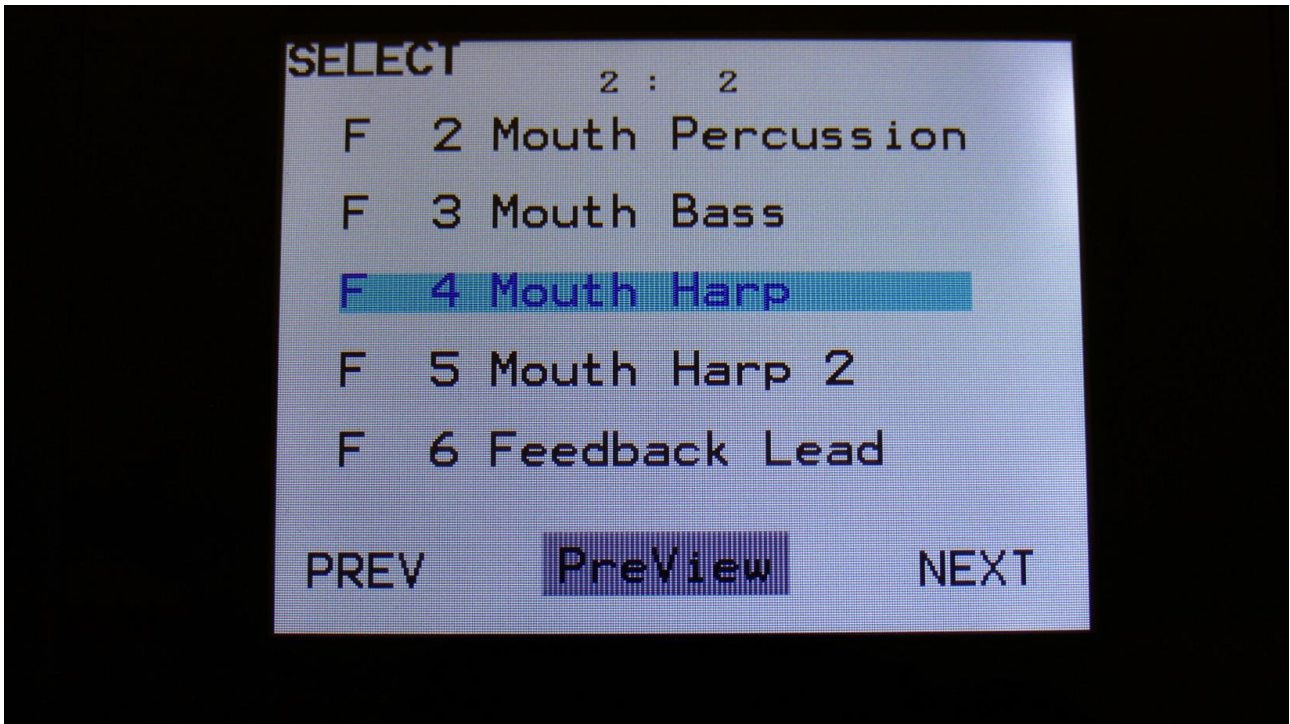
Below the preset name/number, you will find the touch screen keyboard.

On the left side of the screen, 4 small VU-meters are shown. These show the output activity of voices 1 to 4.

Touch the "EDIT" field in the upper right corner of the screen, to enter the edit and setup pages. Touch the "PRESET" field, to select a memorized preset.

Selecting a preset:

Touch the “PRESET” field. A list of 5 presets near the currently selected preset, will now appear:



Touch “PREV” or “NEXT” to view the previous or next 5 presets, and finally touch the preset name of the preset you would like to select. 1024 presets can be selected, from A01 to P64.

PolySpaze will now jump back to the main Preset Select screen, and show the name of the newly selected preset.

If the sequencer is playing back, the Start/Stop LED will now start to flash, and the text “NEXT:” will show right above the new presets name, awaiting track 1 to reach its start/end step. As soon as this happens, PolySpaze will switch to the newly selected preset, the Start/Stop LED will stop flashing, and “NEXT:” will disappear.

If the sequencer is not playing back, PolySpaze will immediately switch to the new preset, when you touch the preset name.

When PolySpaze is turned off, it will remember which preset was selected, and start up with this, when turned on again. It will also remember if it was in preset or song mode, and start up in the same mode, and if it was in song mode, it will also remember which song was selected.

On the Preset Select page, the 7 Edit/Quick Edit Knobs will transmit MIDI CC’s to PolySpaze’s MIDI out, on the PolySpaze global MIDI channel. The Edit and Quick Edit knobs will receive MIDI CC’s regardless of which page has been selected.

The Morph knob will transmit/receive CC 1 (ModWheel).

The HPF Cut knob will transmit/receive CC 2.

The LPF Cut knob will transmit/receive CC 3.

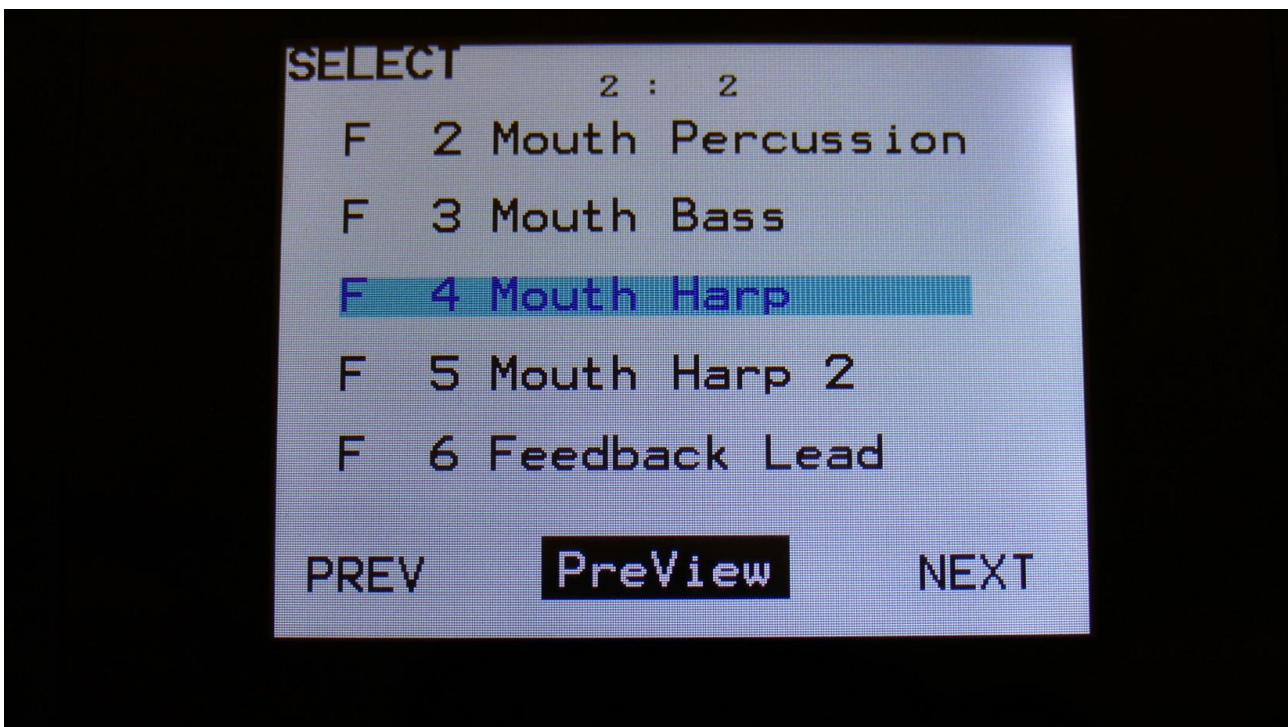
Edit knob 1 / HPF Reso will transmit/receive CC4.

Edit knob 2 / LPF Reso will transmit/receive CC5.

Edit knob 3 / FFM will transmit/receive CC7.

Edit knob 4 / VCA R will transmit/receive CC8.

If you activate the PreView mode, by touching the PreView field, so it turns black with white text, you can preview the presets, without PolySpaze jumping back to the main Preset Select screen.



If the sequencer is running, it will still wait for track 1 to reach step 1, until it jumps to the next preset. This is indicated by the Start/Stop LED flashing.

The Synth

In the Synth (synthesizer) section of PolySpaze, all the sound generation and shaping is happening. PolySpaze has 4 voices, that each are a complete synthesizer. Each voice has:

-2 oscillators. Oscillator 1 can play back samplings and has morphable analog emulation waveforms. Oscillator 2 has selectable analog emulation waveforms, noise and an audio input can go through it.

-1 ring modulator. Source 1 can only be oscillator 2, source 2 can be either oscillator 1 or any of the modulation sources.

-1 analog highpass filter with resonance.

-1 analog lowpass filter with resonance.

-1 digital multimode filter with resonance (only when set in “B” mode –Explained in the Synth Mode section later in this manual).

-1 VCA, where both output level and pan can be adjusted and modulated.

-1 effects processor, that can either act as an insert effect for the voice, or as an output effect, that can be shared between voices.

-3 envelopes. Two ADSR types and one decay envelope.

Shared between the 4 voices:

-4 LFO's with morphable waveforms.

-4 random generators with selectable triggers.

Remember to save all edits you do in the synth section. Else they will be lost when you change preset, or turn PolySpaze off. See how to in the ”Save Preset” section.

List of Modulation Sources:

PLEASE NOTE: Only the positive modulation sources can be selected by the edit knobs. In order to select a negative modulation source, you must touch the modulation source parameter.

Slo: Slow Oscillator 1. The low frequency output of Oscillator 1

Slo-: Inverted Slow Oscillator 1. The Inverted low frequency output of Oscillator 1

Aenv: The output of the VCA Envelope

Aenv-: The output of the VCA Envelope Inverted

Env: The output of ADSR Envelope 1

Env-: The output of ADSR Envelope 1 Inverted

LFO1: The output of LFO1

LFO1-: The output of LFO1 Inverted

LFO2: The output of LFO2

LFO2-: The output of LFO2 Inverted

LFO3: The output of LFO3

LFO3-: The output of LFO3 Inverted

LFO4: The output of LFO4

LFO4-: The output of LFO4 Inverted

Rnd1: The output of Random Generator 1

Rnd1-: The output of Random Generator 1 Inverted

Rnd2: The output of Random Generator 2

Rnd2-: The output of Random Generator 2 Inverted

Rnd3: The output of Random Generator 3

Rnd3-: The output of Random Generator 3 Inverted

Rnd4: The output of Random Generator 4

Rnd4-: The output of Random Generator 4 Inverted

Seq1: The output of Sequencer Controller Track 1

Seq1-: The output of Sequencer Controller Track 1 Inverted

Seq2: The output of Sequencer Controller Track 2

Seq2-: The output of Sequencer Controller Track 2 Inverted

Seq3: The output of Sequencer Controller Track 3

Seq3-: The output of Sequencer Controller Track 3 Inverted

Seq4: The output of Sequencer Controller Track 4

Seq4-: The output of Sequencer Controller Track 4 Inverted

Seq5: The output of Sequencer Controller Track 5

Seq5-: The output of Sequencer Controller Track 5 Inverted

Seq6: The output of Sequencer Controller Track 6

Seq6-: The output of Sequencer Controller Track 6 Inverted

Seq7: The output of Sequencer Controller Track 7

Seq7-: The output of Sequencer Controller Track 7 Inverted

Seq8: The output of Sequencer Controller Track 8

Seq8-: The output of Sequencer Controller Track 8 Inverted

CV1: The voltage applied to CV Input 1

CV1-: The voltage applied to CV Input 1 Inverted

CV2: The voltage applied to CV Input 2

CV2-: The voltage applied to CV Input 2 Inverted

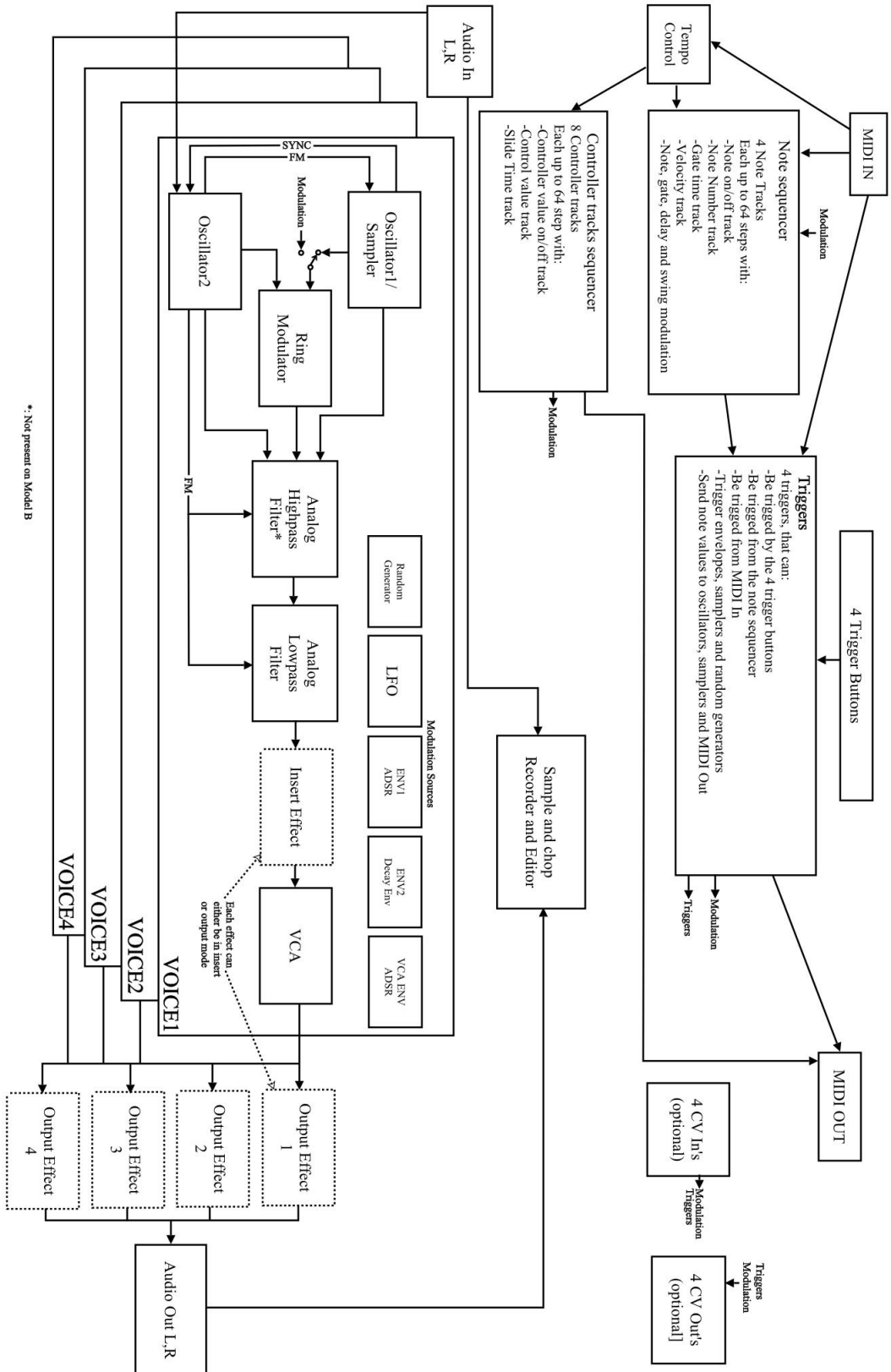
CV3: The voltage applied to CV Input 3
CV3-: The voltage applied to CV Input 3 Inverted
CV4: The voltage applied to CV Input 4
CV4-: The voltage applied to CV Input 4 Inverted
Kybd: The last note number value received for the part
Kybd-: The last note number value received for the part Inverted
Velo: The last note velocity value received for the part
Velo-: The last note velocity value received for the part Inverted
Aft: The last mono aftertouch value received for the part
Aft-: The last mono aftertouch value received for the part Inverted
Bnd: The last pitch bend value received for the part
Bnd-: The last pitch bend value received for the part Inverted
K1C4: Edit knob 1 value or the last MIDI CC 4 value received for the part
K1C4-: Edit knob 1 value or the last MIDI CC 4 value received for the part Inverted
K2C5: Edit knob 2 value or the last MIDI CC 5 value received for the part
K2C5-: Edit knob 2 value or the last MIDI CC 5 value received for the part Inverted
K3C7: Edit knob 3 value or the last MIDI CC 7 value received for the part
K3C7-: Edit knob 3 value or the last MIDI CC 7 value received for the part Inverted
K4C8: Edit knob 4 value or the last MIDI CC 8 value received for the part
K4C8-: Edit knob 4 value or the last MIDI CC 8 value received for the part Inverted
TouY: Touch screen keyboard Y-axis position
TouY-: Touch screen keyboard Y-axis position Inverted
CC12: The last MIDI CC 12 value received for the part
CC12-: The last MIDI CC 12 value received for the part Inverted
CC13: The last MIDI CC 13 value received for the part
CC13-: The last MIDI CC 13 value received for the part Inverted
CC14: The last MIDI CC 14 value received for the part
CC14-: The last MIDI CC 14 value received for the part Inverted
CC15: The last MIDI CC 15 value received for the part
CC15-: The last MIDI CC 15 value received for the part Inverted
CC16: The last MIDI CC 16 value received for the part
CC16-: The last MIDI CC 16 value received for the part Inverted
CC17: The last MIDI CC 17 value received for the part
CC17-: The last MIDI CC 17 value received for the part Inverted
CC18: The last MIDI CC 18 value received for the part
CC18-: The last MIDI CC 18 value received for the part Inverted
CC19: The last MIDI CC 19 value received for the part
CC19-: The last MIDI CC 19 value received for the part Inverted
CC20: The last MIDI CC 20 value received for the part
CC20-: The last MIDI CC 20 value received for the part Inverted
CC21: The last MIDI CC 21 value received for the part
CC21-: The last MIDI CC 21 value received for the part Inverted
CC22: The last MIDI CC 22 value received for the part
CC22-: The last MIDI CC 22 value received for the part Inverted
CC23: The last MIDI CC 23 value received for the part
CC23-: The last MIDI CC 23 value received for the part Inverted
CC24: The last MIDI CC 24 value received for the part
CC24-: The last MIDI CC 24 value received for the part Inverted

CC25: The last MIDI CC 25 value received for the part
CC25-: The last MIDI CC 25 value received for the part Inverted
CC26: The last MIDI CC 26 value received for the part
CC26-: The last MIDI CC 26 value received for the part Inverted
CC27: The last MIDI CC 27 value received for the part
CC27-: The last MIDI CC 27 value received for the part Inverted
CC28: The last MIDI CC 28 value received for the part
CC28-: The last MIDI CC 28 value received for the part Inverted
CC29: The last MIDI CC 29 value received for the part
CC29-: The last MIDI CC 29 value received for the part Inverted
CC30: The last MIDI CC 30 value received for the part
CC30-: The last MIDI CC 30 value received for the part Inverted
CC31: The last MIDI CC 31 value received for the part
CC31-: The last MIDI CC 31 value received for the part Inverted
CC33: The last MIDI CC 33 value received for the part
CC33-: The last MIDI CC 33 value received for the part Inverted
Paf: The last Polyphonic Aftertouch value received for the part
Paf-: The last Polyphonic Aftertouch value received for the part Inverted
SQg5: Sequencer Controller Track 5 step on/off gates
SQg5-: Sequencer Controller Track 5 step on/off gates Inverted
SQg6: Sequencer Controller Track 6 step on/off gates
SQg6-: Sequencer Controller Track 6 step on/off gates Inverted
SQg7: Sequencer Controller Track 7 step on/off gates
SQg7-: Sequencer Controller Track 7 step on/off gates Inverted
SQg8: Sequencer Controller Track 8 step on/off gates
SQg8-: Sequencer Controller Track 8 step on/off gates Inverted
Env2: The output of Decay Envelope 2
Env2-: The output of Decay Envelope 2 Inverted
Trg1: The state of Trigger 1
Trg1-: The state of Trigger 1 Inverted
Trg2: The state of Trigger 2
Trg2-: The state of Trigger 2 Inverted
Trg3: The state of Trigger 3
Trg3-: The state of Trigger 3 Inverted
Trg4: The state of Trigger 4
Trg4-: The state of Trigger 4 Inverted
FULL: A maximum level source –Let's you adjust a parameter, using the modulation amount parameter.
FULL-: A minimum level source

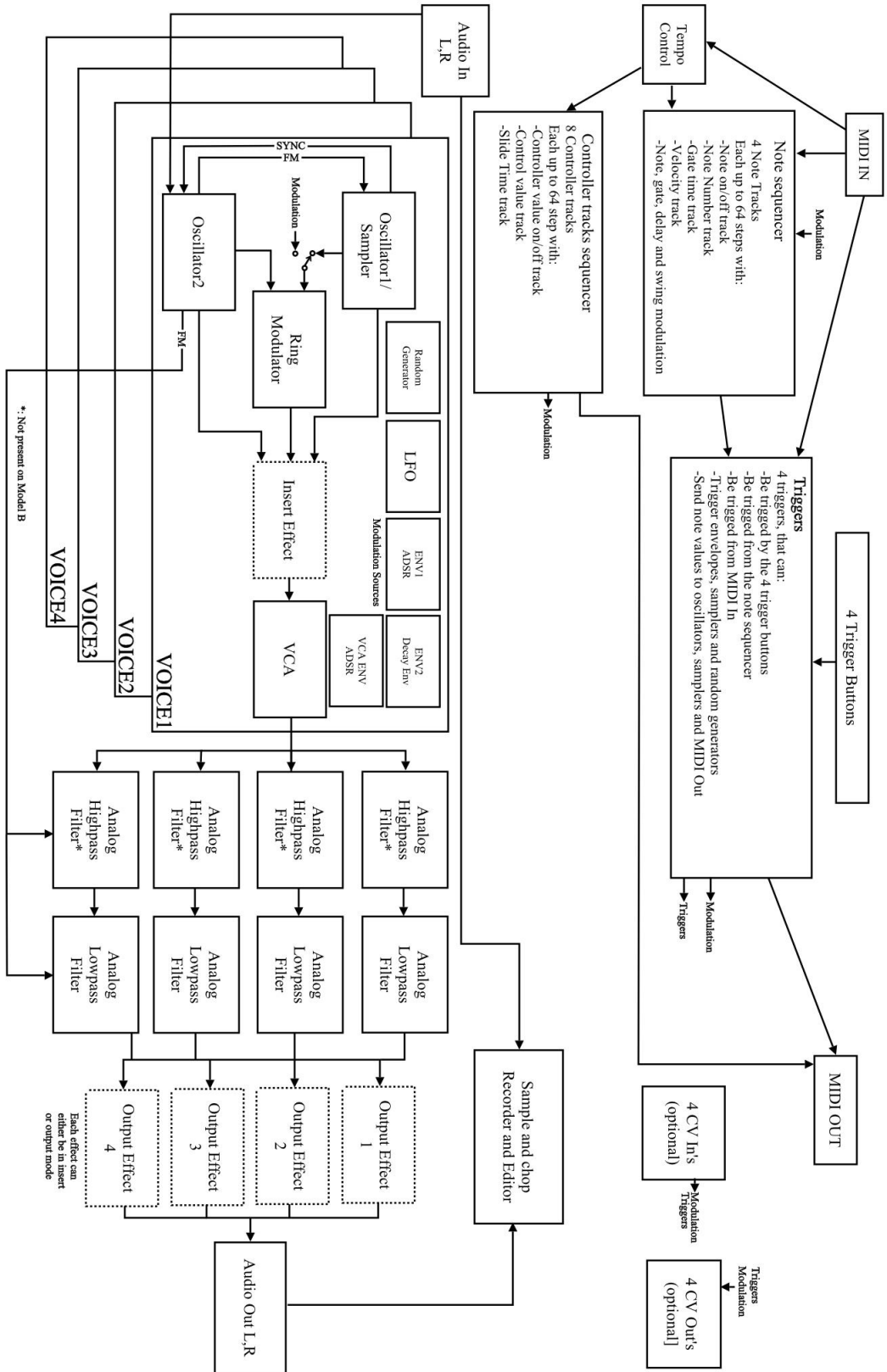
PolySpaze Structure

PolySpaze can operate in different voice modes, as selected in the Mode block. Its voice structure changes according to which mode it is in. This is selectable per preset.

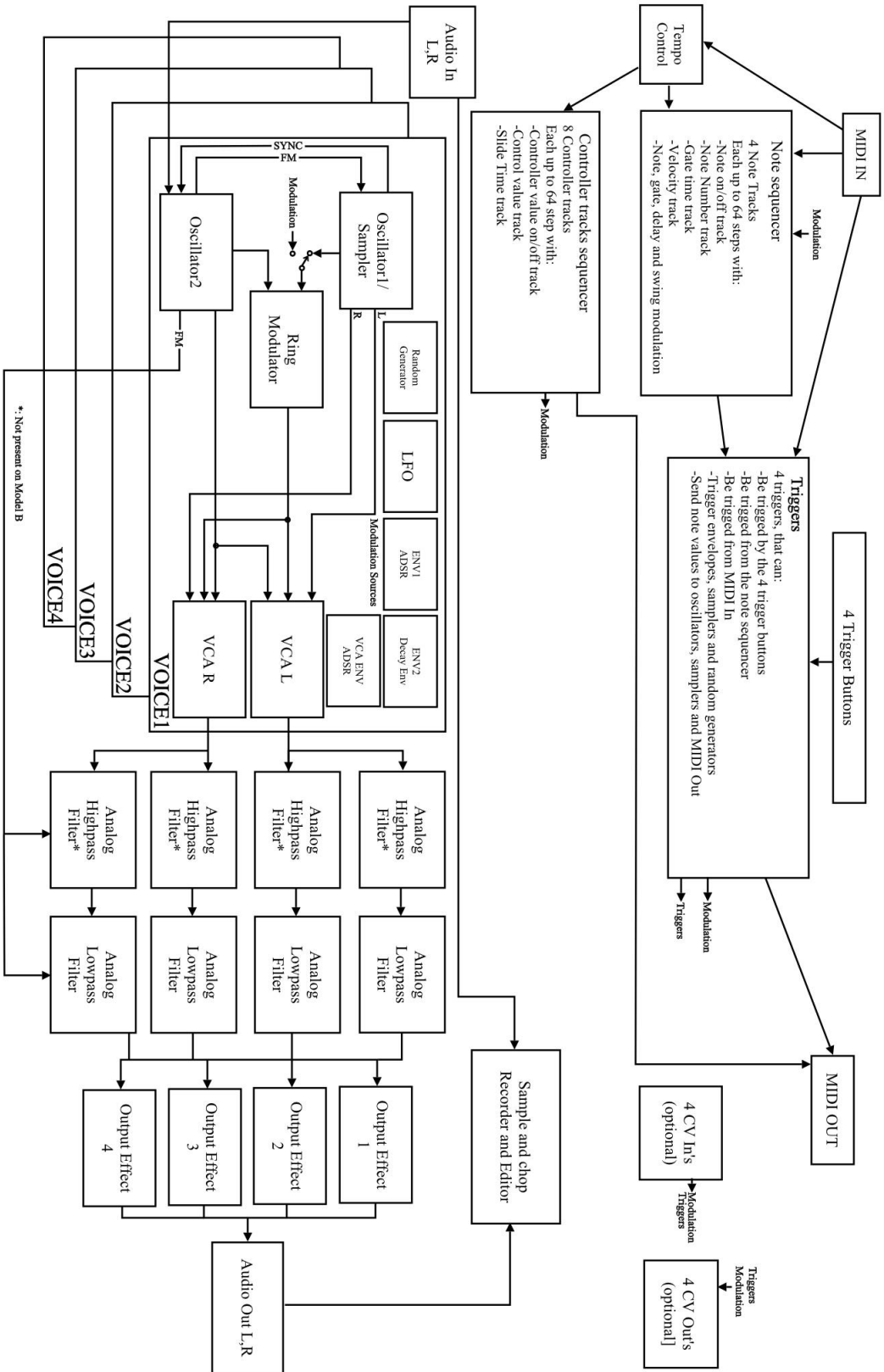
On the following pages, the different structures are shown.



Gotharman's PolySpace Structure in Polyphonic Mode, Monophonic Mode and Multi-Timbral Mode

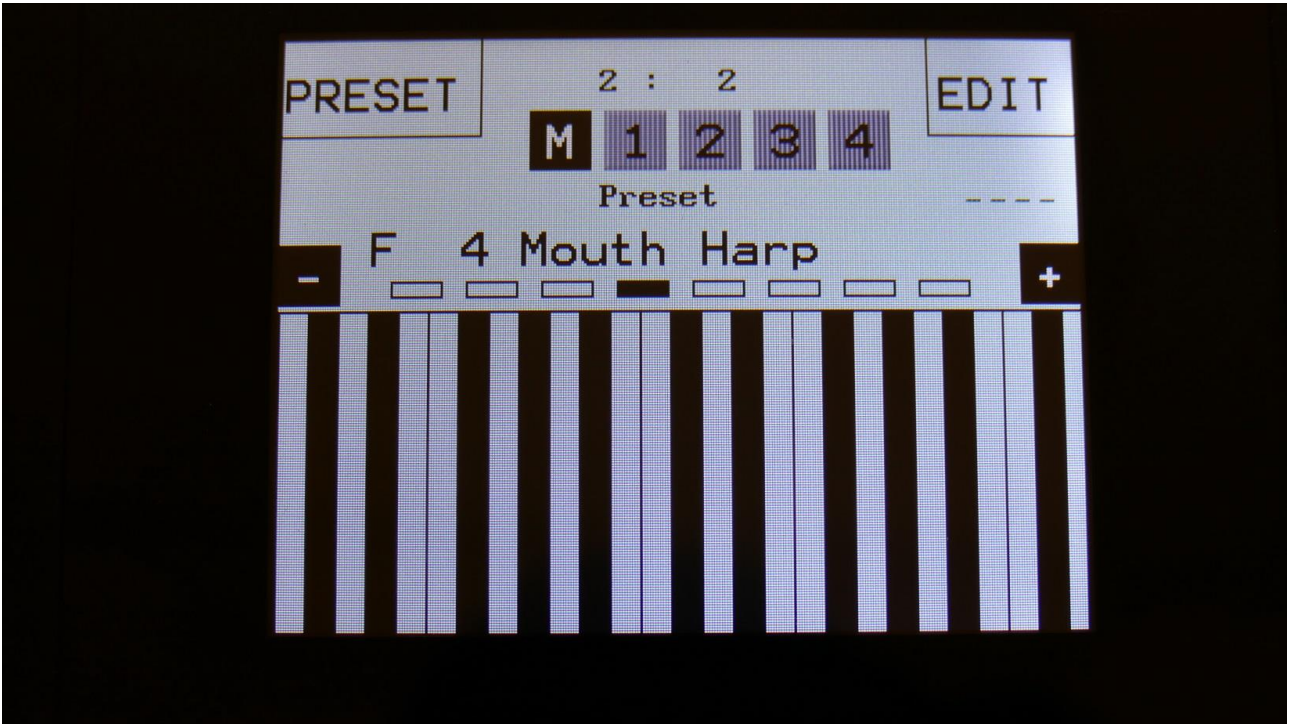


Gotharman's PolySpace Structure in PolyBank Mode and Multi-Bank Mode



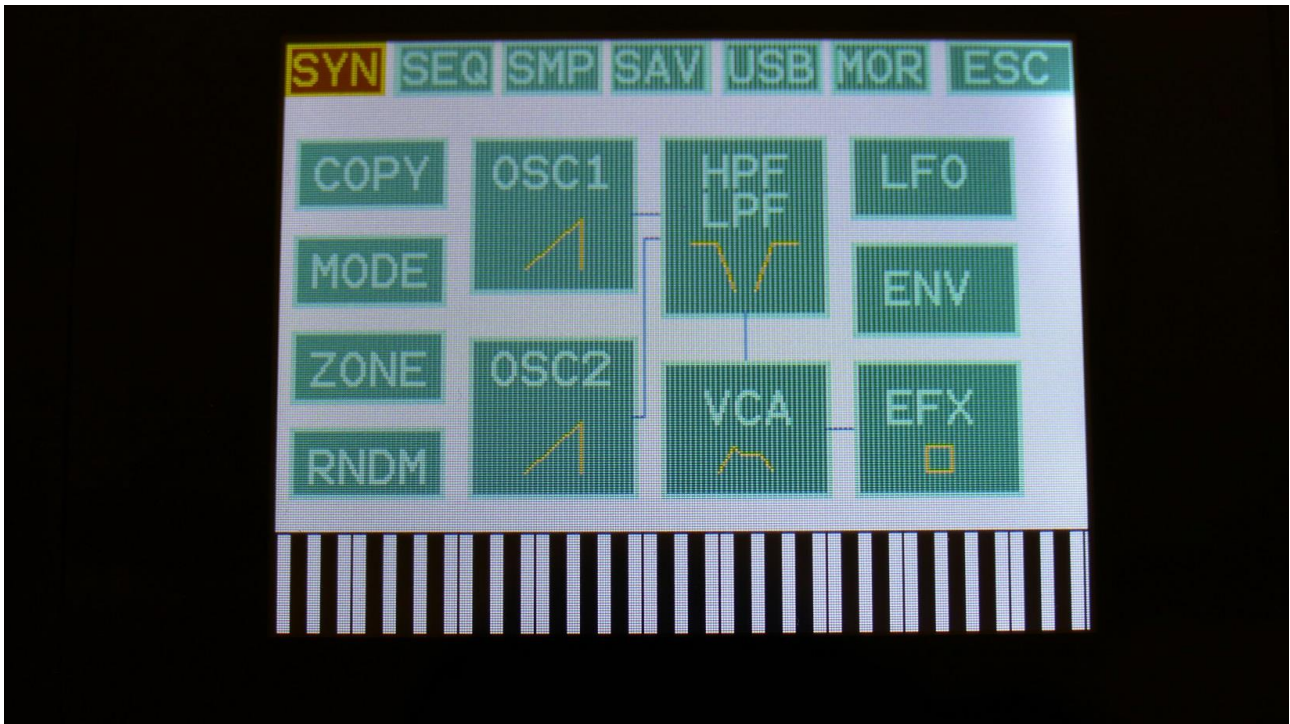
Gotharman's PolySpace Structure in Stereo-Bank Mode

Accessing The Synth Pages



From the Preset/Song Select screen, Touch the “EDIT” field.

Now PolySpaze will show the main Synth page:



In the top of the main Synth page, you will find the 6 main edit groups and the ESC (escape) touch button. Touch any of these group buttons to access them, and touch ESC, to exit to the Preset Select page.

The touch button of the currently selected edit group is brown/yellow, while the buttons of the other groups are green.

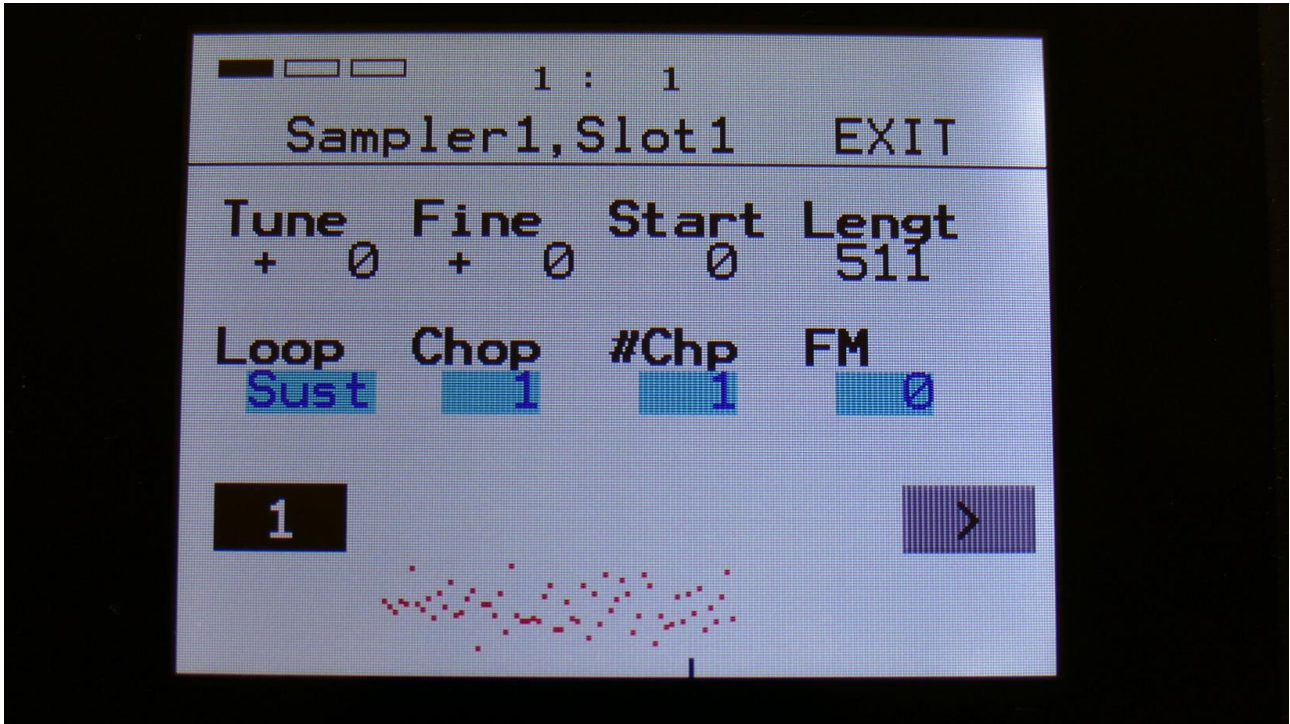
The group of touch buttons, will be referred to as the “group select bar”.

Below the group select bar, you will find the synth blocks. Touch any block, to access the parameters of it, and edit these. Synth part 1 to 4 is selected inside the blocks.

In some modes, like poly mode, it is only possible to adjust the parameters of synth part 1, which will then affect part 2 to 4 too.

In the bottom of this page, the touch keyboard is located.

Editing The Parameters Of The Synth Blocks



Each edit page has up to 8 parameters, that can be edited. The parameters are shown on the display as 8 parameter names, each with an alphanumeric value below them, that shows the current value of the parameter.

By touching any of the 2 rows of parameters, you can select 4 parameters for editing at a time. The selected row of parameters will have their value written inside a blue square.

When turning any of the 4 Edit Knobs, the corresponding selected parameter will be adjusted, and you will hear a change in the sound, if the block is active.

Right below the parameters, you will find the Synth part select touch buttons (named “1”, “2”, “3” and “4”). Touch any of these, to access and edit the parameters for a specific Synth part. In some voice modes, like polyphonic mode, the parameter settings of part 1 will affect all 4 parts, and part 2 to 4 can't be selected.

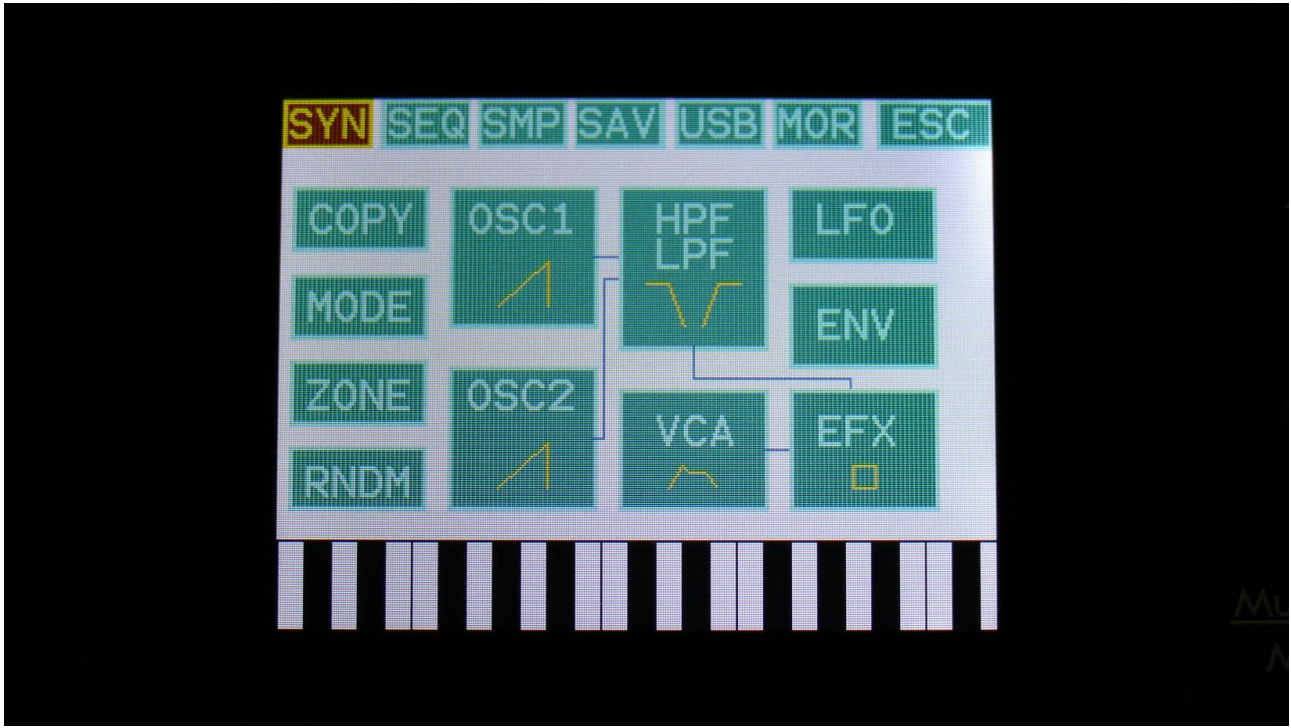
In some blocks, like the LFO's, that are global for all 4 parts, the part select buttons are replaced by sub page select buttons (named for instance “P_1” and “Mod”). By touching these, you can select different sub pages of the module, with additional parameters.

To switch between sub pages of parameters, on blocks that has part selection, touch the sub page indicator squares in the top left of the page, or the arrow touch button. The arrow button will change its colors, according to the selected page.

In the upper right corner of each block you will find “EXIT”. Touch this to exit to the main Synth overview page.

The Synth Blocks

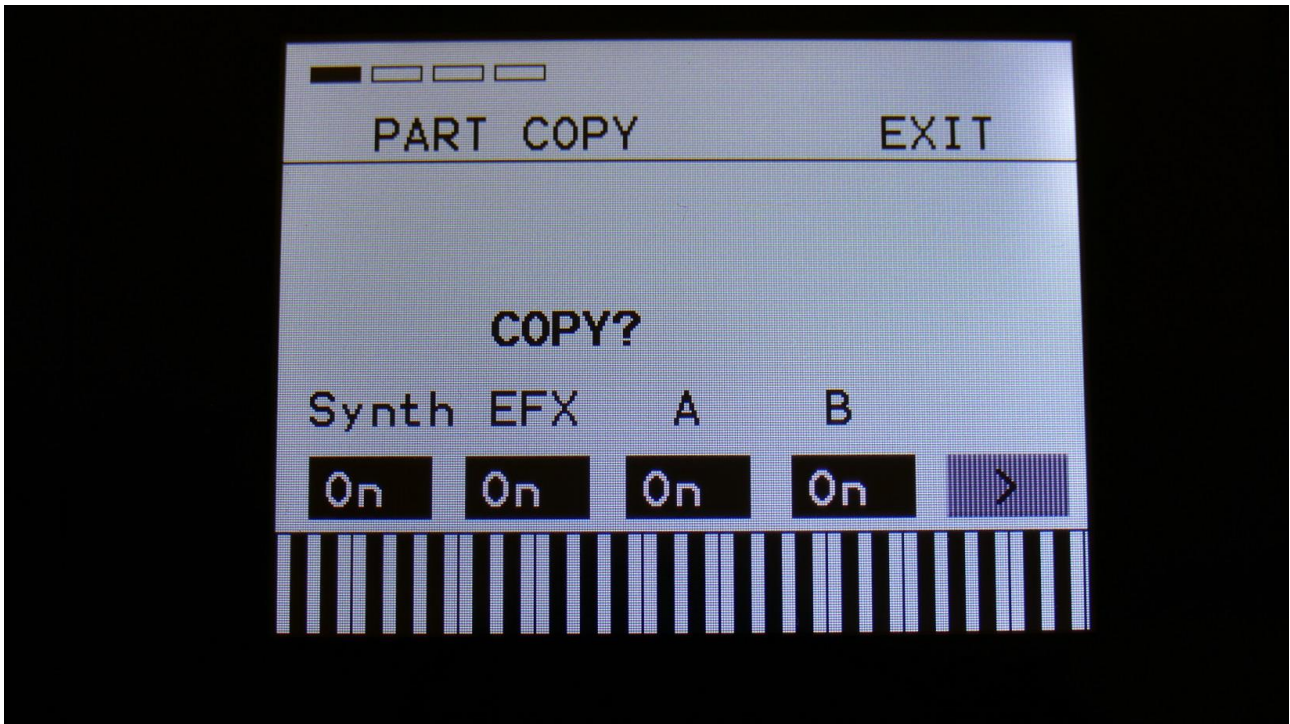
Copy



With the Part Copy function, you can copy any of the 4 Synth parts, Morph Layer A or B or both, from any preset, Synth/Effects parameters or both, to the current preset. Like Fuzion's Sound Finder, it is possible to try the sounds from different presets and parts, until you decide what sound to copy.

To try out some of the sounds from your other parts/presets, in the current preset, touch the "COPY" block.

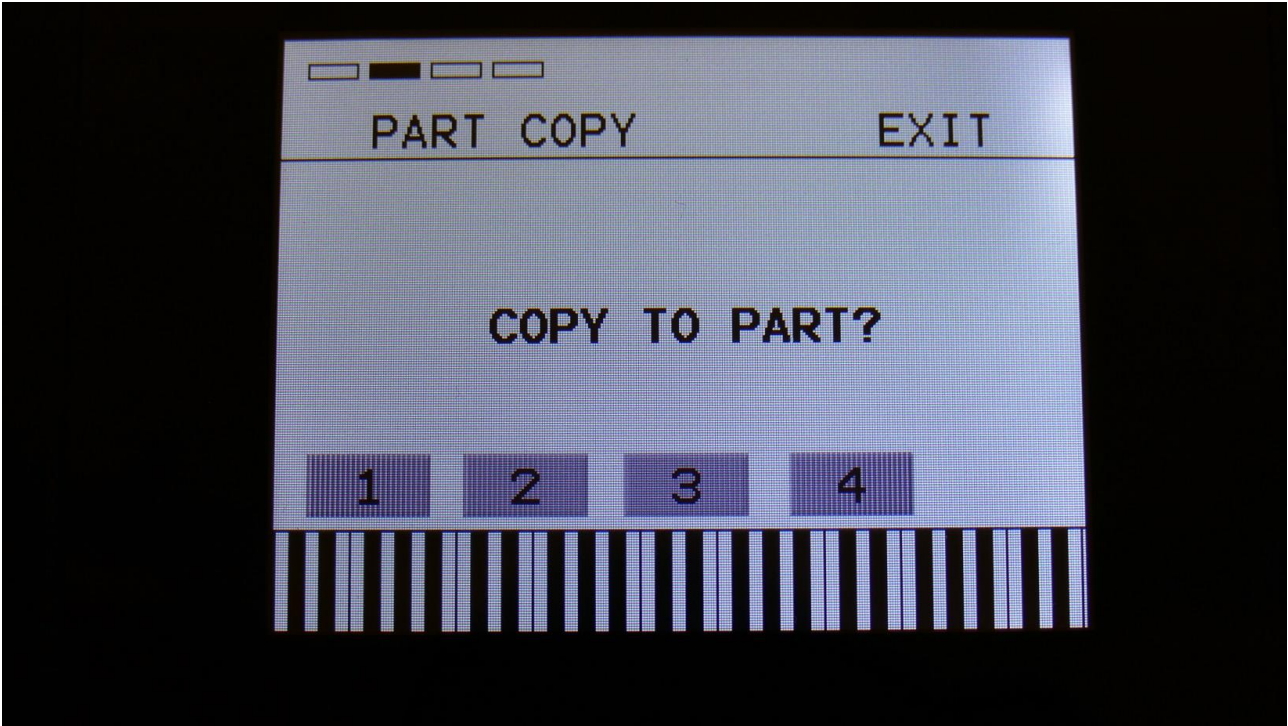
You should now enter this page:



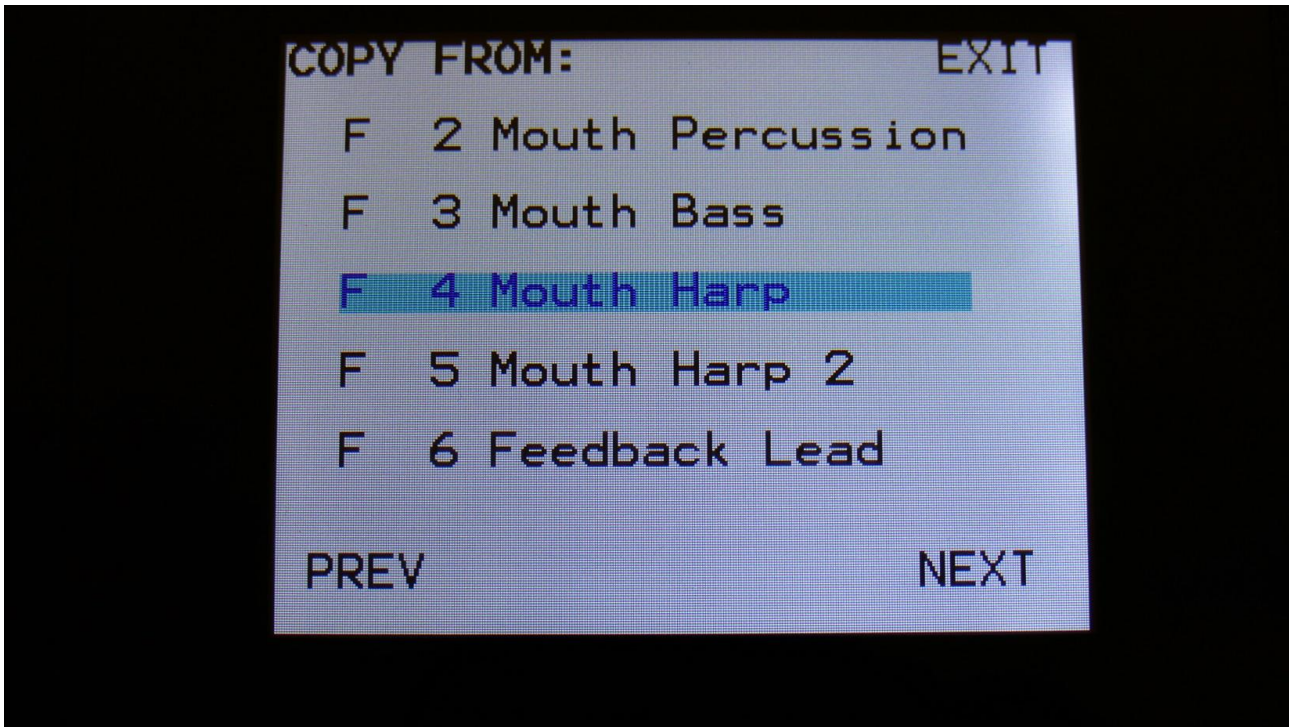
Select if you would like the Synth parameters, the Effects parameter, or both copied, by switching the respective touch buttons on or off.

If you only would like to copy one Morph Layer, leave only A or B on. For copying both layers, switch both A and B on. If you only copy one Morph Layer, the destination layer will be the one selected by the Morph Settings button.

Touch the arrow button, to go to the next page.

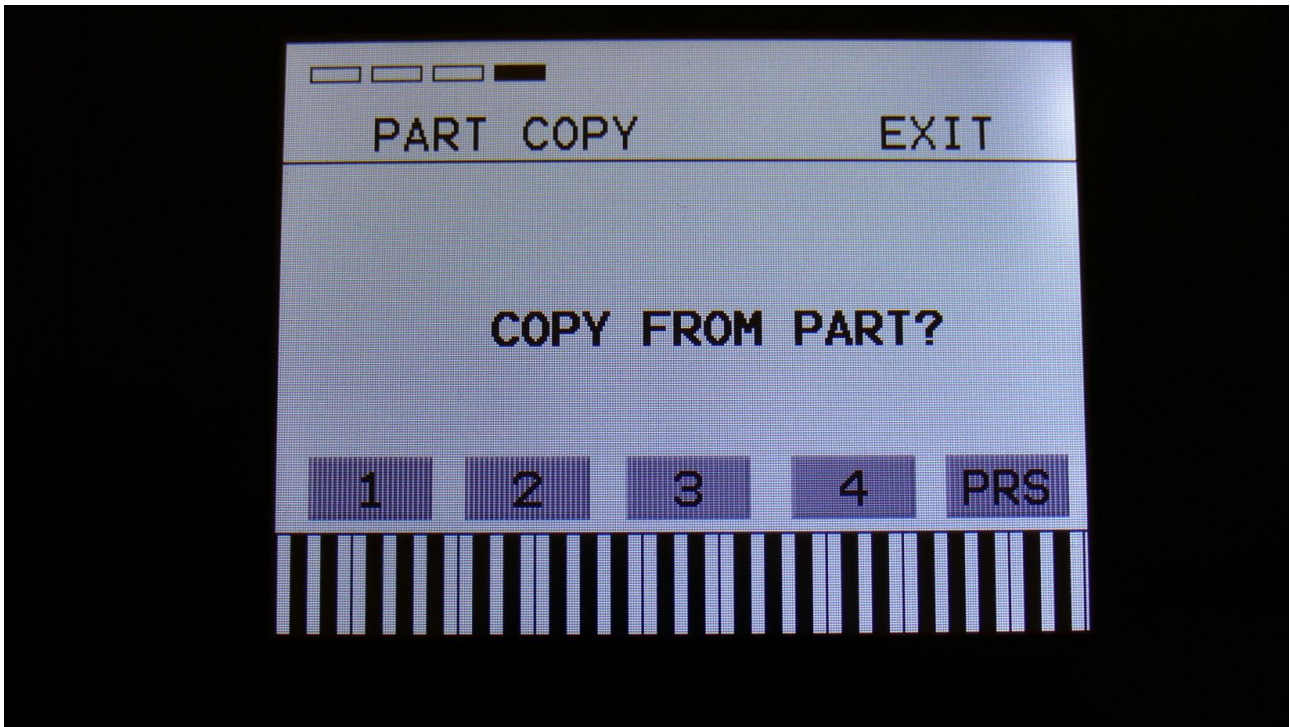


Select the part, you would like to copy to, by touching one of the buttons numbered 1 to 4. As soon as you select a part, you will be directed to the next page.



Here you can select the preset, that you would like to copy from. Five presets are shown at a time. Touch "PREV" or "NEXT", to view five higher or lower numbered presets.

Touch a preset to select it. As soon as you select a preset, you will be directed to the next page.



Here you can select the part of the selected preset, that you would like to get the sound from. As soon as you touch one of the buttons numbered 1-4, the touch button will turn black, and the parameters of that part of the selected preset, is copied to the destination part, that you selected on one of the previous pages. If you only selected one Morph Layer to be copied, this will be copied to the layer selected by the Morph Settings button. The destination Morph Layer can be change, by hitting the Morph Settings button, at any time in the process.

Feel free to try the 4 different parts.

If you would like to try the sounds from another preset, than the selected one, simply touch the “PRS” button, and you will be taken back to the “COPY FROM” preset select screen.

When you have found the desired sound, touch “EXIT” in the upper right of the screen, to exit to the Synth Blocks page.

When you are back on the Synth Blocks page, you can edit all the parameters of the copied sound, just like you would on a sound that you had created from scratch. The part that you copied from, will not be affected.

Remember to save your work. When copying sounds, the result is only held in the preset edit buffer, so it is not permanent. To make it permanent, follow the instructions in the PolySpaze manual, on how to save a preset.

If you should regret, that you copied a sound, you can either:

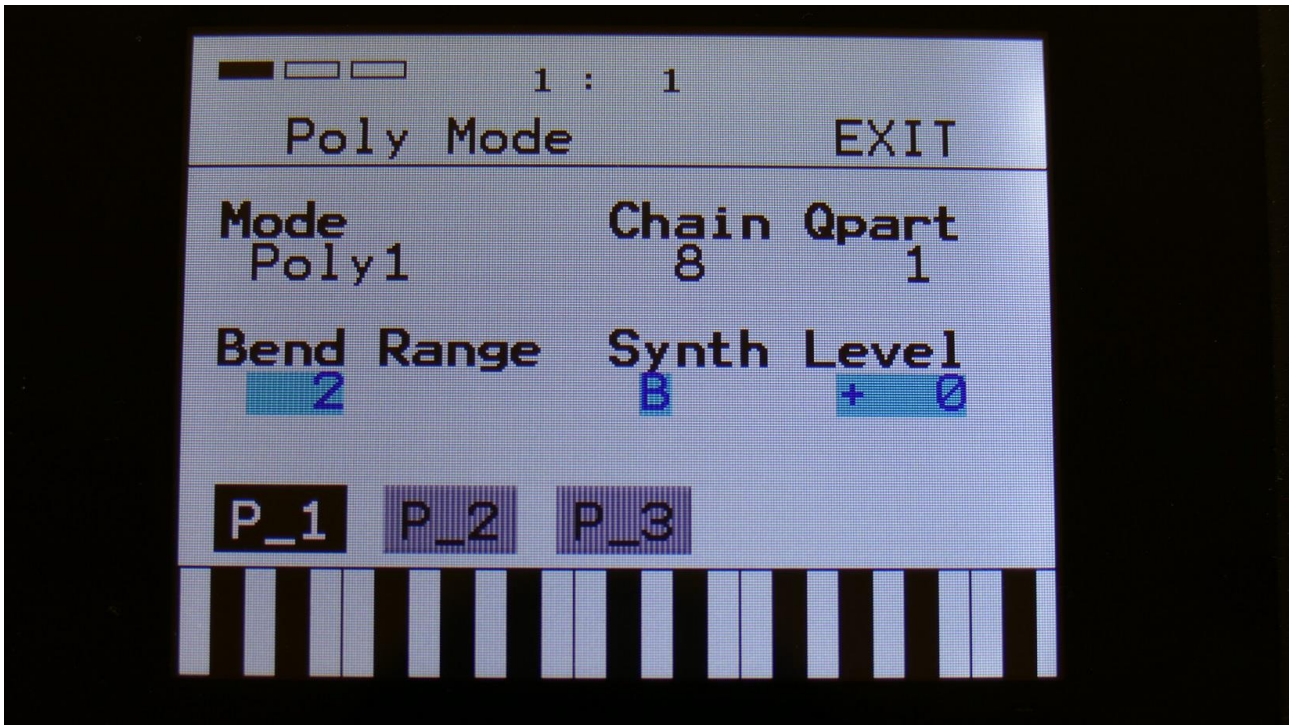
-Select another preset, without saving this one, and select this one again.

Or:

-Go back to the copy menu, and select the part you just copied to, as both the source and the destination. Then the sound saved in the FLASH memory will return.

MODE

In this block, you can select the play mode of the synth parts, the poly chain mode, the Synth mode, select which part the Quick Edit knobs should affect, set the pitch bend range, set the overall preset level, and set note number and MIDI output options for the 4 triggers.



Poly Mode is the first page in the Mode block. You can, at any time, go to this page by touching the P_1 button, or the page indicator square 1.

Mode:

Sets the play mode for the 4 synth parts. Possible choices are:

Poly1: The 4 parts plays back the sound of part 1, as 4 polyphonic parts, sequentially selected. Each time a note is pressed, the next voice in the row will play back. In all blocks, it is only possible to adjust the parameters for part one, except for when the effects are assigned as output effects. Then the parameters can be individually adjusted for Effect 1 to 4.

Poly2: The 4 parts plays back the sound of part 1, as 4 polyphonic parts, selected by number of keys pressed. The first key pressed is always played back by part 1, the next key pressed is always played back by part 2, and so on. In all blocks, it is only possible to adjust the parameters for part one, except for when the effects are assigned as output effects. Then the parameters can be individually adjusted for Effect 1 to 4.

PolyBank1: The oscillators, the ring modulator, the VCA, the envelopes and the insert effects of the 4 parts plays back the sound of part 1, as 4 polyphonic parts, sequentially selected. For these blocks, it is only possible to adjust the parameters of part 1. Each time a note is pressed, the next

voice in the row will play back. These elements are mixed together into the 8 analog filters, which forms one big filter bank, with parameters adjustable separately for each filter.

PolyBank2: The oscillators, the ring modulator, the VCA, the envelopes and the insert effects of the 4 parts plays back the sound of part 1, as 4 polyphonic parts, selected by number of keys pressed. For these blocks, it is only possible to adjust the parameters of part 1. The first key pressed is always played back by part 1, the next key pressed is always played back by part 2, and so on. These elements are mixed together into the 8 analog filters, which forms one big filter bank, with parameters adjustable separately for each filter.

Mono: All the 4 voices plays as one monophonic synth. The 4 Synth parts are layered on top of each other. All parameters are separately adjustable for each of the 4 parts.

Multi Timb: Multi timbral mode. The 4 synth parts acts as 4 completely individual synthesizers. The keyboard zones and MIDI channels for each part can be set up in the Zone block. All parameters are separately adjustable for each of the 4 parts.

Multi Bank: The oscillators, the ring modulator, the VCA, the envelopes and the insert effects of the 4 parts are acting as completely individual synthesizers. The keyboard zones and MIDI channels for each part can be set up in the Zone block. All parameters are separately adjustable for each of the 4 parts.

These elements are mixed together into the 8 analog filters, which forms one big filter bank, with parameters adjustable separately for each filter.

StereoBank: This mode is optimized for playback of stereo samplings. The oscillators 1 of part 1 to 4 can each play back one stereo sampling at a time. The left and right channels of the samplings goes to separate VCA's, that goes into each their bank of 4 analog filters, for true analog stereo processing.

The parameters of the oscillators, the ring modulator, the VCA and the envelopes are separately adjustable for each part. It is only possible to adjust the parameters of the analog filters of part 1 and 2, which is the left audio channel. The parameters of the right channel (part 3 and 4) are automatically linked to the parameters of the left channel. When modulation are applied, it is though applied in inverse on the right channel, for stereo effects.

The keyboard zones and MIDI channels for each part can be set up in the Zone block.

Poly3: The 4 parts plays back the sounds of part 1 to 4, as 4 polyphonic parts, sequentially selected. Each time a note is pressed, the next voice/sound in the row will play back.

Poly4: The 4 parts plays back the sounds of part 1 to 4, as 4 polyphonic parts, selected by number of keys pressed. The first key pressed is always played back by part 1, the next key pressed is always played back by part 2, and so on.

Poly3rndm: The 4 parts plays back the sounds of part 1 to 4, as 4 polyphonic parts, randomly selected. Each time a note is pressed, a new voice/sound might play back.

Other parameters on this page:

QPart: Selects which one of the 4 Synth parts should be edited, when turning the Quick Edit knobs, and Touch Keyboard part “M” is selected.

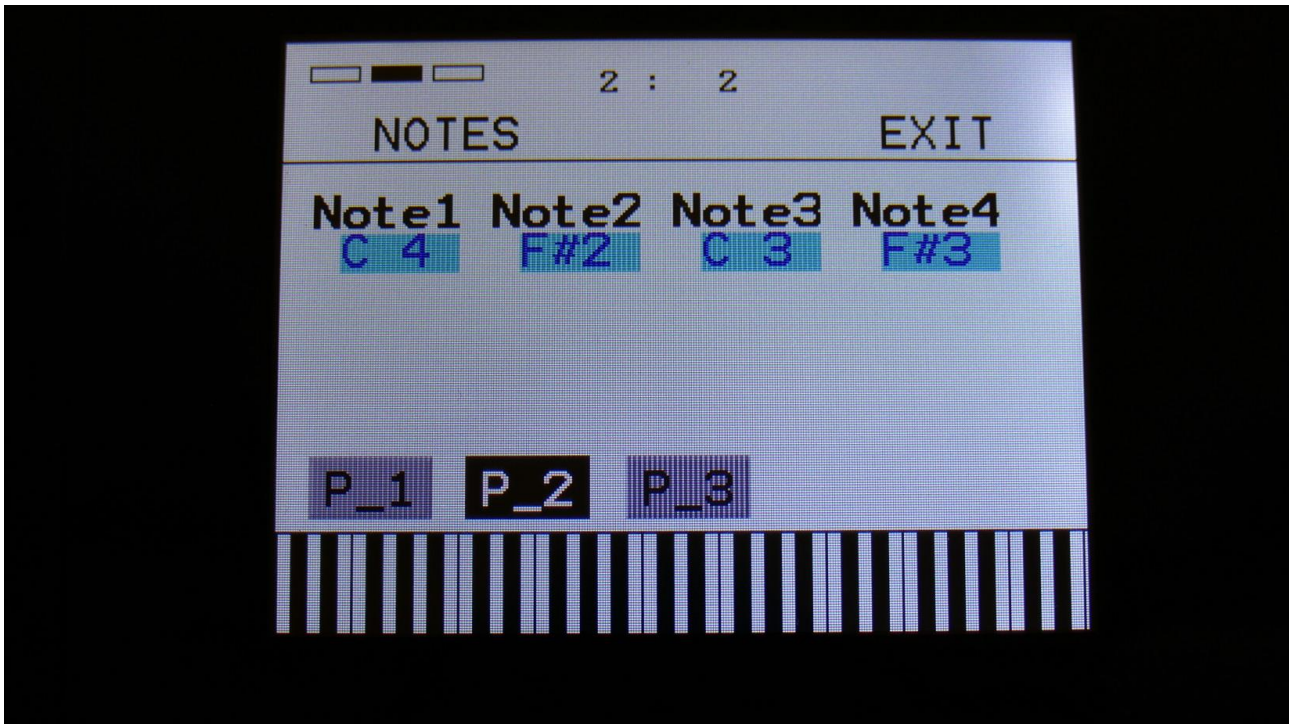
Chain: Allows you to Poly Chain any synth to PolySpaze. Explained a few pages later in this manual.

Bend Range: Sets the pitch bend range for the entire synth in semitone steps. 1 to 12 semitones.

Synth: Sets the current preset in “A” or “B” mode. The B mode are explained a few pages later in this manual.

Level: This adjusts the overall level of the entire preset. Negative values attenuates the level, positive values boosts the level. For making the presets levels match each other, without having to adjust the levels of all the 4 parts.

When touching the “P_2” button, or page indicator square 2, you will come to the Notes page:



Note1, Note2, Note3, Note4: Sets the note number that each trigger button should send each of the 4 parts, when pushed. This setting only affects when the trigger buttons themselves are pushed, not when a trigger is controlled via MIDI, touch keyboard or sequencer.

Touch the “P_3” button, or page indicator square 3, to get to the MIDI OUT page:



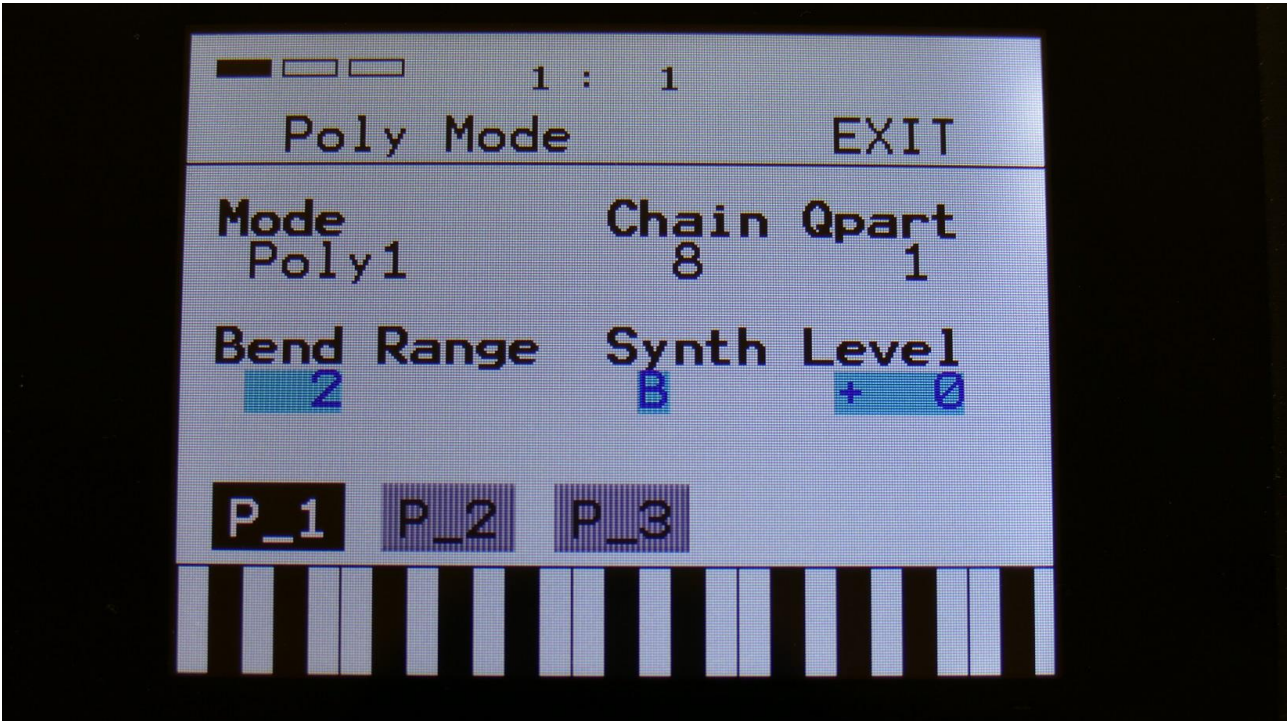
On this page it is possible to select a MIDI note number and a MIDI channel, that will be transmitted via MIDI out, when a trigger button is pushed. When a trigger button is set up to transmit a MIDI note, the sequencer track attached to that trigger, will also transmit MIDI notes on the same MIDI channel.

Midi1, Midi2, Midi3, Midi4: Off, C-1 to G9. The MIDI note number, that will be transmitted, when pushing trigger button 1 to 4. When this is set to any other position than Off, the sequencer note track attached to the trigger, will also transmit its notes via MIDI. The notes transmitted from the sequencer are the notes programmed on the sequencer track, not the note number set here. When set to off, no MIDI notes will be transmitted, neither from the trigger button or the sequencer track.

Chan1, Chan2, Chan3, Chan4: 1 to 16. The MIDI channel that trigger button 1 to 4/ sequencer note track 1 to 4 will transmit on.

Synthesizer “B” mode

In the “MODE” block, it is possible to put the synthesizer of PolySpaze in “B” mode.



This is set per preset.

When a PolySpaze preset are in B mode, an extra resonant digital filter (DGF) can be placed before, after or in parallel with the 2 analog filters, for a bit of added sound tweaking. It is also possible to route Oscillator 1 to the analog filters, and Oscillator 2 to the digital filter, in “Split” mode.

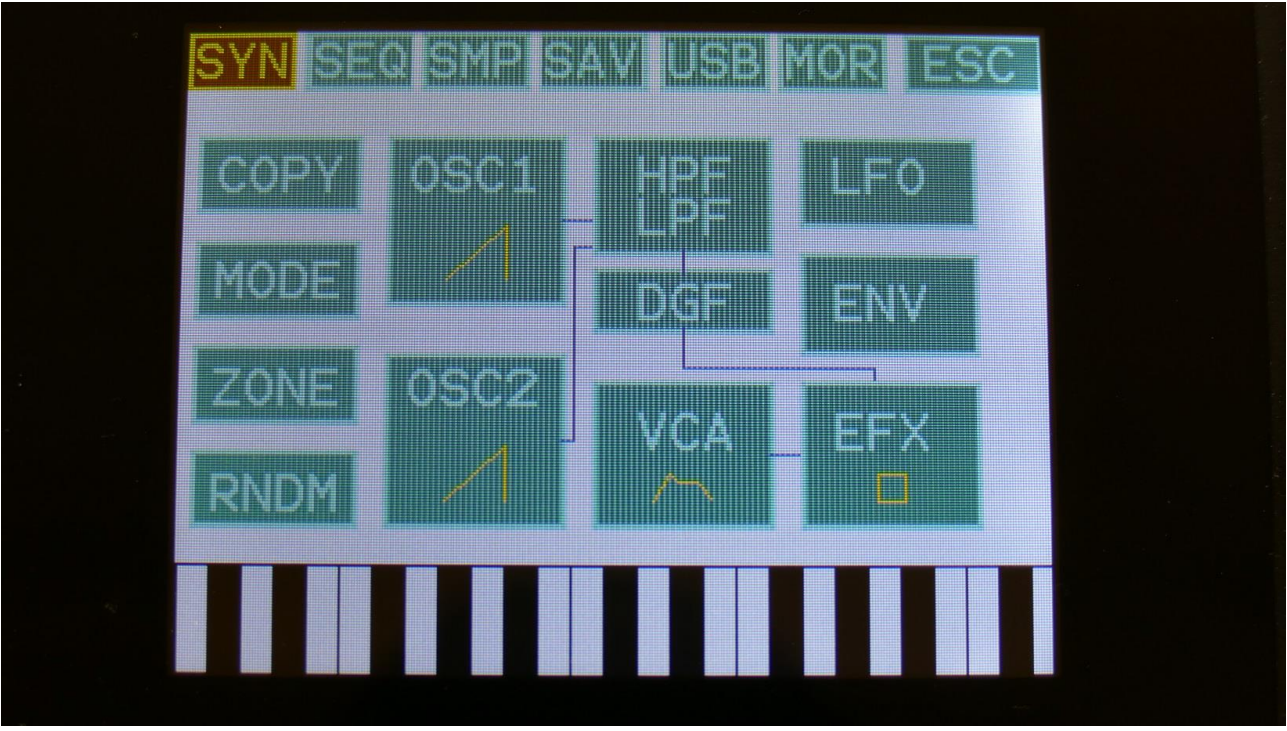
The digital filter has 16 different modes to choose from. It has various lowpass, highpass and bandpass modes, with different characteristics, but also special modes like Lo-Fi, destruction and Fat.

When different filter types are selected for Morph Layer A and B, PolySpaze will morph between the filter types.

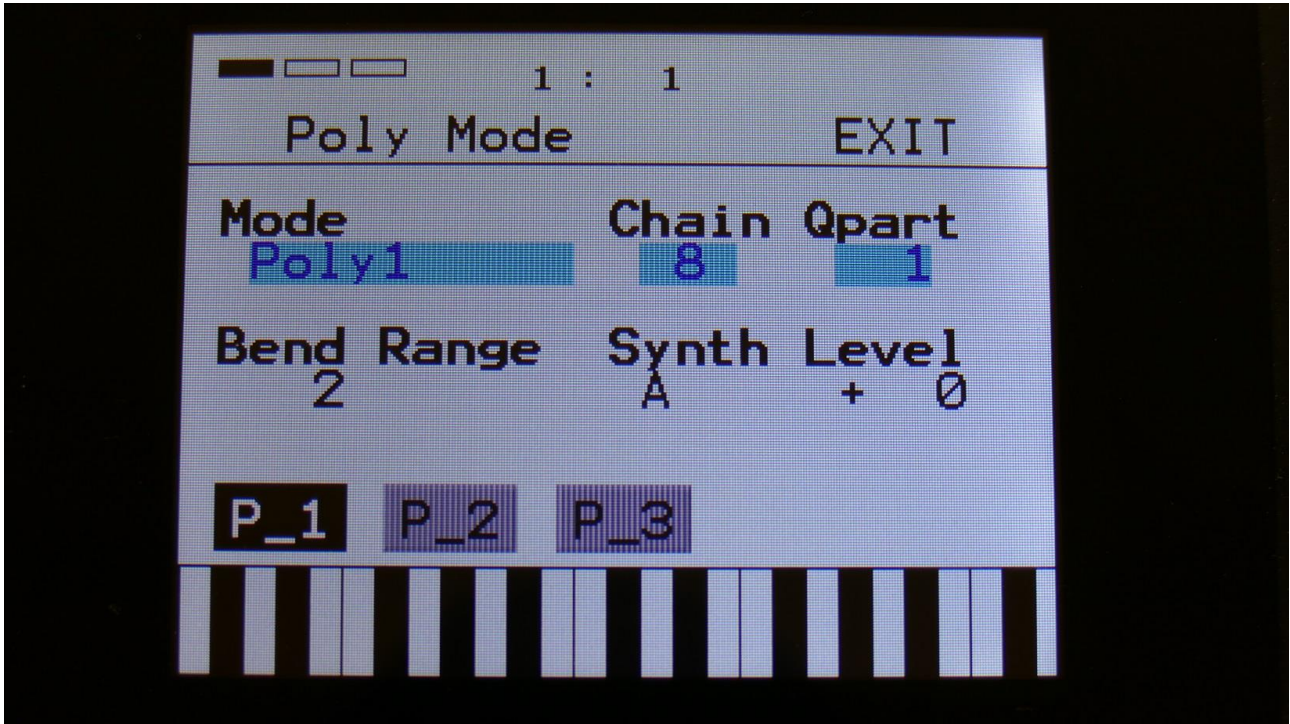
To gain the extra DSP power needed for these 4 extra filters, there are some restrictions on the effects processors, when in B mode:

- Only EFX 1 and 2 can be set to output effect mode.
- When EFX 1 is in output effect mode, EFX 3 is switched off.
- When EFX 2 is in output effect mode, EFX 4 is switched off.
- Filter effects are omitted in B mode.
- Output effects can't be connected in serial.

When in B mode, the extra digital filter is added to the synth block on the Synthesizer main page:



Poly Chaining



It is possible to poly-chain another PolySpaze to your first one, or even another synthesizer.

To do so, connect MIDI out of the PolySpaze that should be the chain master, to MIDI in on the synthesizer, that should be chained to PolySpaze.

Make sure that both units are set to the same MIDI channel.

Enter the “MODE” page in the Synth section of the chain master, and set the “Chain” parameter to any other value than “Off”.

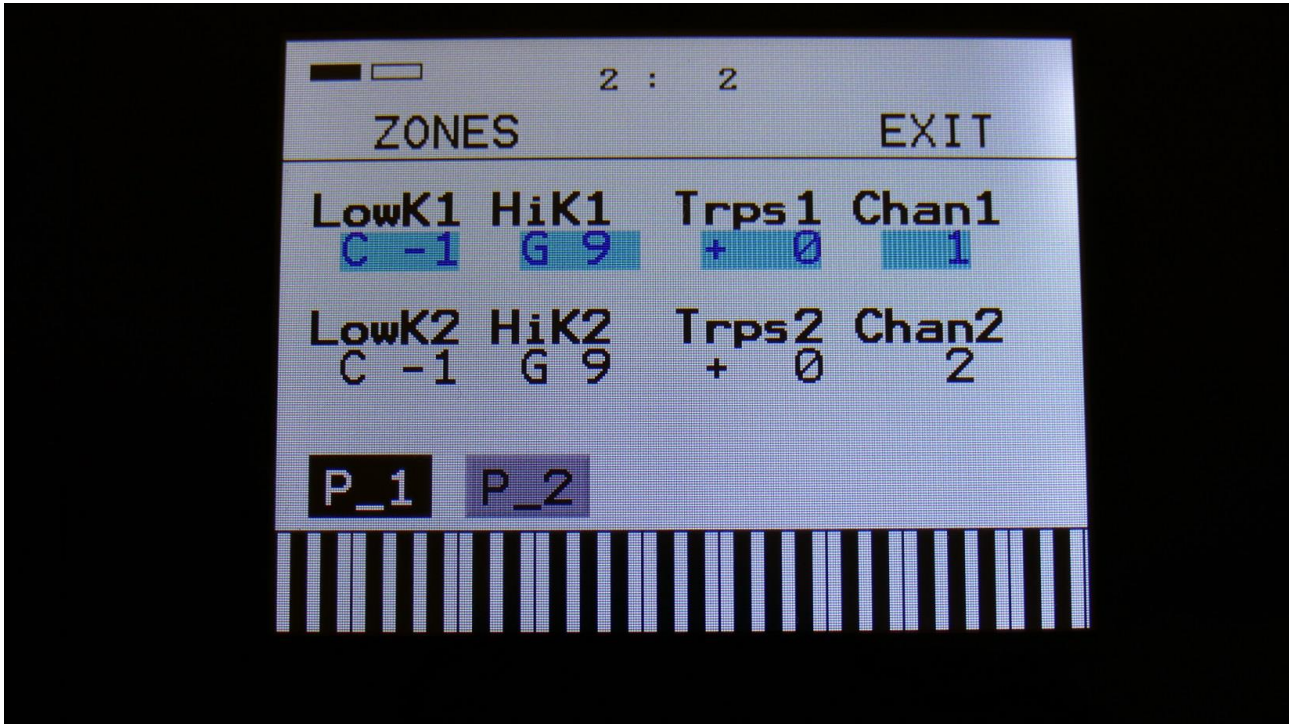
If you would like to chain a monophonic synth, set Chain to 5. Then PolySpaze will play its own 4 voices plus one voice of the external synth.

If you connect another PolySpaze, set Chain to 8. Then PolySpaze will play its own 4 voices, plus the 4 voices of the chained synth.

Knob CC's, PitchBend data, CC's, aftertouch messages and program change messages are re-transmitted to the chained device.

Poly Chain works in the Poly1, Poly2, PolyBank1, PolyBank2, Poly3 and Poly4 modes. It does not work in mono, multi-timbral, multi-bank, stereo bank and Poly3 random modes.

ZONES



In this block you can set up the key zones and MIDI channels for each of the 4 Synth parts. These zones are effective only when PolySpaze are in Multi-Timbral and MultiBank play modes, and are controlled from an external MIDI device or from the touch screen keyboard. It is also possible to transpose the incoming notes individually for each zone. Zones can overlap each other.

When touching the “P_1” button, parts 1 and 2 are viewed, when touching the “P_2” button, parts 3 and 4 are viewed.

When using the internal sequencer, note track 1 will always drive Trigger 1 in the full note range, note track 2 will always drive Trigger 2 in the full note range and so on...

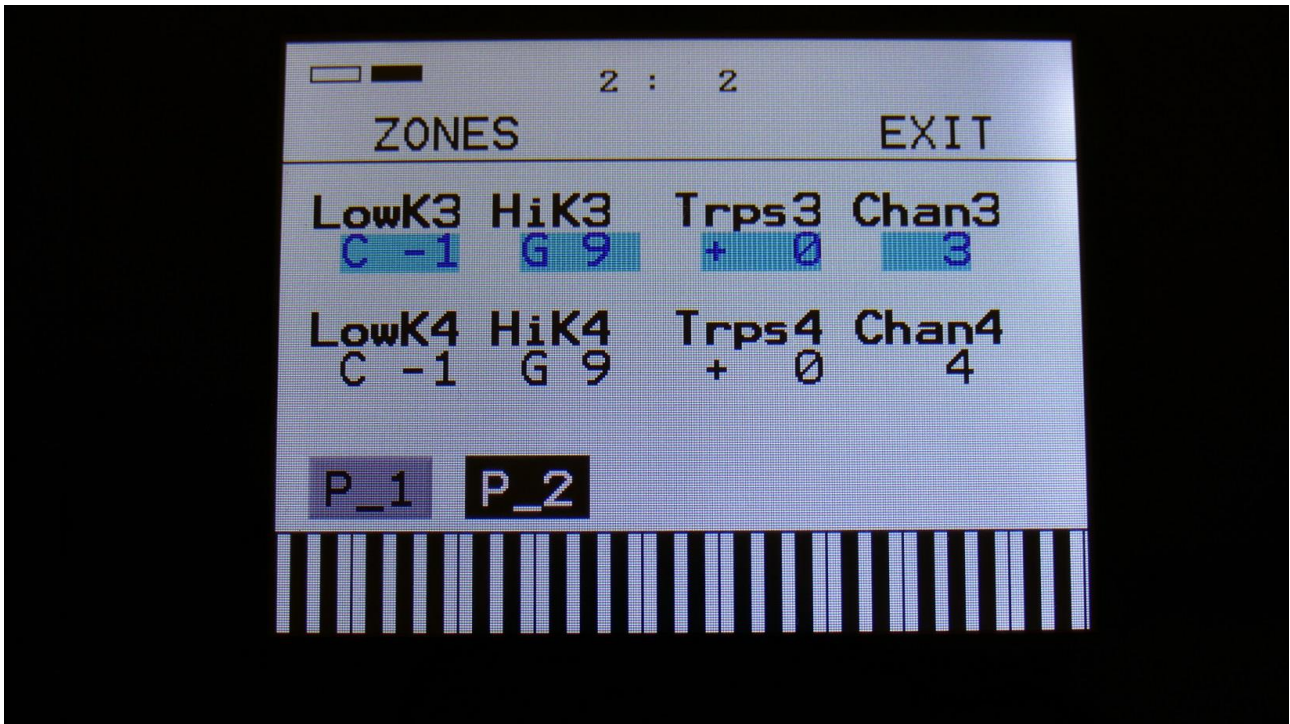
LowK1, LowK2, LowK3, LowK4: Sets the lowest note of part 1 to 4 MIDI note range.

HiK1, HiK2, HiK3, HiK4: Sets the high note of part 1 to 4 MIDI note range, where the part will no longer sound.

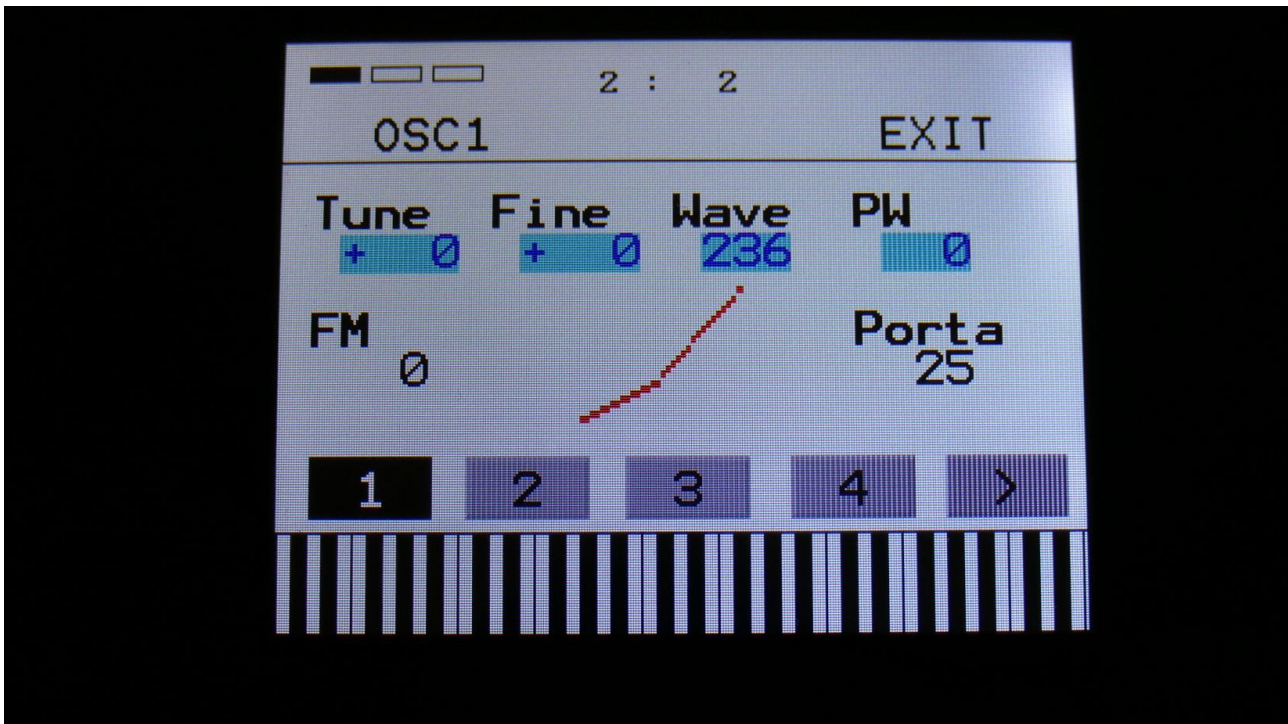
Tps1, Tps2, Tps3, Tps4: Transposes the incoming notes up to 64 notes up or down, for each zone.

Chan1, Chan2, Chan3, Chan4: Sets the MIDI channel for each zone.

The Zones P_2 page:



OSC1 (Oscillator/Sampler)



For Osc1 of each of the 4 Synth parts, it is possible to select if it should act as an oscillator or a sampler.

In oscillator mode it generates a waveform that is morphable between sine, triangle, saw, pulse and feedback waves. Pulse width are adjustable for all waveform types. The oscillators outputs both an audio range signal and a low frequency version of this at the same time, so the oscillators can function as both audio range sound sources and low frequency modulation sources, at the same time. FM (frequency modulation) is possible, with Osc2 as the modulation source. Pitch, PW, wave and FM amount can be modulated. The pitch range of the oscillators are chromatically over the entire 10 octave MIDI keyboard range.

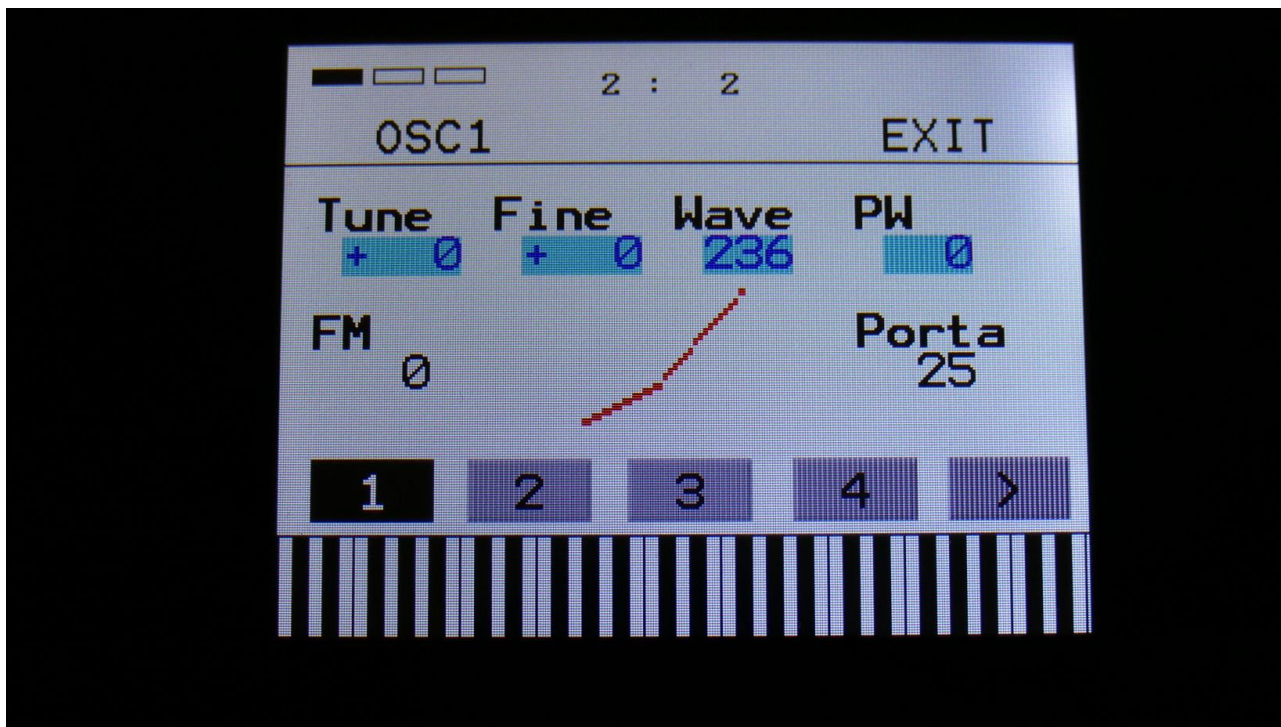
In sampler mode it plays back any of the 255 storable samplings, that can either be recorded on PolySpaze itself in the Sample Rec section, or be imported in the USB section. Each sampler has 4 sample slots, that each can contain one sampling, and a set of parameters for Pitch, start, length and chop point. Pitch, chop, start point and FM amount can be adjusted and modulated, Length can be adjusted. Samples are chromatically tuned, and has a pitch range of 4 octaves above and 5 octaves below the original sample pitch. Loop mode can be set to Off, On or Free. In Free mode the sampling is constantly playing back, and is never re-triggered. So when the VCA is opened by a trigger, a different portion of the sampling will be played back every time.

The Samplers can load and playback Little deFormer samples and use the chop points. It is also possible to create chop points in the PolySpaze sample editor, and use these. Chops can be detected by level peaks or by single wavecycles. Single wavecycle chops are an easy way to make loops.

Portamento control is provided in both oscillator and sampler mode.

Oscillator 1 parameters

The oscillator 1 pages, when in oscillator mode:



In the middle of the oscillator page, the current waveform is shown.

By touching the buttons numbered 1 to 4, the Osc 1 of part 1 to 4 is selected. In some play modes, it is not possible to edit all parts separately, and only the parts that can be selected, will be shown. Touch the arrow button, or the page indicator squares, to enter other oscillator pages, like Modulation and oscillator/sampler mode select.

Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

Fine: Fine tuning of the pitch. Range: -256 to +255.

Wave: This parameter lets you morph between sine, triangle, saw, pulse and feedback waves.

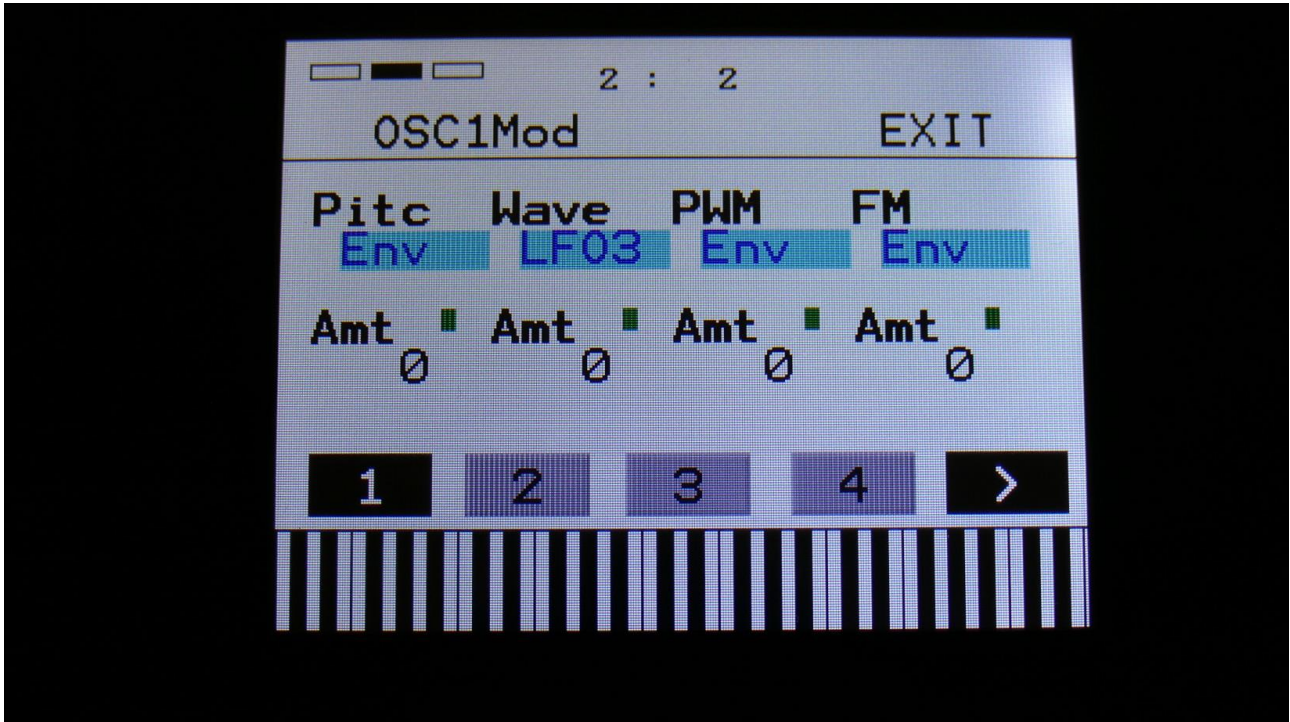
PW: Adjusts the pulse width of the waveform. Unlike many other oscillator designs, the pulse width can be adjusted on all of PolySpace's waveforms, not just the pulse wave.

FM: FM amount. The more this is turned up, the more Osc2 will modulate the pitch of Osc1. Range: 0 to 511.

Porta: Portamento. The more this is turned up, the slower the oscillator pitch will slide from one note to another. Range: 0 to 511. Affects both osc1 and osc2.

Oscillator 1 modulation

Touch the arrow button, or page indicator square 2, to enter the modulation page:



The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **The lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Pitc: Modulates the oscillator pitch.

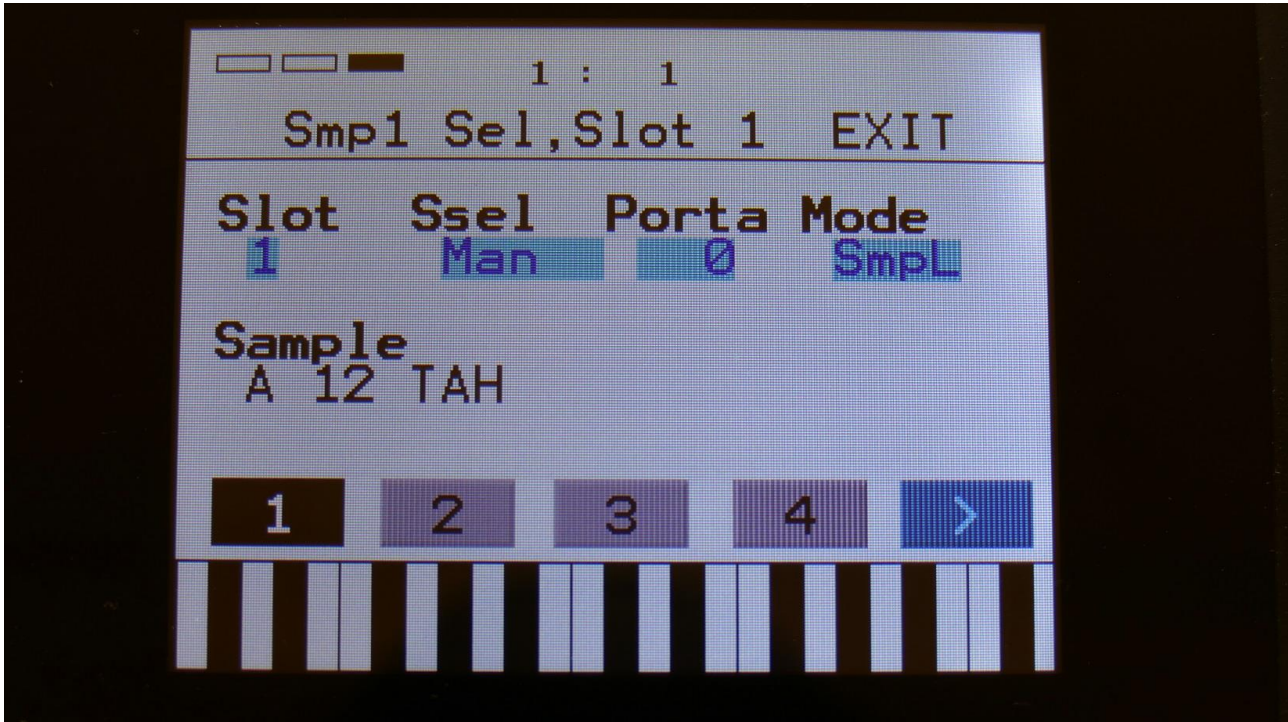
Wave: Modulates the wave select morphing.

PWM: Modulates the pulse width of the waveform

FM: Modulates the FM amount.

Oscillator/Sampler mode select and samples select

Touch the arrow button, or page indicator square 3, to enter this page:



In oscillator mode, only one parameter has any effect, and that is:

Mode: Select whether the oscillator should be in oscillator or sampler mode, and if a stereo sampling has been selected, and the playback mode is not set to StereoBank, this parameter will also select if the right (**SmpR**) or the left (**SmpL**) audio channel should play back.

After switching to sampler mode, the other parameters on this page becomes effective:

Slot: Manual select of sample slot 1 to 4. Select a sample slot, to select the sampling for it, and go to the first Osc1 page (by touching the arrow button), to adjust the Tune, Start, Length and Chop parameters for the selected slot. If the Ssel parameter is set to “Man” (manual slot select), the sample slot selected by this parameter, is played back by this oscillator.

Ssel: Sample Slot Select. Set this to “**Man**” (manual), to select the sample slot to play back manually by the Slot parameter, set it to **any modulation source**, to make a modulation source select the sample slot for play back, or set it to **Split**, for splitting the part key zone up in 4 equally sized key ranges, each with their own sample slot assigned to them.

For a complete list of modulation sources, see the list in the start of this section.

Porta: Sampler Portamento. The more this is turned up, the slower the sampler pitch will slide from one note to another. Range: 0 to 511.

Selecting a sampling, for the oscillator to play back:

Each sampler/oscillator has 4 sample slots. Each of these can hold one sampling. So the total number of samplings that can be assigned in one PolySpaze preset, is 4 samplers/oscillators x 4 sample slots = 16 samples.

First select the sample slot, that you would like to assign a sampling to, by tweaking the Slot knob.

Then touch the sample name. The sample select screen will now appear:



On each page you will view 16 of the samplings, that is held in the PolySpaze FLASH memory, Bank A or B, at a time.

Touch A and B to select sample bank A and B, touch PREV and NEXT to view the previous or next 16 samplings.

To select a sampling, touch the sample name.

When you have found the right sampling, touch OK to return to the Synth Sample page.

Some notes regarding the Sample Select Key Split mode:

By playing a connected MIDI keyboard, you will be able to make PolySpaze play back the different samplings selected in the slots, by hitting different keys. To make this happen, set the Ssel parameter to Split.

The logic of the key splits:

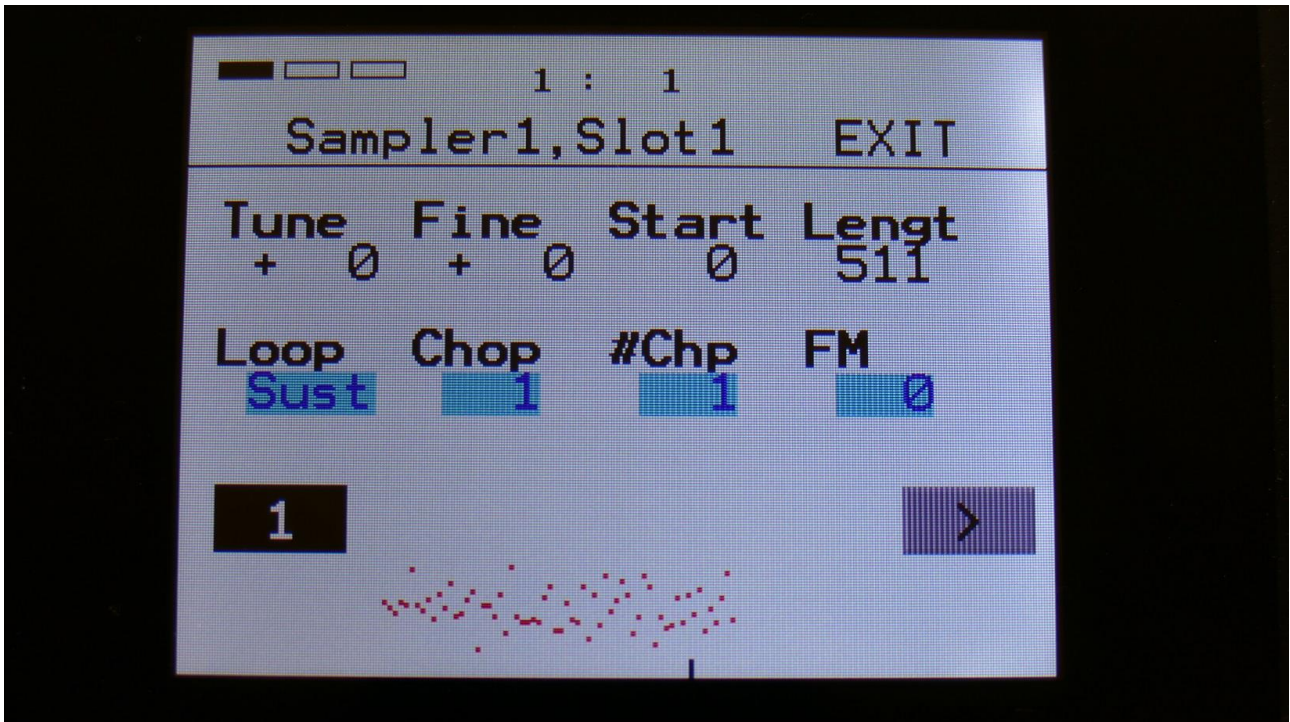
-If the part has a keyrange that is dividable by 4, each sample slot will have an equal number of keys. I.e. if the keyrange is one octave (12 keys), each slot will have 3 keys.

-If the trigger you are using has a key range, that is NOT dividable by 4, most keys will be assigned to slot 4. I.e. if the key range is 7 keys, slot 1, 2 and 3 will have each 1 key, and slot 4 will have 3 keys.

If you need to adjust the tuning of the samplings, please use the “Tune” and “Fine” parameters on the synth sampler pages. DO NOT use the part transpose setting, since this will just transpose the key range, and not the samplings.

Sampler 1 parameters

The oscillator 1 pages, when an oscillator are in sampler mode.



In the bottom of the sampler page, the selected samplings waveform is shown in rough graphics. When the sample, or part of it, is played back, the small black line below the waveform will show the current playback point.

Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

Fine: Fine tuning of the pitch. Range: -256 to +255.

Start: The sample start point. Selects at what point the sample will start to play back, when it is triggered. Range: 0 to 511, stretching over the whole sampling.

Length: Adjusts how much of the sampling should be played back. Range: 0 to 511, stretching over the whole sampling.

Loop: Sets the sampling loop mode.

Off: The sample will not loop, just play back one time from the adjusted, or chop selected, start to end, and then stop.

On: The sample will play back from the adjusted start point, when triggered. When it reaches the adjusted end point, it will loop back to the start point, and play back the sample over and over again.

Free: The sample will constantly be looping between the adjusted, or chop selected, start and endpoints, regardless of if it is triggered or not.

Sust: When you hit a key, playback of the sampling starts at the sample startpoint.

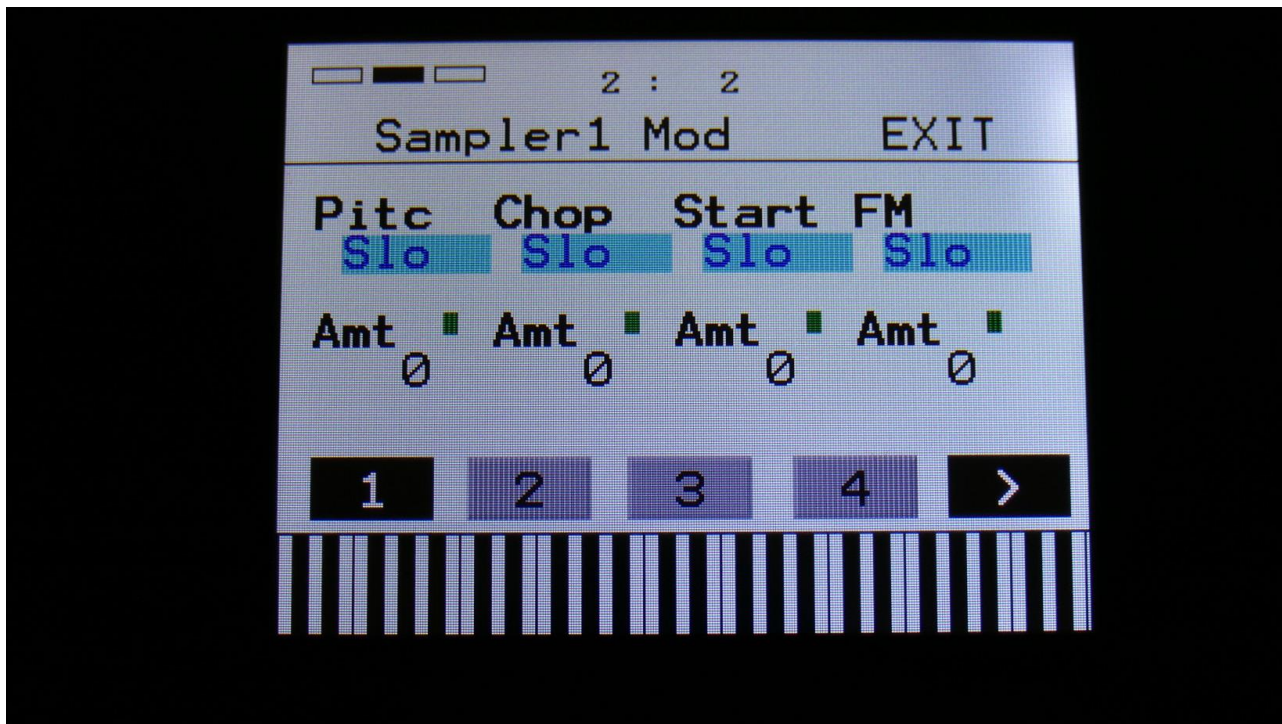
When the playback reaches the endpoint of the selected chop, it loops back to the chop startpoint, and keeps looping between the chop start and end point, until a key is pressed again.

Chop: If chop points has been generated for the selected sampling, a chop can be selected by setting this parameter. Range: Off, 0 to 63.

#Chp: The number of Chops to be played back in a row. Range: 1 to 64.

FM: FM amount. The more this is turned up, the more Osc2 will modulate the pitch of Osc1. Range: 0 to 511.

Sampler 1 modulation



The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **The lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

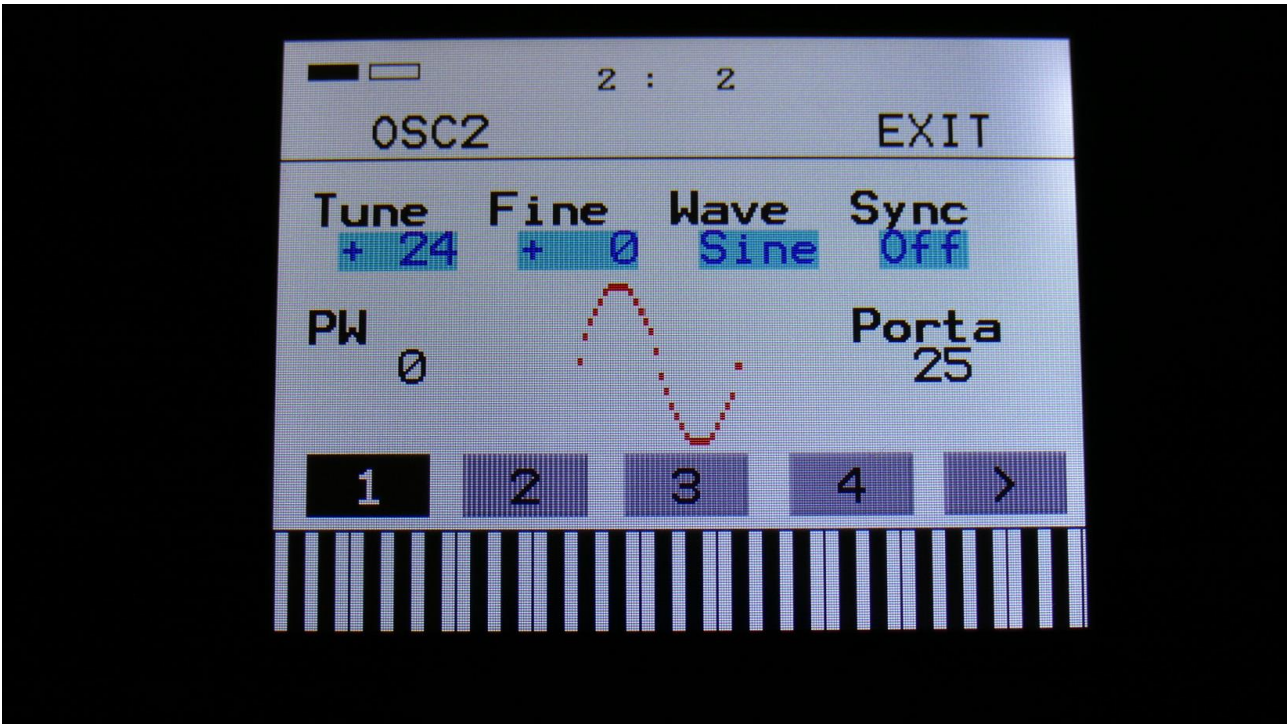
Pite: Modulates the sampler pitch.

Chop: Modulates the Chop number select.

Start: Modulates the sample start point.

FM: Modulates the FM amount.

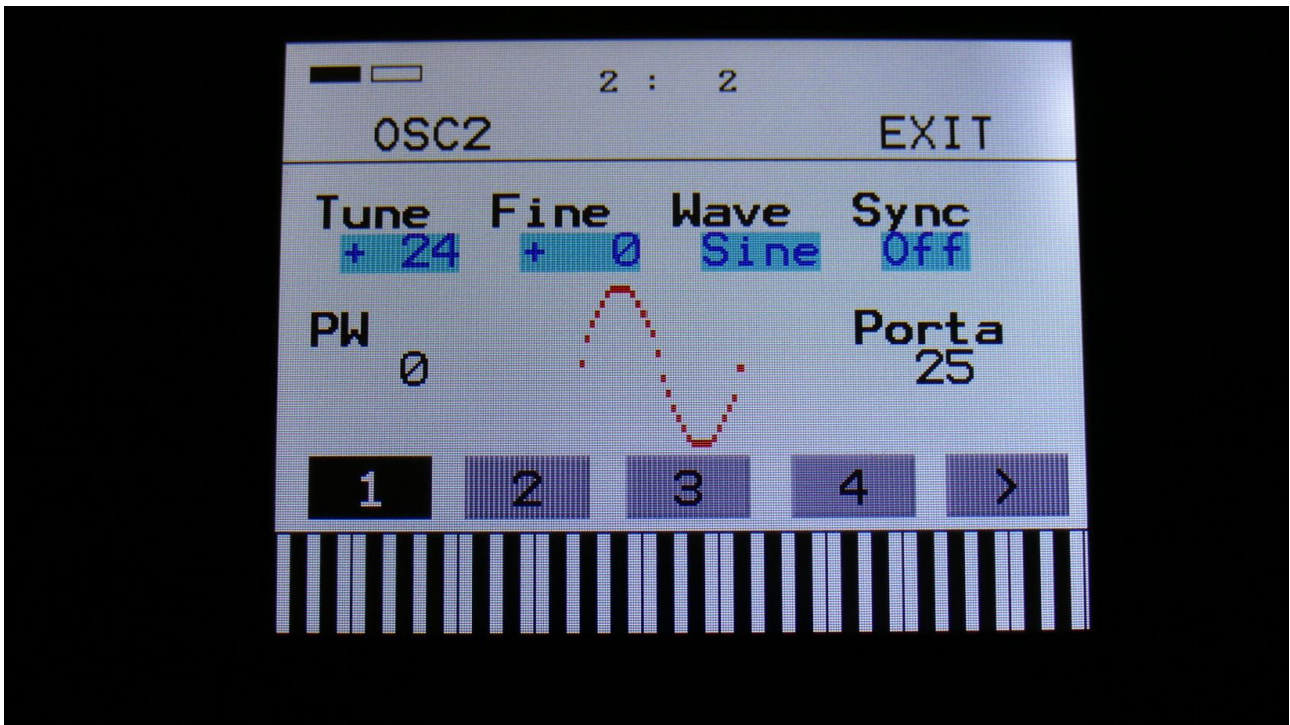
OSC2 and the Ring Modulator



Oscillator 2 generates a waveform that is switchable between sine, triangle, saw, square and noise waveforms. It is also possible to select any of the 2 audio inputs as the audio source, instead of Osc2, if you wish to route the audio inputs through PolySpaze's filters and effects. Pulse width are adjustable for sine, triangle, saw and square. Pitch and PW can be modulated. The pitch range of the oscillators are chromatically over the entire 10 octave MIDI keyboard range.

A Ring Modulator is placed on the output of Oscillator 2. The modulator for this can be selected on the Oscillator 2 modulation page.

Oscillator 2 parameters



In the middle of the oscillator page, the current waveform is shown.

By touching the buttons numbered 1 to 4, the Osc 2 of part 1 to 4 is selected. In some play modes, it is not possible to edit all parts separately, and only the parts that can be selected, will be shown. Touch the arrow button, to enter other oscillator 2 pages, like Modulation.

Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

Fine: Fine tuning of the pitch. Range: -256 to +255.

Wave: Selects the oscillator 2 waveform. Choices are: Sine, triangle, saw, square, noise, audio input left/right, and Pitched noise (pnoi).

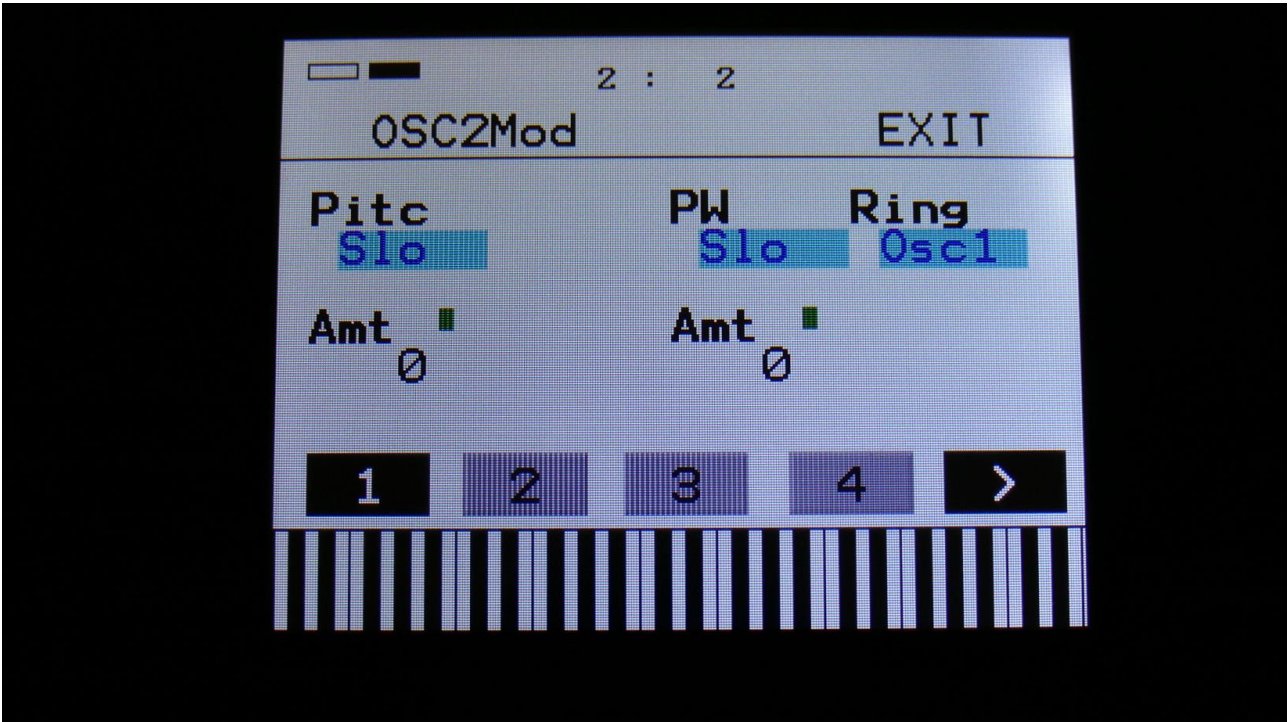
Sync: Oscillator Sync. When this is on, oscillator 2 will sync to oscillator 1.

PW: Adjusts the pulse width of the waveform. Pulse width can be adjusted for the sine, triangle, saw, square and pitched noise waveforms.

Porta: Portamento. The more this is turned up, the slower the oscillator pitch will slide from one note to another. Range: 0 to 511. Affects both osc1 and osc2.

Oscillator 2 modulation

Touch the arrow button, or page indicator square 2, to enter the modulation page:



The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **The lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Pitc: Modulates the oscillator pitch.

PW: Modulates the pulse width of the waveform

Ring: Selects source 2 for the Ring Modulator. Source 1 is always Oscillator 2. Source 2 can be Oscillator 1 or any modulation source.

HPF and LPF –The Analog Filters

PolySpaze has 2 analog filters per Synth part. A resonant highpass filter and a resonant lowpass filter.

In poly, mono and multi-timbral play modes, the signal from Oscillator 1, Oscillator 2 and the Ring Modulator are mixed into the highpass filter. The signal from the highpass filter goes into the lowpass filter.

In polybank and multi-bank modes, the signals from oscillator 1, oscillator 2 and the Ring Modulator are mixed into a VCA. The 8 analog filters forms one filterbank, and the outputs of the VCA's from all 4 parts are mixed into this filter bank. The bank is formed by 4 chains of HPF into LPF.

In stereo bank mode, the signals from oscillator 1, oscillator 2 and the Ring Modulator are mixed into 2 separate VCA's –One for the left audio channel, and one for the right. The filters forms 2 banks with each 4 filters, arranged in 2 chains of HPF going into LPF. One bank for the left audio channel, and one for the right. The outputs from the left and right VCA's of all parts are mixed into these 2 filterbanks. In this play mode, the modulation of the filterbank for the right channel are inversed compared to the left channel, for stereo effects.

HPF cutoff and resonance, LPF cutoff and resonance and filter FM (FFM –Osc2 is the modulator) can be adjusted and modulated. It is also possible to adjust the mix of Osc1, Osc2 and the Ring Modulator, and to boost the filter.

The analog filters also has a G-Ray (Gotharman-Ray) digital/analog feedback circuit attached to them. This creates a kind of intermodulated feedback signal, and makes it possible to create sounds similar to FM plus new and never heard before sounds.

The parameters of the Analog Filters



By touching the buttons numbered 1 to 4, the filters of part 1 to 4 is selected. In some play modes, it is not possible to edit all parts separately, and only the parts that can be selected, will be shown. Touch the arrow button, or the page indicator squares, to enter other filter pages, like Modulation and G-Ray.

The VU-meter at the right of the screen, shows the activity of the filter output.

HpCut: Adjusts the HPF cutoff frequency. Range: 0 to 511.

HpRes: Adjusts the resonance of the HPF. Range: 0 to 511.

LpCut/LpSpz: Adjusts the LPF cutoff frequency. If the LpCut parameter on the next page is set to “Spz” (space), this parameter will adjust the space between the HPF cutoff and the LPF cutoff instead. Range: 0 to 511.

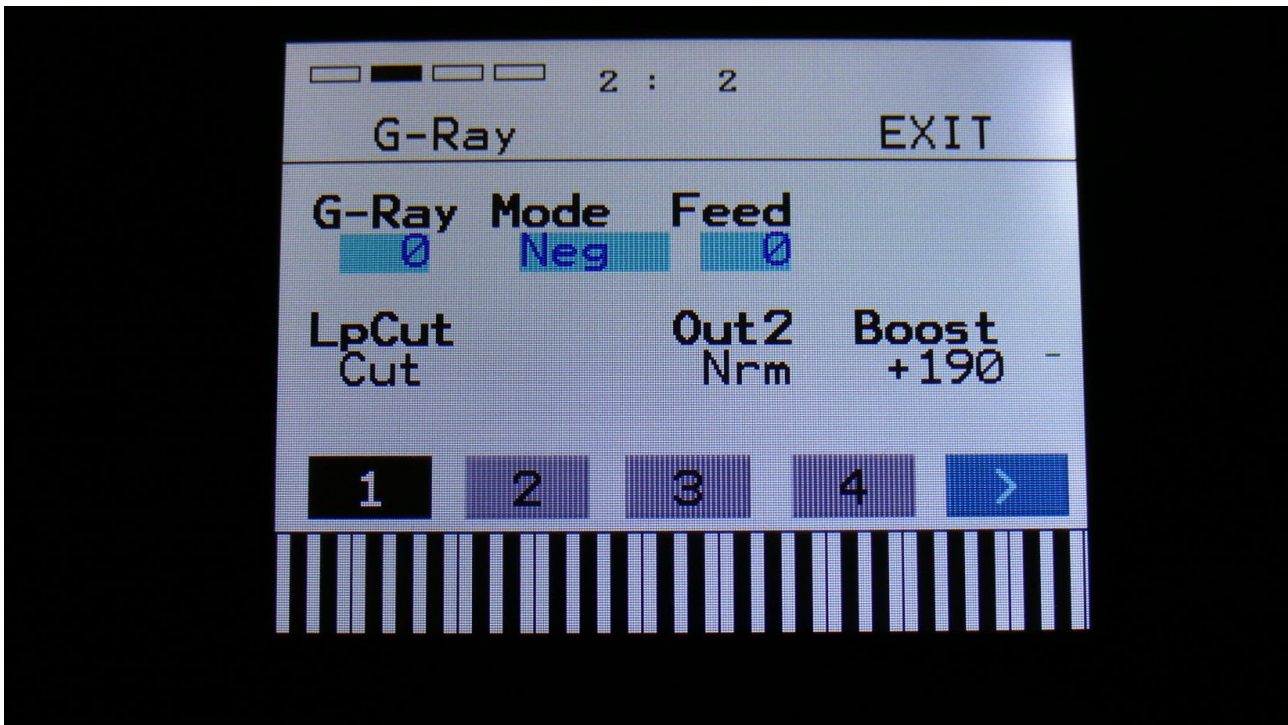
LpReso: Adjusts the resonance of the LPF. Range: 0 to 511.

Osc1, Osc2, Ring: Adjusts the levels of Oscillator 1, Oscillator 2 and the Ring Modulator, inputted to the analog filter. In bank play modes, these parameters adjusts the mix levels for the VCA before the filter, and these can only be adjusted for part 1.

The sources for the Ring Modulator can be set at the Oscillator 2 modulation page (see a little bit earlier in this manual).

FFM: Filter Frequency Modulation. Adjusts how much the analog filters should be audio frequency modulated by Oscillator 2.

Touch the arrow button, or page indicator square 2, to enter the next filter page:



G-Ray: Adjusts the amount of g-RAY intermodulation. 0: no g-RAY, 3: max g-RAY. Range: 0 to 3.

Mode: G-Ray mode.

-Norm: Normal 1:1 feedback.

-Neg: 1:1 feedback with the signal inverted (a 180 degree phase shift)

-Ultr: Boosted feedback.

-Uneg: Boosted feedback with the signal inverted (a 180 degree phase shift)

Feed: G-Ray feedback level. Range: 0 to 511.

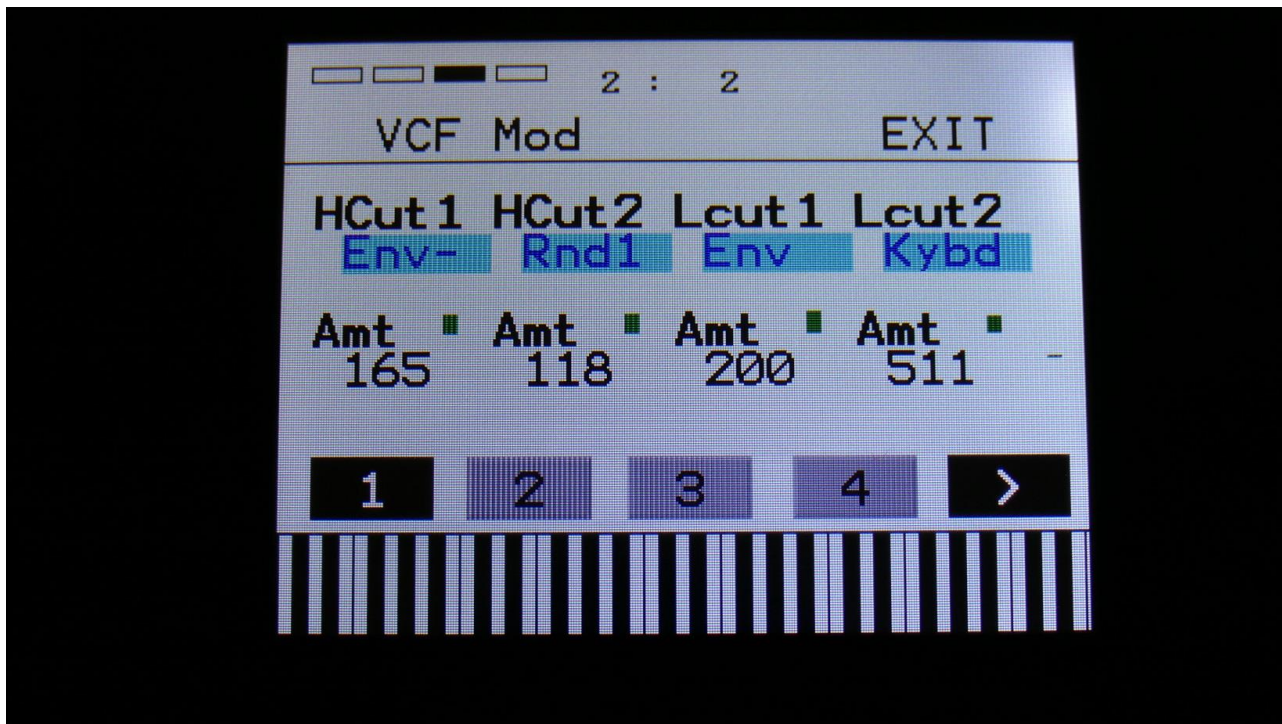
LpCut: Selects whether the Lowpass cutoff parameter on the previous filter page should be cutoff (Cut) or spaced to the highpass cutoff /Spz).

Out2: Selects whether output of the analog filters should be normal (**Nrm**) or inverted (**Inv**). In filterbank play modes, it is sometimes possible to obtain great effects, by inverting the output of one or some of the filters.

Boost: If necessary, it is possible to boost or lower the output level of the analog filters. The range of this is -128 to +383, with +0 being the neutral and initialized setting.

Analog Filters Modulation 1

Touch the arrow button once again, or page indicator square 3, to enter this first modulation page:



The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **The lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

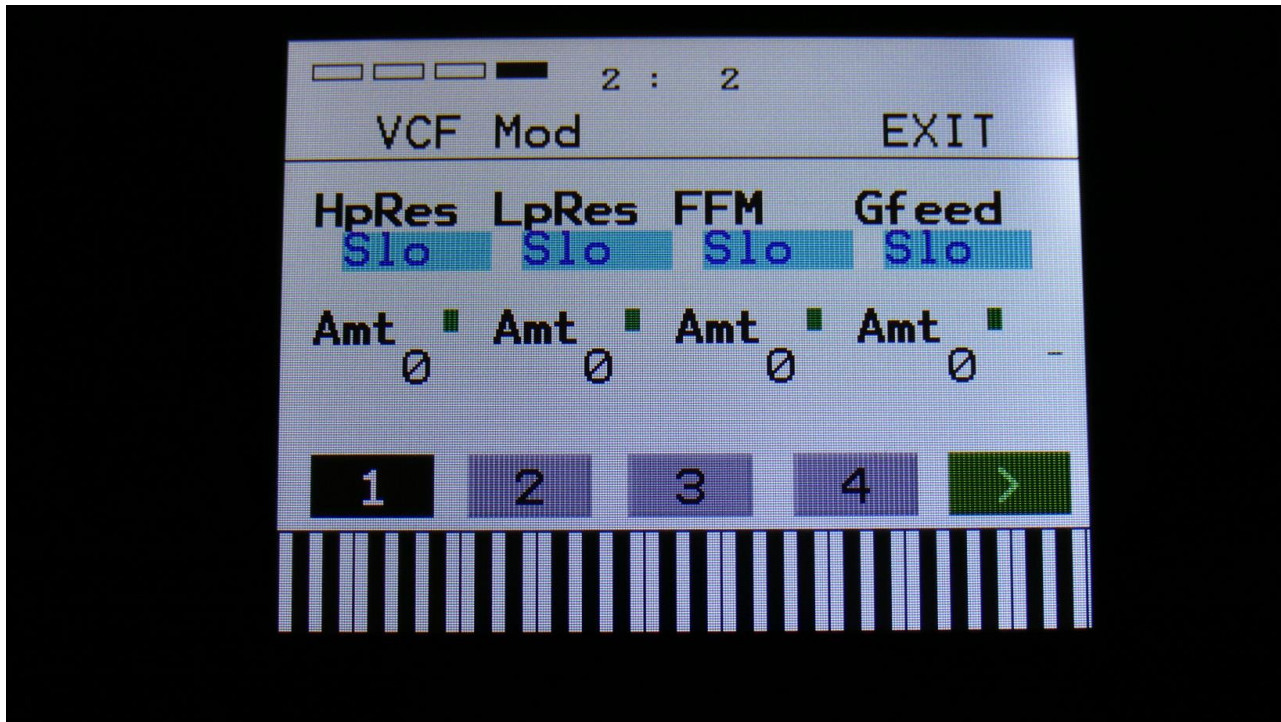
The parameters on this page:

HCut1 and HCut2: Modulates the HPF Cutoff Frequency.

LCut1 and LCut2: Modulates the HPF Cutoff Frequency.

Analog Filters Modulation 2

Touch the arrow button yet another time, or page indicator square 4, to enter this second filter modulation page:



The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **The lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

HpRes: Modulates the HPF Resonance.

LpRes: Modulates the LPF Resonance.

FFM: Modulates the amount of Filter FM.

Gfeed: Modulates the amount of G-Ray feedback.

The Digital Filter (DGF)

When a PolySpaze preset are in B mode (set on the Synth Mode page described earlier in this manual), an extra resonant digital filter (DGF) can be placed before, after or in parallel with the 2 analog filters, for a bit of added sound tweaking. It is also possible to route Oscillator 1 to the analog filters, and Oscillator 2 to the digital filter, in “Split” mode.

The digital filter has 16 different modes to choose from. It has various lowpass, highpass and bandpass modes, with different characteristics, but also special modes like Lo-Fi, destruction and Fat.

When different filter types are selected for Morph Layer A and B, PolySpaze will morph between the filter types.

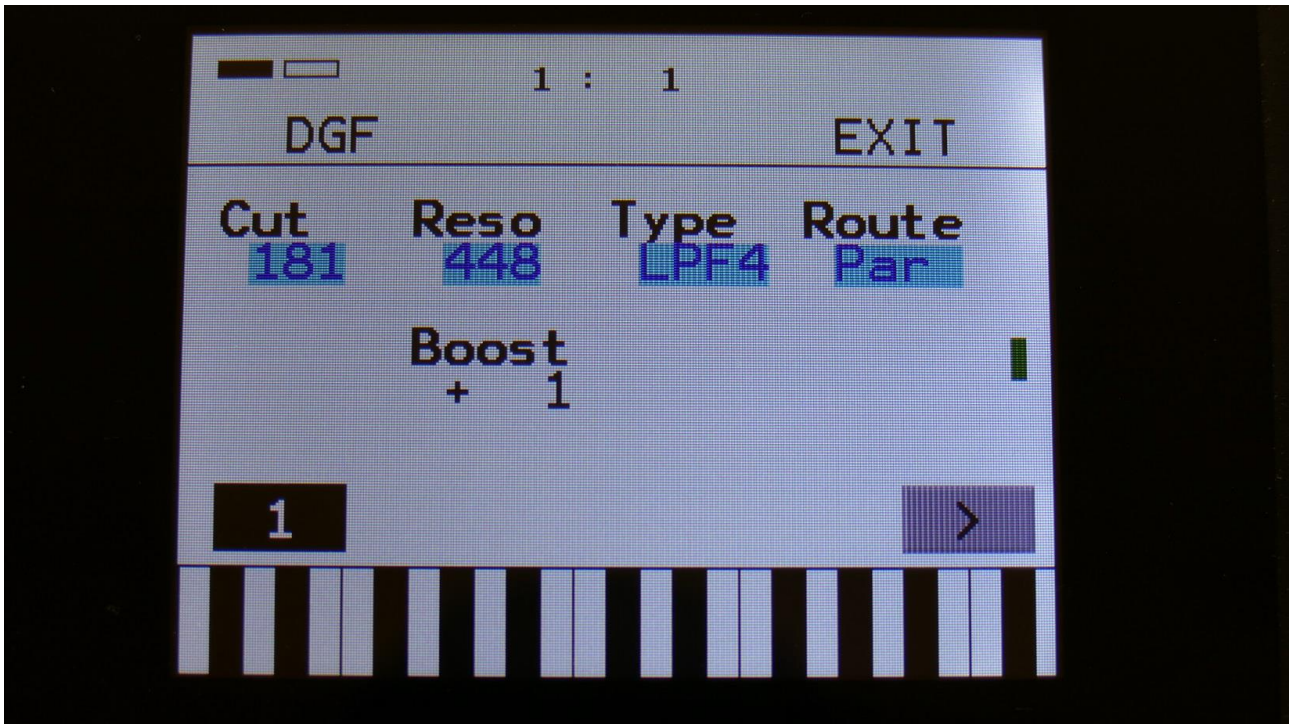
To gain the extra DSP power needed for these 4 extra filters, there are some restrictions on the effects processors, when in B mode:

- Only EFX 1 and 2 can be set to output effect mode.
- When EFX 1 is in output effect mode, EFX 3 is switched off.
- When EFX 2 is in output effect mode, EFX 4 is switched off.
- Filter effects are omitted in B mode.
- Output effects can't be connected in serial.

List of Digital Filter Types:

- LPF1:** Lowpass filter with a rather weak character. Resonance does not self-oscillate.
- LPF2:** Lowpass filter that are a bit sharper than LPF1. Resonance does not self-oscillate.
- LPF3:** Sharp Lowpass filter with self-oscillating resonance.
- LPF4:** Very sharp Lowpass filter with self-oscillating resonance.
- BPF1:** Bandpass filter with a rather weak character. Resonance does not self-oscillate.
- BPF2:** Bandpass filter with focus on the bass area. Distorts at higher input levels. Resonance does not self-oscillate.
- BPF3:** Sharp Bandpass filter with self-oscillating resonance.
- HPF1:** Sharp Highpass filter with self-oscillating resonance.
- HPF2:** High gained Highpass filter with self-oscillating resonance. Distorts at higher input levels.
- HPF3:** Sharp Highpass filter with self-oscillating resonance. A bit weaker than HPF1.
- Dstr:** Destruktion. A rather defective filter. Self-oscillates at some points, distorts at others.
- FAT1:** Slightly distorting lowpass filter, with a sharp response and self-oscillating resonance.
- FAT2:** A slightly weaker version of FAT1.
- LoFi:** A very distorting and unpredictable lowpass filter.
- LPF5:** A lowpass filter with a very soft character. Resonance does not self-oscillate.
- BPF4:** A bandpass filter with a very soft character and self-oscillating resonance.

The Digital Filter Parameters



By touching the buttons numbered 1 to 4, the filters of part 1 to 4 is selected. In some play modes, it is not possible to edit all parts separately, and only the parts that can be selected, will be shown. Touch the arrow button, or the page indicator squares, to enter other filter pages, like Modulation.

The VU-meter at the right of the screen, shows the activity of the filter output.

Cut: Adjusts the digital filter cutoff frequency. Range: 0 to 511.

Reso: Adjusts the resonance of the digital filter. Range: 0 to 511.

Type: Digital filter type select. Choices are: LPF1-5, BPF1-4, HPF1-3, Fat1-2, LoFi, Destruktion. Each of the filter types has different characteristics. When different filter types are selected for Morph Layer A and B, PolySpaze B will morph between the filter types.

Route: The routing of the digital filter. Can be set to:

Par: The digital filter is positioned in parallel to the analog filters.

Split: The digital filter is again positioned in parallel to the analog filters, but Osc 1 only goes to the analog filters, and Osc 2 only goes to the digital filter.

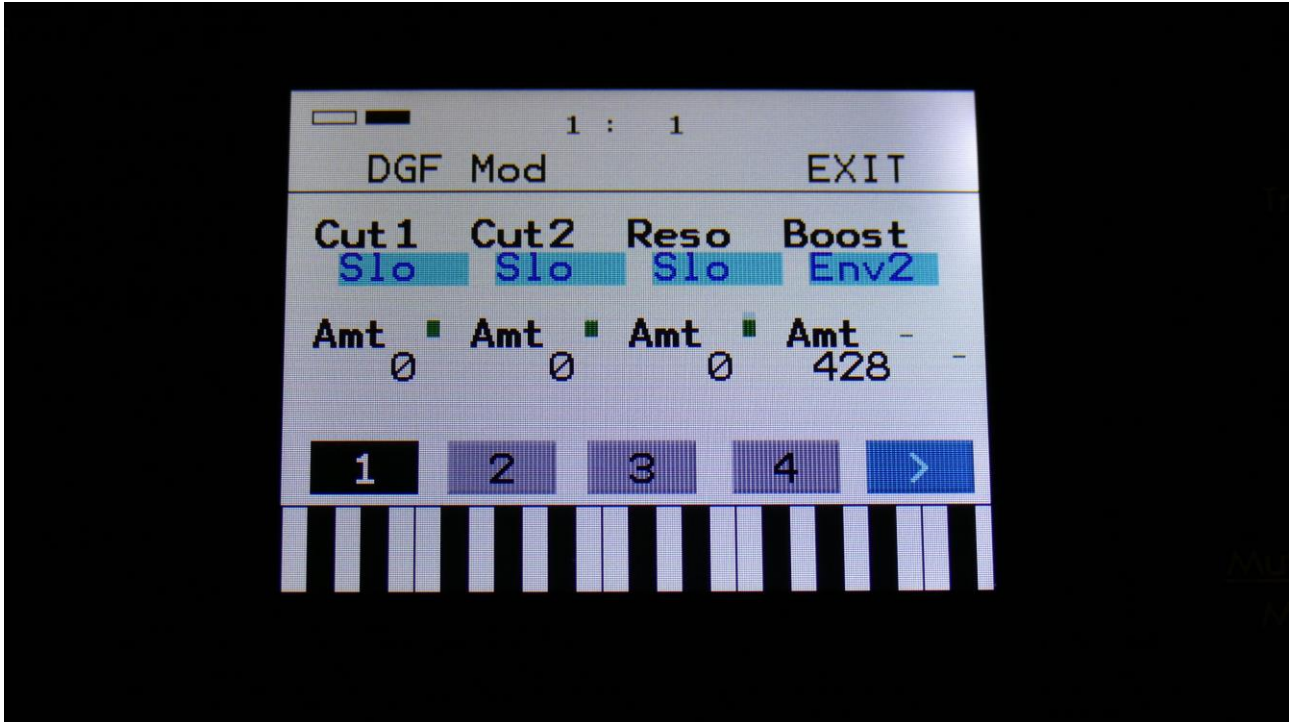
Pre: The analog and digital filters are connected in serial, with the digital filter first.

Post: The analog and digital filters are connected in serial, with the analog filter first.

Boost: Boost/level adjustment of the digital filter. The range of this is -128 to +383, with +0 being the neutral setting.

Digital Filter Modulation

From the digital filter parameters page, touch the arrow button, or page indicator square 2, to enter the modulation page:



The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

Cut1 and Cut2: Modulates the digital filter Cutoff Frequency.

Reso: Modulates the digital filter Resonance.

Boost: Modulates the digital filter output level/gain.

VCA

The last stage of each Synth part is the VCA.

In poly, mono and multi-timbral play modes, the audio output from the analog filters goes into the VCA. An insert effect can be inserted between the filters and the VCA.

The VCA's can behave in 4 different modes. Linear, logarithmic, smooth linear and smooth logarithmic. The smooth VCA modes behaves like the VCA's found in most other synthesizers.

The audio output of the VCA can be level modulated and panned. Pan can also be modulated. The output of the VCA can go to audio output L/R, output effect 1/2 or output effect 3/4.

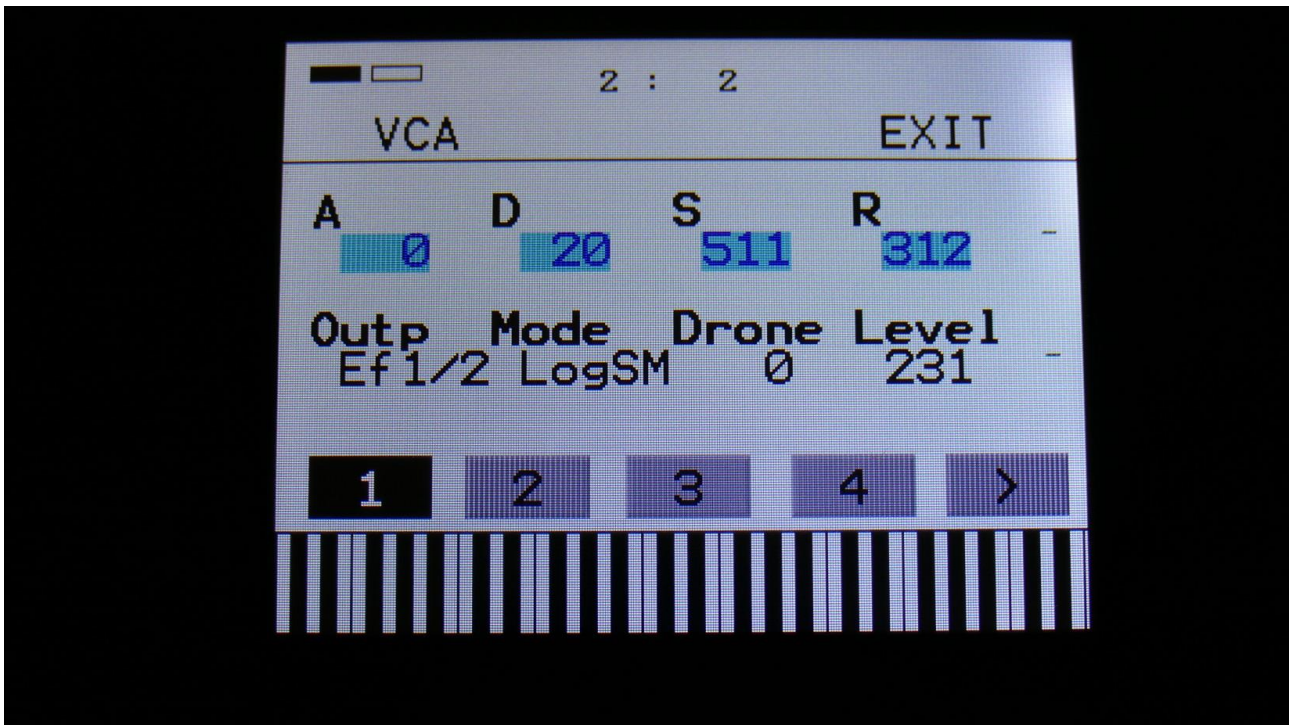
When the VCA is routed to the audio outputs, the signal is panned between the left and the right outputs. When the VCA is routed to output effect 1/2 or 3/4, the signal is panned between effect 1/2 or 3/4 respectively.

In poly-bank, multi-bank and stereo-bank play modes, the outputs from the oscillators is mixed into the VCA, and the output from the VCA is fed to the filterbank. In these play modes, level modulation of the VCA is possible, but pan modulation applied to the VCA, will automatically be performed by an extra pan circuit, placed right after each analog LPF in the filterbank.

In poly-bank and multi-bank modes it is possible to insert and insert effect between the oscillators and the VCA.

An ADSR envelope are attached to the VCA. The VCA envelopes can either be in linear or logarithmic mode. A Drone parameter are available, for opening the VCA without the envelope needing to be triggered. VCA output level are modulated by the attached ADSR envelope. Attack and release can be modulated by any modulation source.

VCA parameters



By touching the buttons numbered 1 to 4, the VCA's of part 1 to 4 is selected. In some play modes, it is not possible to edit all parts separately, and only the parts that can be selected, will be shown. Touch the arrow button, or the page indicator squares, to enter other VCA pages, like Modulation.

The 2 VU-meters at the right of the screen, shows the VCA input and output.

A: VCA envelope attack time. The time it will take the amp envelope to rise from zero to its maximum value, when a note event is received and held down. Range: 0 to 511.

D: VCA envelope decay time. When the amp envelope has reached its maximum value, in the time set by the attack parameter, it will decay, until it reaches the sustain level, and stay there, as long as the note that triggered it is held. Range: 0 to 511.

S: VCA envelope sustain level. Explained under the "D" parameter. Range: 0 to 511.

R: VCA envelope release time. The time it will take the amp envelope to decay from the value it is at, when a note off event are received, to zero. Range: 0 to 511.

Outp: Selects whether the VCA should output to the audio outputs, Effects 1 and 2 or Effects 3 and 4.

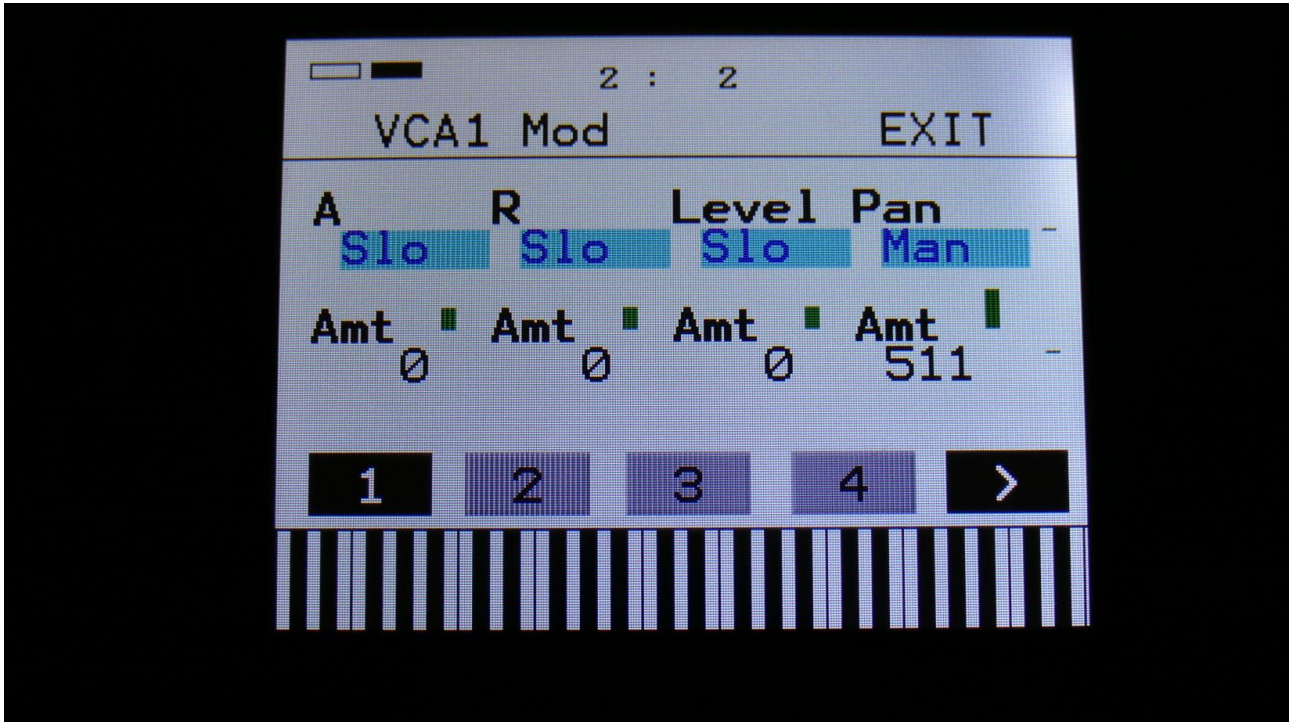
Mode: Selects if the VCA behaviour should be linear (**Lin**), logarithmic (**Log**), smooth linear (**LinSM**) or smooth logarithmic (**LogSM**). The logarithmic curve gives the sound a softer and less "clicky" attack. The smooth modes produces no clicking at all.

Drone: VCA envelope drone offset level. When this is turned up, the amp envelope will never reach an output value, lower than what this is adjusted to –It will release to this adjusted value, instead of zero. Use this to keep the output of the synth open for drone sounds, or for external input sounds. Range: 0 to 511.

Level: The VCA output level.

VCA Modulation

Touch the arrow button, or page indicator square 2, to enter this page



The 2 VU-meters at the right of the screen, shows the VCA input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **The lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

A: Modulates the VCA Envelope attack time.

R: Modulates the VCA Envelope release time.

Level: Modulates the output level of the VCA.

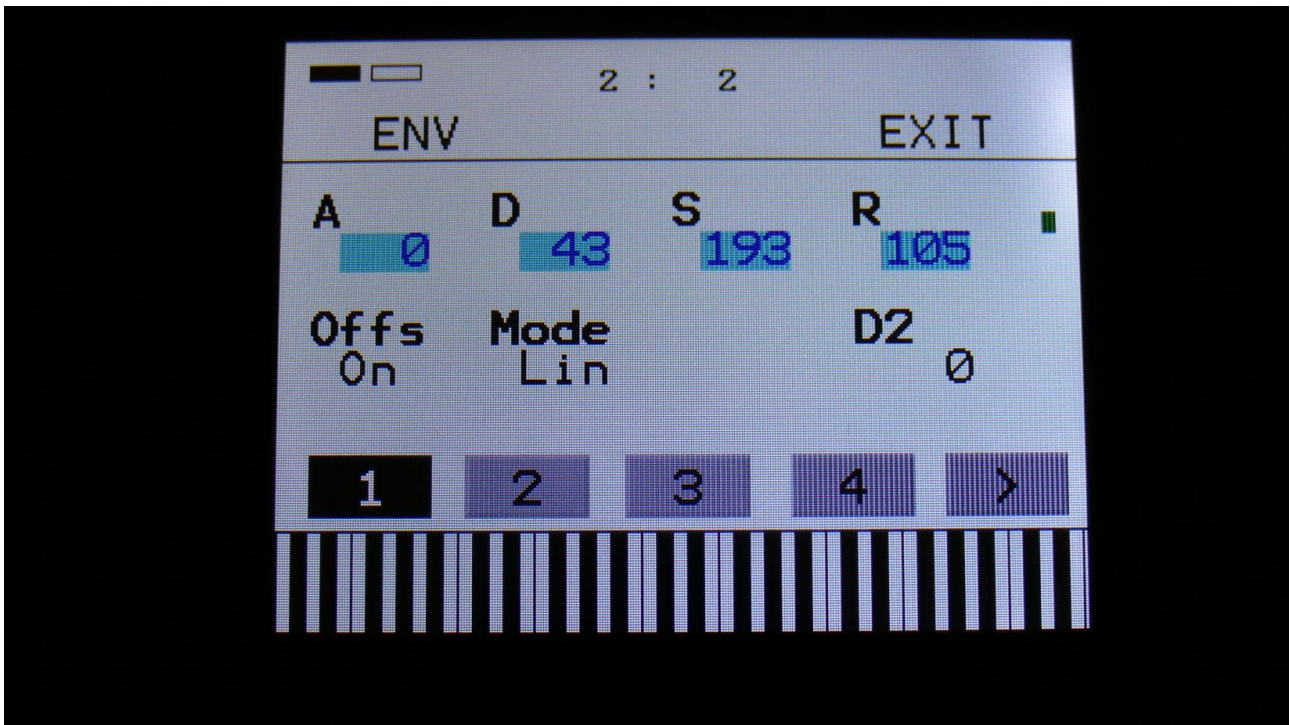
Pan: Modulates the output panning of the VCA. When source is set to manual (“Man”), the amount parameter manually adjusts the output panning.

Envelope 1 and 2

Each Synth part of PolySpaze has 2 modulation envelopes. One ADSR type, and one decay only envelope. Envelope 1, the ADSR envelope can have linear or logarithmic characteristics and it also has an offset control.

Envelope 2, the decay envelope, is always linear.

Envelope 1 and 2 parameters



By touching the buttons numbered 1 to 4, the Envelopes's of part 1 to 4 is selected. In some play modes, it is not possible to edit all parts separately, and only the parts that can be selected, will be shown.

Touch the arrow button, or the page indicator squares, to enter other Envelope pages, like Modulation.

The VU-meter at the right of the screen, shows the Envelope output.

A: Envelope 1 attack time. The time it will take the envelope to rise from zero to its maximum value, when a note event is received and held down. Range: 0 to 511.

D: Envelope 1 decay time. When the envelope has reached its maximum value, in the time set by the attack parameter, it will decay, until it reaches the sustain level, and stay there, as long as the note that triggered it is held. Range: 0 to 511.

S: Envelope 1 sustain level. Explained under the "Dec" parameter. Range: 0 to 511.

R: Envelope 1 release time. The time it will take the envelope to decay from the value it is at, when a note off event are received, to zero. Range: 0 to 511.

Offs: Offset:

-Off: The envelope will work around the zero point, and apply both negative and positive modulation to the parameters affected by it.

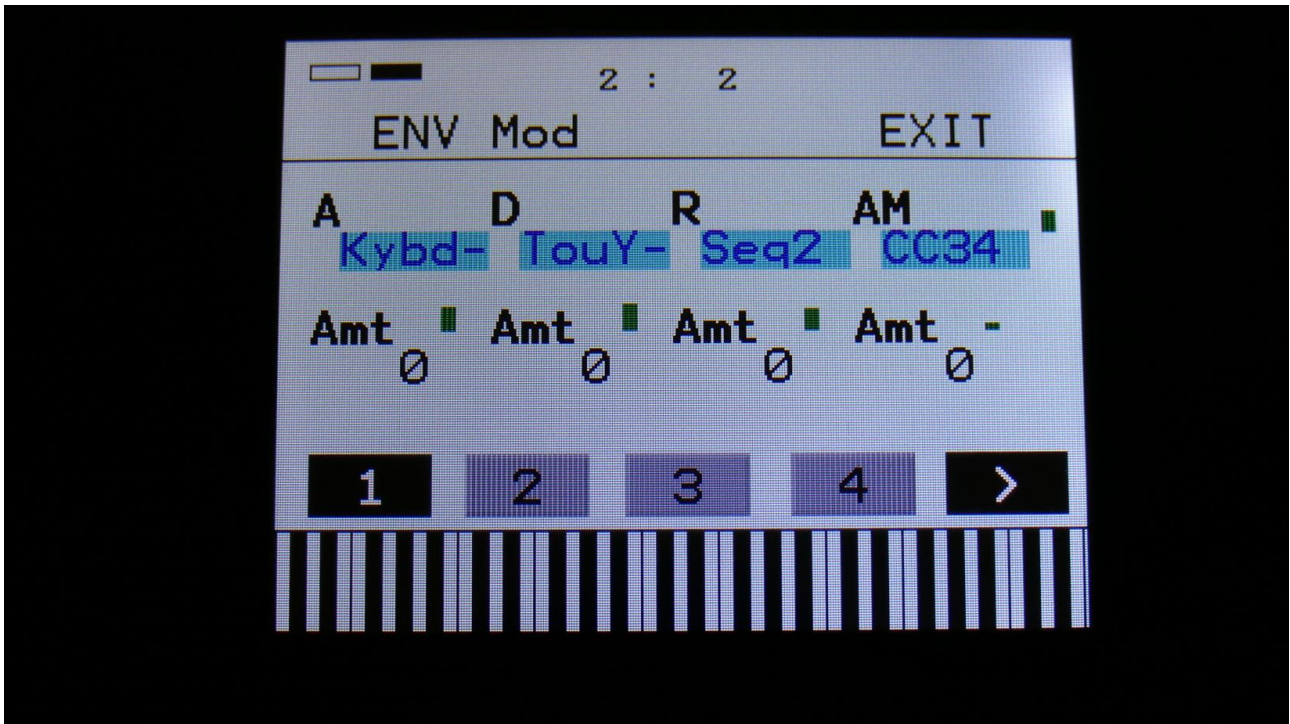
-On: Positive only, offset added. The envelope will only work above the zero point, and will only add to the values of the parameters affected by it.

Mode: Selects if the envelope curve should be linear (**Lin**), or logarithmic (**Log**). The logarithmic curve gives the envelope a softer and less “clicky” attack.

D2: Envelope 2 decay time. The time it will take the decay envelope to decay, after it has been triggered. Range: 0 to 511.

Envelope Modulation

Touch the arrow button, or page indicator square 2, to enter this page



The VU-meter at the right of the screen, shows the Envelope output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

A: Modulates the Envelope 1 attack time.

D: Modulates the Envelope 1 decay time.

R: Modulates the Envelope 1 release time.

AM: Modulates the Envelope 1 output amount.

Effects 1 to 4

PolySpaze has 4 effects processors. Each of these can either be in insert effect mode, or in output effect mode.

In insert effect mode, the effect is inserted on a specific Synth part. EFX1 is inserted on Synth part 1, EFX2 is inserted on Synth part 2 and so on....

In output effect mode, the effect is placed on the output, and each part can be routed to it.

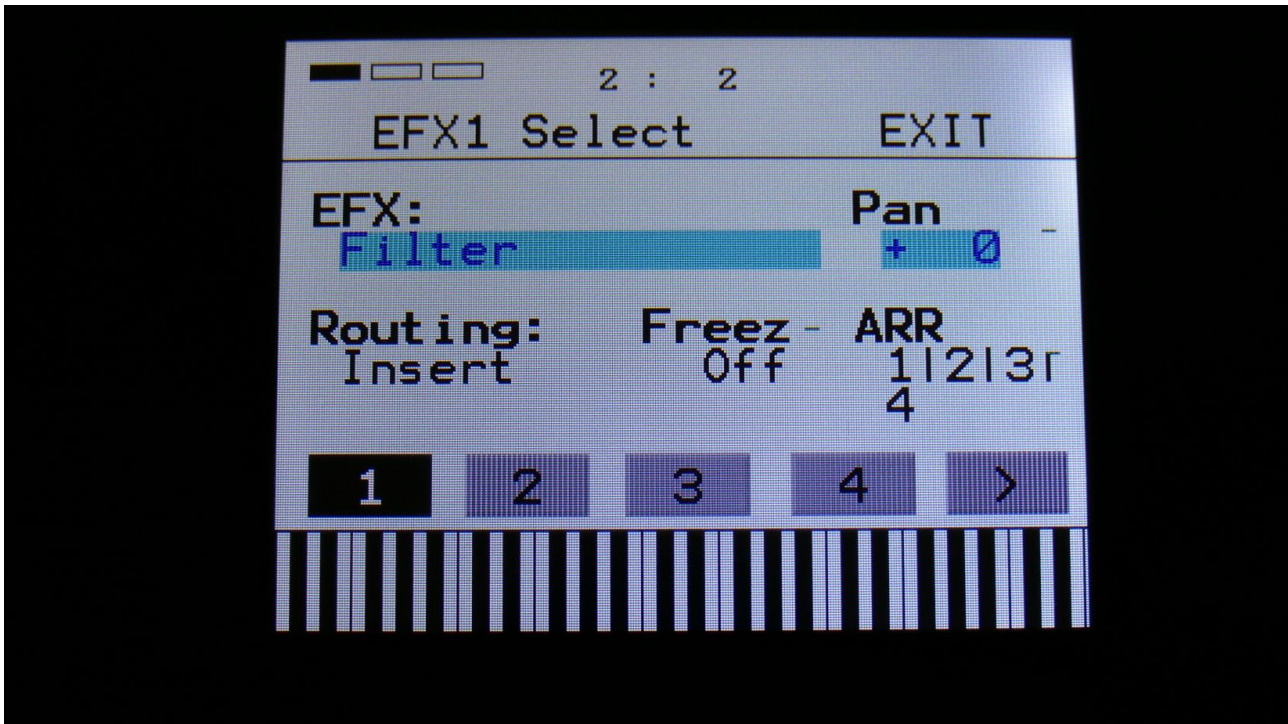
All effects has a bypass/Freeze switch, Freeze modulation, and a mix parameter.

2 effects can be linked together, for true stereo processing. When an effect is linked to another effect, any parameter tweaks on the source effect, will be mirrored to the linked effect. When switching link off, the parameter settings of the linked effect is kept, so it is possible to make some adjustments, if you don't want the 2 effects to be exactly alike.

If the preset is set in "B" mode, and the extra digital filter is added to the signal chain, some restrictions occur:

- Only EFX 1 and 2 can be set to output effect mode.
- When EFX 1 is in output effect mode, EFX 3 is switched off.
- When EFX 2 is in output effect mode, EFX 4 is switched off.
- Filter effects are omitted in B mode.
- Output effects can't be connected in serial.

The Effects select page



By touching the buttons numbered 1 to 4, the Effects's of part 1 to 4 is selected. In some play modes, it is not possible to edit all parts separately, and only the parts that can be selected, will be shown.

Touch the arrow button, or the page indicator squares, to enter other Effects pages, like Effect parameters and Modulation.

The 2 VU-meters at the right of the screen, shows the Effect input and output.

EFX: Selects the effect. Only certain types of effects are selectable, according to if the effect are routed as and insert effect or as an output effect. Please see the List Of Effects on the following page.

Pan: Panning of the effect output. This only applies if the effect are routed as an output effect. The output of the effect is then panned between the left and the right audio output.

Routing: Selects whether the effect should be routed as an insert effect or as an output effect.

Freez: Freeze modulation. Can be set to off, or to any modulation source. When set to any other value than off, the effect will freeze, when the modulation source are in its upper range. When an effect freezes, it no longer samples its audio input signal, but only outputs whatever it already holds in its audio buffer.

ARR: Arrangement of the output effects. This parameter does not affect any effects that are in Insert mode.

This can be set to either:

1|2|3|4, which will connect the output effects in parallel, and EFX $\frac{1}{2}$ from the VCA's goes to output effect 1 and 2, while EFX $\frac{3}{4}$ goes to output effects 3 and 4.

Or:

1>3|2>4, which will send the output of output effect 1 to output effect 3, and the output of effect 2 to effect 4. Both EFX $\frac{1}{2}$ and EFX $\frac{3}{4}$ from the VCA's, will now go to the inputs of output effects 1 and 2.

Link: Effects 2 and 4 can be linked to effects 1 and 3, for true stereo effects processing.

Mix and Pan Modulation



The Effect dry/wet mix can be modulated on both Insert and Output effects. The panning can be modulated on Output effects.

Touch the page indicator 4 square, to access this page.

The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Mix: Modulates the effect dry/wet mix.

Pan: Modulates the effect output panning.

List of Effects

INSERT EFFECTS:

Filter – (Not available if the preset is set in “B” mode) 16 filter types and 2 EQ types. Derived from Fuzion.

Chorus – Gotharman's special chorus with an added Deep parameter, that adds space to the chorus.

Distortion – 4 types: Valve, Sine, Fuzz, Xdis.

Bit Crush – Lowers the sample rate and the bit resolution of the sound, to obtain lo-fi effects.

Pitch Shifter – Shift the pitch of the sound up to 4 octaves up or down, without changing the time resolution or “tempo” of the sound. Adjustable sense.

Resonator – Simulates the resonances that comes, if a sound goes through a small box. PolySpaze’s resonators are synthetic, with more focus on making sounds, than on simulating actual boxes.

Stretcher – Tries to time stretch the input signal, while at the same time keeping up with it. Impossible? -Yes, indeed :-)

FM – Adds self-FM to the input signal in +/- 1 octave, +/- 2 octaves or +/- 4 octaves ranges.

Glitch Shifter – Imperfect pitch shifter.

Glitch Shifter 2 – Imperfect pitch shifter with a slightly different sound than the first one.

Pitch Shaper – 1 input version of Gotharman's special Pitch Shaper, that forces an audio signal to play back at a specific pitch, determined by an adjustable frequency.

Wave Shaper - Re-shapes the input signal.

FAT - Adds up to 3 layers of the sound to itself, and it is possible to adjust the phase of these, and to select whether the effect sound should be boosted or just layered.

Filters 2 – A new set of digital filters, that is emphasized in the bottom bass area, and has a pretty uncontrollable resonance.

OUTPUT EFFECTS:

Delay 1 – Delay with time and feedback controls, plus Gotharman's Deep, Size, Beam and Xfade controls. Deep adds space to the delay, Size makes the playback range more narrow than the input recording range, and beam beams the delay to previously unknown places. The Xfade control on this delay, creates valleys between the delay taps. The more it is turned up, the more time the valleys takes up.

Roto Delay – New Gotharman delay! This is a 2 tap delay, that is constantly crossfading between the 2 taps. When the Xfade control is turned down, the crossfading is rough, the more it is turned up, the more smooth the crossfading gets. Other controls are the same as the first delay.

Bright Delay – First delay, but with a brighter sound, created by a resonator.

Bright Roto Delay – Roto delay, but with a brighter sound, created by a resonator.

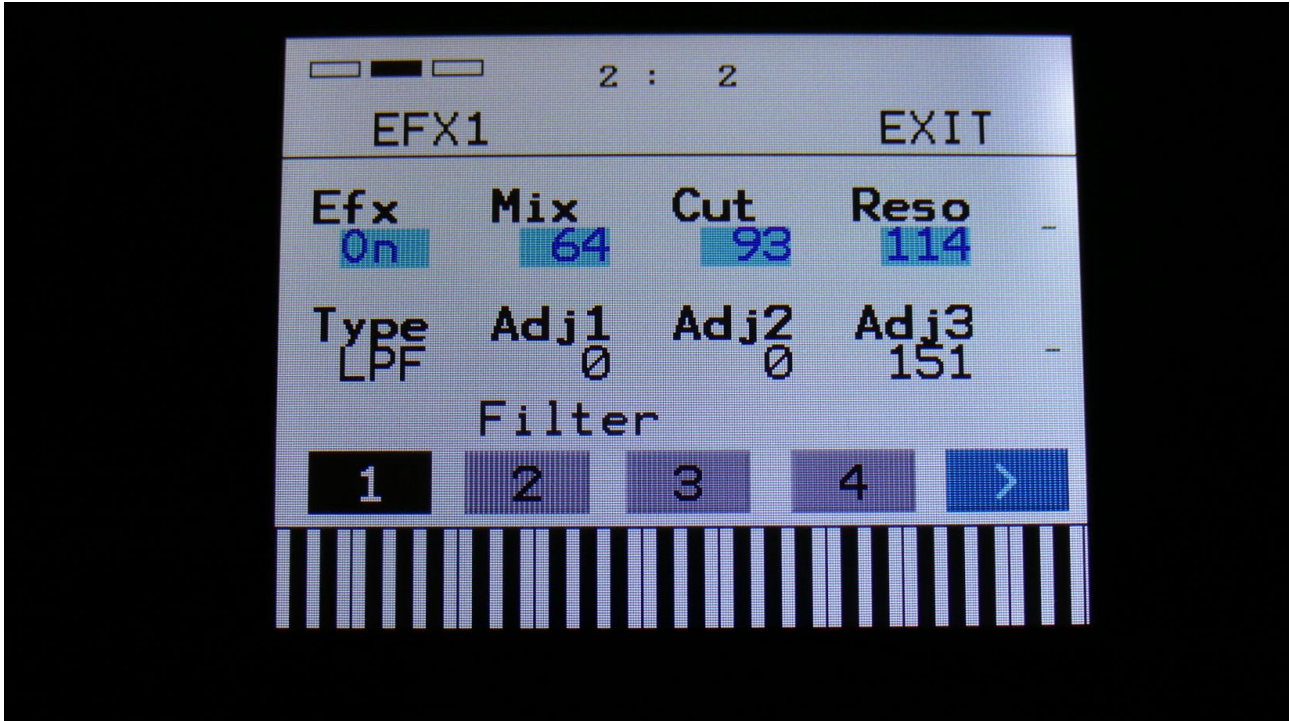
Granulator – Cuts the input signal up in grains, that can be re-arranged. The PolySpaze granulator can sync to the sequencer.

Variator – **Max 2 at a time.** Creates new variations of the input signal. Both pitch and rhythmic variations.

Reverb – **Max 2 at a time.** A FAT high resolution synthesized reverb with granular Size parameter.

Insert Effects Parameters

Filter



By touching the buttons numbered 1 to 4, the Effects's of part 1 to 4 is selected. In some play modes, it is not possible to edit all parts separately, and only the parts that can be selected, will be shown.

Touch the arrow button, or the page indicator squares, to enter other Effects pages, like Effect select and Modulation.

The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Cut: Filter cutoff frequency.

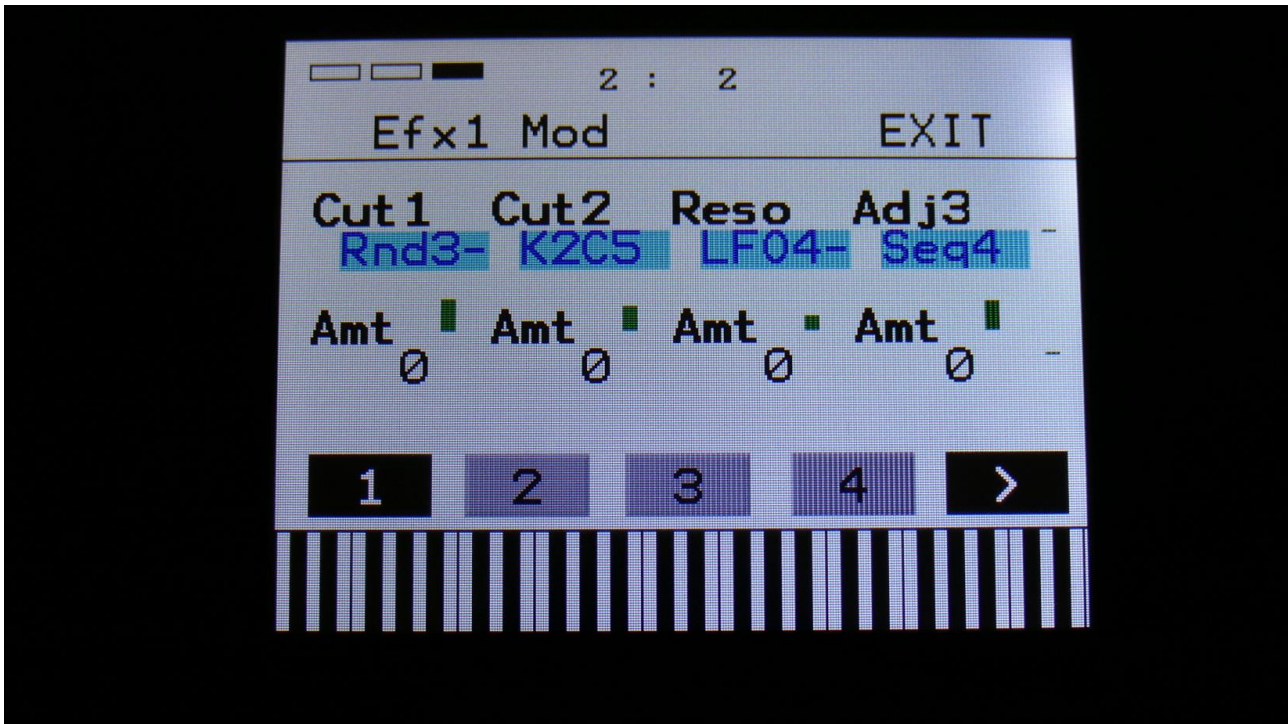
Reso: Filter resonance setting.

Type: Filter type. Possibilities are:

- LPF:** Low pass filter
- BPF:** Band pass filter
- BP8:** Steep band pass filter
- HPF:** High pass filter
- ADD:** Reverse filter. Adds harmonics to the sound.
- BEF:** Band eliminate filter
- BASS:** A filter with most power in the bass area
- LOFI:** Agressive low pass filter
- LPF2:** Low pass filter 2, with a slightly different response than the first variant
- BPF2:** Band pass filter 2, with a slightly different response than the first variant
- BP82:** Steep band pass filter 2, with a slightly different response than the first variant
- HPF2:** High pass filter 2, with a slightly different response than the first variant
- ADD2:** Reverse filter 2, with a slightly different response than the first variant
- BEF2:** Band eliminate filter 2, with a slightly different response than the first variant
- BAS2:** Bass filter 2, with a slightly different response than the first variant
- LOFI2:** Agressive low pass filter 2, with a slightly different response than the first variant
- Peq1:** Parametric EQ
- Peq2:** Steeper parametric EQ

Adj1, Adj2, Adj3: Changes the filter response. For the parametric EQ types, Adj3 acts as cut/boost.

Filter Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Cut1 and Cut2: Modulates the filter cutoff frequency.

Reso: Modulates the filter resonance.

Adj3: Modulates the filter adjust 3 parameter.

Chorus



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

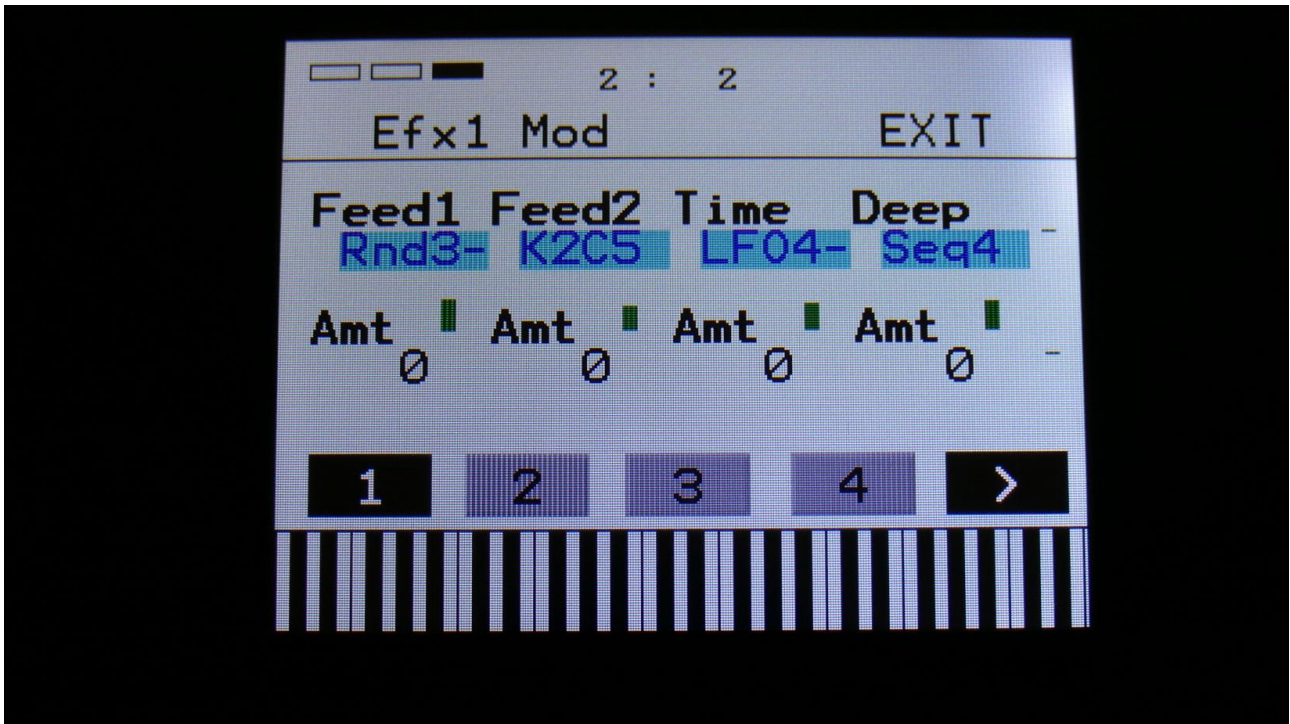
Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Feed: Chorus feedback amount.

Time: Chorus Time. This should be modulated by an LFO, to get the traditional chorus effect.

Deep: Adjusts how deep the chorus box should be. A Gotharman special.

Chorus Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

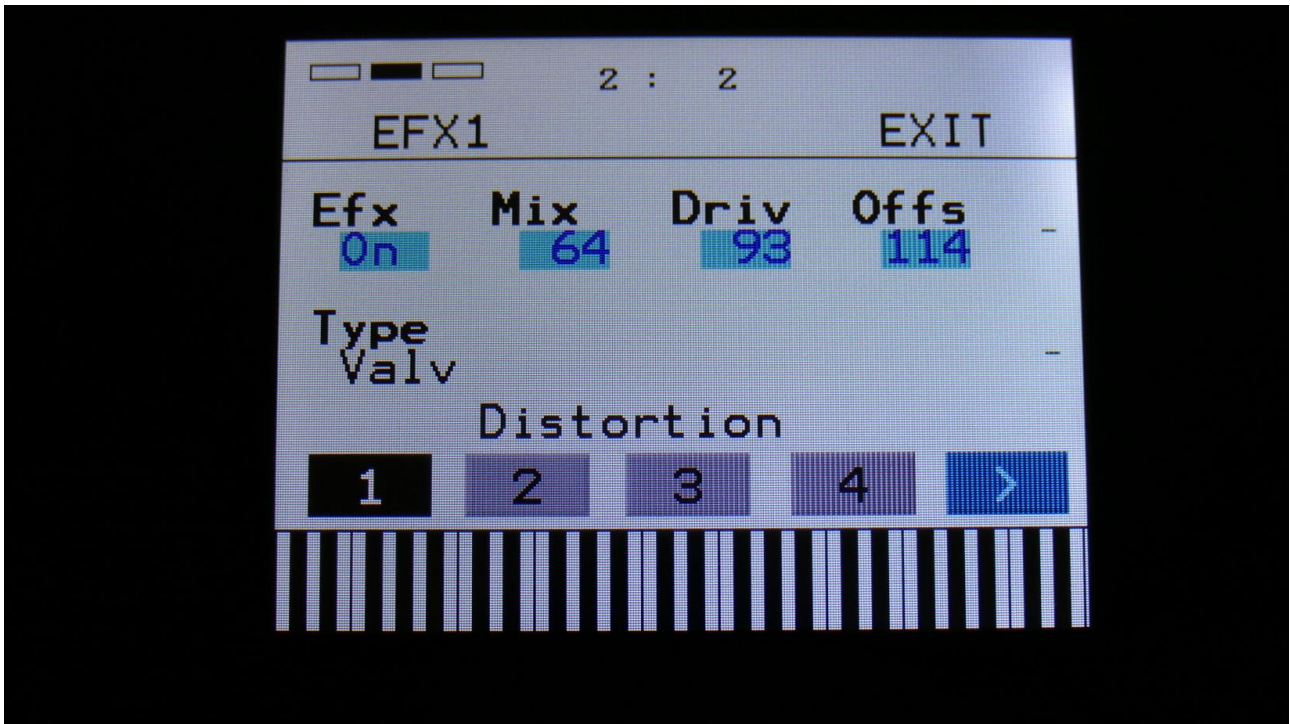
The parameters on this page:

Feed1 and Feed2: Modulates the chorus feedback.

Time: Modulates the time parameter.

Deep: Modulates the Deep parameter.

Distortion



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

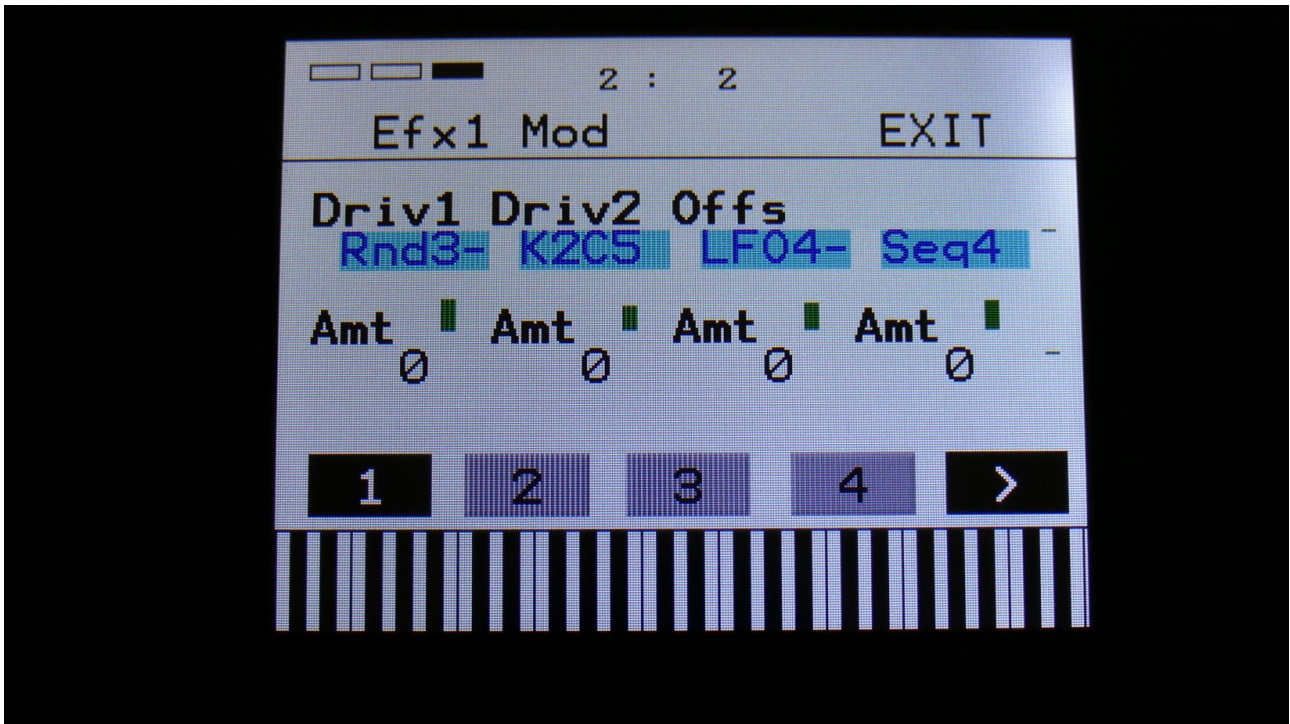
Drive: The higher the value, the more the sound will distort. If this is set to zero, no sound will pass through the distortion.

Offs: Distortion offset. The more this is turned up, the more asymmetric the distortion will get.

Type: Distortion type. Choices are:

- Valve:** A digital simulation of a classic valve distortion.
- Sine:** A noisy and warm sine shaping distortion.
- Fuzz:** Simulates a classic fuzz distortion.
- Xdis:** Complete destruction of the sound.

Distortion Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

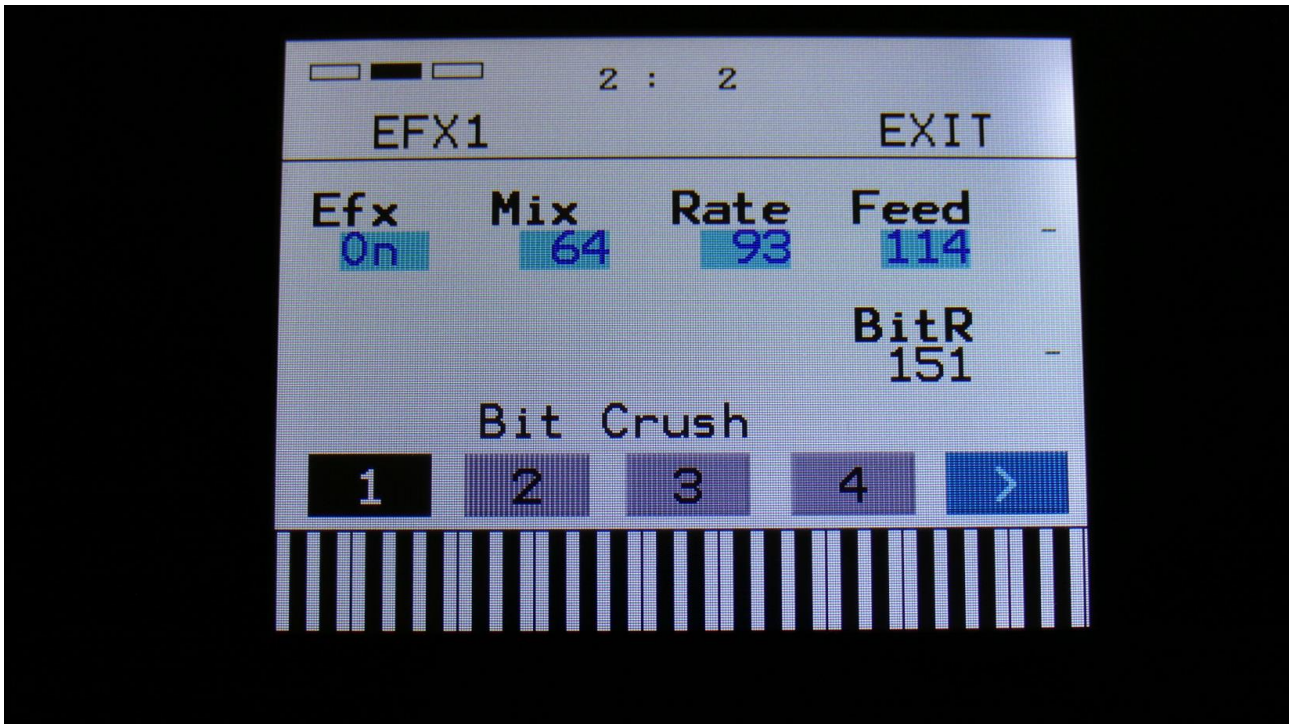
The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Driv1 and Driv2: Modulates the drive parameter.

Offs: Modulates the offset parameter.

Bit Crush



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

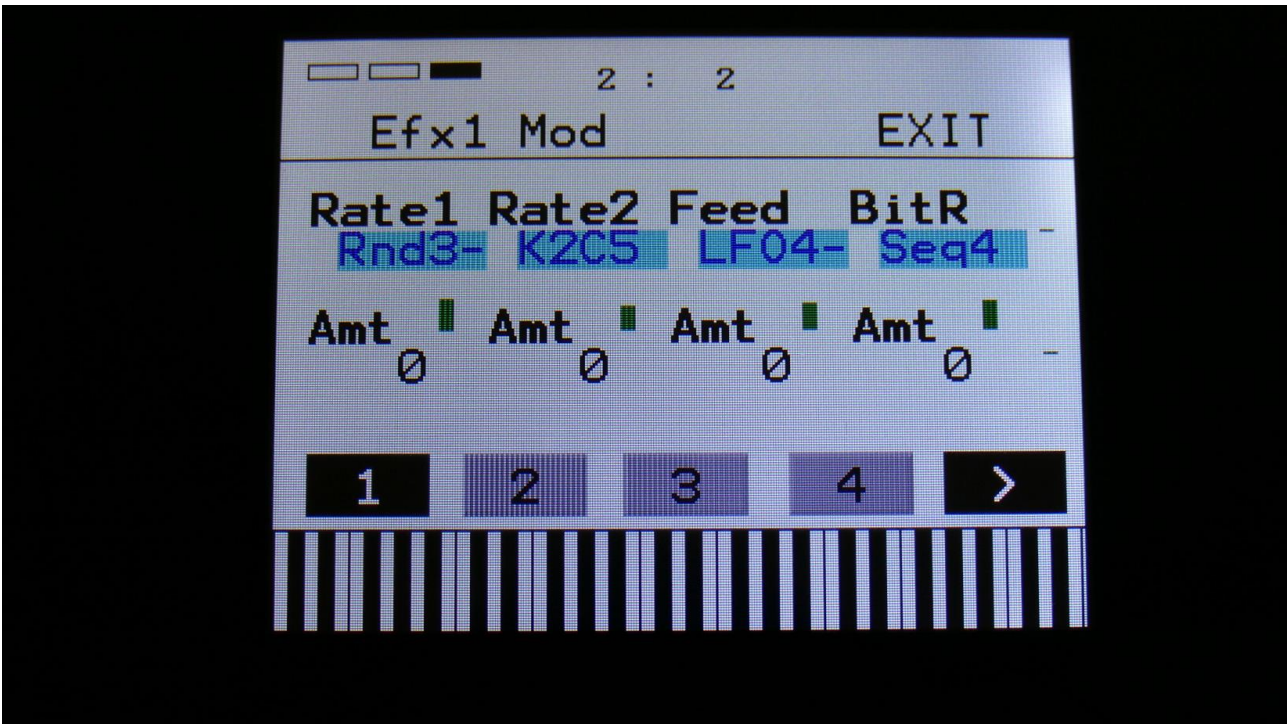
Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Rate: Sample Rate Reduction. The more this is turned up, the lower the sample rate will be. From 44.1 KHz to 1 KHz.

Feed: Feedback. Turning this up will slightly overdrive the sound.

BitR: Bit Reduction. The more this is turned up, the lower the bit resolution will get. When it is turned fully down, resolution is 16 bit, when turned fully up, it is 1 bit.

Bit Crush Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

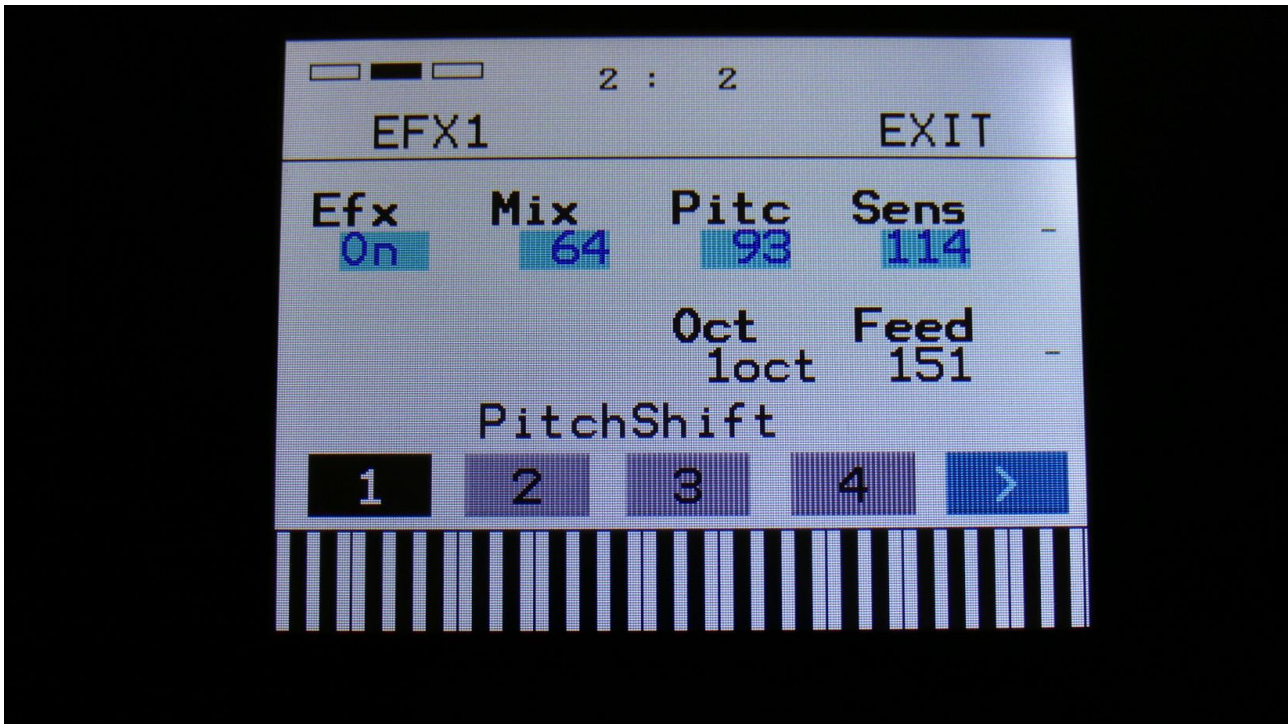
The parameters on this page:

Rate1 and Rate2: Modulates the sample rate parameter.

Feed: Modulates the feedback parameter.

BitR: Modulates the bit reduction parameter.

Pitch Shifter



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

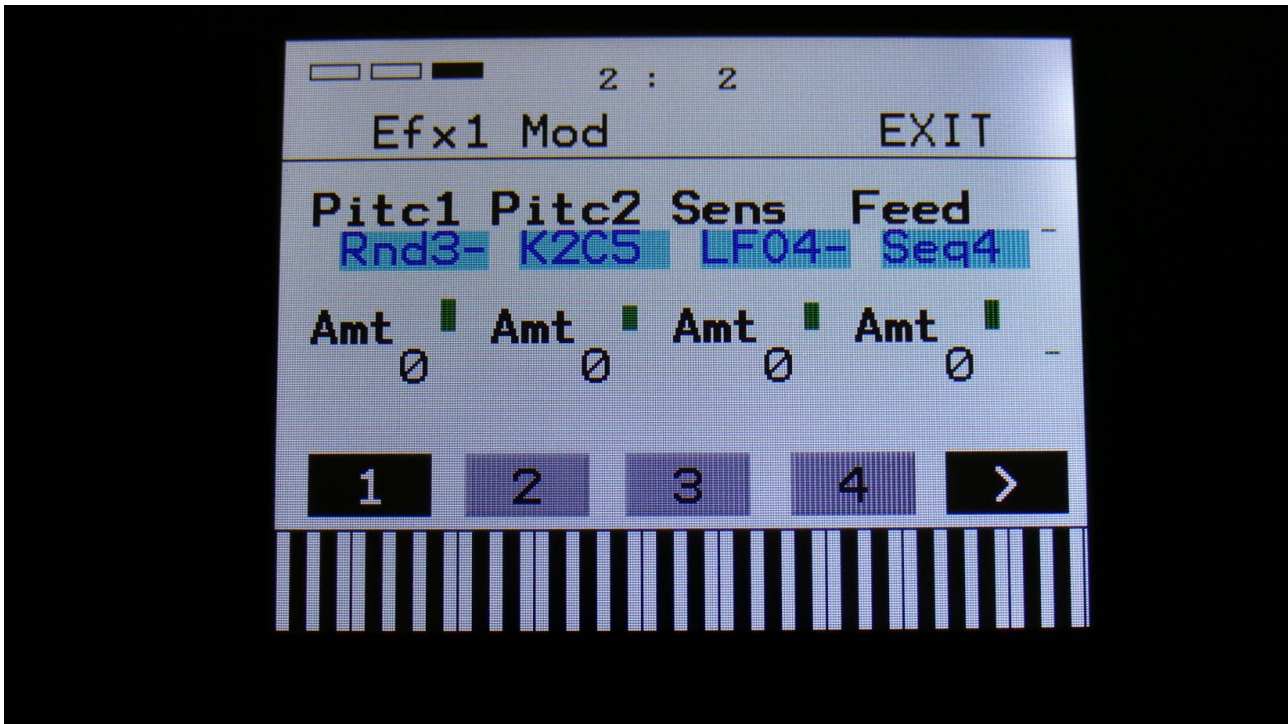
Pitc: Smoothly pitches the sound from up to 4 octaves below the original pitch, to 4 octaves above.

Sense: Pitch detection sense. On a pure waveform, turn this fully down to make sure, that it detects all the waves of it, and pitch shifts correctly. On more complex sounds, turn this up until the desired effect are obtained. At higher settings, only portions of the sound will be pitch shifted, and when it doesn't detect any pitch, it will repeat the portion it detected, making the sound "granulate".

Oct: The octave range of the pitch shifter. From +/- 1 to +/- 4 octaves.

Feed: Pitch shifter feedback. Adjusts the portion of the output signal, that is fed back to the input.

Pitch Shifter Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

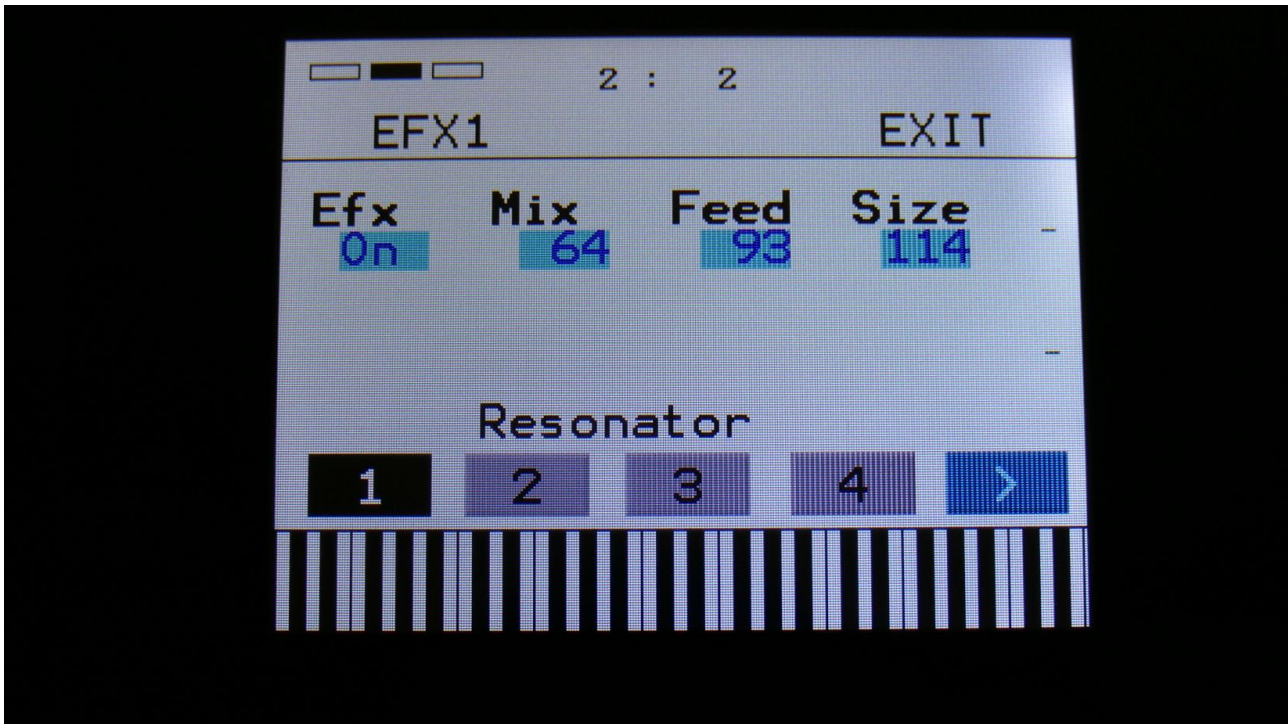
The parameters on this page:

Pitc1 and Pitc2: Modulates the pitch shift parameter.

Sens: Modulates the Sense parameter.

Feed: Modulates the Feed parameter.

Resonator



The 2 VU-meters at the right of the screen, shows the Effect input and output.

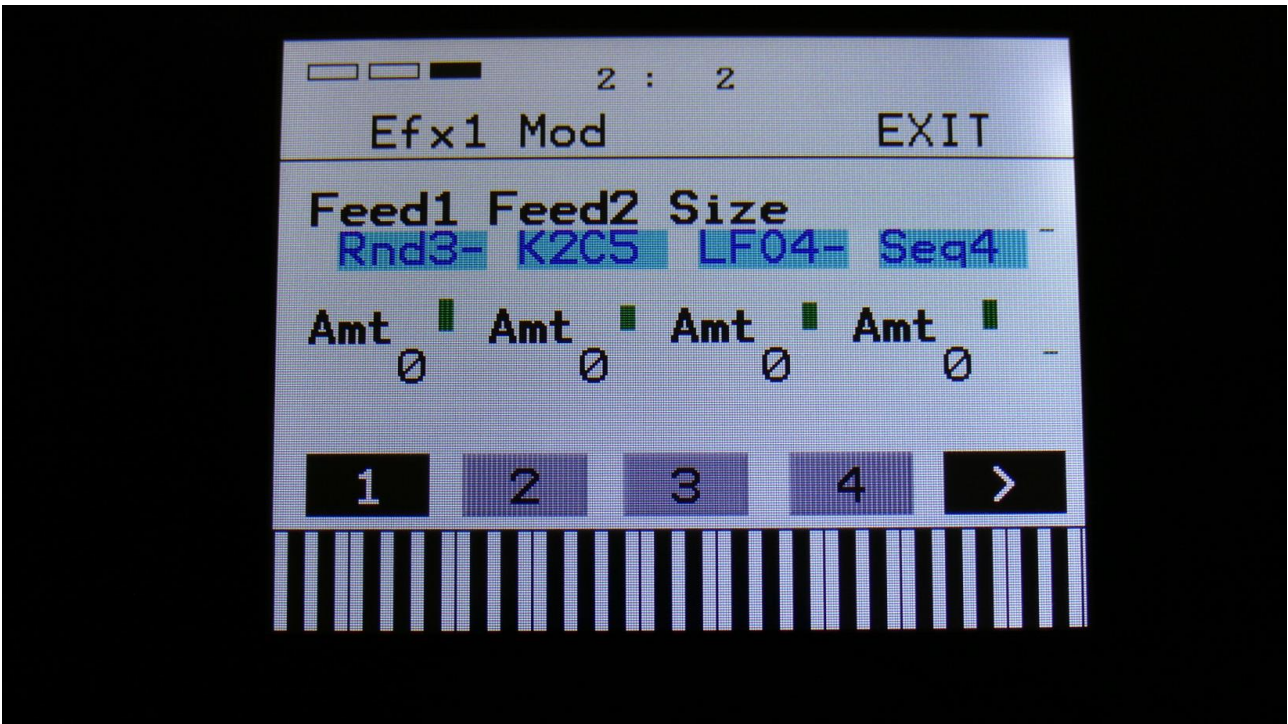
Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Feed: Resonator feedback. The more this is turned up, the more it will resonate.

Size: The size of the resonator box. Different sizes will give different resonance frequencies.

Resonator Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

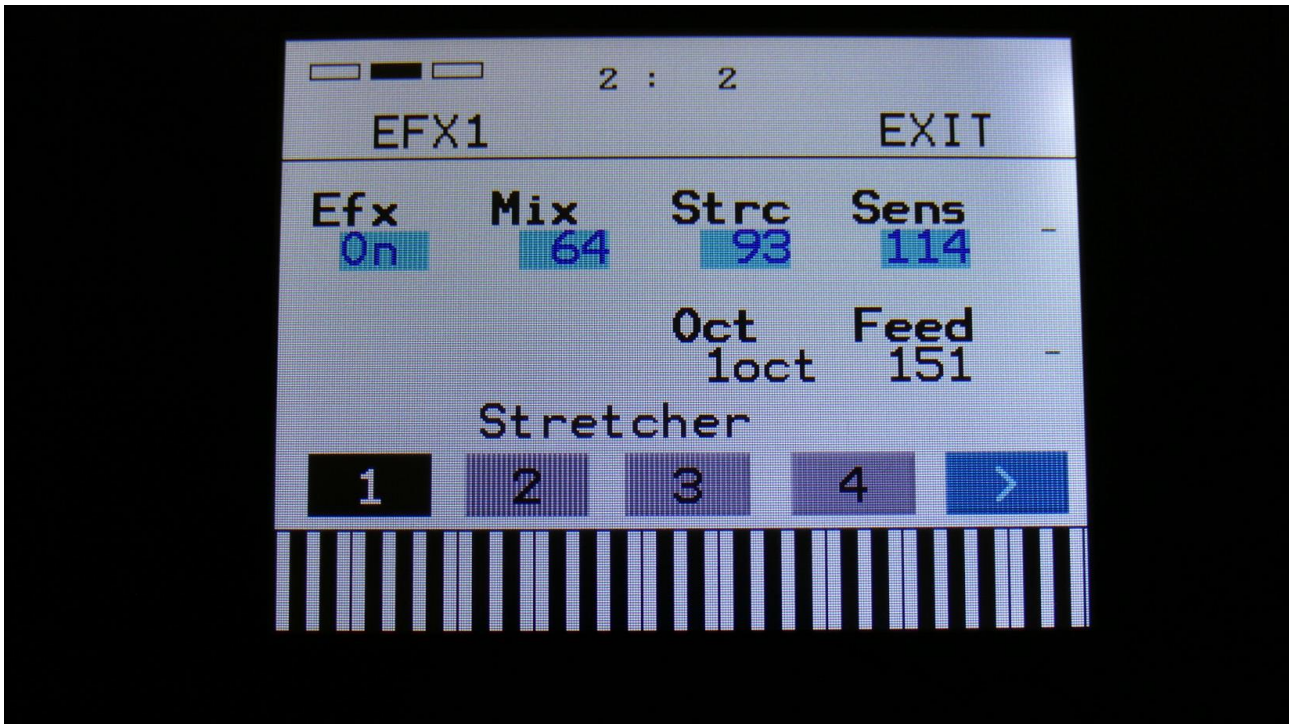
The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Feed1 and Feed2: Modulates the feed parameter.

Size: Modulates the Size parameter.

Stretcher



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

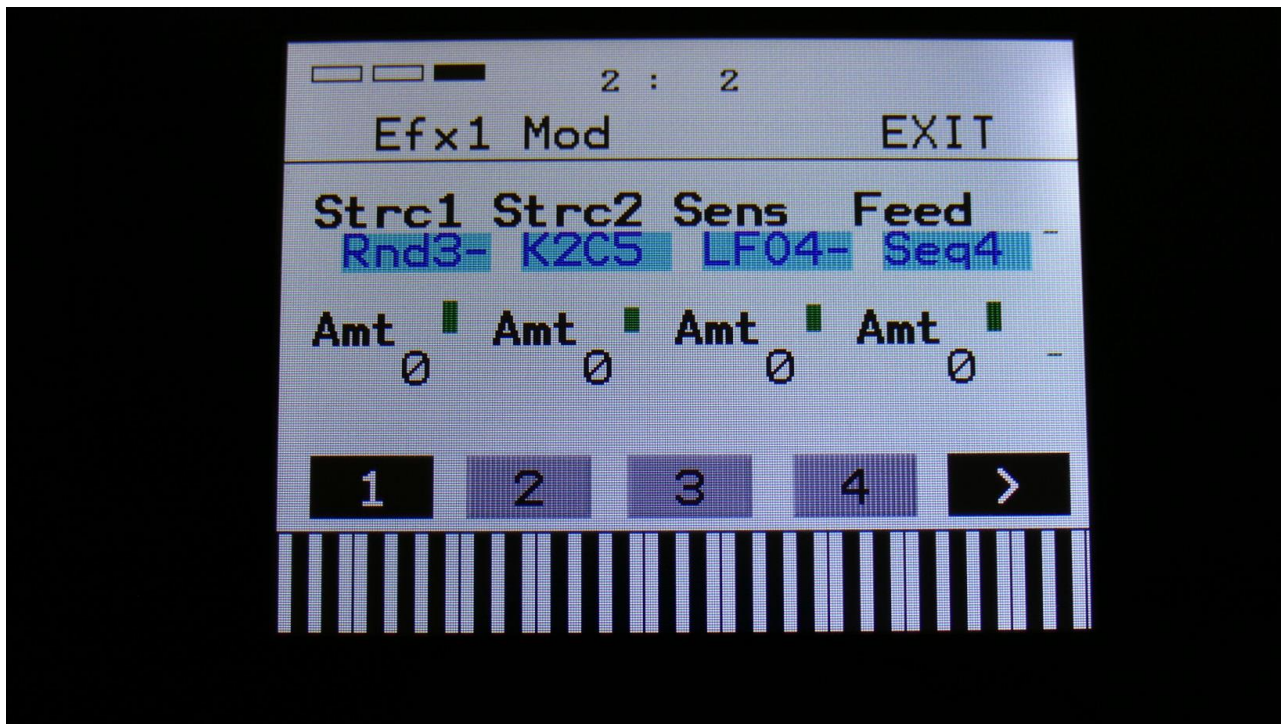
Strc: The degree of time stretch.

Sens: Stretch detection sense. At lower settings the sound will “wobble”, at higher settings it will “granulate”. Adjust this to obtain different effects.

Oct: The octave range of the stretch effect. From +/- 1 to +/- 4 octaves.

Feed: Stretcher feedback. Adjusts the portion of the output signal, that is fed back to the input.

Stretcher Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Strc1 and Strc2: Modulates the stretch parameter.

Sens: Modulates the sense parameter.

Feed: Modulates the feed parameter.

FM



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

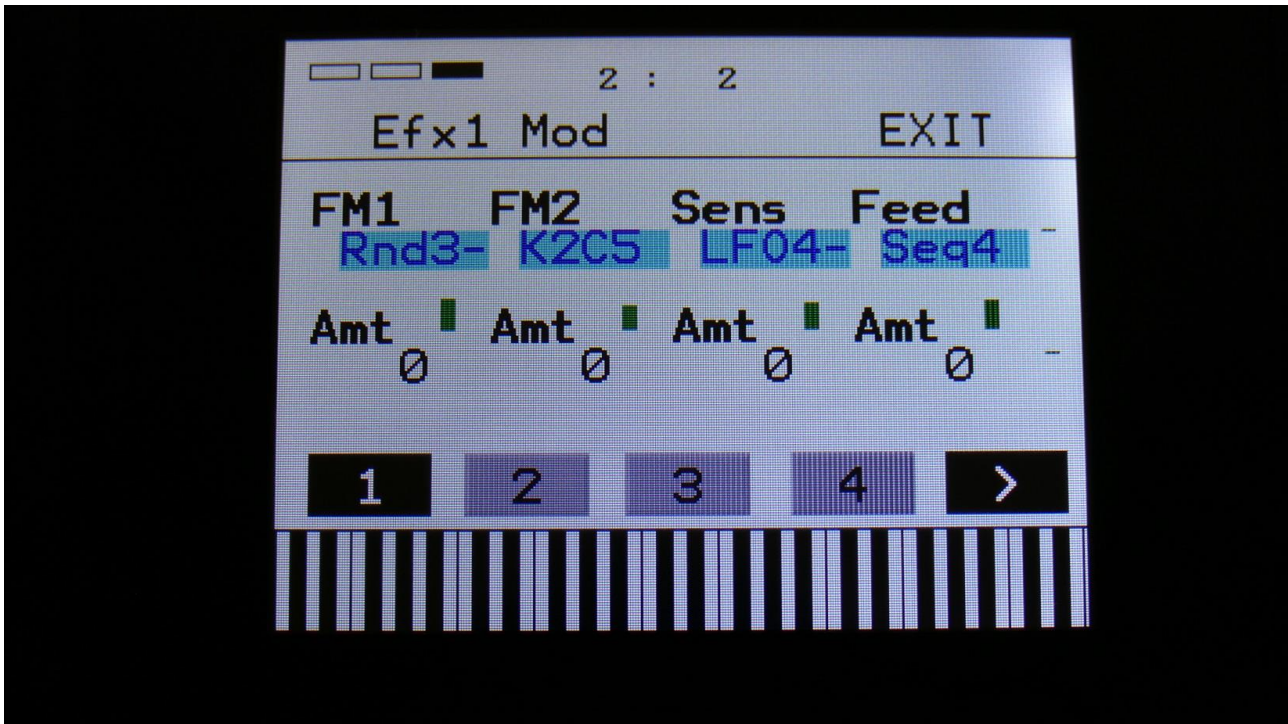
Strch: The degree of self-FM from 0 to up to +/- 4 octaves.

Sense: FM pitch detection sense. On a pure waveform, turn this fully down to make sure, that it detects all the waves of it, and pitch shifts correctly. On more complex sounds, turn this up until the desired effect are obtained. At higher settings, only portions of the sound will be pitch shifted, and when it doesn't detect any pitch, it will repeat the portion it detected, making the sound "granulate".

Oct: The octave range of the FM effect. From +/- 1 to +/- 4 octaves.

Feed: FM feedback. Adjusts the portion of the output signal, that is fed back to the input.

FM Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

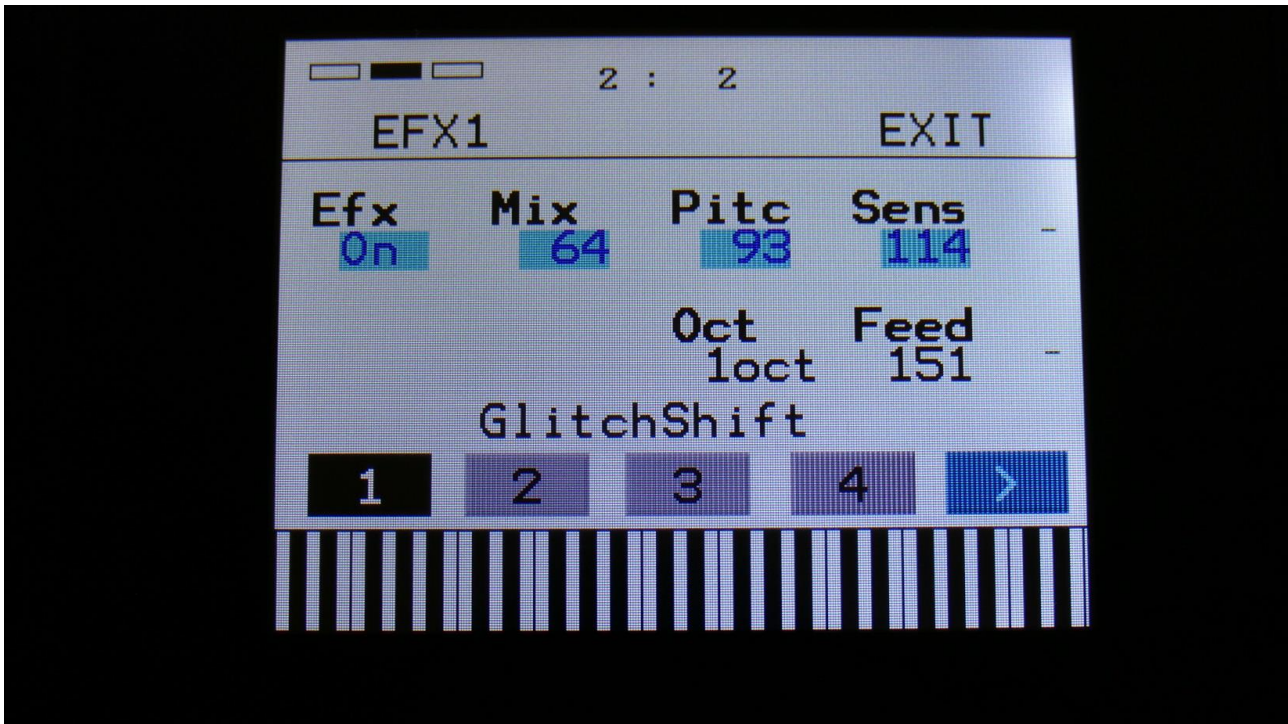
The parameters on this page:

FM1 and FM2: Modulates the FM parameter.

Sens: Modulates the sense parameter.

Feed: Modulates the feed parameter.

Glitch Shifter, Glitch Shifter 2



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

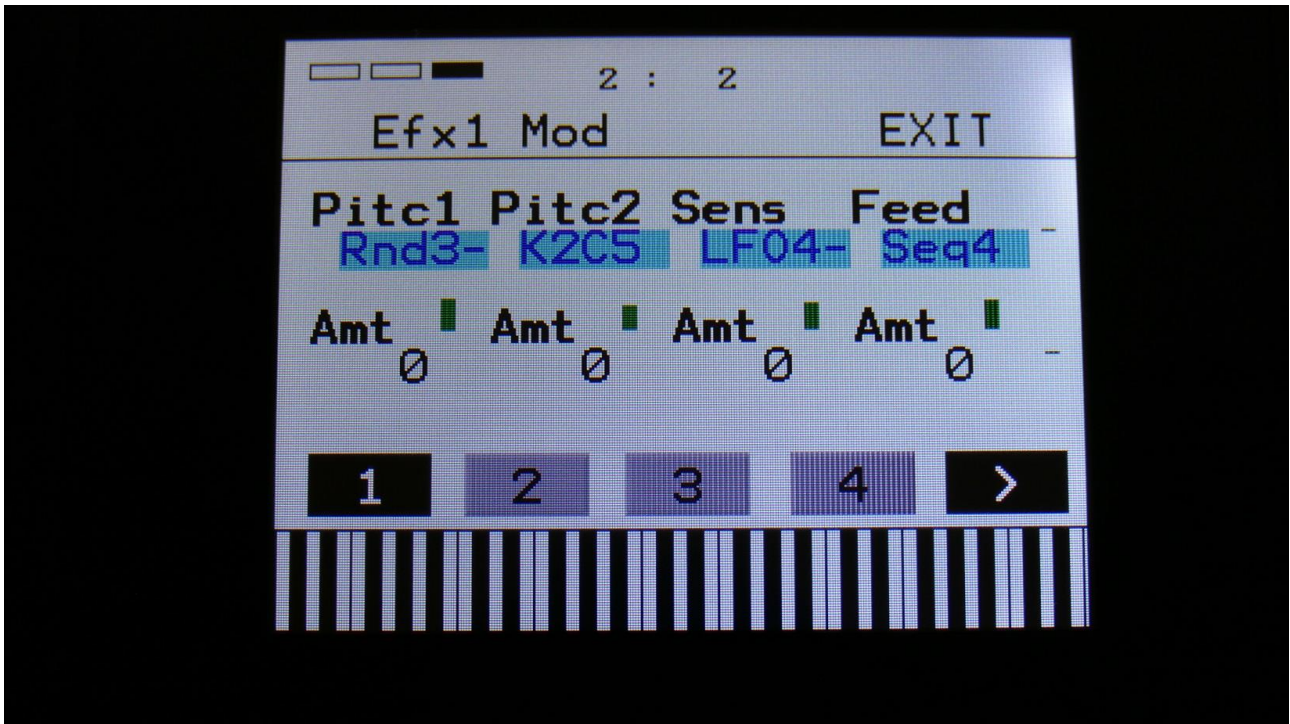
Pitc: Glitchy pitches the sound from up to 4 octaves below the original pitch, to 4 octaves above.

Sense: Pitch detection sense. On a pure waveform, turn this fully down to make sure, that it detects all the waves of it, and pitch shifts correctly. On more complex sounds, turn this up until the desired effect are obtained. At higher settings, only portions of the sound will be pitch shifted, and when it doesn't detect any pitch, it will repeat the portion it detected, making the sound "granulate".

Oct: The octave range of the glitch shifter. From +/- 1 to +/- 4 octaves.

Feed: Glitch shifter feedback. Adjusts the portion of the output signal, that is fed back to the input.

Glitch Shifter, Glitch Shifter 2 Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

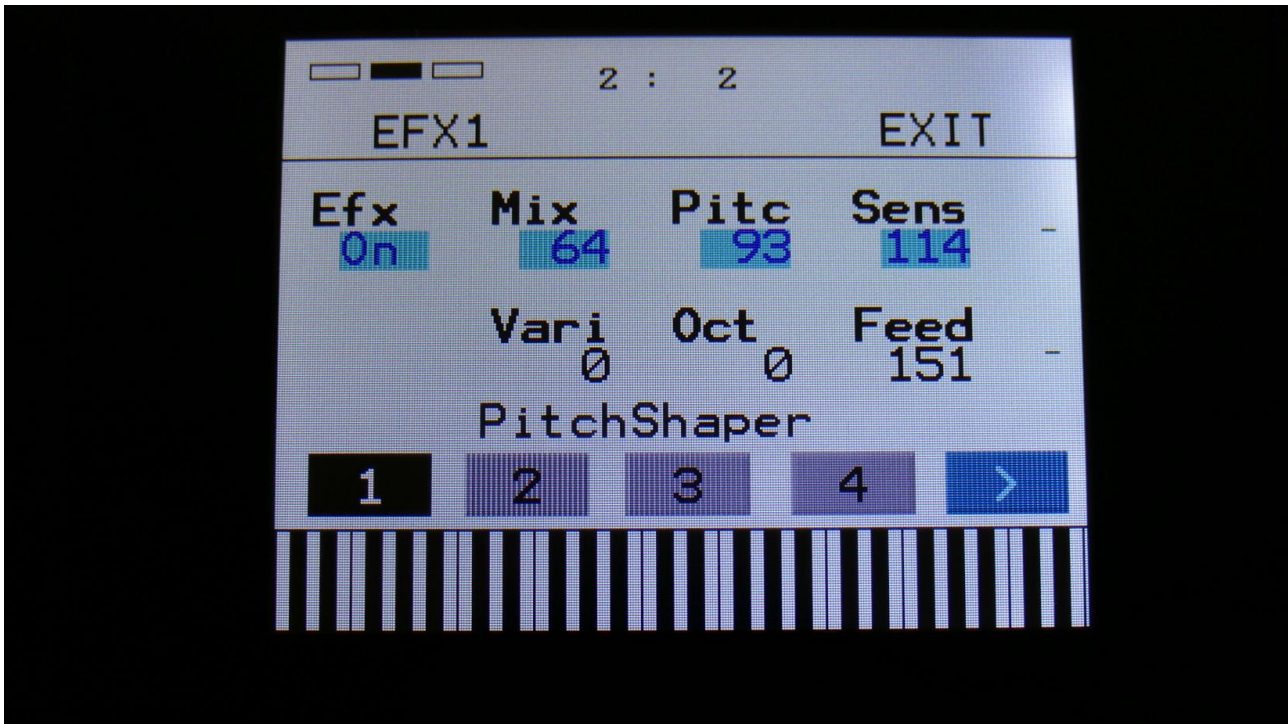
The parameters on this page:

Pitc1 and Pitc2: Modulates the glitch shift parameter.

Sens: Modulates the Sense parameter.

Feed: Modulates the Feed parameter.

Pitch Shaper



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Pitc: Sets the frequency, that the input signal should be re-pitched to.

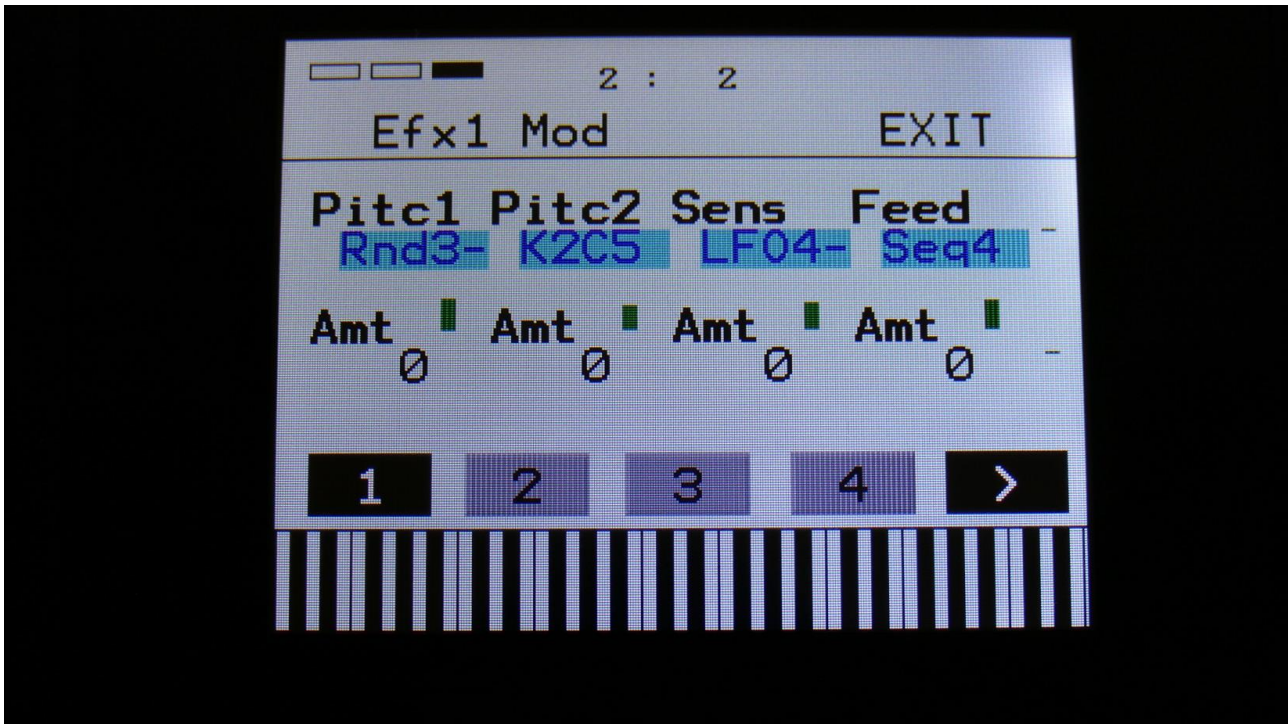
Sense: Pitch detection sense. On a pure waveform, turn this fully down to make sure, that it detects all the waves of it, and pitch shifts correctly. On more complex sounds, turn this up until the desired effect are obtained. At higher settings, only portions of the sound will be pitch shifted, and when it doesn't detect any pitch, it will repeat the portion it detected, making the sound "granulate".

Vari: Pitch variation. The more this is turned up, the more the pitch variations on the input signal affects the pitch shaper frequency.

Oct: Octave transpose. From 0 to +3 octaves.

Feed: Pitch shaper feedback. Adjusts the portion of the output signal, that is fed back to the input.

Pitch Shaper Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

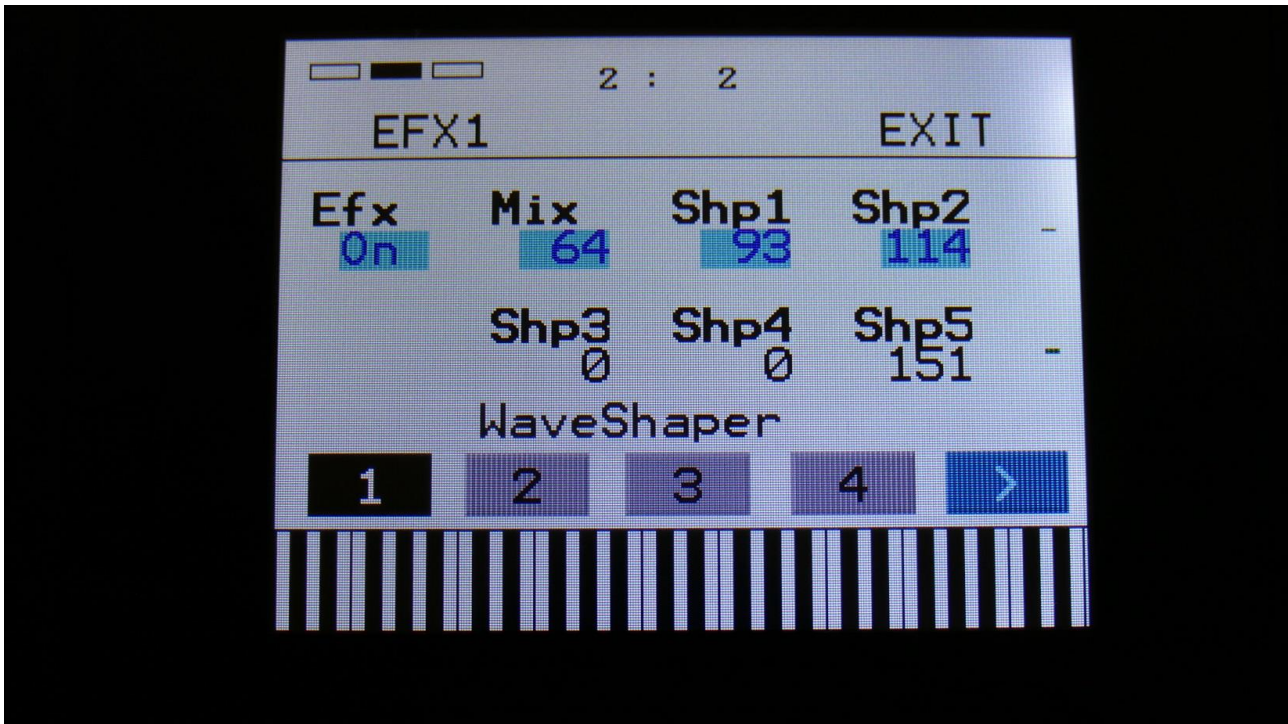
The parameters on this page:

Pitc1 and Pitc2: Modulates the pitc parameter.

Sens: Modulates the Sense parameter.

Feed: Modulates the Feed parameter.

Wave Shaper



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Shp1 to Shp5: Sets the shape of the output waveform.

Wave Shaper Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Shp1, Shp2 and Shp5: Modulates the shape of the output waveform.

FAT



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

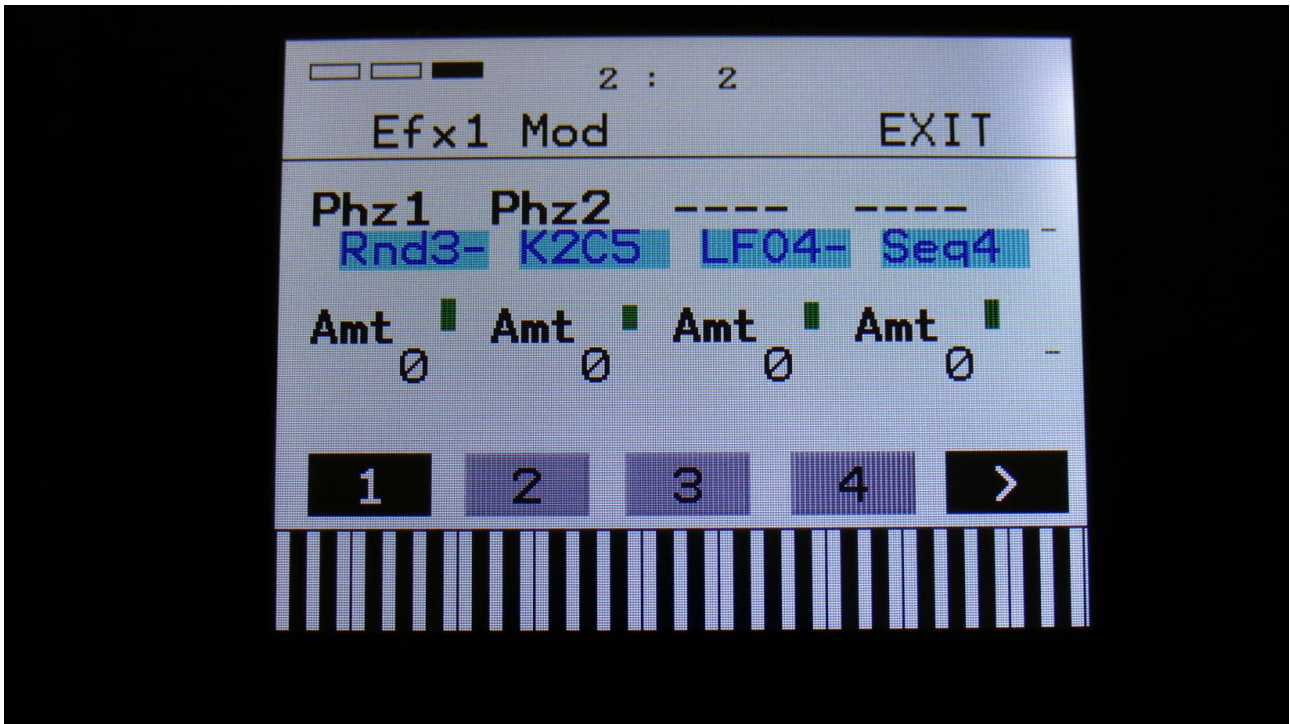
Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Phase: Adjusts the phase difference of the FAT layers. When turned fully down, all layers are in phase. The more it is turned up, the more the layers goes out of phase to each other. Useful for creating comb filter type sounds.

FAT: Adds 0 to 3 layers of the input sound to itself.

Boost: When this is on, the FAT layers are sonically added to each other, which will make the sound louder, and might cause it to saturate. If it is off, the sound stays at it's original sonic level, even when layers are added.

FAT Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

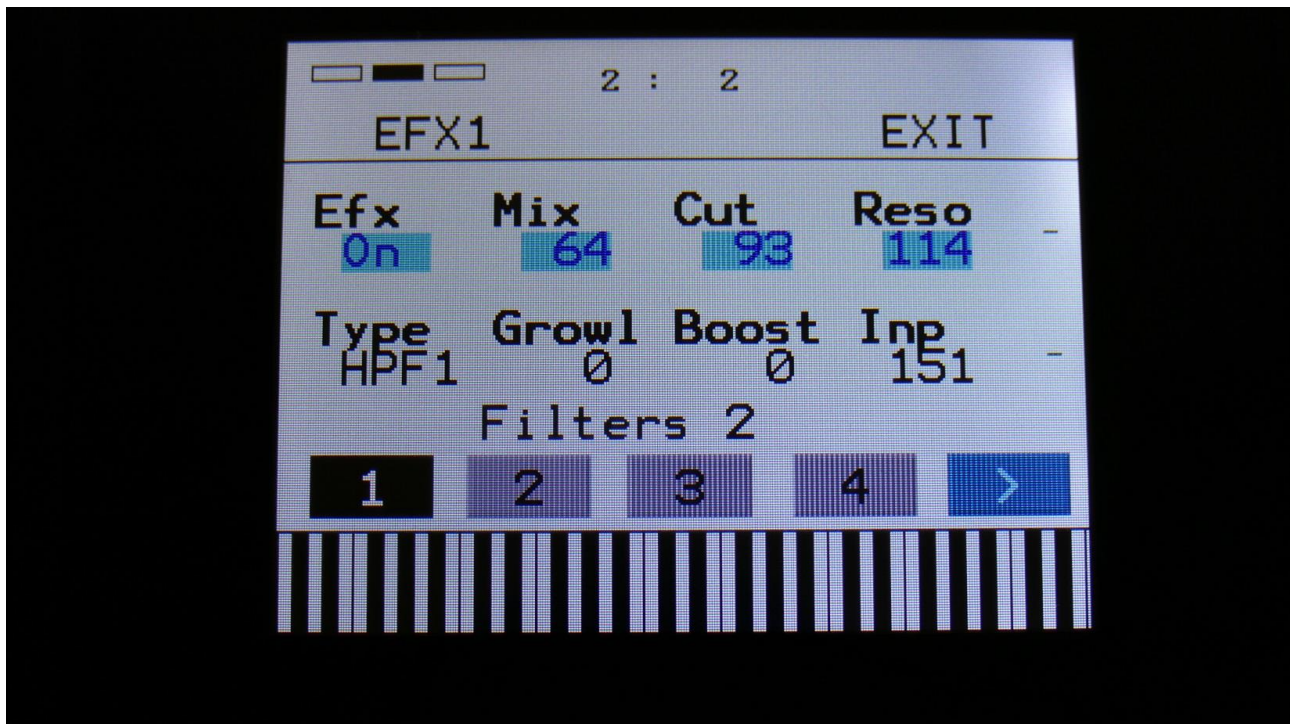
For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Phz1 and Phz2: Modulates the Phaze parameter.

Filters 2



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Cut: Filter cutoff frequency.

Reso: Filter resonance setting.

Type: Filter type. Possibilities are:

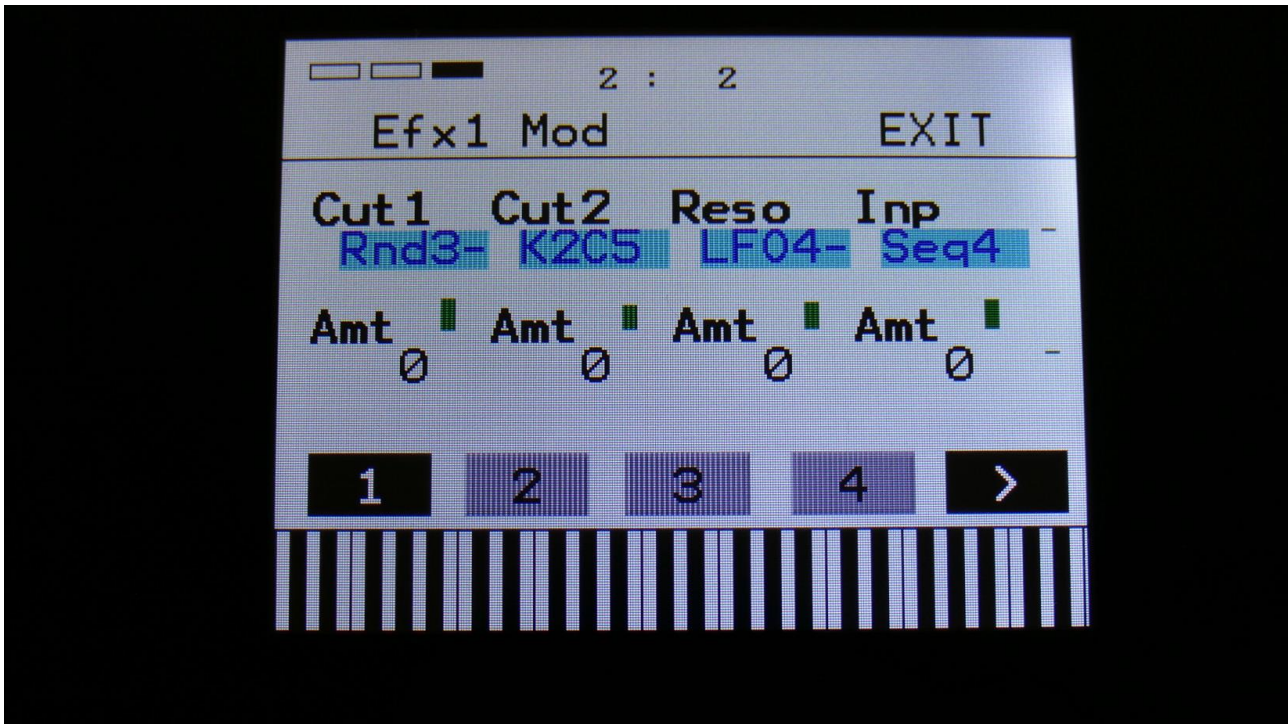
- HPF1:** High pass filter with extra bass bottom and uncontrollable resonance.
- LPF1:** Low pass filter with extra bass bottom and uncontrollable resonance.
- BPF1:** Band pass filter with extra bass bottom and uncontrollable resonance.
- HPF2:** High pass filter with a thinner and more resonant sound.
- LPF2:** Low pass filter with a thinner and more resonant sound.
- BPF2:** Band pass filter with a thinner and more resonant sound.

Growl: Adds unsymmetric distortion to the filter.

Boost: Adds extra boost to the filter output signal, if desired.

Inp: The input level of the filter.

Filters 2 Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Cut1 and Cut2: Modulates the filter cutoff frequency.

Reso: Modulates the filter resonance.

Inp: Modulates the filter input level parameter.

Output Effects parameters

Delay1, Roto delay, Bright Delay and Bright Roto Delay



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Deep: Simulates a delay box, with adjustable physical depth.

Time: Delay time.

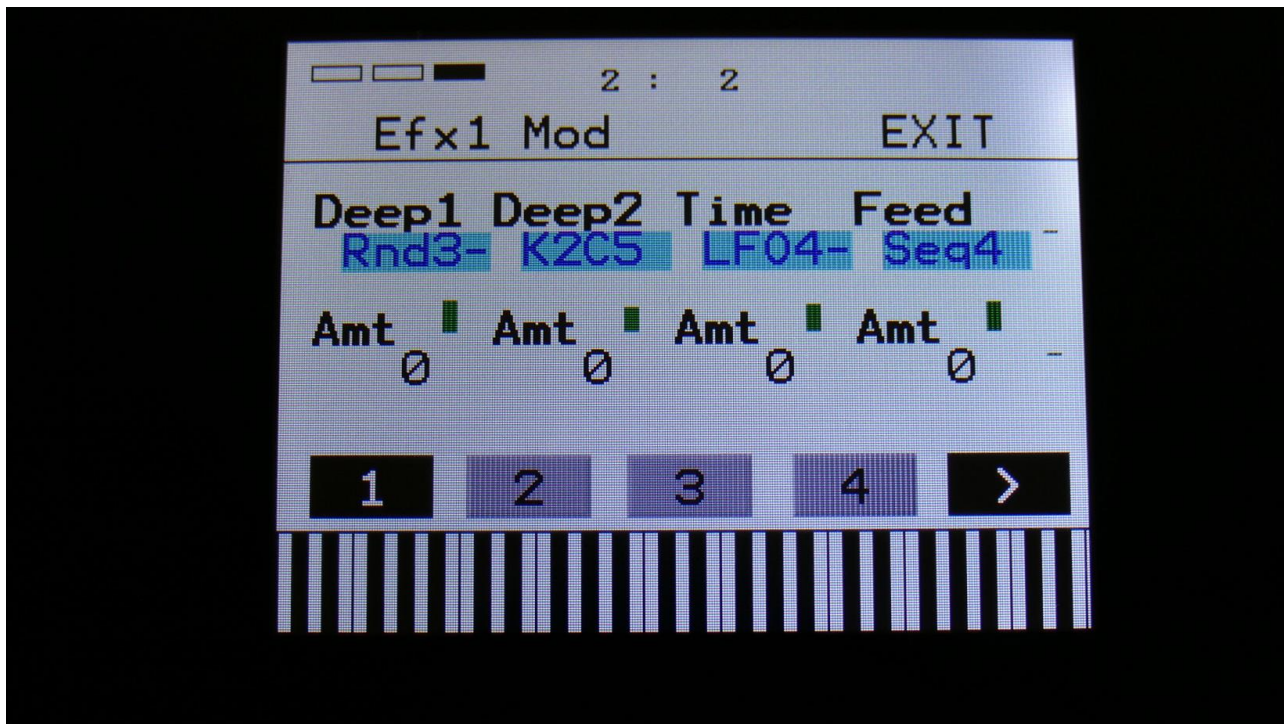
Size: A granular parameter. The more this is turned up, the less space of the delay box is used, causing some echo's to repeat, and others not to sound at all.

Beam: A granular parameter, that "beams" some of the delay sound grains to another place.

Xfade: Crossfade. Makes the delay effect sound smoother, by crossfading the feedback repeats into each other.

Feed: Delay feedback amount. At values over middle, the feedback signal will be gained and create infinite feedback. This might cause some saturation.

Delay1, Roto delay, Bright Delay and Bright Roto Delay Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

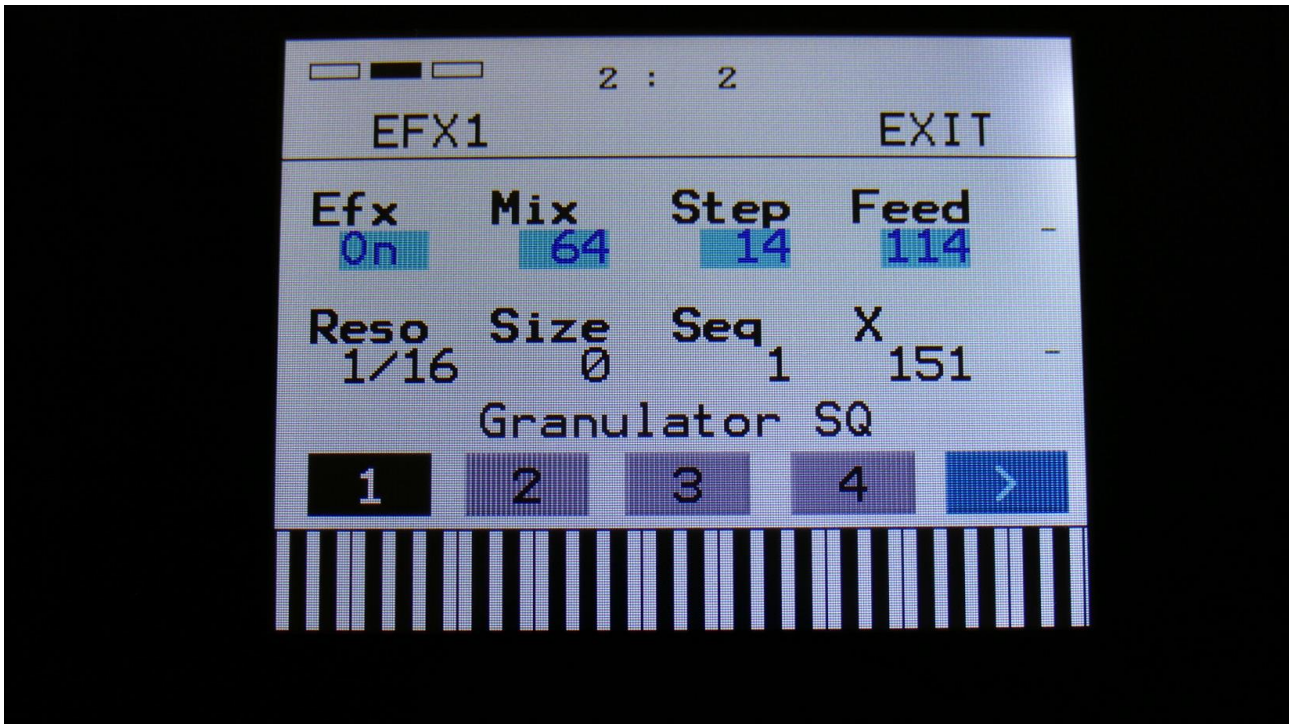
The parameters on this page:

Deep1 and Deep2: Modulates the deep parameter.

Time: Modulates the delay time parameter.

Feed: Modulates the feed parameter.

Granulator SQ



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Step: Sets how many steps the granulator sequencers should go through, until they starts over again from step one. Range: 1 to 16.

Feed: Adjusts how much of the Granulator output signal should be fed back to its input.

Resolution: Adjusts the resolution of the sequencer track, that controls the granulator. The granulator only uses the controller values of the sequencer steps, so the controller track and the granulator can run in different resolutions.

Size: A granular parameter. The more this is turned up, the less space of each granulator step is used, causing the granulator to “stutter”.

Seq: Selects which of the 16 sequencer controller tracks, the granulator should get it step values from. Each value selects a different portion of the granulator input, to be played back.

X: “X” intermodulation of the sound. Another Gotharman special ☺

Granulator Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

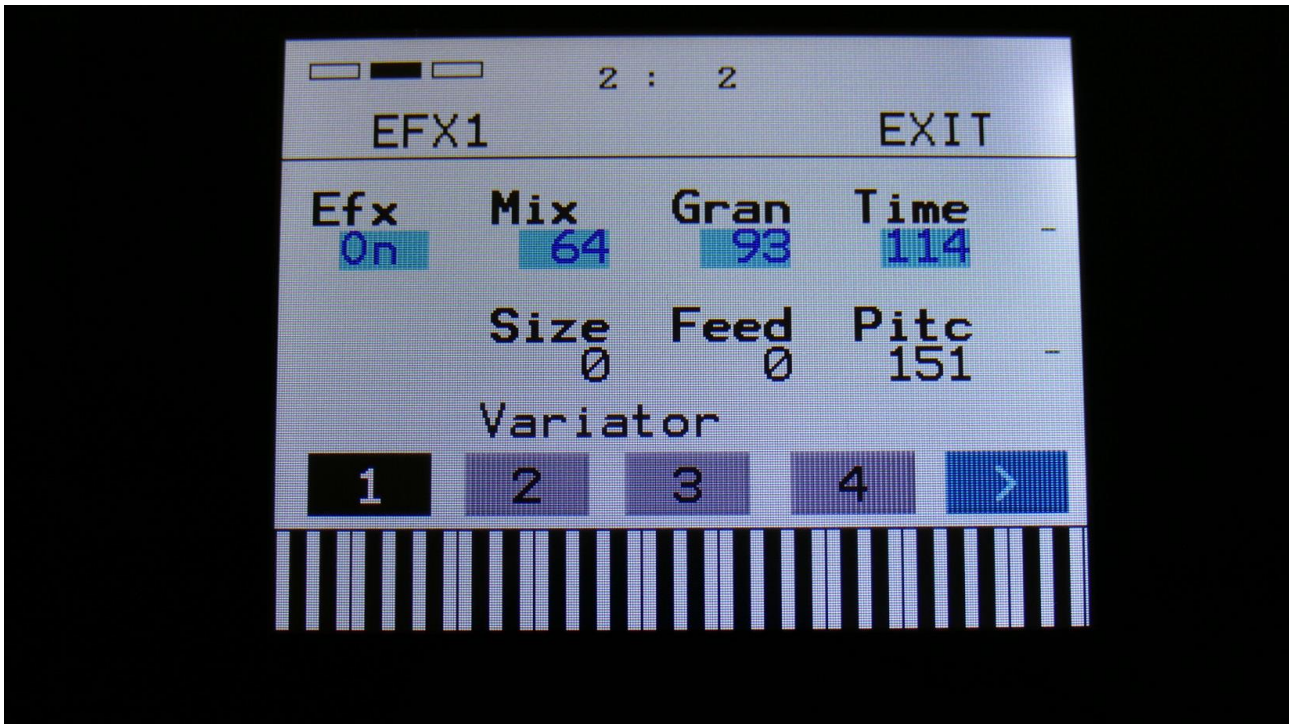
The parameters on this page:

Step1 and Step2: Modulates the number of steps parameter.

Feed: Modulates the feed parameter.

X: Modulates the “X” parameter.

Variator



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on, Freeze. When the effect is off, it is bypassed, and its input mixer can function as a mixer. When the effect are in Freeze mode, the input signal is no longer sampled. The sound that the effect holds, will just keep playing back on and on again. NOT ALL EFFECTS ARE AFFECTED BY FREEZE!

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output, that is sent to the audio bus.

Gran: Determines the variation pattern. Range: 0 to 511.

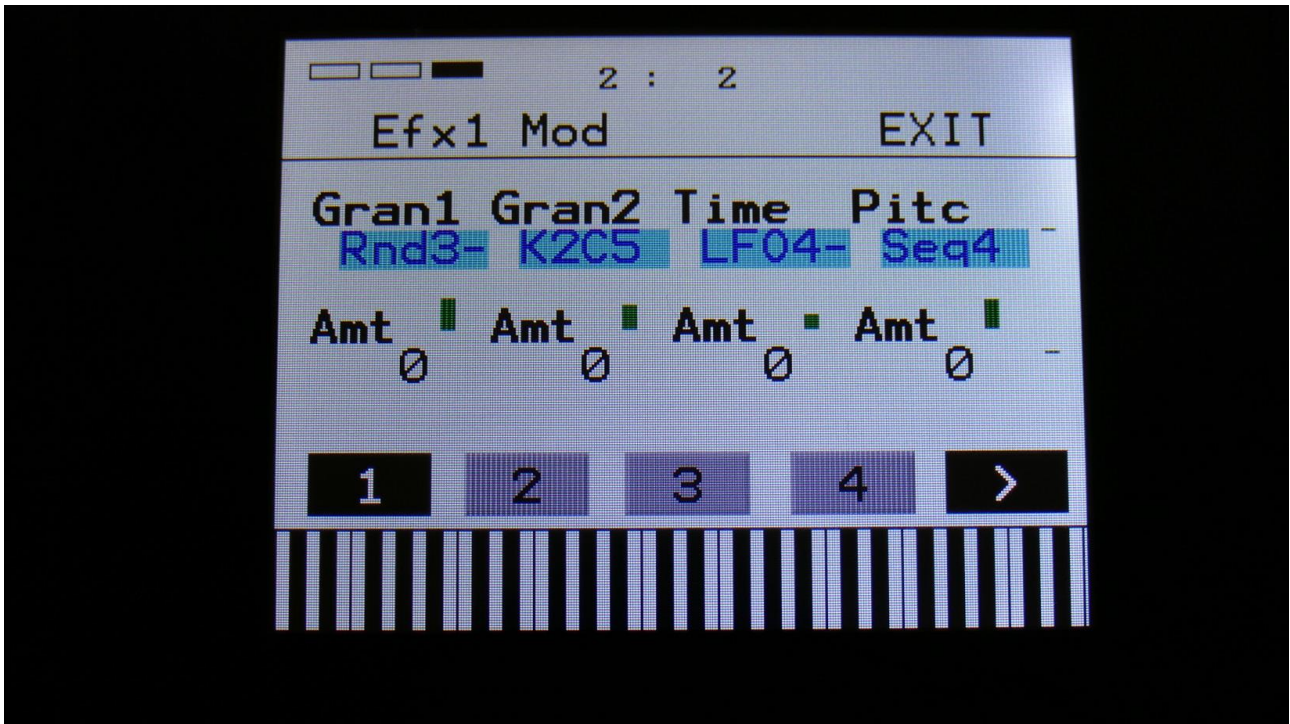
Time: The size of the RAM buffer used for the variator.

Size: The size of one grain.

Feed: Adjusts how much of the Variator output signal should be fed back to its input.

Pitc: The amount of Variator pitch shift.

Variator Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Gran1 and Gran2: Modulates the gran variation pattern parameter.

Time: Modulates the time parameter.

Pitc: Modulates the pitch shift parameter.

Reverb



The 2 VU-meters at the right of the screen, shows the Effect input and output.

Efx: Off, on. When the effect is off, it is bypassed.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output.

Feed: Reverb feedback.

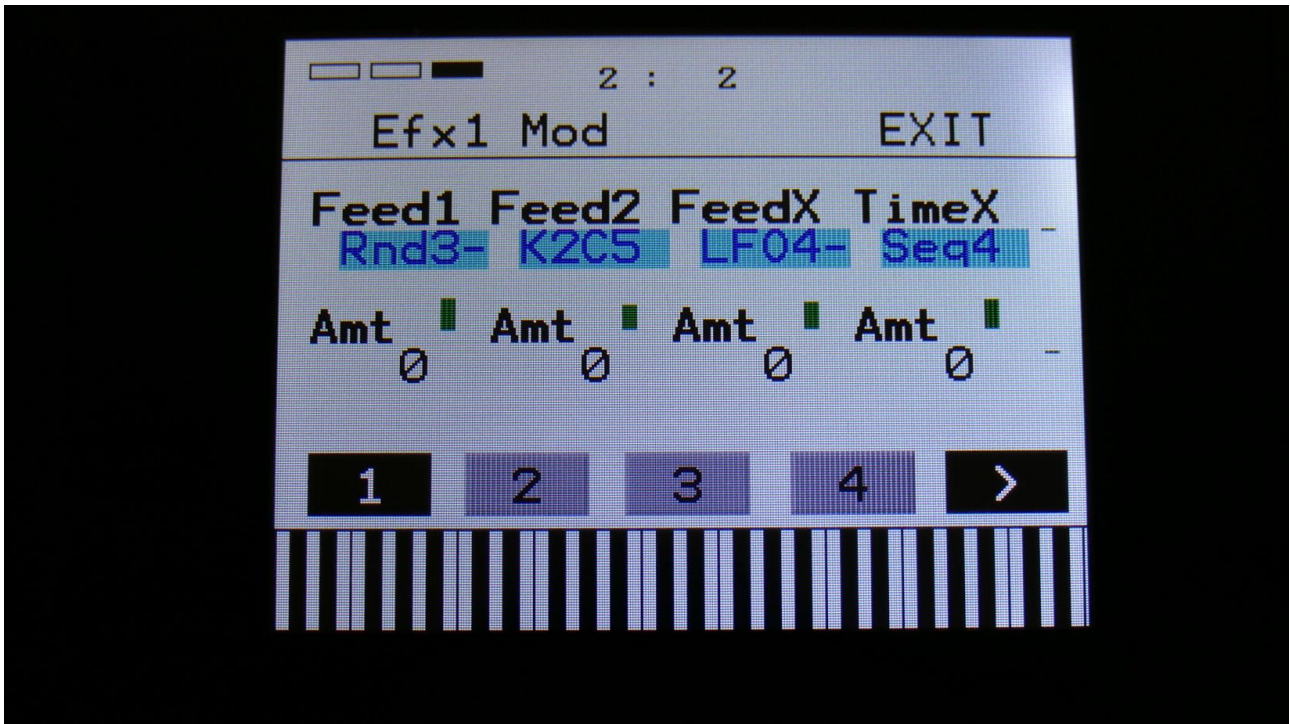
Feed X: Adjusts how much the following reverb taps will decrease in feedback. Lower settings gives a delay effect. As this is turned up, it goes over in a metallic reverb type, and at higher settings it gives a more full reverb.

X: “X” intermodulation of the sound. Another Gotharman special ☺

Time: Reverb time. The total reverb time is a combination of time, timeX, feed and feedX.

Time X: Adjusts how much the following reverb taps will decrease in time. Lower settings is good for a short reverb, and higher settings for a long reverb.

Reverb Modulation



The 2 VU-meters at the right of the screen, shows the Effect input and output. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

The parameters on this page:

Feed1 and Feed2: Modulates the feedback parameter.

FeedX: Modulates the feed x parameter.

TimeX: Modulates the time x parameter.

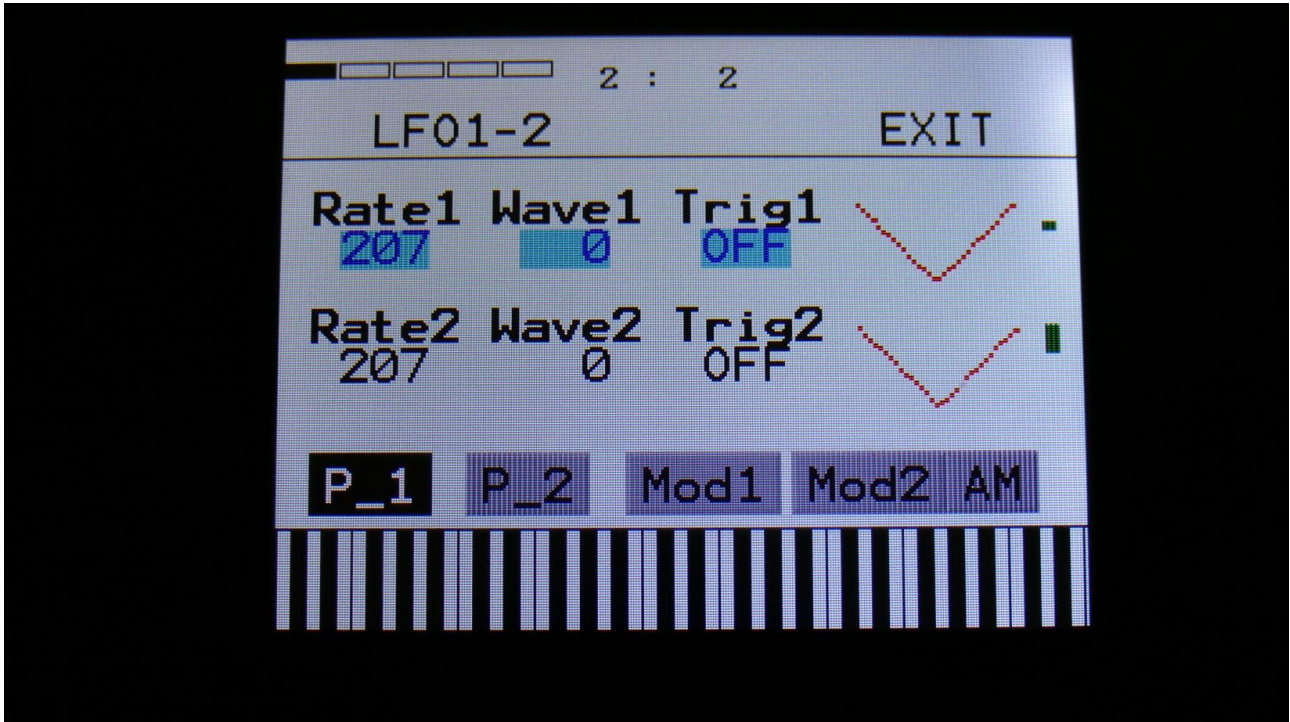
LFO1 to 4

PolySpaze has 4 LFO's, that are global, so each LFO can modulate any of the 4 Synth parts.

The LFO's has continuously variable waveform and rate parameters. Both of these parameters can be modulated. They can also trigger the Synth parts, and be key synced.

LFO 1 and 2 parameters

Touch P_1 to enter this page.



To the right on the LFO page, the current waveforms are shown. The VU-meters at the right of the screen, shows the LFO outputs.

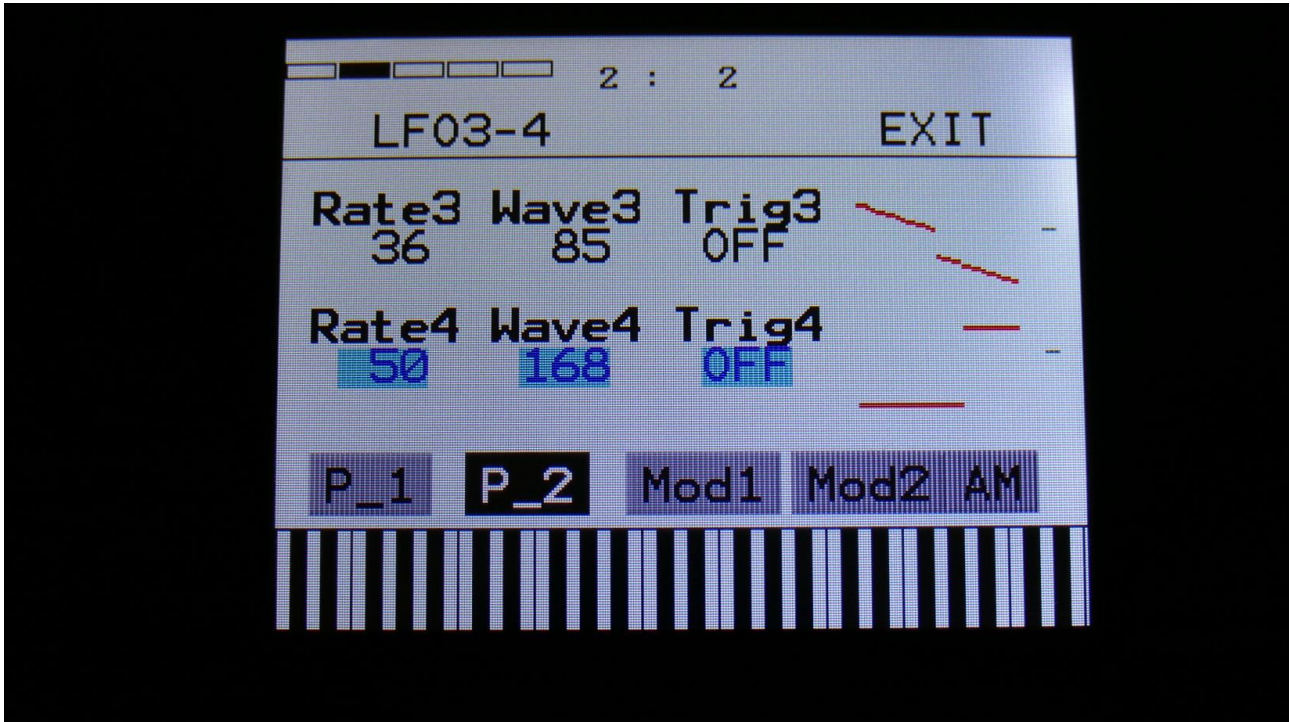
Rate1, Rate2: LFO rate. Adjusts the speed of the LFO.

Wave1, Wave2: LFO output waveform. Morphs between triangle, sawtooth, square, pulse and FM waveforms. The FM waveforms are high frequency waves, that can be used for FM synthesis.

Trig1, Trig2: Sets up the LFO to trigger part 1 to 4, unless you set it to “Off”. Each LFO can trigger one part at a time. When an LFO is triggering a part, this part cannot be triggered by a CV input.

LFO 3 and 4 parameters

Touch P_2 to enter this page.



To the right on the LFO page, the current waveforms are shown. The VU-meters at the right of the screen, shows the LFO outputs.

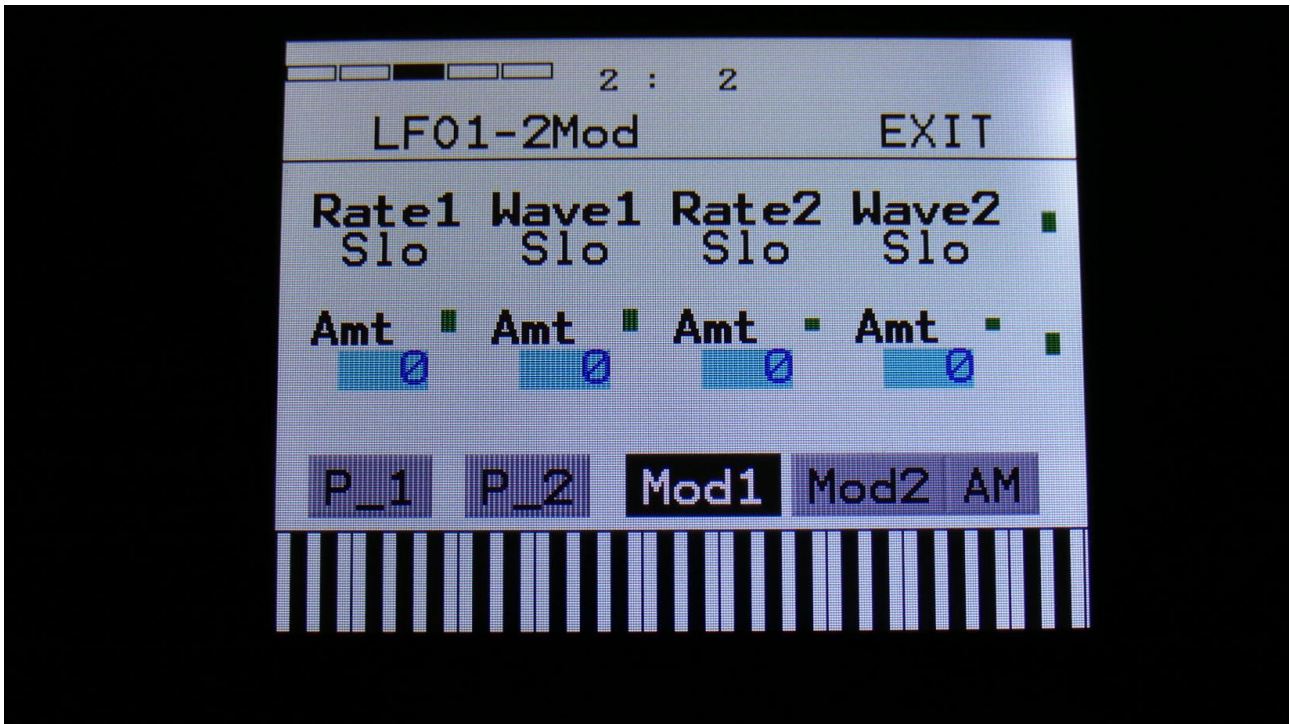
Rate3, Rate4: LFO rate. Adjusts the speed of the LFO.

Wave3, Wave4: LFO output waveform. Morphs between triangle, sawtooth, square, pulse and FM waveforms. The FM waveforms are high frequency waves, that can be used for FM synthesis.

Trig3, Trig4: Sets up the LFO to trigger part 1 to 4, unless you set it to "Off". Each LFO can trigger one part at a time. When an LFO is triggering a part, this part cannot be triggered by a CV input.

LFO 1 and 2 Modulation

Touch Mod1 to enter this page



The 2 VU-meter at the right of the screen, shows the LFO outputs. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

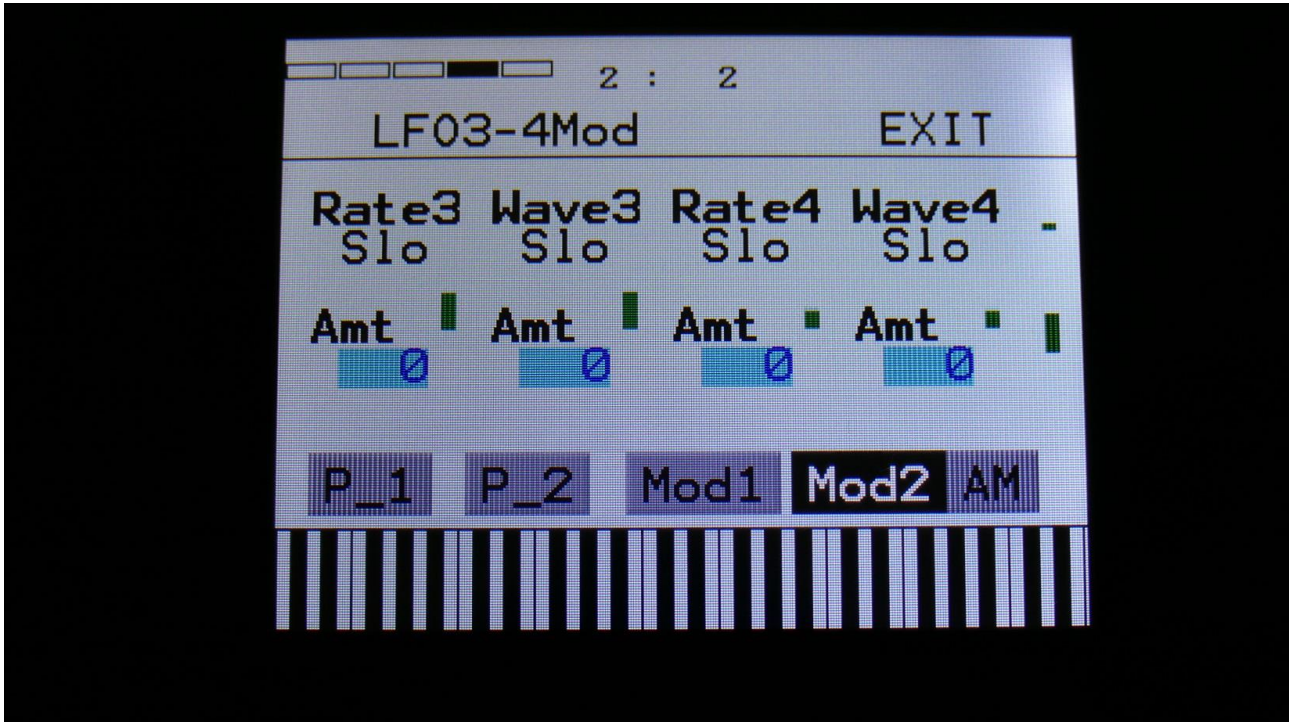
The parameters on this page:

Rate1, Rate2: Modulates the LFO rate.

Wave1, Wave2: Modulates the LFO waveshape.

LFO 3 and 4 Modulation

Touch Mod2 to enter this page



The 2 VU-meter at the right of the screen, shows the LFO outputs. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

For each parameter, that can be modulated, it is possible to select a modulation source, and to adjust the modulation amount. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section.

The upper row of parameters selects the modulation sources, **the lower row of parameters** (Labelled Amt) adjusts the modulation amount in the range 0 to 511.

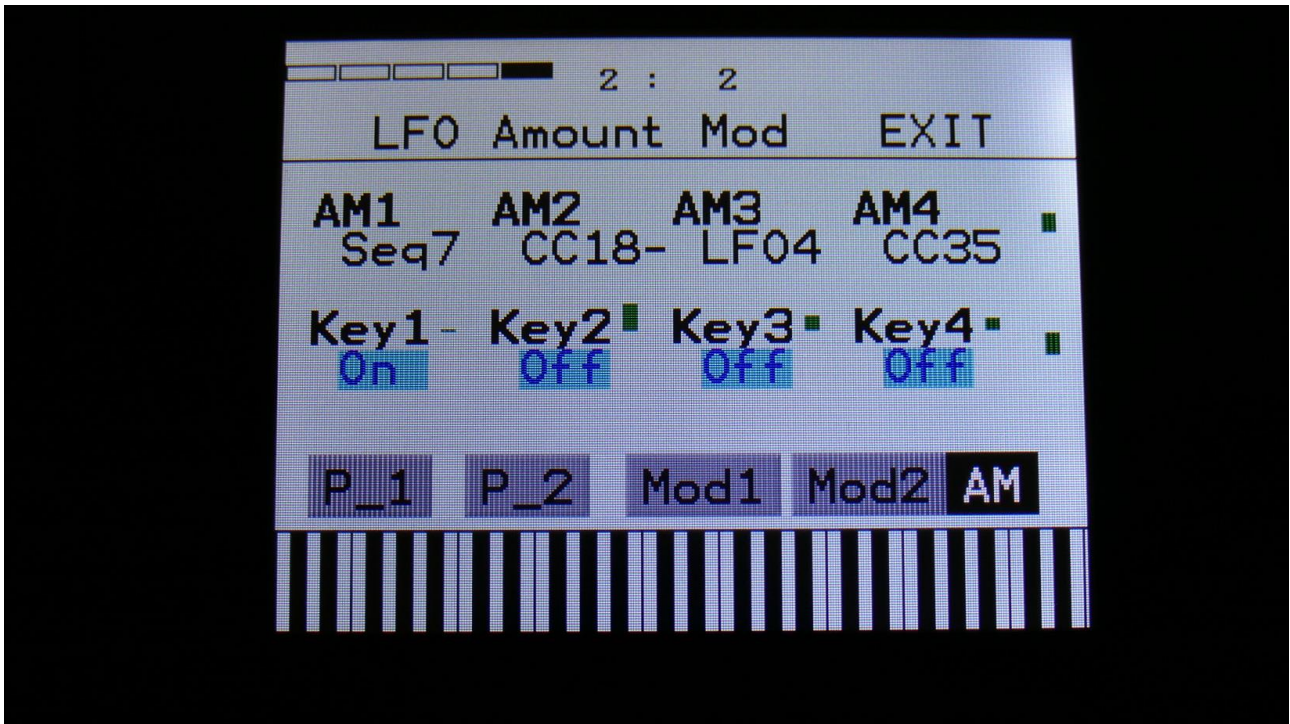
The parameters on this page:

Rate3, Rate4: Modulates the LFO rate.

Wave3, Wave4: Modulates the LFO waveshape.

LFO 1-4 Amount Modulation and Key Sync

Touch AM to enter this page.



The 2 VU-meter at the right of the screen, shows the LFO outputs. The small VU-meters next to the parameters, shows the activity of the selected modulation sources.

Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of this section..

AM1, AM2, AM3, AM4: Selects the modulation source, that will control the LFO output level. If “Off” is selected, no output level control will be applied to the LFO.

Key1, Key2, Key3, Key4: LFO 1 to 4 key sync.

Settings:

Off: The LFO is free running.

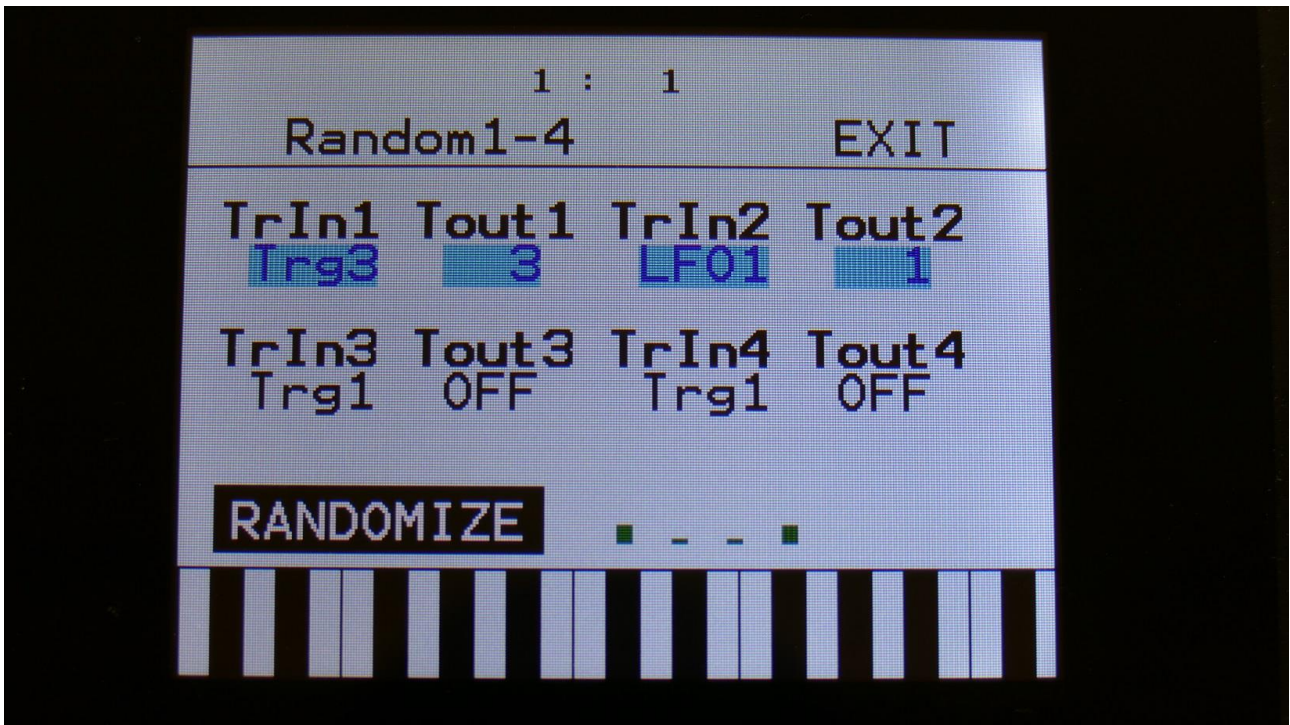
On: Every time the Synth part with the same number as the LFO is triggered, the LFO will reset to its initial value, and start over.

All: Every time any of the Synth parts is triggered, the LFO will reset to its initial value, and start over.

Random Generator 1 to 4

The 4 Random Generators are global, and can modulate any of the 4 Synth parts. They changes to a new random value every time they are triggered. Trigger sources can be trigger 1-4 and LFO 1-4.

Random Generator 1 to 4 parameters



The 4 VU-meters at the bottom of the screen, shows the random generators outputs.

TrIn1, TrIn2, TrIn3, TrIn4: Selects what should trigger the random generator, to shift to a new random value. Choices are: **Trigger 1 to 4, LFO 1 to 4.**

In mono, multi-timbral, multi-bank, stereo bank, poly3, poly4 and poly3 random modes, the trigger in selection will be valid.

In poly1, poly2, polybank1 and polybank2 modes, random generator 1 is always triggered by the voice 1 trigger, random generator 2 is always triggered by the voice 2 trigger, and so on, unless they are set up to be triggered by an LFO.

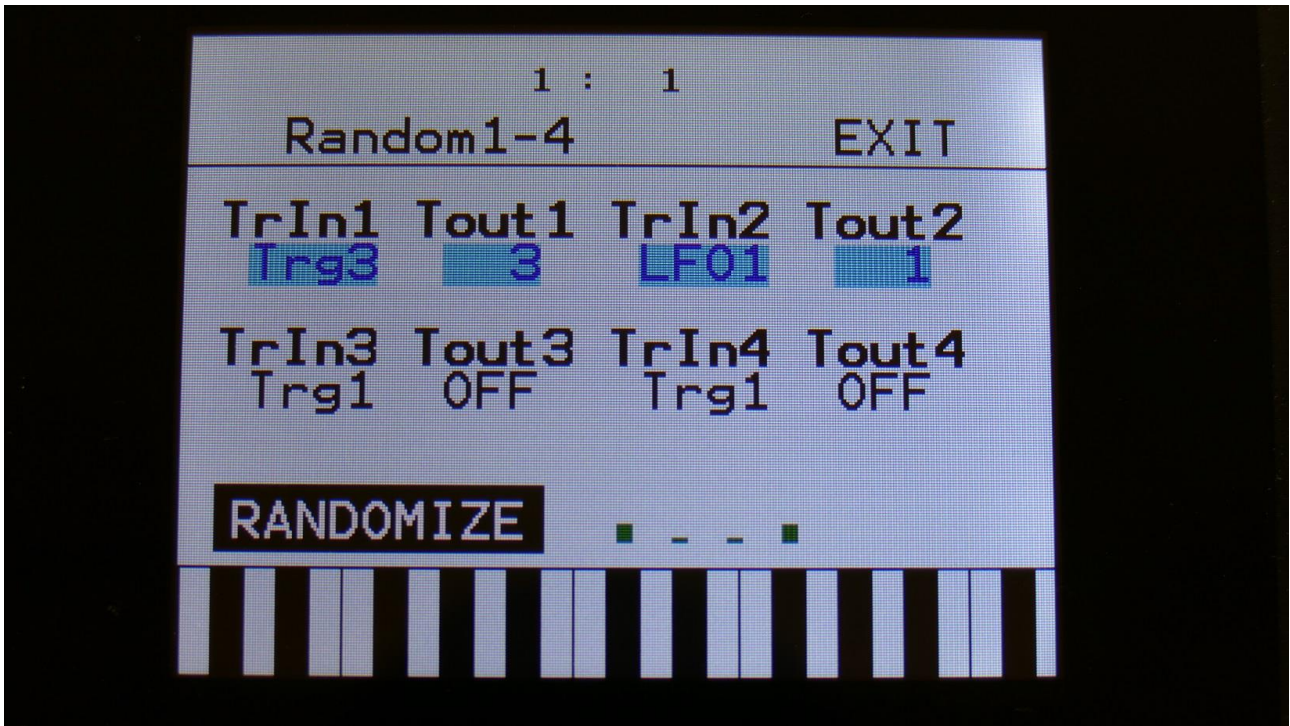
In these modes, random generator 1 outputs to all 4 random generator modulation slots on voice 1, random generator 2 outputs to all 4 random generator modulation slots on voice 2, and so on.

Tout1, Tout2, Tout3, Tout4: Sets up the Random Generator to trigger part 1 to 4, unless you set it to “Off”. Each Random Generator can trigger one part at a time. When a Random Generator is triggering a part, this part cannot be triggered by a CV input or a LFO.

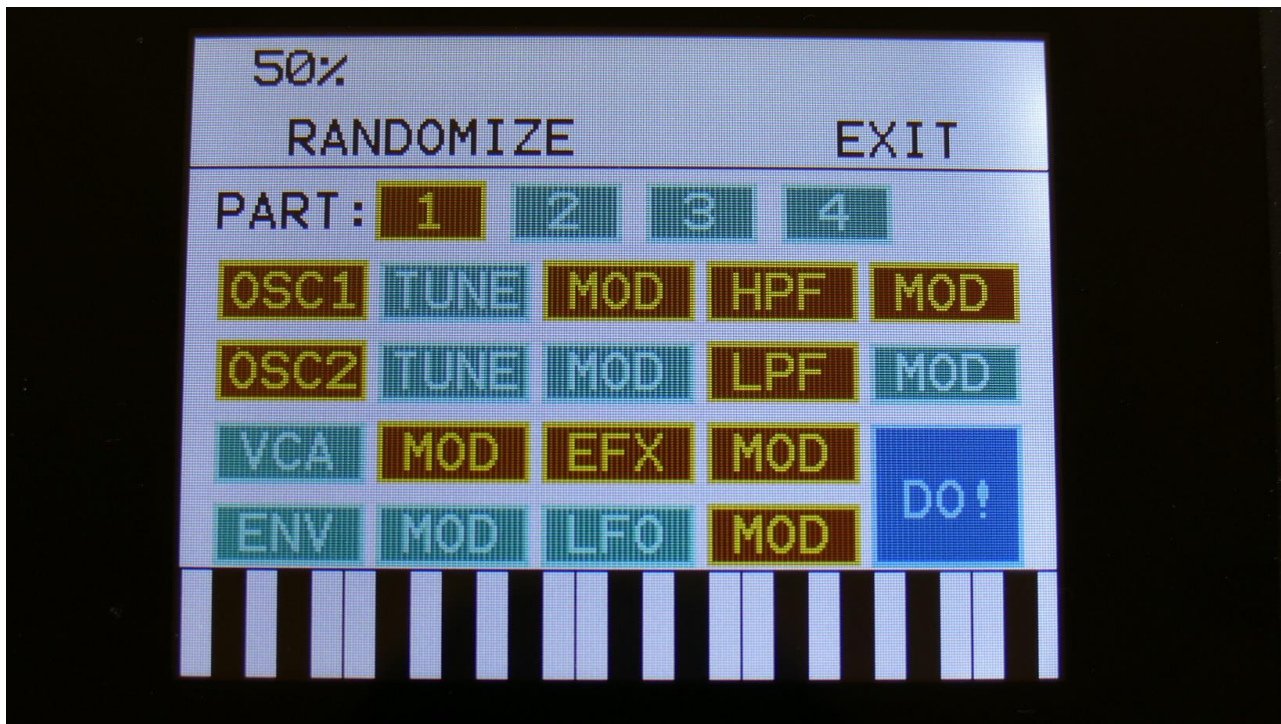
Synth Parameters Randomizer

If you should ever need some new inspiration for sounds, or if you just want to surprise yourself with some sounds that you never even imagined, the PolySpaze parameter randomizer might be exactly what you need.

To enter this, first enter the “RNDM” pages:



From here, hit the “RANDOMIZE” touch button, to enter the Randomizer page:



Select the part that you would like to randomize, by touching any of the numbers 1 to 4, switch the blocks on, that you would like randomized, simply by touching these, adjust the percentage, that it must maximum change the parameters, using Edit Knob 1, and hit “DO!”.

Green blocks are not randomized, brown blocks are.

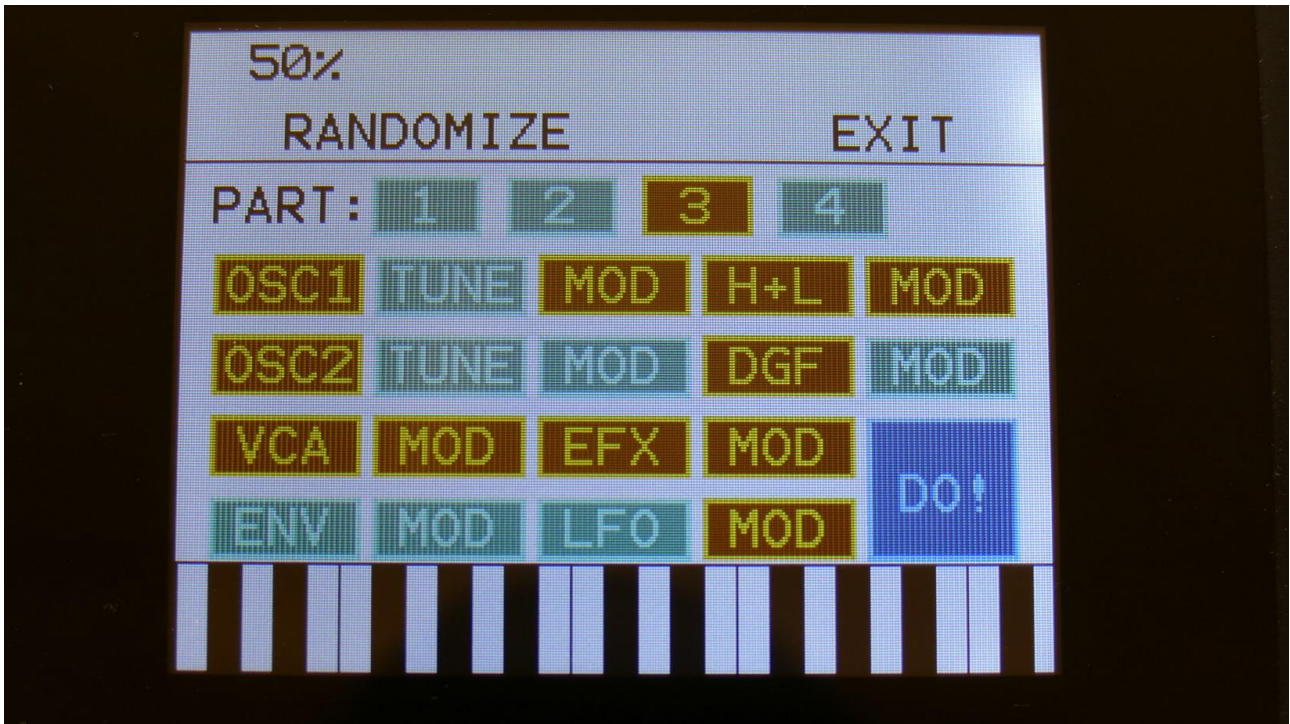
Listen to the result.

If you like it, exit the randomizer page, and save the preset.

If you don't like the result, hit “DO!” again, and keep hitting it, until something comes up, that you want. Try with different percentage settings, and try to switch different blocks on and off.

When the Randomizer page is entered, all parameters are stored into a temporary buffer, that are used for the randomization. So if you, for instance, first randomizes with 50%, and then with 20%, the result will be maximum 20% away from the initial parameter settings, when the Randomizer page was entered. It does not first randomize 50%, and then randomize 20% on top of that. To randomize things further away, you must exit the Randomizer page, and re-enter it.

If the preset, that you are working on, are set in “B” mode, the Randomizer page will look like this:



The analog highpass and lowpass filters are now selected for randomization as one block. The digital filter has its own block.

The Sequencer

The PolySpaze sequencer has 2 different types of tracks: Note tracks and controller tracks. It has 4 note tracks and 8 controller tracks.

Each note track controls 1 part – Note track 1 controls trigger/part 1, note track 2 controls trigger/part 2 and so on, and each track has a note number subtrack, a gate time subtrack, a velocity subtrack and a step on/off subtrack. Note number, gate time, delay time and swing can be modulated. Via the triggers it is also possible to output the notes from the note track to MIDI out. See the “Mode” section earlier in this manual (in the Synth section), for details on how to set up the trigger MIDI outputs.

Each controller track outputs their value to the modulation sources matrix and, if selected, to MIDI out. Each controller track has a controller value subtrack and a slide subtrack, that makes it possible to make the steps slide from one value to the next, instead of just shift. The controller tracks can also be note quantized, to scale their outputs to 1V/Oct or 1.2V/Oct, when used for the optional CV outputs. When the output of a controller track is quantized, the steps will be delayed instead of slid between each other, when slide steps are turned up.

All tracks has separate last step, start step and resolution settings, so even polyrhythmic sequences are possible. The step length of each track can be from 1 to 64 steps.

The tempo of the sequencer can be set between 1 and 255 BPM. It can sync to MIDI clock, and it is both possible to transmit and re-send MIDI clock to MIDI out.

Inputting of note number values can be done in analog/TR fashion, via the touch display, and it can be done by realtime recording. To assist the realtime recording, a metronome is present.

Inputting of controller track values can only be done via the touch screen, not by realtime recording.

It is possible to mute and edit each track separately.

Remember to save all edits you do in the sequencer. Else they will be lost when you change preset, or turn PolySpaze off. See how to in the “Save Preset” section.

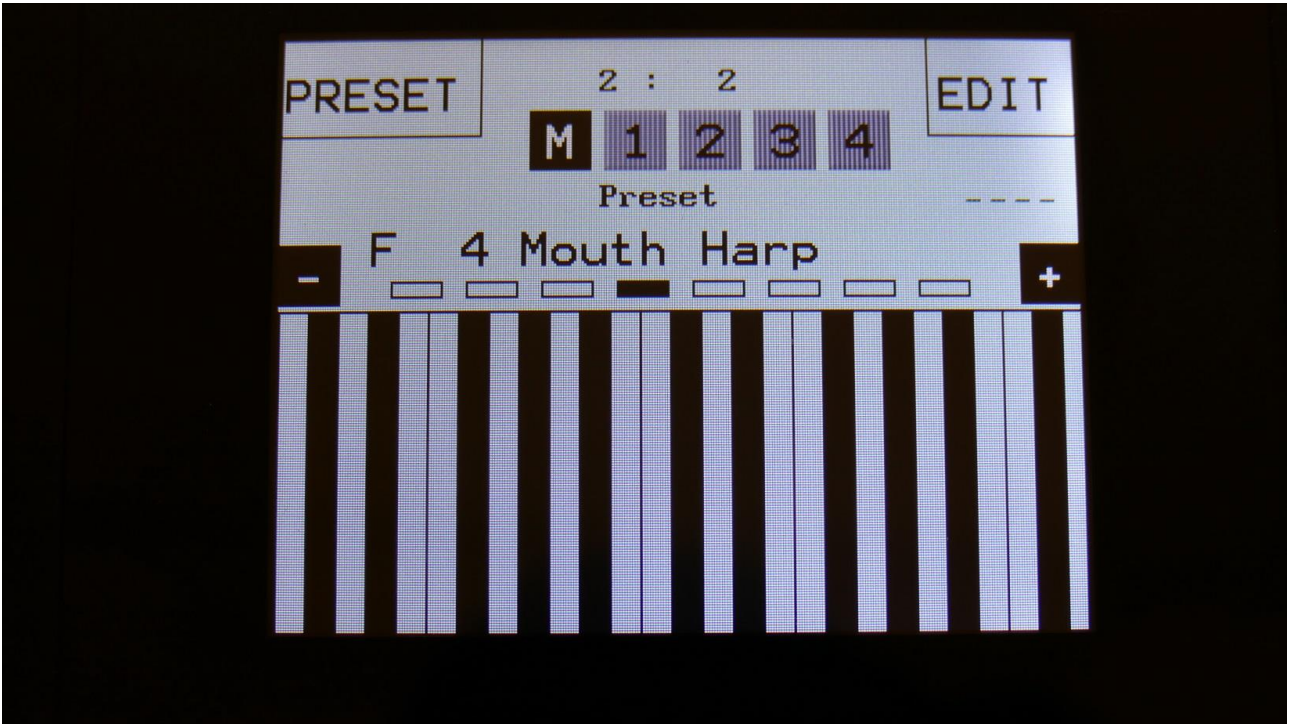
Sequencer playback start/stop



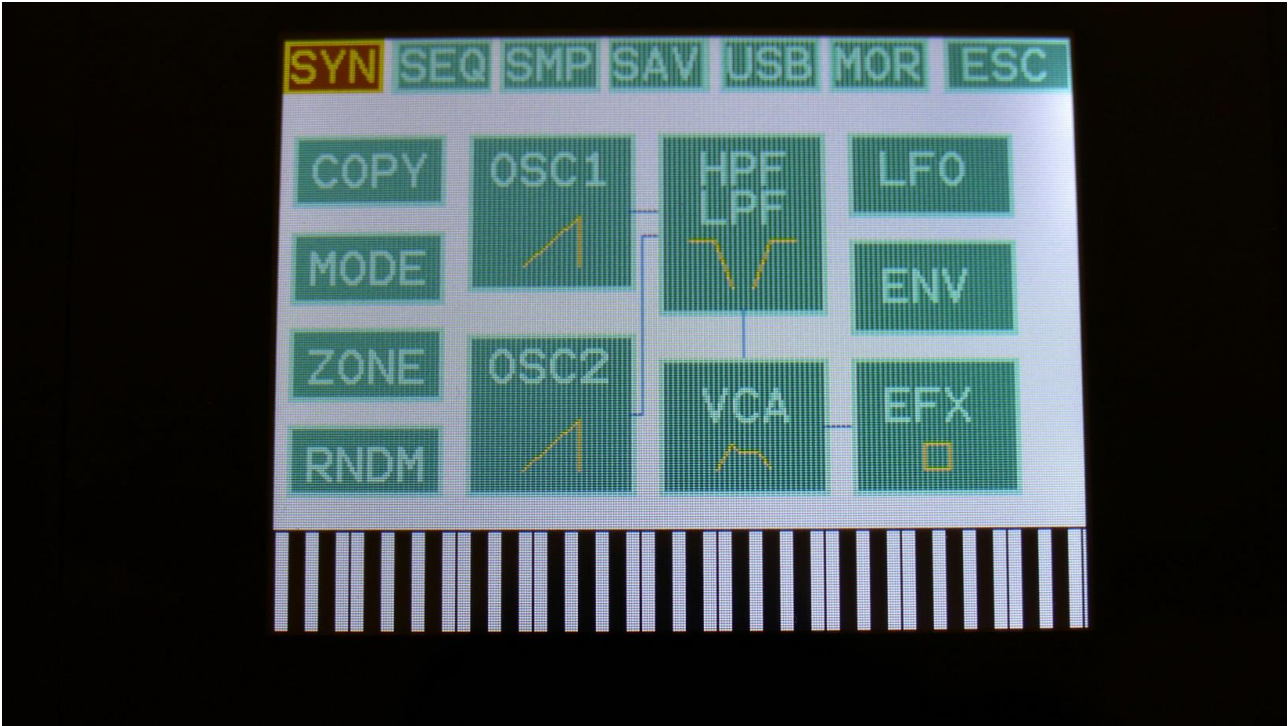
To start and stop sequencer play back, you must push the “Start/Stop” button. When the green LED above the Start/Stop button lights up, it is indicating, that the sequencer is playing back. When the green LED above the Start/Stop button does not light up, the sequencer playback is stopped.

If you hit the play button to start the sequencer, and it doesn't start, please check in the “COMMON” section (described later in this manual), that it is not set up to external MIDI sync.

Enter the sequencer

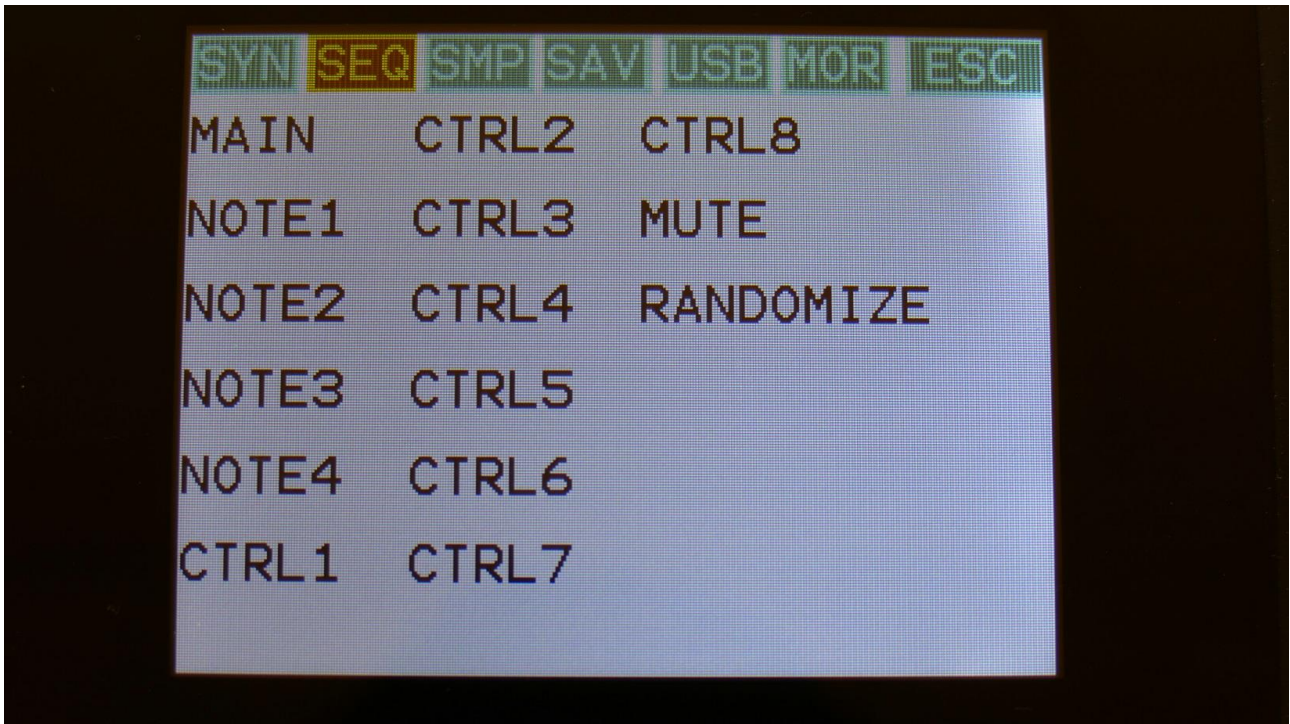


From the Preset Select Screen, touch the EDIT field.



Touch SEQ on the navigation bar in the top of the screen.

This will bring you to the Sequencer modules page:

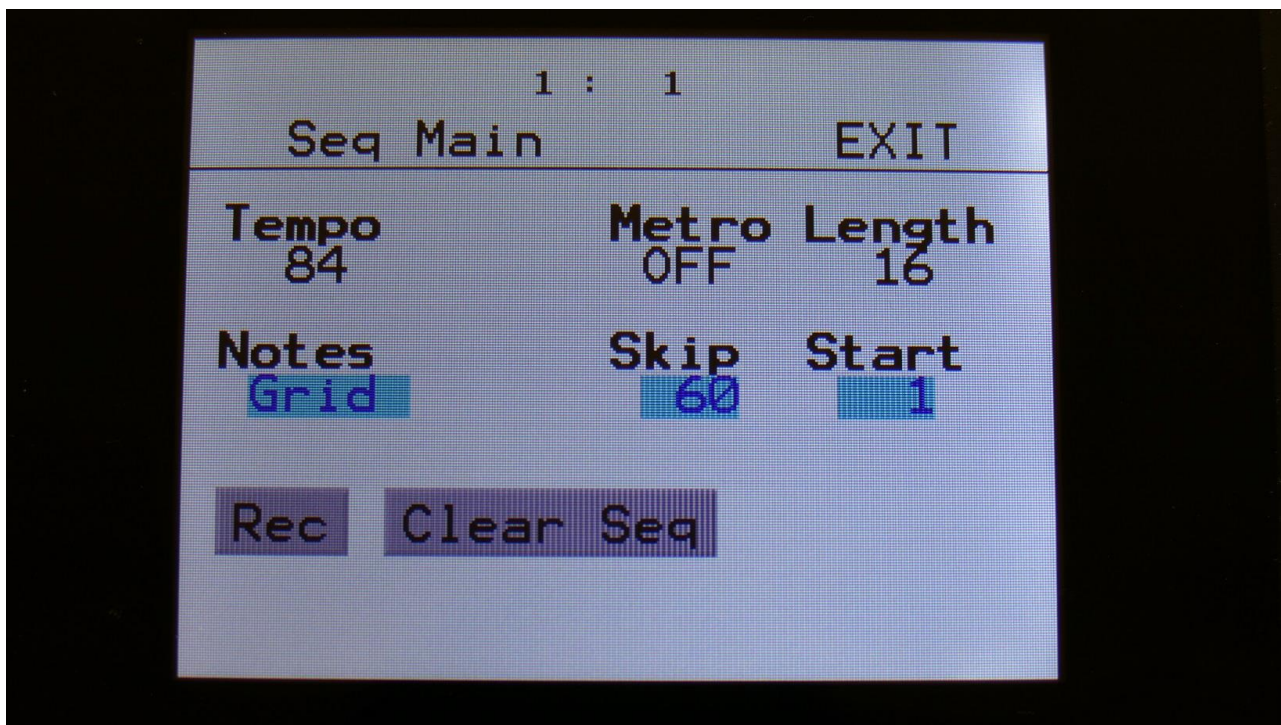


SEQ on the navigation bar has now changed its colour to brown/yellow, indicating that you have entered the Sequencer pages.

To enter any of the Sequencer modules, simply touch the text showing the name of the module you would like to enter.

To exit to the Preset Select page, touch "ESC".

Sequencer Main



The parameters of this page:

Tempo: Sets the sequencer tempo between 1 and 256 BPM. To make the sequencer sync to external MIDI gear, this must be set up in the “COMMON” section, described later in this manual.

Metro: Metronome Off, On, Rec.

-Off: The metronome is off, and will make no sound.

-On: The metronome is on, and when the sequencer is playing, it will put out a click to audio output 1, every time note track 1 passes a 4/4 beat. Every time note track 1 starts over, it will make a click that is slightly higher pitched than the other clicks.

-Rec: When the sequencer is playing, and realtime rec is activated, it will put out a click to audio output 1, every time note track 1 passes a 4/4 beat. Every time note track 1 starts over, it will make a click that is slightly higher pitched than the other clicks.

Length: Global tracks length. Sets the step length for all the 4 Note tracks and 8 Controller tracks equal with one parameter. From 1 to 64 steps. Track lengths can be set individually for each track, in the separate track menu's.

Notes: Sets if the notes of the Note tracks should be shown in a note grid (setting: Grid), or as value bars (setting: Value).

Skip: Turning this up, will cause the sequencer to randomly skip some beats here and there. The more it is turned up, the more it will skip.

This affects all sequencer tracks at the same time.

Start: Global tracks start step. Sets the start step for all the 4 Note tracks and the 8 Controller tracks equal with one parameter. From step 1 (default) to step 64. Track steps can be set individually for each track, in the separate track menu's.

The buttons of this page:

Rec: This will toggle **realtime recording** on and off. **Realtime recording** can be switched on and off at any time, regardless of if the sequencer is playing or not. The sequencer must though play, to make it possible to input notes in realtime.

To realtime record notes, velocities and gate times:

- Set the metronome up as desired.
- Touch the "Rec" button on this page, so it turns red.
- Make sure that the sequencer is playing.
- The Start/Stop LED will now flash in beat with the metronome.
- Play back notes on a connected MIDI device, on the touchscreen keyboard, or push the "Triggers" button, and play the trigger buttons.
- Touch the "Rec" button again, so it turns gray, when you are done.
- Enjoy the result.



The Rec button turns red, when the Sequencer are in realtime record mode.

Realtime record can also be switched on and off at any time, and at any page, by holding the Morph Settings button down, while pressing the Start/Stop button.

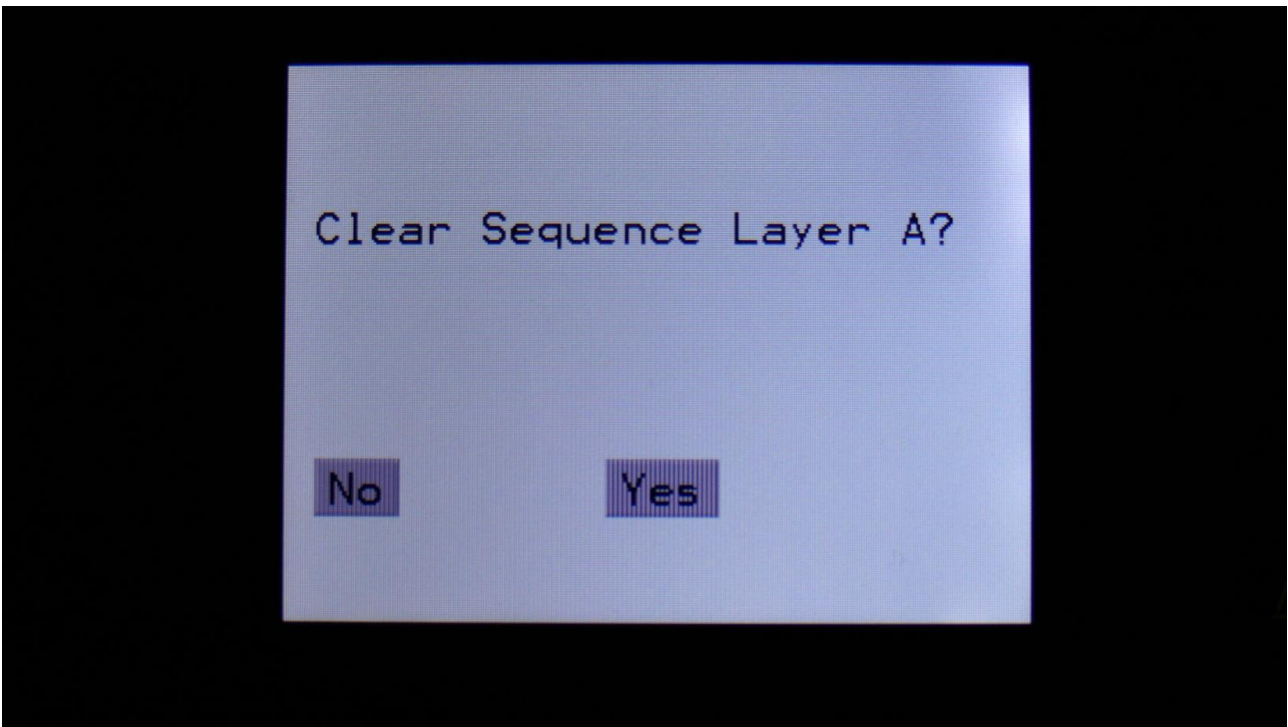
Every time you are pressing this button combination, realtime record will be toggled on or off.

The Start/Stop LED will flash in beat with the metronome, to indicate when realtime recording is on.



Clear Seq:

Touching this button, will make PolySpaze jump to this page:



If you touch the “Yes” button here, you will clear all tracks of the current preset, on the Morph Layer selected by the “Morph Settings” button.

If you do not wish to do that, touch “No”.

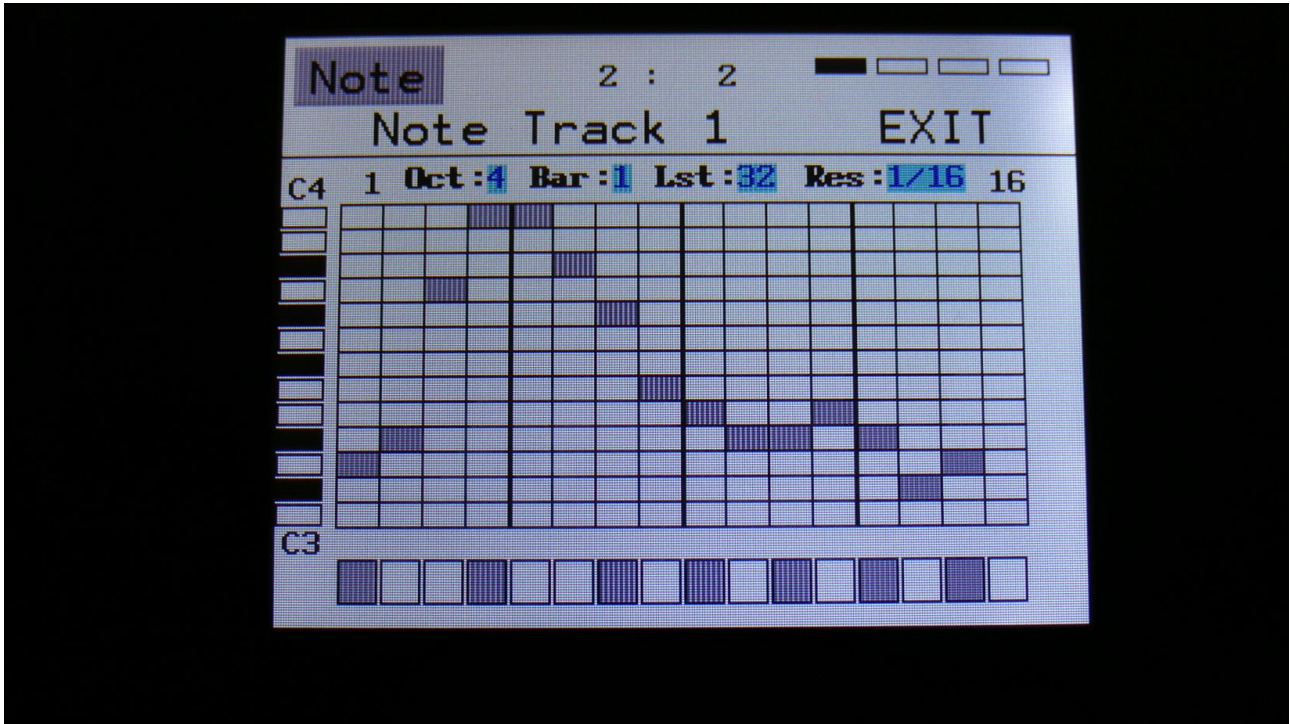


If the tracks lengths and start steps has been set up individually on each track, the global Length and Start steps will no longer be shown as a value, but just as 3 lines.

The Note Track Sequencer

Note Steps Edit

From the Sequencer modules page, touch **NOTE1**, **NOTE2**, **NOTE3** or **NOTE4**, to enter a Note Track page:



This will be the first page, you will enter, if the Notes parameter on the Seq Main page is set to Grid. Here:

Edit Knob 1: Selects the octave to be viewed. The octave number is shown just above the note grid (marked **Oct**), and the lowest and highest note number is shown below and above the mini keyboard at the left.

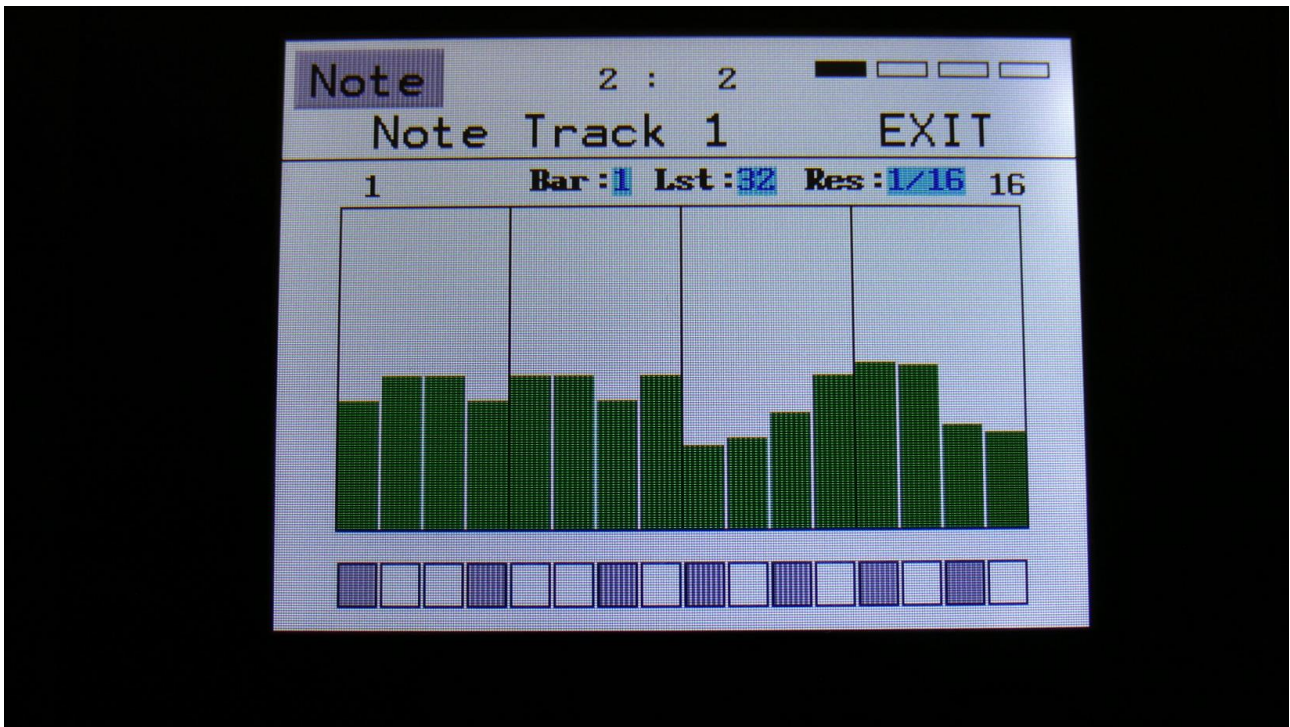
Edit Knob 2: Selects the bar to be viewed. 4 bars can be viewed, showing each 16 steps, for a total of 64 steps. The bar number is shown just above the note grid (marked **Bar**), and the first and the last step number viewed, is shown just above the note grid, to the right and the left.

Edit Knob 3: Sets the last step that will be played back on this track, before it loops back, and plays the track again. Range: 1 to 64 steps. Value is shown as **Lst**.
The Last step can be set globally for all tracks at the Seq Main page.

Edit Knob 4: Sets the track resolution. Values: 1/32, 1/24, 1/16, 1/12, 1/8, 1/6, 1/4, 1/2. Value is shown as **Res**.

Touching "EXIT" will exit you to the Sequencer Modules page.

If the Notes parameter on the Seq Main page is set to Value, the note steps edit page will look like this:



Each bar in the value grid covers the entire note range. Here:

Edit Knob 1: Has no function.

Edit Knob 2: Selects the bar to be viewed. 4 bars can be viewed, showing each 16 steps, for a total of 64 steps. The bar number is shown just above the note grid (marked **Bar**), and the first and the last step number viewed, is shown just above the note grid, to the right and the left.

Edit Knob 3: Sets the last step that will be played back on this track, before it loops back, and plays the track again. Range: 1 to 64 steps. Value is shown as **Lst**.
The Last step can be set globally for all tracks at the Seq Main page.

Edit Knob 4: Sets the track resolution. Values: 1/32, 1/24, 1/16, 1/12, 1/8, 1/6, 1/4, 1/2. Value is shown as **Res**.

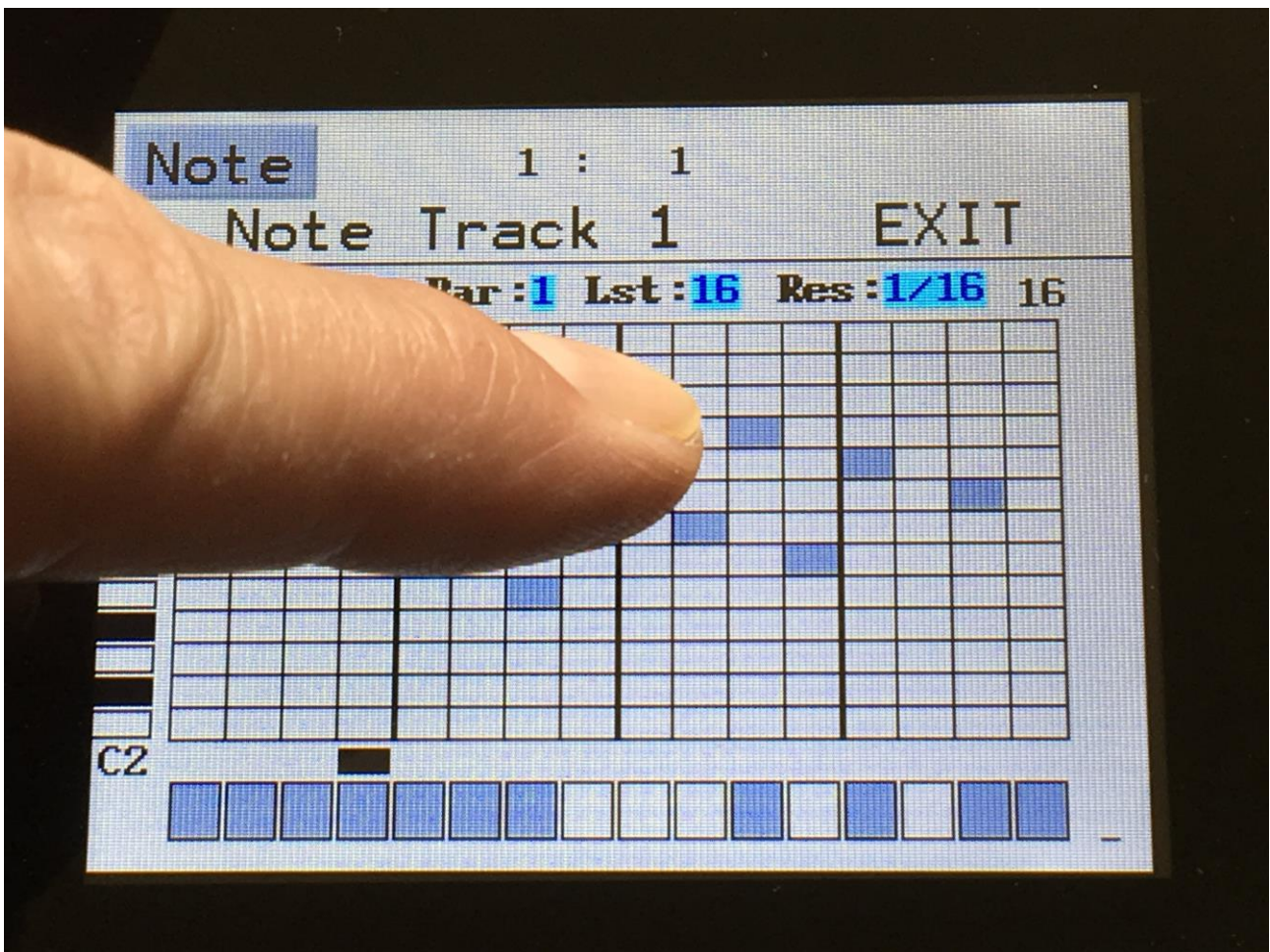
Inputting notes and turning steps on and off

To input a note, simply touch the note grid.

To switch a step on or off, simply touch any of the 16 “step buttons” in the bottom of this page.

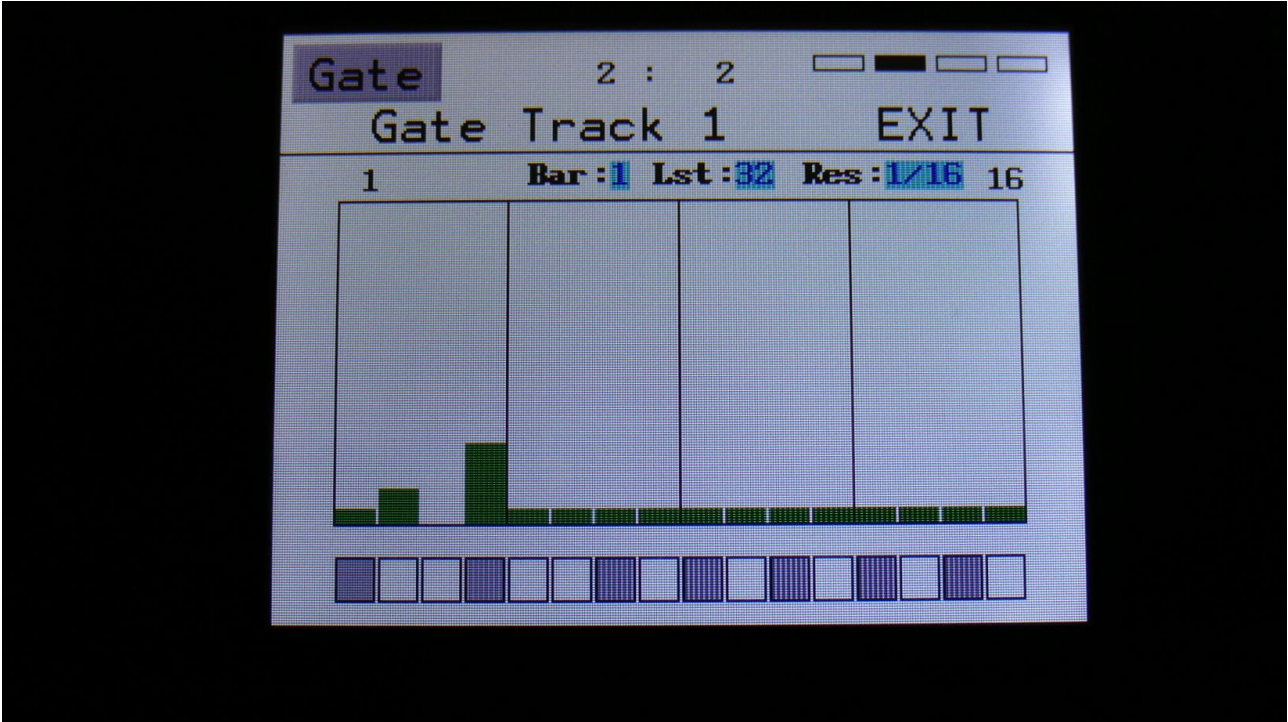
The black rectangle just above the step buttons, shows what step is currently being played back.

The small VU-meter right to the step buttons will show a peak every time this track plays back a note.



Gate Time Steps Edit

From the Note Steps edit screen, touch the “Note” field in the upper left corner, or the page indicator square 2. This will get you to the Gate page:



Here:

Edit Knob 1: Has no function.

Edit Knob 2: Selects the bar to be viewed. 4 bars can be viewed, showing each 16 steps, for a total of 64 steps. The bar number is shown just above the note grid (marked **Bar**), and the first and the last step number viewed, is shown just above the note grid, to the right and the left.

Edit Knob 3: Sets the last step that will be played back on this track, before it loops back, and plays the track again. Range: 1 to 64 steps. Value is shown as **Lst**.

The Last step can be set globally for all tracks at the Seq Main page.

Edit Knob 4: Sets the track resolution. Values: 1/32, 1/24, 1/16, 1/12, 1/8, 1/6, 1/4, 1/2. Value is shown as **Res**.

Touching “EXIT” will exit you to the Sequencer Modules page.

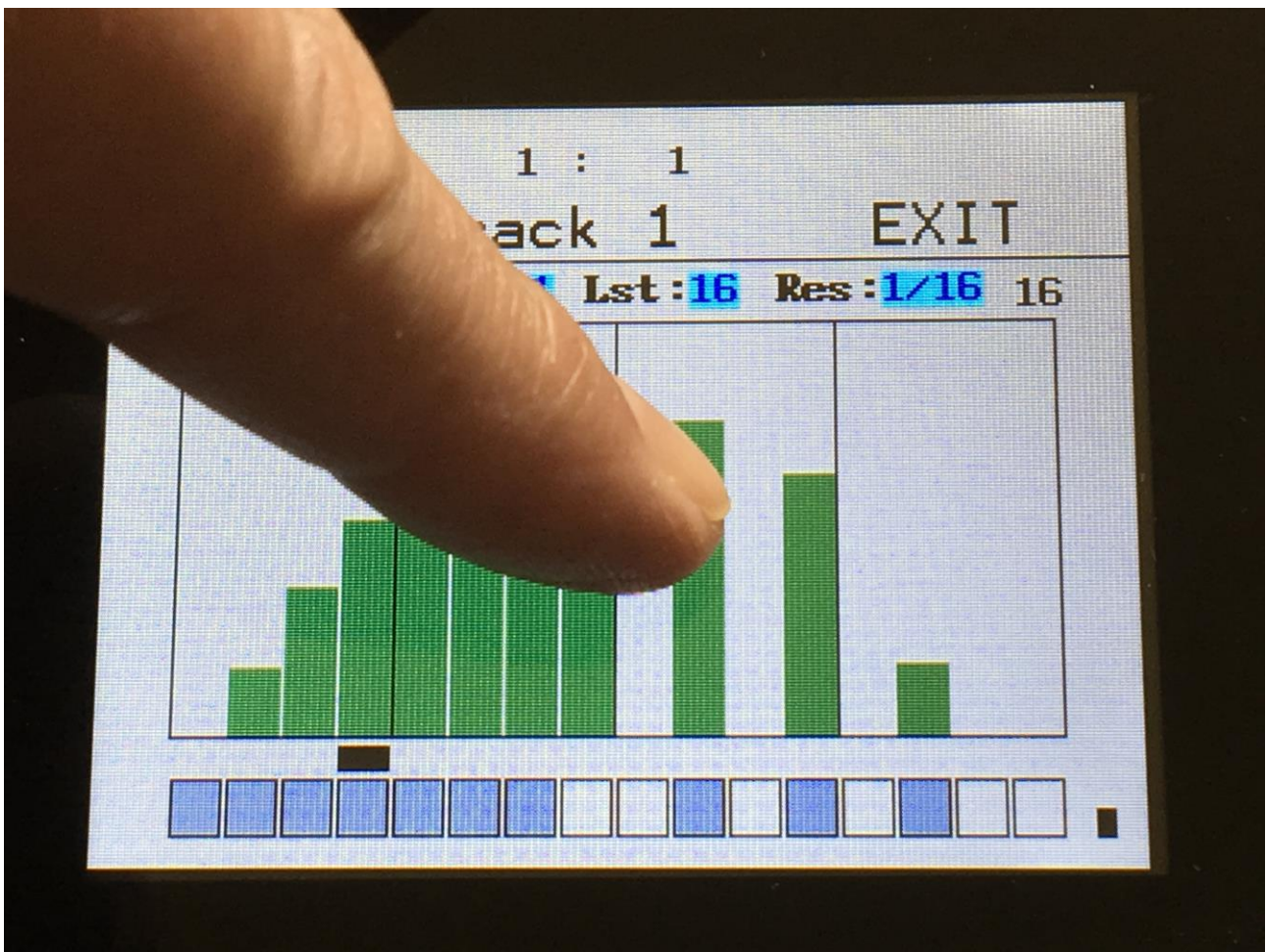
Inputting values and turning steps on and off

To input a value, simply touch the field showing the values.

To switch a step on or off, simply touch any of the 16 “step buttons” in the bottom of this page.

The black rectangle just above the step buttons, shows what step is currently being played back.

The small VU-meter right to the step buttons will show a peak every time this track plays back a note.



Velocity Steps Edit

From the Gate Steps edit screen, touch the “Gate” field in the upper left corner, or page indicator square 3. This will get you to the Velo page:



Here:

Edit Knob 1: Has no function.

Edit Knob 2: Selects the bar to be viewed. 4 bars can be viewed, showing each 16 steps, for a total of 64 steps. The bar number is shown just above the values field (marked **Bar**), and the first and the last step number viewed, is shown just above the values field, to the right and the left.

Edit Knob 3: Sets the last step that will be played back on this track, before it loops back, and plays the track again. Range: 1 to 64 steps. Value is shown as **Lst**.

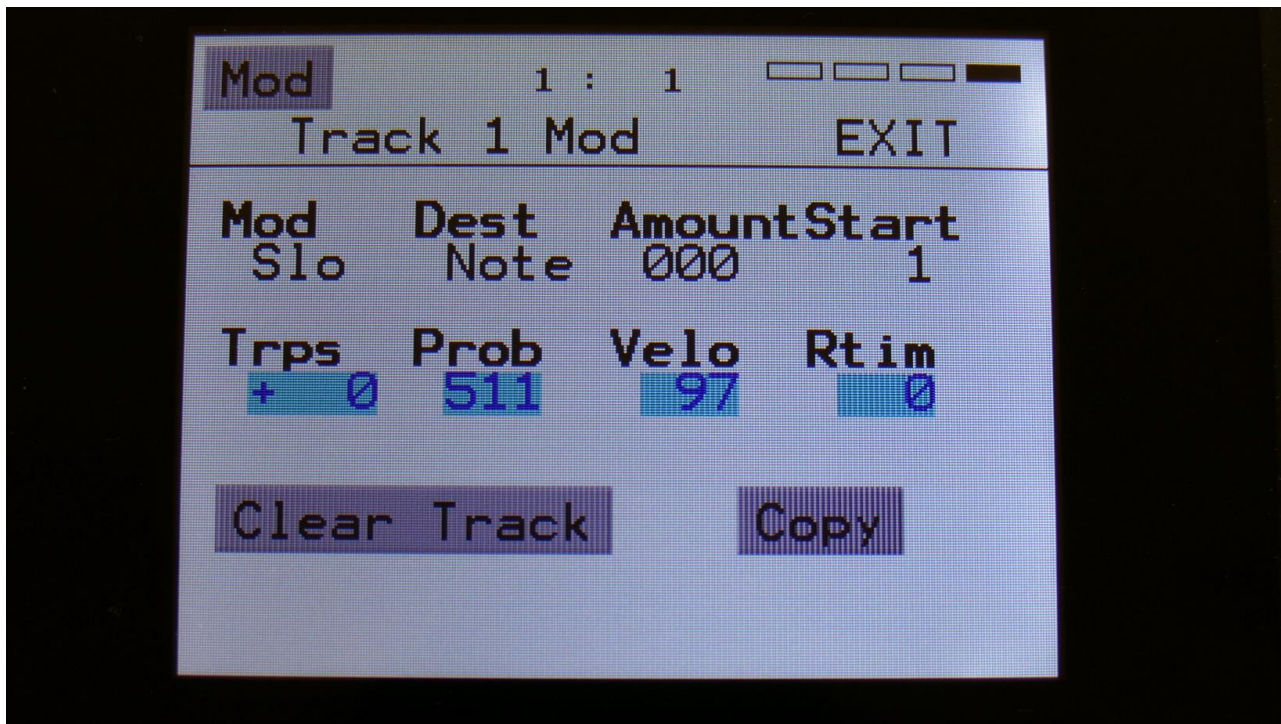
The Last step can be set globally for all tracks at the Seq Main page.

Edit Knob 4: Sets the track resolution. Values: 1/32, 1/24, 1/16, 1/12, 1/8, 1/6, 1/4, 1/2. Value is shown as **Res**.

Touching “EXIT” will exit you to the Sequencer Modules page.

Note track Mod page

From the Velo Steps edit screen, touch the “Velo” field in the upper left corner, or page indicator square 4. This will get you to the Mod page:



The parameters of this page:

Mod: Track modulation source. Any PolySpaze modulation source can be selected to modulate the track. Only the positive modulation sources, can be selected by the Edit Knobs. To make a modulation source negative, touch the modulation source parameter. For a complete list of modulation sources, see the list in the start of the synth section in this manual.

Dest: Track modulation destination. Selects what should be modulated on the track. Choices are:

-**Note:** The note numbers of the track will be modulated.

-**Gate:** The gate times of the track will be modulated.

-**Dly:** The delay times of the track will be modulated.

-**Swing:** Swing modulation will be applied to the track. This is a bit more fine than the delay time modulation.

Amount: Adjusts the amount of modulation that will be applied to the track.

Start: Sets the track start step. This will be the step, the track starts at, when hitting the Start/Stop button, or when entering this preset from another preset, while the sequencer is running. When selecting another preset, while the sequencer is running, the preset change will happen, when Note track 1 are at the step before the start step. Step 1 to 64 can be selected.

The Start step can be set globally for all tracks at the Seq Main page.

Trps: Track transpose. Will transpose the note numbers of the whole track up to 64 semitones up or down.

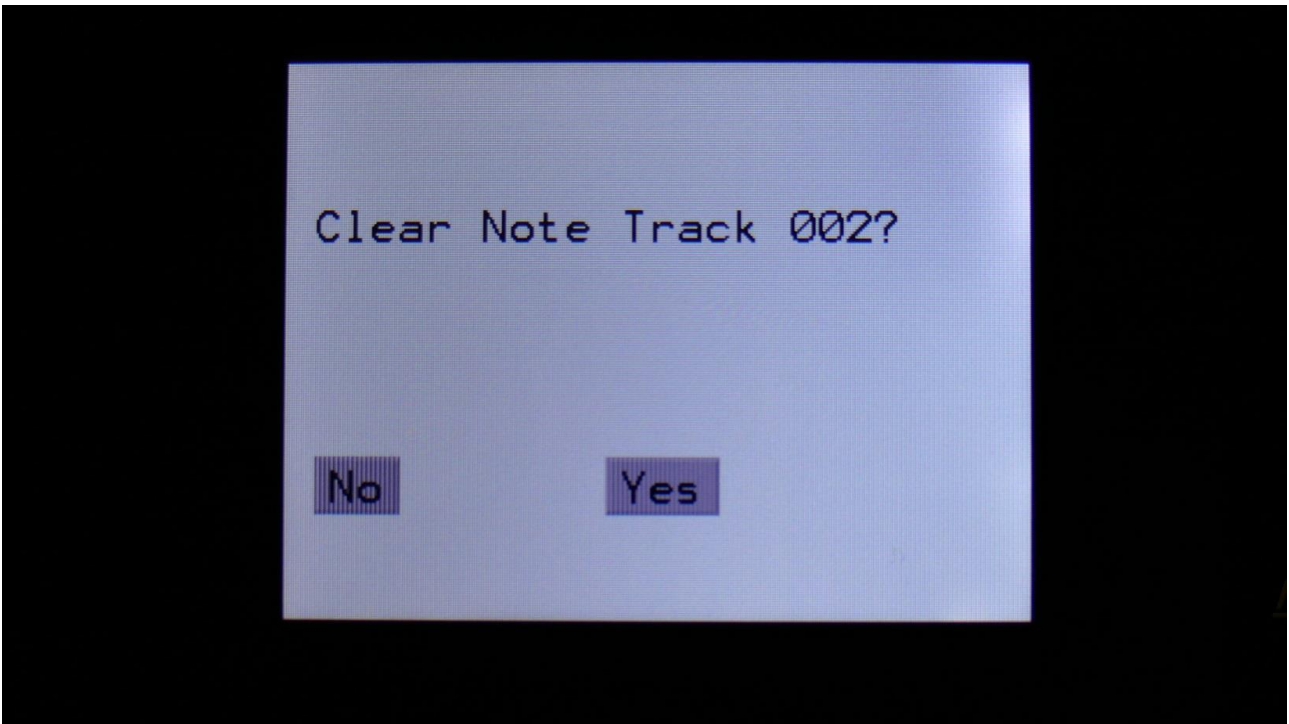
Prob: Track Note Randomizer Probability. When this is turned fully up, all programmed note steps of the track will play back. The more it is turned down, the less notes will play back. The notes that will not play back are selected randomly.

Velo: Track Note Randomizer Velocity. The more this is turned up, the more random values will be subtracted from the velocity value of each note step.

Rtim: Track Note Randomizer Time. When turned up, it will create random delays on the programmed note steps triggering.

Clear Note Track

From the Mod page, touch the **“Clear Track”** button, to enter this page:



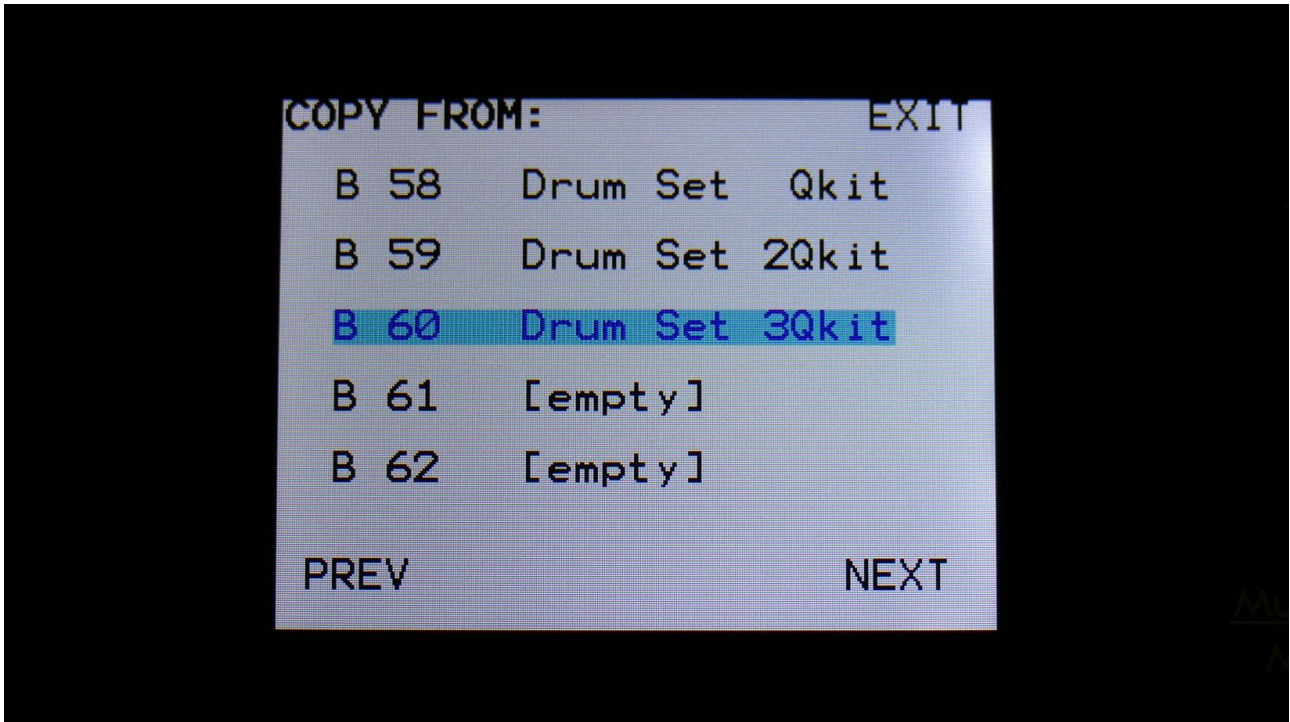
Touching “Yes” from here, will clear all step on’s of the currently selected note track.

If you would not wish to do this, touch “No”, to exit to the track Mod page.

Copy Note Track

With the track copy function, it is possible to copy any note track, from any preset, to the currently selected note track.

From the Mod page, touch the “Copy” button, to enter this page:



Select the preset, that you would like to copy from. Five presets are shown at a time. Touch “PREV” or “NEXT”, to view five higher or lower numbered presets.

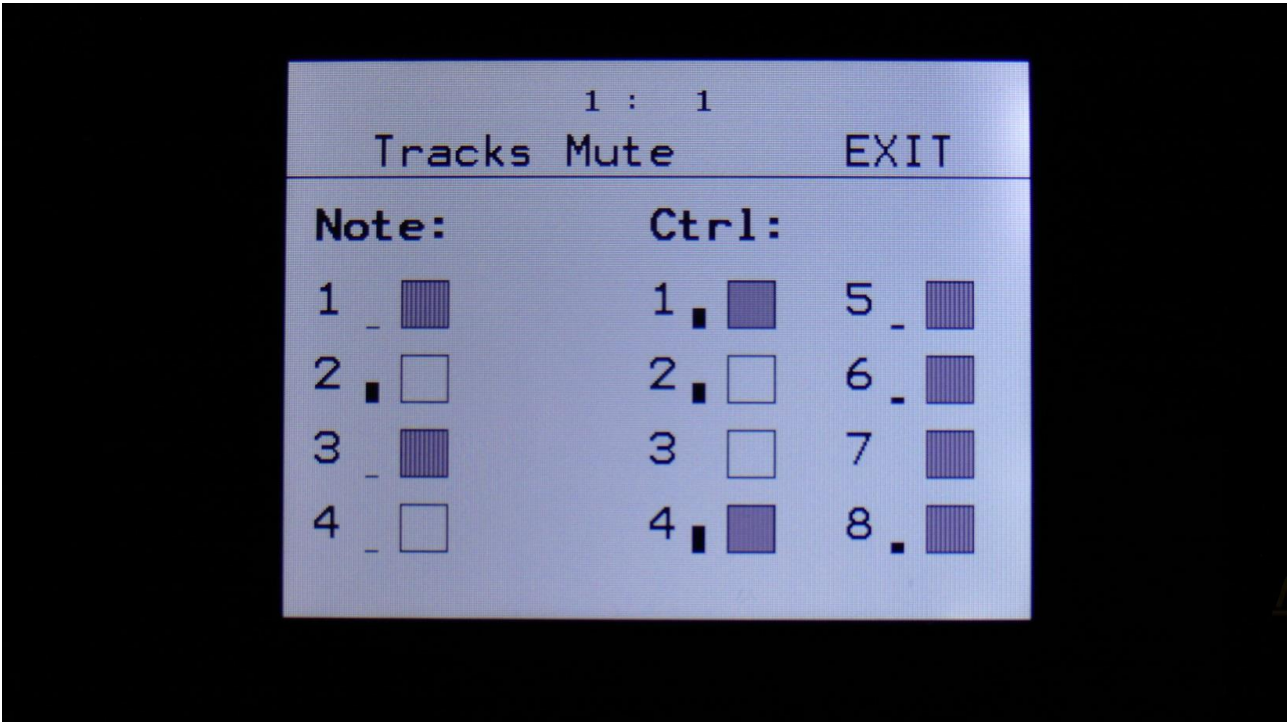
Touch a preset to select it. As soon as you select a preset, you will be directed to the next page.



Touch the track number, you would like to copy from. As soon as you do that, the track will be copied, and you will return to the note Mod page.

Mute/Unmute Tracks

From the Sequencer Modules page, touch “MUTE” , to enter this page:



When touching the squares, so they turn white, the tracks represented by the square will be muted. Touch the square again, so it turns gray, to unmute.

It is also possible to mute/unmute the note tracks directly from the Preset/Song select page, and on any sequencer page, by pushing and holding the “Morph Settings” button, and push any of the 4 corresponding trigger buttons, to mute or unmute a note track.

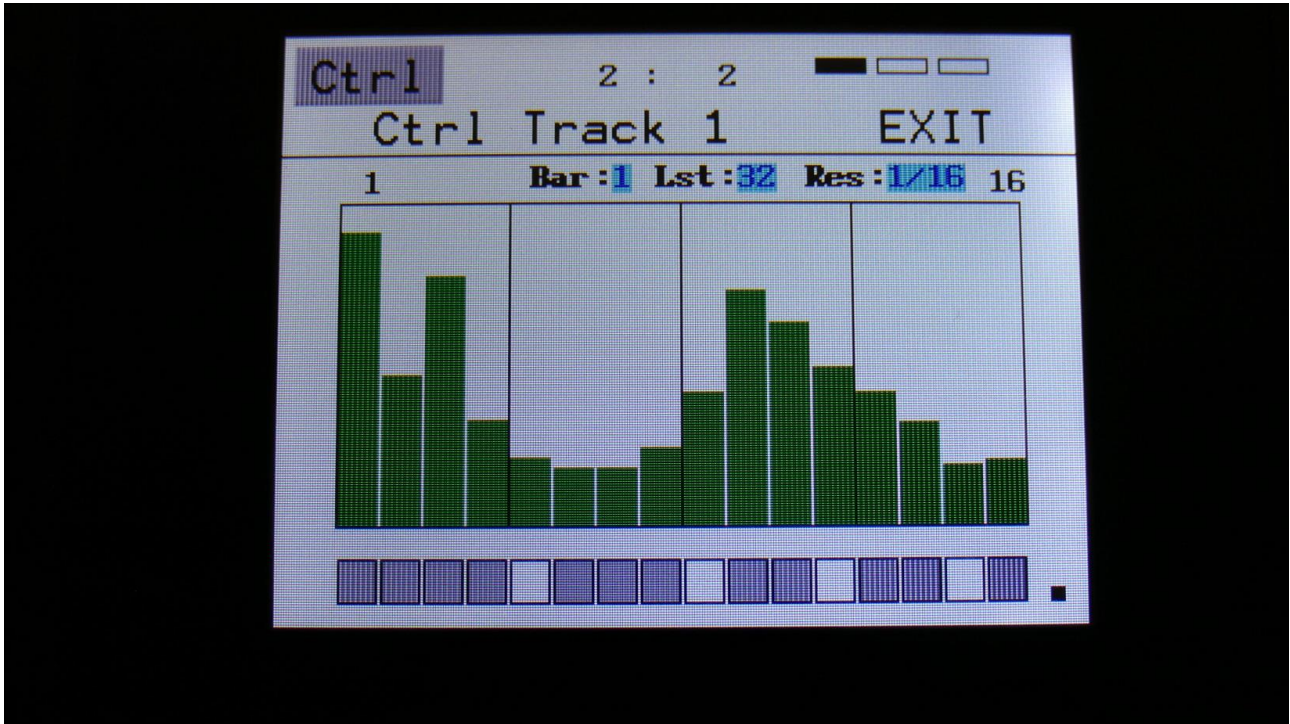
The pushbutton LED’s will show the state and activity for each track. If a LED is on, it means that the track is unmuted, if it is off, the track is muted. When a track is triggering a note, the LED will flash shortly.



The Controller Tracks

Controller Steps Edit

From the Sequencer modules page, touch **CTRL1**, **CTRL2**, **CTRL3**, **CTRL4**, **CTRL5**, **CTRL6**, **CTRL7** or **CTRL8**, to enter a Controller Track page:



This will be the first page, you will enter, showing the controller value, that will be outputted for each sequencer step, when the sequencer is playing back. Here:

Edit Knob 1: Has no function.

Edit Knob 2: Selects the bar to be viewed. 4 bars can be viewed, showing each 16 steps, for a total of 64 steps. The bar number is shown just above the values field (marked **Bar**), and the first and the last step number viewed, is shown just above the values field, to the right and the left.

Edit Knob 3: Sets the last step that will be played back on this track, before it loops back, and plays the track again. Range: 1 to 64 steps. Value is shown as **Lst**.
The Last step can be set globally for all tracks at the Seq Main page.

Edit Knob 4: Sets the track resolution. Values: 1/32, 1/24, 1/16, 1/12, 1/8, 1/6, 1/4, 1/2. Value is shown as **Res**.

Touching “EXIT” will exit you to the Sequencer Modules page.

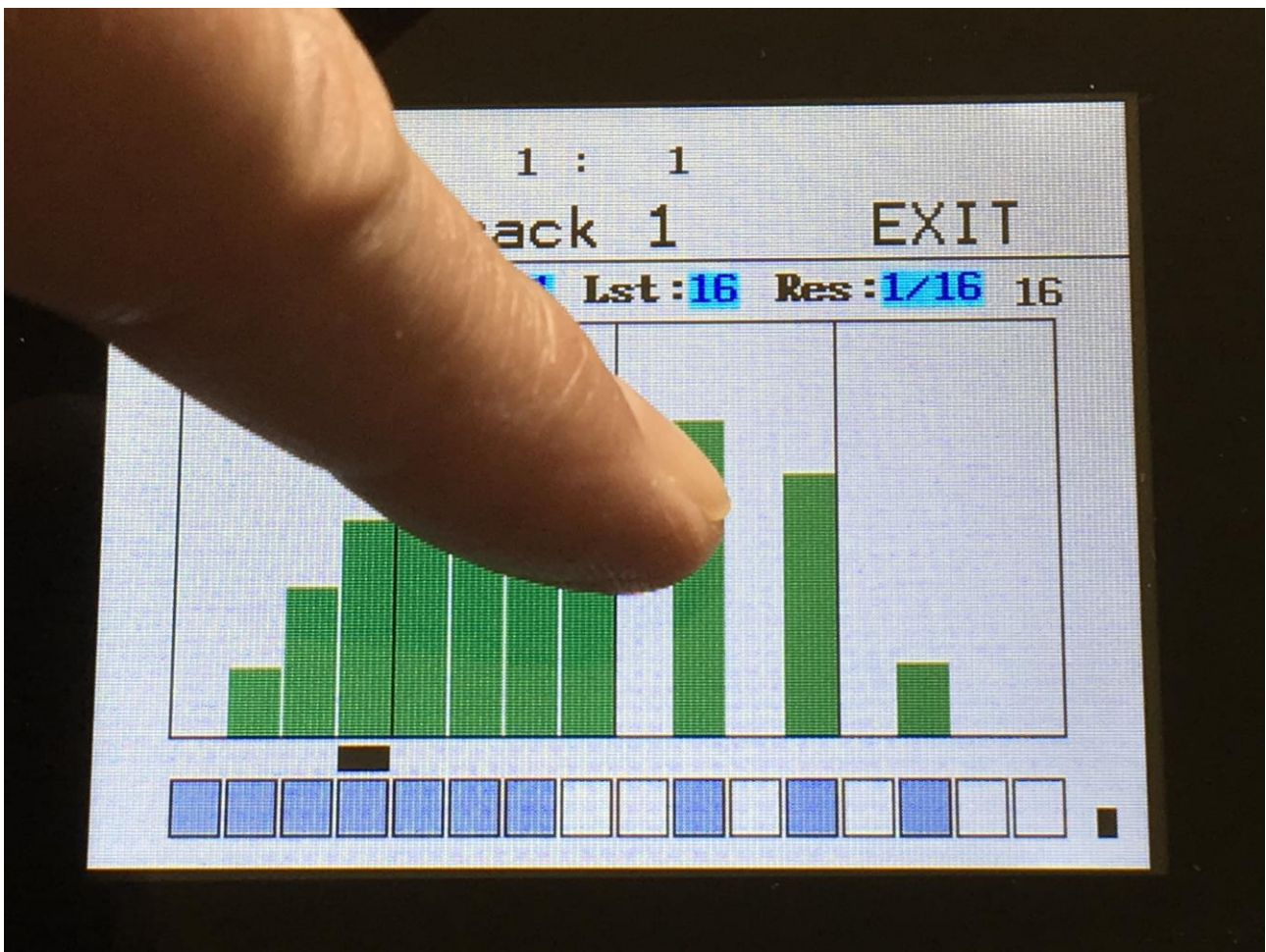
Inputting values and turning steps on and off

To input a value, simply touch the field showing the values.

To switch a step on or off, simply touch any of the 16 “step buttons” in the bottom of this page.

The black rectangle just above the step buttons, shows what step is currently being played back.

The small VU-meter right to the step buttons will shows the value currently being put out by the controller track.



Slide Steps Edit

From the Ctrl Steps edit screen, touch the “Ctrl” field in the upper left corner, or page indicator square 2. This will get you to the Slide page:



Here:

Edit Knob 1: Has no function.

Edit Knob 2: Selects the bar to be viewed. 4 bars can be viewed, showing each 16 steps, for a total of 64 steps. The bar number is shown just above the values field (marked **Bar**), and the first and the last step number viewed, is shown just above the values field, to the right and the left.

Edit Knob 3: Sets the last step that will be played back on this track, before it loops back, and plays the track again. Range: 1 to 64 steps. Value is shown as **Lst**.

The Last step can be set globally for all tracks at the Seq Main page.

Edit Knob 4: Sets the track resolution. Values: 1/32, 1/24, 1/16, 1/12, 1/8, 1/6, 1/4, 1/2. Value is shown as **Res**.

Touching “EXIT” will exit you to the Sequencer Modules page.

If slide for a step is 0, the controller output of the track, will shift from one value to the other. The more slide for a step is turned up, the faster it will slide towards the value of the next step. When the next step is played back, the output will shift to the value of this, regardless if the value has been reached by the slide or not.

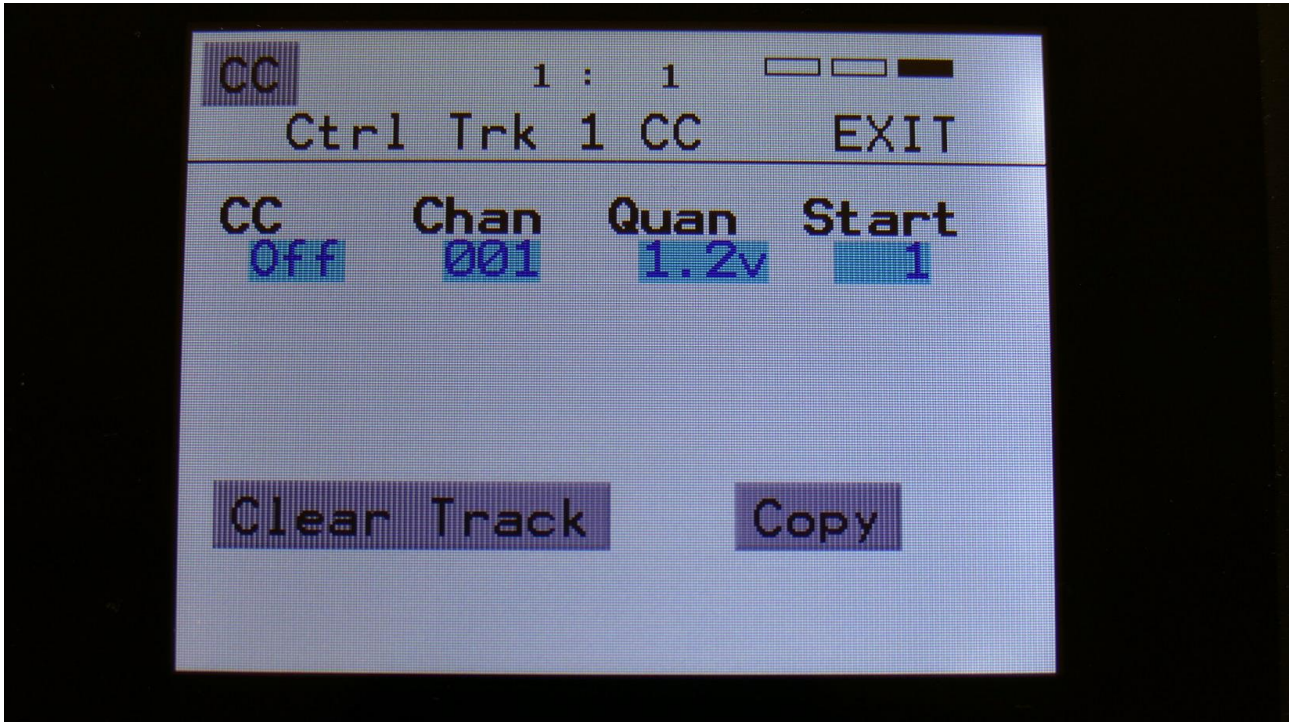
When a controller track output is quantized to octave scales, the slide sub-track values will work as delays instead of slides

The tempo of slide is not controlled by the sequencer tempo. Slide is more a kind of advanced envelope.

The resolution of slide is very high, when used internally in PolySpaze. The CC's that are transmitted via MIDI out, does not have an equally high resolution, because of the limited speed of MIDI.

Controller track CC page

From the Slide Steps edit screen, touch the “Slide” field in the upper left corner, or page indicator square 3. This will get you to the CC page:



The parameters of this page:

CC: Setting this to any other value than “Off”, will make the selected controller track output MIDI CC’s to MIDI out. This parameter sets the MIDI CC number. Range: Off, 1-63.

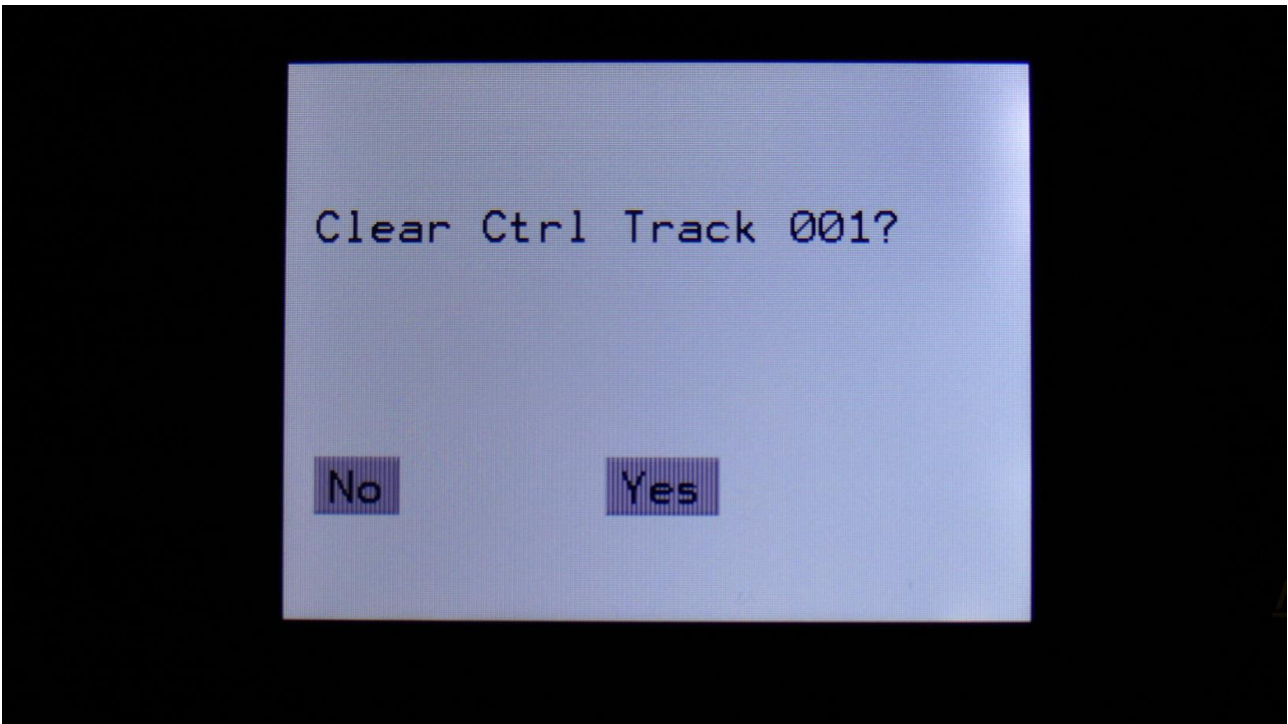
Chan: Sets the MIDI channel, that the selected MIDI CC will be transmitted to. Range: 1 to 16.

Quan: This can be set to either **Off**, **1v** or **1.2v**, for each controller track. When set to 1v, the output of the controller track is quantized to 1V per octave, when assigned as a source for the CV outputs. When set to 1.2v, the output is scaled to 1.2V per octave.

Start: Sets the track start step. This will be the step, the track starts at, when hitting the Start/Stop button, or when entering this preset from another preset, while the sequencer is running. When selecting another preset, while the sequencer is running, the preset change will happen, when Note track 1 are at the step before the start step. Step 1 to 64 can be selected. The Start step can be set globally for all tracks at the Seq Main page.

Clear Controller Track

From the track CC page, touch the “Clear Track” button, to enter this page:



Touching “Yes” from here, will clear all step on’s of the currently selected controller track.

If you would not wish to do this, touch “No”, to exit to the track main page.

Copy Controller Track

With the track copy function, it is possible to copy any controller track, from any preset, to the currently selected controller track.

From the track CC page, touch the “Clear Track” button, to enter this page:



Select the preset, that you would like to copy from. Five presets are shown at a time. Touch “PREV” or “NEXT”, to view five higher or lower numbered presets.

Touch a preset to select it. As soon as you select a preset, you will be directed to the next page.



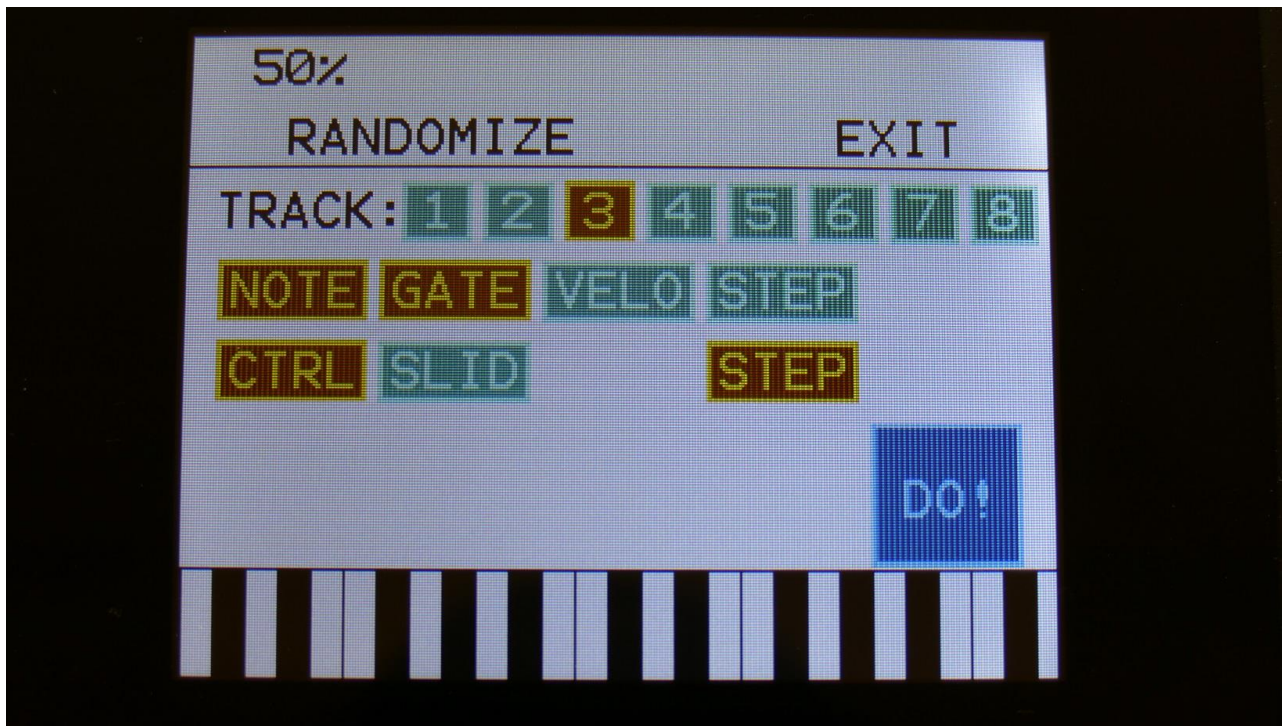
If you would like to copy from track 1 to 4, simply touch the track number, you would like to copy from. As soon as you do that, the track will be copied, and you will return to the note Mod page.

If you would like to copy from any of the tracks 5 to 8, hit the “5-8” touch button first, and then touch the track number.

Sequencer parameters Randomizer

If you should ever need inspiration for new tunes, that you would never ever think off, the PolySpaze Sequencer Randomizer function might just be the thing you need.

From the Sequencer overview page, hit “RANDOMIZE”, to enter the Sequencer Randomizer page:



Select the track, that you would like to randomize, by touching any of the numbers 1 to 8, switch the sub-tracks on, that you would like randomized, simply by touching them, adjust the percentage, that it must maximum change the step values, using Edit Knob 1, and hit “DO!”.

Green blocks are not randomized, brown blocks are.

Listen to the result.

If you like it, exit the randomizer page, and save the preset.

If you don't like the result, hit “DO!” again, and keep hitting it, until something comes up, that you want. Try with different percentage settings, and try to switch different blocks on and off.

When the Randomizer page is entered, all parameters are stored into a temporary buffer, that are used for the randomization. So if you, for instance, first randomizes with 50%, and then with 20%, the result will be maximum 20% away from the initial parameter settings, when the Randomizer page was entered. It does not first randomize 50%, and then randomize 20% on top of that. To randomize things further away, you must exit the Randomizer page, and re-enter it.

Synth and Sequencer Morphing

On PolySpaze it is possible to morph between 2 layers of parameters, layer A and B, by turning the “Morph” knob. In the MORE... section (described in the next section), it is possible to set up the Morph knob to morph either the synth parameters, the sequencer parameters or both. The Morph knob transmits and receives MIDI CC 1 (The Mod Wheel) via MIDI in and out.

To access the parameters of the second layers, on any synth and sequencer page, hit the “Morph Settings” knob, so its yellow LED lights up. Now the parameters of layer B will be shown on the screen, and you can edit these, using Edit Knob 1 to 4, just like the layer A parameters.

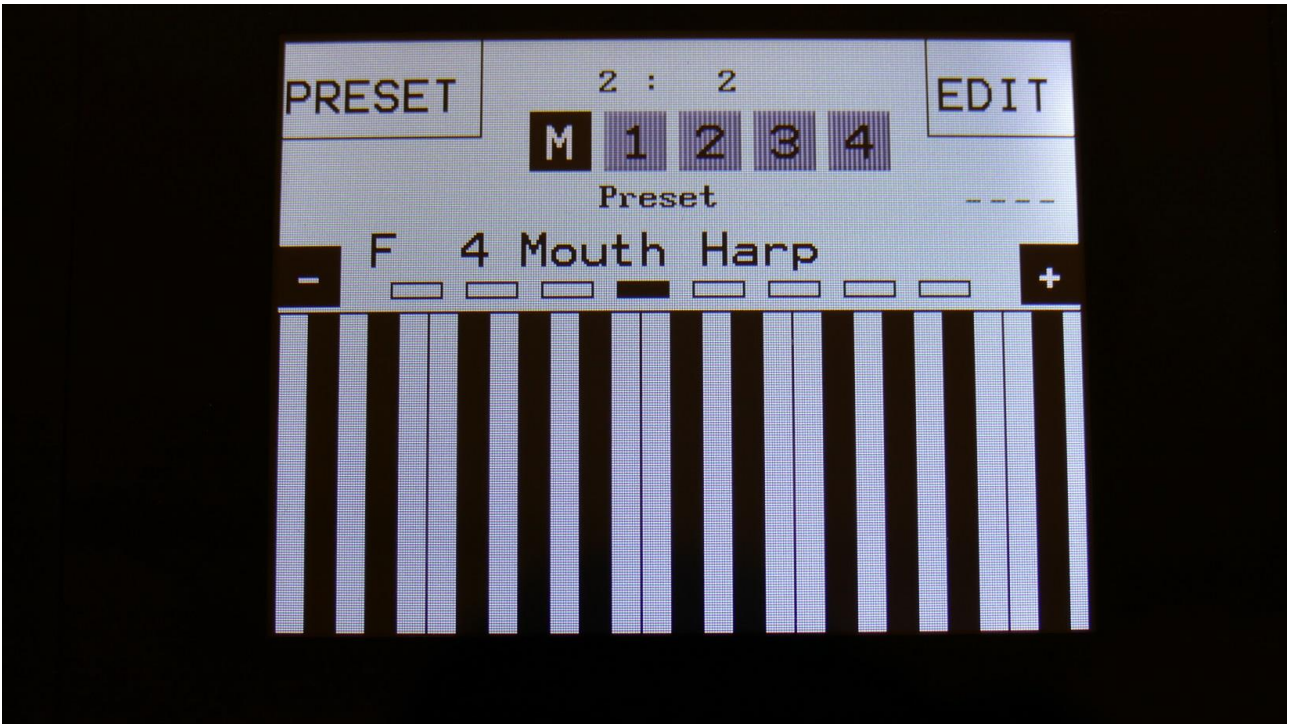
All continuously adjustable parameters can be morphed. Switches are not morphed, but they can be switched at an adjustable position of the Morph knob. This position can be set in the MORE... section MORPH.

Some switches, like the Oscillator/Sample select switches, sample select and EFX select can't be morphed at all. If a parameter cannot be changed, when the Morph Button LED lights up, it cannot be morphed.

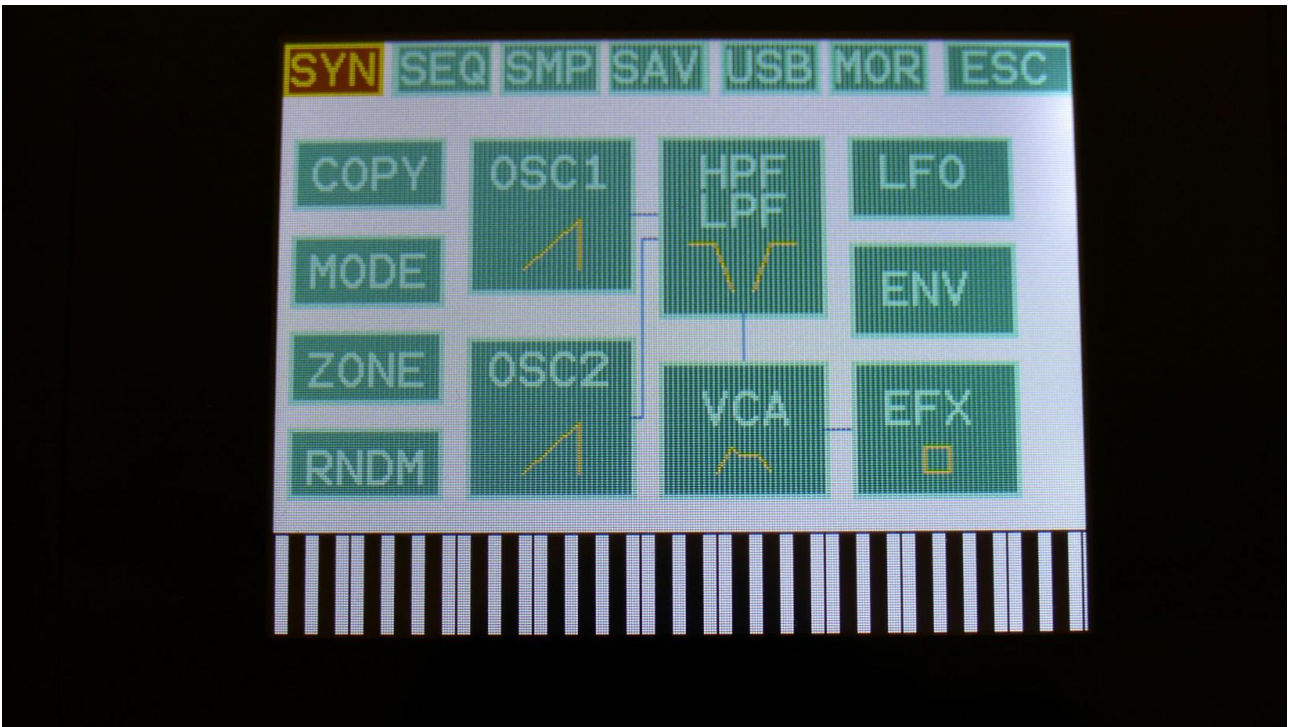
All morph settings are stored within each Preset. Remember to save the Preset, to not loose any great sounds.



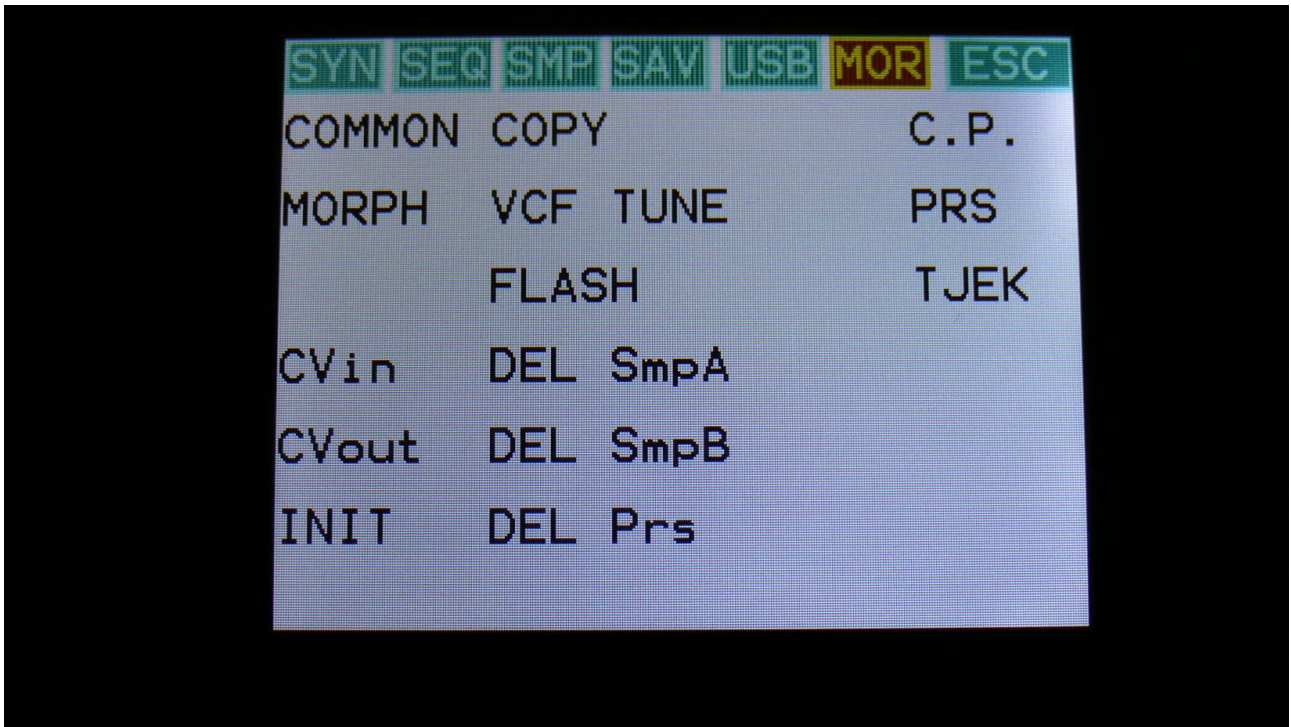
More... preset parameters



From the Preset Select page, touch the Edit field.



On the navigation bar at the top of the screen, touch MOR.



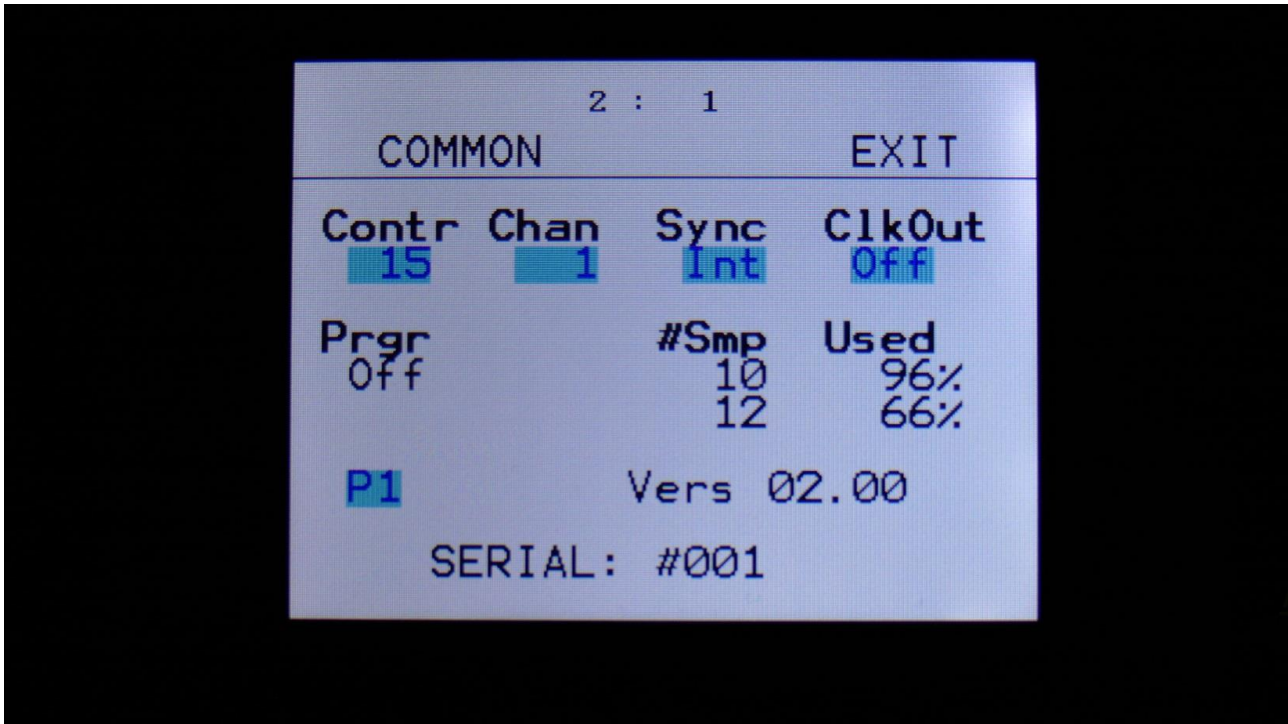
This will get you to the More... page. Here you can set up all the basic PolySpaze things, like MIDI channel, morphing and CV in's/out's, make the analog filter tune, check and erase the PolySpaze memory, initialize the preset and change to song mode.

On the following pages, each section of the More... page is described.

Common Settings

On this page, you can adjust the display contrast and MIDI settings and check the sample memory.

From More... page, touch COMMON to enter this page:



The following parameters can be adjusted on this page, using edit knob 1 to 4:

Contr: Adjusts the display contrast. This setting is automatically saved, and will be remembered after a power off.

Chan: The PolySpaze global MIDI channel. All MIDI data to PolySpaze will be received on this channel. MIDI CC's from the Edit/Quick Edit Knobs and the Morph knob will be transmitted on this channel. This setting is automatically saved, and will be remembered after a power off.

Sync: Sequencer synchronization. This setting is automatically saved, and will be remembered after a power off. Settings:

-Int: PolySpaze's sequencer will be clocked internally at the rate set by the "Tempo" parameter in each preset.

-Ext: PolySpaze's sequencer will be clocked externally, by MIDI clock events applied to MIDI in. Sequencer play and stop can also be controlled externally.

ClkOut: Settings: Off, On. Selects whether or not PolySpaze will re-transmit MIDI clock and start/stop events to MIDI out. Even if PolySpaze is syncing to an external MIDI clock source, it will

re-transmit this, if this parameter is on. This setting is automatically saved, and will be remembered after a power off.

Prgr: On/Off. When switched on, PolySpaze will receive MIDI program and bank changes. Bank change is MIDI CC 32.

#Smp: Shows how many samples that are held in sample bank A at top, and bank B at bottom.

#Used: Shows in percent how much of the Bank A sample memory is occupied by samplings at top, and much of the Bank B sample memory is occupied by samplings at bottom.

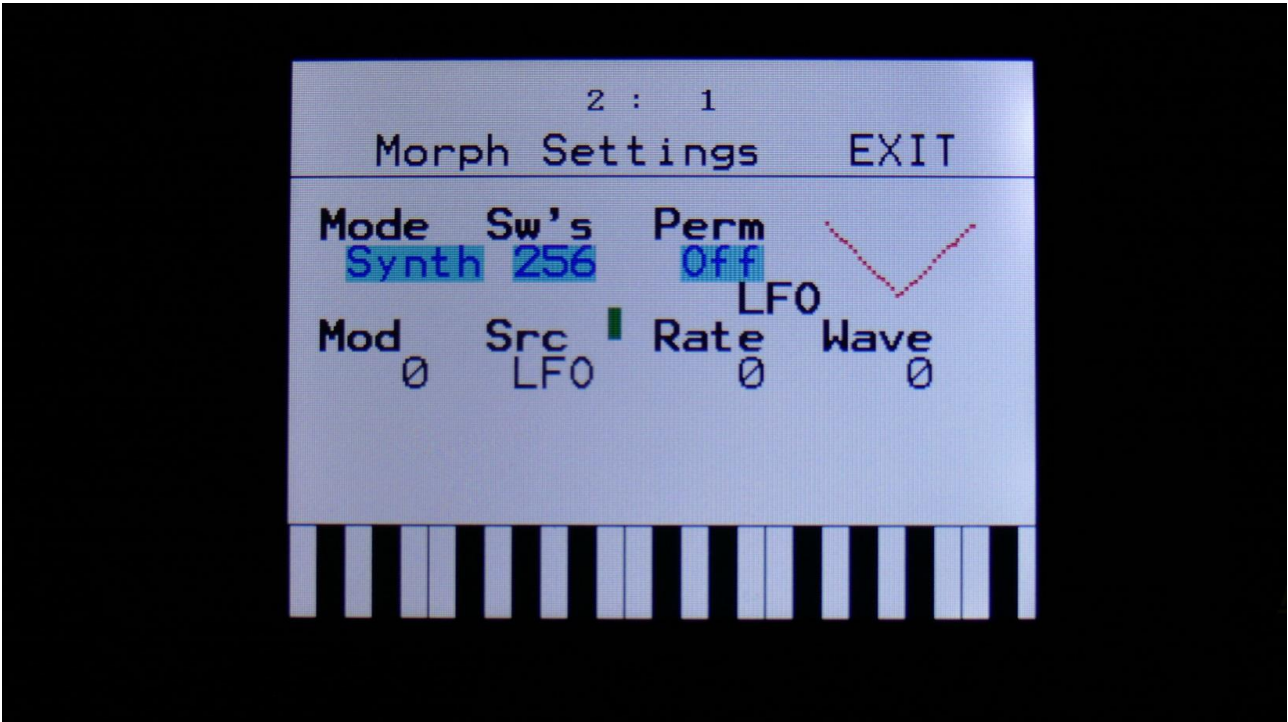
In the bottom of this screen, the currently installed firmware version number is shown, and the serial number for your PolySpaze.

Morph Setup

On the Morph Setup page, it is possible to set a permanent morph value, that will override the Morph knob, if you wish to always have a preset playing back in a certain morph position.

It is also possible to modulate the morph knob, using a limited number of modulation sources, including a morph LFO.

From More... page, touch MORPH to enter this page:



Parameters on this page:

Mode: Synth, Seq, both. Sets if the Morph knob should affect the synth parameters, the sequencer parameters, or both at the same time.

Sw's: 0 to 511. PolySpaze does not morph switches (like modulation selects and audio input selects). Instead it toggles all the switches at a certain point on the Morph knob. This value sets this point. If you do not want the Morph knob to do any switching, set this to 511.

Perm: Morph knob permanent value. Will override the value of the Morph knob, and keep morph on the permanent value plus modulation. Range: Off, 1 to 511.

Mod: Morph modulation amount. 0 to 511.

Src: Morph modulation source. Sources are:

-**LFO:** The morph section LFO. Described below.

-**Seq1 to Seq8:** Sequencer controller tracks 1 to 8.

-**CV1 to CV4:** CV inputs 1 to 4.

-**Kybd:** The last note number value received via MIDI in, on the PolySpaze MIDI channel

-**Velo:** The last note velocity value received via MIDI in, on the PolySpaze MIDI channel

-**Aft:** The last mono aftertouch value received via MIDI in, on the PolySpaze MIDI channel

-**Knb1:** Edit knob 1 value and the last MIDI CC 1 value received via MIDI in, on the PolySpaze MIDI channel

-**Knb2:** Edit knob 2 value and the last MIDI CC 2 value received via MIDI in, on the PolySpaze MIDI channel

-**Knb3:** Edit knob 3 value and the last MIDI CC 3 value received via MIDI in, on the PolySpaze MIDI channel

-**Knb4:** Edit knob 4 value and the last MIDI CC 4 value received via MIDI in, on the PolySpaze MIDI channel

-**TouY:** Touch screen keyboard Y position.

Rate: Morph LFO rate. Sets the tempo of the morph section LFO, that can only modulate the morph parameter.

Wave: Morph LFO output waveform. Morphs between triangle, sawtooth, square, pulse and FM waveforms. The FM waveforms are high frequency waves, that can be used for FM synthesis.

CV Inputs (optional)

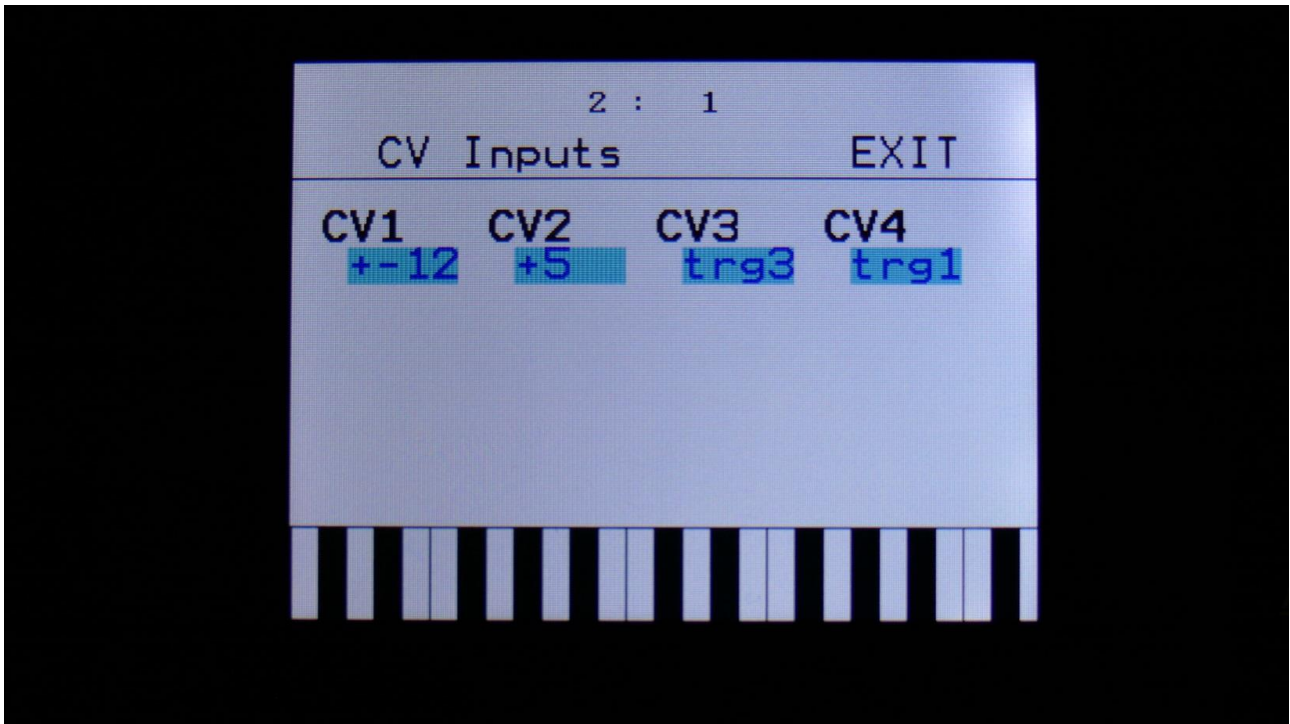
With the optional CV board installed, PolySpaze has 4 CV inputs. These can be selected as modulation sources, for any parameter that can be modulated.

PolySpaze accepts CV voltages of up to +/- 15 volts. The voltage range of each CV input can be set up to a number of different configurations.

It is also possible to set up each CV input as a trigger for any of the 4 voices of PolySpaze, and to set them up as clock sources, start/stop and reset control for the sequencer.

Remember to save all edits you do to the CV Inputs. Else they will be lost when you change preset, or turn PolySpaze off. See how to in the "Save Preset" section.

From More... page, touch CVin to enter this page:



Here you can, by turning Edit Knob 1 to 4, set up each CV input. The possibilities for each input are:

+/-12: The CV input will work in the range of +/- 12 volts –standard eurorack voltages.

+12: The CV input will work in the range of 0 to 12 volts.

+5: The CV input will work in the range of +/- 5 volts.

+5: The CV input will work in the range of 0 to 5 volts.

Trg1: The CV input will work as a trigger input for trigger 1. On the modulation bus, it will work in the +/- 12 volts range.

Trg2: The CV input will work as a trigger input for trigger 2. On the modulation bus, it will work in the +/- 12 volts range.

Trg3: The CV input will work as a trigger input for trigger 3. On the modulation bus, it will work in the +/- 12 volts range.

Trg4: The CV input will work as a trigger input for trigger 4. On the modulation bus, it will work in the +/- 12 volts range

1/32: For each pulse it receives, the sequencer will increment 1/32 step. The internal sequencer clock, and any MIDI clock will be ignored. MIDI clock will still be transmitted, if the ClkOut parameter in the COMMON menu is set to on.

1/24: For each pulse it receives, the sequencer will increment 1/24 step. The internal sequencer clock, and any MIDI clock will be ignored. MIDI clock will still be transmitted, if the ClkOut parameter in the COMMON menu is set to on.

1/16: For each pulse it receives, the sequencer will increment 1/16 step. The internal sequencer clock, and any MIDI clock will be ignored. MIDI clock will still be transmitted, if the ClkOut parameter in the COMMON menu is set to on.

1/12: For each pulse it receives, the sequencer will increment 1/12 step. The internal sequencer clock, and any MIDI clock will be ignored. MIDI clock will still be transmitted, if the ClkOut parameter in the COMMON menu is set to on.

1/8: For each pulse it receives, the sequencer will increment 1/8 step. The internal sequencer clock, and any MIDI clock will be ignored. MIDI clock will still be transmitted, if the ClkOut parameter in the COMMON menu is set to on.

1/6: For each pulse it receives, the sequencer will increment 1/6 step. The internal sequencer clock, and any MIDI clock will be ignored. MIDI clock will still be transmitted, if the ClkOut parameter in the COMMON menu is set to on.

s/s: Will make the sequencer start or stop every time it receives a pulse or a gate on that input.

Rst: Will make all tracks of the sequencer reset to their respective start step every time a pulse or a gate is received on that input.

Please notice: If an LFO or a Random Generator is set up to trig a trigger, this trigger cannot be triggered by the CV inputs.

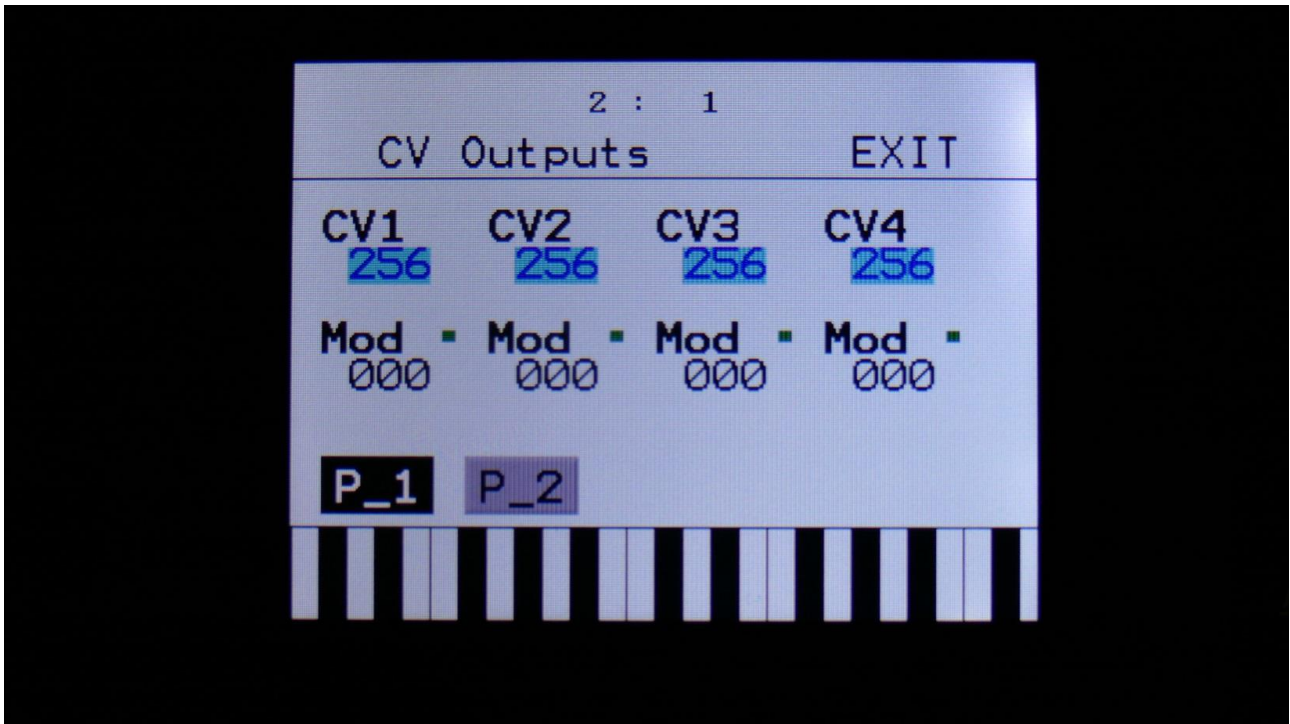
CV Outputs (Optional)

With the optional CV board installed, PolySpaze has 4 CV outputs.

From each of these it is possible to control external analog gear with both a static voltage and a modulation source at the same time. The setup of these is stored within each PolySpaze preset, so it is possible to give the external analog gear memory!

Remember to save all edits you do to the CV Inputs. Else they will be lost when you change preset, or turn PolySpaze off. See how to in the "Save Preset" section.

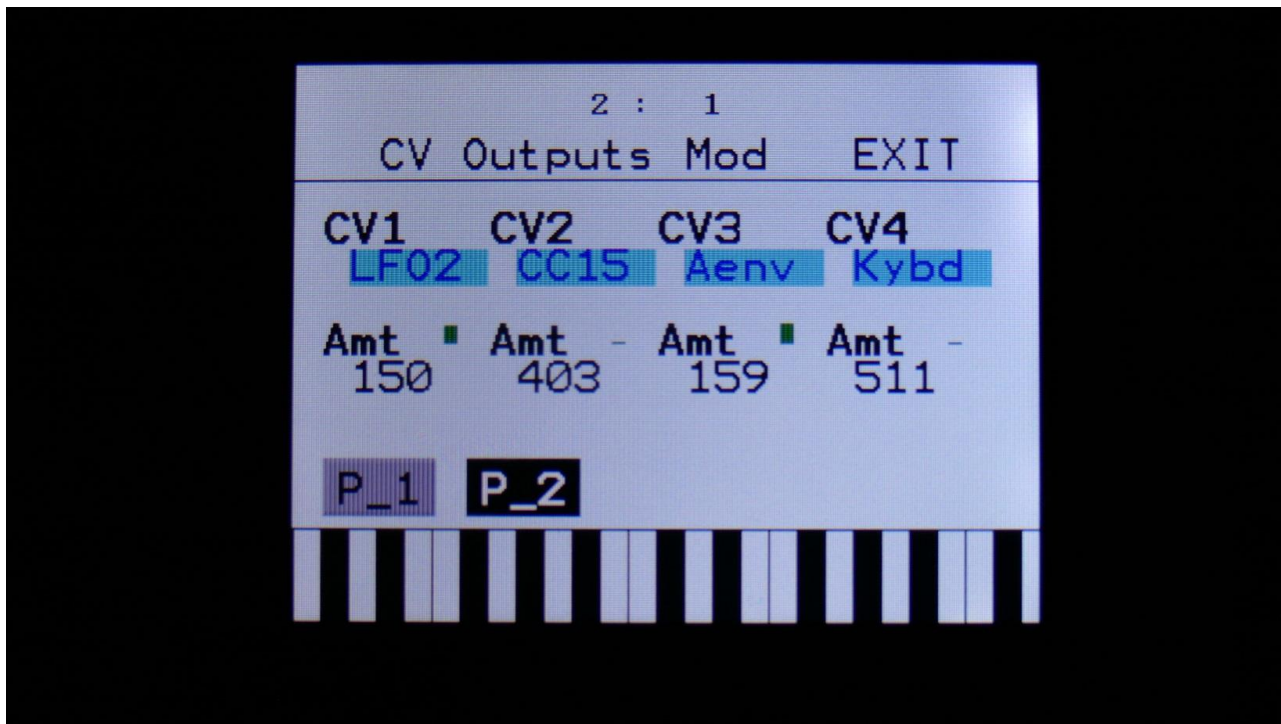
From More... page, touch CVout. Touch the P_1 button to enter this page:



On this page, you can, with the upper row of parameters selected, by turning Edit Knob 1 to 4, set a static voltage to each CV output. This is useful, if you for instance, are controlling cutoff or resonance of an external filter, or tune of an external oscillator.

With the lower row of parameters selected, you can adjust the modulation amount for each CV output.

Touch the P_2 button, to enter the CV outputs modulation page:



Here you can, with the upper row of parameters selected, by Edit Knob 1 to 4, select the modulation source for each CV output. For a complete list of modulation sources, see the list in the start of the synth section in this manual.

To generate an analog clock on a CV output, select SQg5, SQg6, SQg7 or SQg8 (sequencer controller tracks 5 to 8 step on/off gates) as the CV source, and switch all steps on, at the respective controller track.

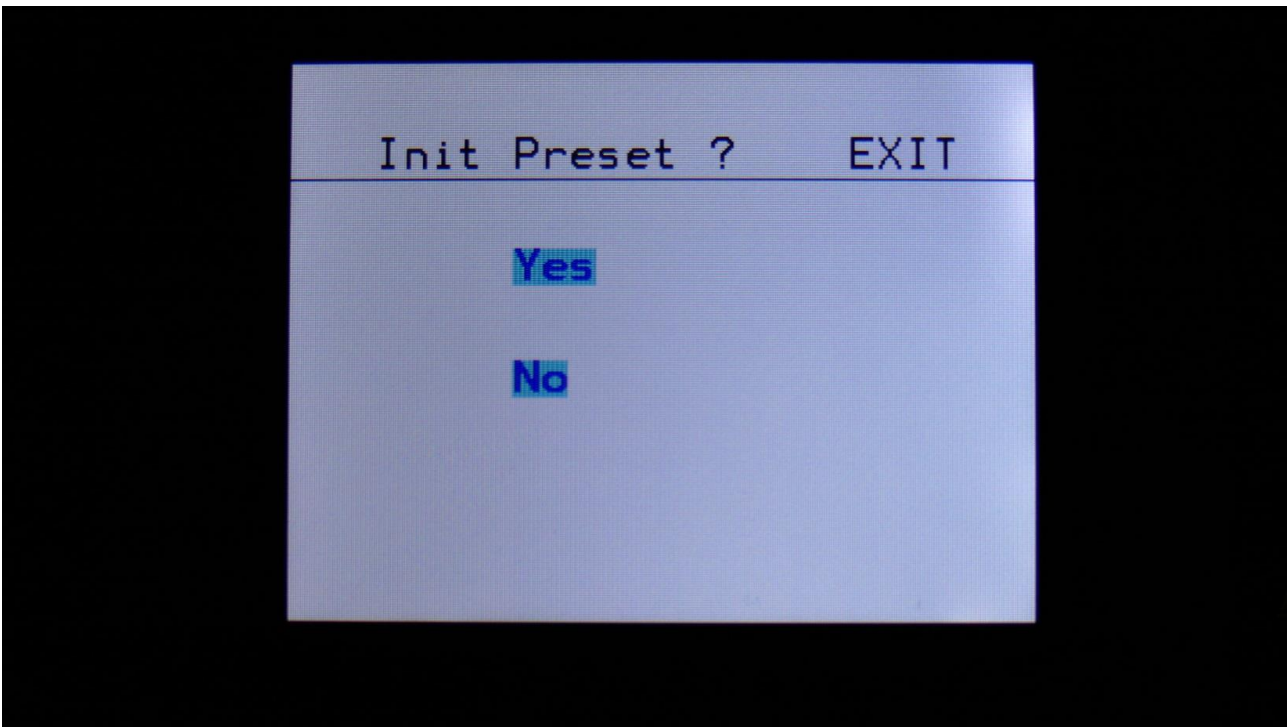
With the lower row of parameters selected, you can adjust the modulation amount for each CV output.

Initialize Preset

If you would like to start out from scratch, with a completely clean preset, this is the function to use.

Please notice that the preset on the selected location are not immediately wiped out. It will not be overwritten until you save the new preset, so even though you have initialized it, it can still be recalled, if you should regret, by selecting another preset, and then select this one again.

From More... page, touch INIT to enter this page:



PolySpaze will now ask you to confirm.

Press "Yes" to initialize the currently selected preset and return to the previous page, or press "No" just to exit, without initializing.

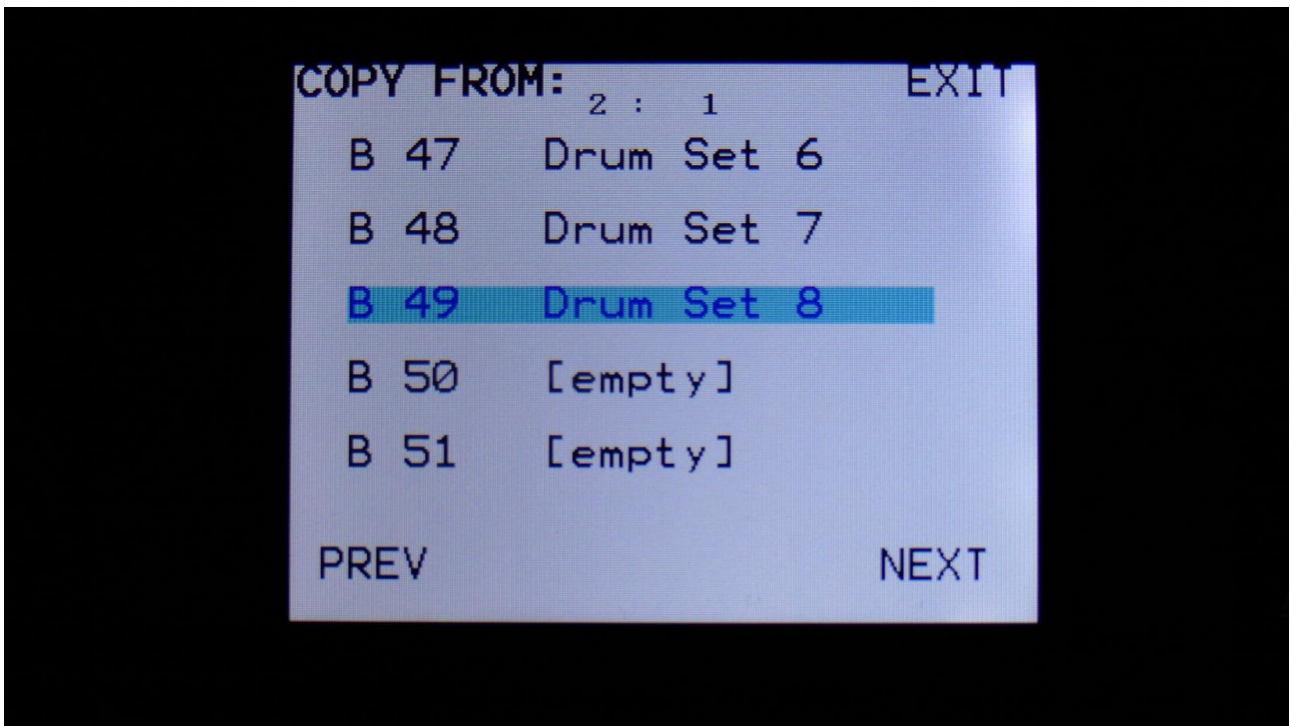
Morph Layer Copy

If you would like to morph between 2 specific sounds, it is possible to copy these from any other preset, to the current presets morph layer A and B.

There are though some limitations:

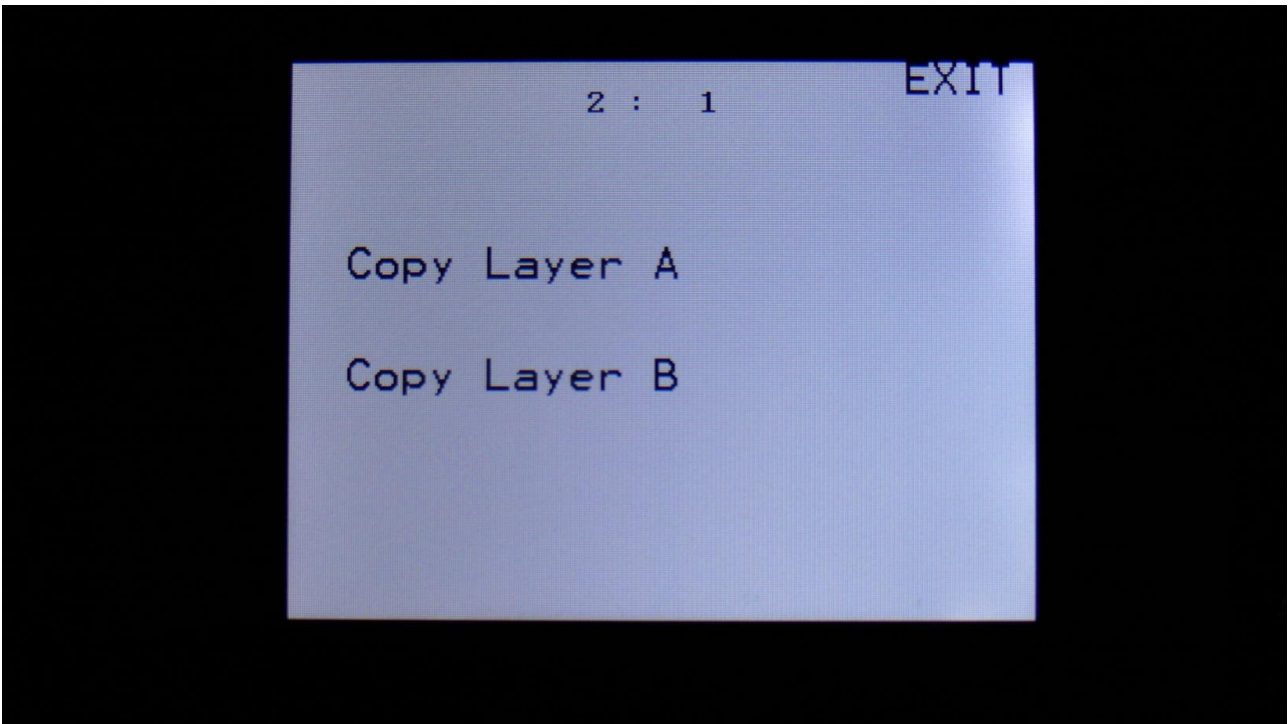
- Because of the limited morphing of switches, you should copy the most complex sound to layer A.
- The triggers setup is not morphed at all, so the sound that uses most triggers, should be placed on layer A.
- If you attempt to morph from an oscillator to a sampler, the sampler will stay in oscillator mode, and use the oscillator settings. If you morph from a sampler to an oscillator, it will stay in sampler mode, and use the sampler settings.
- If you attempt to morph between 2 samplers, that has 2 different samplings selected, only the sampling selected by the sampler of layer A will play back.
- If you attempt to morph between 2 effects processors, that has 2 different effects selected, only the effect selected in layer A will be active.

From More... page, touch COPY to enter this page:



Touch the preset you would like to copy a layer from. Touch PREV and NEXT to select the previous or the next 5 presets.

Then you will be lead to this page:



Touch the layer that you would like to copy from.

The destination for the copy, will always be the currently selected preset, and the layer that is currently selected by the “Morph Settings” button.

The copy is only performed to the preset edit buffer. In order to keep the result, the preset must be stored, as described in the “Save Preset” section later in this manual.

VCF Tune

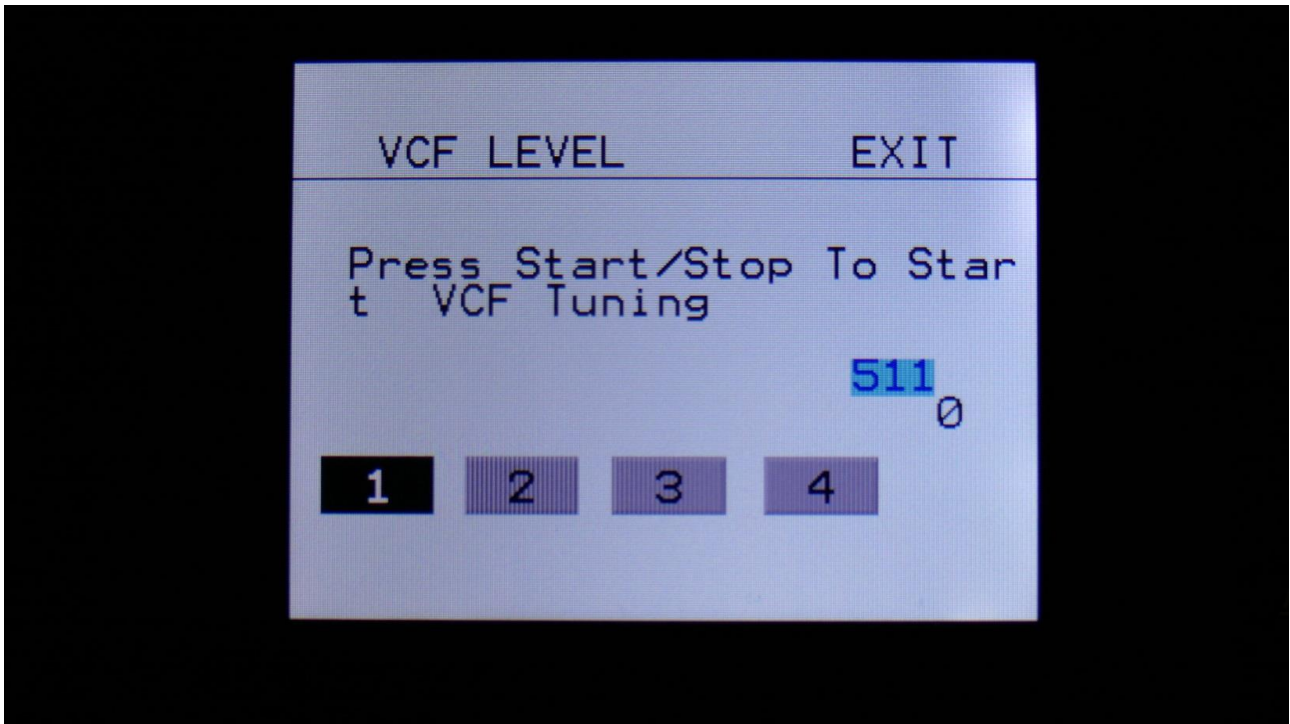
If you feel that the analog filters of your PolySpaze has started to sound very different from each other, it might be time to get them tuned. This process is fully automatic, but it does though take around 1 hour, so you should not just do it for fun.

Before you start this process, you should let your PolySpaze be switched on for at least an hour, to make sure, that the analog circuits is properly heated up.

PolySpaze does come with its filters tuned from the Gotharman factory, so it should not be necessary to do this for a long time.

You can, at any point of this process, just touch Exit in the upper right corner of the screen, to abort. You will then need to reboot your PolySpaze, in order to make it load the previously stored filter tunings.

From More... page, touch VCF TUNE to enter this page:



Now push the Start/Stop button, to start the process.

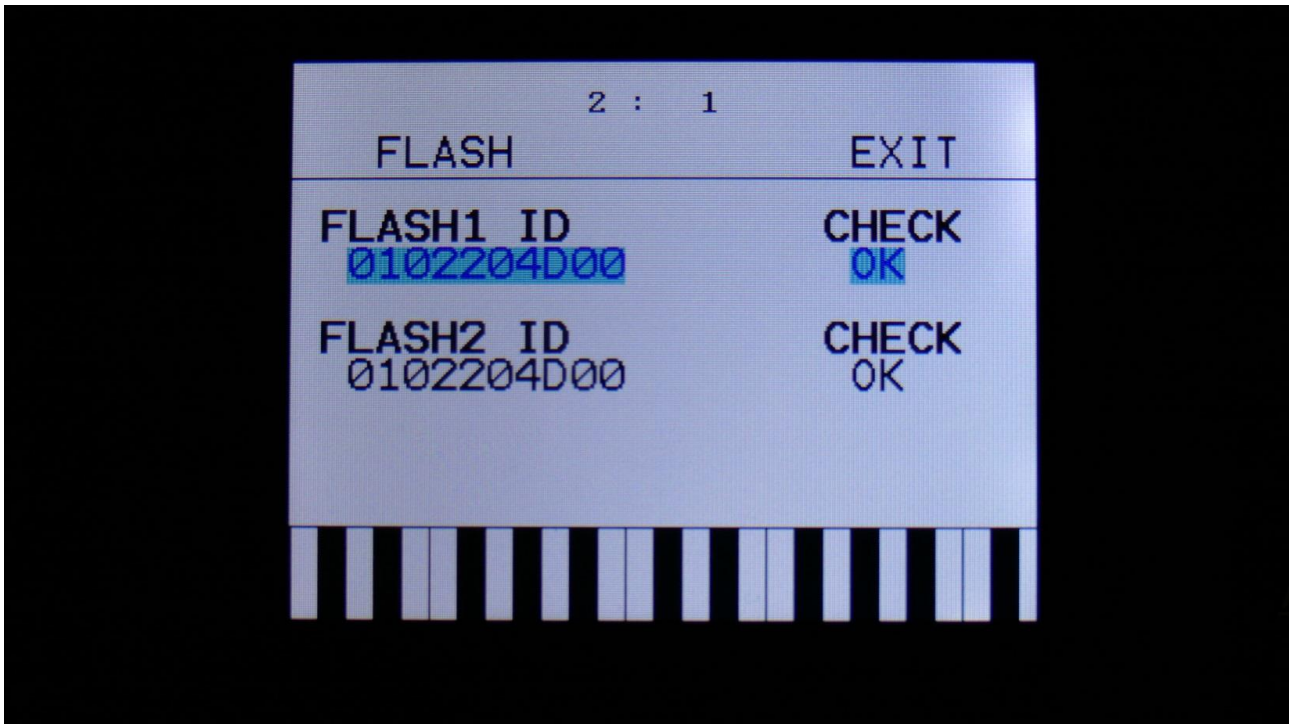
The screen will now update itself from time to time, to show the progress of the filter tuning. Please wait until it jumps back to the More... page again.



If the filters of your PolySpaze, after you have tuned them, still not sounds the same, please go to the "TJEK" page, described a little bit later in this section of the manual, and take a picture of the numbers shown there, and send this together with your service request to Gotharman's

Checking the FLASH memory for malfunction

From More... page, touch FLASH to enter this page:



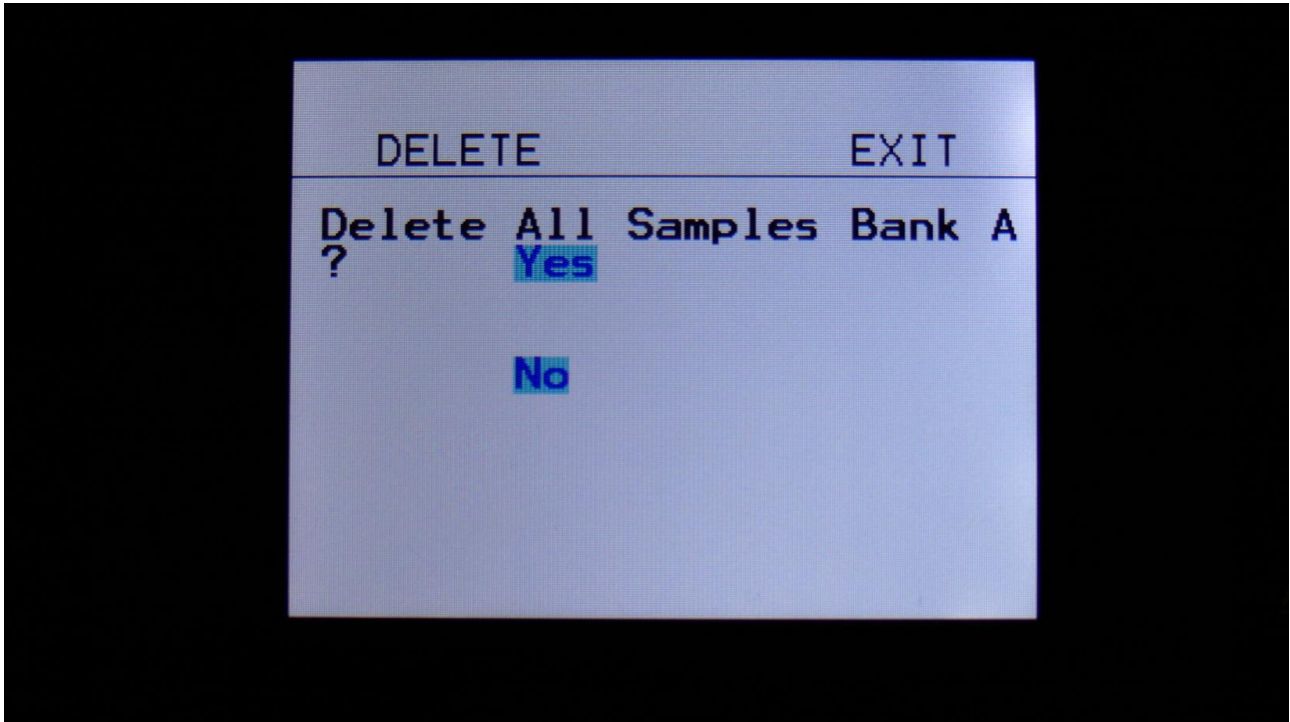
This page should look exactly like on the picture (except for the touch screen keyboard). If it doesn't, the FLASH memory on your PolySpaze might be defective, and should be replaced. Please get in touch with Gotharman's regarding this.

Delete Sample Bank A

It is possible to completely erase the sample banks. Please think about it, before you do that, and back up your samplings as described in the USB section later in this manual, since if you don't have a backup, it will not be possible to recover your samplings again.

From More... page, touch DEL SmpA.

PolySpaze will now ask:



If you are really sure, that you absolutely have to do this, touch "Yes" to start the erase. The sample bank will now be completely wiped out. While it is being erased, PolySpaze's 5 button LED's will run a sequence. When the LED's shuts off, the erase has been done, and PolySpaze will return to the More... screen.

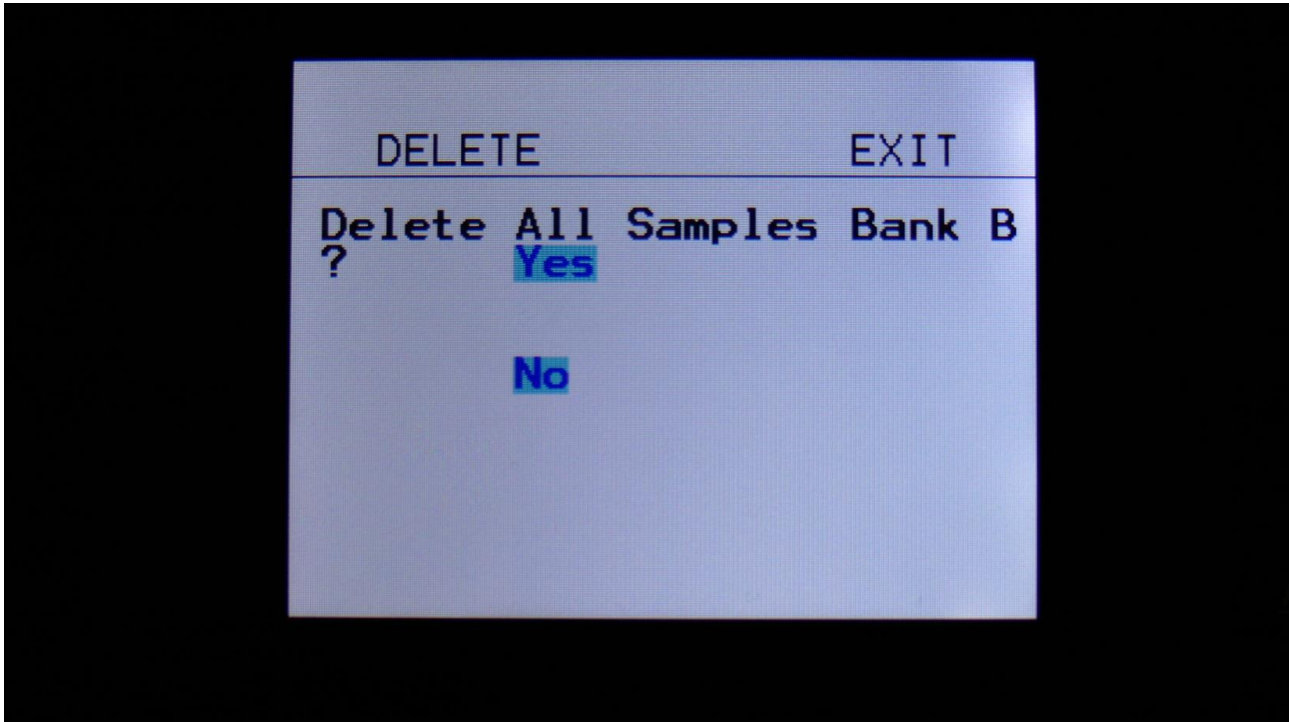
If you don't want to do this anyway, touch "No" to exit.

Delete Sample Bank B

It is possible to completely erase the sample banks. Please think about it, before you do that, and back up your samplings as described in the USB section later in this manual, since if you don't have a backup, it will not be possible to recover your samplings again.

From More... page, touch DEL SmpB.

PolySpaze will now ask:



If you are really sure, that you absolutely have to do this, touch "Yes" to start the erase. The sample bank will now be completely wiped out. While it is being erased, PolySpaze's 5 button LED's will run a sequence. When the LED's shuts off, the erase has been done, and PolySpaze will return to the More... screen.

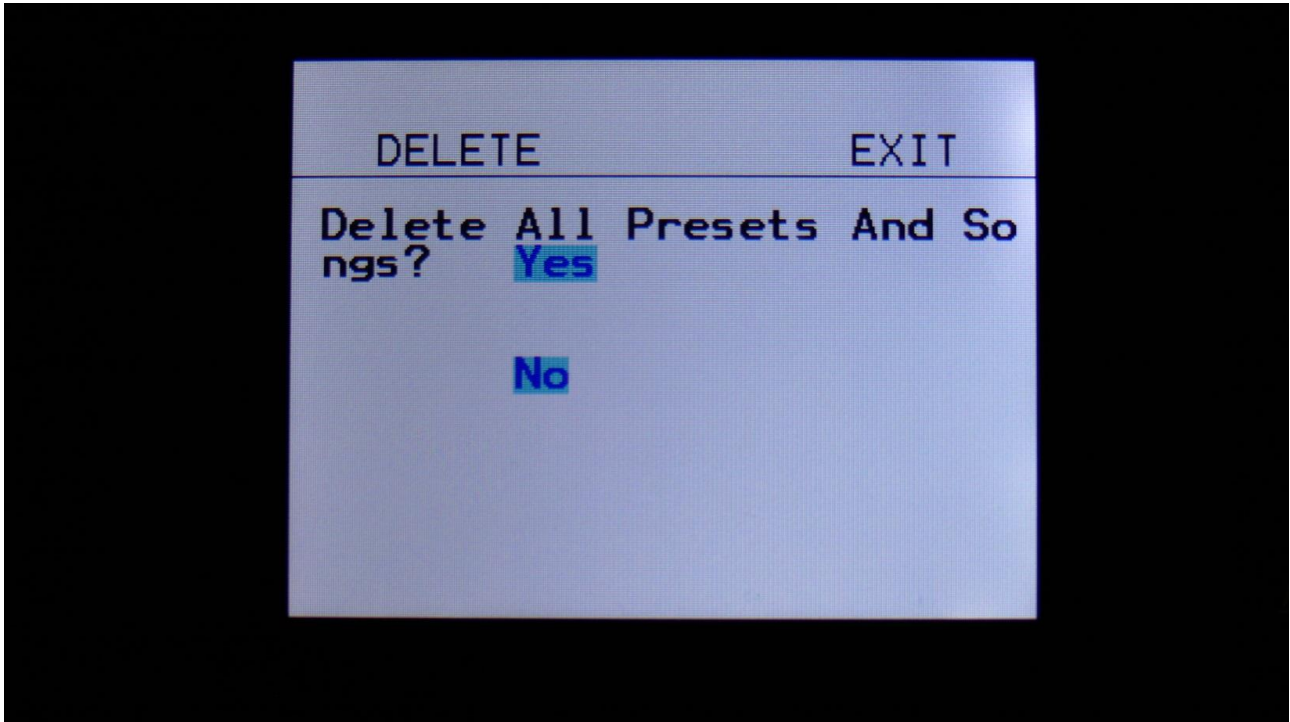
If you don't want to do this anyway, touch "No" to exit.

Delete all Presets and Songs

It is possible to completely erase all presets and songs. To do that, if you are really sure, that you would like to, from More... page, touch DEL Prs.

Before you do this, please back up your presets as described in the USB section later in this manual, since if you don't have a backup, it will not be possible to recover your presets again.

PolySpaze will now ask:



If you are really sure, that you absolutely have to do this, touch "Yes" to start the erase. All presets and songs will now be completely wiped out. While these are being erased, PolySpaze's 5 button LED's will run a sequence. When the LED's shuts off, the erase has been done, and PolySpaze will return to the More... screen.

If you don't want to do this anyway, touch "No" to exit.

C.P.

From More... page, touch C.P. to enter this page:



By turning Edit Knob 1 to 4, you can here make the 2 rectangles produce different colours.

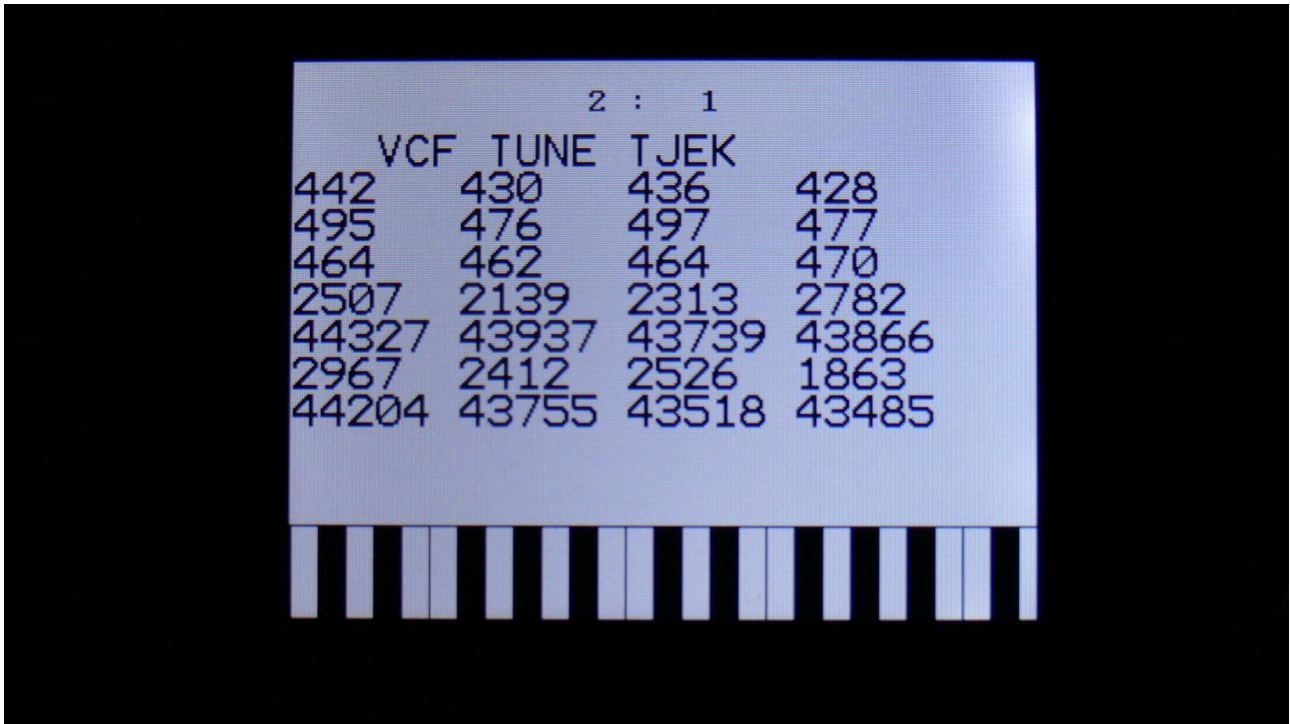
PRS

Touch this to toggle between preset mode and song mode. Song mode is described later in this manual.

TJEK

Entering this page, will make it show a lot of numbers, that PolySpaze found in the analog filter tuning process.

From the More.. page touch TJEK, to enter this page:



If you think that the analog filter of your PolySpaze is malfunctioning, please tune them, as described a little bit earlier in this section, and shoot a picture of these numbers, and send this together with your service request.

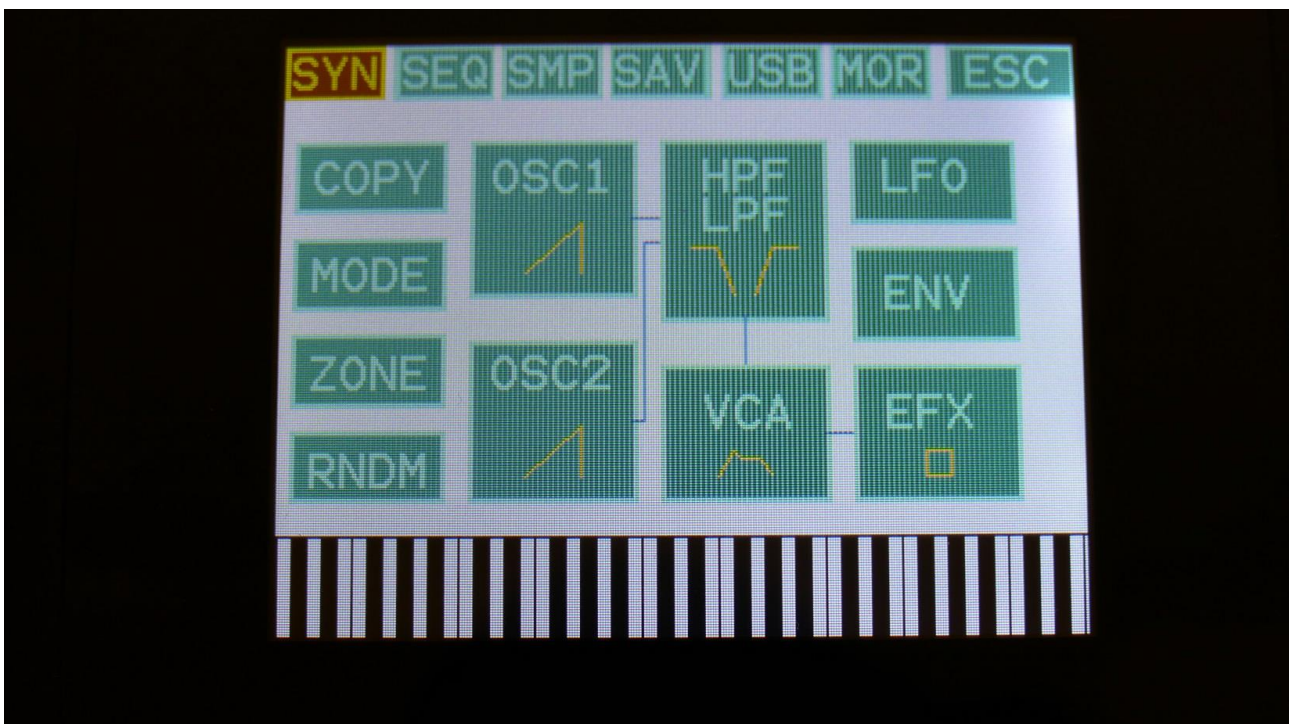
Save Preset

When you have created a new preset, it should be saved for later recall. If you do not save your presets, they will be lost forever, as soon as you select another preset, or turn off your PolySpaze.

A preset that is saved on PolySpaze contains all the data previously described in this manual:

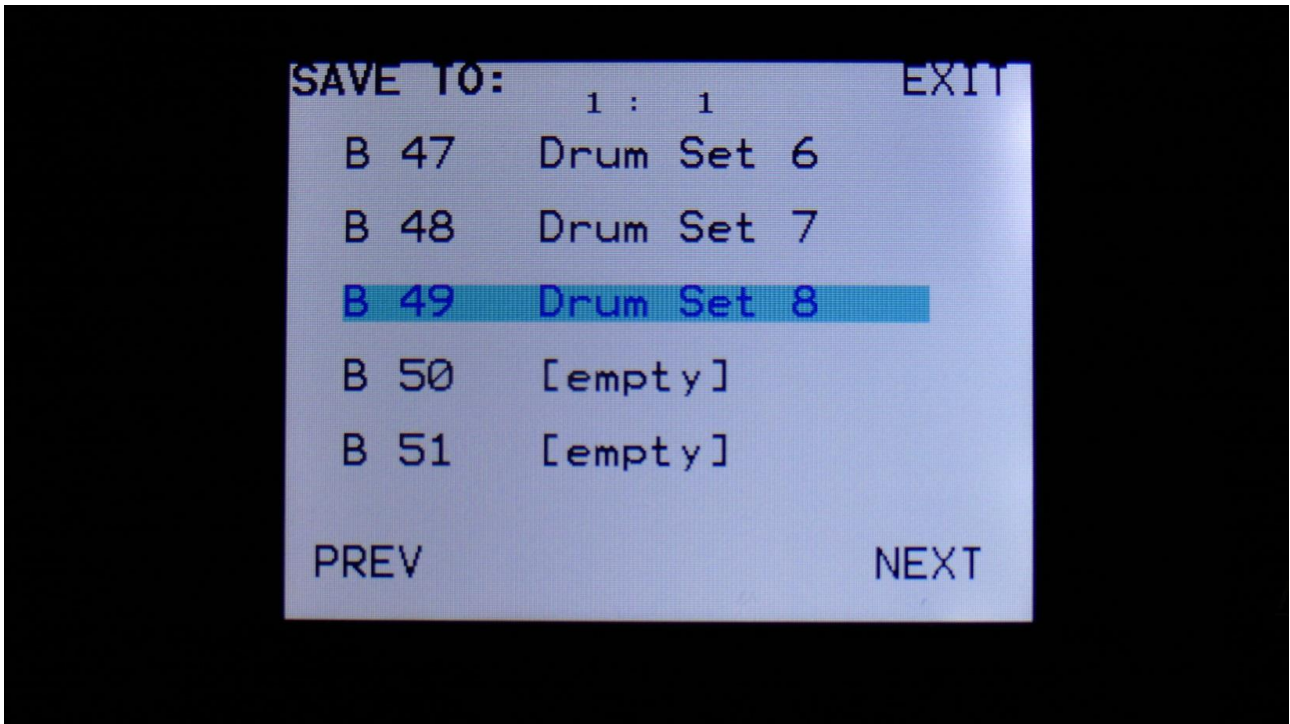
- All sequencer data
- All synthesizers settings
- All CV in/out settings

From the Preset Select screen, touch the EDIT field, to enter the Synth blocks page:



On the navigation bar at the top of this page, touch SAV.

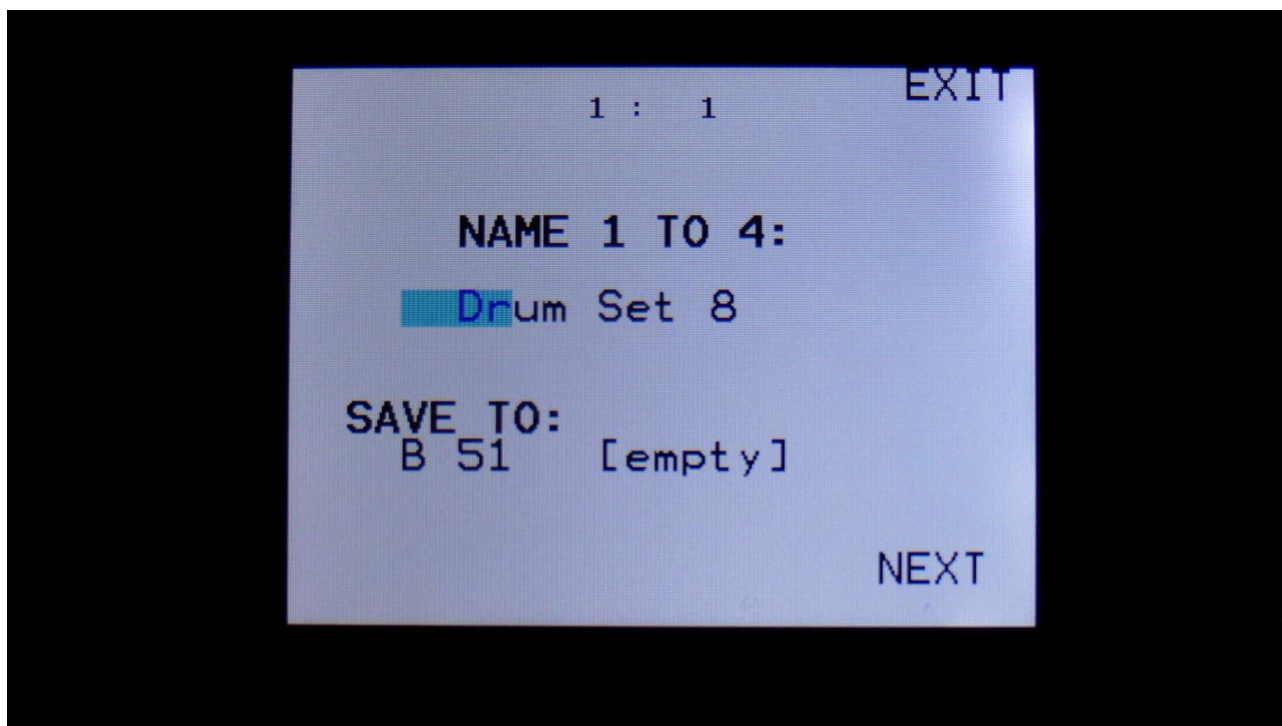
You should now enter this page:



Touch the preset location that you would like to save your new preset in. If it is not shown, touch PREV and NEXT to reach it.

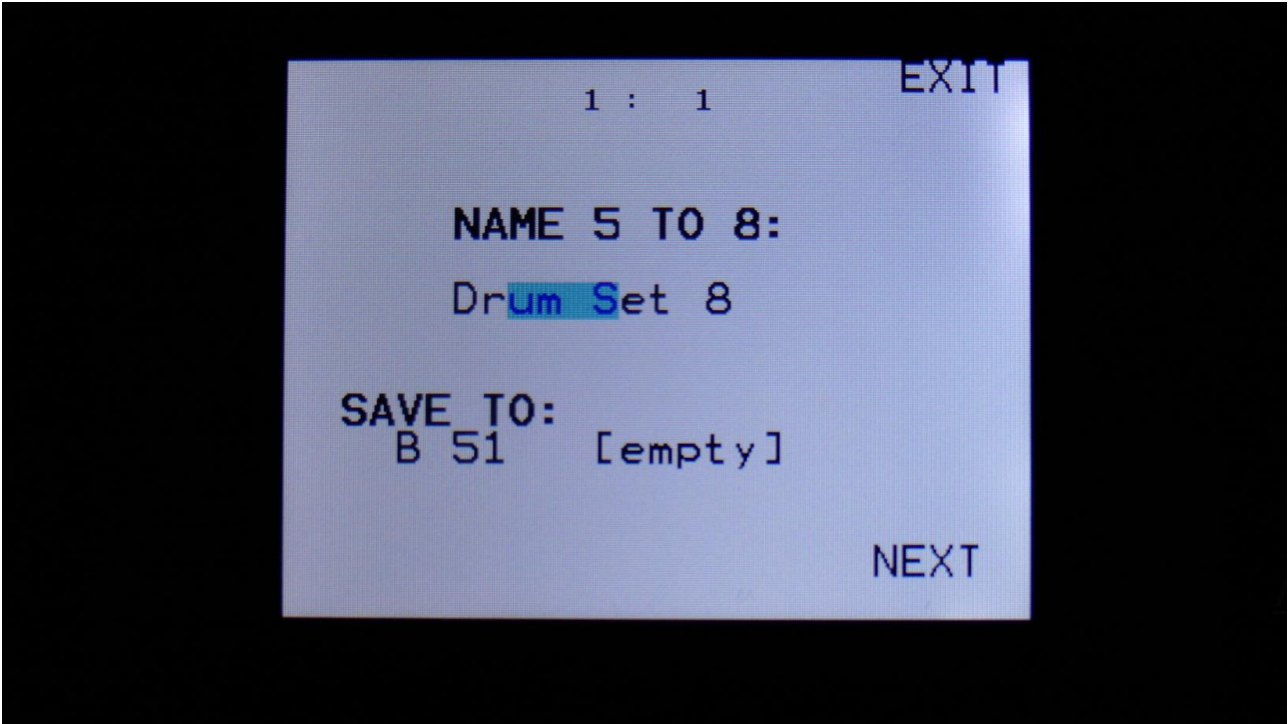
Preset number and name is shown for presets that are already saved. If you save your new preset on such a location, the old preset will be overwritten. On preset locations, where a preset has not yet been saved, the name will be shown as "<empty>".

When you touch the preset location, that you would like to save your preset to, you will enter this page:



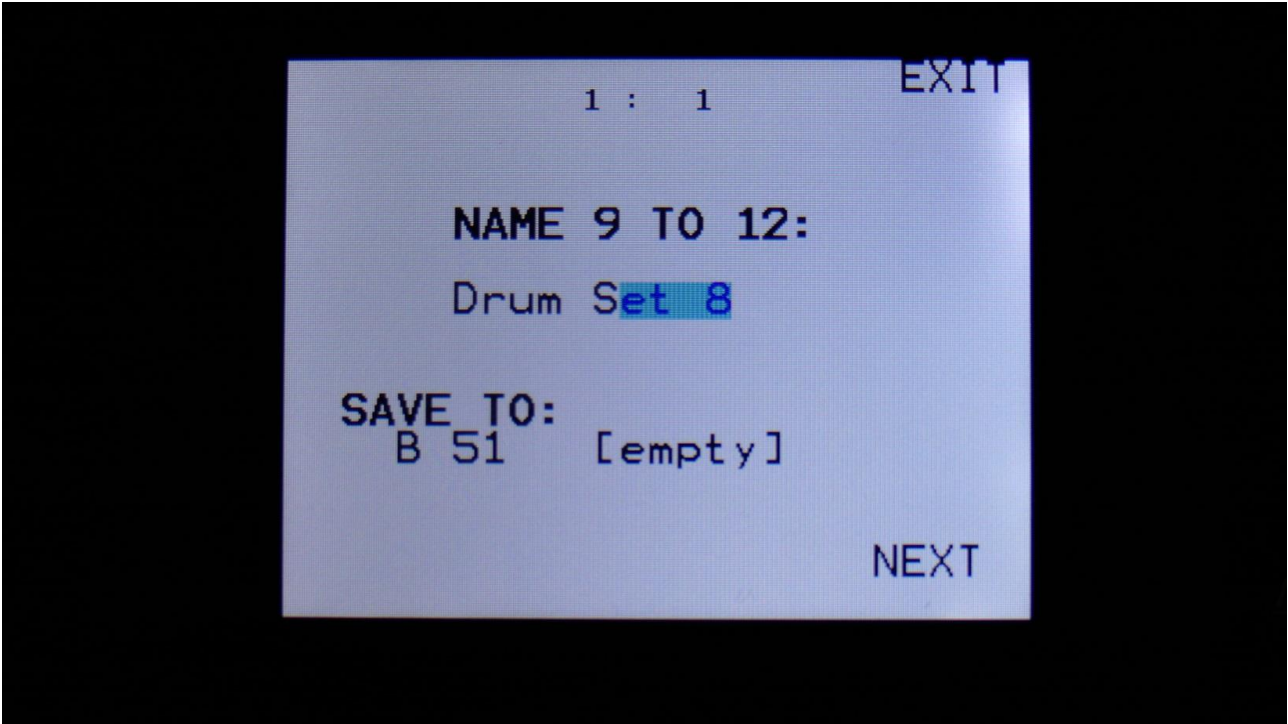
Turn edit knob 1 to 4 to select the first 4 letters of the name for your new preset.

Touch NEXT when you are done.



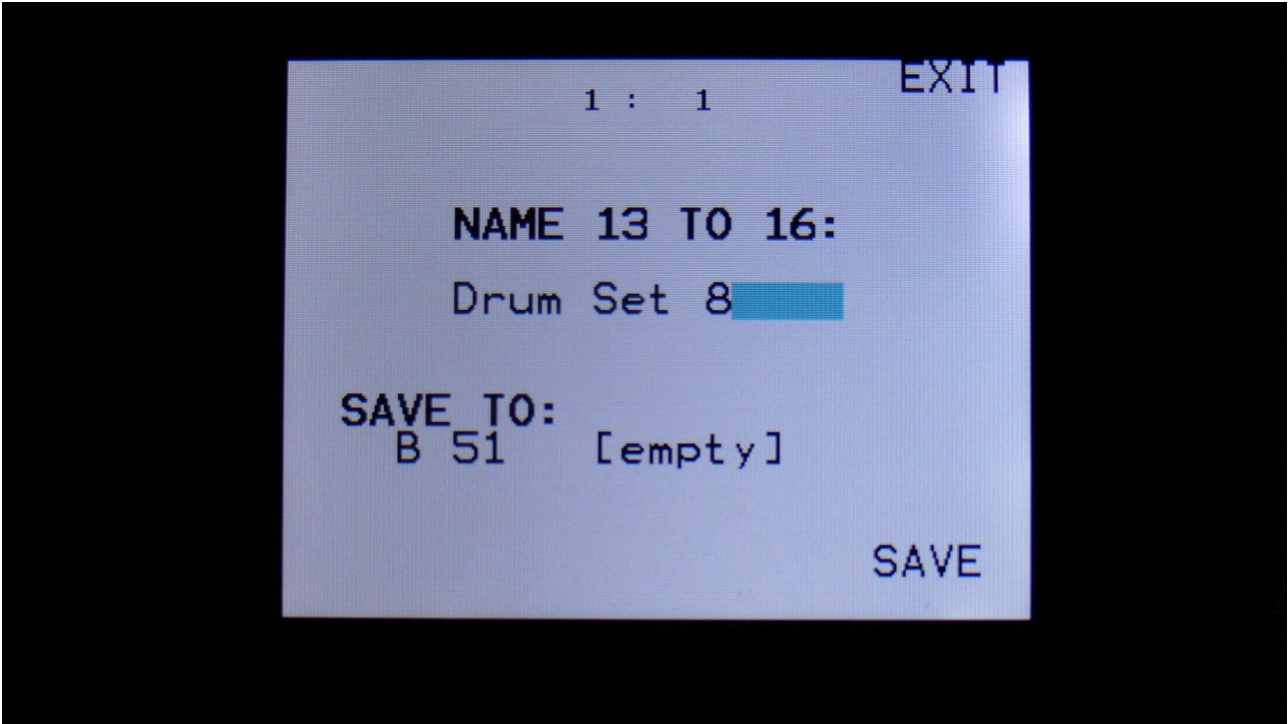
Turn edit knob 1 to 4 to select letters 5 to 8 of the name for your new preset.

Touch NEXT when you are done.



Turn edit knob 1 to 4 to select letters 9 to 12 of the name for your new preset.

Touch NEXT when you are done.



Turn edit knob 1 to 4 to select letters 13 to 16 of the name for your new preset.

Touch SAVE when you are done. Your preset will now be saved, and PolySpaze will exit from the save pages.

Song Mode

It is possible to arrange chained playback of Presets in 1024 Song locations.

Each Song can have up to 128 steps. For each Song step a Preset can be selected, and it can be set how many times track one of the preset should play back, until it advances to the next song step.

If the last step of the Song is set to "End", playback will stop, when the Song has played back the last preset. If the last step of a Song is set to "Loop", it will jump back to step 1, and continue playback, after the last preset has played.

Songs can be realtime recorded, simply by hitting the "Rec" button on the song main page and then the "Play" button, and select the presets you want in your song.

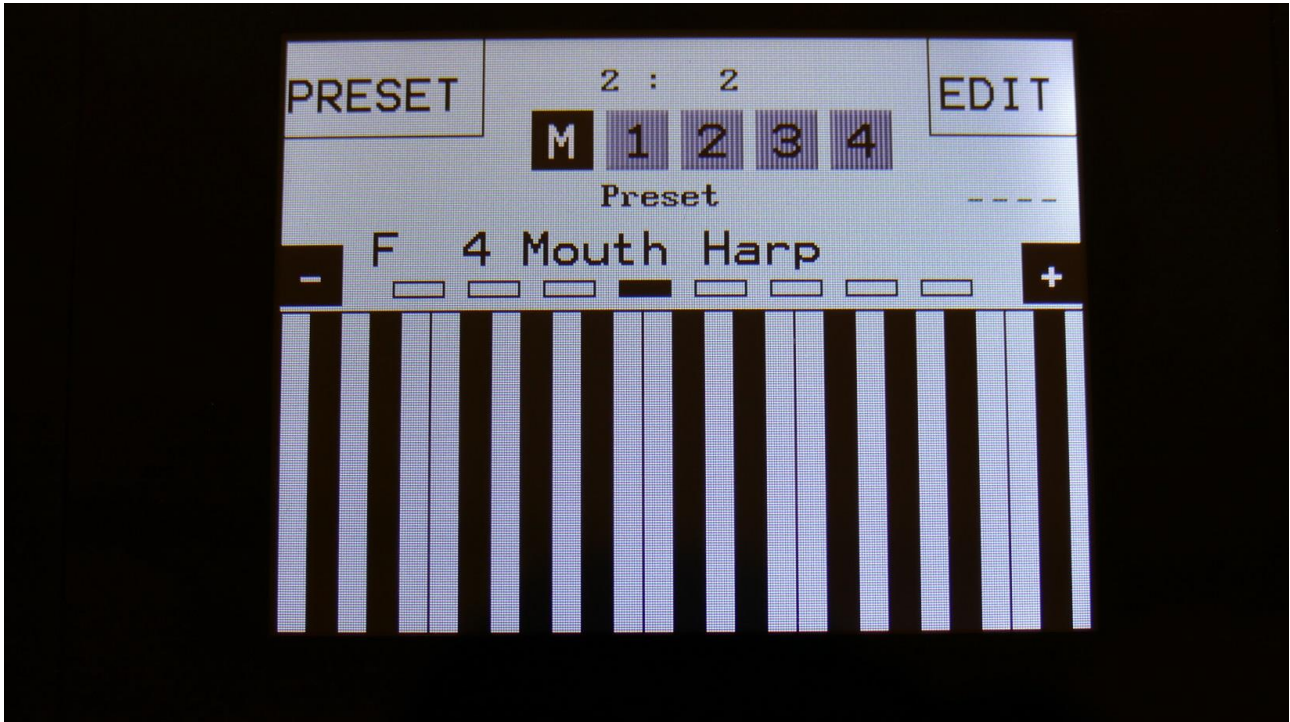
Songs can also be recorded/edited by putting the Preset numbers and number of times to play back, into a list.

Any presets can be used in any songs.

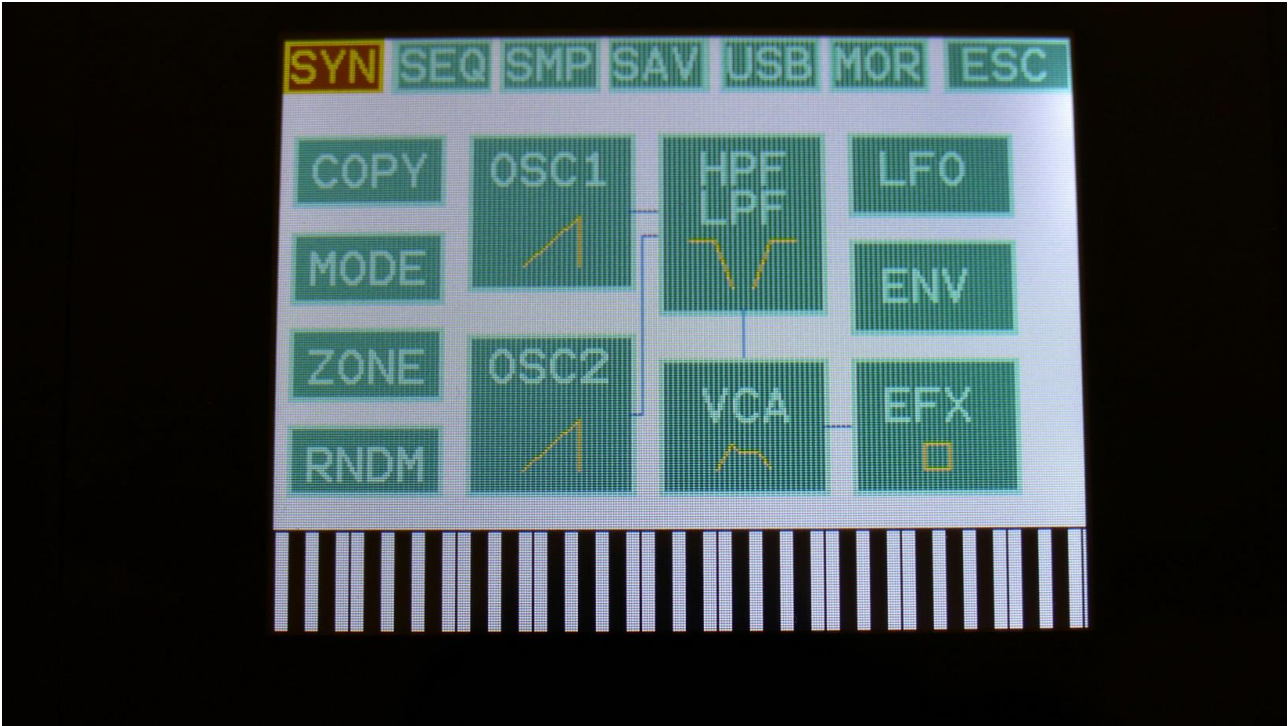
In song mode you still have access to edit all preset synth parameters, in the currently playing preset, but you can't immediately save any changes you make, since in song mode, you can only save the song.

Accessing Song Mode

If you would like to make a new song from scratch, it can be a good idea to select the preset you would like to have on the first song step, from the preset select page, before you enters song mode. This is not something you have to do, I have just experienced, when testing this, that it makes things a bit easier. When you select a non-recorded empty song, the last selected preset will automatically be placed on song step 1.



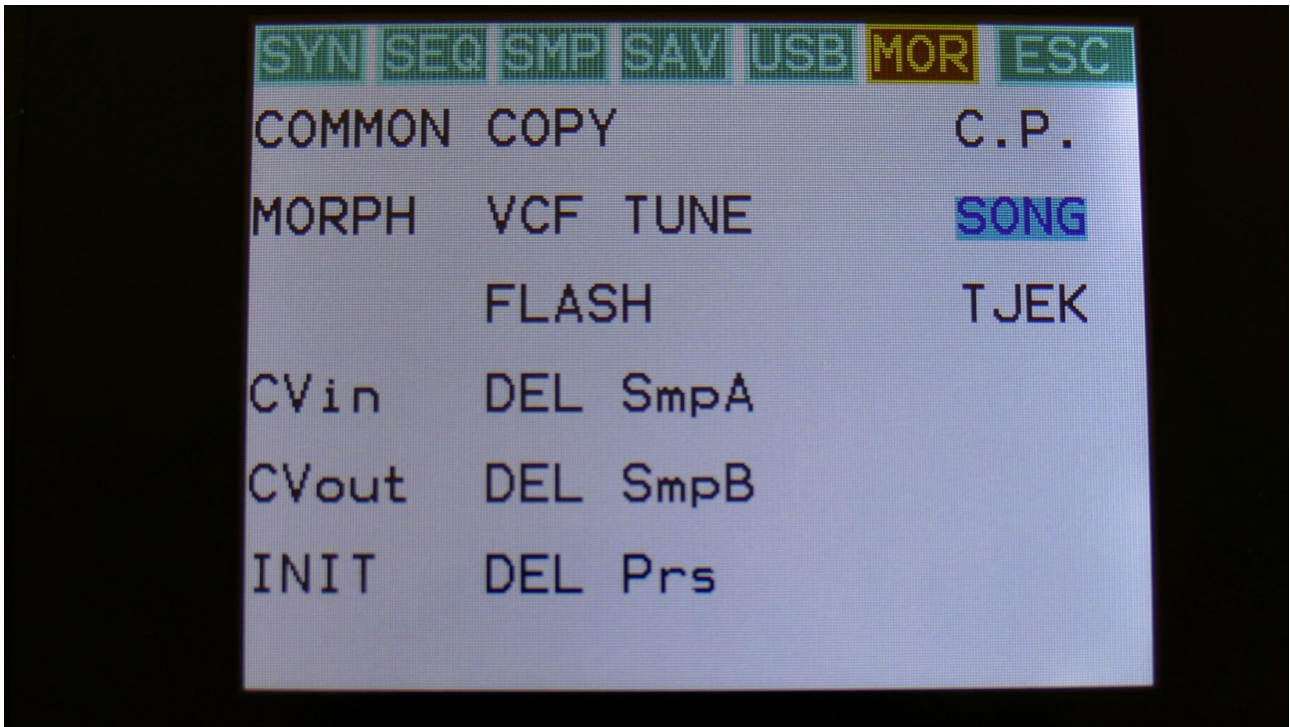
From the Preset Select page, hit the EDIT field.



On the navigation bar at the top of the screen, touch MOR...

SYN	SEQ	SMP	SAV	USB	MOR	ESC
COMMON	COPY					C.P.
MORPH	VCF	TUNE				PRS
	FLASH					TJEK
CVin	DEL	SmpA				
CVout	DEL	SmpB				
INIT	DEL	Prs				

In the far right row, you will find the text PRS. Please hit this, after making sure, that the sequencer is stopped.



Now PRS turns into SONG, and PolySpaze are in song mode. If you would like to go back to preset mode, just touch SONG.

The Song Edit Page

To enter the Song Edit page, just touch SEQ on the navigation bar at the top of the More... page:



On the Song Edit page, you have an overview of the programmed song steps, and the possibility of editing these.

By touching any of the song steps, you can select this step for editing. The selected step is shown, boxed in blue. The little brown square between the step number and the preset name, is showing what song step is currently being played back.

For each song step, the song step number is shown, the preset number and name, and the number of times track 1 will play back (under the X).

To edit a song step, turn edit knob 1 to select <End>, preset bank A to P, or <Loop>. <End> will make song playback stop, when it reaches that step, <Loop> will make it jump back to song step 1, and start all over again.

Turn edit knob 2 to select the preset number, and edit knob 3 to select the number of times, you want track 1 to play back, for that step.

8 song steps are shown at a time. Touch the arrows to select the previous or next 8 song steps. The total number of song steps is 128.

Touch EXIT to exit from the Song Edit page, and touch REC to start song realtime recording. This will be explained very soon.

The Song Select Page



When you, in song mode, exit from the Edit Groups pages, you will exit to the Song Select page, instead of the Preset Select page. This reads out "Song" just above the song number and name, instead of the "Preset", to make sure that you know where you are.

On the top of the Song Select page, you might have noticed, that the sequencer position ruler has gained an extra digit. The first digit of this now shows the song step number, that is currently being played back. The 2 other digits is still showing the bar and the beat of the preset, that is currently playing back.

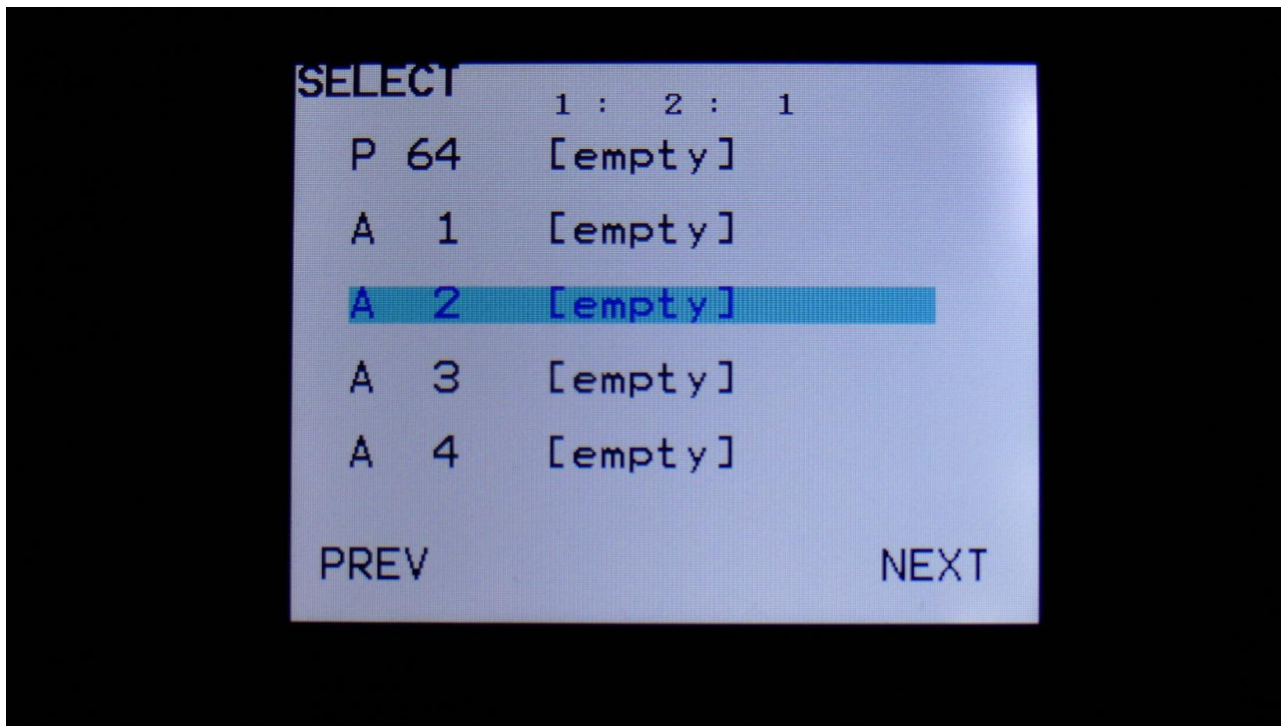
Other changes to this, compared to the Preset Select page, are that the field in the upper left corner, that was used to select preset with, now has been renamed to SONG, and is used to select song with. It is only possible to select another song, while the sequencer is stopped.

Besides from these changes, everything is the same as in preset mode. You can still edit the synth parameters of the currently playing preset.

Selecting a song:

Make sure that the sequencer is stopped.

Touch the “SONG” field. A list of 5 songs near the currently selected song, will now appear:



Touch “PREV” or “NEXT” to view the previous or next 5 songs, and finally touch the song name of the song you would like to select. 1024 songs can be selected, from A01 to P64.

PolySpaze will now jump back to the main Song Select screen, and show the name of the newly selected song.

When PolySpaze is turned off, it will remember which song was selected, and start up with this, when turned on again. It will also remember if it was in preset or song mode, and start up in the same mode.

On the Song Select page, the 7 Edit/Quick Edit Knobs will transmit MIDI CC’s to PolySpaze’s MIDI out, on the PolySpaze MIDI channel.

The Morph knob will transmit and receive MIDI CC 1.

The HPF Cut knob will transmit and receive MIDI CC 2.

The LPF Cut knob will transmit and receive MIDI CC 3.

Edit Knob 1 to 4 will transmit MIDI CC 4, 5, 7 and 8.

Song Realtime Recording



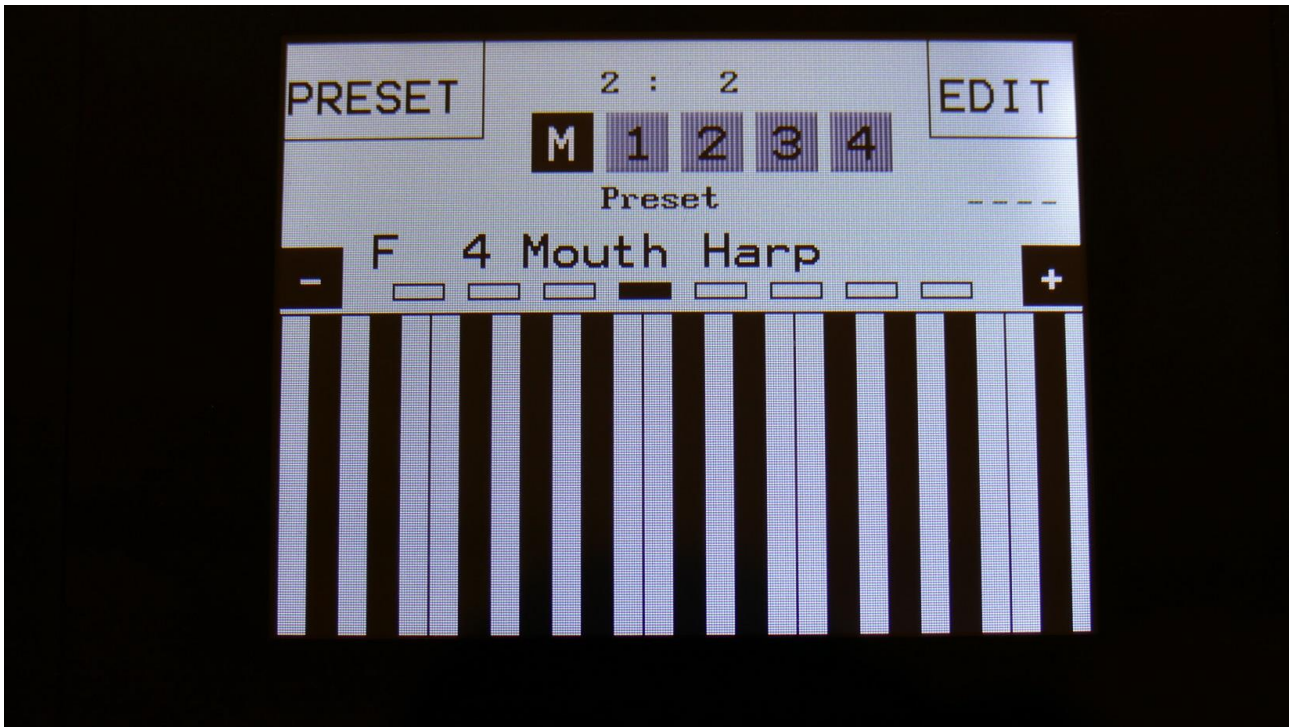
On the Song Select page, select the song you would like to record. 1024 songs are available, from A00 to P64.

Now go to the song edit page.



Make sure that the sequencer is stopped, and push the “REC” button, so it turns red.

Now exit to the Preset/Song select screen.



PolySpaze will now show the Preset select page.

If you selected an empty song, the last preset you selected, before you jumped to song mode, will be shown. If you selected a song that was already recorded, the preset on the selected step of this song will be shown.

Now, if the shown preset are the preset you would like to have on step 1 of your song, you can proceed recording your song, by pressing the Start/Stop button.

If you would like another preset on step 1 of your song, please select this, using the preset select field, and then push the Start/Stop button, to start the recording of the song.

The preset you selected will now start to play back.

From here you can now select other presets, at the time you want these to play back in your song.

Preset changes will only be registered and recorded, when track 1 of the currently playing preset reaches its end and starts over. When the changes has been registered, the song step number in the position ruler will increment by one.

When you are done changing presets, and you think that your song is ready, hit the Start/Stop button to stop song recording.

Go back to the song edit page, and touch the REC button, so it turns grey again, to exit from song realtime recording.



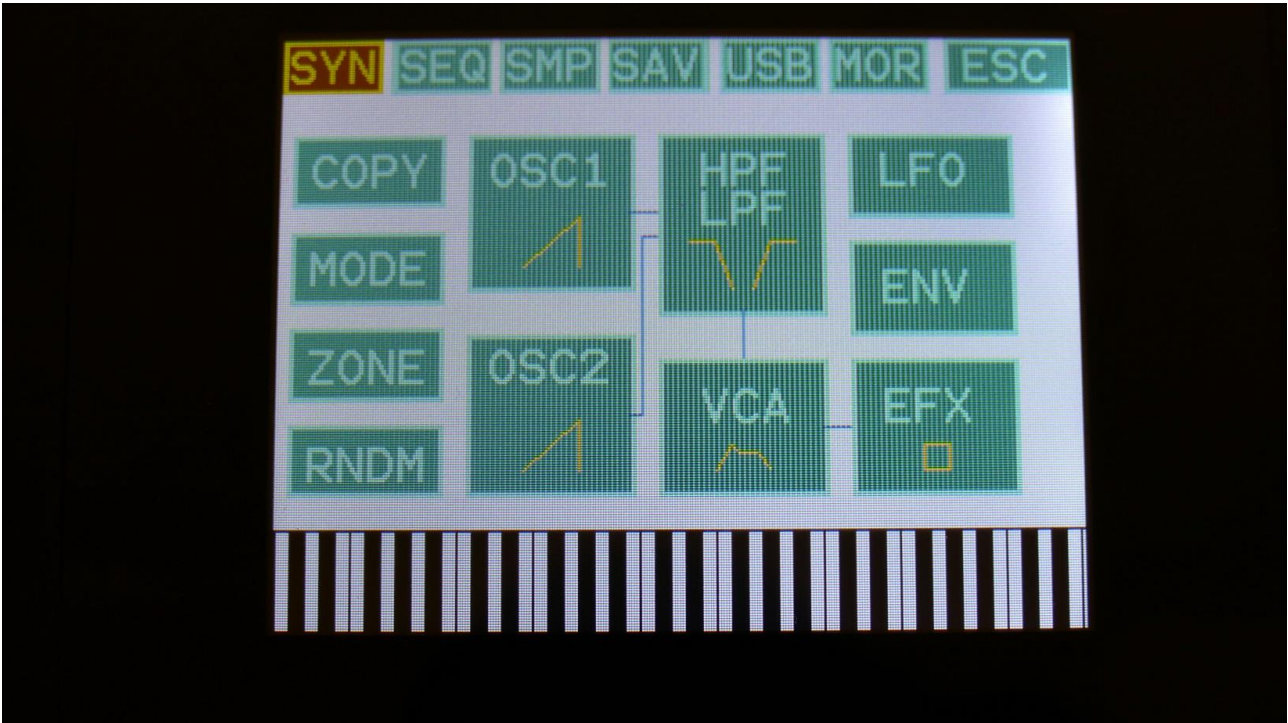
To listen to the song you have just created, just hit the Start/Stop button.

If there are anything you would like to edit, go to the Song Edit page, as described earlier.

If you would like to keep your work, you should save your new song.

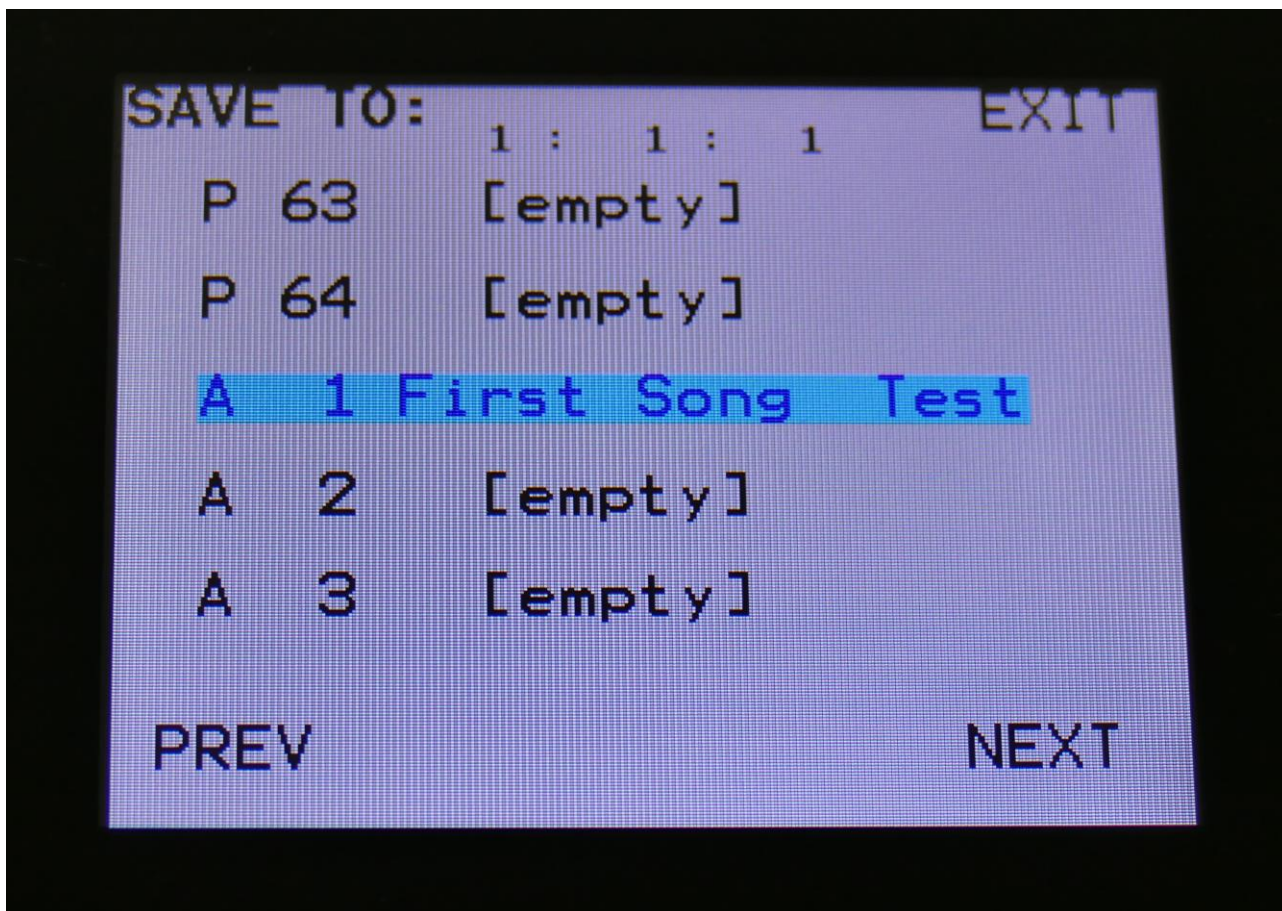
Save Song

PolySpaze songs are not saved within the presets, so they must be saved separately. To do so, when in song mode, from the song select page, touch the EDIT field to enter the Synth blocks page:



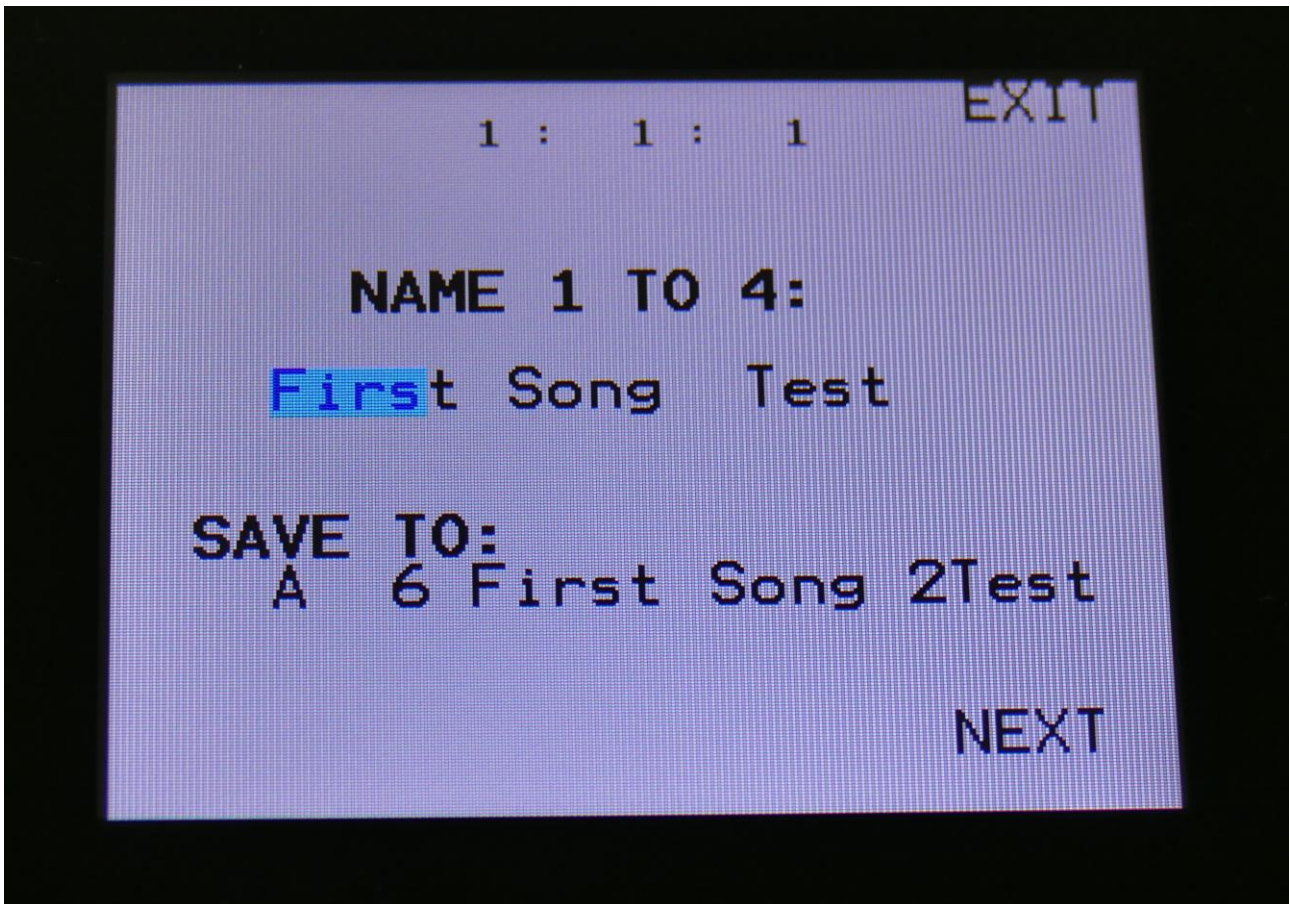
Touch SAV.

You should now enter this page:



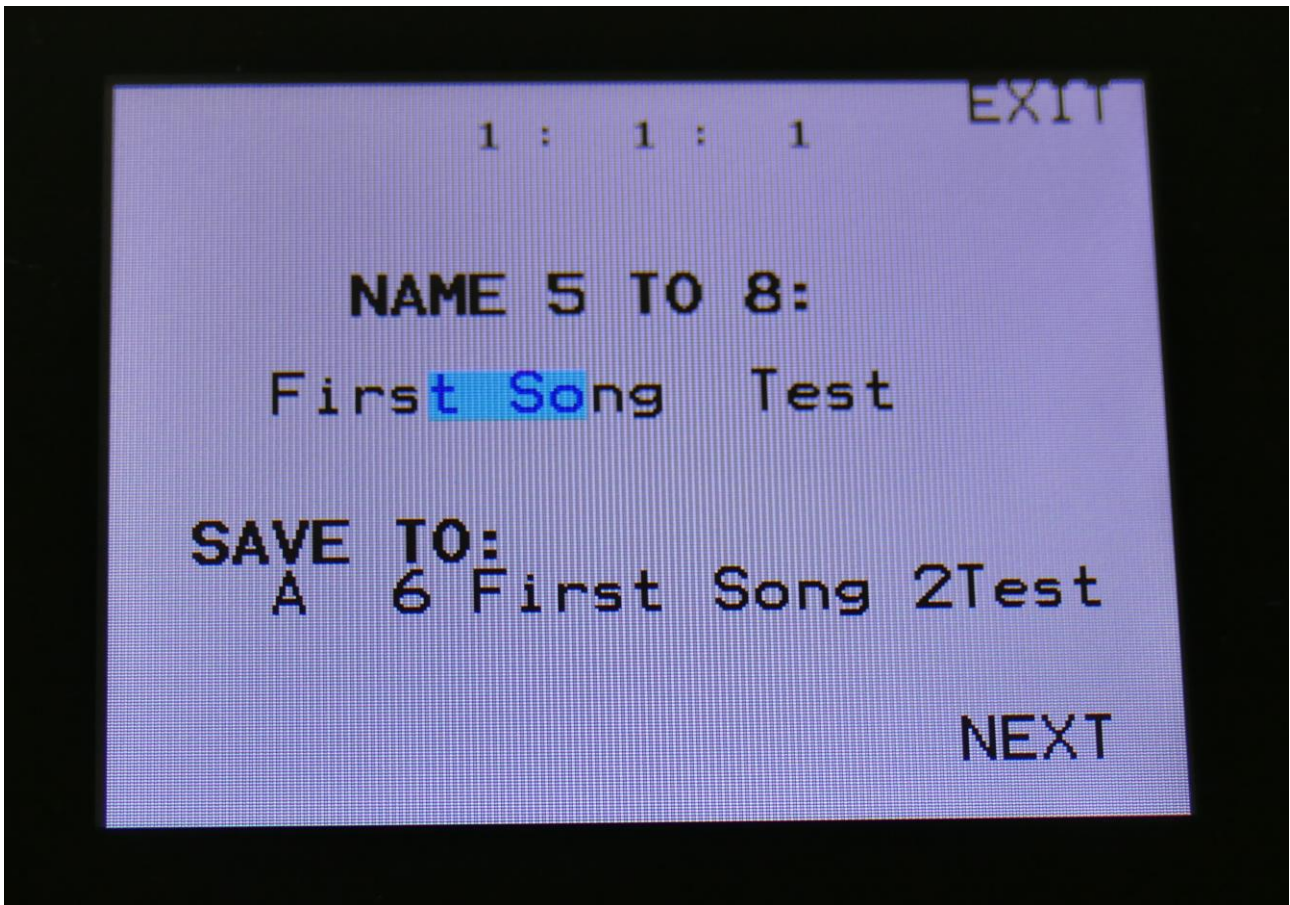
Touch the song location that you would like to save your new song to. If it is not shown, touch PREV and NEXT to reach it.

Song number and name is shown for songs that are already saved. If you save your new song on such a location, the old song will be overwritten. On song locations, where a song has not yet been saved, the name will be shown as "<empty>".



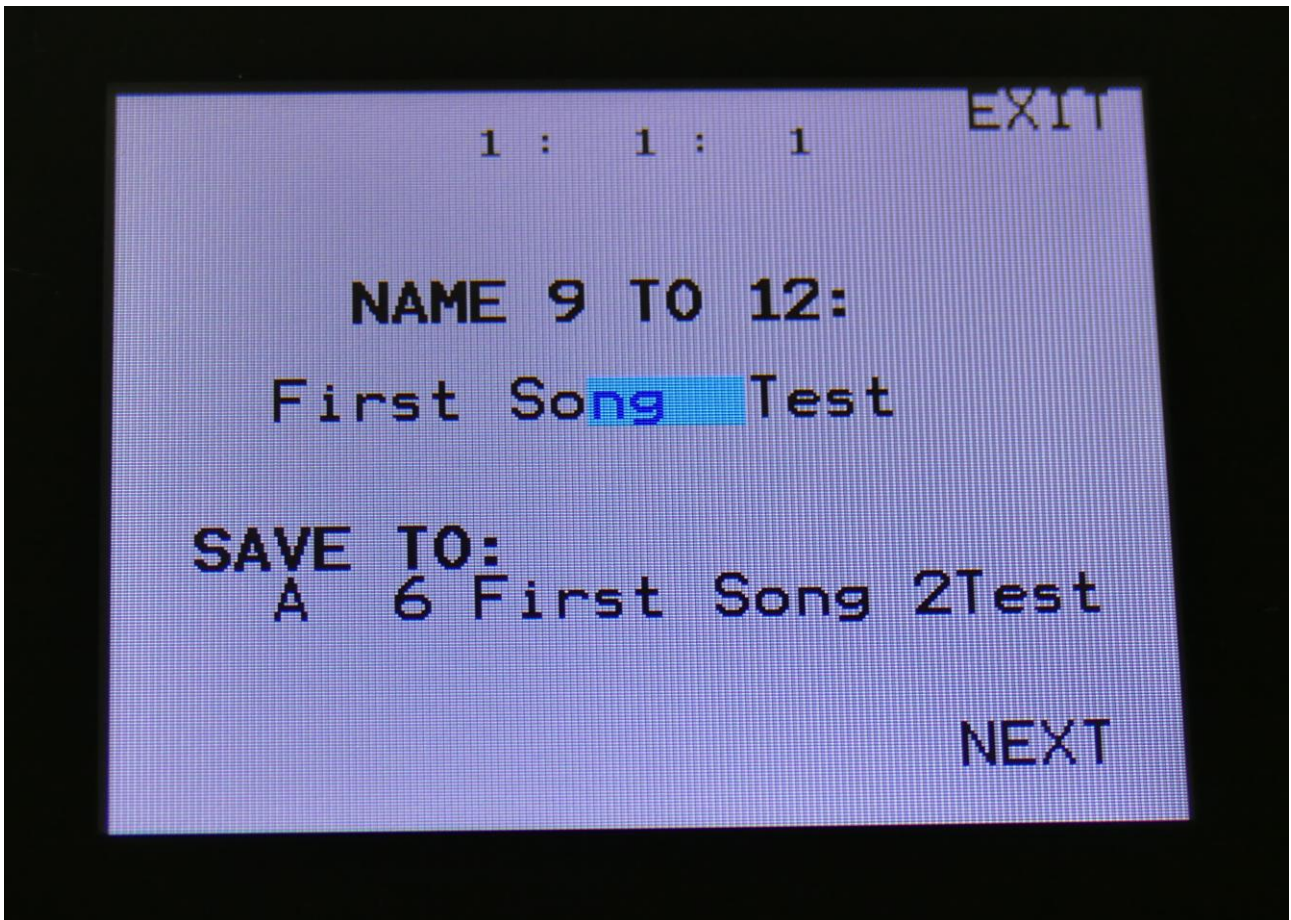
Turn edit knob 1 to 4 to select the first 4 letters of the name for your new song.

Touch NEXT when you are done.



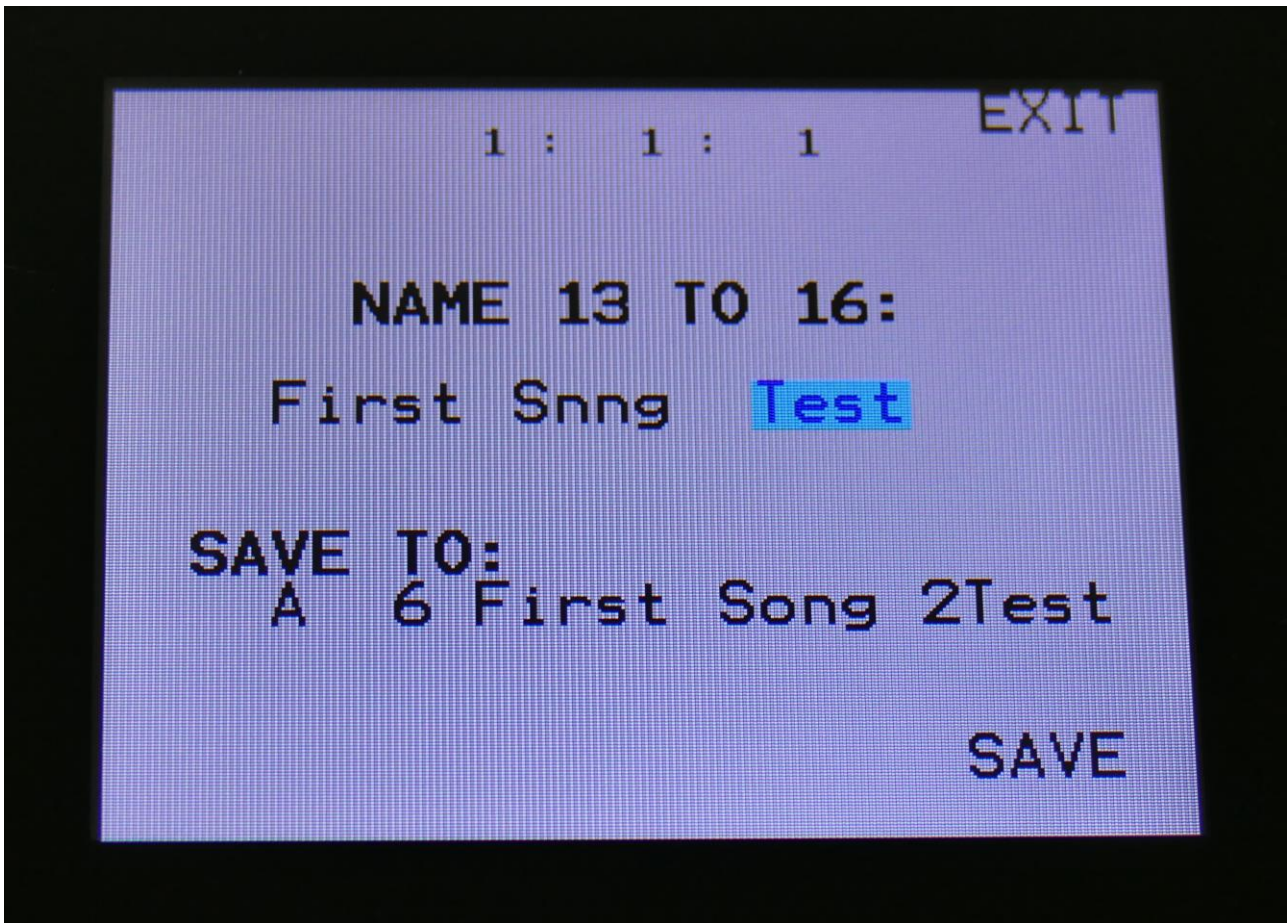
Turn edit knob 1 to 4 to select letters 5 to 8 of the name for your new song.

Touch NEXT when you are done.



Turn edit knob 1 to 4 to select letters 9 to 12 of the name for your new song.

Touch NEXT when you are done.



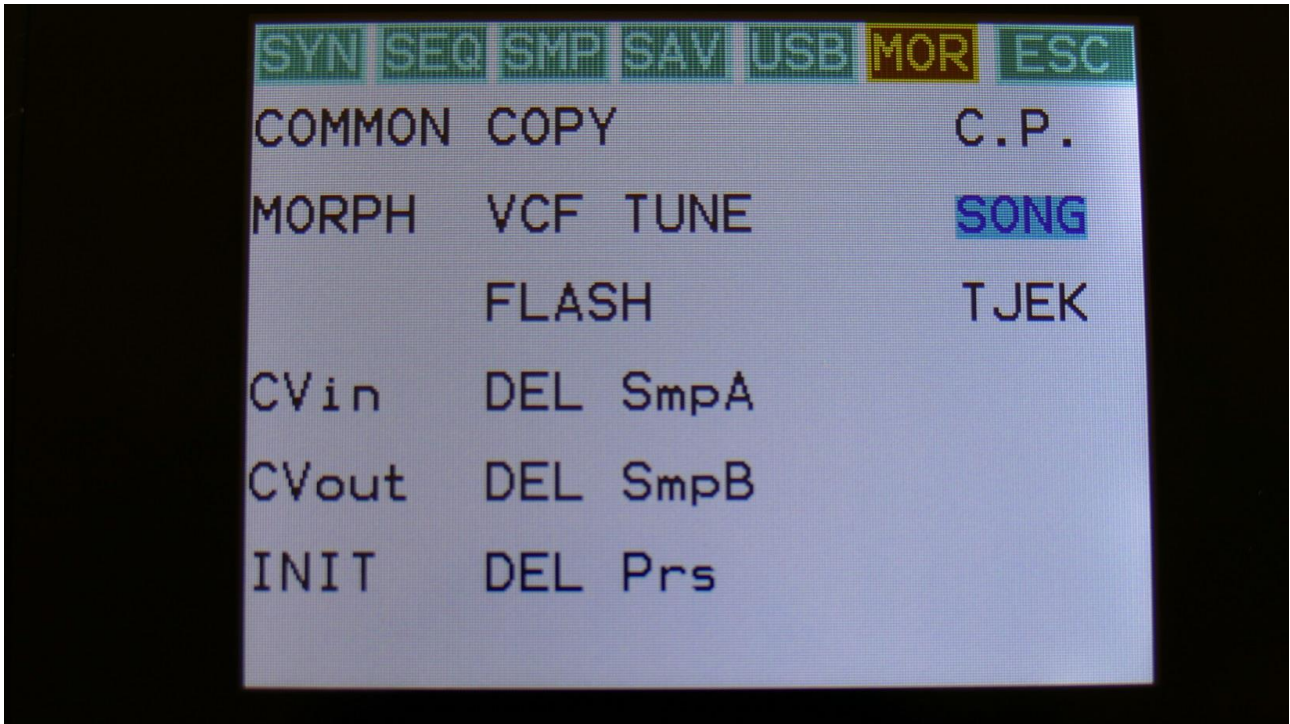
Turn edit knob 1 to 4 to select letters 13 to 16 of the name for your new song.

Touch SAVE when you are done. Your song will now be saved, and PolySpaze will exit from the save pages.

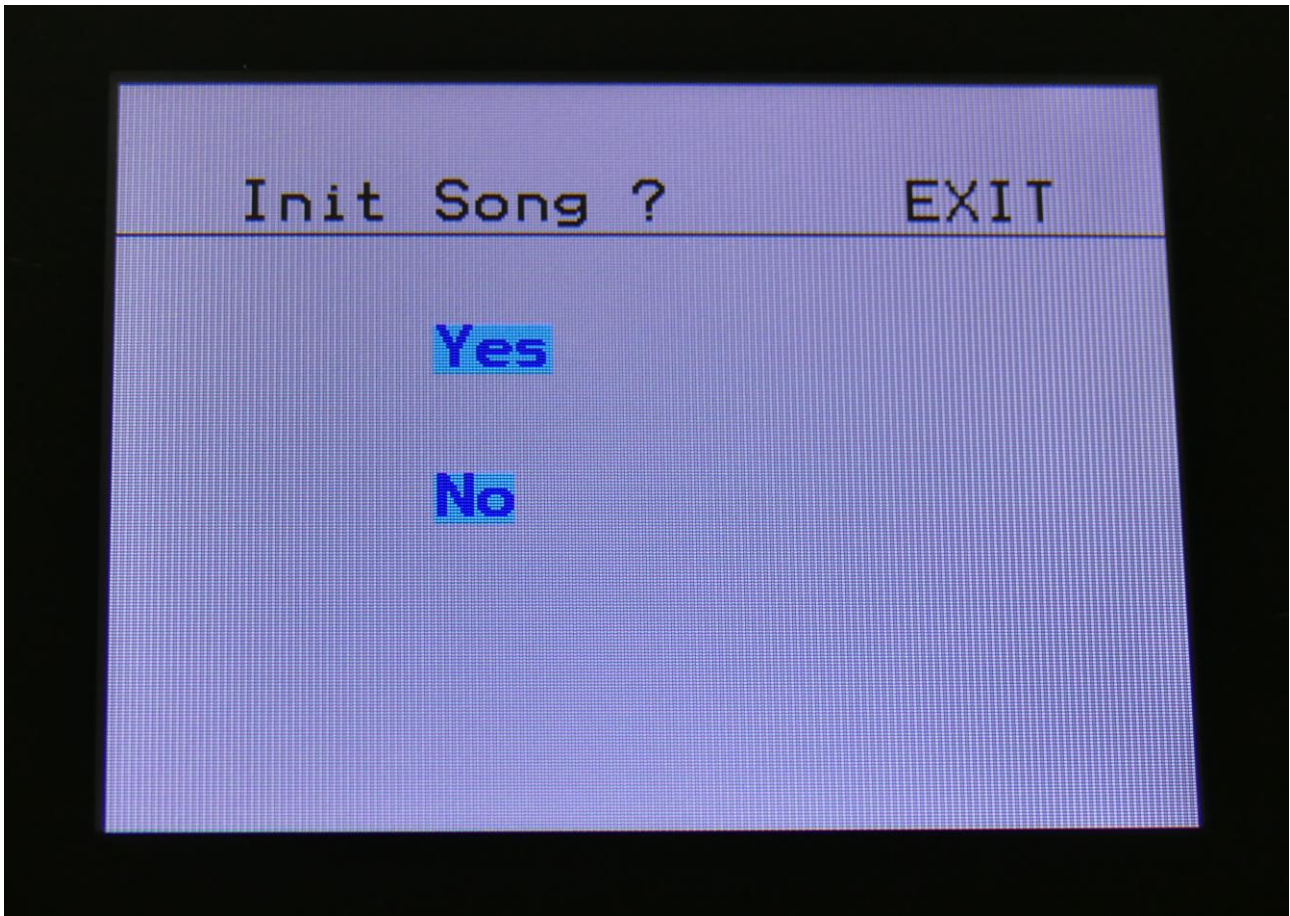
Initializing a Song

If you would just like to start all over with an empty song, it is possible to initialize it.

To do so, in song mode, access the More.. page:



From here, hit INIT.



PolySpaze will now ask you to confirm.

Press "Yes" to initialize the currently selected song and return to the previous page, or press "No" just to exit, without initializing.

Please notice, that when initializing a song, this is only done in PolySpaze's temporary song RAM, NOT on the FLASH memory, so if you did this by mistake, or you regretted doing it, you can always recall the song, by selecting another song, and select this again. Then nothing will be lost. It is not until you save the song, that permanent changes is done.

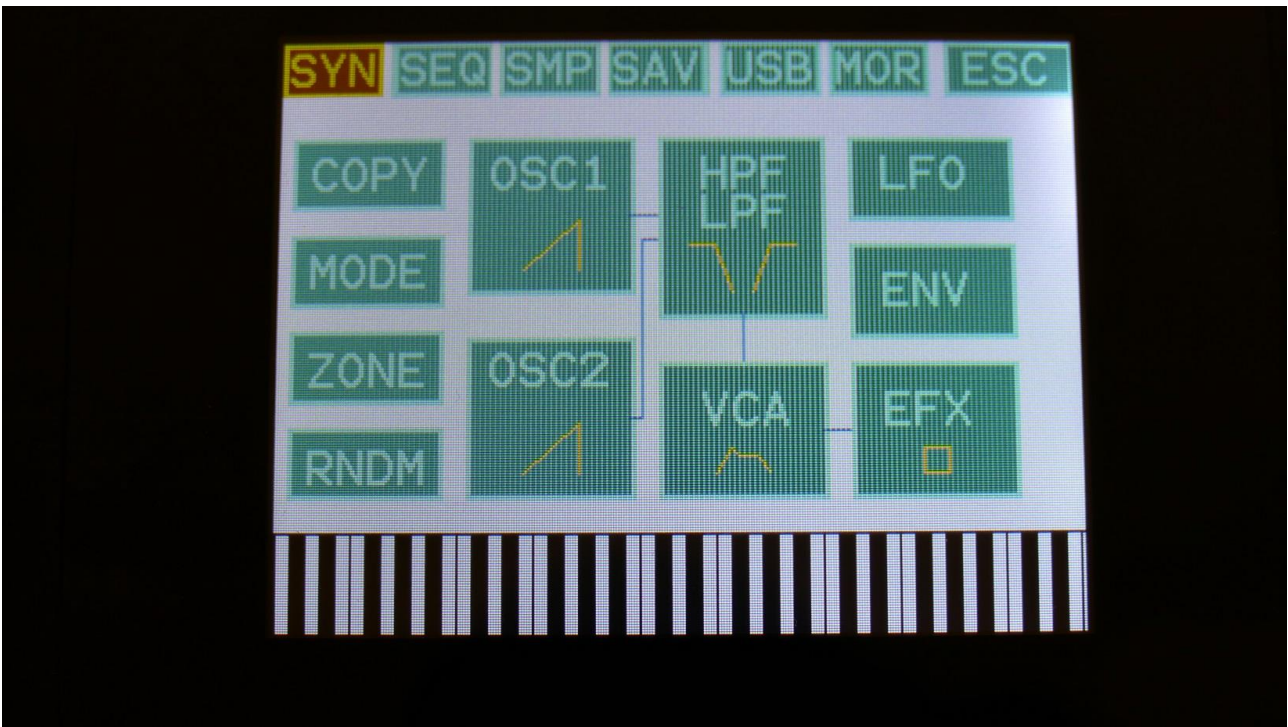
Sample Record and Edit

To get samples into PolySpaze, for using them in the synth section samplers, you can either import .wav files from a USB drive, or record your own samples from PolySpaze's audio inputs or outputs. This section will describe the latter. For how to import .wav files, please see the USB section of this manual.

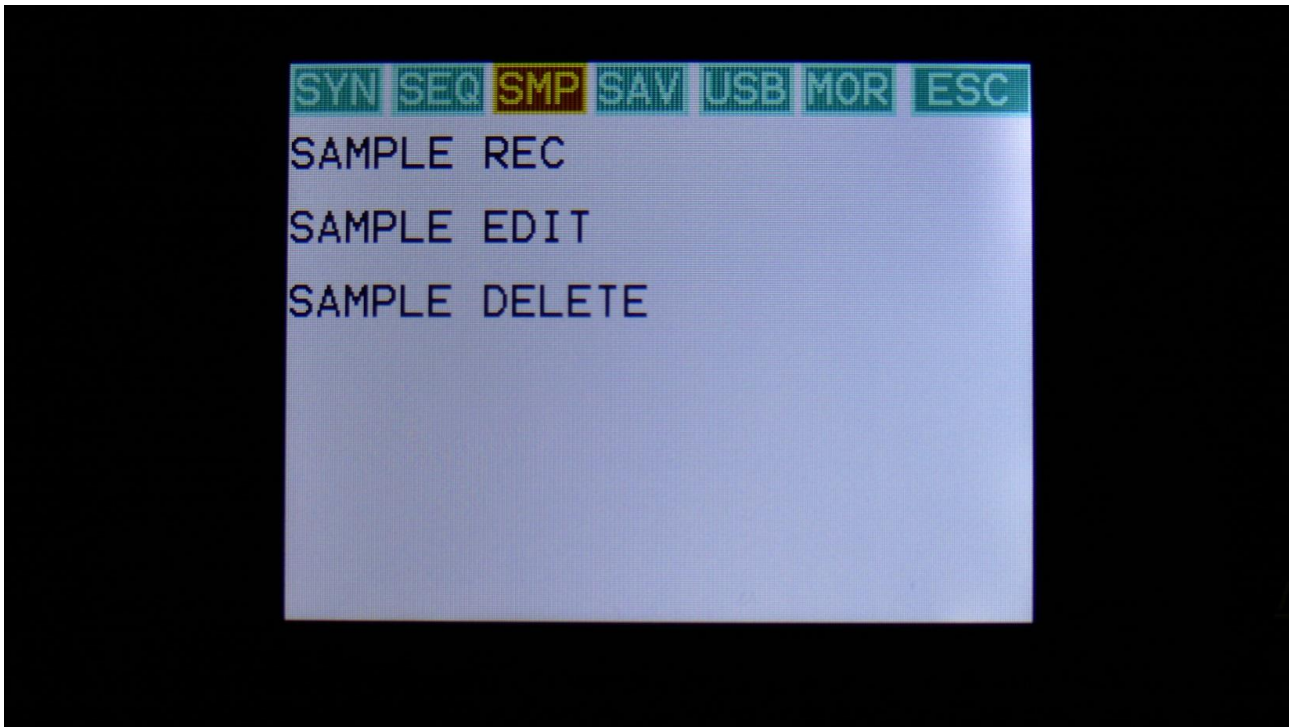
PolySpaze has 2 banks of FLASH memory for storing samples, Bank A and Bank B. Bank A holds up to 10 minutes of samples, maximum 127, and Bank B holds up to 12 minutes of samples, maximum 128 – A total of 255 samples/22 minutes. One sampling can maximum be 12 minutes long.

All samples that are imported or recorded, stays in PolySpaze's FLASH memory, even after a power off. Since they are played back directly from the FLASH memory, there are no loading times. All PolySpaze's samples are immediately available, right after power on, and can be selected in the synth oscillator section, just like synth waveforms.

From the Preset Select screen, touch the EDIT field, to enter the Synth blocks page:



Touch SMP at the navigation bar.



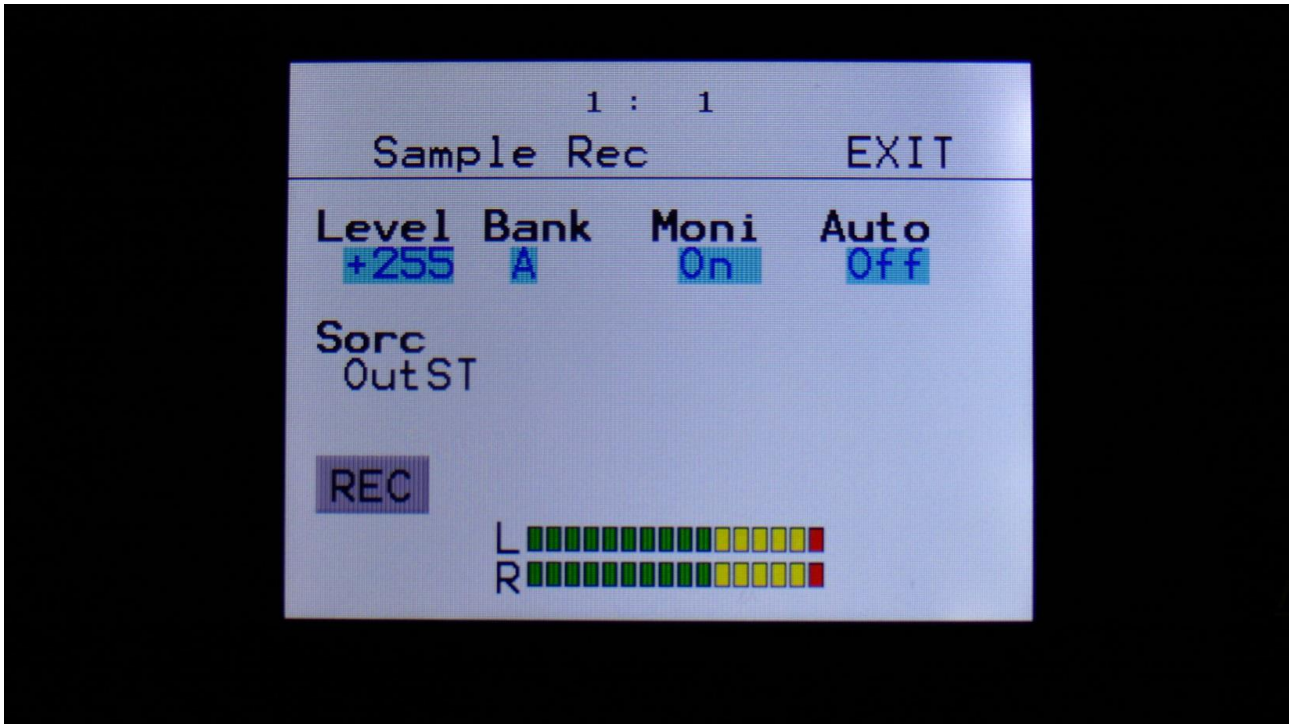
You will now enter the sample rec/edit menu.

From here you can go on to SAMPLE REC, for recording a sampling, SAMPLE EDIT, for editing start/end points and chop point, or SAMPLE DELETE, to delete the last recorded/imported sample.

Recording a sampling

It is possible both to record a signal applied to the audio inputs, and the signal that is present on the PolySpaze audio output. Samplings can be recorded in stereo or mono.

Enter the Sample Rec page by touching SAMPLE REC from the previous page:



Turn Edit Knob 3, to turn Moni (monitor) on, if you would like to audiotion the sample source on PolySpaze's audio outputs.

Touch the Src parameter, and turn Edit Knob 1 to select the recording source. Choices are:

InpL: Left audio input.

InpR: Right audio input.

InpST: Both audio inputs, recorded in stereo.

OutpL: Left audio output.

OutpR: Right audio output.

OutST: Both audio outputs, recorded in stereo.

Touch the upper row of parameters, and turn Edit Knob 1, to adjust the recording level. Start by setting this to +0.

Apply the signal, that you wold like to sample. Watch the VU-meters. Adjust the output level of the sample source (if possible), so the VU-meter is not standing too much in the upper red region.

You will get the best results, by having PolySpaze's Level control set to +0, and adjust the level of the sample source, on the source itself. You should only adjust PolySpaze's Level parameter, if it is the only possibility you have, or if the source is too weak.

It is possible to make the sample recording start automatically, when the source reaches a certain level. To make this happen, turn Edit Knob 4 to adjust the “Auto” parameter to any other value than “Off”.

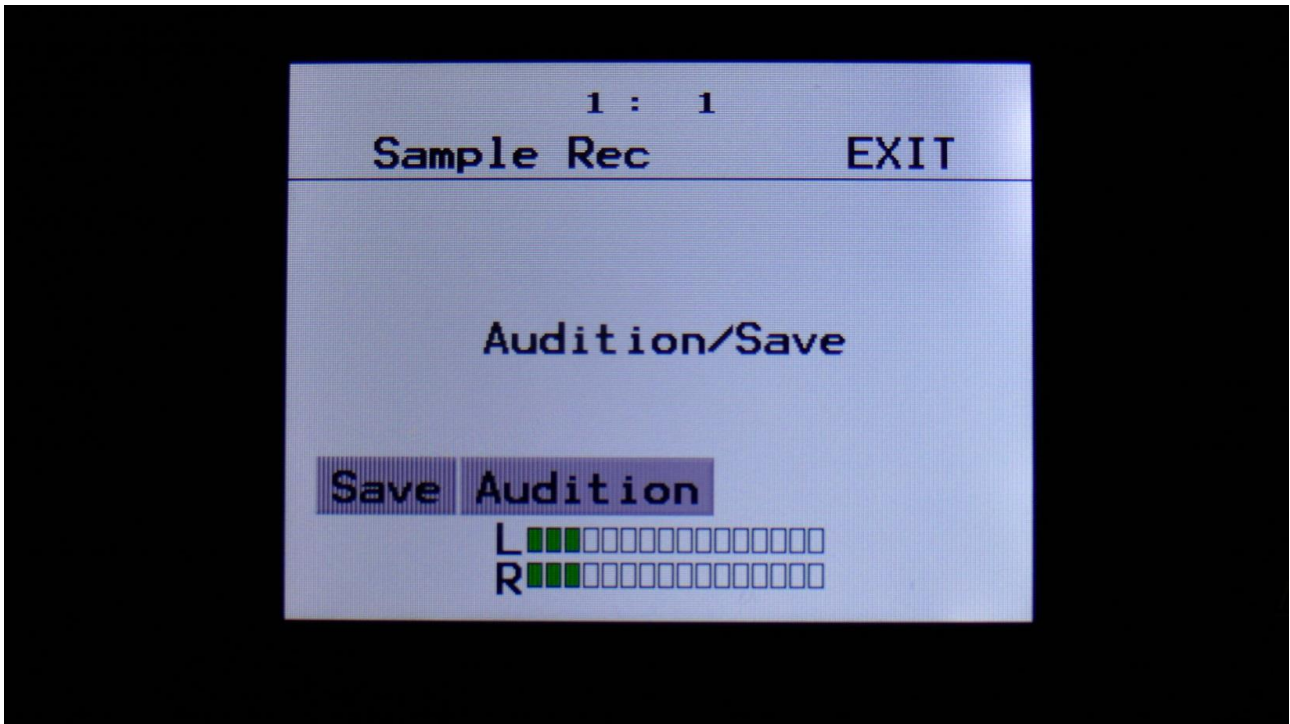
Turn Edit Knob 2 to select sample bank A or B as the destination bank for the recording.

When you are ready to record the sample, touch the ”REC” button in the lower left corner. If you have the Auto parameter set to anything else than Off, it will now write: “Waiting for trigger”, until a signal that is loud enough to trigger the auto offset are applied. Otherwise PolySpaze will now start to record the new sampling:



When you are finished recording your sample, touch the ”STOP” button.

PolySpaze will now jump to this screen:

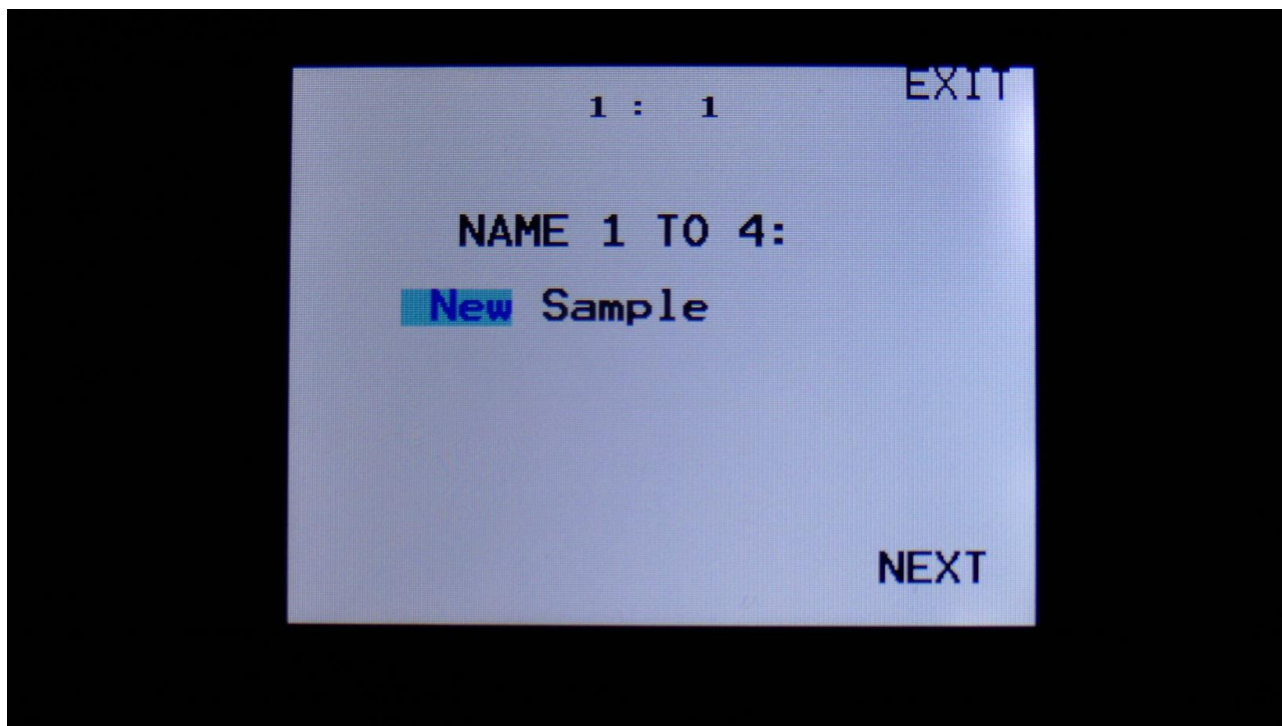


To audition the sample you have just recorded, touch the "Audition" button.

To name and save the sample, touch the "Save" button.

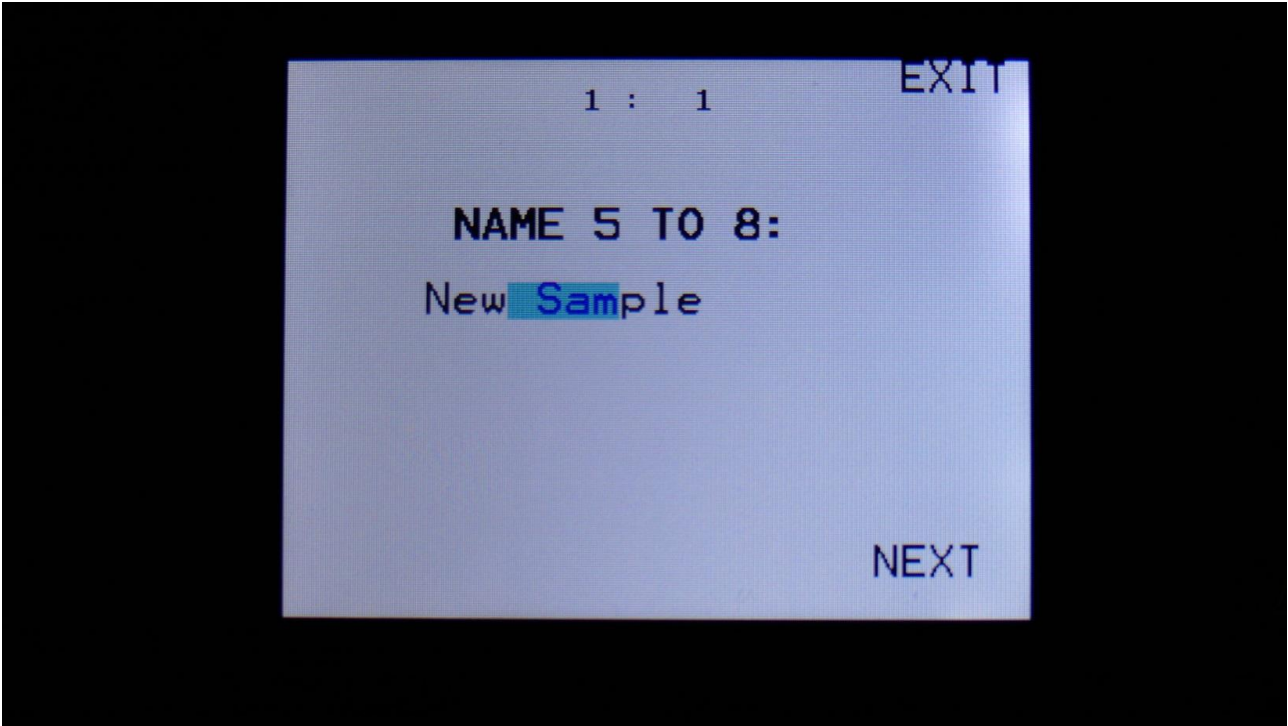
If you decide not to keep this sample, touch EXIT, and the new sample will be erased.

If you touch the "Save" button, PolySpaze will jump to this page:



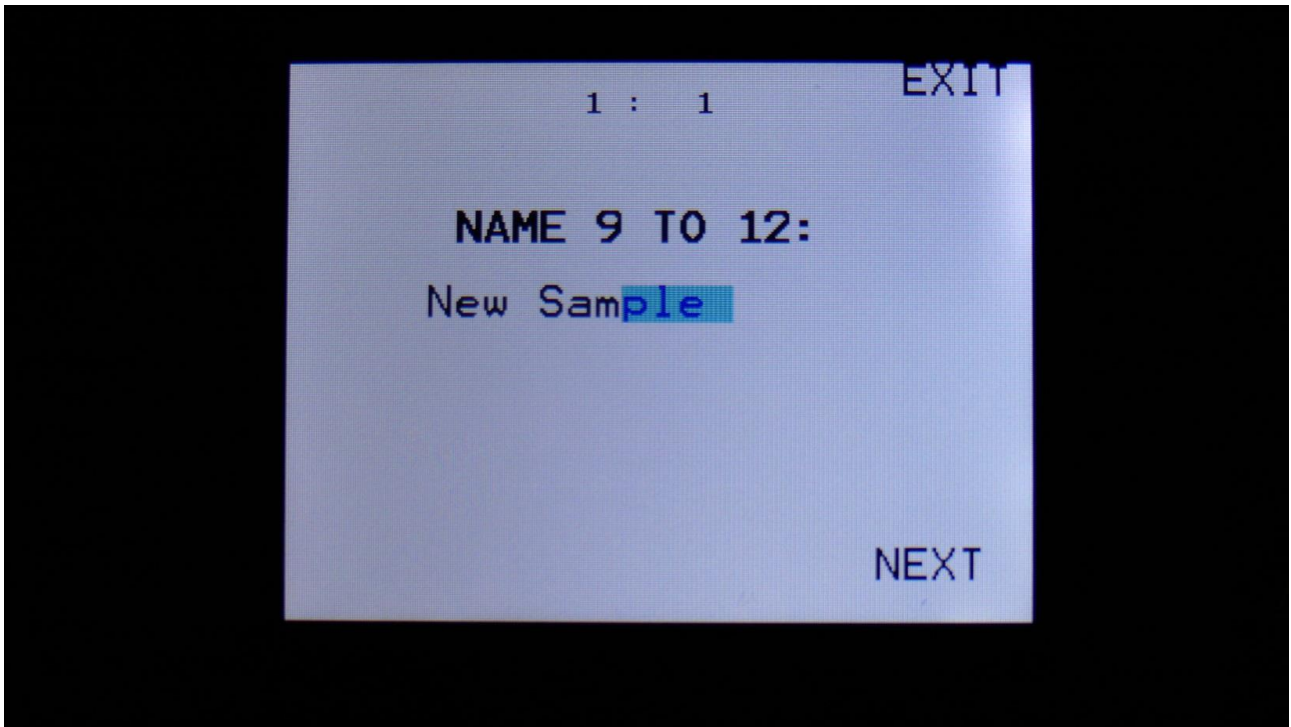
Here you can turn edit knob 1 to 4, to select the first 4 characters of the new sample's name.

Touch NEXT to go on.



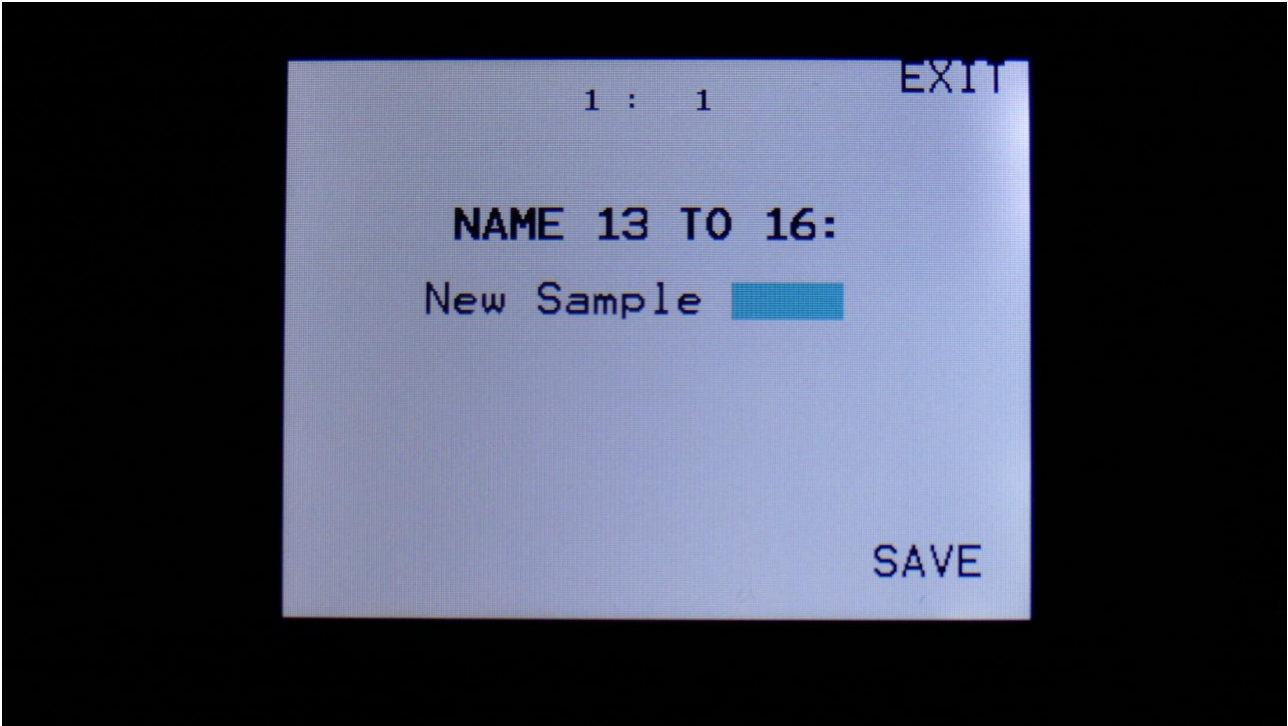
Turn Edit Knob 1 to 4, to select character 5 to 8 of the sample name.

Touch NEXT to go on.



Turn Edit Knob 1 to 4, to select character 9 to 12 of the sample name.

Touch NEXT to go on.

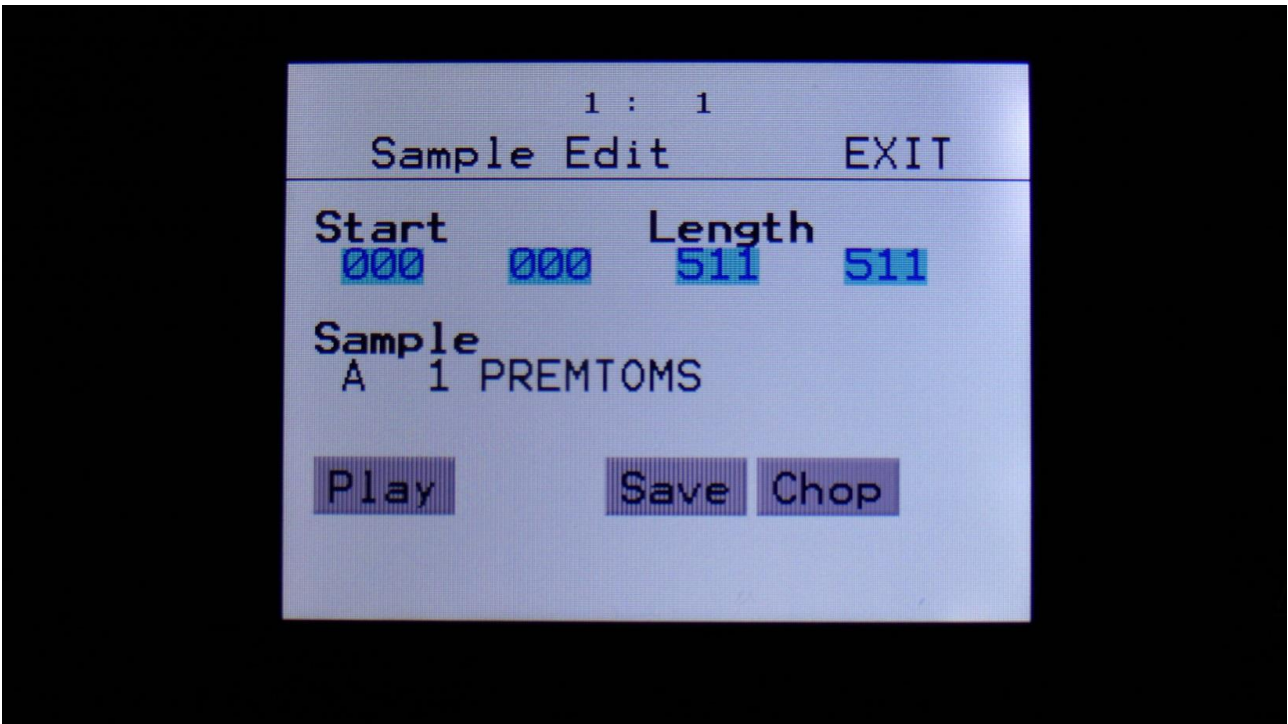


Turn Edit Knob 1 to 4, to select character 13 to 16 of the sample name.

Touch SAVE, to save the new sample, and return to the Sample Rec page.

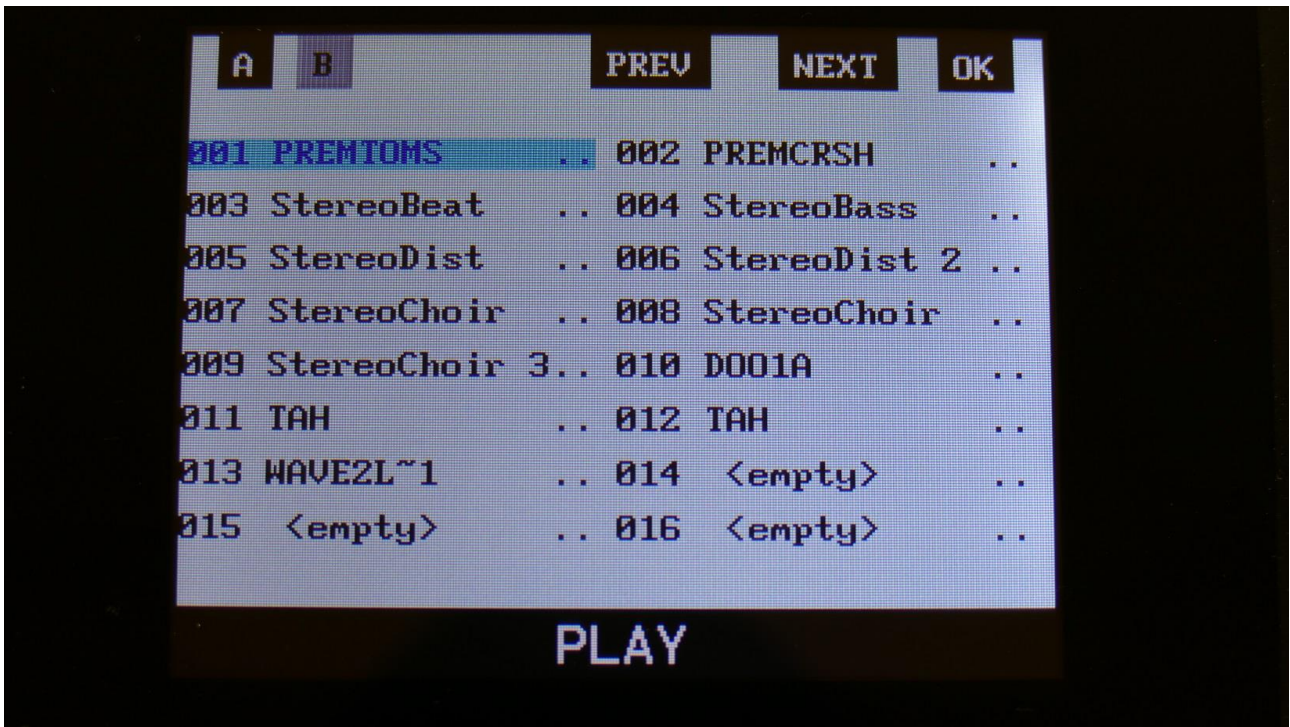
Edit A Sampling

From the sample rec/edit menu, touch SAMPLE EDIT, to enter this page:



On this page you can audition samples from the FLASH memory, adjust the samples start and end points, and create sample chops.

To audition the samples that your PolySpaze holds, touch the **Sample** name, and the Sample Select screen will appear:



Touch A and B to select sample bank A and B, touch PREV and NEXT to view the previous or next 16 samplings.

To select a sampling, touch the sample name. To audition it, touch the Play touchbar in the bottom of this page.

When you have found the right sampling, touch OK to return to the Sample Edit page.

The Play touchbar on the sample select page re-triggers the sampling every time it is touched. If you should wish to start and stop sample playback, every time you hit play, exit to the Sample Edit page, and touch the Play button there.

Adjusting the start and end points of a sample

If a sample has silence at the start and/or end of it, or if there are parts of a sample you do not intend to use, it might be necessary to adjust the start and end points of it.

To do this, select the sample you would like to adjust.

Touch to select the upper row of parameters.

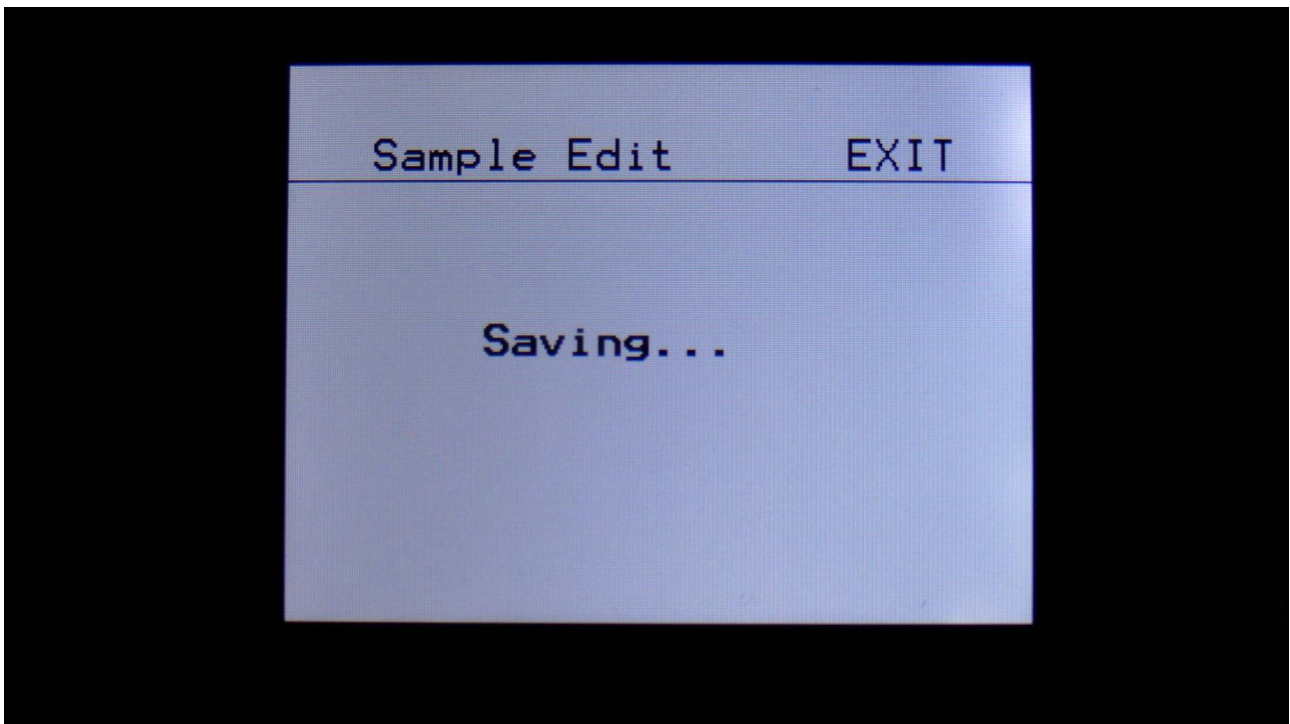
Adjust the start point by turning edit knob 1, fine adjust by turning edit knob 2.

Adjust the end point by turning edit knob 3, fine adjust by turning edit knob 4.

Audition by touching the PLAY button.

When you are satisfied with the result, touch the SAVE button.

PolySpaze will now show:



Instead of searching manually for the sample start point, it is possible to use the Chop function for this. This is described in the "Sample Chops" section, that starts on the next page.

Sample Chops

On PolySpaze it is possible to add chop points to a sampling, in order to make it play back a certain portion of the sampling at a time. Sample chops are generated in the Sample Edit section, to be used by the samplers in the Synth section.

This function could be used for the classical separating single drum hits from a beat, or to find the startpoint of a sampling in a fast way, if the chop function is set up for peak detection.

The chop function of PolySpaze isn't though limited to this. On PolySpaze it is also possible to make the chop function find "wave chops". This function will pick out single wave cycles of the sampling, and create chop points for these. In the samplers of the synth section, it is then possible to select these wave cycles, loop them, and switch between other wave cycles of the sampling. This can also be used as a super easy way for looping a sampling.

All chop points are non-destructive to the sampling. Only the positions of the chop points are stored, nothing is changed on the sampling itself. Chop points can, at any time, be moved, deleted and inserted.

Up to 64 chop points can be created for each sampling.

Another way to create chop point, are to use the "Import Samplings From Dir As Chop Points", described in the USB section of this manual.

Remember to save the chop points. Else they will be lost!

To create and/or edit sample chop points, from the Sample Edit page, touch the **Chop** button, to enter this page:



The parameters of this page:

Sens: Adjust how loud the level of the sample audio should be, before it detects a chop point. If it creates too many chop points, turn this parameter up a bit. If it creates too little or no chop points, lower this parameter.

Dec: Chop envelope decay. This adjusts the decay time of the chop detection envelope in a reverse manner. The lower the value, the slower the decay. If the sounds is recorded with very little or no silence between them, like in a beat, this needs to be set to a high value. If there's a good gap of silence between the sounds, set it to a low value.

Pre: If there are loud clicks in the start of many of the chop points, especially on low frequency sounds, turning up this parameter will make PolySpaze set the chop points a little bit earlier, than it usually would. This will remove these clicks.

Wave Mode: Switches the chop wave cycle mode on and off.

Chop: Select a chop number for auditioning. Total number of chops is shown right after the /.

Adjust: (2 parameters). For adjusting the selected chop forward (positive values) or backwards (negative values).

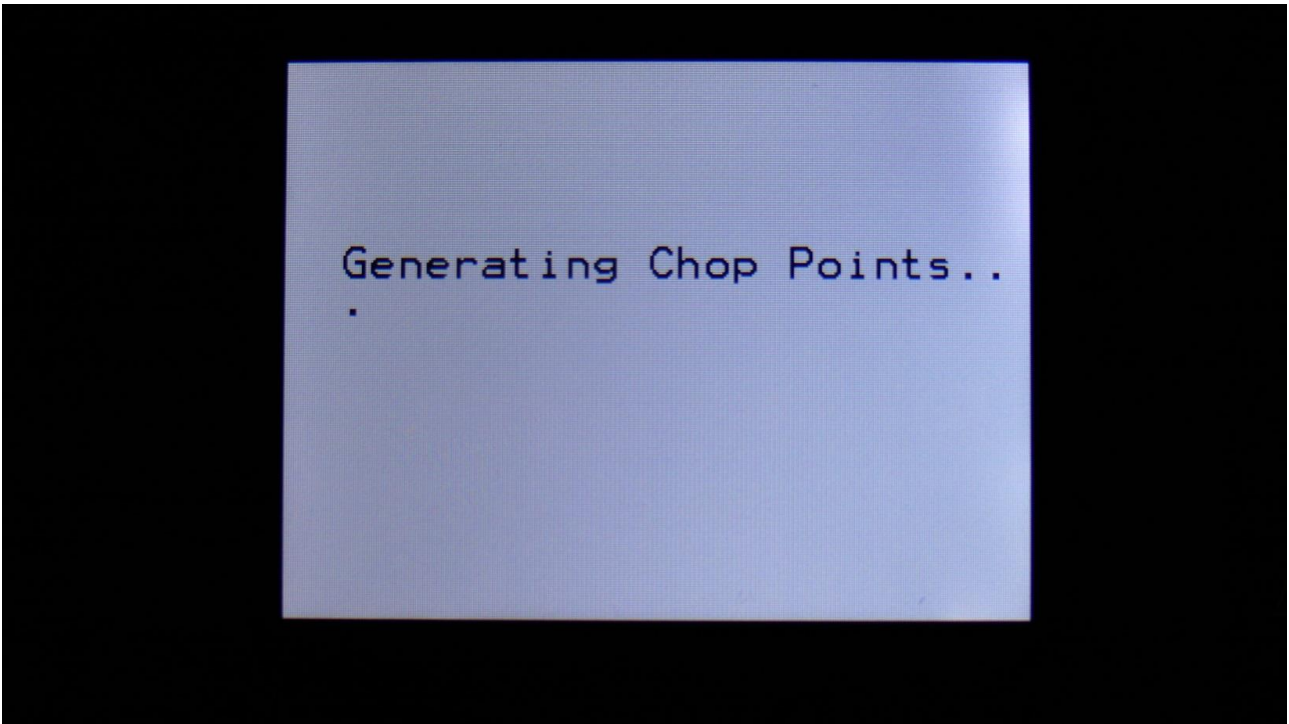
xChp: Number of chops in each chop point. Turning this up, before generating chops, will make each chop contain a number of chops. Especially usefull, when using the wave chop function for making sample loop points.

Generating Sample Chop Points

On the Sample Chops page, adjust the Sens, Dec, Pre and xChp parameters as desired, and switch wave mode on if desired.

Touch the **Chop** button.

PolySpaze will now look for chop points, in the selected sampling:



When it is done, it will jump back to the Sample Chops screen:



Adjusting the Chop parameter, it is now possible to select and audition the chop points that PolySpaze has found.

Audition the chop points by hitting the “Play” button. If some chop points are not exactly where you would like them to be, adjust them with the Adjust parameter. If some chop points shouldn’t be there, delete them by hitting the “Del” button.

It is also possible to adjust the end point of the chop point. Simply touch the **NEXT** button. Now, while auditioning the selected chop point, you can adjust the next chop point, which is also the end point for the selected chop point, using the Adjust parameters.

To add chop points, first touch the “Play” button, to make the sample/chop point play back. While the sampling is playing back, hit the “Add” button when it is playing back the point, where you would like to add a chop point.

In the bottom of the screen, it shows the position of the selected chop, in the values that the **Sample Start** parameters would have to be adjusted to, to select this point of the sampling. So if you don’t want to use the chop points anyway, but just wants the sample playback to start at this point, you can exit to the Sample Rec page, and set the Sample Start point to this value.

When you are satisfied with the chop points, remember to hit the “Save” button to keep them. The chop points are saved together with the sample data, and are also imported/exported via USB.

Wave Chop System

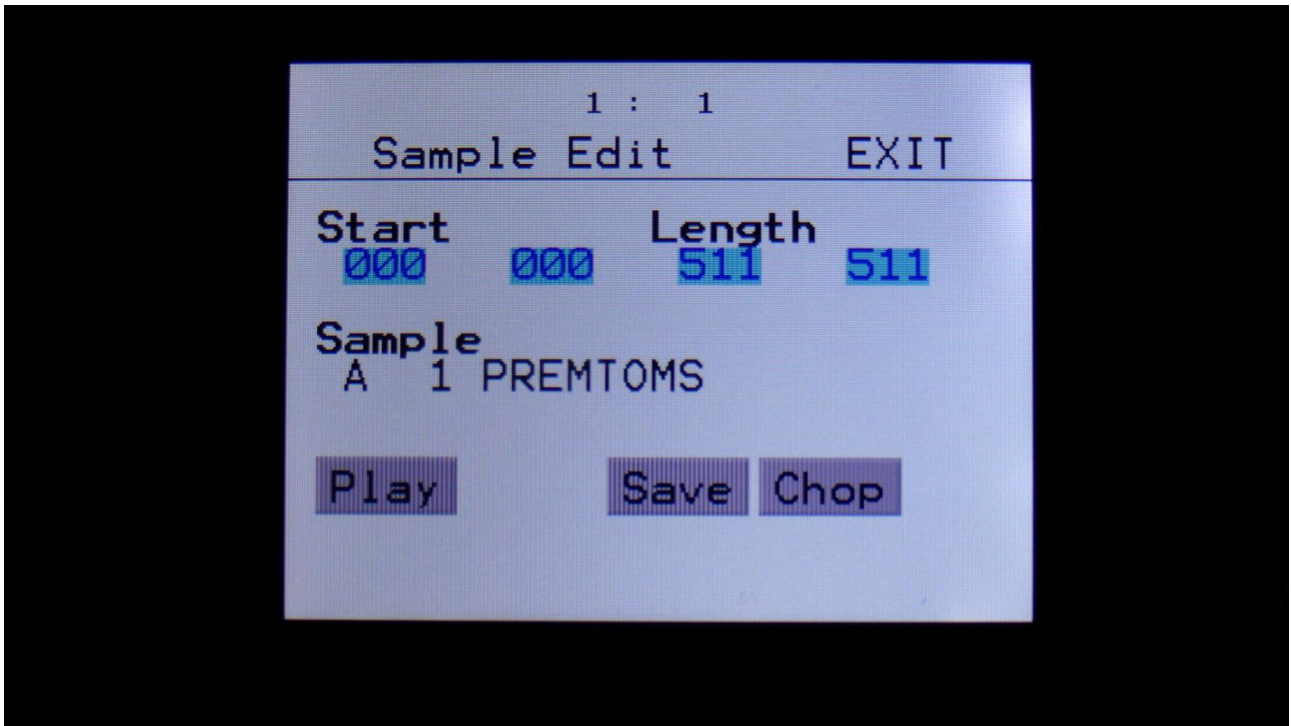
This system can take any of the samplings held in your PolySpaze, and chop it up in, up to 64, single cycle waves.

If you already have a library of single cycle waves in .wav format, you can use the “Import Samples From Dir As Chops” function, to import the single cycle waves into one sampling with wave-chops.

When you have a sampling with the wavechops added, it is possible, in real time, to select which single cycle should play back, in the samplers in the synth section, using the “Chop” parameter. It is also possible to select single cycle waves, using any modulation source.

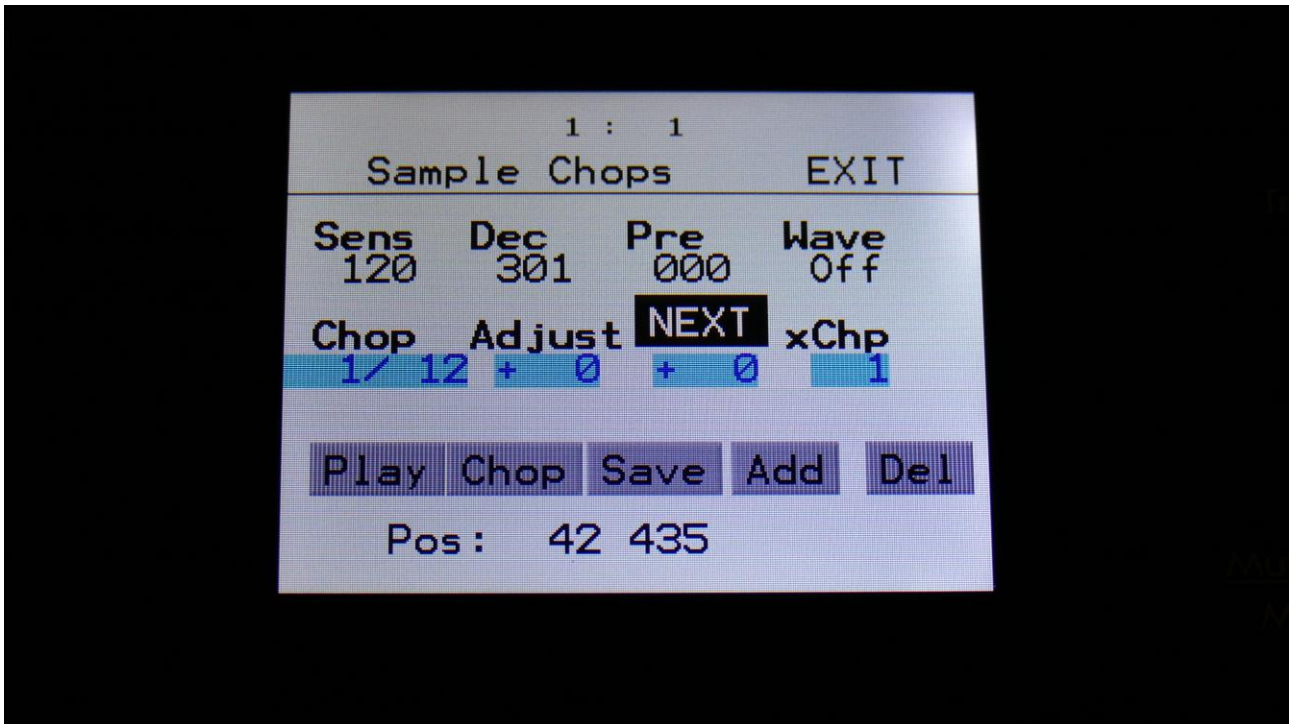
This gives some really cool possibilities, like wave sequencing, wave tables and time stretch.

How to wave chop a sampling:



On the sample Edit page, select the sampling, you would like to wave chop, and touch “Chop”.

That will get you to the Chop page:



Set the Wave parameter to On.

When in Wave chop mode, the Dec parameter functions in the opposite way, as when in normal chop mode. The lower the value, the faster the decay.

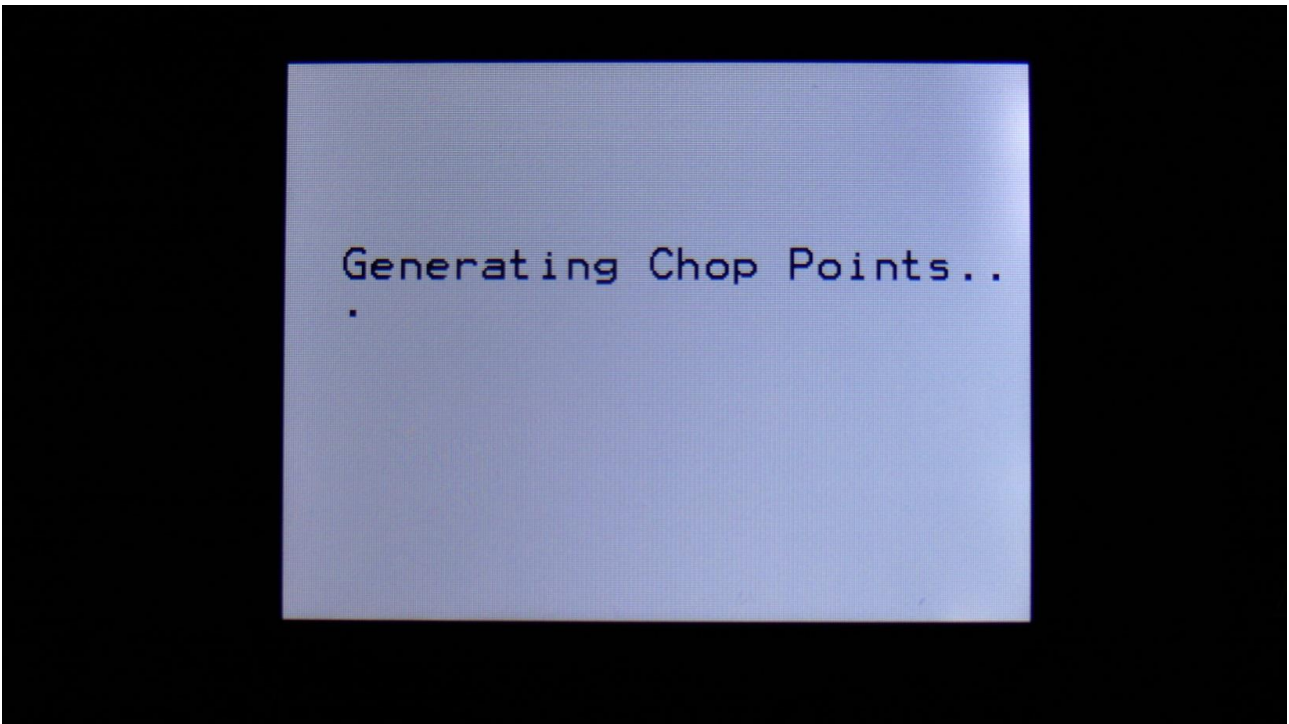
A good startpoint for wave chopping is to set Dec to 1 and Sens to 128. If the wave chops gets too long (very few chop points), try first to adjust Sens down. If this makes things worse, adjust it up. On simple waveforms, Sens should, in most cases, have a low value. On more complex waveforms, Sens should have a higher value.

If you wish your wavechops to be larger than single cycles, you can either turn Dec or xChp up.

The Pre parameter should be kept at zero.

When you have switched Wave on, and adjusted the settings, touch the "Chop" button.

PolySpaze will now show:



When it has found some chop points, it will return to the Chop page:

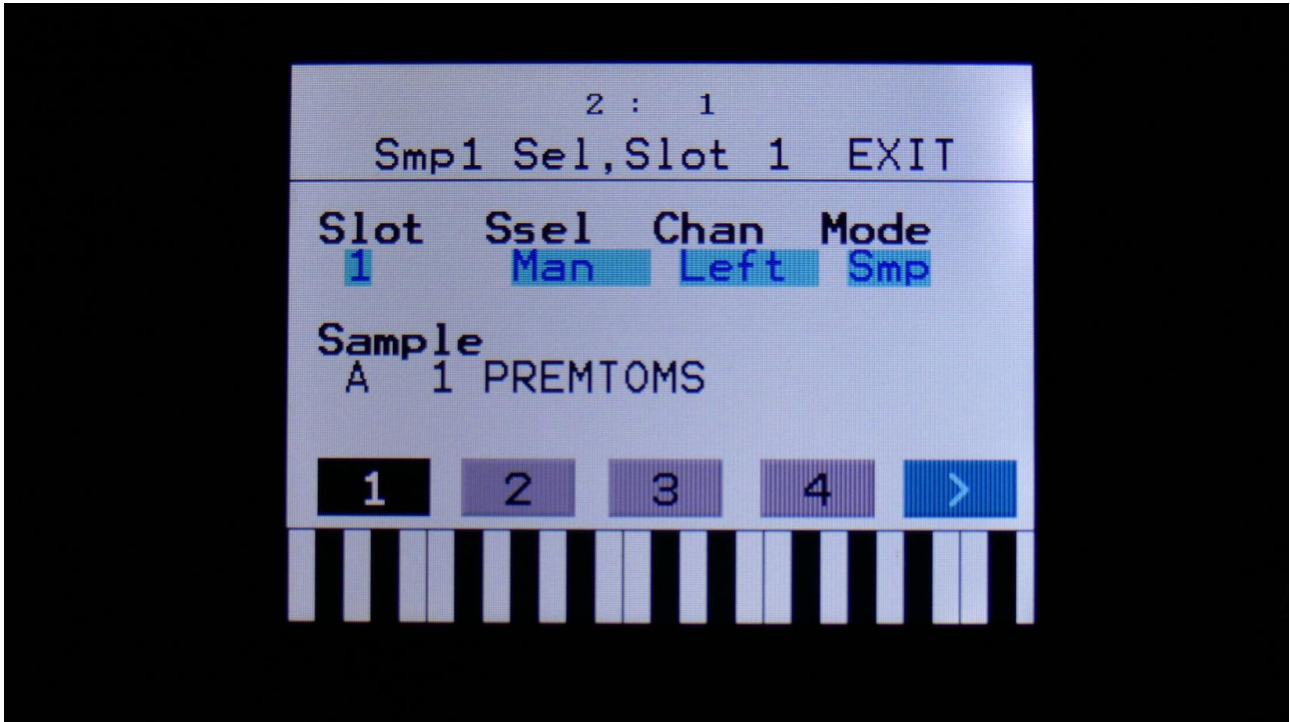


Now touch the play button, and select chops by adjusting the Chop parameter, to audition the result.

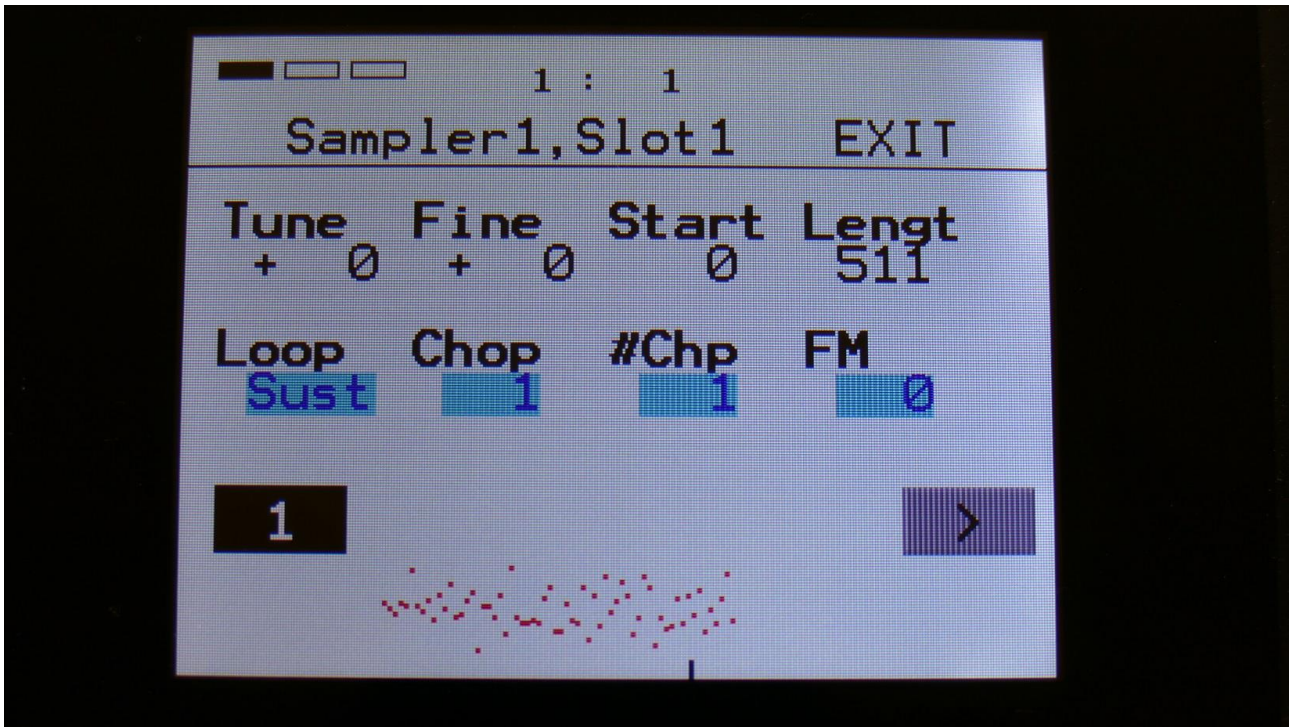
If you are not satisfied with the result, re-adjust Sens, and hit Chop again.

When you have found a result, that you are satisfied with, please remember to touch the “Save” button.

To use the wave chops for something, now exit Sample Edit, and go to the Osc1 page.

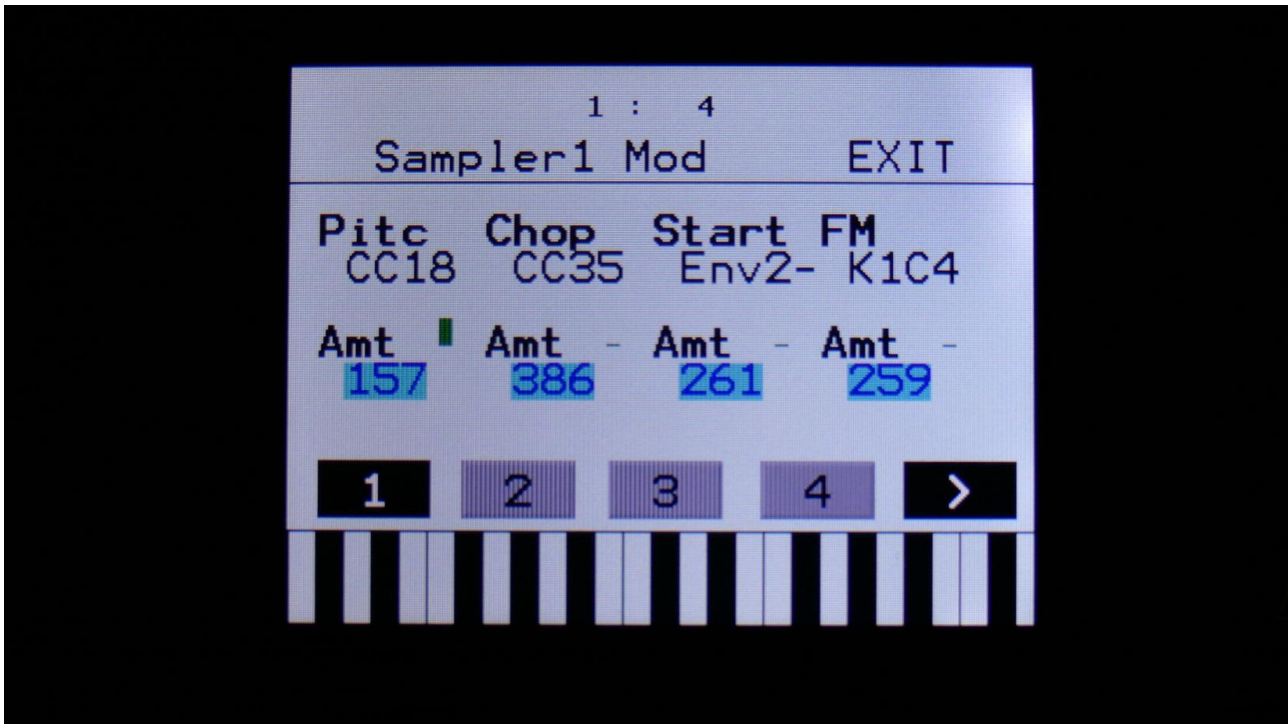


Set Osc1 in sampler mode, and select the sampling, that you just wave chopped (or any other sampling that you have wave chopped).



Set Loop mode to On or Free, and adjust the Chop parameter, to select the single cycle waves. If you would like more single cycle waves to play back inside the loop, turn the #Chp parameter up.

Modulating the Chop parameter



Unlike most other parameters on PolySpaze, only positive modulation are applied to the Chop parameter.

So the Chop parameter selects the lowest possible chop to be played back. If Chop is set to Off, no modulation will be applied at all.

Time Stretch

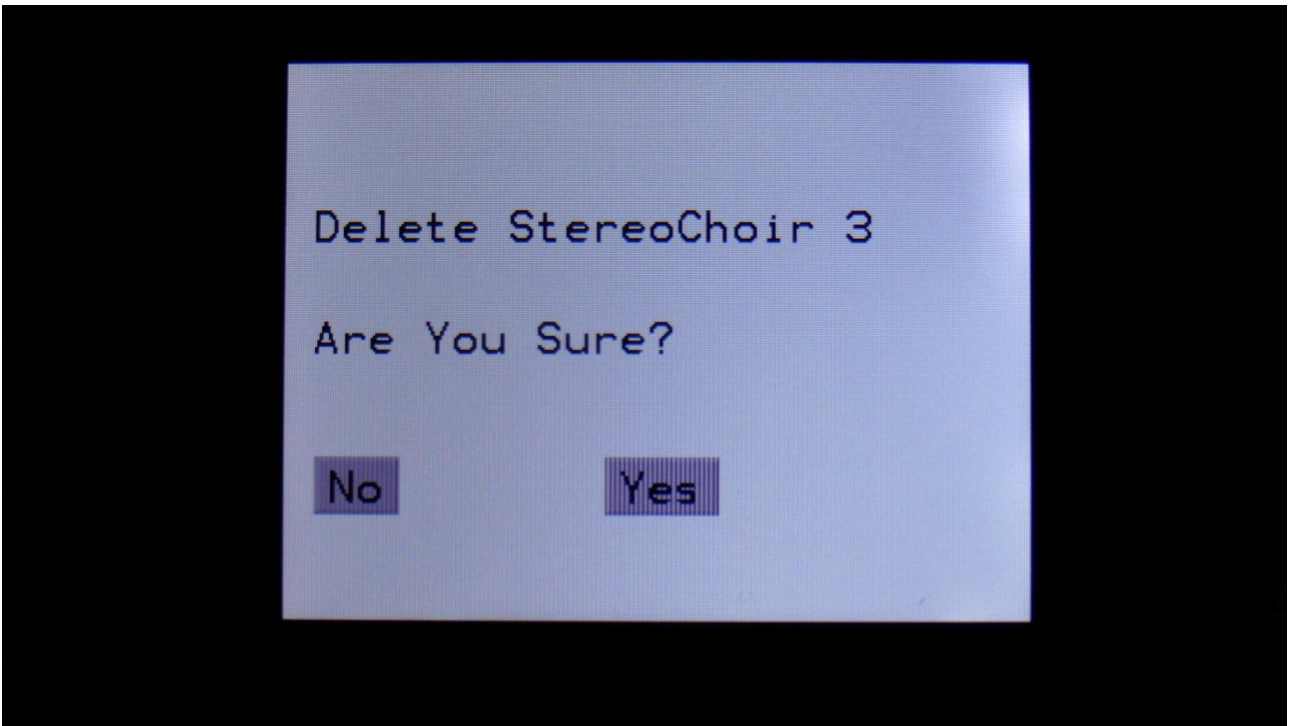
To time stretch a wave chopped sampling:

- Set the Chop parameter to 1.
- Set up Envelope 1- (Envelope 1 inverted) to modulate the Chop parameter, and turn the modulation amount up. You can obtain different effects, with different values of the modulation amount.
- Adjust the Envelope decay, to make the playback of the sampling faster (low decay values) or slower (high decay values).
- Adjust the attack parameter, to obtain a reverse playback effect, in the start of the sample playback.
- Modulate the envelope parameters, to have dynamic sample lengths.
- The sampling will play back at the exact same speed, over the entire keyboard range, regardless of the sample pitch.

Deleting last recorded sampling

On the Sample Delete page, it is possible to delete the last recorded sampling in sample Bank A or B. Select the sample bank, from which you would like to delete a sampling, on the Sample Edit page.

From the sample rec/edit menu, touch SAMPLE DELETE, to enter this page:



To delete the sample, touch "Yes".

If you regret, touch "No", to return to the Sample Rec/Edit page.

Deleting other samplings, than the last recorded one

Because of some security features of the flash memory used in PolySpaze, it is only possible to directly delete the last recorded sampling in each bank.

By using its USB functions (explained in the next chapter of this manual), it is though possible to delete other samplings.

To delete another sampling:

- Connect a USB drive, that you have tested to be working (try to import some samplings from it), to the PolySpaze USB port.
- Create a new directory.
- Export all your samplings of the bank, where the sampling(s) you want to delete is located, to the USB drive, inside the new directory.
- Enter the directory, on the USB drive, and select the sampling(s), that you want to delete.
- Push "MD/del" on the USB page.
- Push "Del".
- Confirm.
- Leave the USB pages, go to the "More..." section, and delete the whole sample bank.
- Go back to the USB page, and select the directory, holding your samplings.
- Push "Import", and then "Re-Load".
- PolySpaze will now put your samplings back on the right place, except for the sampling(s), that you deleted.

USB

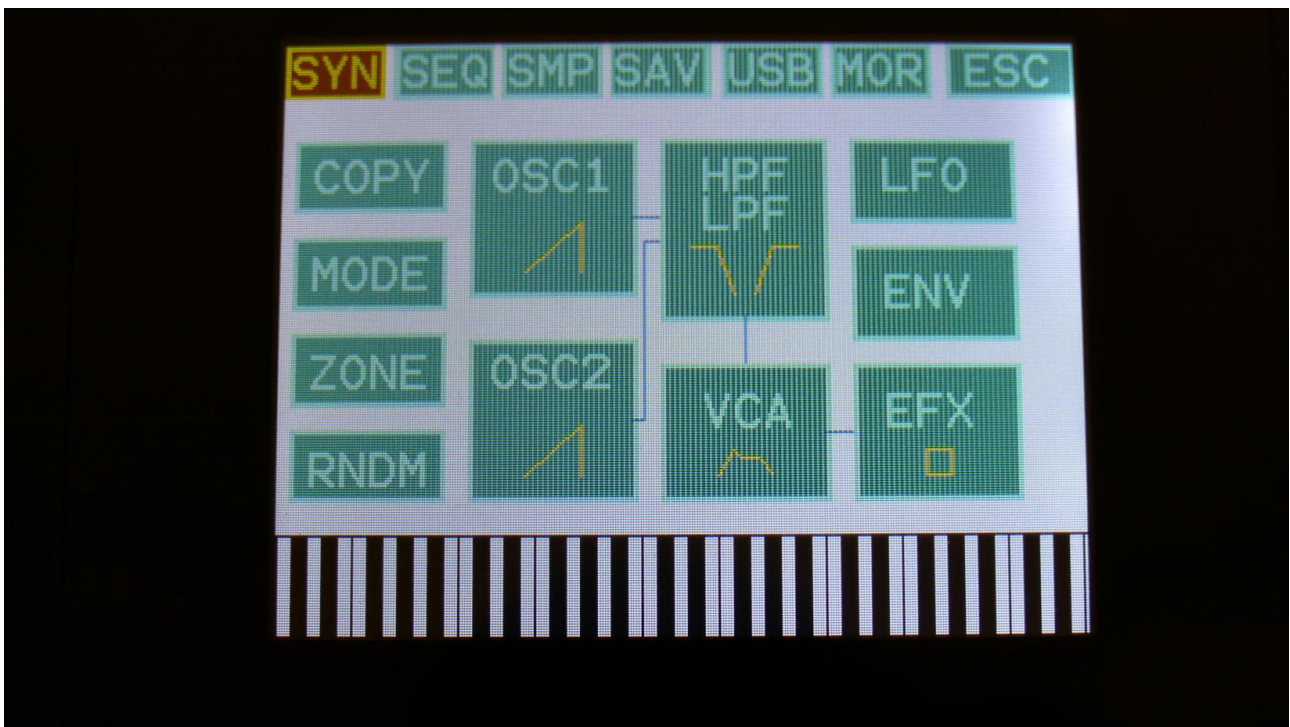
The USB pages lets you access the files and directories of a USB drive, attached to PolySpaze's USB connector.

You can import and export samples as .wav files, import and export presets and songs, update the PolySpaze firmware, and make new directories.

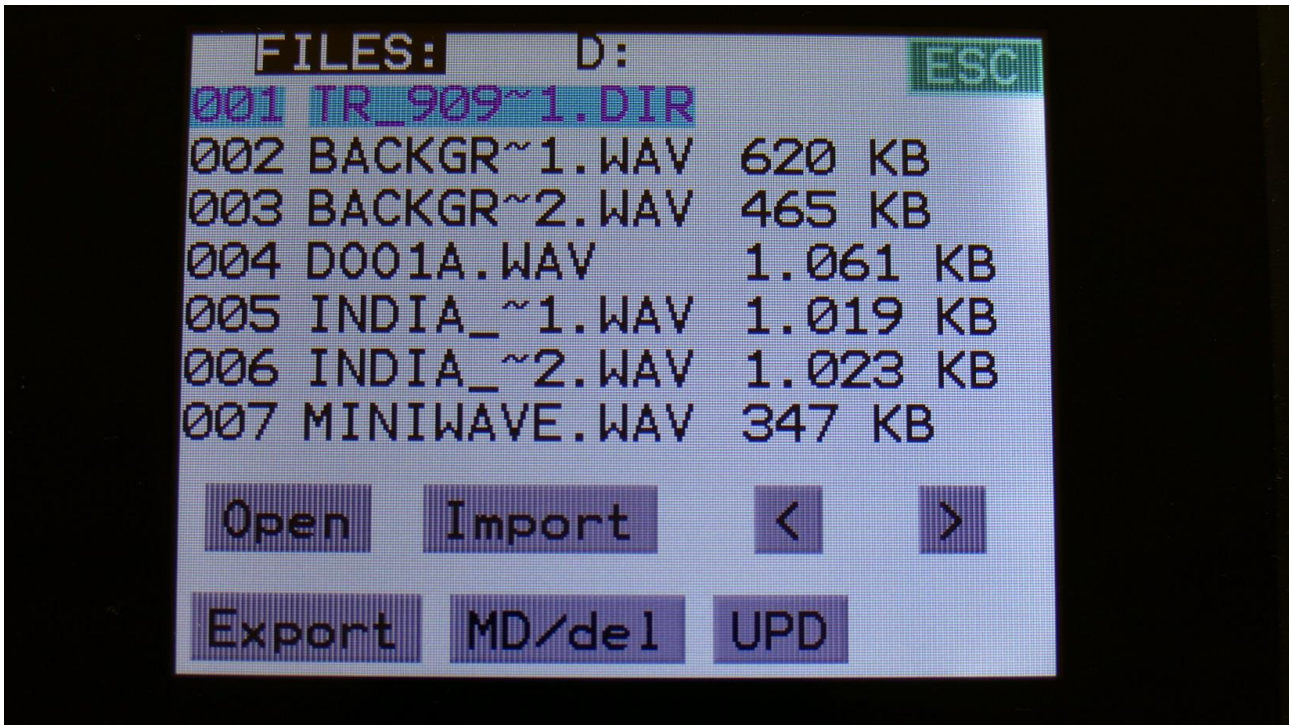
USB drives used with PolySpaze should be:

- Maximum 32 GB
- FAT formatted

From the Preset Select screen, touch the EDIT field, to enter the Synth blocks page:



Touch USB on the navigation bar at the top of the screen.



On this first page that you will enter, the root directory of the connected drive is shown. You can see that it is the root directory, by the "D:" in the top of the page. If you have accessed a directory, the name of this will replace "D:".

If you do not see the root directory of the drive, make sure that it is connected properly, and that it is has the right specs, as described in the start of this section.

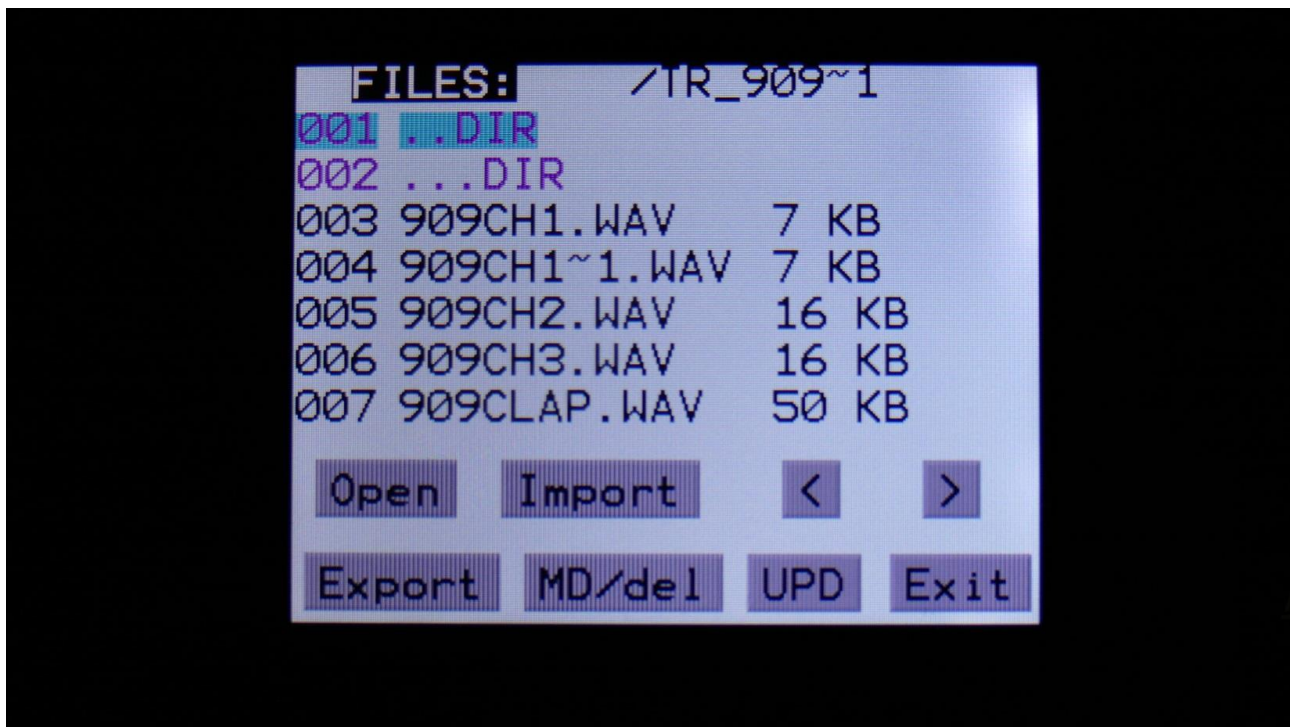
The names you see on the screen, are the names of the files and directories on the drive. File names are in black, and directory names are in purple. The currently selected file has a blue box around it. To select a file, simply touch it.

PolySpaze will only show 7 files/directories at a time. By pushing the arrows, you can select the previous/next 7 files.

Open a directory (or folder)

To open a directory, to see what's inside, or to import single files or sub-directories, simply select the directory you would like to open, by touching it, and then touch the "Open" button.

PolySpaze will now open the directory, and show the first 7 files in it. The "D:" in the top of the screen, will now be replaced by the opened directory's name.



Importing files

Files that can be imported to PolySpaze are:

- Samplings with the ending .WAV, including PolySpaze generated chop points.
- .WAV samplings generated by Awave Studio with loop points included. Loop points are translated to chop points.
- Little deFormer samplings with the ending .LDS, including chop points.
- Presets with the ending .PZP
- Songs with the ending .PZO

Files that are shown, but can't be imported directly are:

- Update files with the ending .HEX
- Tune files with the ending .ZTU

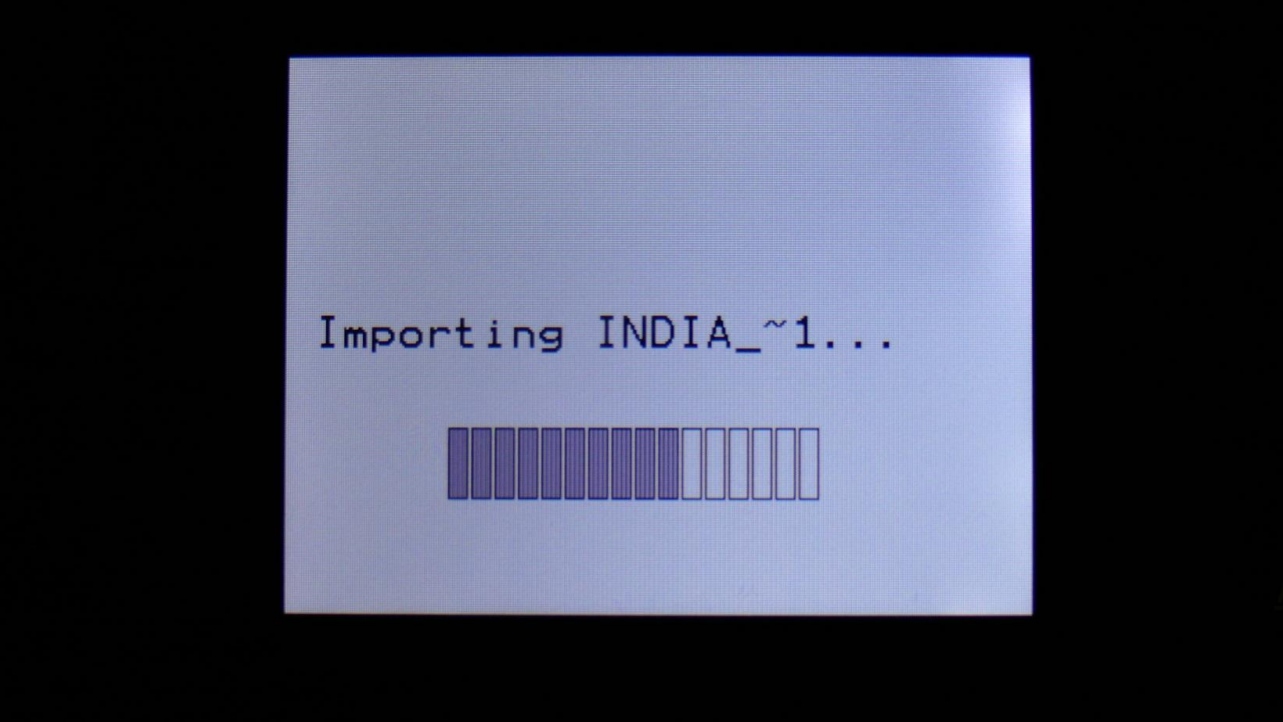
Files with any other ending will not be shown on PolySpaze's screen, regardless of if they are present on the drive.

To import a single sampling or preset/song, select the .WAV/.LDS/.PZP/.PZO file you would like to import, by touching it.

Samples are imported to the sample bank selected on the Sample Edit page.

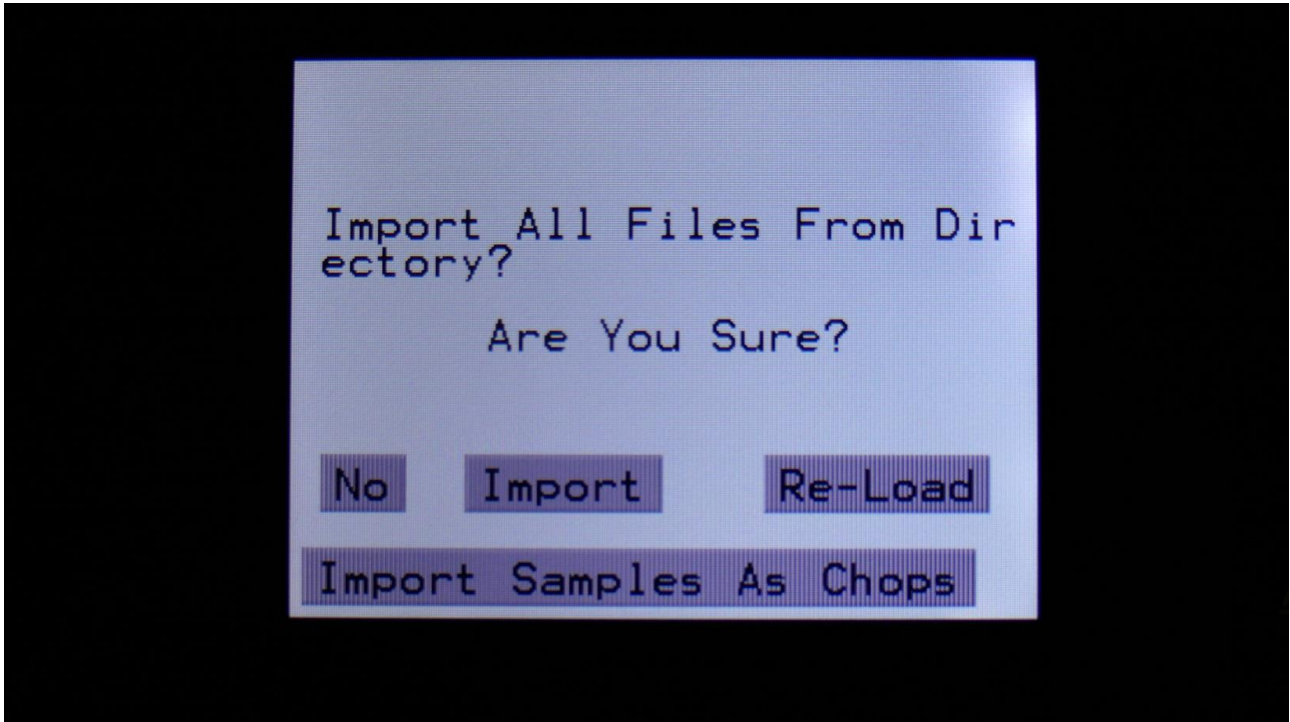
When importing a single preset or song, it is only loaded to the preset/song buffer, and you will have to save it manually, to keep it.

Touch the "Import" button. PolySpaze will now import the selected file, and show the progress on a progress bar:



Importing multiple files

To import multiple files at one time, select a directory, by touching it. Touch the "Import" button. PolySpaze will now ask:



Touch "Import" to continue, or "No" to exit.

If you touched Import, PolySpaze will now import all samples, presets and songs, that the selected directory holds. It will though not import files from any sub-directories.

Samples are imported to the sample bank selected on the Sample Edit page. Presets are imported to the selected preset and forwards, so make sure that you have not selected a preset that you planned to keep, before using this function. Songs are also imported to the selected song and forwards, so make sure that you have not selected a song that you planned to keep, before using this function.

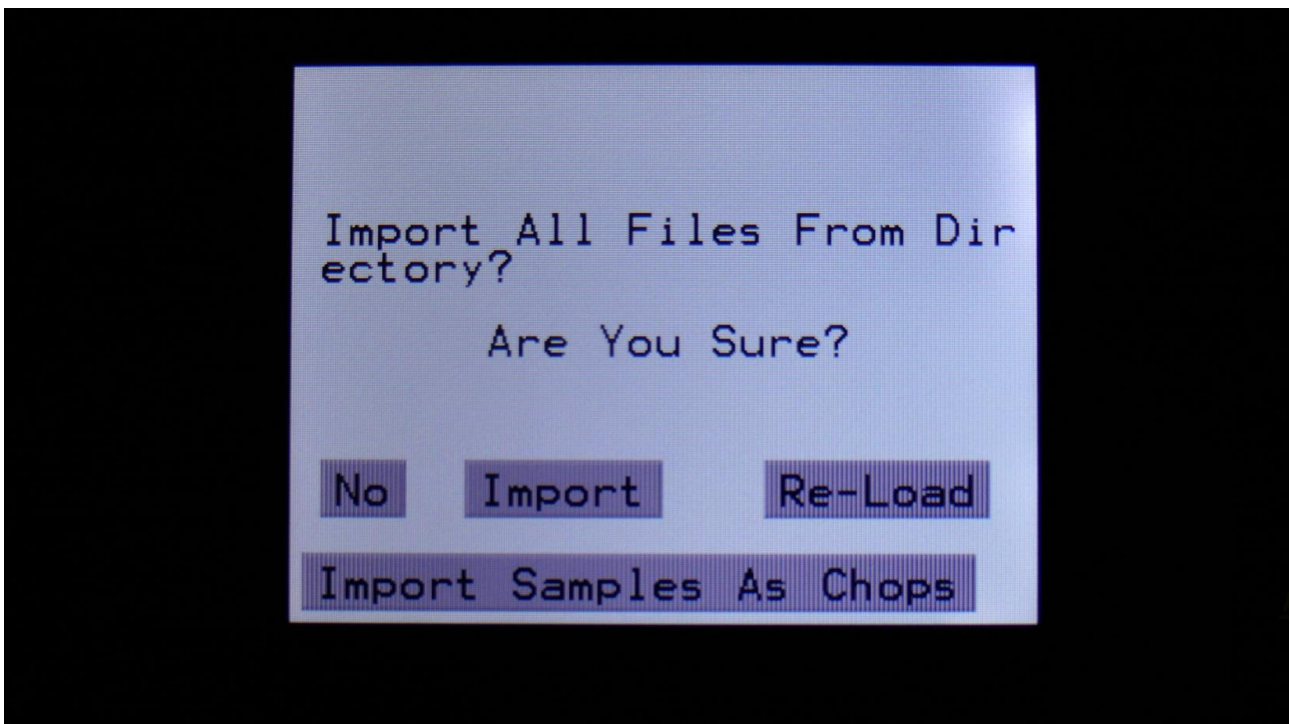
Reload multiple files

A reload function is also available. This will only import presets, songs and samples that has been exported from PolySpaze, or that has been renamed to to fit the PolySpaze export standard – samples must be named: A0001.WAV, A0002.WAV.....A0220.WAV, B0001.WAV, B0002.WAV.....B0256.WAV, presets and songs must be named: A01.PZP, A02.PZP....A64.PZP, B01.PZP, B02.PZP.....P64.PZP .

This function will import presets and songs to the same locations as they were originally stored to.

Reload will also import samples to the exact same location, as they were placed when exporting. This will make sure, that samples used in your presets, will always be placed in the right locations. Sample locations that are already occupied, will be skipped by Reload, so make sure to erase sample bank A and B, if you want a complete reload.

To Reload multiple files, select a directory, by touching it. Touch the "Import" button. PolySpaze will now ask:



Touch "Re-Load" to continue, or "No" to exit.

If you touched Re-Load, PolySpaze will now import all samples, presets and songs, that the selected directory holds, and that are correctly named. It will though not import files from any sub-directories.

Reload does also have other functions:

-On PolySpaze itself, it is only possible to erase the last recorded sampling of bank A and B. By exporting all your samplings to a USB drive, and then delete sample bank A and B on PolySpaze, delete the sample wav files you want to erase on the USB drive, from PolySpaze itself or on a computer, and reload all the samples. Samples that are erased, will just be left blank.

-If you would like to import a number of wav files in a specific order, or in a specific sample bank, you can rename the samples on a computer to: A0001.WAV, A0002.WAV.....A0220.WAV, B0001.WAV, B0002.WAV.....B0256.WAV, and then import them using Reload.

-If you would like to rearrange the order of samples and/or presets, you can rename the files and reload them. Presets are named: A01.PZP, A02.PZP....A64.PZP, B01.PZP, B02.PZP.....P64.PZP .

Import Multiple Samplings From Directory As one sampling with Chop points

This new function will make it easier than ever, to make your PolySpaze hold more than 255 samplings, in an easy way! Without splicing samples on a computer!

On your computer:

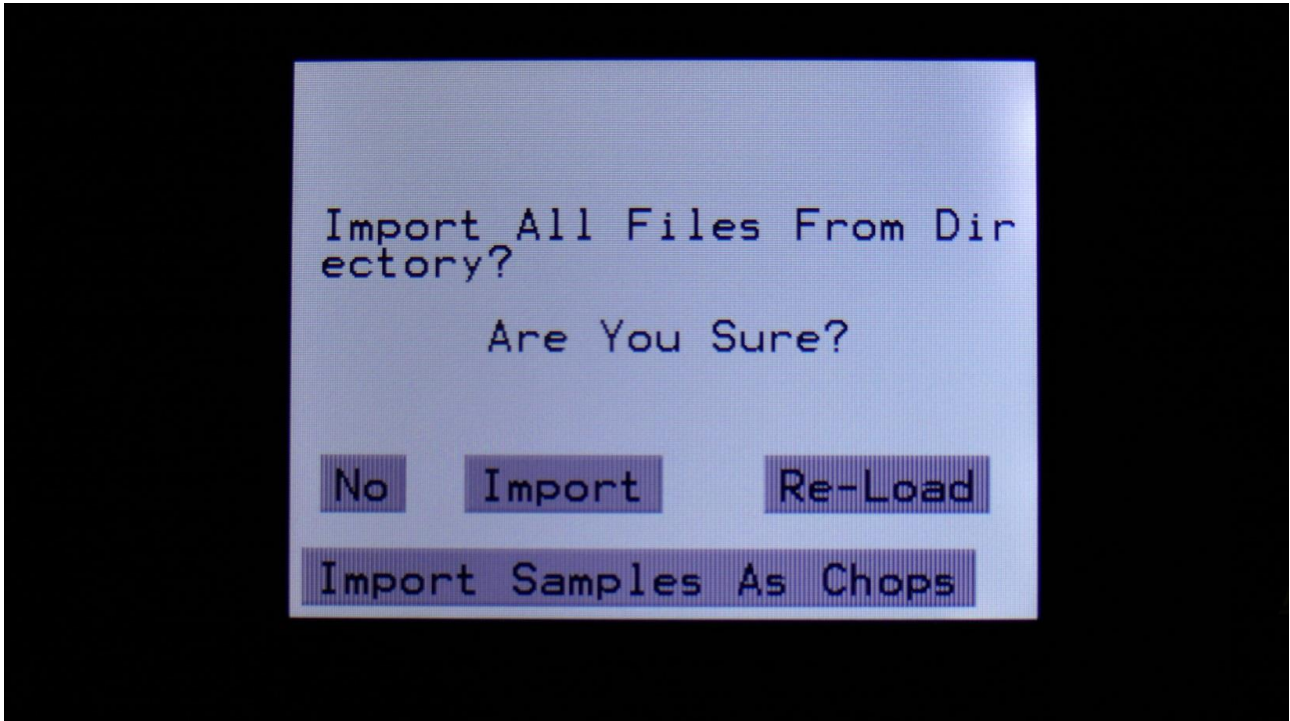
Make a directory (or folder) on a PolySpaze compatible USB drive. Name the directory with the name, that you want the sampling to have. Copy any single samplings you would like this sampling to contain, into the directory. Max 64 samplings.

Create multiple such directories, if desired.

Unmount the USB drive from your computer, and insert it in the PolySpaze USB port.

Enter the USB menu, select the directory you just created, and push “Import”.

This screen will now show:



Touch “Import Samples As Chops”.

PolySpaze will now create one sampling from all of the samplings in the selected directory, and insert a chop point at the start point of each sampling.

After the import is done, go to the sample edit page, select the sampling you just imported (named from the directory name), and enter the Chop edit page. You will now be able to hear each of the samplings, by selecting chops.

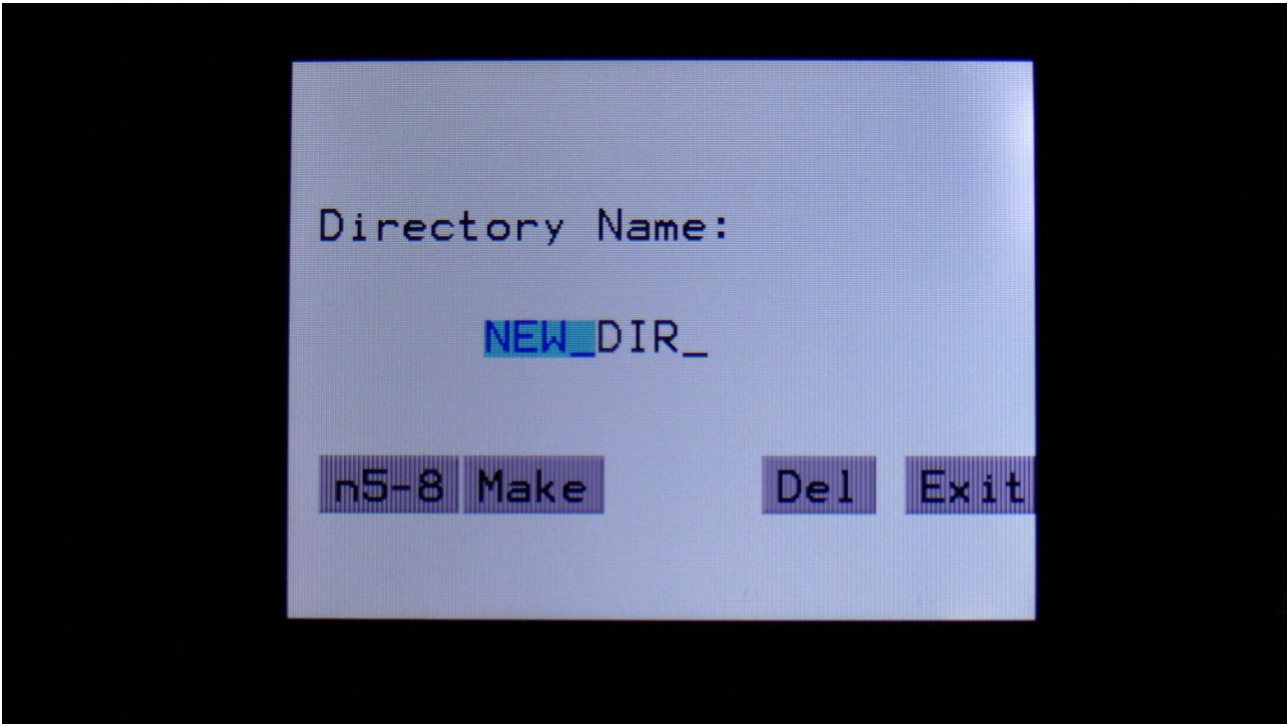
On the synth sampler pages, the procedure is the same. Select the sampling, and select the chop point. Modulate the chop point selection, to create great variation.

I have found this function especially useful, when working with acoustic drum samplings. There are many acoustic drum sample packs on the net, that has different variations of the same drum sound. Put all the variations of a sound in one directory, import as chops, and modulate the chop selection with velocity, random or any other modulation source, to make some great dynamic acoustic drum beats.

Make a new directory

A new directory can be created in the root directory, or inside another directory.

To do this, touch the "MD/Del" button.



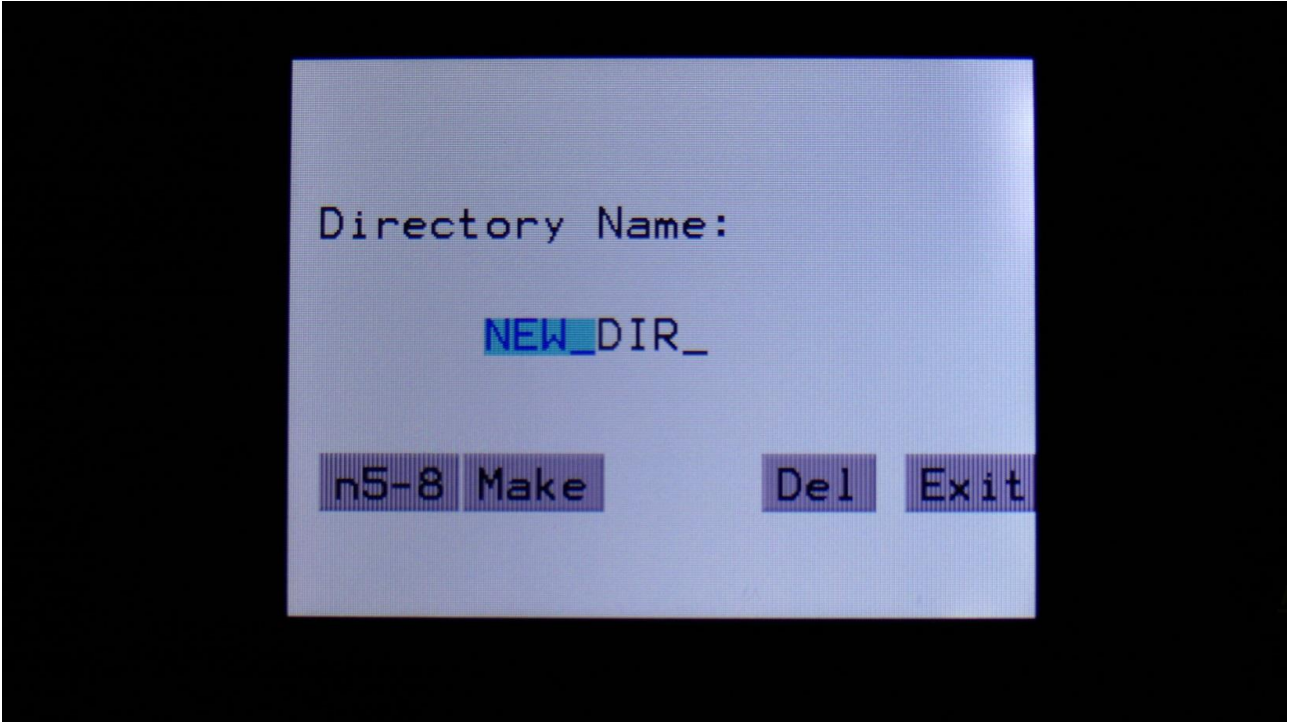
Turn the 4 edit knobs to select the first 4 characters of the name for the new directory. Touch "n5-8", so it turns black, to select the characters 5 to 8 of the name. When you are done with this, touch the "Make" button. The new directory will now be created.

You can, of course, also just touch "Exit", if you do not want to make a directory anyway.

Delete file from USB drive

It is possible to delete a file from the attached USB drive, directly from PolySpaze.

To do this, select the file you would like to delete, and touch the "MD/Del" button.



Now touch the "Del" button.

Export samples, presets and songs to a USB drive

The samples, presets and songs held in PolySpaze's FLASH memory can be exported to a USB drive, for back-up, or for use with other gear or computers. PolySpaze exports samples as standard 16 bit, 44.1 KHz, native PCM .wav files, so they can be used with any other gear, that supports this format. PolySpaze exports presets and songs in its own .pzp/.pzo format, so these can at writing moment only be used by PolySpaze.

To enter the export page, touch the "Export" button:



All exports are done to the currently open directory. There are 4 different possibilities for exporting:

"1Prs"

Export 1 preset (song). Touching this button will export the currently selected preset. If PolySpaze are in song mode, it will export the selected song.

"A1Pr"

Export All Presets/Songs . Touching this button will export all programmed presets. If PolySpaze are in song mode, it will export all programmed songs.

"1Smp"

Export 1 Sample. Touching this button will export the selected sample. Turn Edit Knob 1 to select the sample bank of the sample to be exported, and turn Edit Knob 2 to select the sample number.

"A1Sm"

Export All Samples. Touching this button will export all samples of the selected sample bank. The Sample Bank can be selected, by turning Edit Knob 1.

Updating the PolySpaze firmware

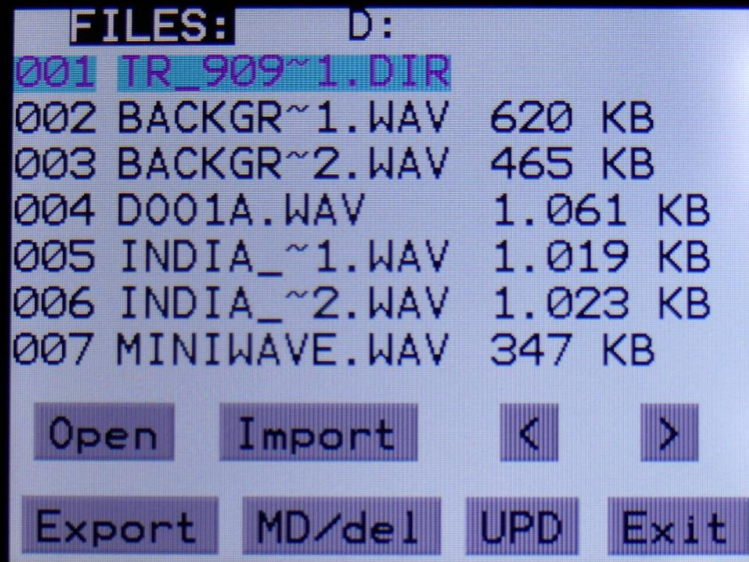
Now and then updates will be available for PolySpaze, that adds new functionality and fixes bugs. These will always be available for download here:

http://www.gotharman.dk/polyspaze_updates.htm

To update PolySpaze, you must have a computer with an internet connection, and a PolySpaze compatible USB drive ready. See the start of this section, for which USB drives are PolySpaze compatible.

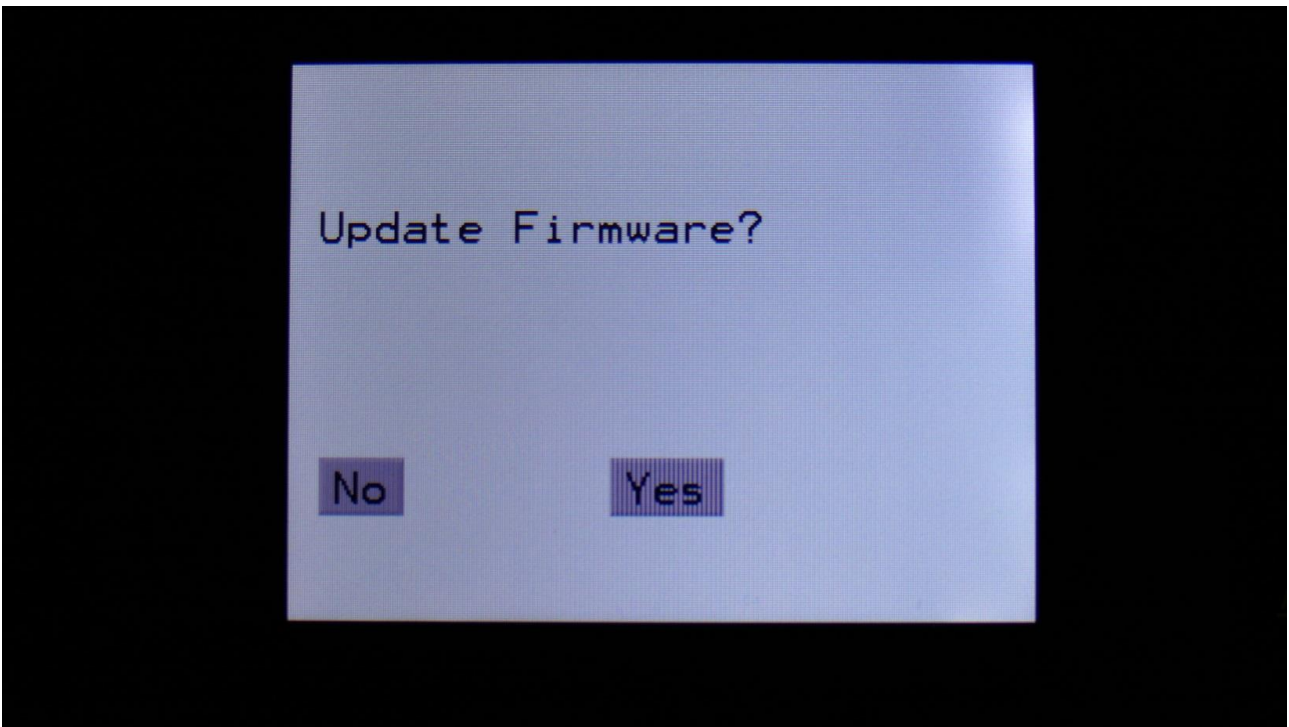
Then you should follow these steps:

1. Download the update file of the latest update, from the PolySpaze Updates site, to your computer.
2. Connect the USB drive to your computer.
3. Make sure that the USB drive is FAT formatted.
4. Create a directory in the root directory of this USB drive, that is named "UPDATE".
If the USB drive already contains a directory called UPDATE, please delete all files inside this.
5. Copy the update file from your computer to the USB drive UPDATE directory. Make sure that no other files are present in this folder, and please don't rename the files.
6. Eject and remove the USB drive from your computer, and connect it to PolySpaze 's USB connector.
7. Turn PolySpaze on, if it isn't already turned on.
8. From the preset select screen, touch the EDIT field.
9. Touch USB.
10. Wait for PolySpaze to register the USB drive, so all files and folders are presented on the screen.



11. Touch the "UPD" button.

12. PolySpaze will now search for the "UPDATE" folder and a valid update file. If it finds both, it will ask: "Update Firmware?"

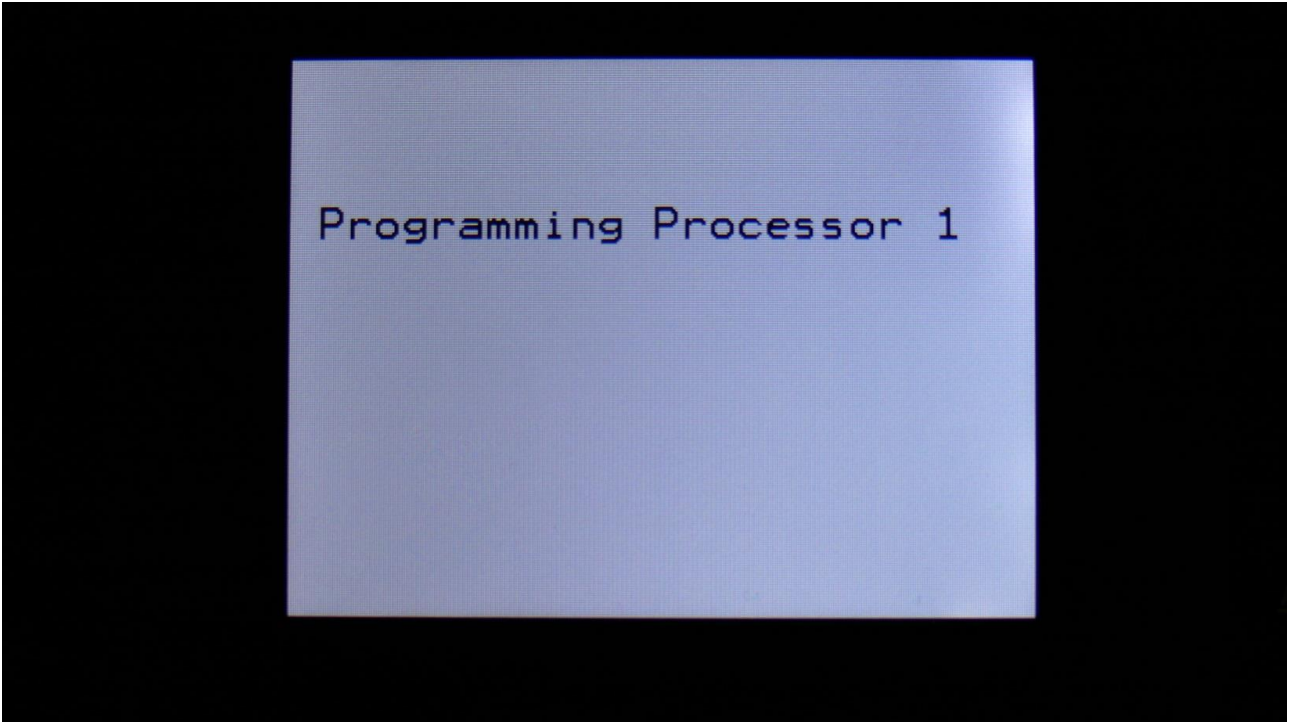


13. Touch "Yes" to proceed with updating, or "No" if you regret.

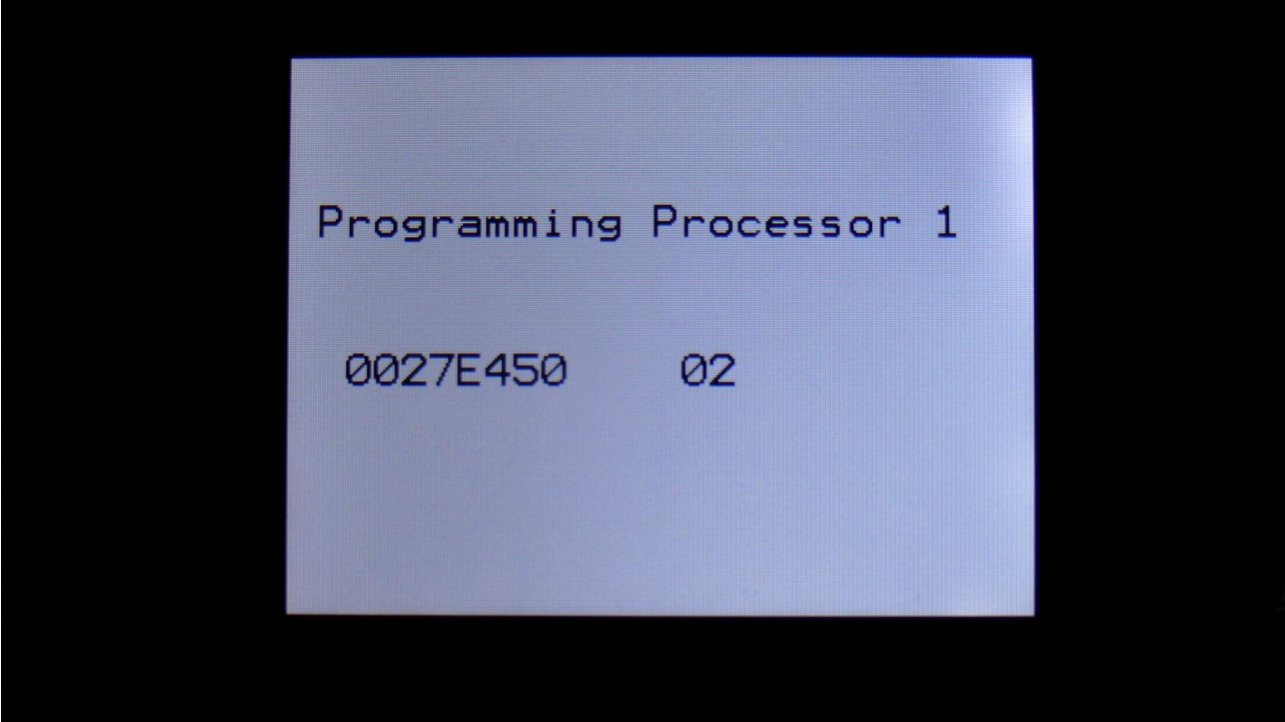
14. If you pushed Yes in step 13, PolySpaze will now start to get the update file, and program its processor.

When it starts to program the processor, it will look like it halts for a couple of minutes. This is because it does halt, when erasing the program memory of a processor.

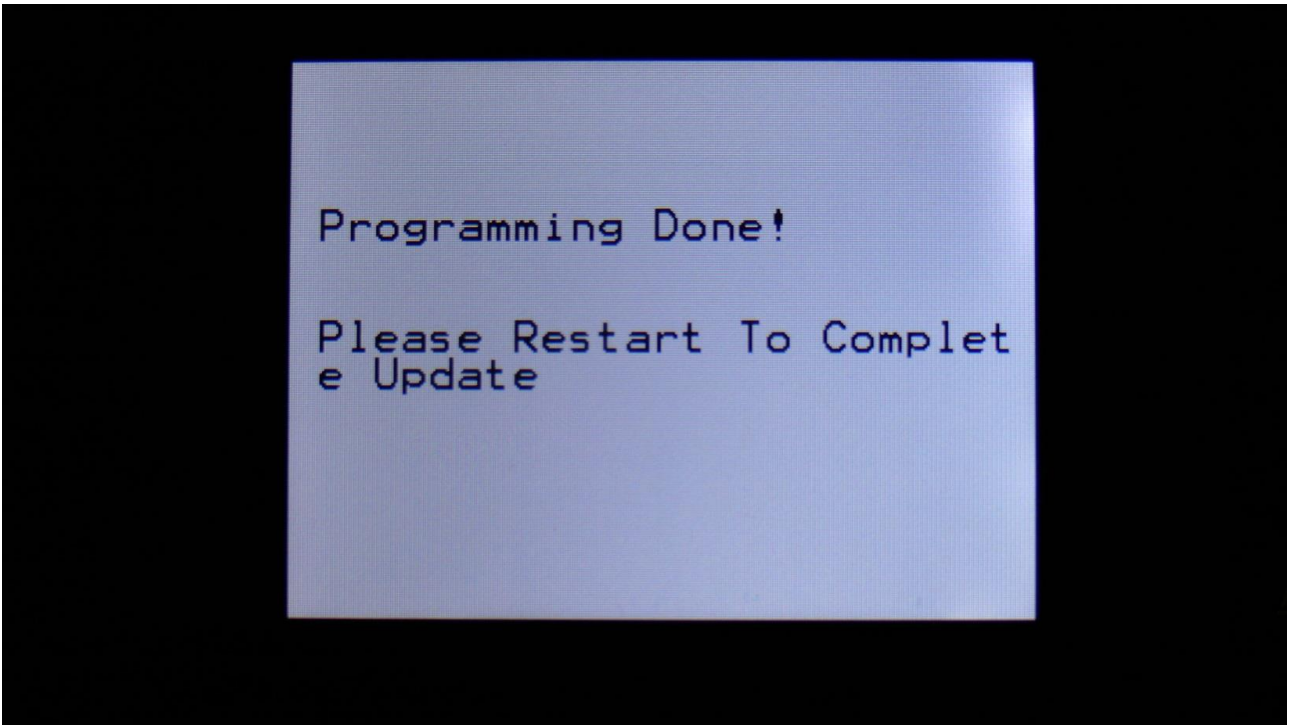
Erasing the program memory of the processor:



Programming processor (counter in the bottom counts up):

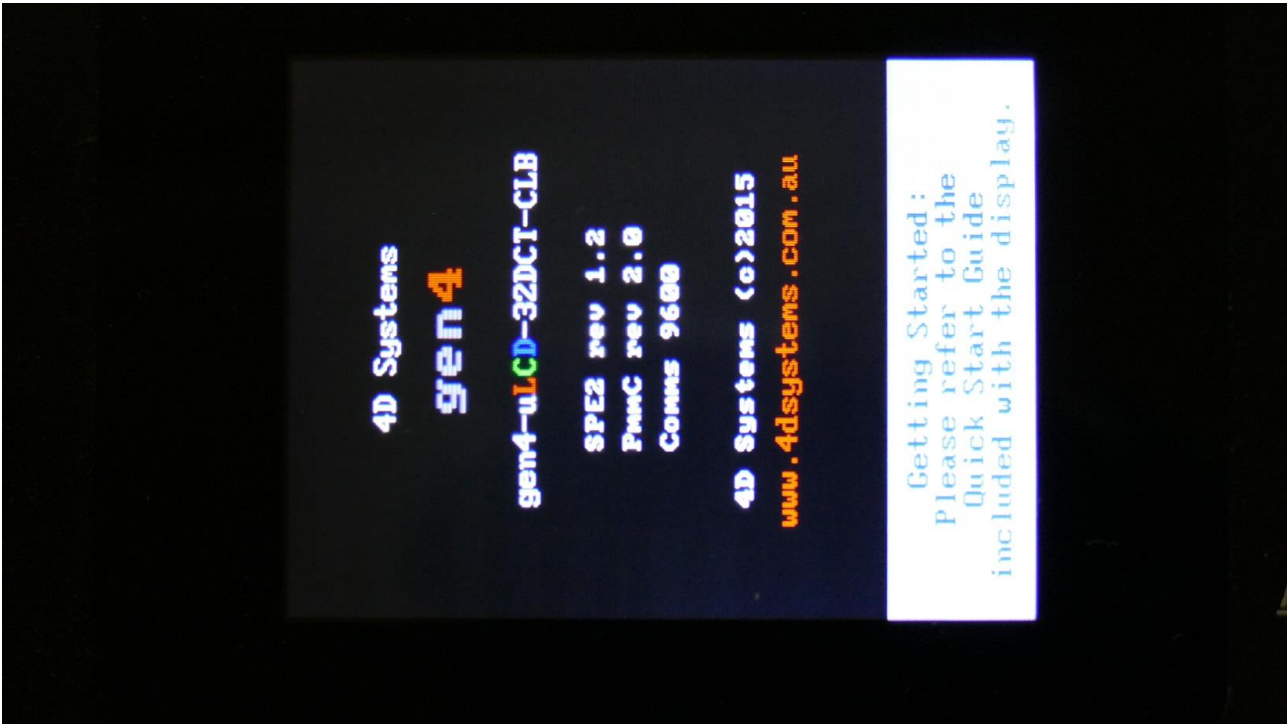


15. When programming is done, PolySpaze will ask you to restart it. Please turn PolySpaze off and then on again.



16. When you turn on PolySpaze after an update, it will need to finalize this. It will show this by turning 3 LED's on and off sequentially, one by one. After it has done this for a little while, it will start normally and are ready to use.

While it is finalizing the update, an initial text will show on the display:



If something goes wrong:

-If the power should go off, while PolySpaze is getting the update from the USB drive, and programming the processors, simply start over again from step 7.

-If the power should go off, while PolySpaze is finalizing the update (3 LED's turn on and off), simply turn PolySpaze on again, and it will now finalize the update.

Importing Samplings From Ensoniq Mirage

Even though I think, that there is nothing more cool, than loading samplings from floppydisks, it's hard to deny that it is a bit time consuming.

Therefore I got the idea, that it would be great if I could have some of the great samplings from my Ensoniq Mirage library on PolySpaze, so I at least could audition these fast, and load the samplings I wanted on the Mirage. Since PolySpaze also has analog filters and other possibilities, it might even be able to do something cool...

Therefore I started investigating in how this could be done, and added the loop points import and the sustained loop feature to PolySpaze.

You will need:

- An old PC with build-in floppy drive, that is running Windows XP.
- A free program called Omniflop.
- A program called Awave Studio.

How to do it:

- Insert a Mirage floppy containing samplings in the floppy drive of the PC.
- Use Omniflop to create a disk image of the floppy. Please consult the Omniflop website regarding this. I do not offer any support on this program.
- Change the file extension of the disk image from .img to .edm, simply by using the file rename function in Windows.
- Open Awave Studio, import the disk image, and convert the samplings from it to 44.1 KHz, 16 bit wavs. Please consult the Awave Studio website regarding this. I do not offer any support on this program.
- Save the samplings to a USB stick, and import them to PolySpaze.

MIDI Specs

Receives:

-Note on/off on the PolySpaze global MIDI channel and on the individual Synth part MIDI channels in Multi-timbral, Multi-Bank and Stereo Bank modes. These can trigger the Synth voices and be recorded by the sequencer, when it is in realtime rec mode.

-MIDI CC 4, 5, 7, 8 on the PolySpaze global MIDI channel and on the individual Synth part MIDI channels in Multi-timbral, Multi-Bank and Stereo Bank modes. All parameters that are set up to be controlled by Edit Knob 1 to 4, are also controlled by these MIDI CC's.

-MIDI CC 1, 2 and 3 on the PolySpaze global MIDI channel and on the individual Synth part MIDI channels in Multi-timbral, Multi-Bank and Stereo Bank modes, controls the Morph, HpCut and LpCut knobs.

-MIDI CC 11 on the PolySpaze global MIDI channel and on the individual Synth part MIDI channels in Multi-timbral, Multi-Bank and Stereo Bank modes, controls the Touch Screen Keyboard Y-position Modulation.

-Pitch Bend messages on the PolySpaze global MIDI channel and on the individual Synth part MIDI channels in Multi-timbral, Multi-Bank and Stereo Bank modes. Controls the oscillators and samplers of Synth part 1 to 4, and any parameter that pbend as its modulation source.

-Mono Aftertouch messages on the PolySpaze global MIDI channel and on the individual Synth part MIDI channels in Multi-timbral, Multi-Bank and Stereo Bank modes. Modulates parameters, that has been set up to be modulated by this.

-MIDI CC's 12 to 31, and 33 to 38 on the PolySpaze global MIDI channel and on the individual Synth part MIDI channels in Multi-timbral, Multi-Bank and Stereo Bank modes. Modulates parameters, that has been set up to be modulated by these.

-MIDI clock and start/stop messages are received if the sequencer are in external sync mode.

-Program change and bank change (MIDI CC 32), if Prgr is switched on at the Common page.

Accepted bank changes:

0: Preset bank A and B.

1: Preset bank C and D.

2: Preset bank E and F.

3: Preset bank G and H.

4: Preset bank I and J.

5: Preset bank K and L.

6: Preset bank M and N.

7: Preset bank O and P.

Any other bank change messages will be ignored

Transmits:

-MIDI CC 4, 5, 7, 8 on the PolySpaze global MIDI channel, from Edit Knob 1 to 4 on the Preset/Song Select screen, and on any other pages, that has no other Edit Knob functions.

-MIDI CC 1, 2 and 3 on the PolySpaze global MIDI channel, from the Morph, HpCut and LpCut knobs.

-MIDI CC 11 on the PolySpaze global MIDI channel, from the Touch Screen Keyboard Y-position Modulation.

-Note on/off's on any MIDI channels from the sequencer/trigger system.

-MIDI CC's on any MIDI channel from the sequencer controller tracks.

Written by
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2018

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