Gotharman's SpazeDrum Blue & Black

Analog Drum Synthesizers

User Manual V6.20

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CE

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

I hope that you will deform some great beats!

Introduction

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

SpazeDrum are a 16 part/8 voice analog drum synthesizer with effects and sequencer.

SpazeDrum Blue is based on the SSI2144 filter chip, while SpazeDrum Black is based on the SSI2140.

Each of the 16 parts can be set up to be analog drum + digital oscillator/sample player + up to 2 digital filters + VCA + up to 2 insert effects, or to be 2 digital oscillators/sample players + 2 analog filters + up to 2 digital filters + VCA + up to 2 insert effects, or 1 digital oscillator/sample player + up to 2 digital filters + VCA + up to 2 insert effects (Digi Voice).

Every 4 parts (part 1-4, part 5-8 etc…) is one analog group. Only two parts can be active in an analog group at a time (1 analog voice and one digital voice). If more than two parts are activated at the same time, in the same group, only the 2 highest numbered parts will play back.

The insert effects can be set for each analog group, not for each part.

The analog drum oscillators can be set in Analog Percussion (for most drum sounds), Analog Cymbal or Analog Clap modes.

The digital oscillators can be set to waveform (a waveform that can morph from sine to triangle to saw to pulse to feedback wave), Resonator, percussion1-3, cymbal1-2, clap or sample player.

The sample players play back samplings stored in an internal FLASH memory (No loading times!), which can hold up to 2047 samplings/max. 18 minutes. Samplings can be chopped by level peaks, wave zero points, or in equally sized slices. Up to 64 chop points are possible for each sampling.

The dual analog filters operates only in lowpass mode. The analog filter in SpazeDrum blue is 24 dB, while in Black they can be set to 6, 12 or 18 dB.

The digital filters have 41 different filter types.

Each part can be panned and sent either to the stereo audio outputs, the optional analog outputs (with analog VCA's –Only the 4 analog voices), or to the 2 output effect processors.

Many modulation sources are available, including 3 envelopes per part, 16 global LFO's, 4 random generators per part, 4 knobs + sequencer knob tracks per part, velocity and MIDI CC's.
The 16 parts can be sequenced from a build-in sequencer, that has 16 note tracks, with up to 64 steps each. Each note track has a position track, that makes it possible to alter the position of each step, making it possible to move steps around and make the sequencer run in various direction modes. A sub position track is also available for micro timing.
Realtime, step time and xox style recording are possible.
External MIDI devices can be controlled from the SpazeDrum sequencer as well.
Knob movements can be recorded, both in realtime and step time on the knob controller tracks.

The sound generating parts, the LFO's, the effects processors and the sequencer has 2 layers of parameter settings, layer A and layer B, that can be independently adjusted, and morphed between, using the Morph and Seq Morph knobs.

All the parameter settings can be stored in any of 1024 rewritable preset locations, and recalled at any time. 256 favorite sounds can be stored for instant recall, when selecting sounds for a part.

1024 song locations are available, for programmed playback of presets, and for tracks mute automation.

I hope that you will enjoy your SpazeDrum for a long time, and deform a lot of great beats.

Very special thanks to:

Trent Reznor
Weinglas
Martin Seychell
Udo Gerhards
Don Linder
Bach Pham
Christopher Rayce
Steven Sandelman
SPIKE the Percussionist
Michael Descieux

For supporting the SpazeDrum Blue project from the start. I sincerely appreciate your trust!

In The Box

In the SpazeDrum box should be:

-SpazeDrum itself
-A power supply –Multi plug –Works in most countries.

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

Getting Started

Connecting SpazeDrum:

On the back panel of your SpazeDrum, you will find the power switch, connection for power supply, audio outputs and MIDI in and out.

Audio outputs L(hp) and R

The 2 rightmost 1/4” jack connectors are the main stereo outputs. These are line level audio outputs, and you would probably like to connect these to a mixer or an amplifier, or anything else that ends out in a speaker/a set of speakers. Since SpazeDrum doesn’t have built in speakers, it just needs to be connected to something, that can transfer its amazing sound to you. These should be connected, using ¼” mono jack cables.

The left audio output (marked “AUDIO OUT L(hp)) doubles as a stereo headphone connector. Please make sure that nothing is connected to the right audio output, when plugging headphones into this connector.

Analog Audio Outputs

The next 4 1/4” jack connectors are the optional analog outputs. These are line level audio outputs, and should be connected to a line audio input, like a mixer. Pure analog signals can be outputted from these, with an analog VCA in the final stage.

MIDI In and Out

It is possible to connect a MIDI pad controller, a MIDI keyboard, a MIDI sequencer or any other MIDI device, that transmits MIDI notes and CC’s, to MIDI in, to play back and control each part. It is also possible to connect anything that transmits a MIDI clock, if you would like the sequencer of SpazeDrum to sync to the rest of your setup.

On MIDI out, MIDI clock and MIDI CC’s from the edit knobs are transmitted. The sequencer note tracks can also transmit MIDI notes, if a part is set to “External MIDI”. Connect any MIDI gear to this, that you would like to control from SpazeDrum.

On the front panel of your SpazeDrum, you will find the USB connector.

USB Connector

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 LD3 presets and songs

-Update LD3

-PLEASE NOTICE: The included factory samples CANNOT be exported. So if you want to keep these, you should take care not to delete them. A USB stick with the factory samplings might be available in the future.

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

-Mono or stereo

-44.1 KHz sample rate – LD3 will import other sample rates, but they will play back in a wrong speed

-16 bit or 24 bit native PCM

-Standard wav’s or broadcast wav’s

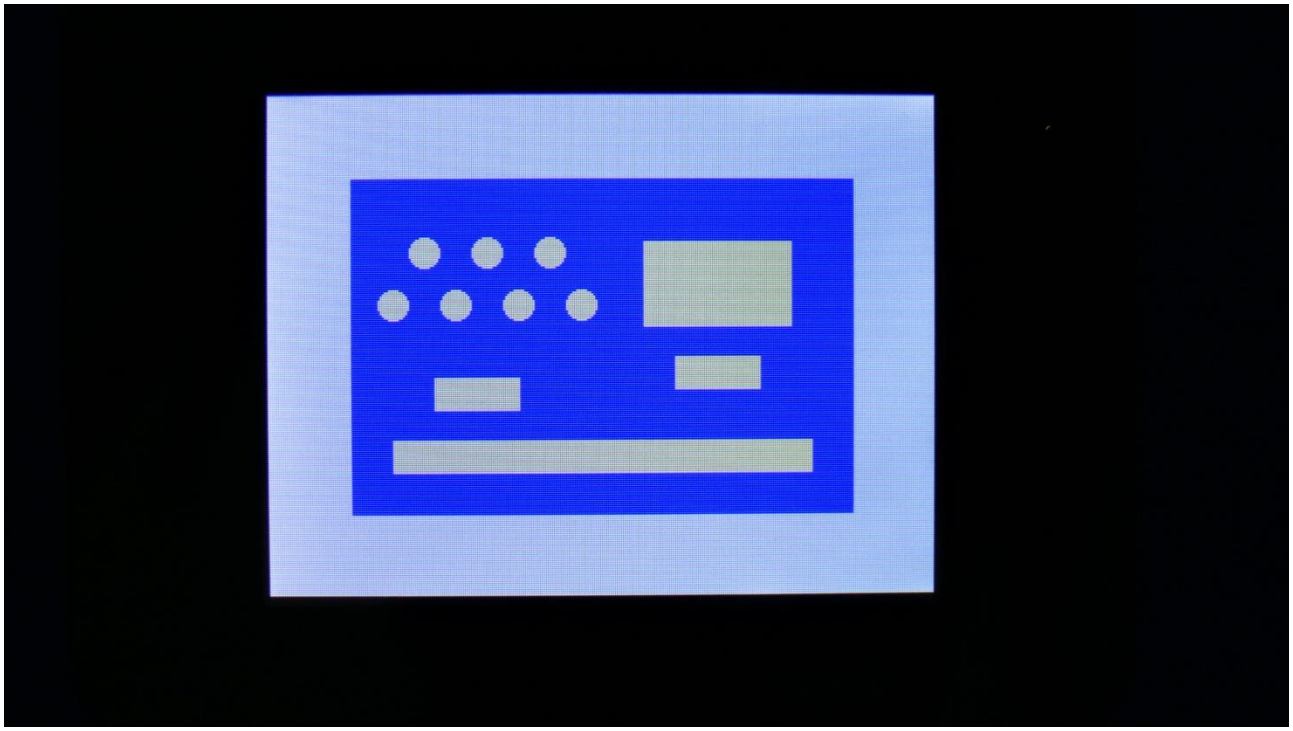
Starting Up

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

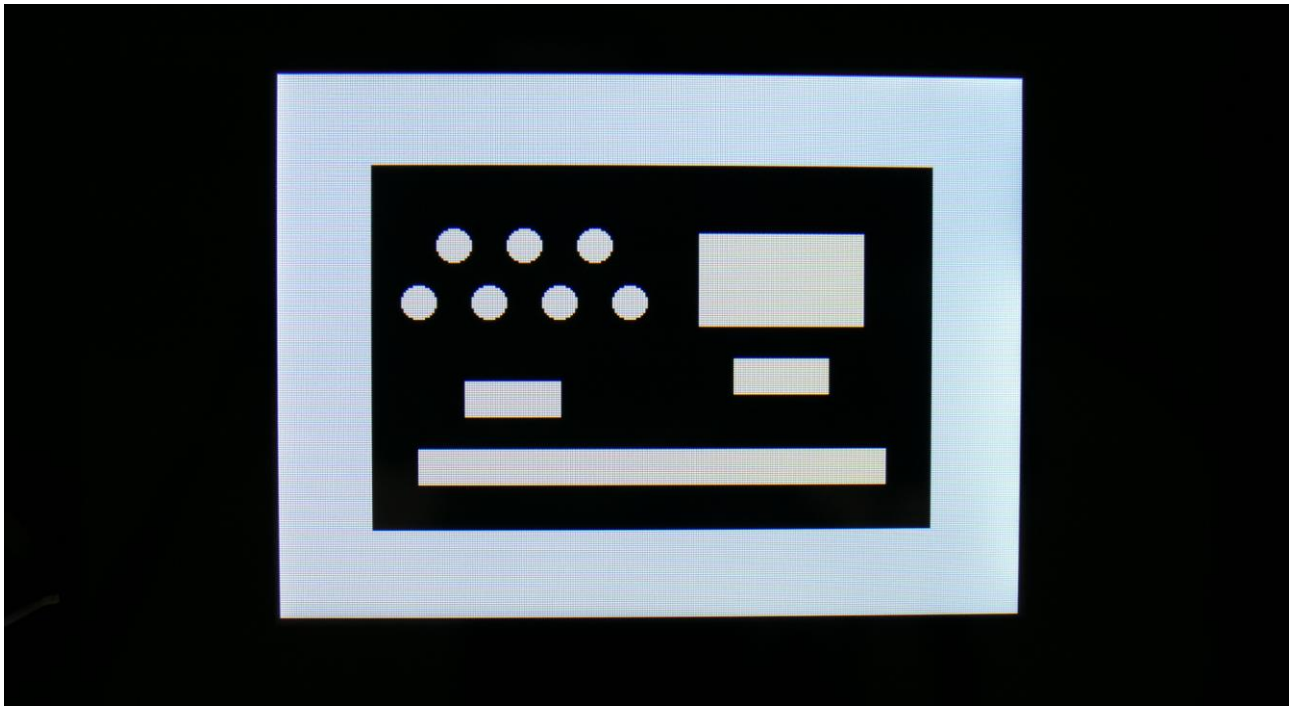
It's a 9V, minimum 2.0A type with a 2.1 mm DC plug, with positive middle. The power supply on the picture is only for reference. The actual one might look different.

Turn it on

Push the “I” on the power switch. Your SpazeDrum should now turn on, and show the SpazeDrum Blue Icon on the screen:



SpazeDrum Black will show a black icon:



The User Interface

SpazeDrum Blue has a 2,4” non-touch display, SpazeDrum Black has a 3,2” touch display.

They both have 16 step/trigger/part select/quick jump buttons, a Morph Set button, a Func/Mute button, a Steps/Part button and a Sequencer Play button. It has 4 Edit Knobs for controlling and editing parameters and sending MIDI CC’s, a (synth) Morph knob, a Sequencer Morph knob and a volume knob.

Pushing the **Trigger 1-16** buttons, with Func/Mute and Steps/Part unlit, will trigger the respective SpazeDrum part. When a trigger is trigged, the button will light up.

The **Play** button will start and stop Sequencer playback. When the sequencer is playing back, the Play button will light up.

The **Morph Set** button, will toggle the parameters on any Synth and Sequencer page, between 2 layers of parameters, A and B. The **Morph** knob (**MIDI CC#1**) will morph between the two layers of Synth parameters, and the **Seq Morph** knob (**MIDI CC#2**) will morph between the two layers of Sequencer parameters.
The Morph knob and the Seq Morph knob will always work globally.

It has 4 buttons right under the display. That is used for changing preset/song, and for navigating in the edit menus. These also have some shortcut functions, like setting the track last step and scale (resolution).

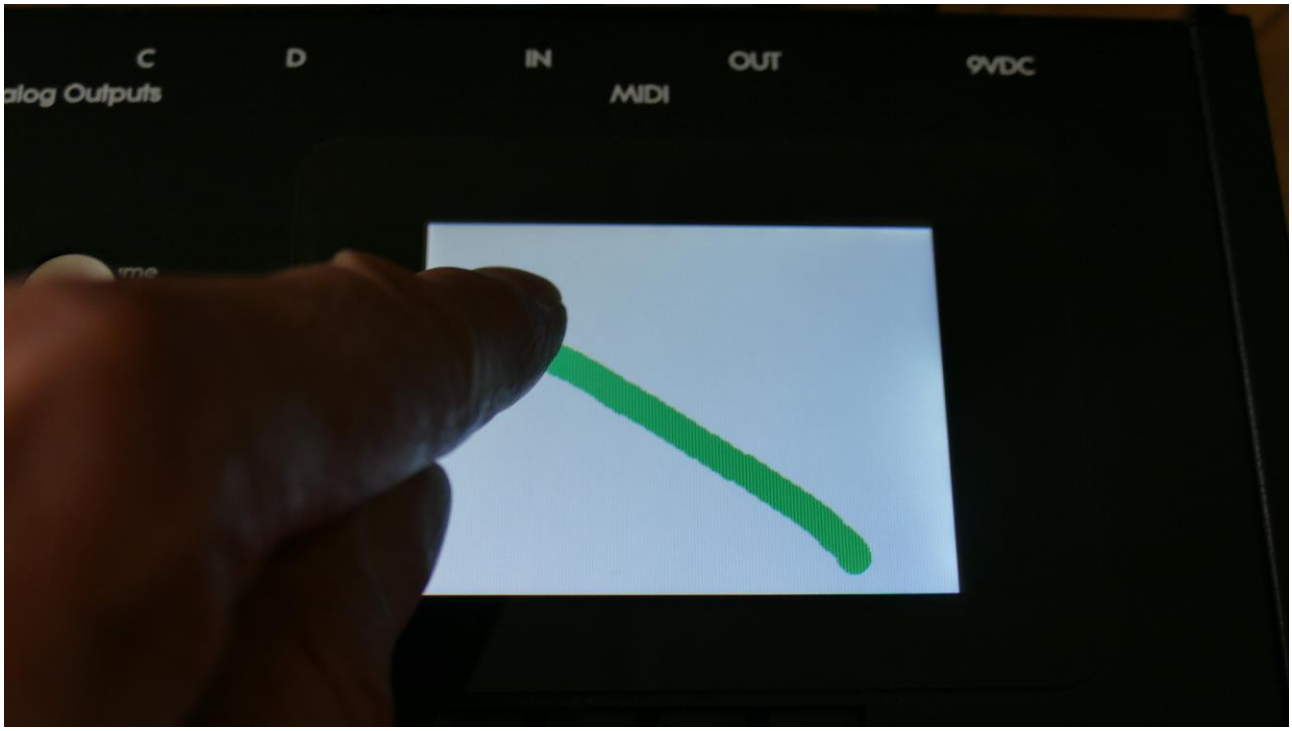
When the **Func/Mute** button is held down, it is possible to **mute/unmute** the 16 note tracks, by pushing any of the 16 step buttons. When it is lighting up, the 16 step buttons functions as **Quick Jump** buttons, that will take you to the edit pages, which names are showed right above each step button.

When the **Steps/Part** button is held down, the 16 step buttons functions as **Part Select** buttons. Pushing any of these, will select part 1 to 16.
When it is lighting up, the 16 step buttons will show the **steps** of the selected sequencer note track. Steps that are on will light up, steps that are off will not light.

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

The **Edit 1-4 Knobs** to the left of the display, adjusts the parameters on each edit 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. Each Edit Knob transmits its own MIDI CC for each part. Please see the MIDI implementation pages for a complete list. Each Edit Knob has, for each part, a sequencer knob controller track (64 tracks in total). The sequencer knob track can control the knob. It can be programmed inputting values on the sequencer edit pages, or by realtime recording knob movements.
The Edit knobs can also be set up to control the levels of each analog group and to morph each analog group separately from each other.

SpazeDrum Black Touch Screen



SpazeDrum Black has a touch screen.

On the Preset Select page (the main page), this works as an XY controller, that can be set up to control the Morph and Edit knobs, in the “KNOBS + XY” menu. Whenever you touch the screen on this page, the main page will be replaced by a green line, indicating where you have touched the screen. It will revert to the main page after a couple of seconds with no touch actions.

On the Sequencer track pages, the touch function can be used to program the sequencer step values.

On various edit pages, sub menu functions can be selected by touch, and on the Sample Edit pages, sample playback can be initiated by touch.

When touching the screen on an edit page, that has no sub menu functions, touch will function as exit.

On various menu pages, menu selection can be done by touch.

The Preset Select Screen

This is the first screen you will see, right after SpazeDrum's Icon start-up screen, unless you left your SpazeDrum in Song mode, the last time it was turned off. Here you can change preset, and jump to SpazeDrum's edit and settings pages.

On the top of this screen, the Sequencer bar/beat, that is currently being played back, is shown.

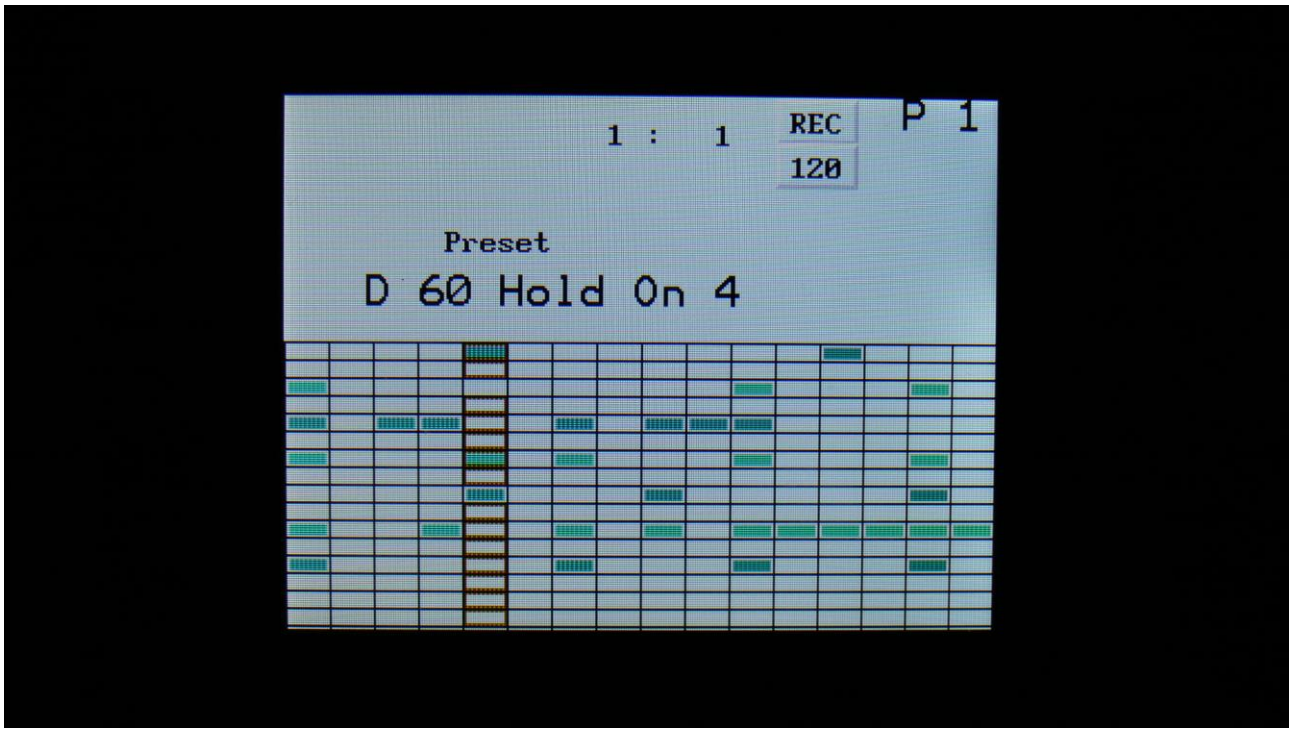
To the right of the bar/beat indicator, you will find a sequencer record indicator (REC) and a sequencer tempo indicator. When the REC indicator is red, the sequencer are in record mode. The tempo indicator will read "EXT", if SpazeDrum is set to external MIDI sync.

To the right of the Rec/Tempo indicators, the currently selected part number is shown.

Below the bar/beat indicator, it says "Preset", if SpazeDrum 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 8 large VU-meters, two for each analog group, or a note grid over the sequencer note tracks. The dark green VU-meters/steps show the analog voices, the light green VU-meters/steps shows the digital voices. Hold "Exit" and push "Edit", to switch between the 2 views.



Push the 2 arrow buttons to select preset, or to navigate in the menus. Press Edit to access the edit menus, press Exit to leave the menus.

Selecting a preset:

When on the Preset Select page, simply push one of the arrow buttons right under the display, to select the next or the previous preset.
Holding down an arrow button will scroll through the presets. Holding down one arrow button, while pushing the other arrow button, will activate fast scroll. SpazeDrum will not change preset, until both of the arrow buttons has been released.

1024 presets can be selected, from A01 to P64.

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, SpazeDrum will switch to the newly selected preset, the Start/Stop LED will stop flashing, and “NEXT:” will disappear.

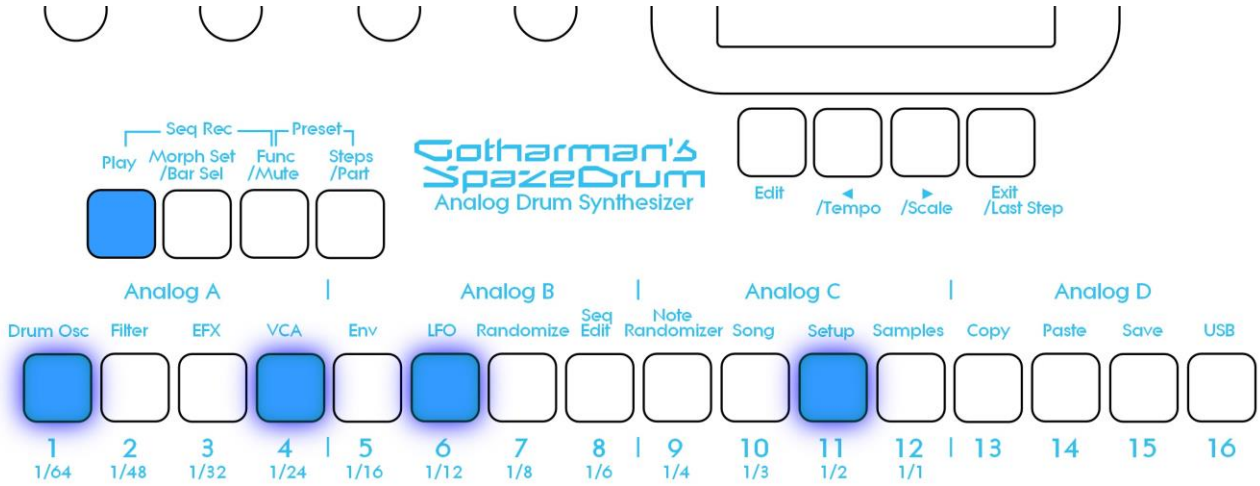
If the sequencer is not playing back, SpazeDrum will immediately switch to the new preset, when you release the arrow buttons.
When SpazeDrum is turned off, it will remember which preset was selected, and start up with this, when turned on again. It will also remember if it was in preset or song mode, and start up in the same mode, and if it was in song mode, it will also remember which song was selected.
Presets can also be selected, using the step buttons. This is described in the next section “Operating SpazeDrum”.

If any parameters of the preset has been edited, and the edits has not been stored, a “*” will appear right between the preset number and the preset name.

When this appears, you will need to save your preset, in order to keep your edits.
Please see how to do this in the “Save Preset” section, later in this manual.

Operating SpazeDrum

Starting and stopping the Sequencer, and trigger parts manually:



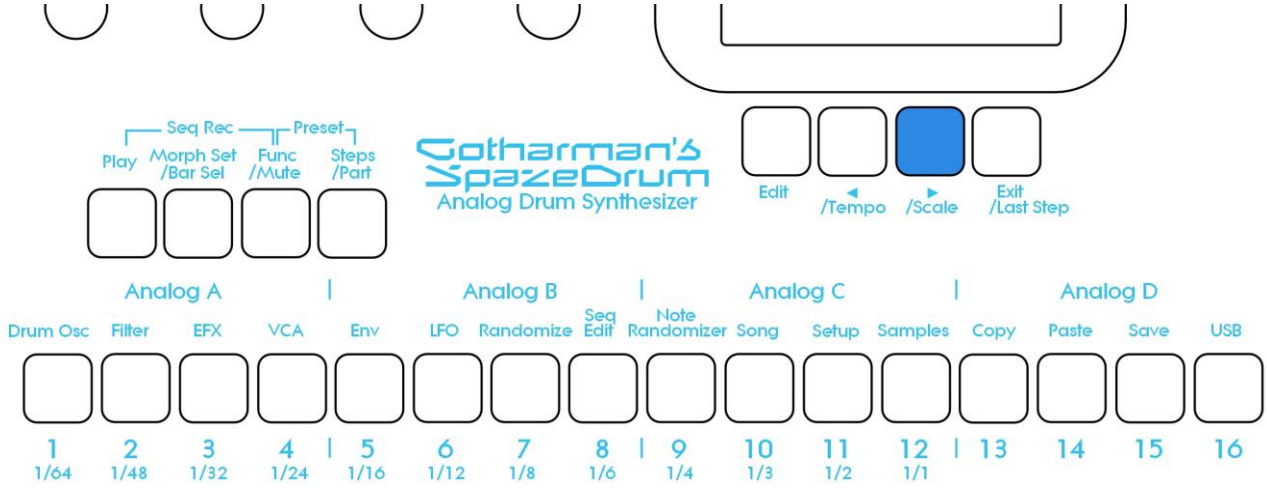
To start the sequencer playback, push and release the Play button, so that it lights up.

The sequencer will now start to play back. When the Func/Mute and the Steps/part buttons are not lighting up, every time a part is trigged to play back, the corresponding step button will light up shortly.

To stop the sequencer, simply hit the Play button again, so that it is no longer lighting up.

To trigger the 16 parts manually, make sure that neither the Func/Mute button or the Steps/Part button is lighting up, and then push any of the 16 step buttons, to trigger the sounds that are programmed on each part.

Selecting the next preset



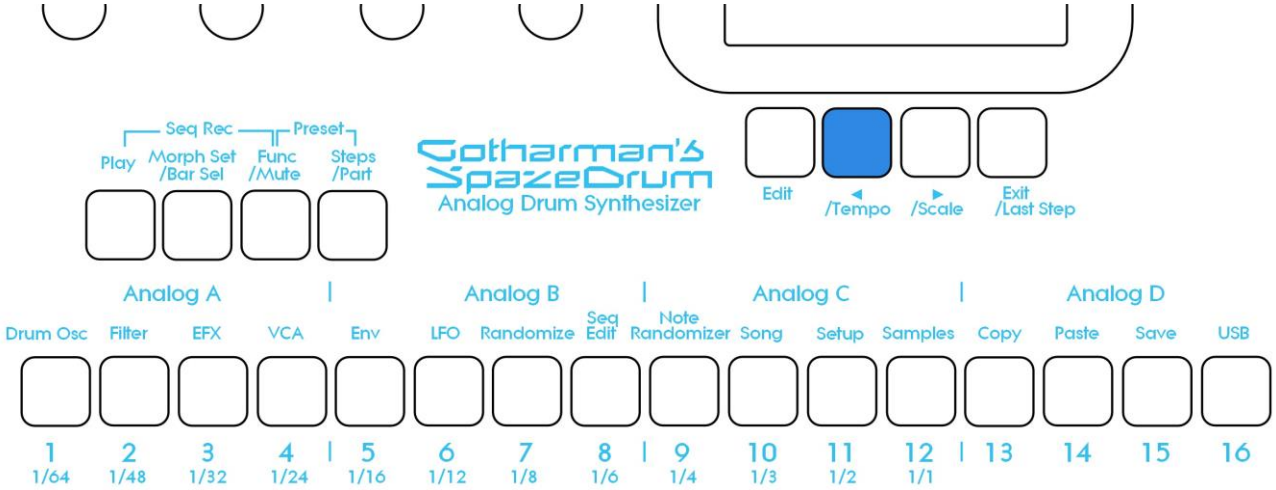
When on the Preset Select page (the main page), push and release the >/Scale button, which is located right below the display. SpazeDrum will now select the next preset. If the sequencer is playing back, the Play LED will now start to flash, and the text “NEXT:” will show right above the new presets name on the display, awaiting track 1 to reach its start/end step. As soon as this happens, SpazeDrum will switch to the newly selected preset, the Play LED will stop flashing, and “NEXT:” will disappear.

If the sequencer is not playing back, SpazeDrum will immediately switch to the new preset, when the >/Scale button is released.

To scroll through multiple presets, simply hold down the >/Scale button, until you reach the desired preset. SpazeDrum will not actually change preset, until the >/Scale button is released.

To fast scroll through the presets, while holding the >/Scale button down, push and hold the </Tempo button.

Selecting the previous preset



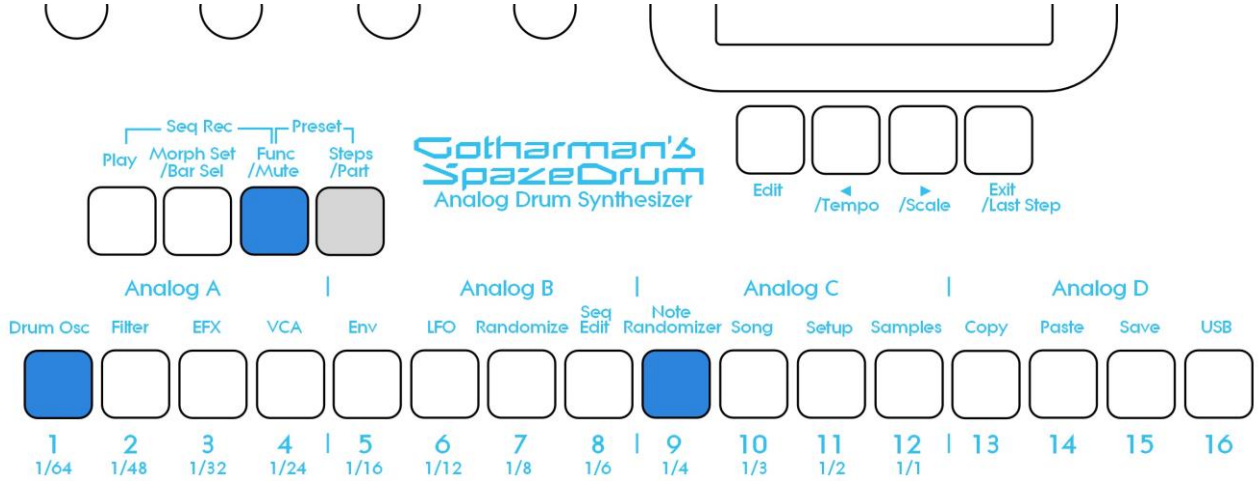
When on the Preset Select page (the main page), push and release the </Tempo button, which is located right below the display. SpazeDrum will now select the previous preset. If the sequencer is playing back, the Play LED will now start to flash, and the text “NEXT:” will show right above the new presets name on the display, awaiting track 1 to reach its start/end step. As soon as this happens, SpazeDrum will switch to the newly selected preset, the Play LED will stop flashing, and “NEXT:” will disappear.

If the sequencer is not playing back, SpazeDrum will immediately switch to the new preset, when the </Tempo button is released.

To scroll through multiple presets, simply hold down the </Tempo, until you reach the desired preset. SpazeDrum will not actually change preset, until the </Tempo button is released.

To fast scroll through the presets, while holding the </Tempo button down, push and hold the >/Scale button.

Selecting Presets using the step buttons

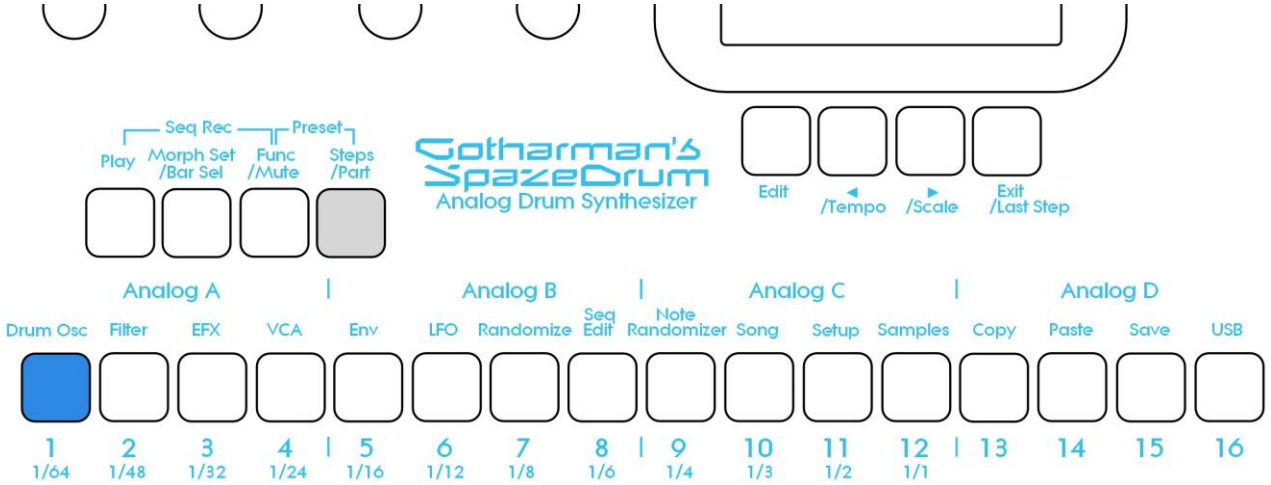


Push and hold the Steps/Part button while pressing the Func/Mute button. Now both of these buttons will light up.
It is now possible to select the 64 presets in the currently selected preset bank, using the step buttons. Step button 1 to 8 selects the lower digit of the preset number, and step button 9-16 selects the higher digit.

When pushing the same button combination again, the Steps/Part button will still light up, while the Func/Mute button will start to flash.
It is now possible to select preset bank A to P, using step buttons 1 to 16.

Pushing the same button combination yet another time, will exit from the preset select mode.

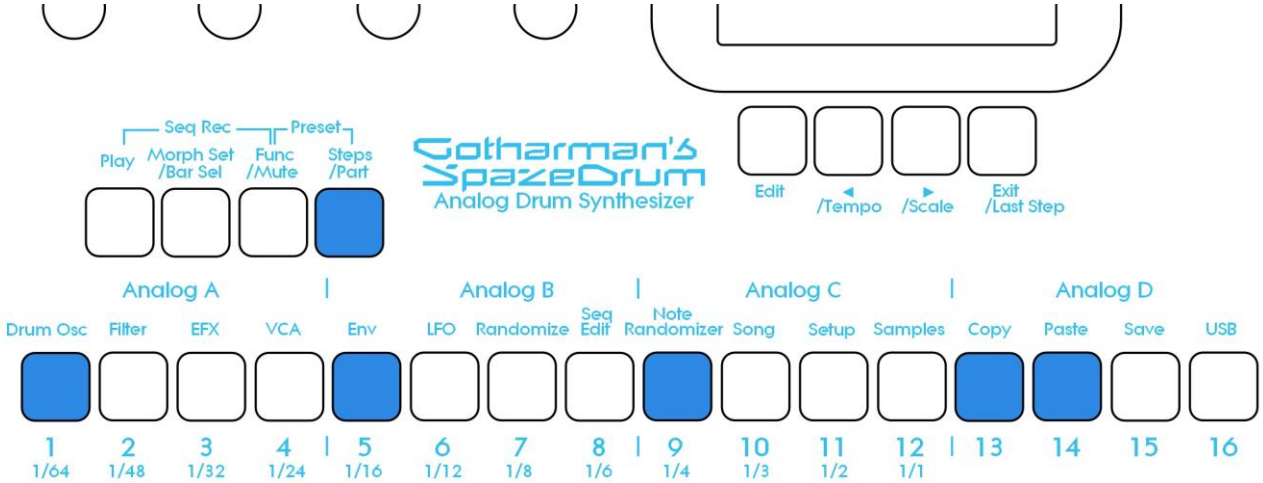
Selecting a part:



Push and hold the Steps/Part button.
The selected part number will now be shown, by one of the 16 step buttons lightning up. The number below the step button, is the part number that is currently selected.
To select another part, while still holding down the Steps/Part button, push any of the 16 step buttons.

The selected part, is the part which parameters will be shown on the display, when entering the edit pages.
Selecting a part, also selects the equally numbered Sequencer Note Track.
When entering the Sequencer Knob Controller tracks, track 1 to 4 is selected in the same way.

Sequencer Note Track Steps view/edit:



First, select the part, for which you would like to view/edit the note steps, as described earlier in this manual. You can, of course, select another part at any time, also after you have entered note step edit mode.

To enter note step edit mode, push and release the Steps/Part button. This should now light up. Any note sequencer steps that are switched on to play back, will now also light up on the 16 step buttons.

If the sequencer is running, the light state of each step button will be reversed, when a step is playing back.

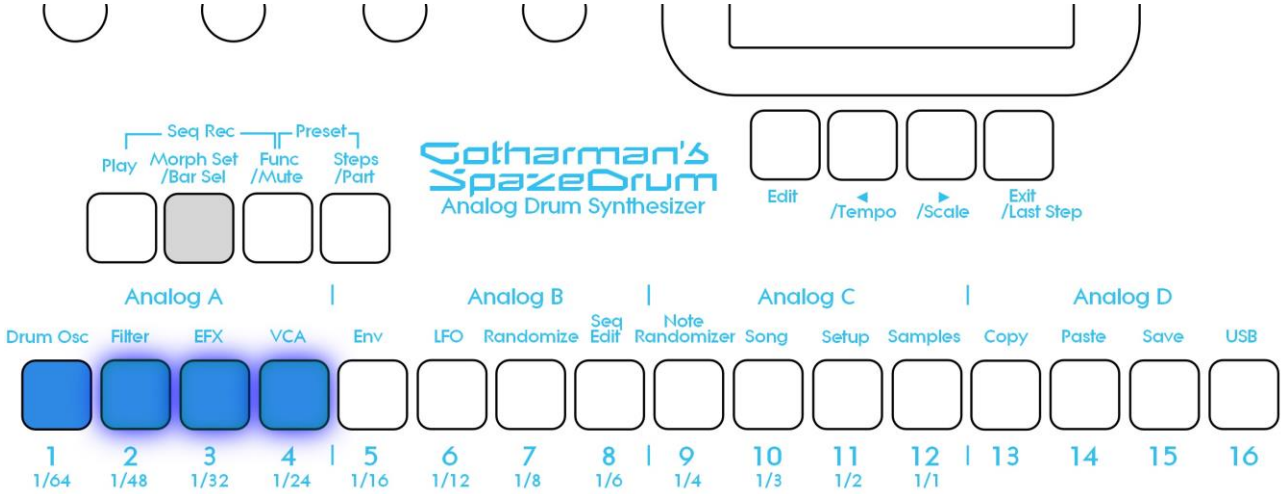
To switch a step on or off, simply hit the corresponding step button, at it will toggle its state.

When the sequencer are in recording mode (the Play button is flashing), pushing any of the step buttons, will set record mode to step mode, and select this step for recording. The step button will now flash.

When using the SpazeDrum sequencer as a usual step sequencer, the steps will play back from left to right. In this case, step 1 plays back at position 1, step 2 plays back at position 2 and so on.
On the SpazeDrum sequencer, it is though possible to break this pattern, and make each step play back on any position, using the position subtrack. But more on that later in this manual…

Only 16 steps are shown at a time. The note tracks of SpazeDrum has 64 steps. Please read on, to experience how to switch between step 1-16, 17-32, 33-48 and 49-64.

Selecting Sequencer Note Tracks and Knob Controller Tracks steps 1-16, 17-32, 33-48 and 49 to 64.



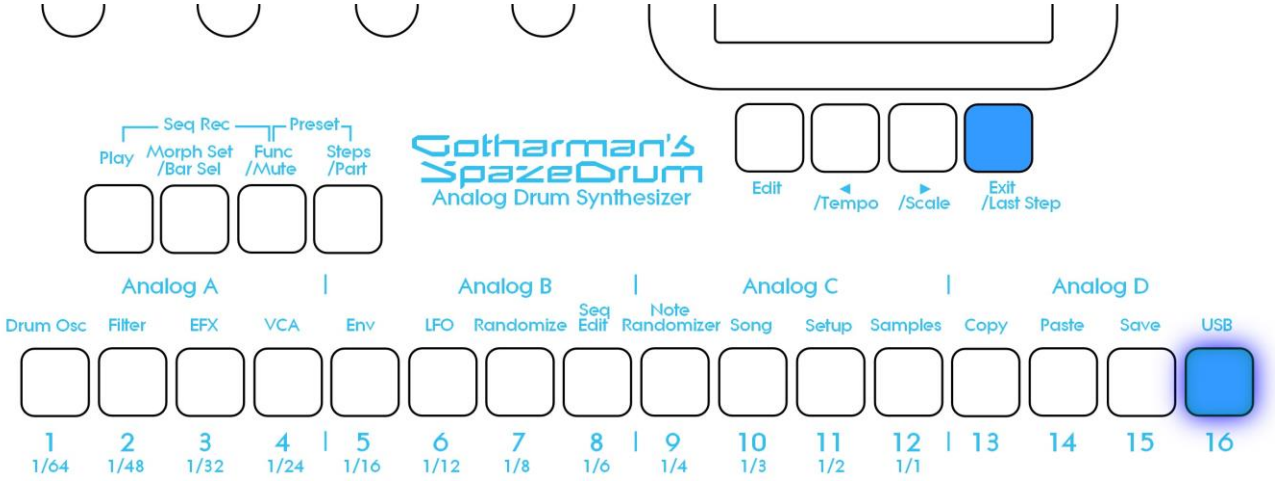
Push and hold the **Morph Set/Bar Sel** button. Now pushing step buttons 1 to 4 will select bar 1 to 4, of the currently selected track. The button of the bar that is selected, will light up. The other 3 bar select buttons will flash.

Note tracks: When you are located on any other pages, than the sequencer knob controller tracks pages, bar is selected to be viewed for a note track. The selected bar, is the bar that is shown on the step buttons, and on the note track pages.

Hit Bar Sel, so that it lights up.

Controller tracks: When you are located on any of the controller track pages, bar is selected to be viewed for the currently selected controller track. The selected bar, is the bar that is shown on the controller track pages.

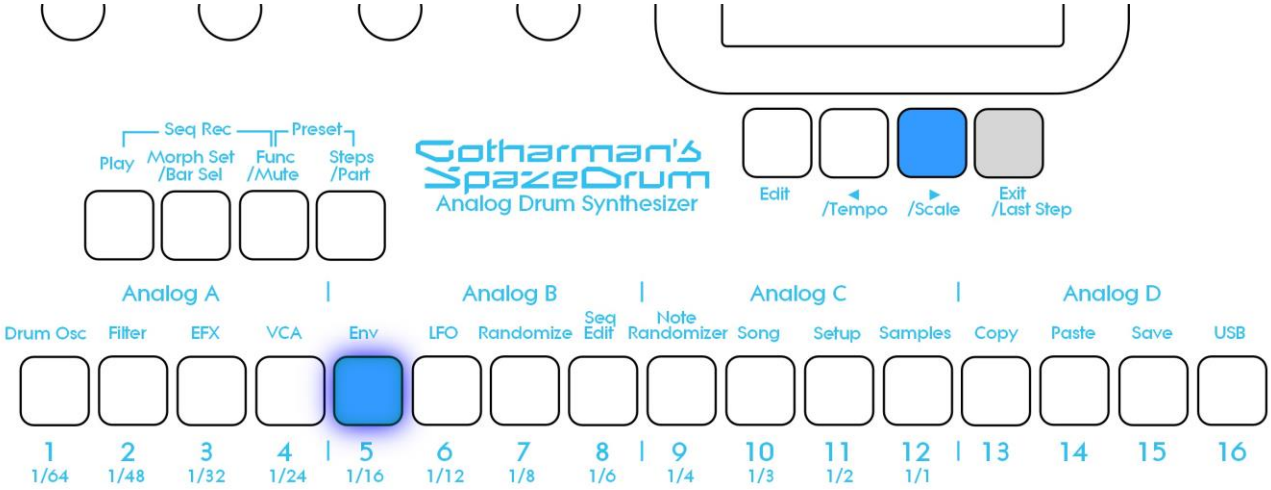
Setting the last step of a Note Track



This can be done on the Note Tracks edit pages, but it can also be done via the pushbuttons.

First, select the Bar, where you want the last step to be, as described on the previous page. Now, while on the Preset Select page, push and hold the Exit/Last Step button. If the last step of the selected note track is already located on the selected bar, this will now be shown, as a step button that lights up. Push any step button, while still holding down the Exit/Last Step button, to set the last step of the selected Note Track.

Setting the Scale/Resolution for a Note Track

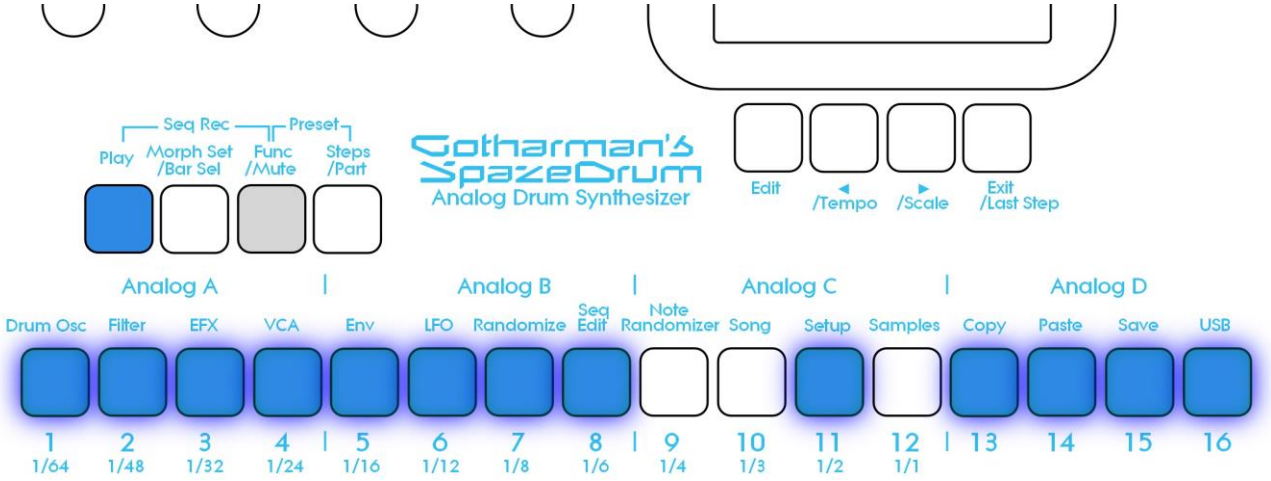


While on the Preset Select page, push and hold the Exit/Last Step button. While holding this, puch and hold the >/Scale button. Now one step button will light up, indicating the currently selected resolution for the currently selected Note Track. The resolution values is shown right below the step button numbers.

While still holding the Exit/Last Step and the >/Scale buttons, push a step button to set the desired resolution.

This can also be set as a parameter on the Note Track edit pages.

Mute/Unmute Note Tracks:



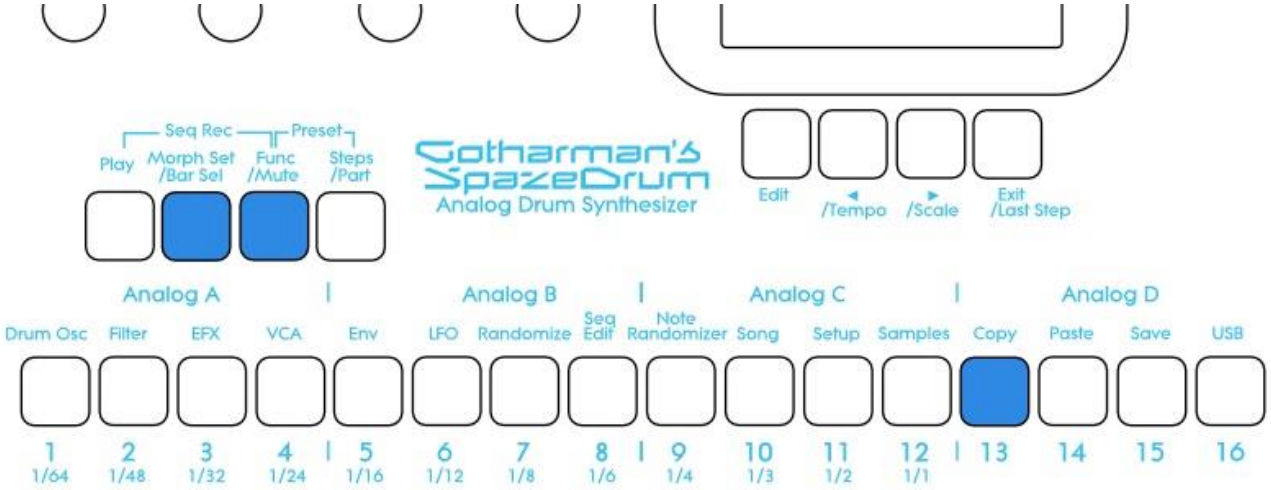
To mute, unmute or view the mute state of the 16 note tracks, push and hold the Func/Mute button.

Unmuted tracks will now be shown by a step button that is lighting up, and shortly flashes off, every time the track is triggering.

Muted tracks are shown by a step button that is unlit, and that lights up shortly, every time the track would have triggered something, if it weren't muted.

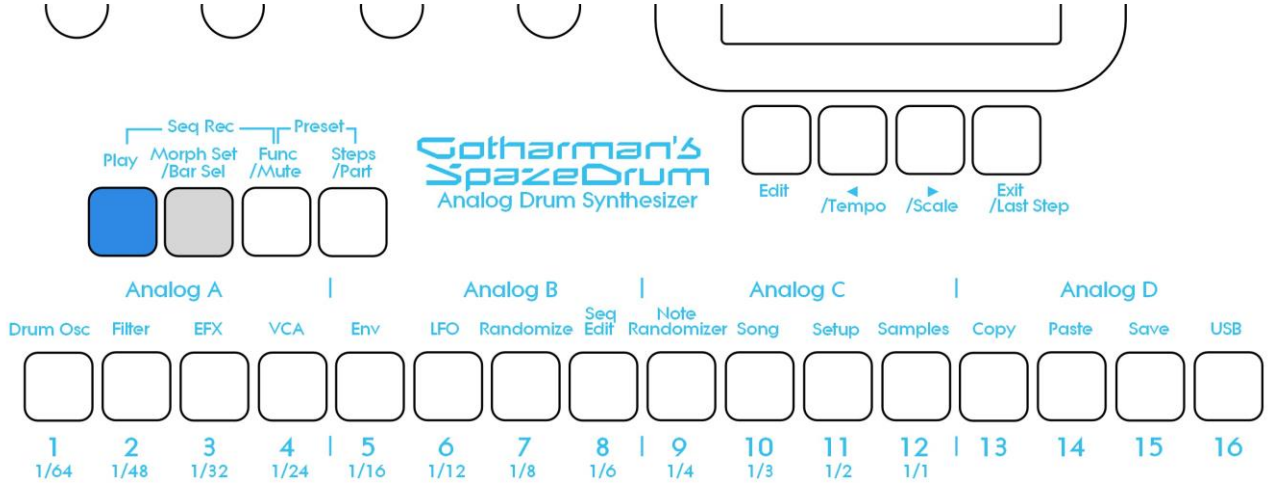
To mute or unmute a track, simply hit the corresponding step button, while still holding down the Func/Mute button.

Copy Morph Layer A to Layer B



Push and release the Func/Mute button, so that it lights up, to enter the function buttons. Now push and release step button 13 (Copy), so that this also lights up. Instructions for copy and panic will now be shown on the screen. Push and release the Morph Set button. Morph layer A synth parts and sequencer parameters has now been copied to morph layer B. If you turn the Morph knobs, you should now hear the same sound/sequence, no matter what position the knobs are in.

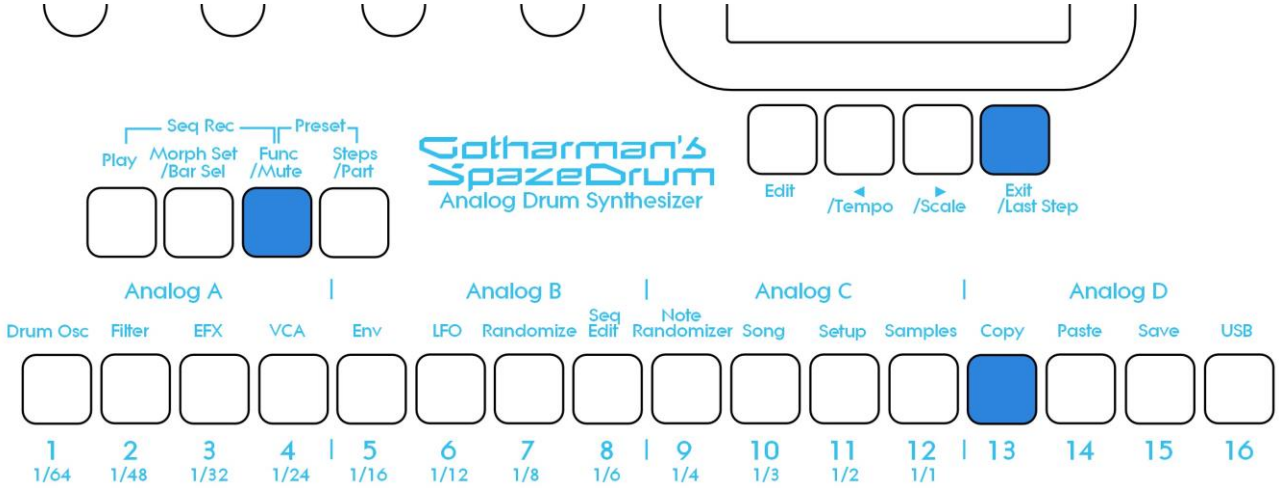
Preset Reload / Advance Song realtime record step



Push and hold the Morph Set button, while pressing the Play button, to reload the currently selected preset.

While realtime recording a song, reloading the preset, will cause the song recorder to advance to the next song step. This is useful for recording track mutes of the same preset into the song.

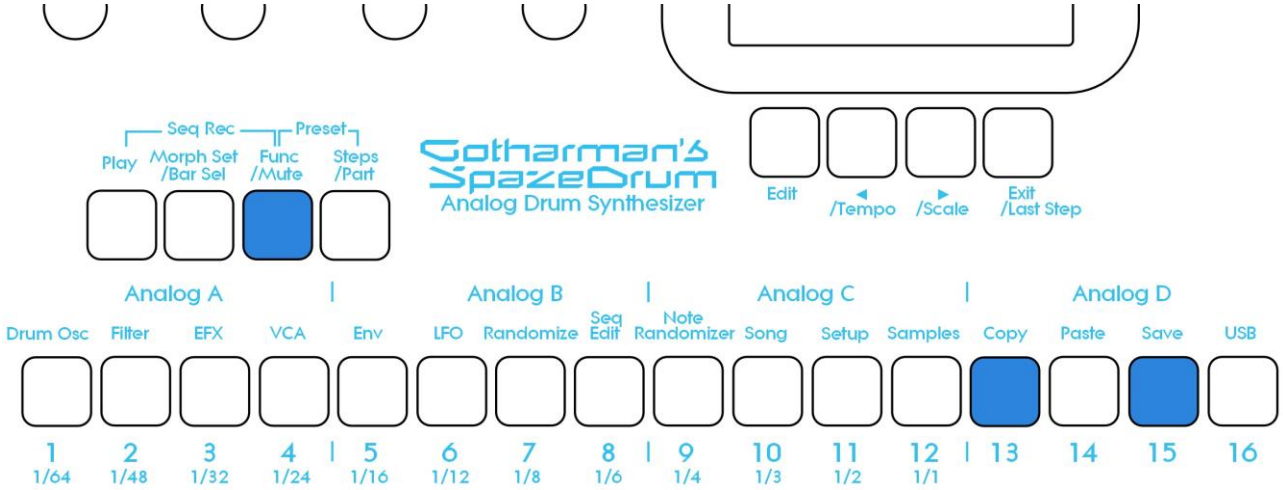
Panic



Push and release the Func/Mute button, so that it lights up, to enter the function buttons. Now push and release step button 13 (Copy), so that this also lights up. Instructions for copy and panic will now be shown on the screen. Push and release step button 16 (Exit).

Now all internal notes will be shut off.

Compare Edited Preset With Saved Preset

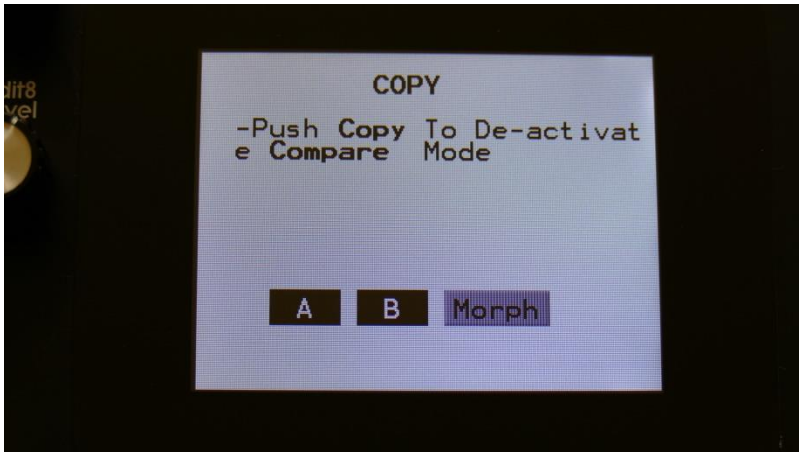


When you are editing a preset, and you would like to compare this with the originally saved preset, this is possible, using the Compare function.

To listen to the originally saved preset:
-Push and release the Func/Mute button, so that it lights up.
-Push and release step button 13 (Copy).
-Push and release step button 15 (Save).
You can now play with the previously saved preset.

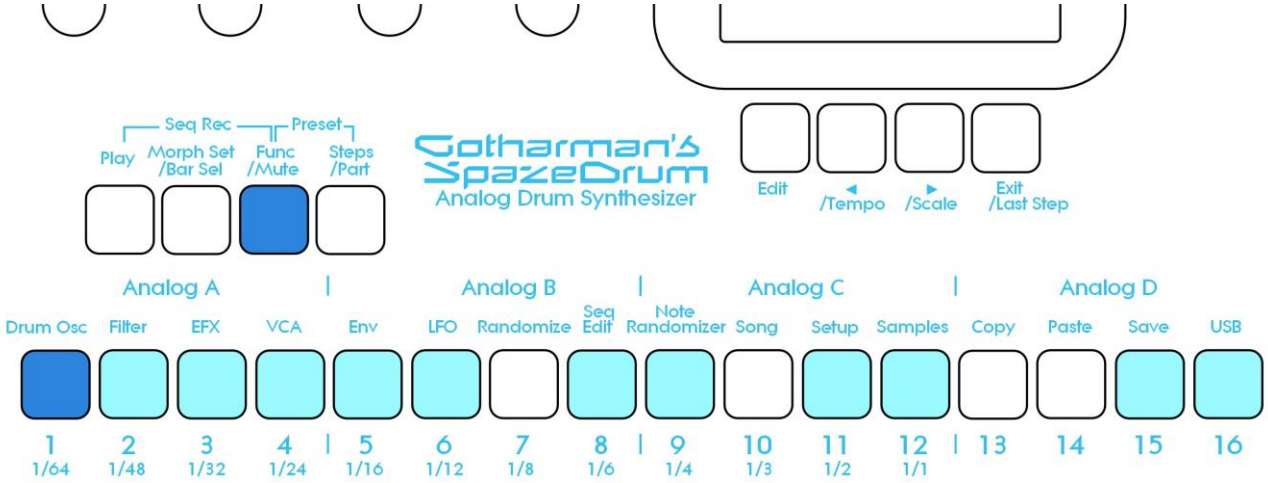
To de-active the Compare function, and jump back to the edited preset:
-Push and release the Func/Mute button, so that it lights up.
-Hit step button 15 (Save) again.

To de-activate the Compare function, and discard your edits:
-Push and release the Func/Mute button, so that it lights up.
-Hit step button 13 (Copy). The display will now show:



If you are absolutely sure, that you would like to discard your edits, hit step button 13 (Copy) again.

Shortcuts to Edit Pages



Push and release the Func/Mute button, so that it lights up. Now push and release the step button, that has the name of the edit page over it, that you wish to jump to. When pushing some of these buttons a number of times, it will toggle through a number of pages:

Drum Osc:
When in analog drum mode: Analog drum oscillators > Digital oscillator
When in Synthesizer mode: Digital drum oscillators

Filter:
When in analog drum mode: Digital filters
When in Synthesizer mode: Analog filters > Digital filters

EFX: The currently selected effect, og the currently selected analog group

VCA: VCA

Env: Envelope 1/2

LFO: Currently selected LFO

Seq Edit: Seq edit main page

Note Randomizer: The Note Randomizer page of the currently selected Note Track

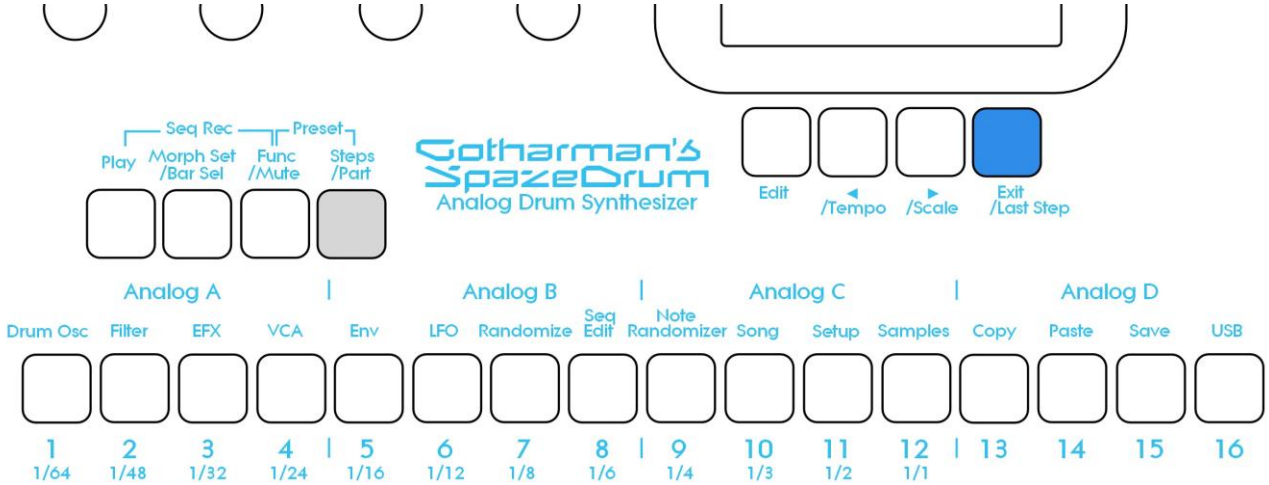
Setup: Setup main page

Samples: The sample edit pages > ReSample

Save: Save To Preset select > Save to name 1-4 > Save to name 5-8 > Save to name 9-12 > Save to name 13-16 >Saving Preset

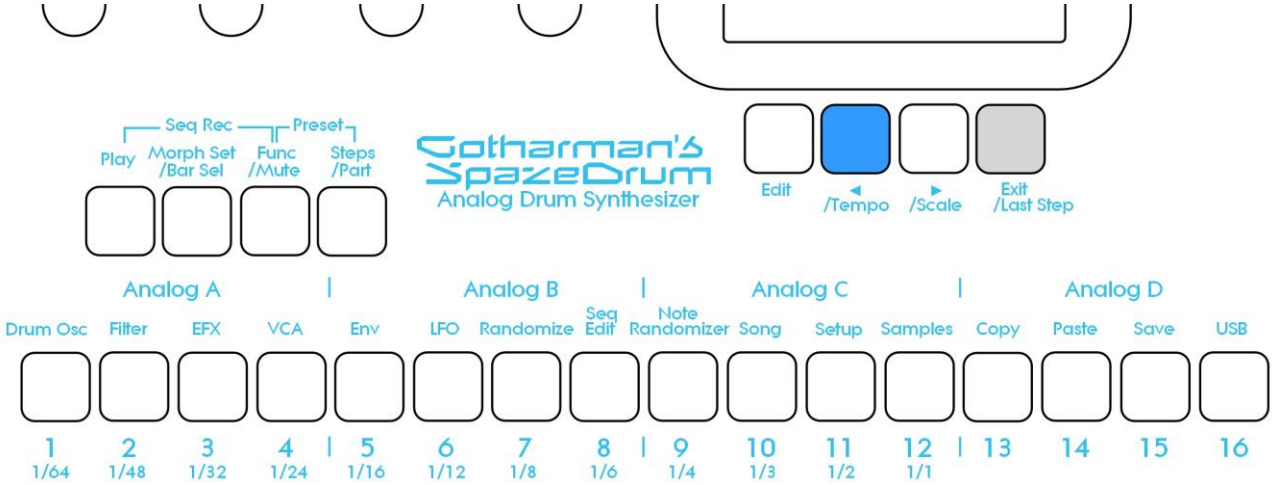
USB: USB main page

Quick Exit to the Preset Select page



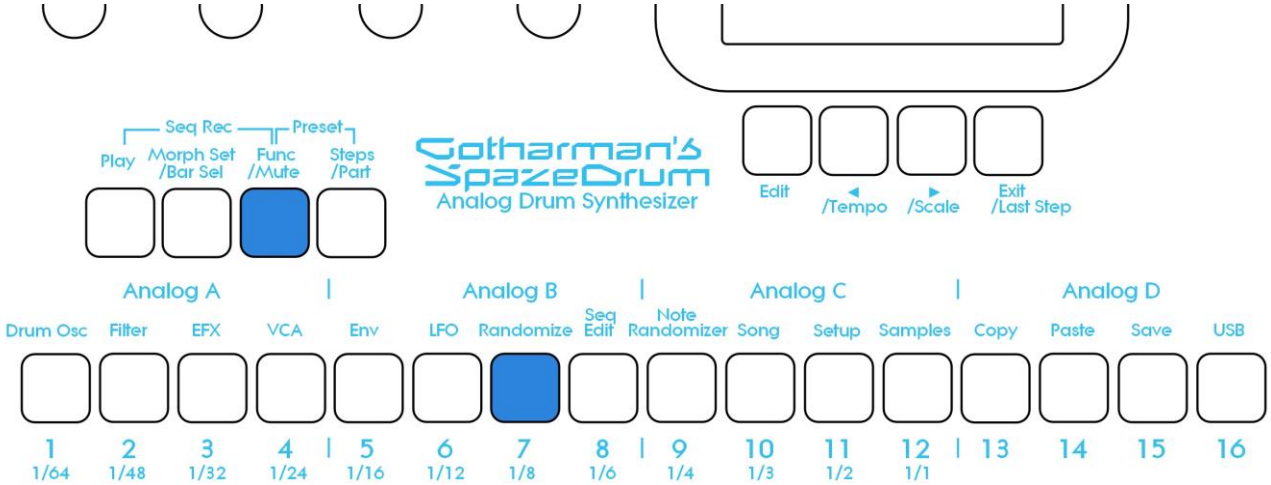
From any page, push and hold the Steps/Part button, and push the Exit/Last Step button. SpazeDrum will now jump to the Preset Select page (the main page).

Jump to Tempo page



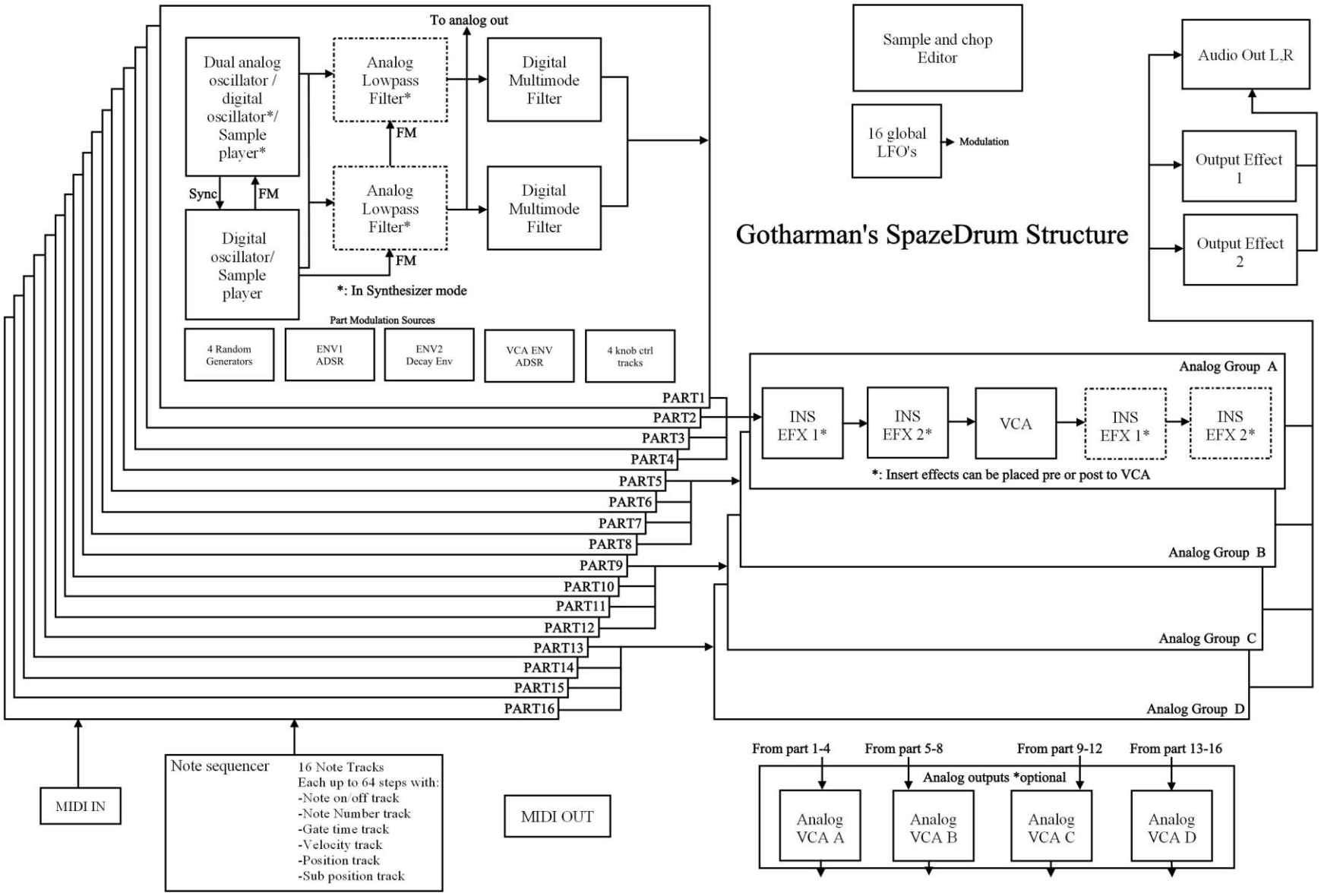
Push and hold the Exit/Last Step button, while pushing the </Tempo button. SpazeDrum will now jump to the Sequencer Main page, where the tempo can be set.

Randomize Parameters



Push and release the Func/Mute button, so that it lights up.

Hit step button 7 – Randomize. Now the 4 parameters, that you can currently adjust, using Edit Knob 1-4, will be randomized.

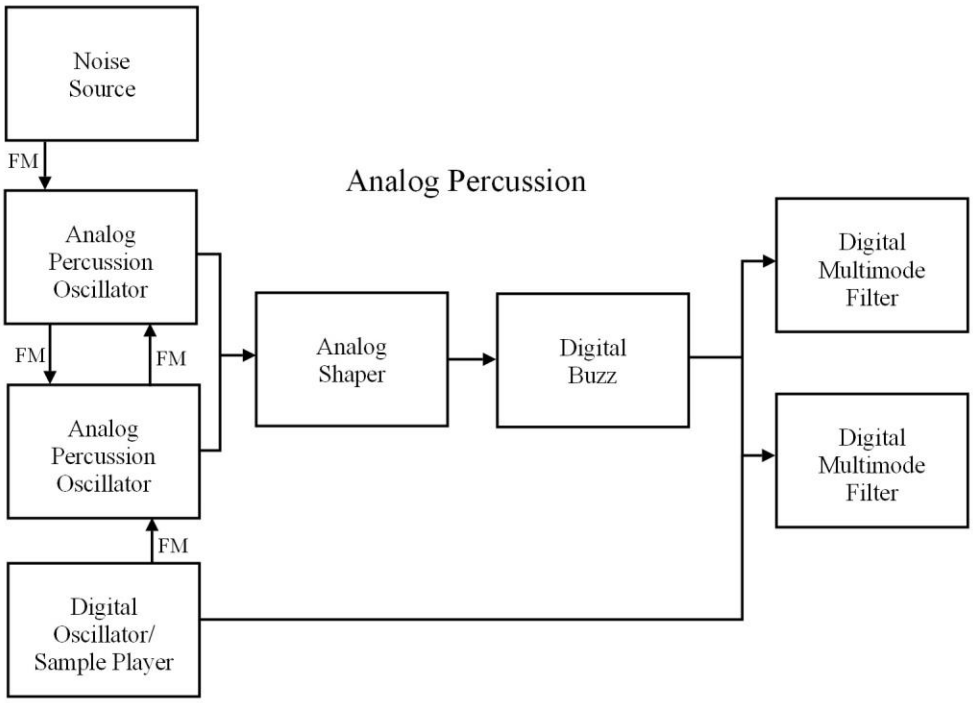

Gotharman's SpazeDrum Structure
To analog out
Dual analog oscillator / digital oscillator*/ Sample player*
Analog Lowpass Filter*
Digital Multimode Filter
FM
Sync
FM
Digital oscillator/ Sample player
Analog Lowpass Filter*
Digital Multimode Filter
FM
*: In Synthesizer mode
Part Modulation Sources
4 Random Generators
ENV1 ADSR
ENV2 Decay Env
VCA ENV ADSR
4 knob ctrl tracks
Sample and chop Editor
16 global LFO's
Modulation
Audio Out L,R
Output Effect 1
Output Effect 2
PART1
PART2
PART3
PART4
PART5
PART6
PART7
PART8
PART9
PART10
PART11
PART12
PART13
PART14
PART15
PART16
Analog Group A
INS EFX 1*
INS EFX 2*
VCA
INS EFX 1*
INS EFX 2*
*: Insert effects can be placed pre or post to VCA
Analog Group B
Analog Group C
Analog Group D
MIDI IN
Note sequencer
16 Note Tracks
Each up to 64 steps with:
-Note on/off track
-Note Number track
-Gate time track
-Velocity track
-Position track
-Sub position track
MIDI OUT
From part 1-4
From part 5-8
From part 9-12
From part 13-16
Analog outputs *optional
Analog VCA A
Analog VCA B
Analog VCA C
Analog VCA D

The Drum Synthesizer Parts

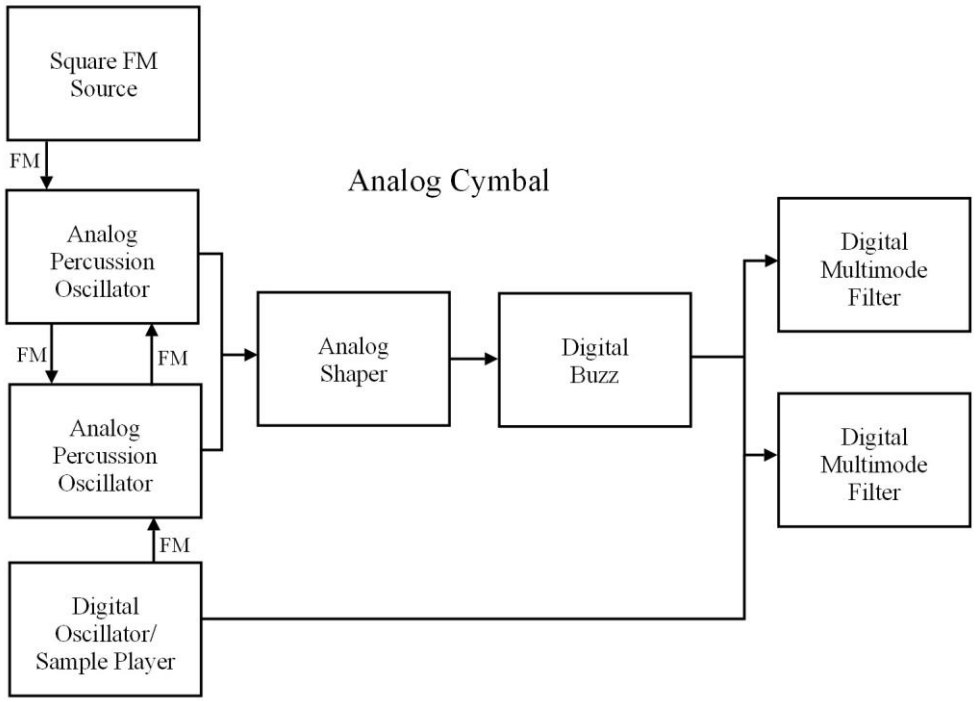
SpazeDrum has 16 parts. Each 4 parts (part 1-4, part 5-8, part 9-12 and part 13-16) forms one analog group. It is only possible for two parts in each group, to output sound at the same time -1 analog part and one digital part. If multiple parts of the same analog group is trigged at the same time, only the 2 highest numbered parts will output a sound.

Each part has:

-A drum oscillator. This can be set up in one of six different configurations:

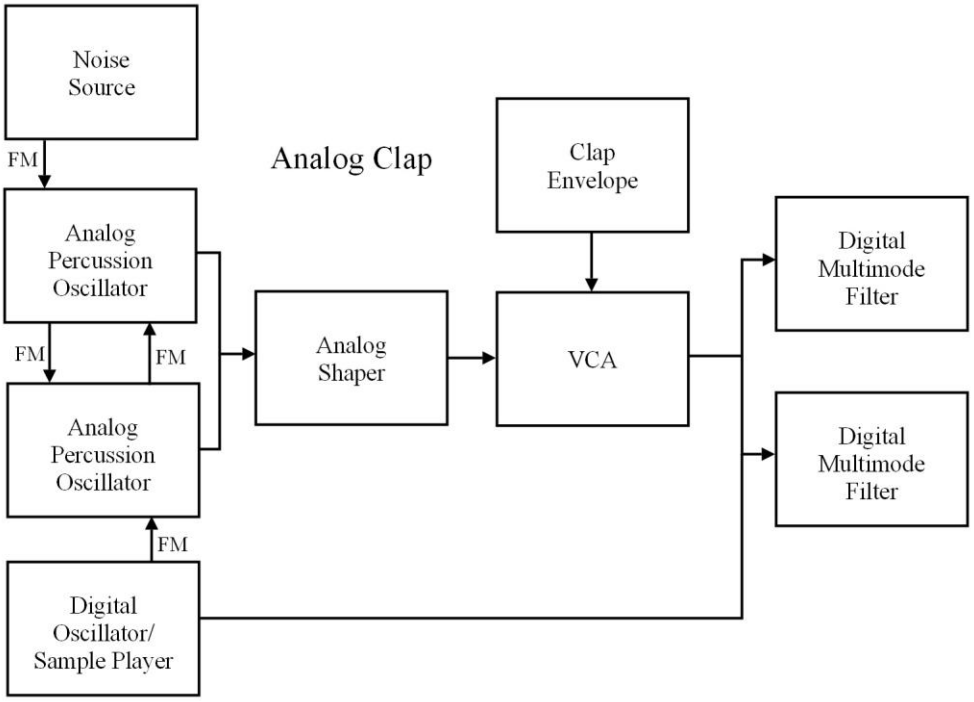


Analog Percussion
A dual analog percussion oscillator and a digital oscillator. The analog percussion oscillator has special parameters like Shape, Buzz and G-Ray feedback. The digital oscillator can run in several modes, like waveform, resonator, percussion oscillator, cymbal oscillator, clap oscillator and sampler. Each oscillator can have most parameters modulated by any modulation source. The analog percussion oscillator can be FM'ed by a percussion noise source and by the digital oscillator. Can produce kicks, snares, analog hihats, toms, claps, noise and much more...



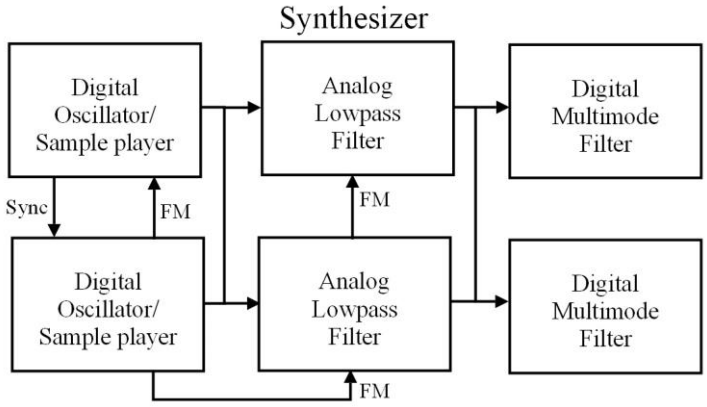
Analog Cymbal

A dual analog percussion oscillator and a digital oscillator. The analog cymbal oscillator has special parameters like Shape, Buzz and G-Ray feedback. The digital oscillator can run in several modes, like waveform, resonator, percussion oscillator, cymbal oscillator, clap oscillator and sampler. Each oscillator can have most parameters modulated by any modulation source. The analog Cymbal oscillator can be FM'ed by a multiple square wave source and by the digital oscillator. Can produce metallic sounds like cymbals and hihats, noises and much more...



Analog Clap

A dual analog percussion oscillator and a digital oscillator. The analog clap oscillator has special parameters like Shape and G-Ray feedback. The digital oscillator can run in several modes, like waveform, resonator, percussion oscillator, cymbal oscillator, clap oscillator and sampler. Each oscillator can have most parameters modulated by any modulation source. The analog Clap oscillator can be modulated by a clap oscillator, to produce the classical clap sound, and it can be FM'ed by a noise source and by the digital oscillator. Can produce hand claps, noises and more...



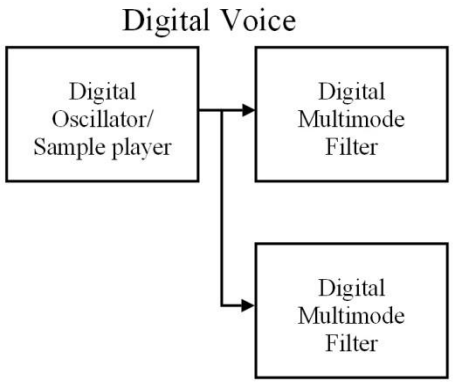
Synthesizer

2 digital oscillators, going into 2 analog lowpass filters with separate cutoff and resonance controls, and G-Ray feedback. Each of the digital oscillators can run in several modes, like waveform, resonator, percussion oscillator, cymbal oscillator, clap oscillator and sampler. Each oscillator can have most parameters modulated by any modulation source. Most analog filter parameters can also be modulated. Oscillator 1 and the analog filters can be FM'ed by Oscillator 2. Crossfade is possible between oscillator 1 and 2. Can produce a wide variety of synthesizer sounds, including drum sounds.

FM, sync and Xfade is possible between 2 oscillators.

External MIDI

The Sequencer Note Track of the part will control a MIDI device, connected to SpazeDrum MIDI out.



Digital Voice

One digital oscillator, that can run in several modes, like waveform, resonator, percussion oscillator, cymbal oscillator, clap oscillator and sampler. Most parameters of the oscillator can be modulated by any modulation source. A digital voice will not cut off an analog voice, so this is useful for adding some extra voices to your pattern.

Each part also has:
-Up to 2 digital multimode filters with resonance. 41 types.

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

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

-**4 Random Generators.** Always key trigged.

Shared between the 16 parts:

-16 LFO's with morphable waveforms.

Each part can be sent to the stereo audio outputs, the analog outputs (if installed –Only the 4 analog voices) or the 2 output effect processors

List of Modulation Sources:

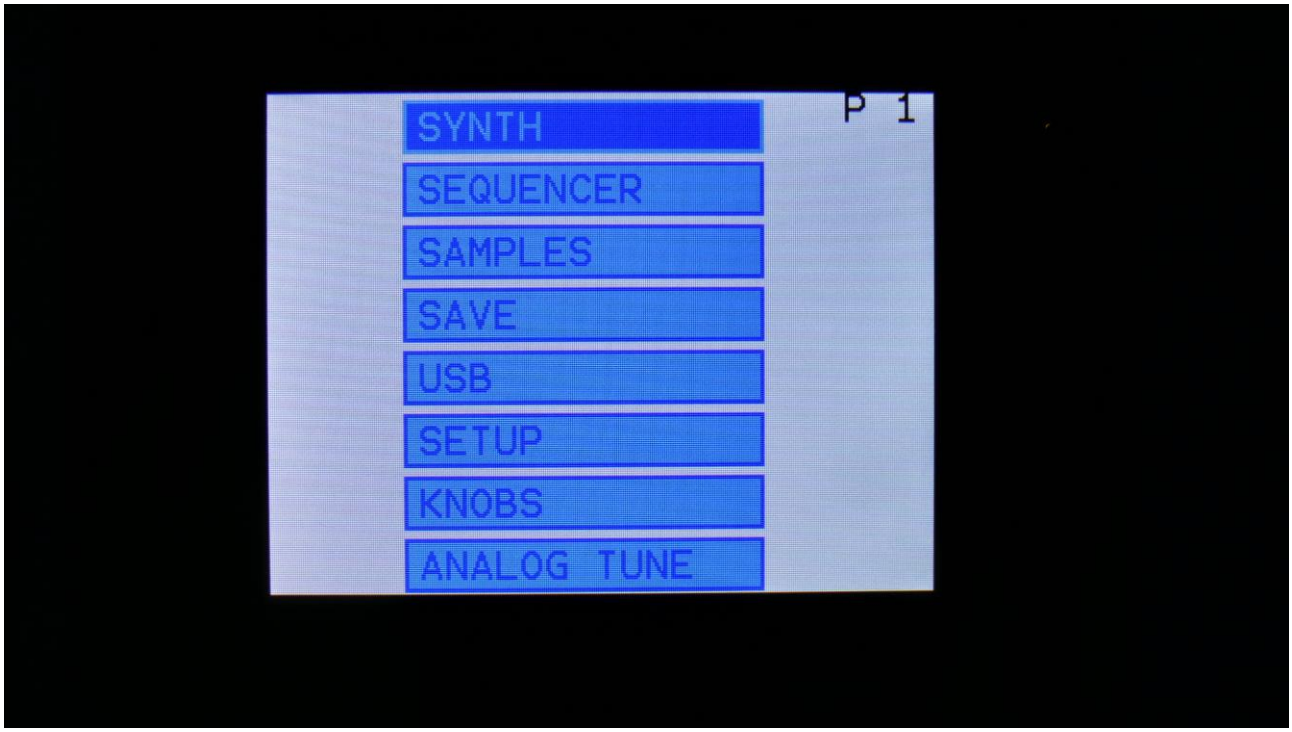
Env1: The output of ADSR Envelope 1
Env1-: The output of ADSR Envelope 1 Inverted
Env2: The output of Decay Envelope 2
Env2-: The output of Decay Envelope 2 Inverted
Aenv: The output of the VCA Envelope
Aenv-: The output of the VCA Envelope Inverted
LFO1: The output of LFO1
LFO1-: The output of LFO1 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
LFO5: The output of LFO5
LFO5-: The output of LFO5 Inverted
LFO6: The output of LFO6
LFO6-: The output of LFO6 Inverted
LFO7: The output of LFO7
LFO7-: The output of LFO7 Inverted
LFO8: The output of LFO8
LFO8-: The output of LFO8 Inverted
LFO9: The output of LFO9
LFO9-: The output of LFO9 Inverted
LFO10: The output of LFO10
LFO10-: The output of LFO10 Inverted
LFO11: The output of LFO11
LFO11-: The output of LFO11 Inverted
LFO12: The output of LFO12
LFO12-: The output of LFO12 Inverted
LFO13: The output of LFO13
LFO13-: The output of LFO13 Inverted
LFO14: The output of LFO14
LFO14-: The output of LFO14 Inverted
LFO15: The output of LFO15
LFO15-: The output of LFO15 Inverted

LFO16: The output of LFO16
LFO16-: The output of LFO16 Inverted
Rnd1: The output of Part Random Generator 1
Rnd1-: The output of Part Random Generator 1 Inverted
Rnd2: The output of Part Random Generator 2
Rnd2-: The output of Part Random Generator 2 Inverted
Rnd3: The output of Part Random Generator 3
Rnd3-: The output of Part Random Generator 3 Inverted
Rnd4: The output of Part Random Generator 4
Rnd4-: The output of Part Random Generator 4 Inverted
Knb1: Edit knob 1 or Knob Ctrl Trk1 value or the last Knob MIDI CC value received
Knb1-: Edit knob 1 or Knob Ctrl Trk1 value or the last Knob MIDI CC value received Inverted
Knb2: Edit knob 2 or Knob Ctrl Trk2 value or the last Knob MIDI CC value received
Knb2-: Edit knob 2 or Knob Ctrl Trk2 value or the last Knob MIDI CC value received Inverted
Knb3: Edit knob 3 or Knob Ctrl Trk3 value or the last Knob MIDI CC value received
Knb3-: Edit knob 3 or Knob Ctrl Trk3 value or the last Knob MIDI CC value received Inverted
Knb4: Edit knob 4 or Knob Ctrl Trk4 value or the last Knob MIDI CC value received
Knb4-: Edit knob 4 or Knob Ctrl Trk4 value or the last Knob MIDI CC value received Inverted
Velo: The last note velocity value received for the part
Velo-: The last note velocity value received for the part Inverted
CC3: The last MIDI CC 3 value received
CC3-: The last MIDI CC 3 value received Inverted
CC4: The last MIDI CC 4 value received
CC4-: The last MIDI CC 4 value received Inverted
CC5: The last MIDI CC 5 value received
CC5-: The last MIDI CC 5 value received Inverted
CC6: The last MIDI CC 6 value received
CC6-: The last MIDI CC 6 value received Inverted

Accessing Drum Synthesizer Part Pages

From the Preset/Song Select page, push the Edit button right below the display.

Now SpazeDrum will show the main groups page:

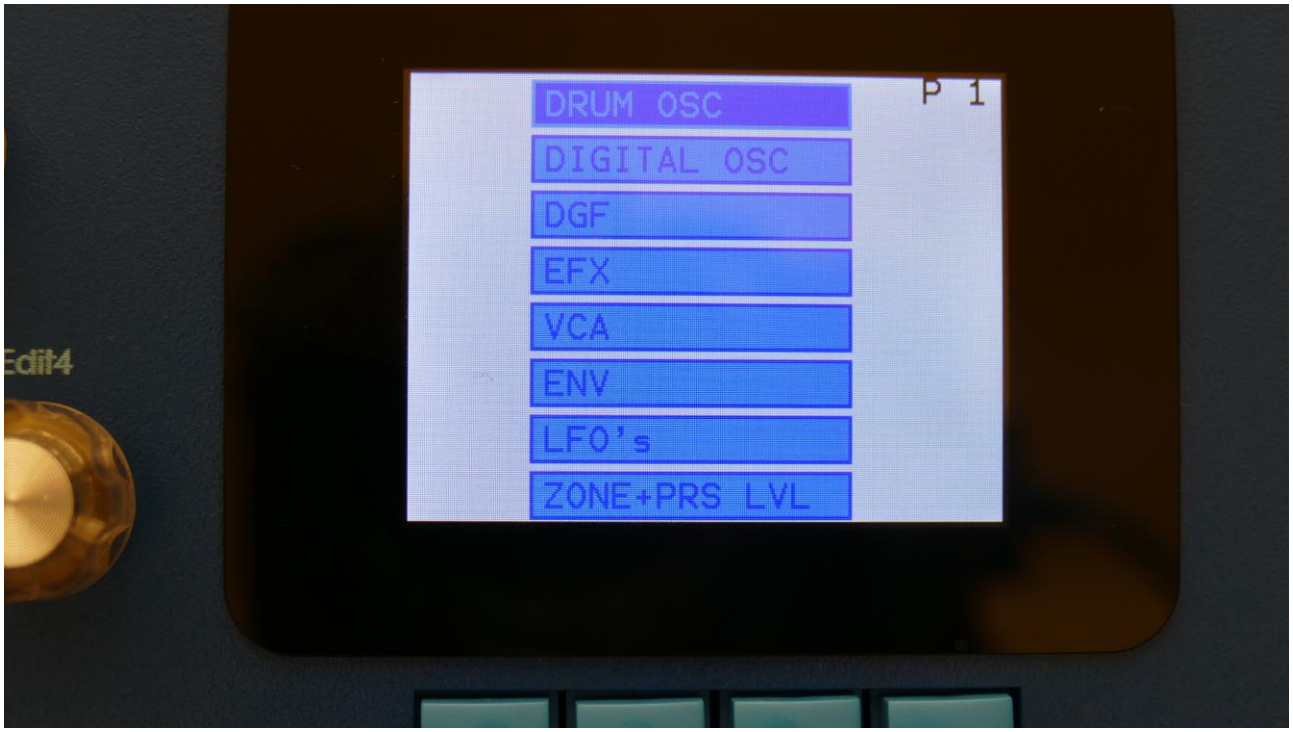


From here you can enter the different SpazeDrum edit groups. Select the boxes by navigating up and down, using the < and > buttons right below the display. When you have selected the right box, hit the Edit button, to enter the edit group. Exit to the Preset Select page, by pushing the Exit button. On SpazeDrum Black it is also possible to enter any of these menus, by touching the box.

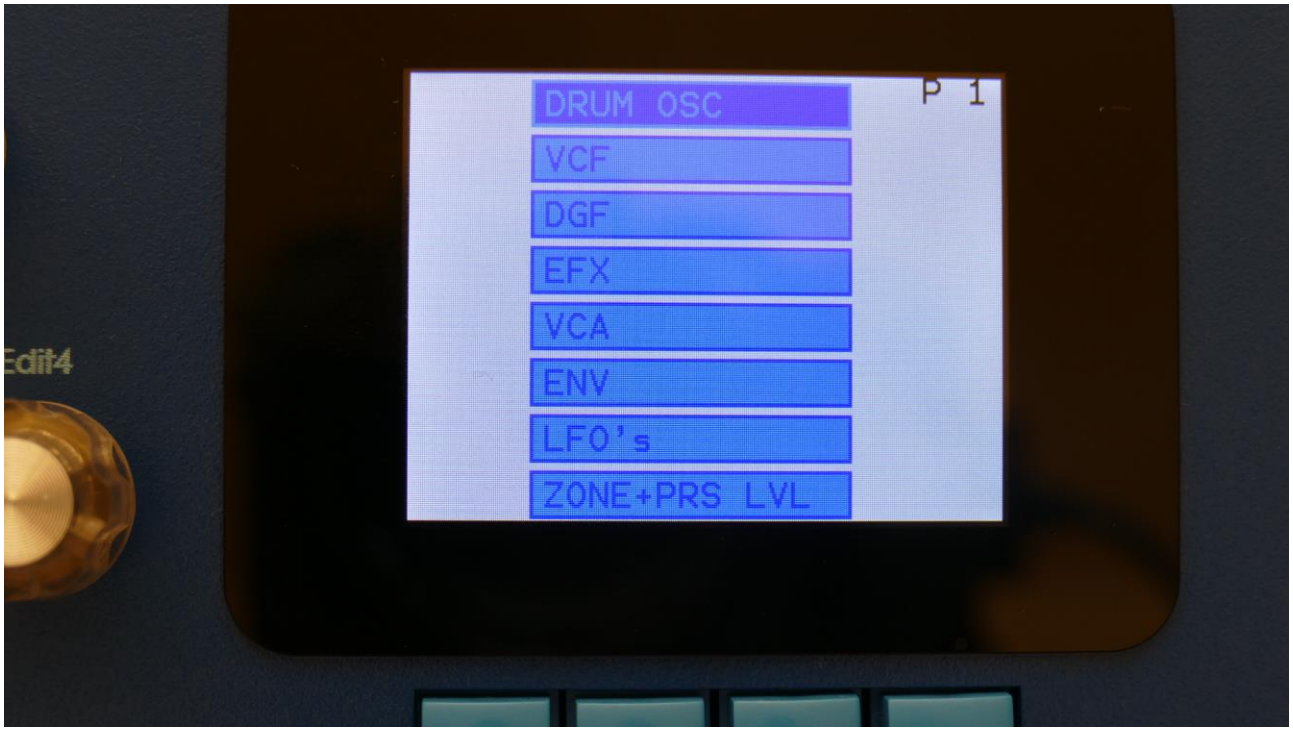
In the top right corner of this page, the currently selected part number is shown.

Since this chapter is describing the drum synthesizer, we will just leave the SYNTH box selected, and hit the Edit button.

Now SpazeDrum will show another group of boxes. If the selected part is in an analog drum mode, the boxes will look like this:



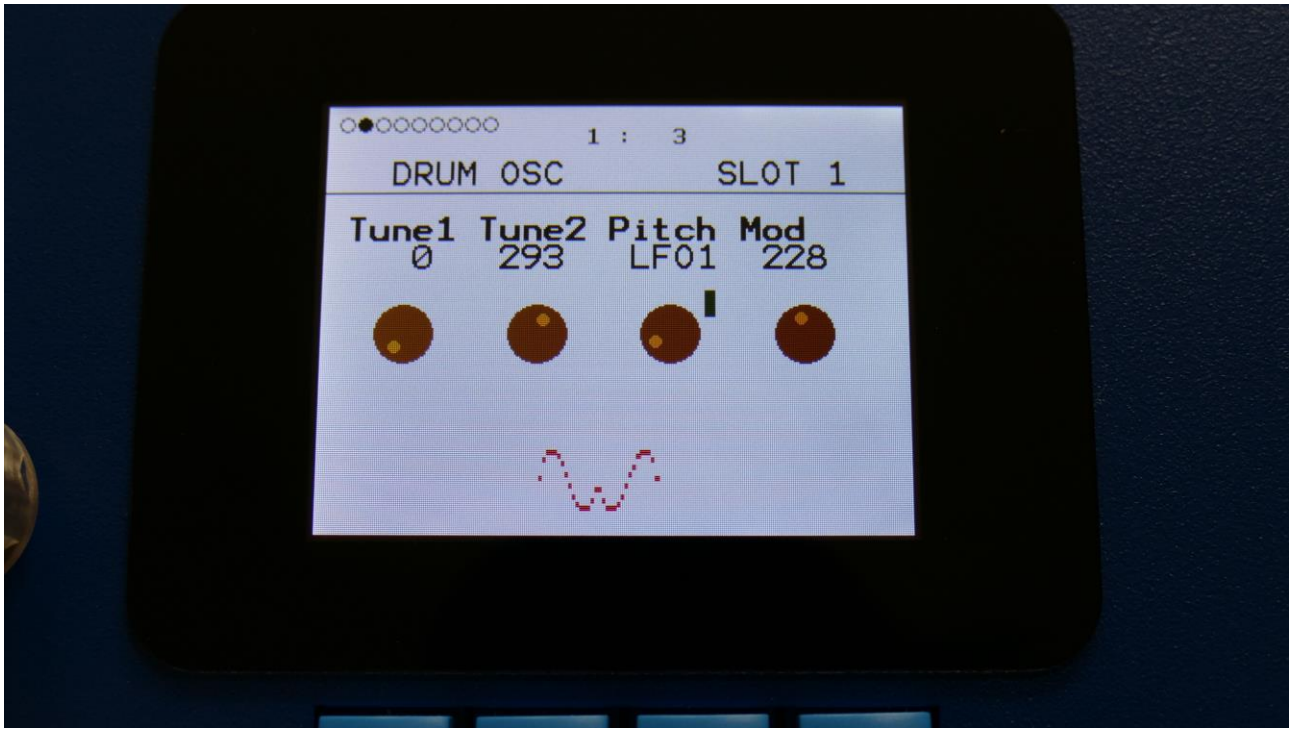
If the part is in Synthesizer mode, the boxes will look like this:



If the part is in Digital Voice mode, the boxes will look like this:

The boxes on these pages show the different “modules” of the drum synthesizer. Select the module you would like to edit, using the < and > buttons, or by touching a module on SpazeDrum Black. Enter the module by pushing the Edit button, exit by pushing the Exit button.

When entering a module, it might look something like this:



Most module pages show 4 parameters at a time. These can be adjusted by turning the 4 Edit Knobs.

The row of small circles in the top left of these pages, shows that the module has multiple pages. Navigate through the pages, by pushing the < and > buttons. On some pages, the Edit button has a function. Pushing the Exit button, or touching the screen on SpazeDrum Black, will make it jump back to the drum synth group of boxes.

The “SLOT” number shows which part is selected.

Part 1 to 16 is selected by holding down the Steps/Part button and pushing a step button, as explained in the “Operating SpazeDrum” chapter.

The Drum Synth pages can also be accessed, using pushbutton shortcuts, as explained in the “Operating SpazeDrum” chapter.

The Drum Synthesizer Modules

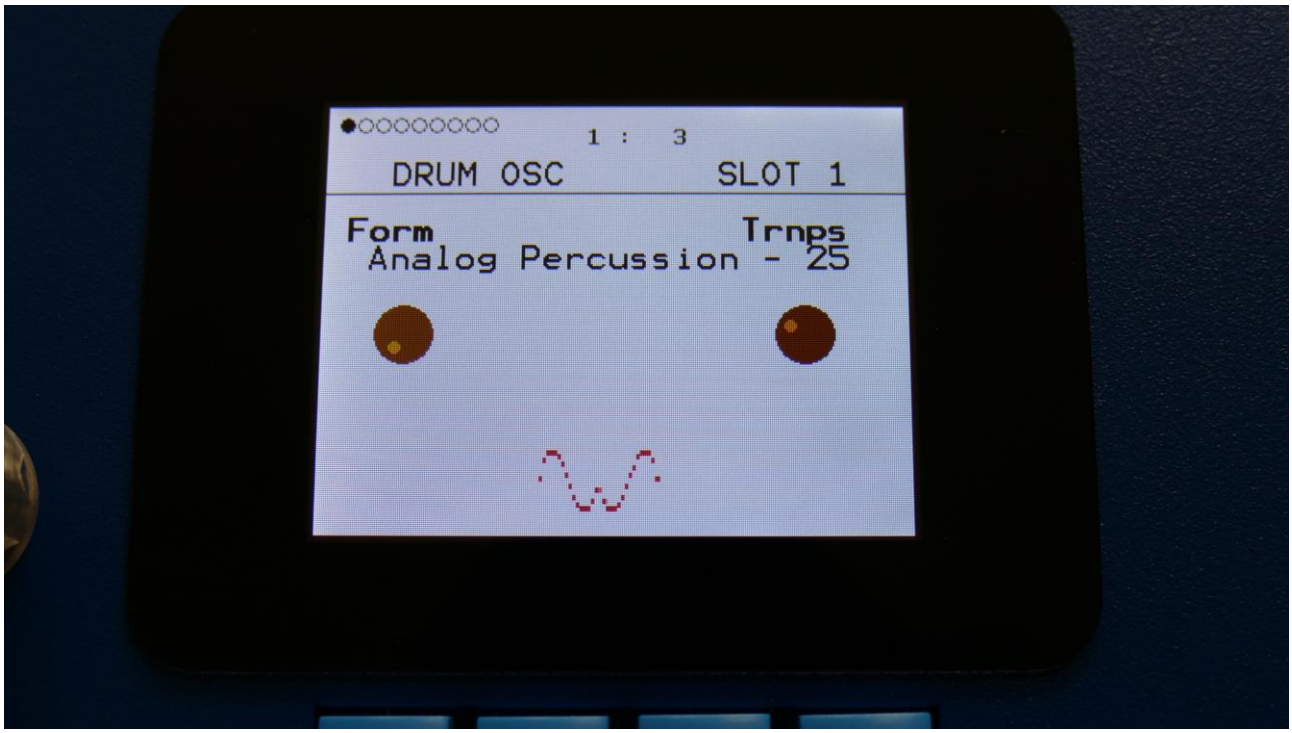
In this section of the manual, you will find a description of the parameters of each part, and the parameters related to the LFO's and the effects processors.

Drum Oscillator

The oscillators are the first blocks in the audio chain of a part. These are responsible for generating the basic sound of each part, that can be modulated, filtered and effected, for shaping a sound.

A SpazeDrum drum oscillator can be set to various analog and digital sound generating modes, explained in the beginning of this chapter.

The first Drum Oscillator page:



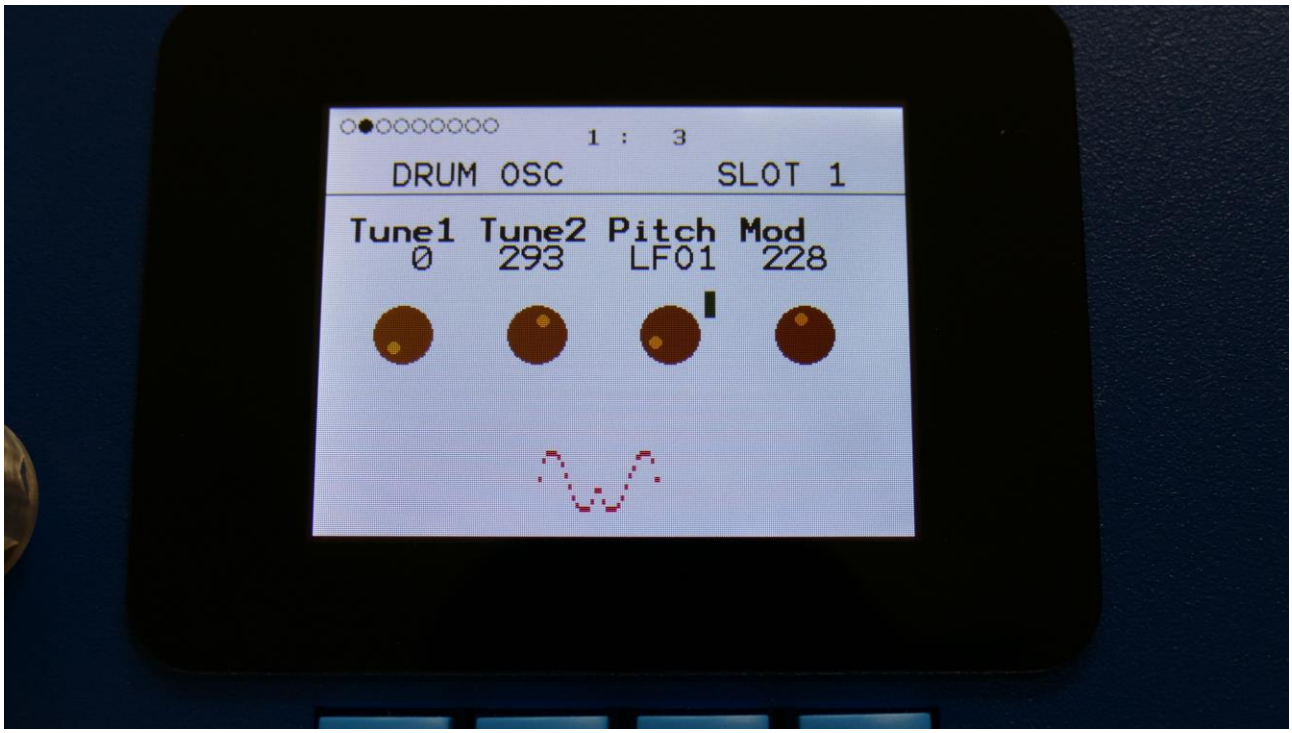
Form: Sets the Drum Oscillator mode. Choices are: Analog Percussion, Analog Cymbal, Analog Clap, Synthesizer, External MIDI and Digital Voice. Please find each of these modes explained in the beginning of this chapter.

Trnps: Transpose. Transposes the whole part up or down in semitones, as indicated by the settable number. Please notice, that in order to make the analog oscillators transpose, the "Atune" parameter, explained later in this module, must be turned up.

Parameters in Analog Percussion Mode

The drum oscillator has a different set of parameters, depending on which mode it is in. At first, the parameters for the Analog Percussion mode will be explained.

From the first drum oscillator page, hit the > button, to enter the next page:

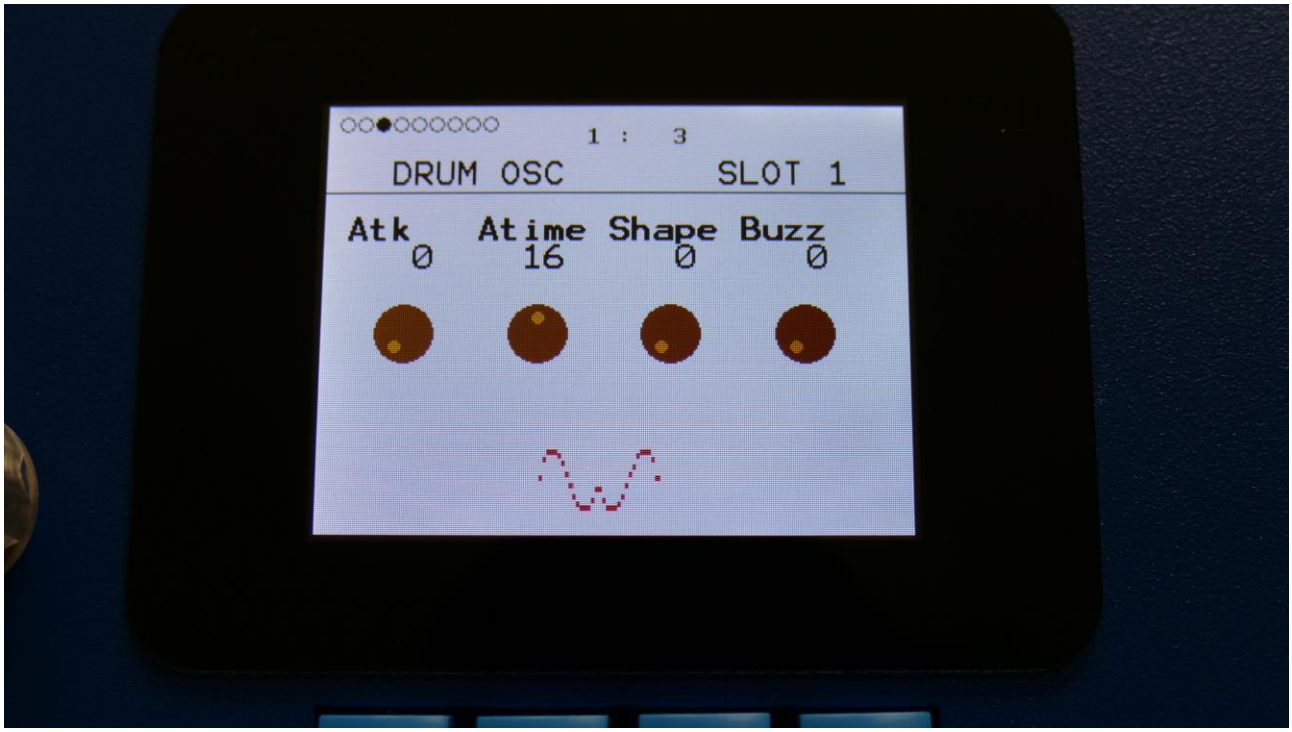


Tune1: Sets the pitch of analog percussion oscillator 1.

Tune2: Sets the pitch of analog percussion oscillator 2.

Pitch Mod: Select the pitch modulation source, and set the amount. The pitch modulation can either affect both analog percussion oscillators, one of them, or one inverted to the other. This can be set by the Pmod parameter, explained a little bit later in this module.

Hit the > button again, to enter the next page:



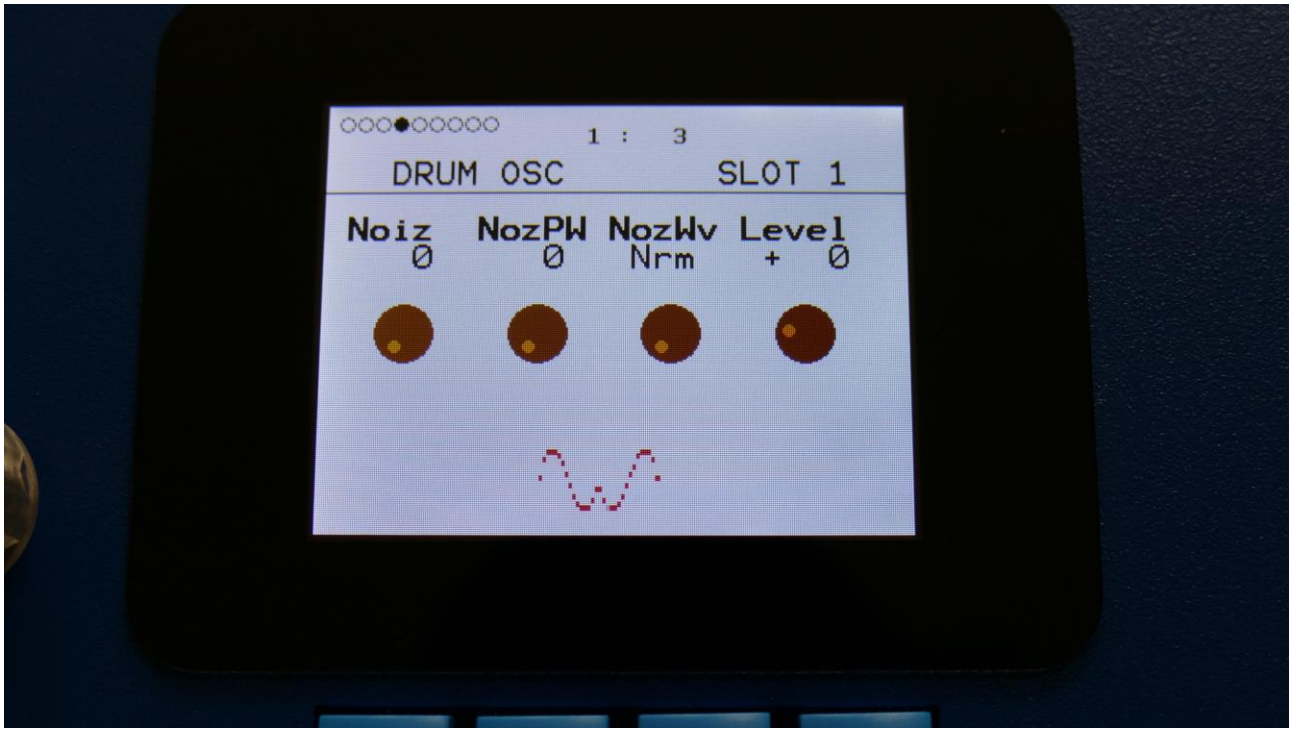
Atk: Attack. Adds a short boost to the sound, simulating a drumstick hitting the drum.
Tip: For analog style kick drum sounds, use this in combination with an envelope modulating the Noise parameter, for creating a good analog attack.

Atime: Attack time. Sets for how long the attack boost should last.

Shape: Turning this up, will add a bit of character to the analog percussion oscillators.

Buzz: Turning this up, will add buzz to snare and other noisy sounds. When added to kick, toms and other non-noisy sounds, it will sound like distortion.

Hit the > button again, to enter the next page:



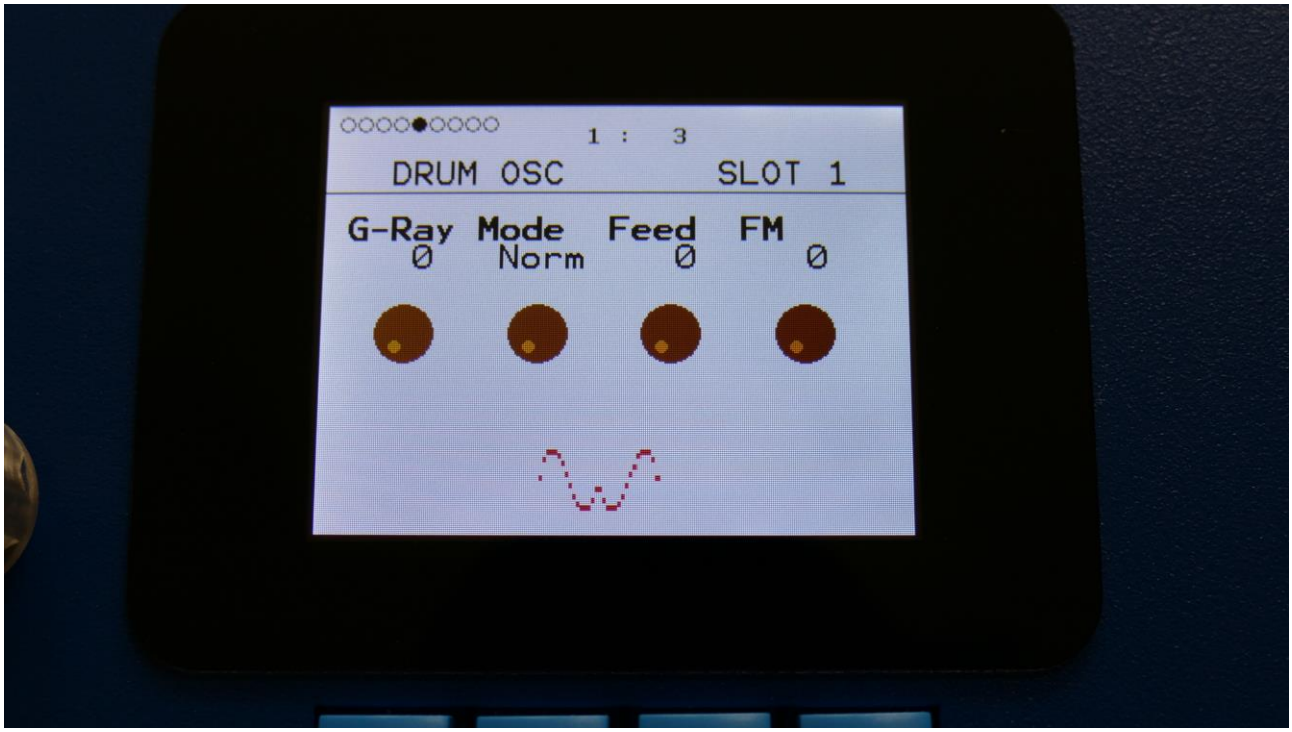
Noiz: Set the amount of noise FM applied to the analog percussion oscillators. Useful for snare drums, hihats and other noisy sounds.

NozPW: Noise waveform intensity.

NozWv: Noise waveform select. Normal (Nrm), squared (Squ), Ring Modulated (RiV), Ring Modulated squared (RiP), Metal (Met) or ring modulated metal (RiM).

Level: Sets the output level of the analog percussion oscillators. Negative values attenuates the signal, positive values gains the signal.

Hit the > button again, to enter the next page:



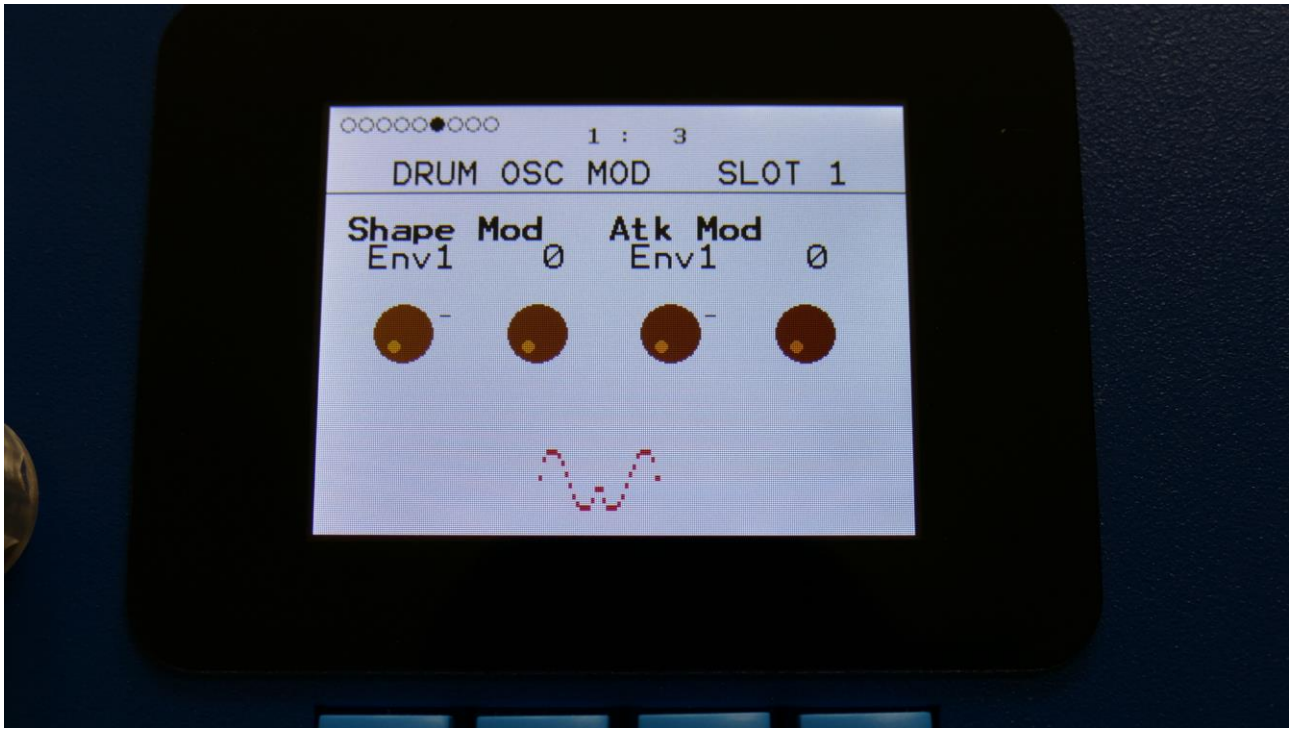
G-Ray: Adjusts the amount of g-RAY intermodulation for the analog percussion oscillators. 0: no intermodulation, 3: max intermodulation. 4-7 generates a softer G-Ray intermodulation. Range: 0 to 7.

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: 0 to 511. G-Ray feedback level.

FM: Sets how much the digital oscillator should modulate the analog percussion oscillators.

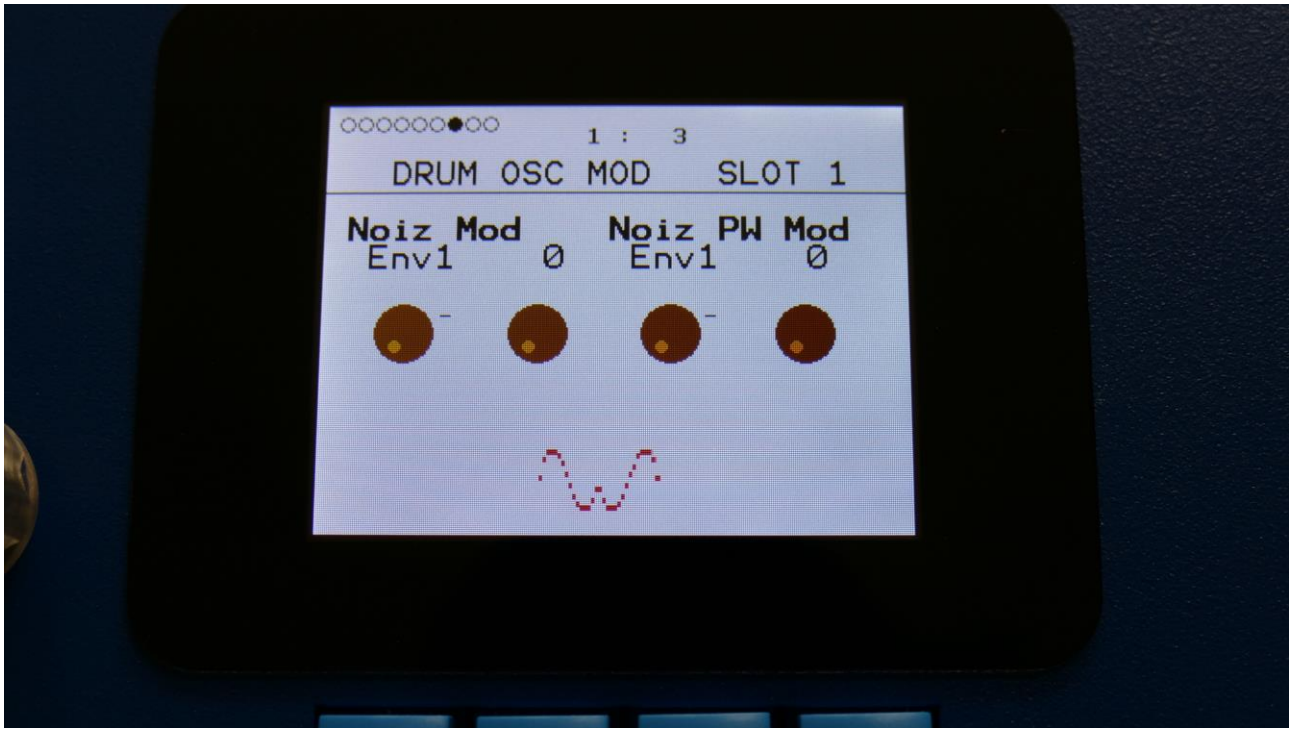
Hit the > button again, to enter the next page:



Shape Mod: Select a modulation source and adjust the amount of modulation for the Shape parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Atk Mod: Select a modulation source and adjust the amount of modulation for the Attack parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

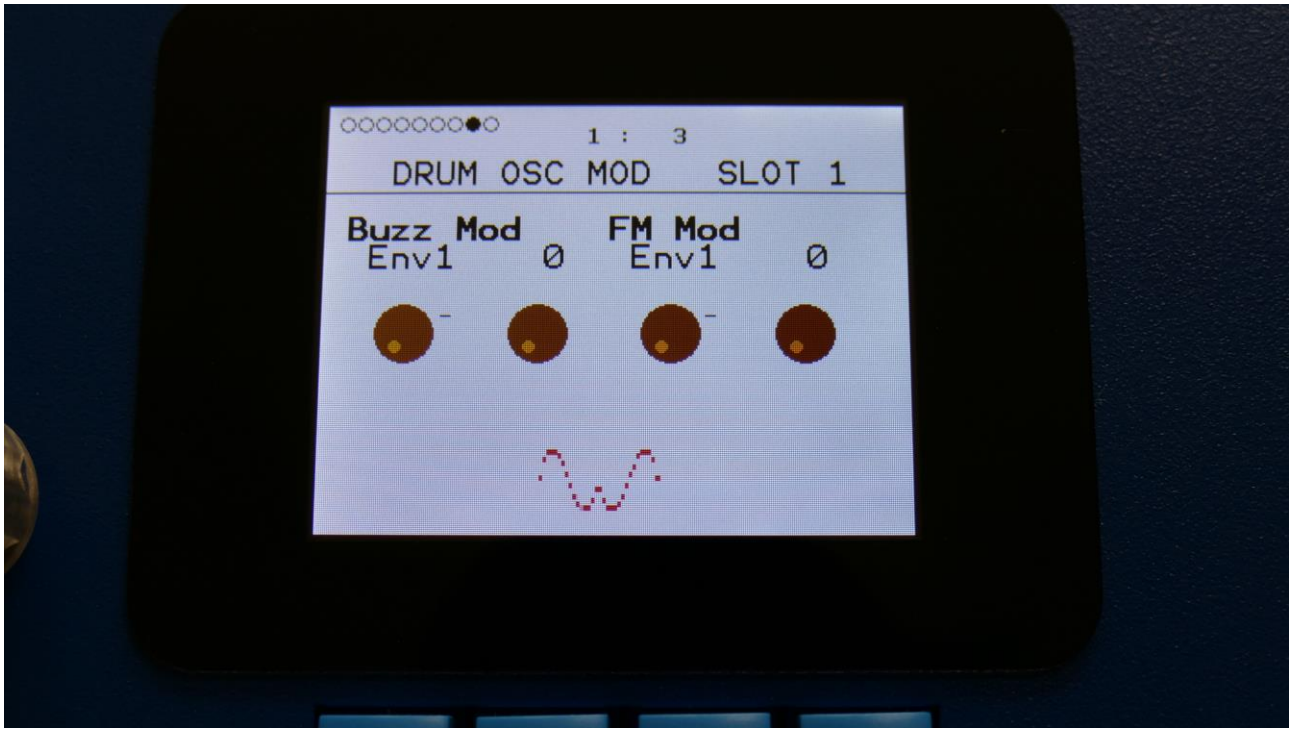
Hit the > button again, to enter the next page:



Noiz Mod: Select a modulation source and adjust the amount of modulation for the Noiz parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.
TIP: Modulate this parameter by an envelope, to get the classic analog attack sound.

Noiz PW Mod: Select a modulation source and adjust the amount of modulation for the NoizPW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

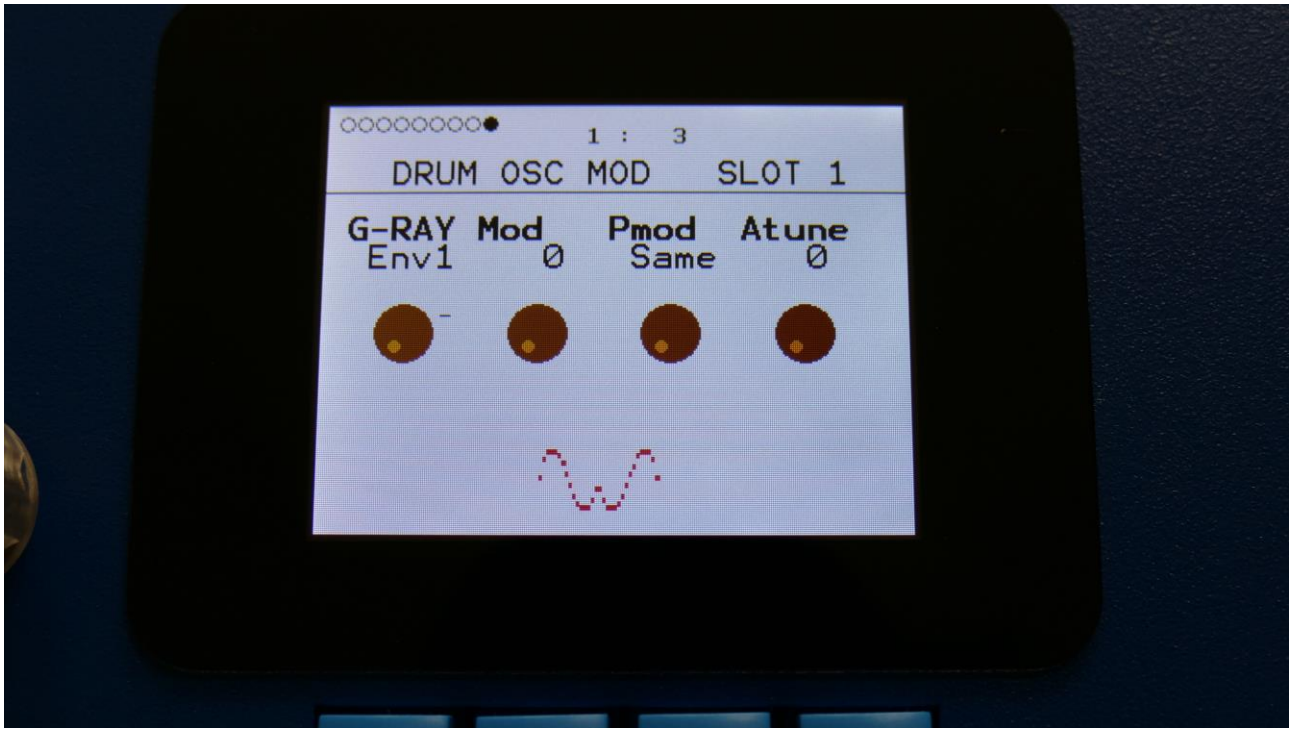
Hit the > button again, to enter the next page:



Buzz Mod: Select a modulation source and adjust the amount of modulation for the Buzz parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

FM Mod: Select a modulation source and adjust the amount of modulation for the FM (amount) parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:

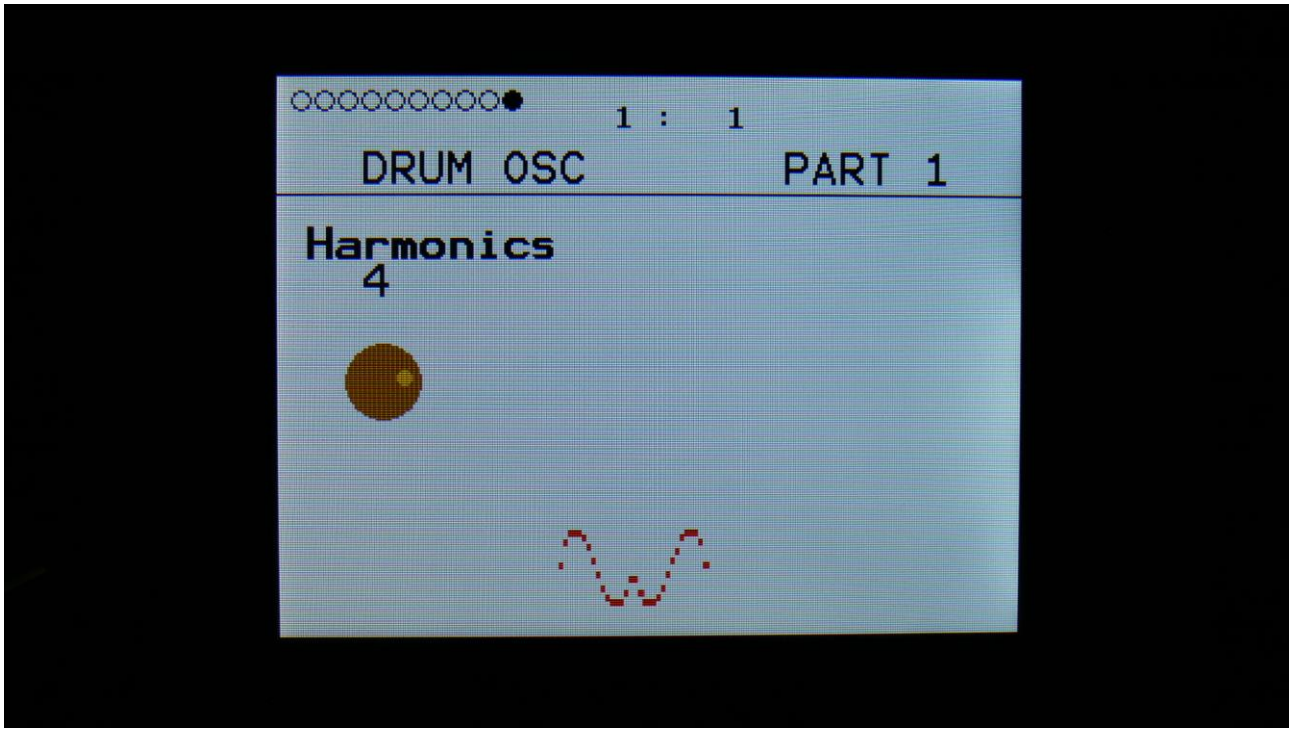


G-RAY Mod: Select a modulation source and adjust the amount of modulation for the G-Ray Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pmod: Select if the pitch modulation for the 2 analog percussion oscillators should be the same (same), inverted to each other (Inv), or if it should only be applied to one of them (1only or 2only).

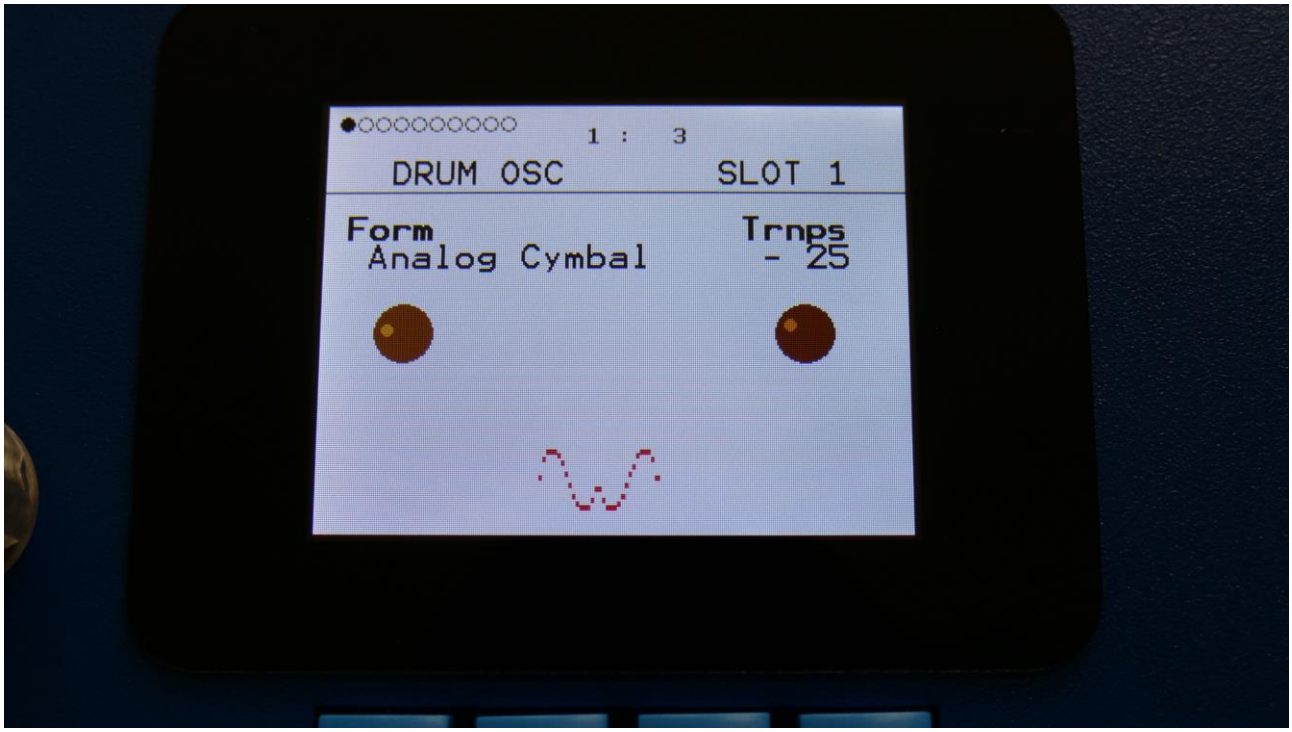
Atune: Turning this up, will make the Transpose parameter and pitch changes from the sequencer note tracks affect the analog percussion oscillators.

Hit the > button again, to enter the next page (This page is on SpazeDrum Black only):



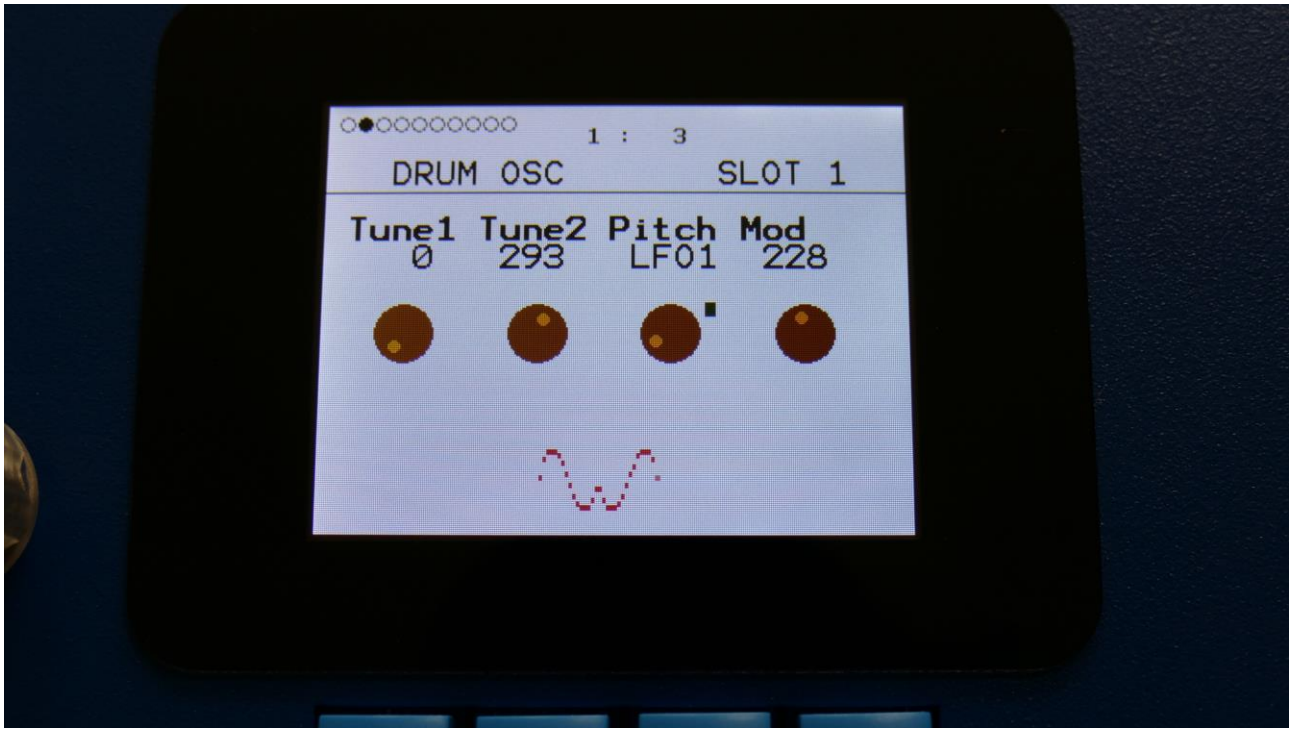
Harmonics: Range 1 to 4. If set to 2 or higher, more harmonics is added to the analog percussion waves.

Parameters in Analog Cymbal Mode



I this sub chapter, the parameters available, when the drum oscillators are in Analog Cymbal mode, will be explained.

From the first drum oscillator page, hit the > button, to enter the next page:

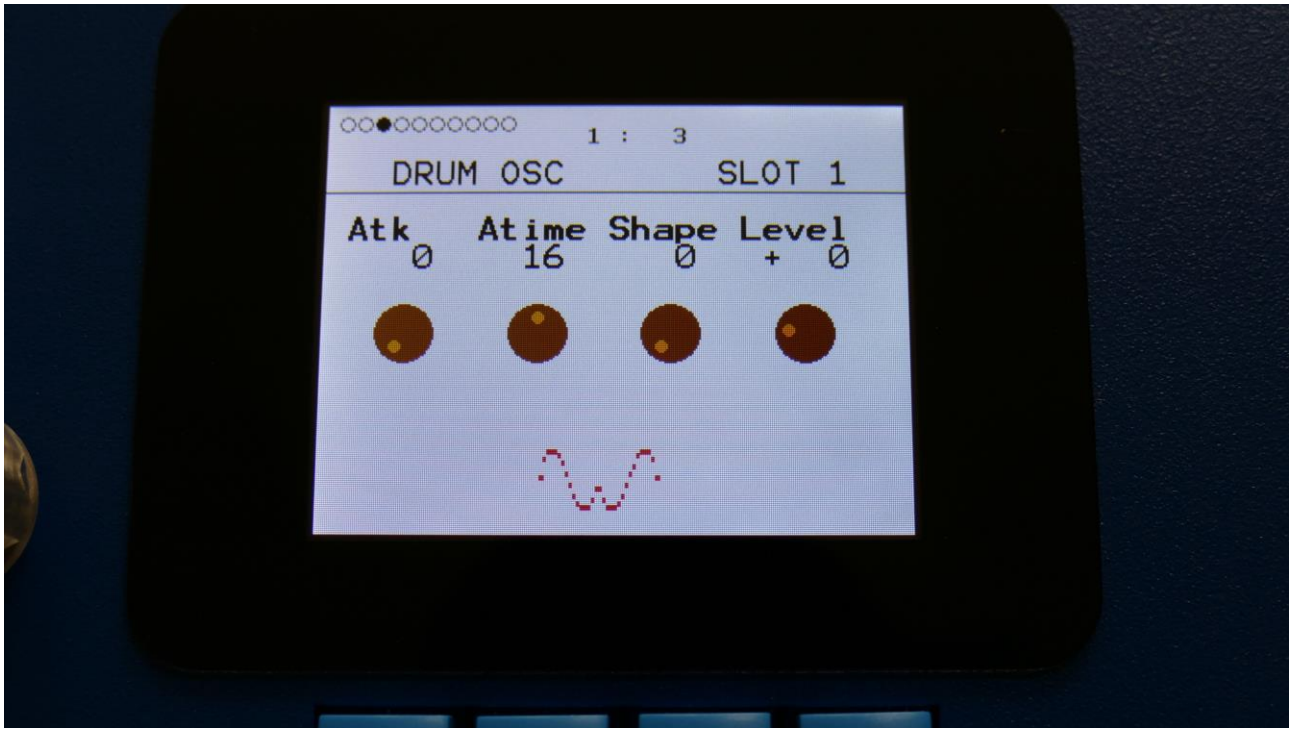


Tune1: Sets the pitch of analog percussion oscillator 1.

Tune2: Sets the pitch of analog percussion oscillator 2.

Pitch Mod: Select the pitch modulation source, and set the amount. The pitch modulation can either affect both analog percussion oscillators, one of them, or one inverted to the other. This can be set by the Pmod parameter, explained a little bit later in this module.

Hit the > button again, to enter the next page:



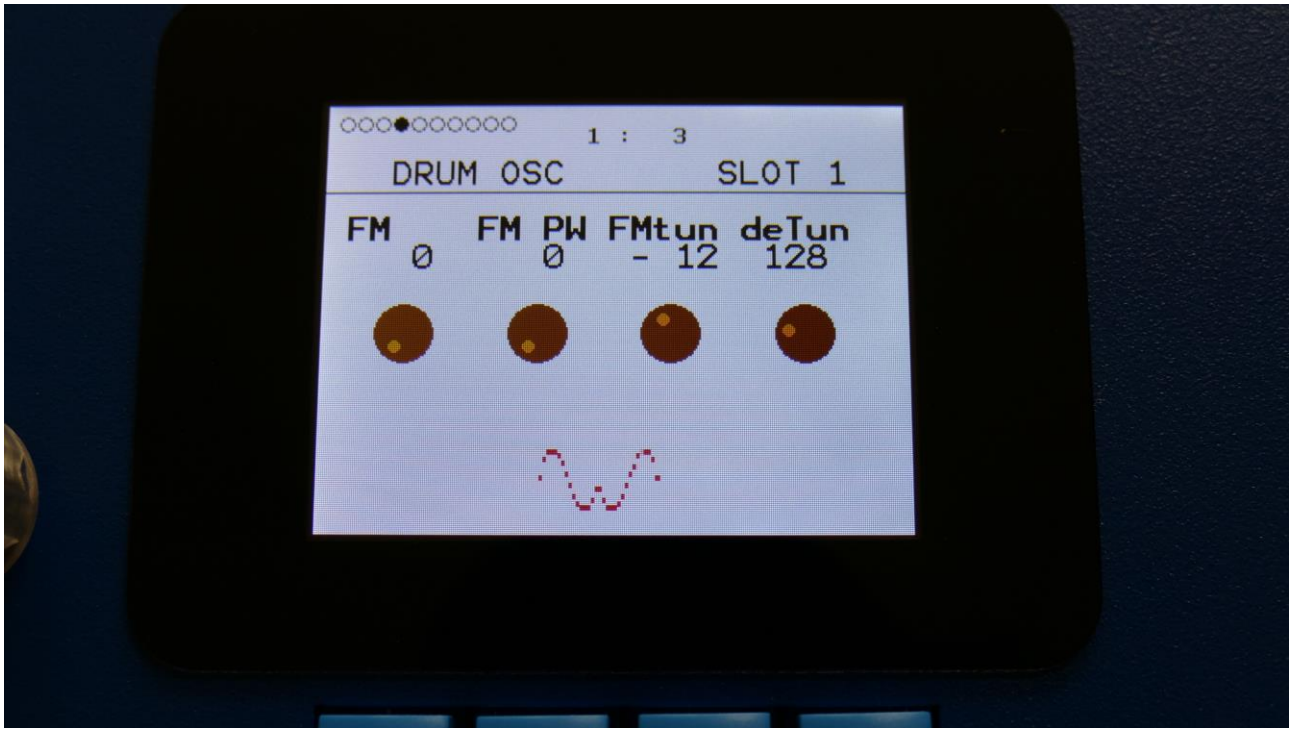
Atk: Attack. Adds a short boost to the sound, simulating a drumstick hitting the drum.

Atime: Attack time. Sets for how long the attack boost should last.

Shape: Turning this up, will add a bit of character to the analog percussion oscillators.

Level: Sets the output level of the analog percussion oscillators. Negative values attenuates the signal, positive values gains the signal.

Hit the > button again, to enter the next page:



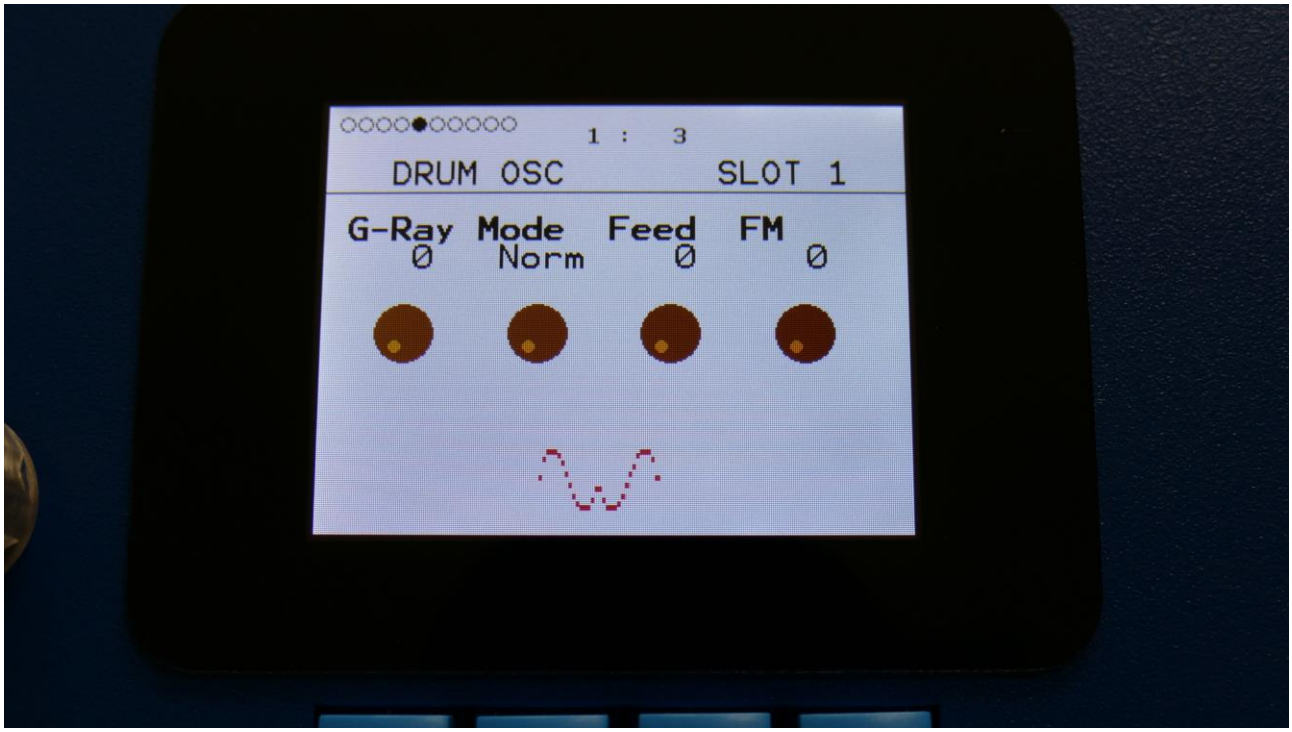
FM –Has been renamed to SQ: FM squares modulation. Sets the amount, that the block of FM square wave oscillators will modulate the analog percussion oscillators.

FM PW –Has been renamed to SQ PW: Sets the pulse width of the FM square wave oscillators.

FMtun –Has been renamed to SQTun: Sets the base frequency of the FM square wave oscillators.

deTun: Turning this up, will detune the FM square wave oscillators to each other.

Hit the > button again, to enter the next page:



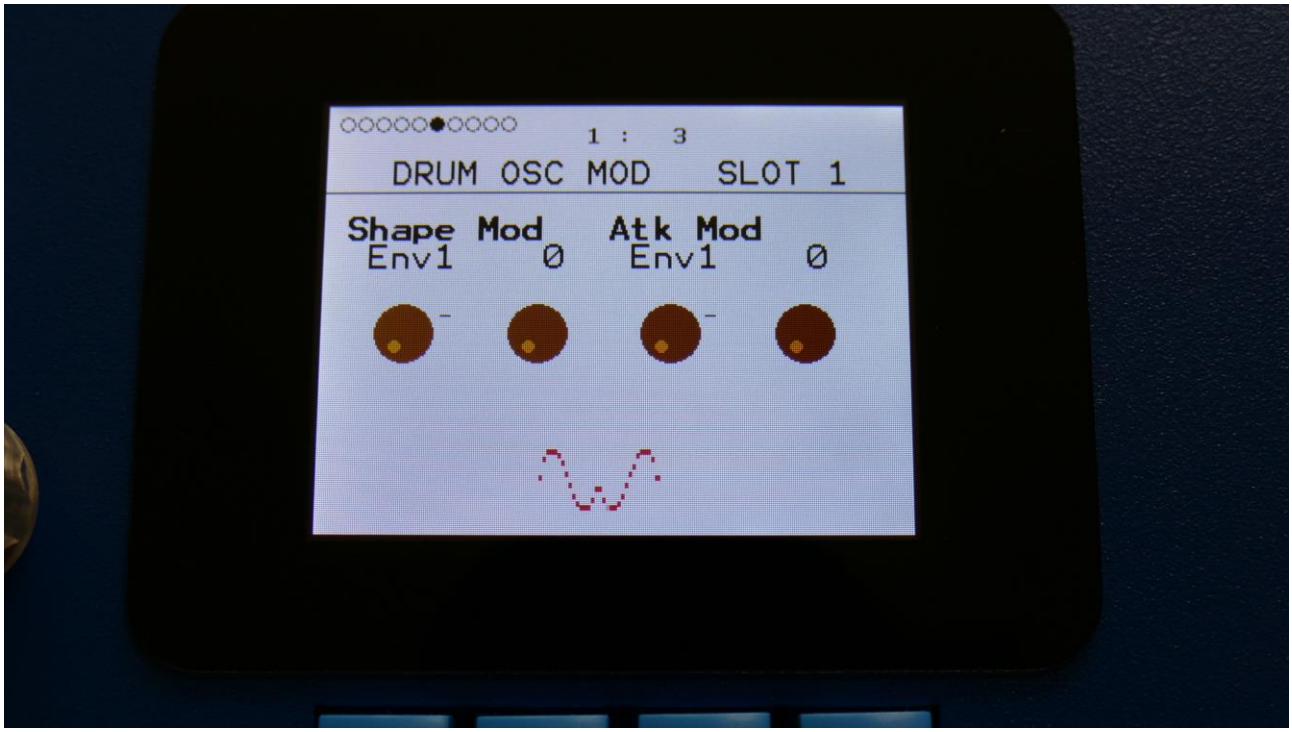
G-Ray: Adjusts the amount of g-RAY intermodulation for the analog percussion oscillators. 0: no intermodulation, 3: max intermodulation. 4-7 generates a softer G-Ray intermodulation. Range: 0 to 7.

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: 0 to 511. G-Ray feedback level.

FM: Sets how much the digital oscillator should modulate the analog percussion oscillators.

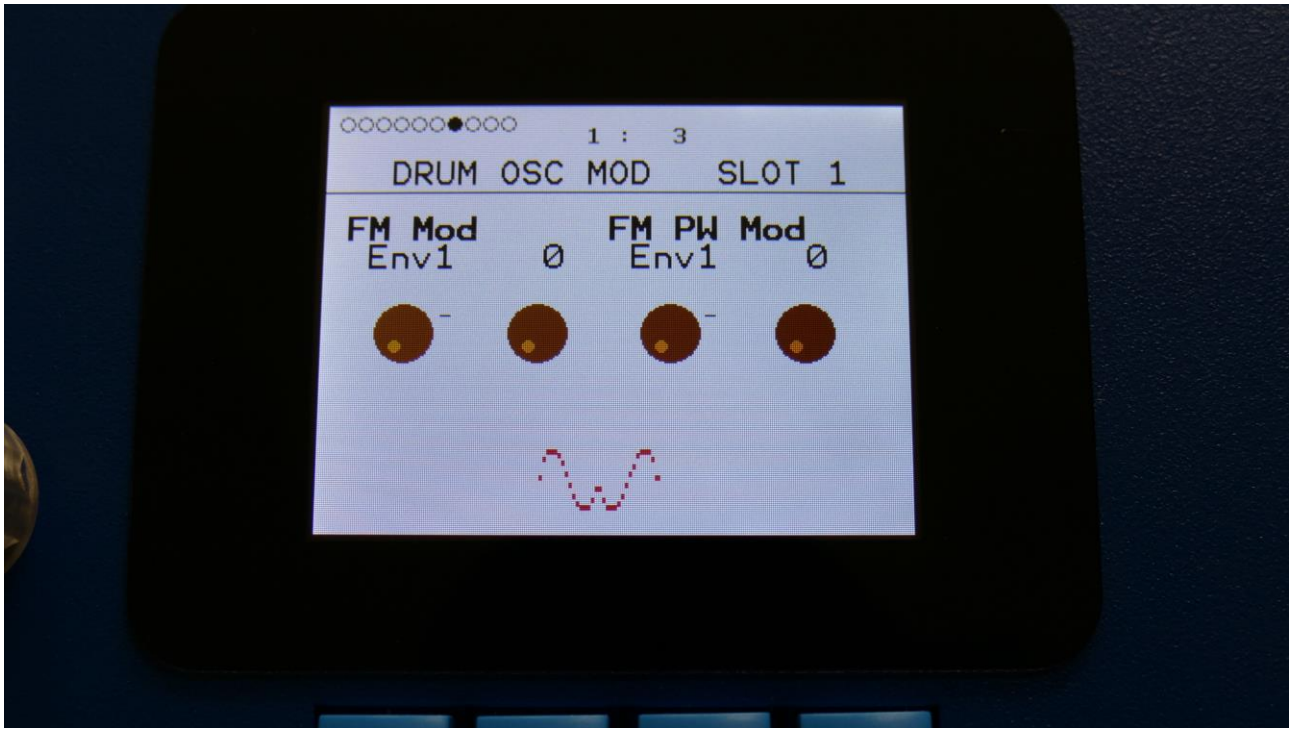
Hit the > button again, to enter the next page:



Shape Mod: Select a modulation source and adjust the amount of modulation for the Shape parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Atk Mod: Select a modulation source and adjust the amount of modulation for the Attack parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

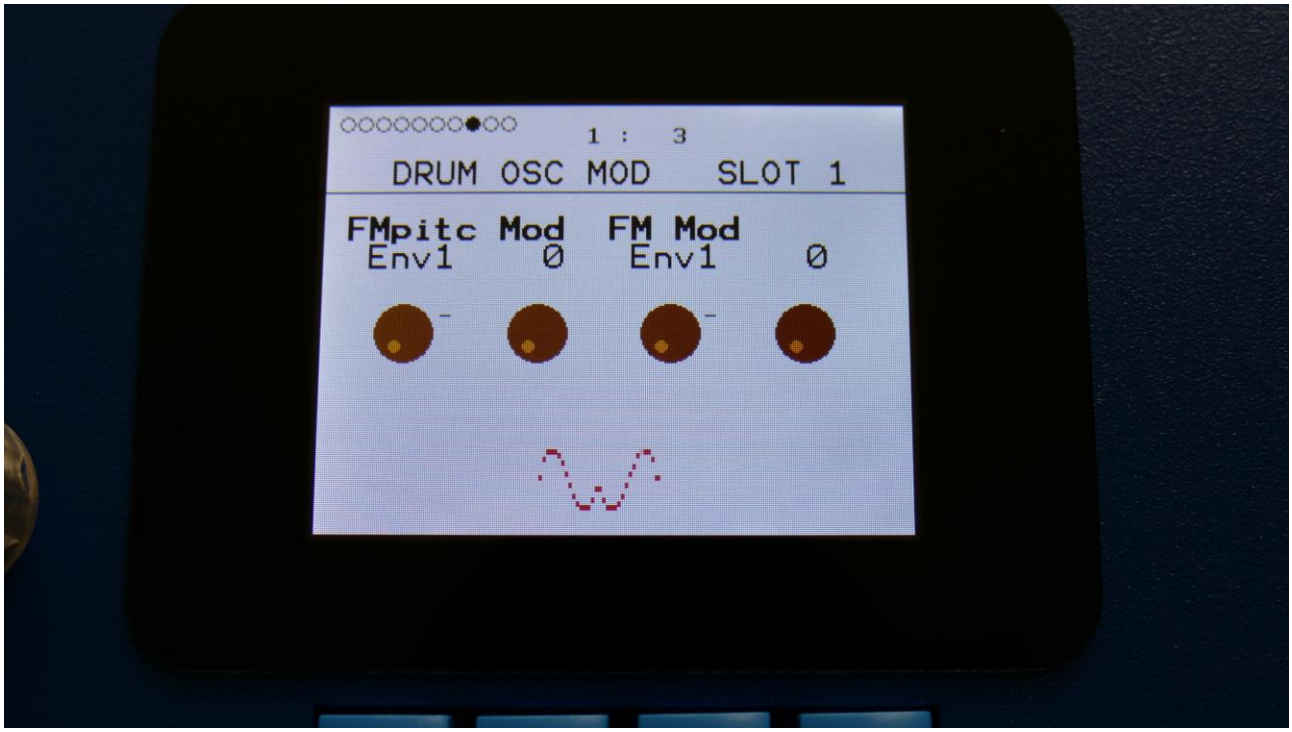
Hit the > button again, to enter the next page:



FM Mod –Has been renamed to SQ Mod: Select a modulation source and adjust the amount of modulation for the SQ (block of square waves) parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

FM PW Mod –Has been renamed to SQ PW Mod: Select a modulation source and adjust the amount of modulation for the SQ PW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

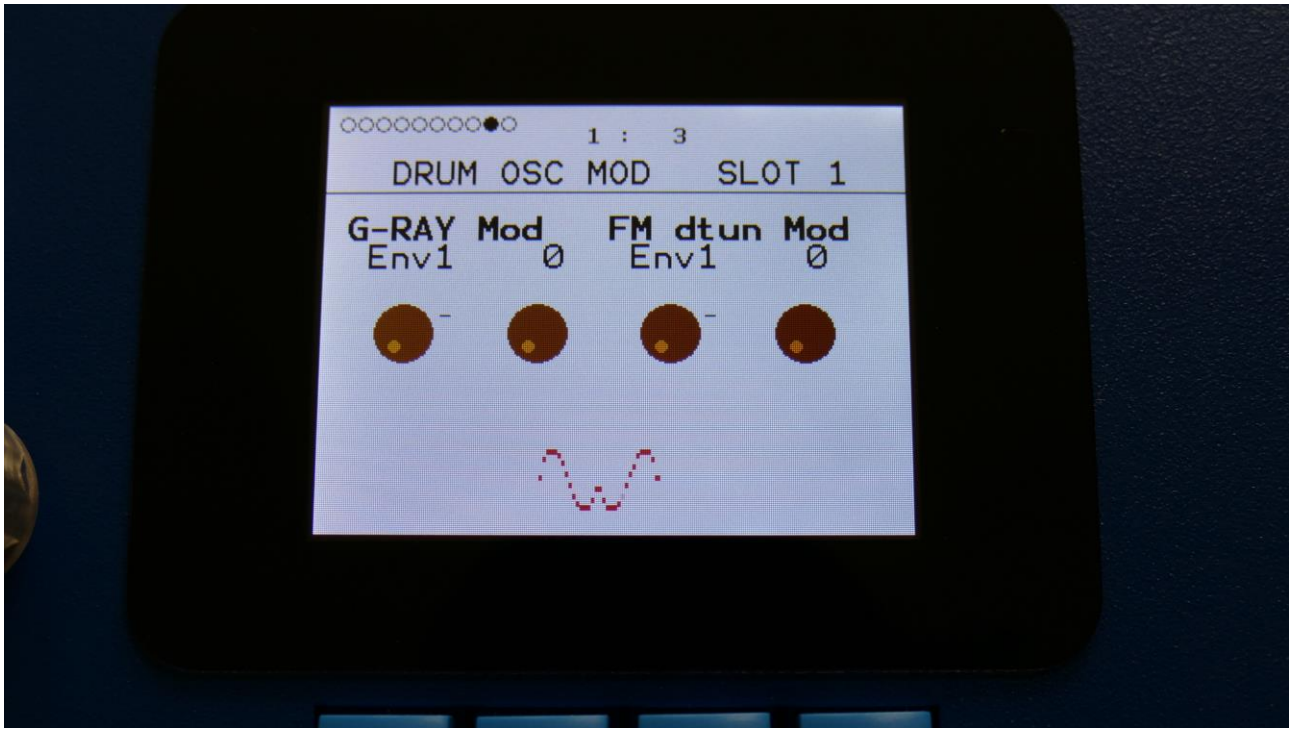
Hit the > button again, to enter the next page:



FMpitch Mod –Has been renamed to SQpitch Mod: Select a modulation source and adjust the amount of modulation for the SQtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

FM Mod: Select a modulation source and adjust the amount of modulation for the FM (digital oscillator) parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

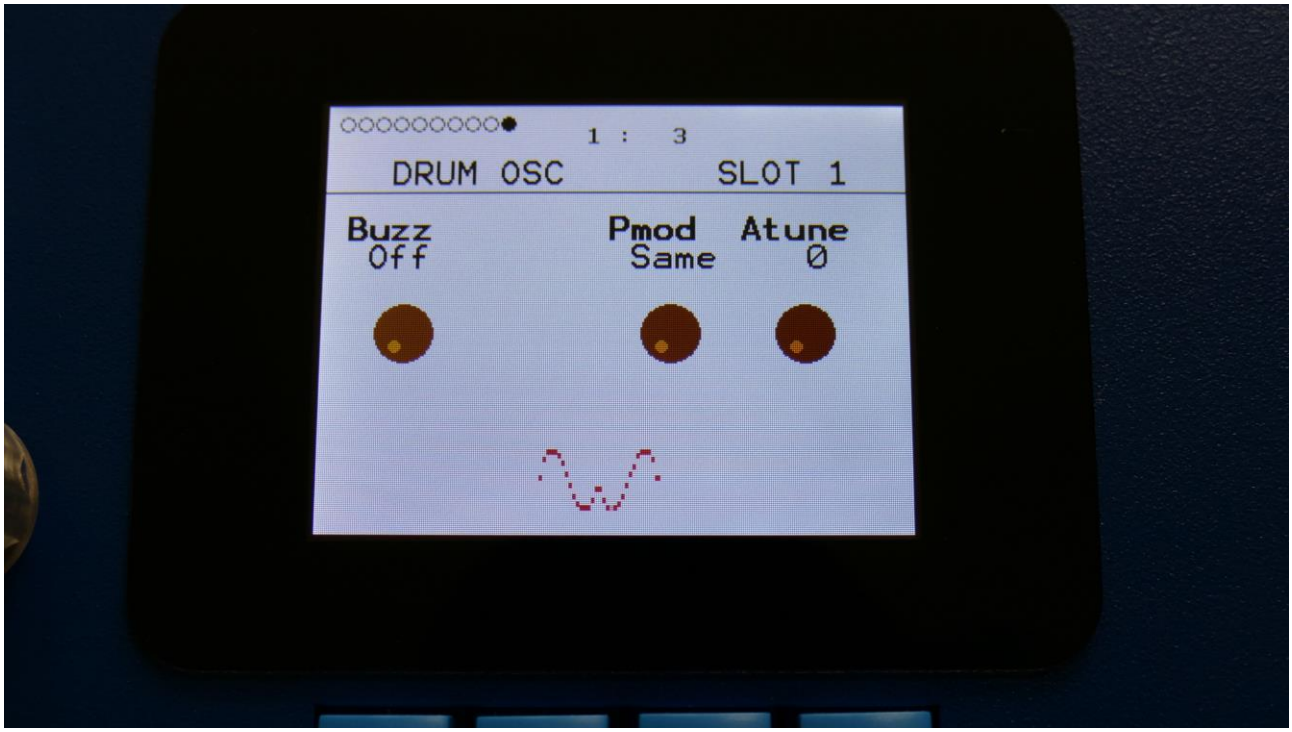
Hit the > button again, to enter the next page:



G-RAY Mod: Select a modulation source and adjust the amount of modulation for the G-Ray Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

FM dtun Mod –Has been renamed to SQ dtun Mod: Select a modulation source and adjust the amount of modulation for the SQ deTun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:

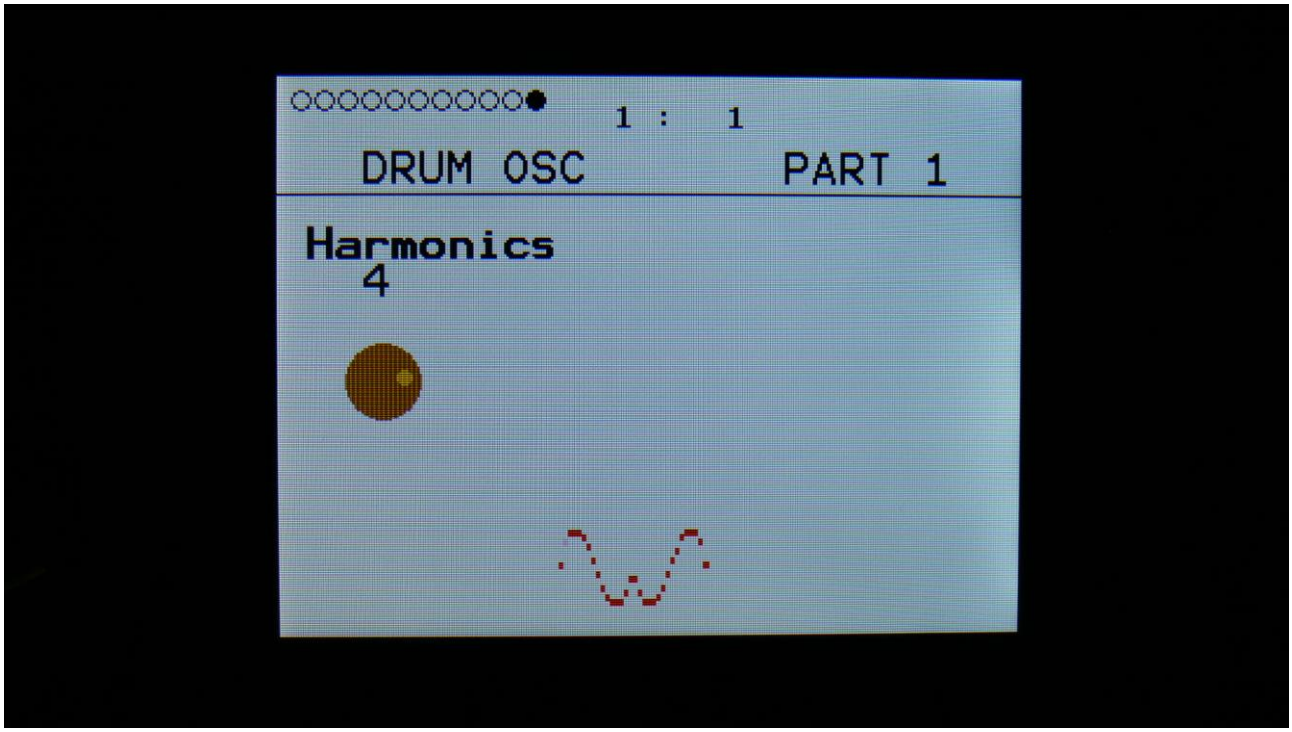


Buzz: Turning this on, will add buzz to the analog percussion oscillators.

Pmod: Select if the pitch modulation for the 2 analog percussion oscillators should be the same (same), inverted to each other (Inv), or if it should only be applied to one of them (1only or 2only).

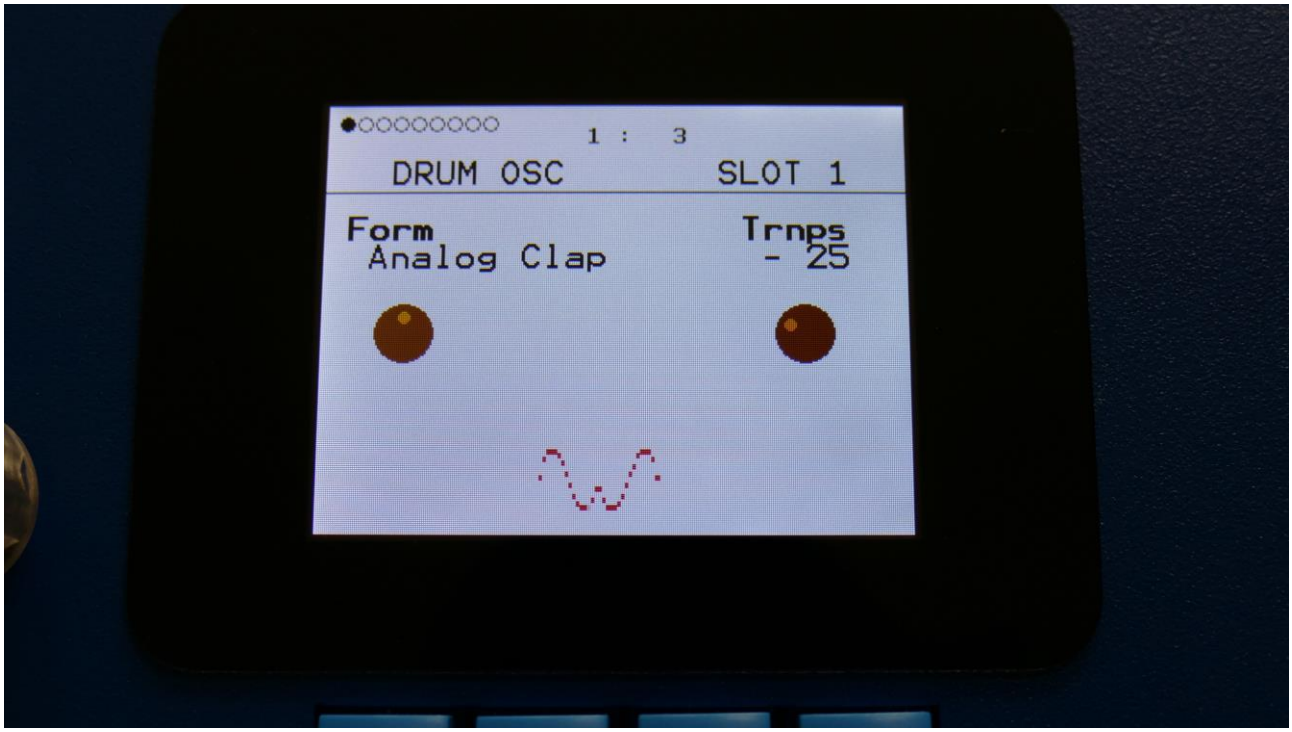
Atune: Turning this up, will make the Transpose parameter and pitch changes from the sequencer note tracks affect the analog percussion oscillators.

Hit the > button again, to enter the next page (This page is on SpazeDrum Black only):



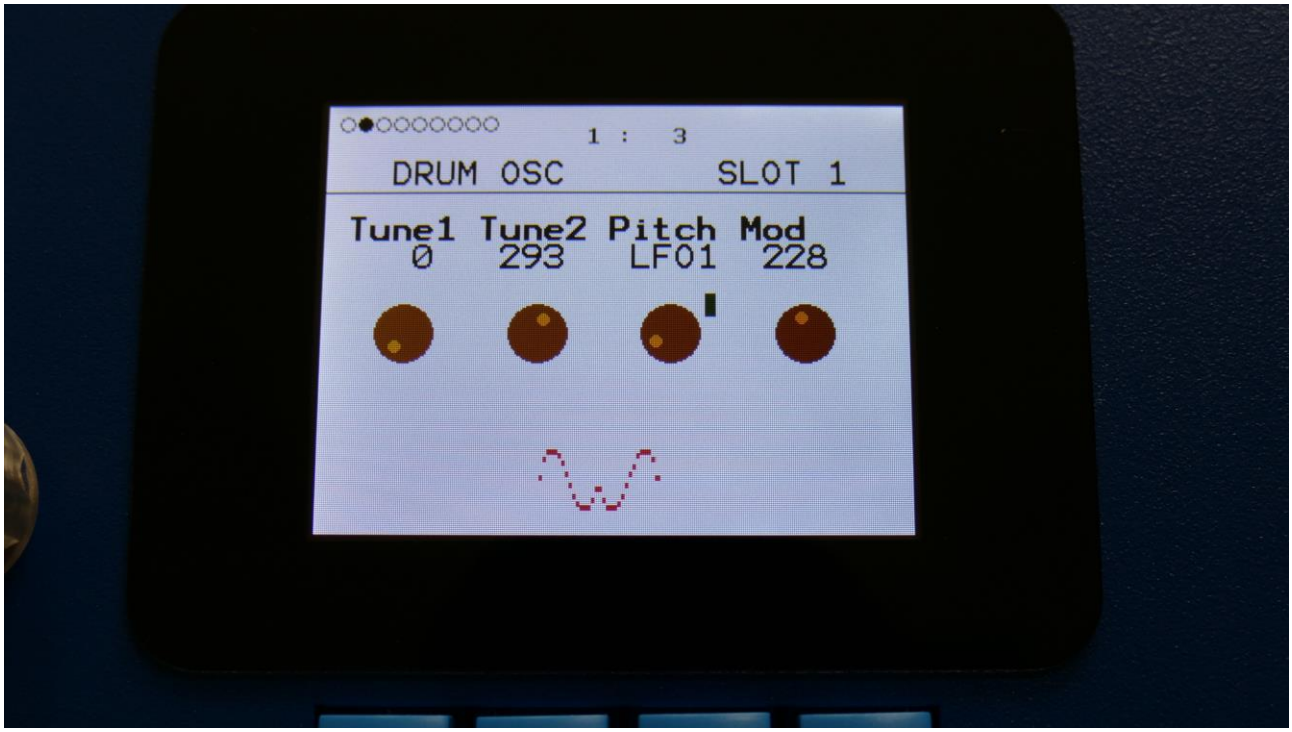
Harmonics: Range 1 to 4. If set to 2 or higher, more harmonics is added to the analog percussion waves.

Parameters in Analog Clap Mode



I this sub chapter, the parameters available, when the drum oscillators are in Analog Clap mode, will be explained.

From the first drum oscillator page, hit the > button, to enter the next page:

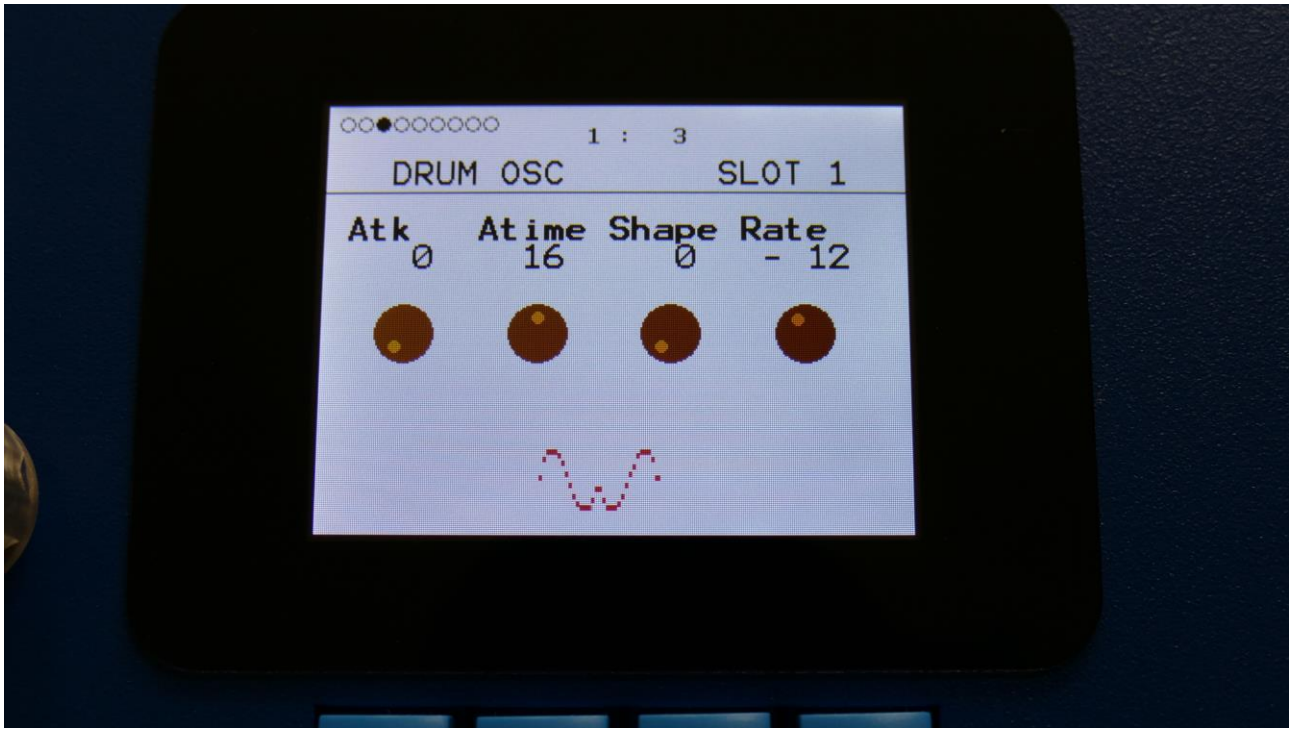


Tune1: Sets the pitch of analog percussion oscillator 1.

Tune2: Sets the pitch of analog percussion oscillator 2.

Pitch Mod: Select the pitch modulation source, and set the amount. The pitch modulation can either affect both analog percussion oscillators, one of them, or one inverted to the other. This can be set by the Pmod parameter, explained a little bit later in this module.

Hit the > button again, to enter the next page:



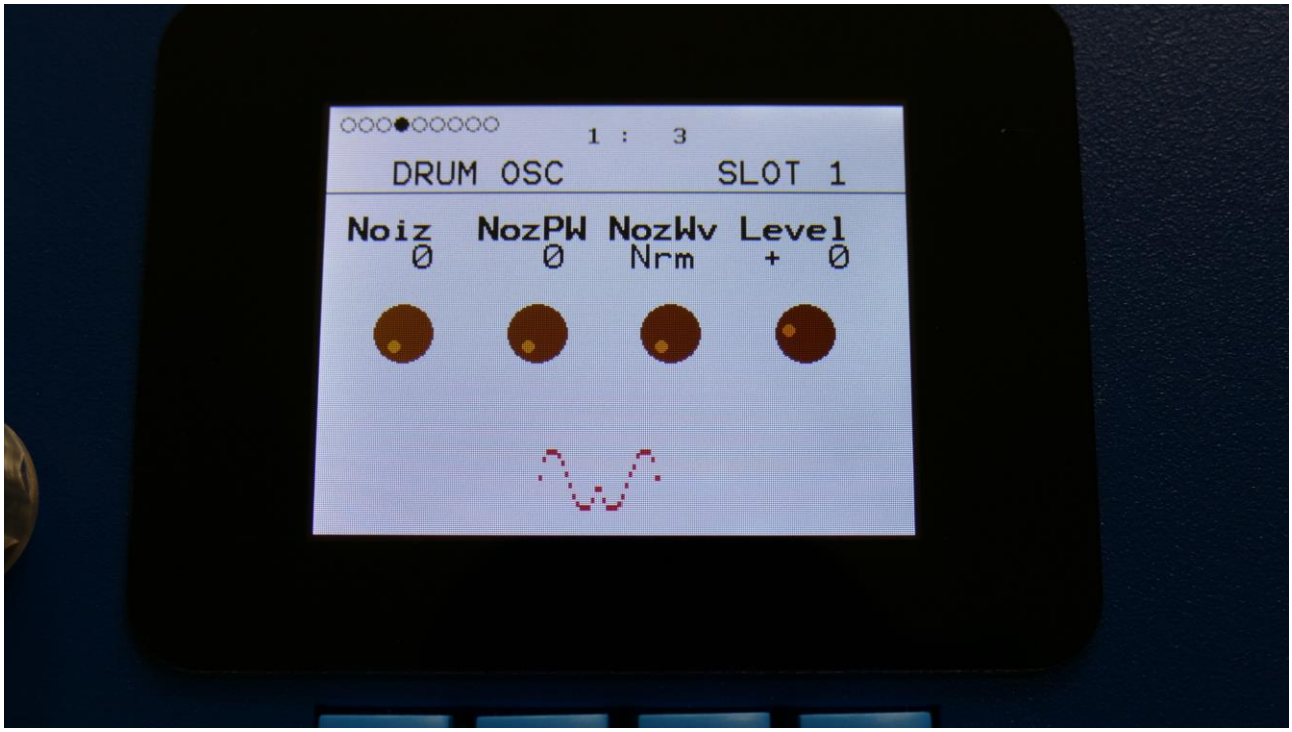
Atk: Attack. Adds a short boost to the sound, simulating a drumstick hitting the drum.

Atime: Attack time. Sets for how long the attack boost should last.

Shape: Turning this up, will add a bit of character to the analog percussion oscillators.

Rate: Sets the rate of the claps.

Hit the > button again, to enter the next page:



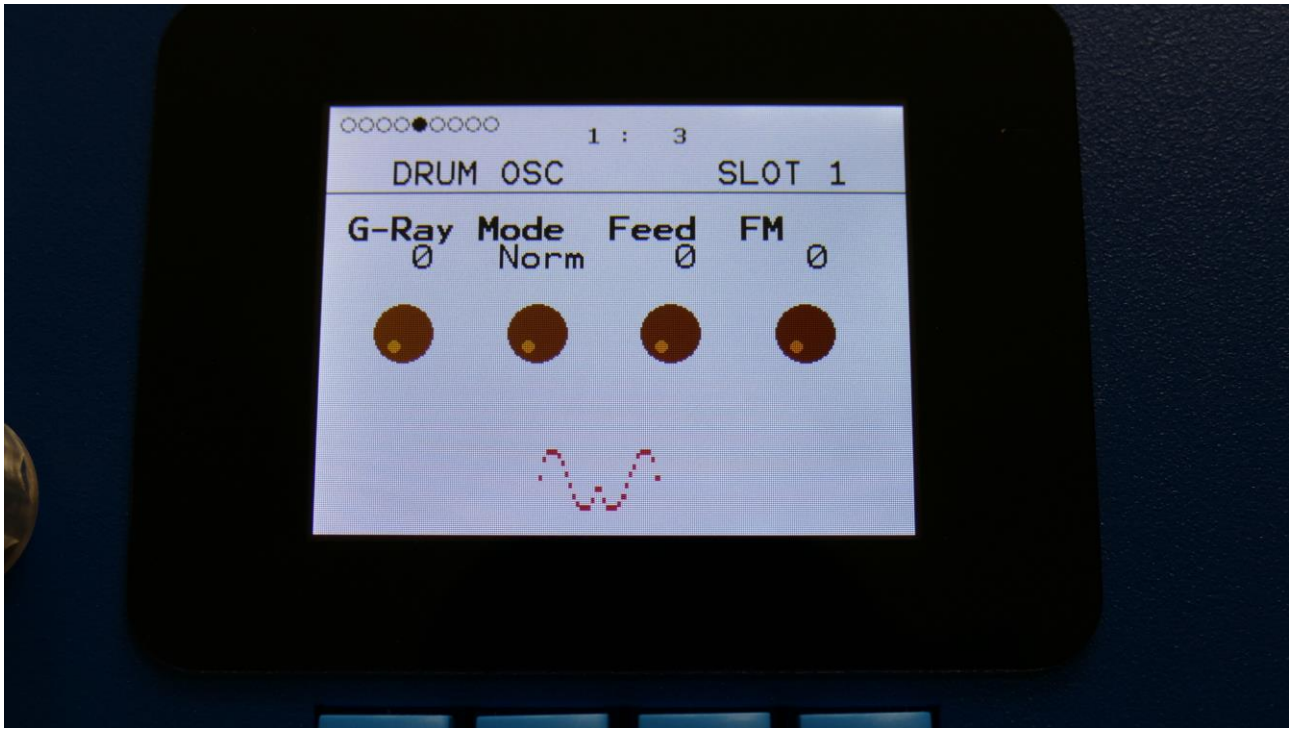
Noiz: Set the amount of noise FM applied to the analog percussion oscillators.

NozPW: Noise waveform intensity.

NozWv: Noise waveform select. Normal (Nrm), squared (Squ), Ring Modulated (RiV), Ring Modulated squared (RiP), Metal (Met) or ring modulated metal (RiM).

Level: Sets the output level of the analog percussion oscillators. Negative values attenuates the signal, positive values gains the signal.

Hit the > button again, to enter the next page:



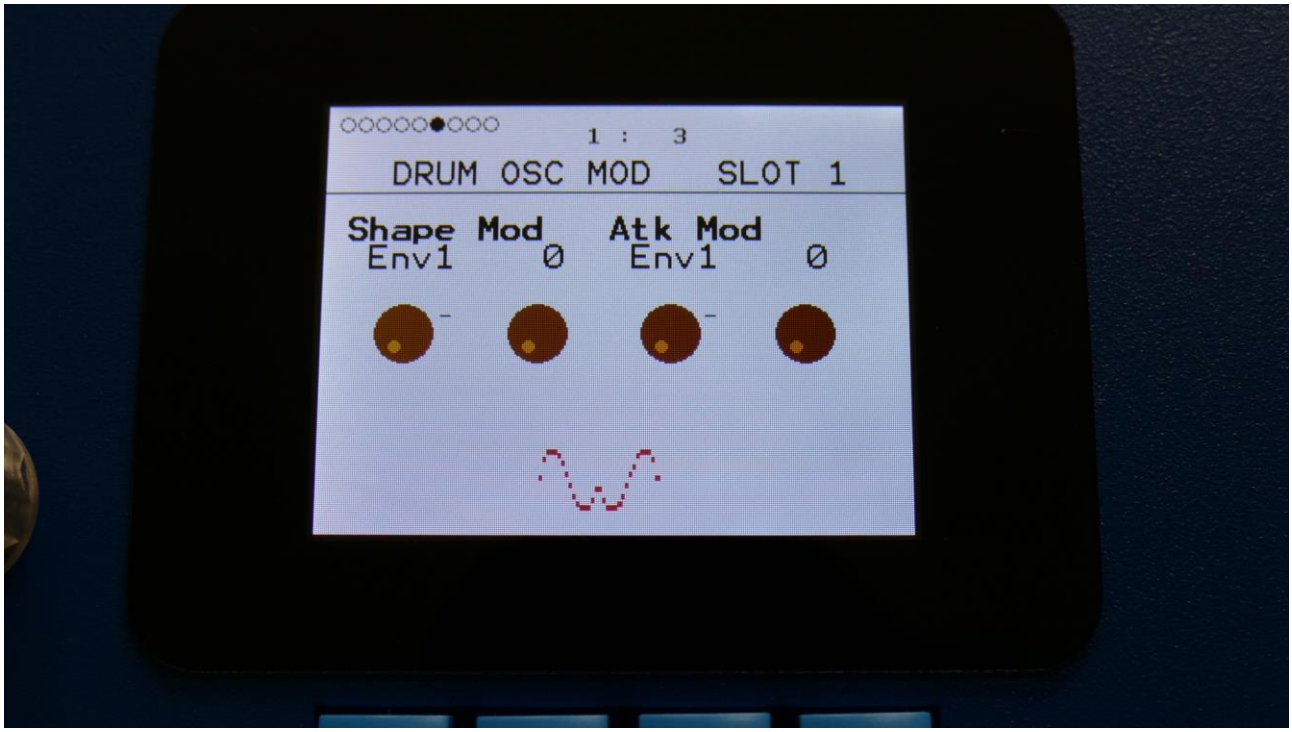
G-Ray: Adjusts the amount of g-RAY intermodulation for the analog percussion oscillators. 0: no intermodulation, 3: max intermodulation. 4-7 generates a softer G-Ray intermodulation. Range: 0 to 7.

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: 0 to 511. G-Ray feedback level.

FM: Sets how much the digital oscillator should modulate the analog percussion oscillators.

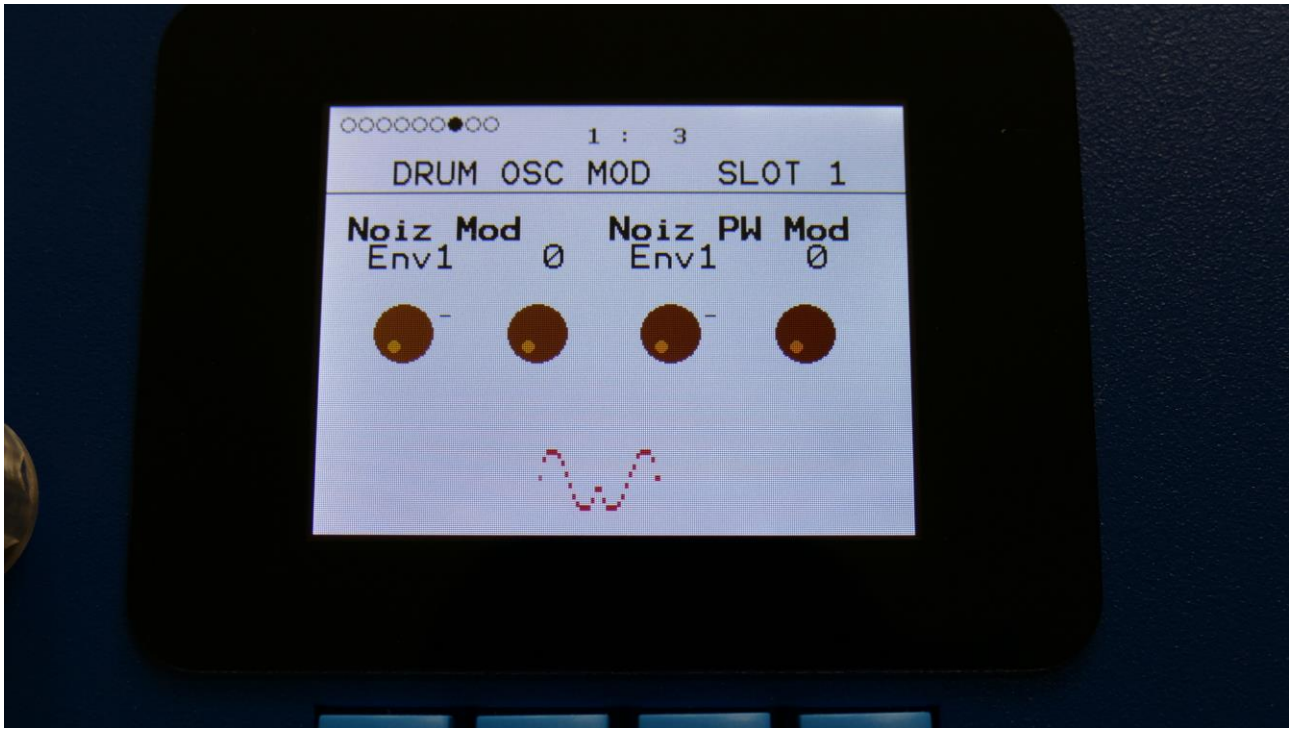
Hit the > button again, to enter the next page:



Shape Mod: Select a modulation source and adjust the amount of modulation for the Shape parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Atk Mod: Select a modulation source and adjust the amount of modulation for the Attack parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

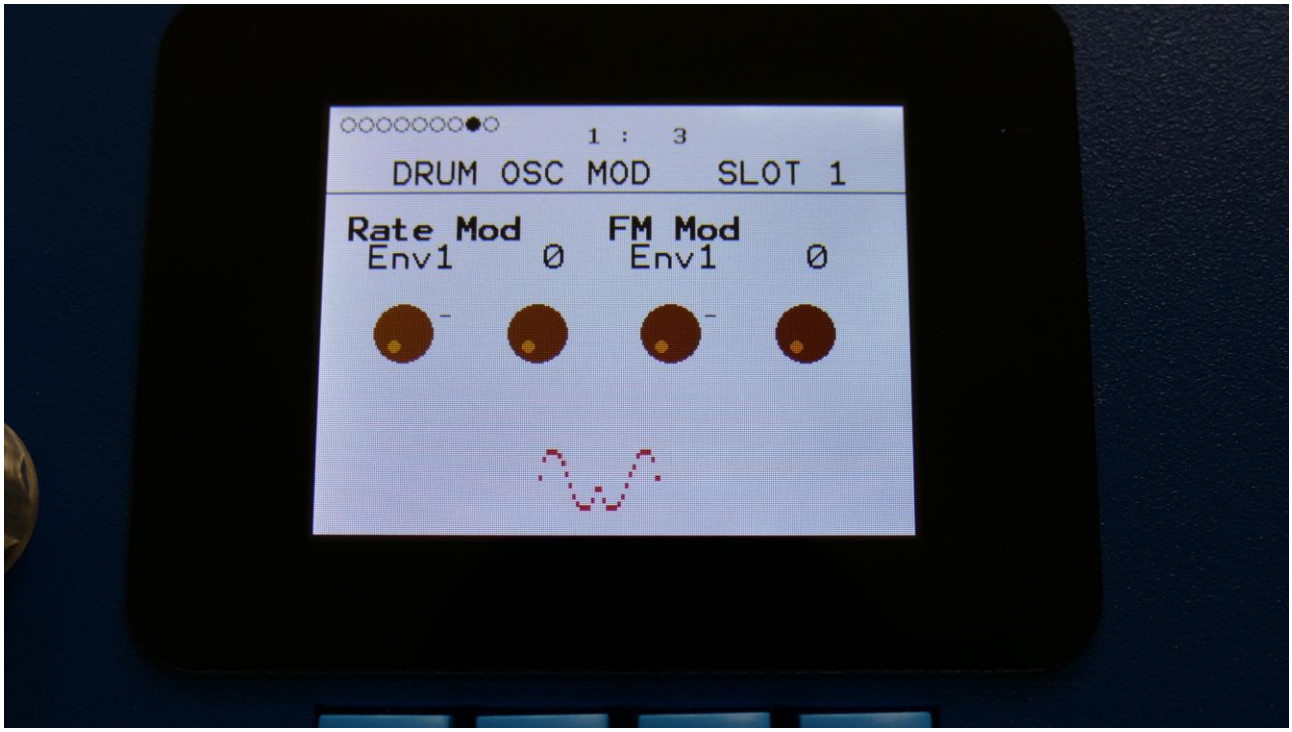
Hit the > button again, to enter the next page:



Noiz Mod: Select a modulation source and adjust the amount of modulation for the Noiz parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Noiz PW Mod: Select a modulation source and adjust the amount of modulation for the NoizPW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

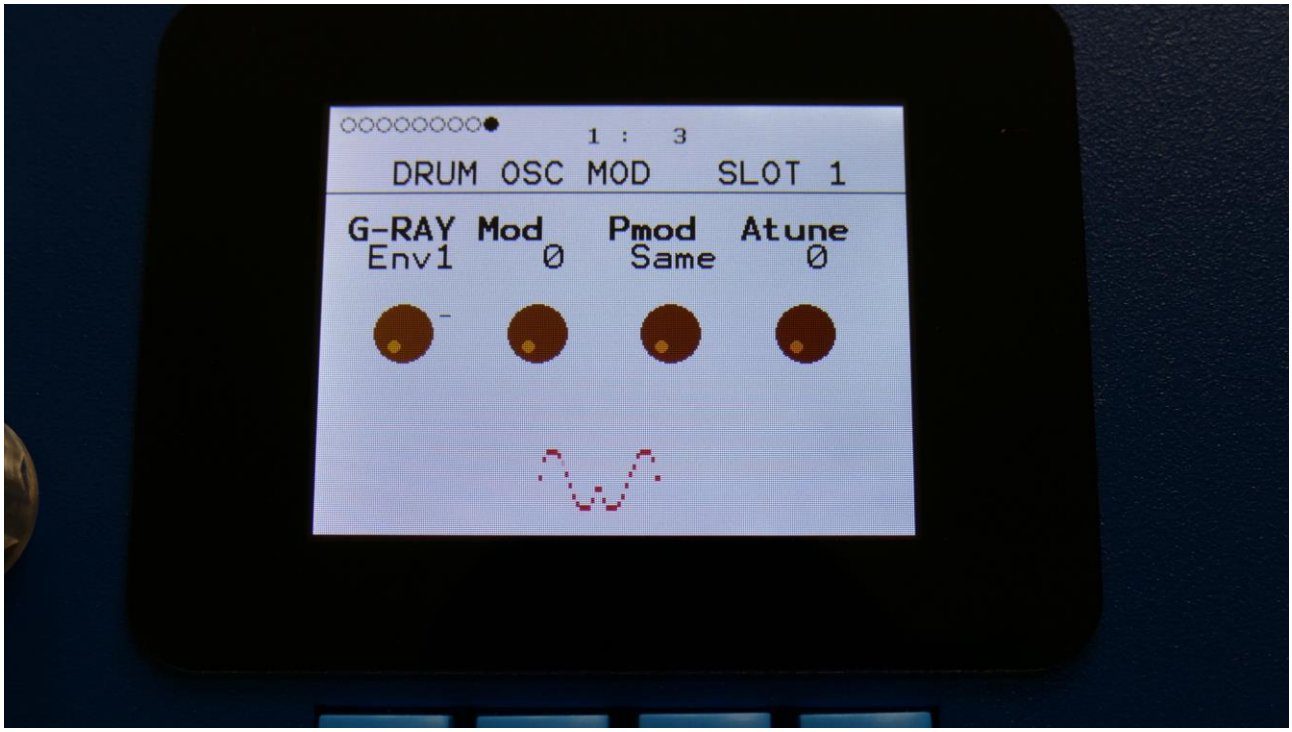
Hit the > button again, to enter the next page:



Rate Mod: Select a modulation source and adjust the amount of modulation for the Rate parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

FM Mod: Select a modulation source and adjust the amount of modulation for the FM (amount) parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:

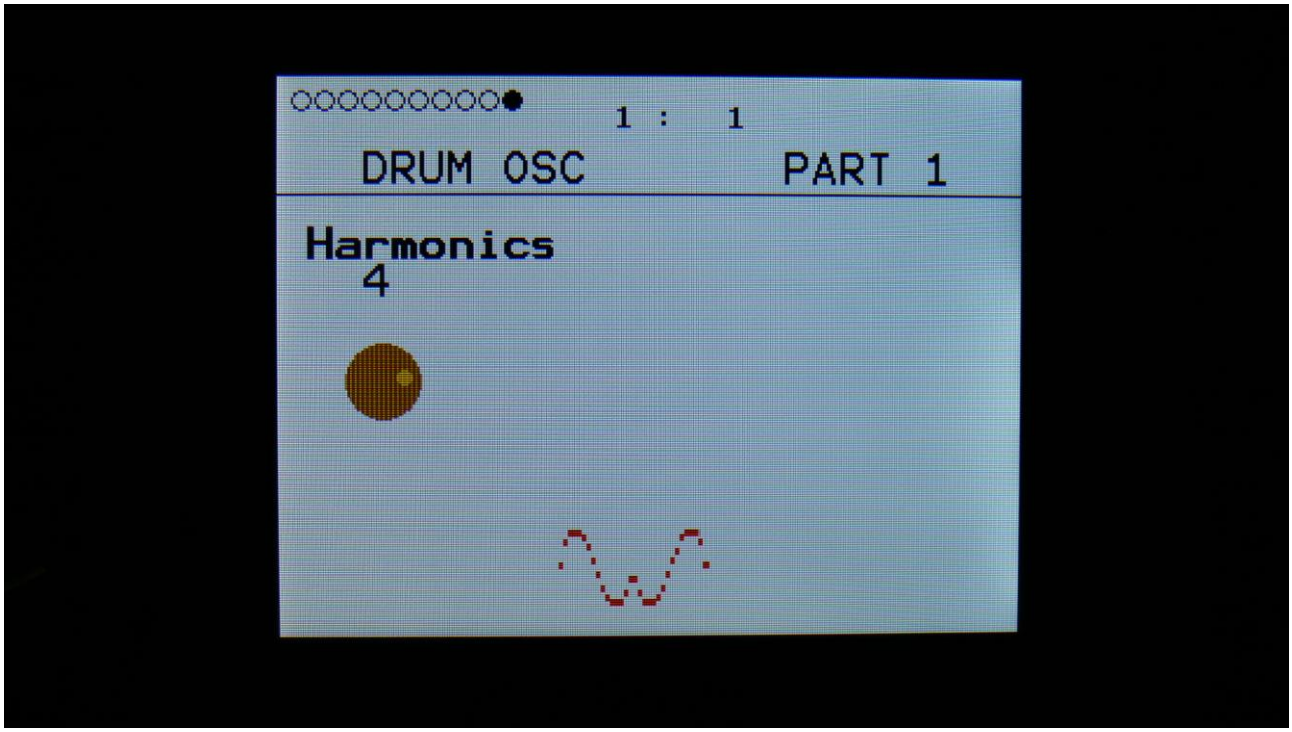


G-RAY Mod: Select a modulation source and adjust the amount of modulation for the G-Ray Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pmod: Select if the pitch modulation for the 2 analog percussion oscillators should be the same (same), inverted to each other (Inv), or if it should only be applied to one of them (1only or 2only).

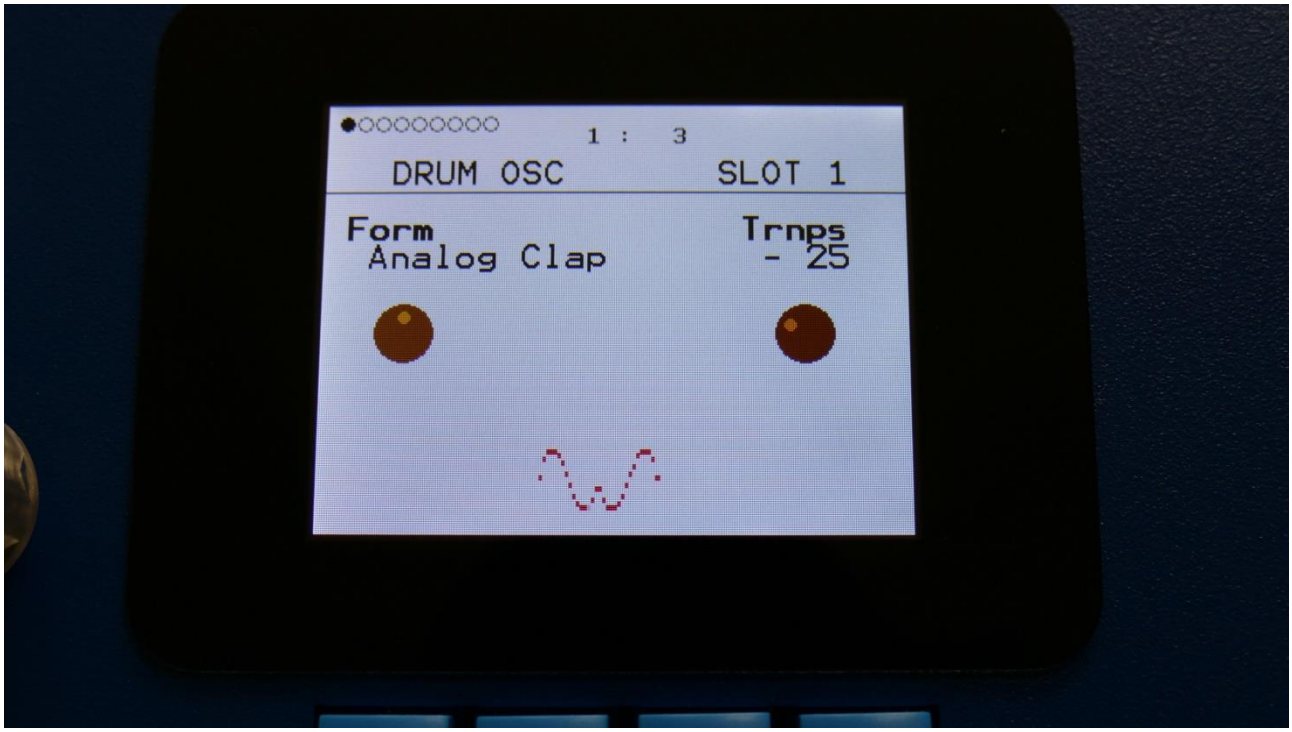
Atune: Turning this up, will make the Transpose parameter and pitch changes from the sequencer note tracks affect the analog percussion oscillators.

Hit the > button again, to enter the next page (This page is on SpazeDrum Black only):



Harmonics: Range 1 to 4. If set to 2 or higher, more harmonics is added to the analog percussion waves.

Parameters in Synthesizer Mode



I this sub chapter, the parameters available, when the drum oscillators are in Synthesizer mode, will be explained.

In synthesizer mode the drum oscillator has 2 digital oscillators, that can be set to a number of different types, like oscillator, percussion oscillator and sample player.

FM and sync is possible between the 2 oscillators.

In this mode it is also possible to crossfade between oscillators 1 and 2. This could be used for crossfading between 2 samplings, to make the samplings sound more dynamic.

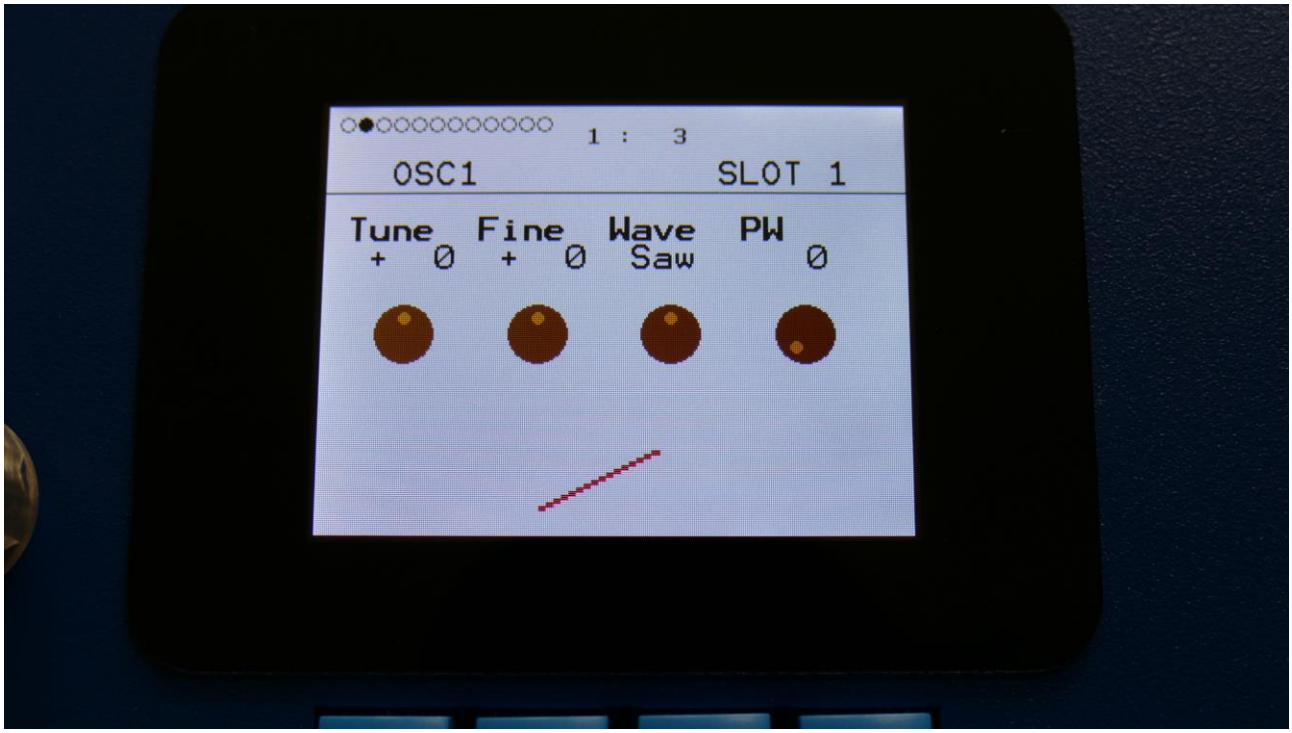
In synthesizer mode 2 analog lowpass filters becomes available too! These are explained in the Analog Filters section.

The parameters for each of these types will be explained on the following pages.

Osc1: Type 1, Type2, Reso

These oscillator types generates a waveform that is morphable between sine, triangle, saw, square and feedback waves. Pulse width are adjustable for all waveform types.
The Resonator oscillator is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path.
The pitch range of the oscillators are chromatically over the entire 10 octave MIDI keyboard range.

From the first drum oscillator page, hit the > button, to enter the next page:



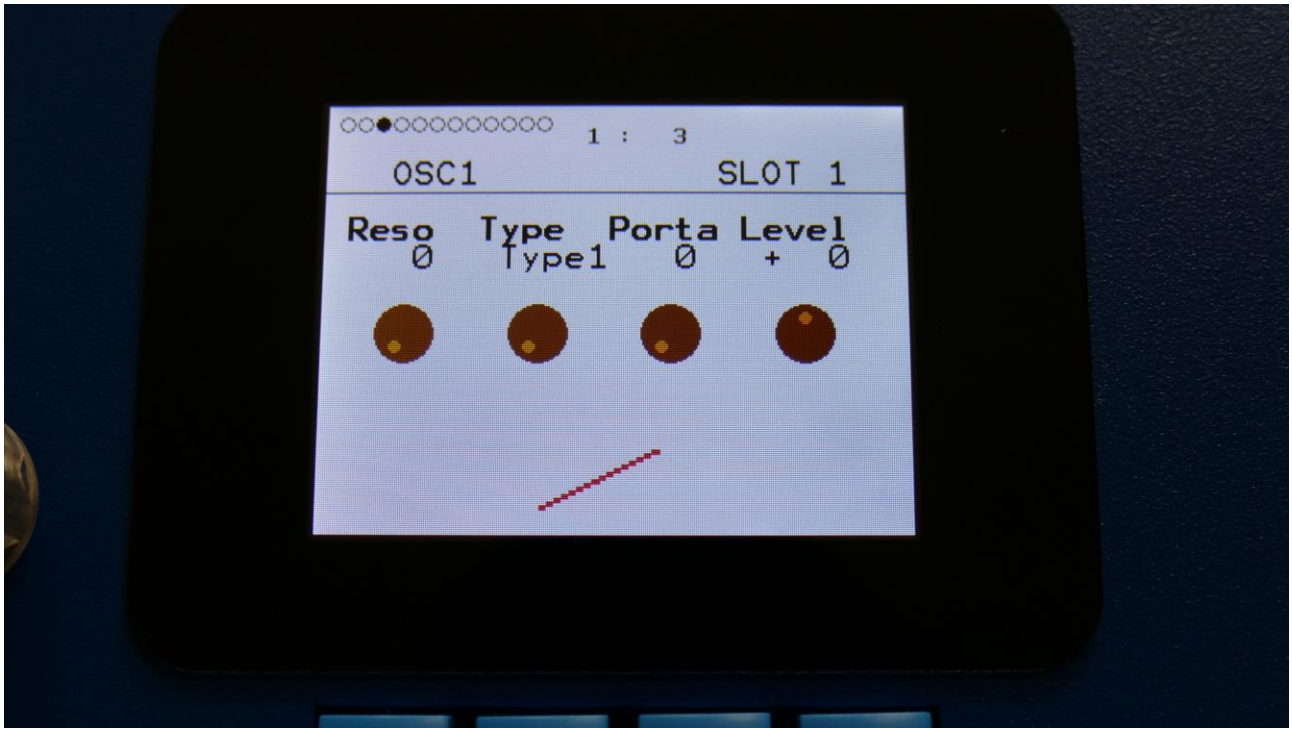
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

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

Wave: This parameter lets you morph between sine, triange, 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 SpazeDrum's waveforms, not just the pulse wave.

Hit the > button again, to enter the next page:



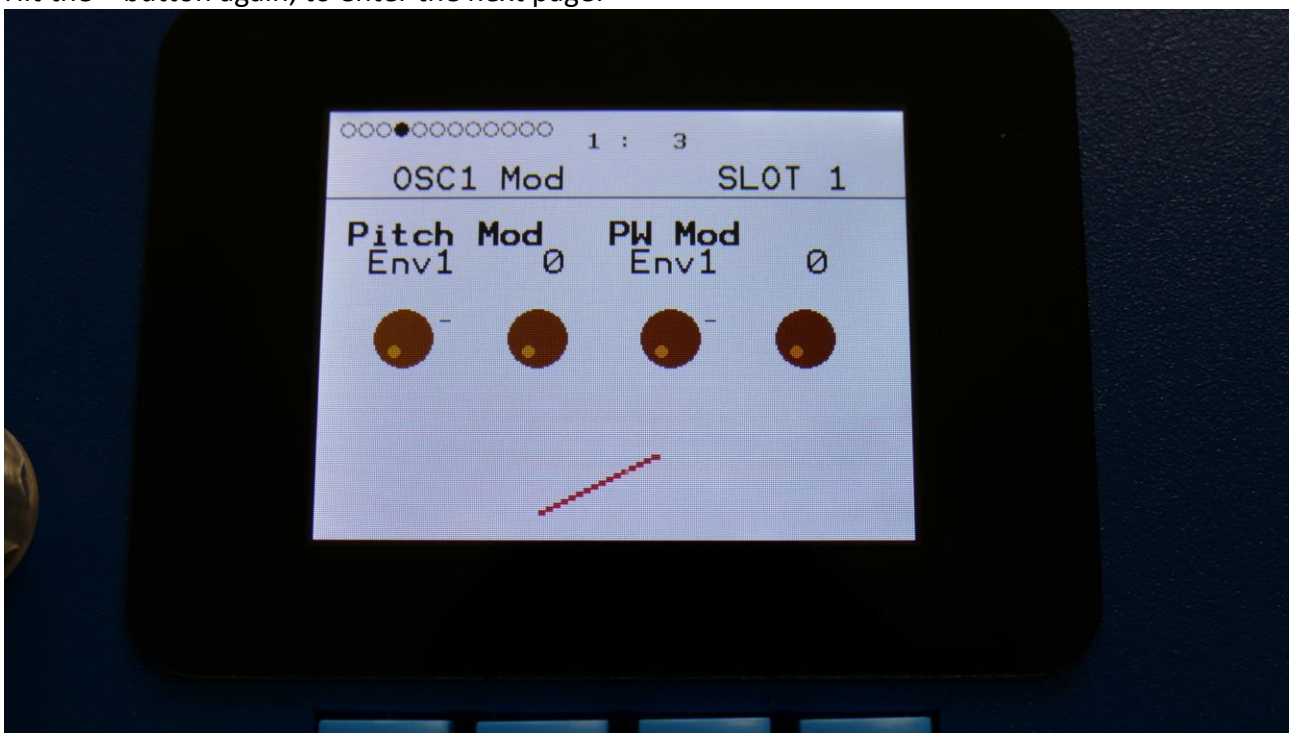
Reso: The amount of resonances fed back, when the resonator oscillator type is selected. The higher this parameter is set, the more resonances are fed back into the oscillator. Even at setting zero, some resonances are fed back. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator 1 output level. Negative values attenuates the signal, positive values gains the signal.

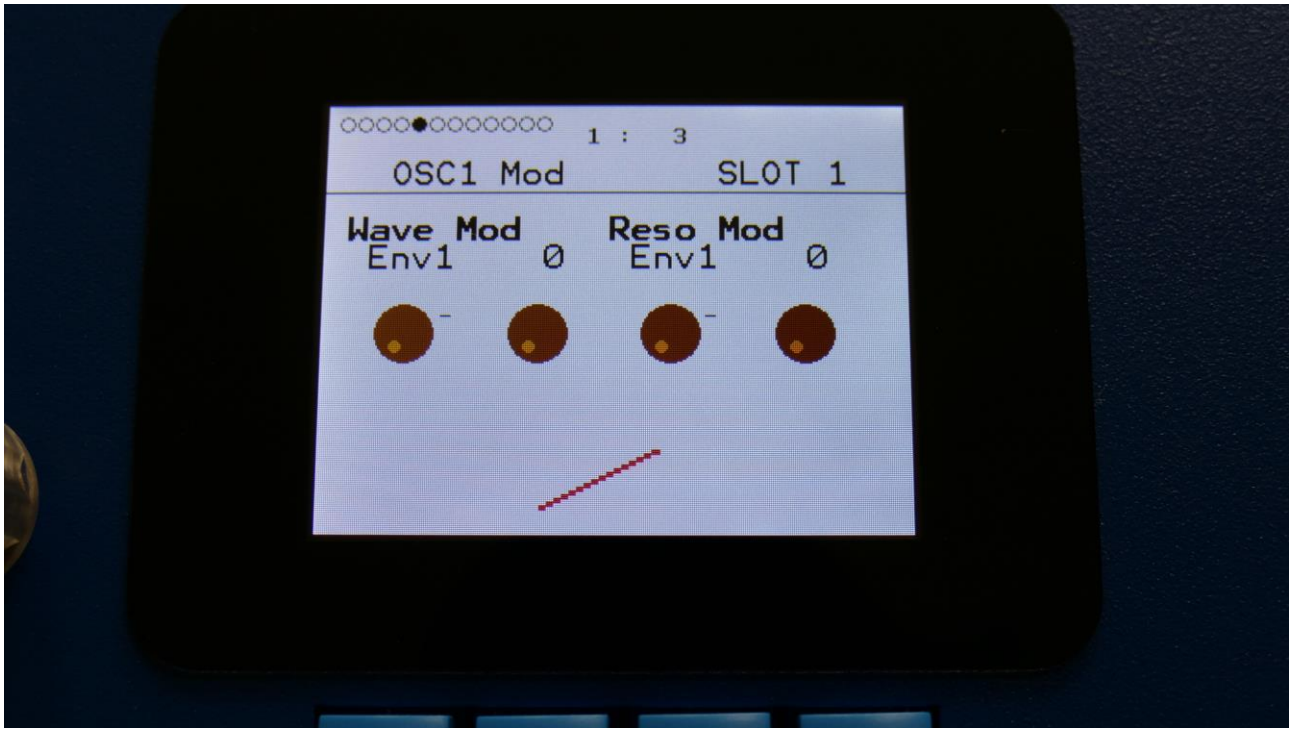
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 1 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the PW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



Wave Mod: Select a modulation source and adjust the amount of modulation for the Wave parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Reso Mod: Select a modulation source and adjust the amount of modulation for the Reso parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Osc1: Perc, prc2, prc3

Perc: Percussion oscillator 1. This outputs 2 percussion waves, that can be detuned from each other, and noise FM can be applied. Atk will morph between the attack and the body of the percussion sound. To imitate the strike of the drum, modulate Atk with an envelope. Noise PW can also be set, to adjust the intensity of the FM noise. This percussion oscillator is optimized for **kicks, snares and noise sounds**, but can also produce a lot of other sounds. Like the other oscillator types, its parameters can be modulated by any modulation source, and it can be routed through filters and effects, which expands the possibilities.

Prc2: Percussion oscillator 2. This outputs 2 percussion waves, that can be detuned from each other. Squared noise FM can be applied, and noise PW can be adjusted, to set the intensity of the FM noise. Atk will morph between the attack and the body of the percussion sound. To imitate the strike of the drum, modulate Atk with an envelope. This percussion oscillator is optimized for **analog style hi hats and cymbals**, but can also produce a lot of other sounds. Like the other oscillator types, its parameters can be modulated by any modulation source, and it can be routed through filters and effects, which expands the possibilities.

Prc3: Percussion oscillator 3. This outputs 2 percussion waves, that ring modulates each other, and that can be detuned from each other. Noise FM can be applied. Atk will morph between the attack and the body of the percussion sound. To imitate the strike of the drum, modulate Atk with an envelope. Noise PW can also be set, to adjust the intensity of the FM noise. This percussion oscillator is optimized for **hi hats, toms and bell type sounds**, but can also produce a lot of other sounds. Making kick and snare drums with this, results in very special sounds. Like the other oscillator types, its parameters can be modulated by any modulation source, and it can be routed through filters and effects, which expands the possibilities.

Sound ideas / Start points

Analog style kick drum

Select the Perc oscillator type. Set the Dtun, Atk and Noiz parameters all to zero. Set pitch modulation to Env1 and something around 100 for a start. Set Atk modulation to Env1 and something around 150. If you are triggering the sound from the trigger buttons, set Tune to -15.

Set VCA envelope to Log mode, A to 0, D to 137, S to 0 and R to 130.

Set Env to Log mode, A to 0, D to 45, S to 0 and R to 0.

Now you should hear an analog style kick drum. Experiment with the settings of pitch and Atk modulation, the envelope decay time, and of course the Tune parameter, to get variations of this.

To make a long kick sound, set pitch modulation to Env2, and set the decay value of this to around 40. Keep Env1 controlling Atk (Attack). Adjust the VCA envelope decay and release, and the Env1 decay and release.

Acoustic style kick drum

The percussion oscillators might not be able to perfectly imitate an acoustic kick drum, but they can get somewhere near.

Use the analog style kick drum, and adjust the Dtun parameter. To get it even more realistic, add a Pitch Shifter effect after it, and detune this too.

Snare drum

Select the Perc oscillator type. Set Noiz to 511, Dtun to 210 (sets the brightness of the snare), Atk to 0 and NzPw to +0. Turning up Atk, will give the snare drum more “bite”. Set Atk modulation to Env1 and set this to 270. If you are triggering the sound from the trigger buttons, set Tune to -43.

Experiment, by tweaking the parameters, to get the snare sound, that you want.

Tom

Select the Prc3 oscillator type. Set Dtun, Atk and Noiz all to zero. Set pitch modulation to Env1, to 42, and set Atk modulation to Env1, to 305. If you are triggering the sound from the trigger buttons, set Tune to -8. Set Env1 A to 0, D to 52, S to 0 and R to 118. Set the VCA Env A to 0, D to 84, S to 408 and R to 66. Now you should be able to hear a basic tom sound.

Make new tom sounds, by tweaking the parameters.

Closed Hi hat

Select the Prc3 oscillator type. Set Dtun to 19, Atk to 0, NzPw to +0, and Noiz to 85. If you are triggering the sound from the trigger buttons, set Tune to +33. Set Atk modulation to Env1, and set this to 226. Set VCA Env A to 0, D to 22, S to 0, R to 20. Env1 can be left at the default settings (A=0, D=40, S=0, R=0).

If you wish to do the traditional drum machine trick, where hats cuts each other off, assign this part as a “Mono To Voice”.

Tweak the parameters, to obtain different hi hat flavours.

Open Hi hat

Copy and paste the closed hi hat to another part. Set the VCA Env A to 0, D to 22, S to 415 and R to 208. Now you got an open version of the closed hi hat!

Analog style closed hi hat

Select the Prc3 oscillator type. Set Dtun to 186, Atk to 0, NzPw to +0 and Noiz to 62. If you are triggering the sound from the trigger buttons, set Tune to +21. Set Atk modulation to Env1, and set this to 80. Set VCA Env A to 0, D to 22, S to 0, R to 20. Env1 can be left at the default settings (A=0, D=40, S=0, R=0).

Tweak the parameters, to obtain different hi hat flavours.

Analog style open Hi hat

Copy and paste the analog style closed hi hat to another part. Set the VCA Env A to 0, D to 22, S to 415 and R to 208. Now you got an open version of the closed hi hat!

Hand Clap

Select the Prc2 oscillator type. Set NzPw to -23, Dtun to 0, Atk to 68 and Noiz to 256. If you are triggering the sound from the trigger buttons, set Tune to -1. No oscillator modulation is required for this. Set VCA Env A to 0, D to 61, S to 24, R to 182. Set FLT1 Cut to 210, Reso to 252, Inp to 256, Mix to +255, Type to LPF1, Nrw, Low and Boost to 0.

Tweak the parameters, to obtain different hand clap flavours.

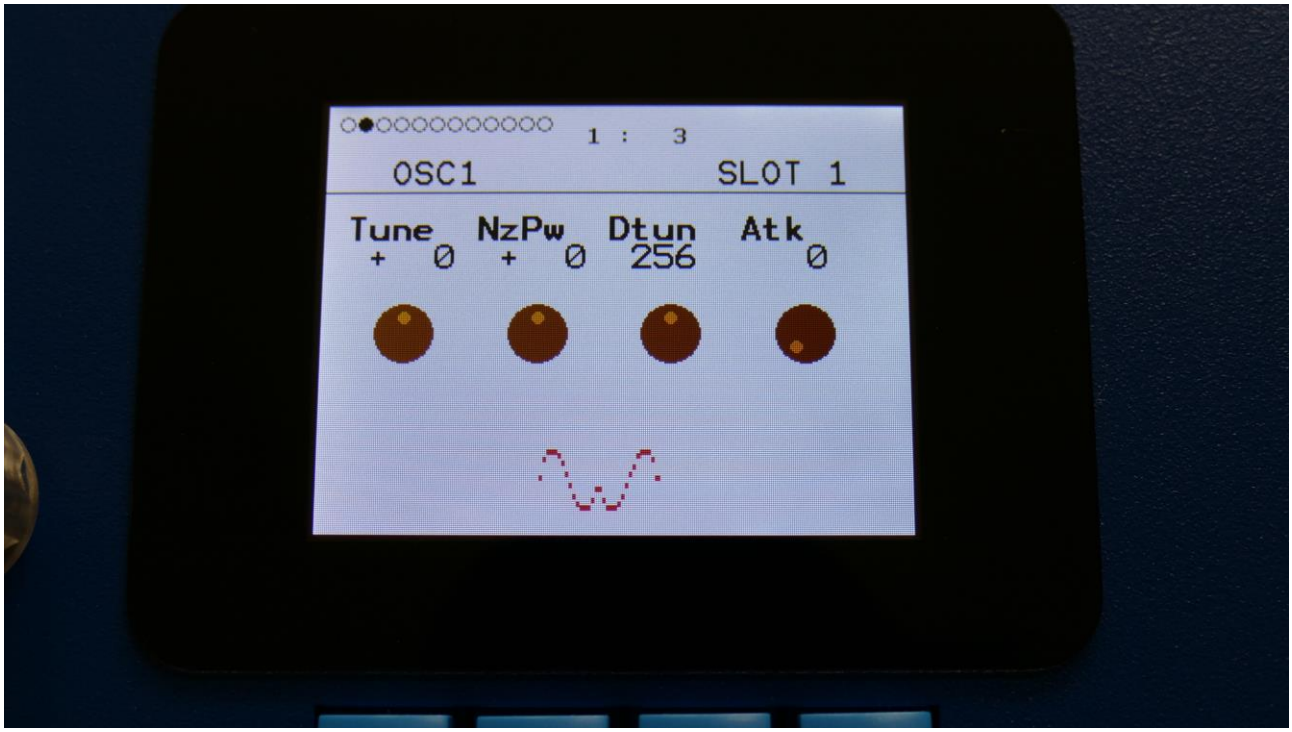
Set VCA envelope to LogSm mode, A to 0, D to 20, S to 511 and R to 96.

Bell sound

Select the Perc oscillator type. Set Dtun to 169, Atk to 120 and Noiz to 0. If you are triggering the sound from the trigger buttons, set Tune to +0. Set Atk modulation to Env1, and set this to 254. Set VCA Env A to 0, D to 22, S to 511, R to 191. Env1 can be left at the default settings (A=0, D=40, S=0, R=0).

Tweak the parameters, to obtain different bell sound flavours.

From the first drum oscillator page, hit the > button, to enter the next page:



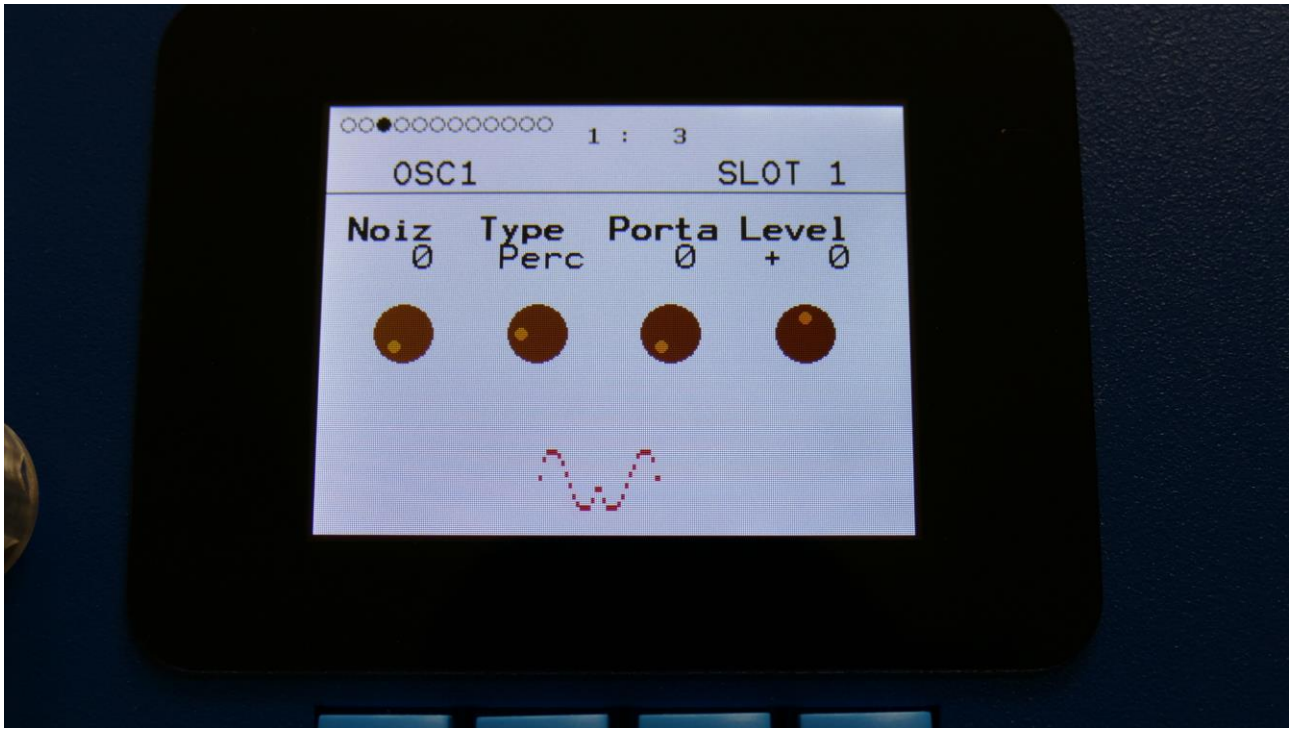
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

NzPw: Sets the intensity of the FM noise. Range: -256 to +255.

Dtun: Detunes percussion wave 2 from percussion wave 1. Value 0 to 511.

Atk: Will morph from the percussion waves body (0) to the percussion waves attack (511). Modulate this parameter with an envelope, to imitate the strike of a drum. Value 0 to 511.

Hit the > button again, to enter the next page:



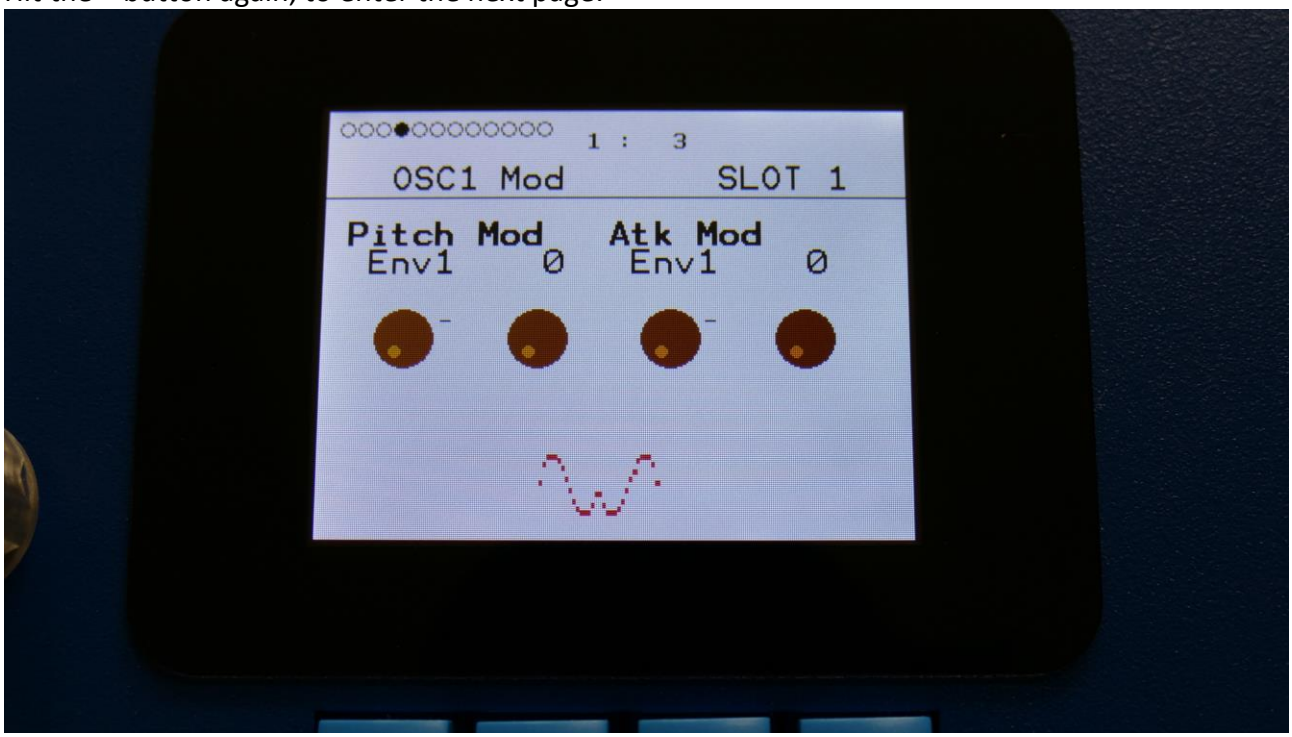
Noiz: Adds noise FM to modulate the pitch of the percussion waves. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator 1 output level. Negative values attenuates the signal, positive values gains the signal.

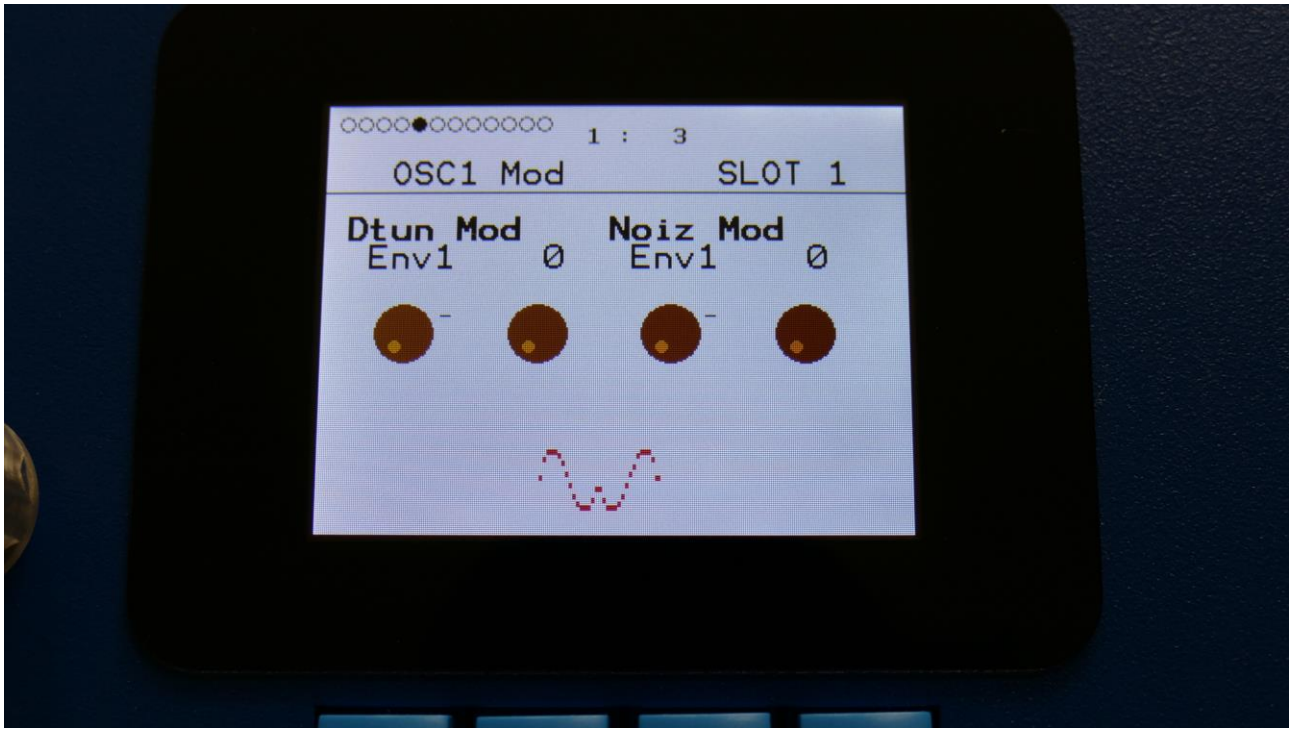
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 1 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Atk Mod: Select a modulation source and adjust the amount of modulation for the Atk parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Noiz Mod: Select a modulation source and adjust the amount of modulation for the Noiz parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Osc1: Cymb, Cym2

Cymb: Cymbal oscillator. A cymbal sound is a complex sound, and this is a complex oscillator. It is made up of a small group of squarewave oscillators, that modulates each other (CymFM). The pulse width can be set for the oscillators, they can be detuned from each other, and the amount of CymFM can be set. Self FM can be applied to the first oscillator in the chain, which is only a modulator, so the effect of self FM can only be heard, if CymFM is turned up. This percussion oscillator is optimized for **cymbals and metallic noises**, but can also produce a lot of other sounds. Like the other oscillator types, its parameters can be modulated by any modulation source, and it can be routed through filters and effects, which expands the possibilities.

Cym2: Cymbal2. By combining FM and ring modulation, this can make cymbal sounds that are a bit more aggressive than cymbal 1.

Sound ideas / Start points

Cymbal

Select the Cymb oscillator type. Set SelFM to +255, Dtun to 127, PW to 120 and CymFM to 511. Set VCA Env A to 0, D to 39, S to 446, R to 434.

This will create a different cymbal sound on almost any key, so by adjusting the Tune parameter, you will obtain different sounds

Tweak the parameters, to obtain different cymbal flavours. Run it through filters, to make it less wild.

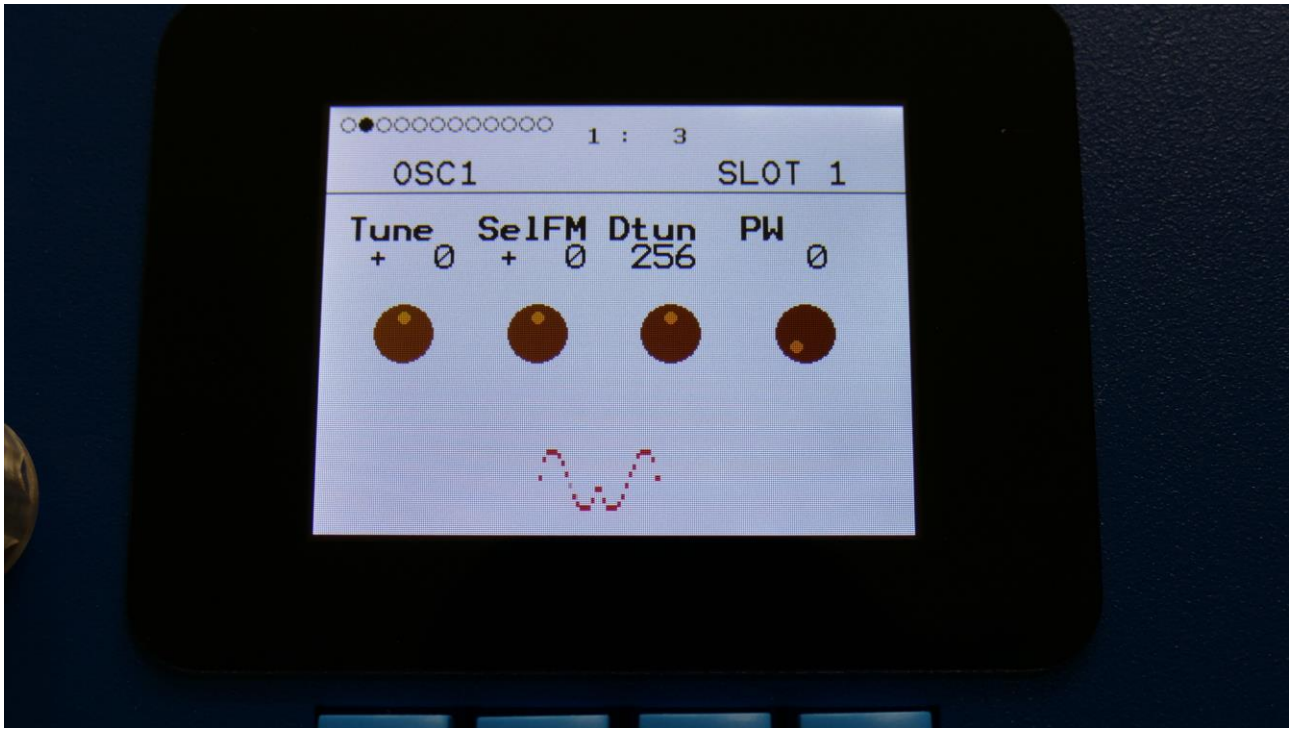
To make it a bit more metallic, try to run it through a Bit Crusher effect. Add a distortion effect, to give it more edge.

Crash Cymbal

Select the Cym2 oscillator type. Set Tune to -22, SelFM to +88, Dtun to 254, PW to 272, and CymFM to 511.

Set VCA envelope to Log mode, A to 0, D to 20, S to 511 and R to 390.

From the first drum oscillator page, hit the > button, to enter the next page:



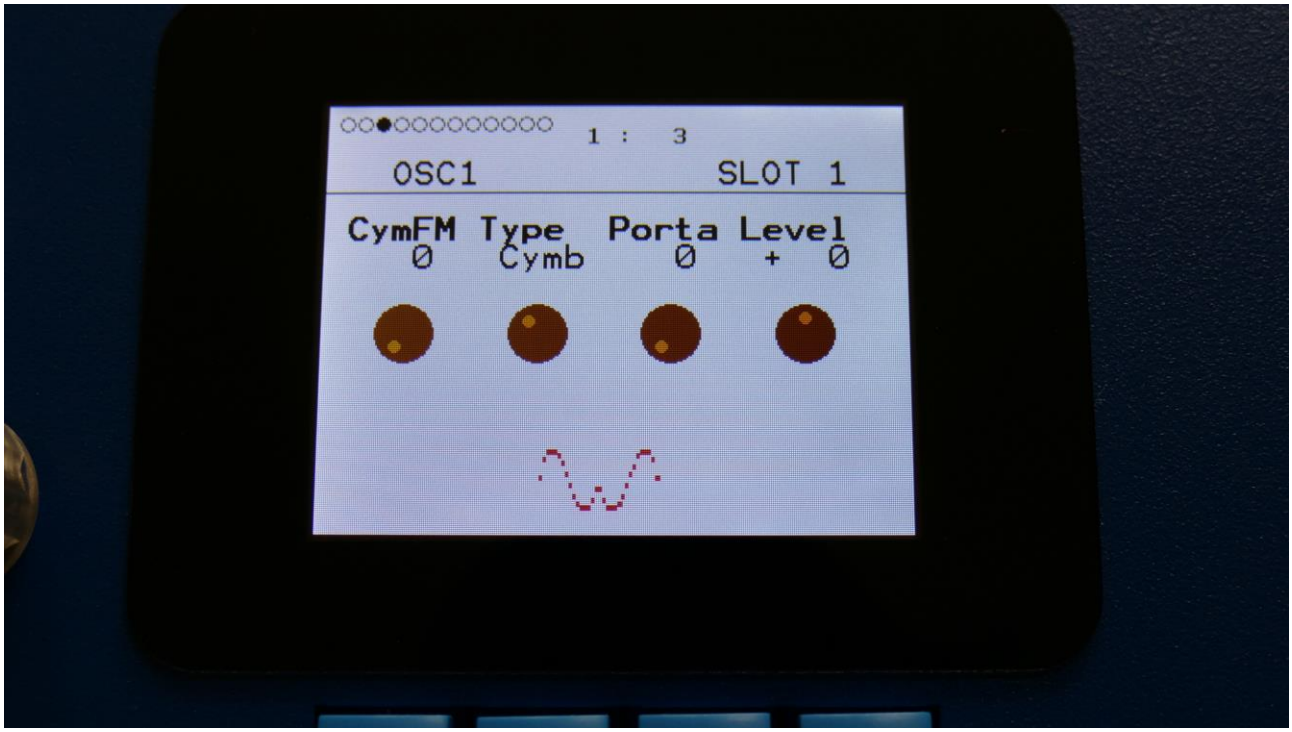
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

SelFM: Sets self FM amount of the first square wave oscillator (A modulator). Range: -256 to +255.

Dtun: Sets self FM amount of the first square wave oscillator (A modulator). Value 0 to 511.

PW: Sets the pulse width of all square waves. Value 0 to 511.

Hit the > button again, to enter the next page:



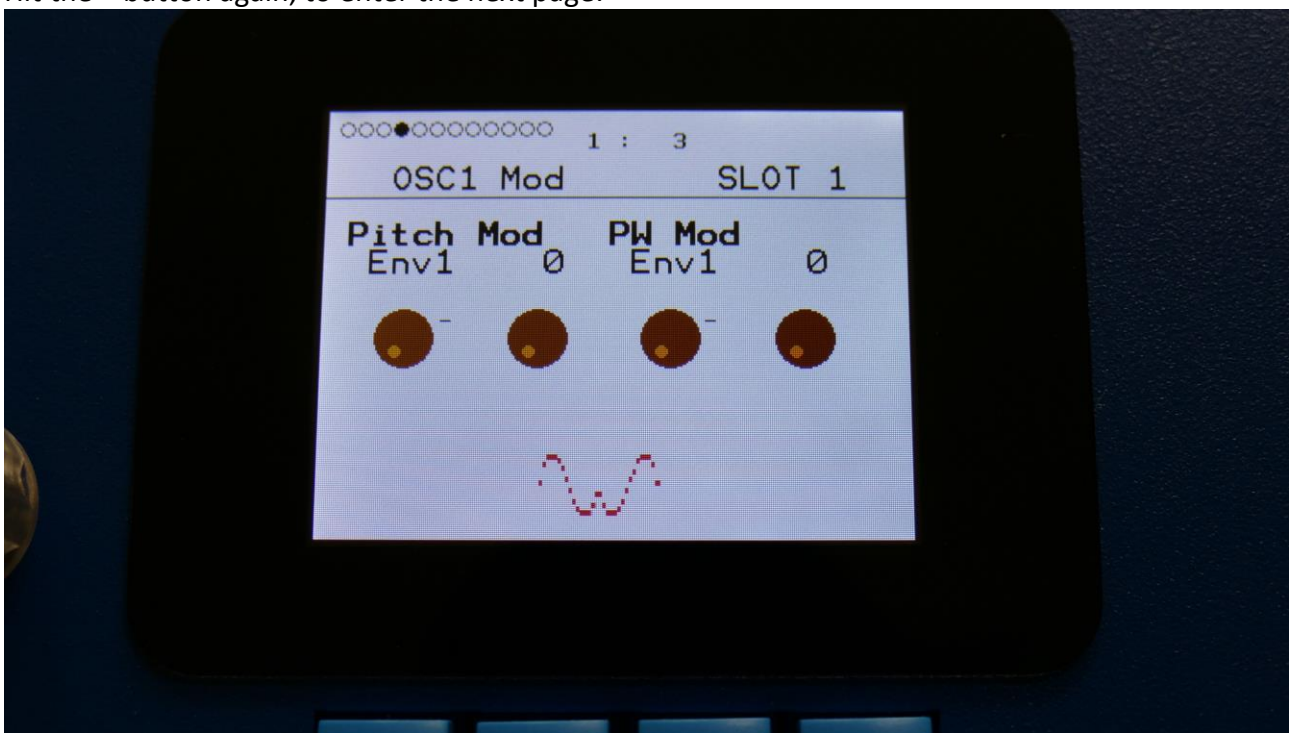
CymFM: Sets the FM amount between the square wave oscillators. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator 1 output level. Negative values attenuates the signal, positive values gains the signal.

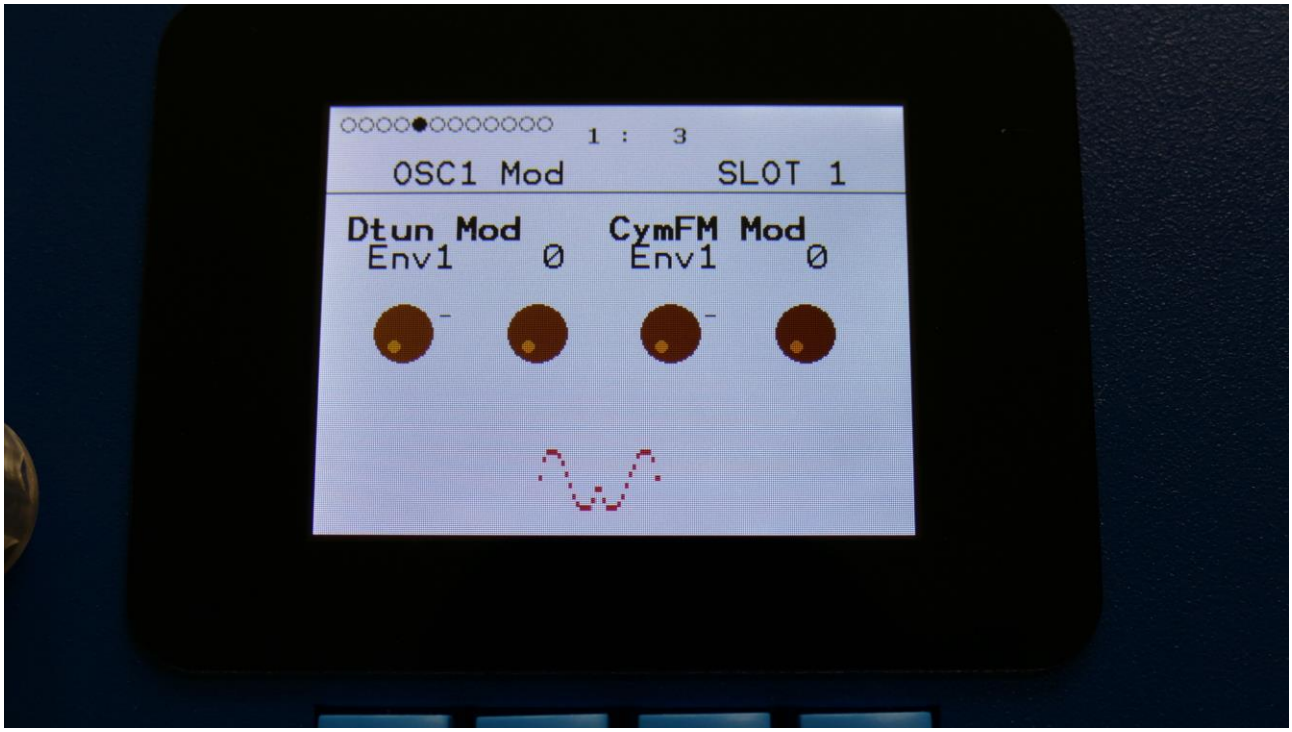
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 1 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the square waves PW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

CymFM Mod: Select a modulation source and adjust the amount of modulation for the CymFM parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Osc1: Clap

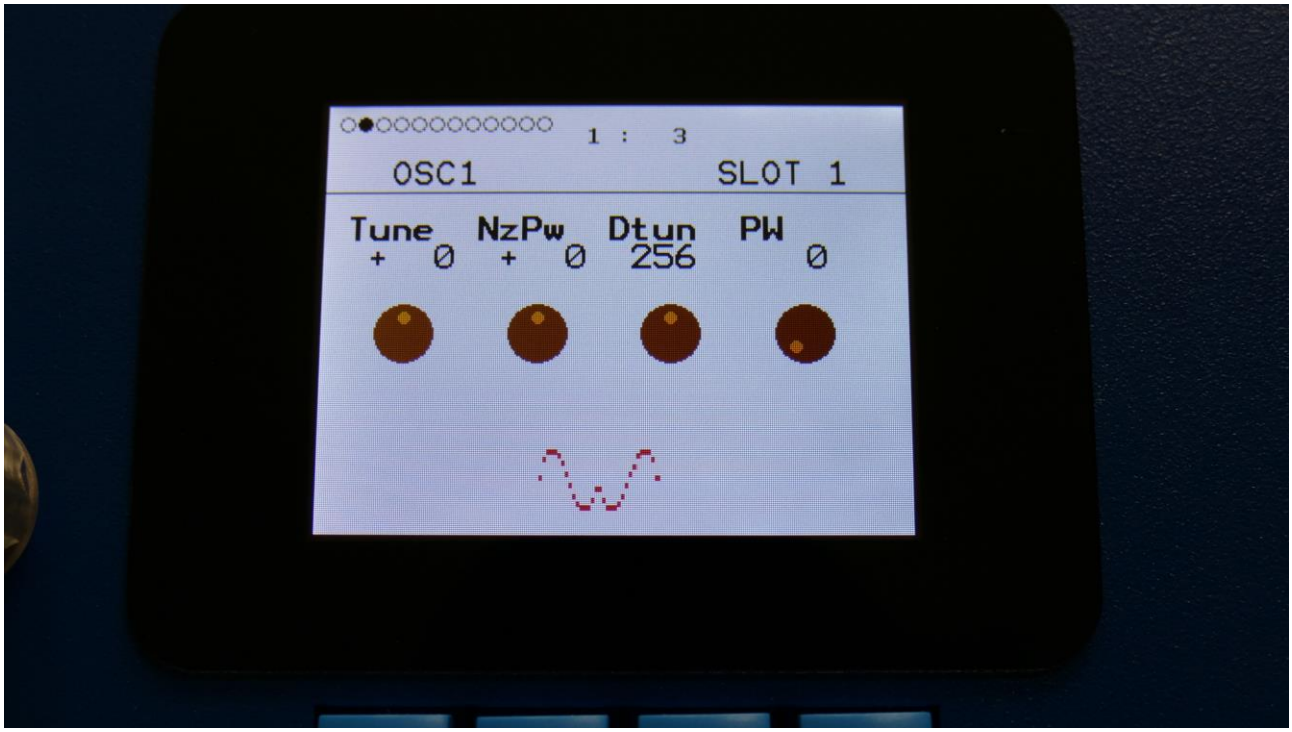
A handclap oscillator. A noise source is shaped by a “clap envelope”. The speed and the amount of the clap envelope can be adjusted, together with the noise PW.

Sound ideas / Start points

Set Tune to -23, NzPw to +107, Dtun to 0, PW to 272, and Clap to 511.

Set VCA envelope to LogSm mode, A to 0, D to 20, S to 511 and R to 96.

From the first drum oscillator page, hit the > button, to enter the next page:



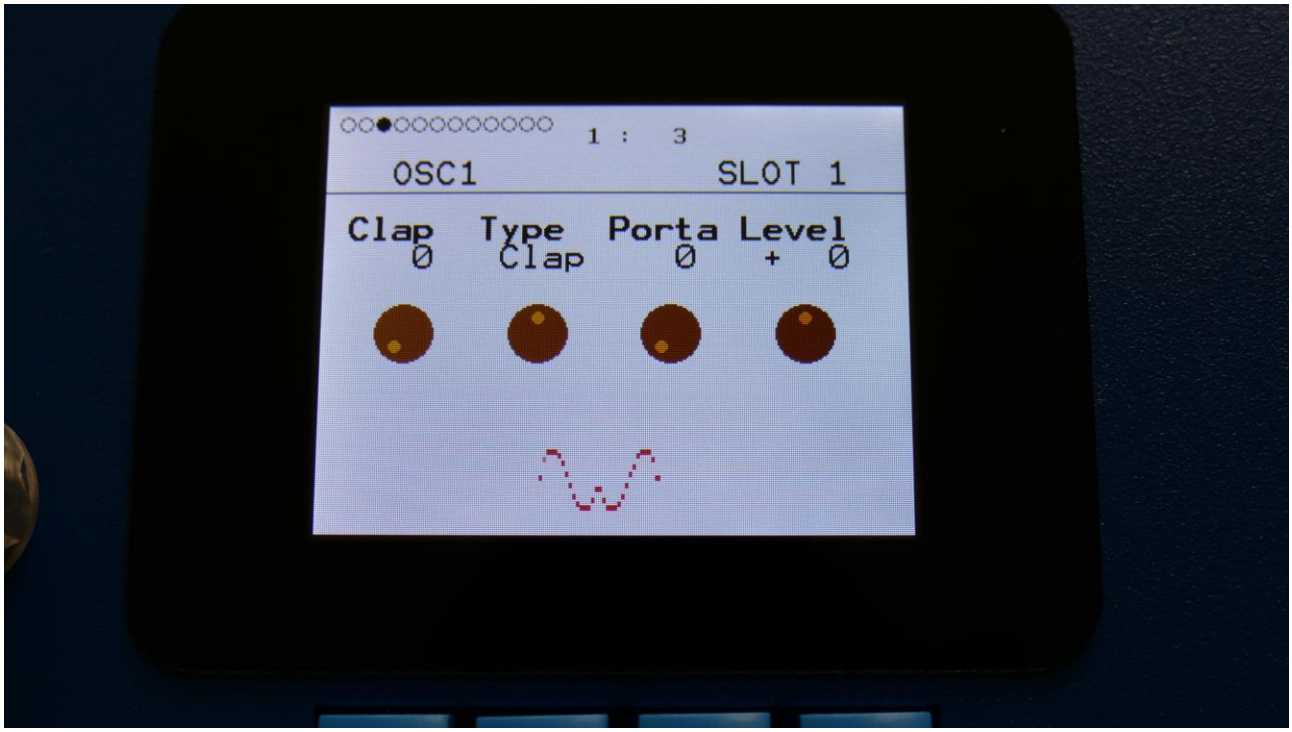
Tune: Value -64 to +63. When the Clap oscillator is selected, the Tune parameter sets the speed of the clap envelope.

NzPw: Value -256 to +255. Sets the intensity of the Clap noise.

Dtun: Value 0 to 511. Detunes the noise sound.

PW: Value 0 to 511. Sets the pulse width of a square wave, that is placed on top of the noise signal. 0: No square wave is added.

Hit the > button again, to enter the next page:



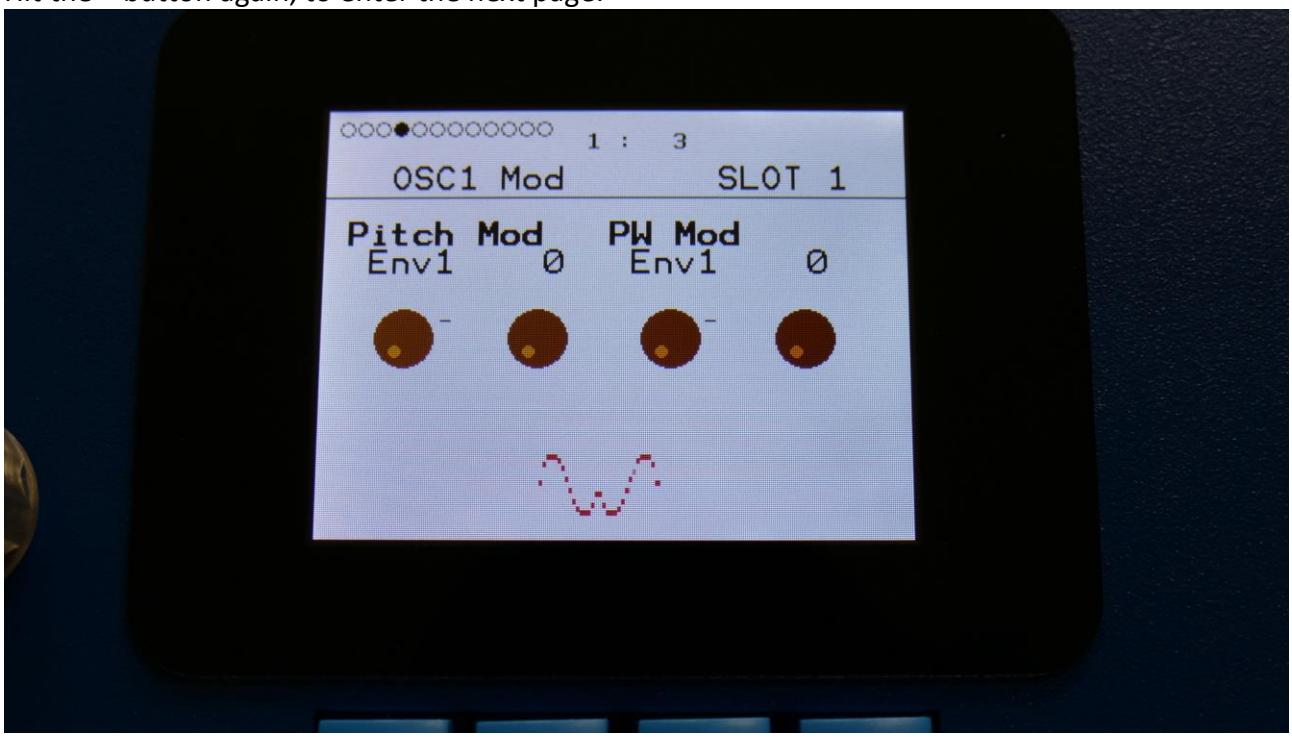
Clap: Value 0 to 511. Sets how much the clap envelope should shape the noise signal.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator 1 output level. Negative values attenuates the signal, positive values gains the signal.

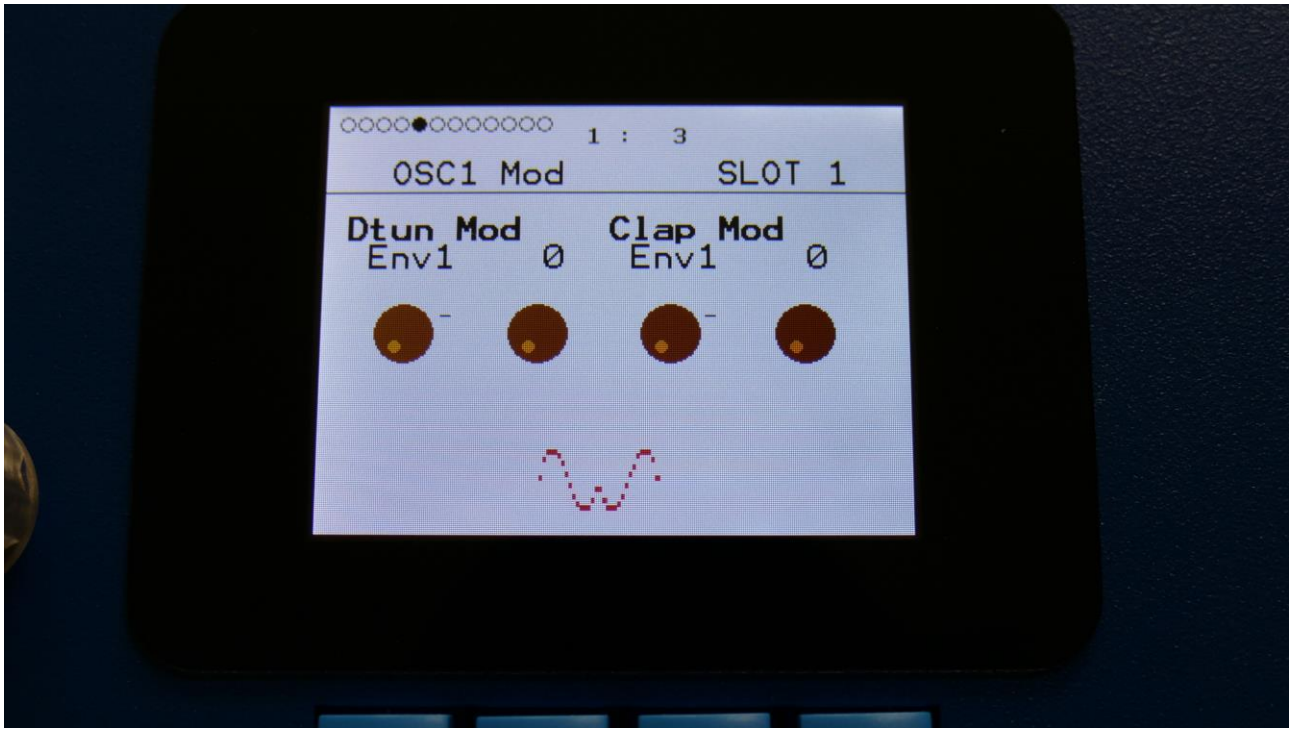
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount clap envelope speed modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the square wave PW. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



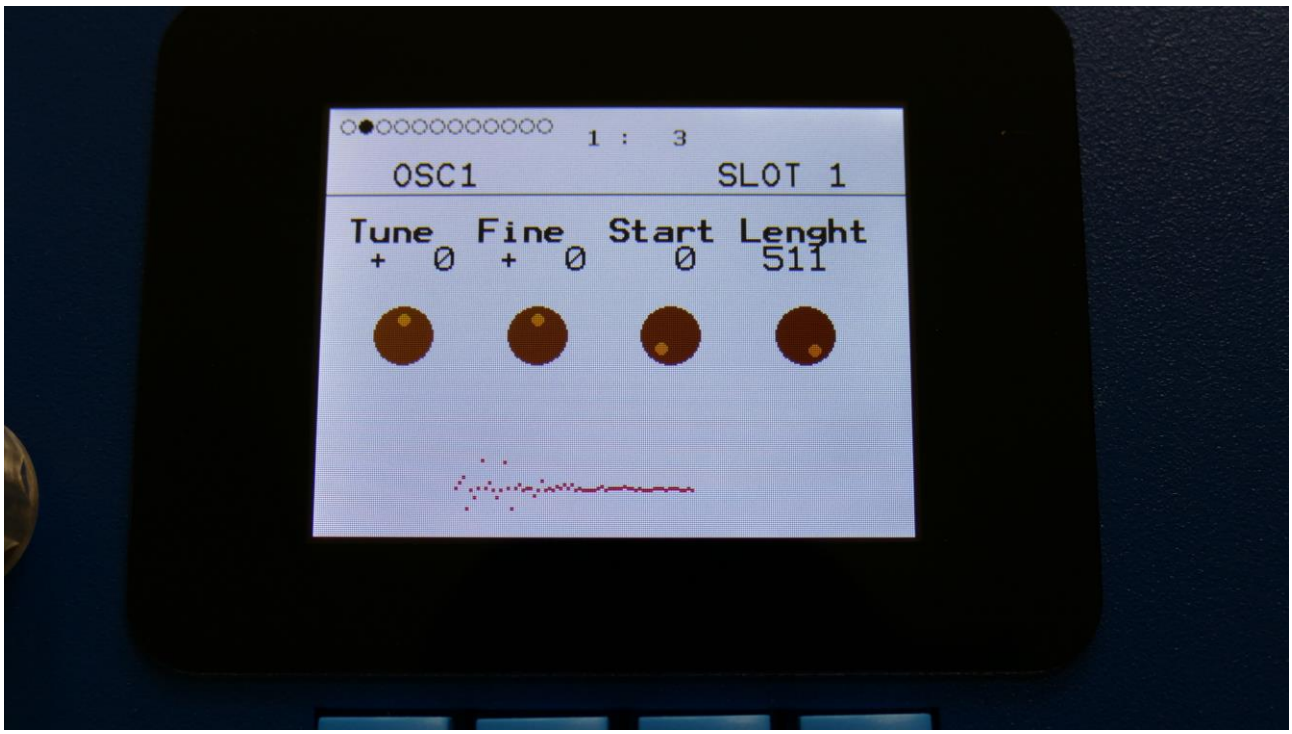
Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Clap Mod: Select a modulation source and adjust the amount of modulation for the Clap parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Osc1: Sample Player

This plays back any of the 2.047 samplings, that can be stored in SpazeDrum's internal FLASH memory. Samplings can be imported via USB.
Only mono samplings are supported. If a stereo sampling is selected, only the left channel will play back.
Pitch, chop, start point and length can be adjusted and modulated. Samples can also be FM'ed by oscillator 2.
Samples are chromatically tuned, and has a pitch range of 4 octaves above and 5 octaves below the original sample pitch.
It is possible to create chop points in the SpazeDrum sample editor, and use these. Chops can be detected by level peaks, by single wavecycles, and by dividing the sample length with a settable number.
Chop points will also be imported from wav files, containing these as cue points.

From the first drum oscillator page, hit the > button, to enter the next page:



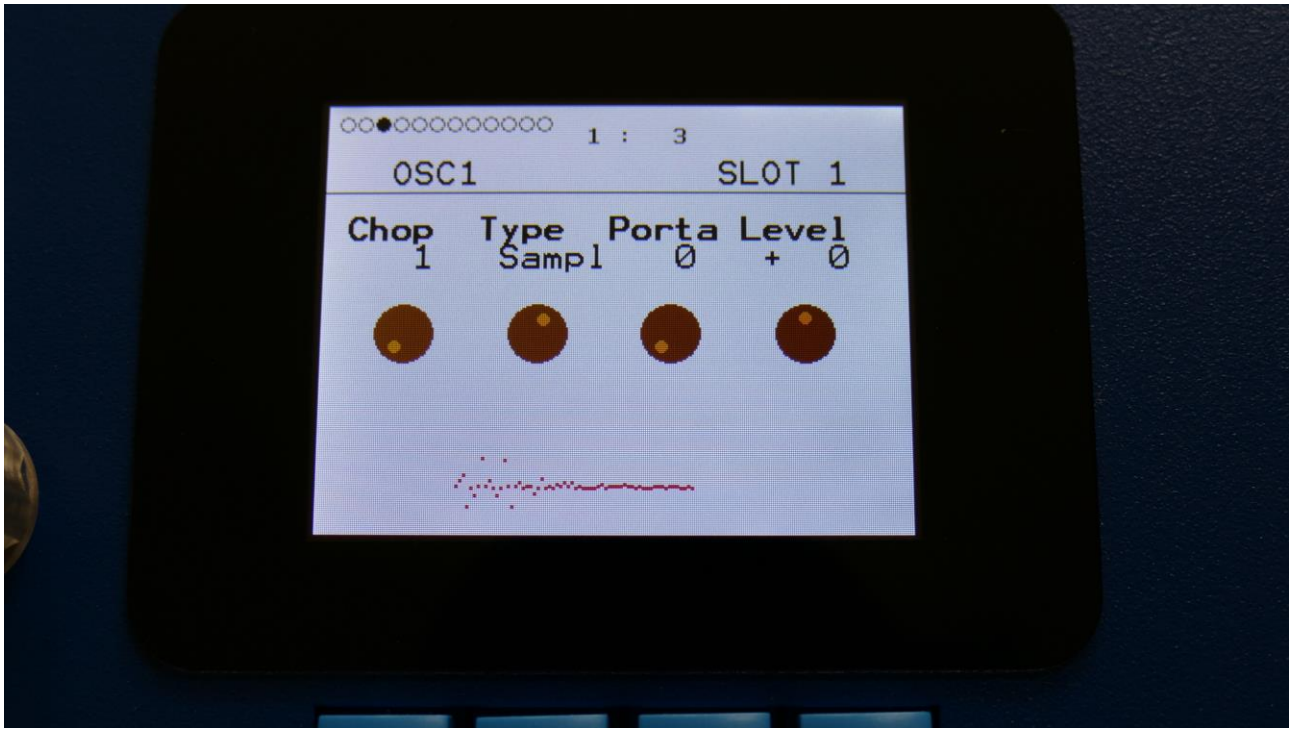
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

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

Hit the > button again, to enter the next page:



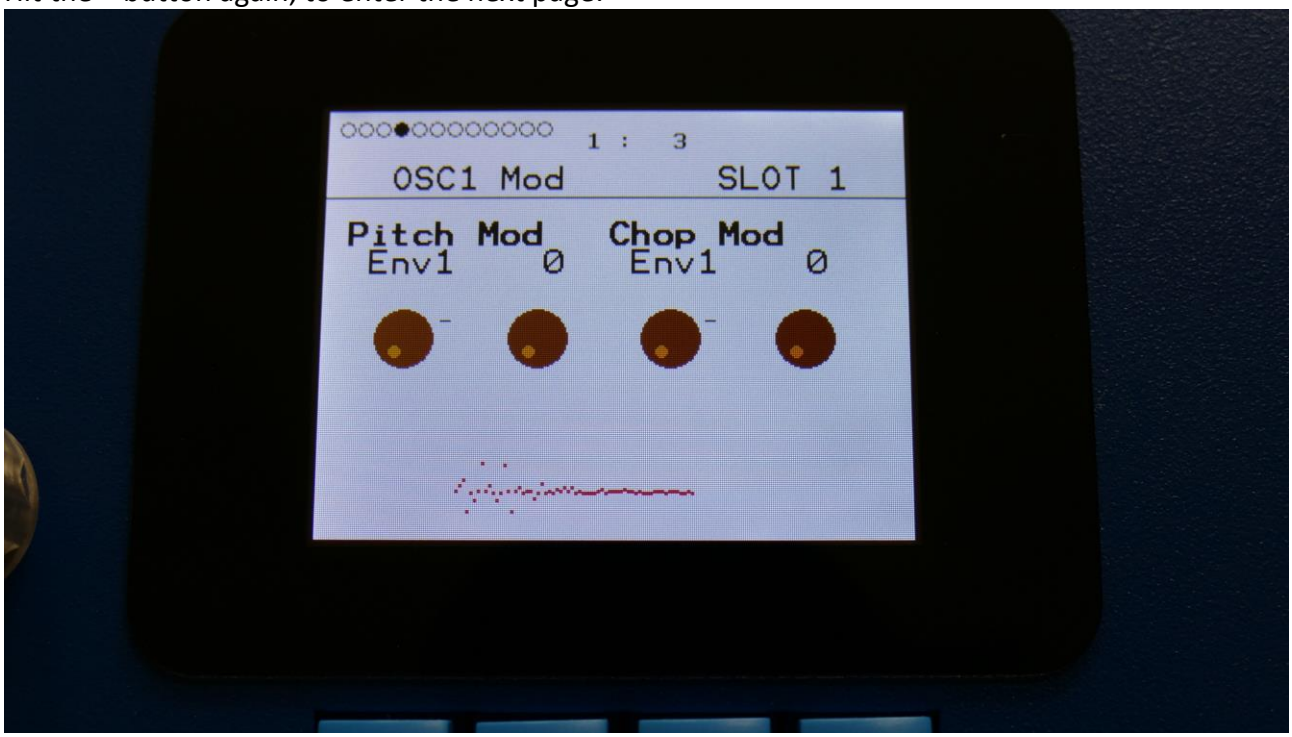
Chop: If chop points has been generated for the selected sampling, a chop can be selected by setting this parameter. Range: 0 to 63.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator 1 output level. Negative values attenuates the signal, positive values gains the signal.

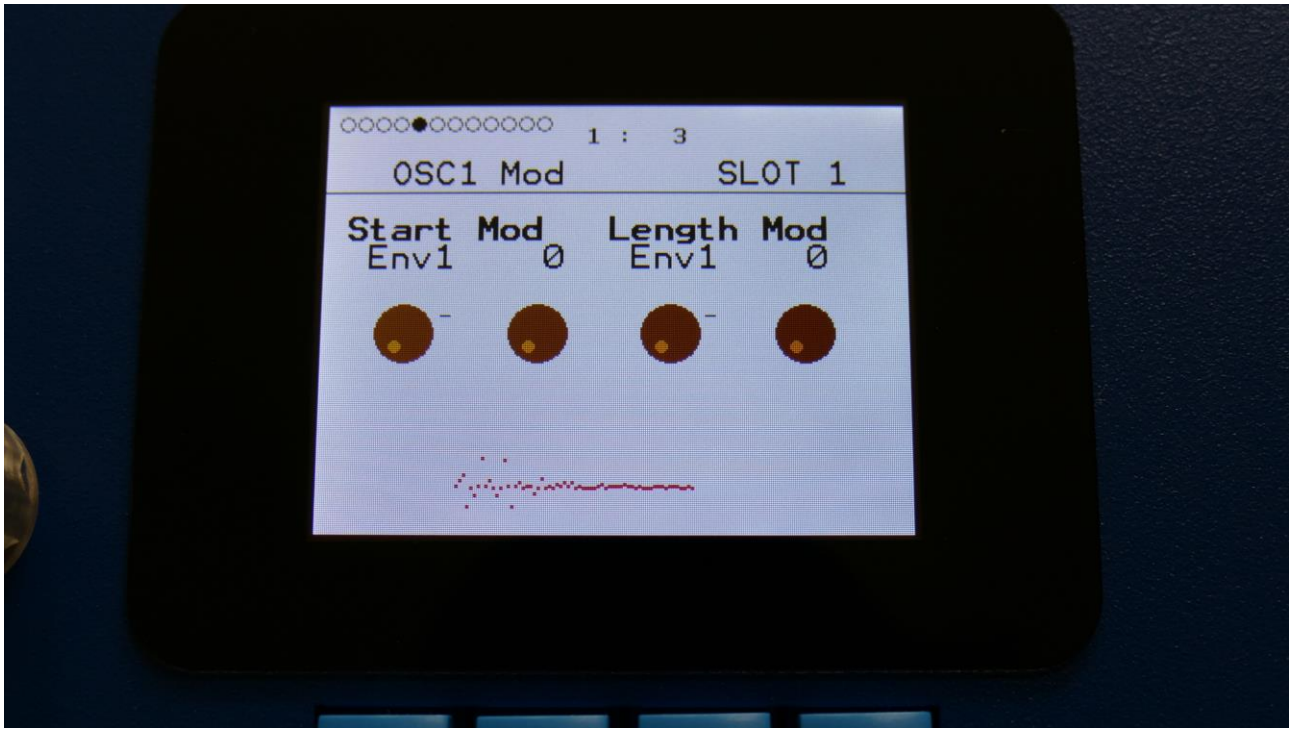
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 1 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Chop Mod: Select a modulation source and adjust the amount of modulation for the Chop select parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

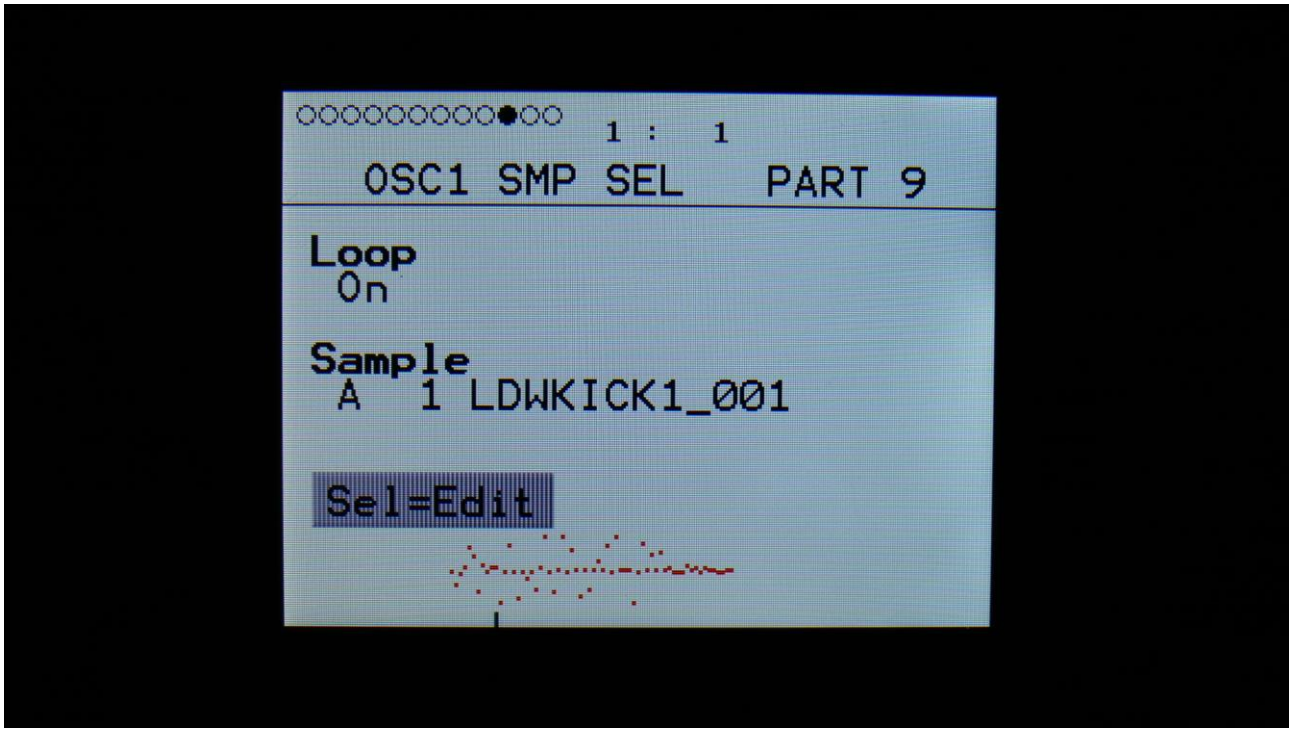
Hit the > button again, to enter the next page:



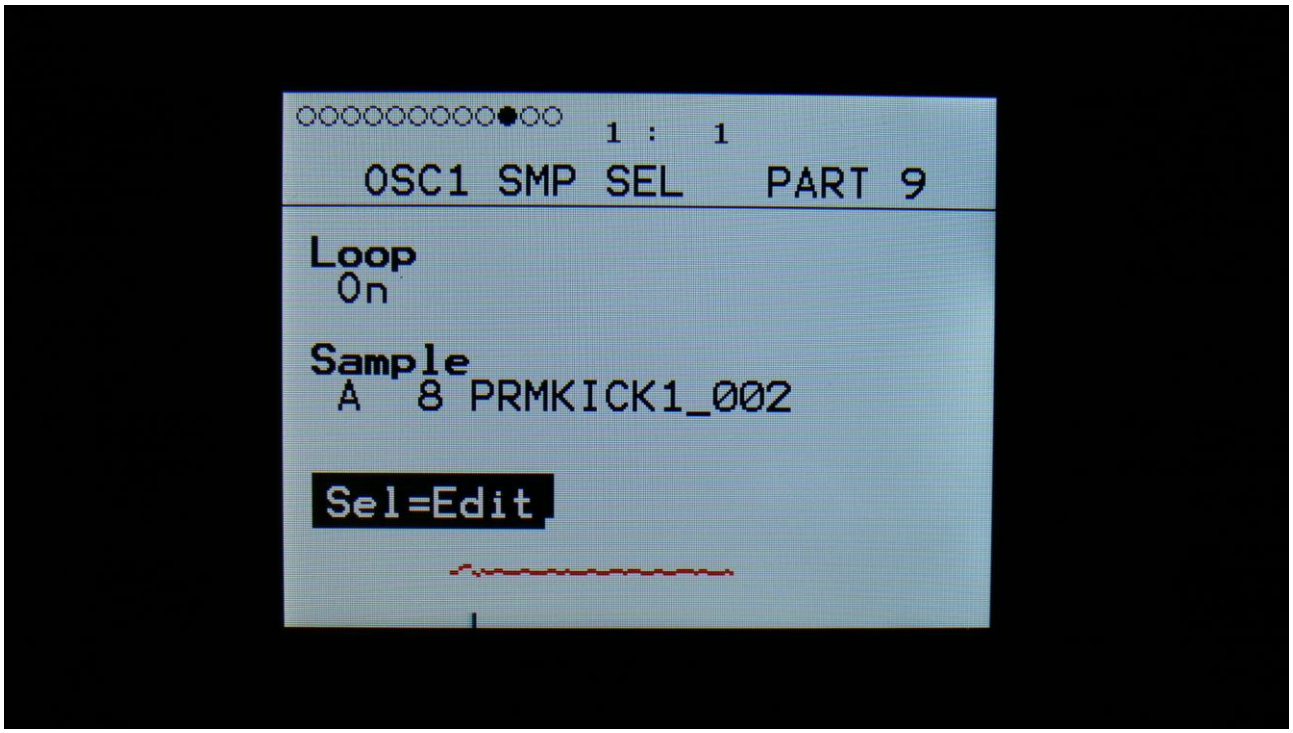
Start Mod: Select a modulation source and adjust the amount of modulation for the Start parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Length Mod: Select a modulation source and adjust the amount of modulation for the Length parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button a number of times, to enter this page:



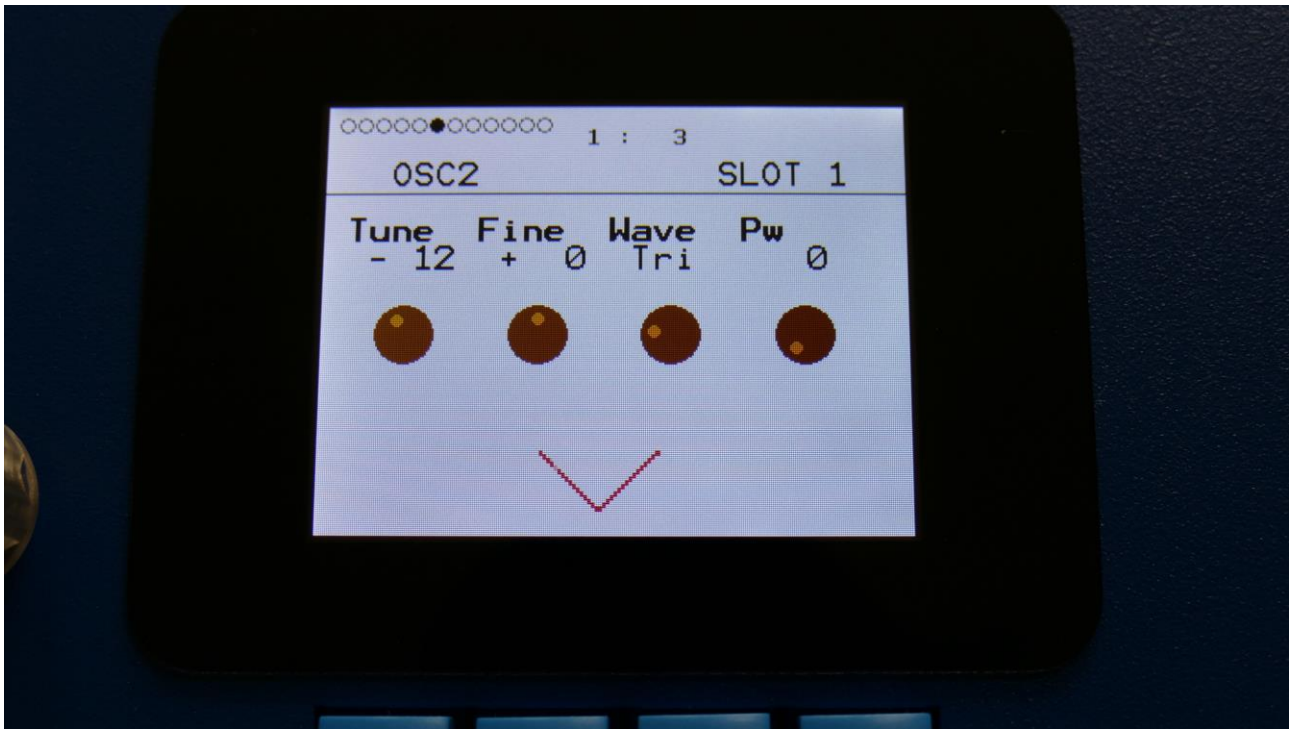
Here you can select the sampling, that oscillator 1 should play back. To do so, hit the Edit button. Now “Sel=Edit” will turn black, and you can use the < and > buttons to select the desired sampling. Hold any of these buttons to scroll. When you have selected the desired sampling, simply hit the Edit button again. It is also possible to switch sample **Loop** on and off, by turning Edit Knob 1.



Osc2: Type 1, Type2, Reso

For an explanation of these oscillator types, please see Osc1.

From the first drum oscillator page, hit the > button a number of times, to enter this page:



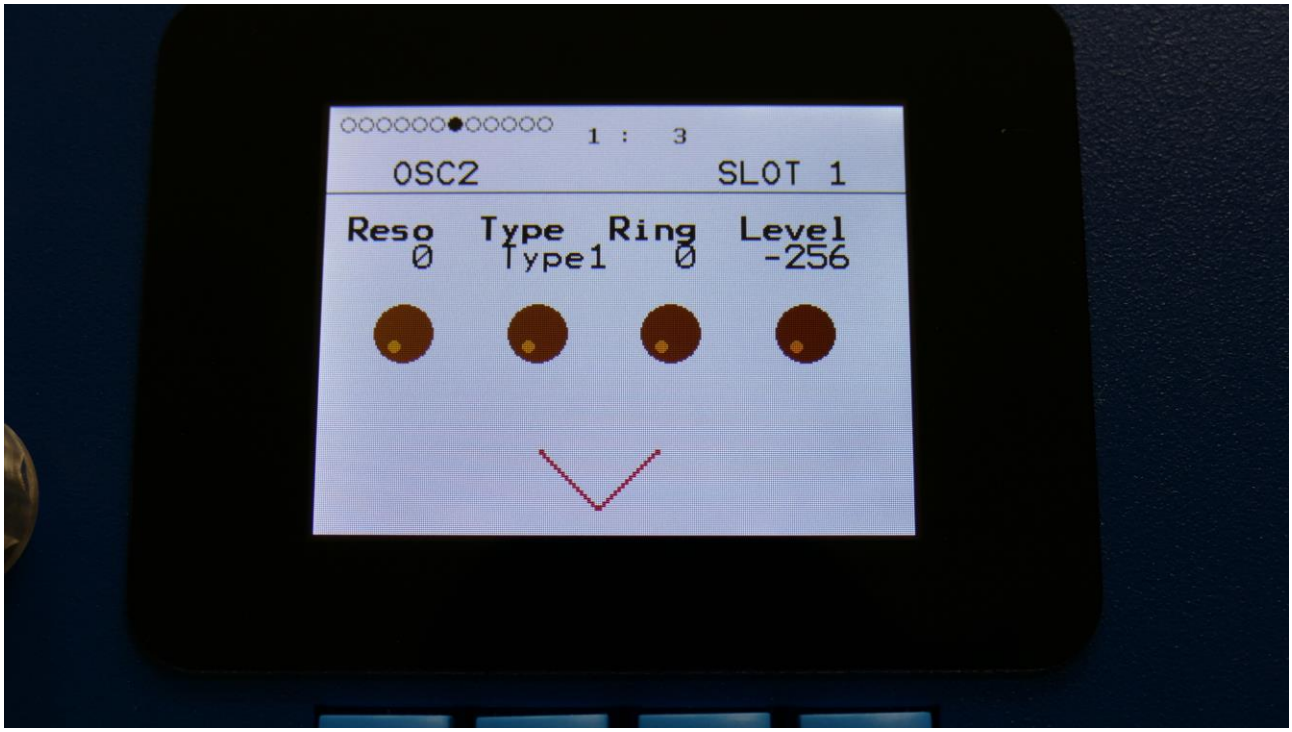
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

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

Wave: This parameter lets you morph between sine, triange, 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 SpazeDrum's waveforms, not just the pulse wave.

Hit the > button again, to enter the next page:



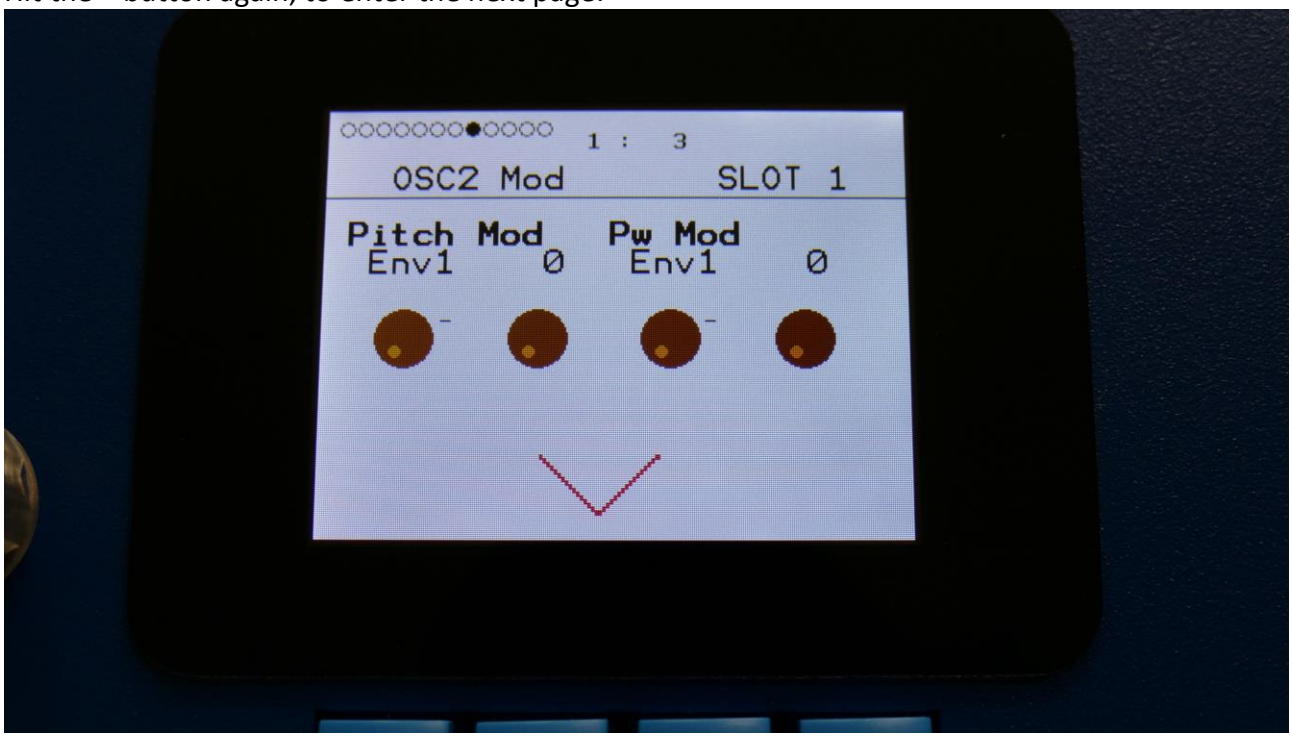
Reso: The amount of resonances fed back, when the resonator oscillator type is selected. The higher this parameter is set, the more resonances are fed back into the oscillator. Even at setting zero, some resonances are fed back. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

Ring: Ring Modulator level. Sets the level of Oscillator 1 ring modulated by Oscillator 2. Range: 0 to 511.

Level: Sets the oscillator 2 output level. Negative values attenuates the signal, positive values gains the signal.

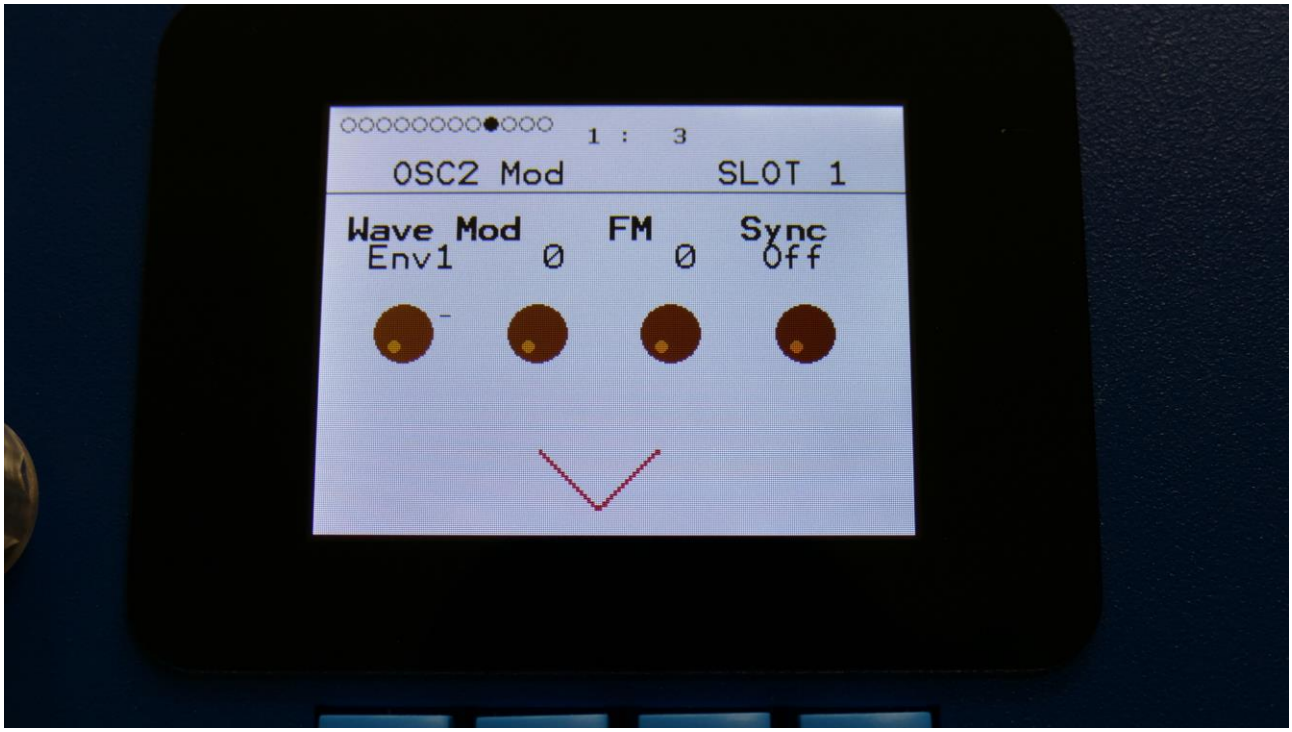
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 2 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the PW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



Wave Mod: Select a modulation source and adjust the amount of modulation for the Wave parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

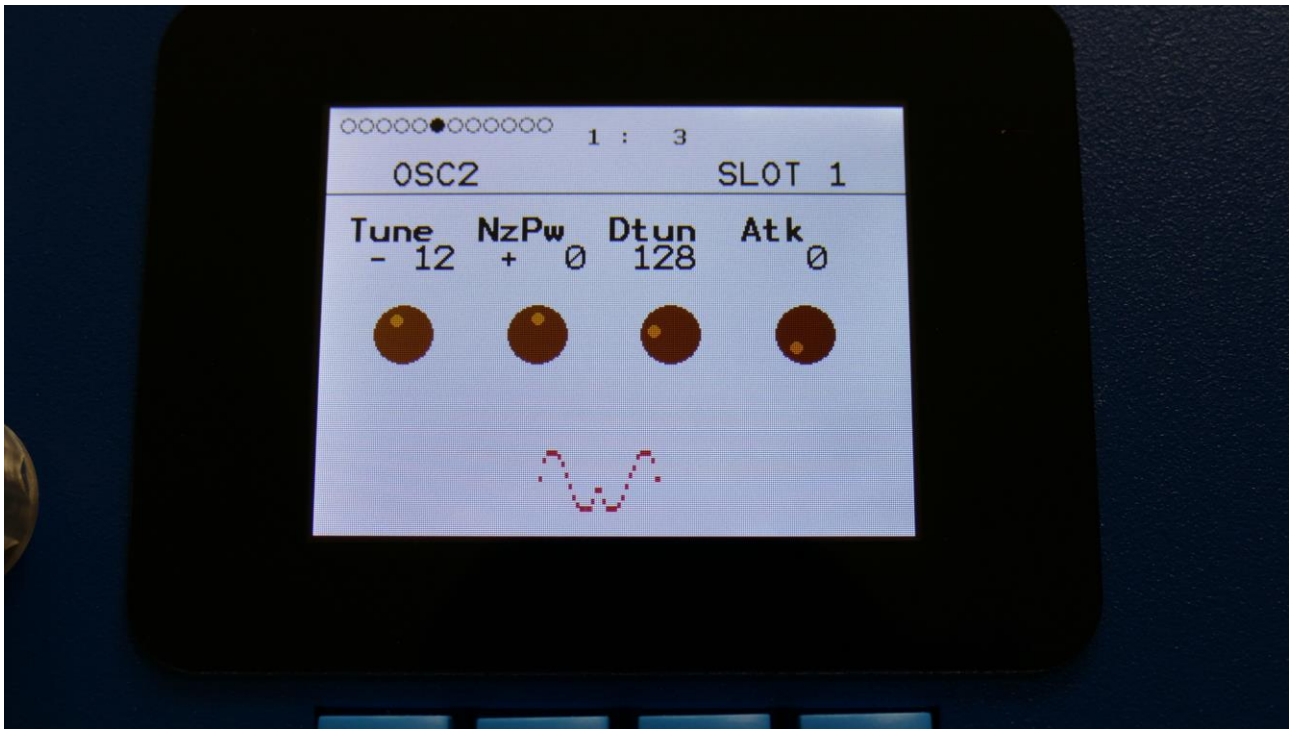
FM: Turning this up, will FM modulate oscillator 1 with oscillator 2.

Sync: Turning this on, will make oscillator 2 synchronize to oscillator 1.

Osc2: Perc, prc2, prc3

For an explanation of these oscillator types, please see Osc1.

From the first drum oscillator page, hit the > button a number of times, to enter this page:



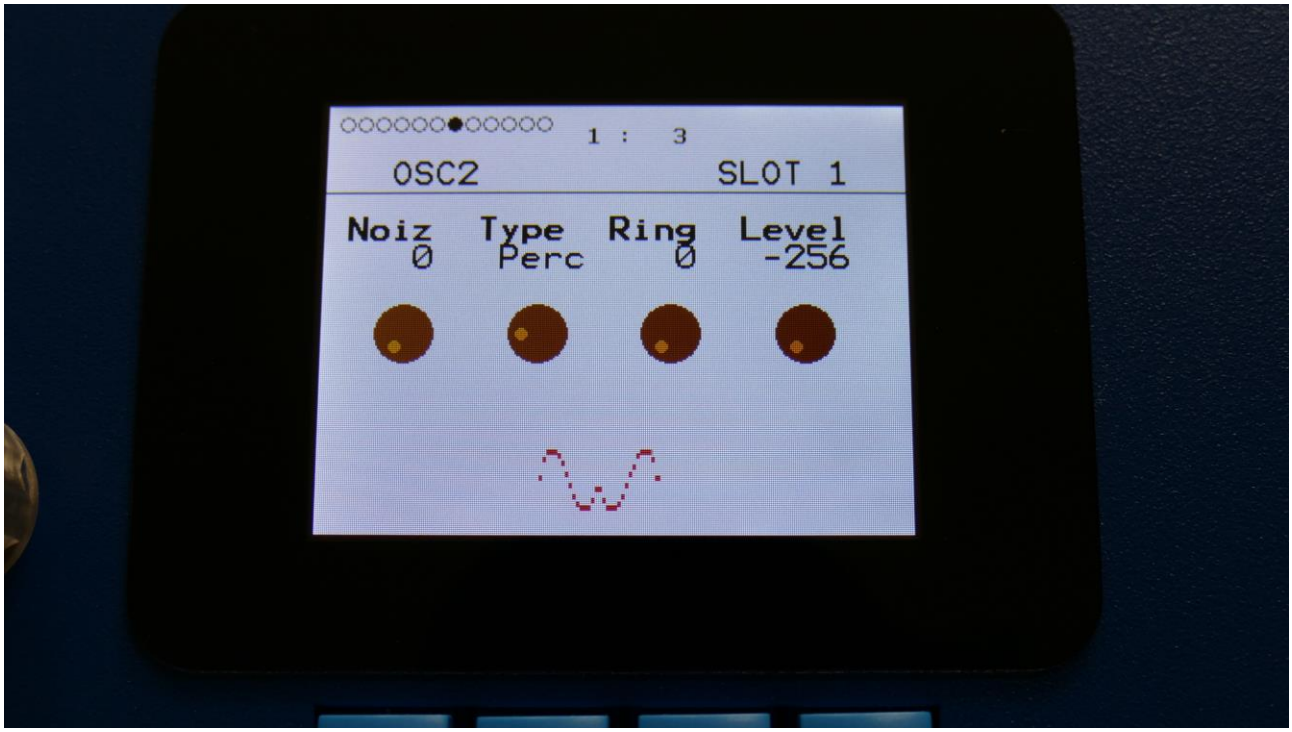
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

NzPw: Sets the intensity of the FM noise. Range: -256 to +255.

Dtun: Detunes percussion wave 2 from percussion wave 1. Value 0 to 511.

Atk: Will morph from the percussion waves body (0) to the percussion waves attack (511). Modulate this parameter with an envelope, to imitate the strike of a drum. Value 0 to 511.

Hit the > button again, to enter the next page:



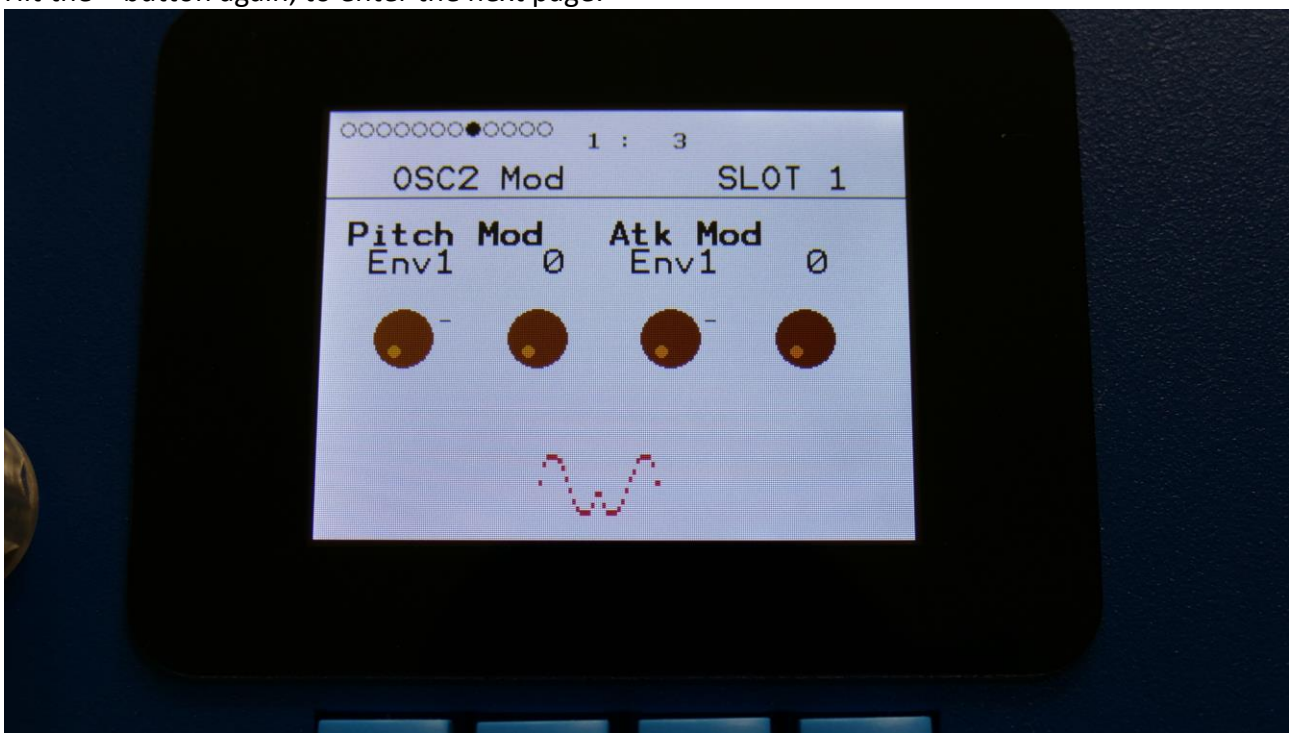
Noiz: Adds noise FM to modulate the pitch of the percussion waves. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

Ring: Ring Modulator level. Sets the level of Oscillator 1 ring modulated by Oscillator 2. Range: 0 to 511.

Level: Sets the oscillator 2 output level. Negative values attenuates the signal, positive values gains the signal.

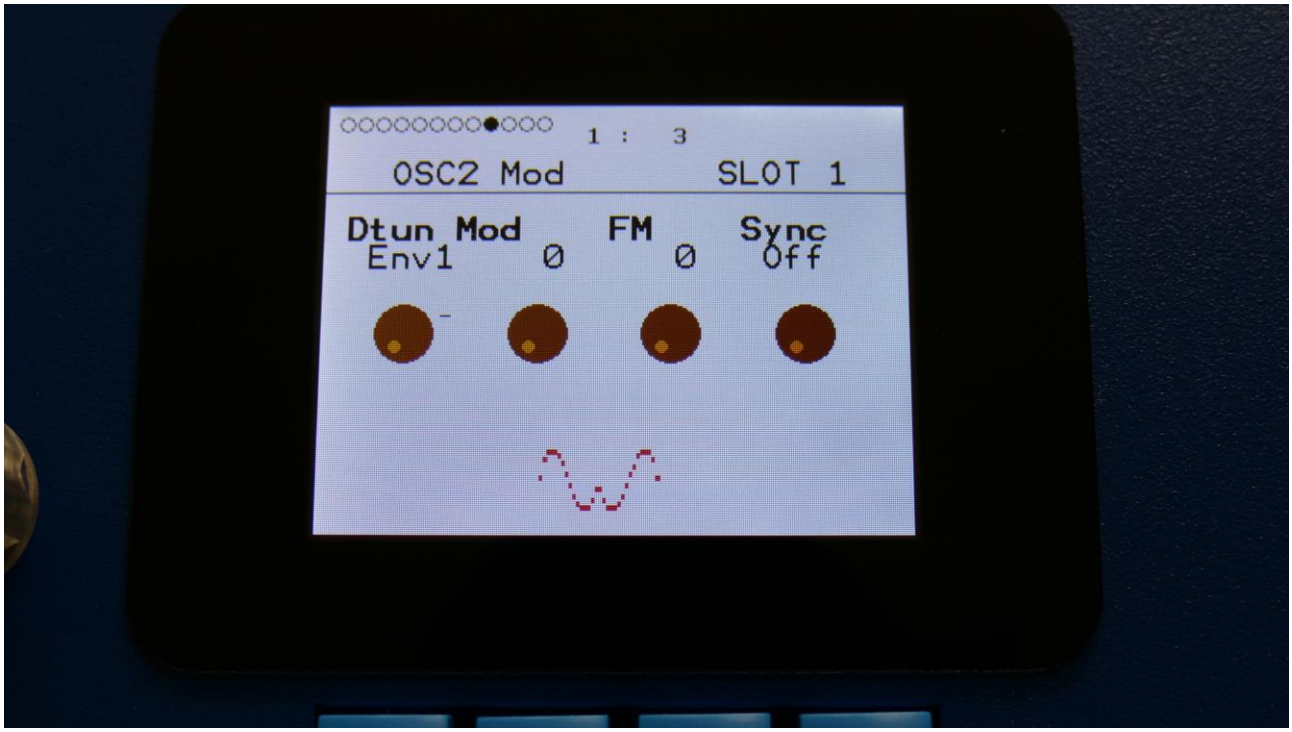
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 2 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Atk Mod: Select a modulation source and adjust the amount of modulation for the Atk parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

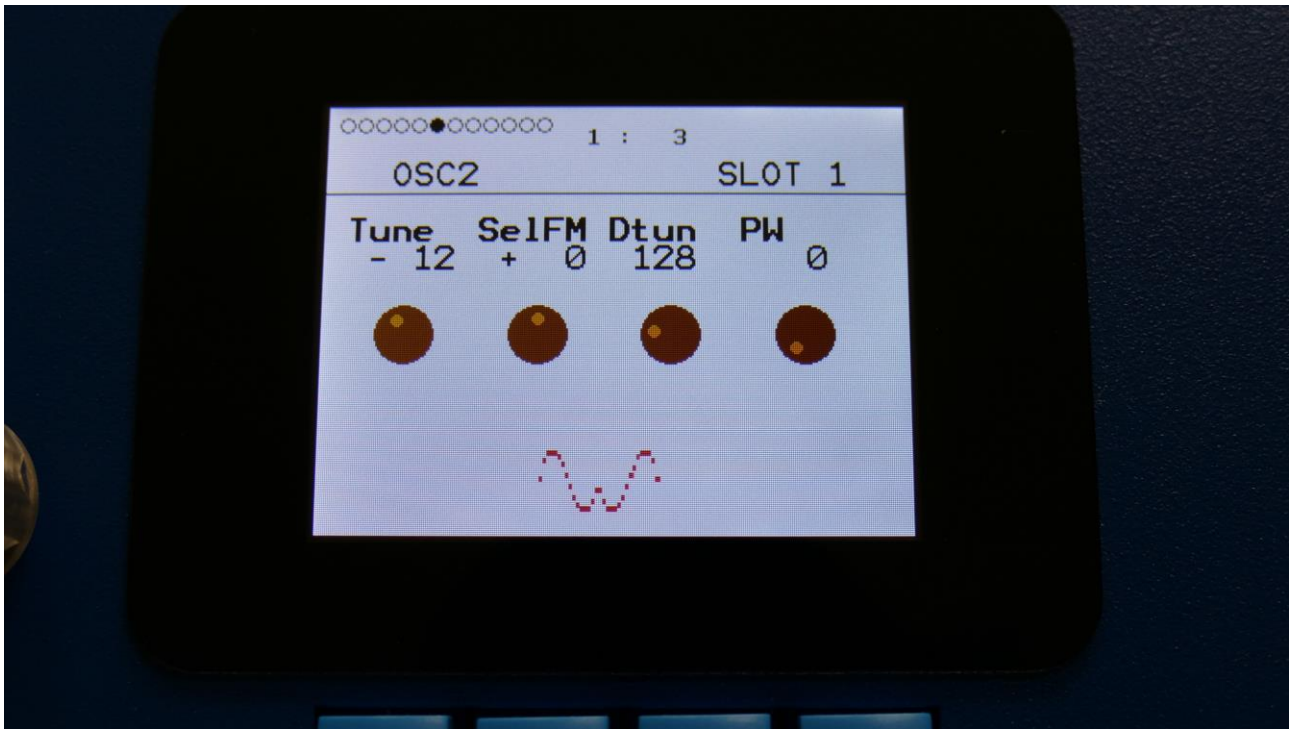
FM: Turning this up, will FM modulate oscillator 1 with oscillator 2.

Sync: Turning this on, will make oscillator 2 synchronize to oscillator 1.

Osc2: Cymb, Cym2

For an explanation of these oscillator types, please see Osc1.

From the first drum oscillator page, hit the > button a number of times, to enter this page:



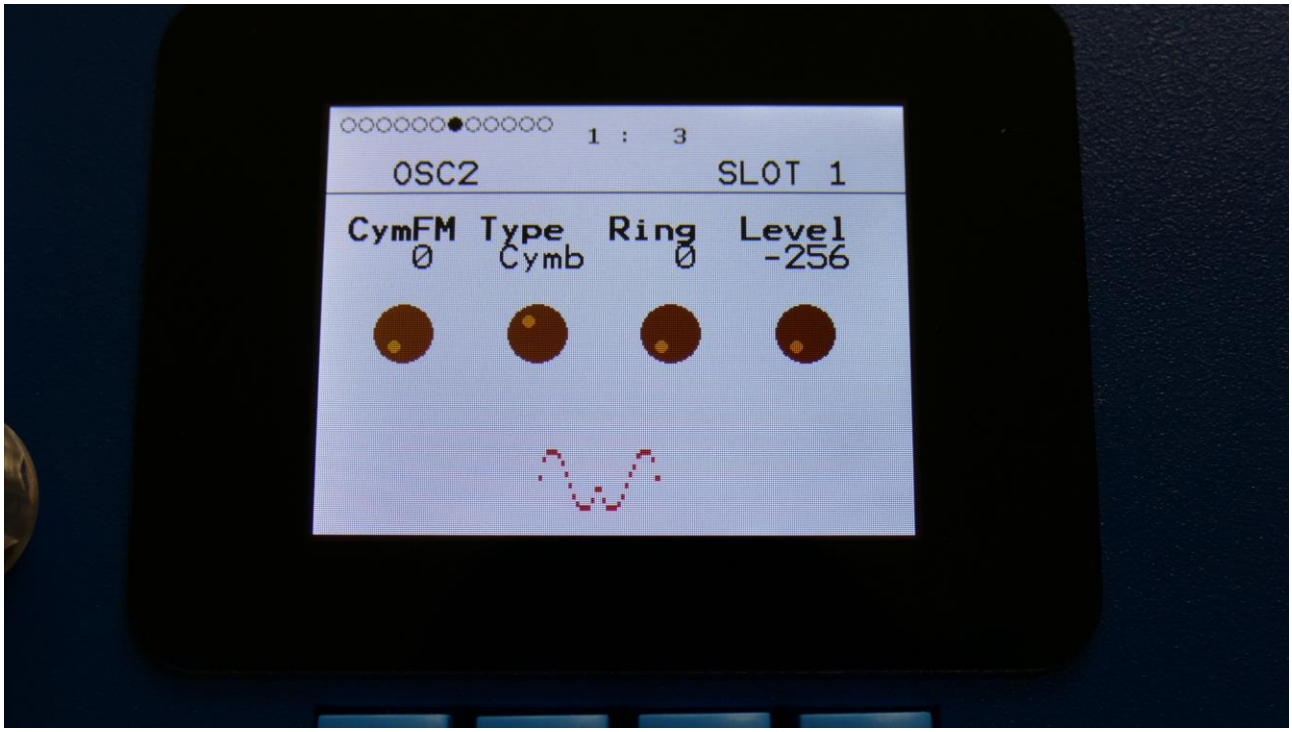
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

SelFM: Sets self FM amount of the first square wave oscillator (A modulator). Range: -256 to +255.

Dtun: Sets self FM amount of the first square wave oscillator (A modulator). Value 0 to 511.

PW: Sets the pulse width of all square waves. Value 0 to 511.

Hit the > button again, to enter the next page:



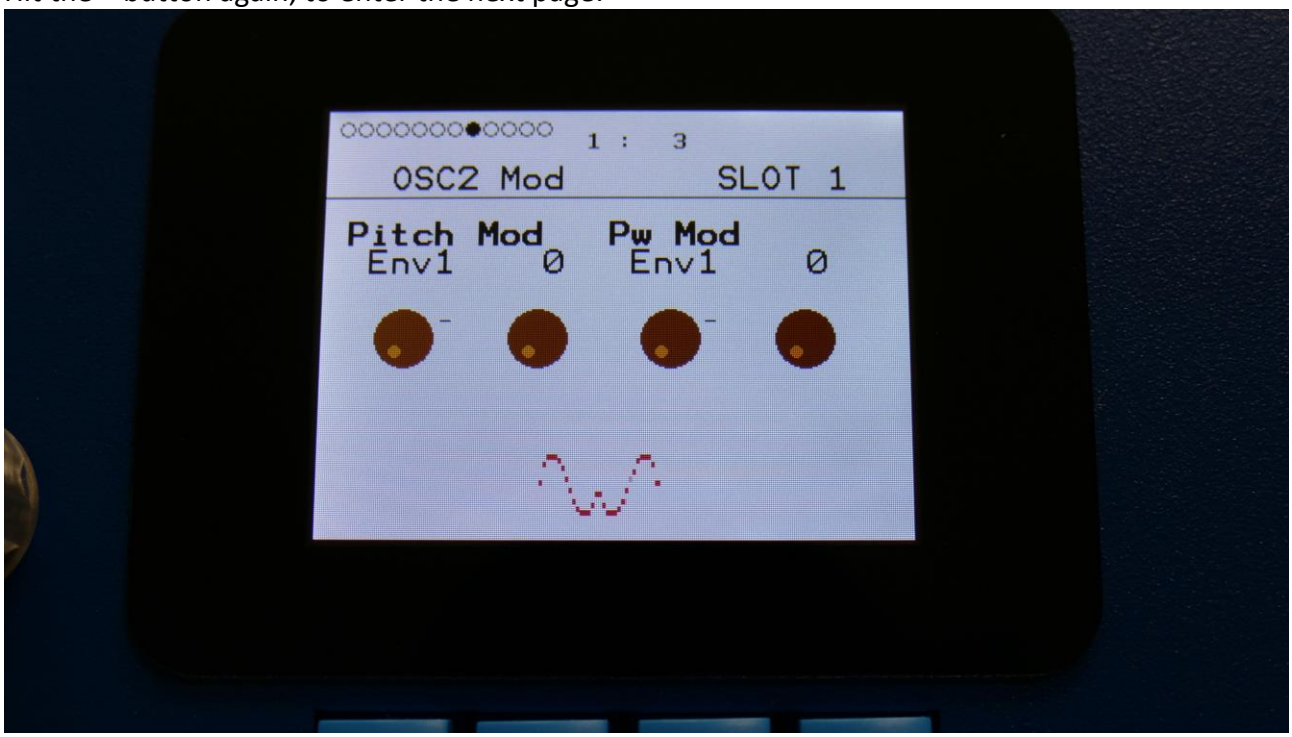
CymFM: Sets the FM amount between the square wave oscillators. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

Ring: Ring Modulator level. Sets the level of Oscillator 1 ring modulated by Oscillator 2. Range: 0 to 511.

Level: Sets the oscillator 2 output level. Negative values attenuates the signal, positive values gains the signal.

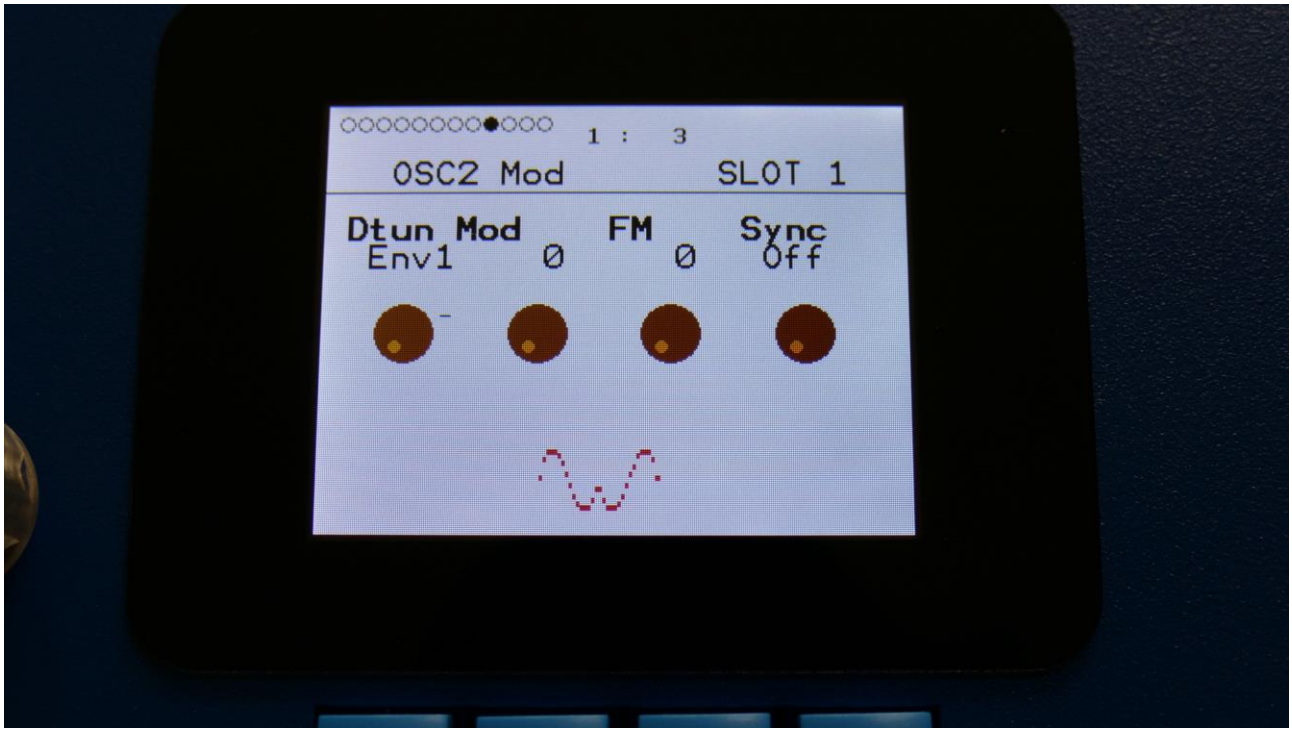
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 2 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the square waves PW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

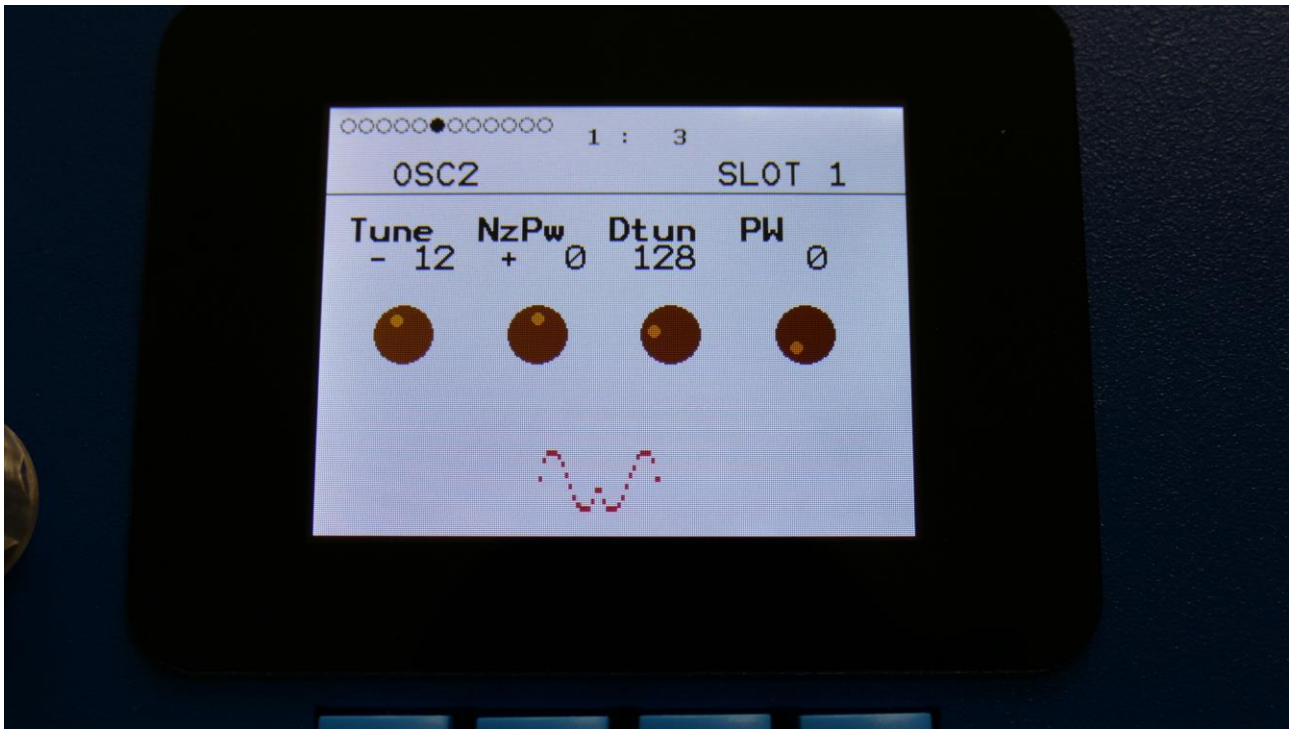
FM: Turning this up, will FM modulate oscillator 1 with oscillator 2.

Sync: Turning this on, will make oscillator 2 synchronize to oscillator 1.

Osc2: Clap

For an explanation of this oscillator type, please see Osc1.

From the first drum oscillator page, hit the > button a number of times, to enter this page:



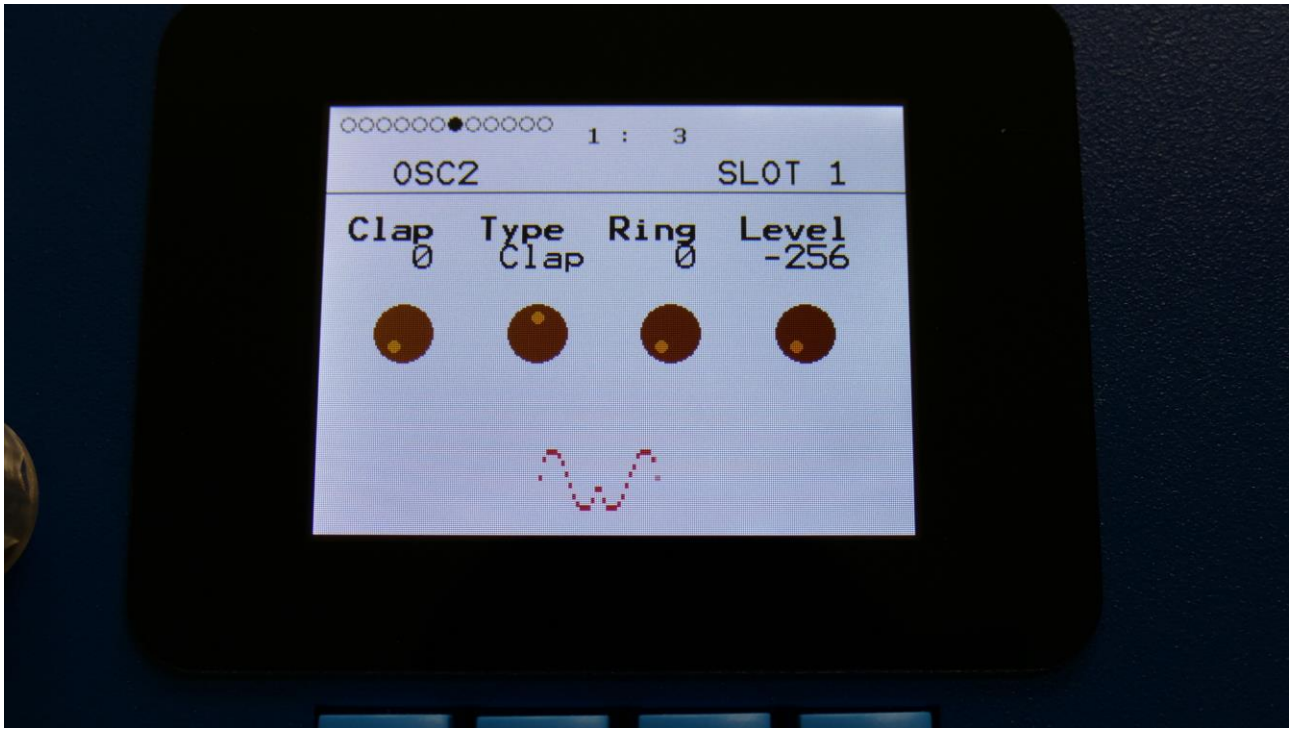
Tune: Value -64 to +63. When the Clap oscillator is selected, the Tune parameter sets the speed of the clap envelope.

NzPw: Value -256 to +255. Sets the intensity of the Clap noise.

Dtun: Value 0 to 511. Detunes the noise sound.

PW: Value 0 to 511. Sets the pulse width of a square wave, that is placed on top of the noise signal. 0: No square wave is added.

Hit the > button again, to enter the next page:



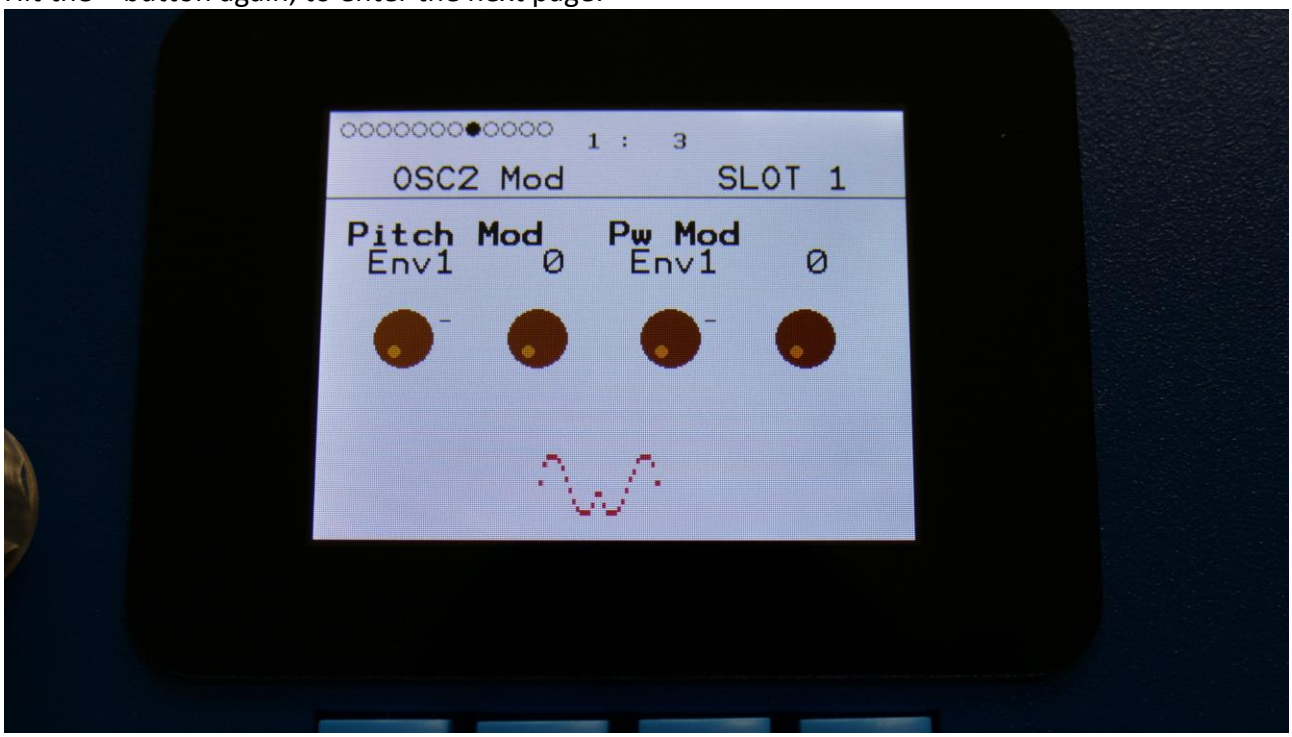
Clap: Value 0 to 511. Sets how much the clap envelope should shape the noise signal.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

Ring: Ring Modulator level. Sets the level of Oscillator 1 ring modulated by Oscillator 2. Range: 0 to 511.

Level: Sets the oscillator 2 output level. Negative values attenuates the signal, positive values gains the signal.

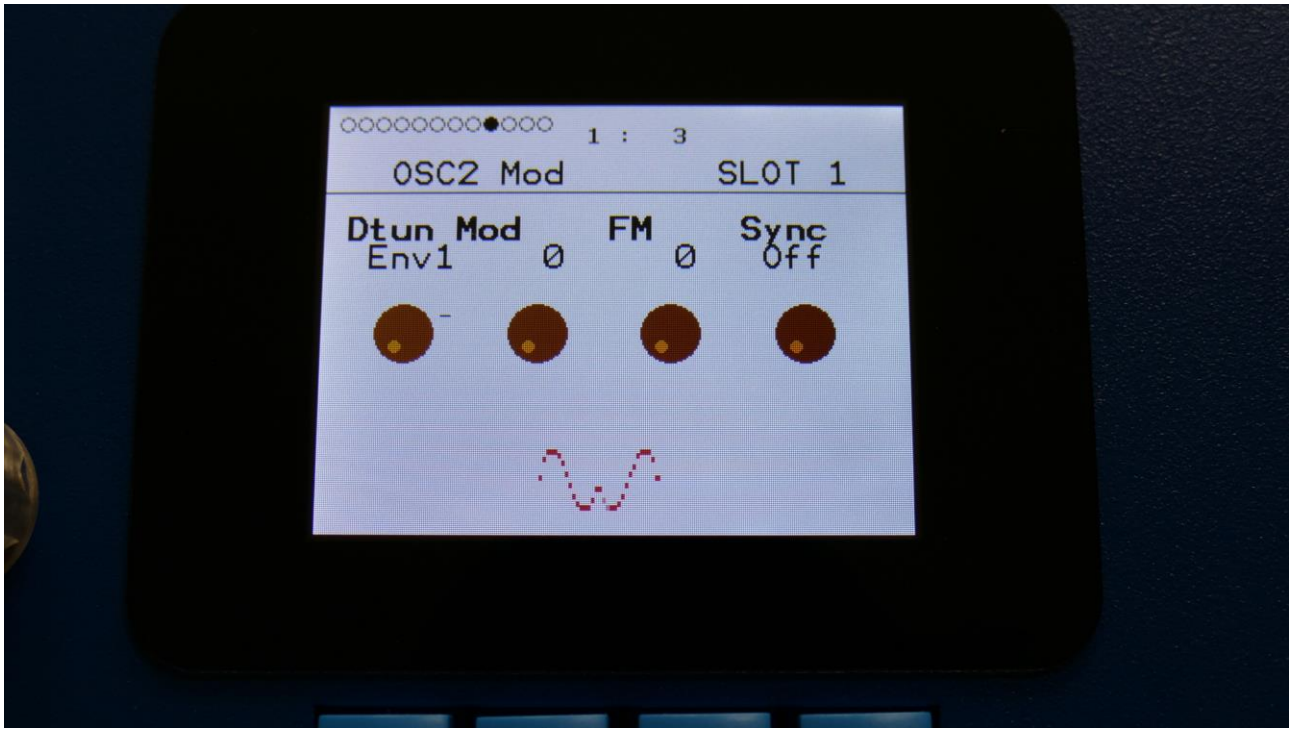
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount clap envelope speed modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the square wave PW. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

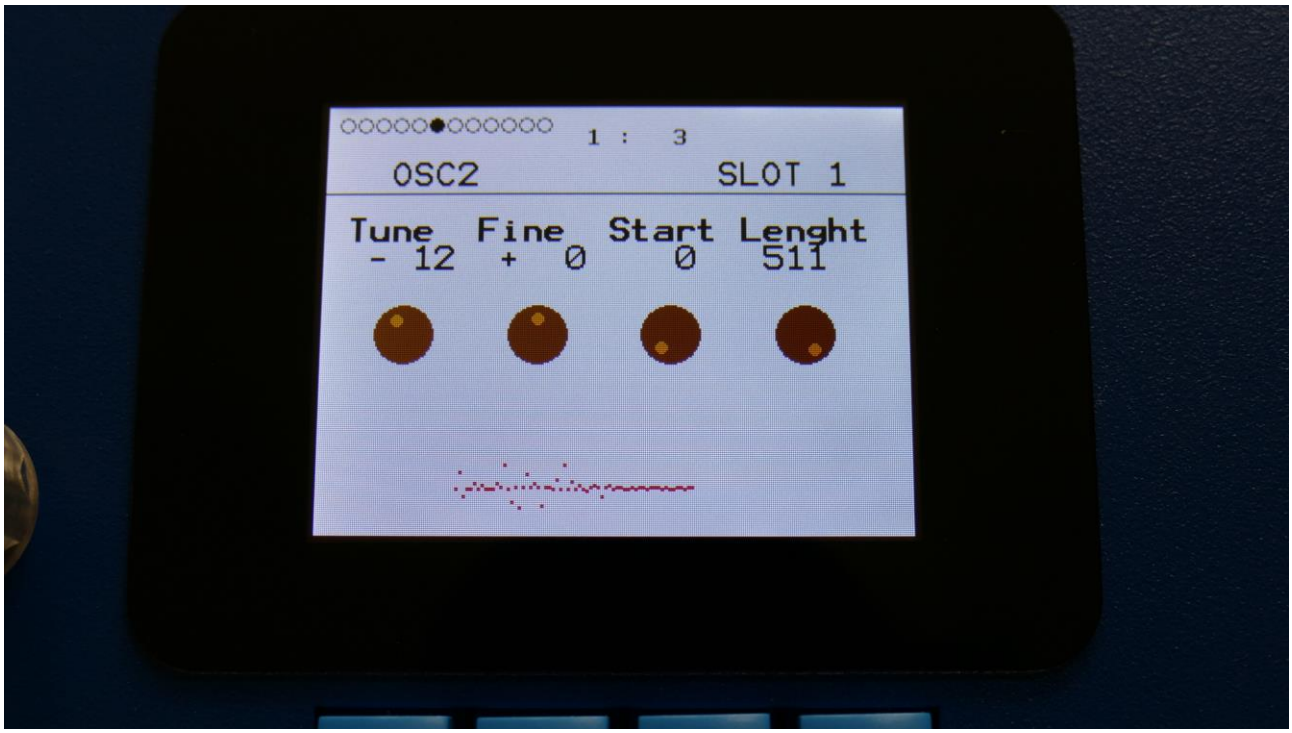
FM: Turning this up, will FM modulate oscillator 1 with oscillator 2.

Sync: Turning this on, will make oscillator 2 synchronize to oscillator 1.

Osc2: Sample Player

For an explanation of this oscillator type, please see Osc1.

From the first drum oscillator page, hit the > button a number of times, to enter this page:



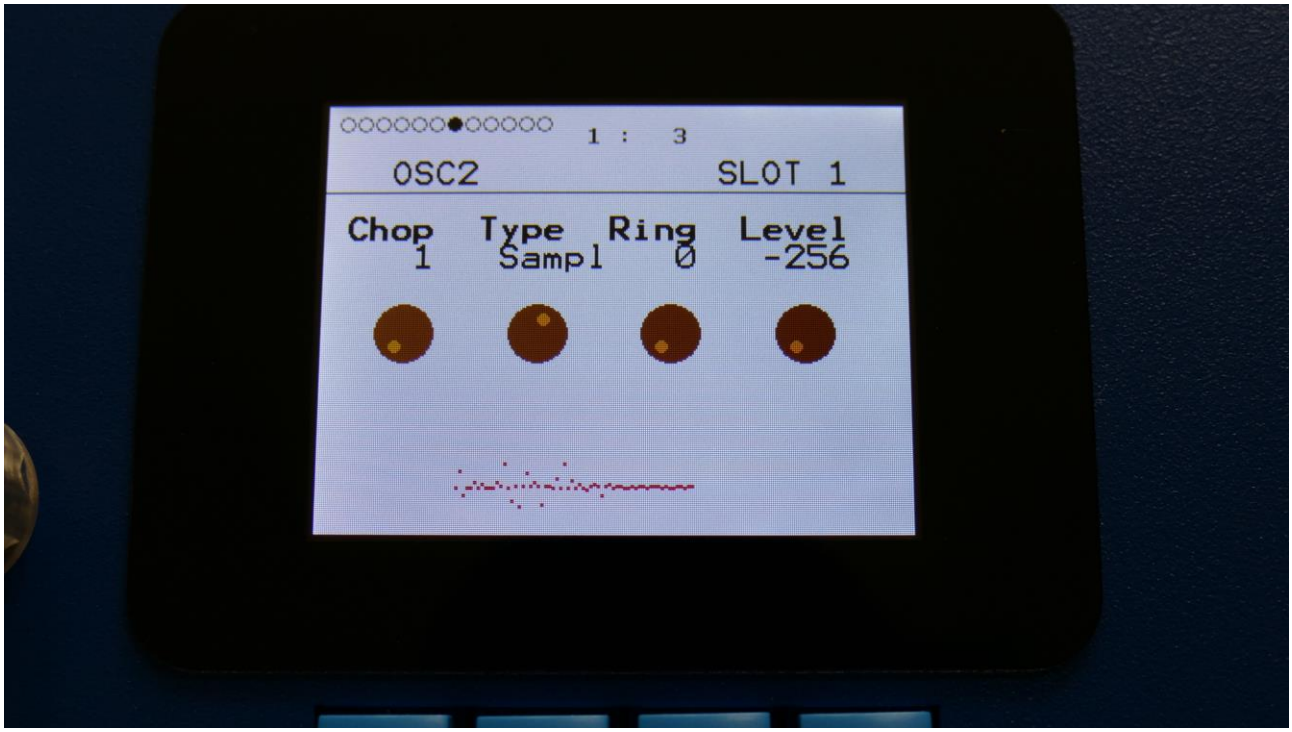
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

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

Hit the > button again, to enter the next page:



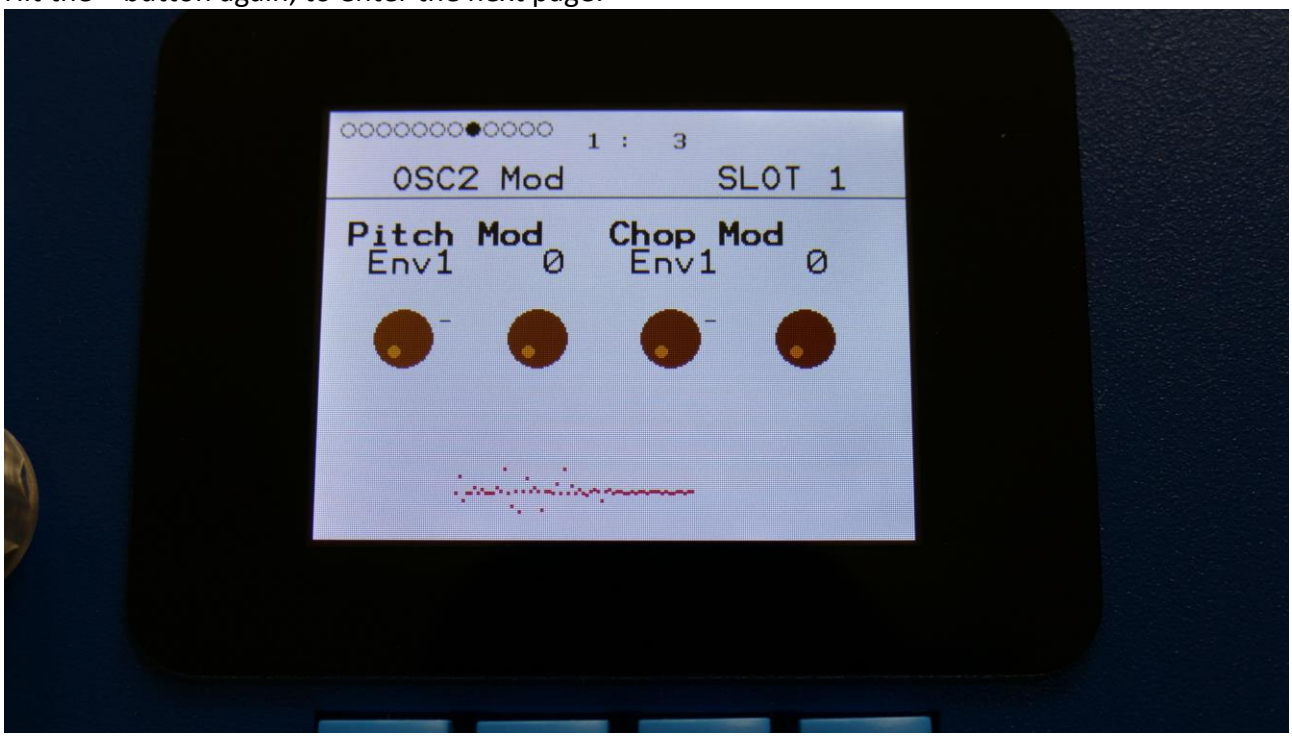
Chop: If chop points has been generated for the selected sampling, a chop can be selected by setting this parameter. Range: 0 to 63.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

Ring: Ring Modulator level. Sets the level of Oscillator 1 ring modulated by Oscillator 2. Range: 0 to 511.

Level: Sets the oscillator 2 output level. Negative values attenuates the signal, positive values gains the signal.

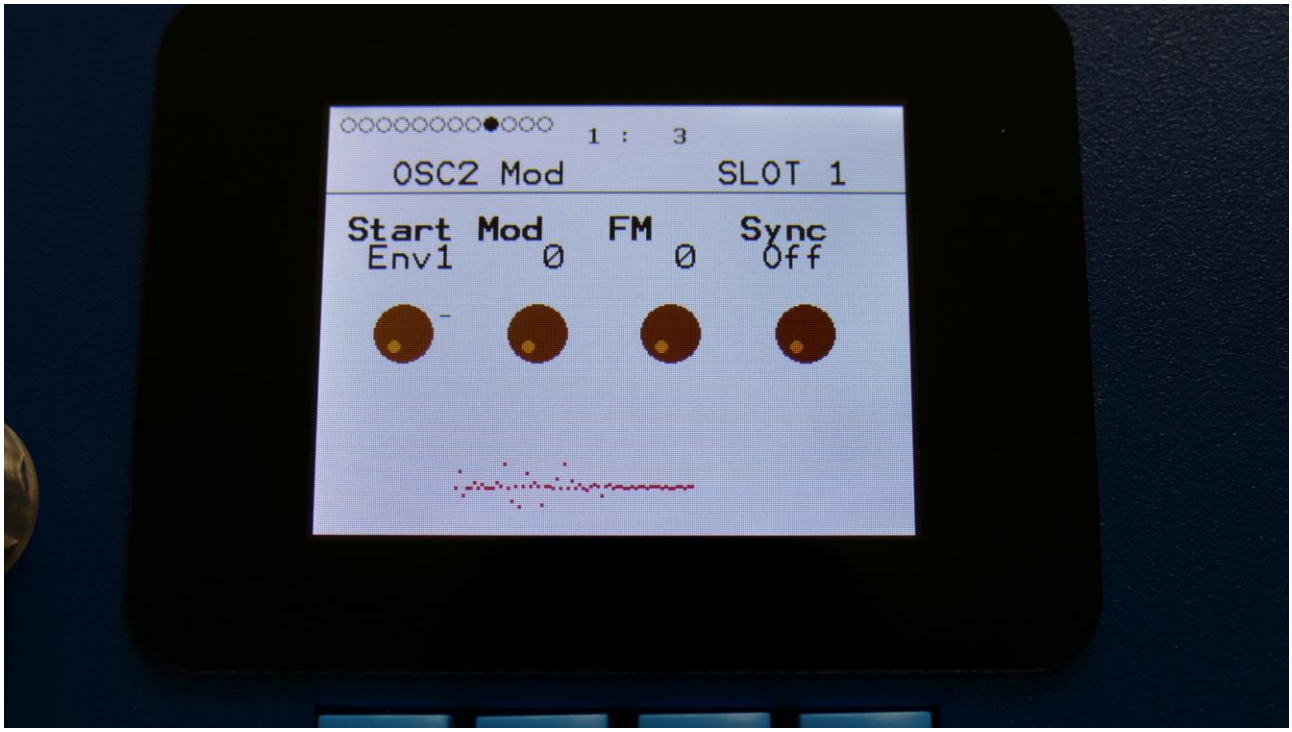
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 2 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Chop Mod: Select a modulation source and adjust the amount of modulation for the Chop select parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:

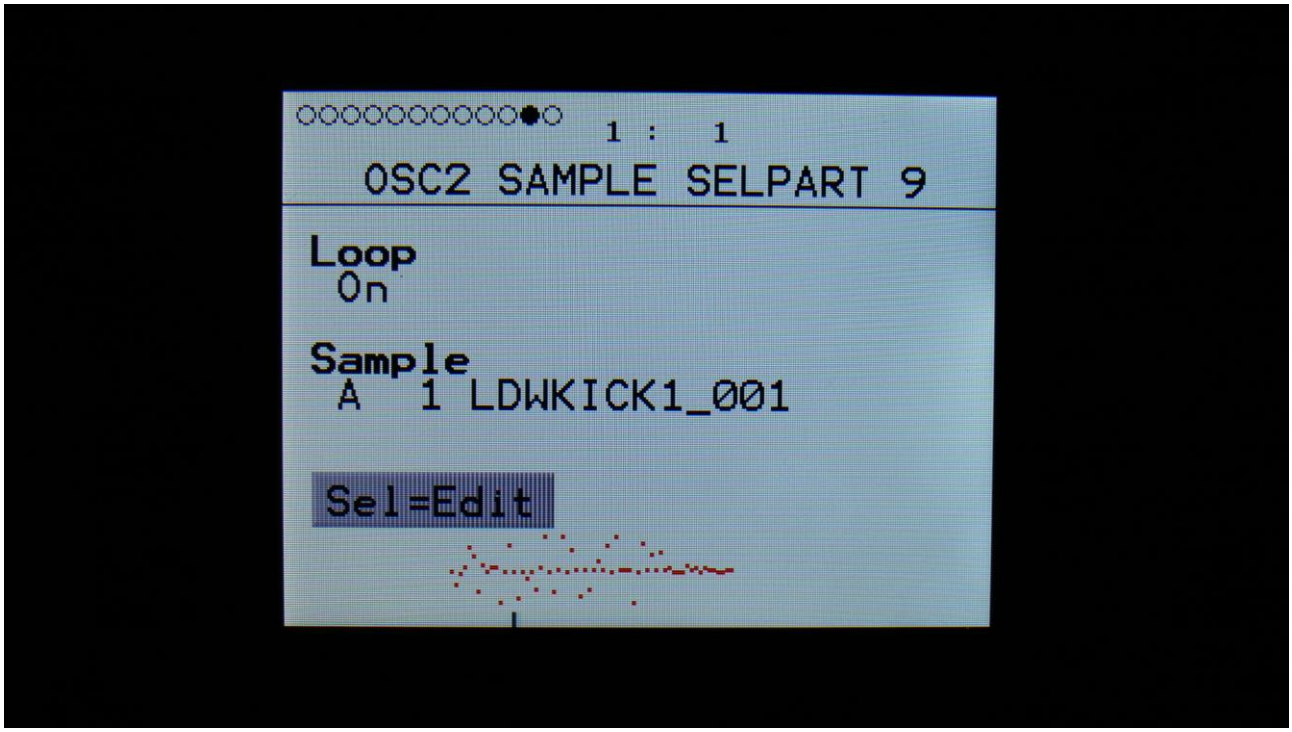


Start Mod: Select a modulation source and adjust the amount of modulation for the Start parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

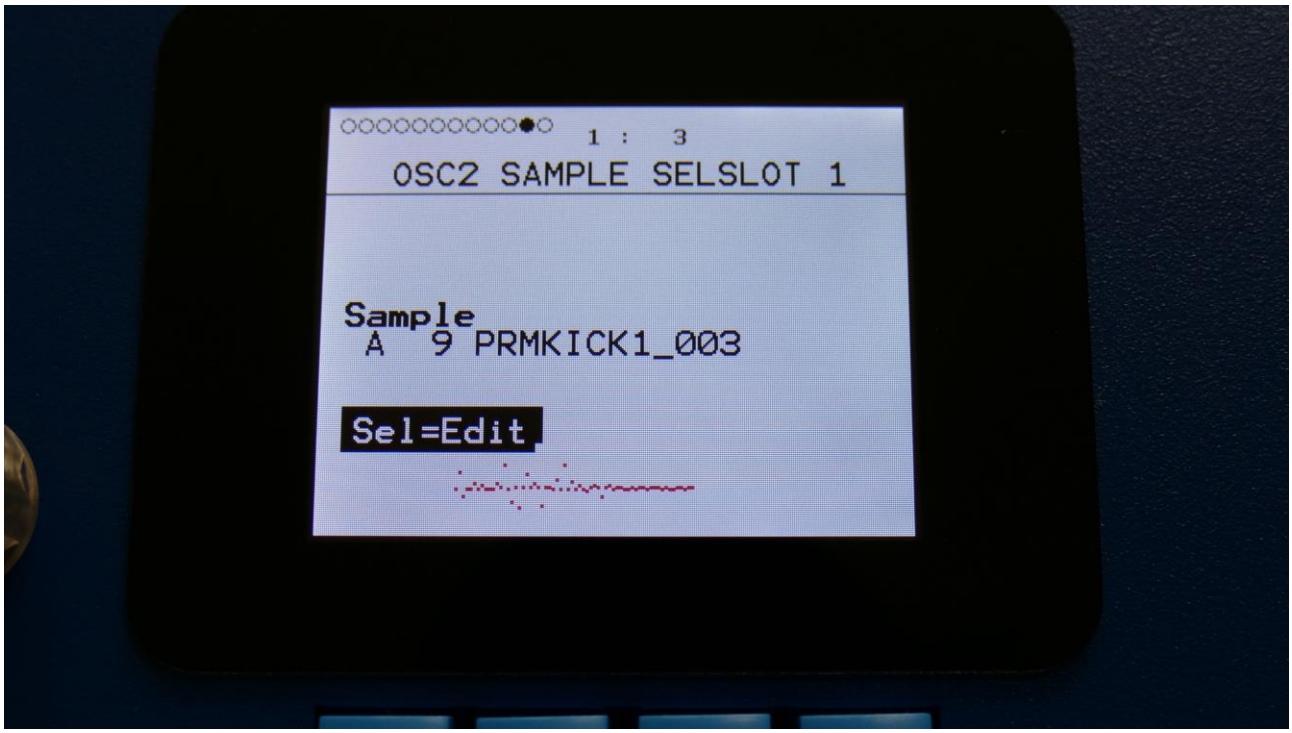
FM: Turning this up, will FM modulate oscillator 1 with oscillator 2.

Sync: Does not work in sampler mode.

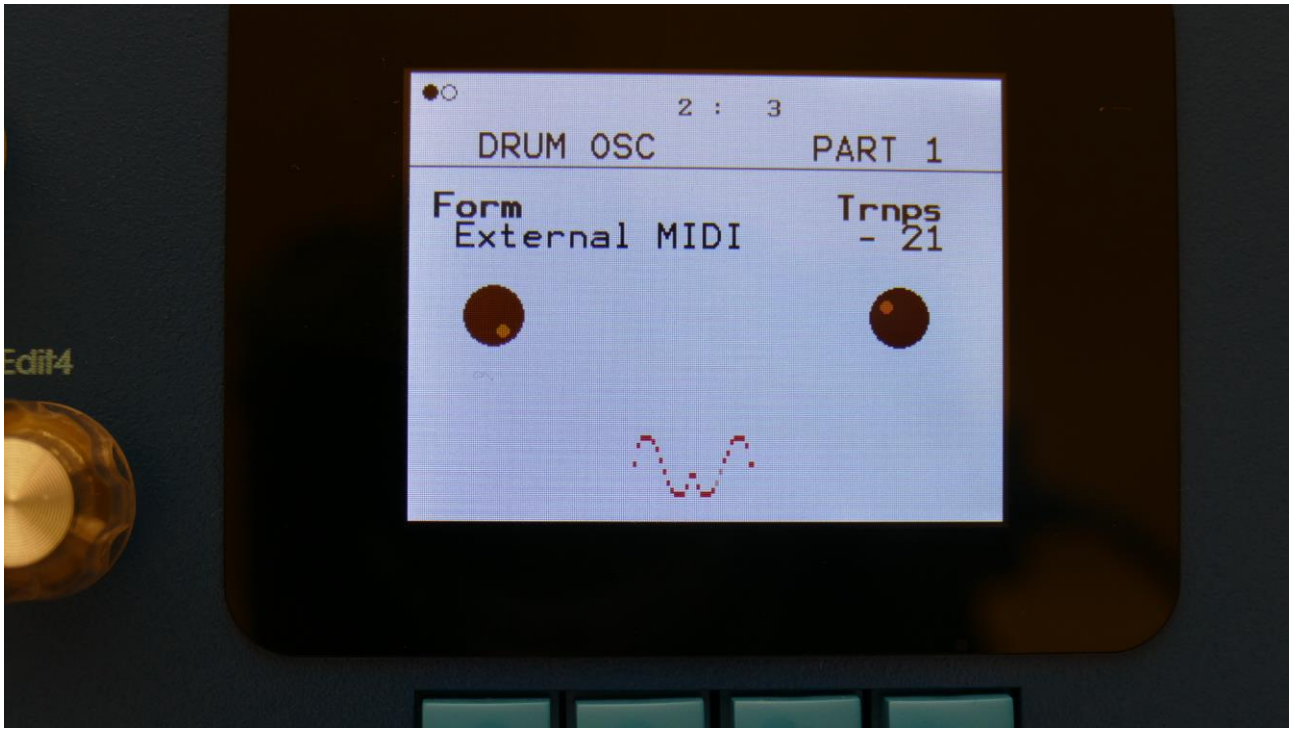
Hit the > button a number of times, to enter this page:



Here you can select the sampling, that oscillator 2 should play back. To do so, hit the Edit button. Now “Sel=Edit” will turn black, and you can use the < and > buttons to select the desired sampling. Hold any of these buttons to scroll. When you have selected the desired sampling, simply hit the Edit button again. It is also possible to switch sample Loop on and off, by turning Edit Knob 1.



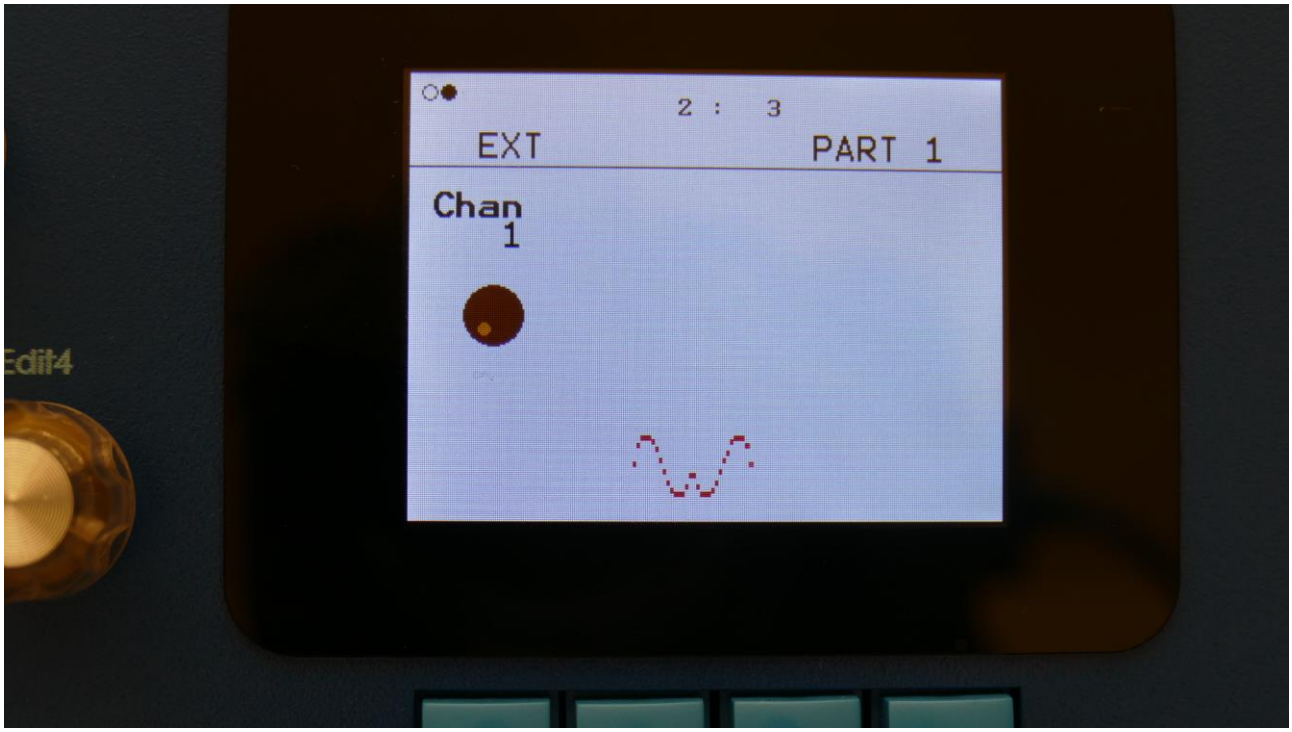
Parameters in External MIDI Mode



I this sub chapter, the parameters available, when the drum oscillators are in External MIDI, will be explained.

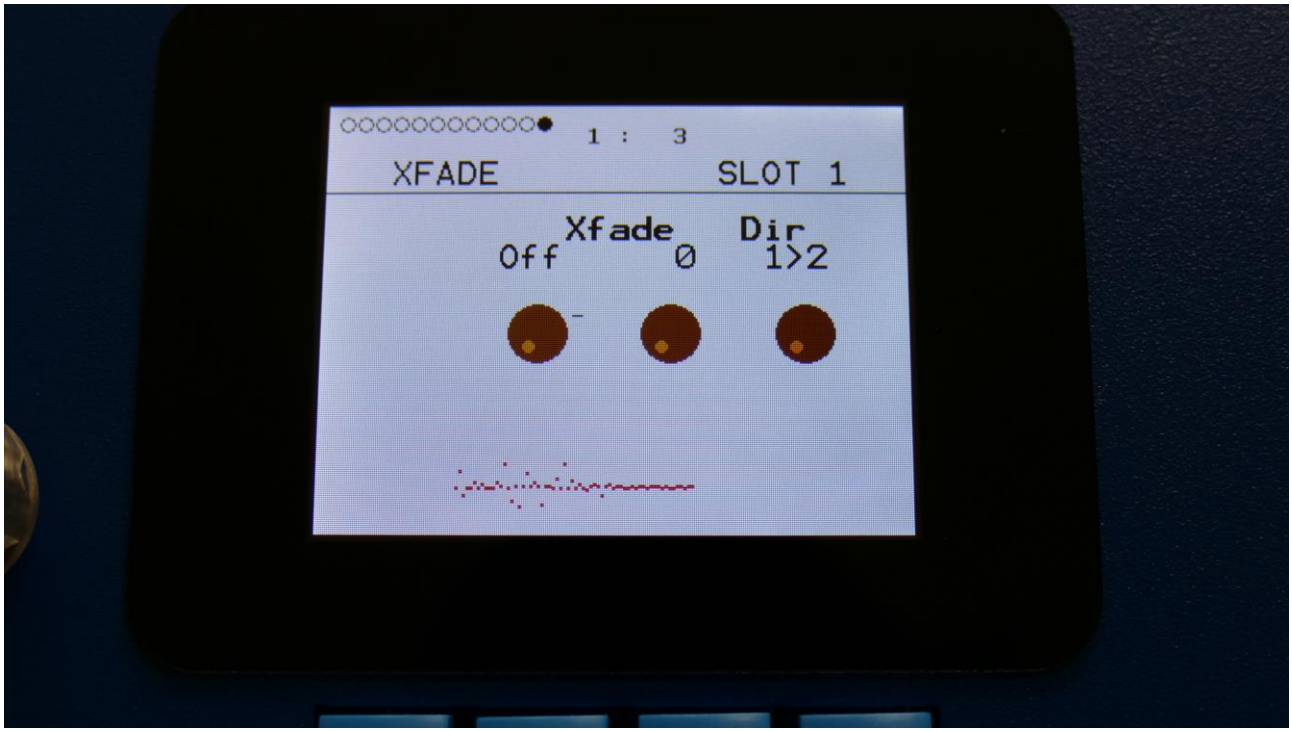
The notes transmitted when pushing the trigger button, from the sequencer note track, and notes received from an external MIDI device, can be transposed up or down, using the **Trnps** parameter.

From the first drum oscillator page, hit the > button, to enter the next page:



Adjust the **Chan** parameter, to set the MIDI channel that the part should transmit notes to (1-16).

Xfade



On this last page of the Drum Oscillator in Synthesizer mode, it is possible to set the drum oscillator up to crossfade between oscillator 1 and 2, using any modulation source.

If you would like your drum samples to sound more dynamic, you could set up oscillator 1 to play back a sampling of a drum with a soft hit, set up oscillator 2 to play back a sampling of the same drum sound, but with a harder hit, and then set Xfade to Velocity.

Xfade: Off, any modulation source. Xfade amount.

Dir: Sets if Xfade should go from osc1 to osc2 or vice versa.

Parameters in Digital Voice Mode

I this sub chapter, the parameters available, when the drum oscillators are in Digital Voice mode, will be explained.

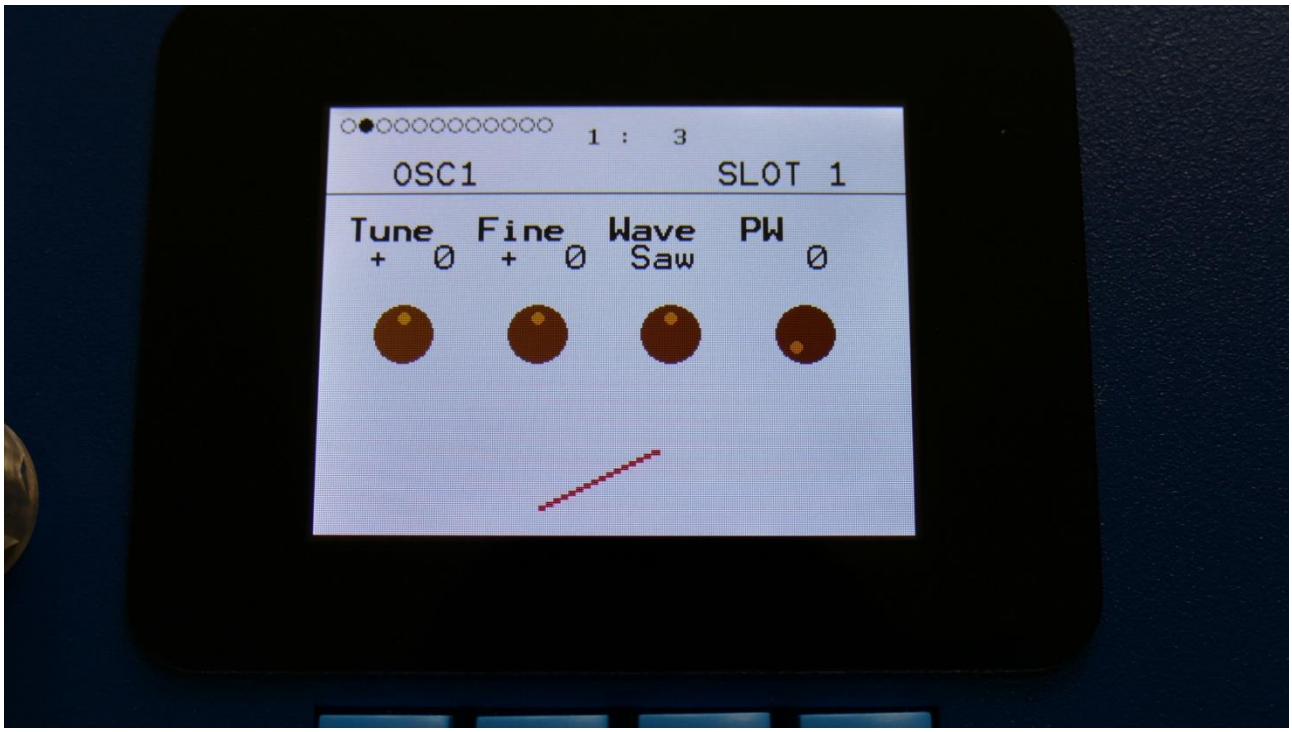
In digital voice mode the drum oscillator has a digital oscillator, that can be set to a number of different types, like oscillator, percussion oscillator and sample player.

The parameters for each of these types will be explained on the following pages.

Osc1: Type 1, Type2, Reso

These oscillator types generates a waveform that is morphable between sine, triangle, saw, square and feedback waves. Pulse width are adjustable for all waveform types.
The Resonator oscillator is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path.
The pitch range of the oscillators are chromatically over the entire 10 octave MIDI keyboard range.

From the first drum oscillator page, hit the > button, to enter the next page:



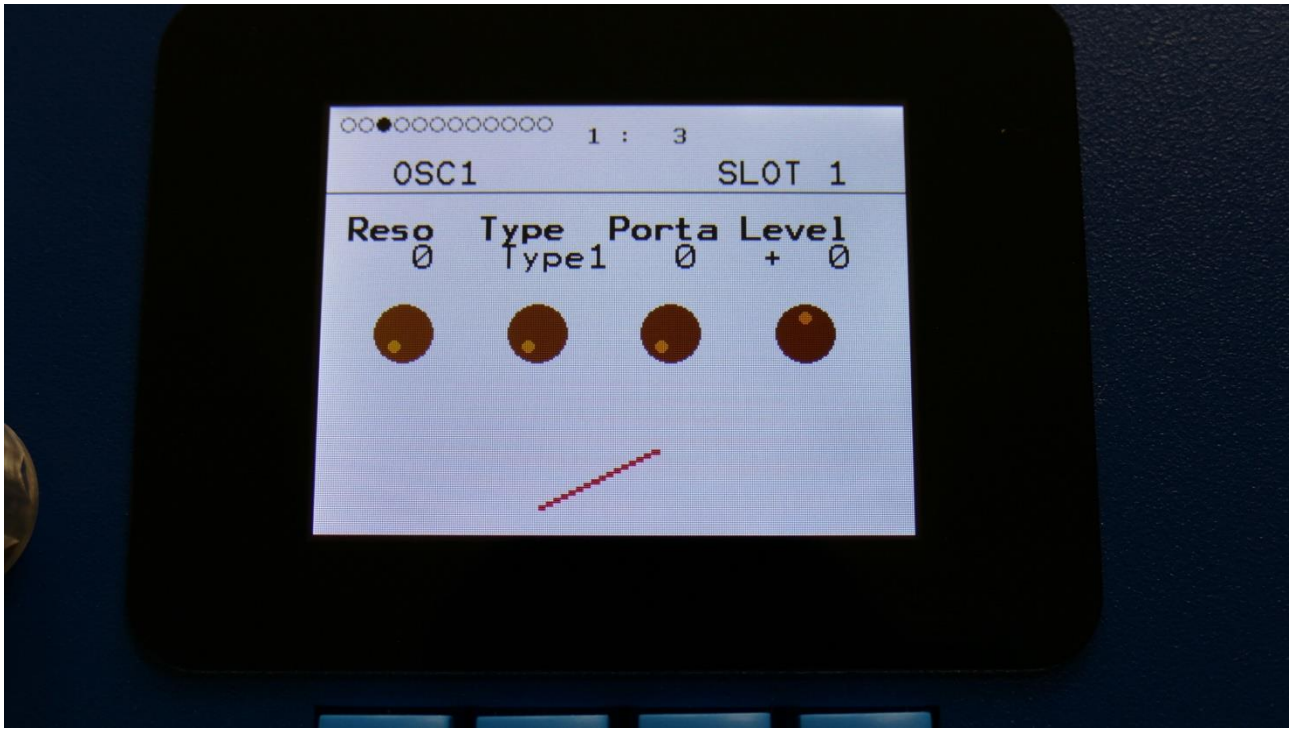
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

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

Wave: This parameter lets you morph between sine, triange, 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 SpazeDrum's waveforms, not just the pulse wave.

Hit the > button again, to enter the next page:



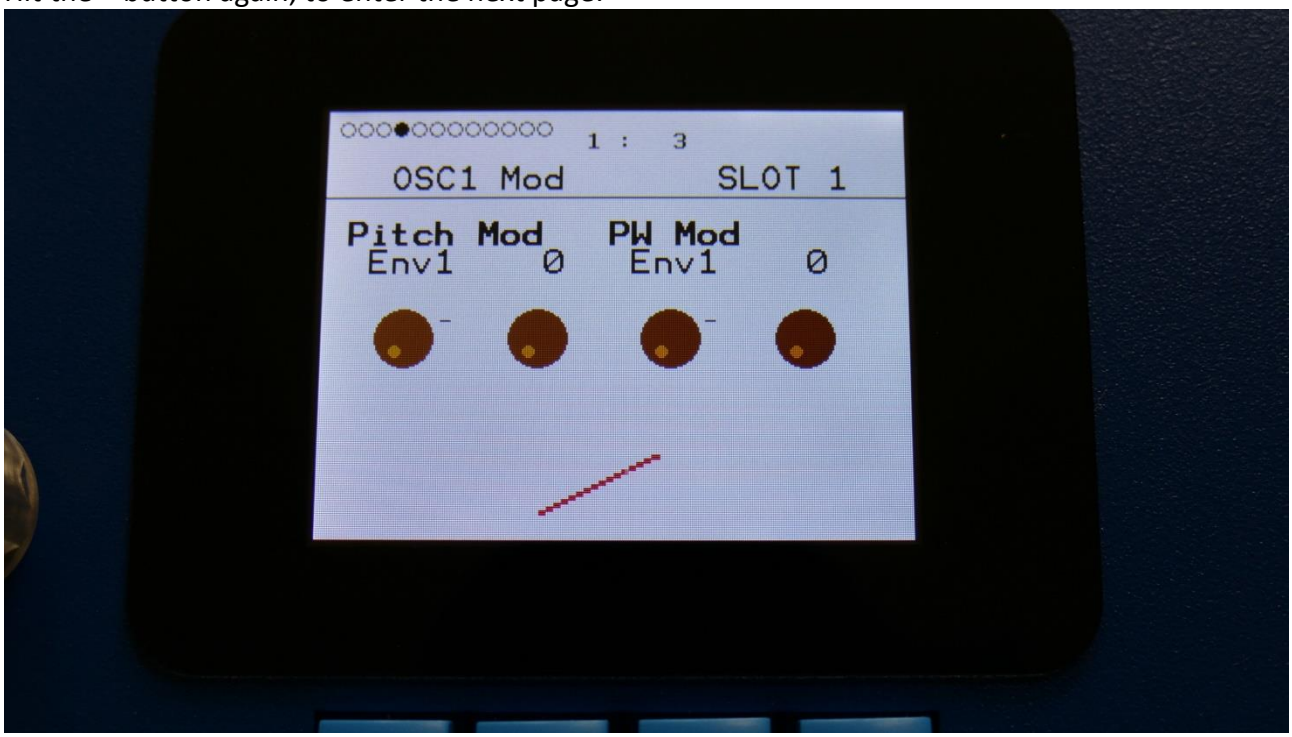
Reso: The amount of resonances fed back, when the resonator oscillator type is selected. The higher this parameter is set, the more resonances are fed back into the oscillator. Even at setting zero, some resonances are fed back. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator 1 output level. Negative values attenuates the signal, positive values gains the signal.

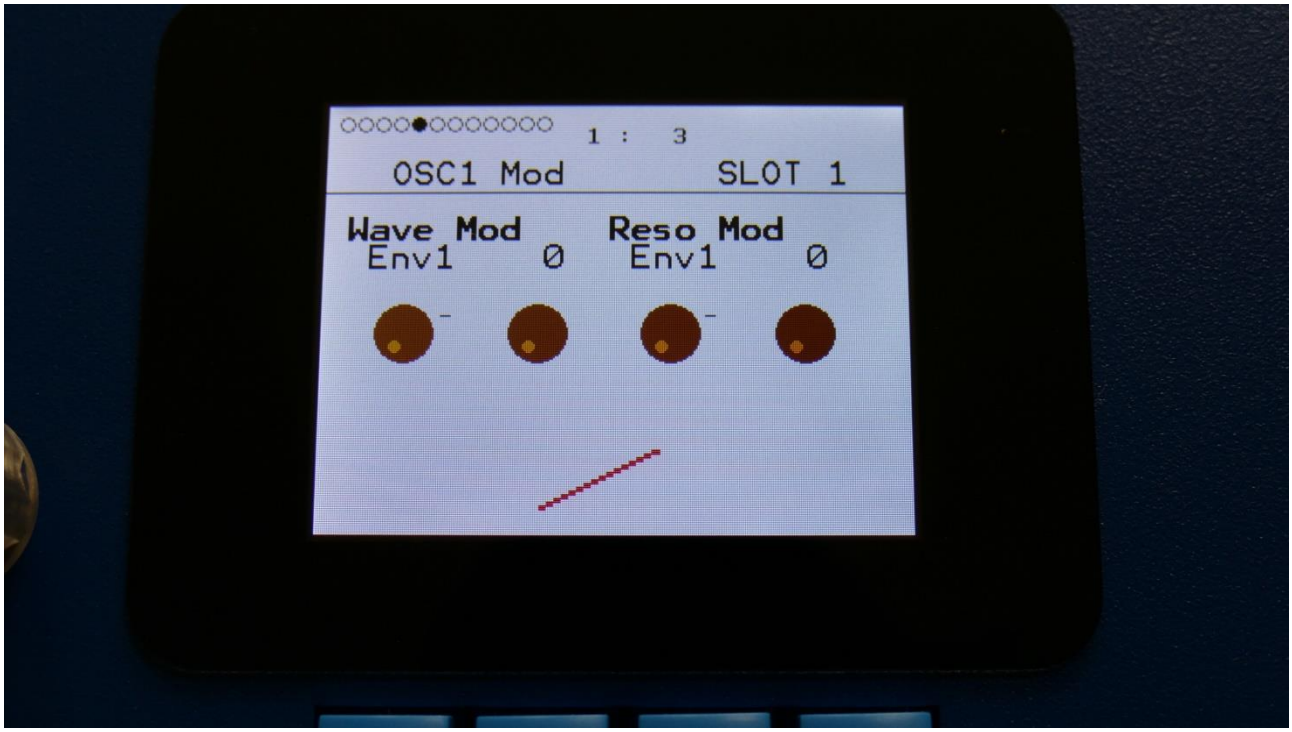
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 1 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the PW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



Wave Mod: Select a modulation source and adjust the amount of modulation for the Wave parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Reso Mod: Select a modulation source and adjust the amount of modulation for the Reso parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Osc1: Perc, prc2, prc3

Perc: Percussion oscillator 1. This outputs 2 percussion waves, that can be detuned from each other, and noise FM can be applied. Atk will morph between the attack and the body of the percussion sound. To imitate the strike of the drum, modulate Atk with an envelope. Noise PW can also be set, to adjust the intensity of the FM noise. This percussion oscillator is optimized for **kicks, snares and noise sounds**, but can also produce a lot of other sounds. Like the other oscillator types, its parameters can be modulated by any modulation source, and it can be routed through filters and effects, which expands the possibilities.

Prc2: Percussion oscillator 2. This outputs 2 percussion waves, that can be detuned from each other. Squared noise FM can be applied, and noise PW can be adjusted, to set the intensity of the FM noise. Atk will morph between the attack and the body of the percussion sound. To imitate the strike of the drum, modulate Atk with an envelope. This percussion oscillator is optimized for **analog style hi hats and cymbals**, but can also produce a lot of other sounds. Like the other oscillator types, its parameters can be modulated by any modulation source, and it can be routed through filters and effects, which expands the possibilities.

Prc3: Percussion oscillator 3. This outputs 2 percussion waves, that ring modulates each other, and that can be detuned from each other. Noise FM can be applied. Atk will morph between the attack and the body of the percussion sound. To imitate the strike of the drum, modulate Atk with an envelope. Noise PW can also be set, to adjust the intensity of the FM noise. This percussion oscillator is optimized for **hi hats, toms and bell type sounds**, but can also produce a lot of other sounds. Making kick and snare drums with this, results in very special sounds. Like the other oscillator types, its parameters can be modulated by any modulation source, and it can be routed through filters and effects, which expands the possibilities.

Sound ideas / Start points

Analog style kick drum

Select the Perc oscillator type. Set the Dtun, Atk and Noiz parameters all to zero. Set pitch modulation to Env1 and something around 100 for a start. Set Atk modulation to Env1 and something around 150. If you are triggering the sound from the trigger buttons, set Tune to -15.

Set VCA envelope to Log mode, A to 0, D to 137, S to 0 and R to 130.

Set Env to Log mode, A to 0, D to 45, S to 0 and R to 0.

Now you should hear an analog style kick drum. Experiment with the settings of pitch and Atk modulation, the envelope decay time, and of course the Tune parameter, to get variations of this.

To make a long kick sound, set pitch modulation to Env2, and set the decay value of this to around 40. Keep Env1 controlling Atk (Attack). Adjust the VCA envelope decay and release, and the Env1 decay and release.

Acoustic style kick drum

The percussion oscillators might not be able to perfectly imitate an acoustic kick drum, but they can get somewhere near.

Use the analog style kick drum, and adjust the Dtun parameter. To get it even more realistic, add a Pitch Shifter effect after it, and detune this too.

Snare drum

Select the Perc oscillator type. Set Noiz to 511, Dtun to 210 (sets the brightness of the snare), Atk to 0 and NzPw to +0. Turning up Atk, will give the snare drum more “bite”. Set Atk modulation to Env1 and set this to 270. If you are triggering the sound from the trigger buttons, set Tune to -43.

Experiment, by tweaking the parameters, to get the snare sound, that you want.

Tom

Select the Prc3 oscillator type. Set Dtun, Atk and Noiz all to zero. Set pitch modulation to Env1, to 42, and set Atk modulation to Env1, to 305. If you are triggering the sound from the trigger buttons, set Tune to -8. Set Env1 A to 0, D to 52, S to 0 and R to 118. Set the VCA Env A to 0, D to 84, S to 408 and R to 66. Now you should be able to hear a basic tom sound.

Make new tom sounds, by tweaking the parameters.

Closed Hi hat

Select the Prc3 oscillator type. Set Dtun to 19, Atk to 0, NzPw to +0, and Noiz to 85. If you are triggering the sound from the trigger buttons, set Tune to +33. Set Atk modulation to Env1, and set this to 226. Set VCA Env A to 0, D to 22, S to 0, R to 20. Env1 can be left at the default settings (A=0, D=40, S=0, R=0).

If you wish to do the traditional drum machine trick, where hats cuts each other off, assign this part as a “Mono To Voice”.

Tweak the parameters, to obtain different hi hat flavours.

Open Hi hat

Copy and paste the closed hi hat to another part. Set the VCA Env A to 0, D to 22, S to 415 and R to 208. Now you got an open version of the closed hi hat!

Analog style closed hi hat

Select the Prc3 oscillator type. Set Dtun to 186, Atk to 0, NzPw to +0 and Noiz to 62. If you are triggering the sound from the trigger buttons, set Tune to +21. Set Atk modulation to Env1, and set this to 80. Set VCA Env A to 0, D to 22, S to 0, R to 20. Env1 can be left at the default settings (A=0, D=40, S=0, R=0).

Tweak the parameters, to obtain different hi hat flavours.

Analog style open Hi hat

Copy and paste the analog style closed hi hat to another part. Set the VCA Env A to 0, D to 22, S to 415 and R to 208. Now you got an open version of the closed hi hat!

Hand Clap

Select the Prc2 oscillator type. Set NzPw to -23, Dtun to 0, Atk to 68 and Noiz to 256. If you are triggering the sound from the trigger buttons, set Tune to -1. No oscillator modulation is required for this. Set VCA Env A to 0, D to 61, S to 24, R to 182. Set FLT1 Cut to 210, Reso to 252, Inp to 256, Mix to +255, Type to LPF1, Nrw, Low and Boost to 0.

Tweak the parameters, to obtain different hand clap flavours.

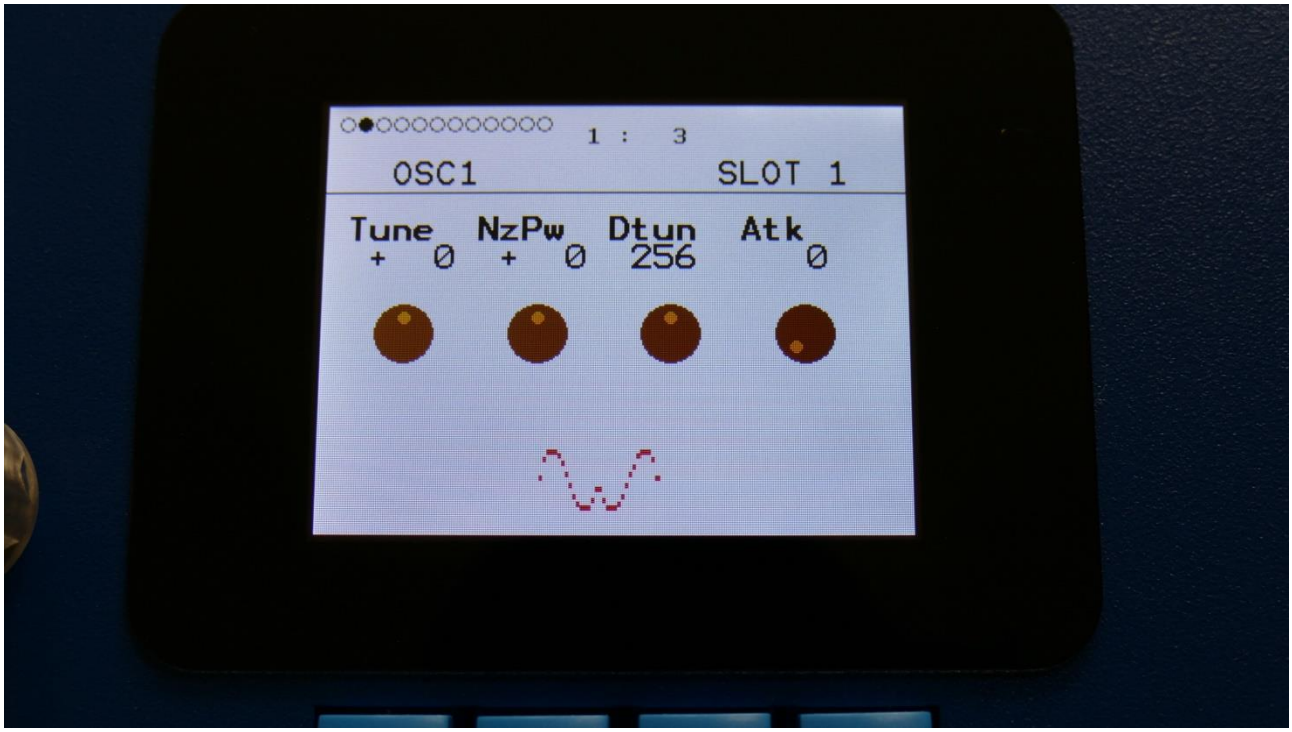
Set VCA envelope to LogSm mode, A to 0, D to 20, S to 511 and R to 96.

Bell sound

Select the Perc oscillator type. Set Dtun to 169, Atk to 120 and Noiz to 0. If you are triggering the sound from the trigger buttons, set Tune to +0. Set Atk modulation to Env1, and set this to 254. Set VCA Env A to 0, D to 22, S to 511, R to 191. Env1 can be left at the default settings (A=0, D=40, S=0, R=0).

Tweak the parameters, to obtain different bell sound flavours.

From the first drum oscillator page, hit the > button, to enter the next page:



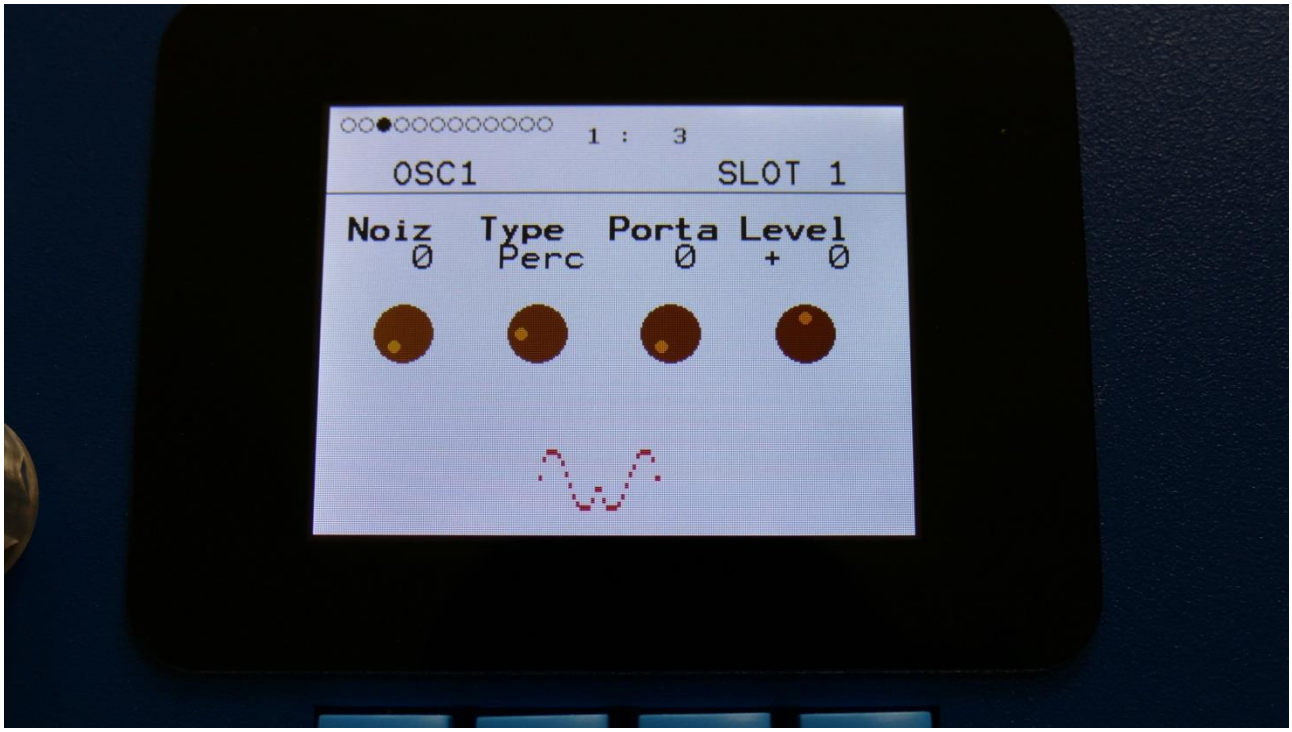
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

NzPw: Sets the intensity of the FM noise. Range: -256 to +255.

Dtun: Detunes percussion wave 2 from percussion wave 1. Value 0 to 511.

Atk: Will morph from the percussion waves body (0) to the percussion waves attack (511). Modulate this parameter with an envelope, to imitate the strike of a drum. Value 0 to 511.

Hit the > button again, to enter the next page:



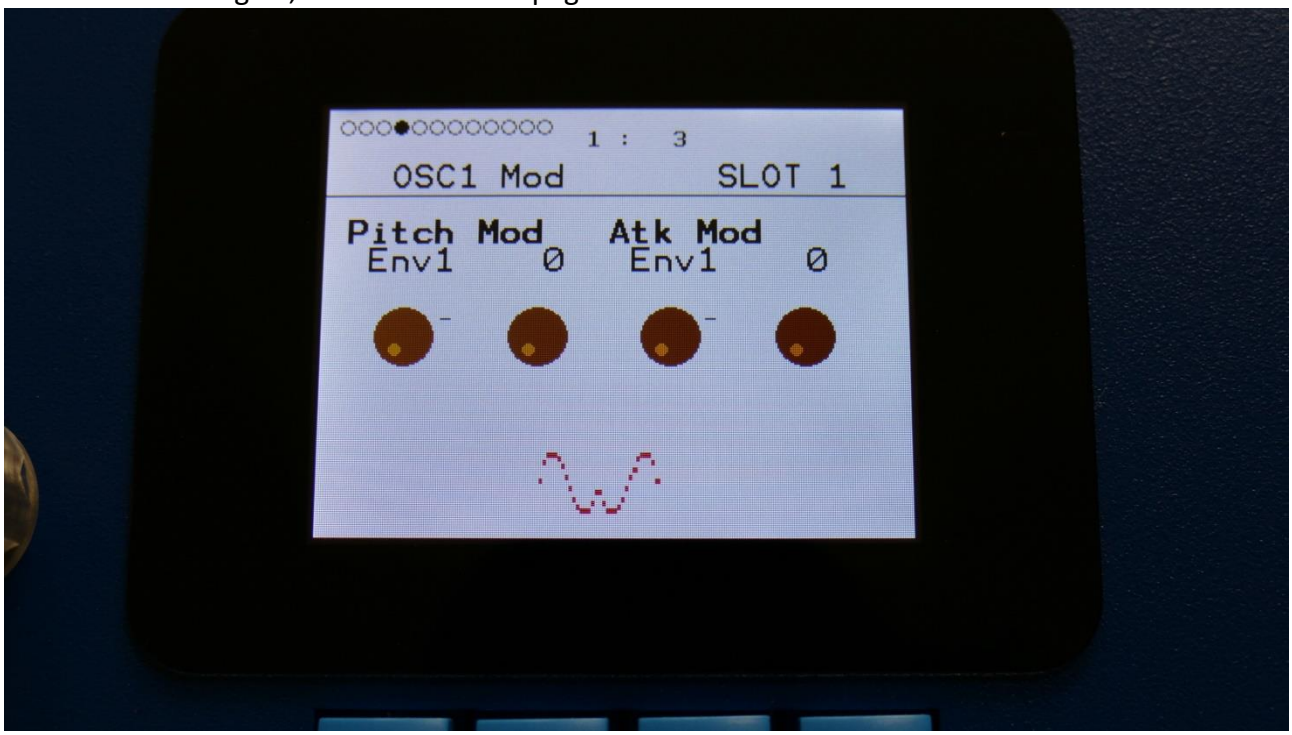
Noiz: Adds noise FM to modulate the pitch of the percussion waves. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator 1 output level. Negative values attenuates the signal, positive values gains the signal.

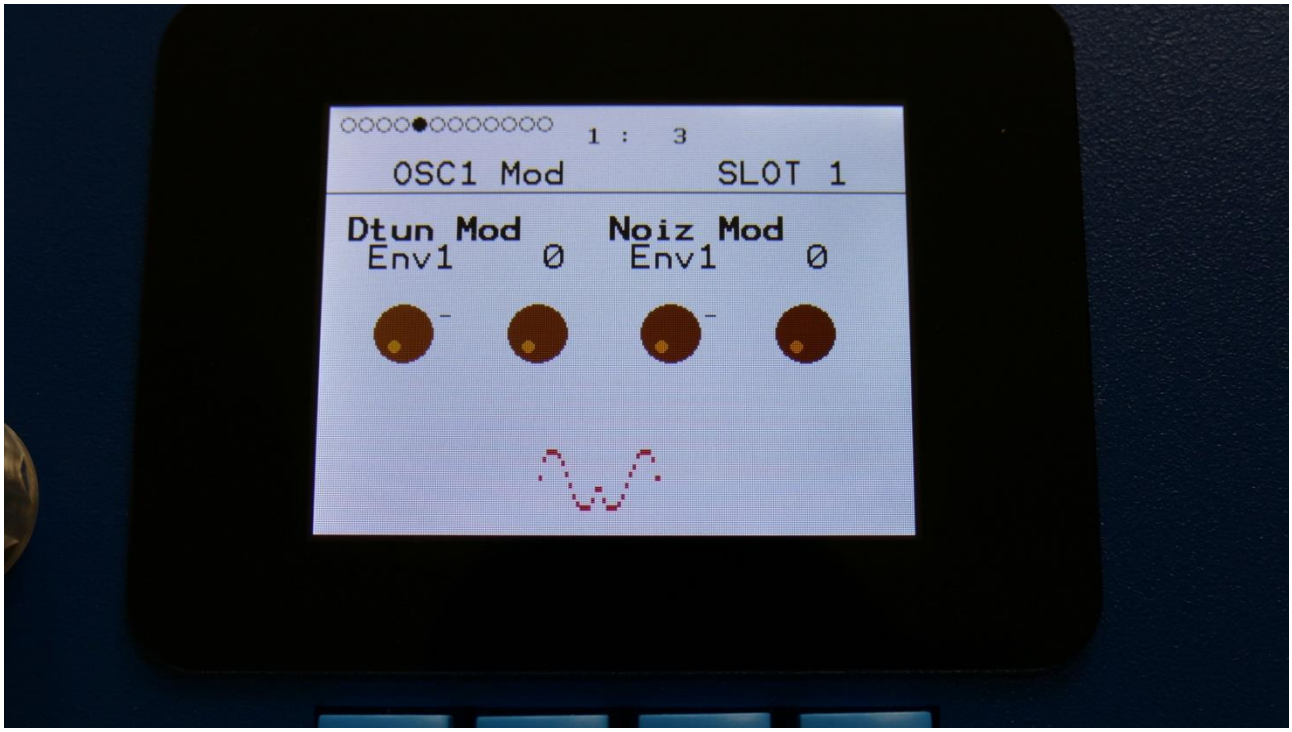
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 1 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Atk Mod: Select a modulation source and adjust the amount of modulation for the Atk parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Noiz Mod: Select a modulation source and adjust the amount of modulation for the Noiz parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Osc1: Cymb, Cym2

Cymb: Cymbal oscillator. A cymbal sound is a complex sound, and this is a complex oscillator. It is made up of a small group of squarewave oscillators, that modulates each other (CymFM). The pulse width can be set for the oscillators, they can be detuned from each other, and the amount of CymFM can be set. Self FM can be applied to the first oscillator in the chain, which is only a modulator, so the effect of self FM can only be heard, if CymFM is turned up. This percussion oscillator is optimized for **cymbals and metallic noises**, but can also produce a lot of other sounds. Like the other oscillator types, its parameters can be modulated by any modulation source, and it can be routed through filters and effects, which expands the possibilities.

Cym2: Cymbal2. By combining FM and ring modulation, this can make cymbal sounds that are a bit more aggressive than cymbal 1.

Sound ideas / Start points

Cymbal

Select the Cymb oscillator type. Set SelFM to +255, Dtun to 127, PW to 120 and CymFM to 511. Set VCA Env A to 0, D to 39, S to 446, R to 434.

This will create a different cymbal sound on almost any key, so by adjusting the Tune parameter, you will obtain different sounds

Tweak the parameters, to obtain different cymbal flavours. Run it through filters, to make it less wild.

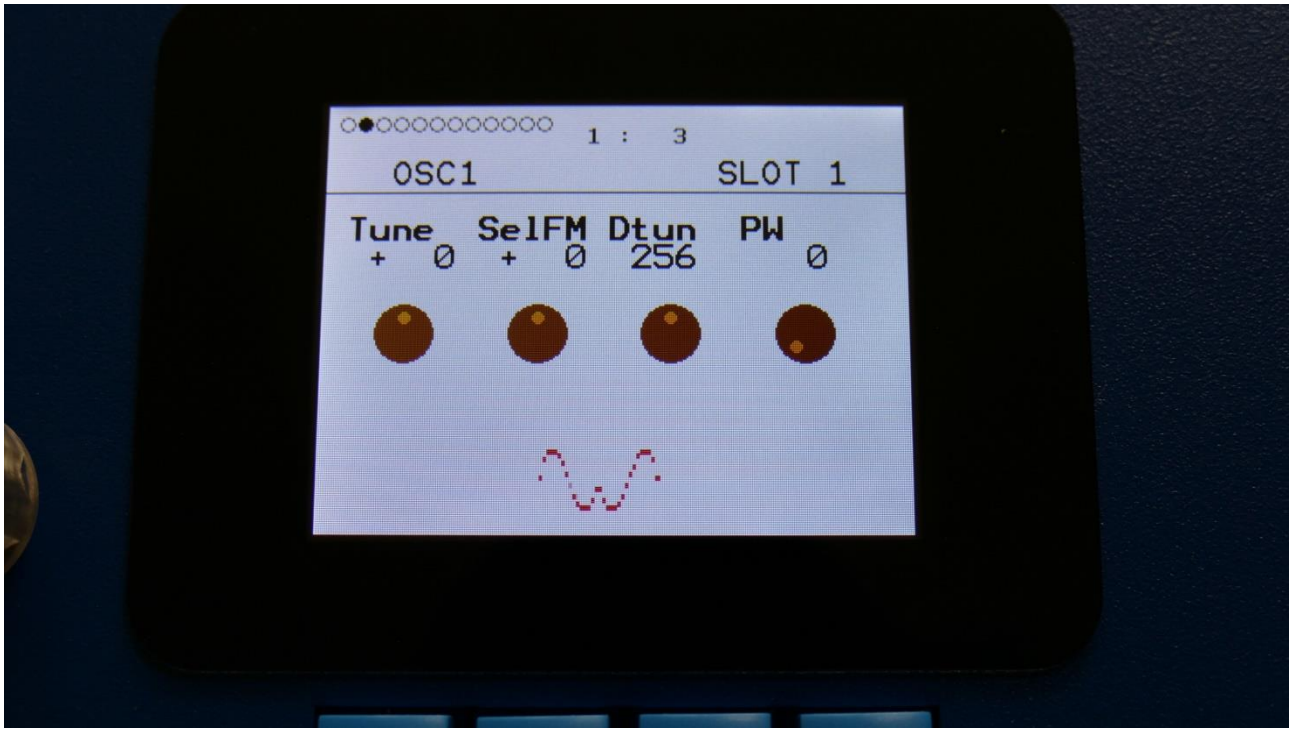
To make it a bit more metallic, try to run it through a Bit Crusher effect. Add a distortion effect, to give it more edge.

Crash Cymbal

Select the Cym2 oscillator type. Set Tune to -22, SelFM to +88, Dtun to 254, PW to 272, and CymFM to 511.

Set VCA envelope to Log mode, A to 0, D to 20, S to 511 and R to 390.

From the first drum oscillator page, hit the > button, to enter the next page:



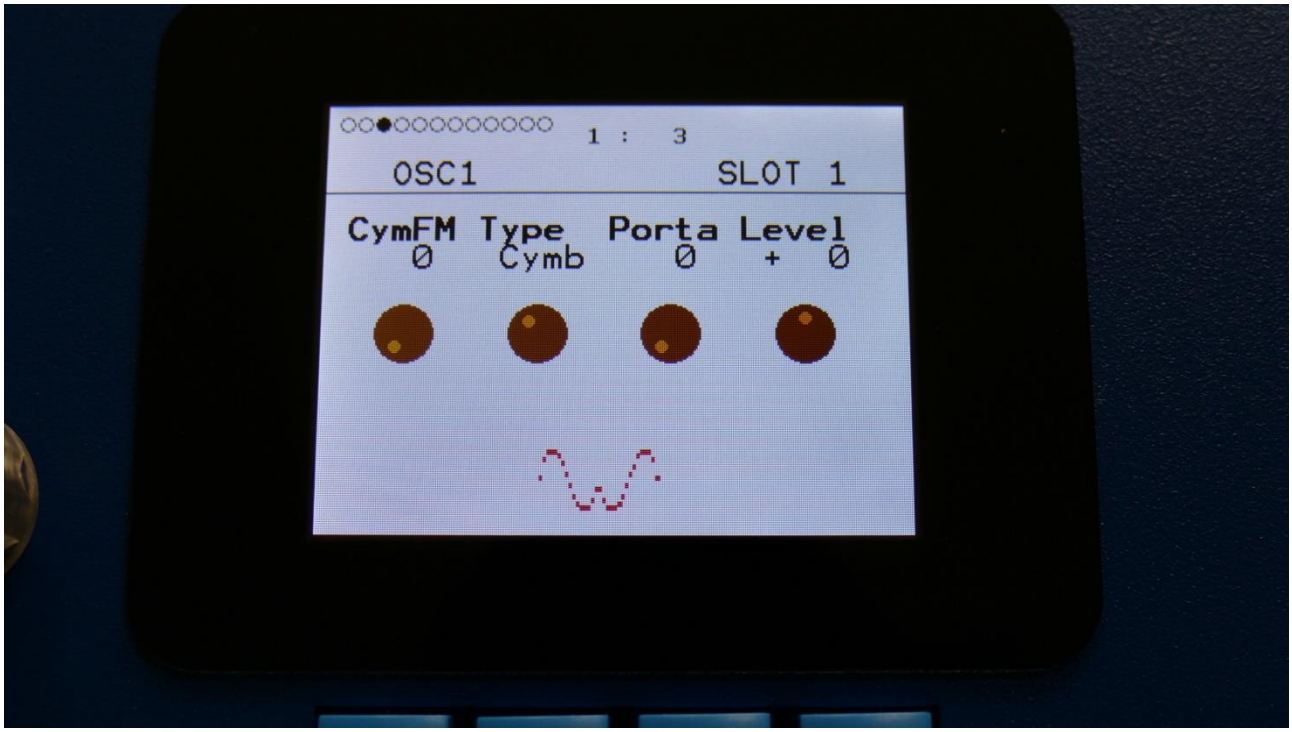
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

SelFM: Sets self FM amount of the first square wave oscillator (A modulator). Range: -256 to +255.

Dtun: Sets self FM amount of the first square wave oscillator (A modulator). Value 0 to 511.

PW: Sets the pulse width of all square waves. Value 0 to 511.

Hit the > button again, to enter the next page:



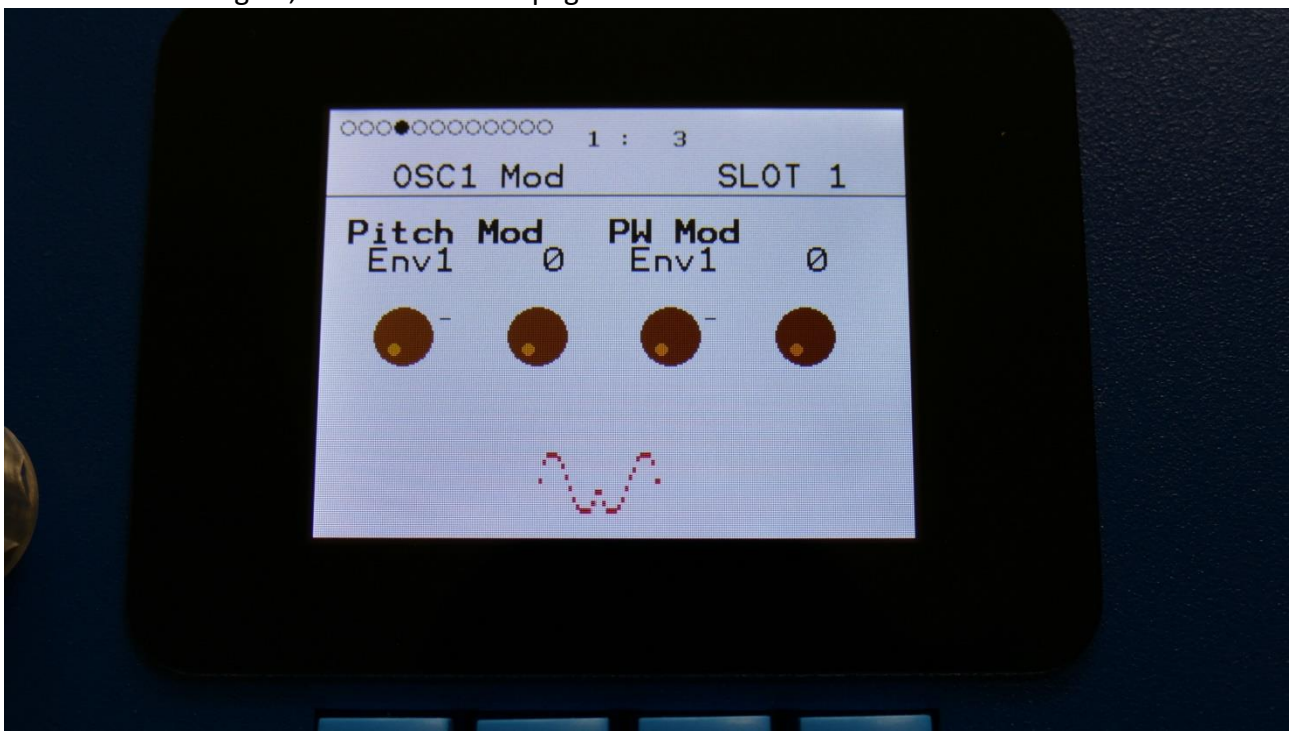
CymFM: Sets the FM amount between the square wave oscillators. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator 1 output level. Negative values attenuates the signal, positive values gains the signal.

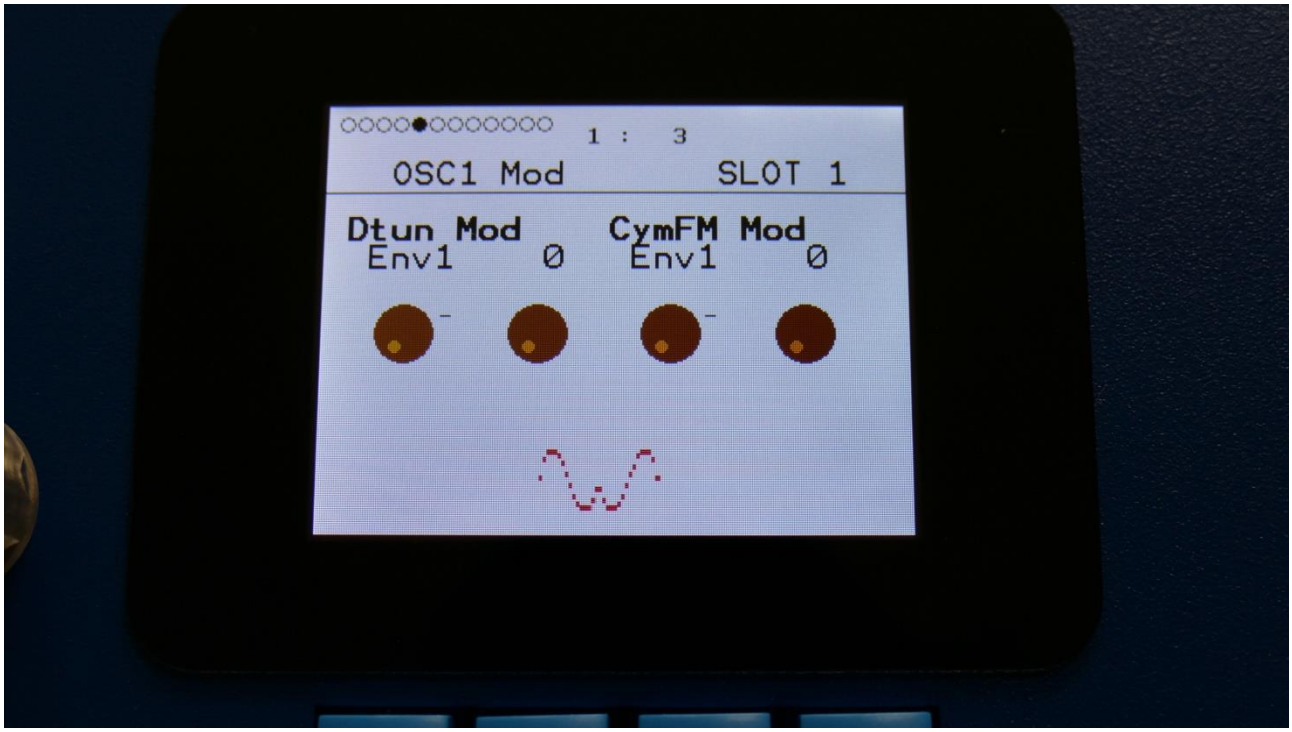
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 1 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the square waves PW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

CymFM Mod: Select a modulation source and adjust the amount of modulation for the CymFM parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Osc1: Clap

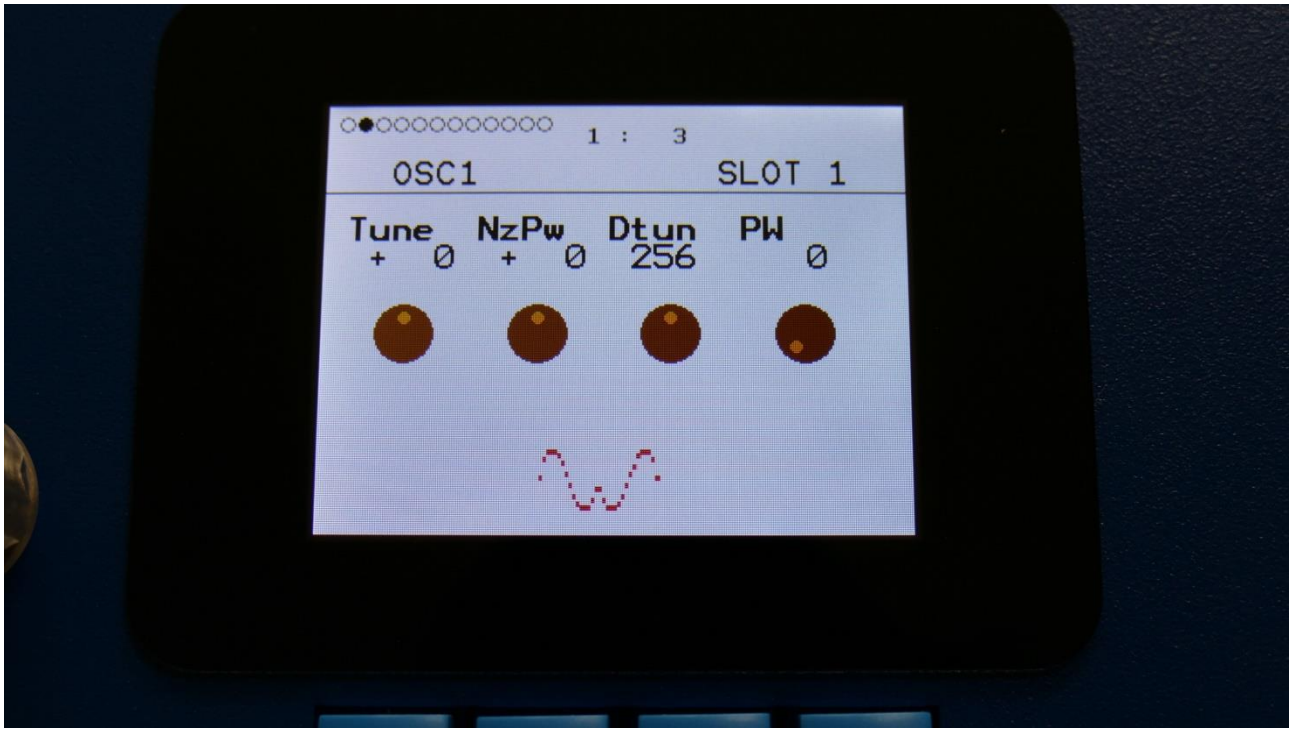
A handclap oscillator. A noise source is shaped by a “clap envelope”. The speed and the amount of the clap envelope can be adjusted, together with the noise PW.

Sound ideas / Start points

Set Tune to -23, NzPw to +107, Dtun to 0, PW to 272, and Clap to 511.

Set VCA envelope to LogSm mode, A to 0, D to 20, S to 511 and R to 96.

From the first drum oscillator page, hit the > button, to enter the next page:



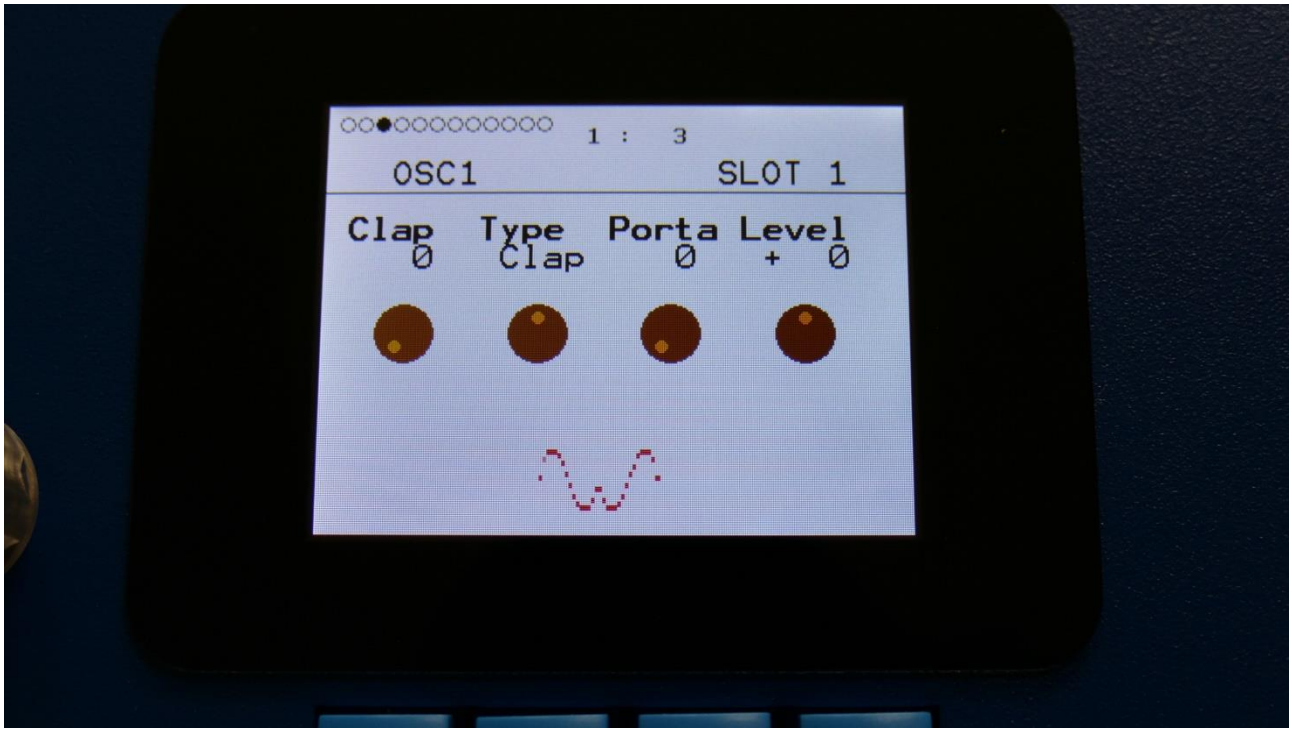
Tune: Value -64 to +63. When the Clap oscillator is selected, the Tune parameter sets the speed of the clap envelope.

NzPw: Value -256 to +255. Sets the intensity of the Clap noise.

Dtun: Value 0 to 511. Detunes the noise sound.

PW: Value 0 to 511. Sets the pulse width of a square wave, that is placed on top of the noise signal. 0: No square wave is added.

Hit the > button again, to enter the next page:



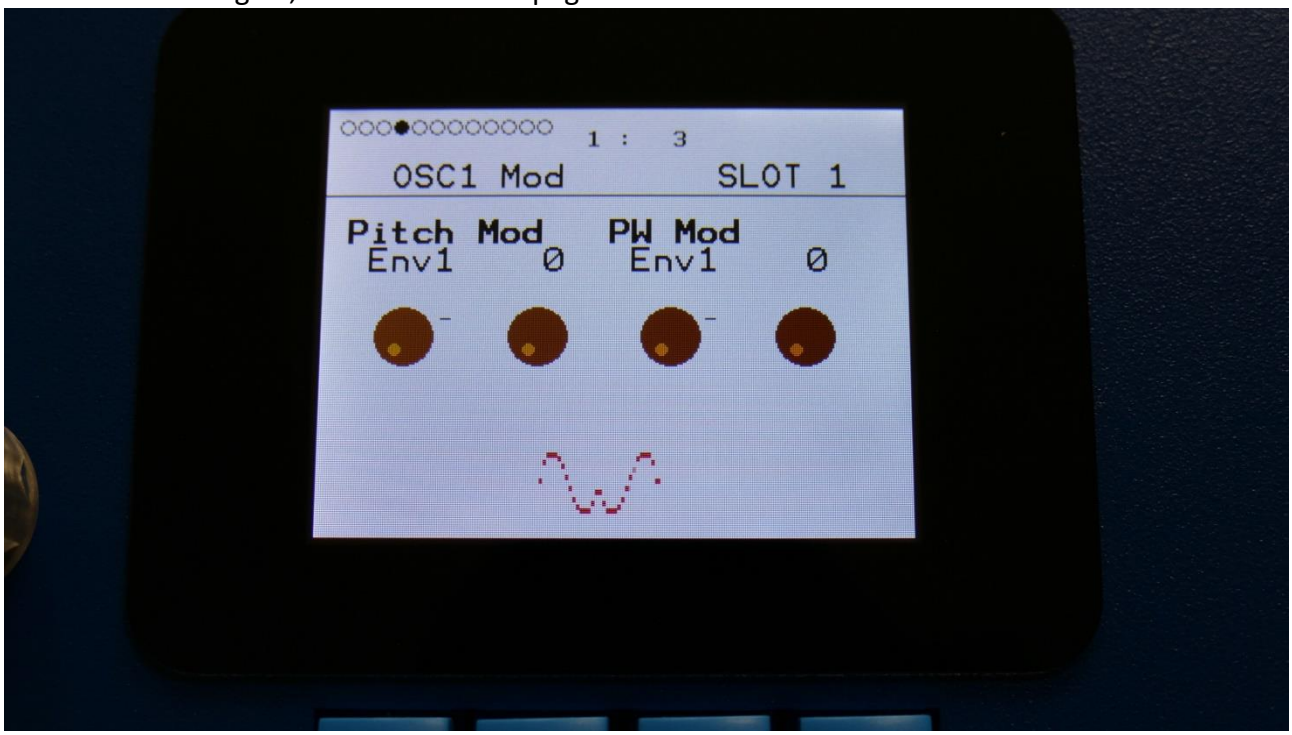
Clap: Value 0 to 511. Sets how much the clap envelope should shape the noise signal.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator 1 output level. Negative values attenuates the signal, positive values gains the signal.

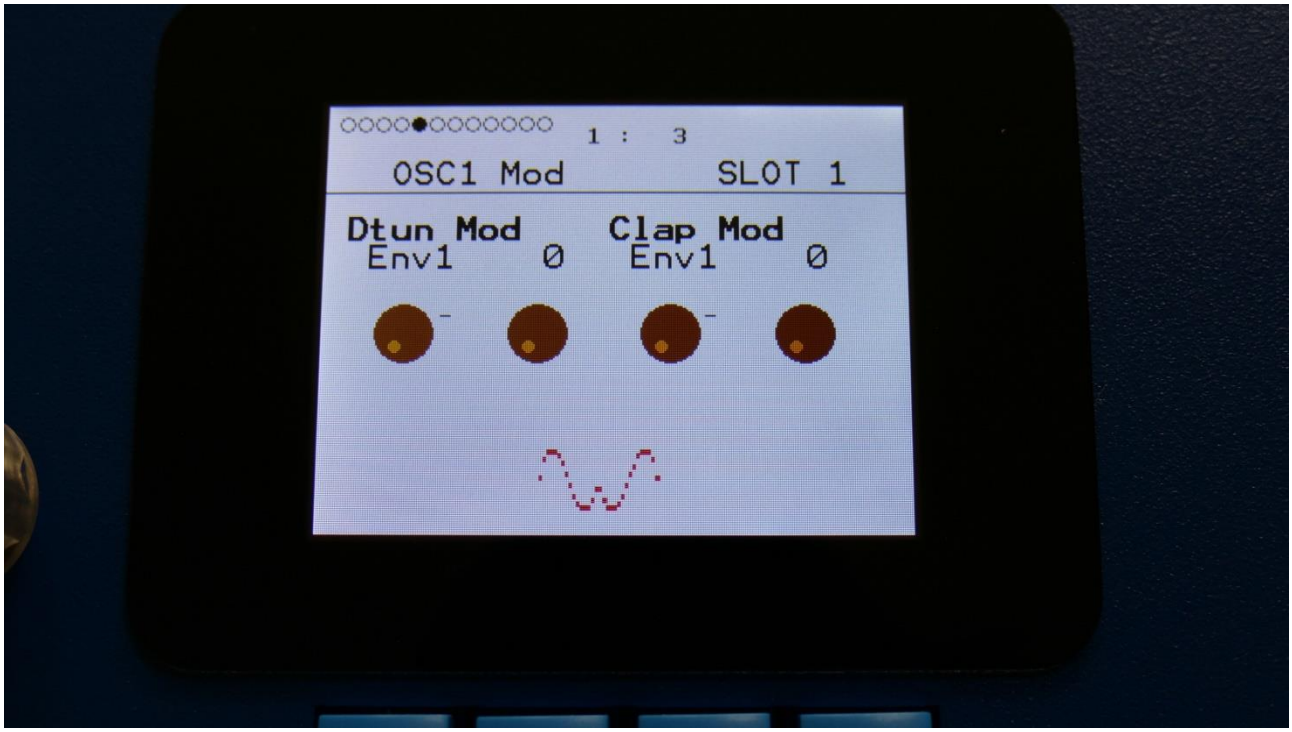
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount clap envelope speed modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the square wave PW. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



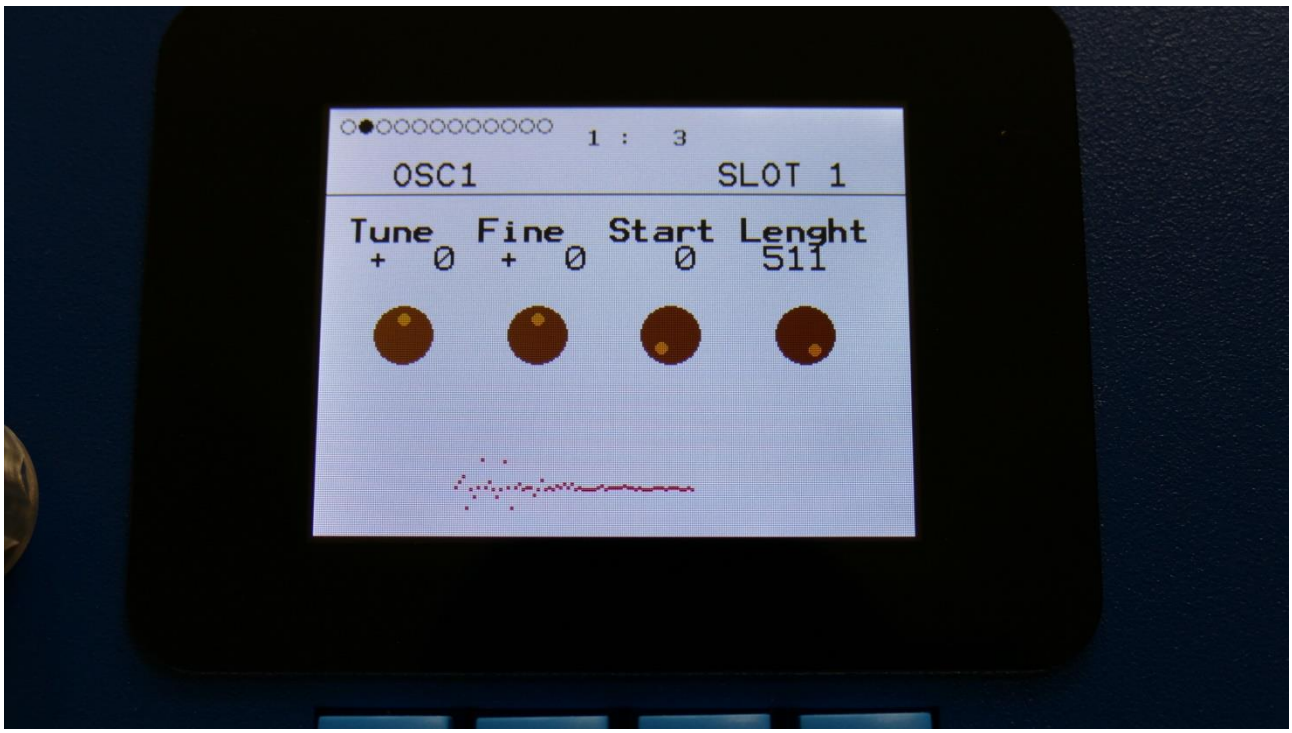
Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Clap Mod: Select a modulation source and adjust the amount of modulation for the Clap parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Osc1: Sample Player

This plays back any of the 2.047 samplings, that can be stored in SpazeDrum's internal FLASH memory. Samplings can be imported via USB.
Only mono samplings are supported. If a stereo sampling is selected, only the left channel will play back.
Pitch, chop, start point and length can be adjusted and modulated. Samples can also be FM'ed by oscillator 2.
Samples are chromatically tuned, and has a pitch range of 4 octaves above and 5 octaves below the original sample pitch.
It is possible to create chop points in the SpazeDrum sample editor, and use these. Chops can be detected by level peaks, by single wavecycles, and by dividing the sample length with a settable number.
Chop points will also be imported from wav files, containing these as cue points.

From the first drum oscillator page, hit the > button, to enter the next page:



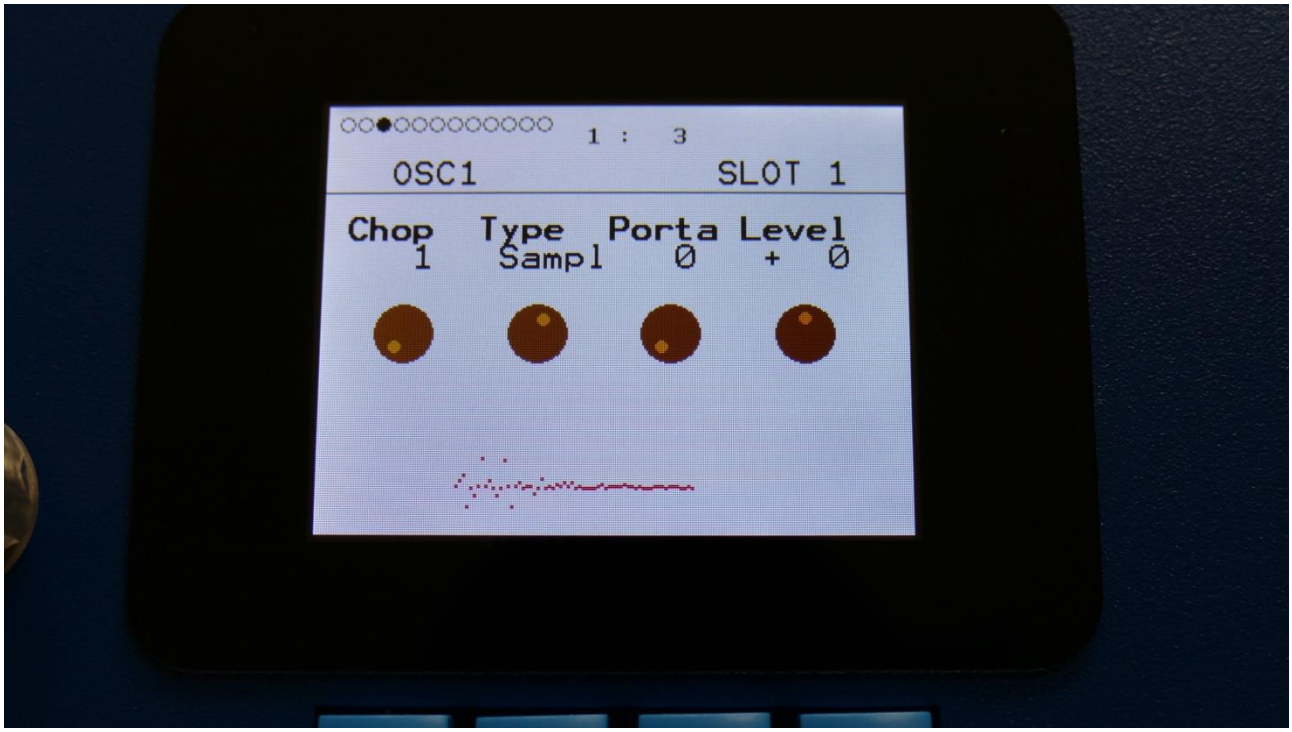
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

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

Hit the > button again, to enter the next page:



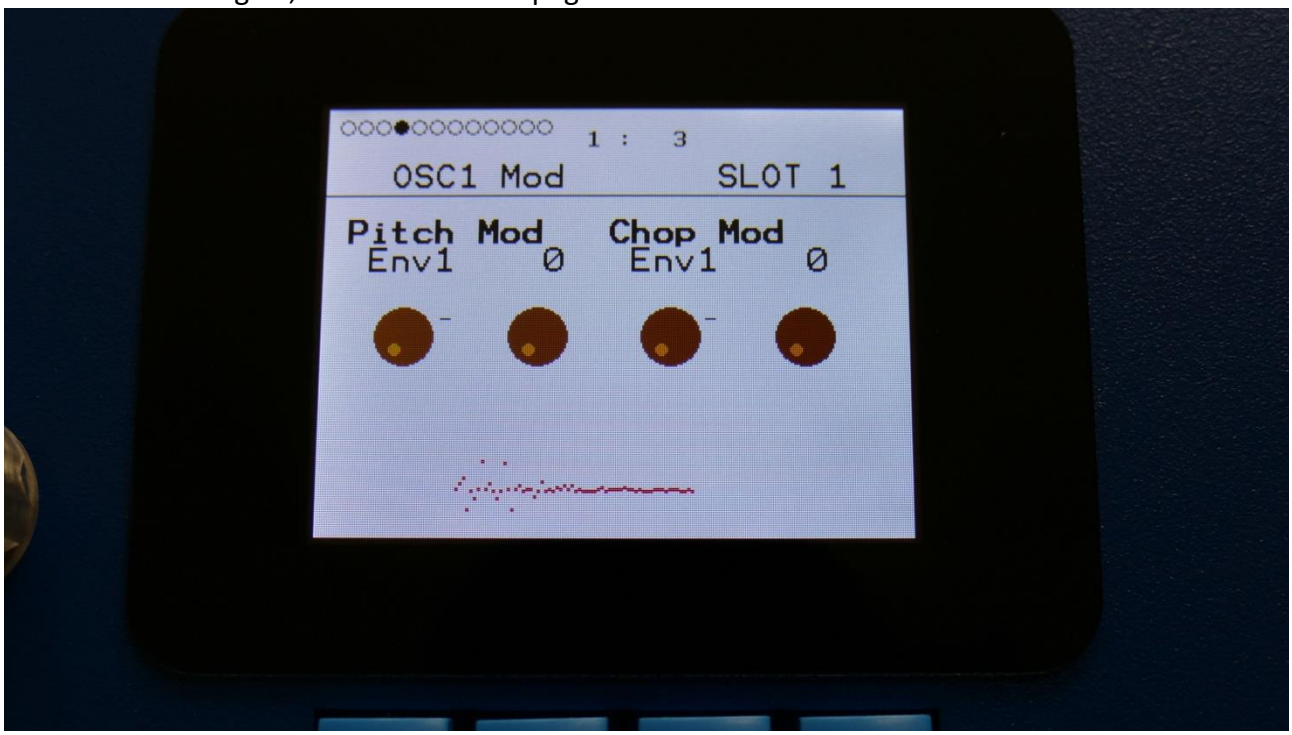
Chop: If chop points has been generated for the selected sampling, a chop can be selected by setting this parameter. Range: 0 to 63.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator 1 output level. Negative values attenuates the signal, positive values gains the signal.

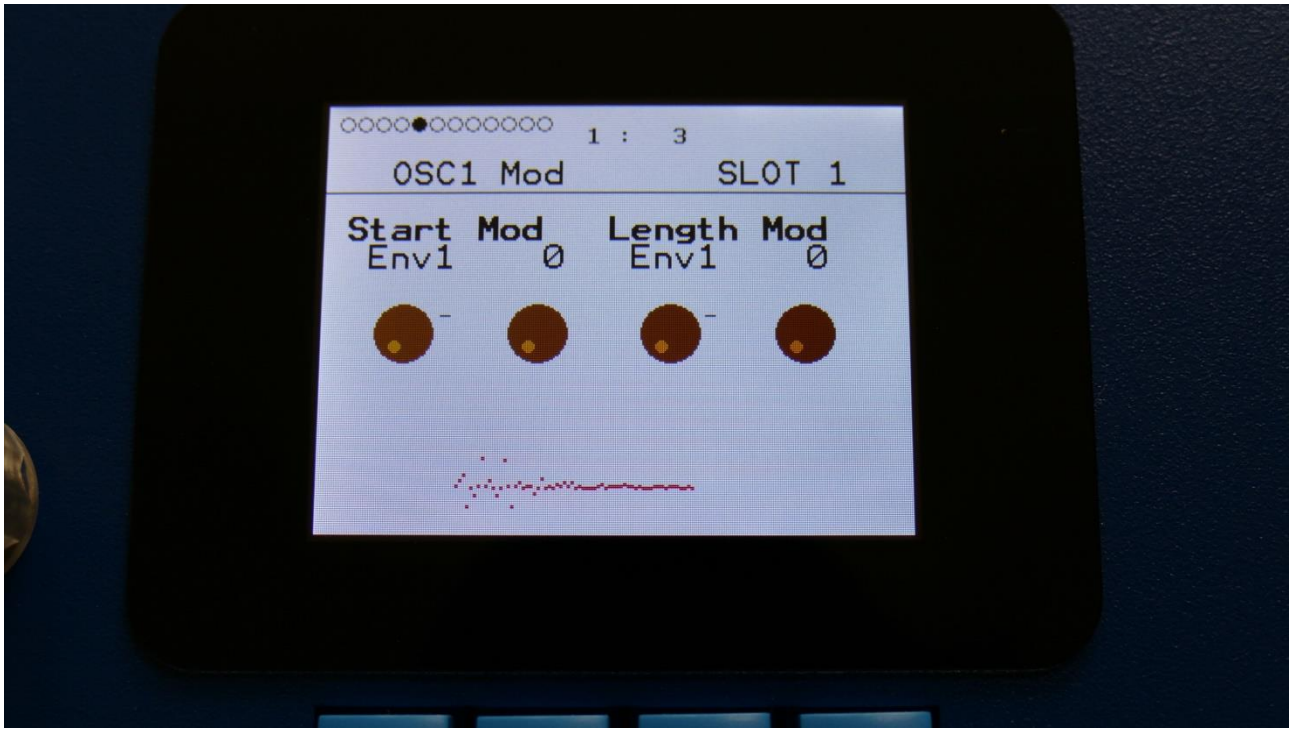
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator 1 pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Chop Mod: Select a modulation source and adjust the amount of modulation for the Chop select parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

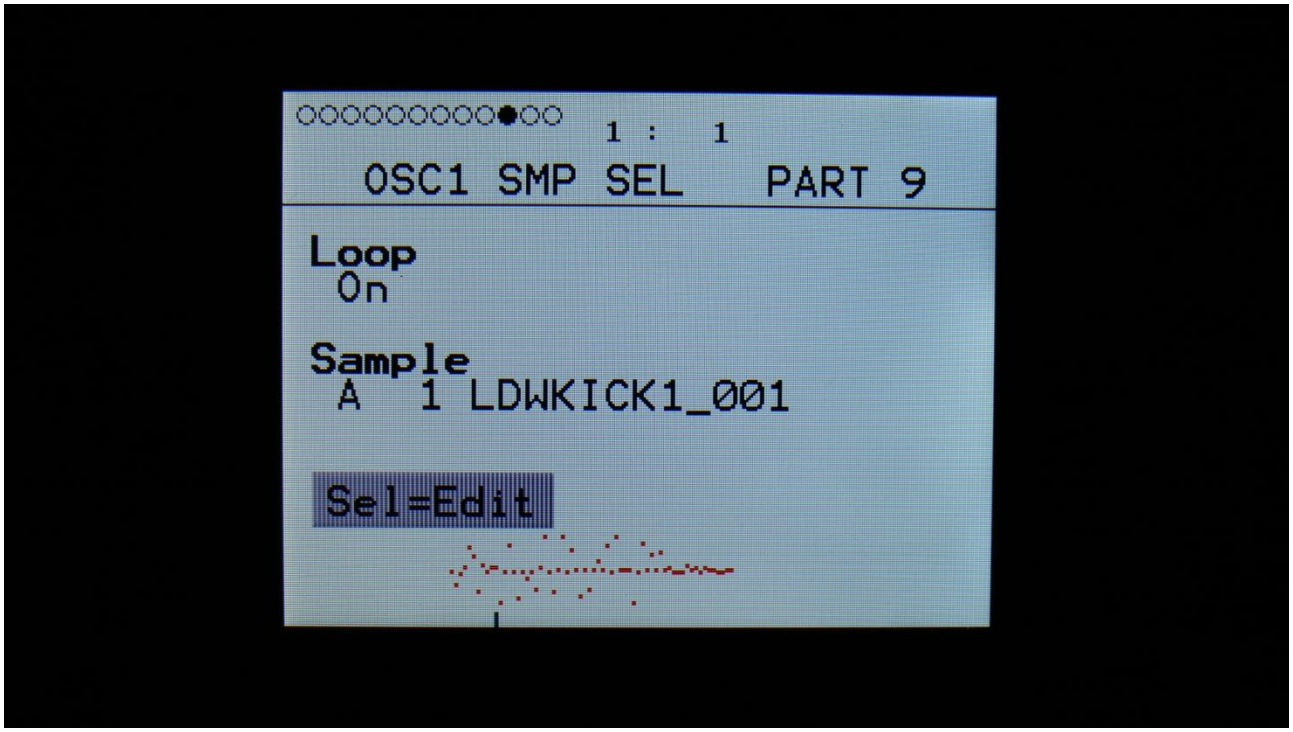
Hit the > button again, to enter the next page:



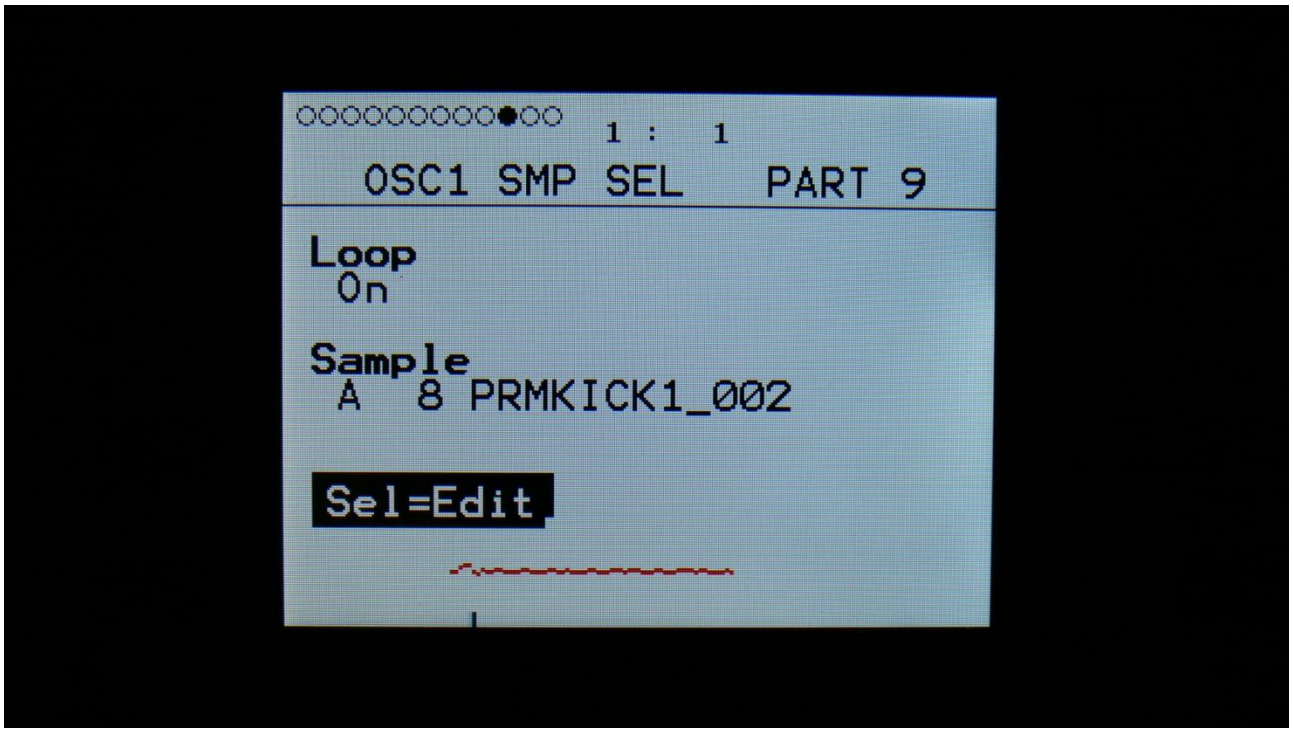
Start Mod: Select a modulation source and adjust the amount of modulation for the Start parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Length Mod: Select a modulation source and adjust the amount of modulation for the Length parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button a number of times, to enter this page:



Here you can select the sampling, that oscillator 1 should play back. To do so, hit the Edit button. Now “Sel=Edit” will turn black, and you can use the < and > buttons to select the desired sampling. Hold any of these buttons to scroll. When you have selected the desired sampling, simply hit the Edit button again. It is also possible to switch sample **Loop** on and off, by turning Edit Knob 1.

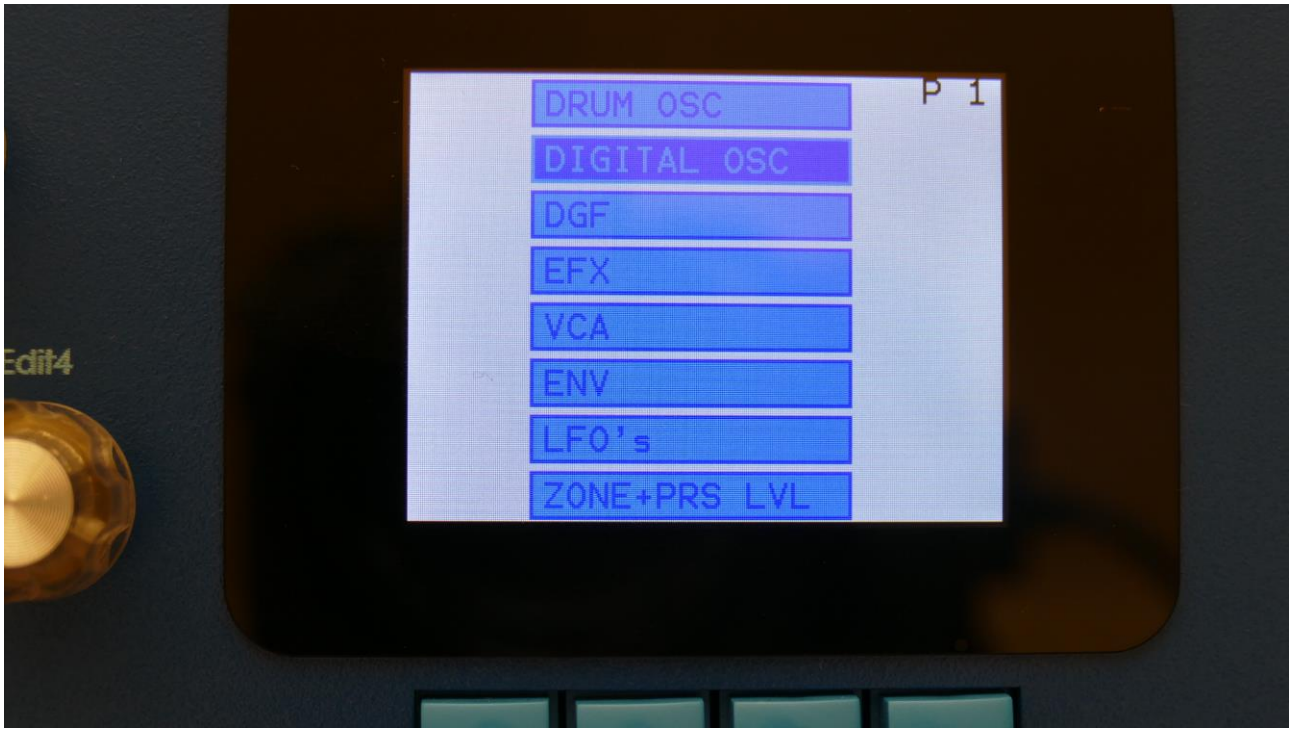


Osc D – Digital Oscillator

When the drum oscillator in a part is in any of the analog drum modes, a digital oscillator is the second module. When it is in synthesizer mode, the 2 analog filters are placed here. These will be explained in the next chapter. When in digital voice mode, this module will be blank.

The digital oscillator is placed in parallel with the analog drum oscillator. Its output goes to the digital filters, like the analog drum oscillator, or it can be routed to the analog oscillators, to force these to act as oscillators and filters at the same time.

For a detailed description of the different digital oscillator types, please see the Drum Oscillator section of this manual, under “parameters in synthesizer mode”.

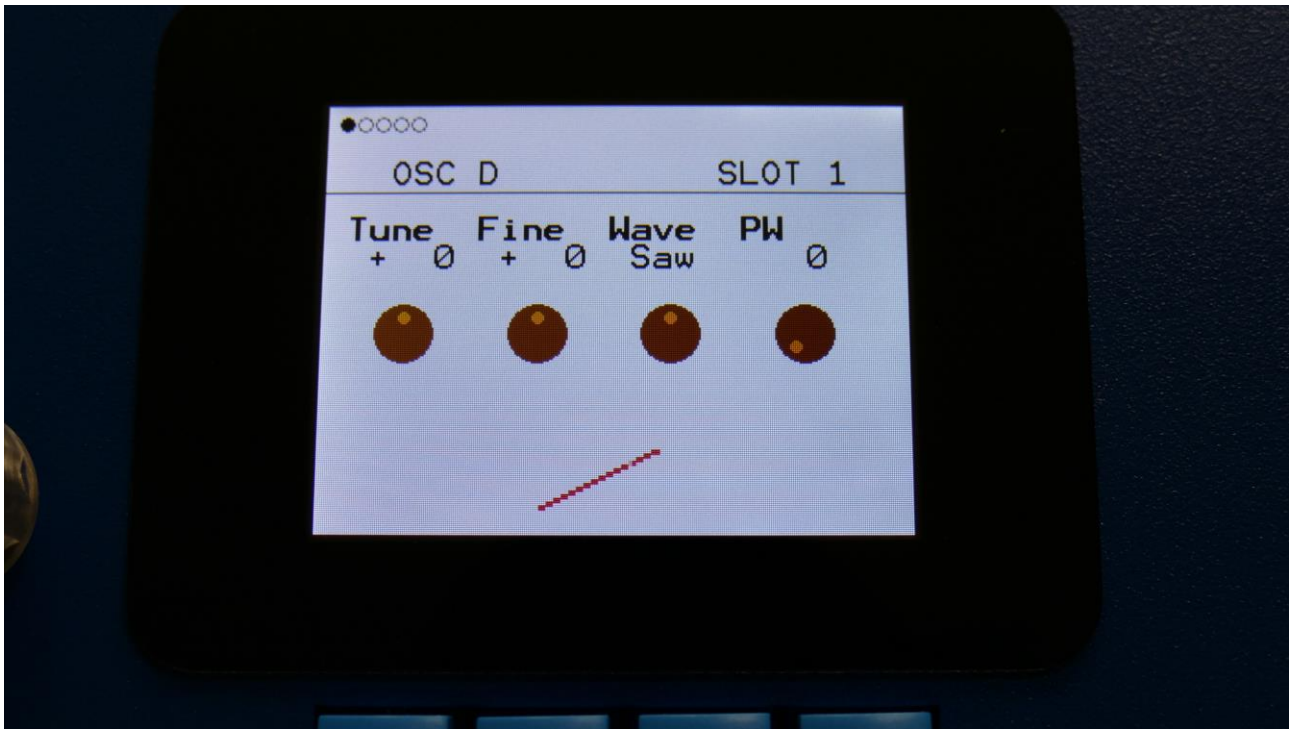


To enter the digital oscillator, select DIGITAL OSC by using the < and > buttons, and then push the Edit button.

OscD: Type 1, Type2, Reso

For an explanation of these oscillator types, please see “parameters in synthesizer mode” in the Drum Synthesizer chapter.

The first OscD page for this type:



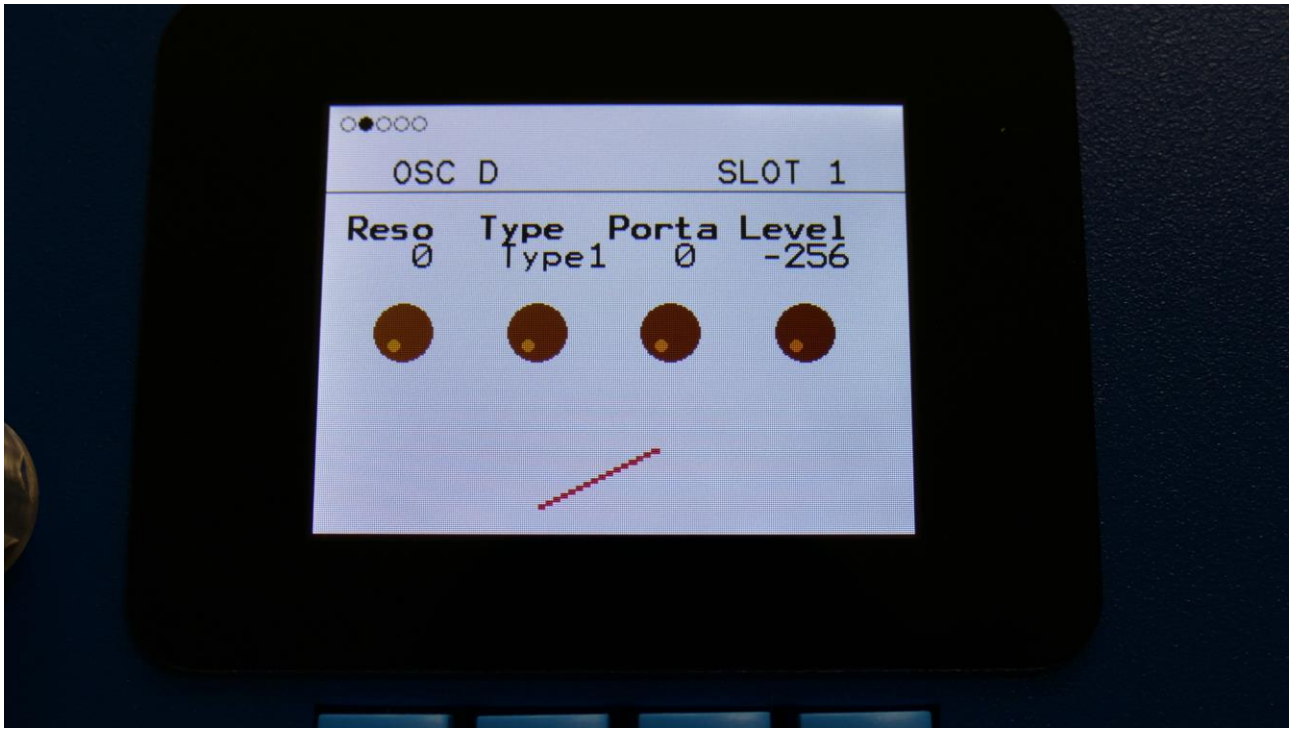
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

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

Wave: This parameter lets you morph between sine, triange, 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 SpazeDrum’s waveforms, not just the pulse wave.

Hit the > button again, to enter the next page:



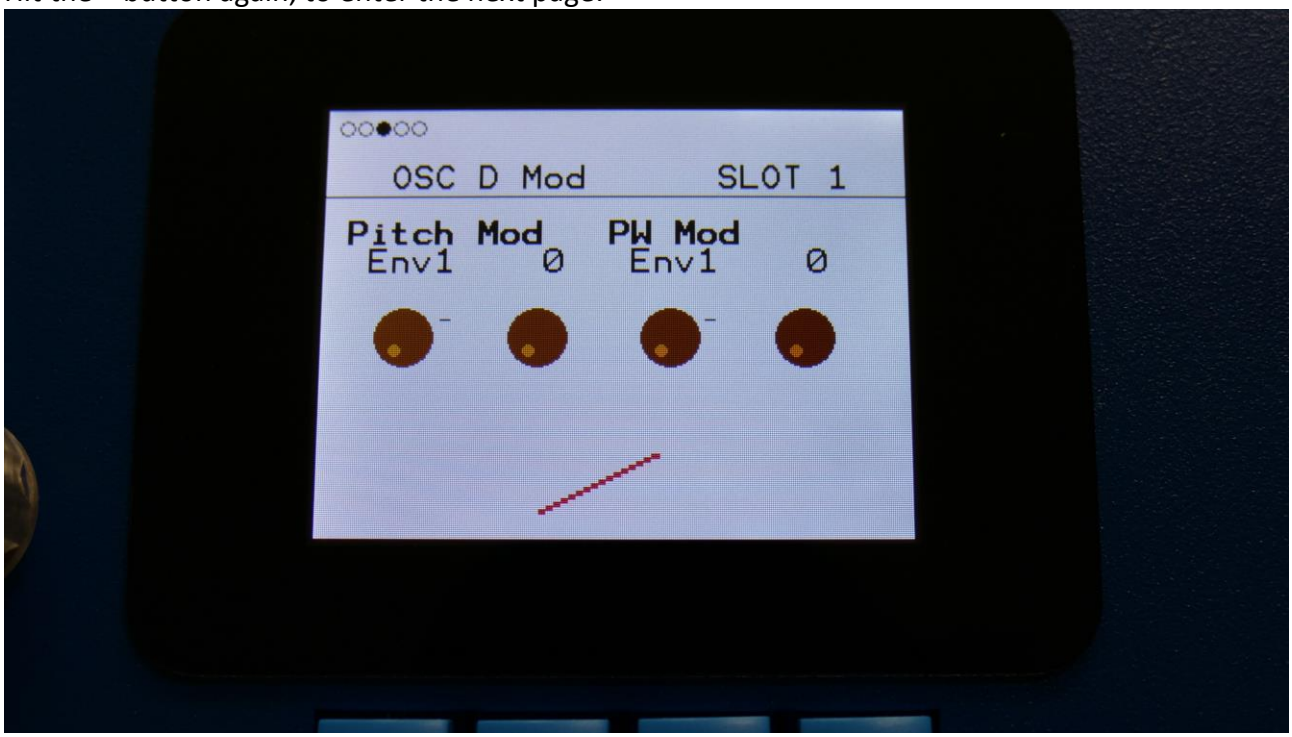
Reso: The amount of resonances fed back, when the resonator oscillator type is selected. The higher this parameter is set, the more resonances are fed back into the oscillator. Even at setting zero, some resonances are fed back. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator D output level. Negative values attenuates the signal, positive values gains the signal.

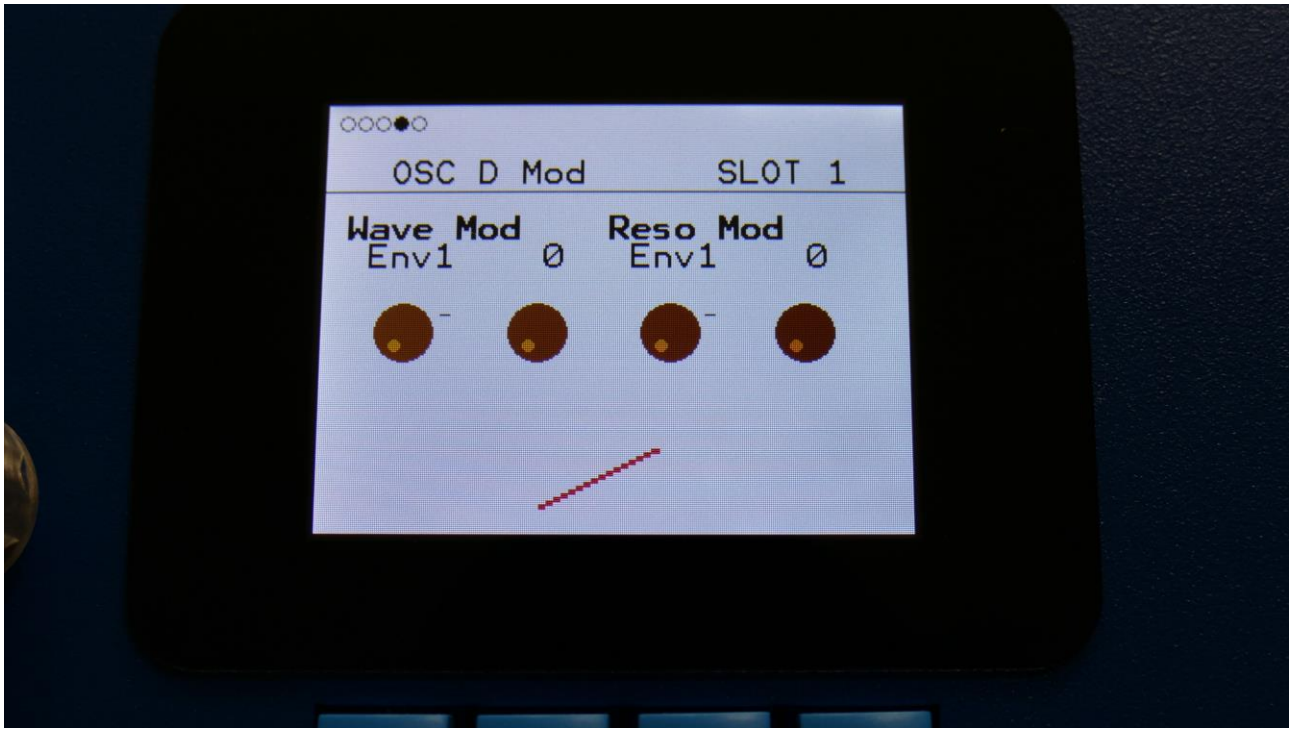
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator D pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the PW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



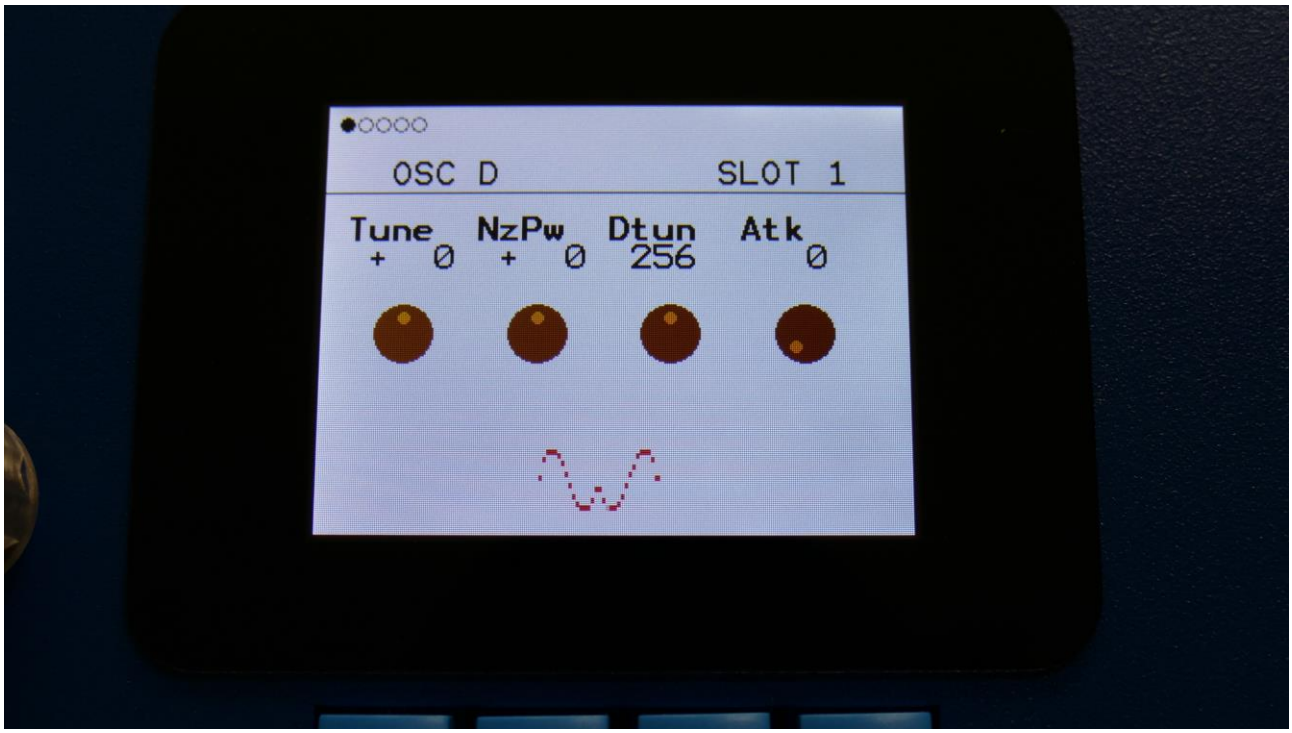
Wave Mod: Select a modulation source and adjust the amount of modulation for the Wave parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Reso Mod: Select a modulation source and adjust the amount of modulation for the Reso parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

OscD: Perc, prc2, prc3

For an explanation of these oscillator types, please see “parameters in synthesizer mode” in the Drum Synthesizer chapter.

The first OscD page for this type:



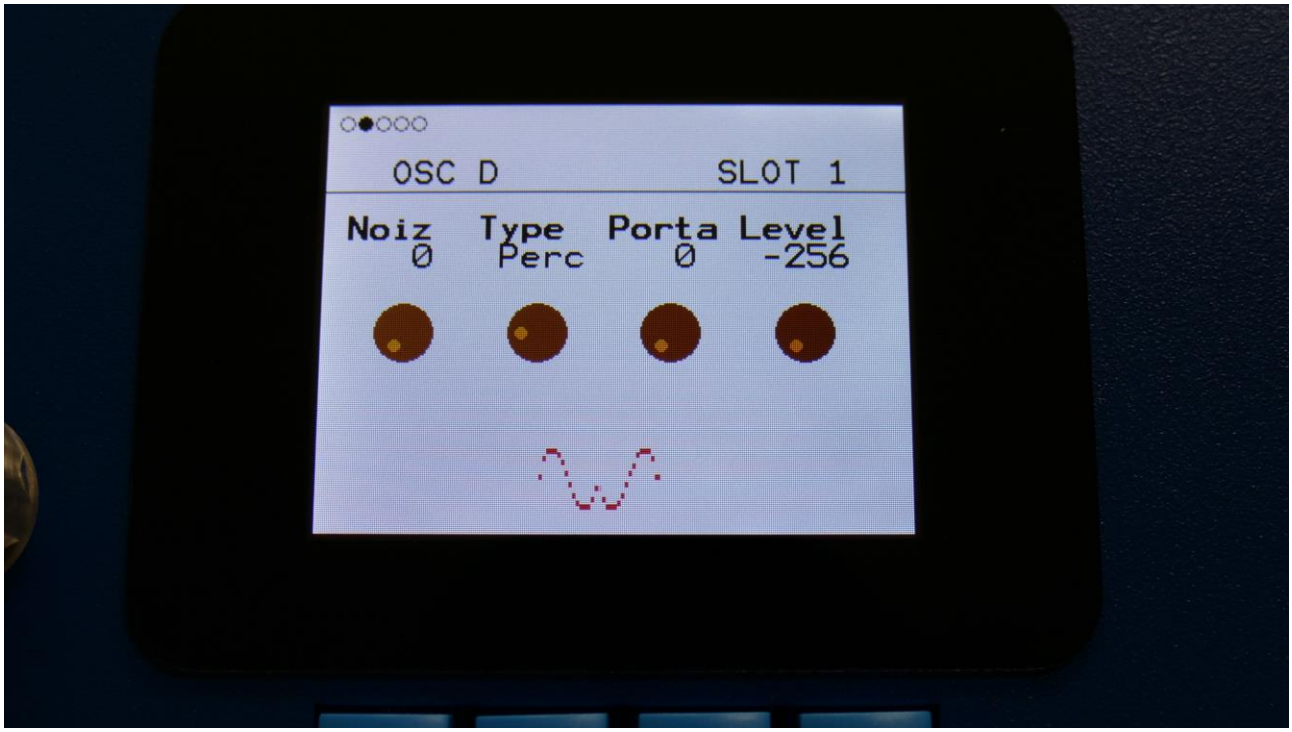
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

NzPw: Sets the intensity of the FM noise. Range: -256 to +255.

Dtun: Detunes percussion wave 2 from percussion wave 1. Value 0 to 511.

Atk: Will morph from the percussion waves body (0) to the percussion waves attack (511). Modulate this parameter with an envelope, to imitate the strike of a drum. Value 0 to 511.

Hit the > button again, to enter the next page:



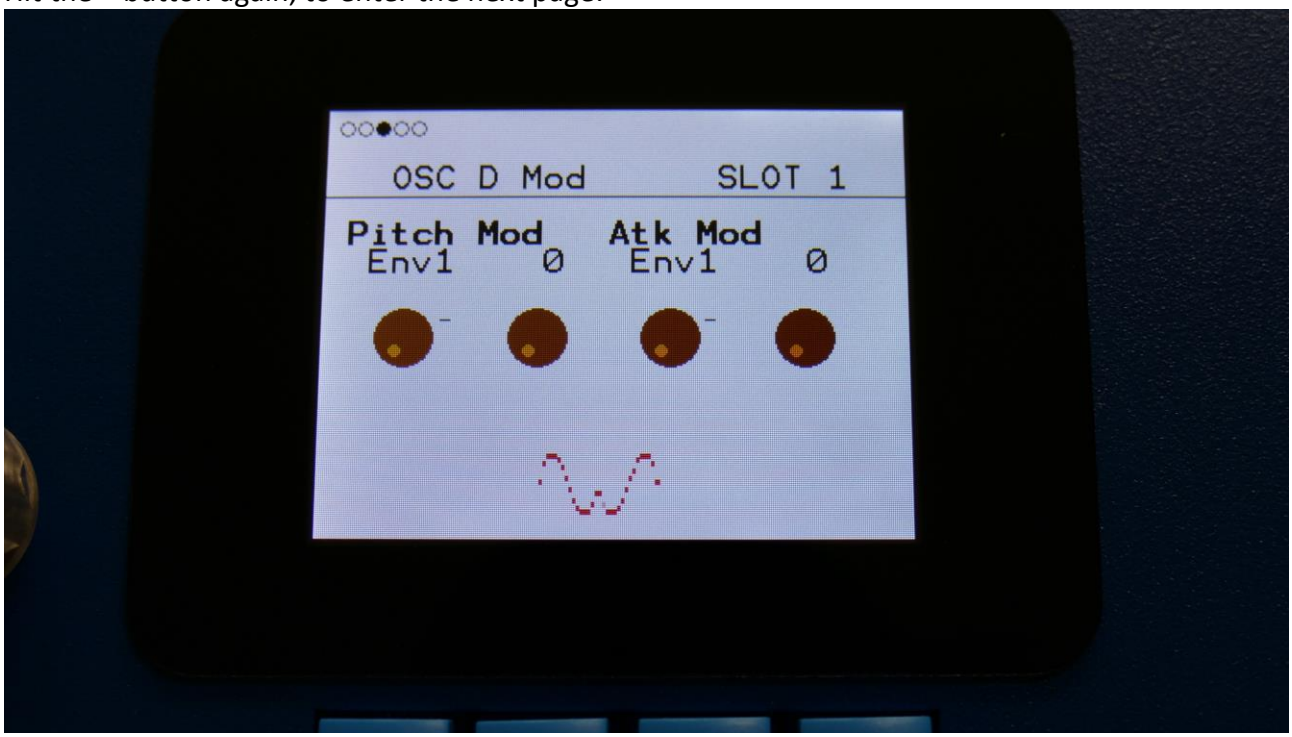
Noiz: Adds noise FM to modulate the pitch of the percussion waves. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator D output level. Negative values attenuates the signal, positive values gains the signal.

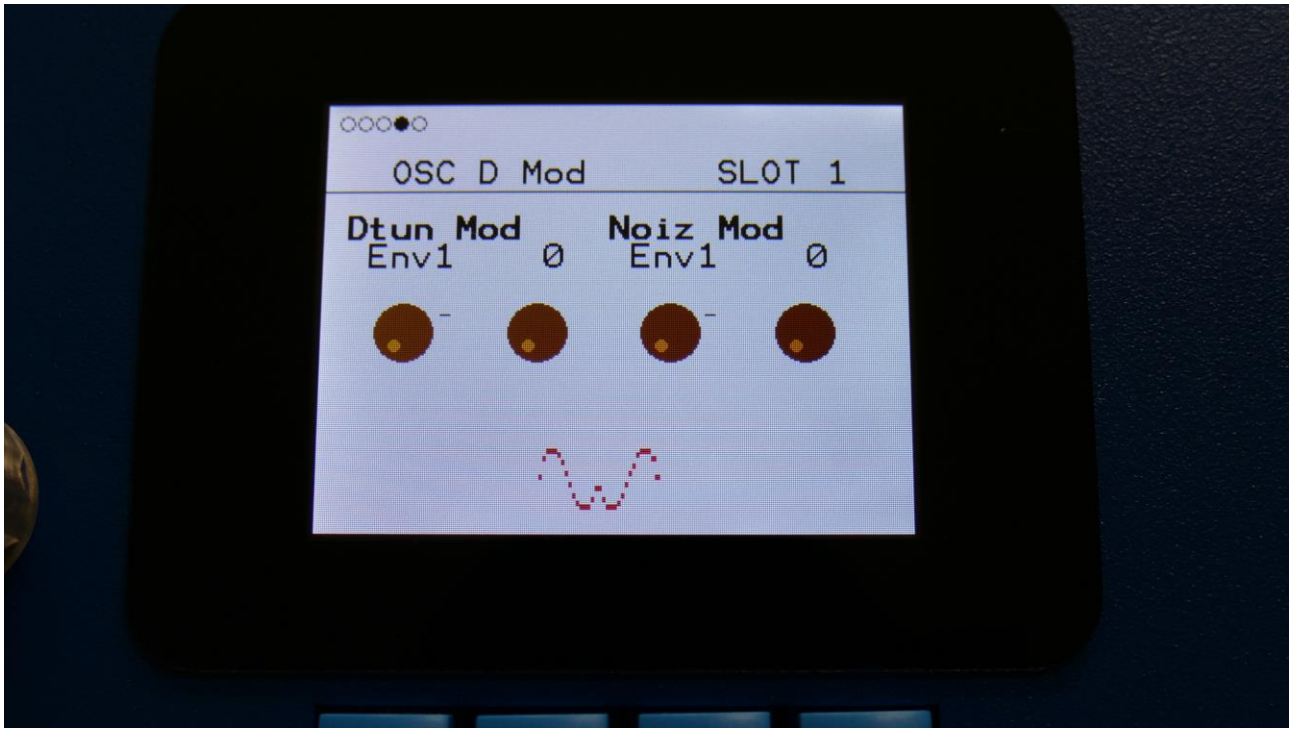
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator D pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Atk Mod: Select a modulation source and adjust the amount of modulation for the Atk parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



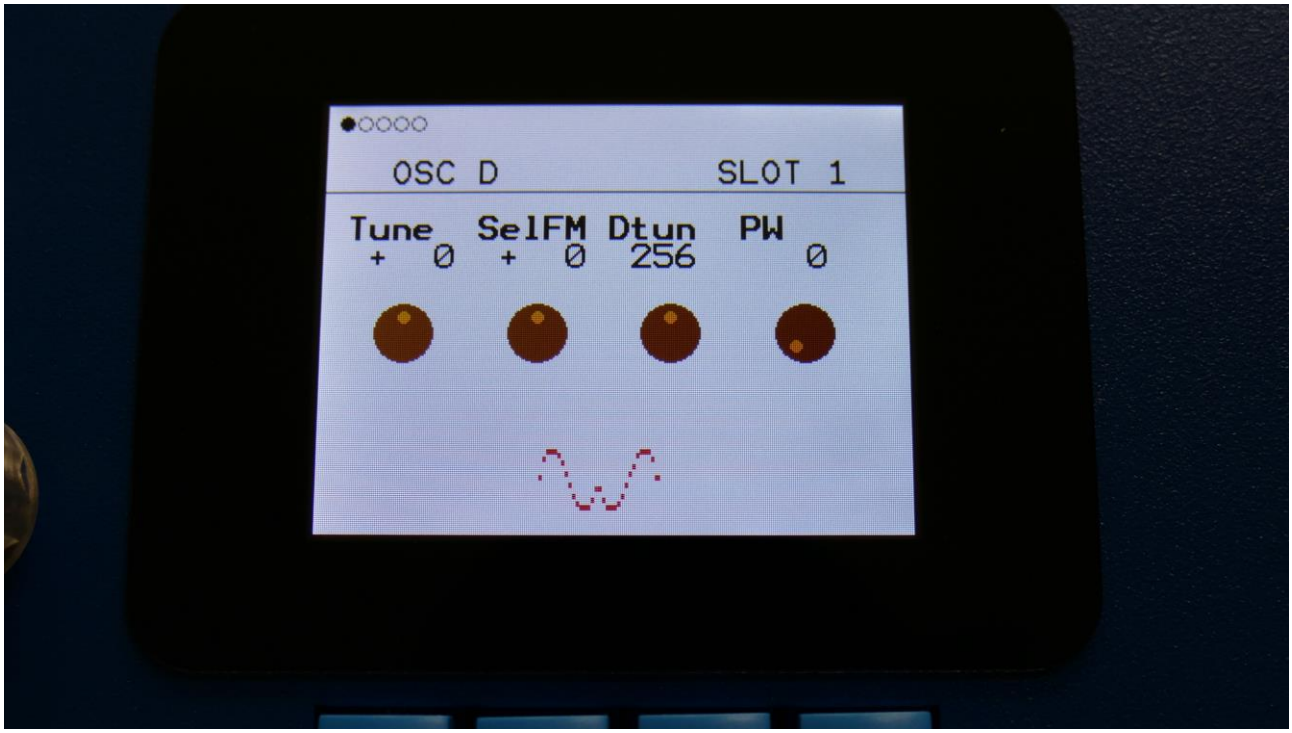
Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Noiz Mod: Select a modulation source and adjust the amount of modulation for the Noiz parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

OscD: Cymb, Cym2

For an explanation of these oscillator types, please see “parameters in synthesizer mode” in the Drum Synthesizer chapter.

The first OscD page for this type:



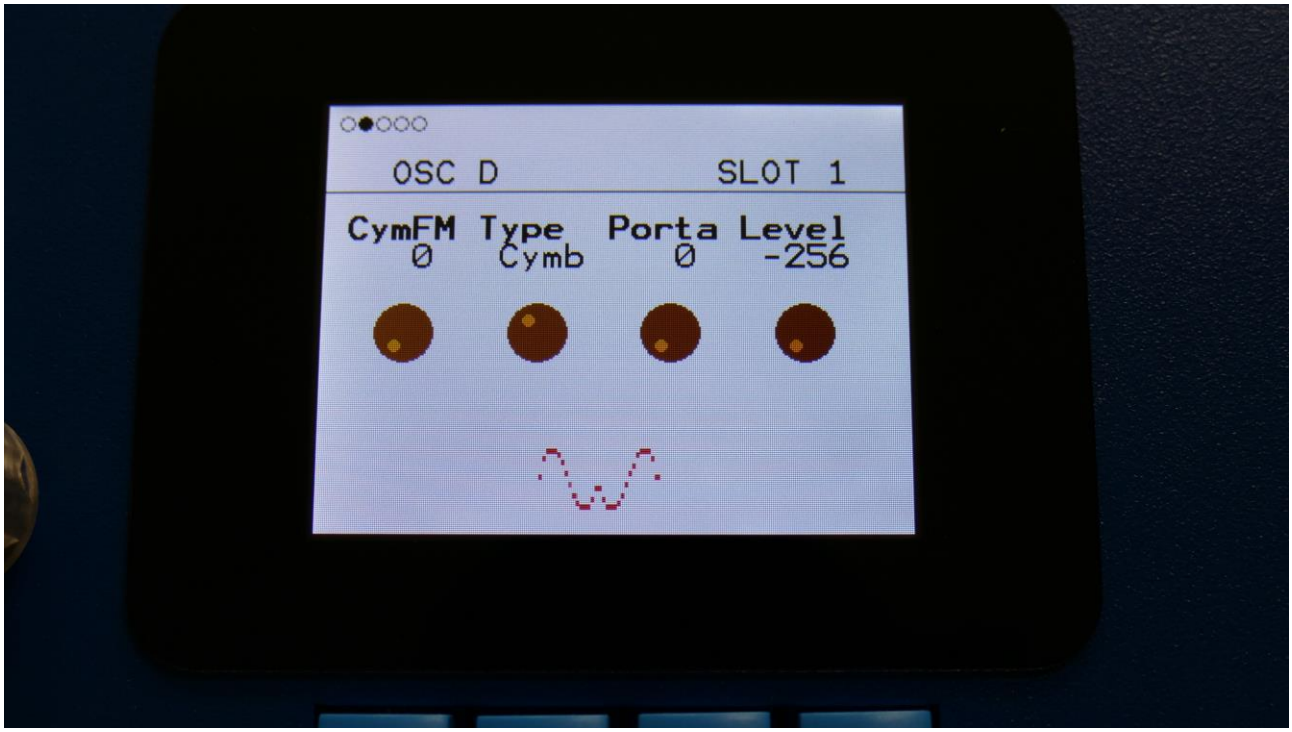
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

SelFM: Sets self FM amount of the first square wave oscillator (A modulator). Range: -256 to +255.

Dtun: Sets self FM amount of the first square wave oscillator (A modulator). Value 0 to 511.

PW: Sets the pulse width of all square waves. Value 0 to 511.

Hit the > button again, to enter the next page:



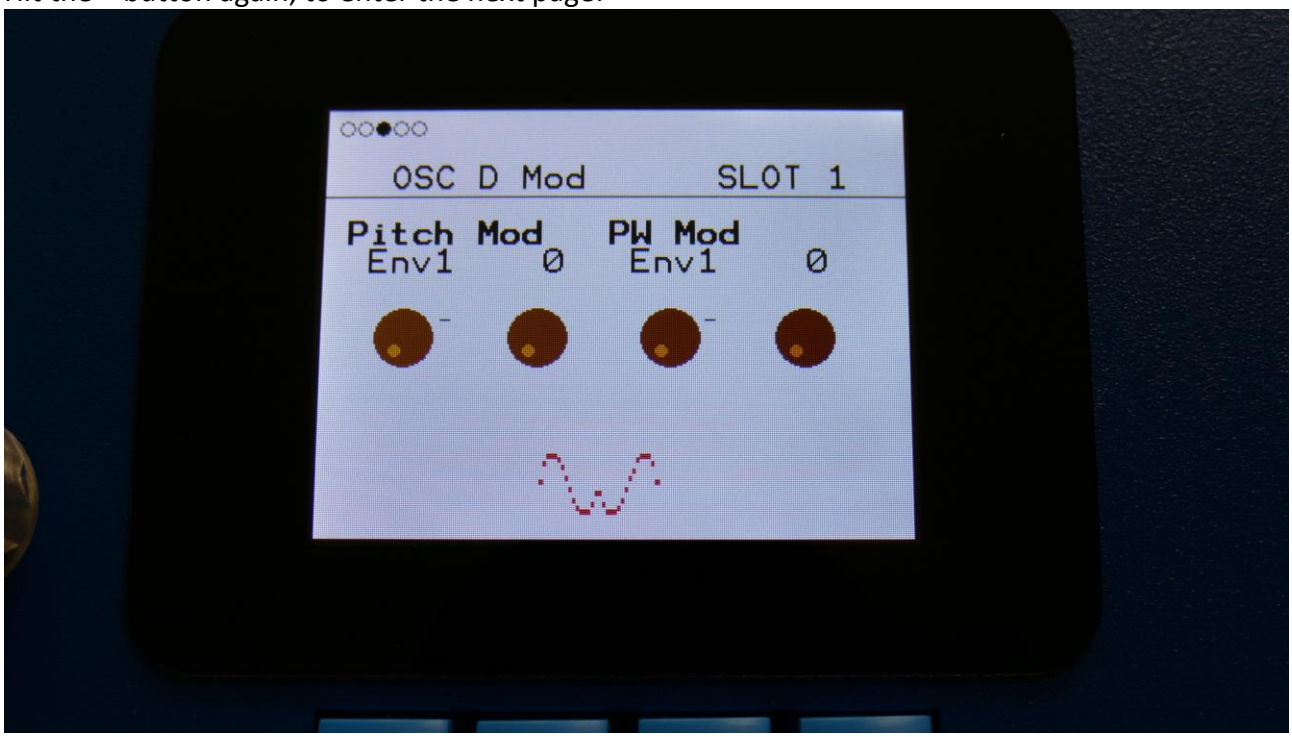
CymFM: Sets the FM amount between the square wave oscillators. Range: 0 to 511.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator D output level. Negative values attenuates the signal, positive values gains the signal.

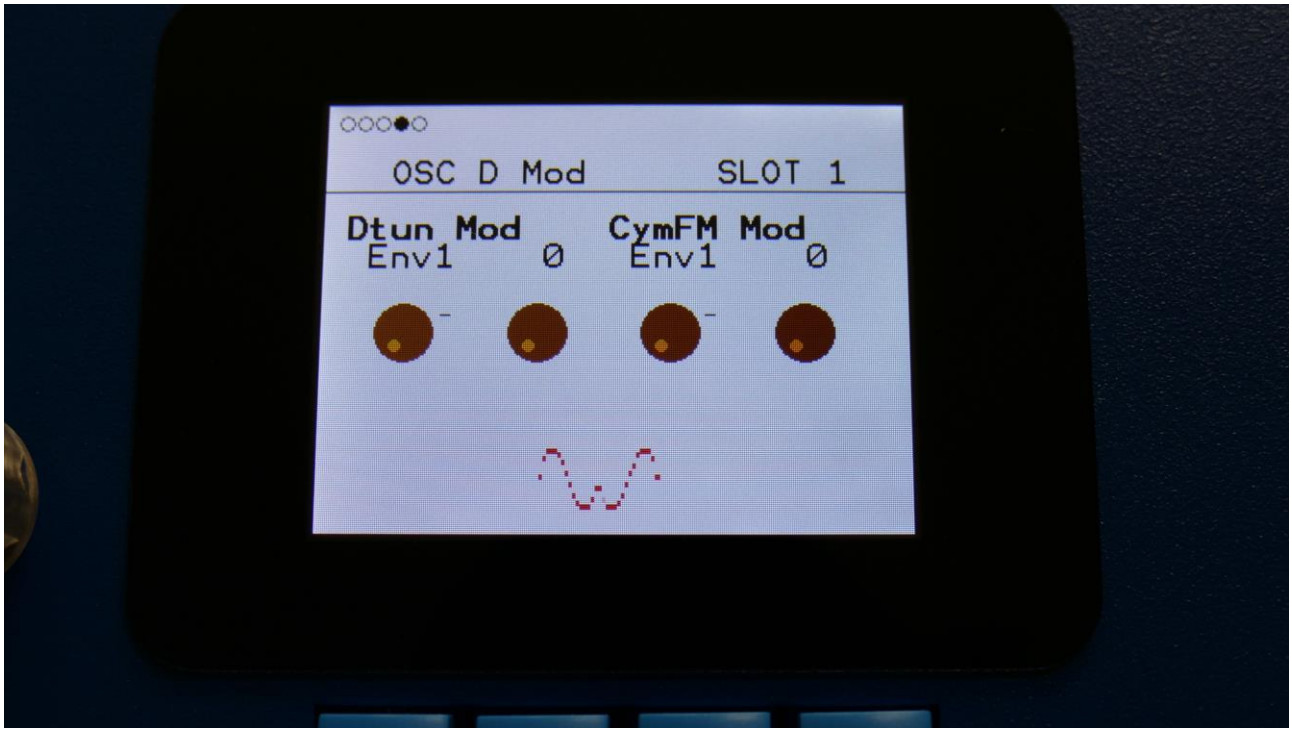
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator D pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the square waves PW parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



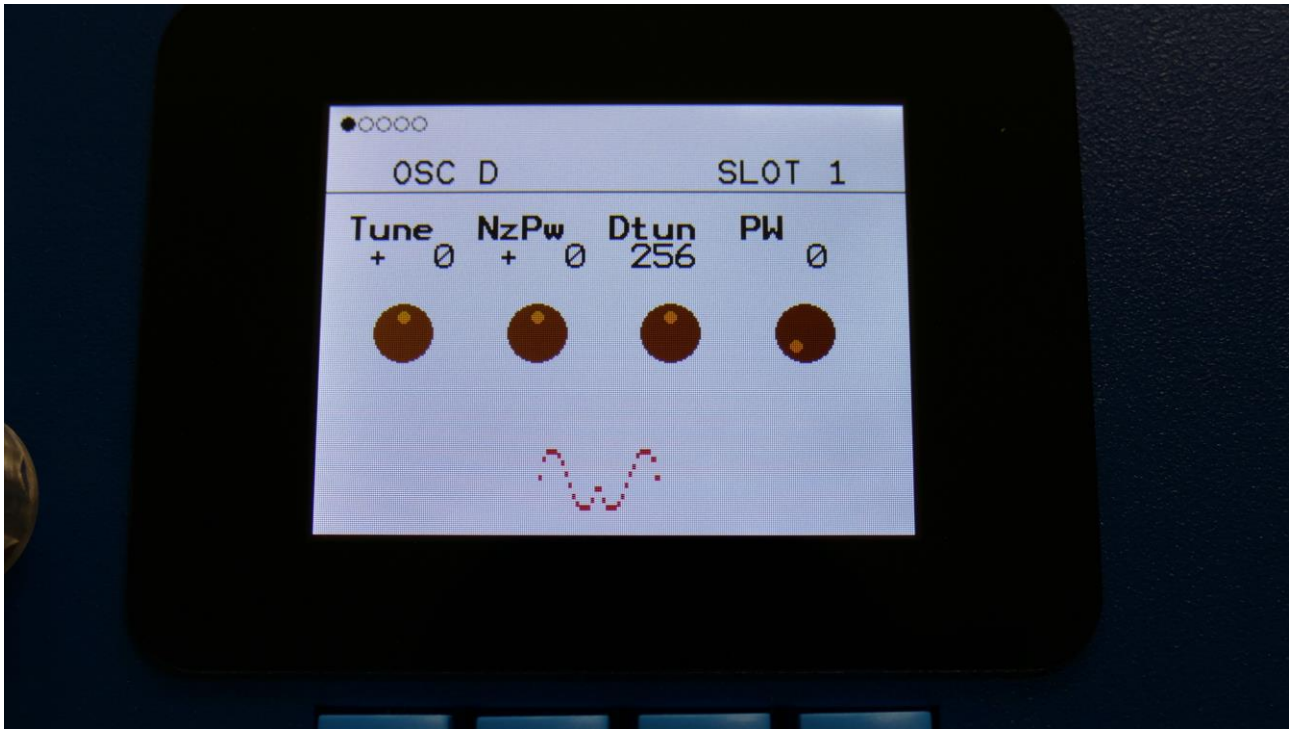
Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

CymFM Mod: Select a modulation source and adjust the amount of modulation for the CymFM parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

OscD: Clap

For an explanation of these oscillator types, please see “parameters in synthesizer mode” in the Drum Synthesizer chapter.

The first OscD page for this type:



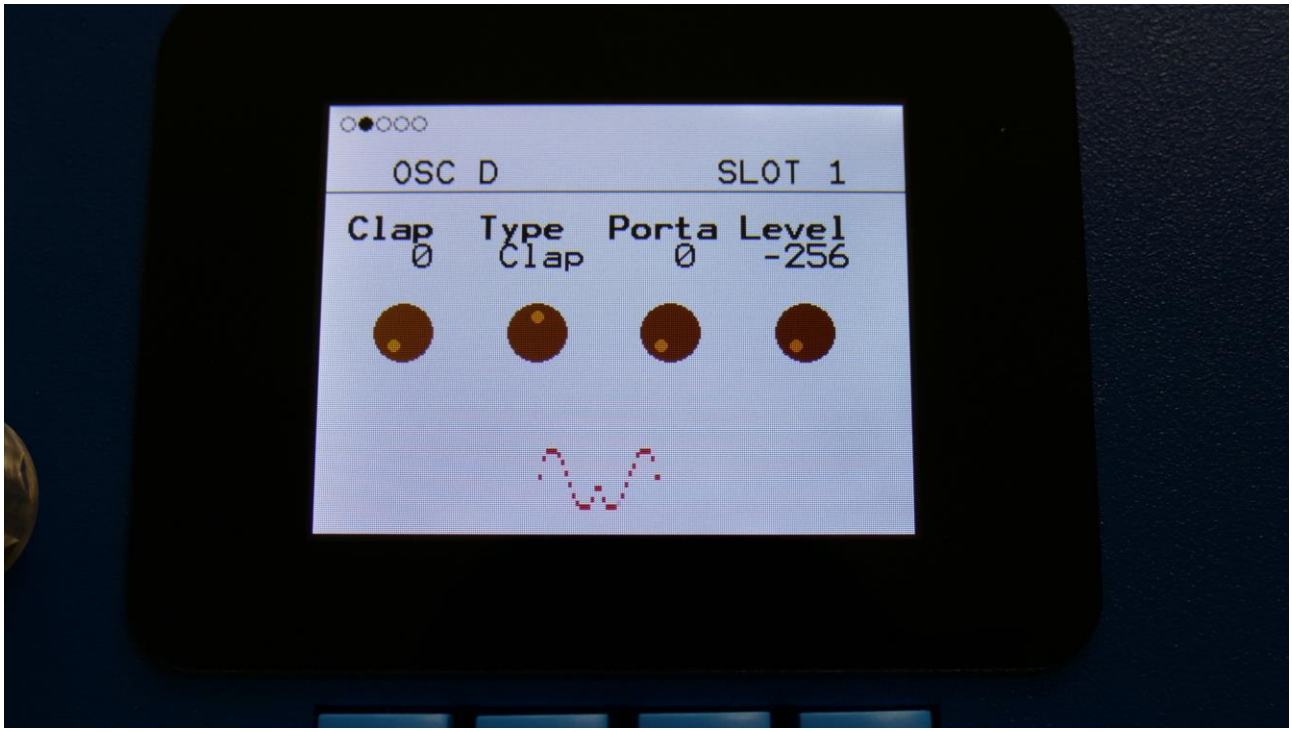
Tune: Value -64 to +63. When the Clap oscillator is selected, the Tune parameter sets the speed of the clap envelope.

NzPw: Value -256 to +255. Sets the intensity of the Clap noise.

Dtun: Value 0 to 511. Detunes the noise sound.

PW: Value 0 to 511. Sets the pulse width of a square wave, that is placed on top of the noise signal. 0: No square wave is added.

Hit the > button again, to enter the next page:



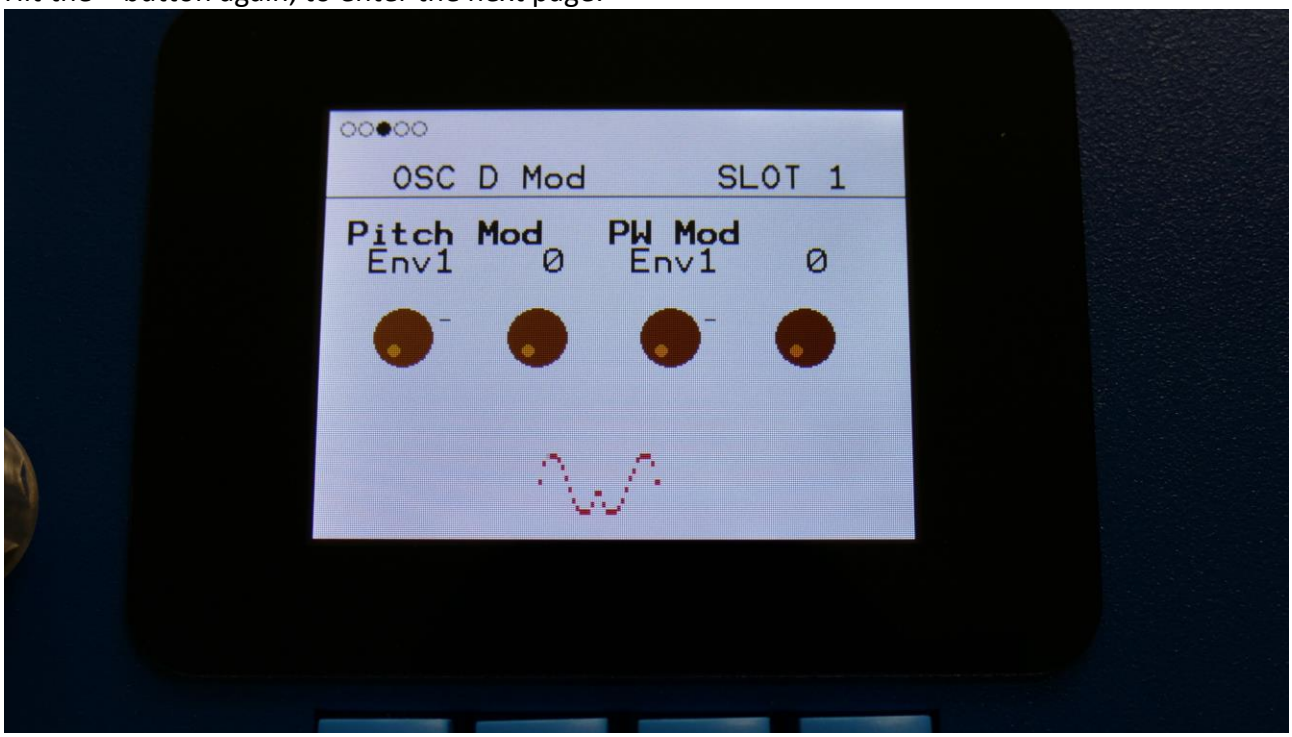
Clap: Value 0 to 511. Sets how much the clap envelope should shape the noise signal.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator D output level. Negative values attenuates the signal, positive values gains the signal.

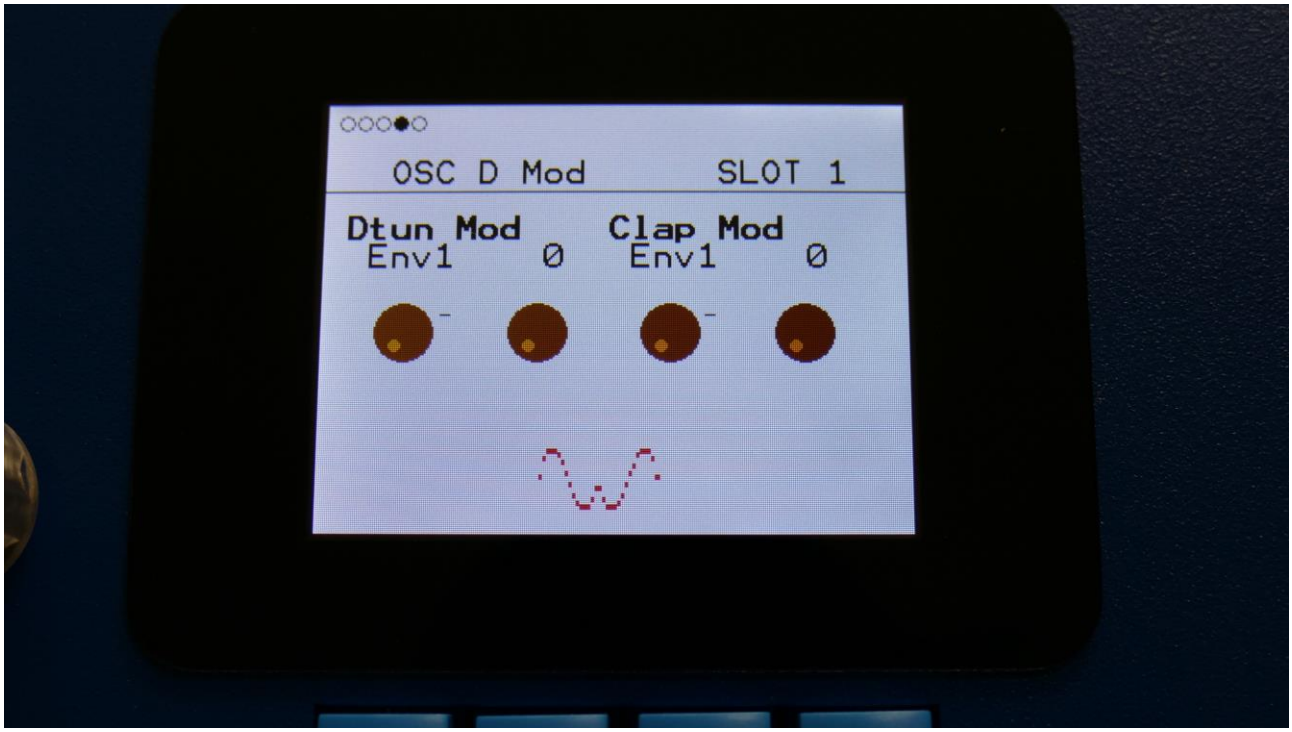
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount clap envelope speed modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PW Mod: Select a modulation source and adjust the amount of modulation for the square wave PW. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



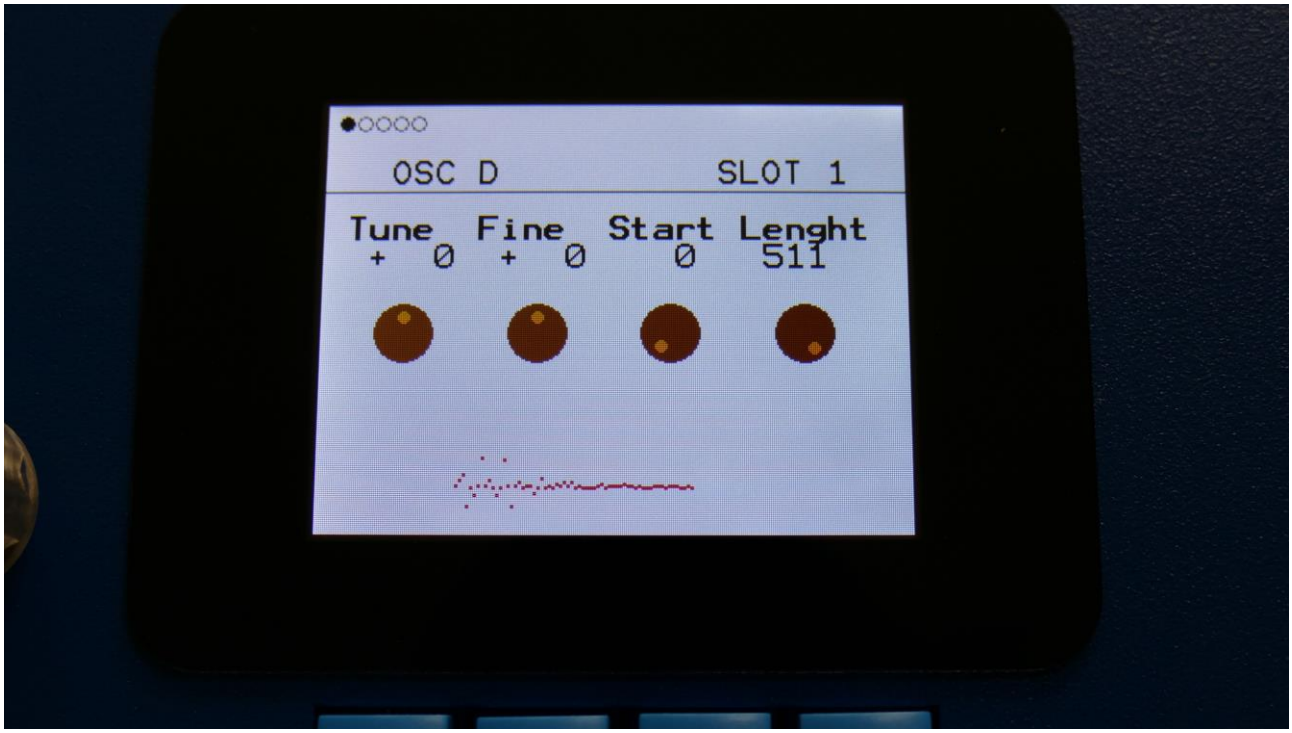
Dtun Mod: Select a modulation source and adjust the amount of modulation for the Dtun parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Clap Mod: Select a modulation source and adjust the amount of modulation for the Clap parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

OscD: Sample Player

For an explanation of these oscillator types, please see “parameters in synthesizer mode” in the Drum Synthesizer chapter.

The first OscD page for this type:



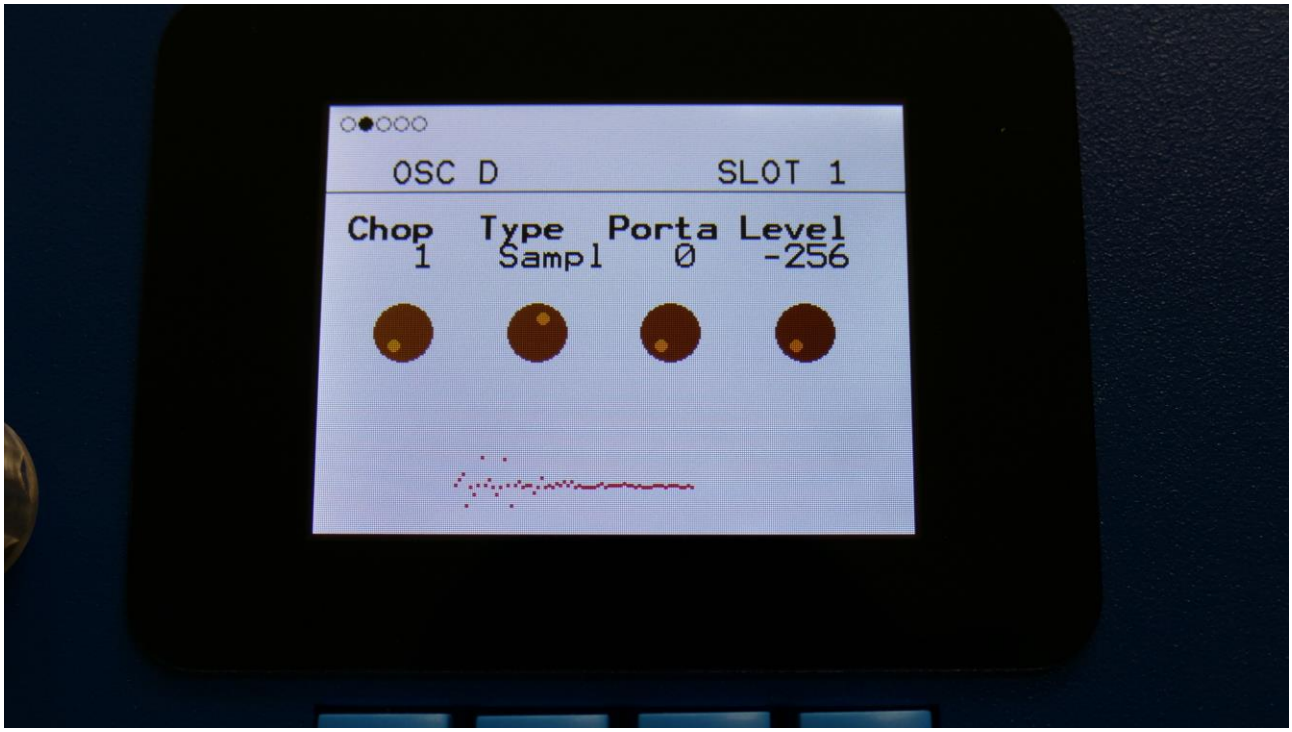
Tune: Adjust the basic pitch in semitones. Range: -64 to + 63.

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

Hit the > button again, to enter the next page:



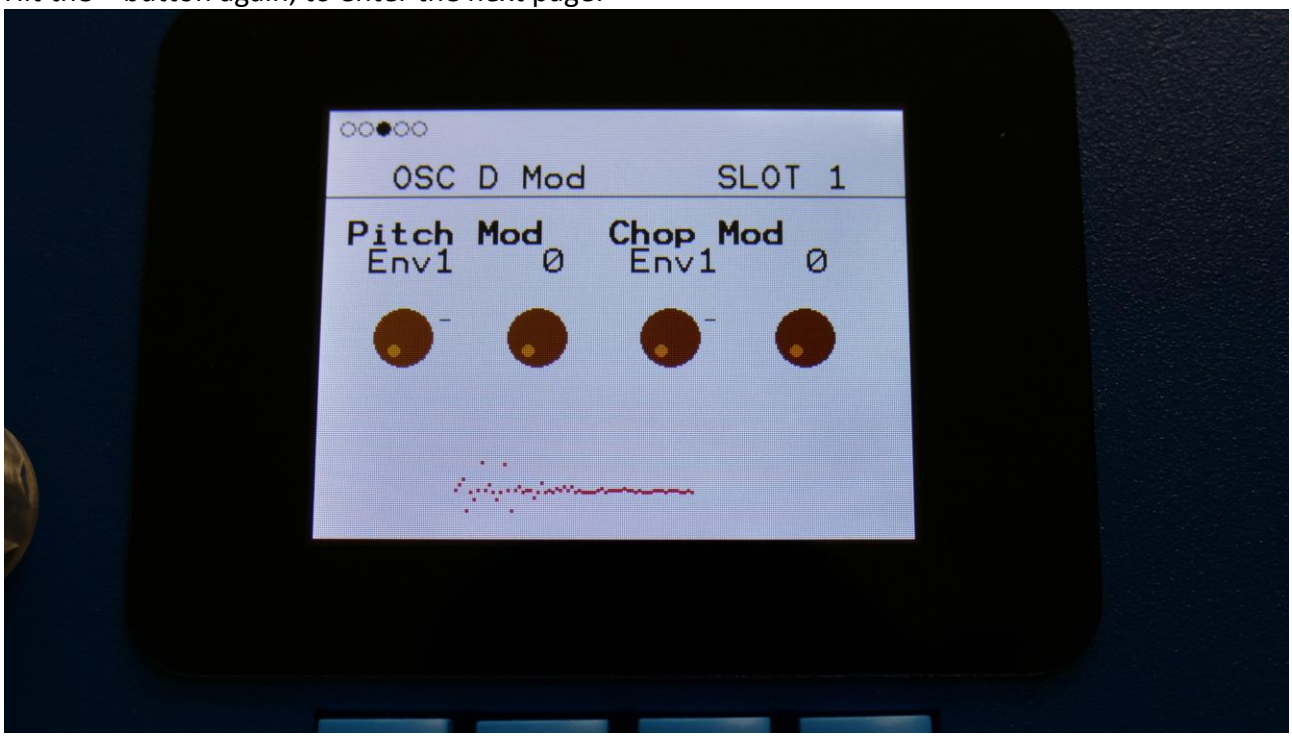
Chop: If chop points has been generated for the selected sampling, a chop can be selected by setting this parameter. Range: 0 to 63.

Type: Sets the oscillator type. Choices are:
Type1: Bright oscillator. This oscillator has a bright tone with a high harmonic content. Great for advanced filtering sounds. The pitch modulation in the upper notes is though not super smooth.
Type2: Smooth oscillator. This oscillator has a very smooth sound, and the pitch modulation is smooth over the whole note range. Great for lowpass filtered and natural sounding sounds.
Reso: Resonator oscillator. An oscillator that is partly generated by a special Gotharman engineered filter, that has multiple resonances in its feedback path. Great for emulating string instruments, and for new synthetic sounds.
Perc, Prc2, Prc3: Percussion oscillators 1, 2 and 3.
Cymb, Cym2: Cymbal oscillators.
Clap: Hand clap oscillator.
Sampl: Sample player.

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

Level: Sets the oscillator D output level. Negative values attenuates the signal, positive values gains the signal.

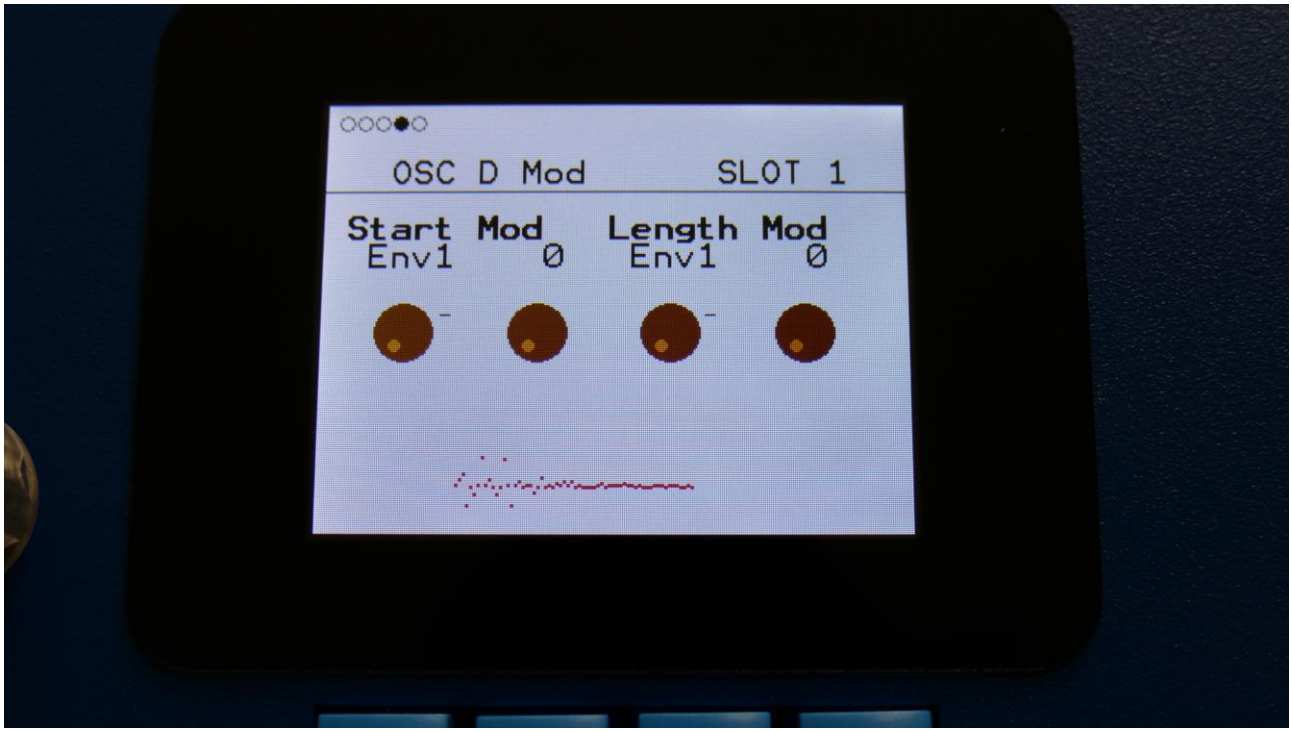
Hit the > button again, to enter the next page:



Pitch Mod: Select a modulation source and adjust the amount of Oscillator D pitch modulation. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Chop Mod: Select a modulation source and adjust the amount of modulation for the Chop select parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

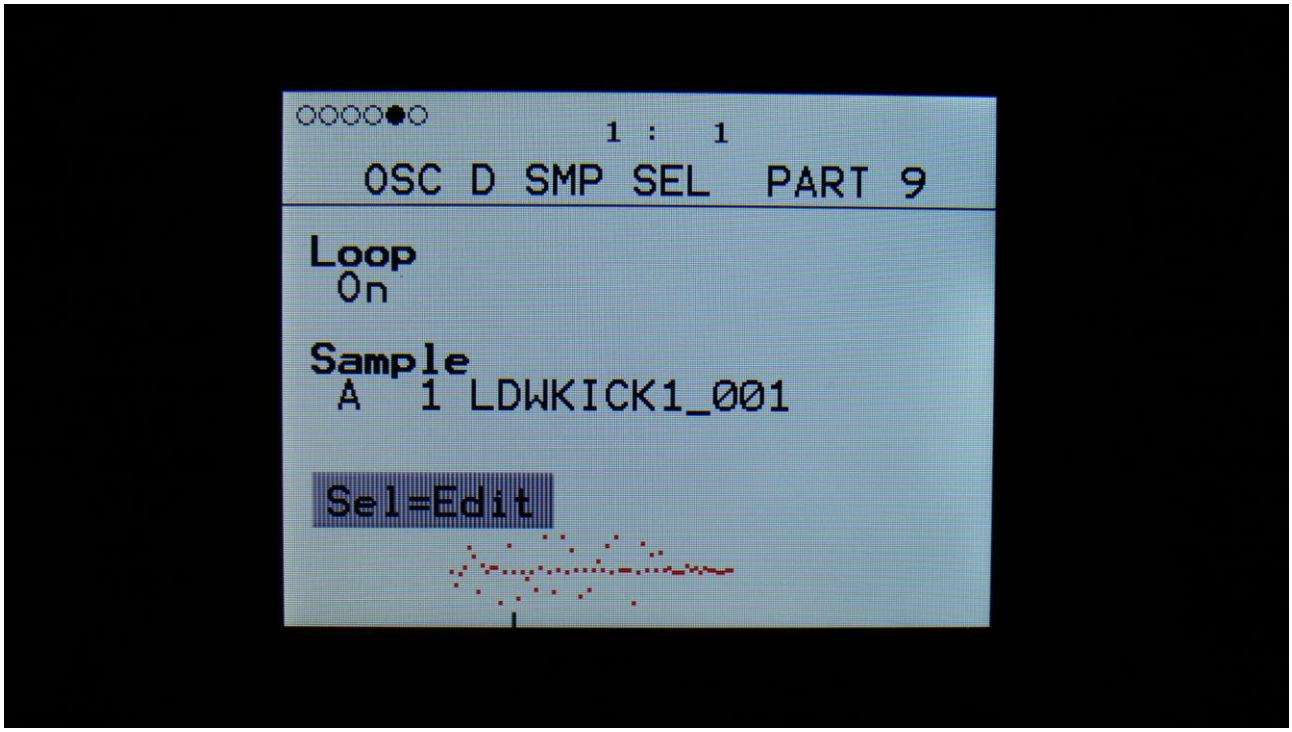
Hit the > button again, to enter the next page:



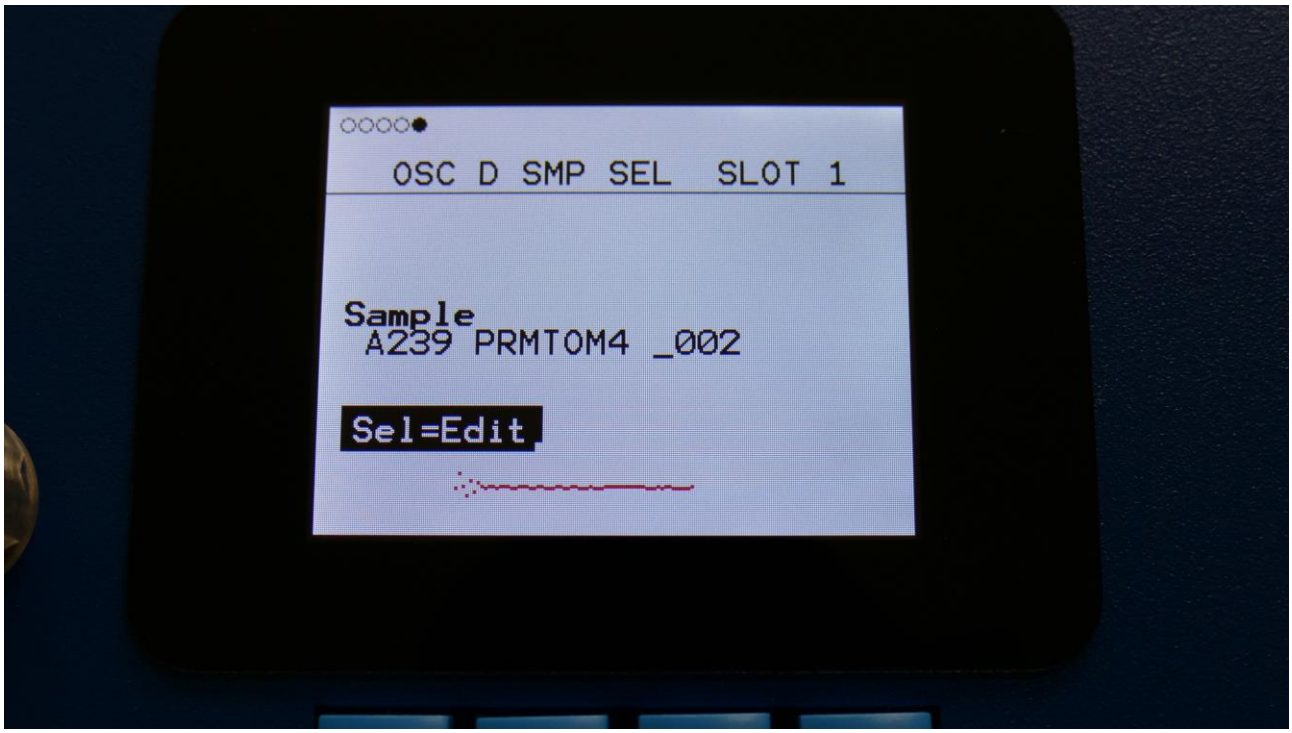
Start Mod: Select a modulation source and adjust the amount of modulation for the Start parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Length Mod: Select a modulation source and adjust the amount of modulation for the Length parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:

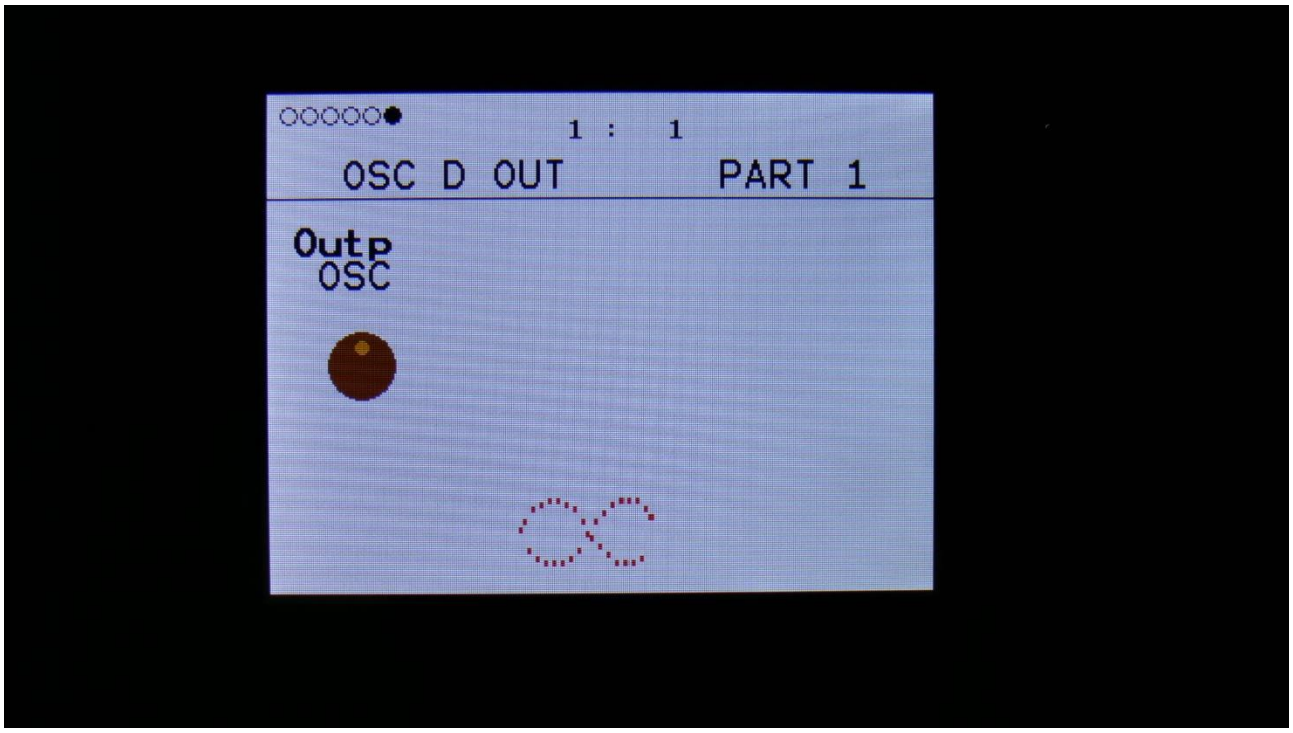


Here you can select the sampling, that oscillator D should play back. To do so, hit the Edit button. Now “Sel=Edit” will turn black, and you can use the < and > buttons to select the desired sampling. Hold any of these buttons to scroll. When you have selected the desired sampling, simply hit the Edit button again. It is also possible to switch sample **loop** on and off, by turning Edit Knob 1.



Osc D Routing

It is possible to route the output of the digital oscillator to either the Digital Filter (DGF), or to the input of the analog oscillators. When routed to the analog oscillators, the analog circuits will be forced to work as oscillators and filters at the same time.



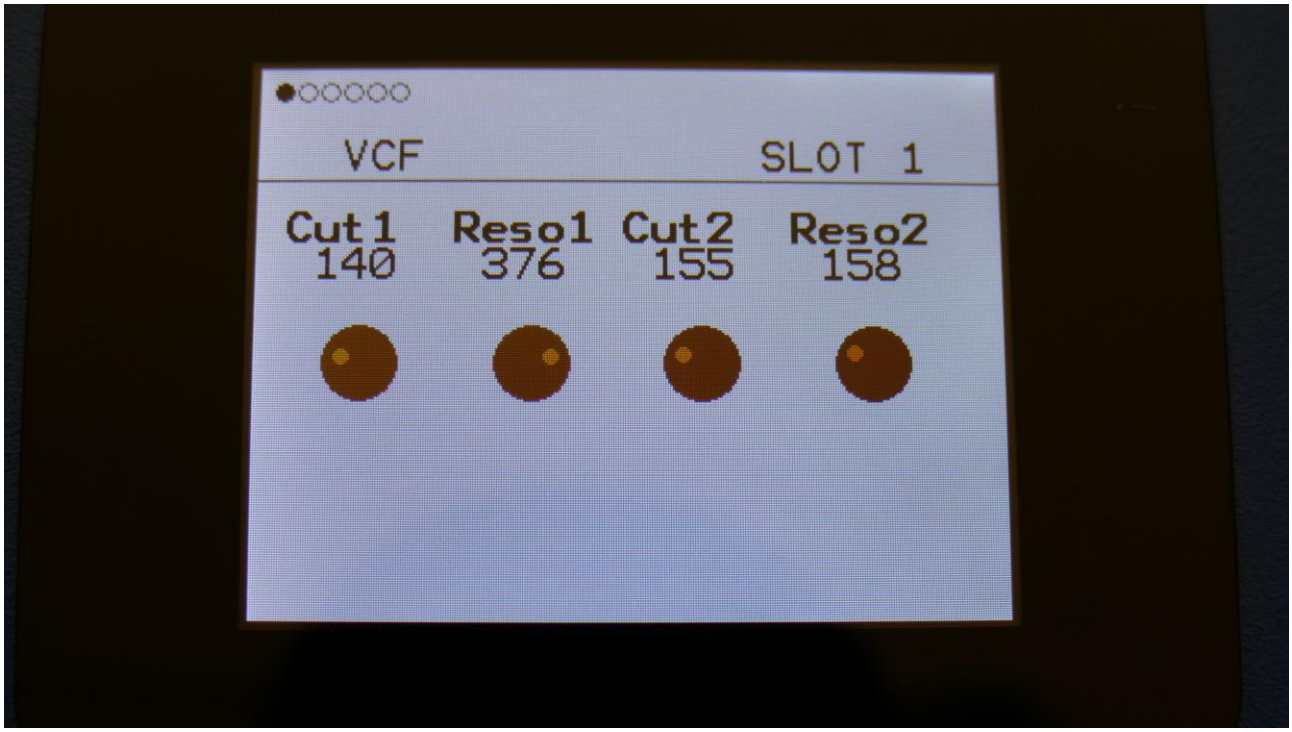
Outp:
-DGF: The output of the digital oscillator will be routed to the digital filters.
-OSC: The output of the digital oscillator will be routed to the analog oscillators, forcing the analog circuits to work as oscillators and filters at the same time.

VCF – Analog Filters

When the Drum Oscillator is in Synthesizer mode, 2 analog filters are available, instead of the digital oscillator. The digital oscillator is though still available. It is just placed as Oscillator 2 inside the Drum Oscillator module.

The audio generated by the 2 digital oscillators, available in Synthesizer mode, goes into the 2 analog lowpass filters. By a setting in the digital filters module, it is also possible to route oscillator 1 to the analog filters, and oscillator 2 to digital filter 2.

The first page in the VCF module:



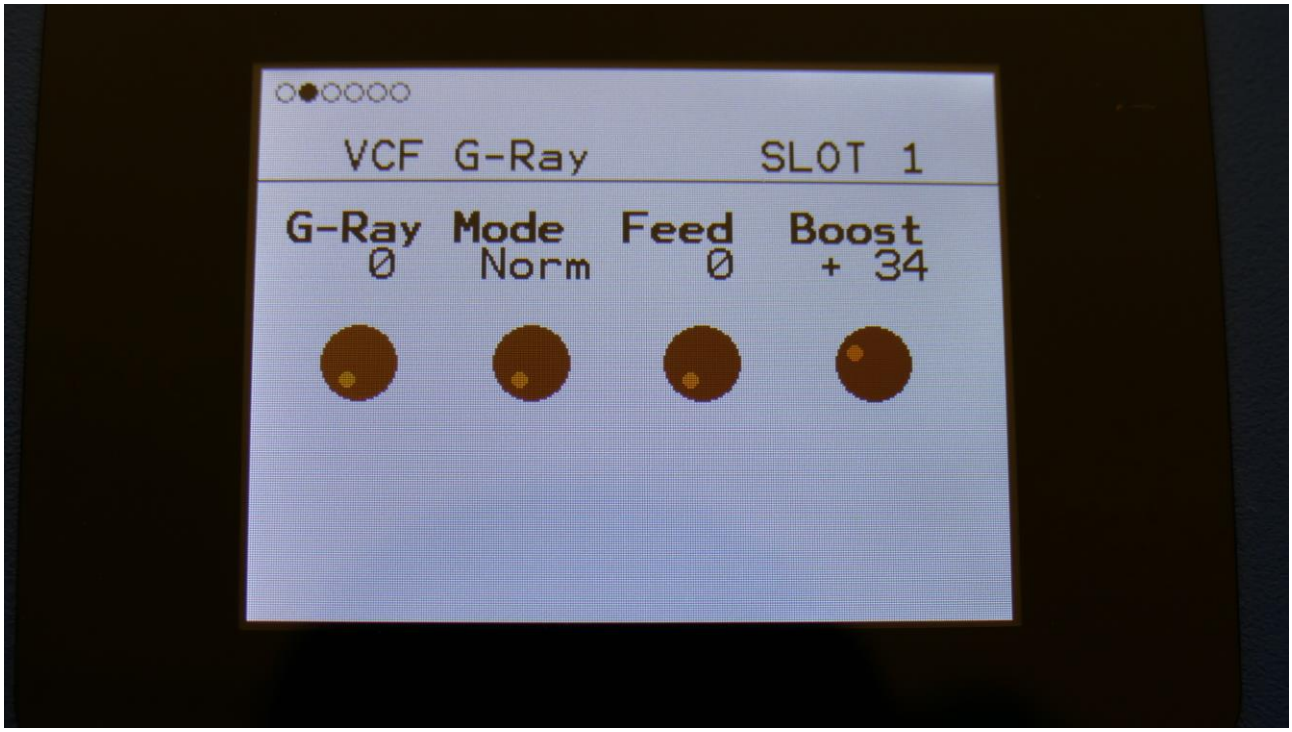
Cut1: The cutoff frequency of analog filter 1.

Reso1: The resonance setting of analog filter 1.

Cut2: The cutoff frequency of analog filter 2.

Reso2: The resonance setting of analog filter 2.

Hit the > button, to enter the next page:



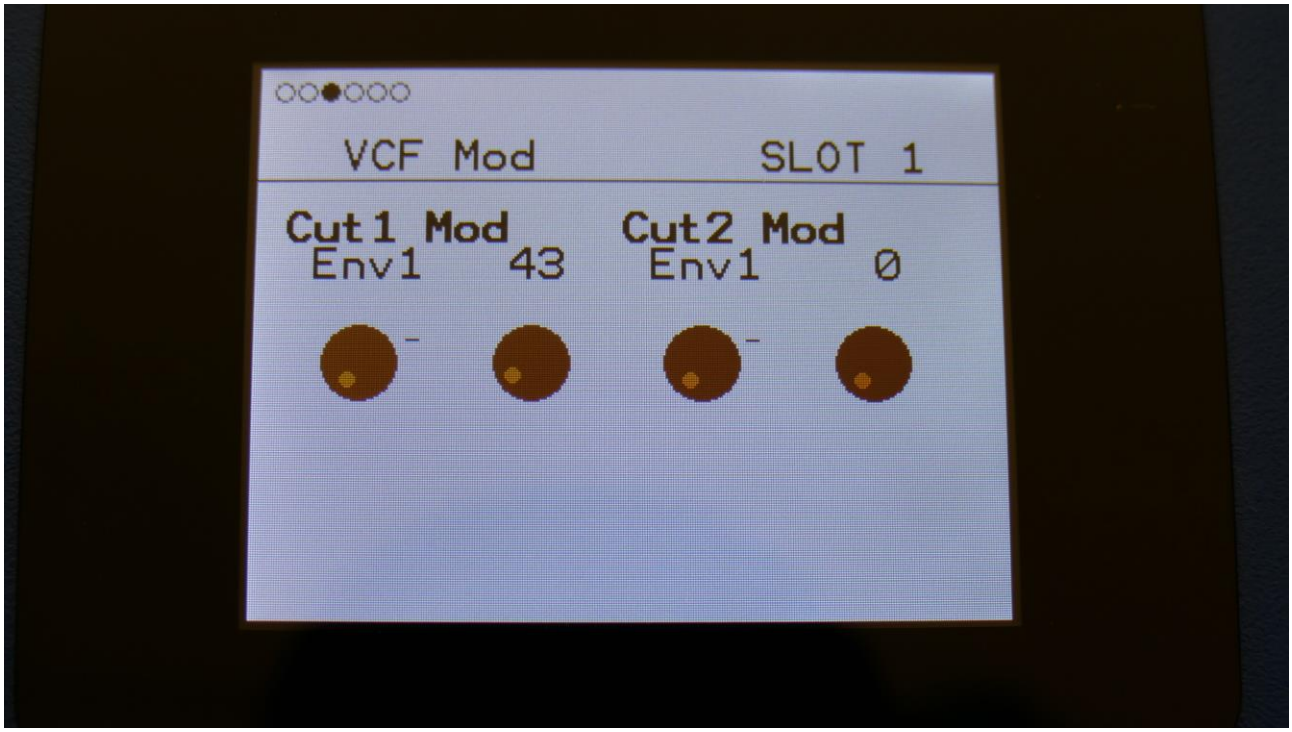
G-Ray: Sets the amount of g-RAY intermodulation. 0: no intermodulation, 3: max intermodulation. 4-7 generates a softer G-Ray intermodulation. Range: 0 to 7.

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: 0 to 511. G-Ray feedback level.

Boost: -128 to +383. The output level of the analog filters.

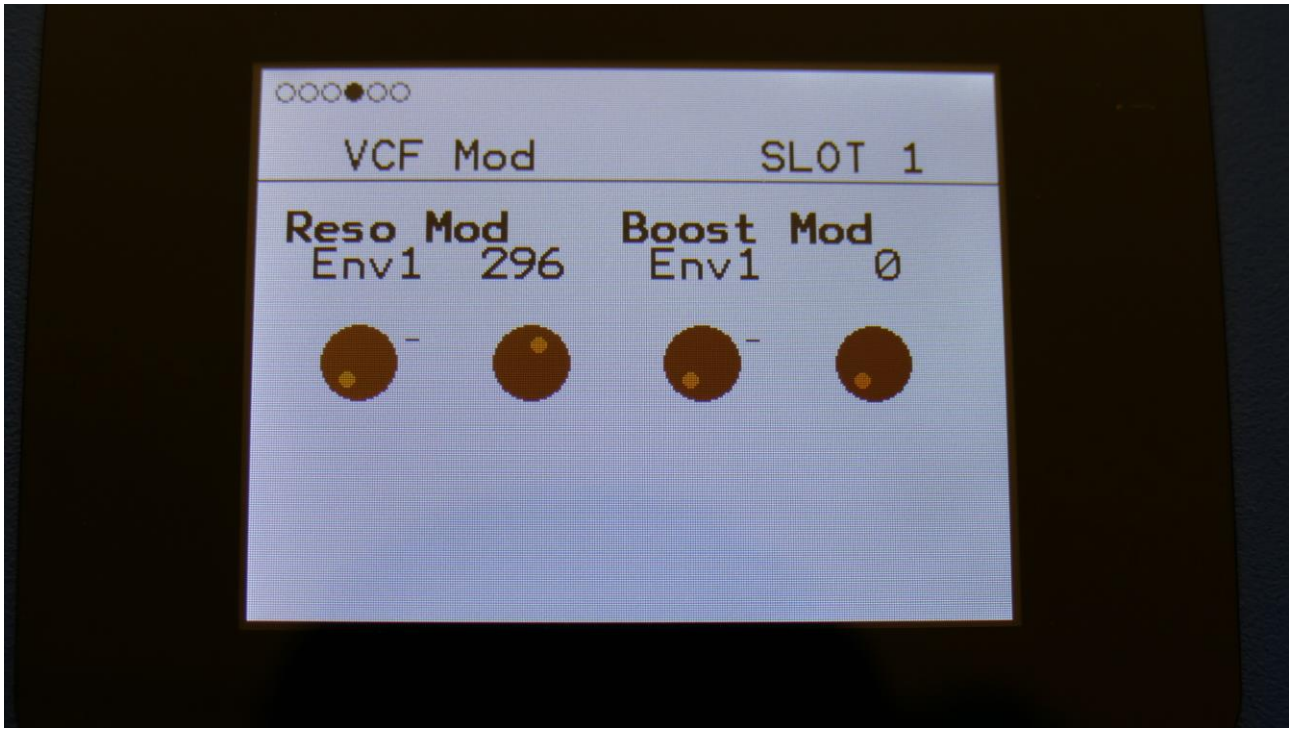
Hit the > button again, to enter the next page:



Cut 1 Mod: Select a modulation source and adjust the amount of modulation for the Cut parameters. This can affect the cutoff frequency of both analog filters, one of them, or they can be modulated inverted to each other. This can be set, using the Mod1 parameter, explained on one of the next pages. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Cut 2 Mod: Select a modulation source and adjust the amount of modulation for the Cut parameters. This can affect the cutoff frequency of both analog filters, one of them, or they can be modulated inverted to each other. This can be set, using the Mod2 parameter, explained on one of the next pages. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

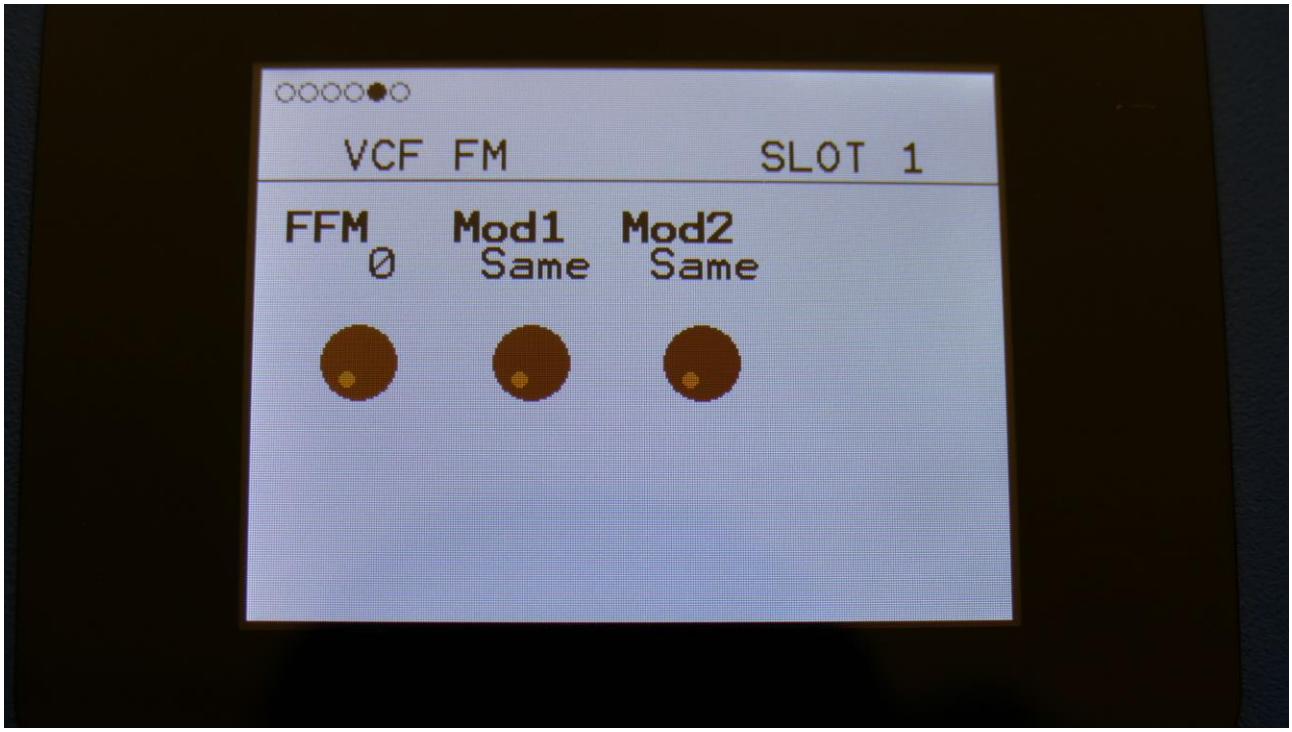
Hit the > button again, to enter the next page:



Reso Mod: Select a modulation source and adjust the amount of modulation for the Cut parameters. This will affect the resonance of both of the analog filters. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Boost Mod: Select a modulation source and adjust the amount of modulation for the Boost parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:

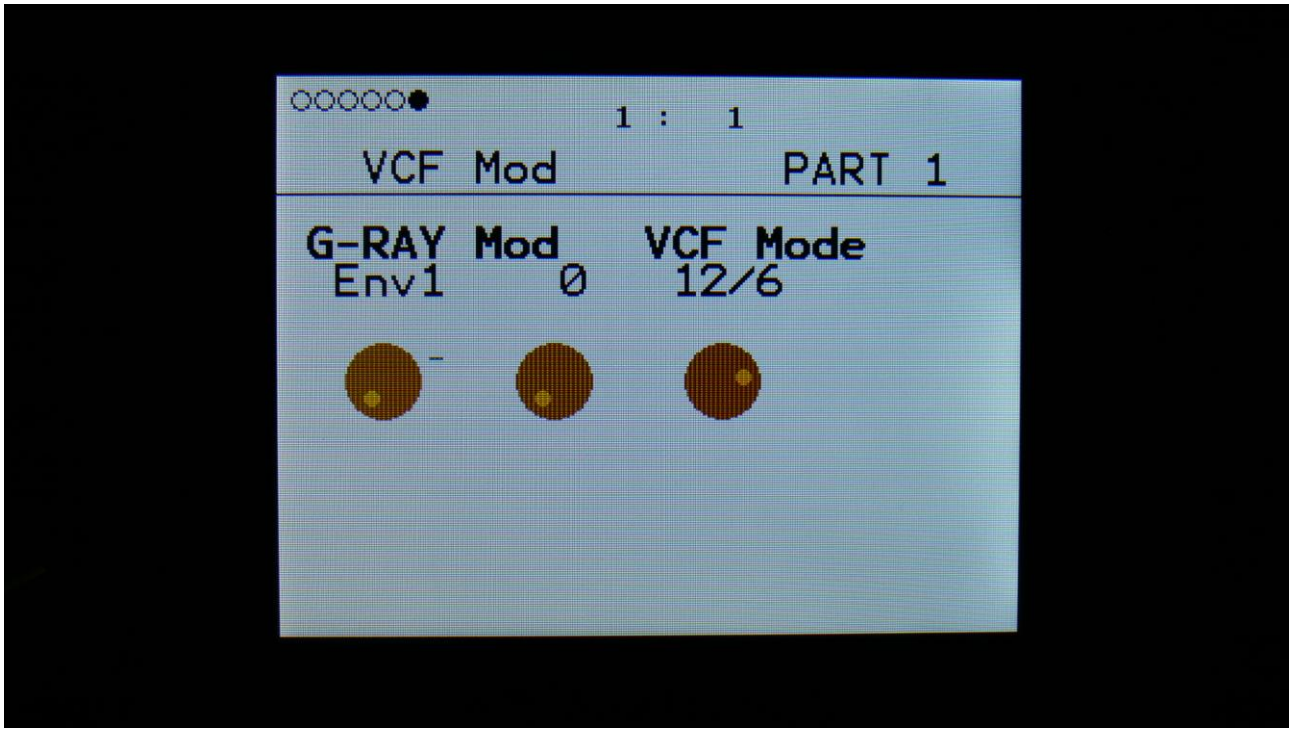


FFM: Filter FM. Turning this up will make Oscillator 2 modulate the cutoff frequencies of both of the analog filters.

Mod1: Sets how the Cut 1 Mod should affect the cutoff frequencies of the analog filters.
-Same: The cutoff frequency of analog filter 1 and 2 will be modulated by Cut 1 Mod.
-Inv: The cutoff frequency of analog filter 1 and 2 will be modulated by Cut 1 Mod, but the modulation of analog filter 2 will be inverted.
-1only: Only the cutoff frequency of analog filter 1 will be modulated by Cut 1 Mod.
-2only: Only the cutoff frequency of analog filter 2 will be modulated by Cut 1 Mod.

Mod2: Sets how the Cut 2 Mod should affect the cutoff frequencies of the analog filters.
-Same: The cutoff frequency of analog filter 1 and 2 will be modulated by Cut 2 Mod.
-Inv: The cutoff frequency of analog filter 1 and 2 will be modulated by Cut 2 Mod, but the modulation of analog filter 2 will be inverted.
-1only: Only the cutoff frequency of analog filter 1 will be modulated by Cut 2 Mod.
-2only: Only the cutoff frequency of analog filter 2 will be modulated by Cut 2 Mod.

Hit the > button again, to enter the next page:



G-RAY Mod: Select a modulation source and adjust the amount of modulation for the G-Ray Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

VCF Mode: SpazeDrum Black only. Sets the slope of the dual analog filters. Can be 18db/18db, 12db/18db, 18db/6db or 12db/6db. On SpazeDrum Blue, the slope of the analog filters are always 24 db.

DGF -The Digital Filters

Each SpazeDrum part has up to 2 digital filters. 41 different filter types can be selected. They have various lowpass, highpass and bandpass modes, with different characteristics, but also special modes like Lo-Fi, destruktion and Fat.

The filter types are divided into 3 groups:

-DGF: Dual filters, that are connected in parallel to each other. Various LPF, BPF, HPF and destruction types.

-SPF: Digital Spaze filters. A group of LPF, BPF and tube emulation filters, that has a stronger character than the DGF's. Many of them also have a stronger bass response than the DGF's. Only a single filter is available, when this group is selected.

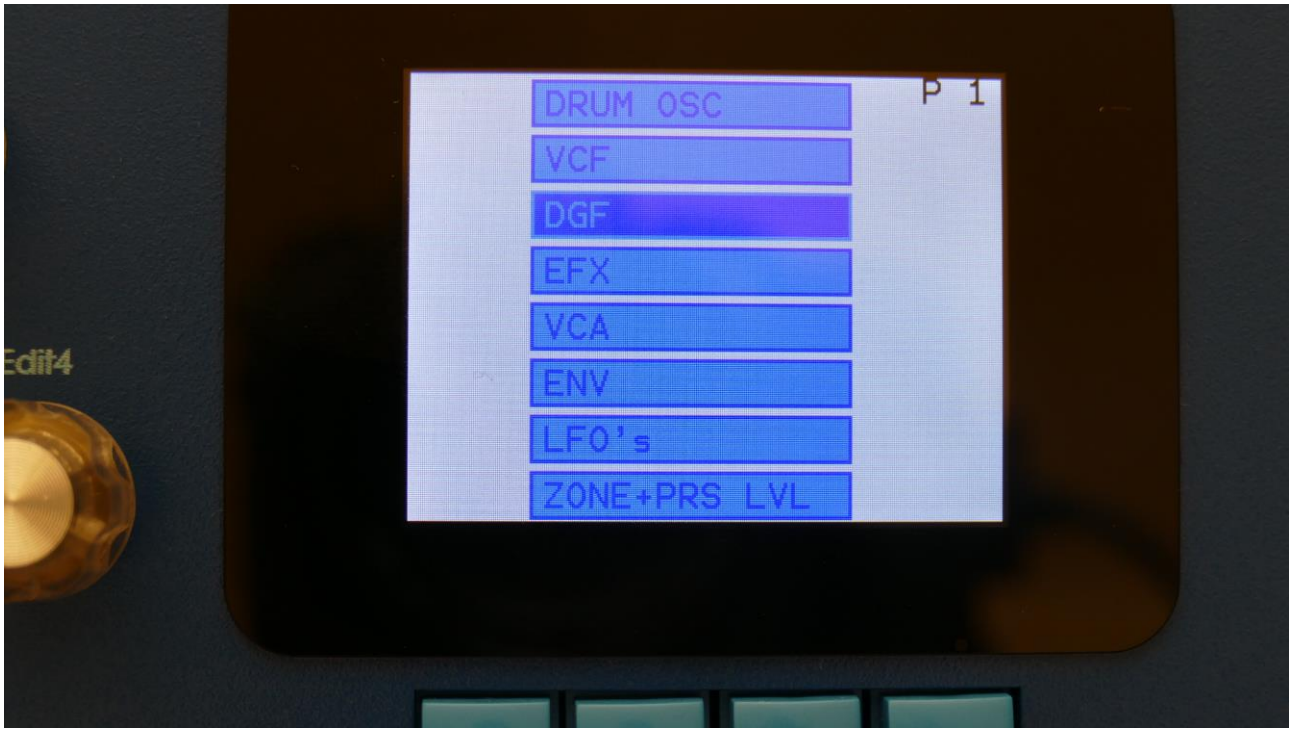
-**SVF**: State Variable Filter. A very neutral sounding 12dB filter, that just does what it says. LPF, BPF, HPF and BEF are available. Filter FM is possible for this group. Only a single filter is available, when this group is selected.

The digital filters get their audio signal from the Drum Oscillator in any of the analog drum modes, or from the analog filters, when the Drum Oscillator is in Synthesizer mode. It is also possible to route oscillator 1 and the analog filters to digital filter 1, and oscillator 2 (or oscillator D) to digital filter 2, when the DGF group of filters has been selected.

When different filter types are selected for Morph Layer A and B, for the DGF and SPF groups, SpazeDrum will morph between the filter types.

For extra filtering, the DGF filters are available as insert effects. The filters in the effect processors does though not morph between different filter types.

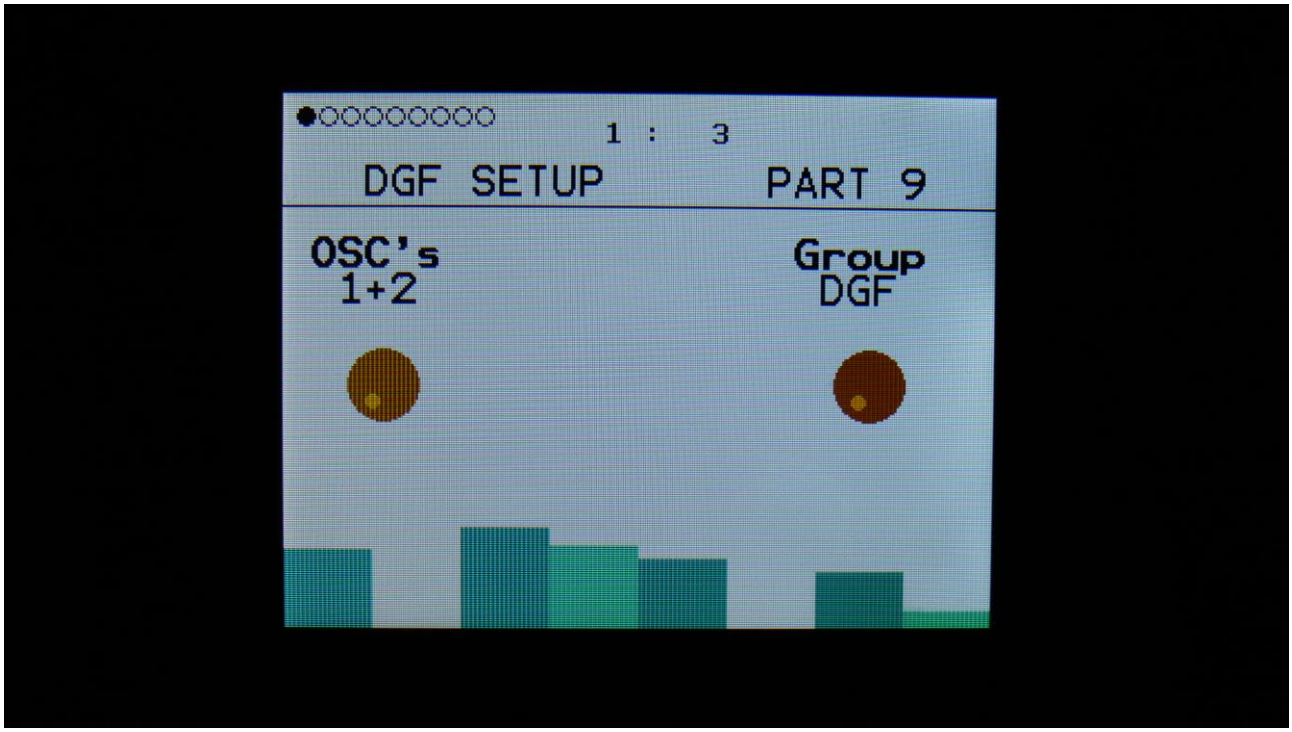
Digital Filters Parameters



To enter the digital filters, select DGF from the synth modules overview page, using the < and > buttons, and hit the Edit button.

DGF filter group parameters

The first page in the DGF module:



On this first DGF page, you can select the desired **Group** of filters, by turning **Edit Knob 4**.

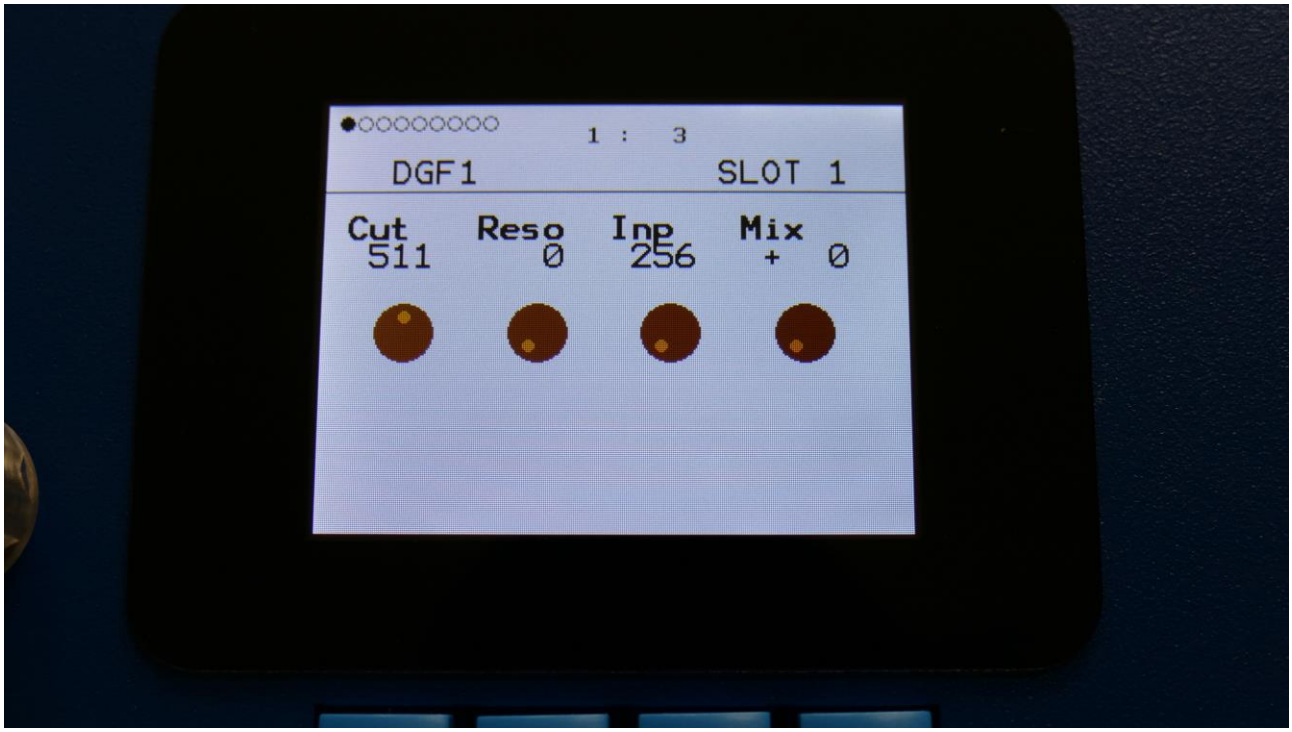
OSC's: Oscillators/Filters routing.
-1+2: All oscillators and analog filters will go through both of the digital filters.
-1//2: Oscillator 1 and the analog filters (if available) will go through digital filter 1, oscillator 2 (or oscillator D) will go through digital filter 2.

The following pages will describe the parameters that are available, when the DGF group of filters has been selected.

List of DGF 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.

Hit the > button, to enter the next page:



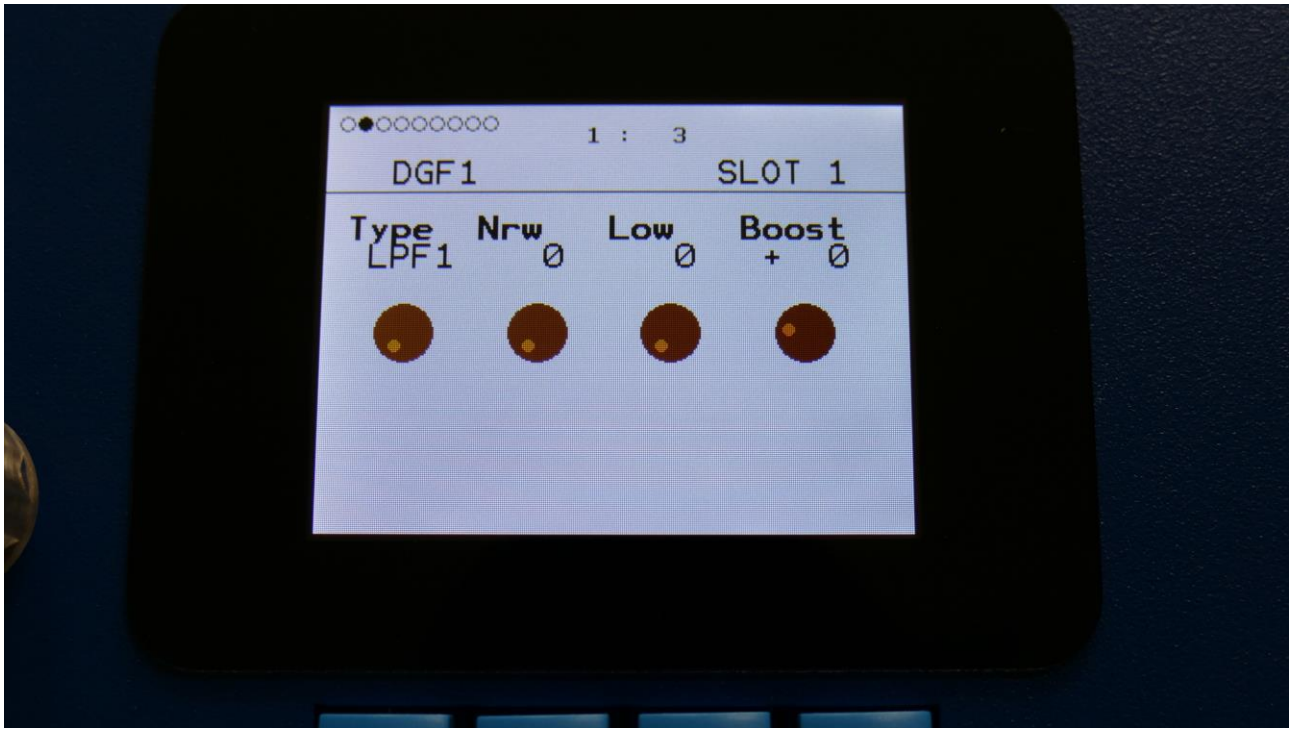
Cut: 0 to 511. Sets the cutoff frequency of DGF1.

Reso: 0 to 511. Sets the amount of resonance applied to DGF1.

Inp: 0 to 511. Sets the audio signal input level to the filter. Different characteristics can be obtained by adjusting this.

Mix: -256 to +255. Sets the mix between the audio input signal and the filter output signal. At +0 the input signal is passed through. At positive values, the the filter output is added to the input signal. At negative values, an inverted version of the filter output is added to the input signal. At +255 and -256 only the output of the filter is heard.

Hit the > button, to enter the next page:



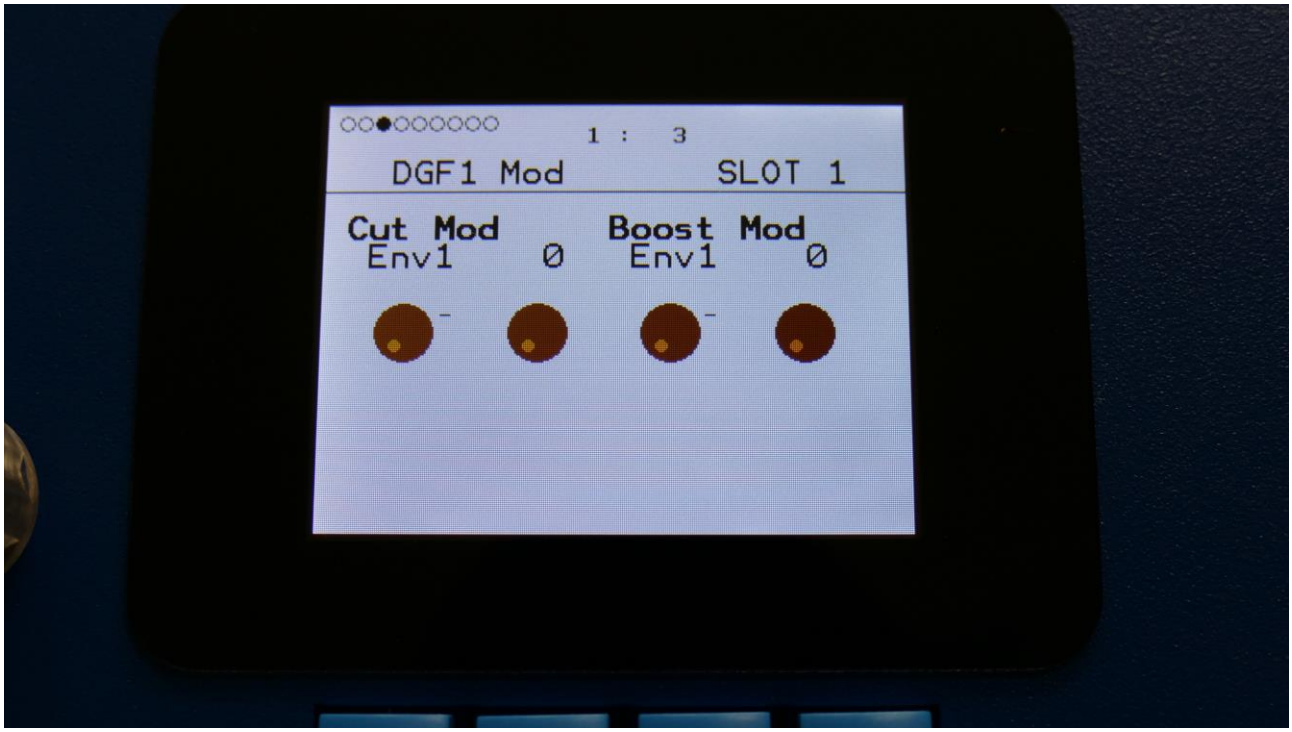
Type: Sets the DGF1 filter type. See the list of filter types.

Nrw: 0 to 511. Turning this up, will make the frequency response of the filter more and more narrow.

Low: 0 to 511. Sets the lowest frequency offset point of the filter. Turning this up, will in many filter types, make the bass bottom more present or distorted.

Boost: -128 to +383. Sets the filter output level. Negative values attenuates the signal level, positive values gains the signal level.

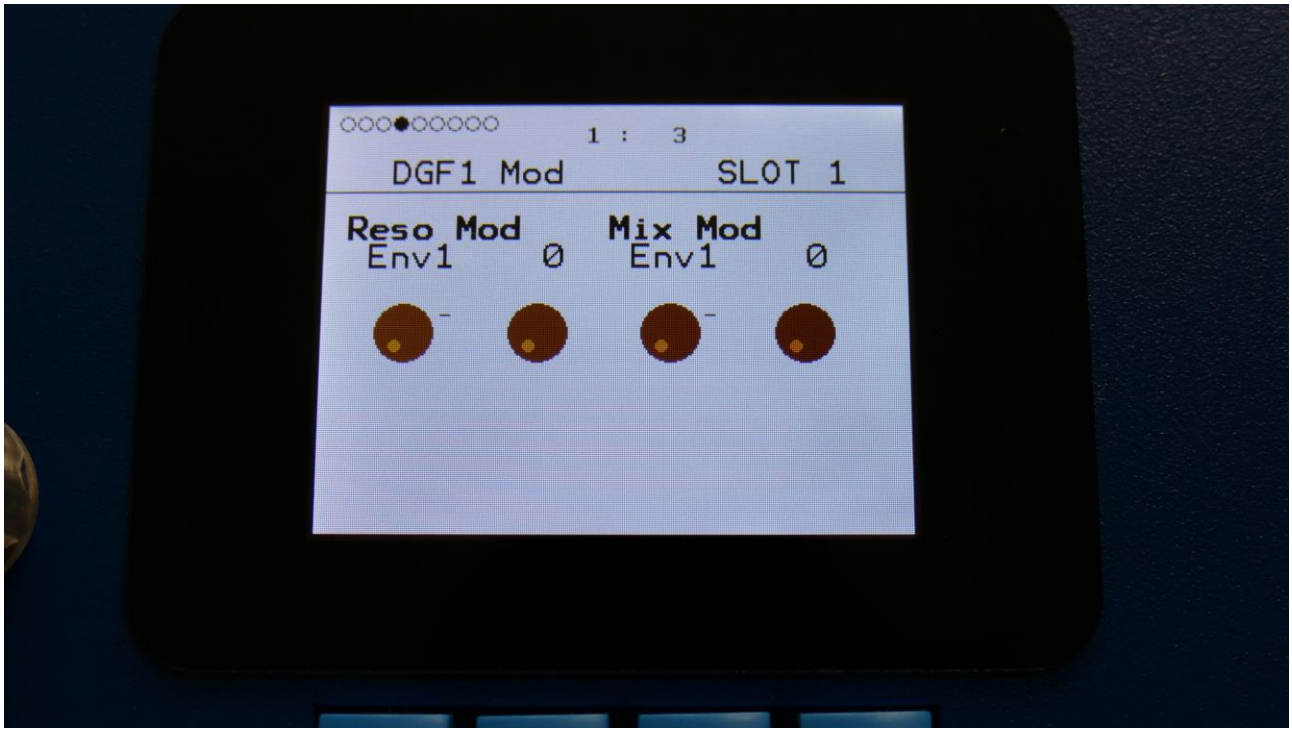
Hit the > button again, to enter the next page:



Cut Mod: Select a modulation source and adjust the amount of modulation for the DGF1 Cut parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Boost Mod: Select a modulation source and adjust the amount of modulation for the DGF1 Boost parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

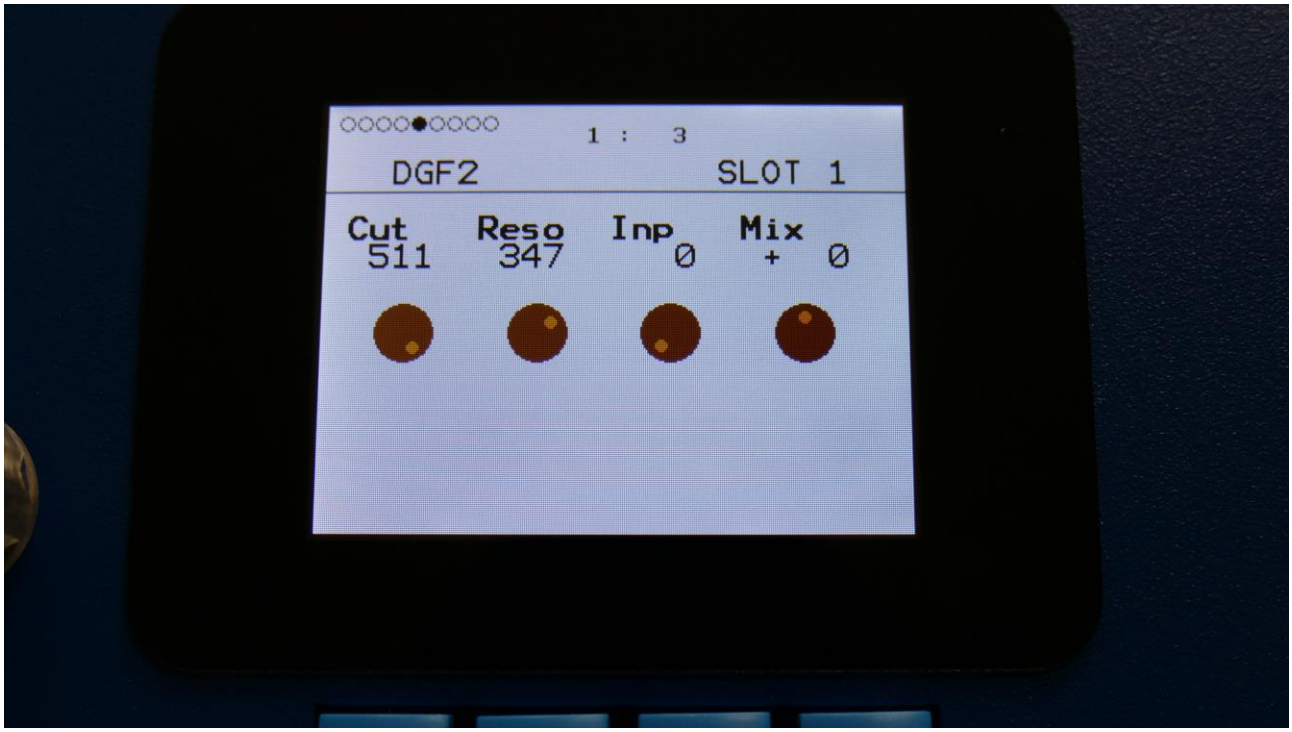
Hit the > button again, to enter the next page:



Reso Mod: Select a modulation source and adjust the amount of modulation for the DGF1 Reso parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Mix Mod: Select a modulation source and adjust the amount of modulation for the DGF1 Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



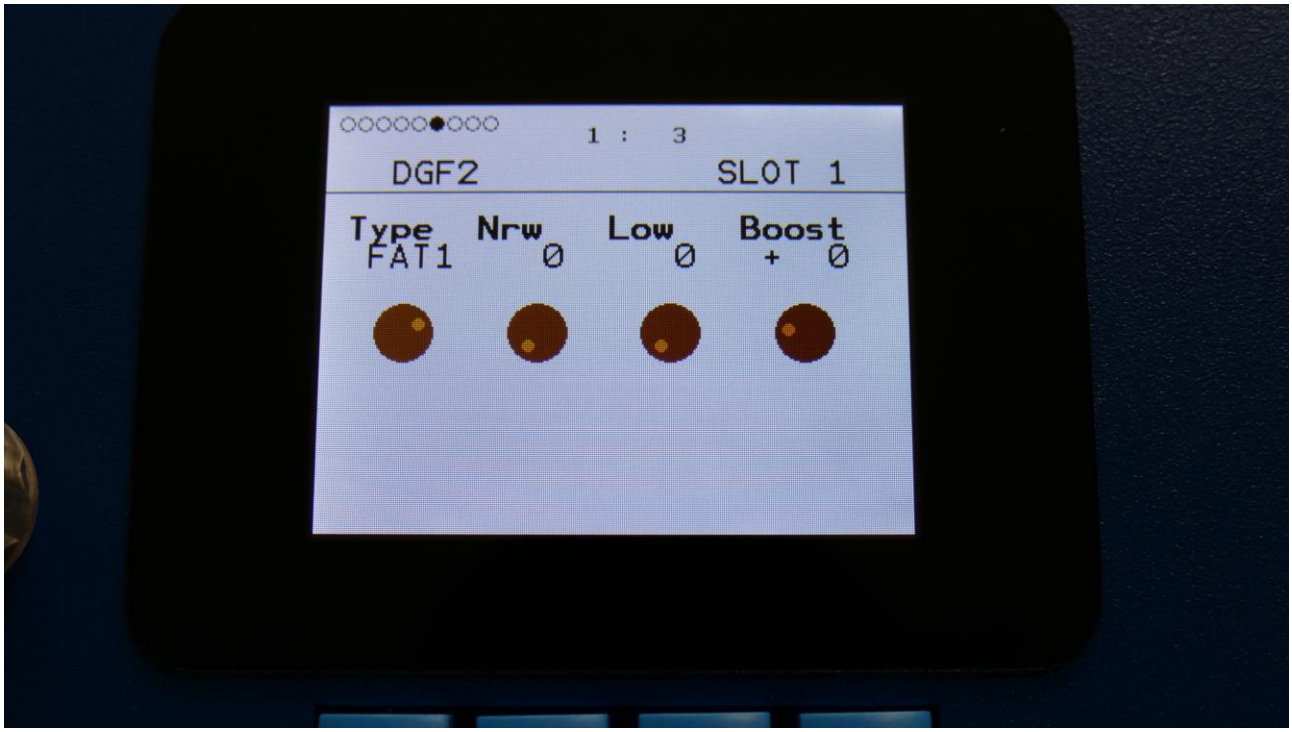
Cut: 0 to 511. Sets the cutoff frequency of DGF2.

Reso: 0 to 511. Sets the amount of resonance applied to DGF2.

Inp: 0 to 511. Sets the audio signal input level to the filter. Different characteristics can be obtained by adjusting this.

Mix: -256 to +255. Sets the mix between the audio input signal and the filter output signal. At +0 the input signal is passed through. At positive values, the the filter output is added to the input signal. At negative values, an inverted version of the filter output is added to the input signal. At +255 and -256 only the output of the filter is heard.

Hit the > button, to enter the next page:



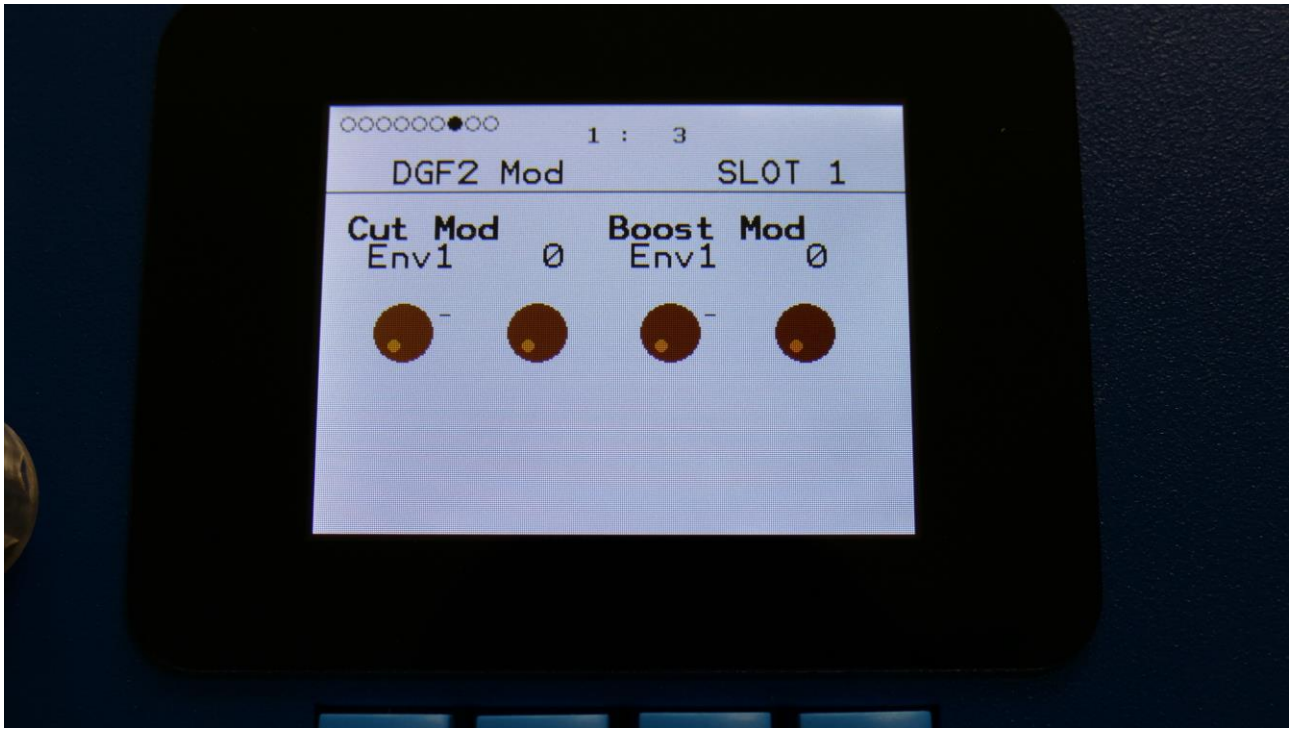
Type: Sets the DGF2 filter type. See the list of filter types.

Nrw: 0 to 511. Turning this up, will make the frequency response of the filter more and more narrow.

Low: 0 to 511. Sets the lowest frequency offset point of the filter. Turning this up, will in many filter types, make the bass bottom more present or distorted.

Boost: -128 to +383. Sets the filter output level. Negative values attenuates the signal level, positive values gains the signal level.

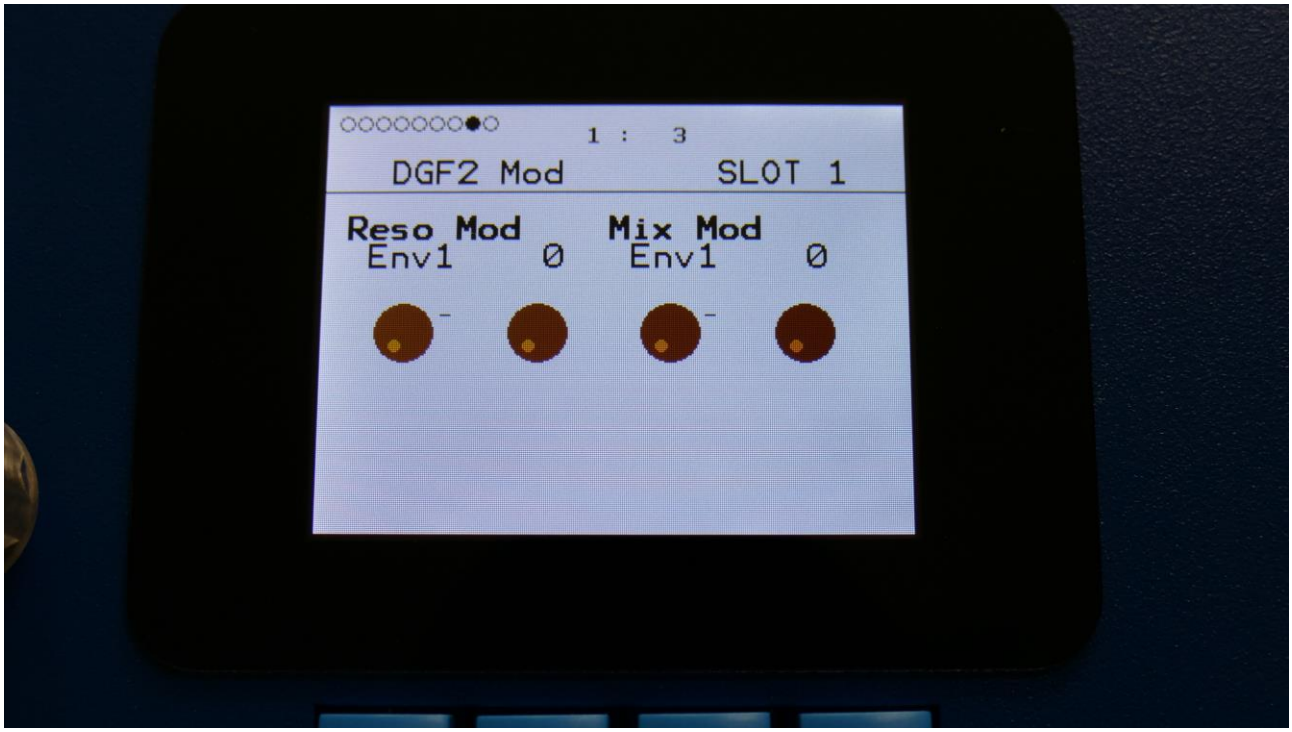
Hit the > button again, to enter the next page:



Cut Mod: Select a modulation source and adjust the amount of modulation for the DGF2 Cut parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Boost Mod: Select a modulation source and adjust the amount of modulation for the DGF2 Boost parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

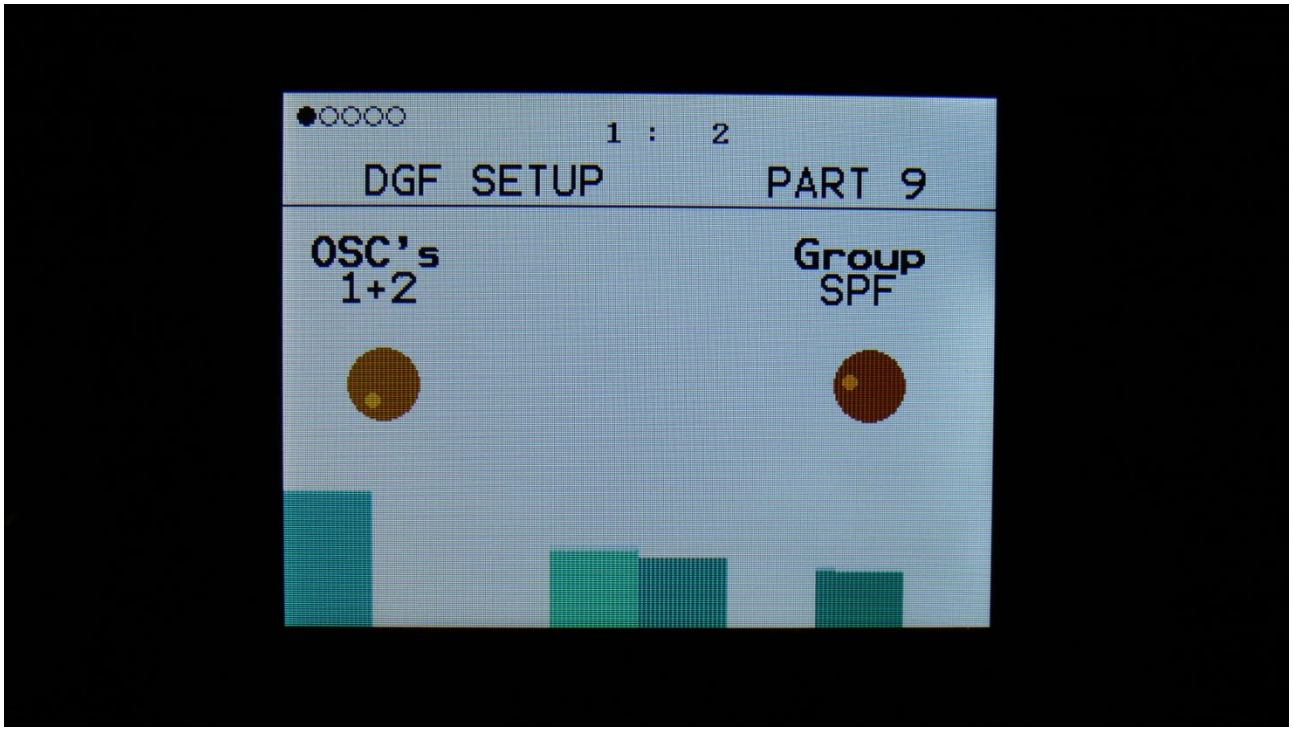
Hit the > button again, to enter the next page:



Reso Mod: Select a modulation source and adjust the amount of modulation for the DGF2 Reso parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Mix Mod: Select a modulation source and adjust the amount of modulation for the DGF2 Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

SPF filter group parameters



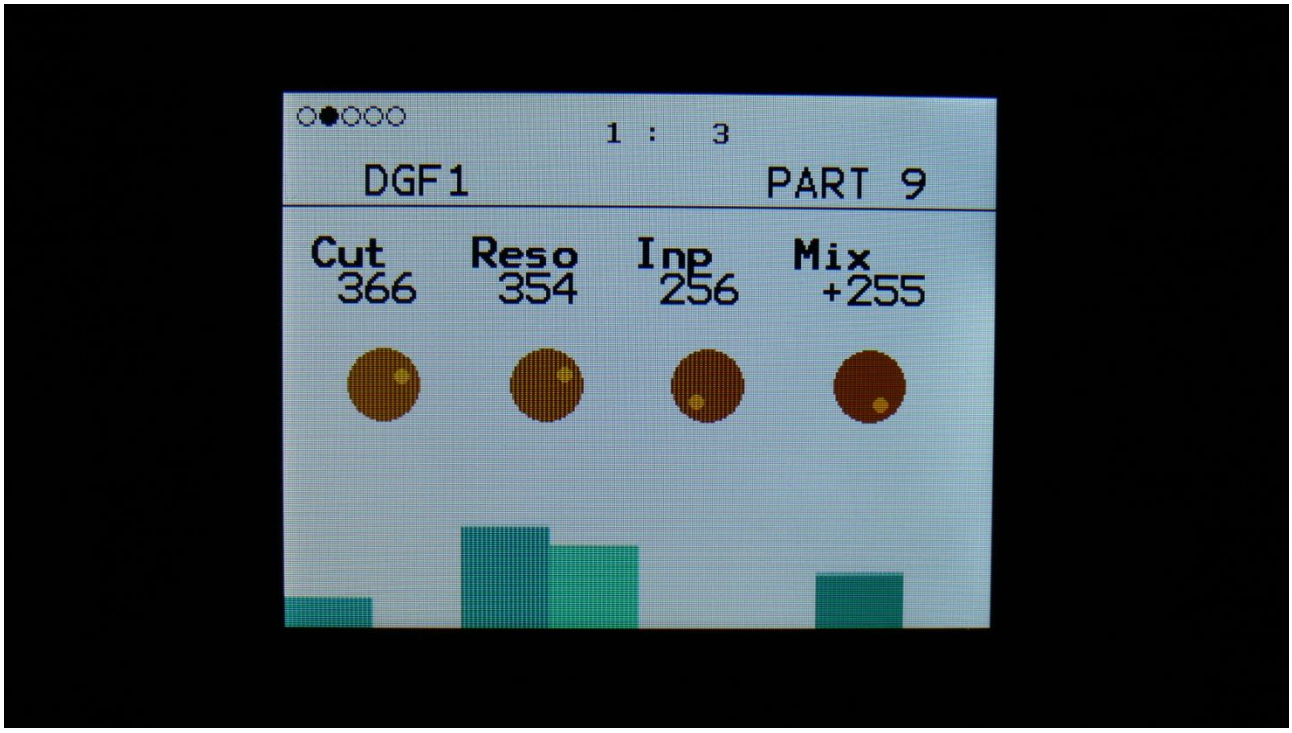
The following pages will describe the parameters that are available, when the SPF group of filters has been selected.

Group: Select the filter group. **DGF**, **SPF** and **SVF** are available.

OSC's: Oscillators/Filters routing when SPF filters has been selected.
-1+2: All oscillators and analog filters will go through both of the digital filters.
-1//2: Oscillator 1 and the analog filters (if available) will go through digital filter 1, oscillator 2 (or oscillator D) will be muted.

List of SPF Filter Types:

LPF1: Lowpass filter with emphasis on the bass response. Has a weak high frequency response.
LPF2: Lowpass filter with a strong bass response, and better high frequency response than LPF1.
LPF3: Lowpass filter that has a bit less character than LPF 1 and 2, but has a sharper resonance.
LPF4: Lowpass filter with a bit more emphasis in the bass area.
LPF5: Lowpass filter with a more soft character.
LPF6: Lowpass filter with soft character, that has a more sharp resonance.
LPF7: Thin and sharp lowpass filter.
BPF1: Pretty basic bandpass filter.
BPF2: Bandpass filter with improved bass response and a strong, almost distorted character.
BPF3: Sharp bandpass filter.
BPF4: Bandpass filter that is even sharper than BPF3.
BPF5: Bandpass filter that is even more sharp than BPF4.
BPF6: Thin and sharp bandpass filter.
BPF7: Thin bandpass filter, that is a bit sharper than BPF6.
BPF8: Bandpass filter with a character, that is a bit distorted.
BPF9: Bandpass filter with a character, that is a bit distorted. A bit sharper than BPF8.
TUB1, TUB2, TUB3, TUB4, TUB5: Tube emulation filters with a very nonlinear and distorting response.

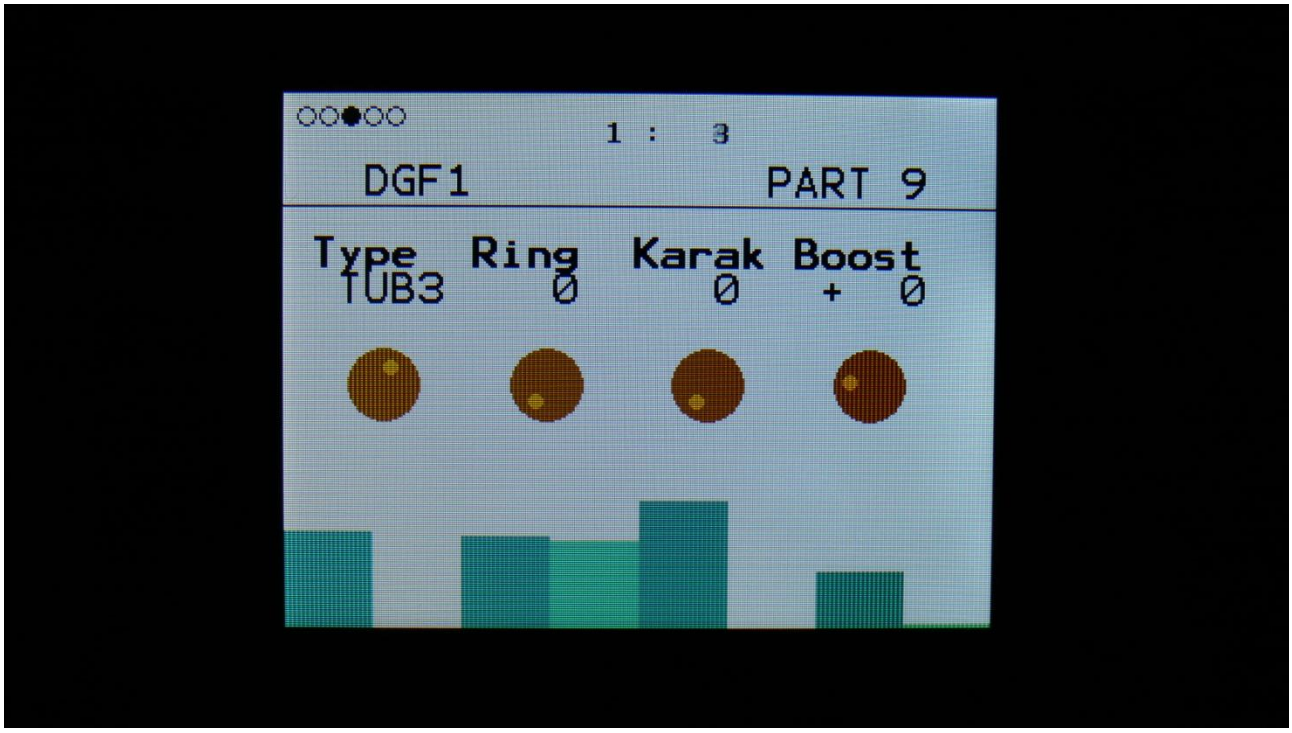


Cut: 0 to 511. Sets the cutoff frequency.

Reso: 0 to 511. Sets the amount of resonance applied to the filter.

Inp: 0 to 511. Sets the audio signal input level to the filter. Different characteristics can be obtained by adjusting this.

Mix: -256 to +255. Sets the mix between the audio input signal and the filter output signal. At +0 the input signal is passed through. At positive values, the filter output is added to the input signal. At negative values, an inverted version of the filter output is added to the input signal. At +255 and -256 only the output of the filter is heard.

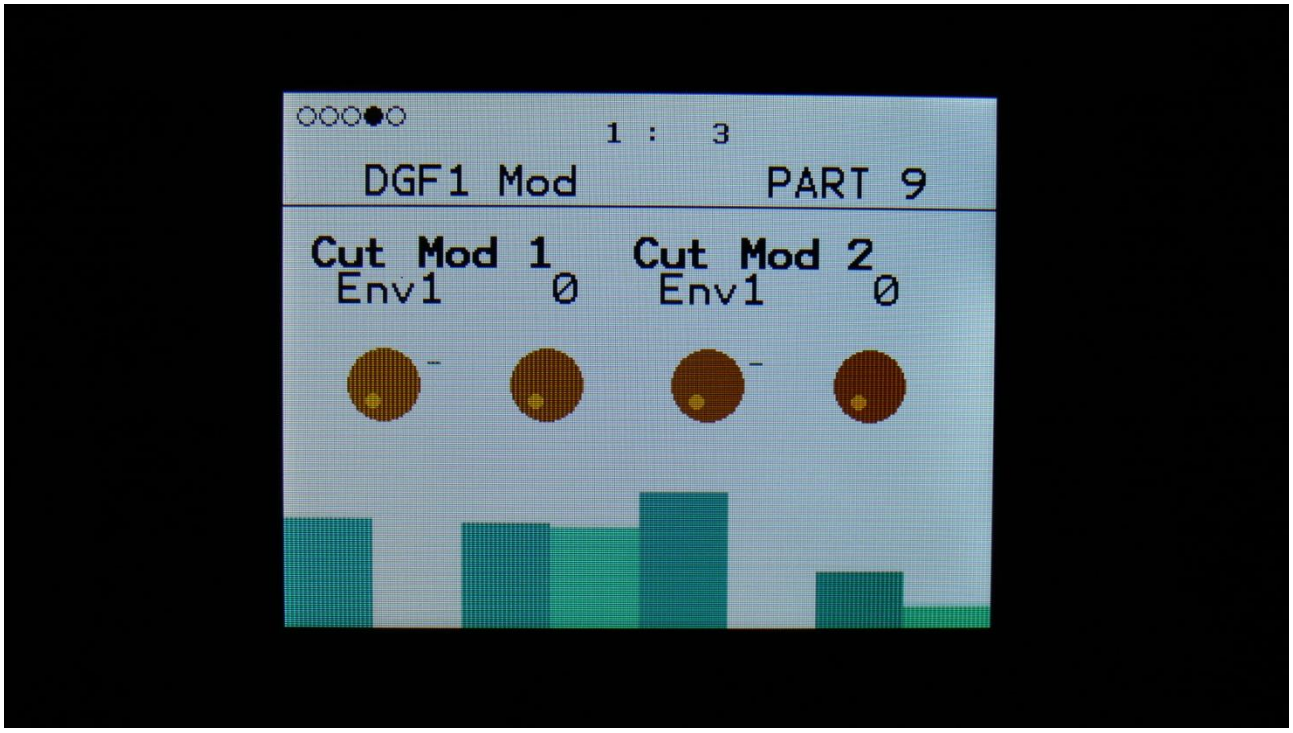


Type: Sets the filter type. See the list of filter types.

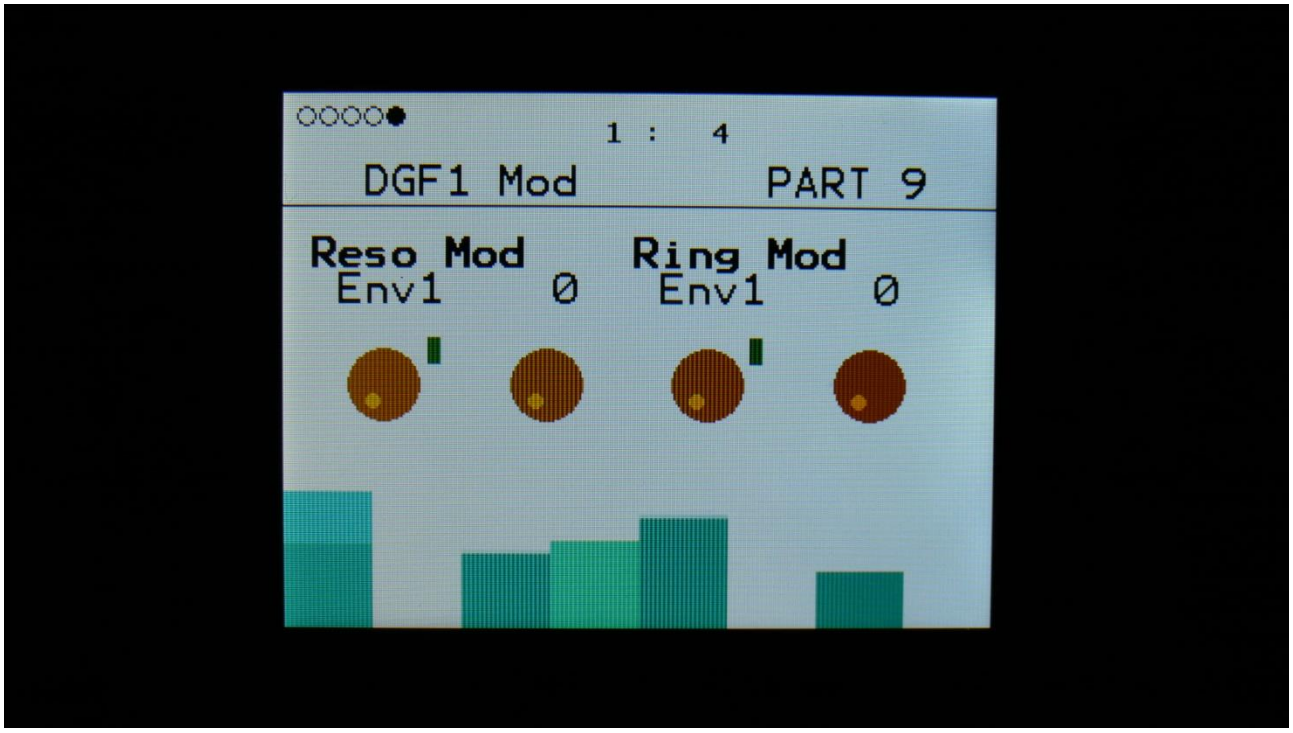
Ring: 0 to 511. Adds a ringing effect to the filter, which will, in most cases, make it sound more thin.

Karak: 0 to 511. Alters the character of the filter, and in most cases, adds a bit of distortion.

Boost: -128 to +383. Sets the filter output level. Negative values attenuates the signal level, positive values gains the signal level.



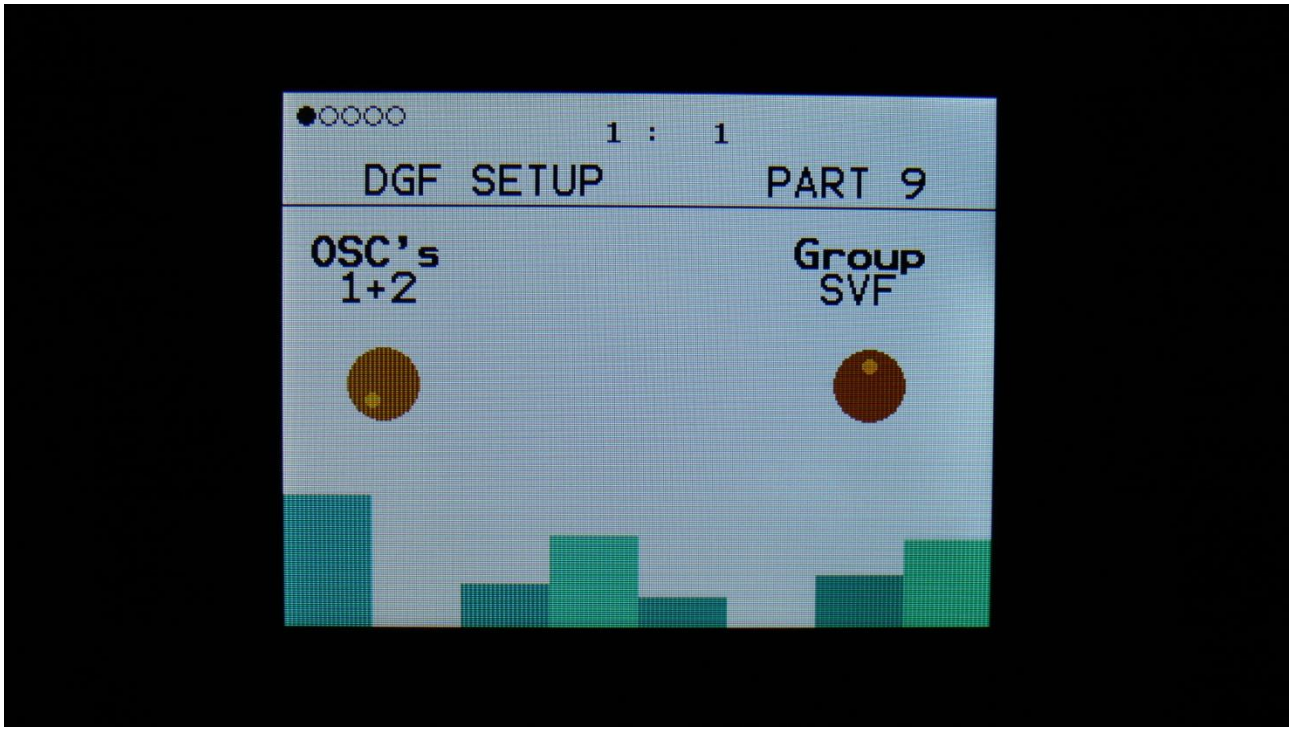
Cut Mod 1, Cut Mod 2: Select a modulation source and adjust the amount of modulation for the Cut parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Reso Mod: Select a modulation source and adjust the amount of modulation for the Reso parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Ring Mod: Select a modulation source and adjust the amount of modulation for the Ring parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

SVF filter group parameters



The following pages will describe the parameters that are available, when the SVF group of filters has been selected.

Group: Select the filter group. **DGF**, **SPF** and **SVF** are available.

OSC's: Oscillators/Filters routing when SVF filters has been selected.
-1+2: All oscillators and analog filters will go through both of the digital filters.
-1//2: Oscillator 1 and the analog filters (if available) will go through digital filter 1, oscillator 2 (or oscillator D) will be muted.

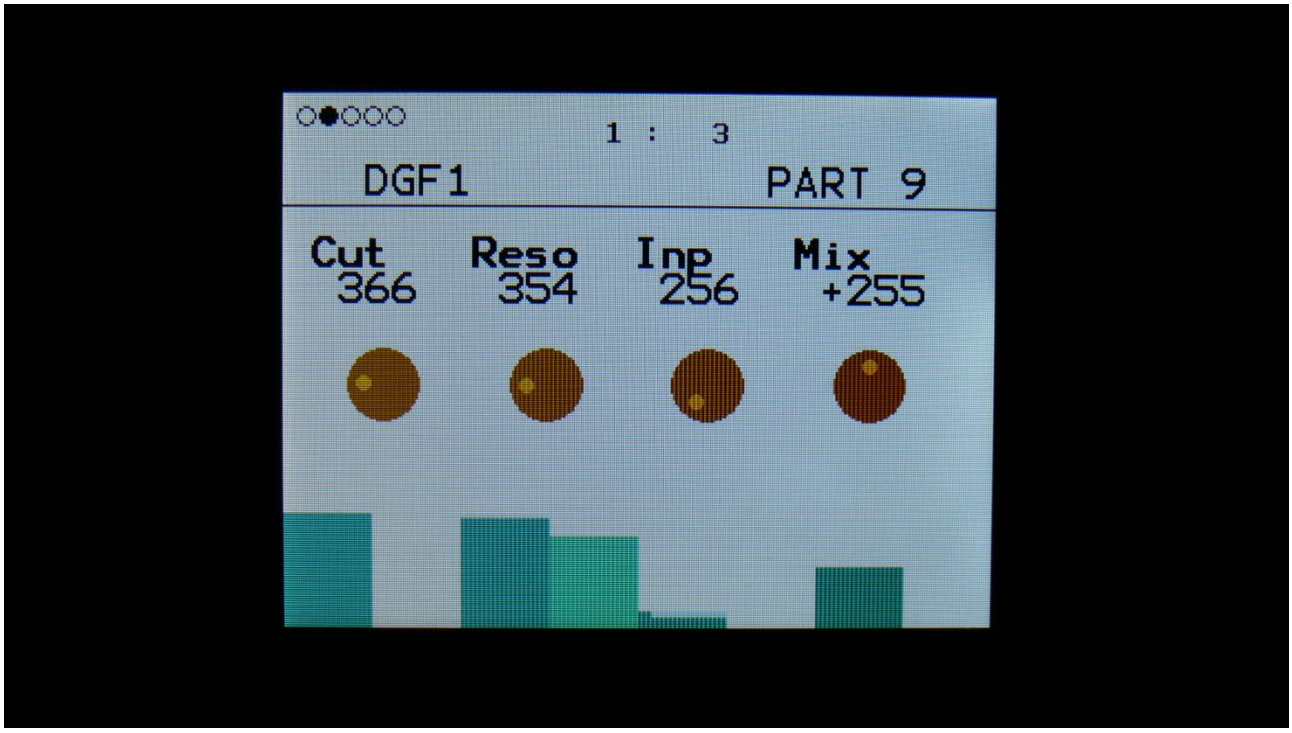
List of SVF Filter Types:

LPF: 12 dB lowpass filter.

BPF: 6 dB bandpass filter.

HPF: 12 dB highpass filter.

BEF: 6 dB band eliminate filter.

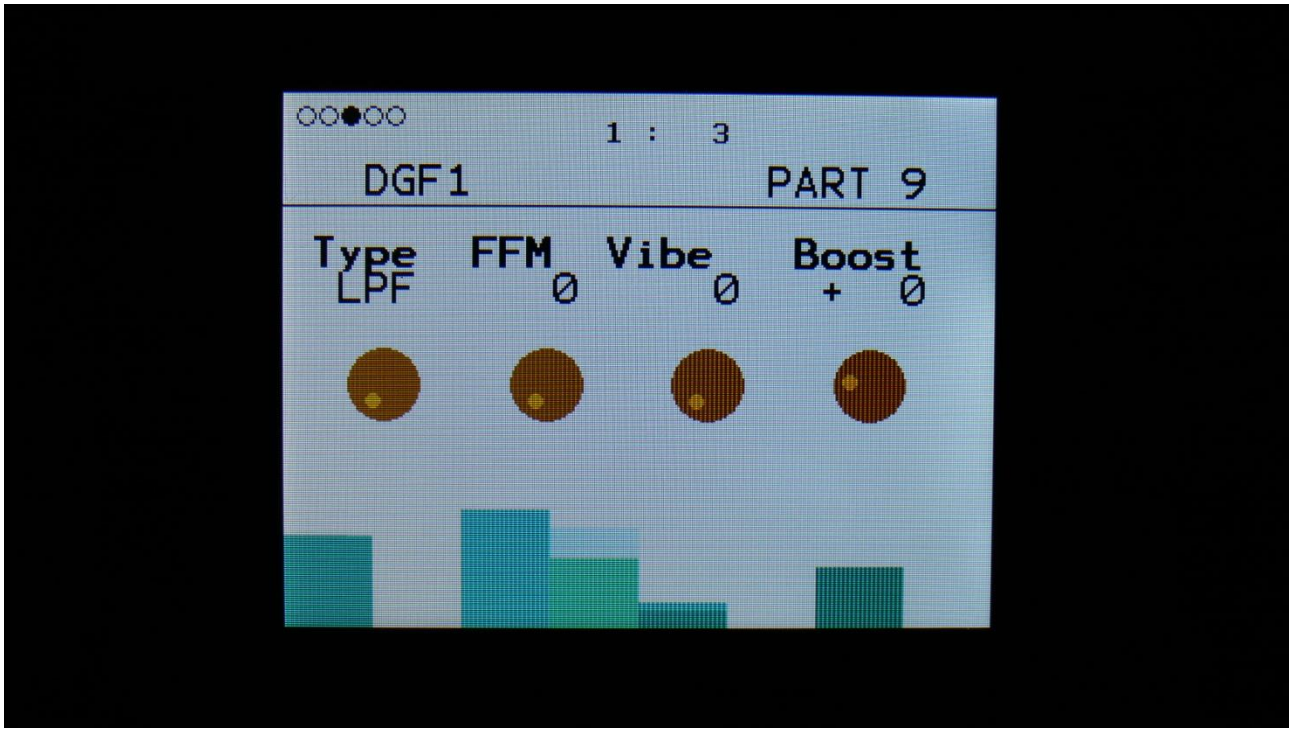


Cut: 0 to 511. Sets the cutoff frequency.

Reso: 0 to 511. Sets the amount of resonance applied to the filter.

Inp: 0 to 511. Sets the audio signal input level to the filter. Different characteristics can be obtained by adjusting this.

Mix: -256 to +255. Sets the mix between the audio input signal and the filter output signal. At +0 the input signal is passed through. At positive values, the filter output is added to the input signal. At negative values, an inverted version of the filter output is added to the input signal. At +255 and -256 only the output of the filter is heard.

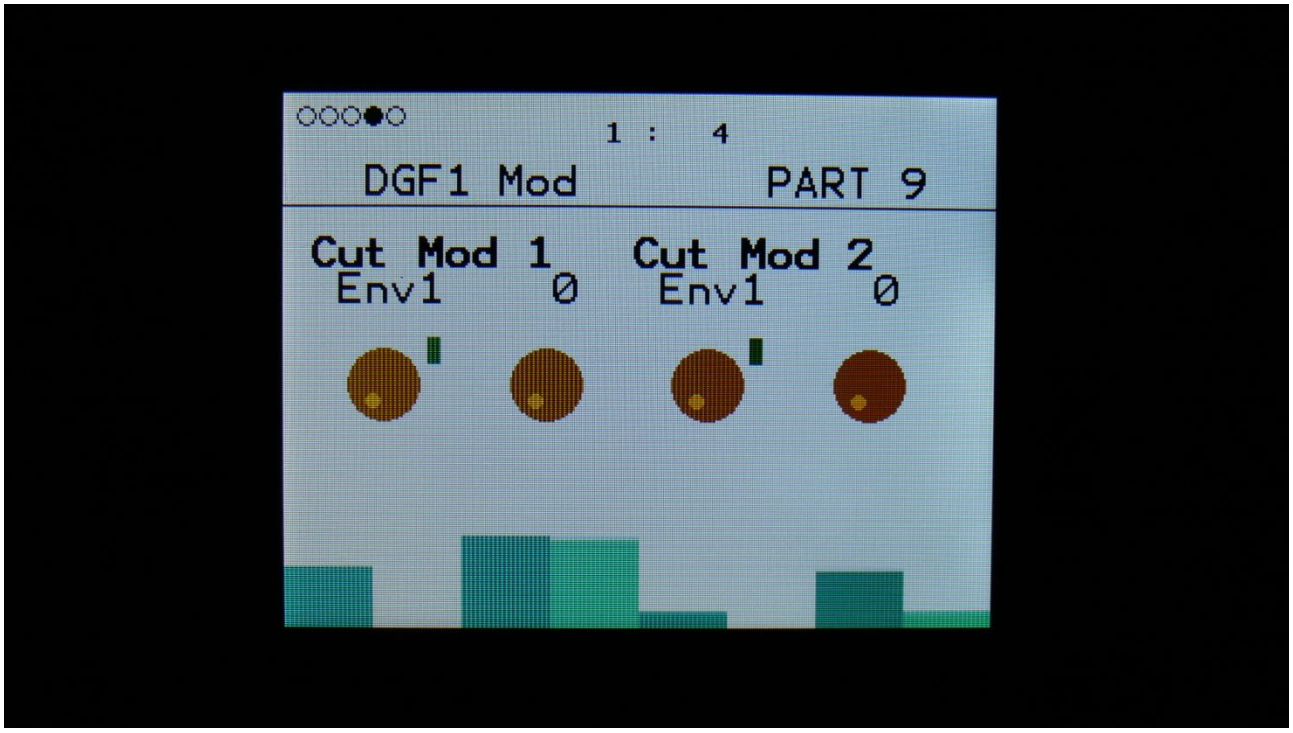


Type: Sets the filter type. See the list of filter types.

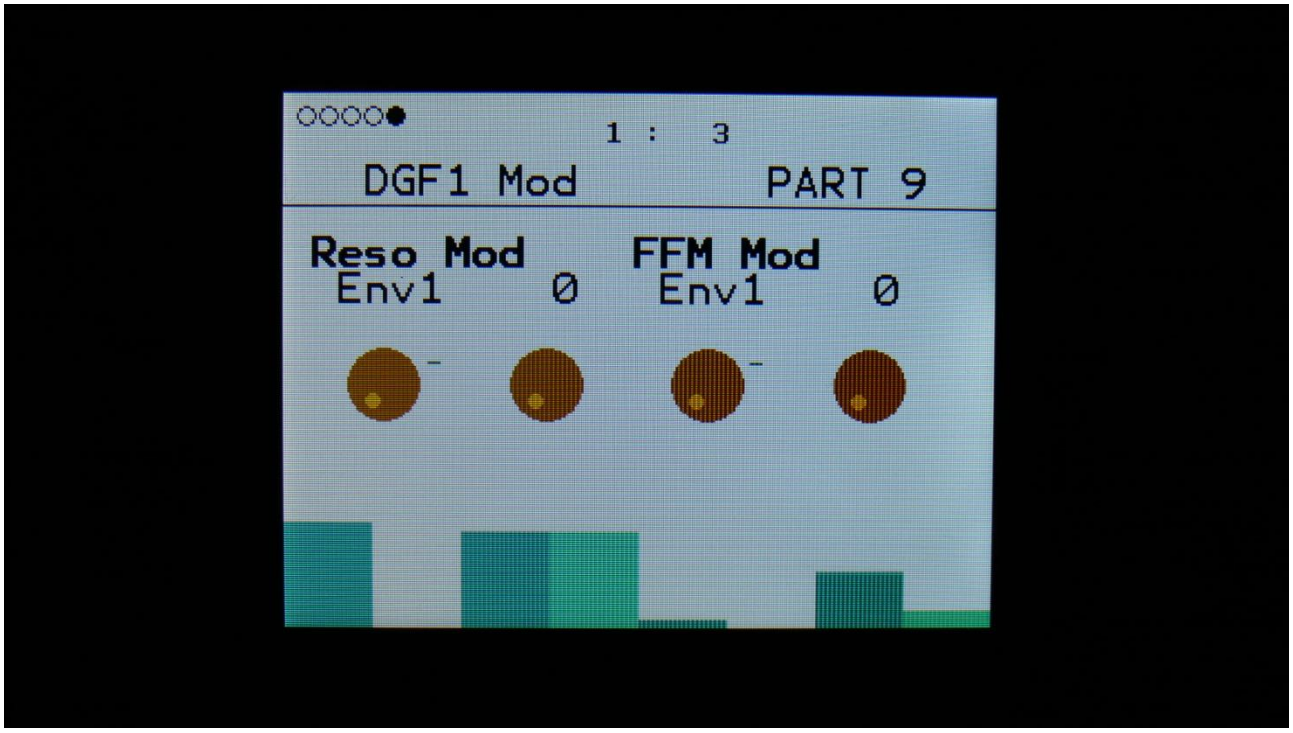
Filter FM: 0 to 511. On analog drum voices turning this up, makes Oscillator D (The digital oscillator) modulate the filter cut off frequency. On Synthesizer voices, Oscillator 2 will modulate the cut off frequency. On digital voices, Oscillator 1 will modulate the cutoff frequency.

Vibe: 0 to 511. Adds some nonlinear vibe to the filter character.

Boost: -128 to +383. Sets the filter output level. Negative values attenuates the signal level, positive values gains the signal level.



Cut Mod 1, Cut Mod 2: Select a modulation source and adjust the amount of modulation for the Cut parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Reso Mod: Select a modulation source and adjust the amount of modulation for the Reso parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

FFM Mod: Select a modulation source and adjust the amount of modulation for the Filter FM parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

VCA

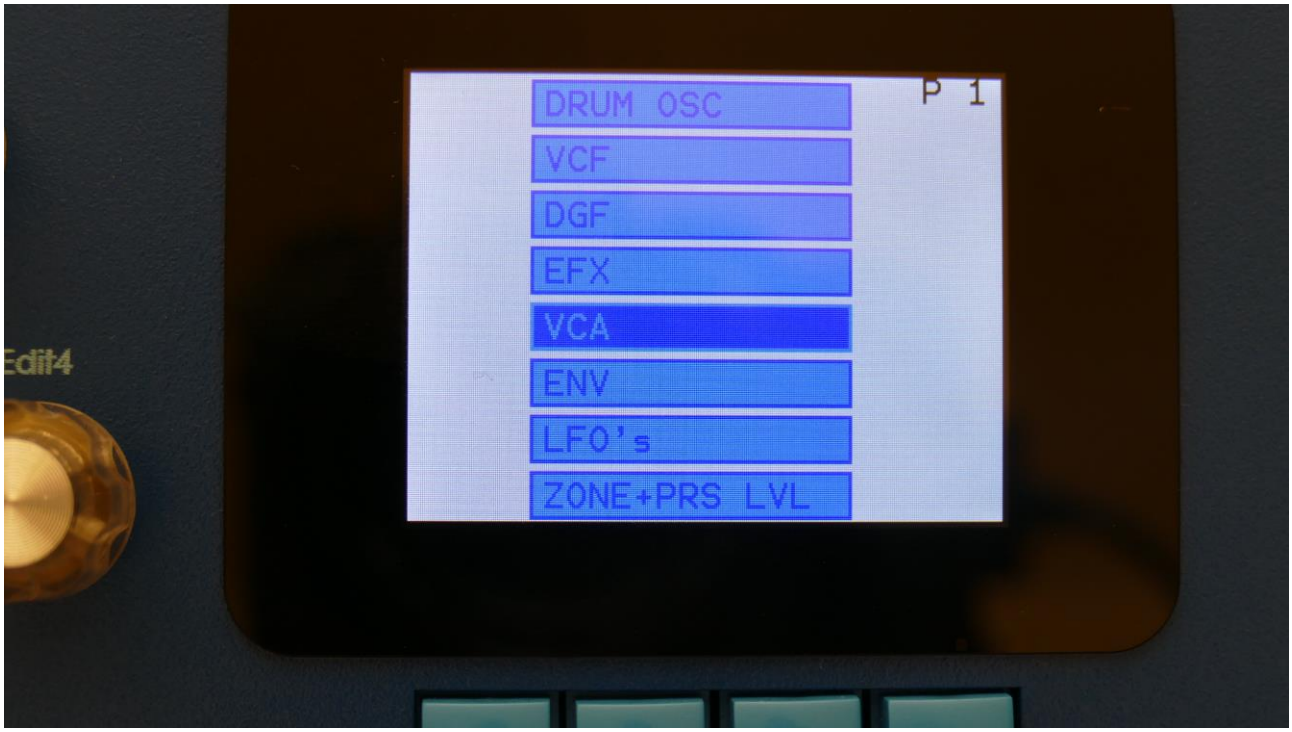
The VCA is the last stage of a drum part, before the audio is sent to the outputs or output effects. The audio output from the digital filters, goes into the VCA.

Technically the VCA is placed in the analog group. It is though possible to have different settings for the VCA, for each part.

The audio output of the VCA can be level modulated and panned. Pan can also be modulated.

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

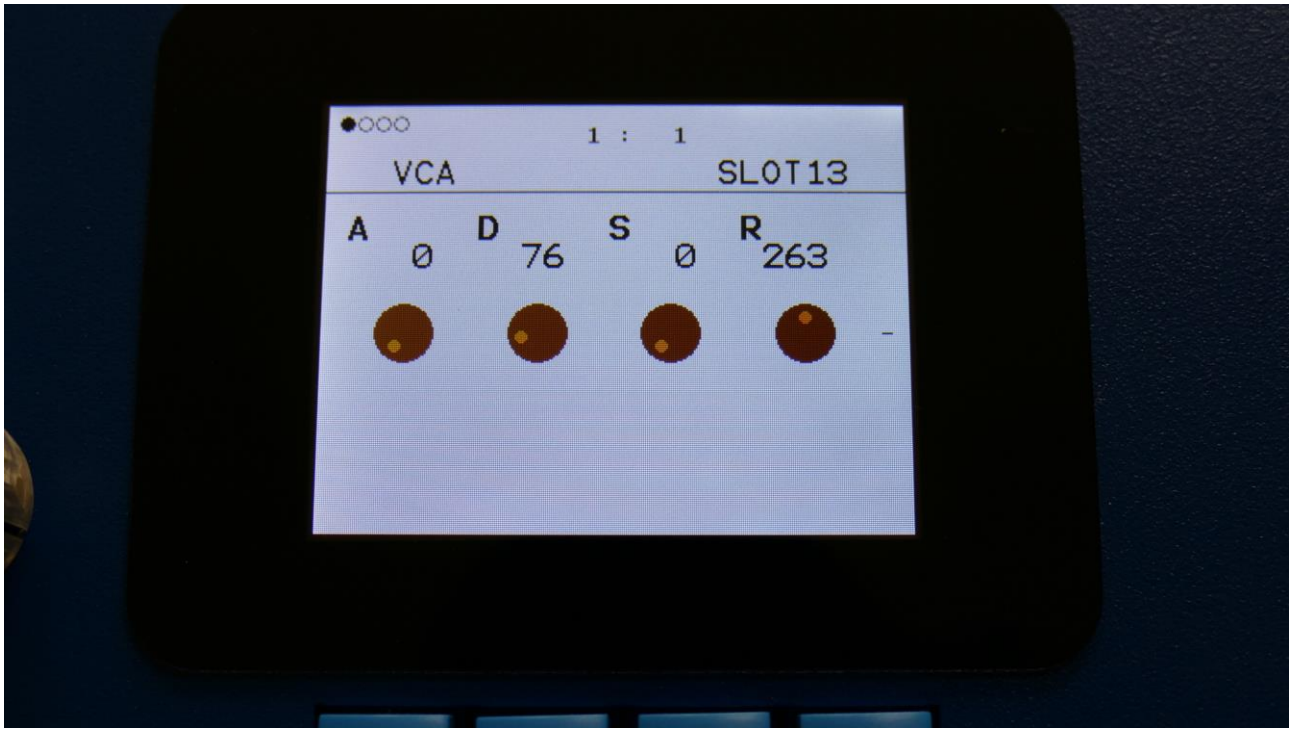
When the optional analog output board is connected, the analog VCA's on this is also controlled from this module. These do though behave a bit different than the internal VCA's, so you might have to adjust the VCA envelope parameters a bit, when using the separate analog outputs.



To enter the VCA, select VCA from the synth modules overview page, using the < and > buttons, and hit the Edit button, or touch the VCA module on SpazeDrum Black.

VCA Parameters

The first page in this module:



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

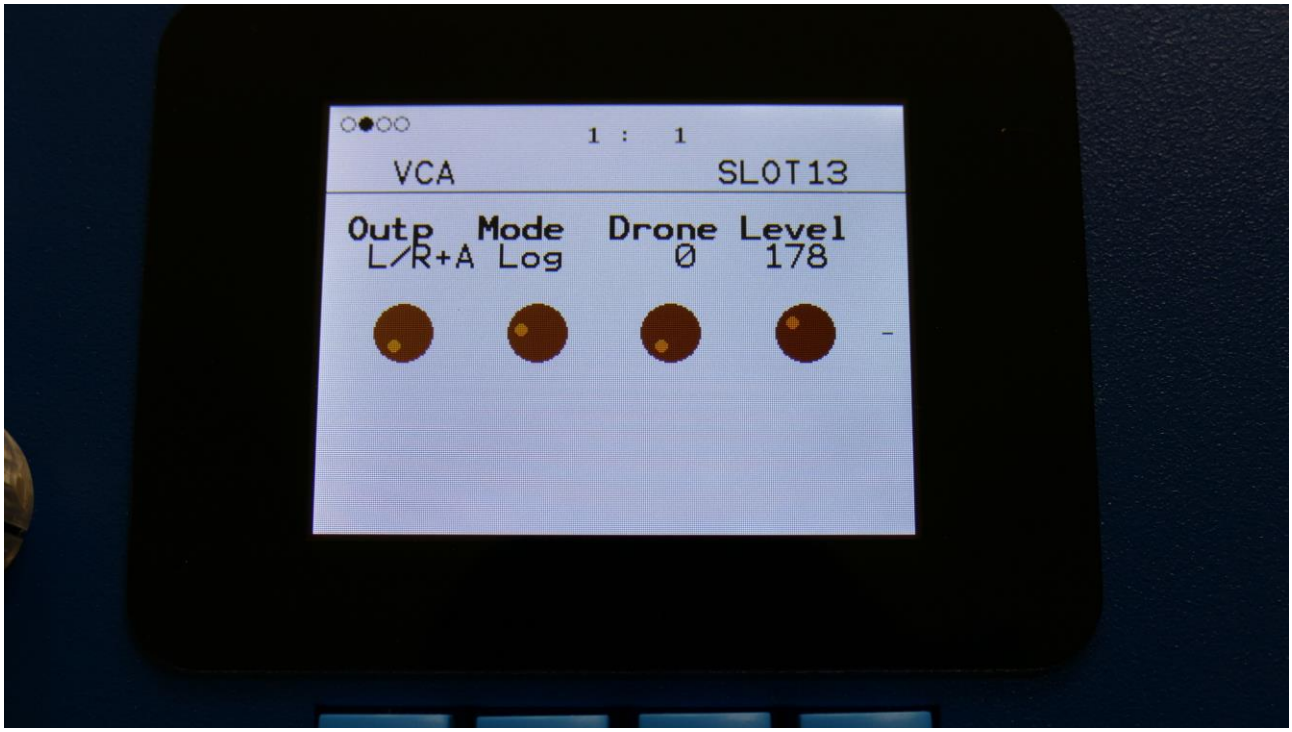
A: 0 to 511. VCA envelope attack time. The time it will take the VCA envelope to rise from zero to its maximum value, when a note event is received and held down.

D: 0 to 511. VCA envelope decay time. When the VCA 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 trigged it is held.

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

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

Hit the > button, to enter the next page:



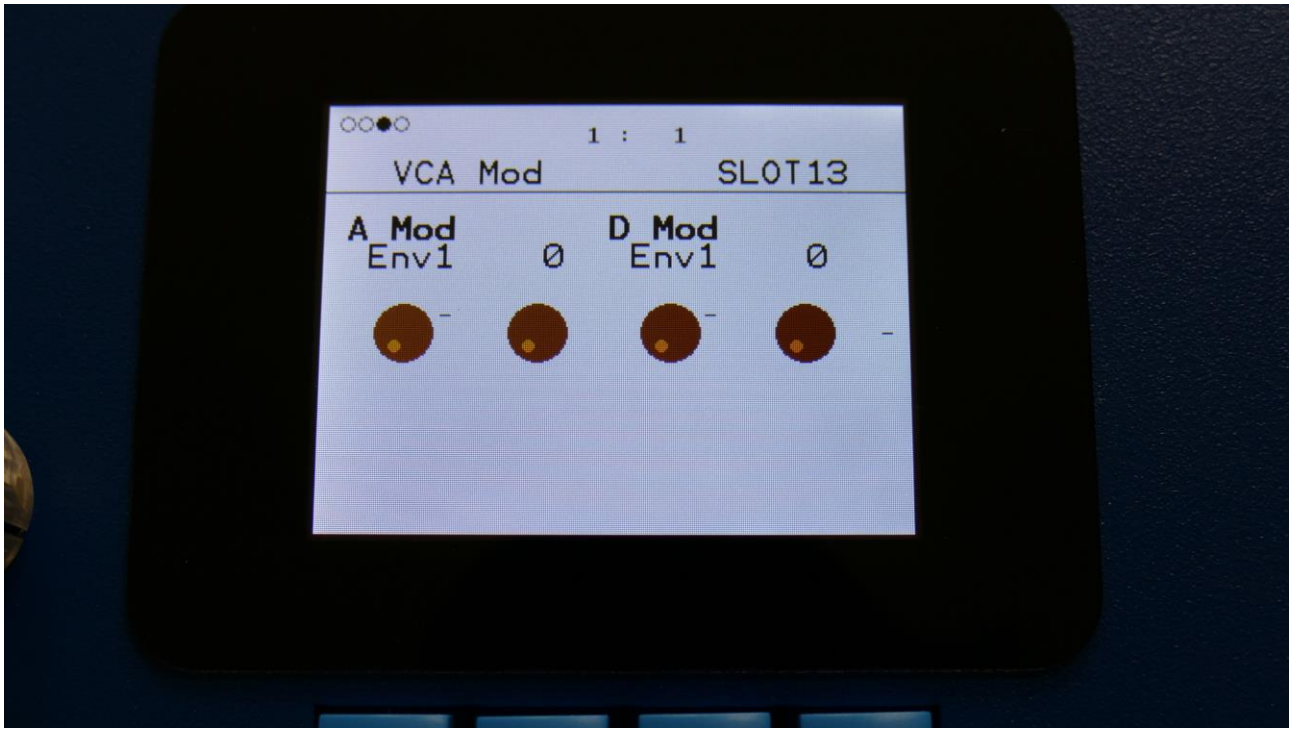
Outp: Set where the VCA will send its audio output to.
-L/R+A: The VCA audio output will be sent to the stereo audio output and to the separate analog outputs, if these are installed.
-EFX: The VCA audio output will be sent to the output effect processors. When panned left, the signal will go to output effect 1, when panned right, it will go to output effect 2.

Mode: Selects if the VCA behavior should be linear **(Lin)** or logarithmic **(Log)**. The **Lin4 and Log4** modes sets the behaviors as mentioned above, but with envelope times, that are 4 times longer.

Drone: 0 to 511. VCA envelope drone offset level. When this is turned up, the VCA 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 a synth part open for drone sounds.

Level: The VCA output level.

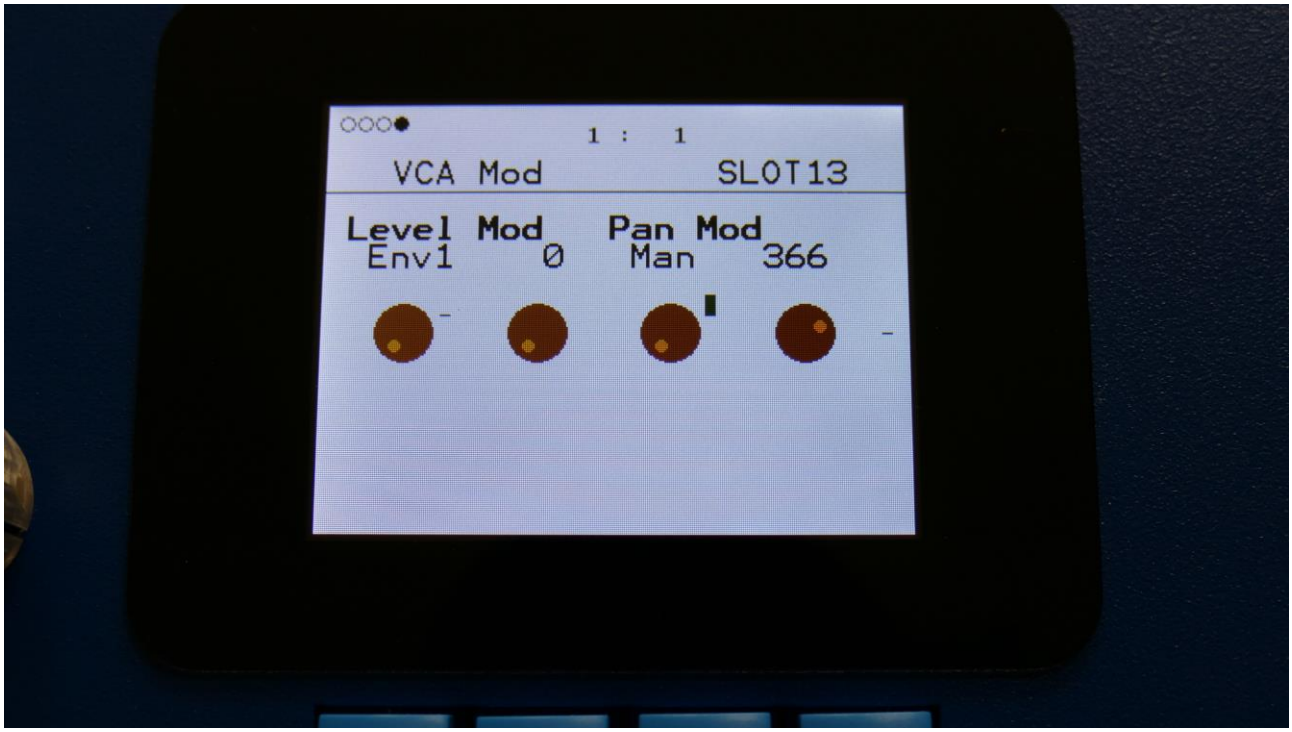
Hit the > button again, to enter the next page:



A Mod: Select a modulation source and adjust the amount of modulation for the Attack parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

D Mod: Select a modulation source and adjust the amount of modulation for the Decay parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:

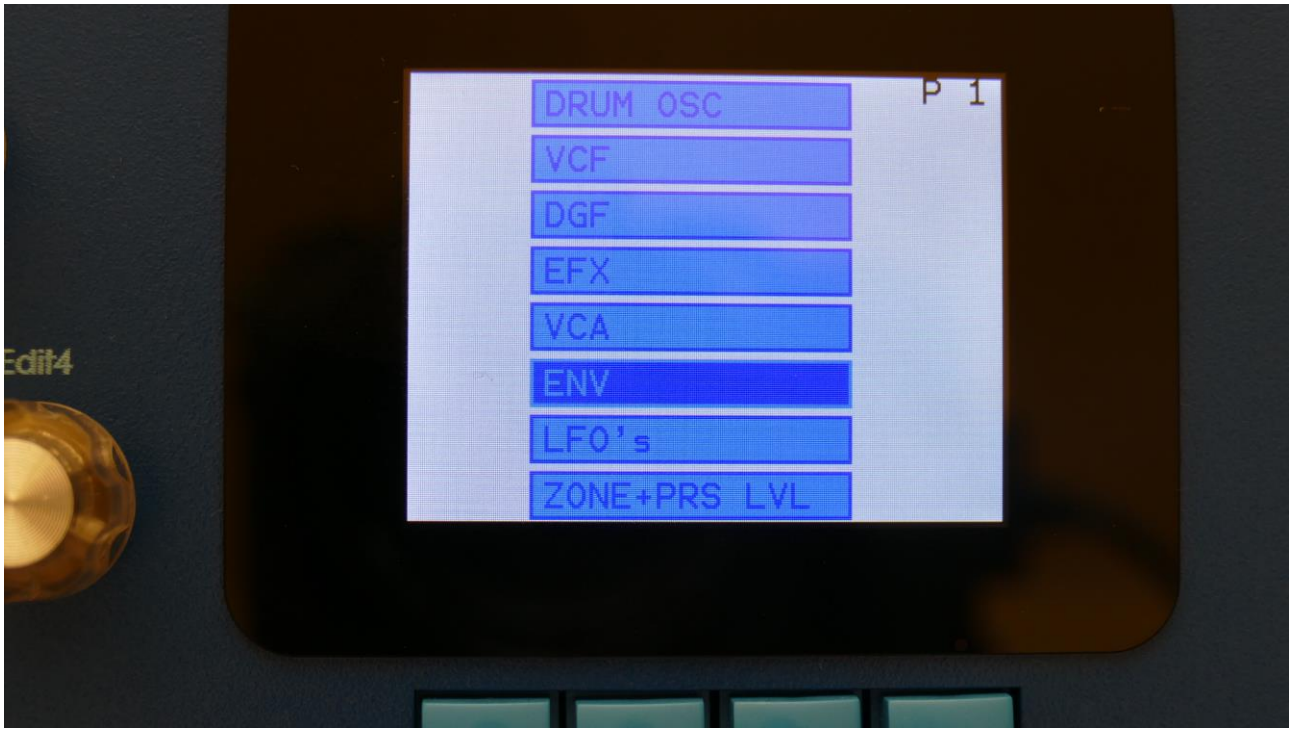


Level Mod: Select a modulation source and adjust the amount of modulation for the Level parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pan Mod: Select a modulation source and adjust the amount of modulation for the Panning. When source is set to manual (“Man”), the amount parameter manually adjusts the output panning. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Envelope 1 and 2

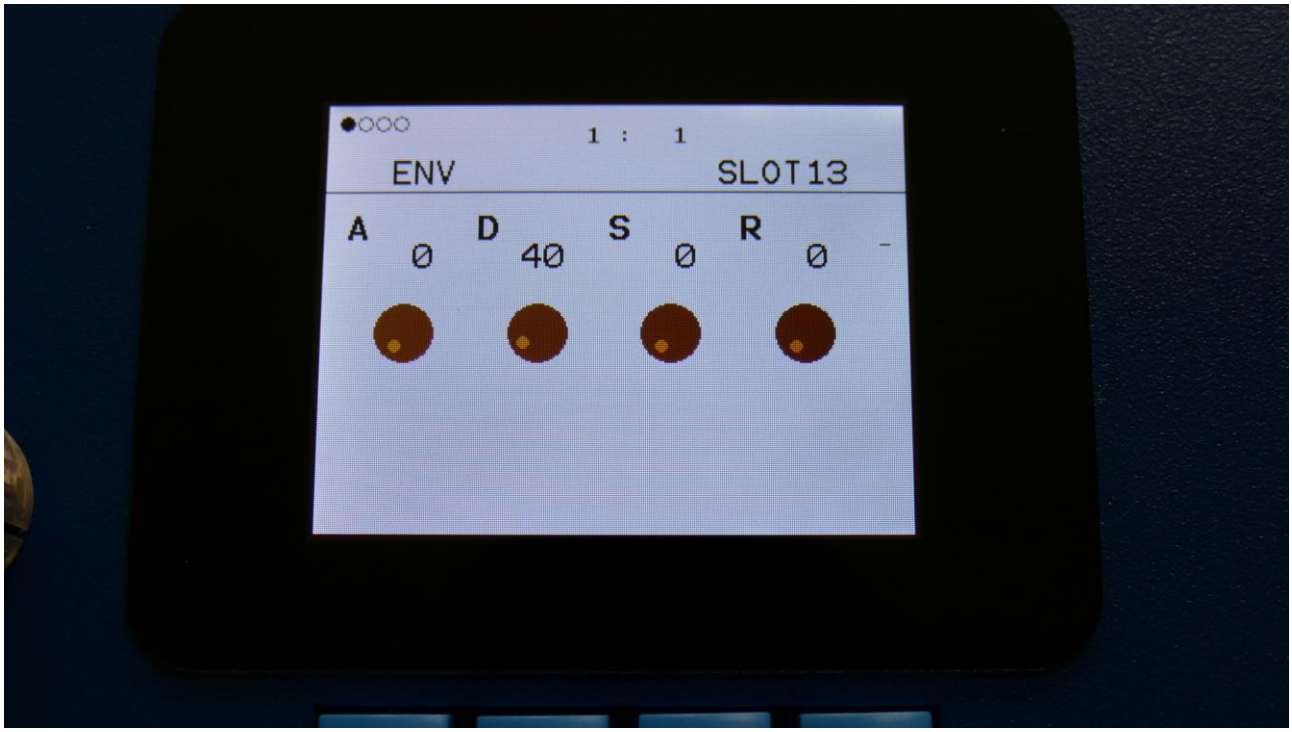
Each drum part of SpazeDrum has 2 modulation envelopes. One ADSR type, and one decay only envelope. Envelope 1, the ADSR envelope can have linear or logarithmic characteristics and it also has an offset control.
Envelope 2, the decay envelope, is always linear.



To enter the envelopes, select ENV from the synth modules overview page, using the < and > buttons, and hit the Edit button, or touch the ENV module on SpazeDrum Black.

Envelope 1 and 2 Parameters

The first page in this module:



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

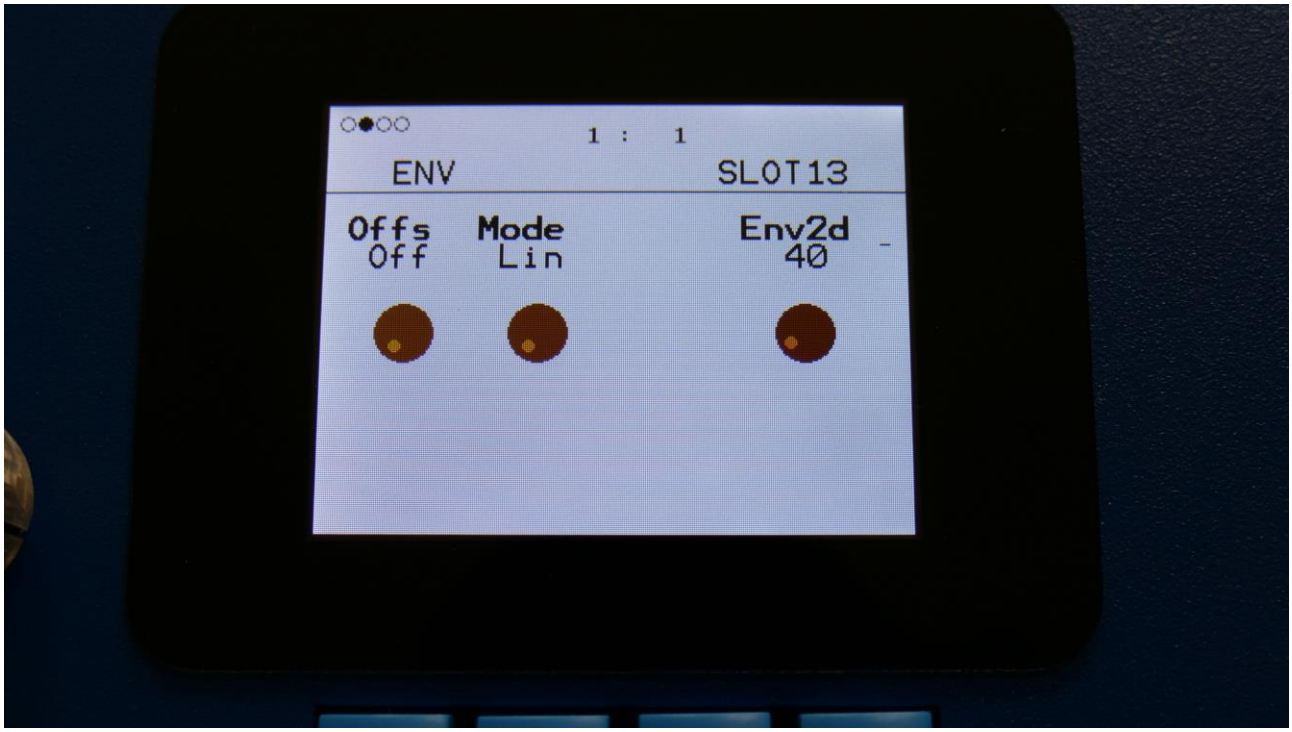
A: 0 to 511. Envelope 1 attack time. The time it will take the envelope to rise from zero to its maximum value, when a note event is received and held down.

D: 0 to 511. 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 trigged it is held.

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

R: 0 to 511. 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.

Hit the > button, to enter the next page:

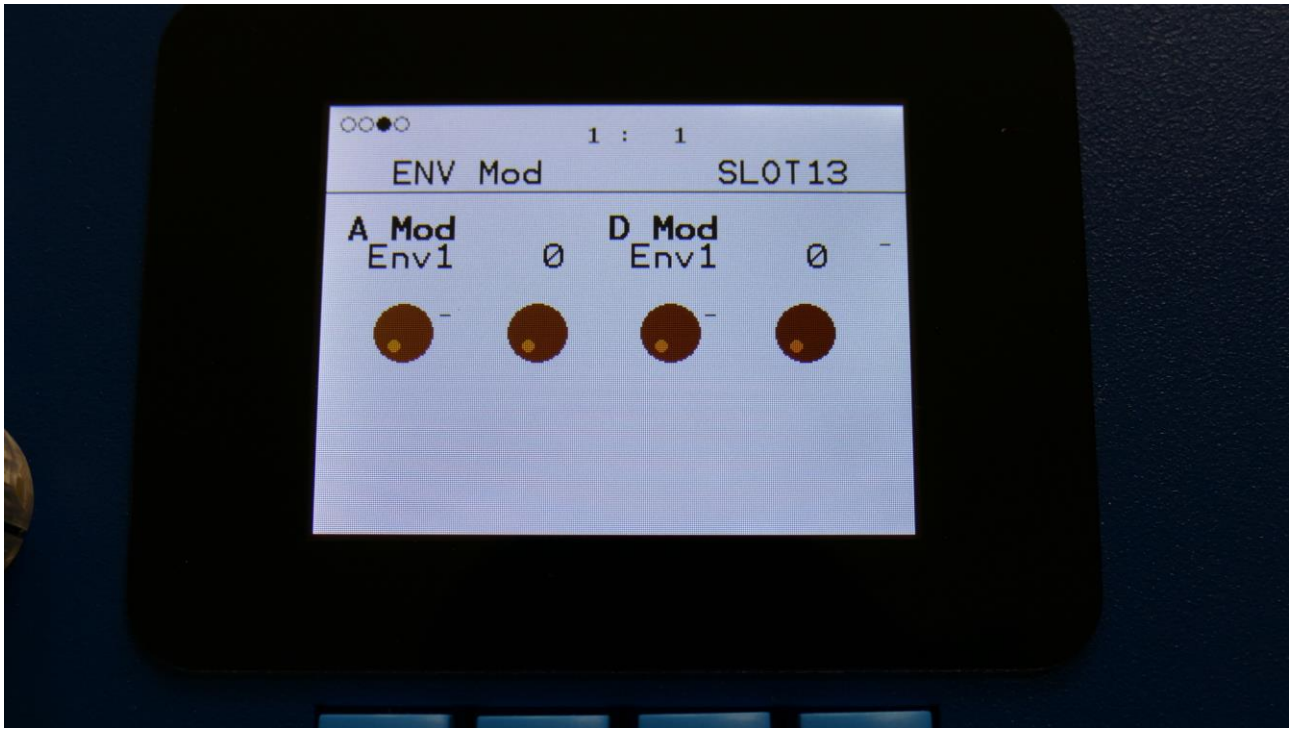


Offs: Offset:
-Off: The envelope will work around the zero point, and apply both negative and positive modulation to the parameters affected by it.
-On: Positive only, offset added. The envelope will only work above the zero point, and will only add to the values of the parameters affected by it.

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. The **Lin4 and Log4** modes sets the behaviors as mentioned above, but with envelope times, that are 4 times longer.

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

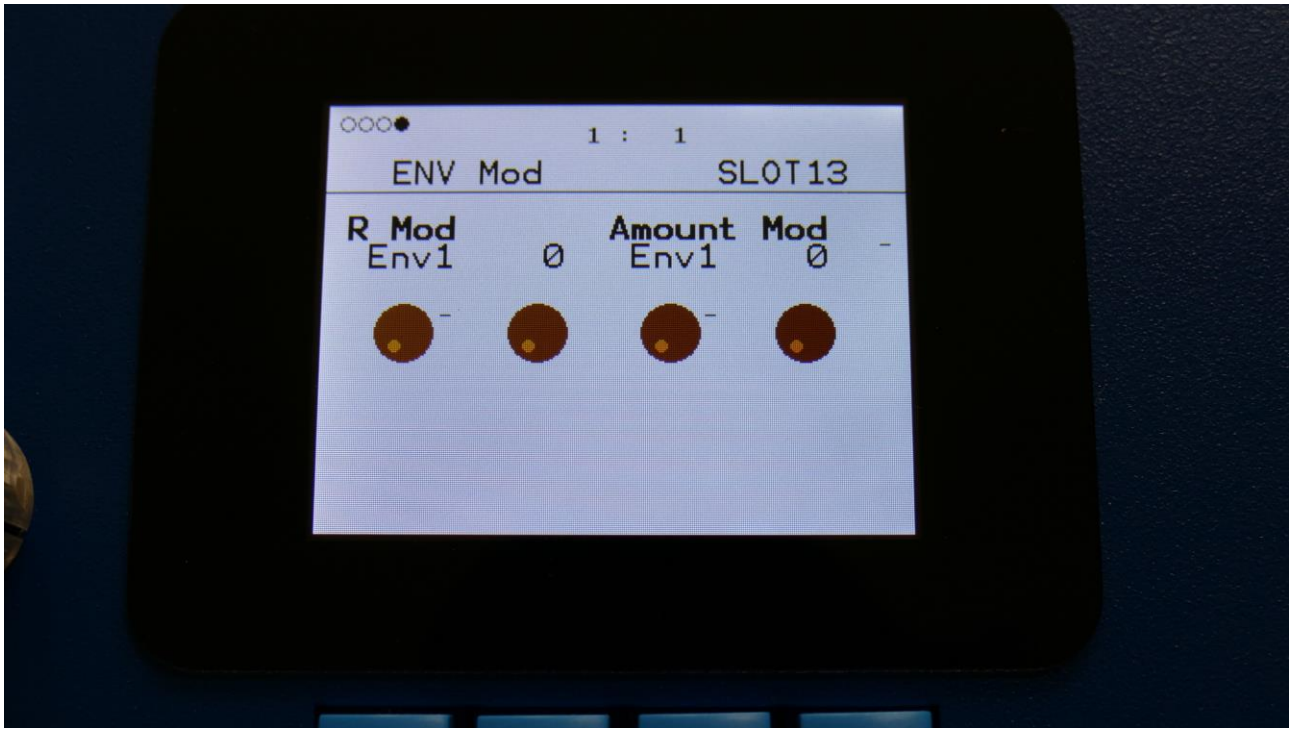
Hit the > button again, to enter the next page:



A Mod: Select a modulation source and adjust the amount of modulation for the Attack parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

D Mod: Select a modulation source and adjust the amount of modulation for the Decay parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Hit the > button again, to enter the next page:



R Mod: Select a modulation source and adjust the amount of modulation for the Release parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

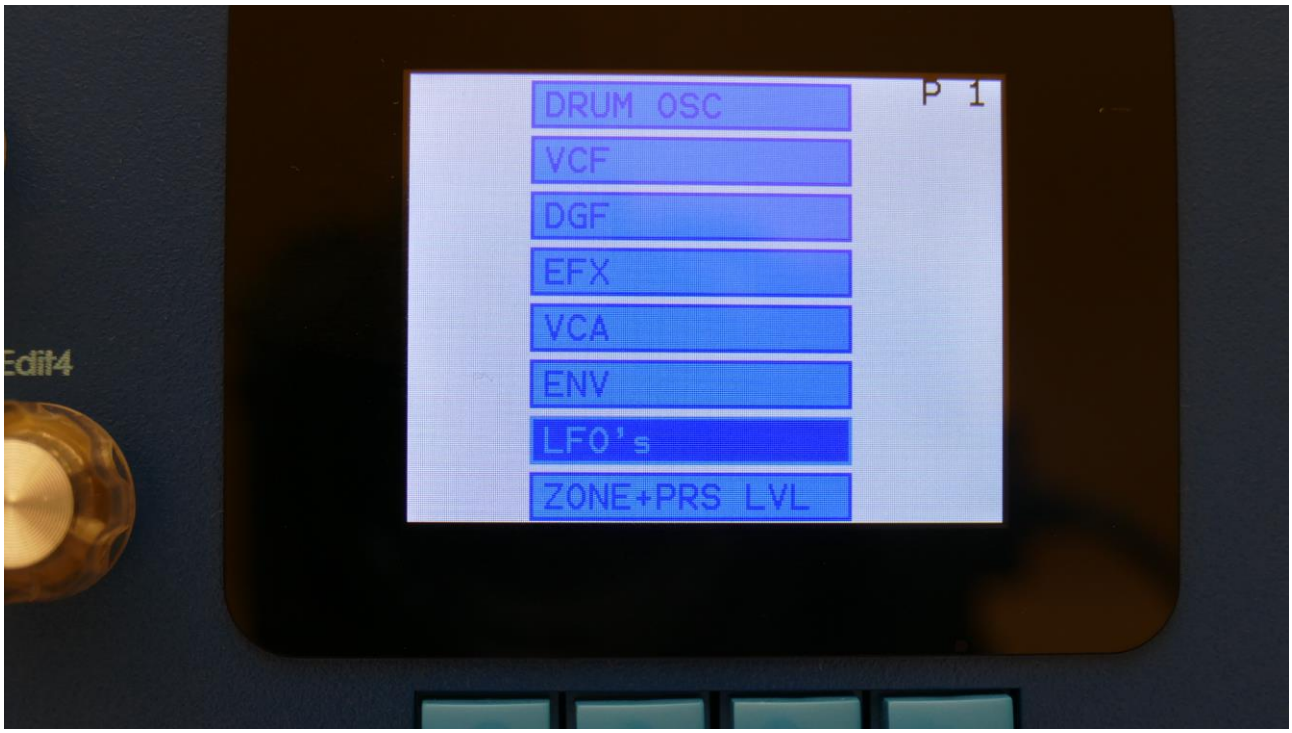
Amount Mod: Select a modulation source and adjust the amount of modulation for the envelope 1 output amount. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

LFO1 to 16

SpazeDrum has 16 LFO’s, that are global, so each LFO can modulate any of the 16 Drum parts.

The LFO's has continuously variable waveform and rate parameters. Both of these parameters can be modulated. The output level of the LFO’s can also be modulated, and they can be key-synced.

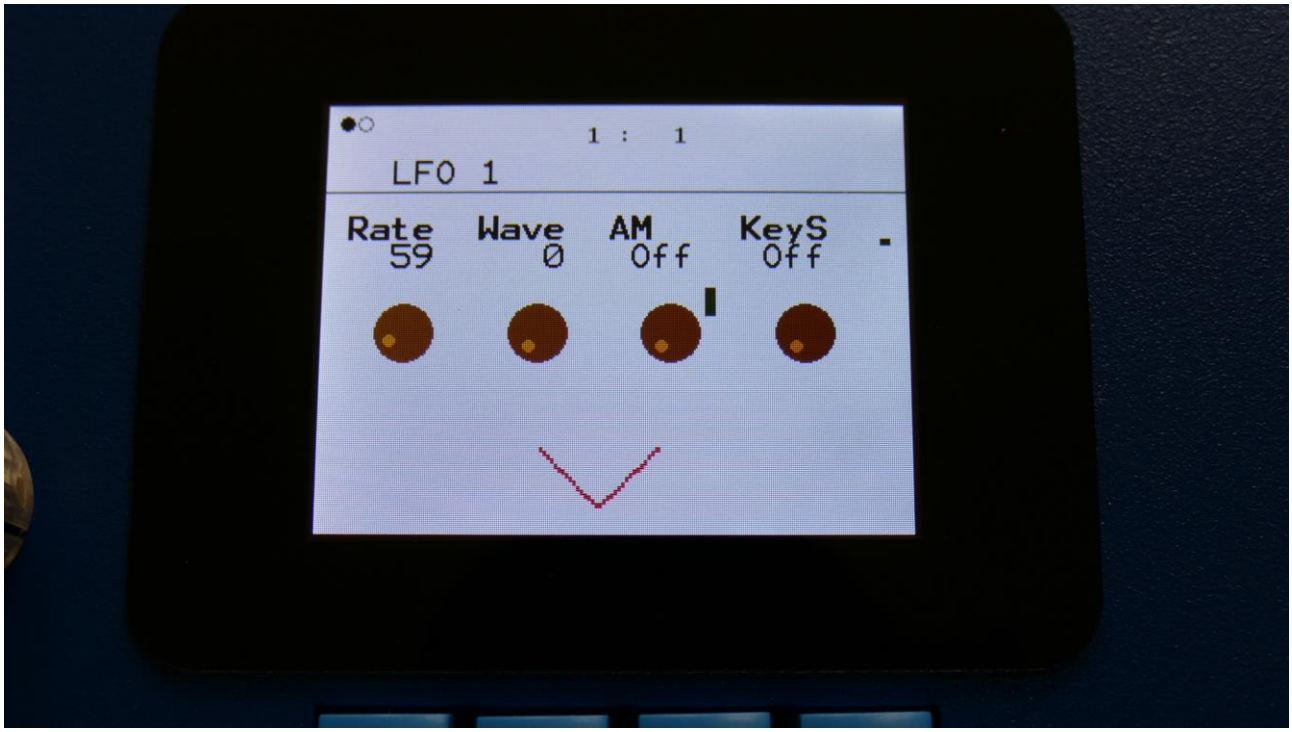
One LFO are shown at a time on the LFO pages. LFO 1 to 16 are selected in the same way as drum parts are, by pushing and holding the Steps/Part button, while pressing a step button. The LFO’s are though selected separately from the parts. So LFO 5 can for instance be selected, while part 3 is selected.



To enter the LFO’s, select LFO’s from the synth modules overview page, using the < and > buttons, and hit the Edit button, or touch the LFO’s module on SpazeDrum Black.

LFO parameters

The first page in this module:



At the bottom of this page, the current LFO waveform is shown. In the top right of this page, a small VU-meter is showing the LFO output activity.

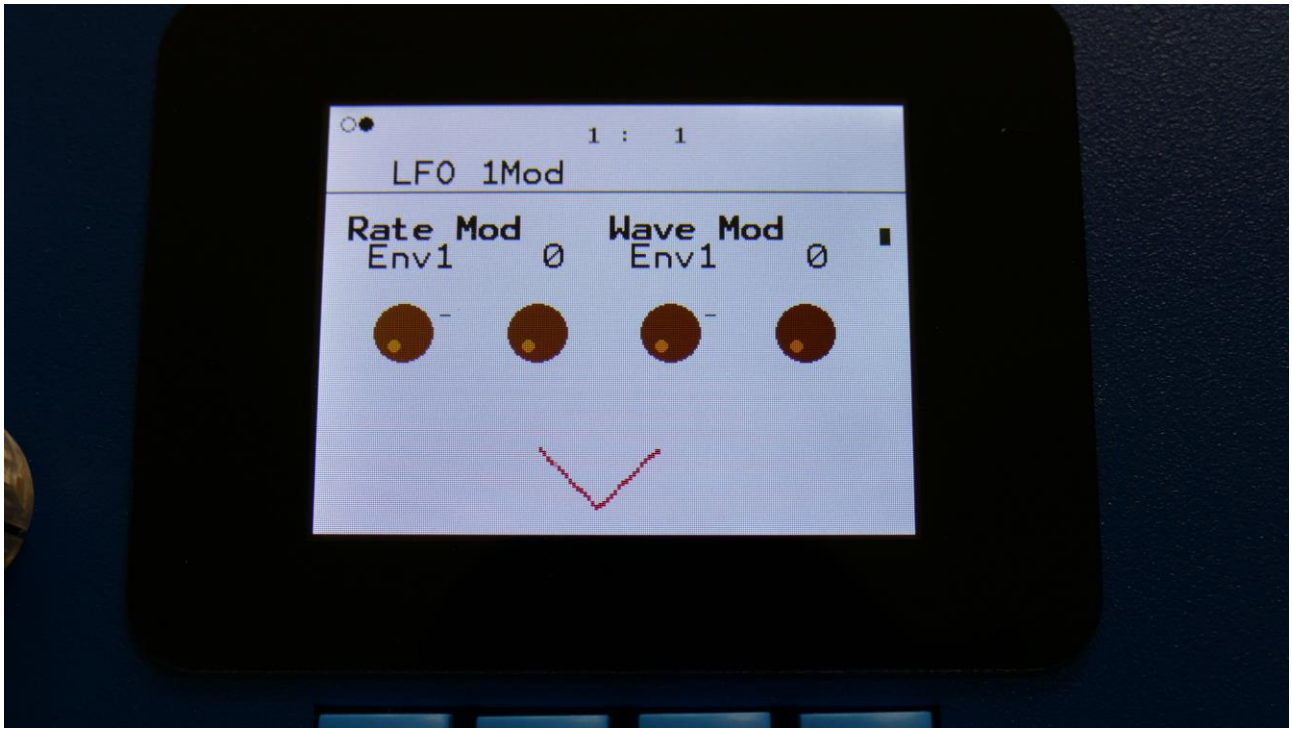
Rate: 0 to 511. LFO rate. Sets the speed of the LFO.

Wave: 0 to 511. 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.

AM: 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. Any modulation source can be selected. Please see list of modulation sources in the beginning of this section.

KeyS: Off, 1 to 16, 1s to 16s: LFO key sync. The number tells which part will make the LFO restart. When a number that has an “s” after it is selected, the LFO are in single cycle mode, and will only run one cycle, every time it is triggered.
Off: The LFO is free running.
1 to 16: Every time this Drum part is trigged, the LFO will reset to its initial value, and start over.

Hit the > button, to enter the next page:



Rate Mod: Select a modulation source and adjust the amount of modulation for the Rate parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Wave Mod: Select a modulation source and adjust the amount of modulation for the Wave parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

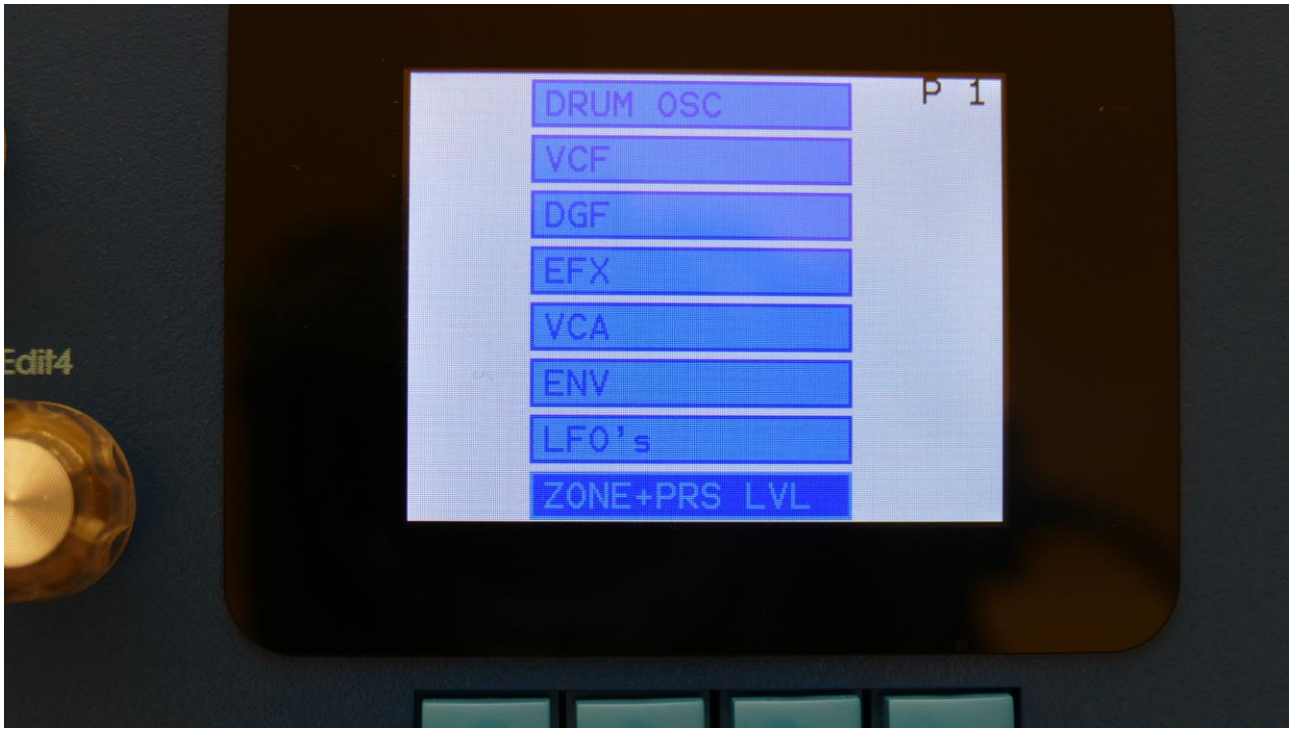
4 Random Generators

Each drum part of SpazeDrum has 4 random generators, that takes in a new random value, every time the part is trigged.

There are no settings to be made for these. They are found as modulation sources, named: Rnd1, Rnd2, Rnd3 and Rnd4.

Zone, Preset Level and Zone Magic

Here it is possible to adjust the overall preset level, to make the levels of each preset match each other, and to set up a MIDI key zone for each part. Each zone can be transposed and switched off, if you don't use it, or if you just don't need this zone on your MIDI keyboard.



To enter the Zone and Preset Level, select ZONE+PRS LVL from the synth modules overview page, using the < and > buttons, and hit the Edit button, or touch the ZONE+PRS LVL module on SpazeDrum Black.

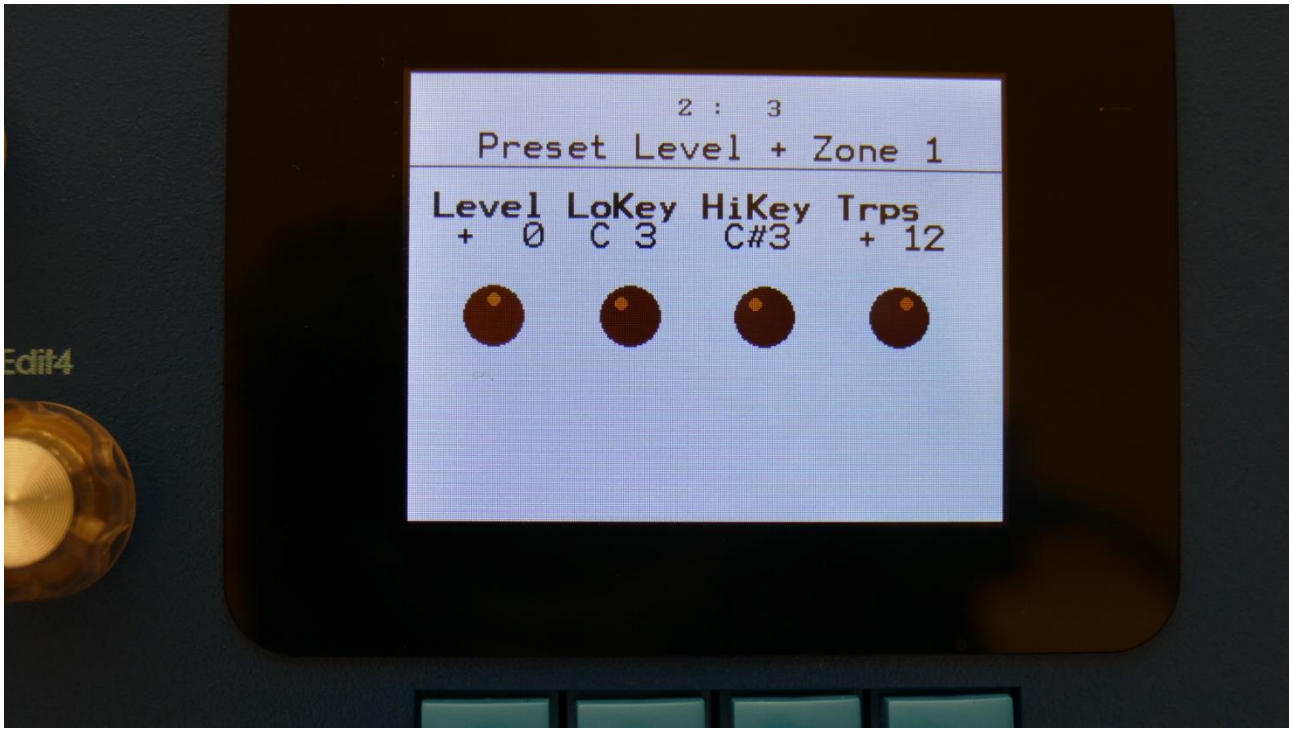
When on this page, the trigger buttons will show the on/off state for each of the 16 zones:

If you don't use, or don't need some of the parts/zones laid out on your MIDI keyboard, you can switch individual zones off, simply by pushing the trigger button, that represents the zone/part, so that it becomes unlit. Switch them back on again, by pushing the trigger button again, so that it lights up. When a zone is switched off, it is completely skipped by the MIDI input, and its assigned notes are used by the zone below it.

When a zone is switched off, its low key does no longer represent the high key of the previous part/zone. The high key of this will be the low key of the next active zone minus 1.

Each time a zone/part is trigged, from MIDI in or from the sequencer, it will flash for a short time.

When a Zone is off, the internal part is still on, and it can still be trigged from the trigger buttons and the sequencer.



On the top right of the page, the currently selected zone (part) number is shown.

Level: Sets the overall preset level. Negative values attenuates the level, positive values gains the level.

LoKey: Sets the lowest MIDI key for the selected zone (part).

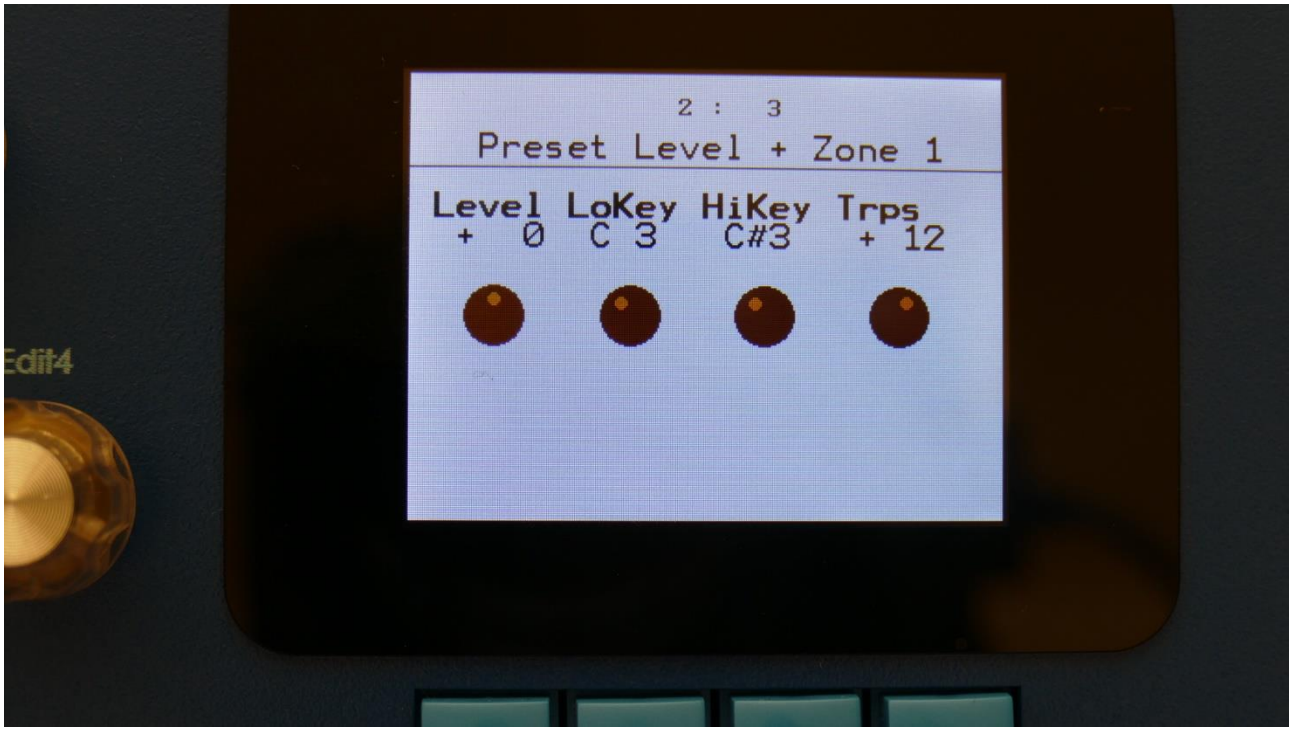
HiKey: Only if no zones above the selected zone is on, this sets the highest note for the zone. If any zone above the selected one is on, the low key of the next zone functions as the highest note for the selected part. On zone/part 16, which has no parts/zones above it, HiKey will always set the highest note of the zone.

Trps: Transpose. Makes it possible to transpose the MIDI input notes up to +/- 63 semi tones.

Zone Magic

While it is possible to set up the MIDI key zones manually on the Zone page, it might be a little bit hard work to set up the 16 zones/parts. This is why Zone Magic was engineered.

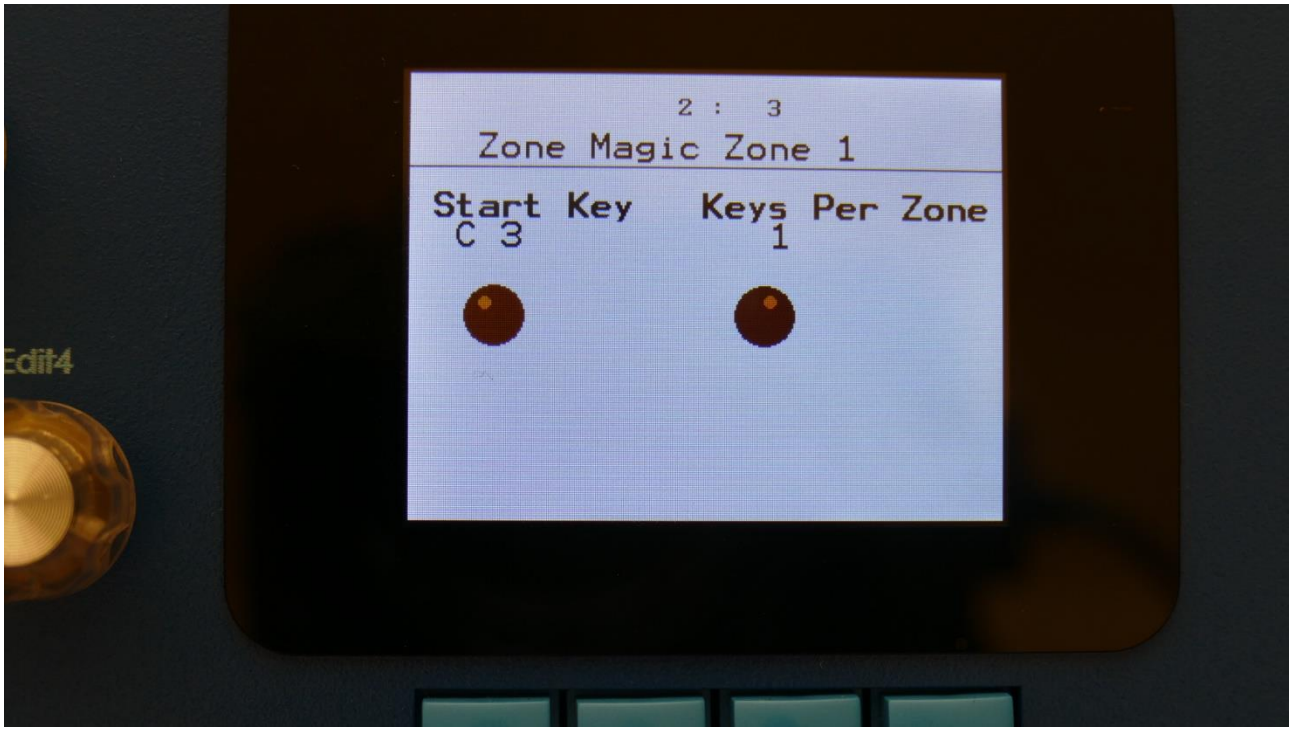
With Zone Magic you can, by setting a few parameters, set all active zones/parts up to have an equal number of keys, spread over a connected MIDI keyboard.



On the Zone page, listen through the parts/zones, and switch off the ones, you don’t need to control from your MIDI keyboard.

Hit the Edit button.

You will now enter Zone Magic:



Now turn Edit Knob 1 to adjust the **Start Key** parameter, to set the lowest key for all the zones.

Turn Edit Knob 3 to set the **Keys Per Zone** parameter. This will set the key span for each zone.

Each zone will be transposed, so that the original tone (the tone that is played back via the trigger button) will be placed on the lowest key on each zone. If you wish the transposing to be different, you must transpose the zone(s) manually, after Zone Magic has been performed.

To perform the Zone Magic setup, hit the Edit button. SpazeDrum will now set up the zones as required, and jump back to the Zone page.

To exit Zone Magic, without performing the setup, simply hit the Exit button.

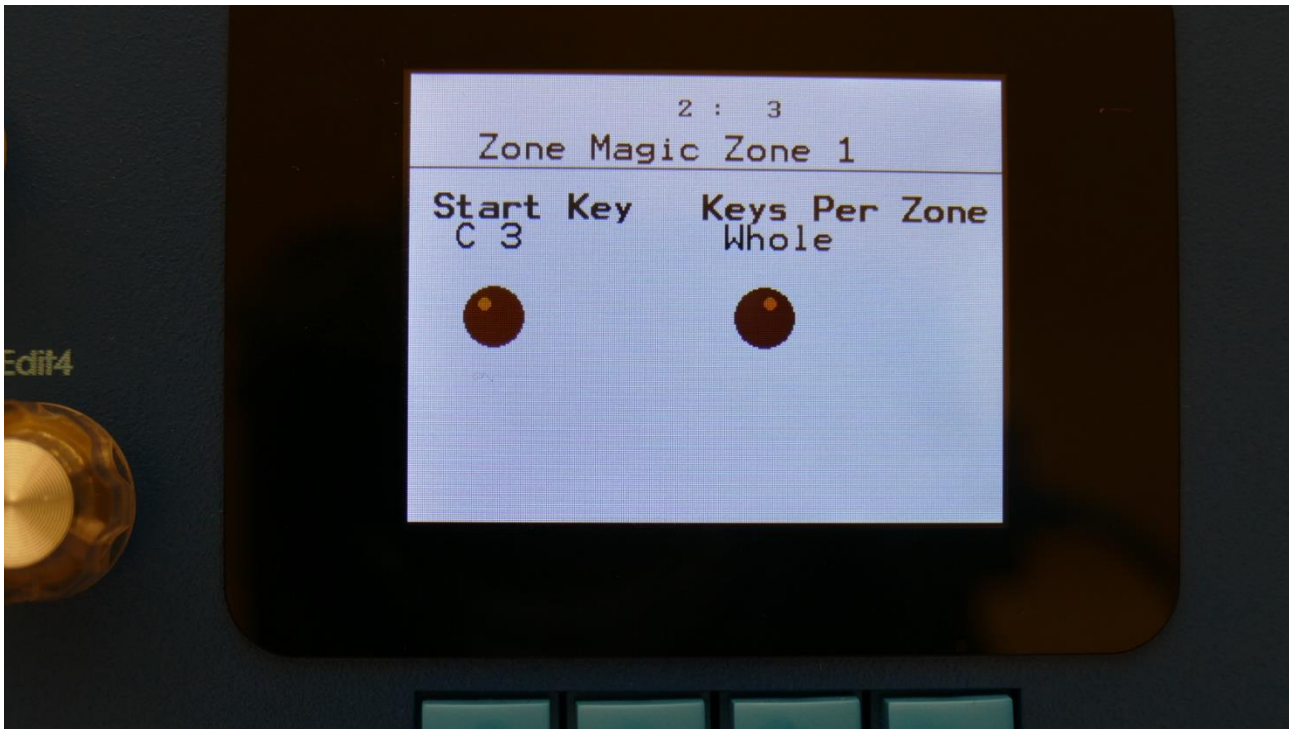
Setting Up One Part on the whole Keyboard

Sometimes, if you for instance would like to record melodies on the sequencer, it could be practical to control one part at a time, using the whole MIDI key range.

Of course you could set this up, simply by switching 15 zones off, using the trigger buttons, select the desired part, and then set the lower and upper keys to the lowest and highest MIDI keys.

But it might be easier to do this, using Zone Magic.

Simply select the part, that you would like to control from your MIDI keyboard.



On the Zone Magic page, turn Edit Knob 3 fully up, so that **Keys Per Zone** shows “Whole”.

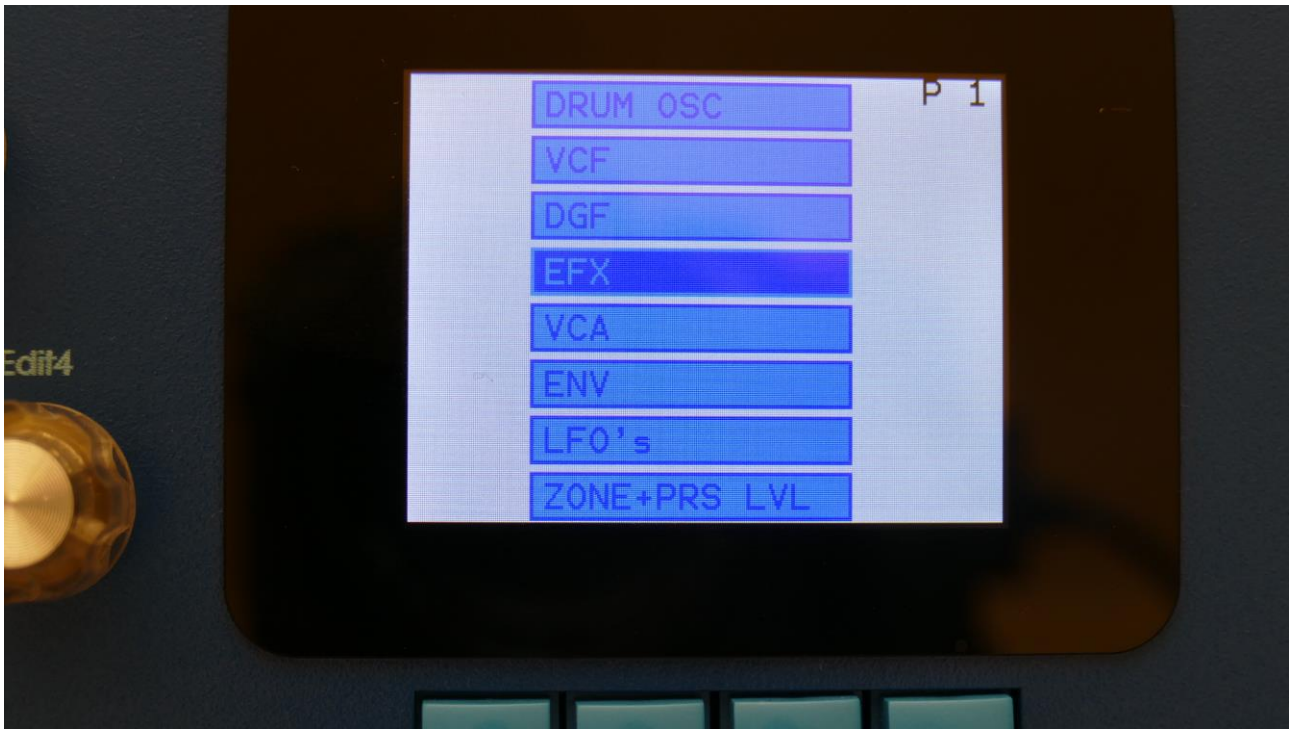
Now hit the Edit button, and the currently selected part will be laid out over the whole MIDI key range, with no transposing. The value of the **Start Key** parameter will be ignored, when “Whole” is performed.

Effects Processors

SpazeDrum has 8 insert effect processors and 2 output effect processors, 10 effect processors in total. The insert effects are placed in the 4 analog groups. 2 insert effects for each group. It is only possible to set the insert effect parameters for each analog group, not for each part.

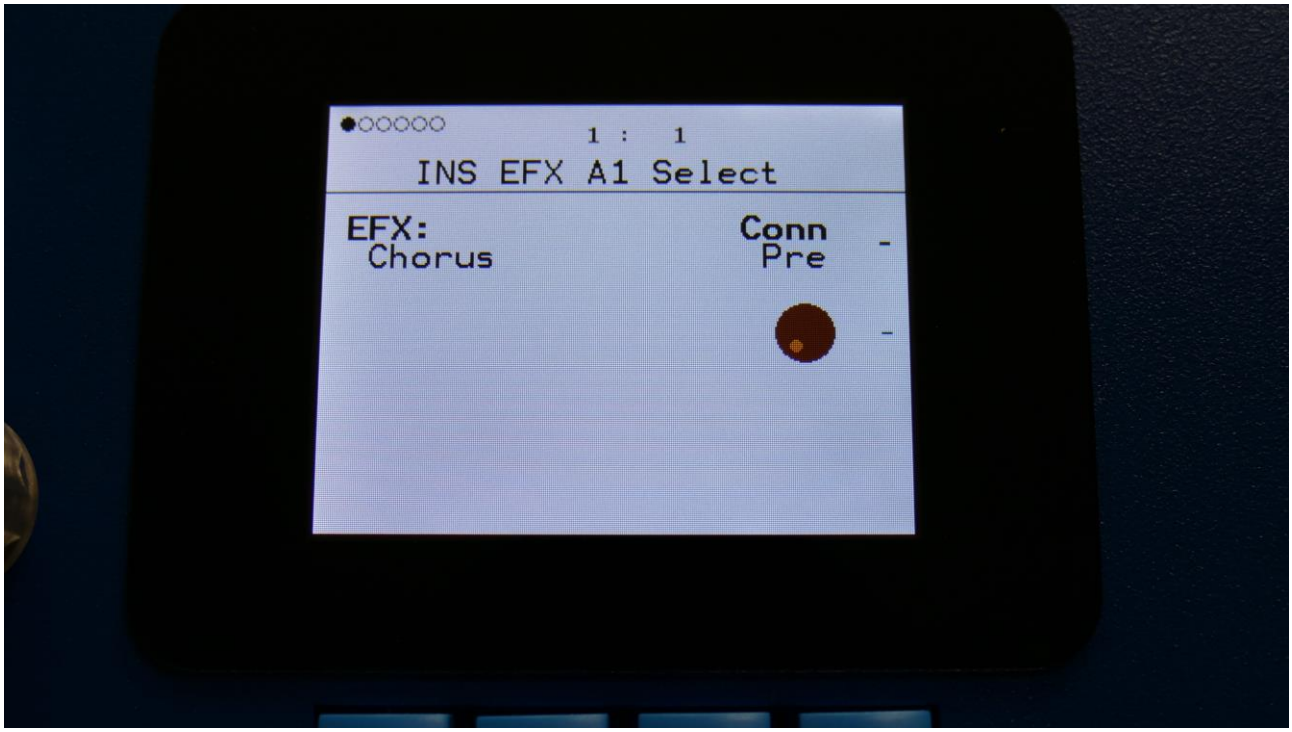
Each insert effect can be placed pre or post to the VCA.

Each part can be sent to the output effects via the internal VCA's. The output effects outputs through the main L and R outputs.

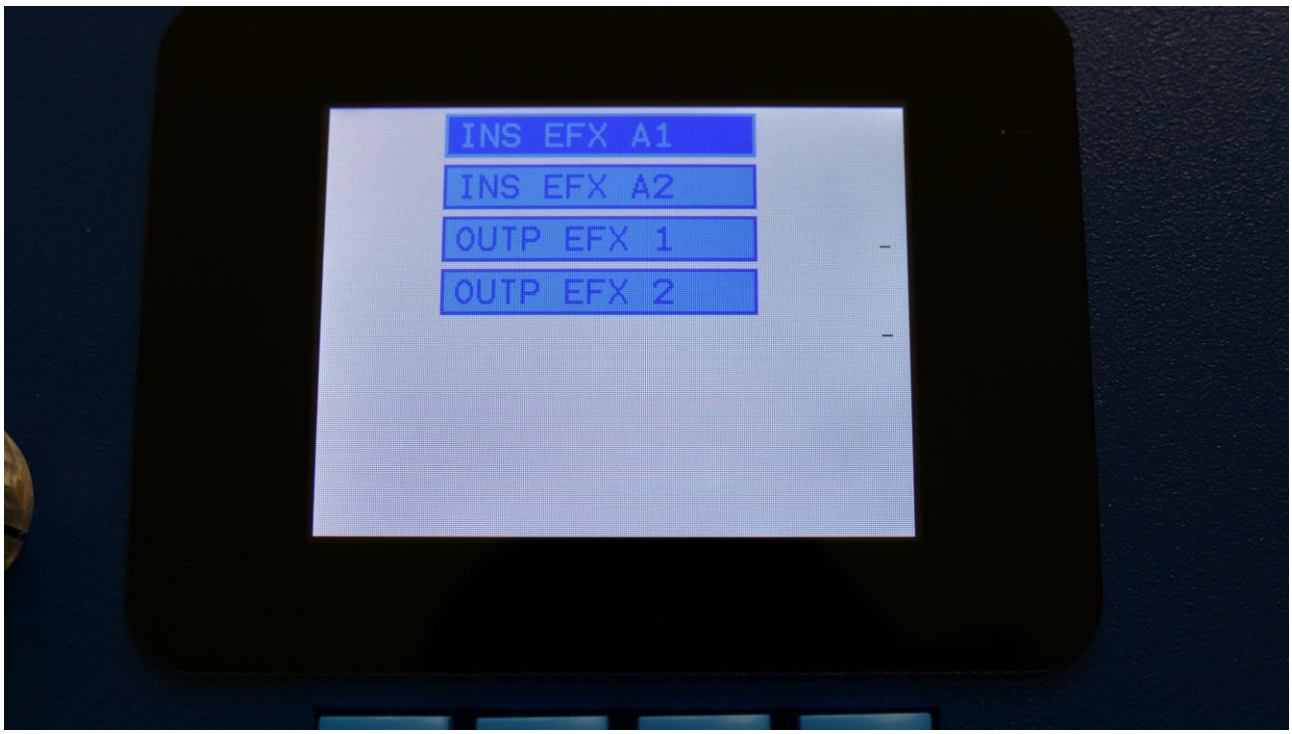


To enter the effects, select EFX from the synth modules overview page, using the < and > buttons, and hit the Edit button, or touch the EFX module on SpazeDrum Black.

Selecting the effect processors



Once you have entered the effect pages, push the Edit button. A menu will now pop up, allowing you to select the desired effect:



Select the desired effect, using the < and > buttons, and push the Edit button to enter, or touch the desired EFX module on SpazeDrum Black.

The 2 output effects can be entered from any drum part.

Since the insert effects are available per analog group, the insert effects that can be entered, depend on the currently selected drum part:

-From drum part 1 to 4, it is possible to enter insert effect A1 and A2.
-From drum part 5 to 8, it is possible to enter insert effect B1 and B2.
-From drum part 9 to 12, it is possible to enter insert effect C1 and C2.
-From drum part 13 to 16, it is possible to enter insert effect D1 and D2.

Insert Effects A1, A2, B1, B2, C1, C2, D1 and D2

SpazeDrum has 8 insert effects in total. 2 for each analog group, to process the drum parts.

All effects has a mix parameter.

The effects are not outputted through the optional analog outputs.

List of Insert Effects

Off – No insert effect are applied.

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. SpazeDrum'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.

Glitch Shifter 3 – Imperfect pitch shifter with a slightly different sound than the first two.

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.

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.

Filter - This is exactly the same filters, as can be found in the drum parts. They were added to the insert effects section, in order to make it possible to filter external signals, to build an LD2 style filterbank, using multiples of these, and because sometimes it is handy to filter some parts of the other effects or the analog filters out.

Filters 2 - A different set of digital filters, that is emphazised in the bottom bass area, and has a pretty uncontrollable resonance.

Compressor - Damps audio signals that are above a settable level, in order to make the signal less dynamic, and easier to record.

Expandor - Gains audio signals that are above a settable level, in order to add more kick to sounds.

PitchShaper 2 - This is a dual input PitchShaper. The pitch of the signal applied to input 1, is pitch matched to the signal applied to input 2. When changing the pitch of the pitch matched signal, the waveform on the effect output will change, still matched to the pitch of input 2.
It is also possible for the signal applied to input 1, to affect the output pitch, by turning the Vari parameter up.
The output from the digital filters, on the drum part this effect is placed on, applies the signal to be re-pitched. Oscillator2 (or Oscillator D) applies the signal to be pitch matched to.

Delay 1 – Delay with time and feedback controls, plus Gotharman's Deep and Xfade controls. Deep adds space to the delay. 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 – 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.

Variator – Creates new variations of the input signal. Both pitch and rhythmic variations.

Time Stretch - This effect is able to change the length of the input signal, almost without changing the pitch. Old fashioned time stretch done in realtime, that can be applied even to live input signals! It is also possible to change the pitch if desired, and it is possible to trigger this effect, for bigger precision.

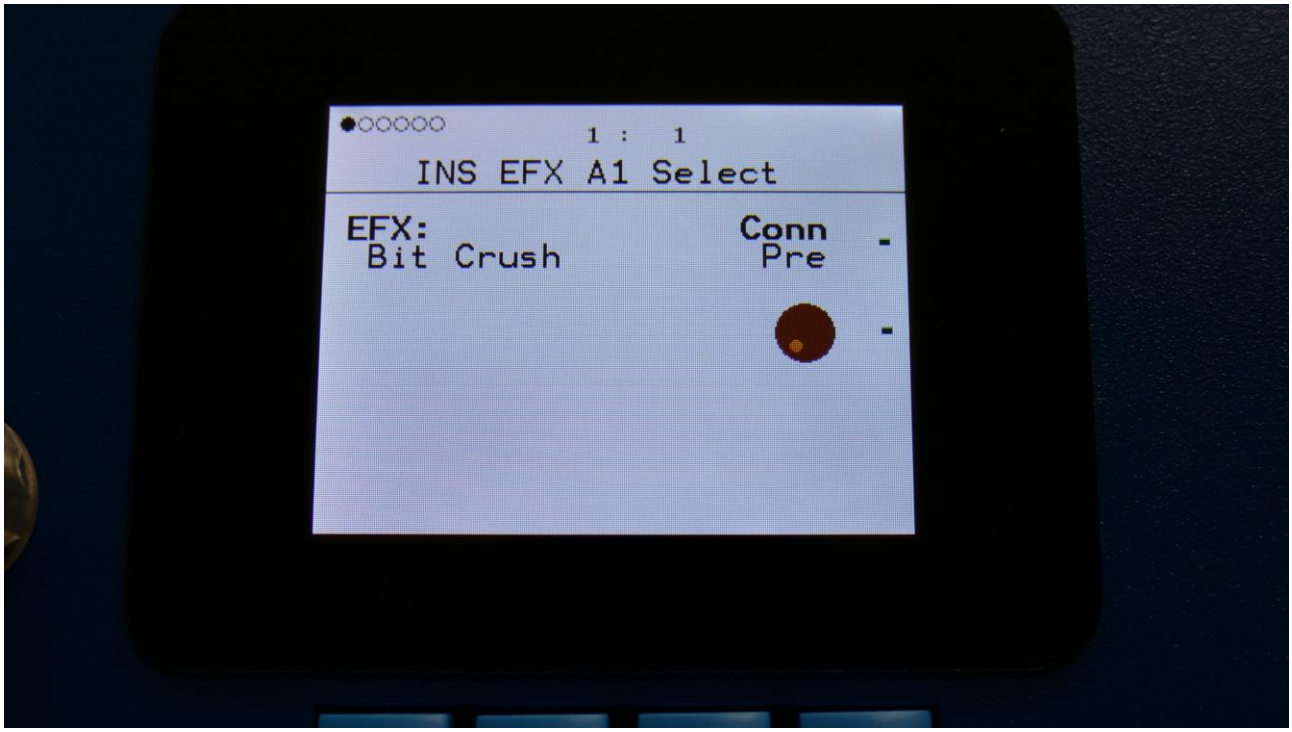
Sample Pitch - Changes the pitch of a sampling, without changing the length, using granular technology. It is possible to set the size of each pitch grain, to generate great granular effects. This effect has to be triggered from any of the parts, in order to function properly. It will work on external signals, but it still needs to be triggered by a part.

Bass Enhancer - Enhances the bass area of the sounds, that goes through it, and adds some boom to these.

EQ – A parametric EQ with different characteristics.

Insert effects Select page

The first page of the insert effect modules:



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

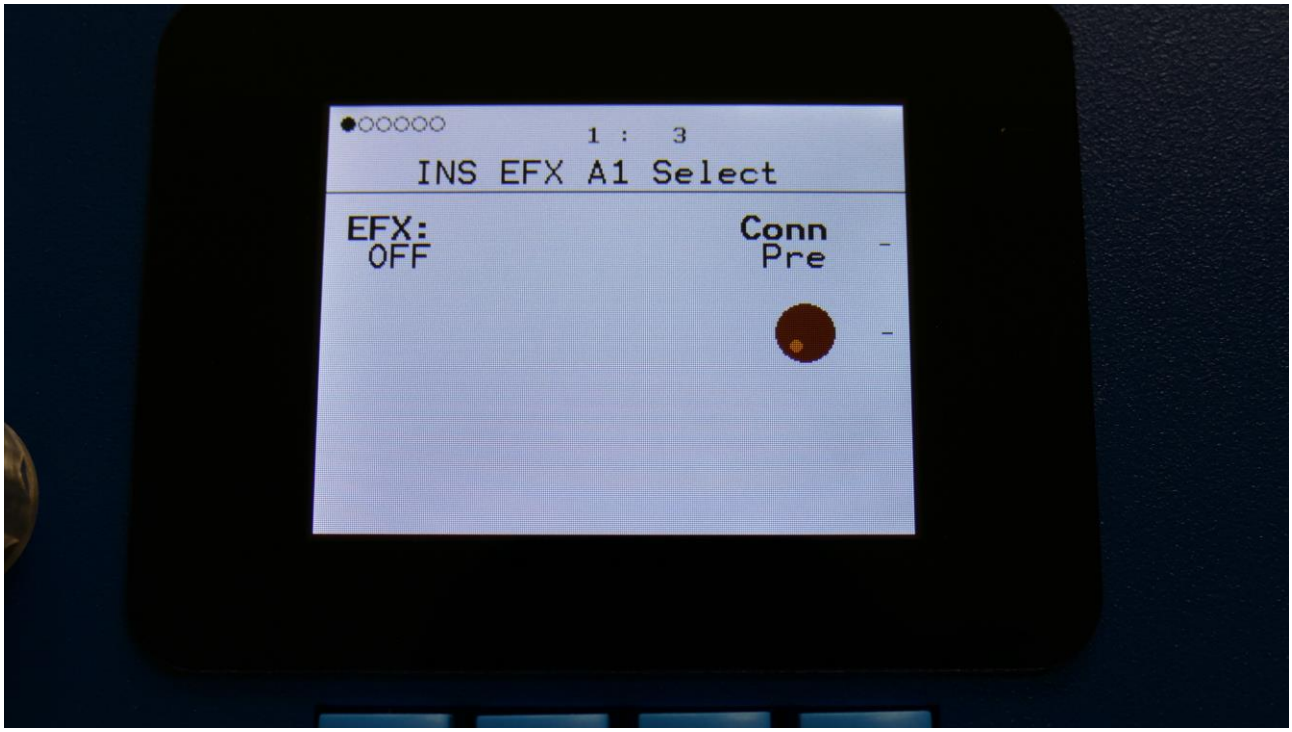
EFX: Selects the effect. Please see the List Of Insert Effects in the beginning of this section.

Conn: Connection. Sets if the insert effect should be placed pre or post to the VCA.

Push the < and > buttons to access the other pages of the effect modules.

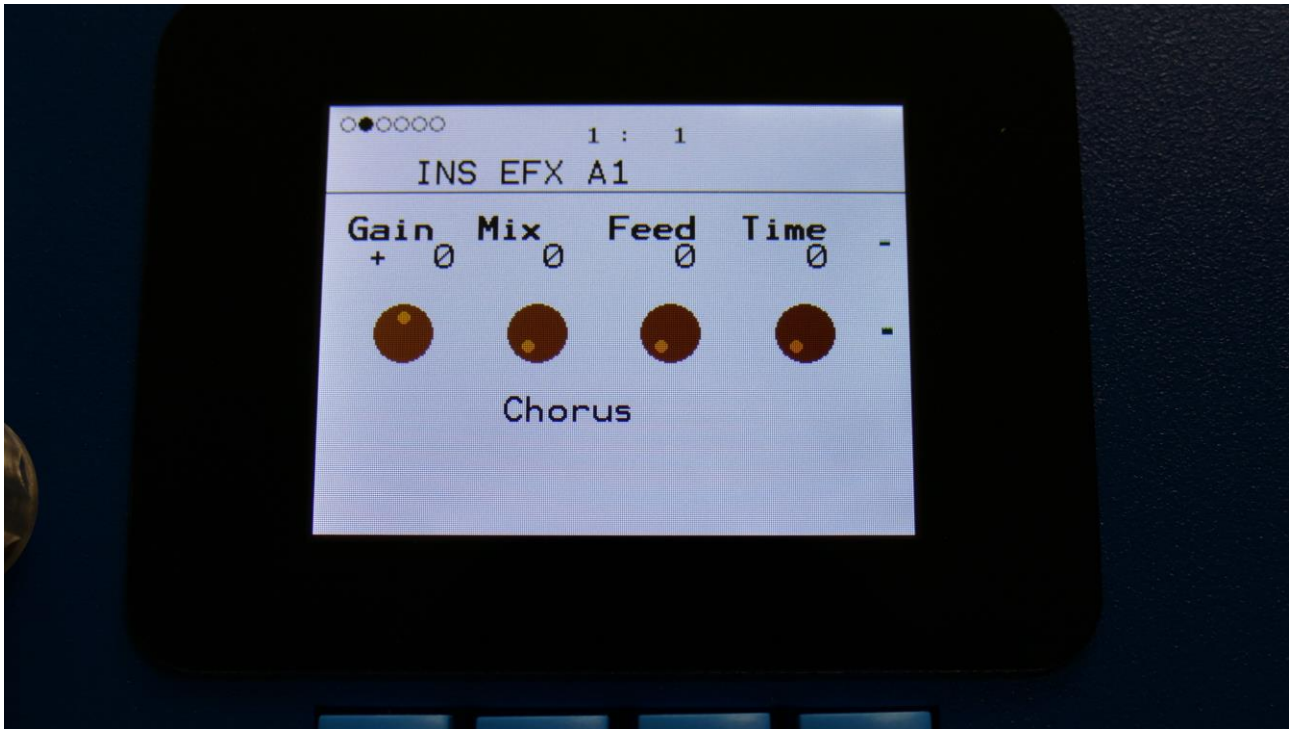
Insert Effects Parameters

OFF



The insert effect is switched off. There are no parameters to adjust.

Chorus



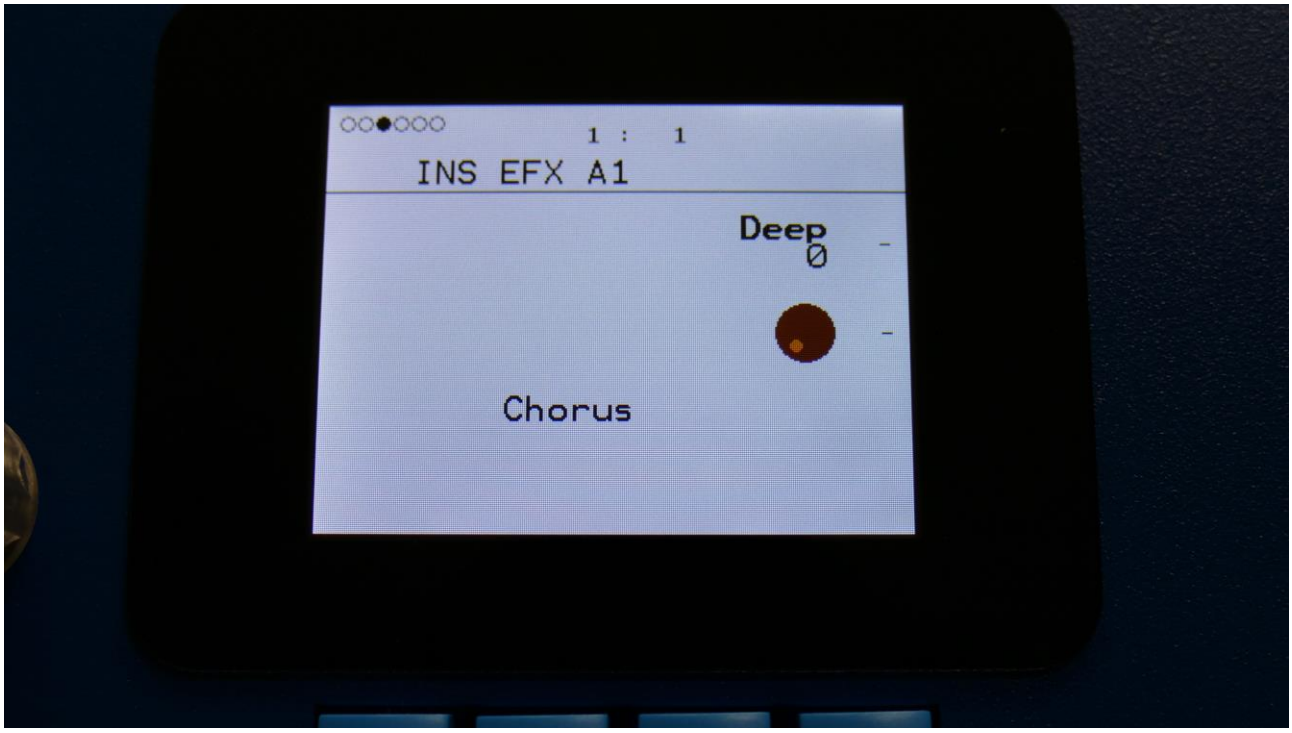
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

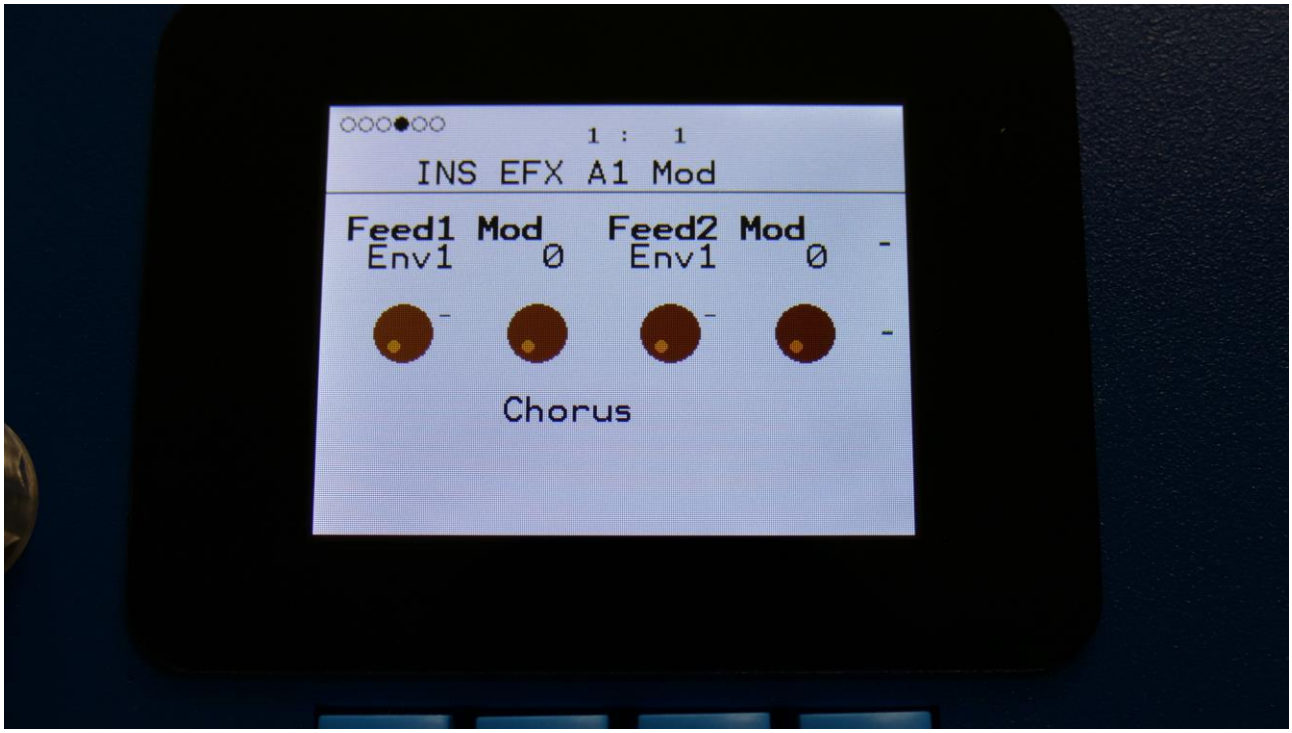
Feed: Chorus feedback amount.

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



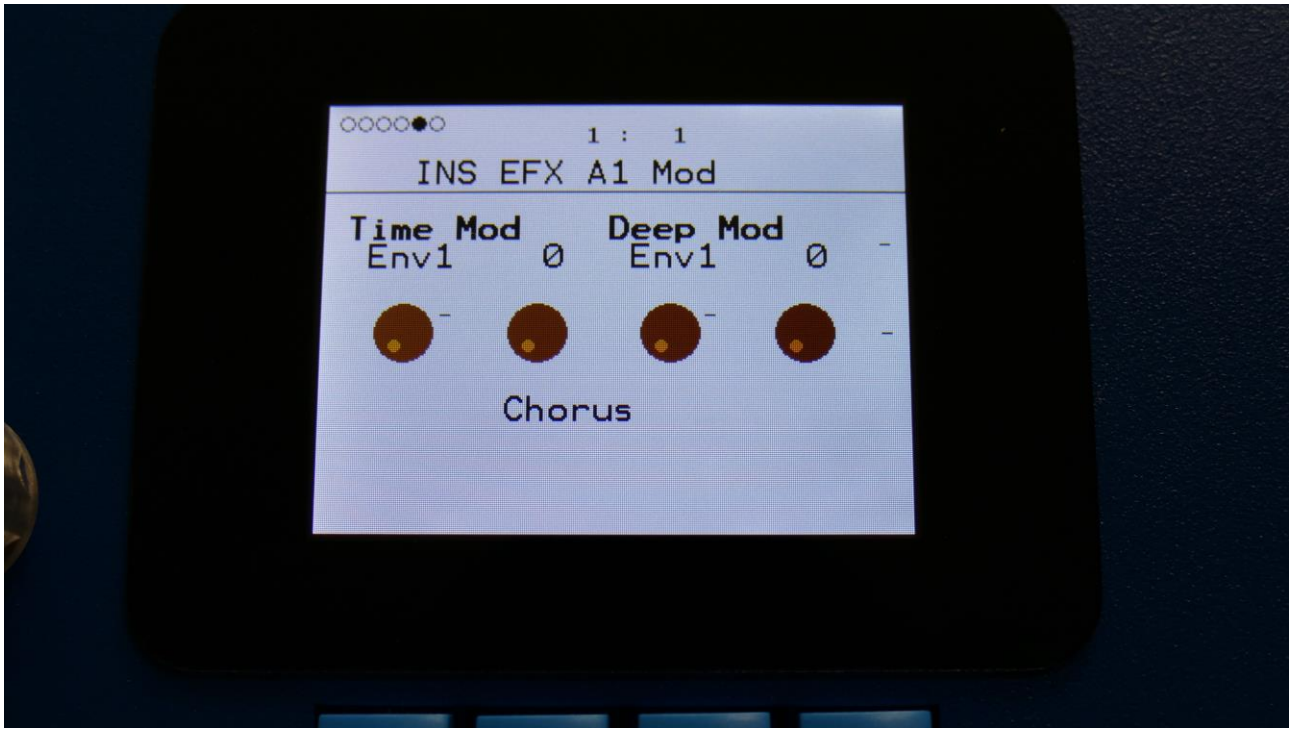
Deep: Adjusts how deep the chorus box should be. A Gotharman special.

Chorus Modulation



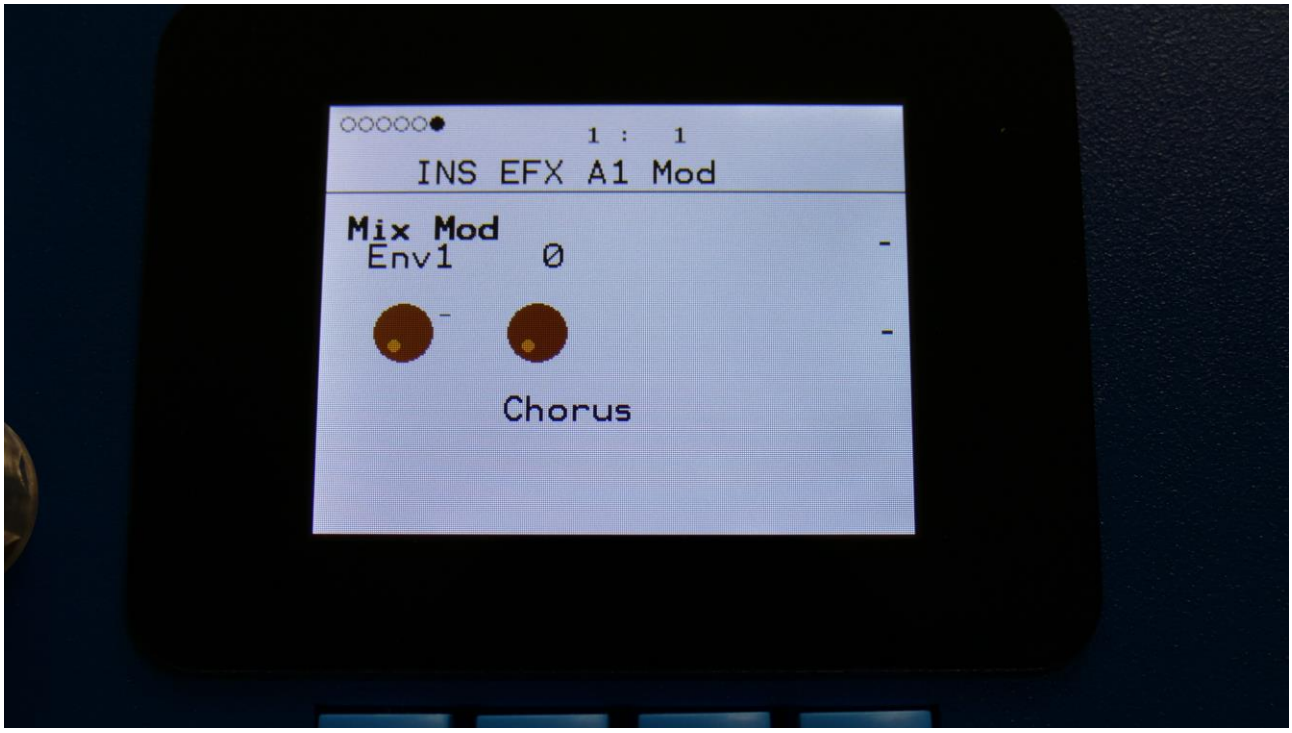
Feed1 Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed2 Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



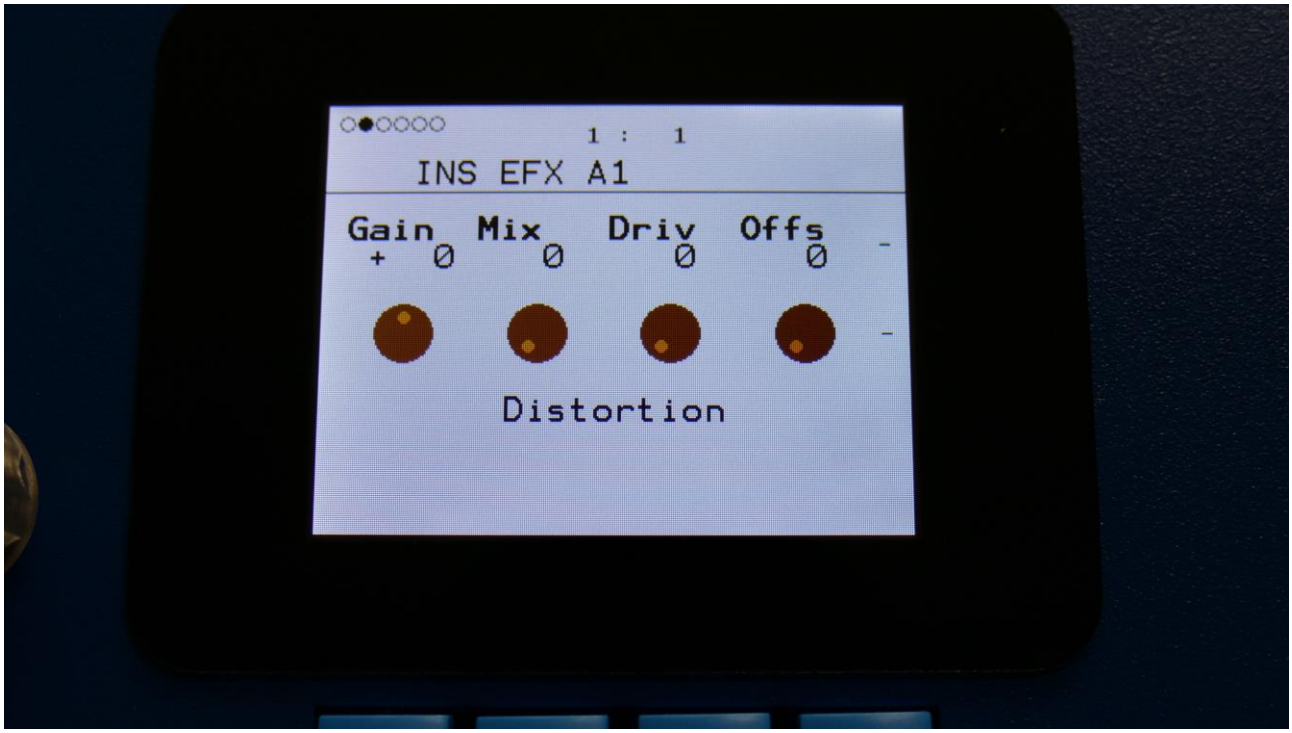
Time Mod: Select a modulation source and adjust the amount of modulation for the Time parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Deep Mod: Select a modulation source and adjust the amount of modulation for the Deep parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Distortion



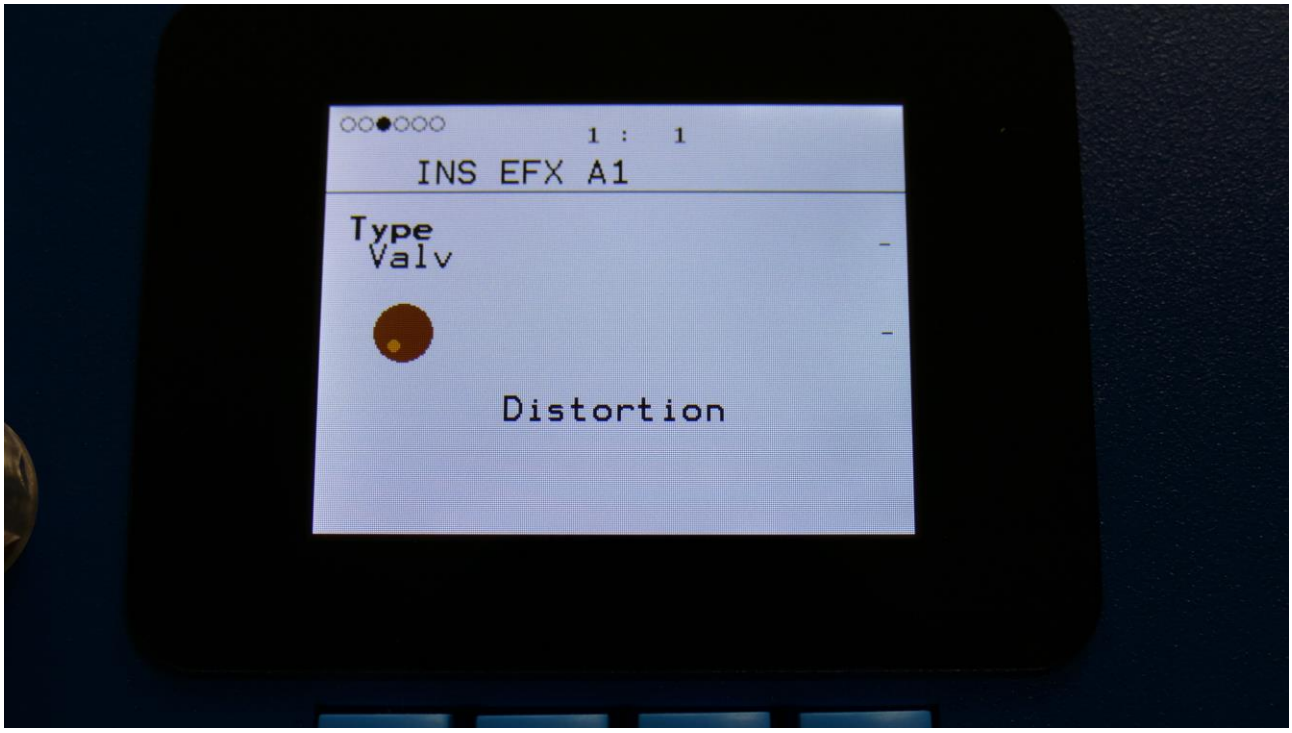
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

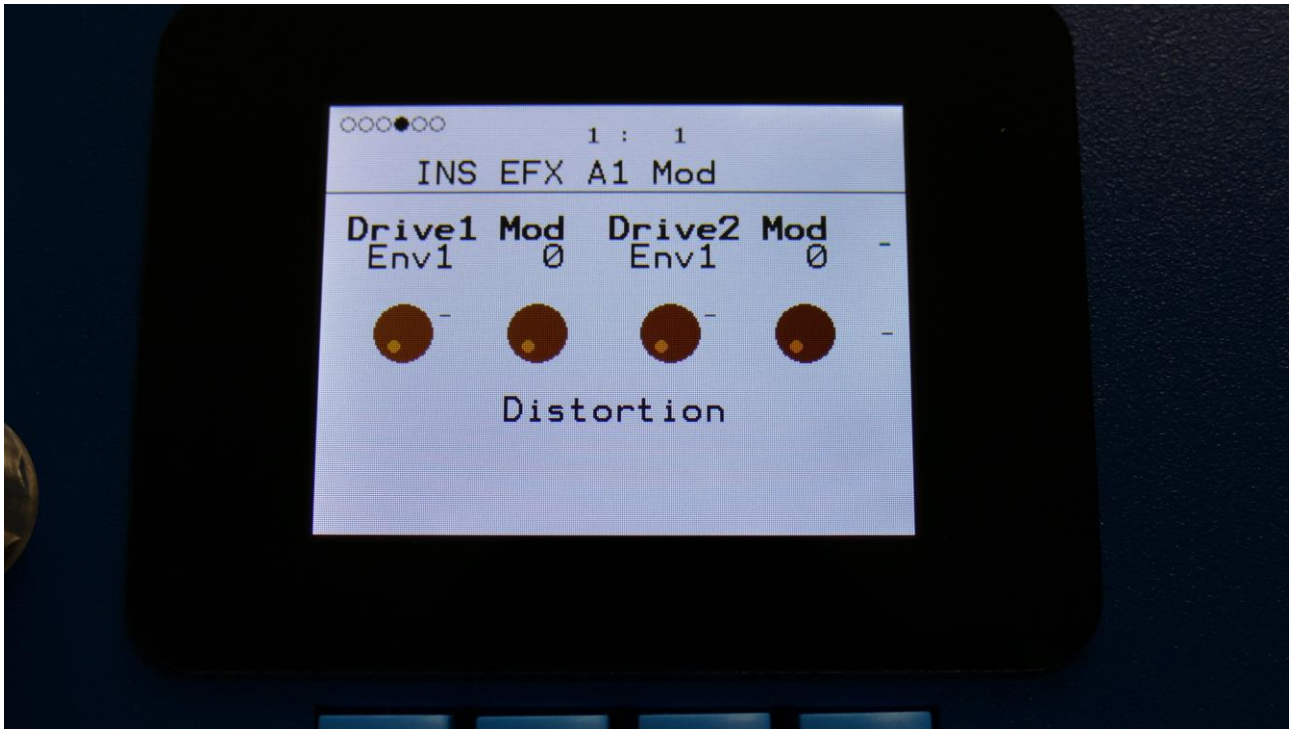
Drive: The higher the value, the more the sound will distort. If this is set to zero, no sound will pass through the distortion.

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



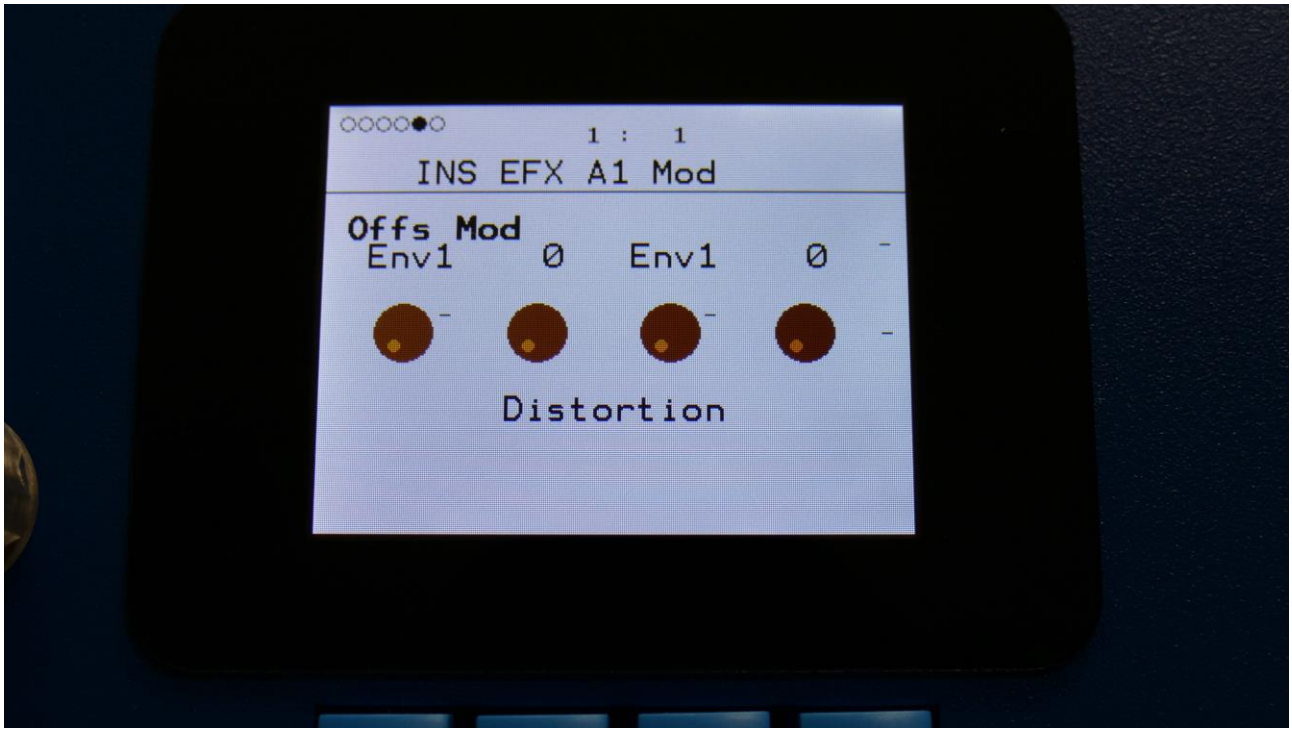
Type: Distortion type. Choices are:
-Valv: A digital simulation of a classic valve distortion.
-Sine: A noisy and warm sine shaping distortion.
-Fuzz: Simulates a classic fuzz distortion.
-Xdis: Complete destruction of the sound.
-Asym: Asymmetrical distortion.

Distortion Modulation

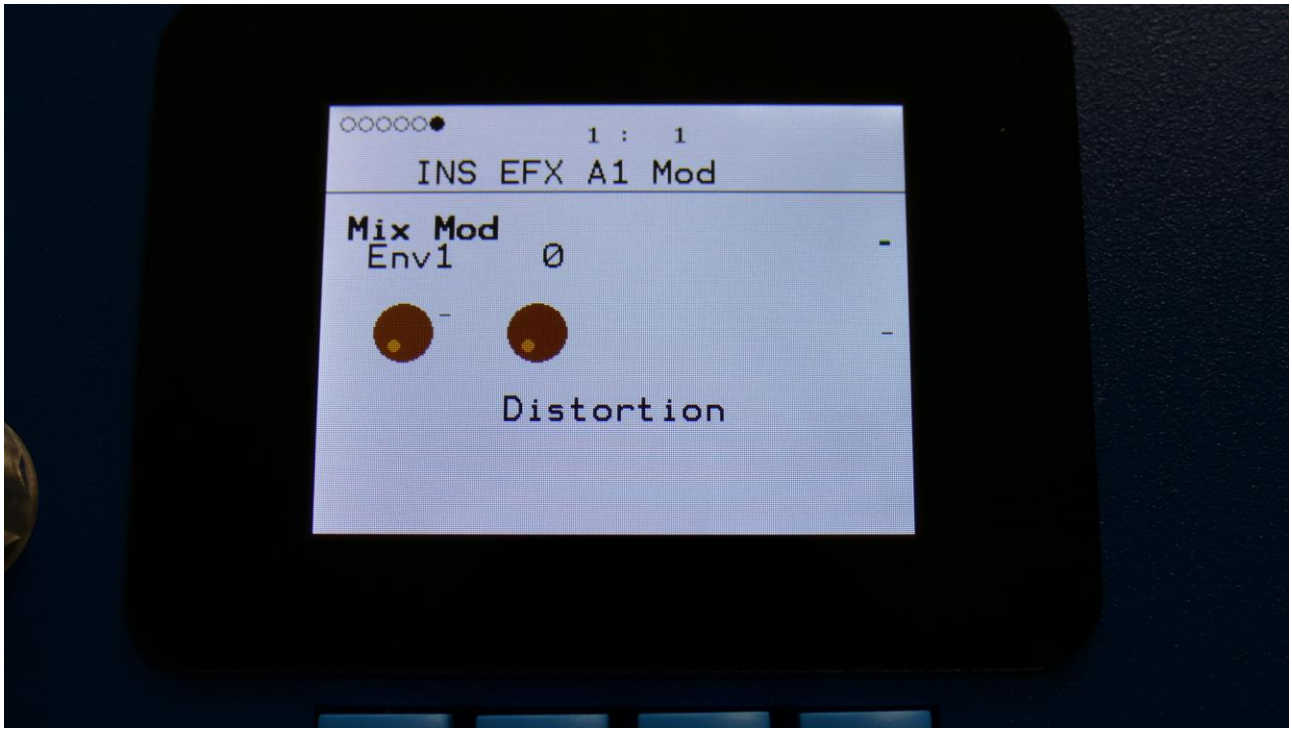


Drive1 Mod: Select a modulation source and adjust the amount of modulation for the Drive parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Drive2 Mod: Select a modulation source and adjust the amount of modulation for the Drive parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

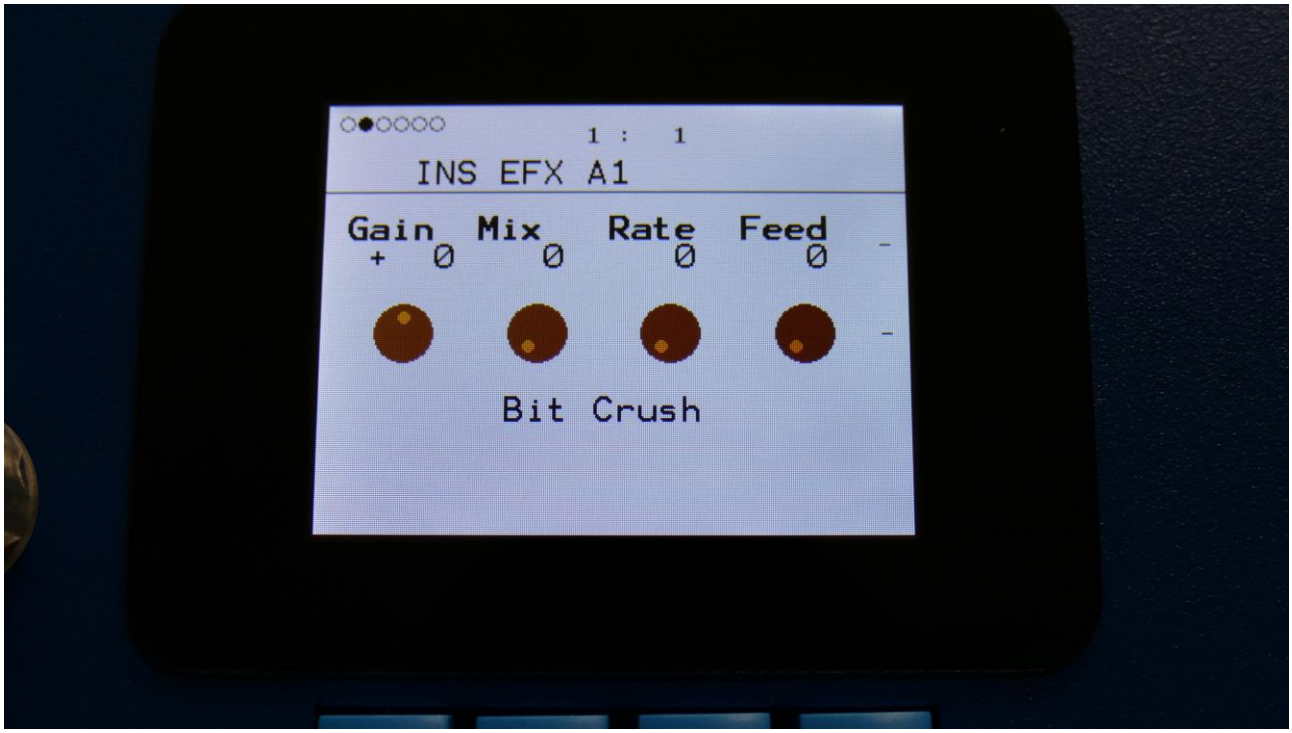


Offs Mod: Select a modulation source and adjust the amount of modulation for the Offs parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Bit Crush



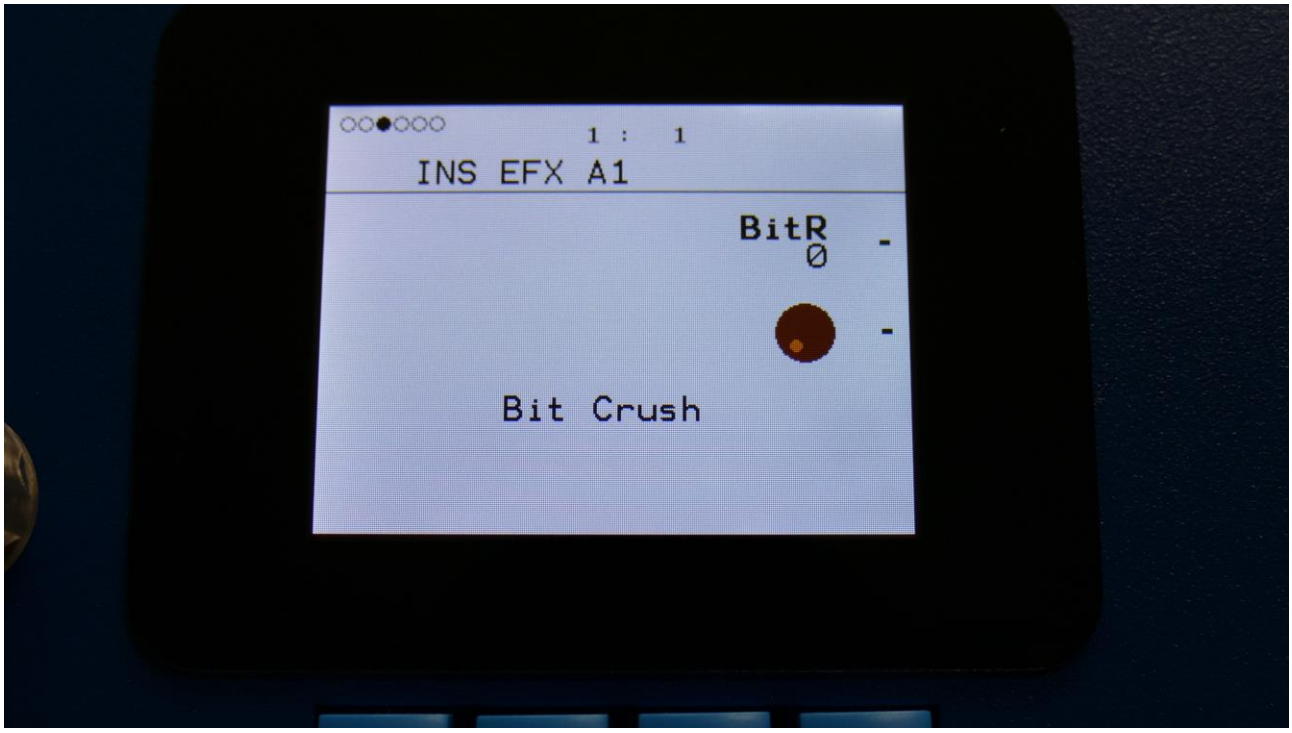
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

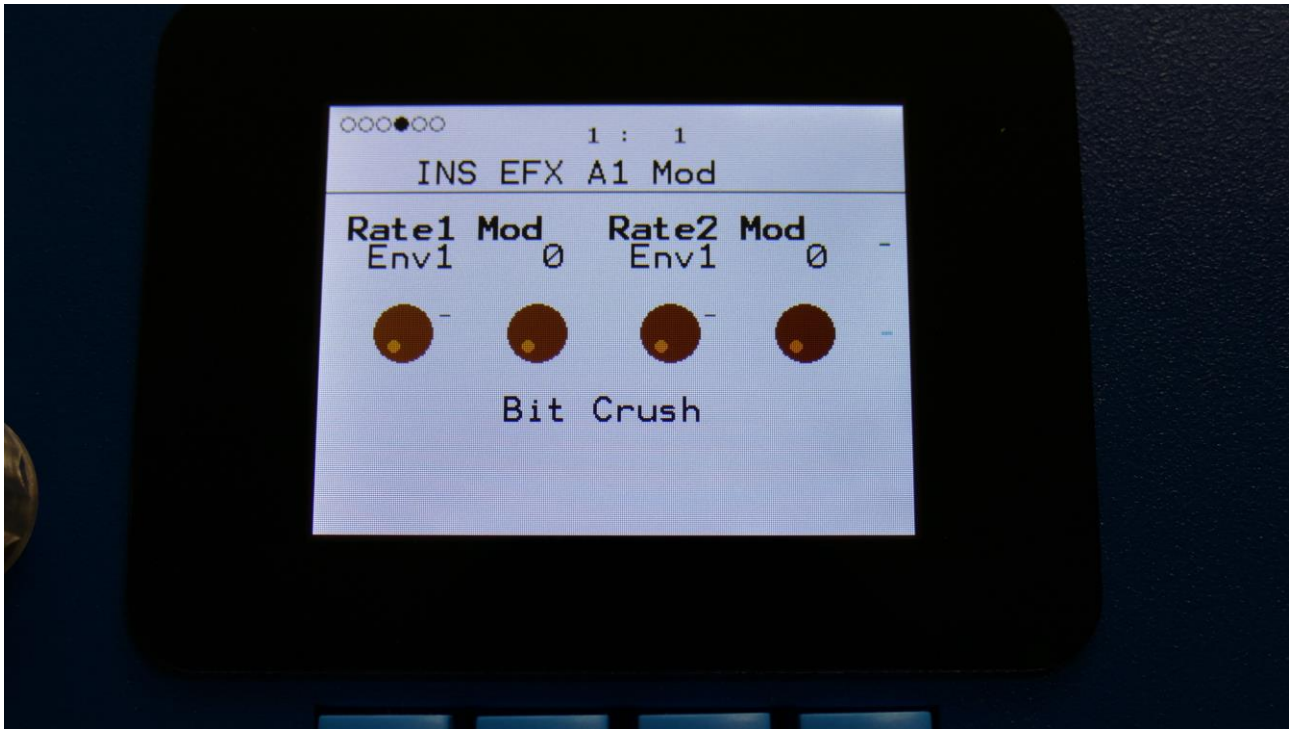
Rate: Sample Rate Reduction. The more this is turned up, the lower the sample rate will be. From 44.1 KHz to 1 KHz.

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



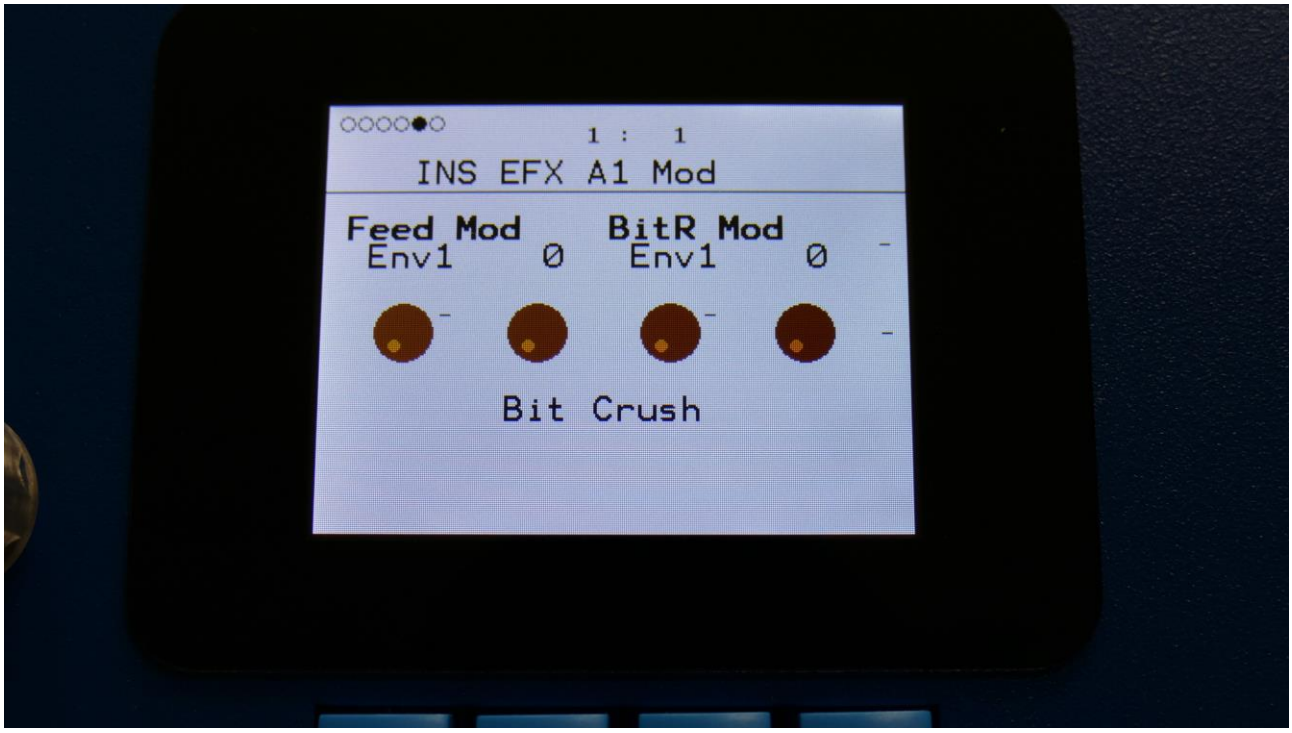
BitR: Bit Reduction. The more this is turned up, the lower the bit resolution will get. When it is turned fully down, resolution is 16 bit, when turned fully up, it is 1 bit.

Bit Crush Modulation



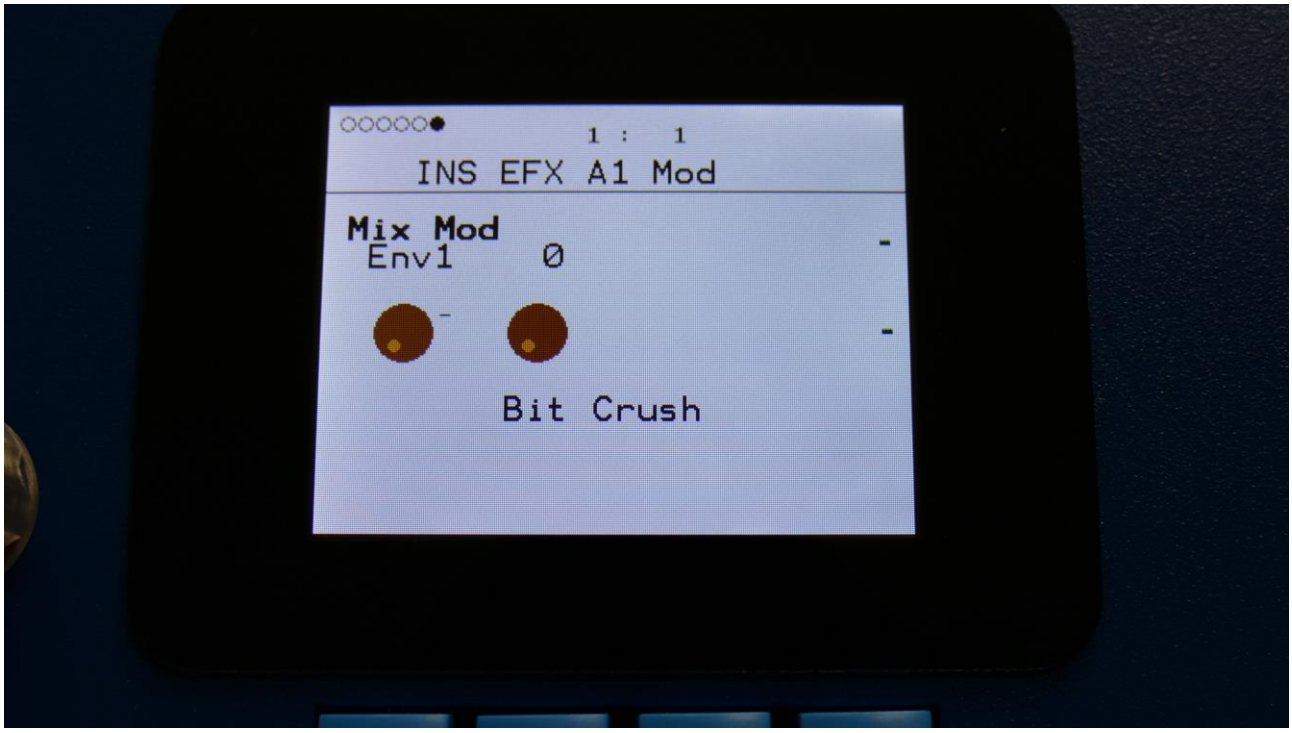
Rate1 Mod: Select a modulation source and adjust the amount of modulation for the Rate parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Rate2 Mod: Select a modulation source and adjust the amount of modulation for the Rate parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



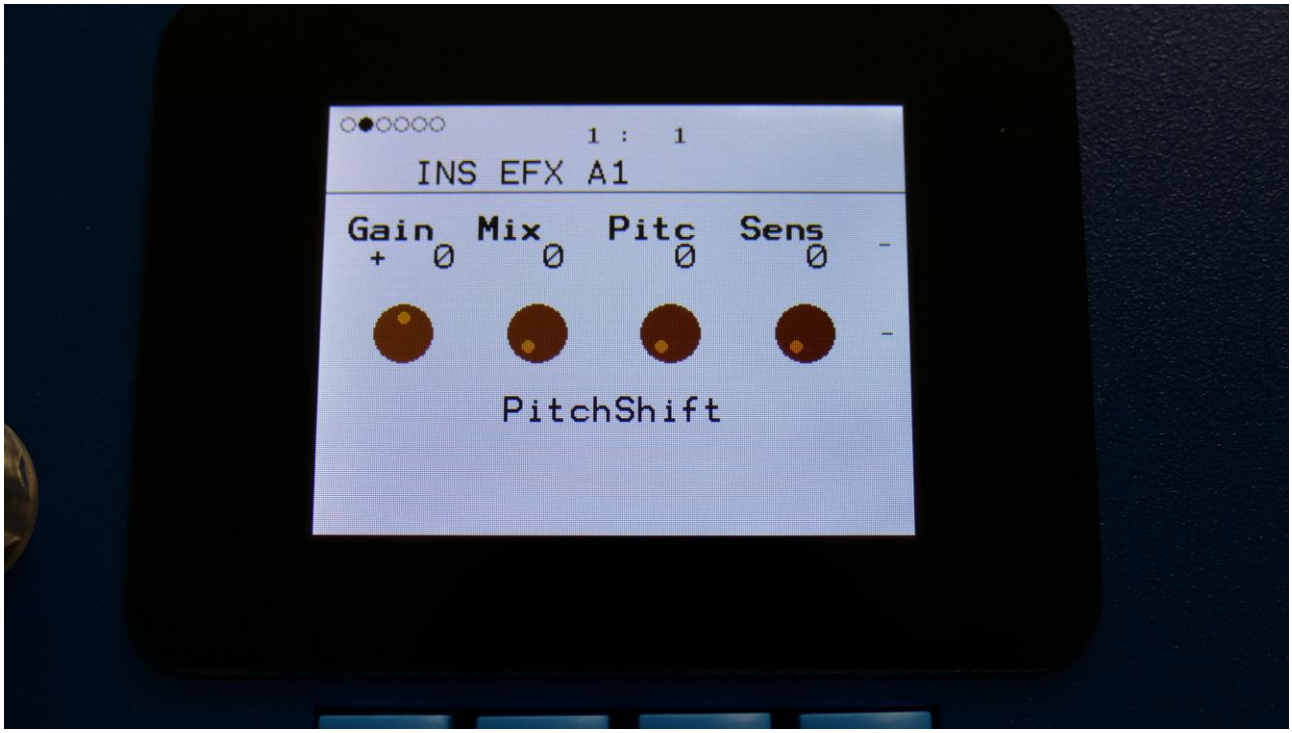
Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

BitR Mod: Select a modulation source and adjust the amount of modulation for the BitR parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pitch Shifter



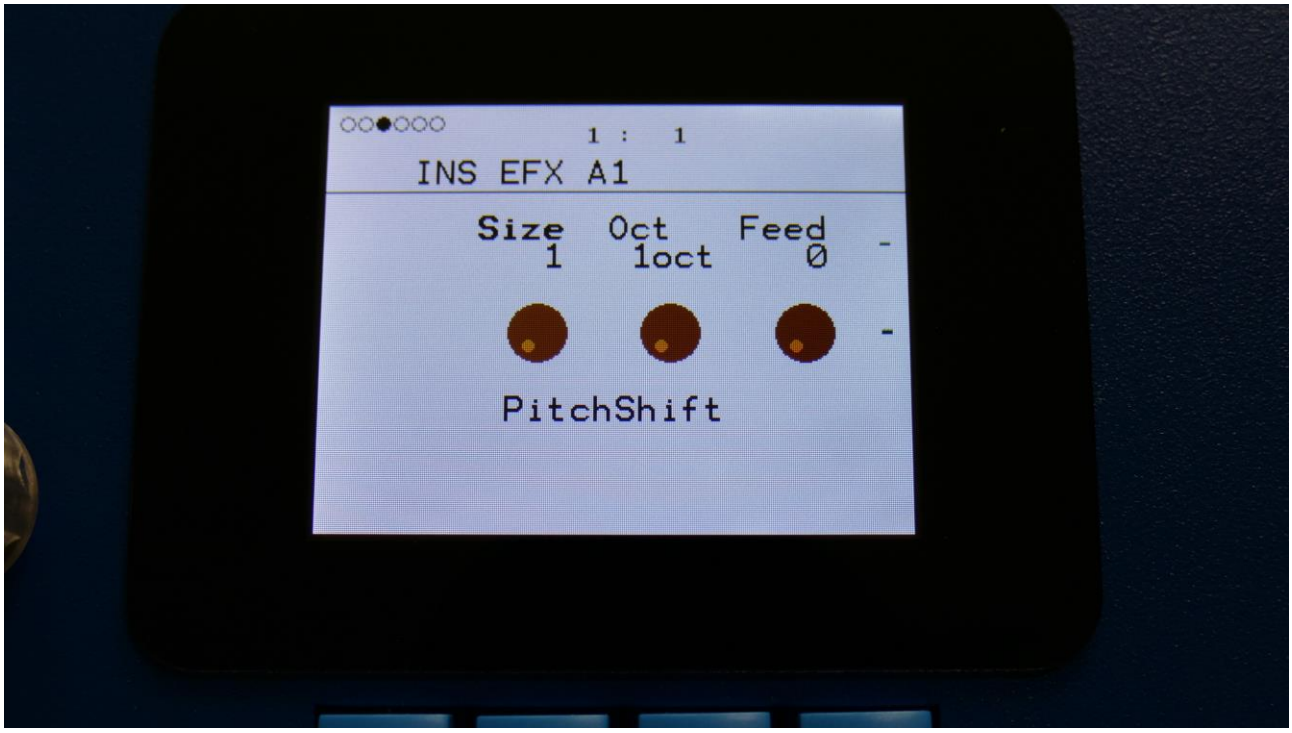
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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".

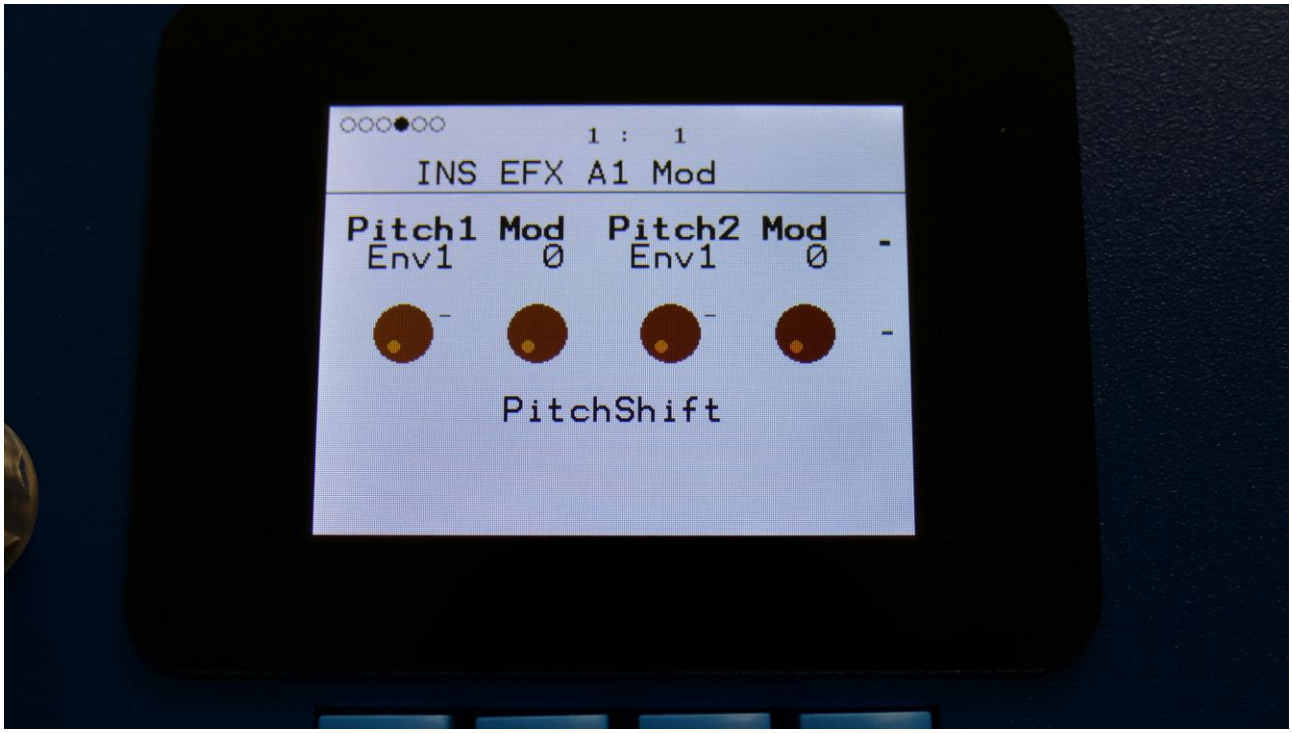


Size: 1 to 64. This sets the size of the buffer, used for the pitch shifting effect. When pitch shifting more complex sounds, it might make the pitch shifting more precise, when turning this parameter up a bit.

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

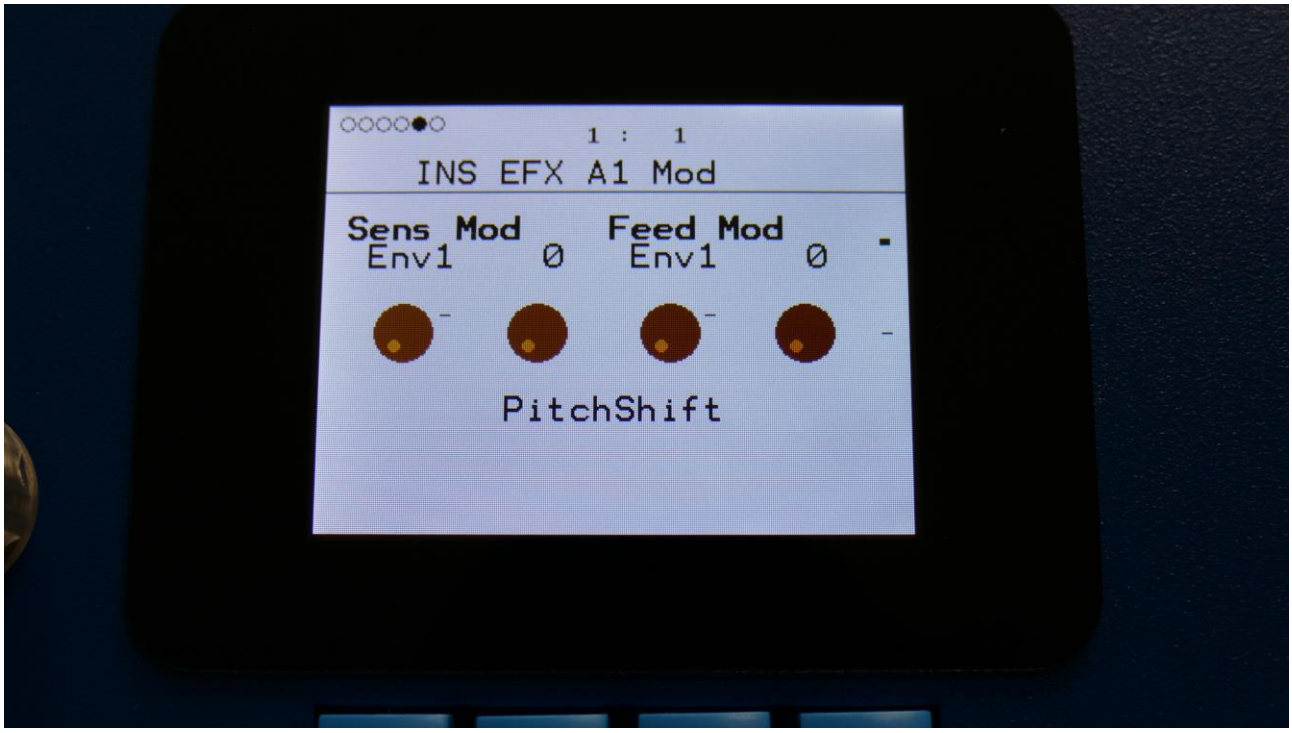
Feed: Pitch shifter feedback. Adjusts the portion of the output signal, that is fed back to the input.

Pitch Shifter Modulation



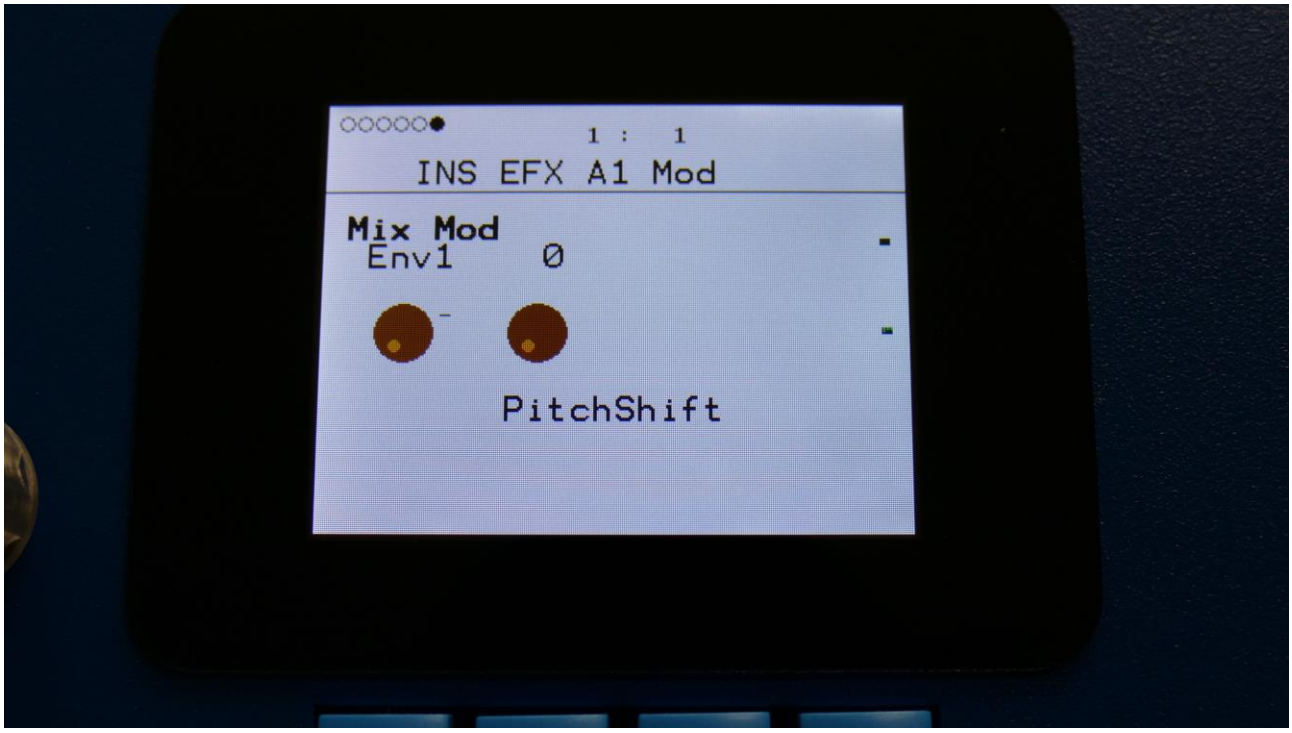
Pitch1 Mod: Select a modulation source and adjust the amount of modulation for the Pitc parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pitch2 Mod: Select a modulation source and adjust the amount of modulation for the Pitc parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



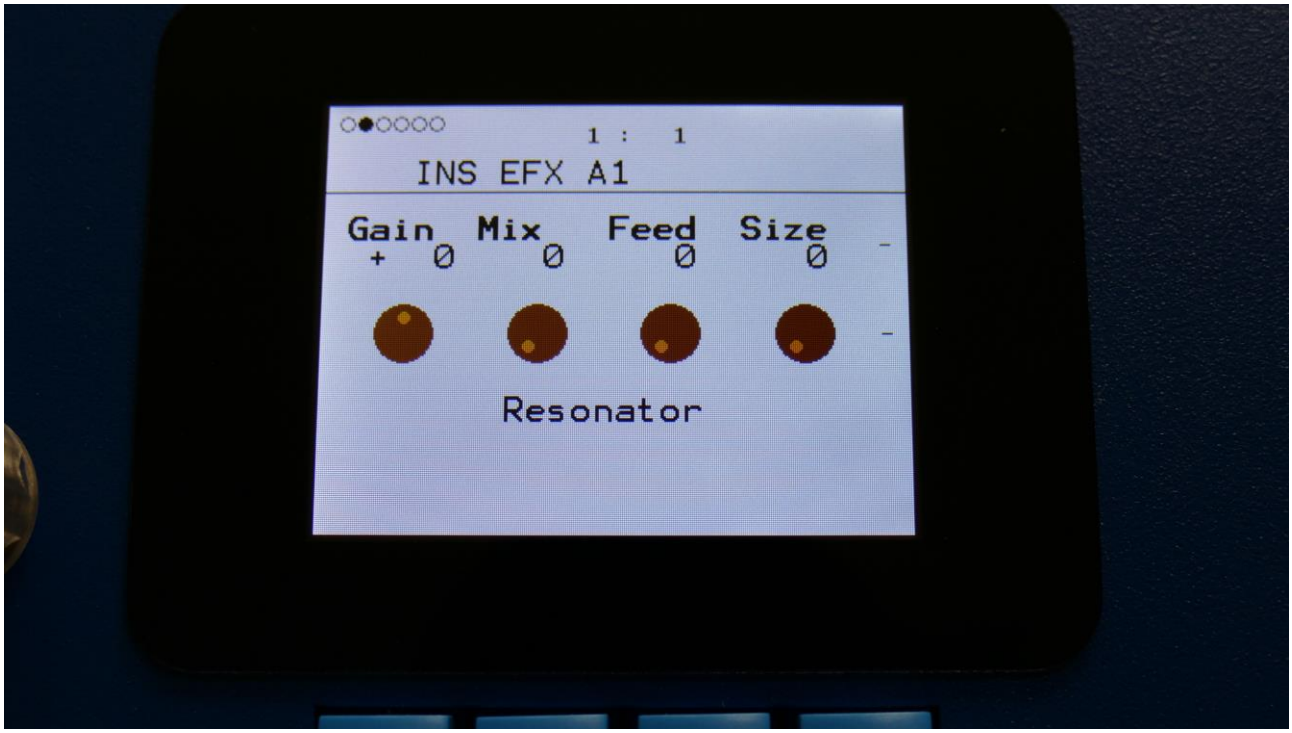
Sens Mod: Select a modulation source and adjust the amount of modulation for the Sens parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Resonator



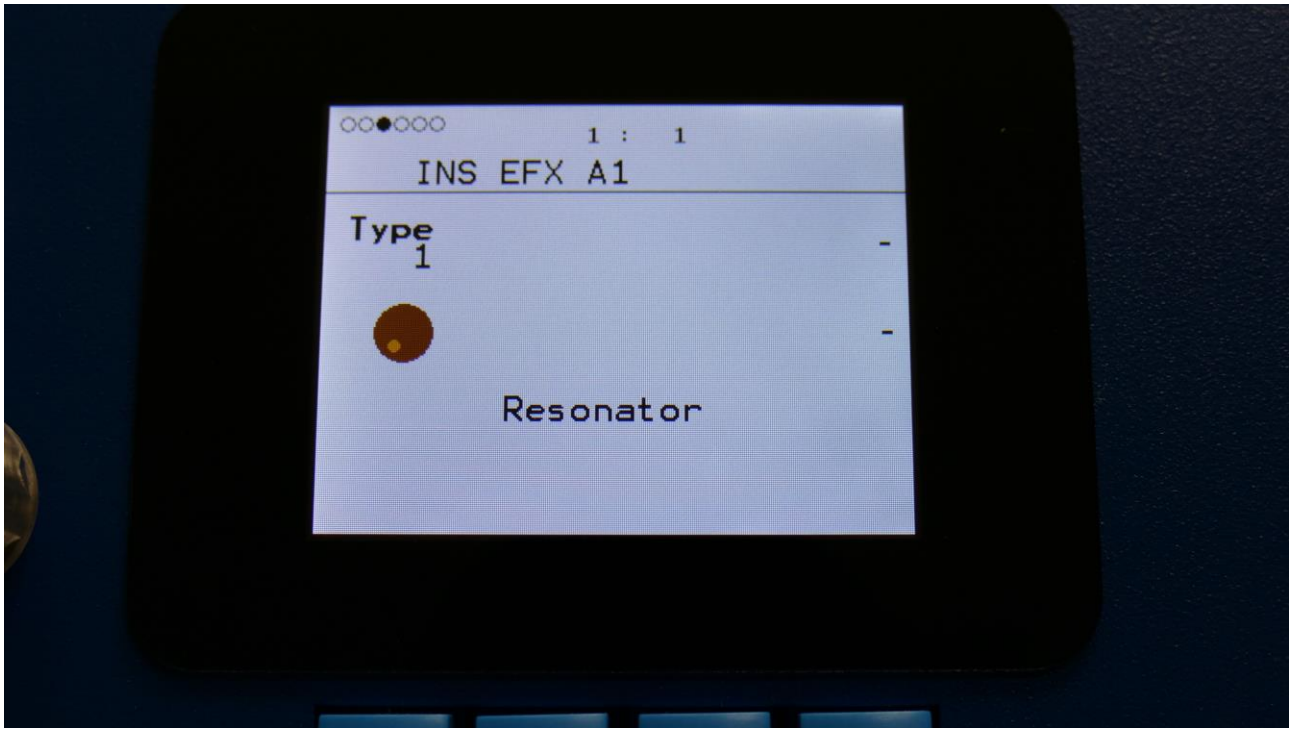
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

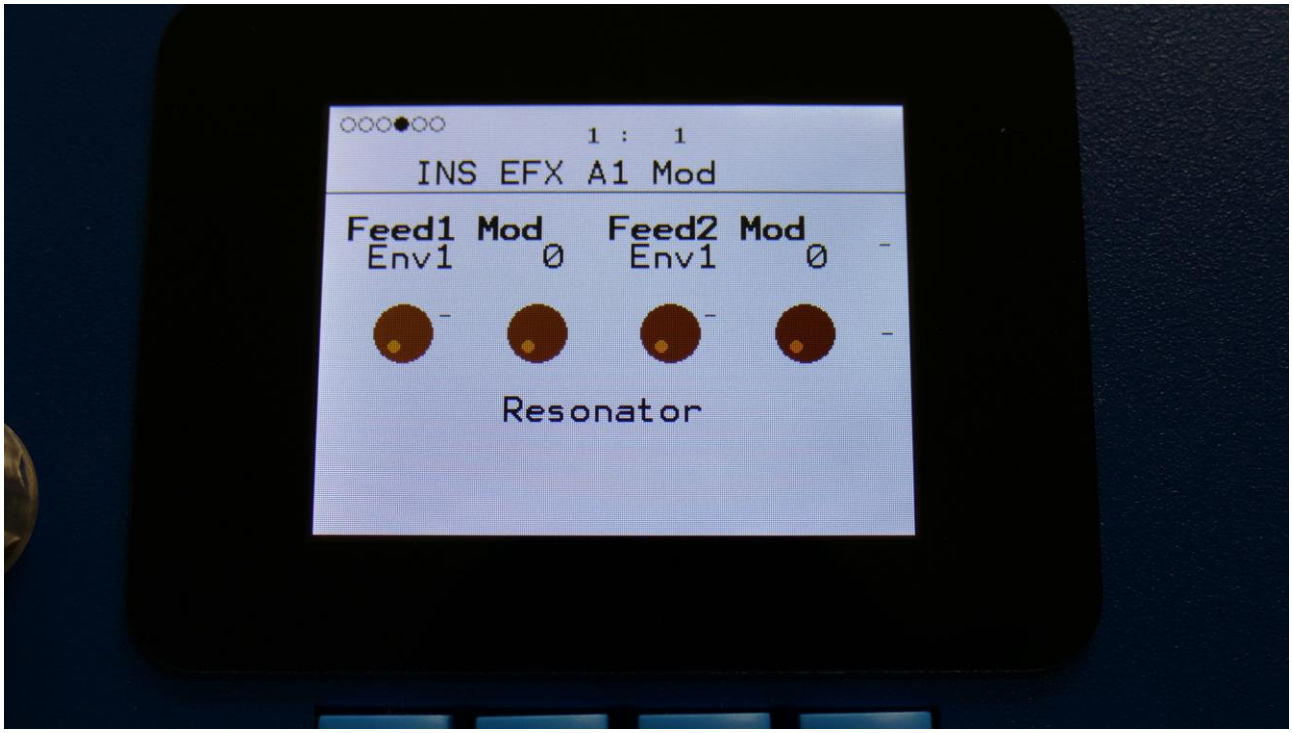
Feed: Resonator feedback. The more this is turned up, the more it will resonate.

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



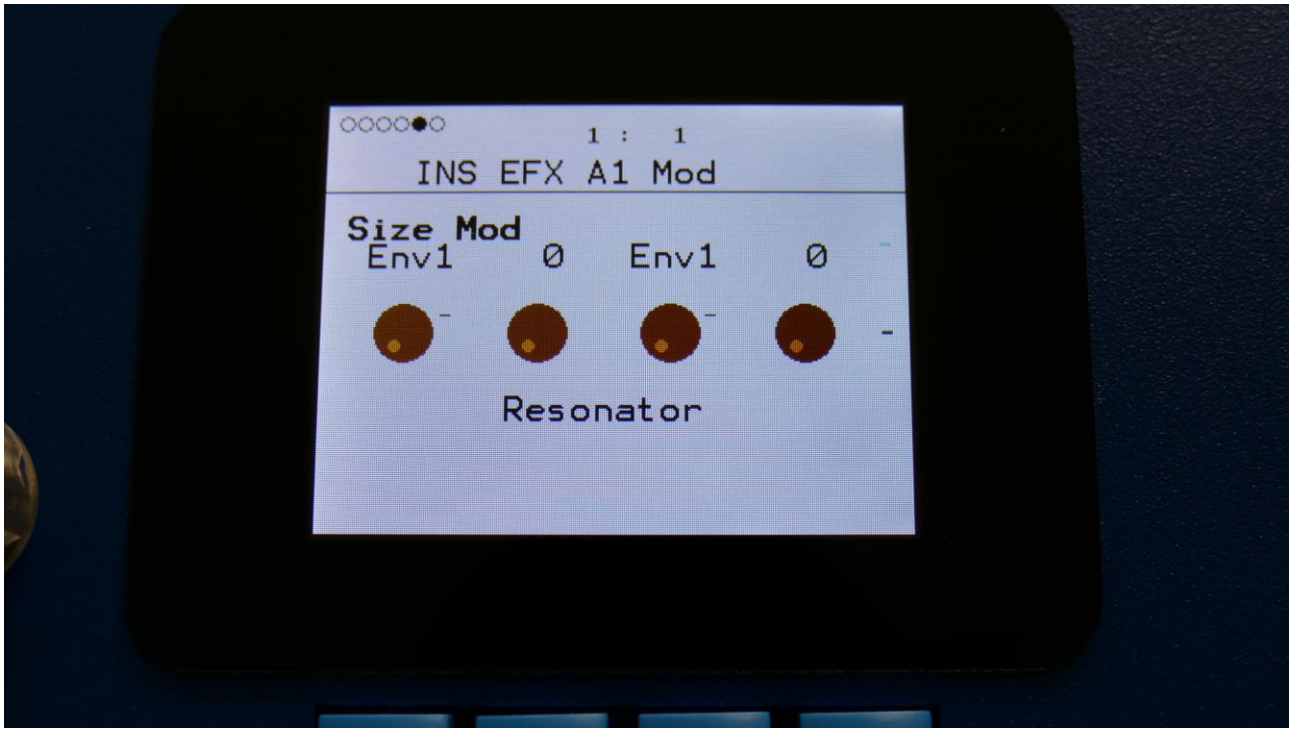
Type: 2 different resonator types are available.
Type 1 are a traditional resonator, based on the Karplus Strong algorithm.
The **Type 2** Resonator are a new type, that is based on generating the resonances, that are fed back, using real filtering.
The 2 types are quite different.

Resonator Modulation

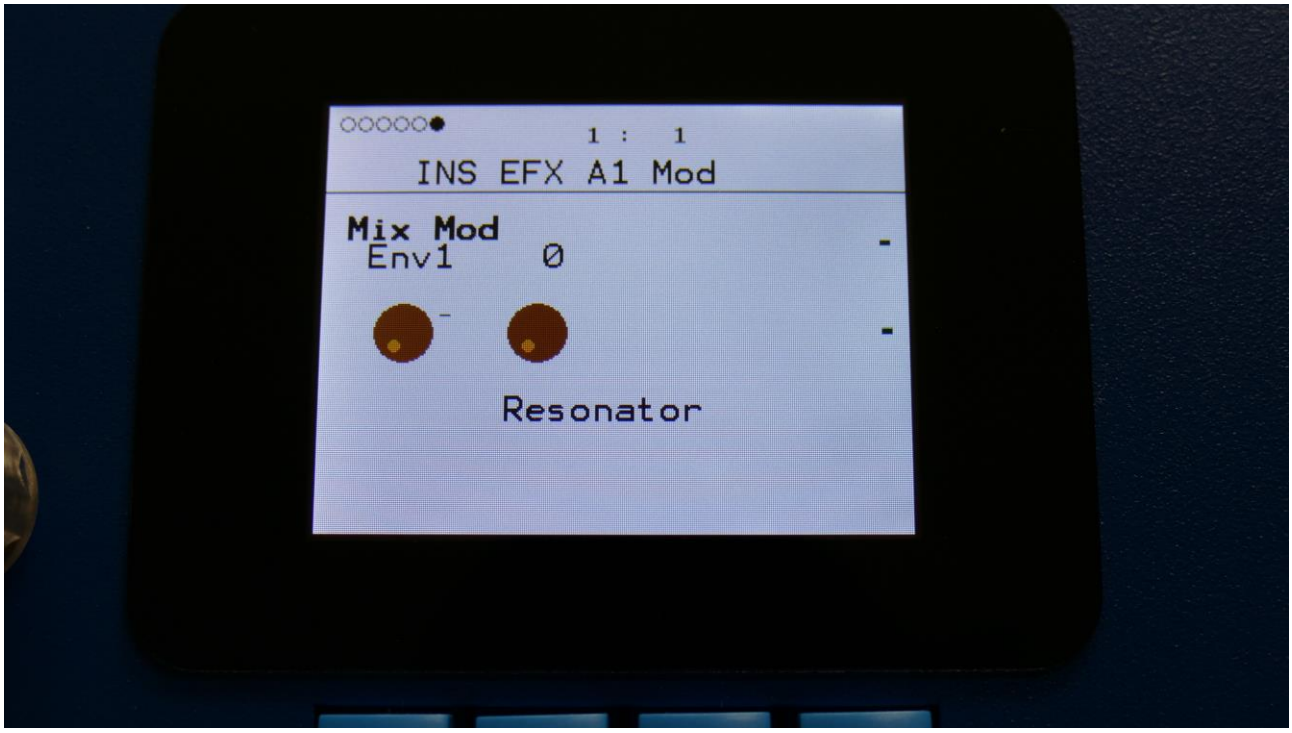


Feed1 Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed2 Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

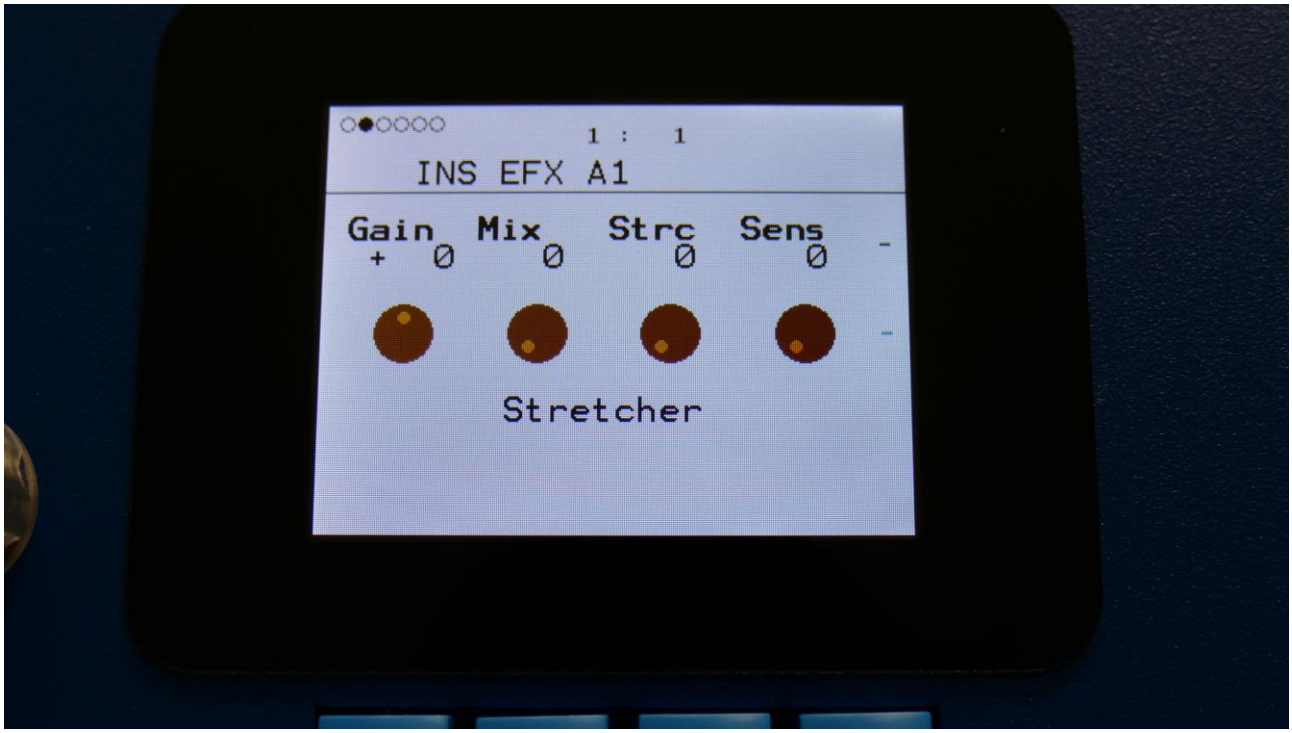


Size Mod: Select a modulation source and adjust the amount of modulation for the Size parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Stretcher



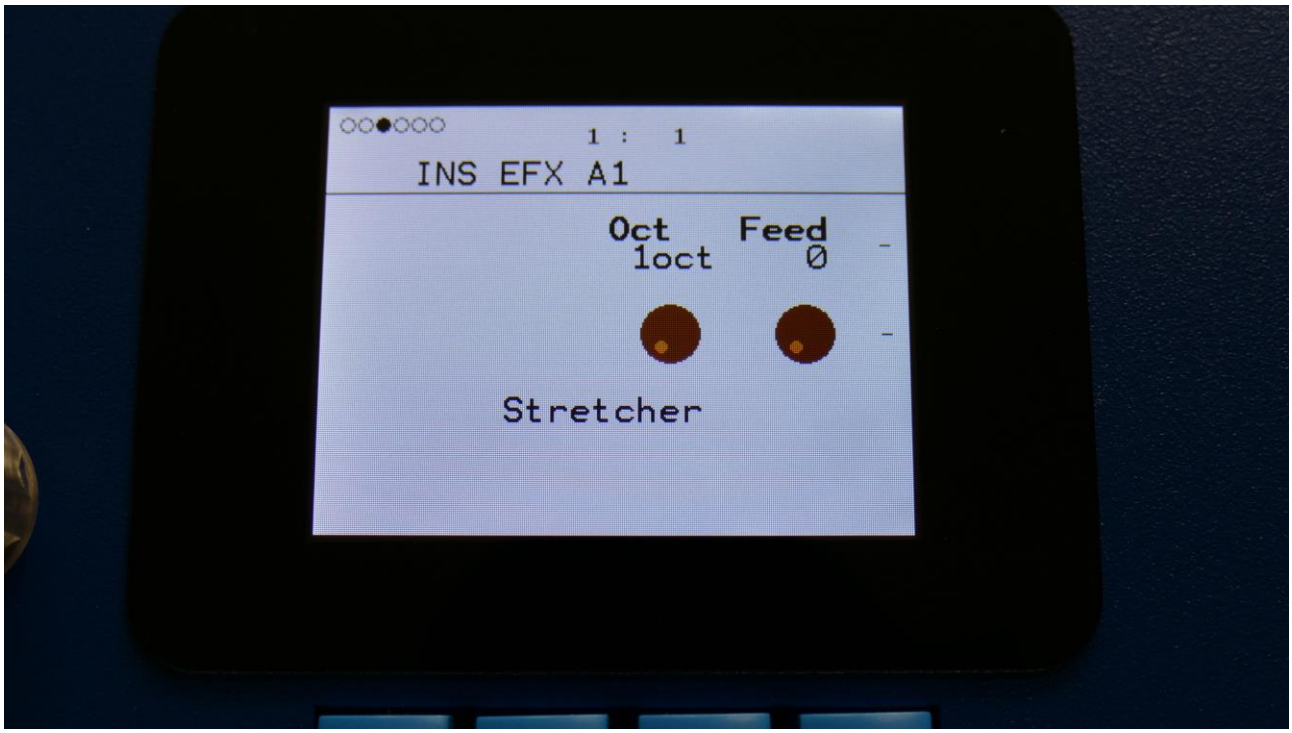
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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.

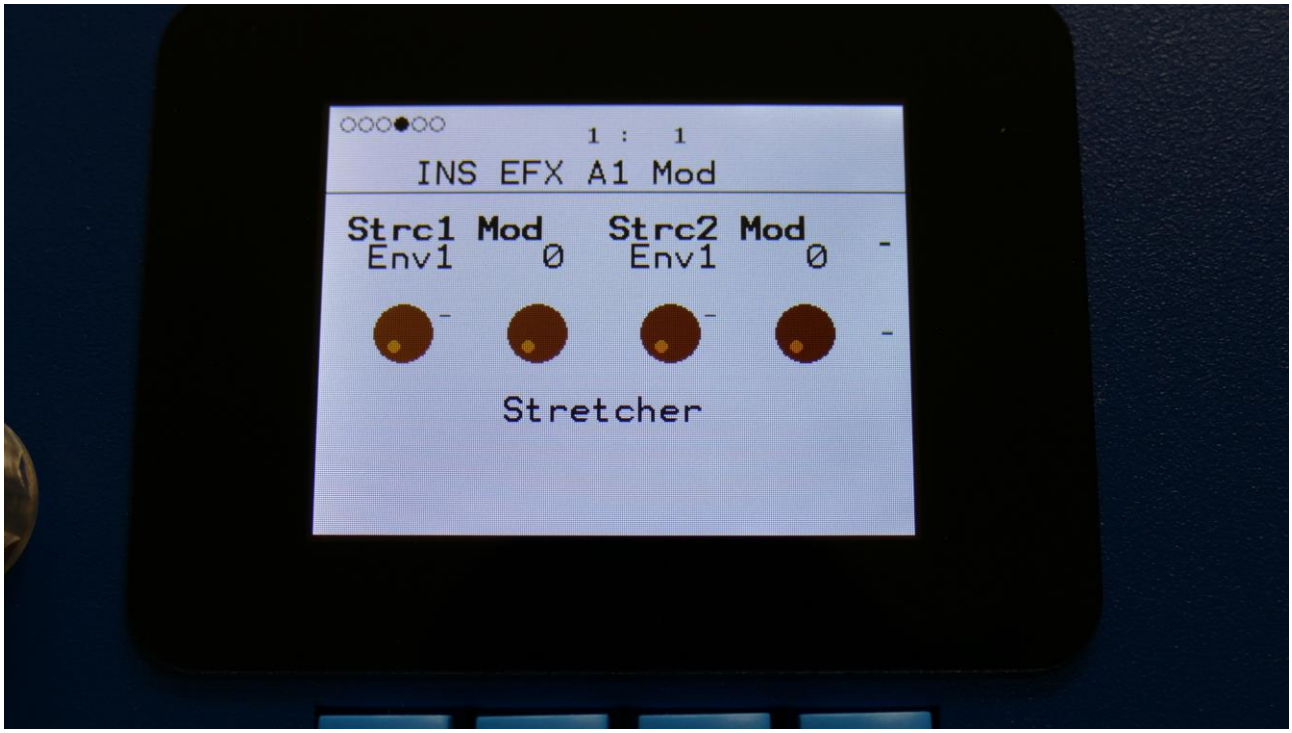
Sens: Stretch detection sense. At lower settings the sound will “wobble”, at higher settings it will “granulate”. Adjust this to obtain different effects.



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

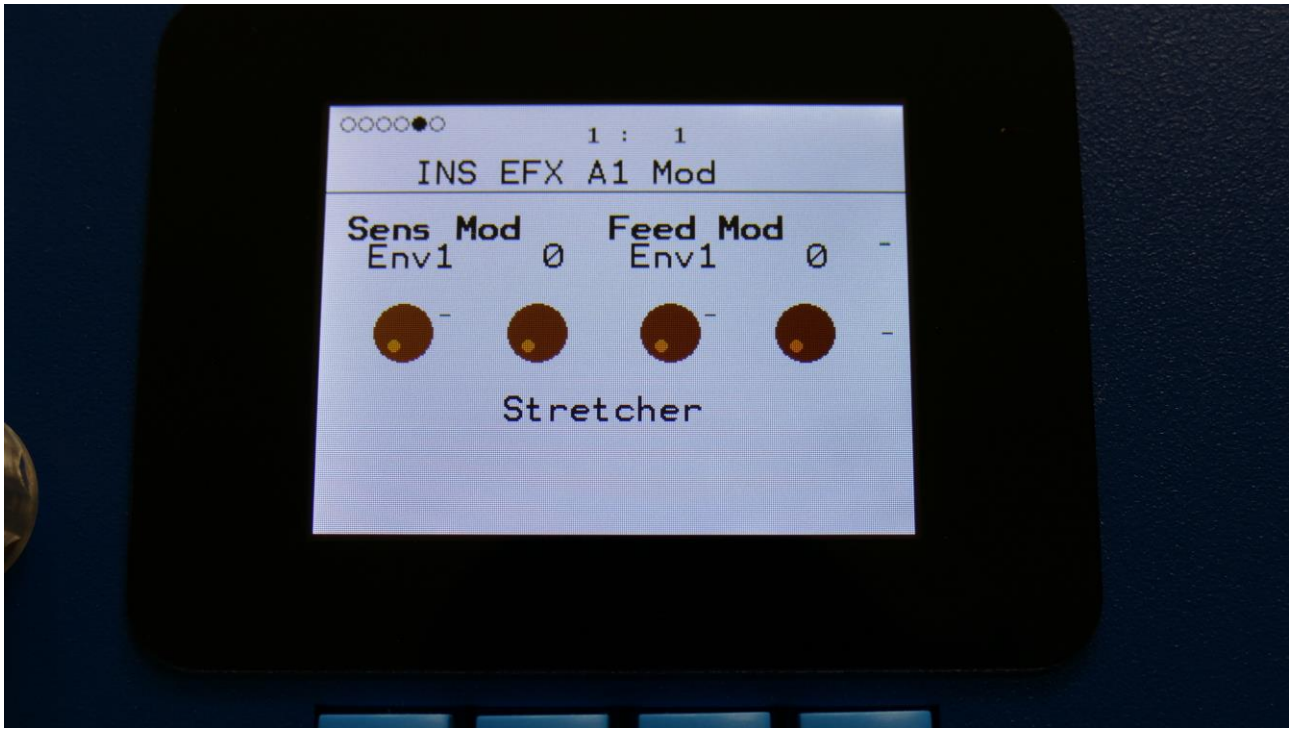
Feed: Stretcher feedback. Adjusts the portion of the output signal, that is fed back to the input.

Stretcher Modulation



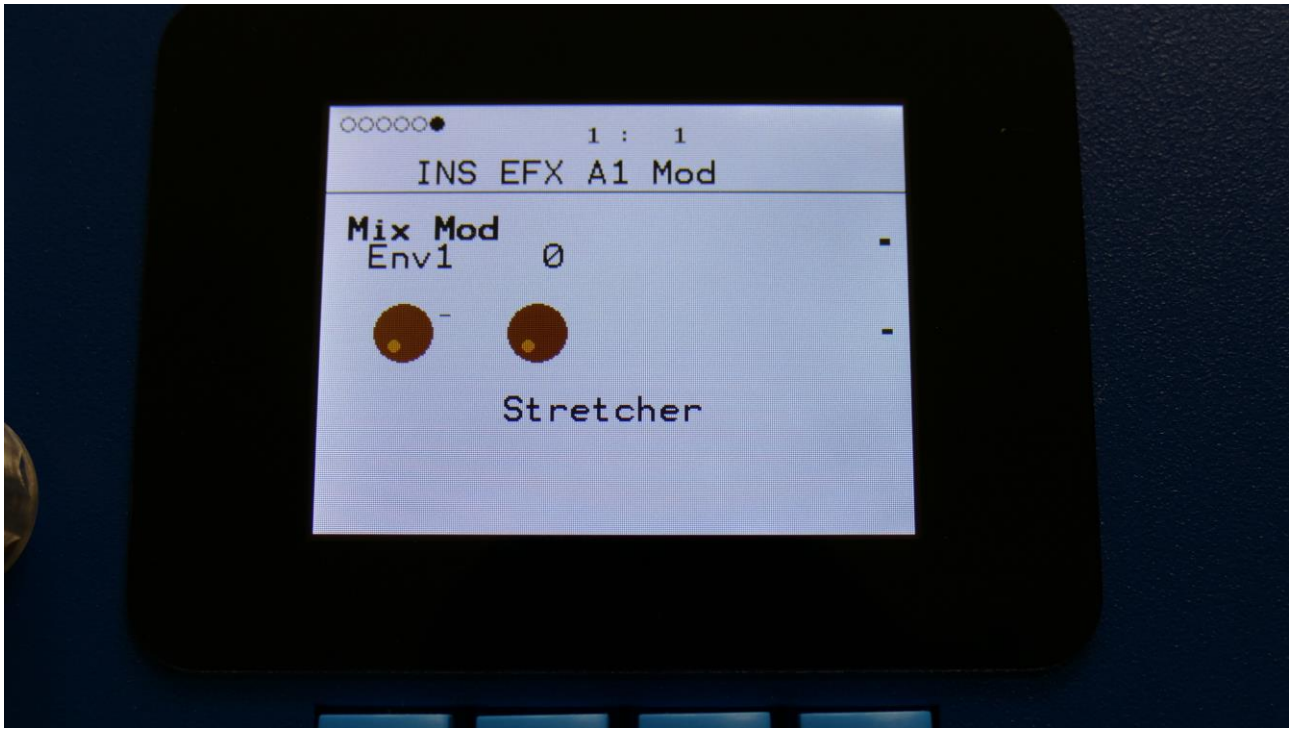
Strc1 Mod: Select a modulation source and adjust the amount of modulation for the Strc parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Strc2 Mod: Select a modulation source and adjust the amount of modulation for the Strc parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



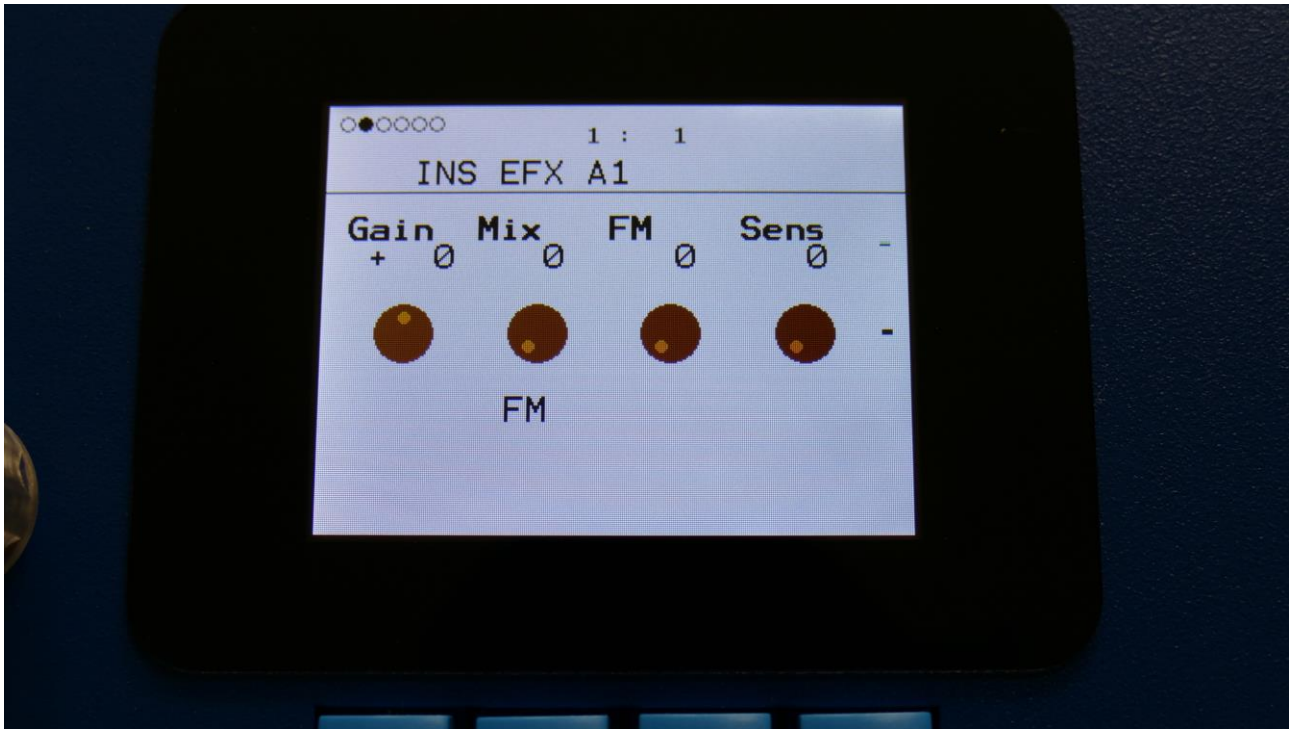
Sens Mod: Select a modulation source and adjust the amount of modulation for the Sens parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

FM



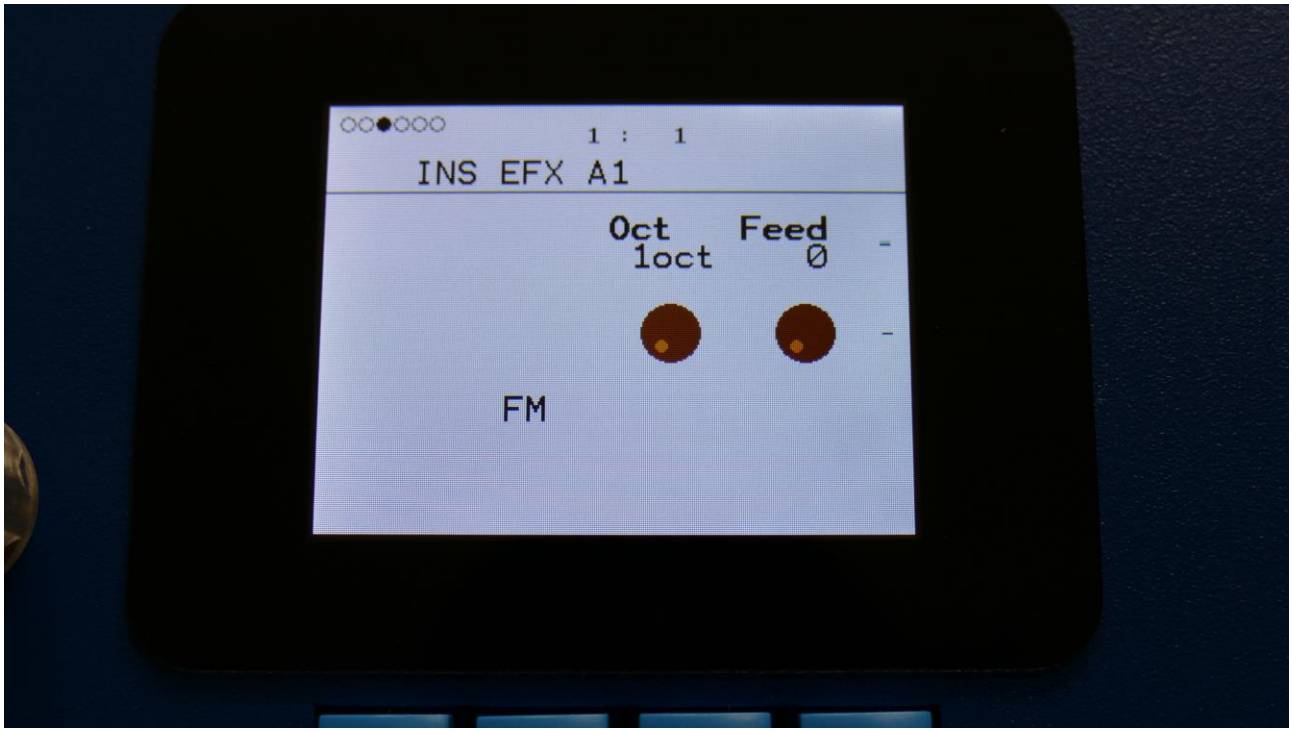
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

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

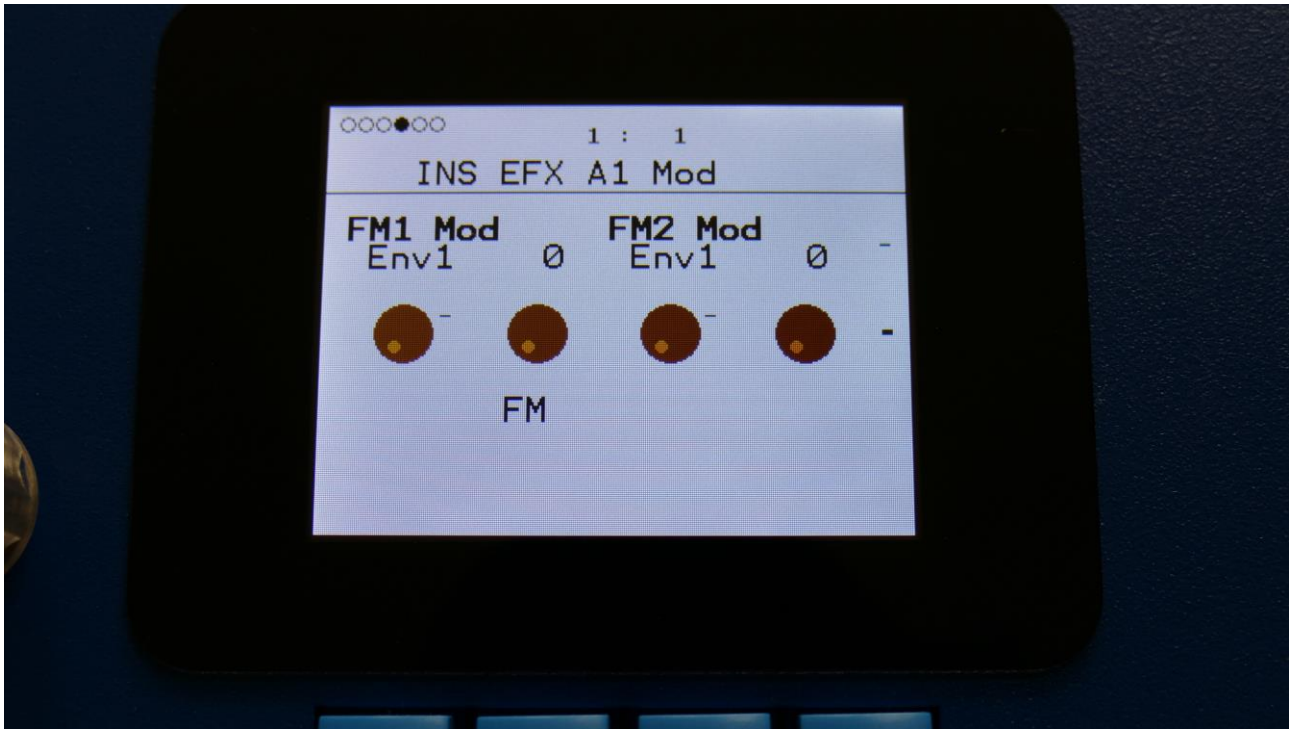
Sense: FM pitch detection sense. On a pure waveform, turn this fully down to make sure, that it detects all the waves of it, and pitch shifts correctly. On more complex sounds, turn this up until the desired effect are obtained. At higher settings, only portions of the sound will be pitch shifted, and 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.

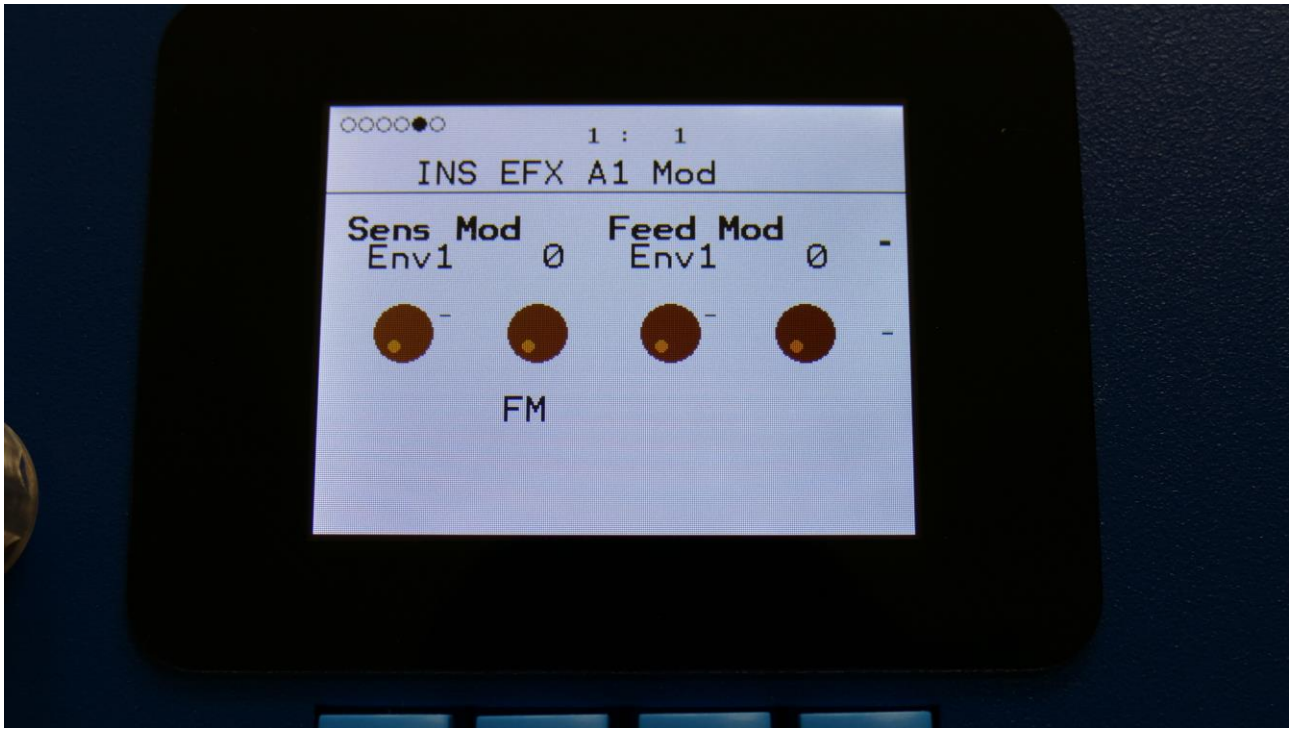
Feed: FM feedback. Adjusts the portion of the output signal, that is fed back to the input.

FM Modulation



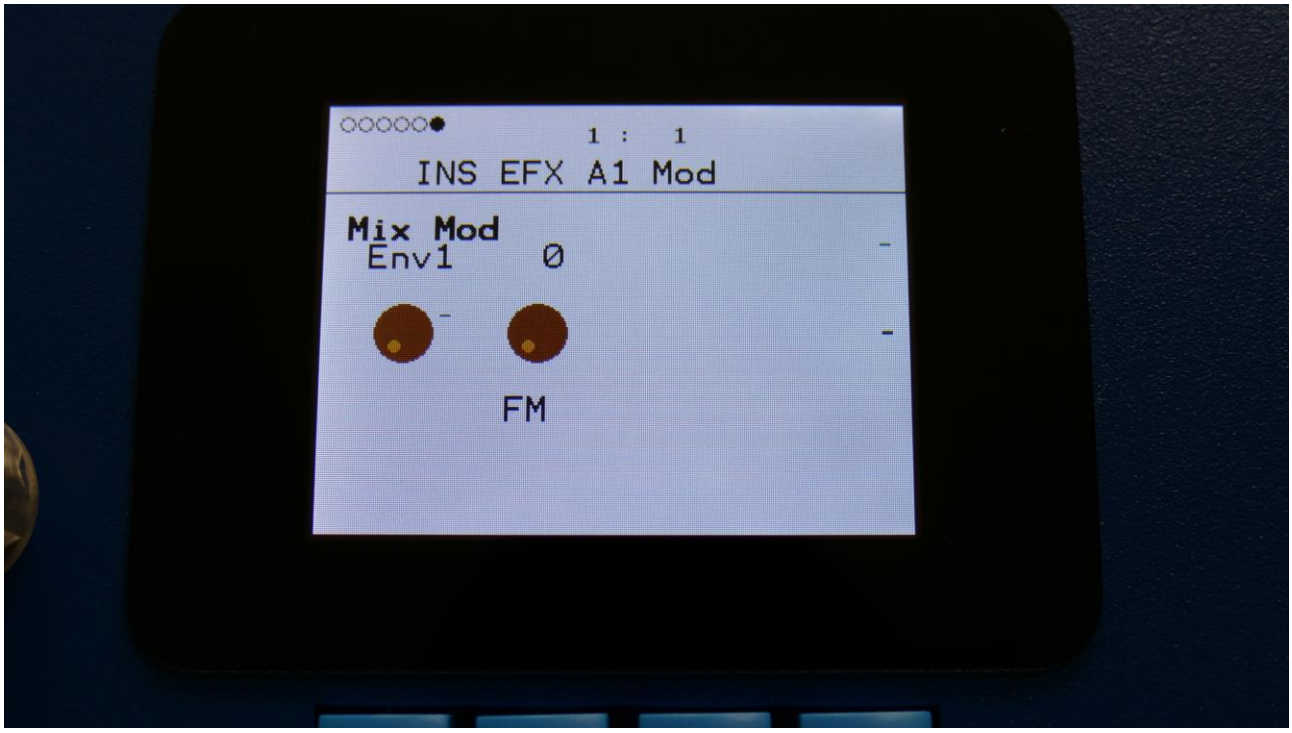
FM1 Mod: Select a modulation source and adjust the amount of modulation for the FM parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

FM2 Mod: Select a modulation source and adjust the amount of modulation for the FM parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



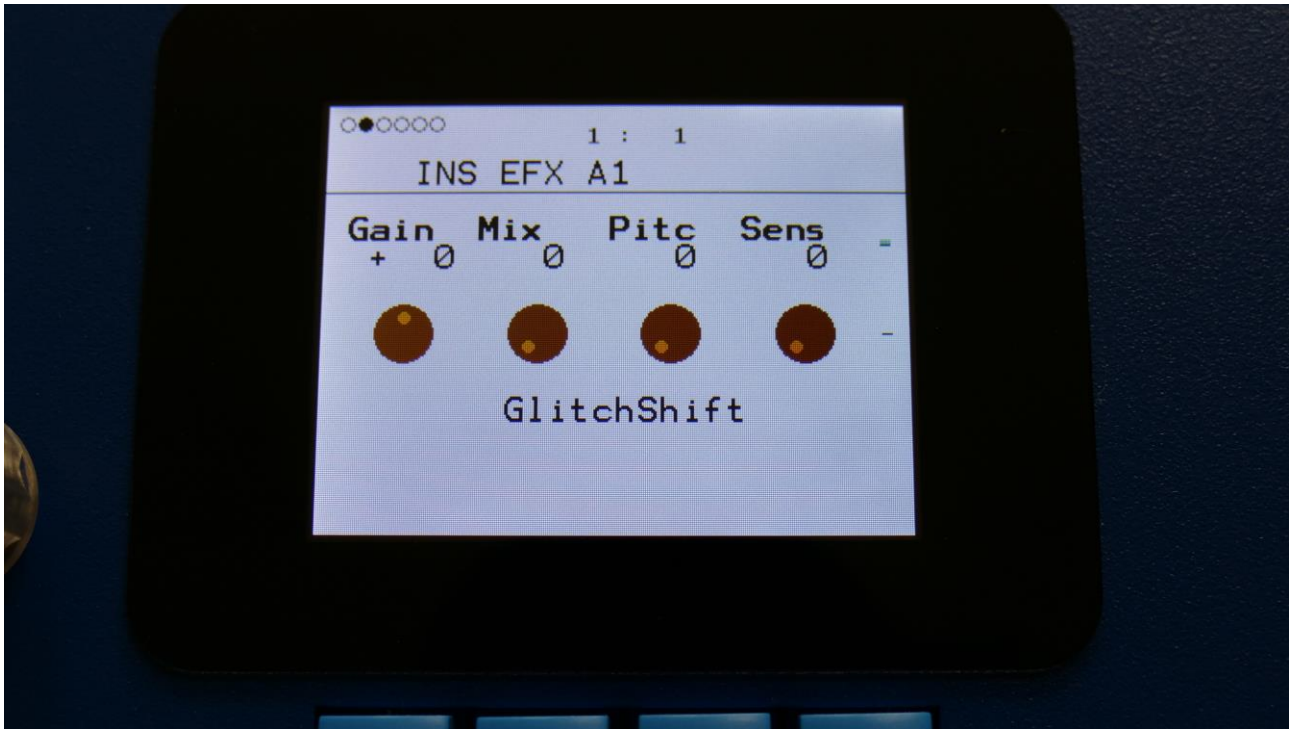
Sens Mod: Select a modulation source and adjust the amount of modulation for the Sens parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Glitch Shifter, Glitch Shifter 2, Glitch Shifter 3



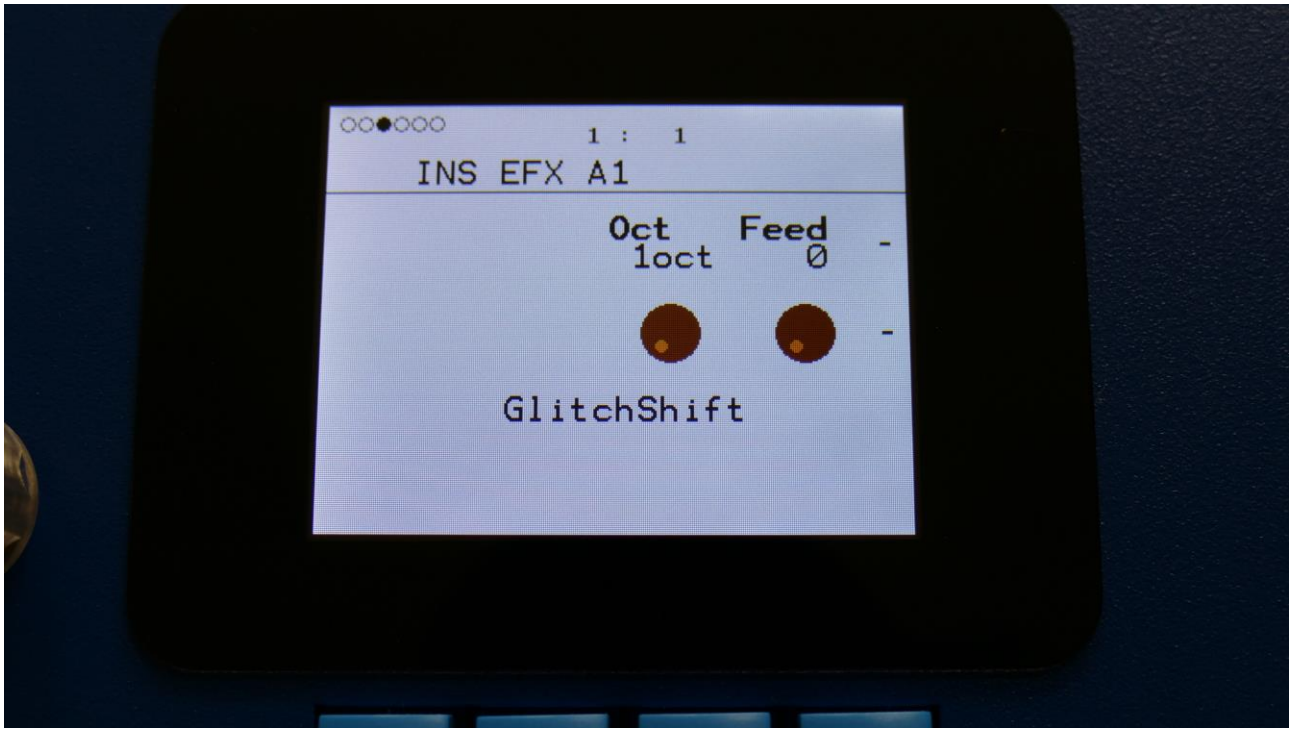
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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.

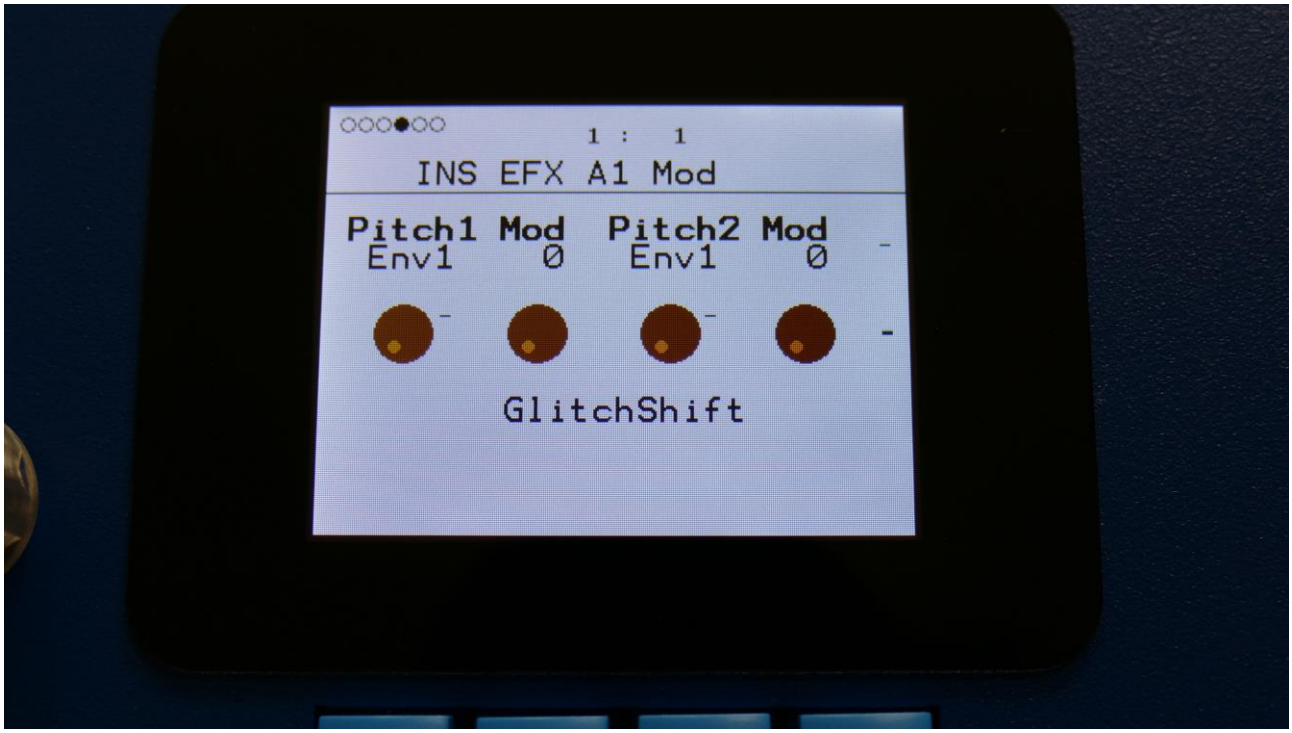
Sens: Pitch detection sense. On a pure waveform, turn this fully down to make sure, that it detects all the waves of it, and pitch shifts correctly. On more complex sounds, turn this up until the desired effect are obtained. At higher settings, only portions of the sound will be pitch shifted, and when 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.

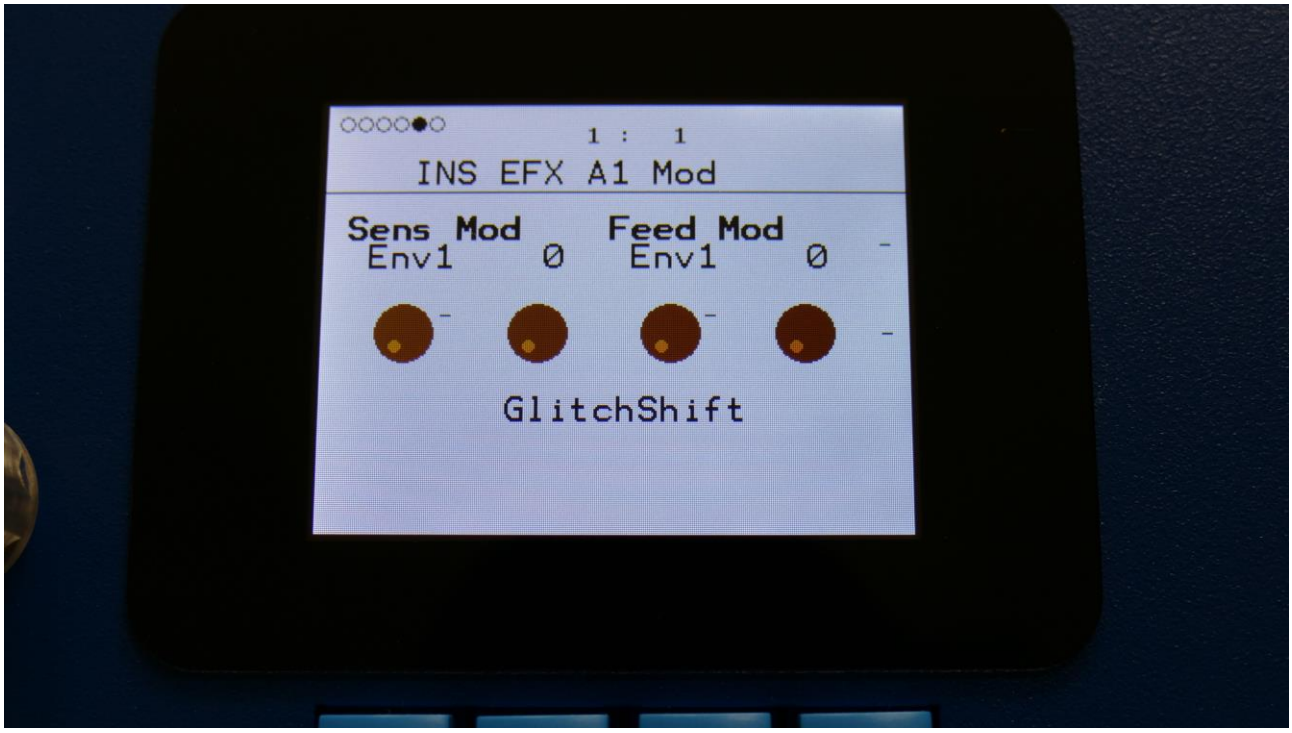
Feed: Glitch shifter feedback. Adjusts the portion of the output signal, that is fed back to the input.

Glitch Shifter, Glitch Shifter 2, Glitch Shifter 3 Modulation



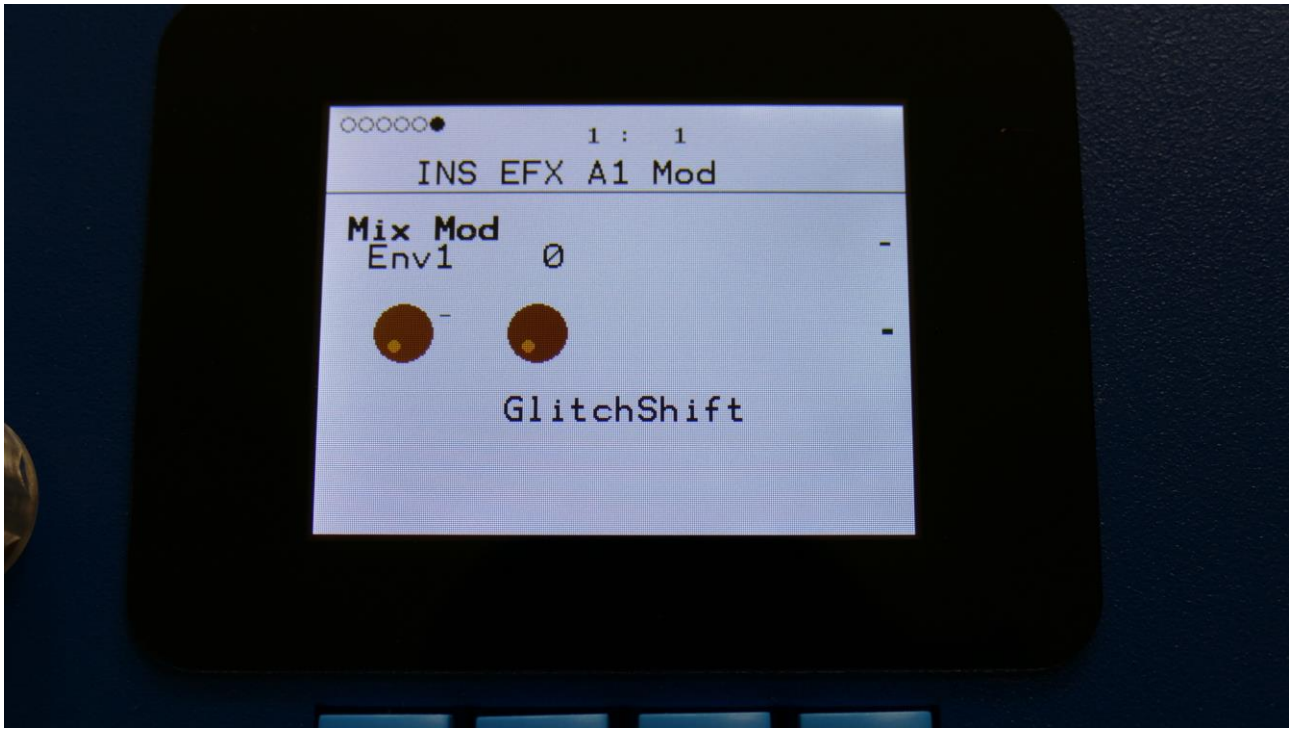
Pitch1 Mod: Select a modulation source and adjust the amount of modulation for the Pitc parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pitch2 Mod: Select a modulation source and adjust the amount of modulation for the Pitc parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



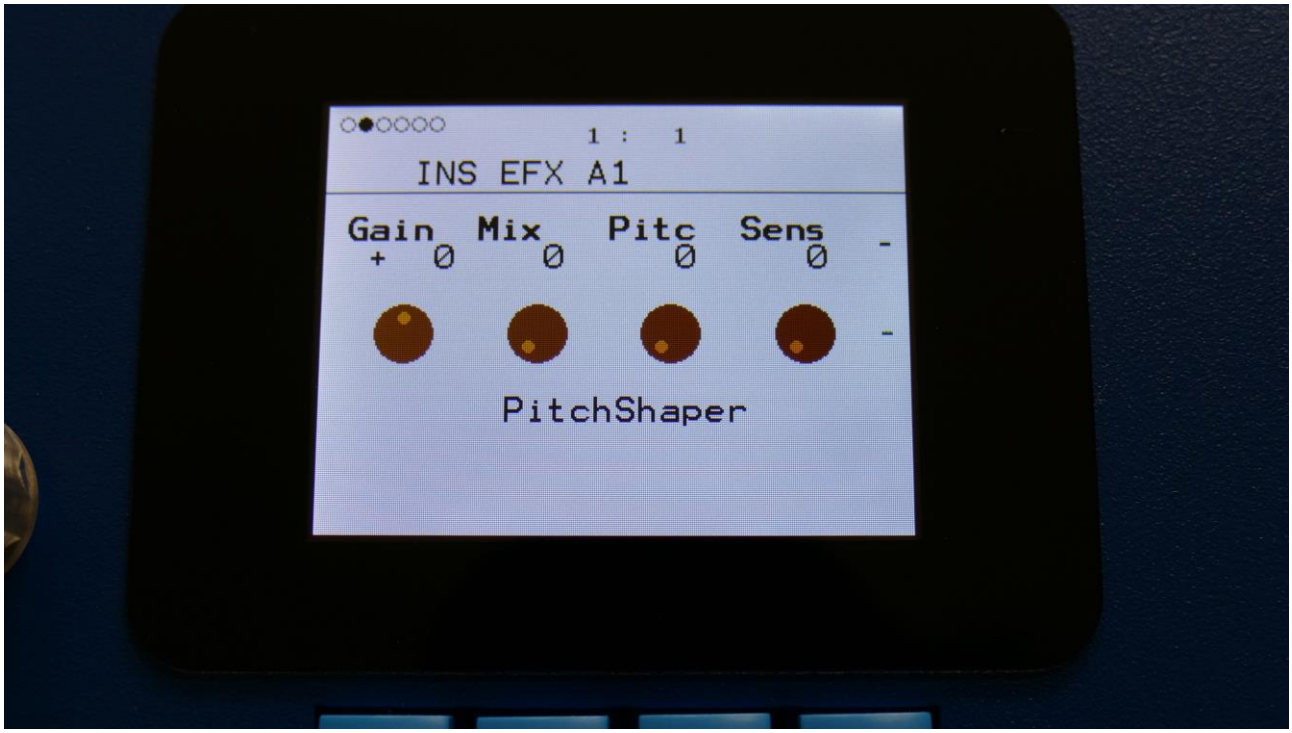
Sens Mod: Select a modulation source and adjust the amount of modulation for the Sens parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pitch Shaper



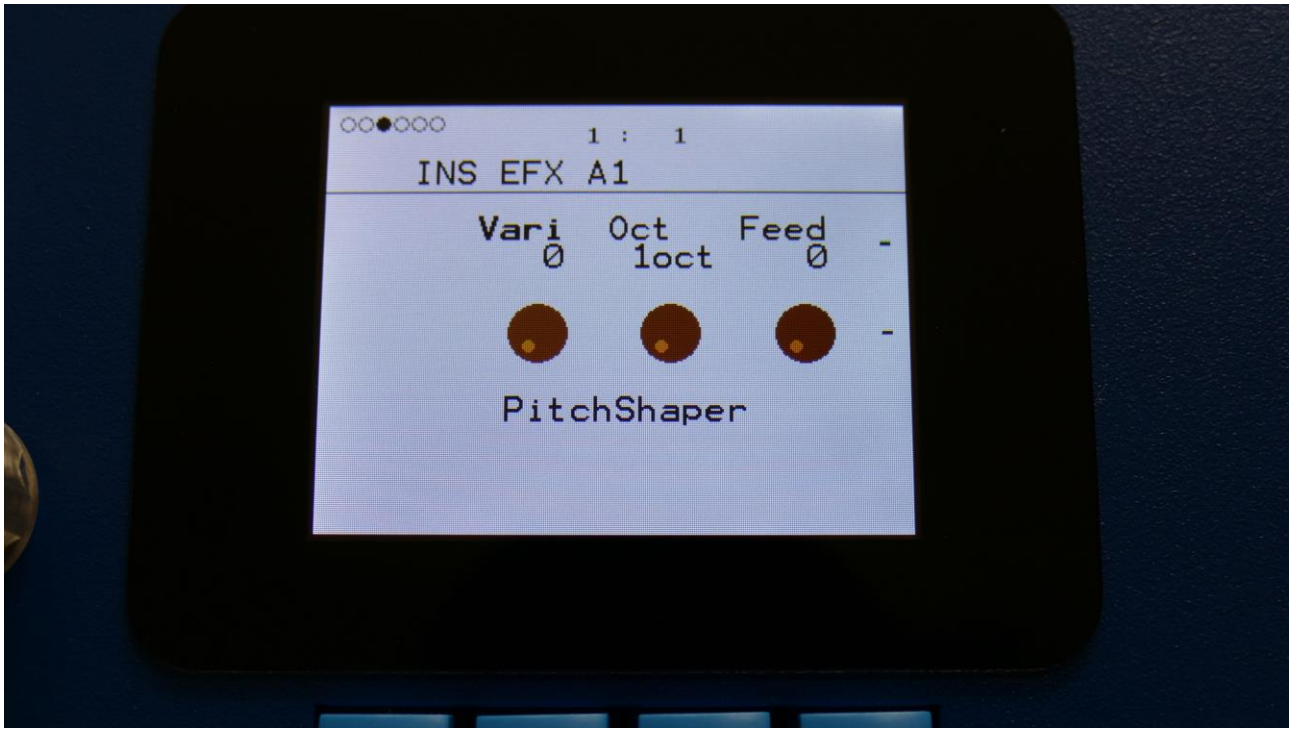
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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.

Sens: 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".

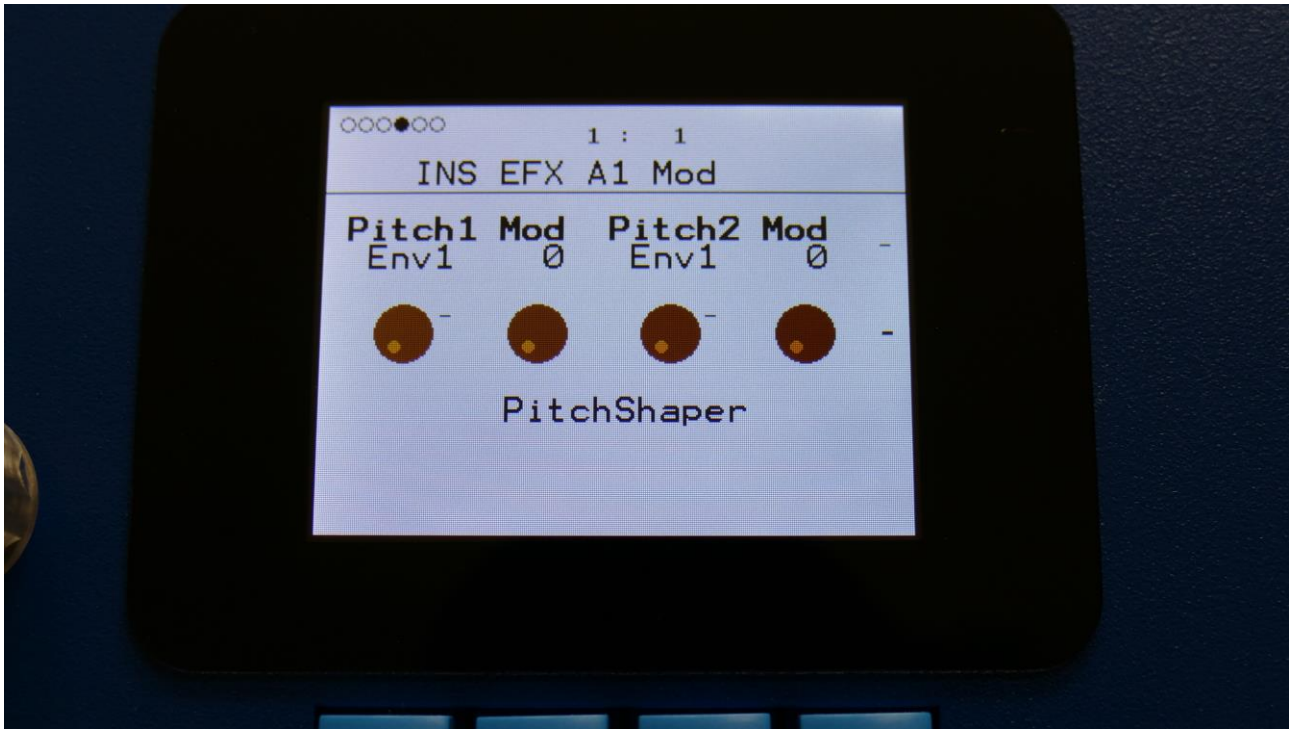


Vari: Pitch variation. The more this is turned up, the more the pitch variations on the input signal affects the pitch shaper frequency.

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

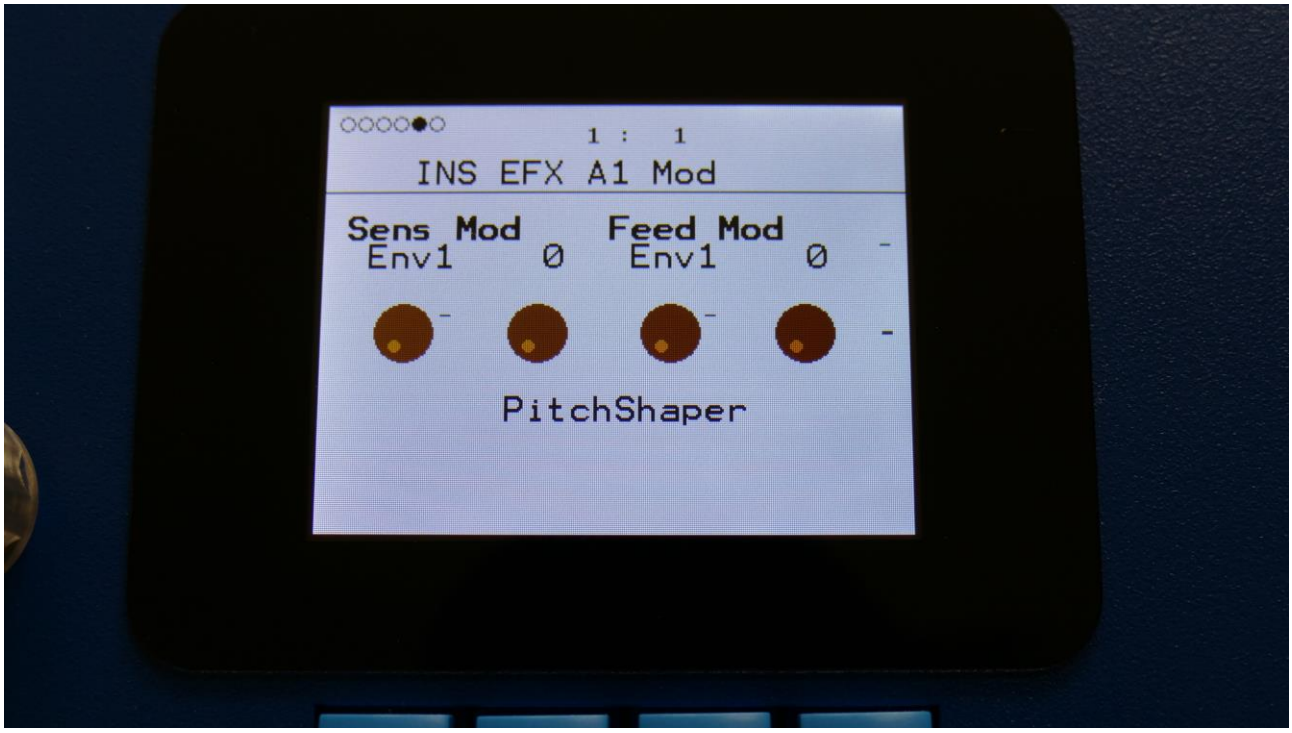
Feed: Pitch shaper feedback. Adjusts the portion of the output signal, that is fed back to the input.

Pitch Shaper Modulation



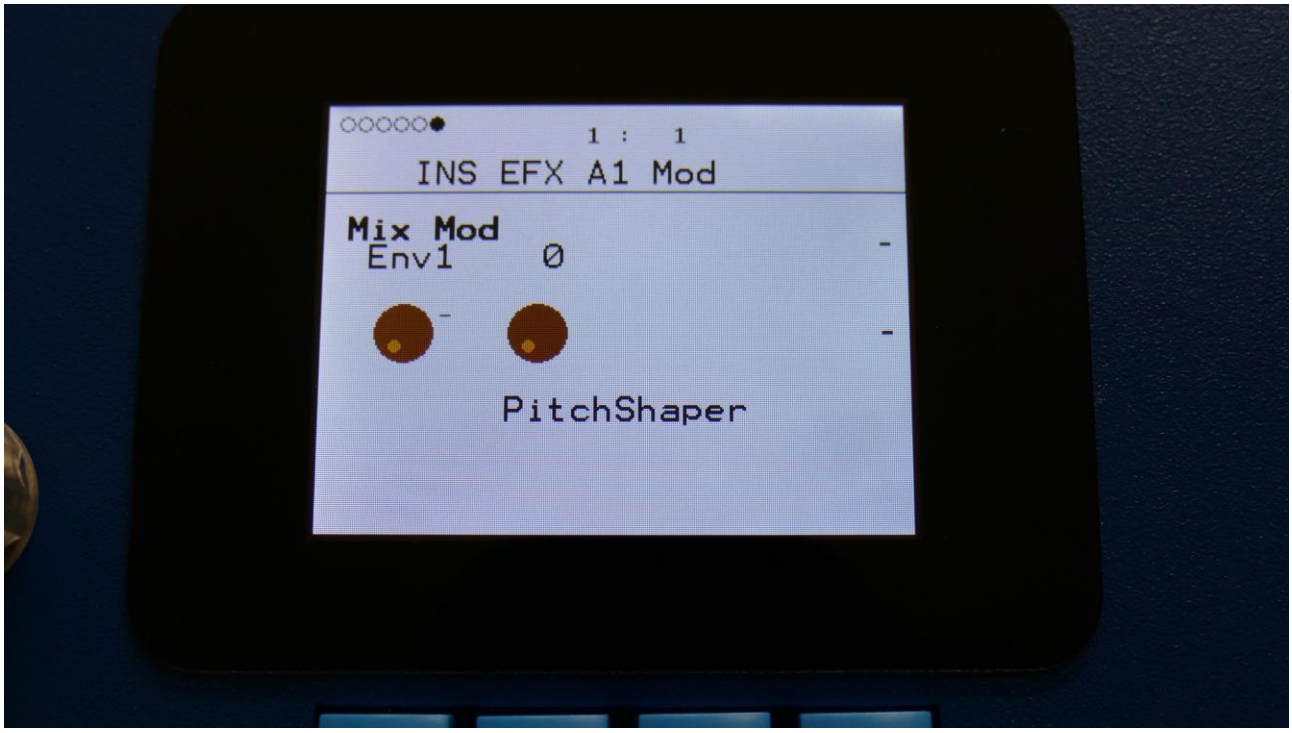
Pitch1 Mod: Select a modulation source and adjust the amount of modulation for the Pitc parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pitch2 Mod: Select a modulation source and adjust the amount of modulation for the Pitc parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



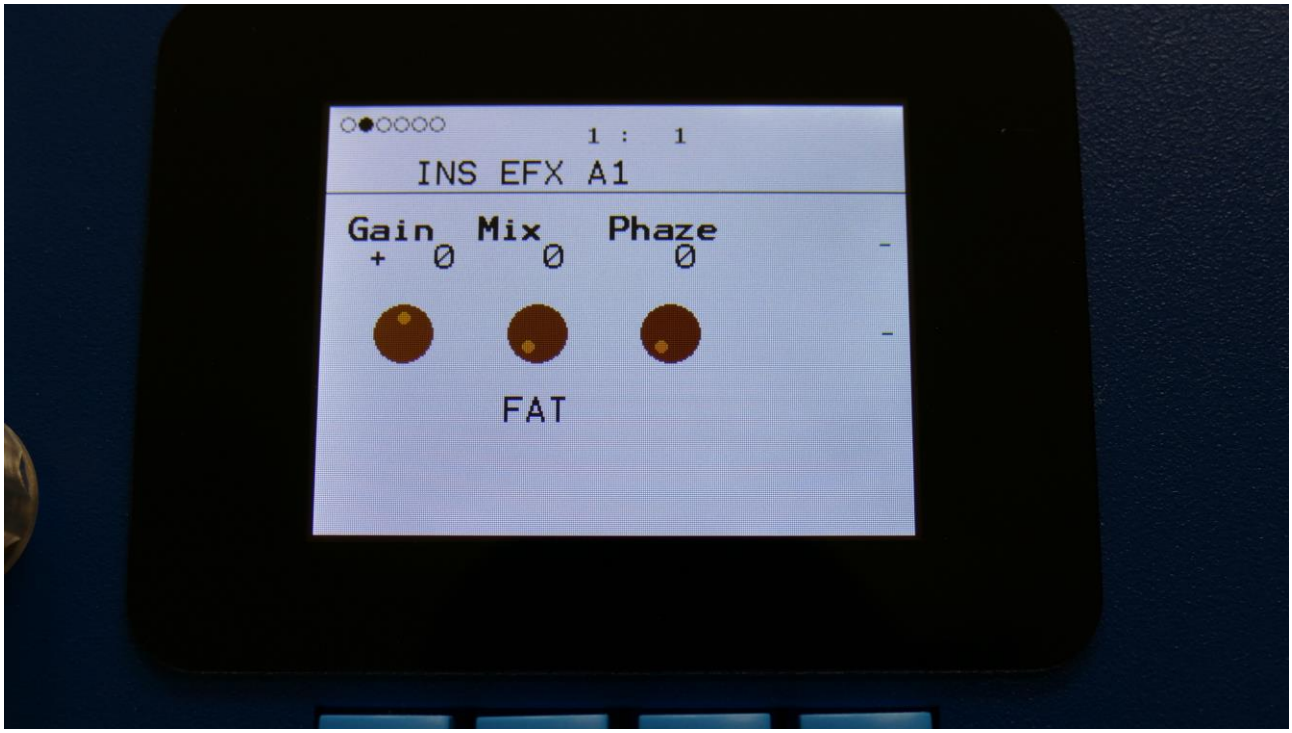
Sens Mod: Select a modulation source and adjust the amount of modulation for the Sens parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

FAT

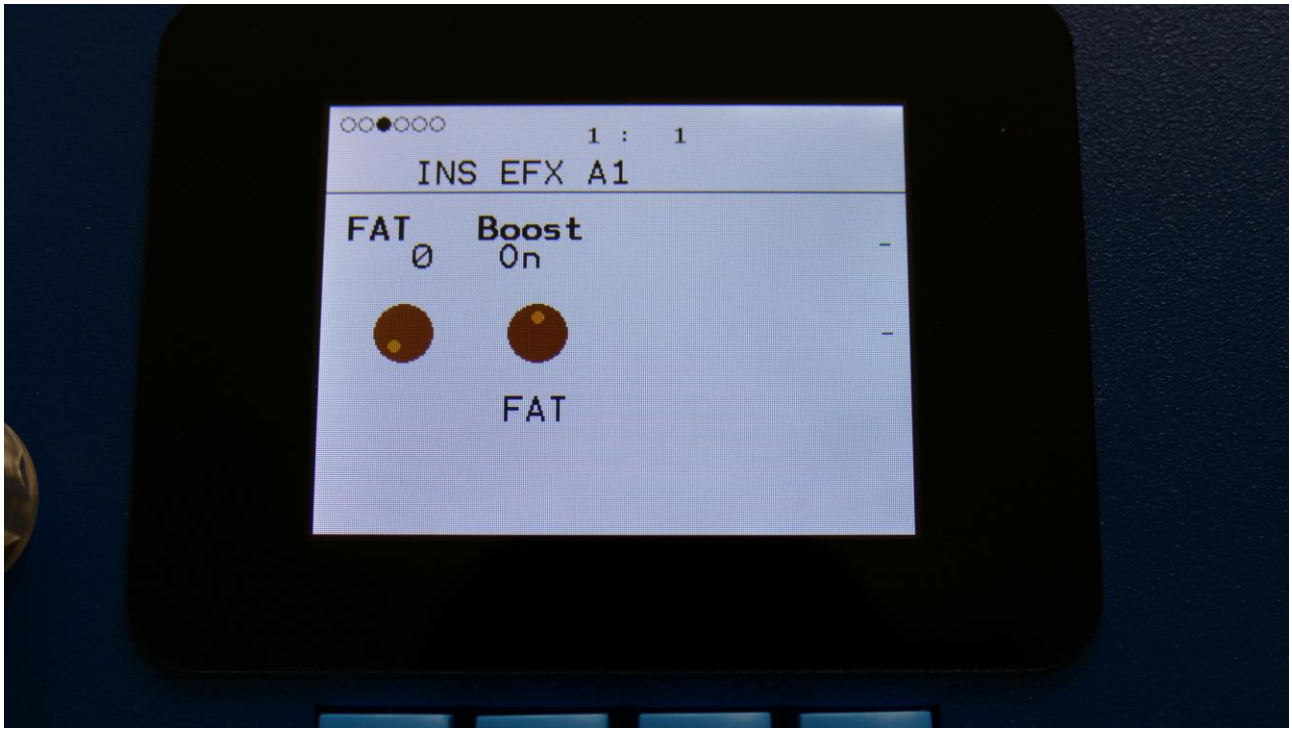


The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

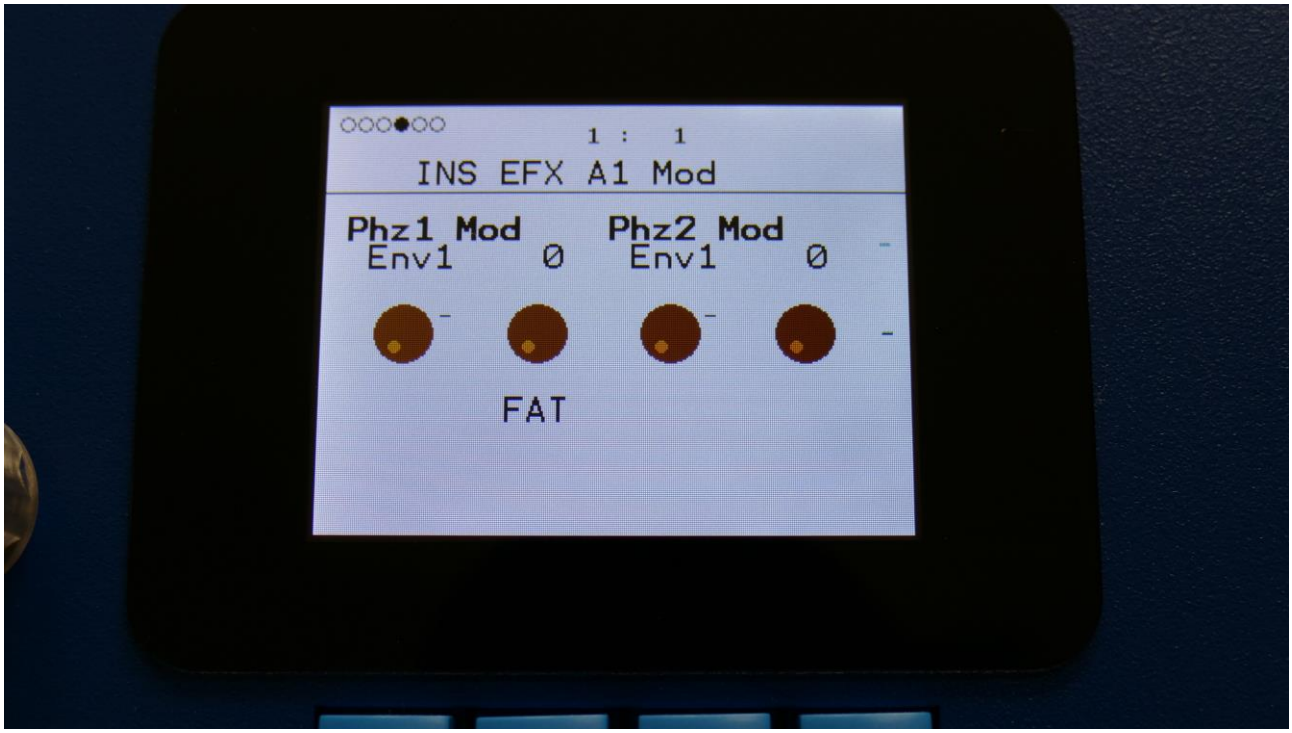
Phase: Adjusts the phase difference of the FAT layers. When turned fully down, all layers are in phase. The more it is turned up, the more the layers goes out of phase to each other. Useful for creating comb filter type sounds.



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

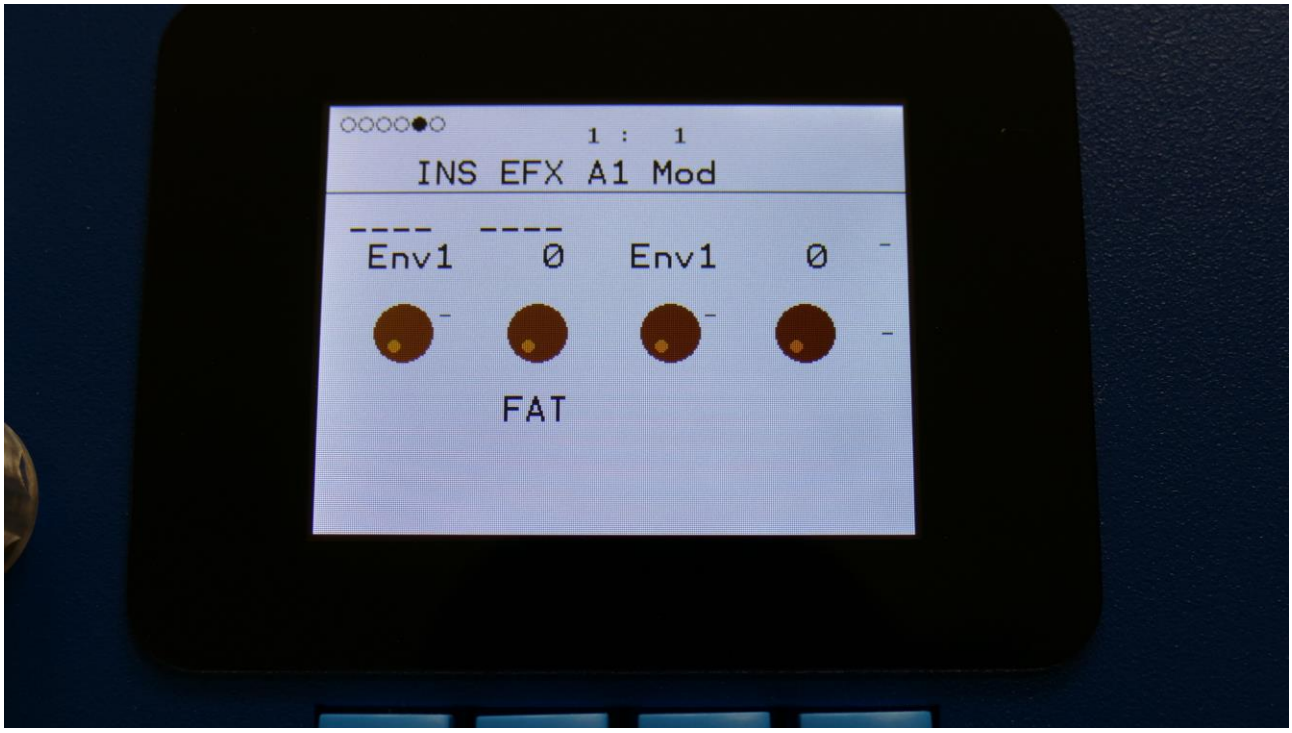
Boost: When this is on, the FAT layers are sonically added to each other, which will make the sound louder, and might cause it to saturate. If it is off, the sound stays at its original sonic level, even when layers are added.

FAT Modulation

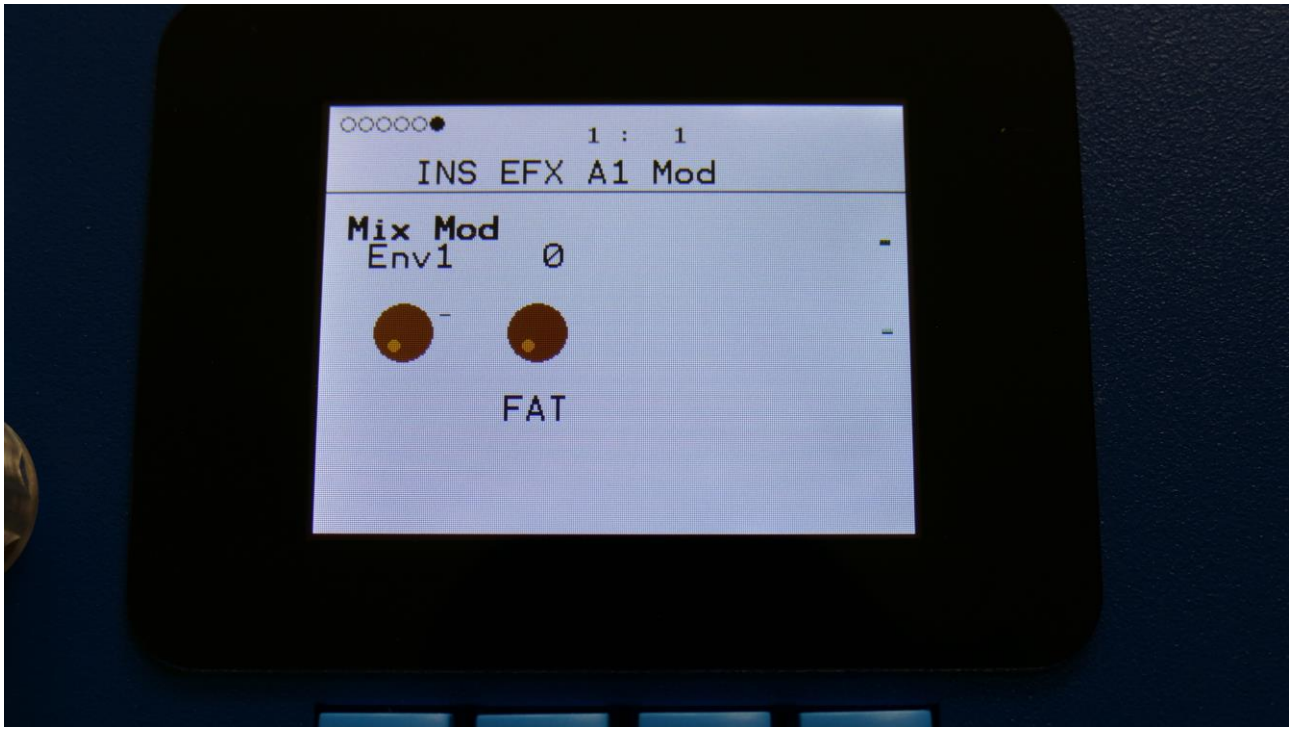


Phz1 Mod: Select a modulation source and adjust the amount of modulation for the Phaze parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Phz2 Mod: Select a modulation source and adjust the amount of modulation for the Phaze parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



No parameters to modulate here…

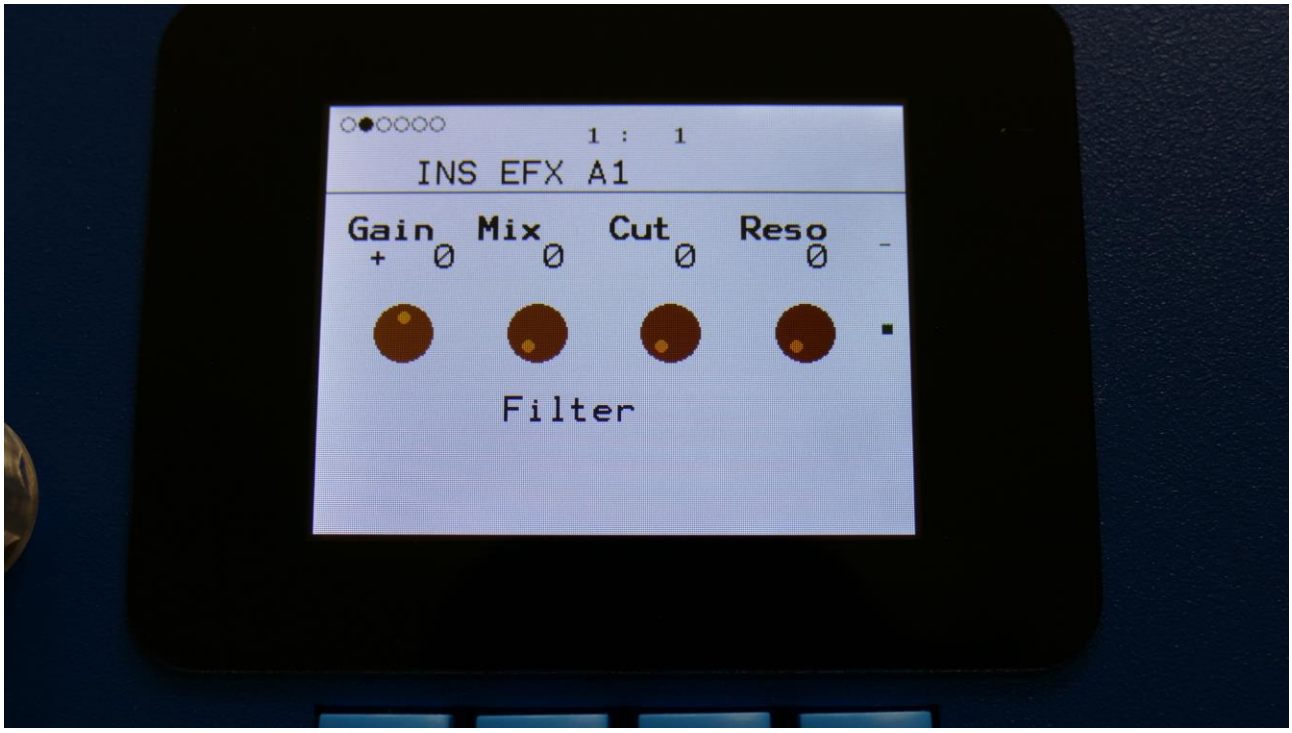


Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Filters

The 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.



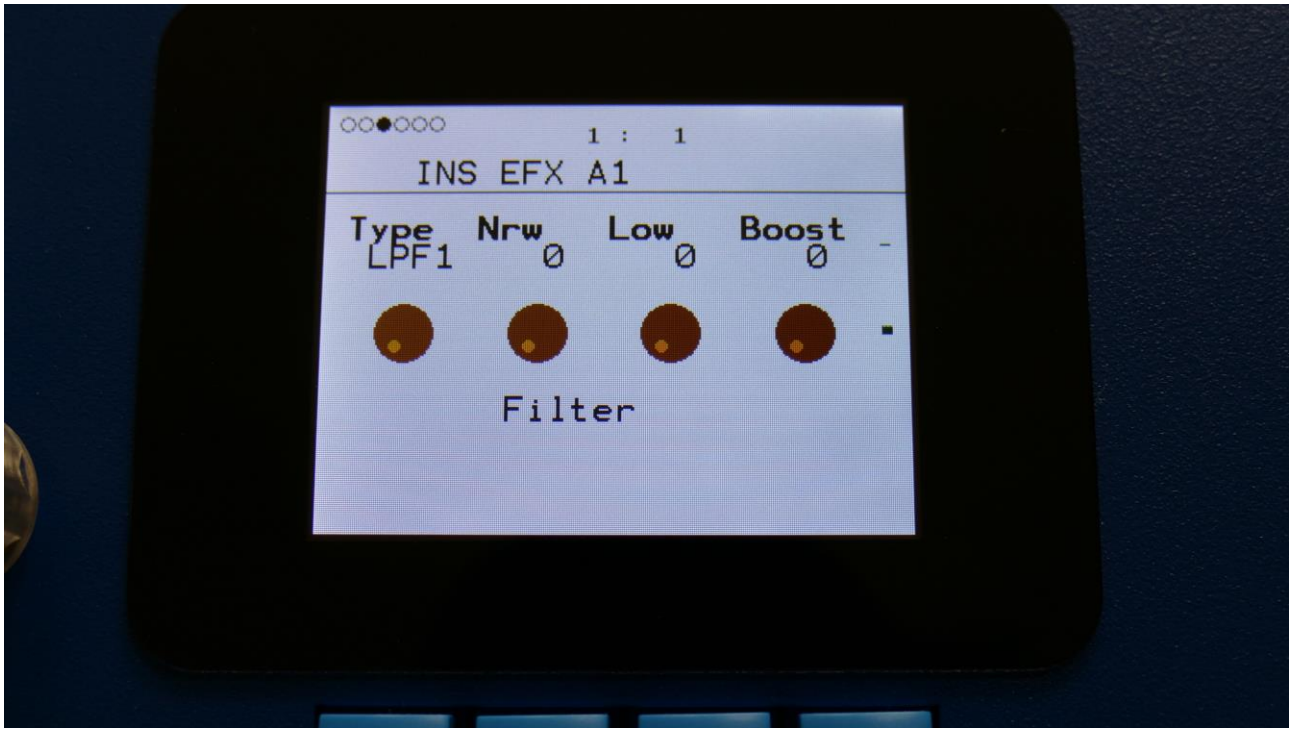
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

Cut: 0 to 511. Sets the cutoff frequency of the filter.

Reso: 0 to 511. Sets the amount of resonance applied to the filter.



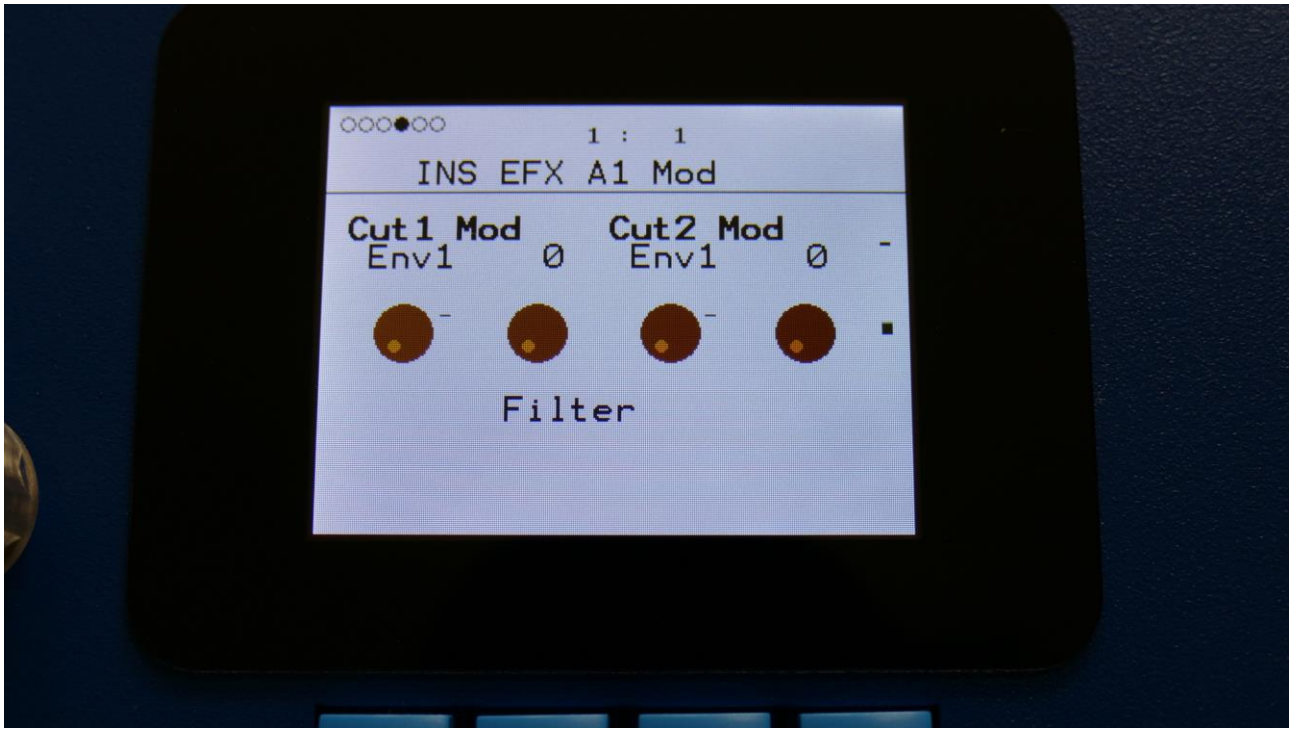
Type: Sets the filter type. See the list of filter types.

Nrw: 0 to 511. Turning this up, will make the frequency response of the filter more and more narrow.

Low: 0 to 511. Sets the lowest frequency offset point of the filter. Turning this up, will in many filter types, make the bass bottom more present or distorted.

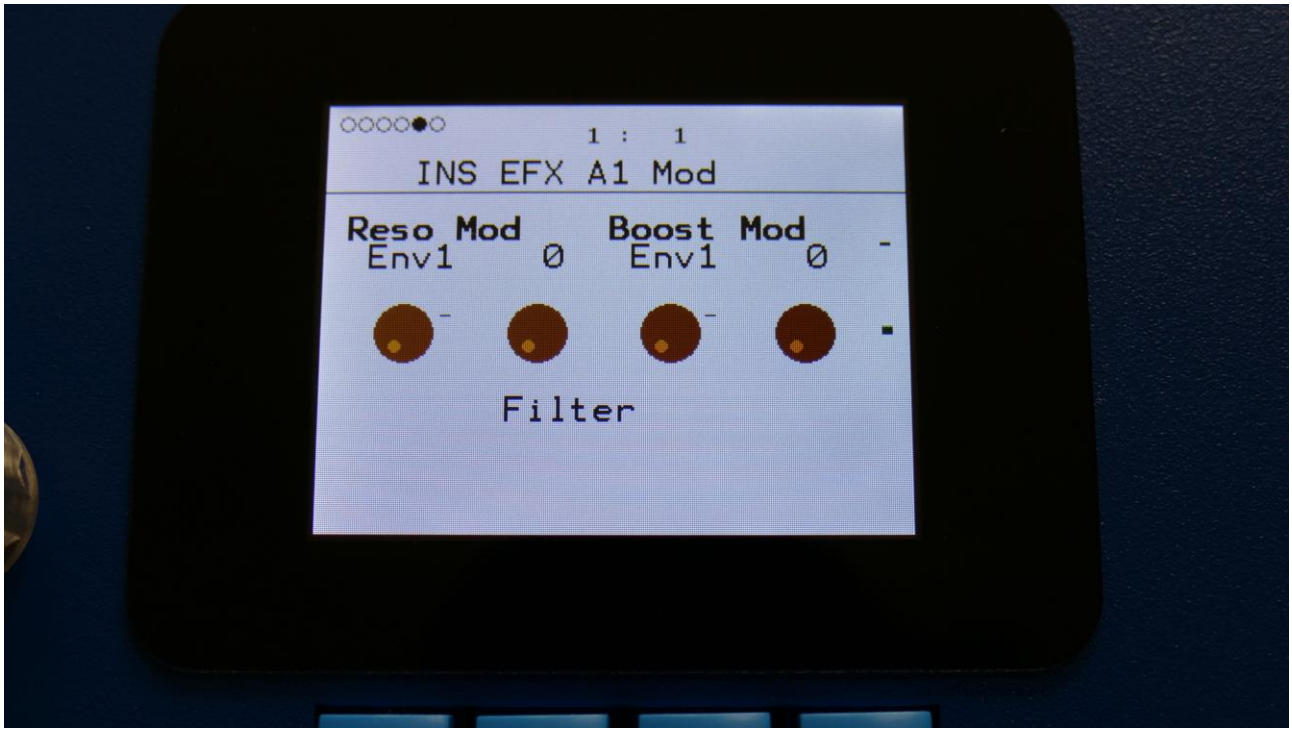
Boost: 0 to 511. Gains the filter output level.

Filter Modulation



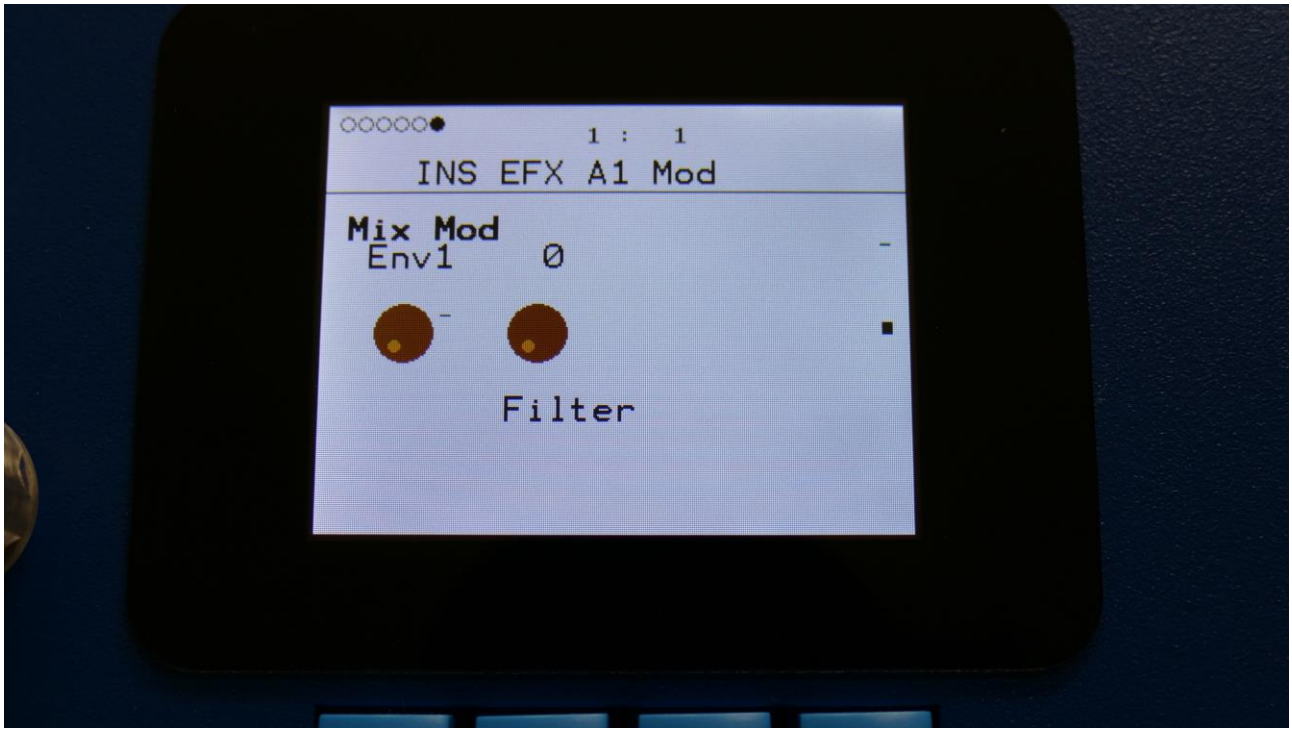
Cut1 Mod: Select a modulation source and adjust the amount of modulation for the Cut parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Cut2 Mod: Select a modulation source and adjust the amount of modulation for the Cut parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



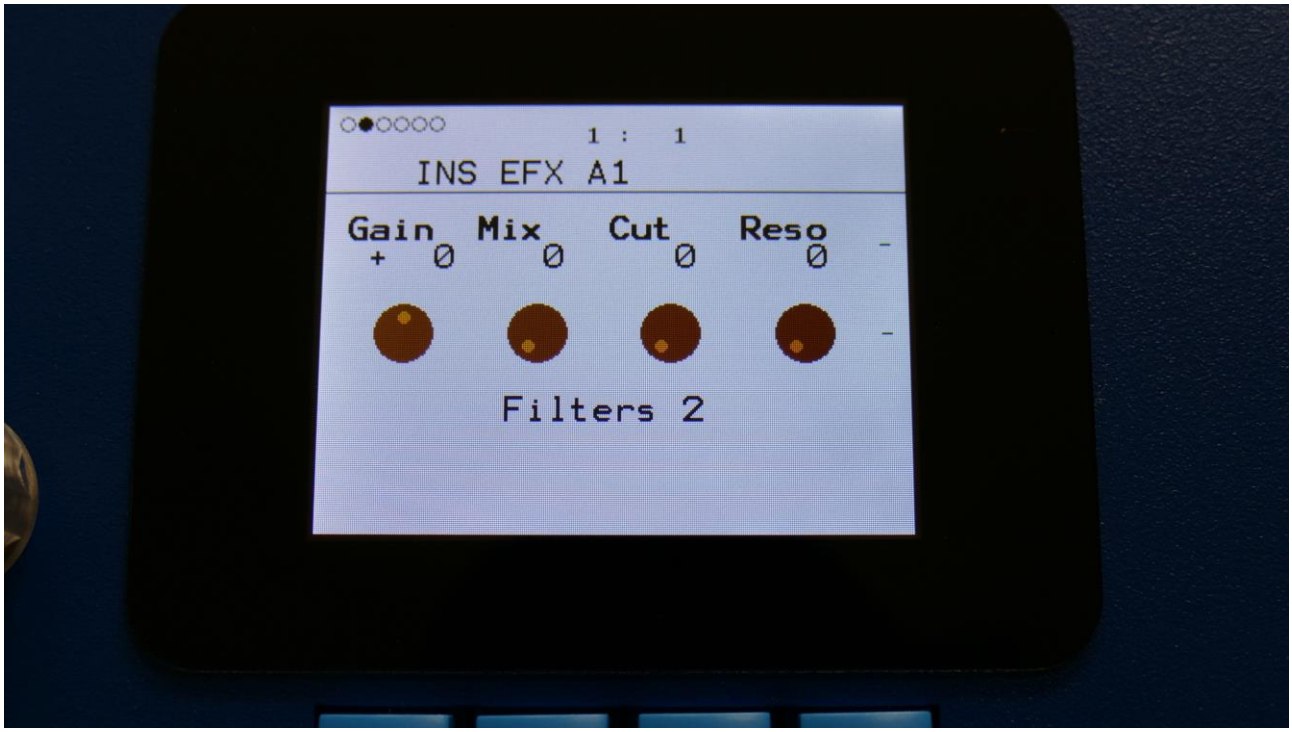
Reso Mod: Select a modulation source and adjust the amount of modulation for the Reso parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Boost Mod: Select a modulation source and adjust the amount of modulation for the Boost parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Filters 2



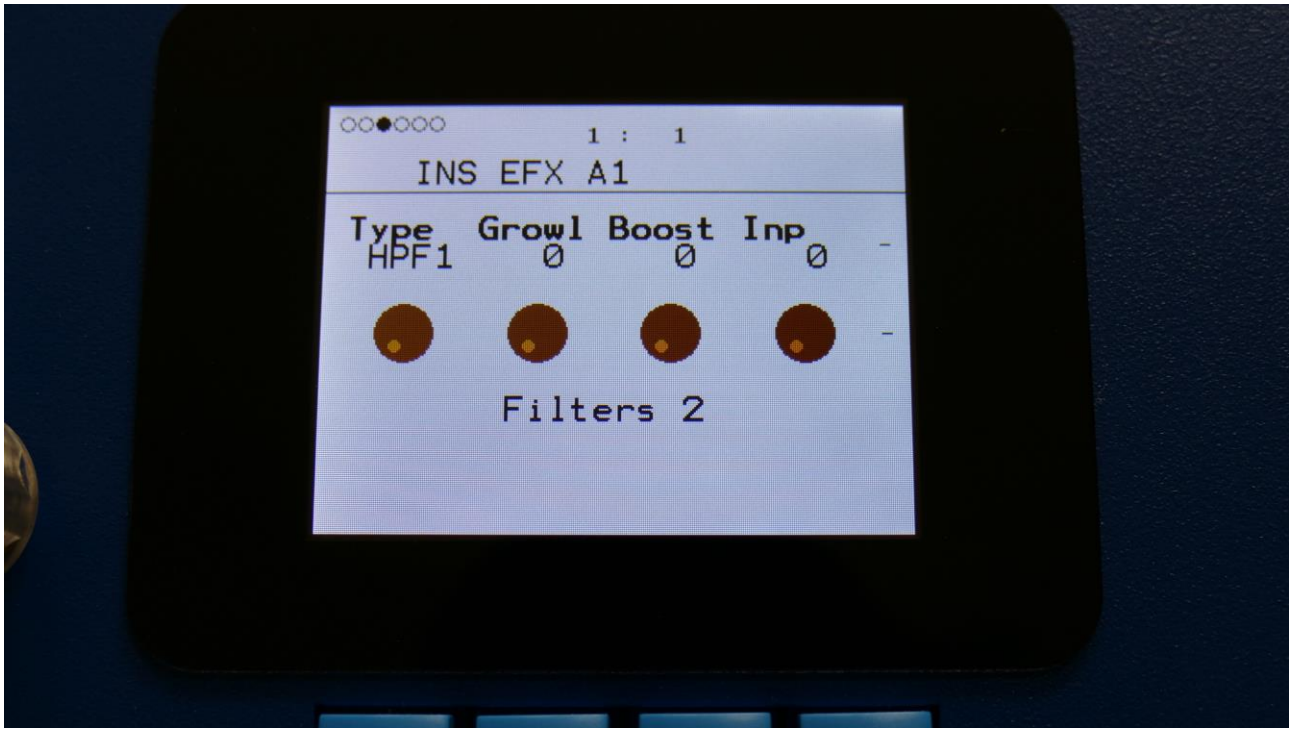
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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.



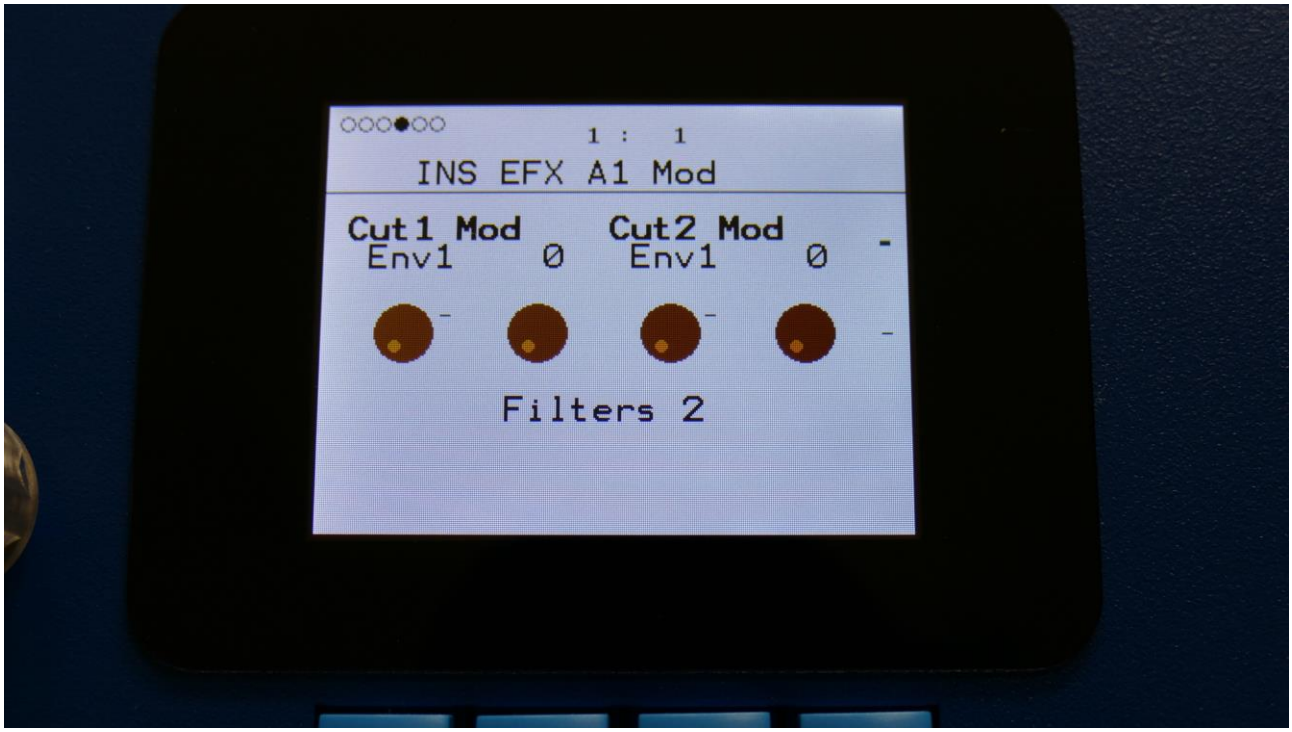
Type: Filter type. Possibilities are:
-HPF1: High pass filter with extra bass bottom and uncontrollable resonance.
-LPF1: Low pass filter with extra bass bottom and uncontrollable resonance.
-BPF1: Band pass filter with extra bass bottom and uncontrollable resonance.
-HPF2: High pass filter with a thinner 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.

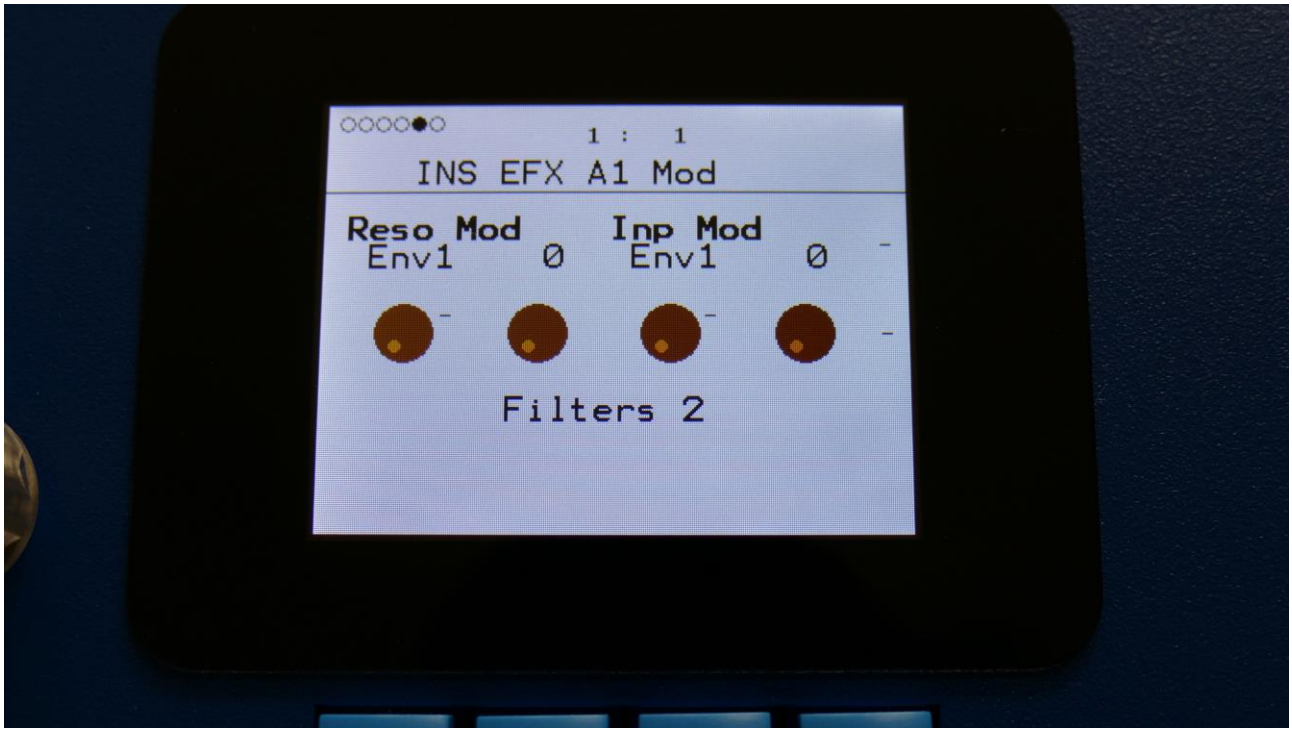
Inp: The input level of the filter.

Filters 2 Modulation



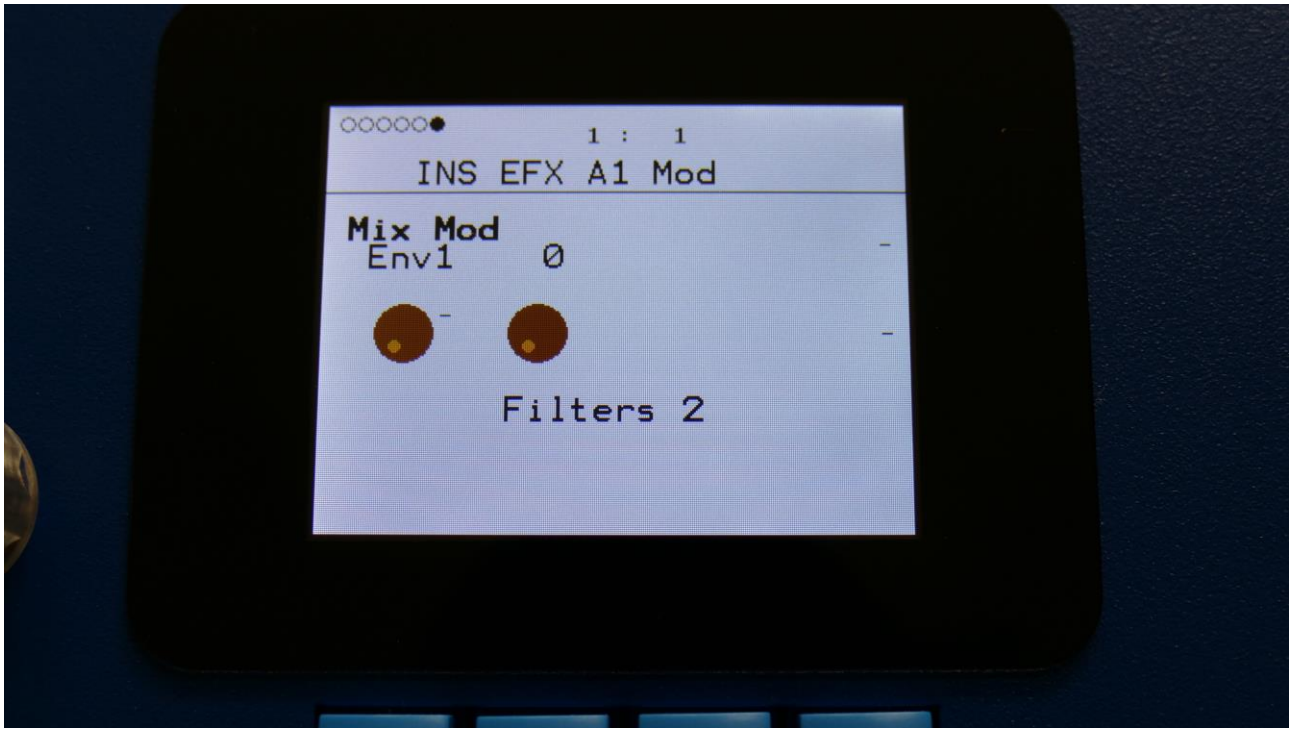
Cut1 Mod: Select a modulation source and adjust the amount of modulation for the Cut parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Cut2 Mod: Select a modulation source and adjust the amount of modulation for the Cut parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



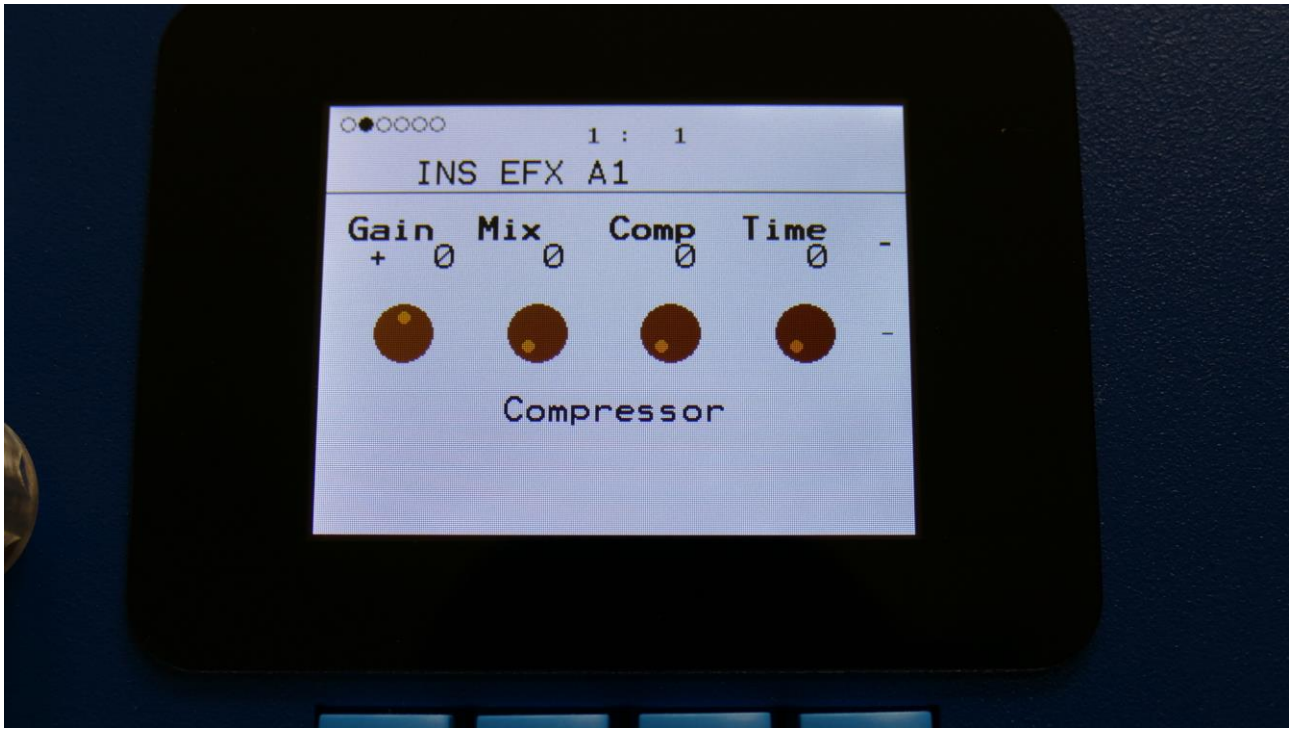
Reso Mod: Select a modulation source and adjust the amount of modulation for the Reso parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Inp Mod: Select a modulation source and adjust the amount of modulation for the Inp parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Compressor



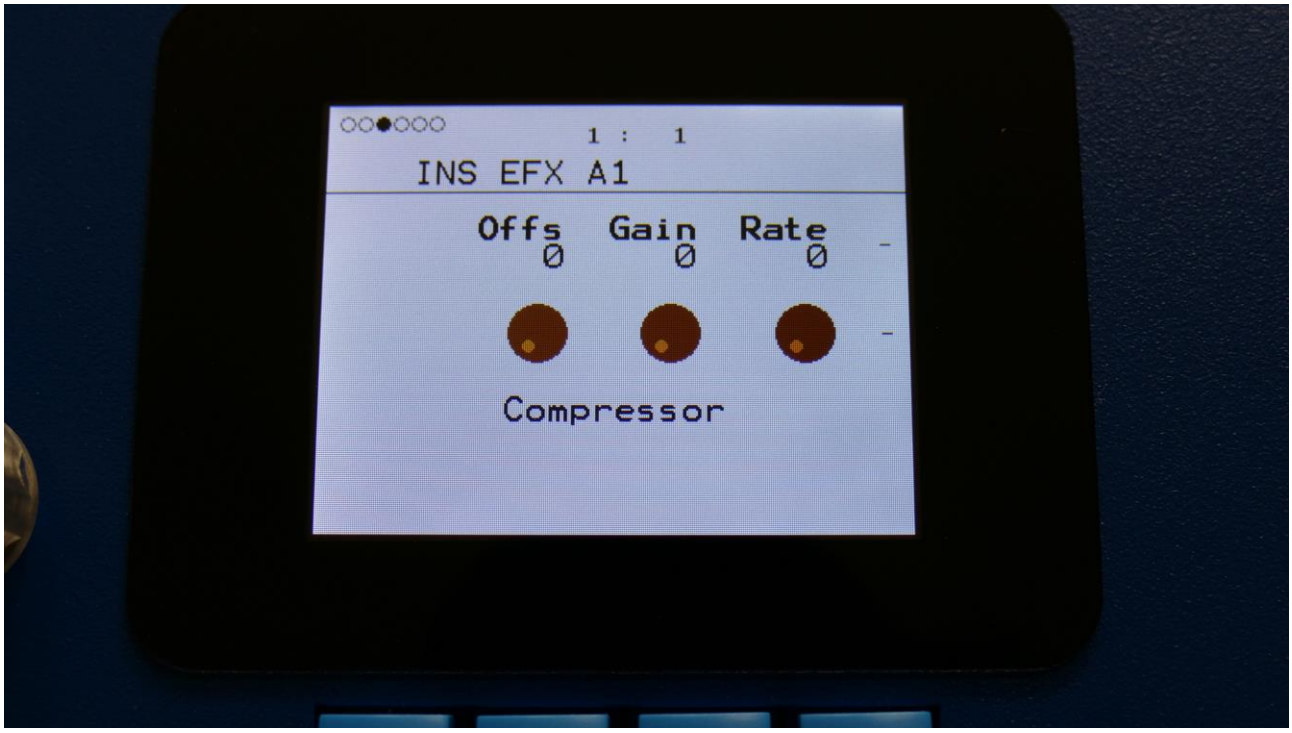
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

Comp: 0 to 511. Compression amount. The more this is turned up, the more the portion of the signal, that are higher than the offset value, will be damped.

Time: 0 to 511. The more this is turned up, the longer time it will take, for the compression to kick in.

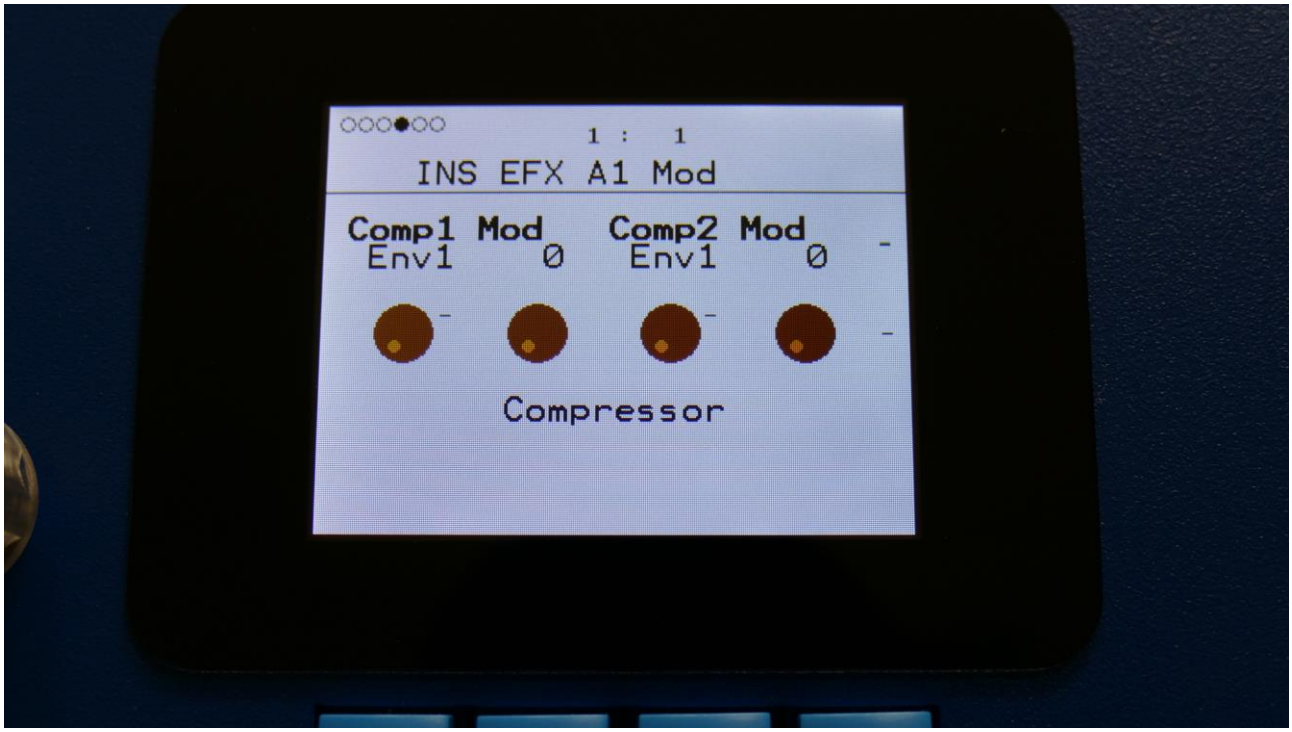


Offs: 0 to 511. Sets the level point where the compression will kick in. The more this is turned up, the higher the input signal will need to be, before it starts to compress.

Gain: 0 to 511. Sets the output gain of the compressor.

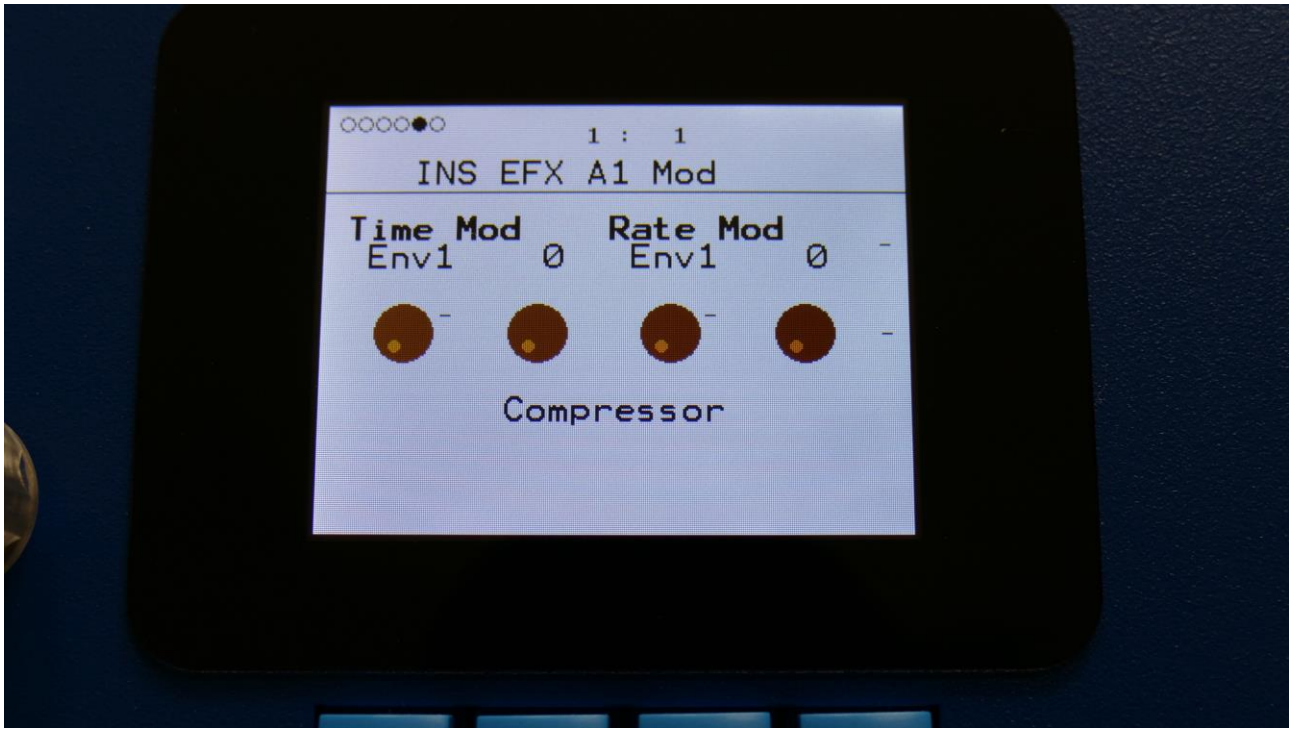
Rate: 0 to 511. This sets how fast the compressor will react to level changes of the input signal. The more it is turned up, the slower it will react.

Compressor Modulation



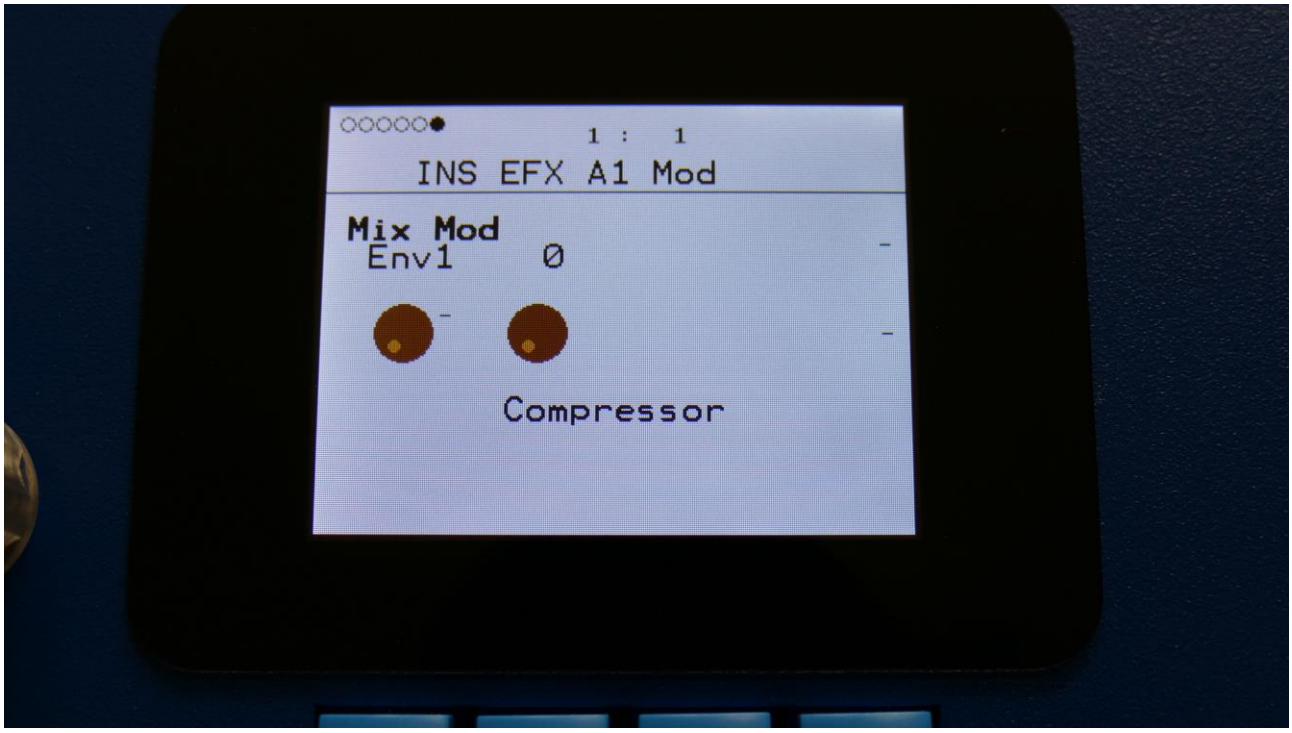
Comp1 Mod: Select a modulation source and adjust the amount of modulation for the Comp parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Comp2 Mod: Select a modulation source and adjust the amount of modulation for the Comp parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



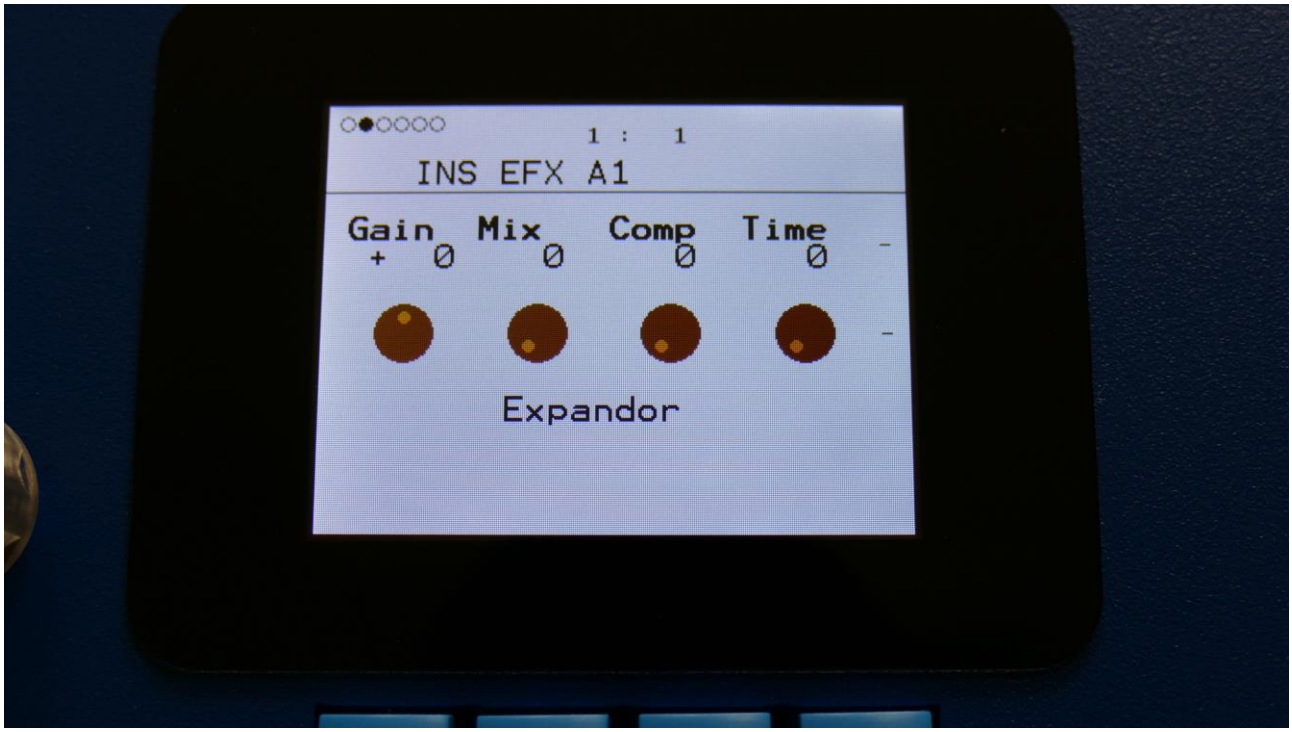
Time Mod: Select a modulation source and adjust the amount of modulation for the Time parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Rate Mod: Select a modulation source and adjust the amount of modulation for the Rate parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Expandor



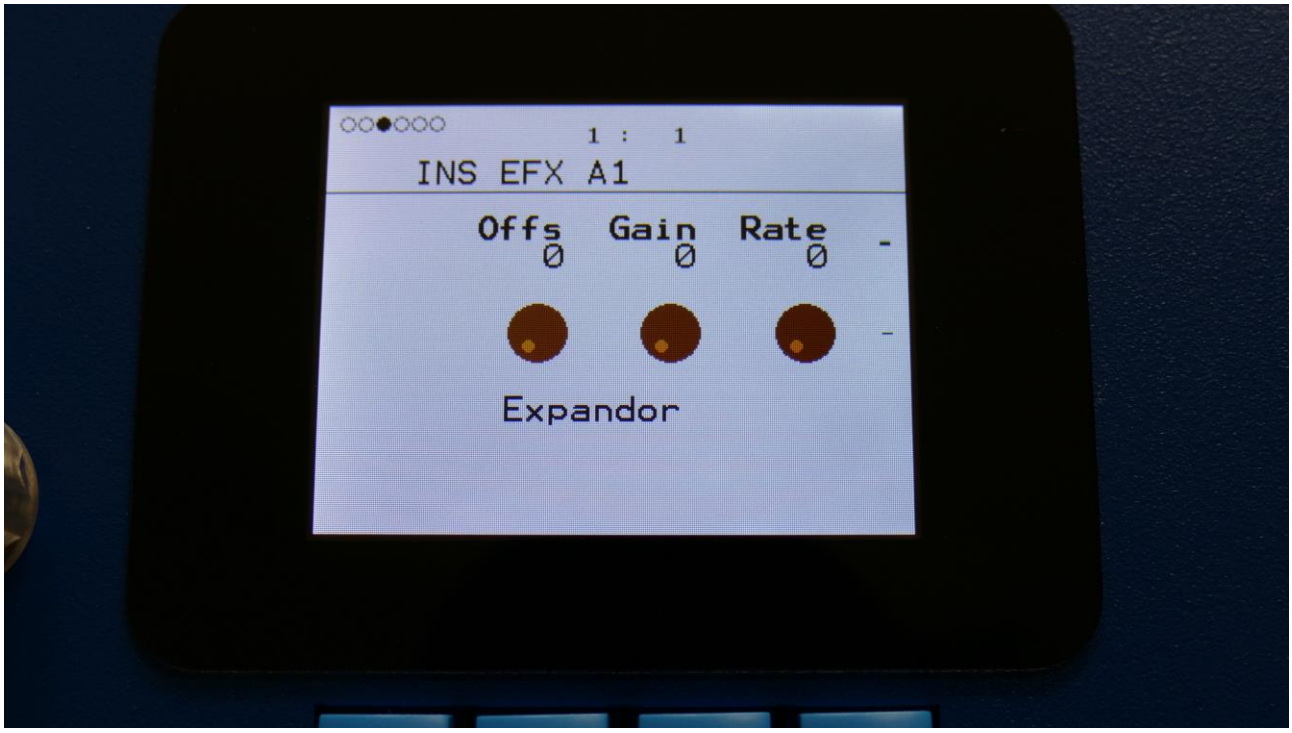
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

Comp: 0 to 511. Compression amount. The more this is turned up, the more the portion of the signal, that are higher than the offset value, will be gained.

Time: 0 to 511. The more this is turned up, the longer time it will take, for the expansion to kick in.

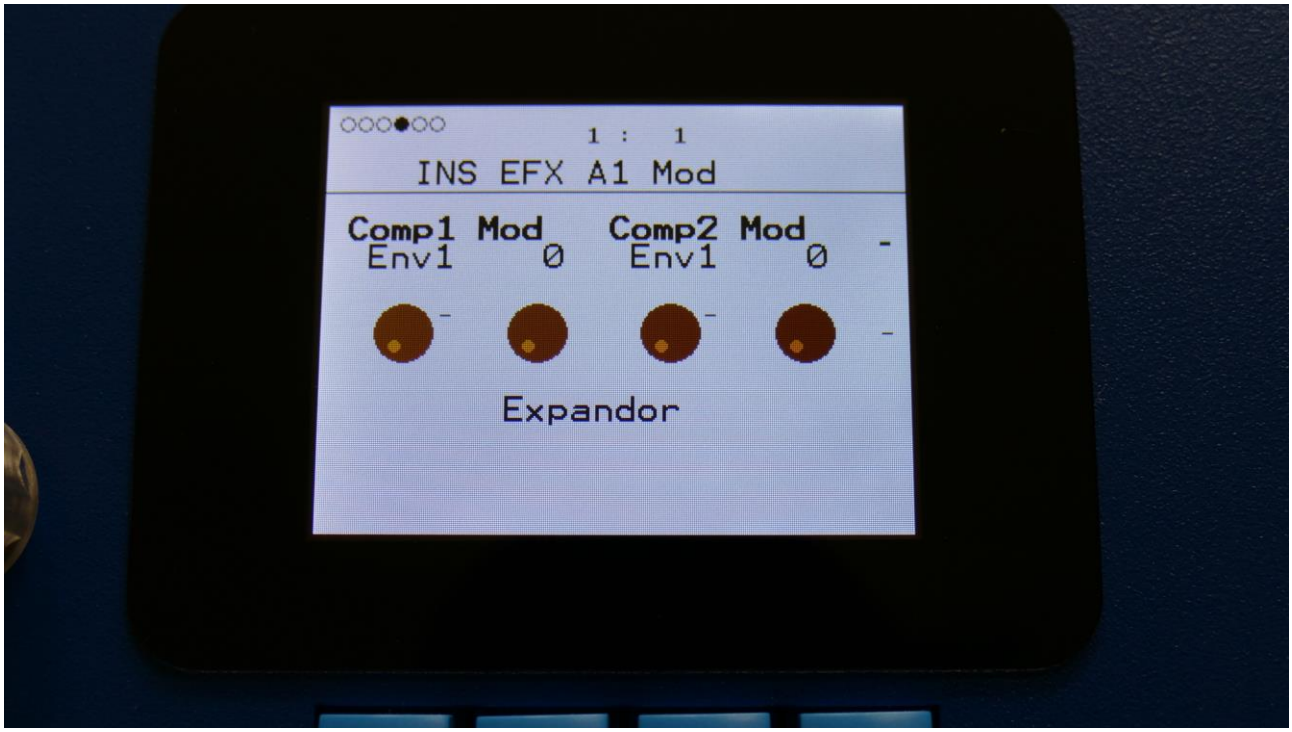


Offs: 0 to 511. Sets the level point where the expansion will kick in. The more this is turned up, the higher the input signal will need to be, before it starts to gain.

Gain: 0 to 511. Sets the output gain of the expandor.

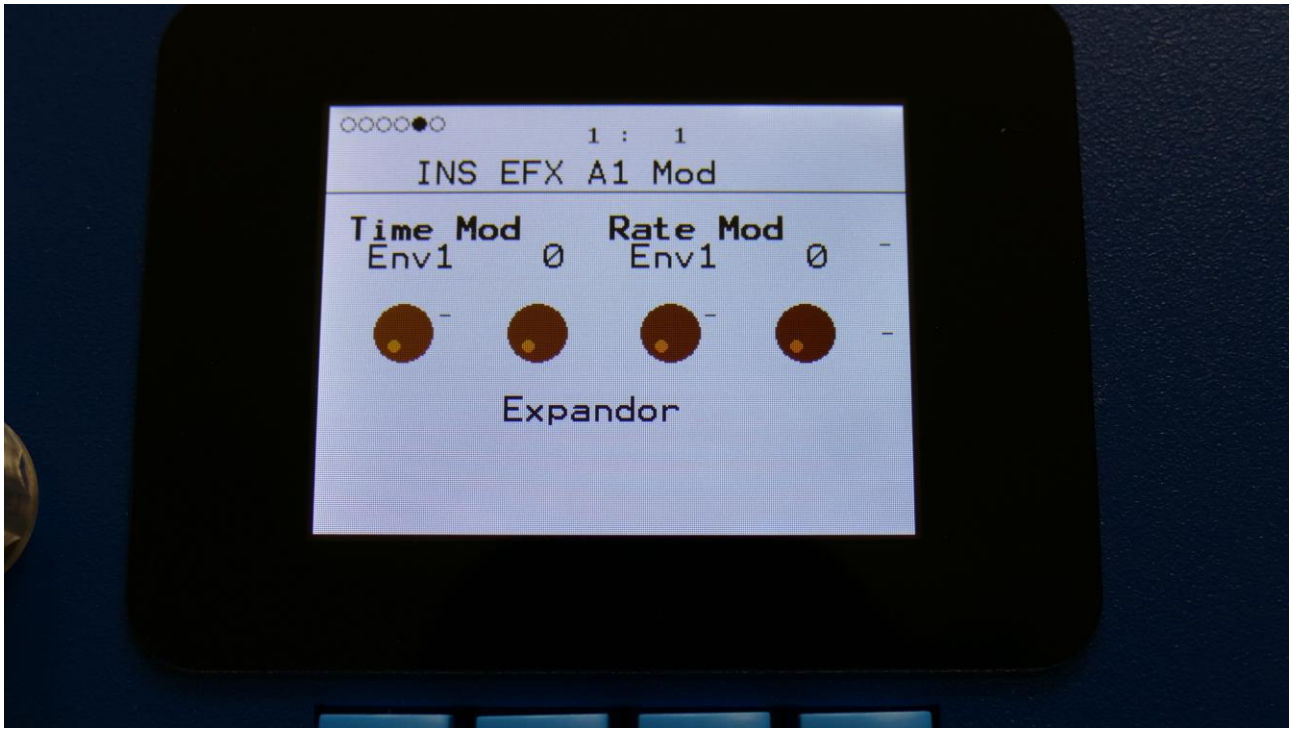
Rate: 0 to 511. This sets how fast the expandor will react to level changes of the input signal. The more it is turned up, the slower it will react.

Expandor Modulation



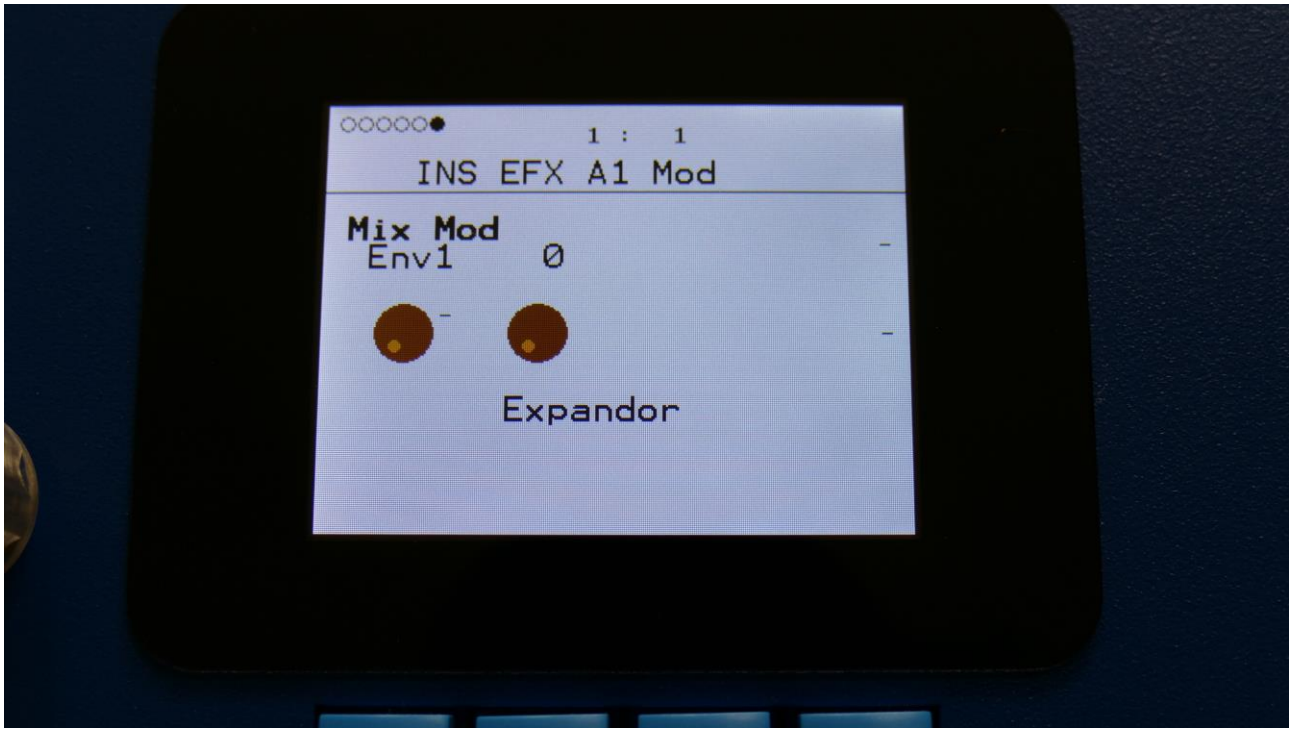
Comp1 Mod: Select a modulation source and adjust the amount of modulation for the Comp parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Comp2 Mod: Select a modulation source and adjust the amount of modulation for the Comp parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



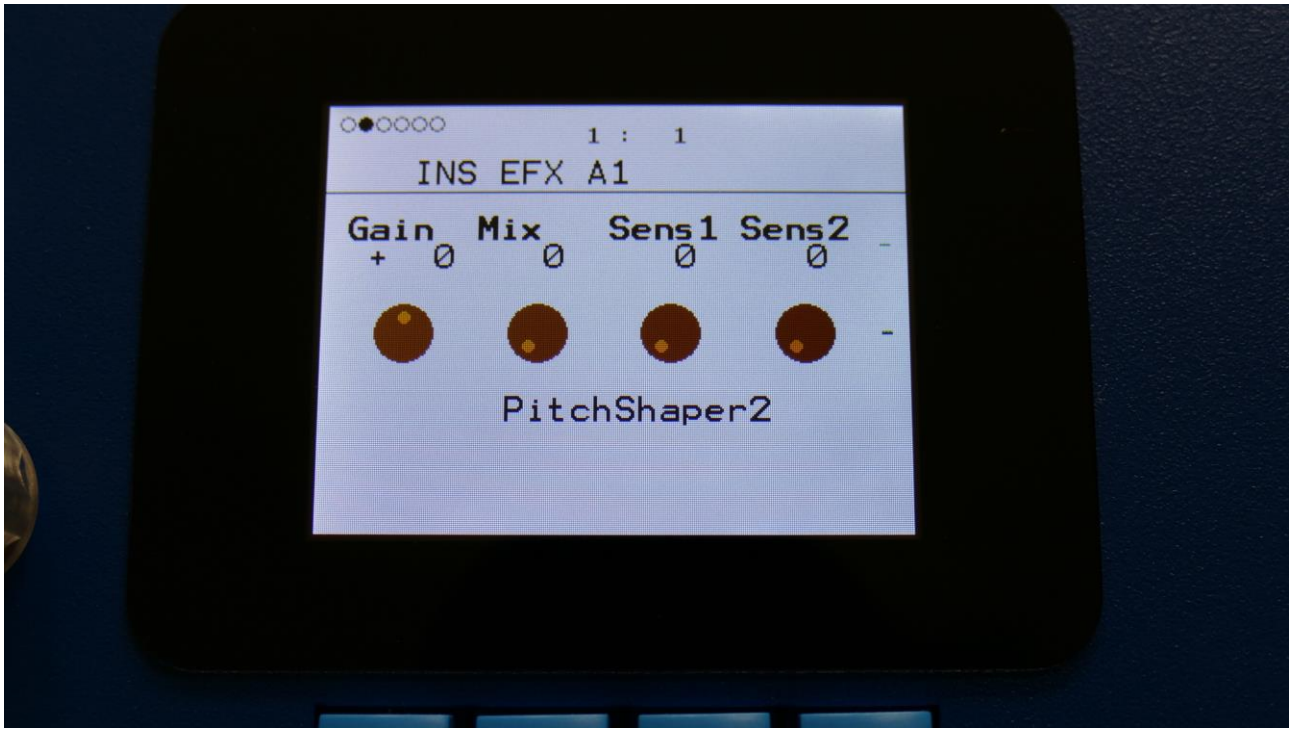
Time Mod: Select a modulation source and adjust the amount of modulation for the Time parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Rate Mod: Select a modulation source and adjust the amount of modulation for the Rate parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

PitchShaper2



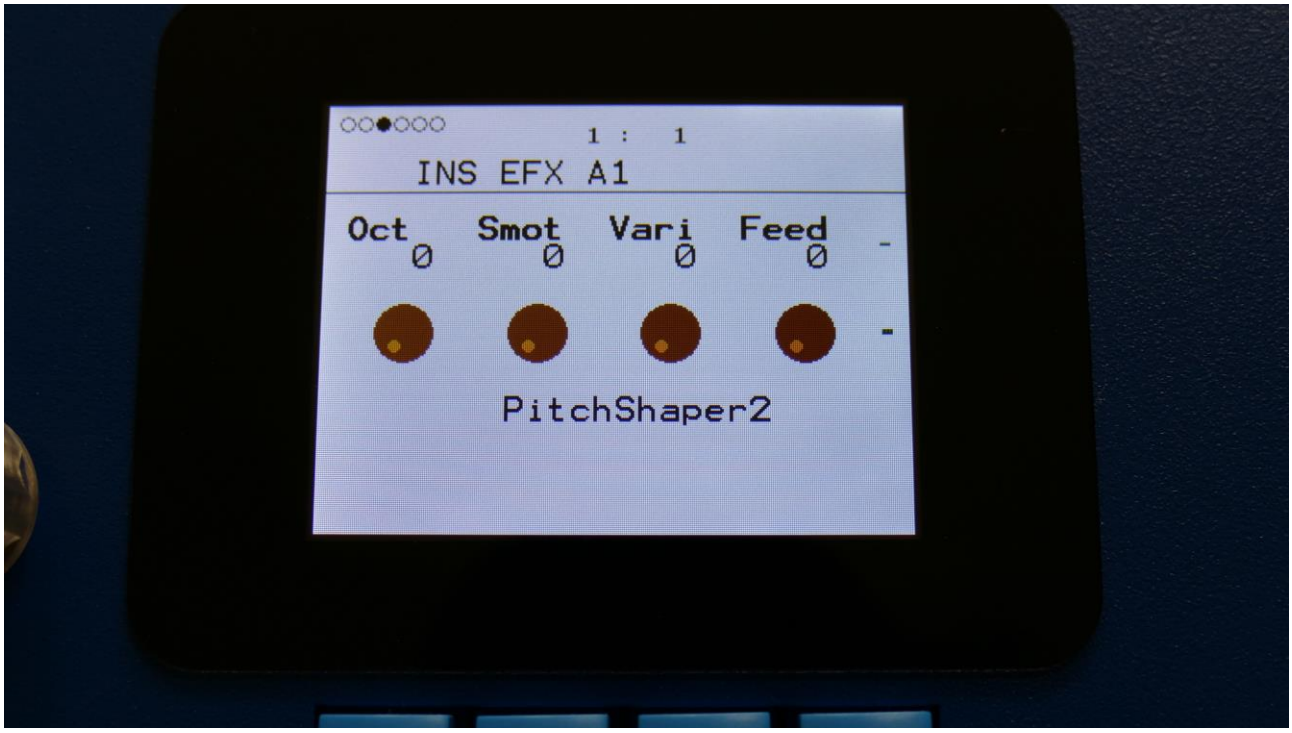
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

Sens1: Pitch detection sense input 1. 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".

Sens2: Pitch detection sense input 2. 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".



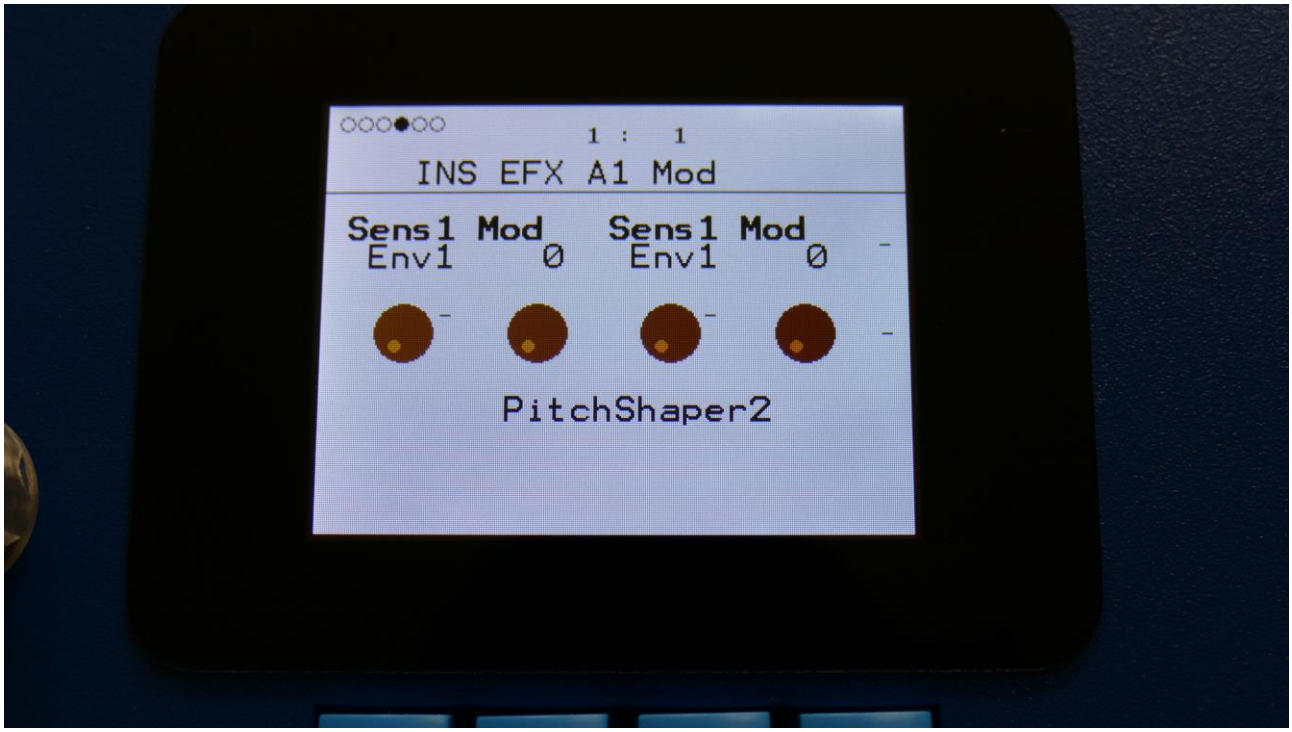
Oct: Octave transpose. From 0 to +3 octaves.

Smot: Smooth. The more this is turned up, the more the changes in pitch are smoothened.

Vari: Pitch variation. The more this is turned up, the more the pitch variations on the input 1 signal affects the pitch shaper frequency.

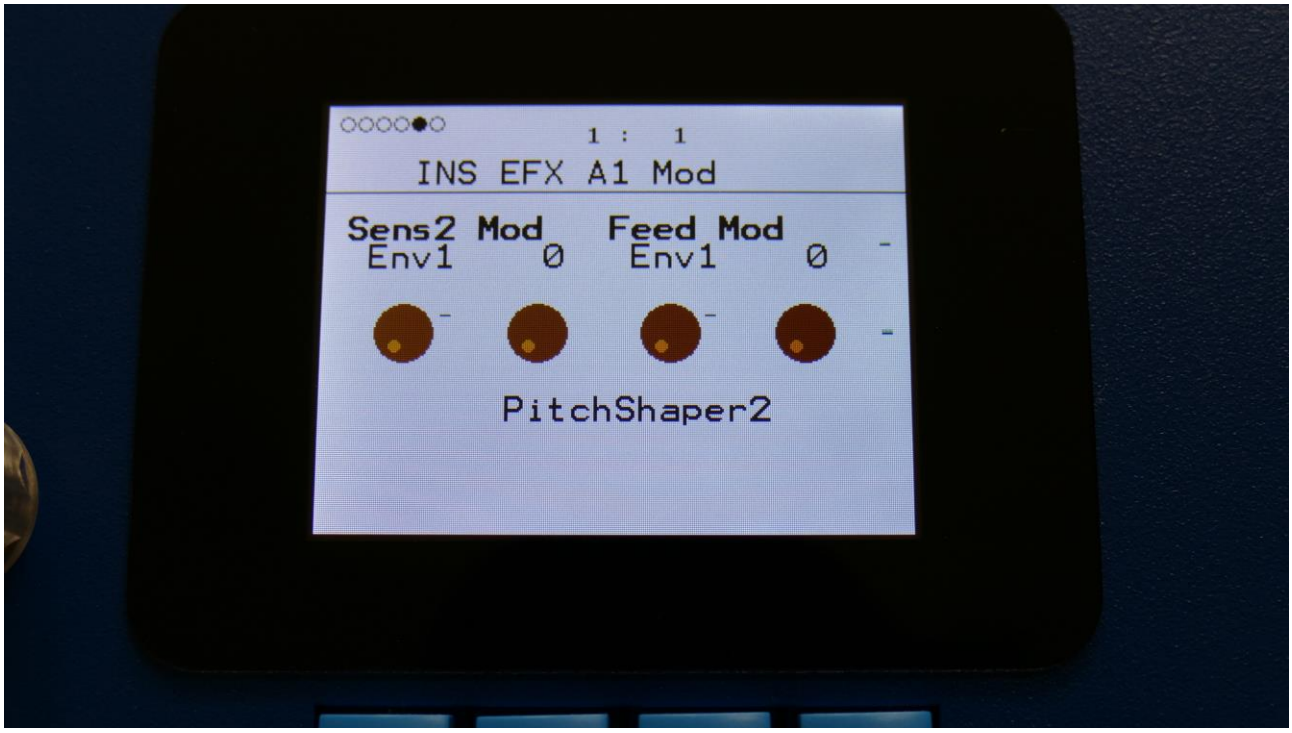
Feed: Pitch shaper feedback. Adjusts the portion of the output signal, that is fed back to the input.

PitchShaper2 Modulation



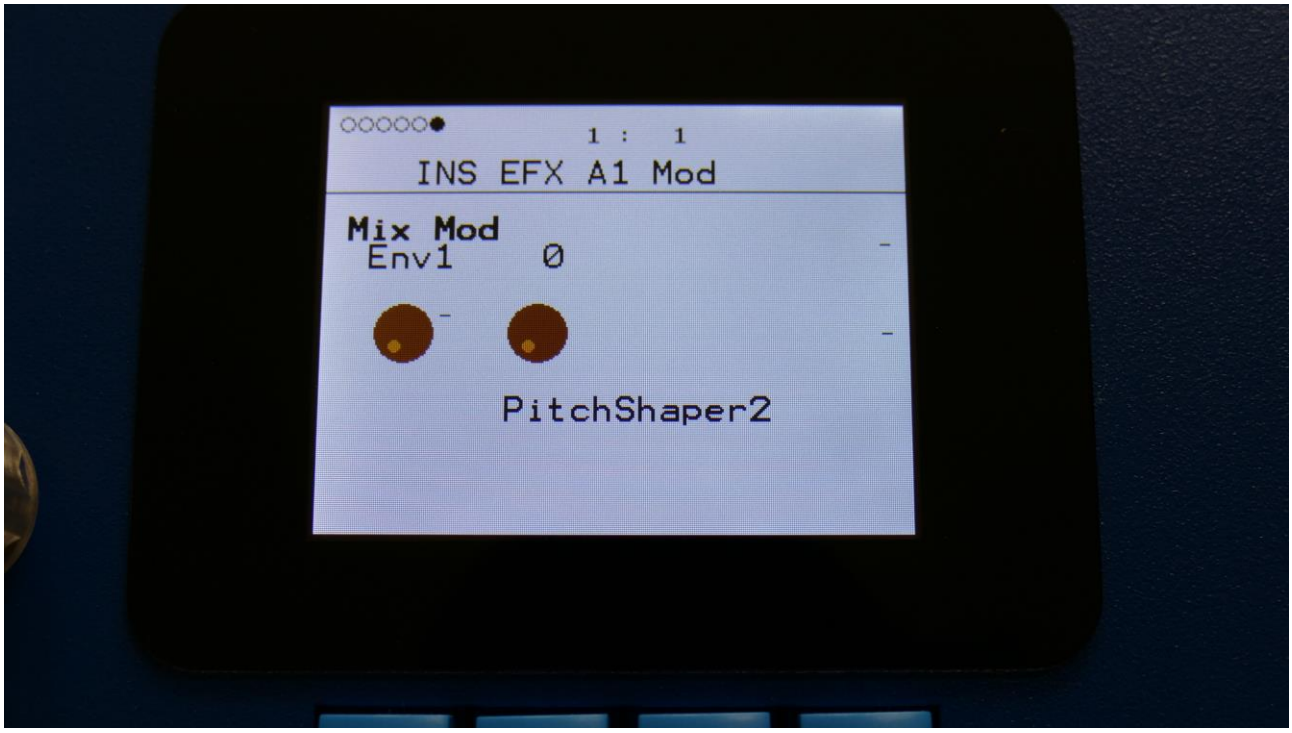
Sens1 Mod: Select a modulation source and adjust the amount of modulation for the Sens1 parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Sens1 Mod: Select a modulation source and adjust the amount of modulation for the Sens1 parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



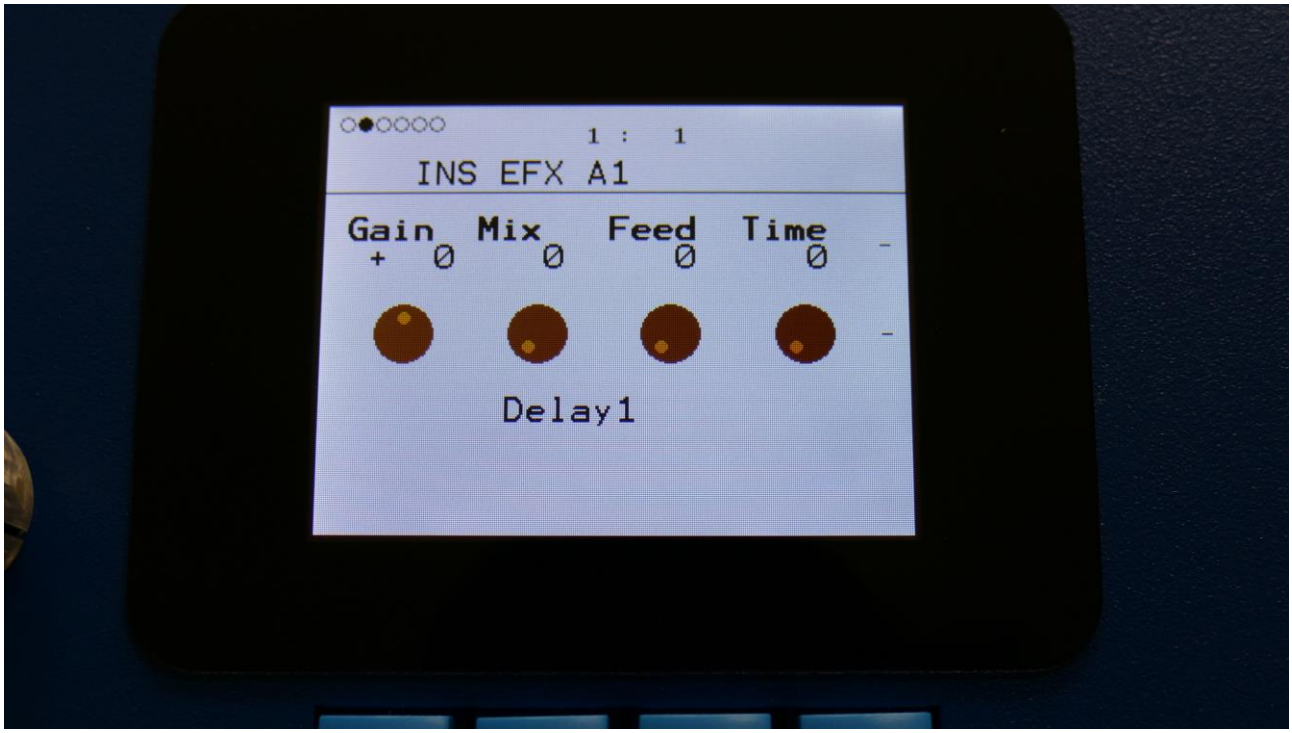
Sens2 Mod: Select a modulation source and adjust the amount of modulation for the Sens2 parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Delay1, Roto delay, Bright Delay and Bright Roto Delay



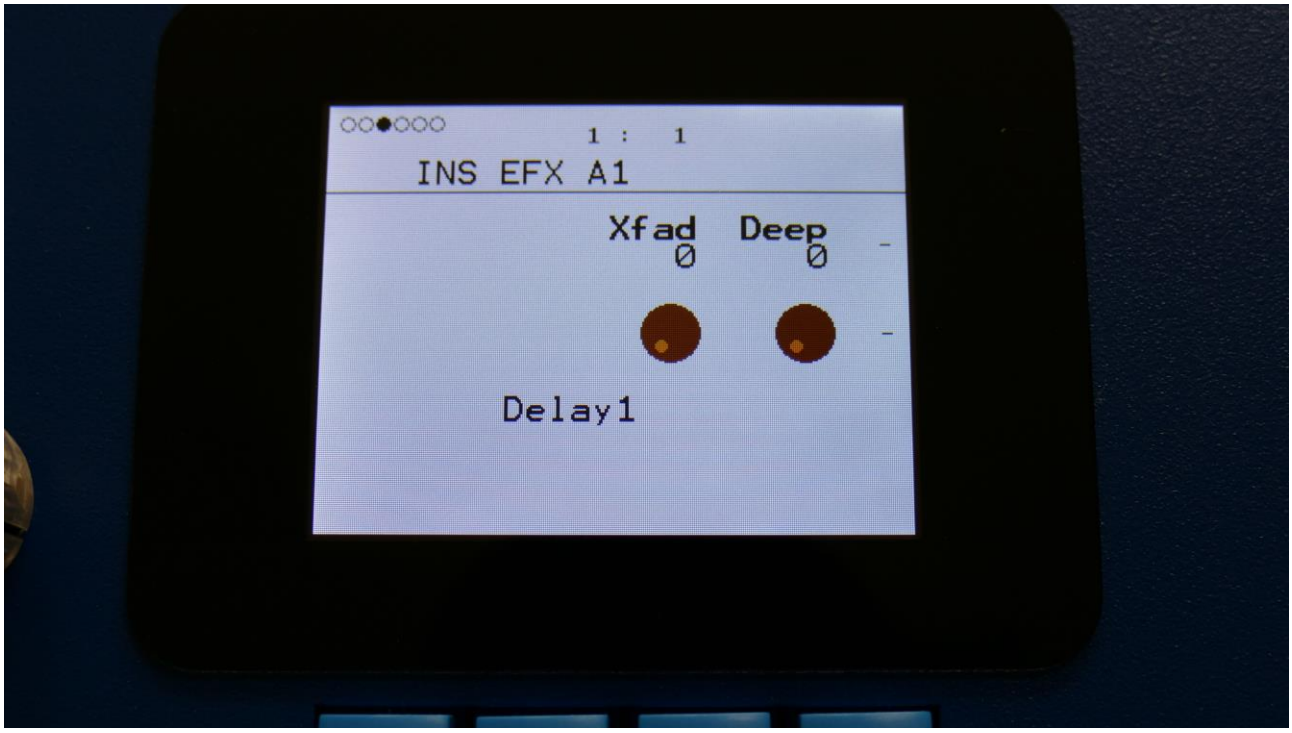
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

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

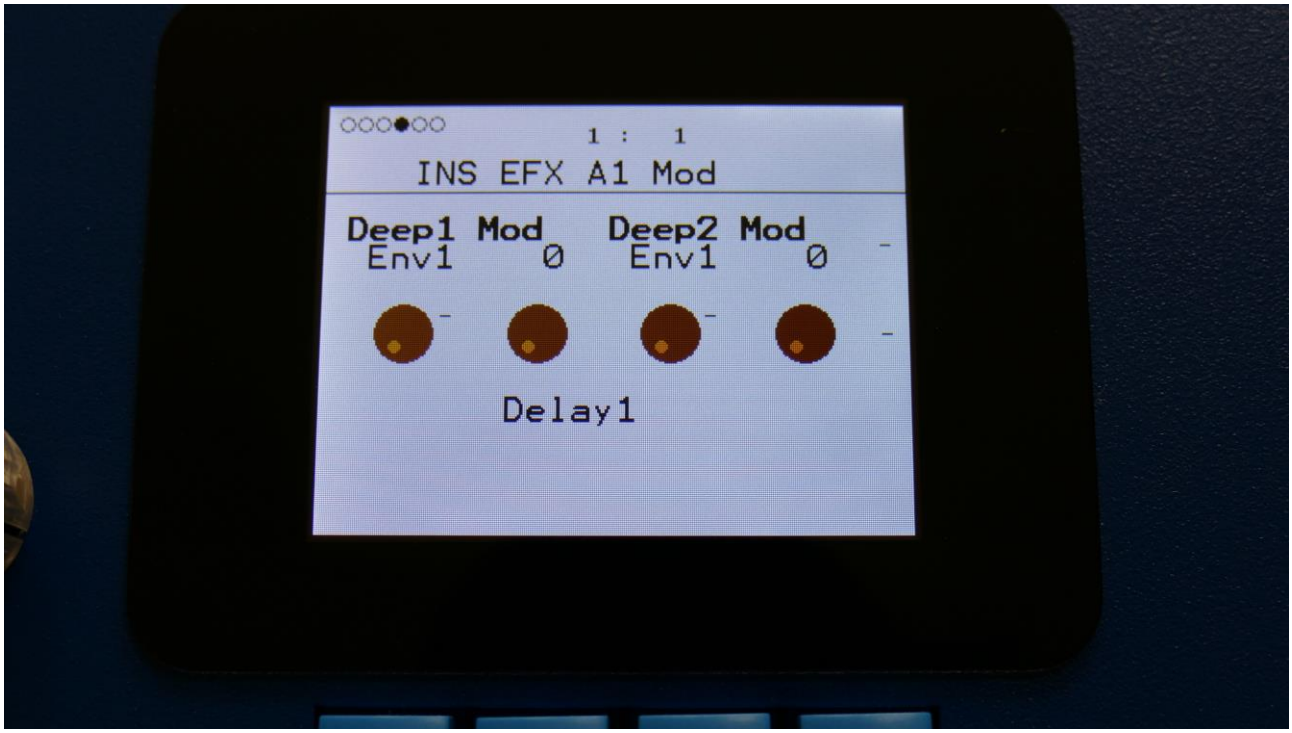
Time: Delay time.



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

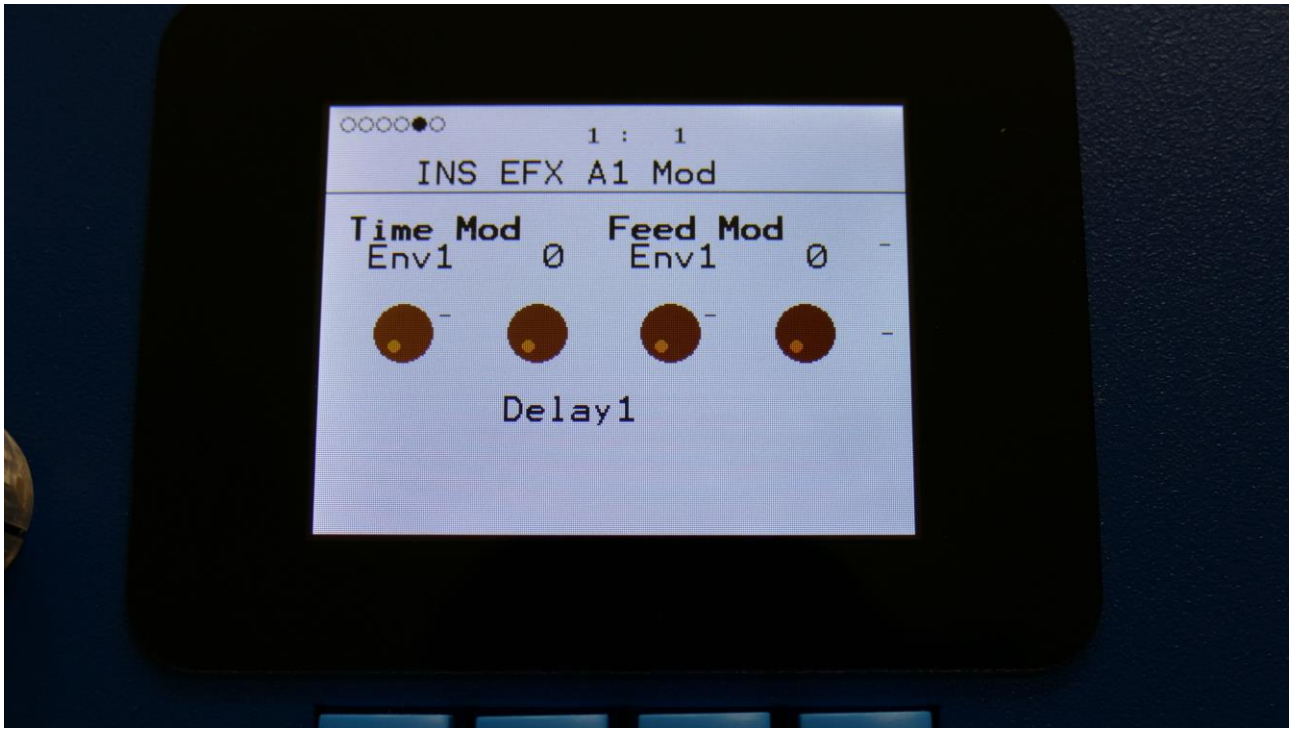
Deep: Simulates a delay box, with adjustable physical depth.

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



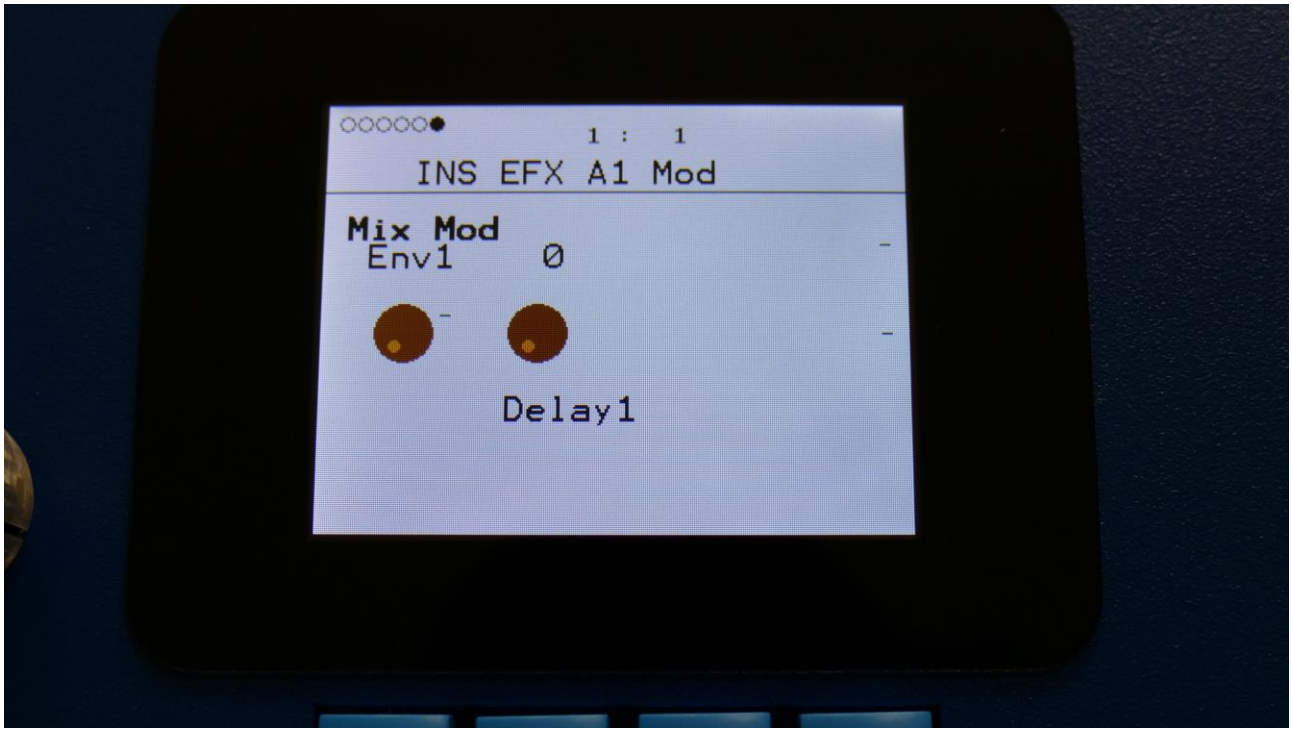
Deep1 Mod: Select a modulation source and adjust the amount of modulation for the Deep parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Deep2 Mod: Select a modulation source and adjust the amount of modulation for the Deep parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



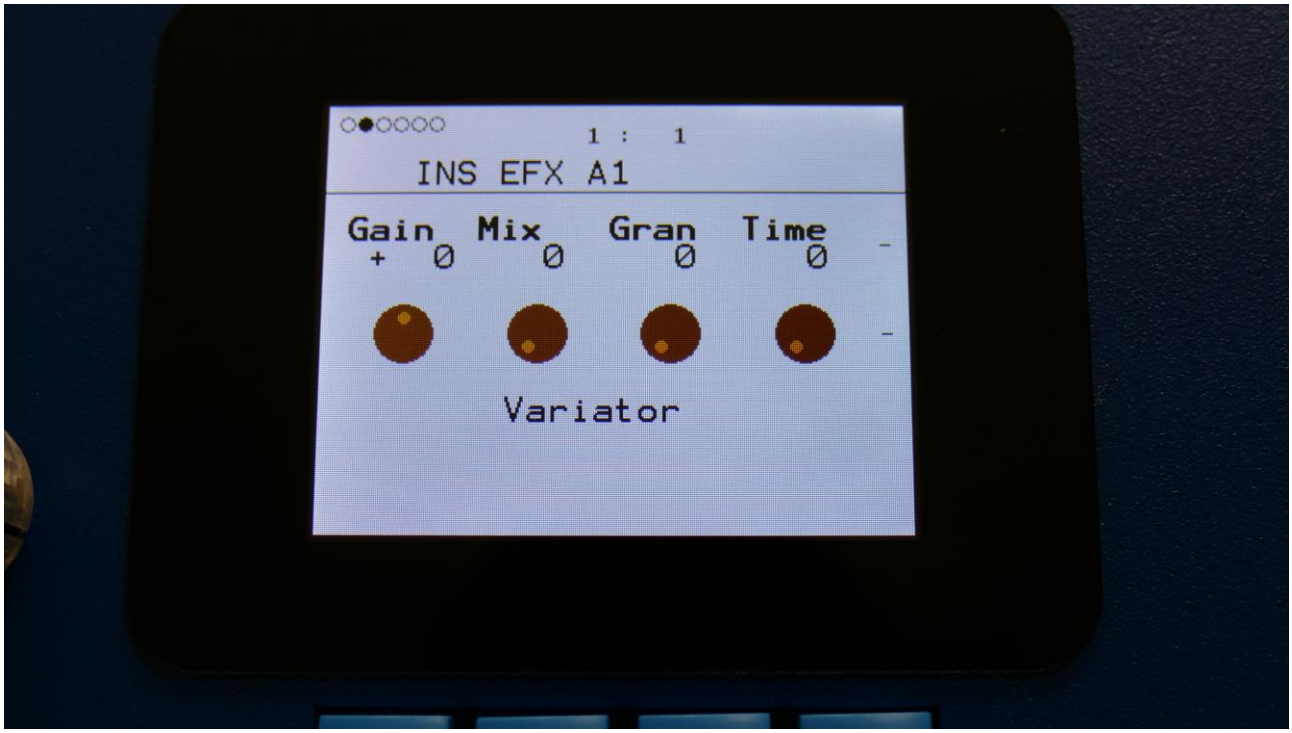
Time Mod: Select a modulation source and adjust the amount of modulation for the Time parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Variator



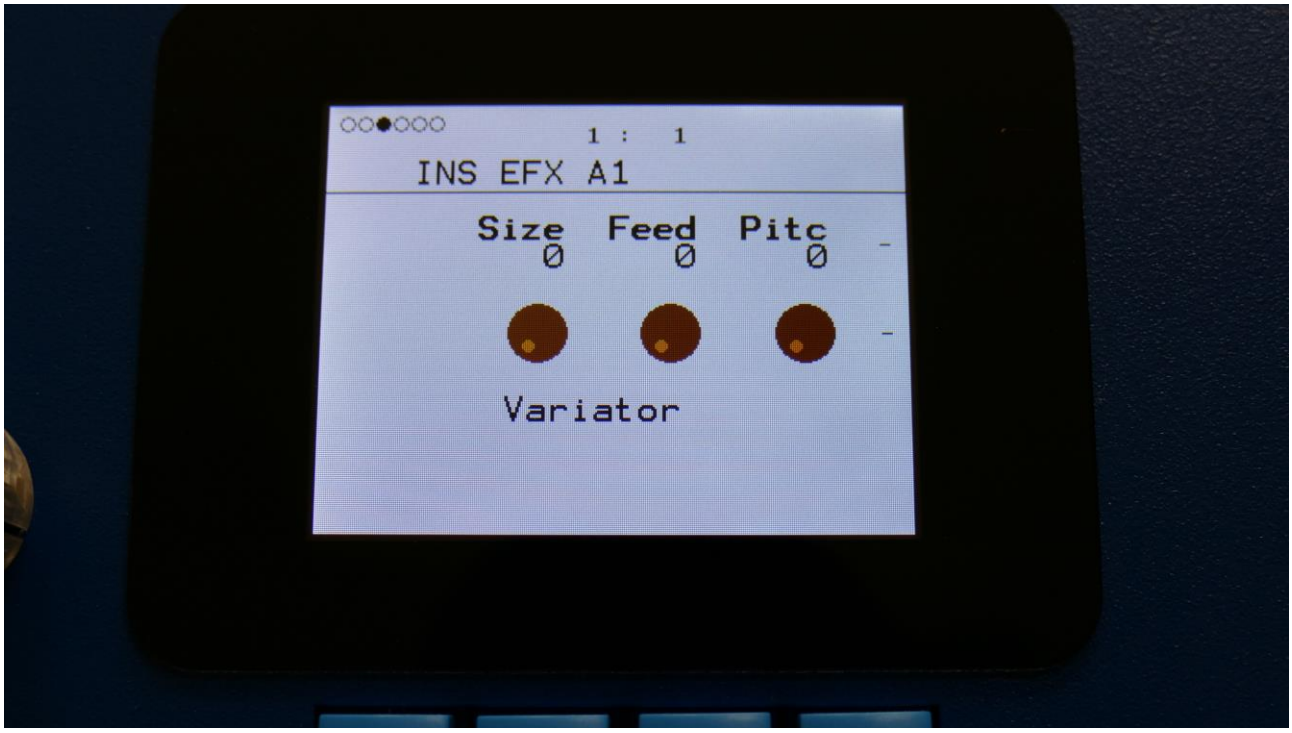
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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.

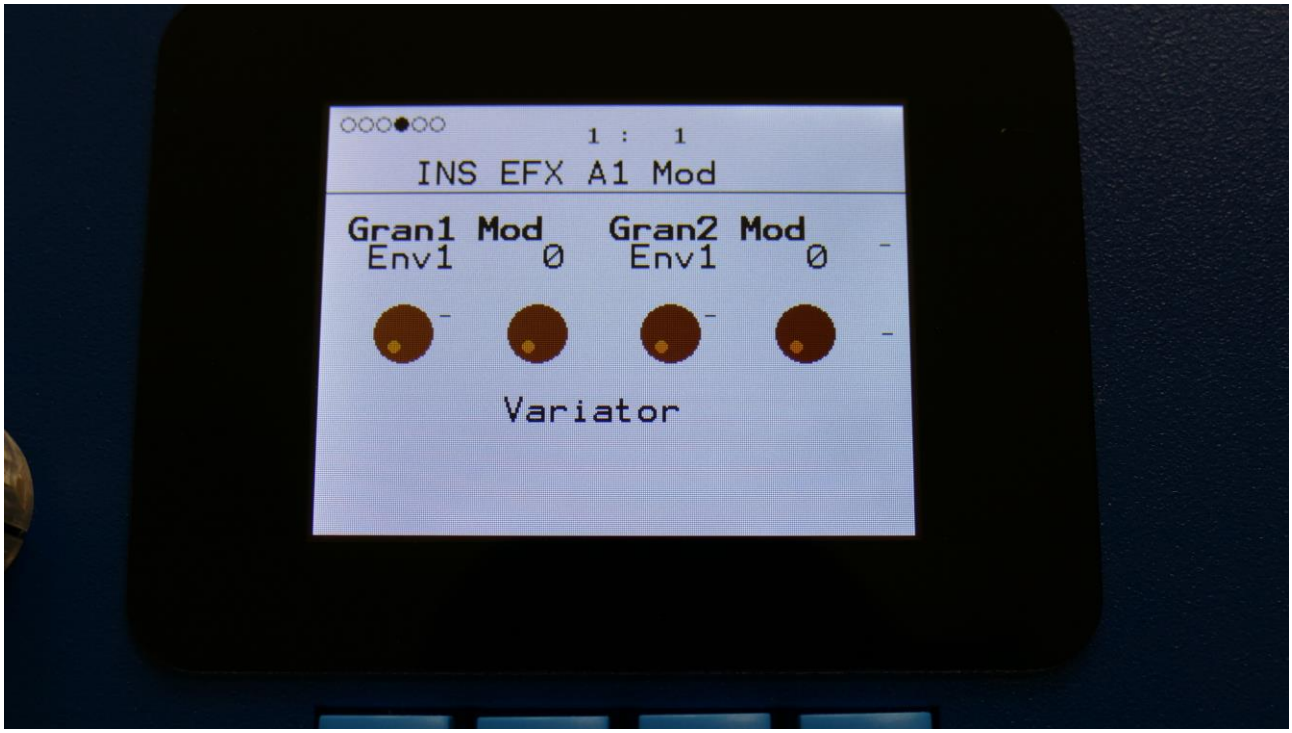


Size: The size of one grain.

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

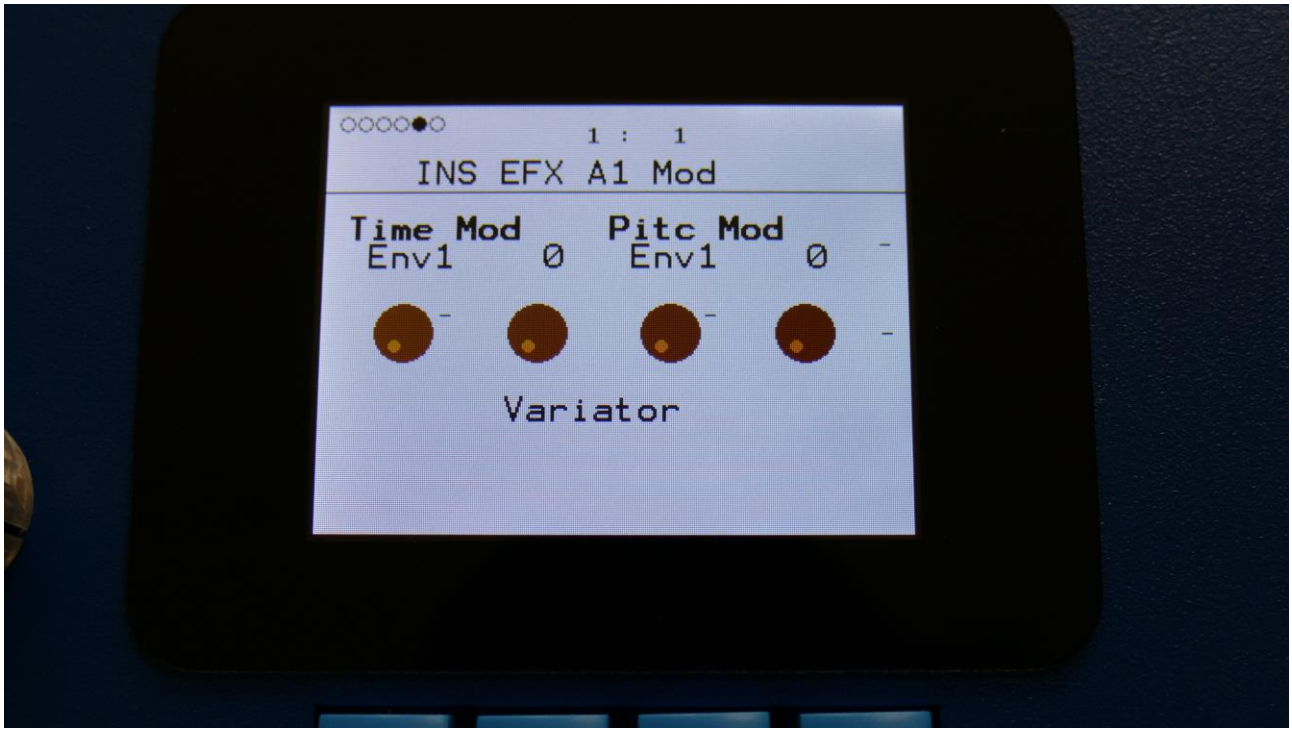
Pitc: The amount of Variator pitch shift.

Variator Modulation



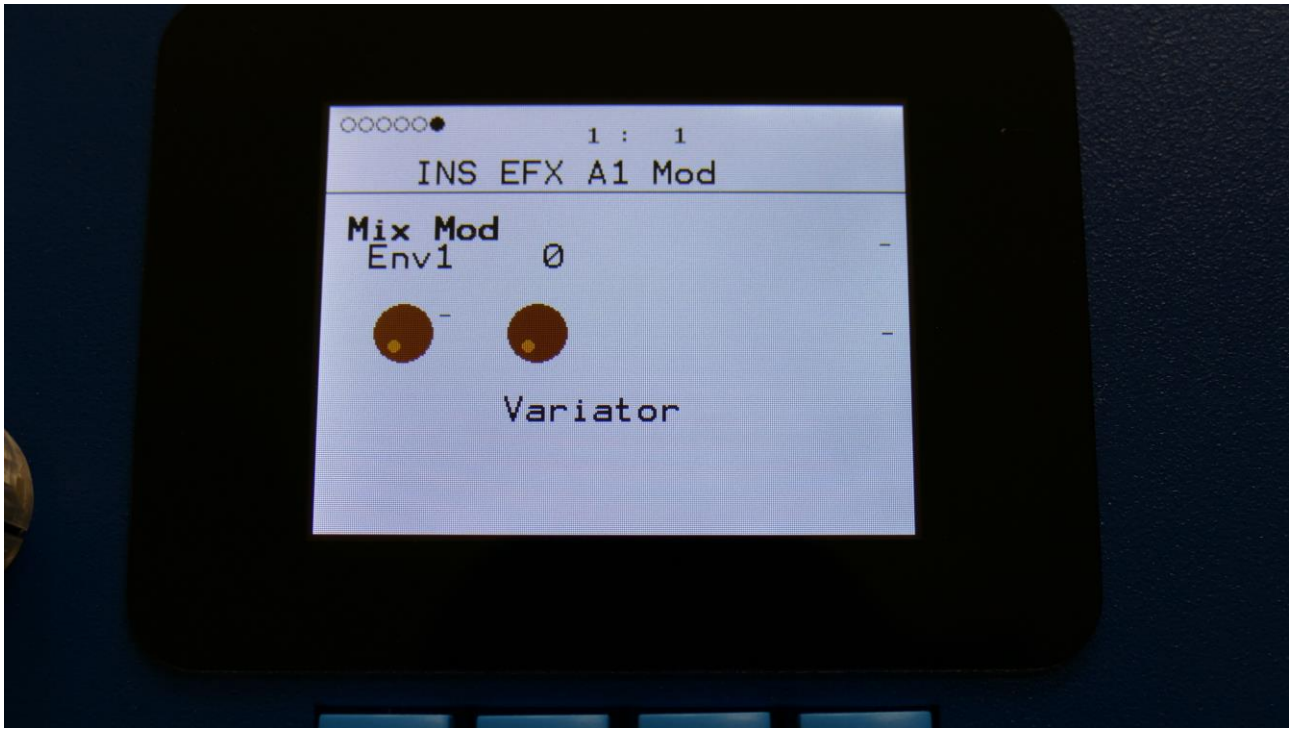
Gran1 Mod: Select a modulation source and adjust the amount of modulation for the Gran parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Gran2 Mod: Select a modulation source and adjust the amount of modulation for the Gran parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



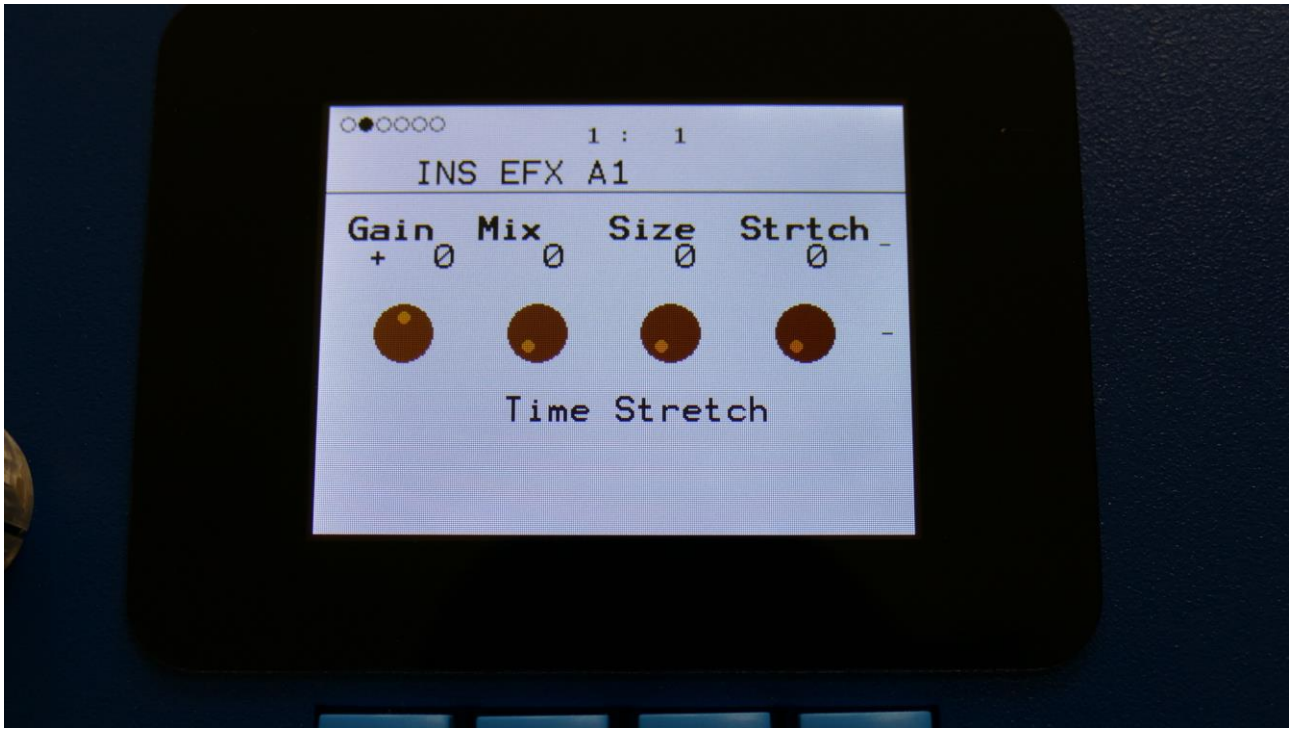
Time Mod: Select a modulation source and adjust the amount of modulation for the Time parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pitc Mod: Select a modulation source and adjust the amount of modulation for the Pitc parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Time Stretch



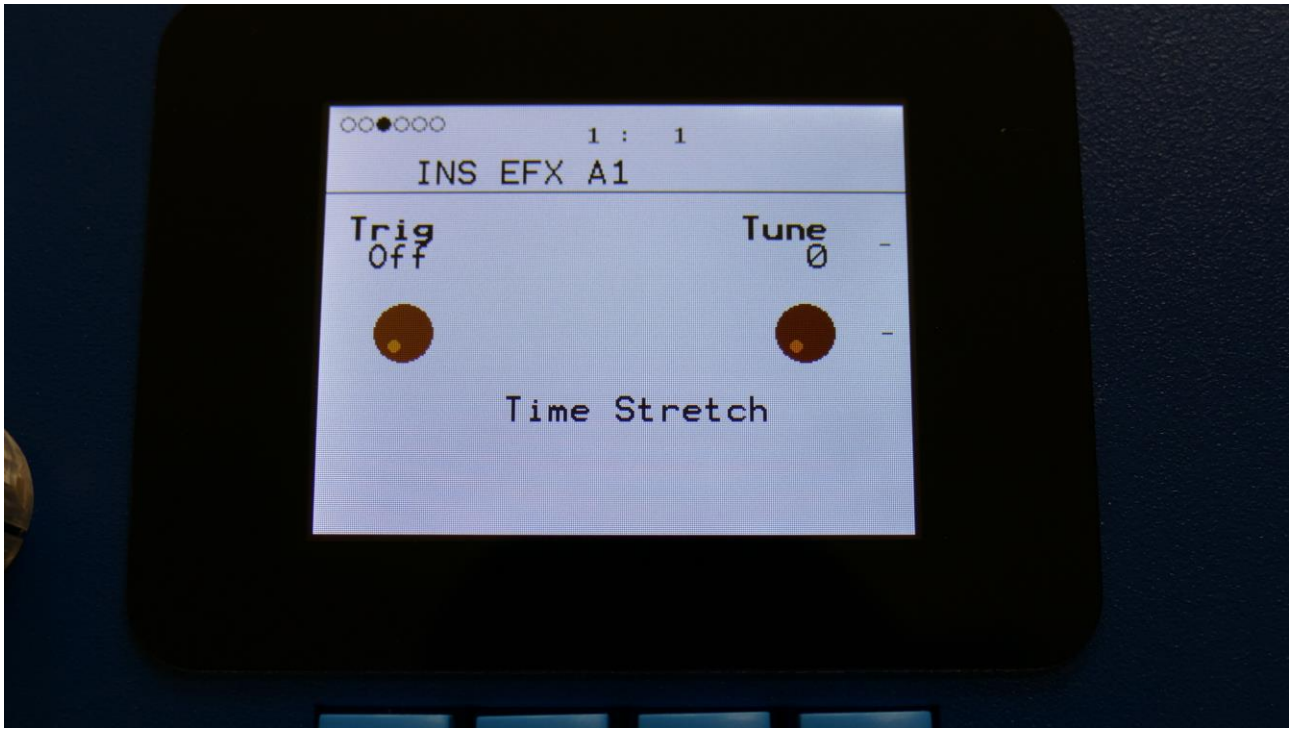
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

Size: 0 to 511. The size of the RAM buffer used for the TimeStretcher.

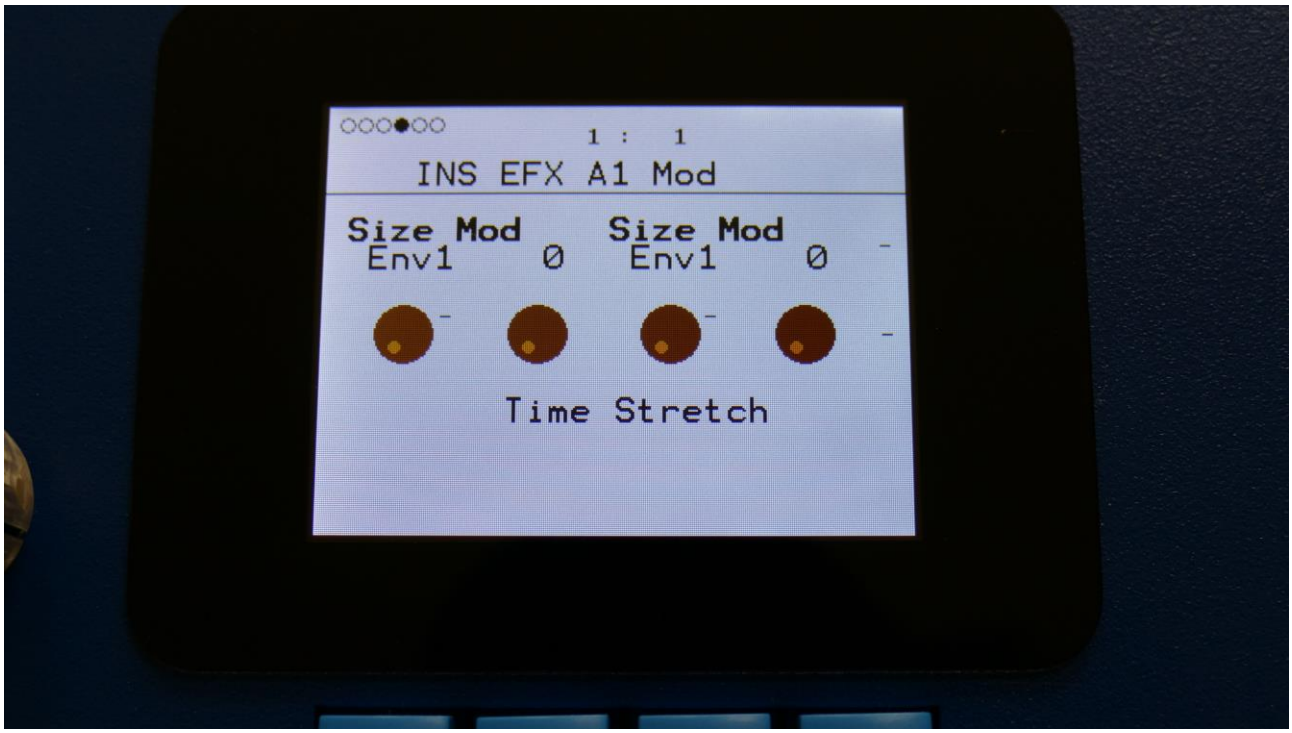
Strtch: 0 to 511. Time stretch. A value below 256 will stretch the sound longer, a value above 256 will compress the sound to become shorter.



Trig: Off, 1 to 16. Determines if the time stretch effect should be trigged by a part or not.

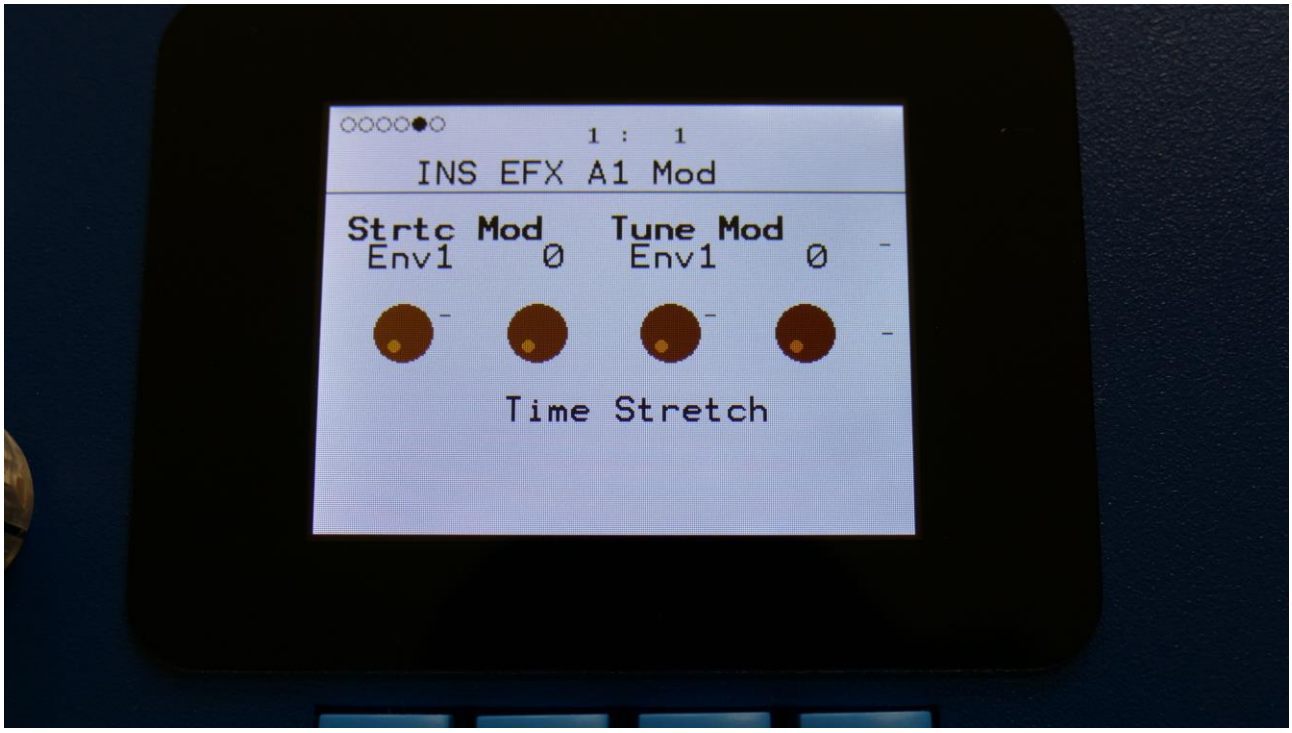
Tune: Pitch Coarse. A value below 256 will pitch the signal down, a value above 256 will pitch it up.

Time Stretch Modulation



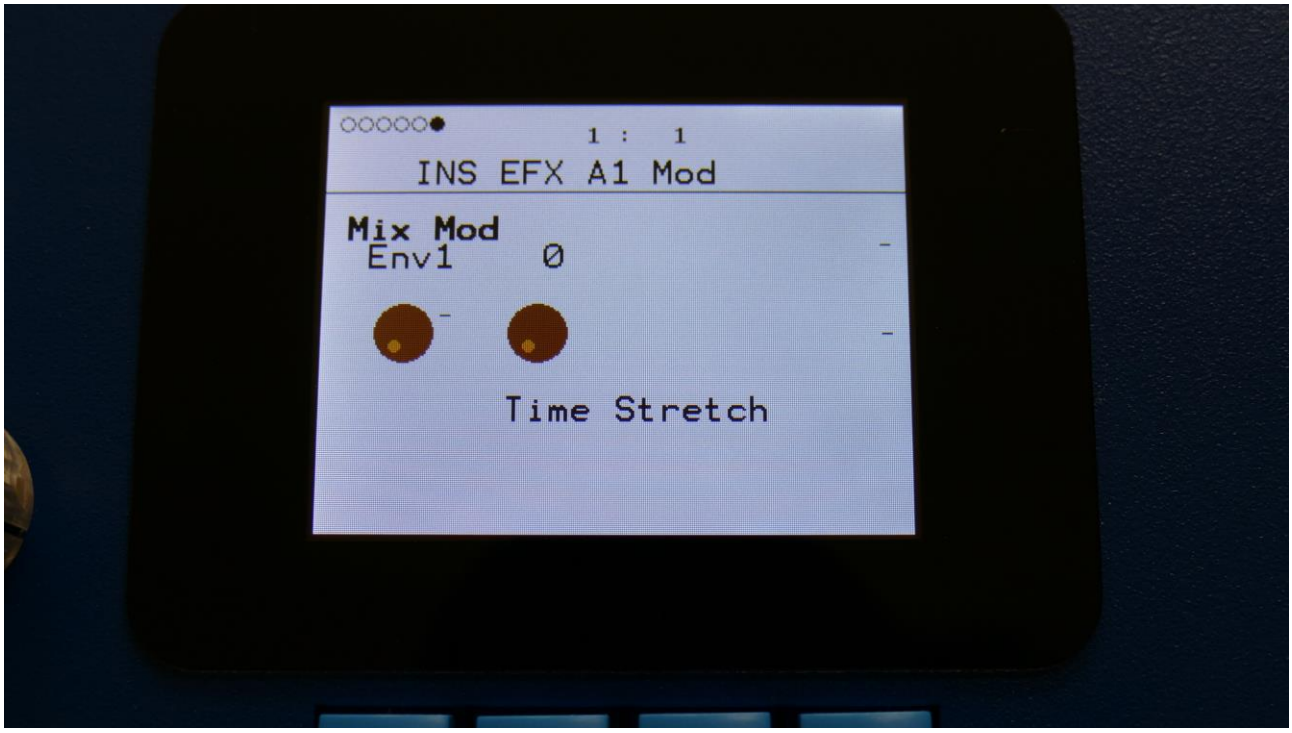
Size Mod: Select a modulation source and adjust the amount of modulation for the Size parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Size Mod: Select a modulation source and adjust the amount of modulation for the Size parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



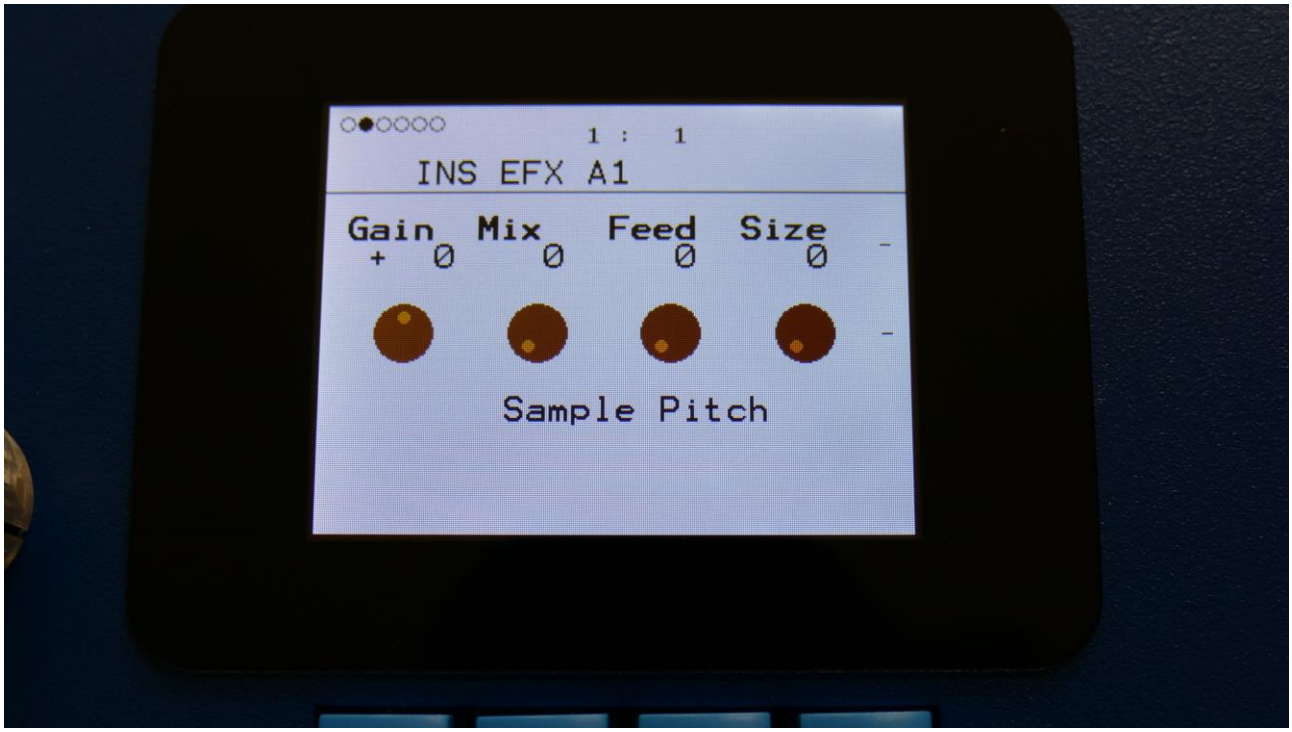
Strtc Mod: Select a modulation source and adjust the amount of modulation for the Strtch parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Tune Mod: Select a modulation source and adjust the amount of modulation for the Tune parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Sample Pitch



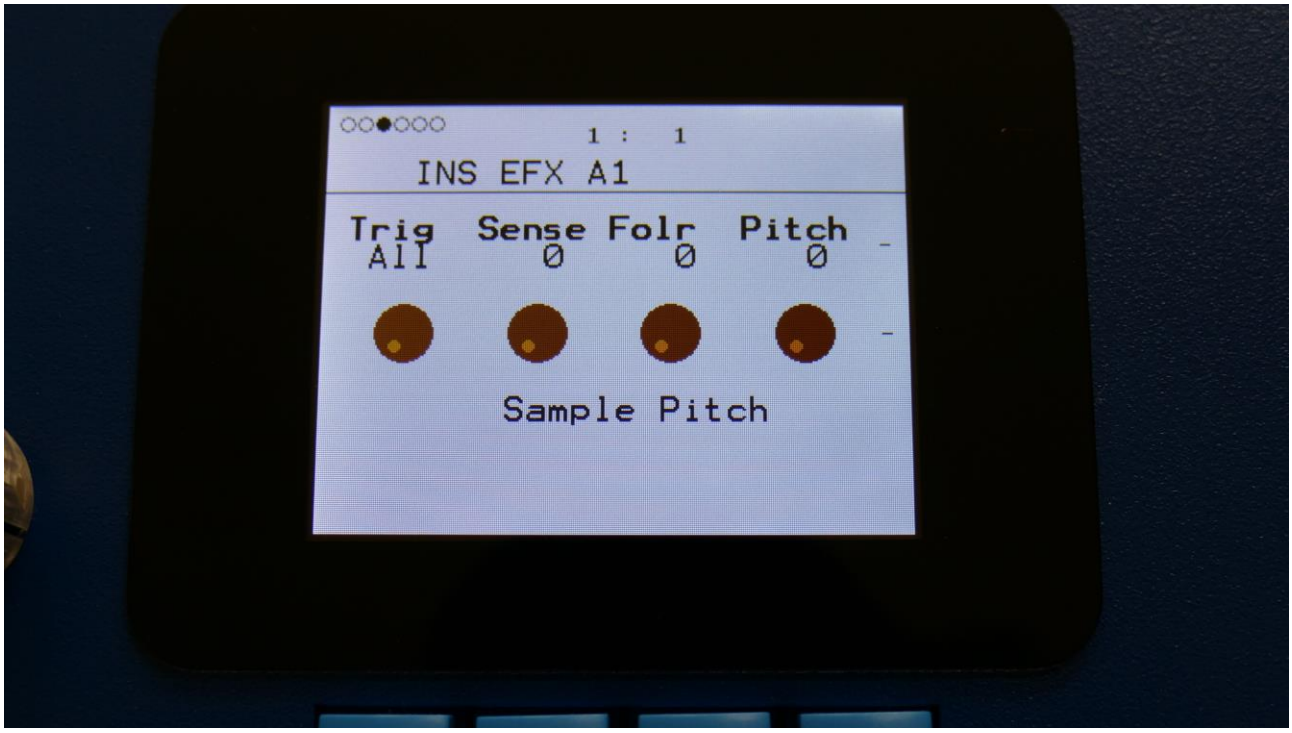
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

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

Size: 0 to 511. The number of wave frames used for each pitch grain.

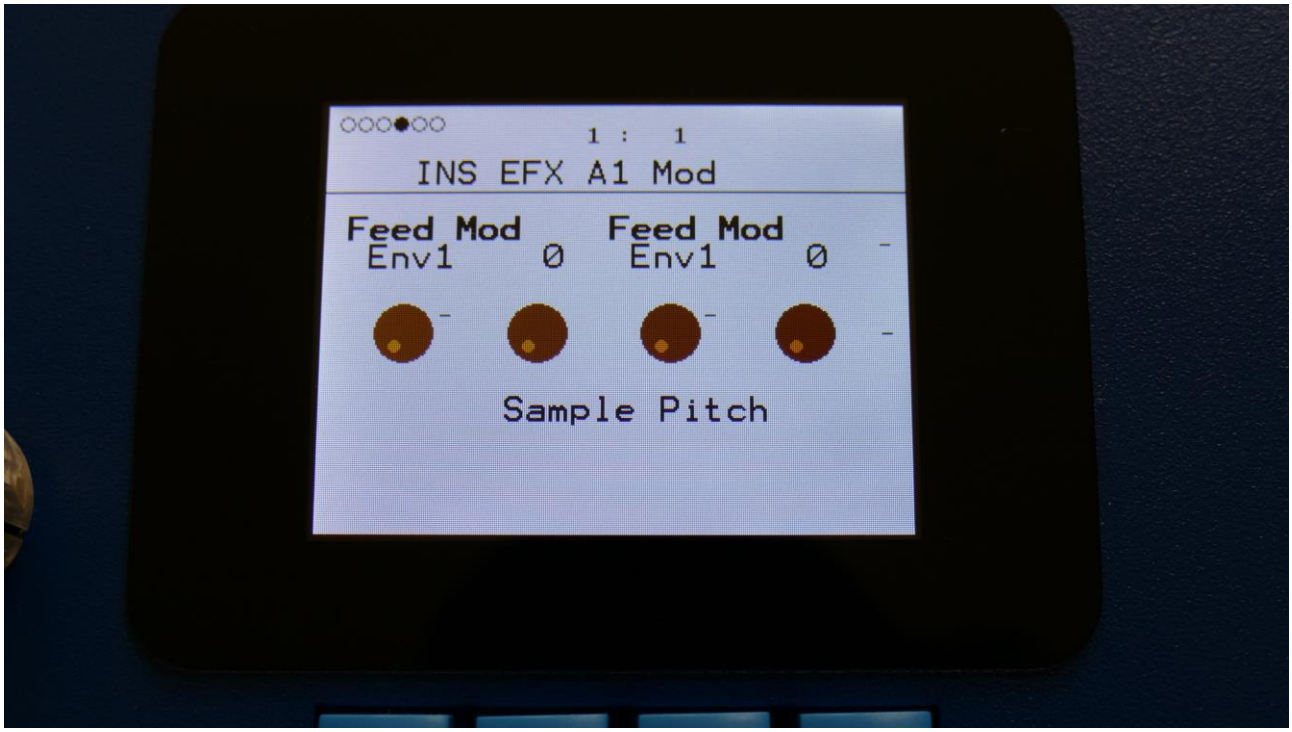


Trig: Off, 1 to 16, OffM, 1M to 16M. Determines if the sample pitch effect should be trigged by all parts or a single part. The “M” suffix indicates that the playback pointer will be moving in another pattern, that will give slightly different results.

Folr: The sample pitch effect output envelope follower rate.

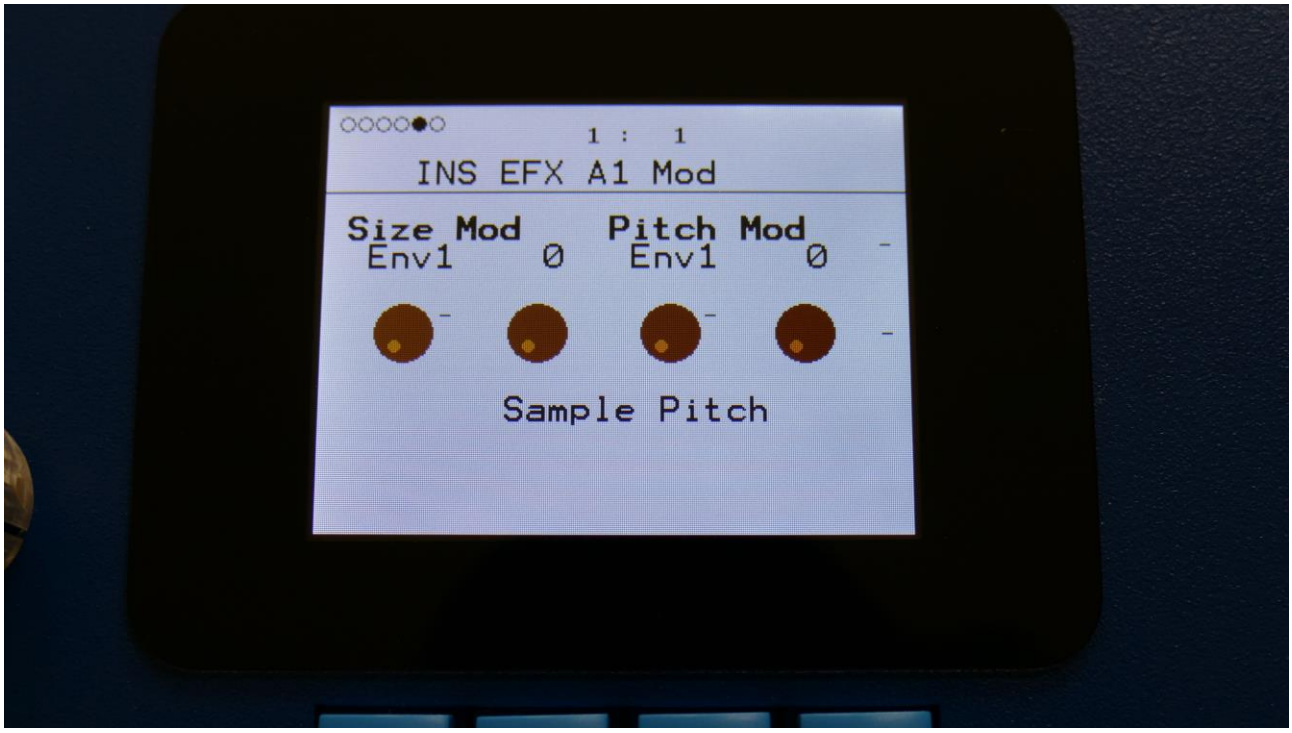
Pitch: The playback pitch. Values below 256 will tune down, values above 256 will tune up.

Sample Pitch Modulation



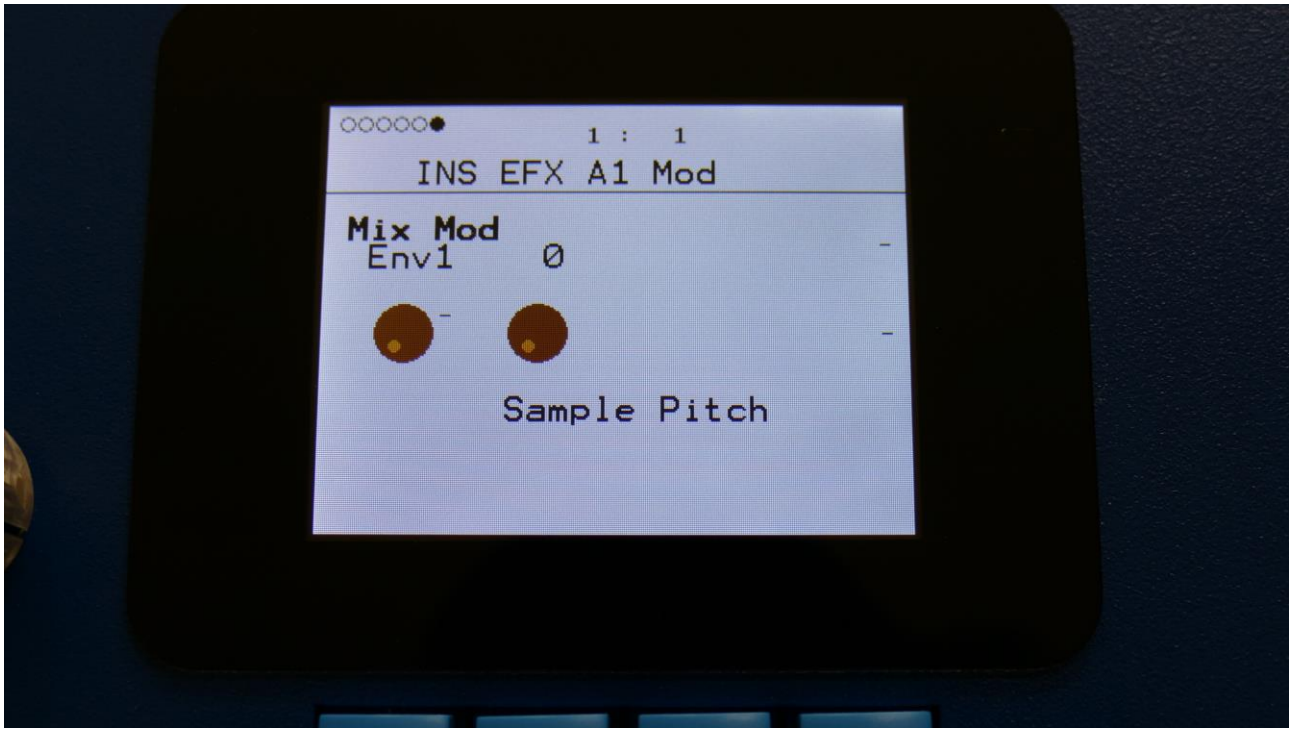
Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



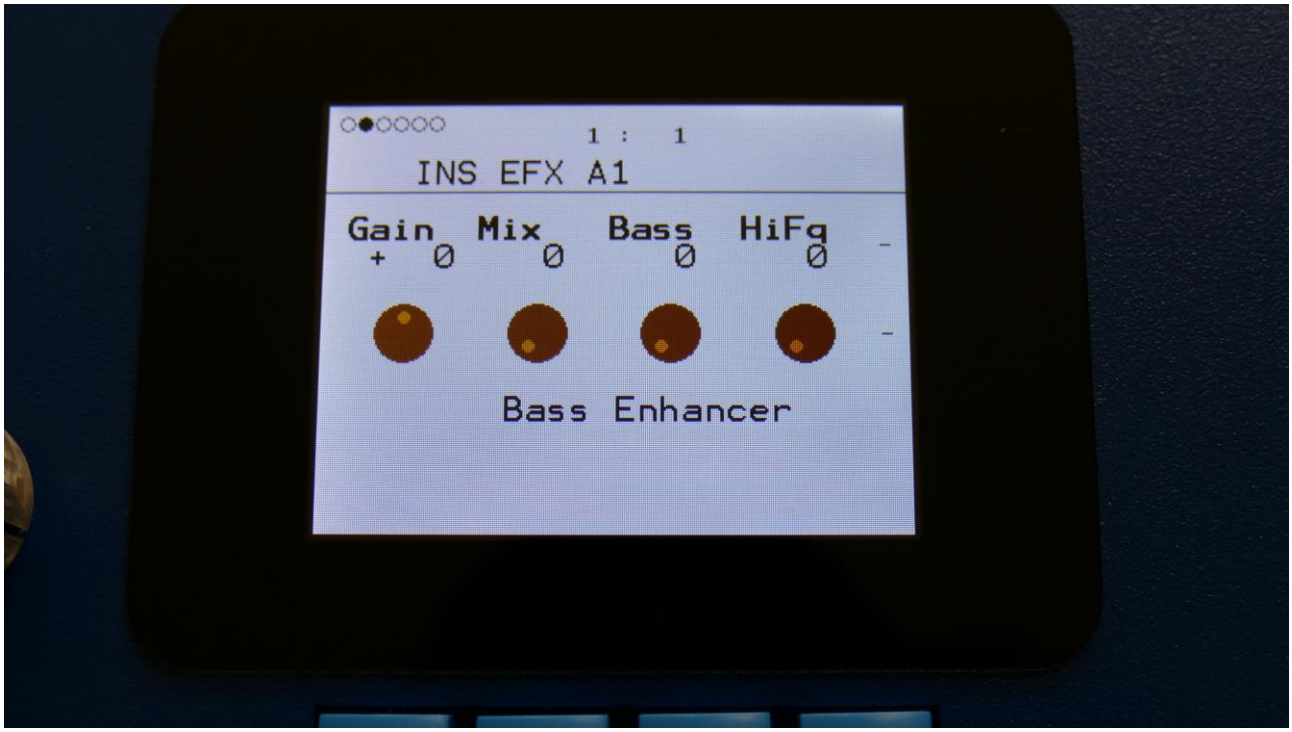
Size Mod: Select a modulation source and adjust the amount of modulation for the Size parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pitch Mod: Select a modulation source and adjust the amount of modulation for the Pitch parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Bass Enhancer



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

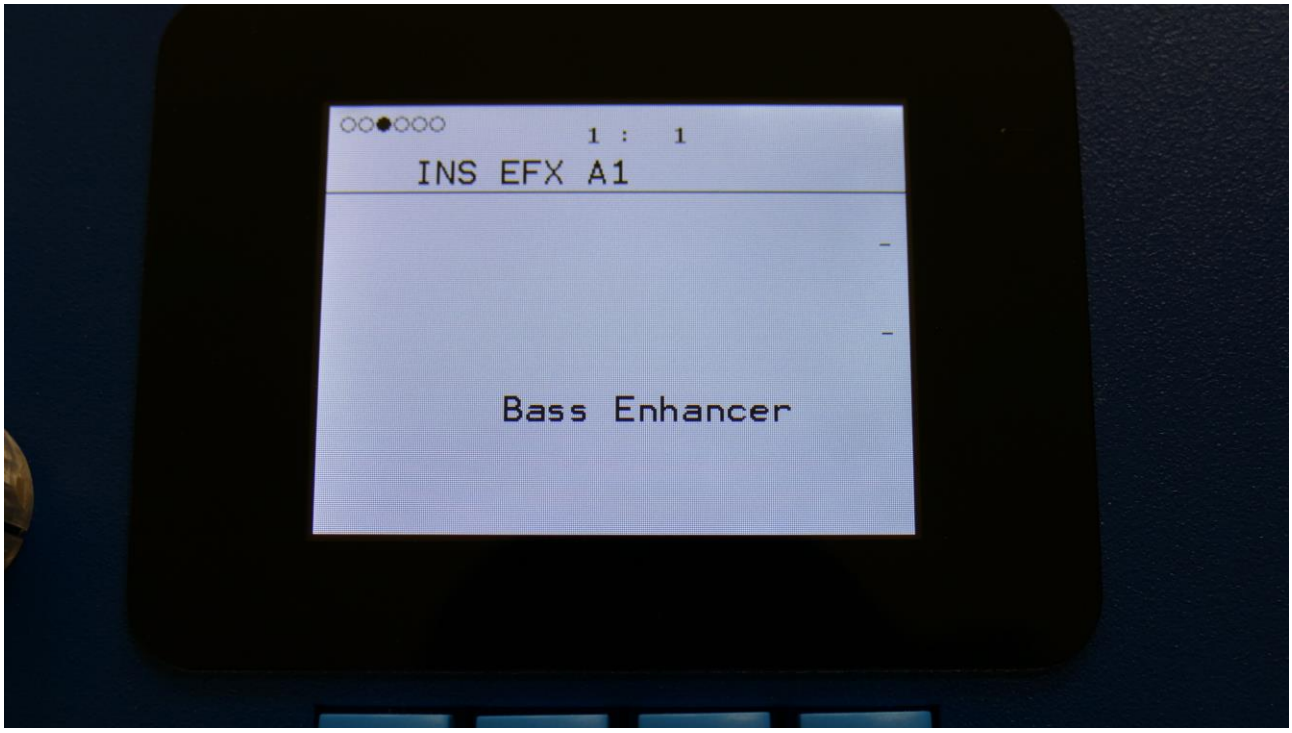
Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

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

Bass: 0 to 511. Sets the amount of bass enhancement. At zero no sound is going through the bass enhancer, at 511 it is bass enhancing so much, that it creates distortion.

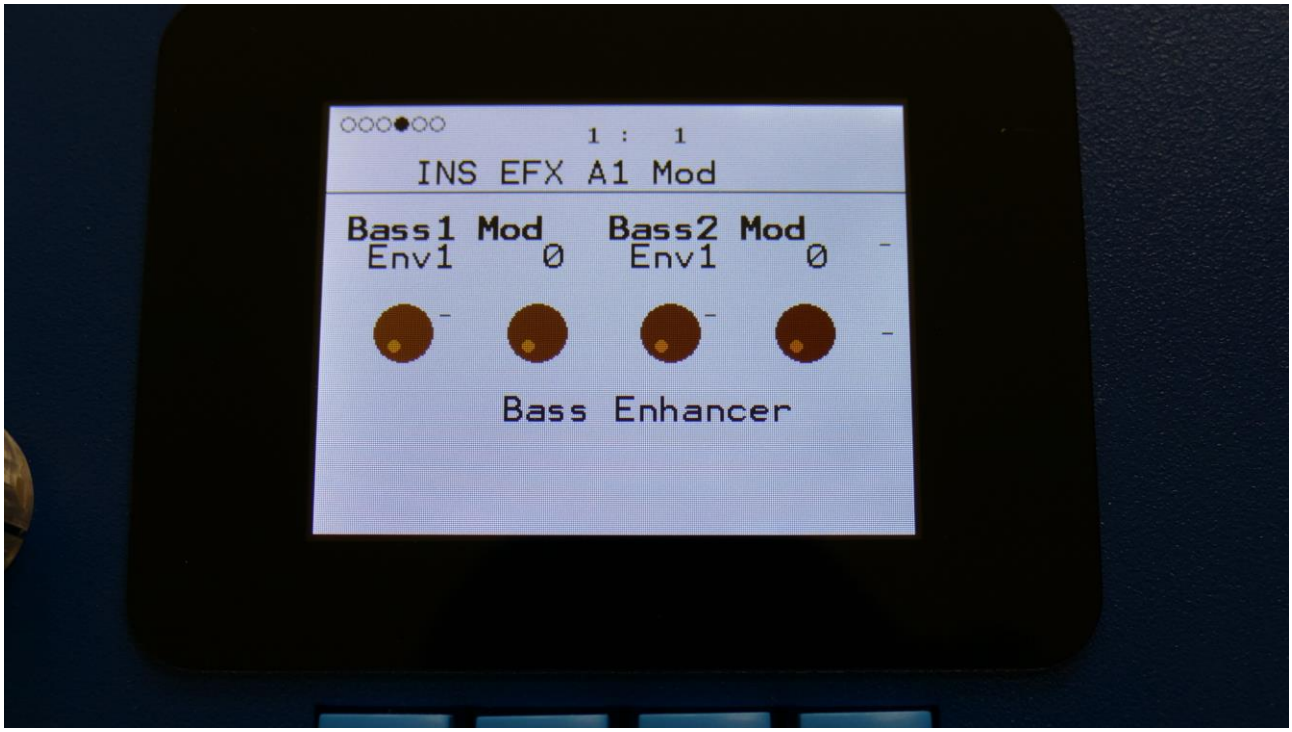
HiFq: 0 to 511. High frequency attack content. When turning this up, a subtle attack will be added to the sound, that is going through the bas enhancer.

For optimal bass enhancement, and not too much distortion, it is best to keep the Mix and the Bass parameters below the middle value.



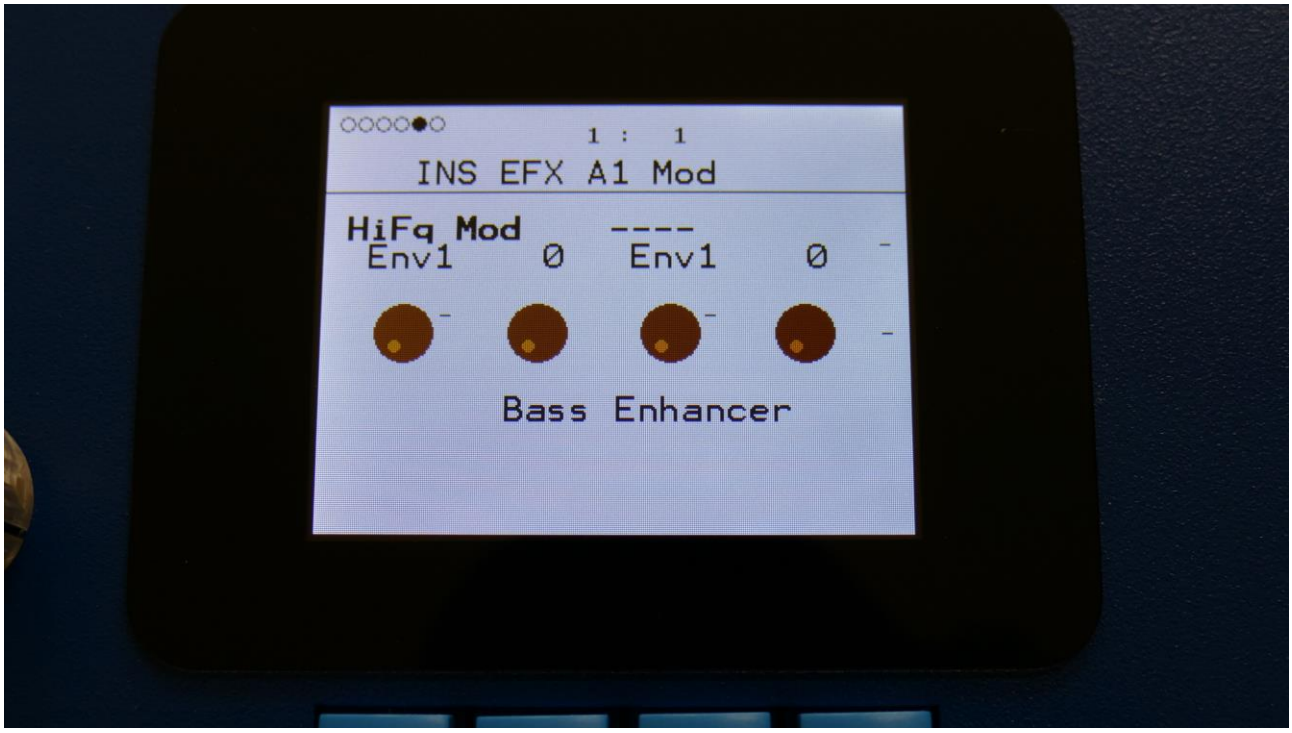
No parameters on this page…

Bass Enhancer Modulation

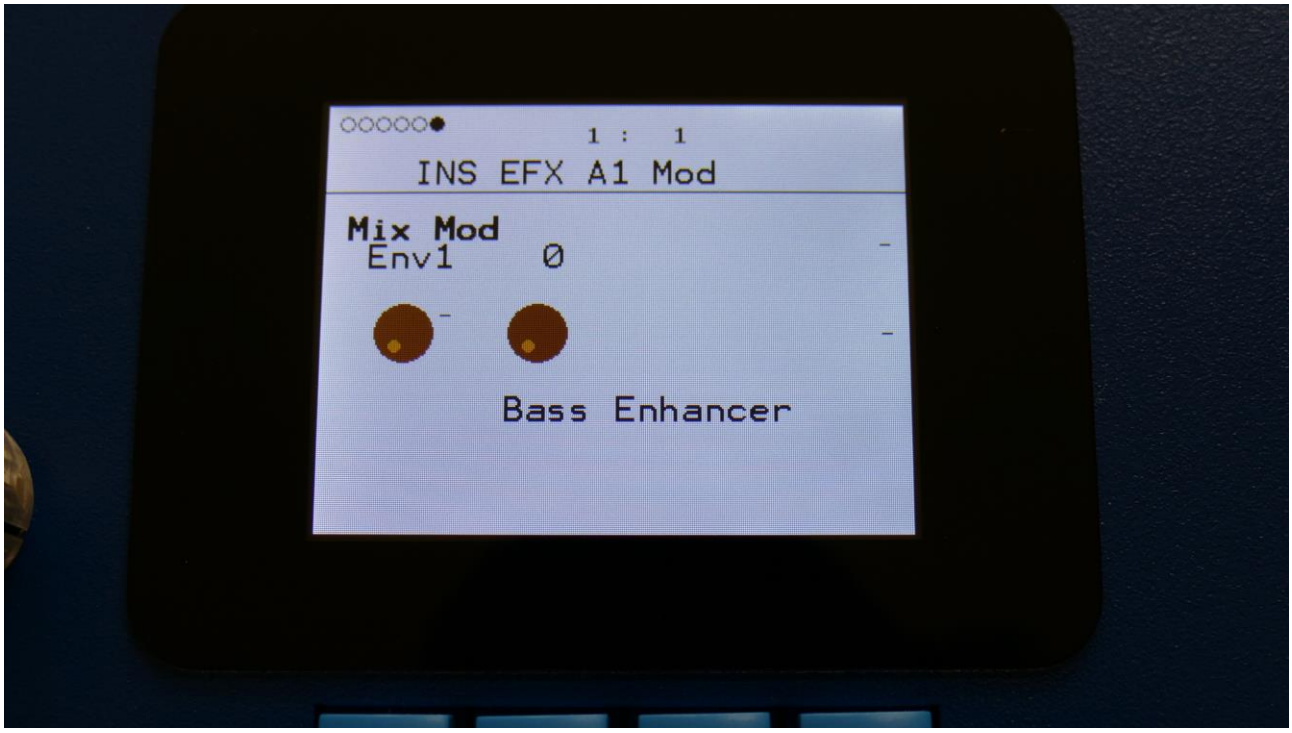


Bass1 Mod: Select a modulation source and adjust the amount of modulation for the Bass parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Bass2 Mod: Select a modulation source and adjust the amount of modulation for the Bass parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

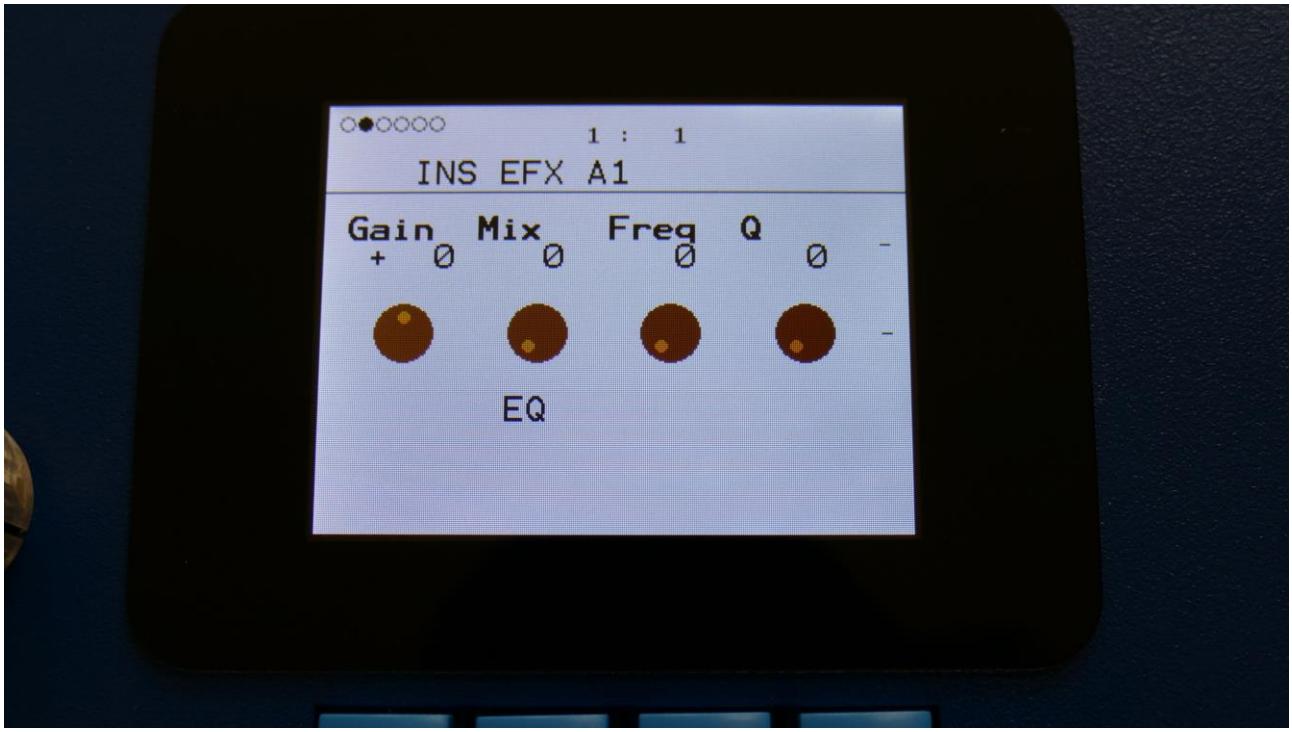


HiFq Mod: Select a modulation source and adjust the amount of modulation for the HiFq parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

EQ



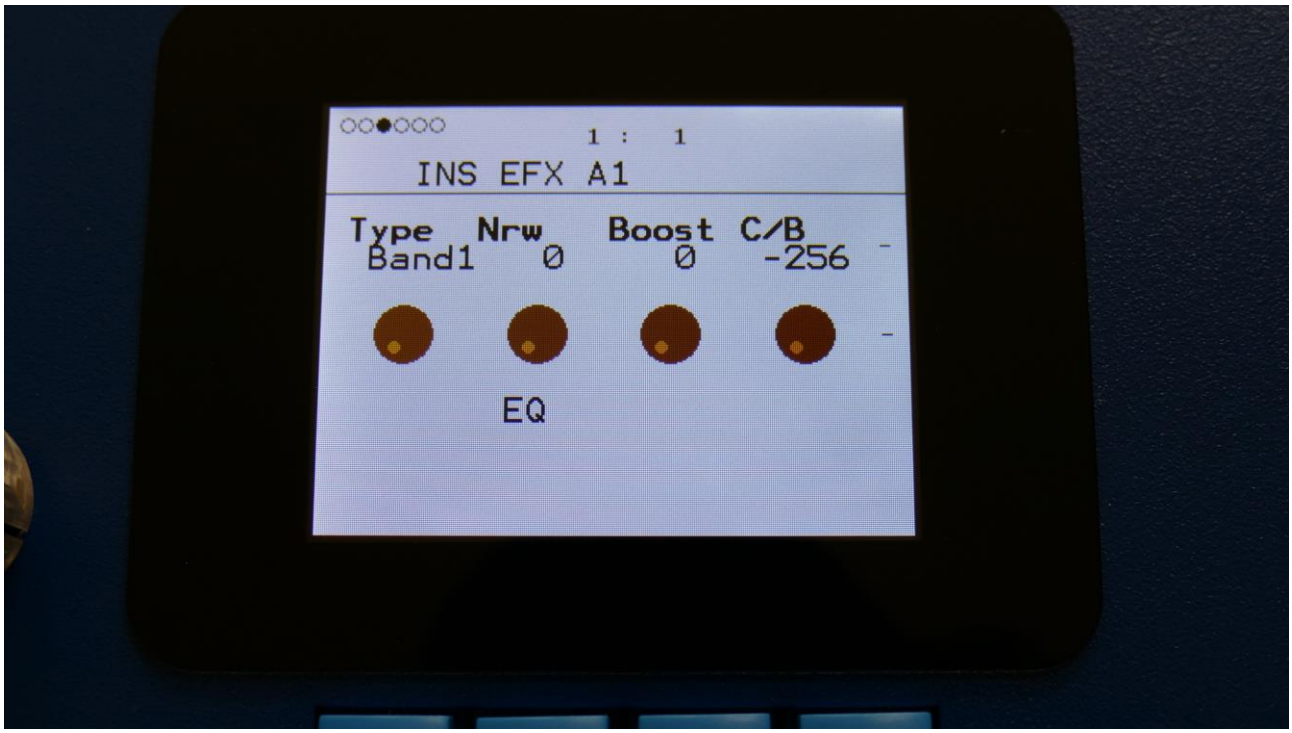
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Insert effect input gain. A negative value attenuates the input signal, a positive value gains the input signal.

Mix: The mix between the un-effected signal on the effect input, and the effected signal on the effect output. The output of the EQ is inverted. This means, that when the Mix parameter is set to 256, the EQ is actually subbed from the audio input. Set the Mix parameter to different values, to obtain different EQ effects, or just turn it fully up to 511, to get a normal parametric EQ.

Freq: Sets the frequency, at which the EQ will cut or boost.

Q: Sets the width of the frequency band, that will be cutted/boosted.



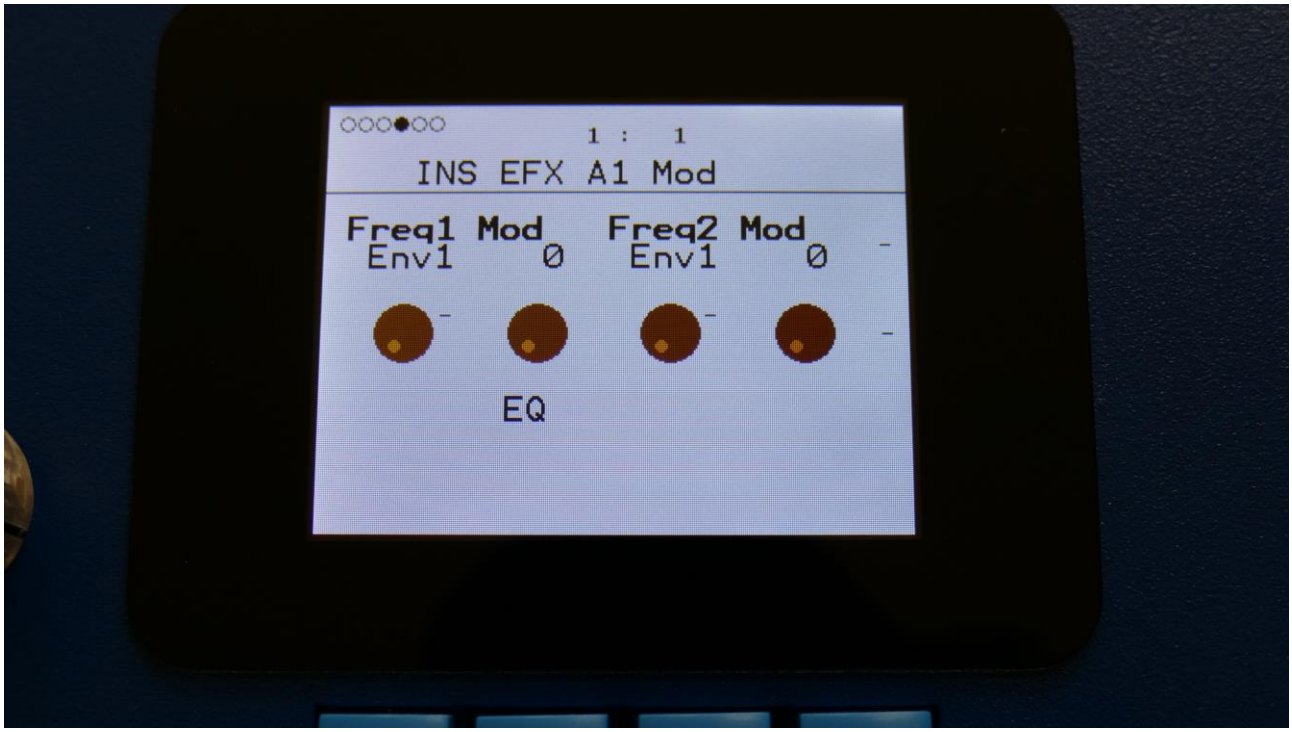
Type: Sets the EQ characteristics. The types available are:
Band1: Cut/boost the frequency/range, selected by Freq/Q.
Band2: Like Band1, but with a slightly sharper sound.
Band3: Like Band2, but with an even sharper sound.
Low: Cut/boost the frequencies below the frequency selected by Freq.
High1: Cut/boost the frequencies above the frequency selected by Freq.
High2: Like High1, but with a sharper sound.
FAT: Like Band3, but it fattens the sound a bit.

Nrw: Turning this up, will narrow the frequency band affected by the EQ.

Boost: Turning this up, will boost the output gain of the EQ.

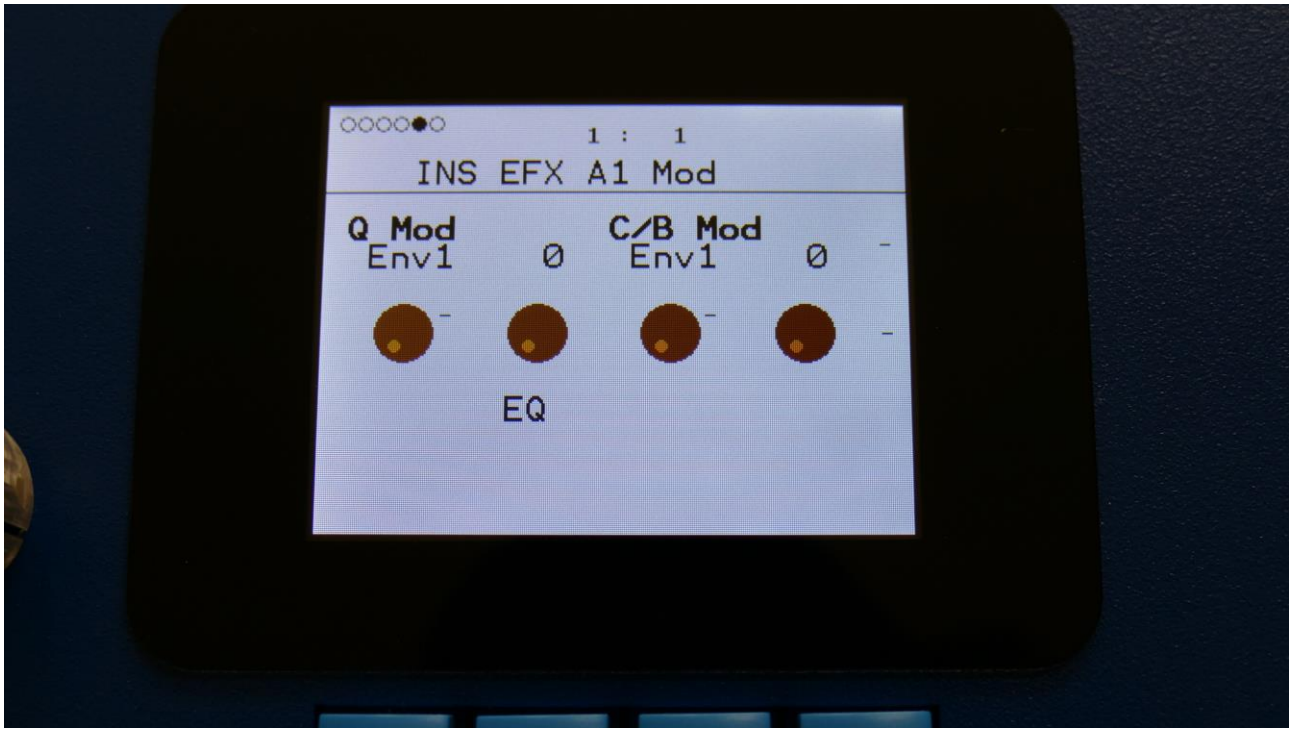
C/B: Cut/Boost. Setting this to a negative value, will damp frequencies on the input signal. Setting it to a positive value, will boost frequencies on the input signal.

EQ Modulation



Freq1 Mod: Select a modulation source and adjust the amount of modulation for the Freq parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Freq2 Mod: Select a modulation source and adjust the amount of modulation for the Freq parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Q Mod: Select a modulation source and adjust the amount of modulation for the Q parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

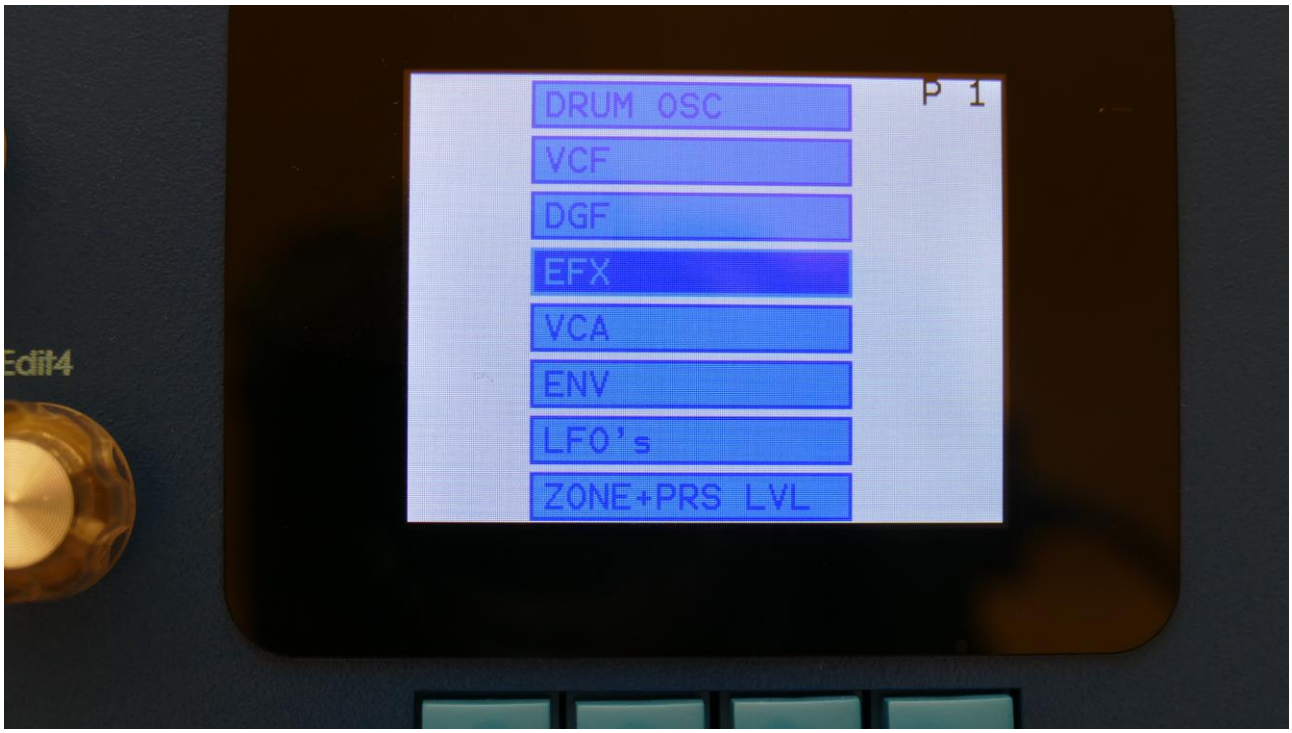
C/B Mod: Select a modulation source and adjust the amount of modulation for the Cut/Boost parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Output Effects 1 and 2

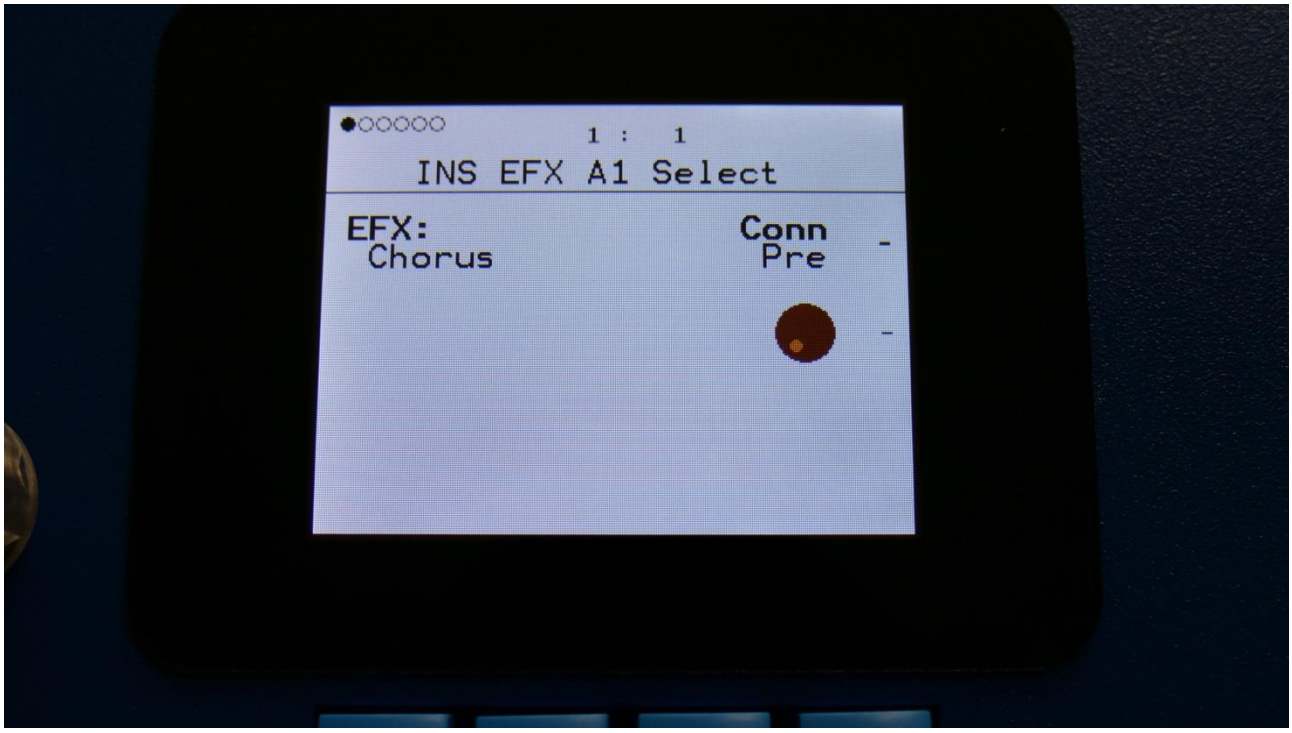
SpazeDrum has 2 output effects processors, that each drum part can be sent to, and that are outputted to the main L and R outputs with pan control.

Both effects have a mix parameter.

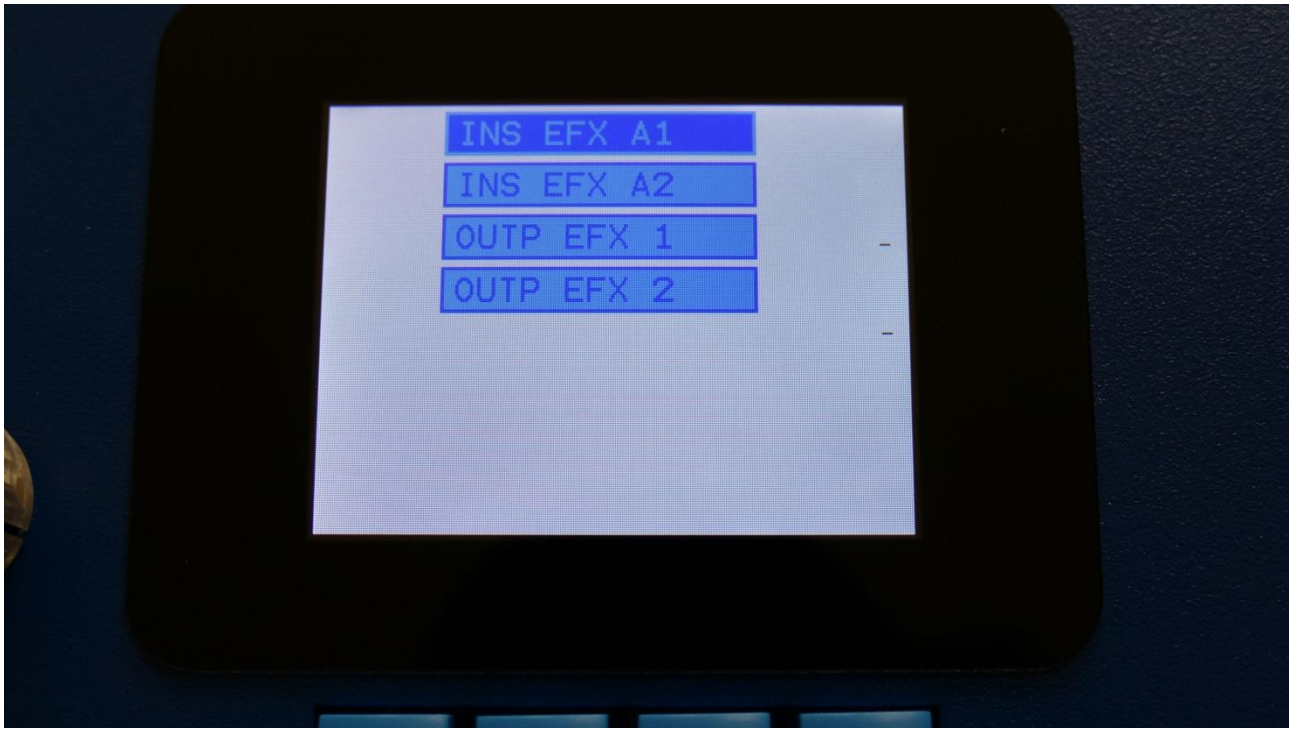
Accessing the output effects



From any drum part, select the EFX module, using the < and > buttons, and push the Edit button, to access the effect pages, or touch the EFX module on SpazeDrum Black.

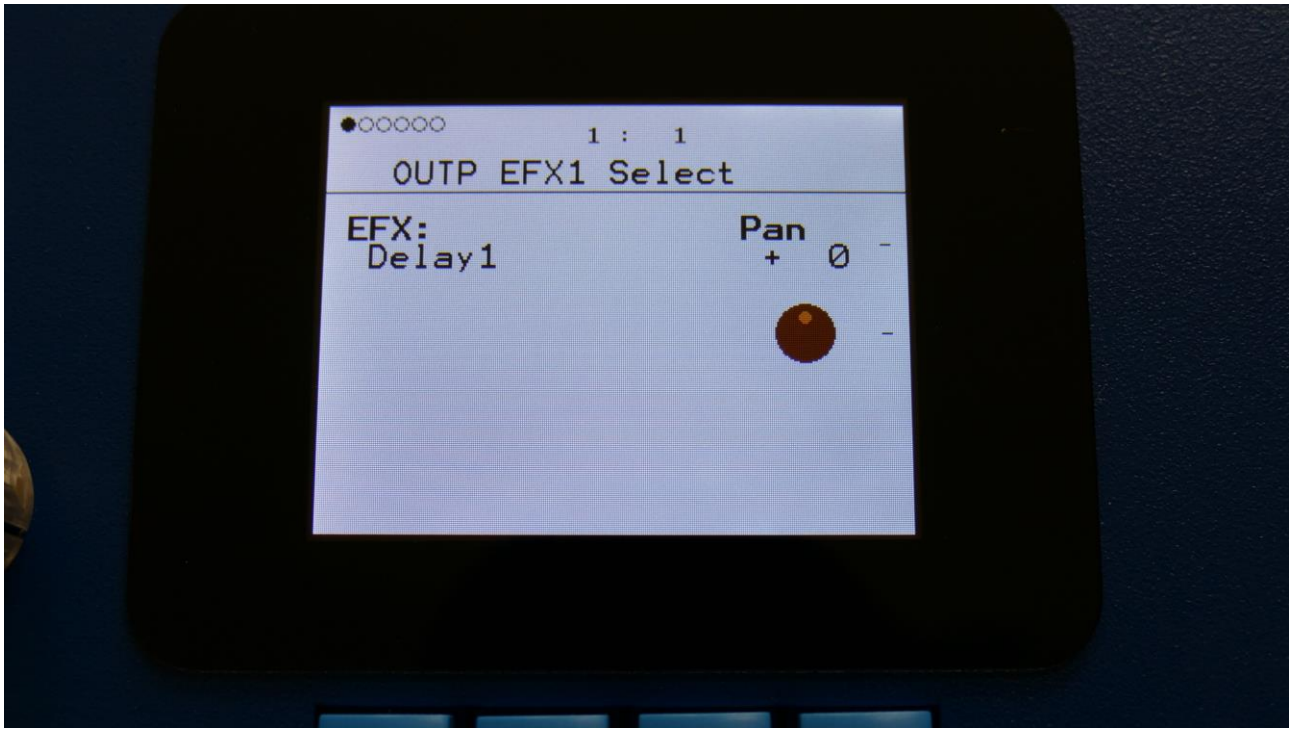


Once you have entered the effect pages, push the Edit button. A menu will now pop up, allowing you to select the desired effect:



Select OUTP EFX 1 or OUTP EFX 2, using the < and > buttons, and push the Edit button to enter, or touch the desired EFX module on SpazeDrum Black.

You have now entered the output effects.



List of 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 – 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 SQ – Cuts the input signal up in grains, that can be re-arranged. This granulator is synced to the sequencer.

Variator – Creates new variations of the input signal. Both pitch and rhythmic variations.

Reverb – A FAT high resolution synthesized reverb with granular Size parameter.

Granulator (unsynced) - Cuts the input signal up in grains, that can be re-arranged, using the step values of a selectable controller sequencer track.
This is the granulator that was named “AnaGran” in earlier Gotharman instruments. Unlike the Granulator SQ, this is not synced to the sequencer. It plays back one grain, and then it immediately advances to the next grain. The values for the granular sequence, is still taken from a selectable sequencer controller track.

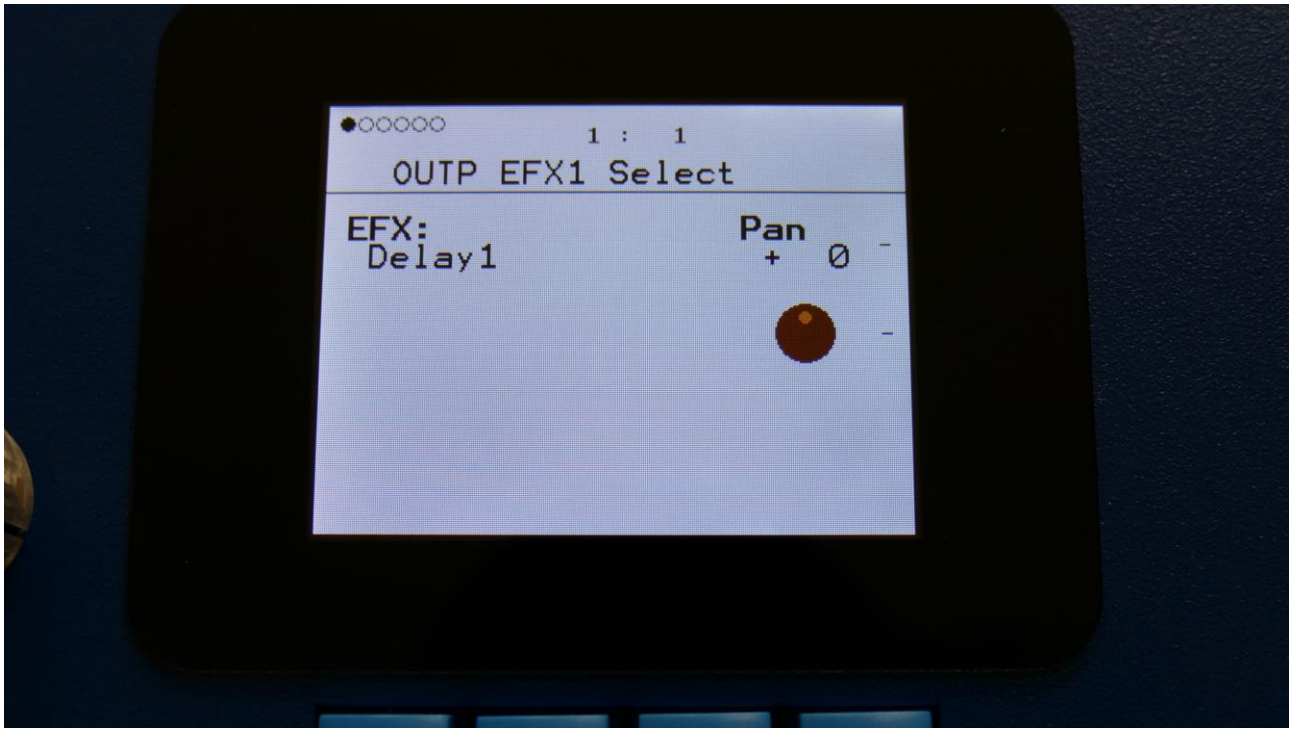
Xfade Granulator - Cuts the input signal up in grains, that can be re-arranged, using the step values of a selectable controller sequencer track. This granulator plays back one grain, and then it crossfades to the next grain.
It is also possible to adjust and modulate the pitch of the granular sequence, using any modulation source.

Abstruct0 - This effect constantly records the audio applied to its input, in a time interval determined by a ”Rec” parameter. It uses 2 ”playback heads” to play back the recorded audio. Each of these playback heads can be switched on and off, and the playback length can be adjusted for each of them. Every time a head has played back the adjusted amount of time, it jumps to a new random location of the recorded piece, and starts play back again. The playback pitch of head 2 can be adjusted.

Time Stretch - This effect is able to change the length of the input signal, almost without changing the pitch. Old fashioned time stretch done in realtime, that can be applied even to live input signals! It is also possible to change the pitch if desired, and it is possible to trigger this effect, for bigger precision.

Sample Pitch - Changes the pitch of a sampling, without changing the length, using granular technology. It is possible to set the size of each pitch grain, to generate great granular effects. This effect has to be triggered from any of the parts, in order to function properly. It will work on external signals, but it still needs to be triggered by a part.

Output effects Select page



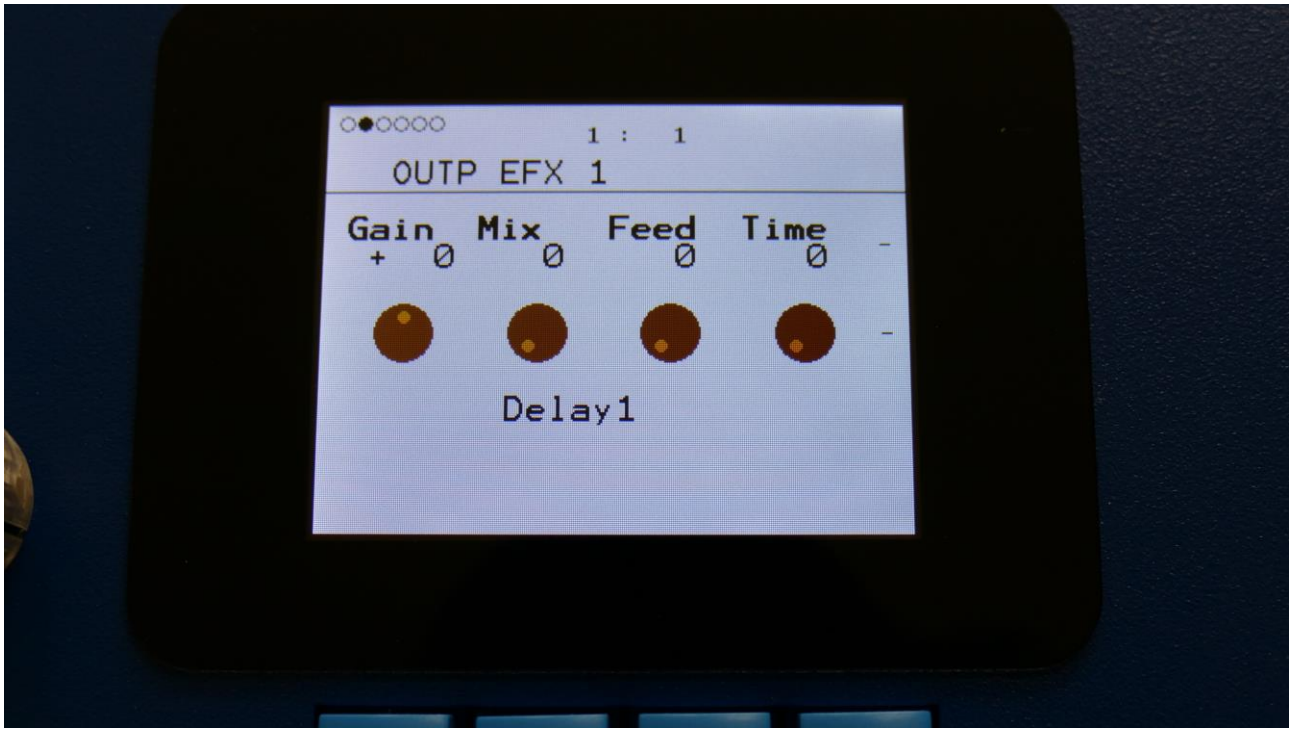
The 2 VU-meters at the right of the screen, shows the Effect input and output activity.

EFX: Selects the effect. Please see the List Of Output Effects in the beginning of this section.

Pan: Adjusts the panning of the output effect.

Output Effects parameters

Delay1, Roto delay, Bright Delay and Bright Roto Delay



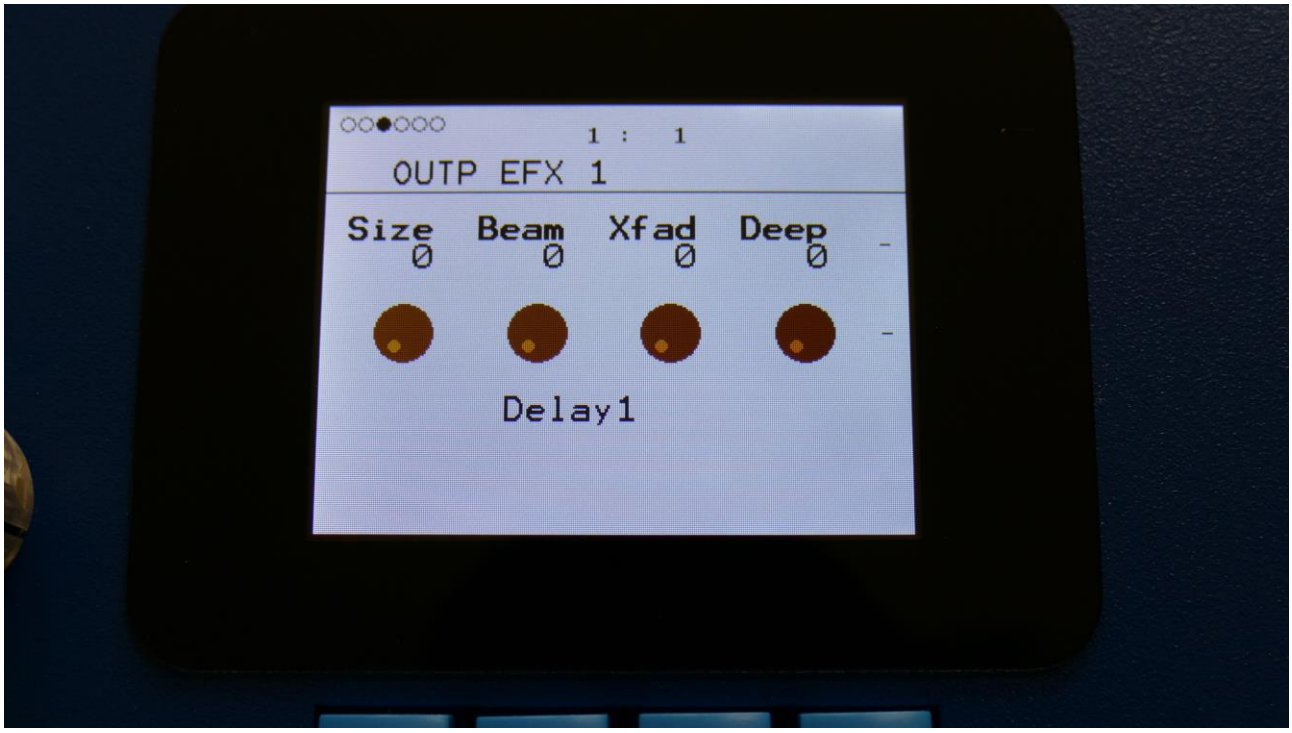
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Output effect output gain. A negative value attenuates the output signal, a positive value gains the output signal.

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

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

Time: Delay time.



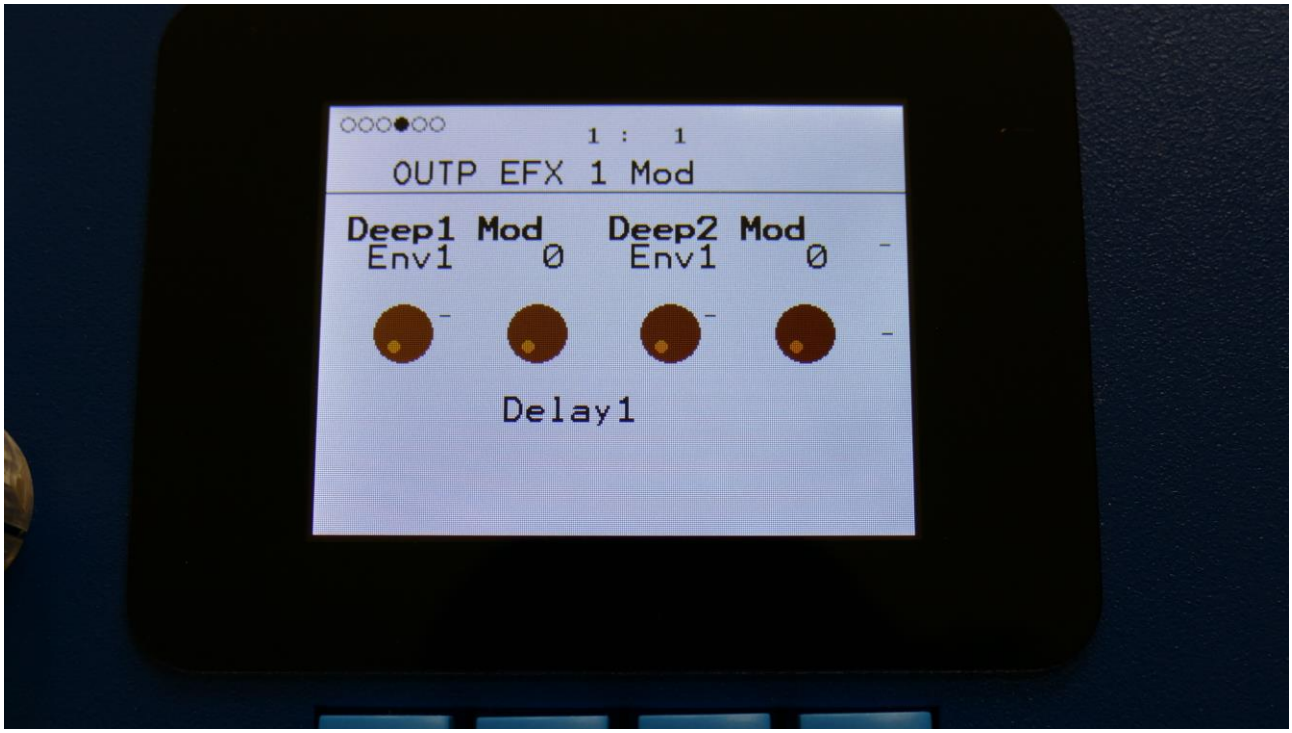
Size: A granular parameter. The more this is turned up, the less space of the delay box is used, causing some echo's to repeat, and others not to sound at all.

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.

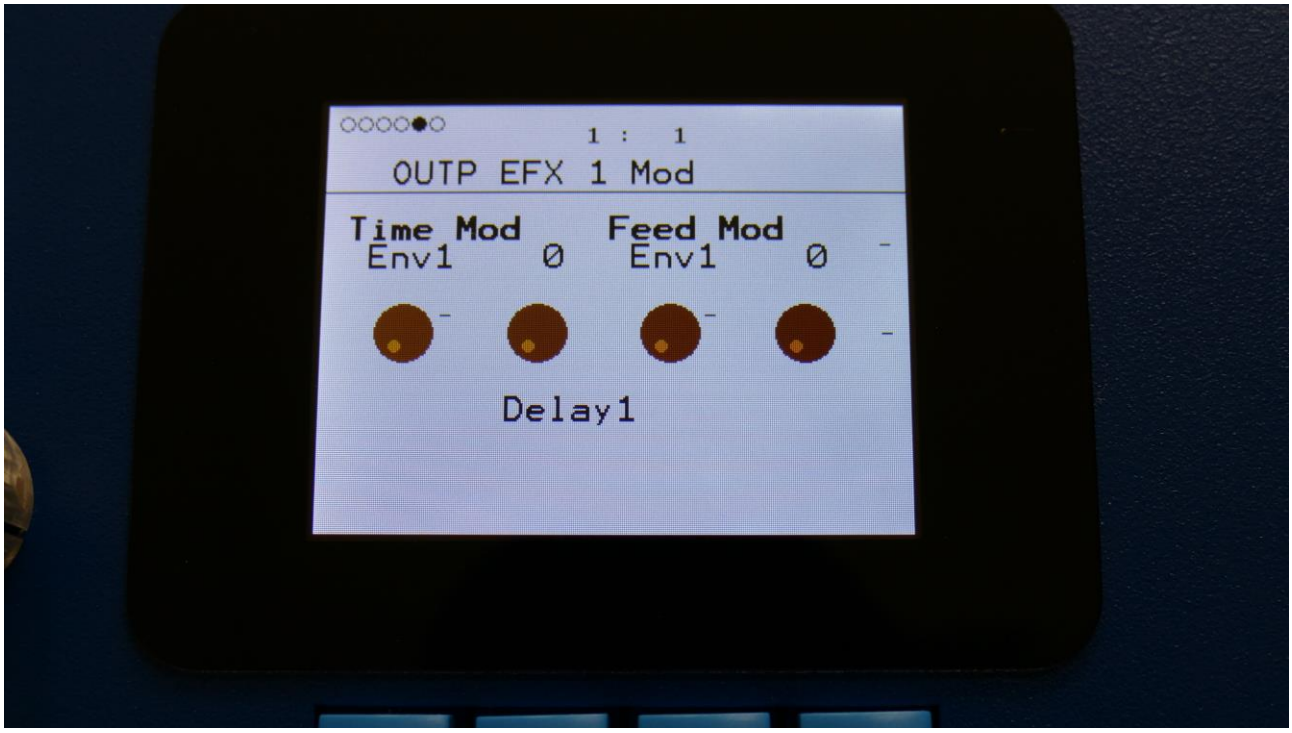
Deep: Simulates a delay box, with adjustable physical depth.

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



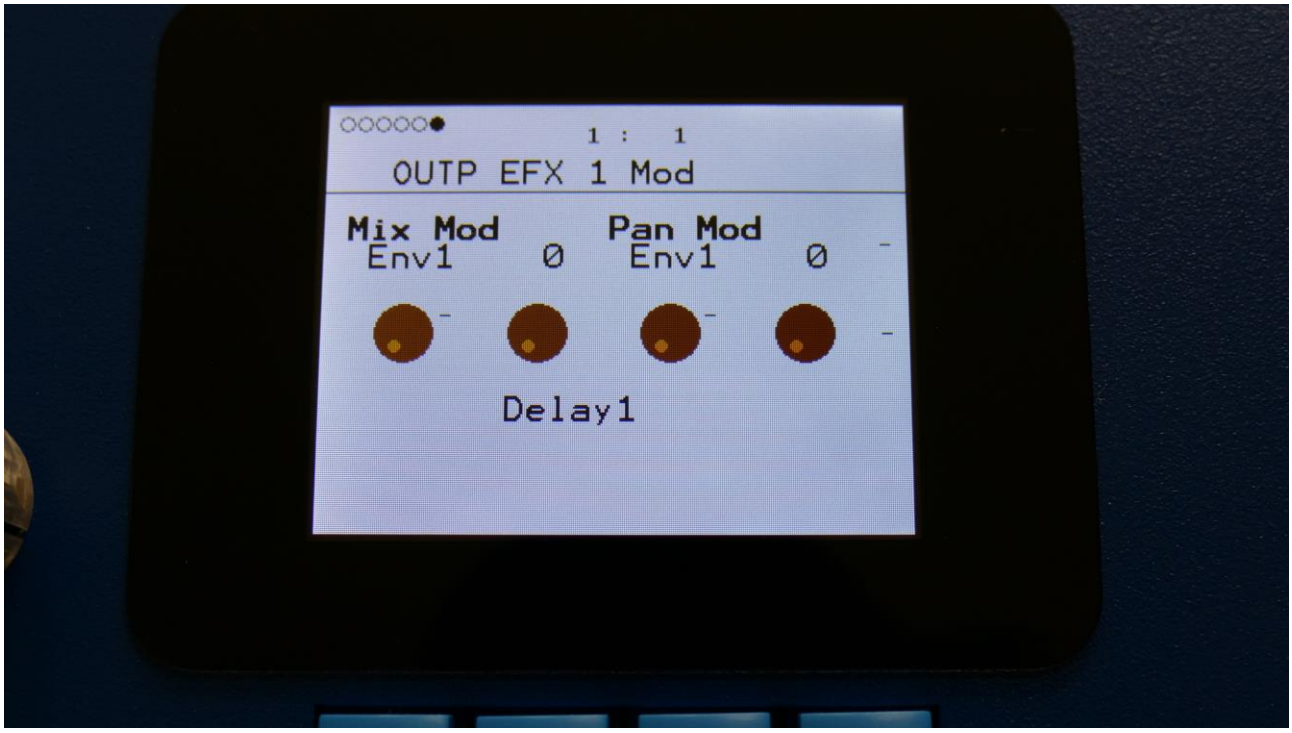
Deep1 Mod: Select a modulation source and adjust the amount of modulation for the Deep parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Deep2 Mod: Select a modulation source and adjust the amount of modulation for the Deep parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Time Mod: Select a modulation source and adjust the amount of modulation for the Time parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

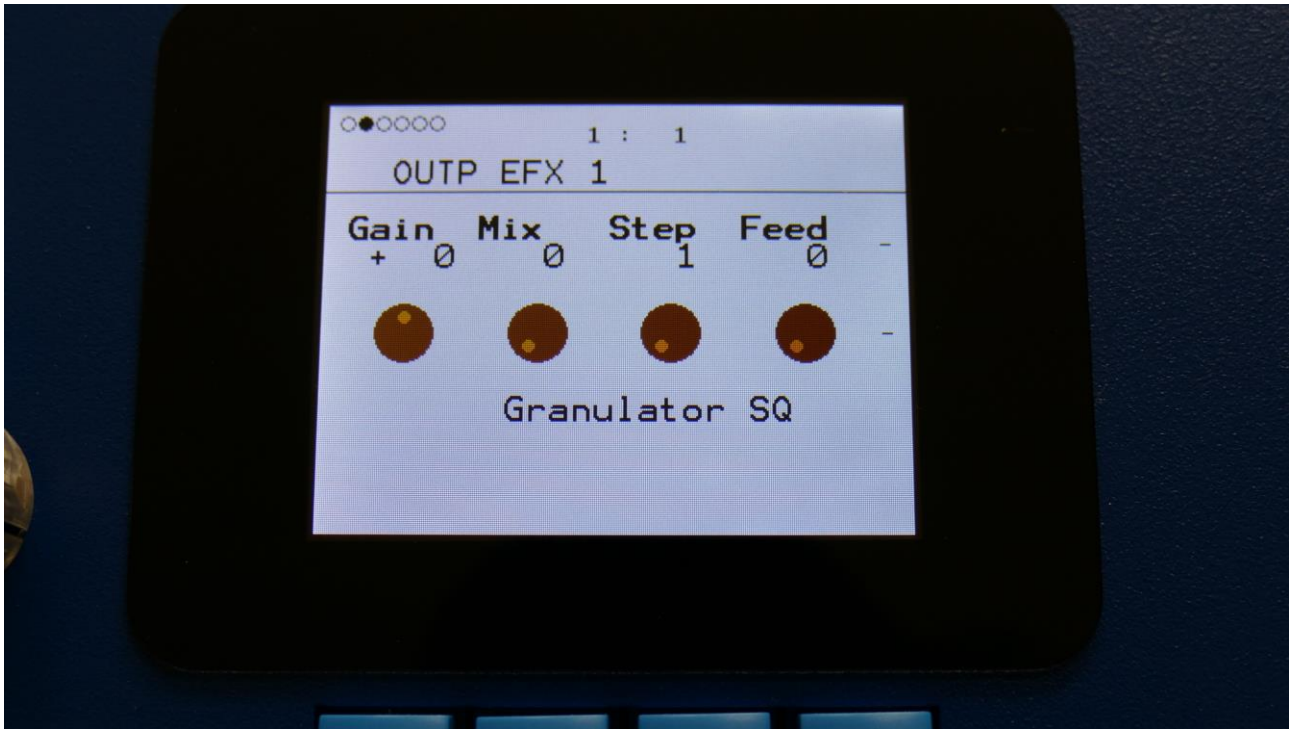
Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pan Mod: Select a modulation source and adjust the amount of modulation for the Pan parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Granulator SQ



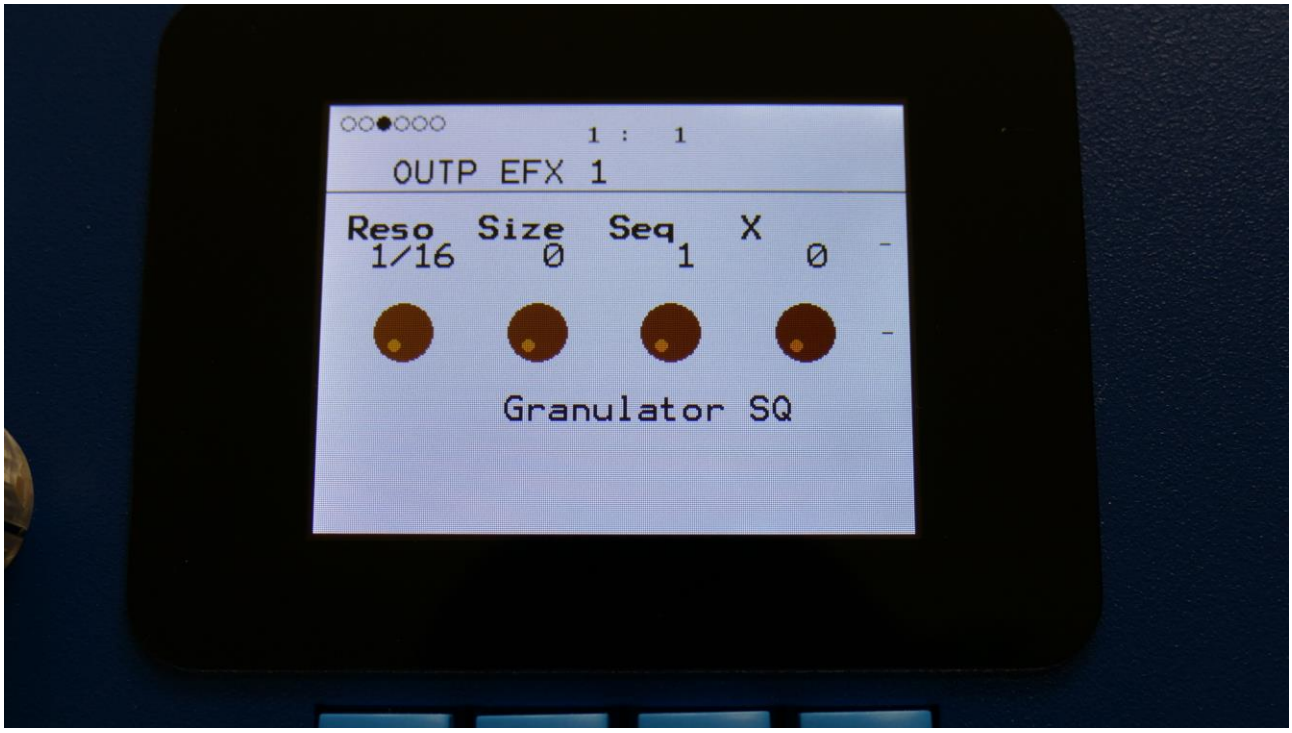
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Output effect output gain. A negative value attenuates the output signal, a positive value gains the output signal.

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.



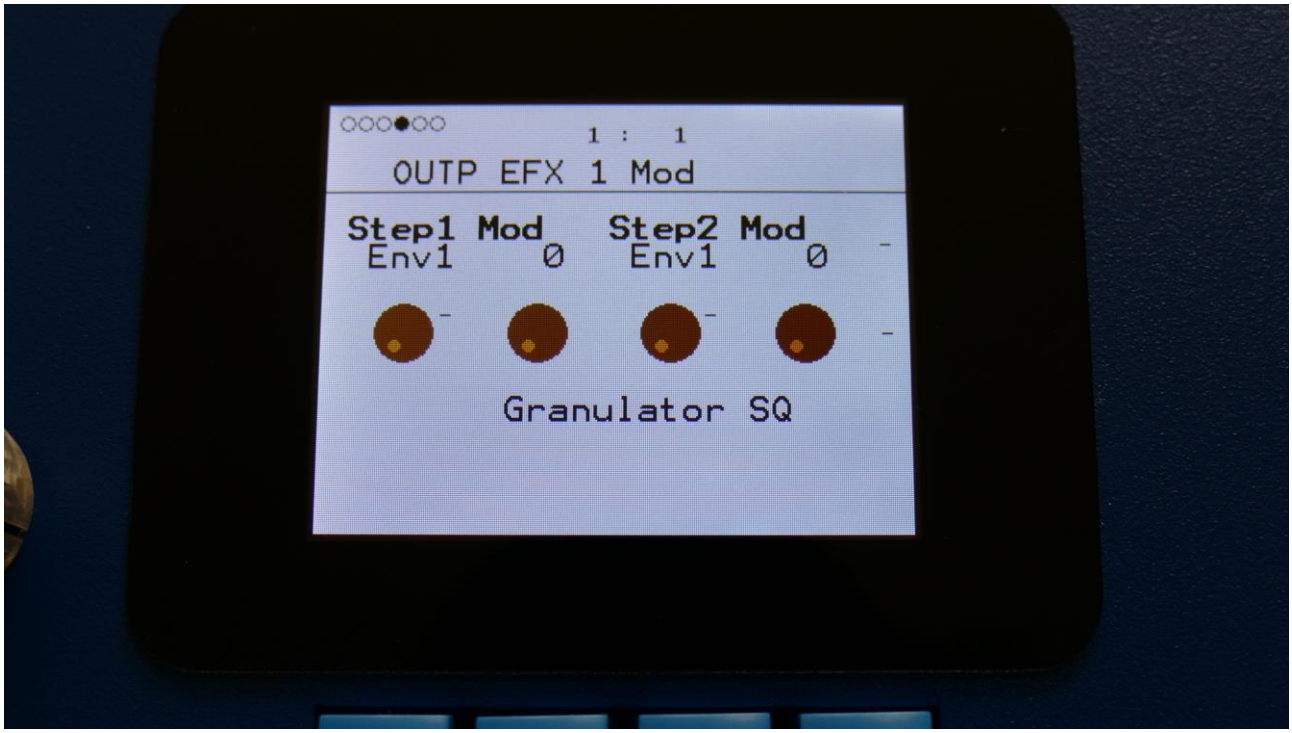
Reso: Adjusts the resolution of the sequencer track, that controls the granulator. The granulator only uses the controller values of the sequencer steps, so the controller track and the granulator can run in different resolutions.

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.

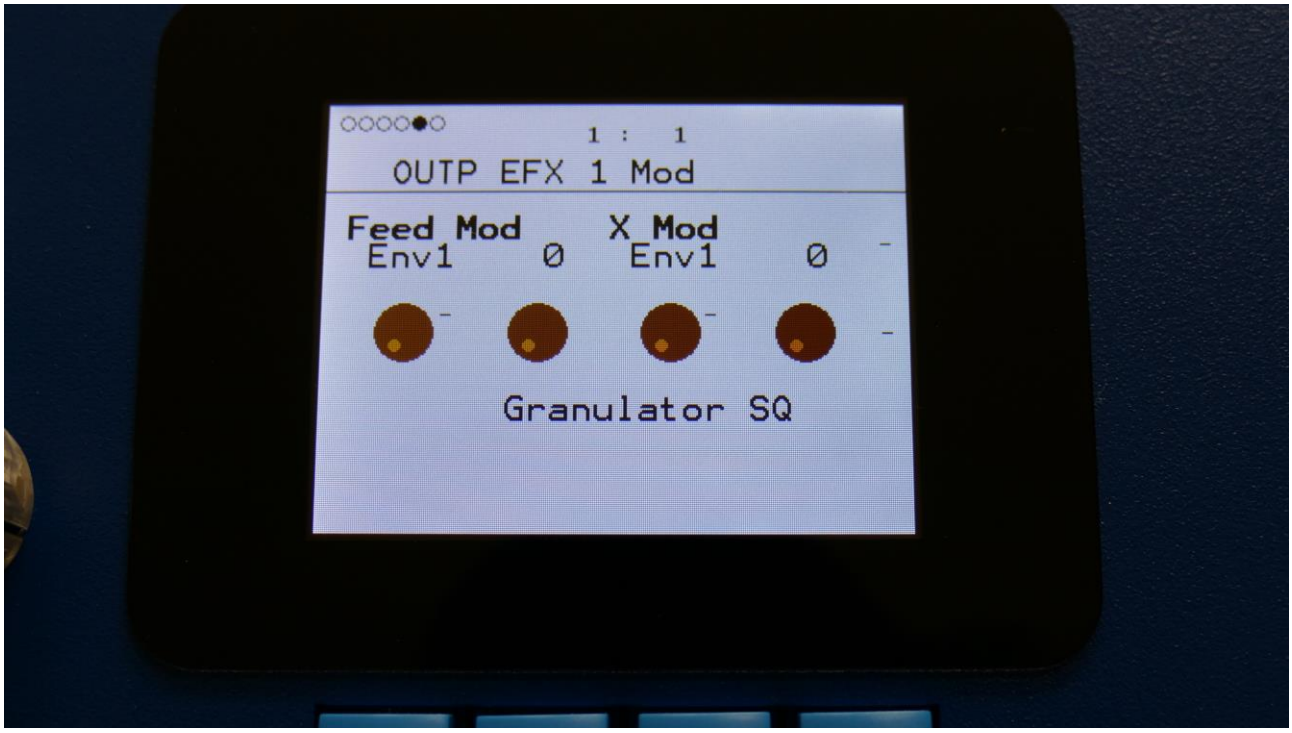
X: “X” intermodulation of the sound. Another Gotharman special ☺

Granulator SQ Modulation



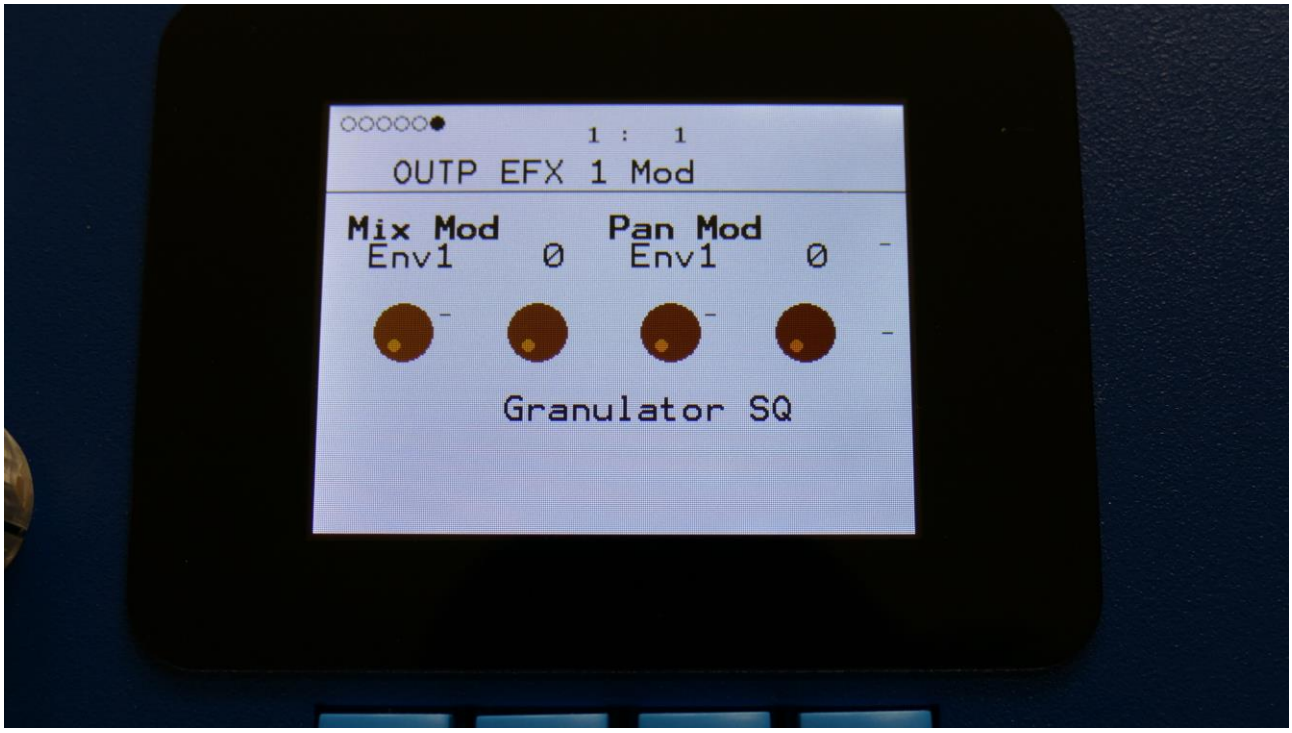
Step1 Mod: Select a modulation source and adjust the amount of modulation for the Step parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Step2 Mod: Select a modulation source and adjust the amount of modulation for the Step parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

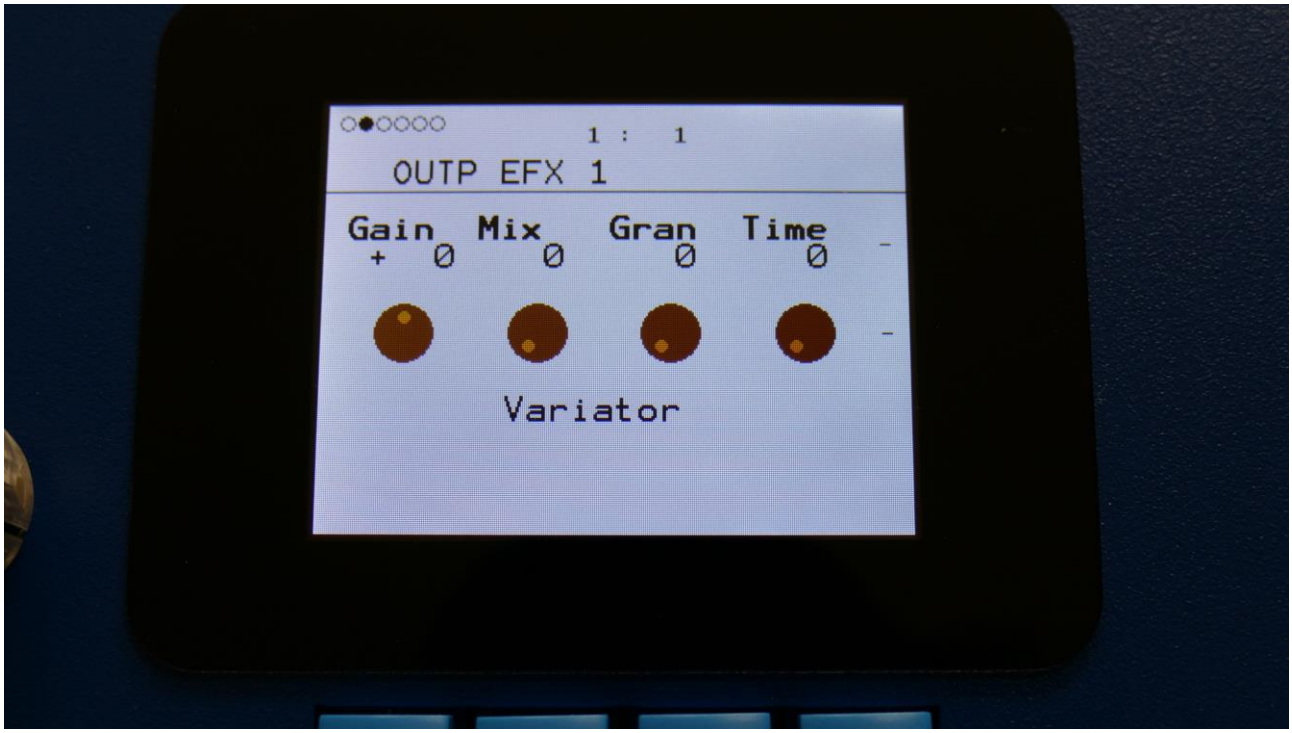
X Mod: Select a modulation source and adjust the amount of modulation for the X parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pan Mod: Select a modulation source and adjust the amount of modulation for the Pan parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Variator



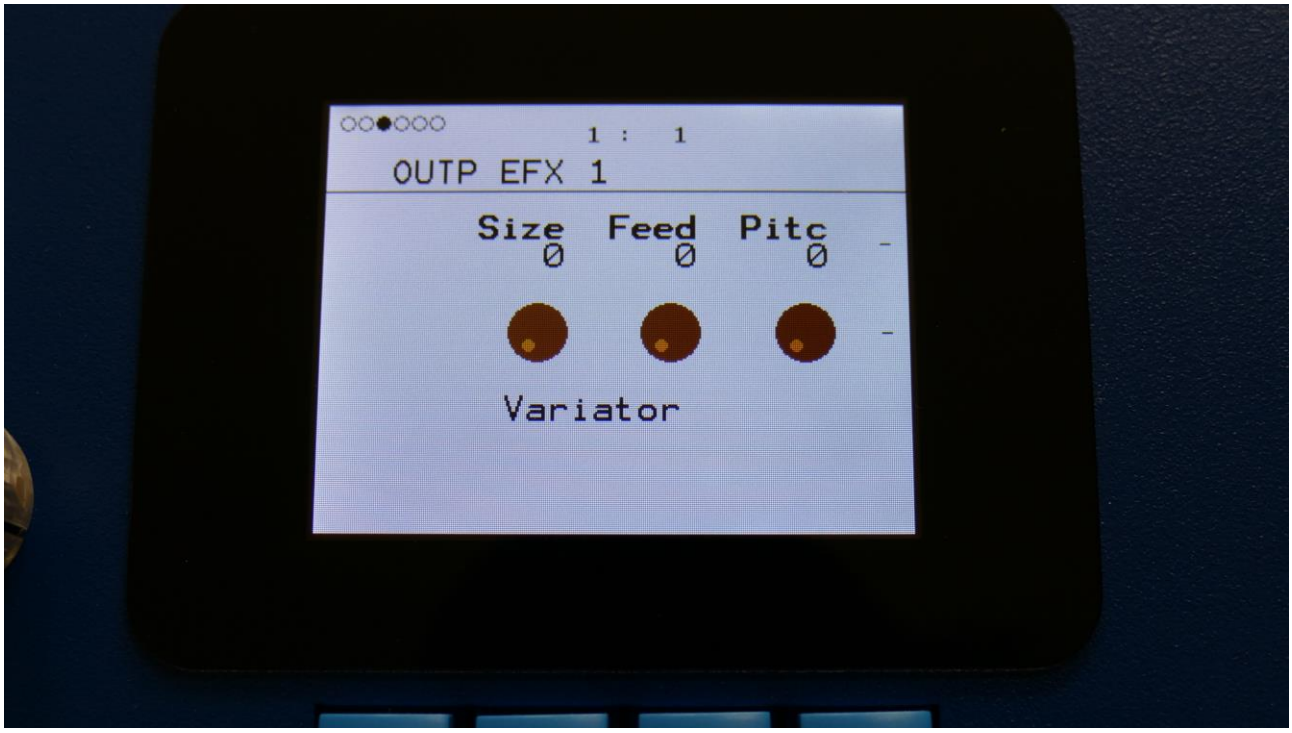
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Output effect output gain. A negative value attenuates the output signal, a positive value gains the output signal.

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.

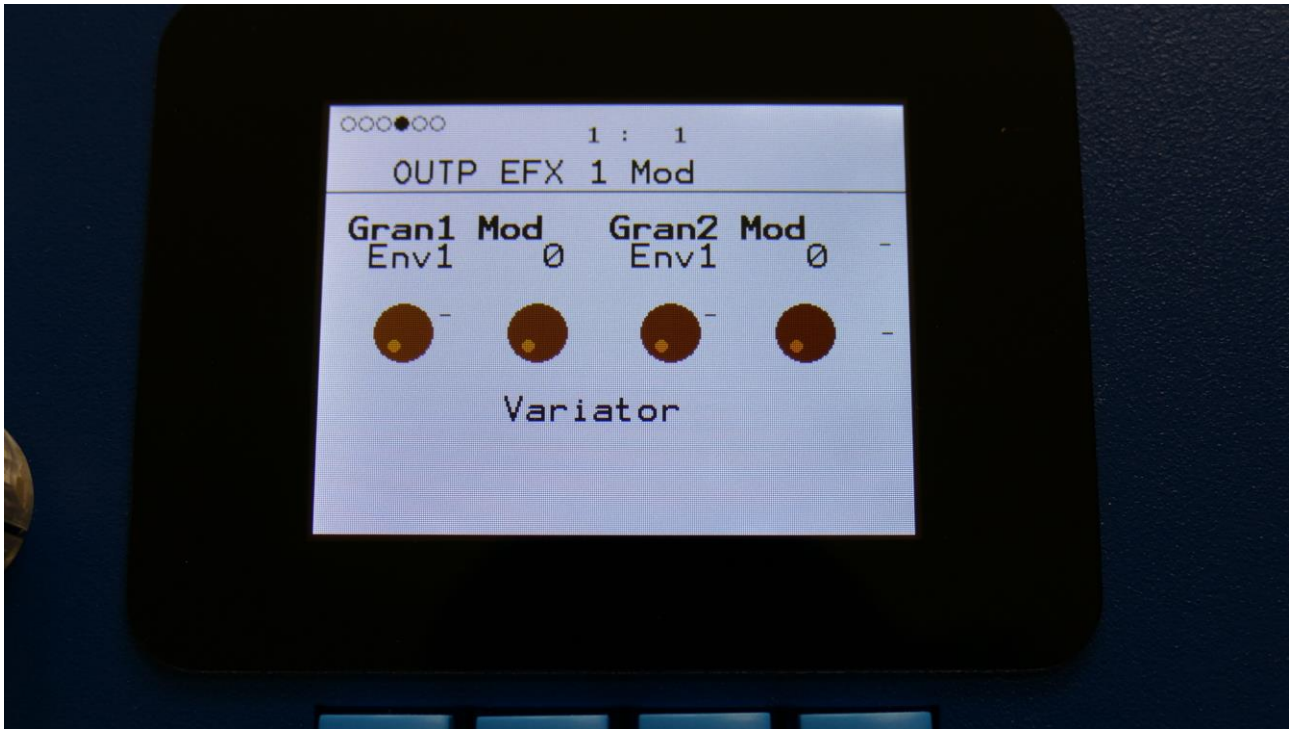


Size: The size of one grain.

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

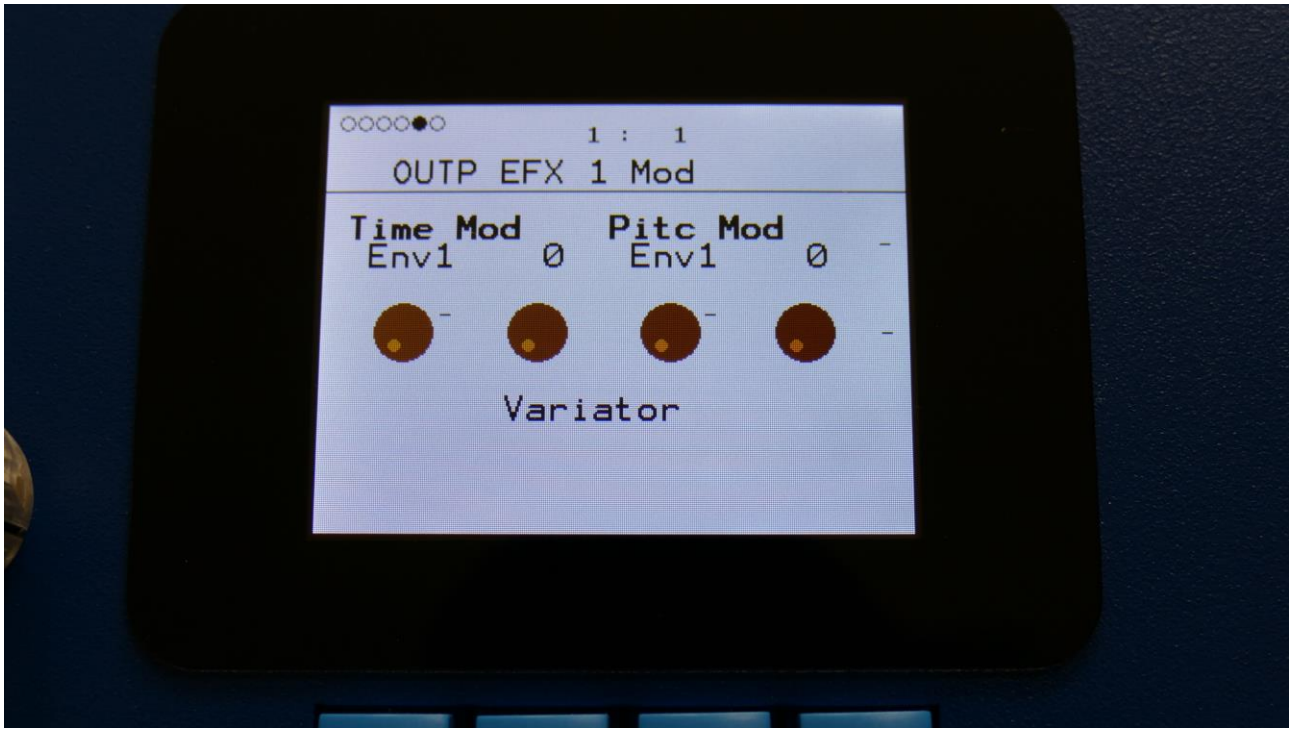
Pitc: The amount of Variator pitch shift.

Variator Modulation



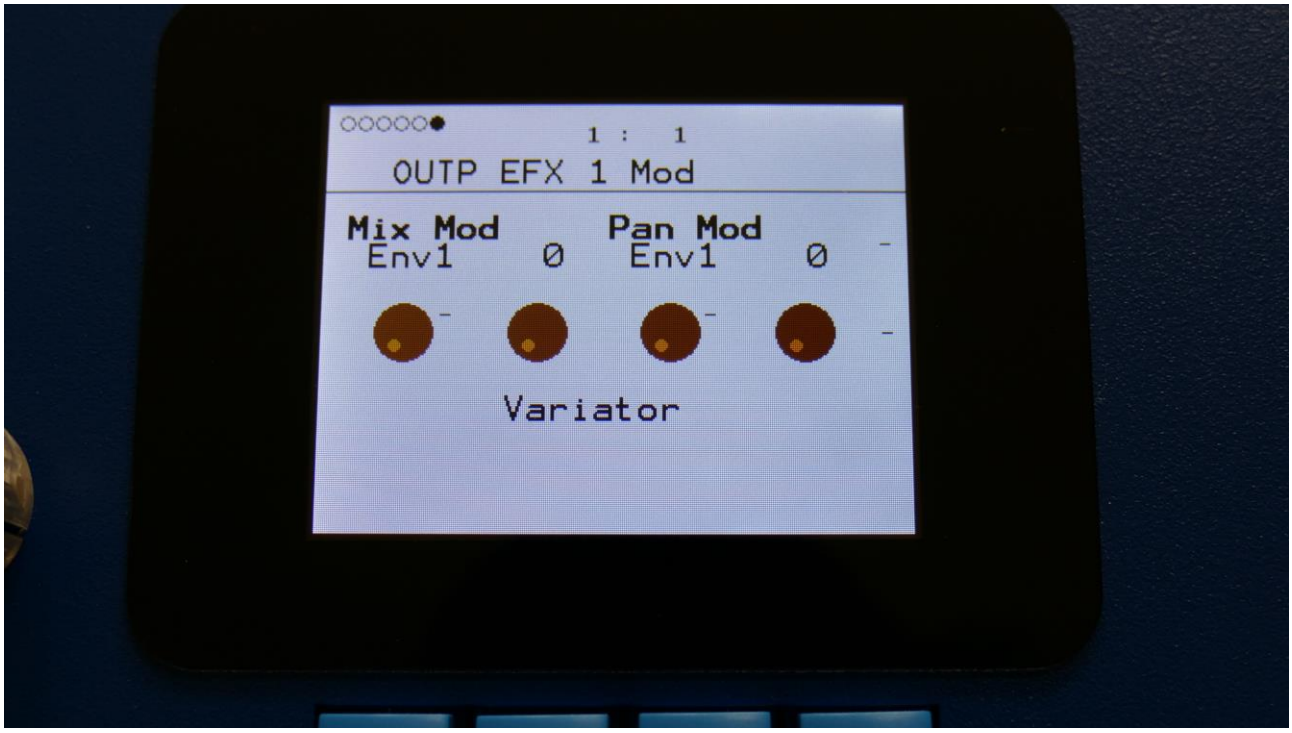
Gran1 Mod: Select a modulation source and adjust the amount of modulation for the Gran parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Gran2 Mod: Select a modulation source and adjust the amount of modulation for the Gran parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Time Mod: Select a modulation source and adjust the amount of modulation for the Time parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

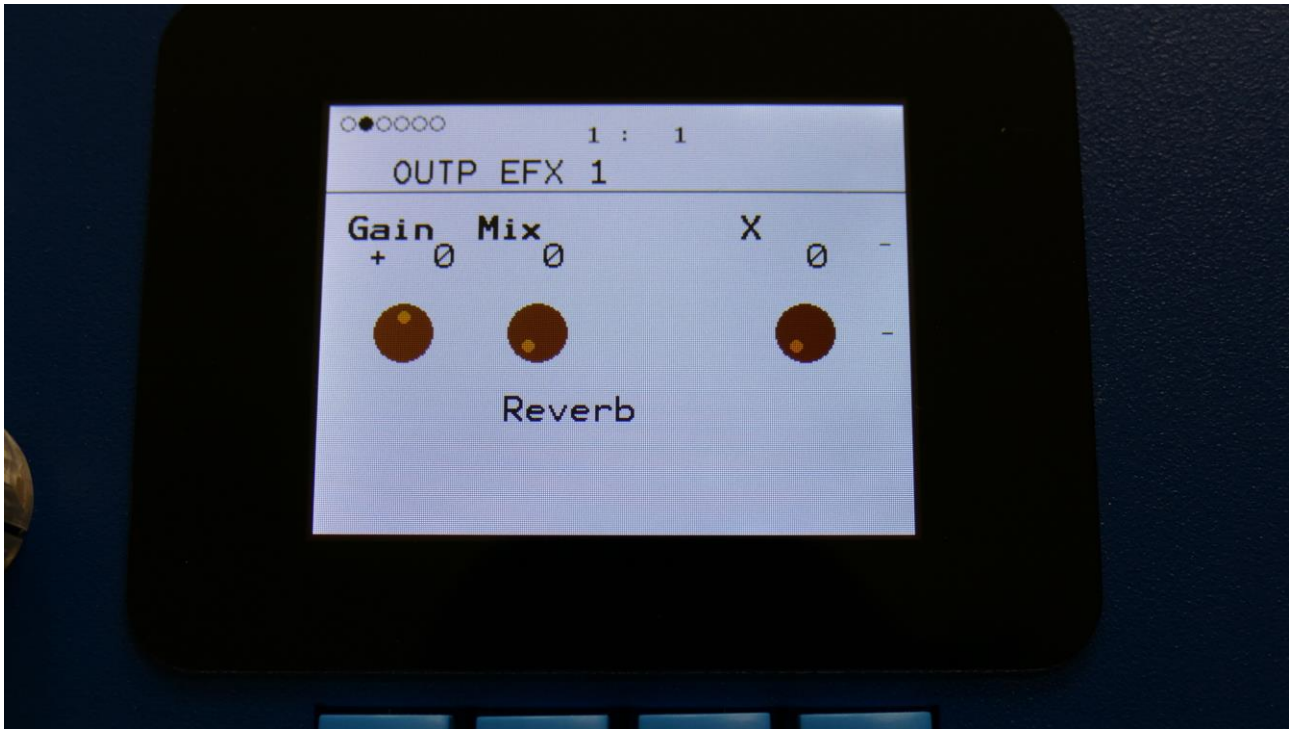
Pitc Mod: Select a modulation source and adjust the amount of modulation for the Pitc parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pan Mod: Select a modulation source and adjust the amount of modulation for the Pan parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Reverb

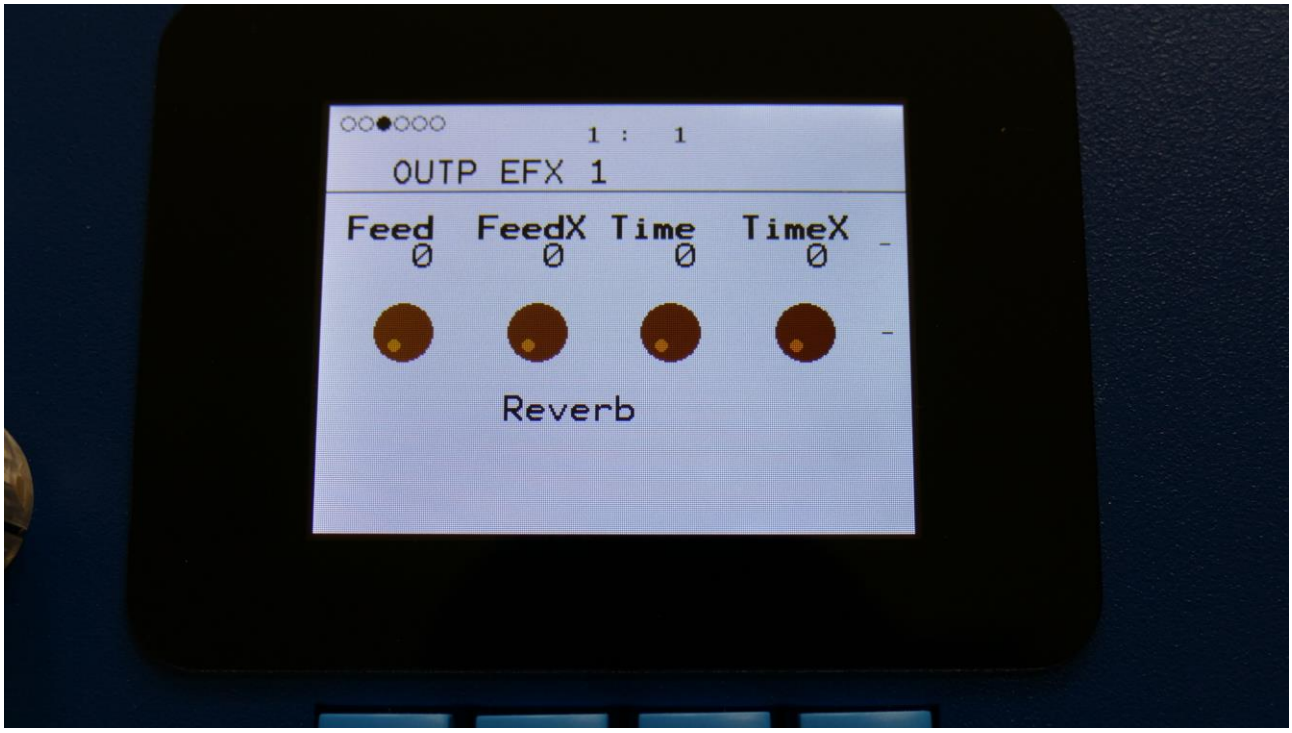


The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Output effect output gain. A negative value attenuates the output signal, a positive value gains the output signal.

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

X: "X" intermodulation of the sound. Another Gotharman special ☺



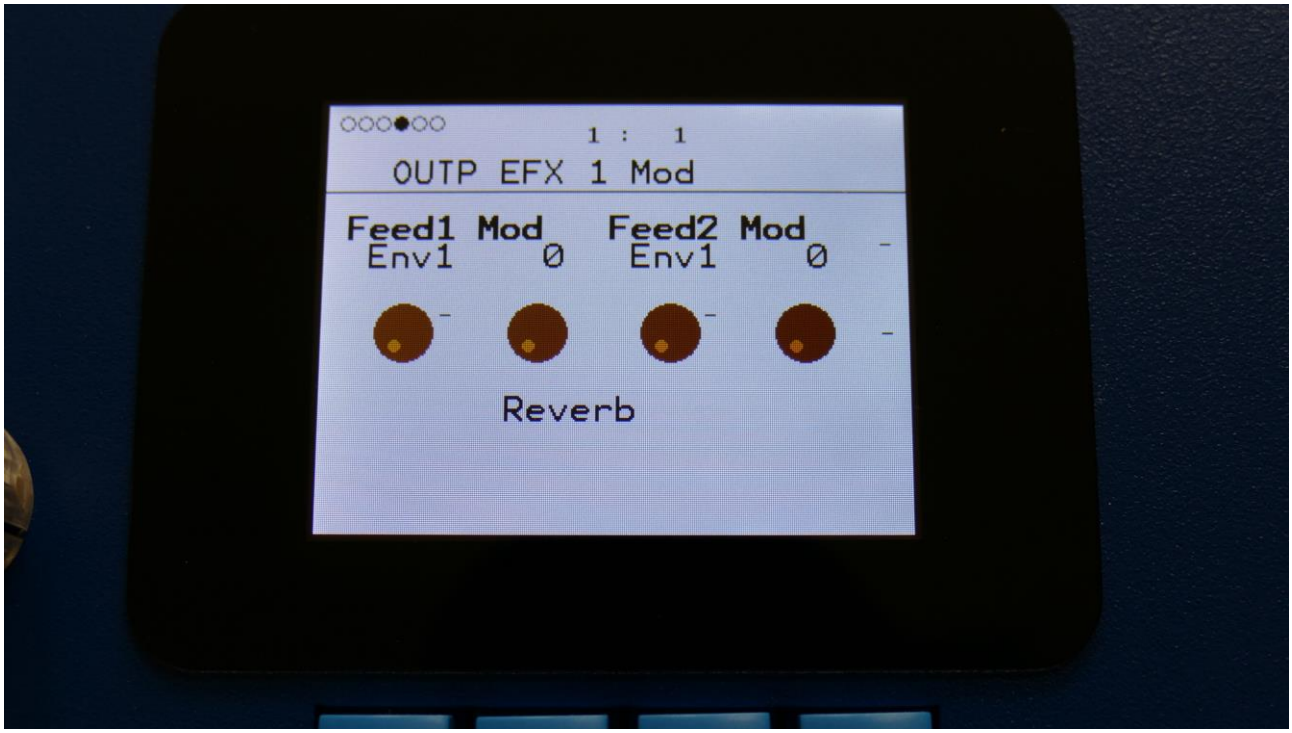
Feed: Reverb feedback.

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.

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

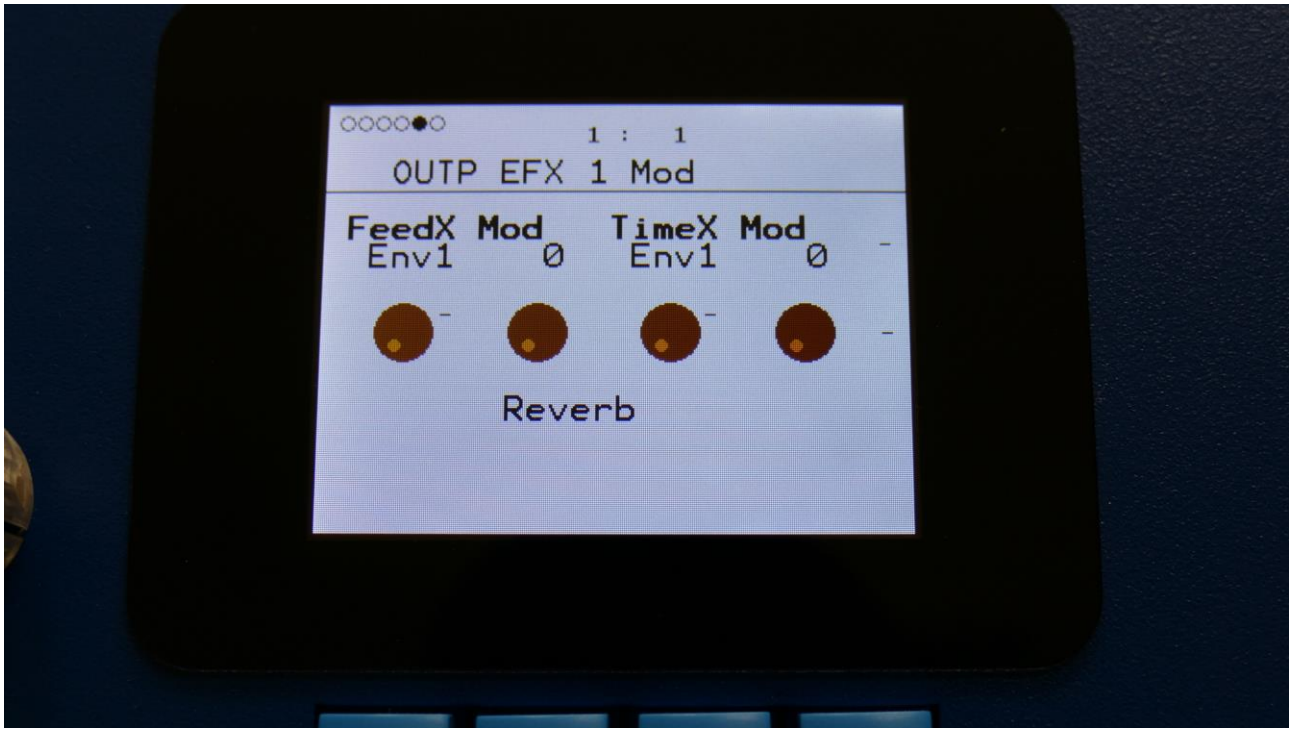
Time X: Adjusts how much the following reverb taps will decrease in time. Lower settings is good for a short reverb, and higher settings for a long reverb.

Reverb Modulation



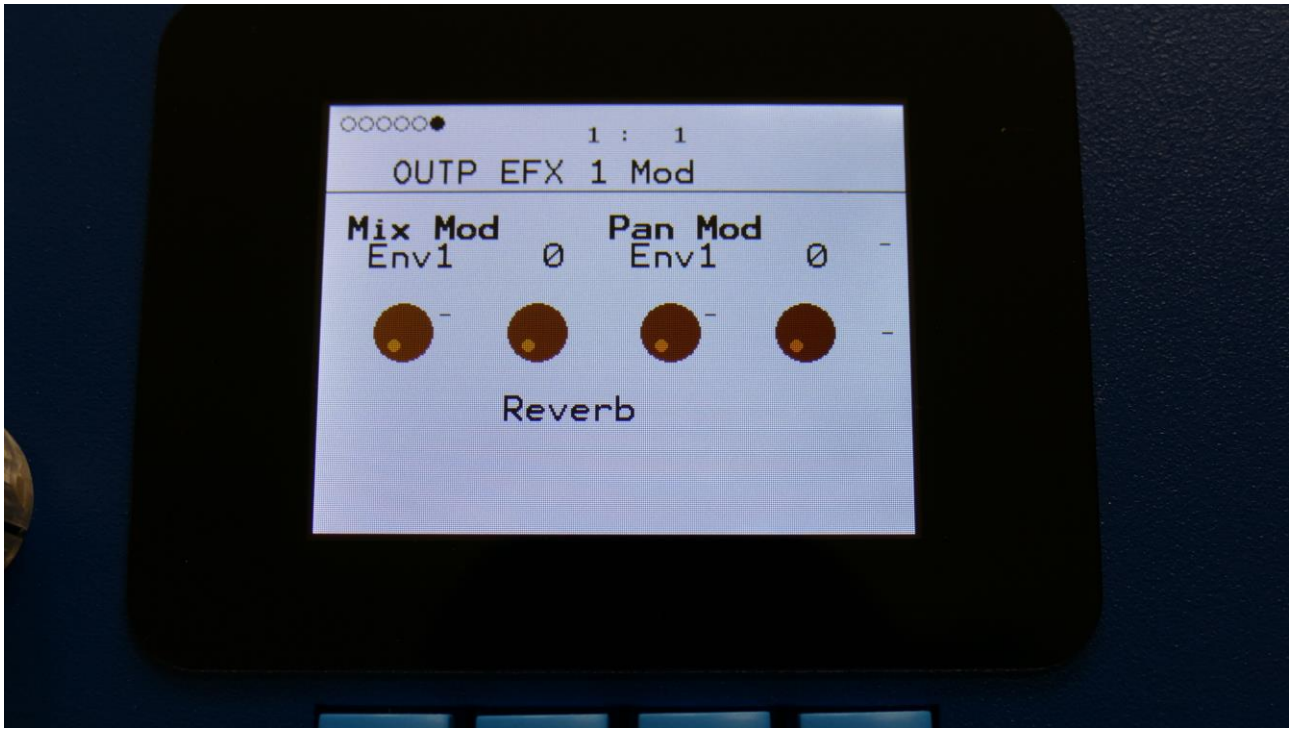
Feed1 Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed2 Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



FeedX Mod: Select a modulation source and adjust the amount of modulation for the FeedX parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

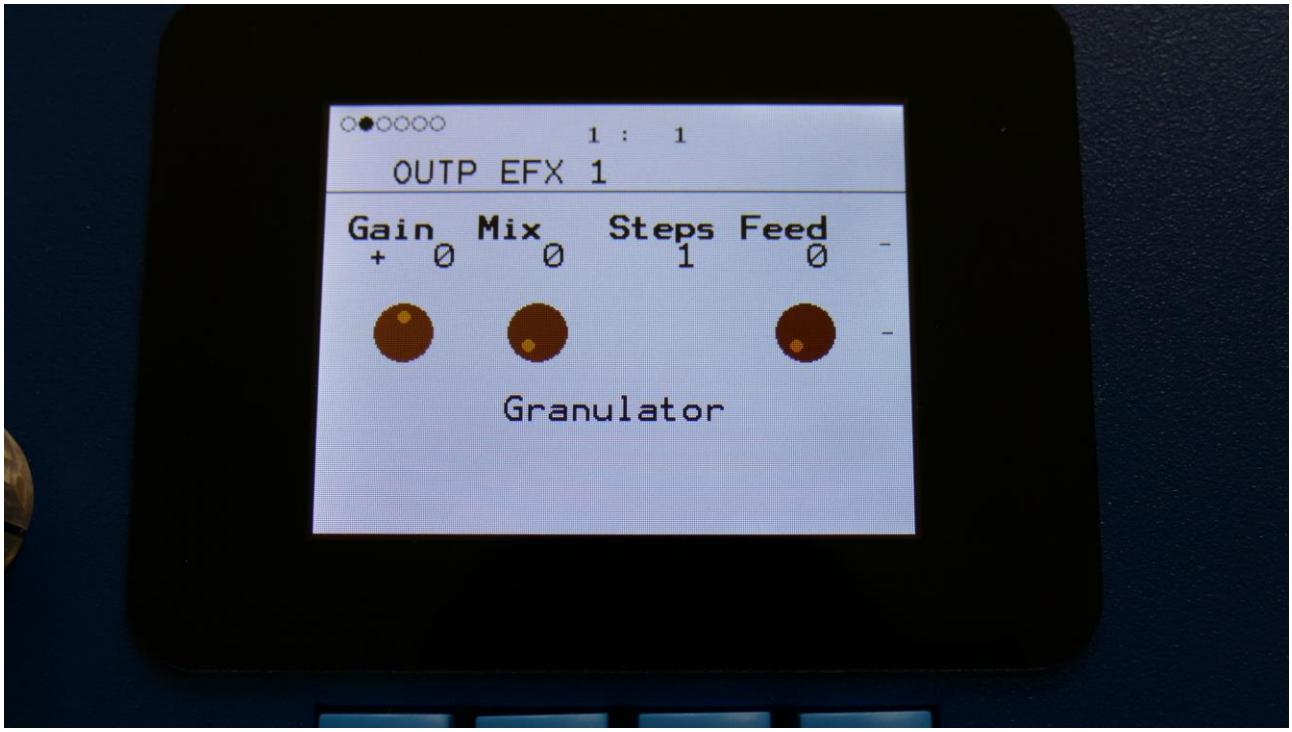
TimeX Mod: Select a modulation source and adjust the amount of modulation for the TimeX parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pan Mod: Select a modulation source and adjust the amount of modulation for the Pan parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Granulator (unsynced)



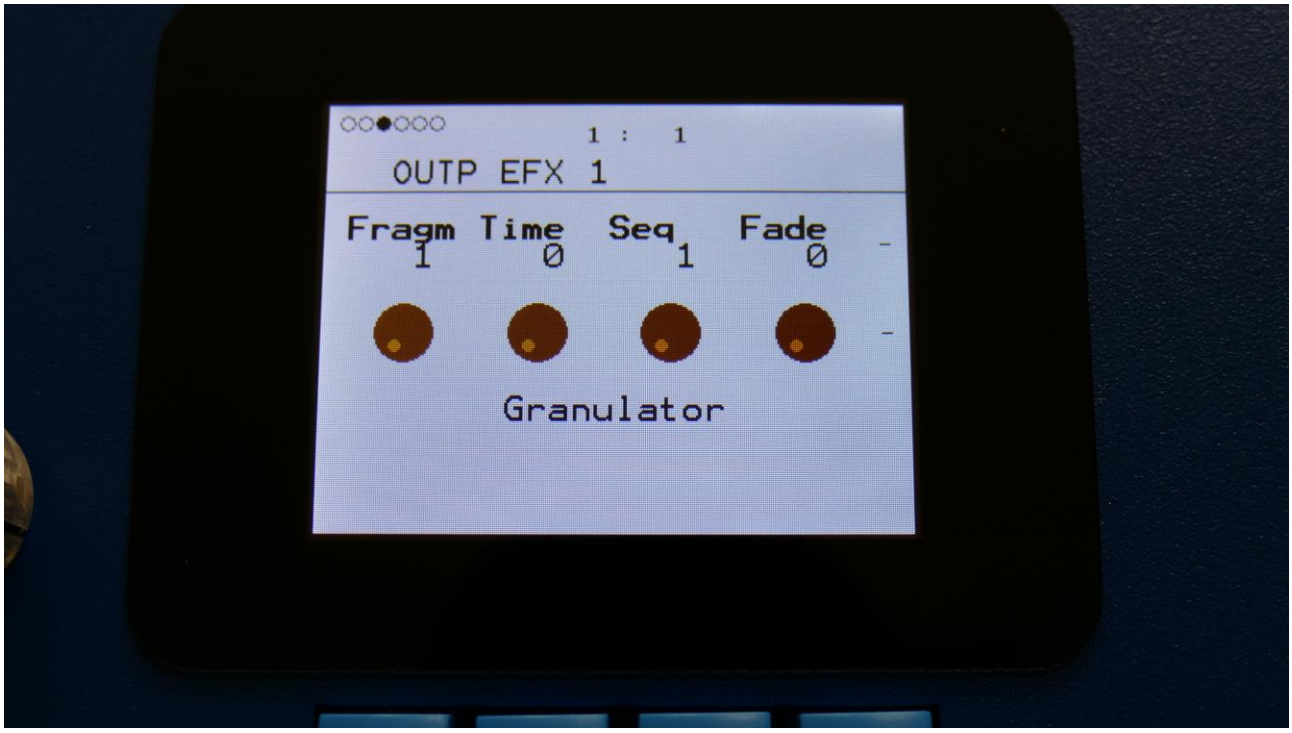
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Output effect output gain. A negative value attenuates the output signal, a positive value gains the output signal.

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

Steps: Sets how many steps the granulator sequences 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.



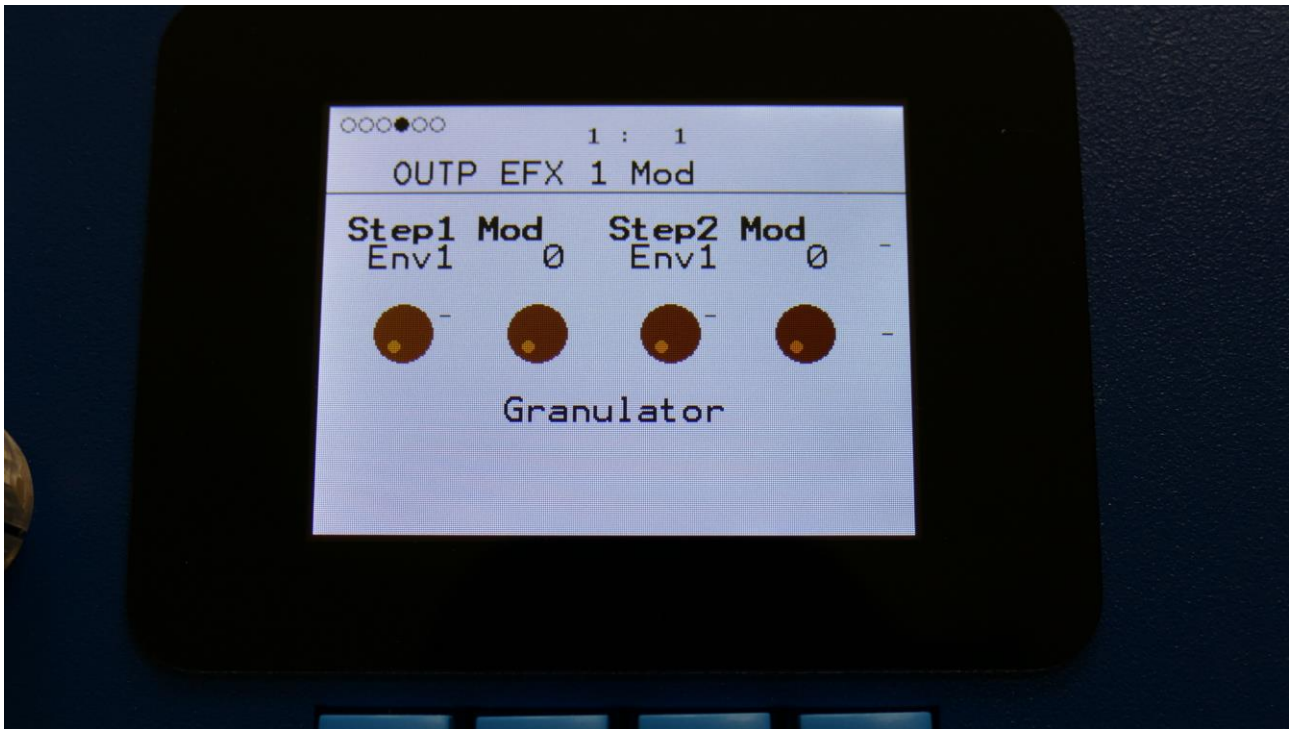
Fragm: Sets how many fragments (or grains) the input signal should be cutted up in. Possible values are 1, 2, 4, 8, 16, 32, 64 or 128.

Time: Sets the size of the input recording buffer. The higher the size, the bigger each grain will be.

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.

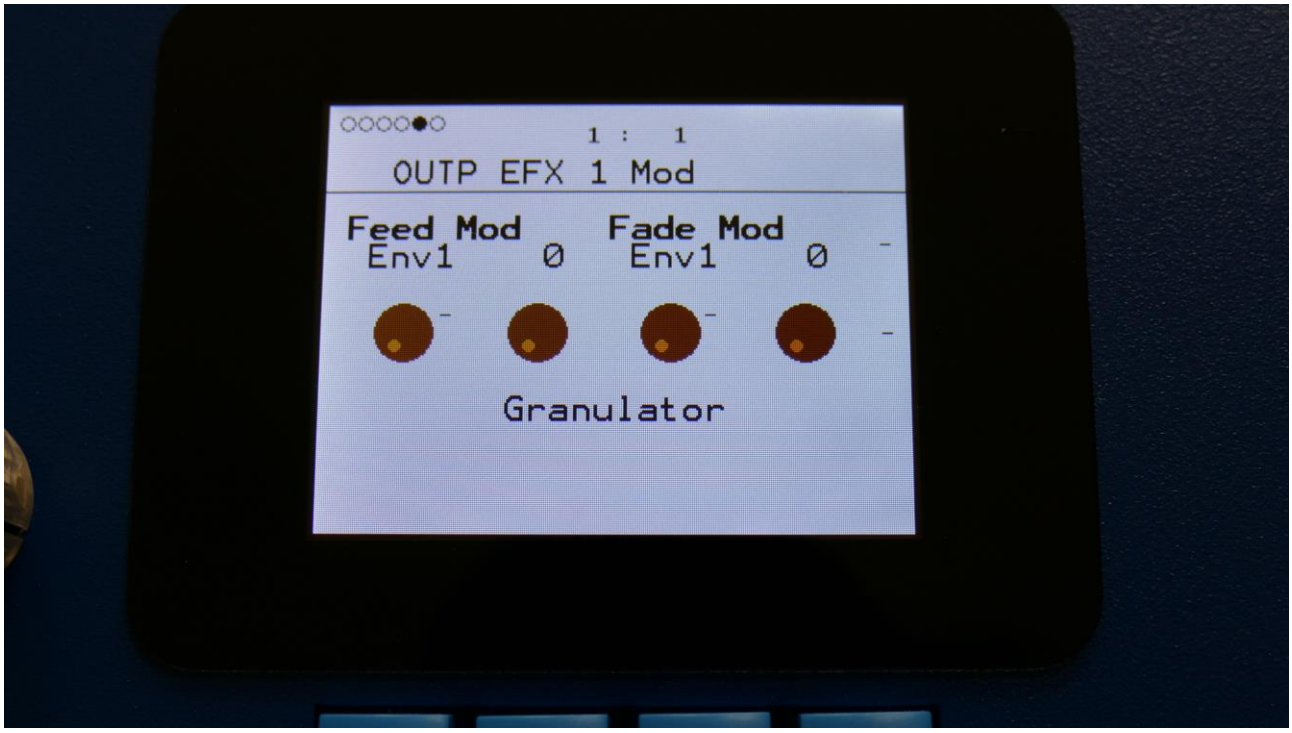
Fade: When this parameter is turned up, each grain will fade in and out, to minimize clicks.

Granulator Modulation



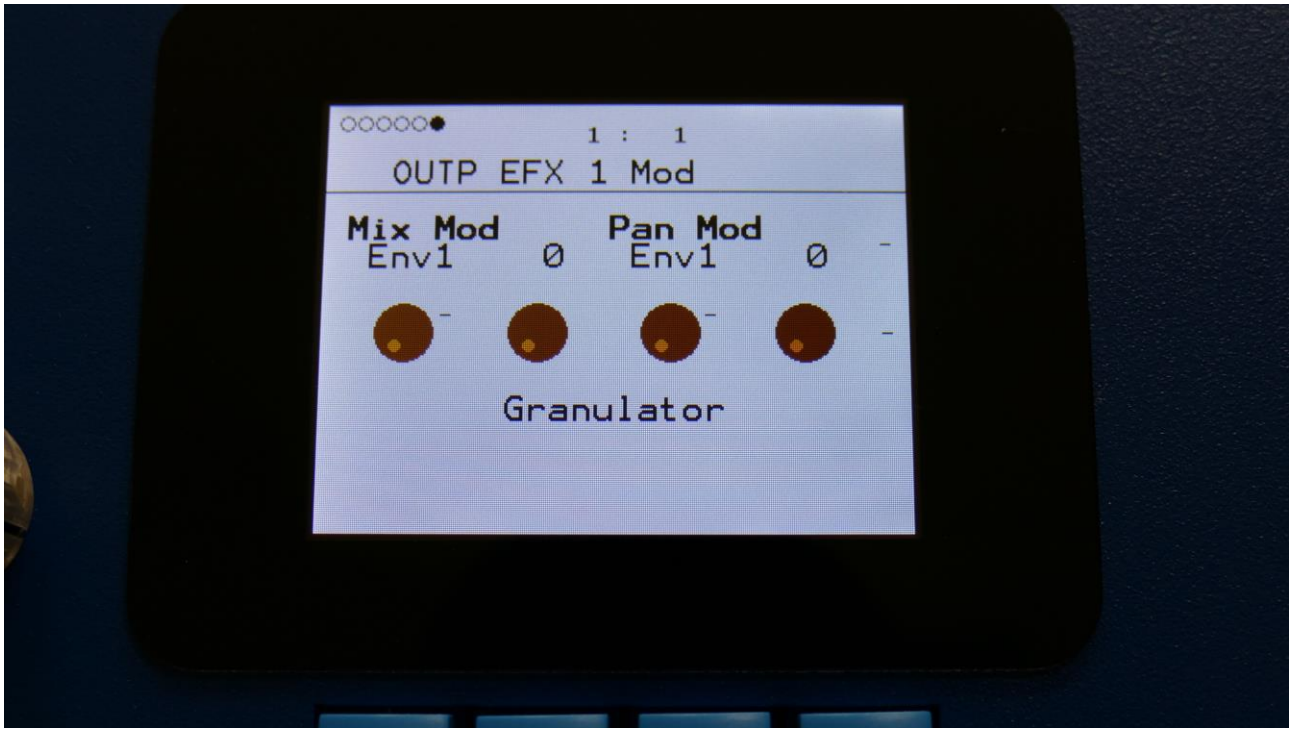
Step1 Mod: Select a modulation source and adjust the amount of modulation for the Step parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Step2 Mod: Select a modulation source and adjust the amount of modulation for the Step parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

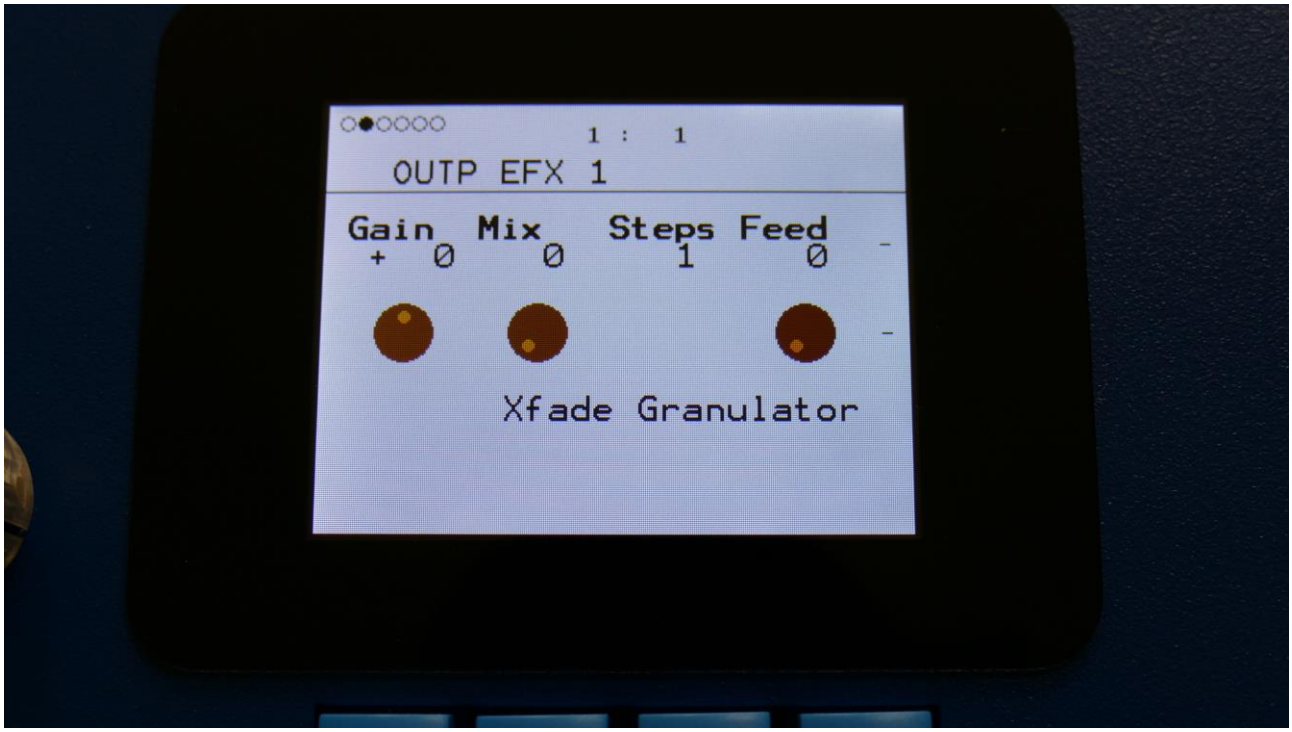
Fade Mod: Select a modulation source and adjust the amount of modulation for the Fade parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pan Mod: Select a modulation source and adjust the amount of modulation for the Pan parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Xfade Granulator



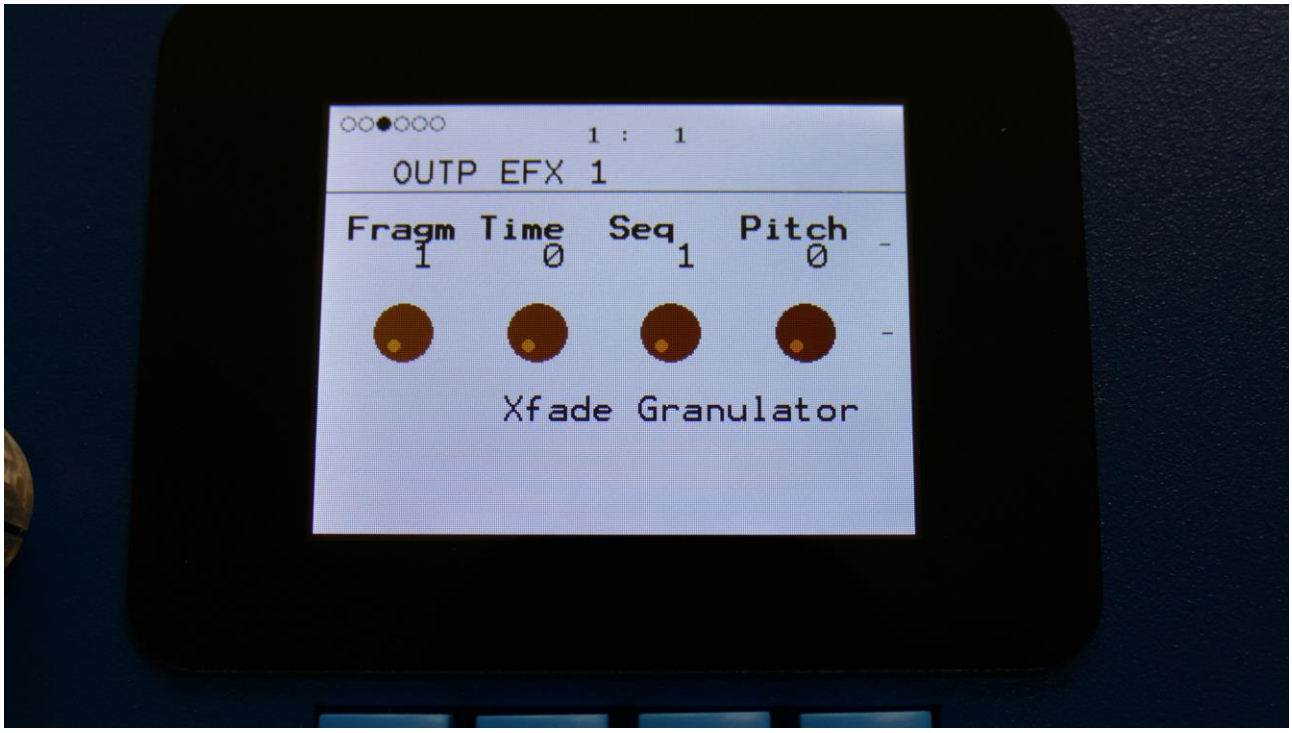
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Output effect output gain. A negative value attenuates the output signal, a positive value gains the output signal.

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

Steps: Sets how many steps the granulator sequences 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.



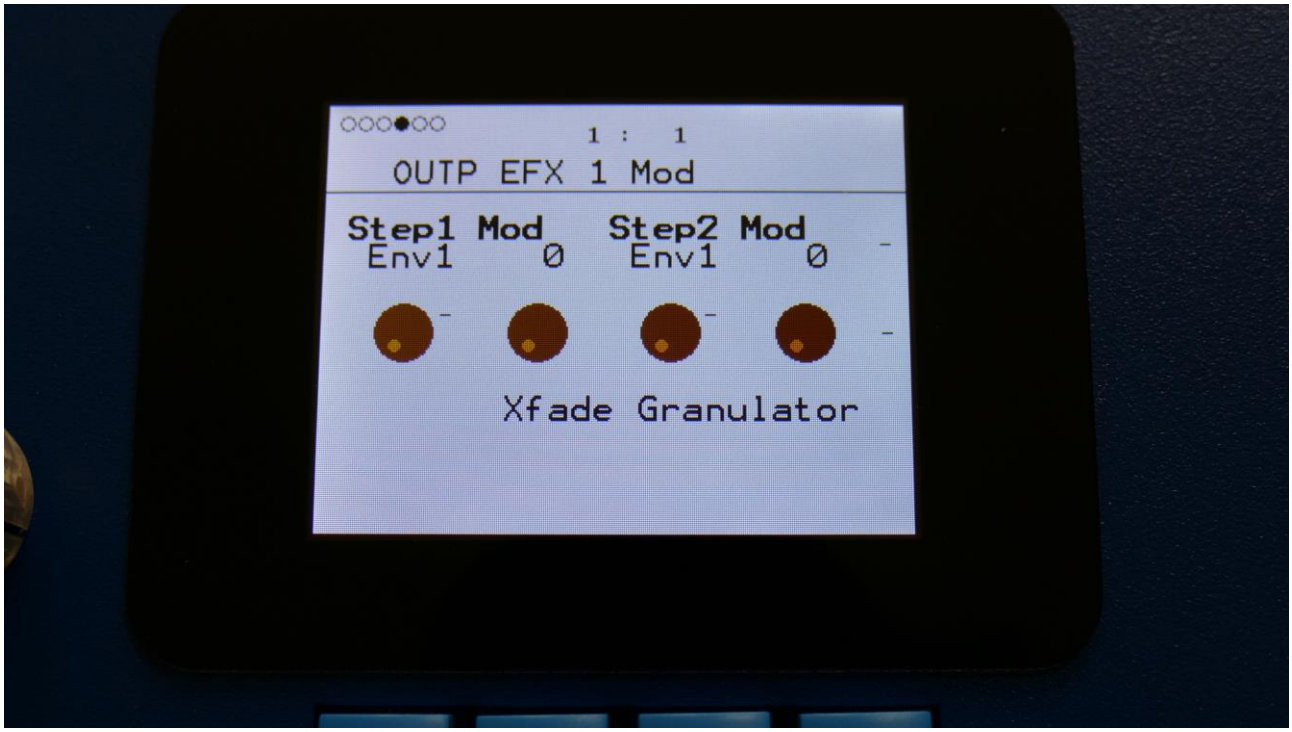
Fragm: Sets how many fragments (or grains) the input signal should be cutted up in. Possible values are 1, 2, 4, 8, 16, 32, 64 or 128.

Time: Sets the size of the input recording buffer. The higher the size, the bigger each grain will be.

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.

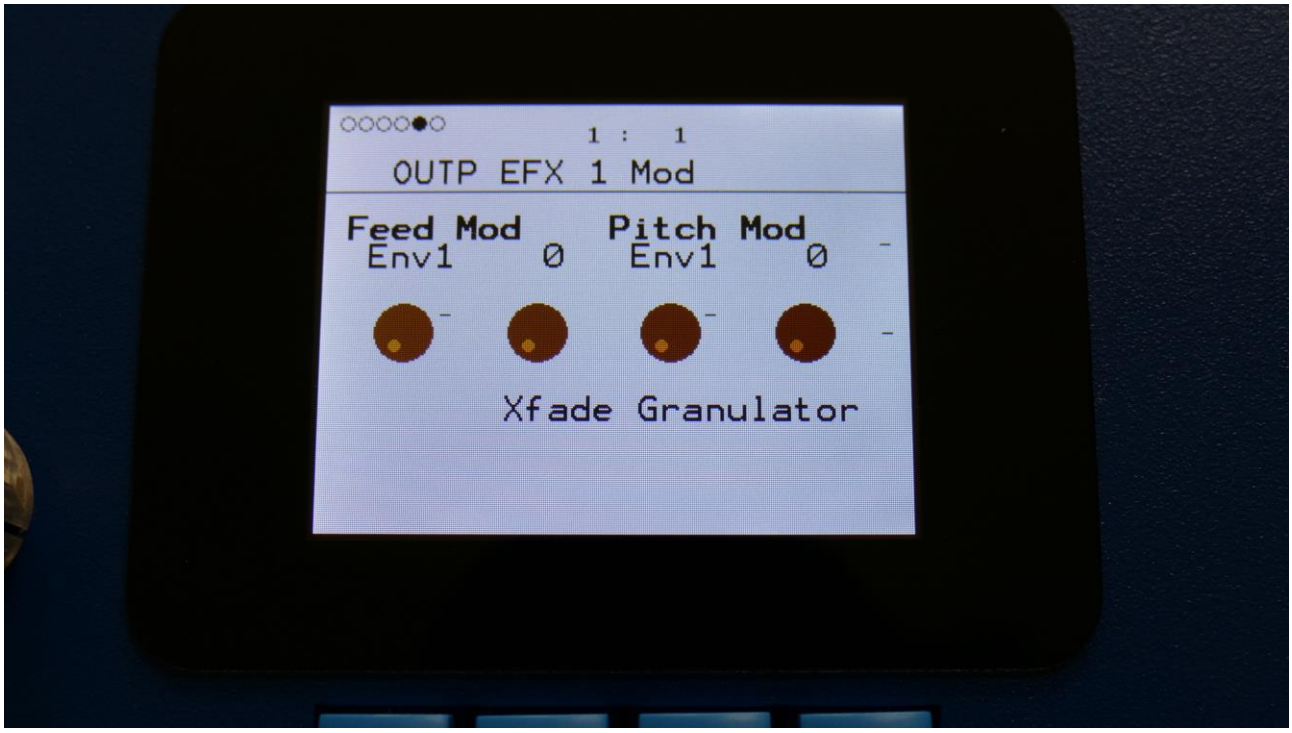
Pitch: Sets the playback pitch of the granular sequence. A value below 256 will pitch the signal down, a value above 256 will pitch it up.

Xfade Granulator Modulation



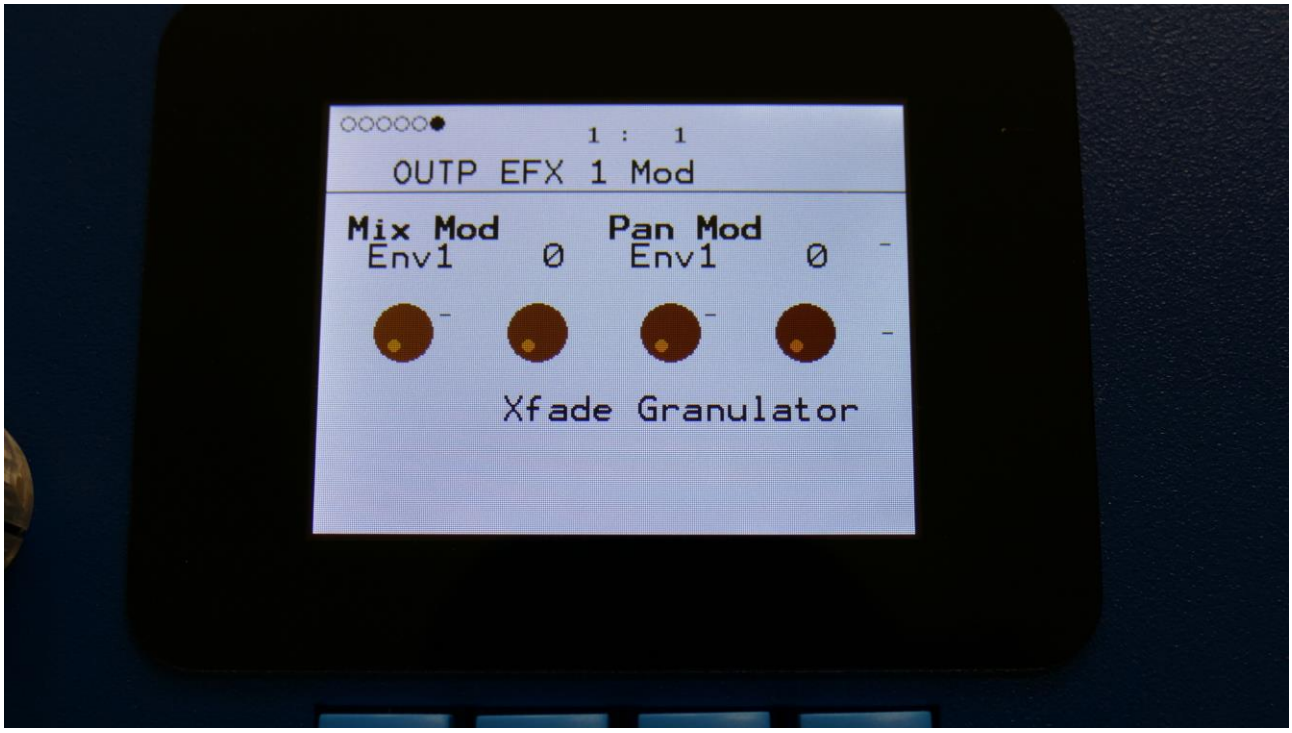
Step1 Mod: Select a modulation source and adjust the amount of modulation for the Step parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Step2 Mod: Select a modulation source and adjust the amount of modulation for the Step parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

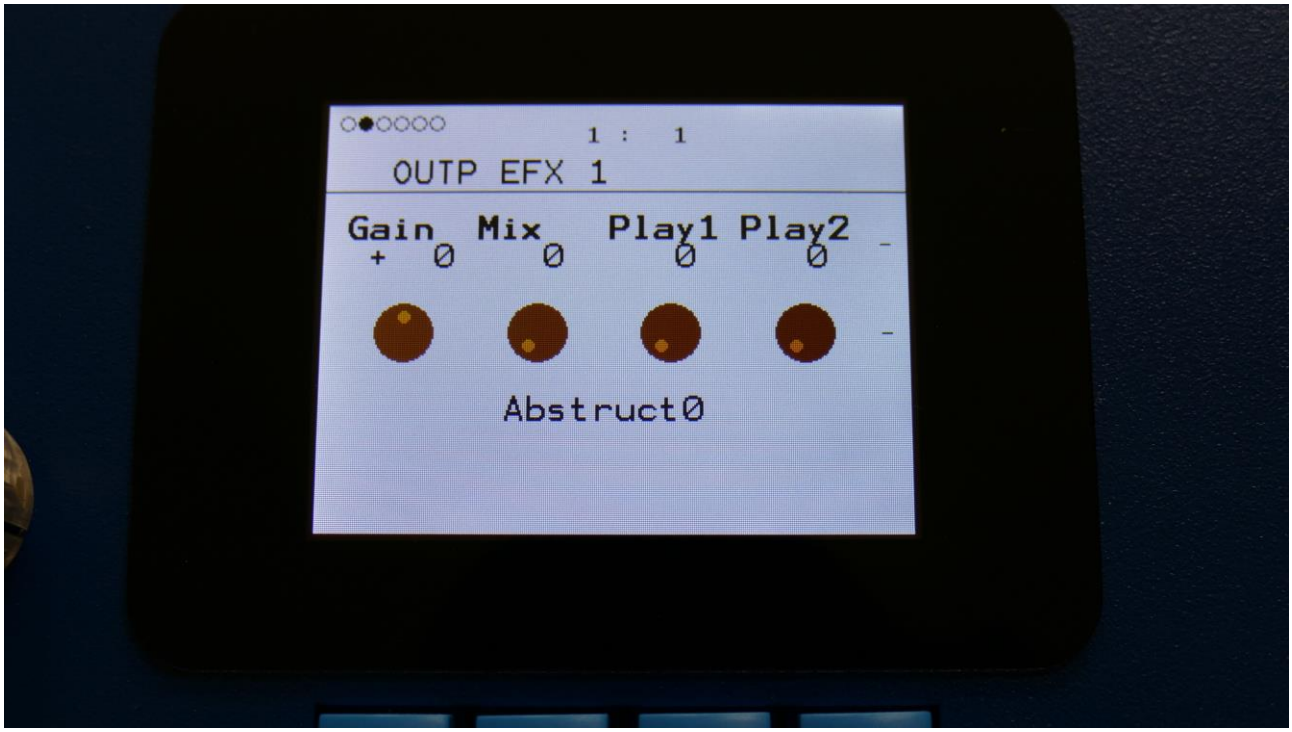
Pitch Mod: Select a modulation source and adjust the amount of modulation for the Pitch parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pan Mod: Select a modulation source and adjust the amount of modulation for the Pan parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Abstruct0

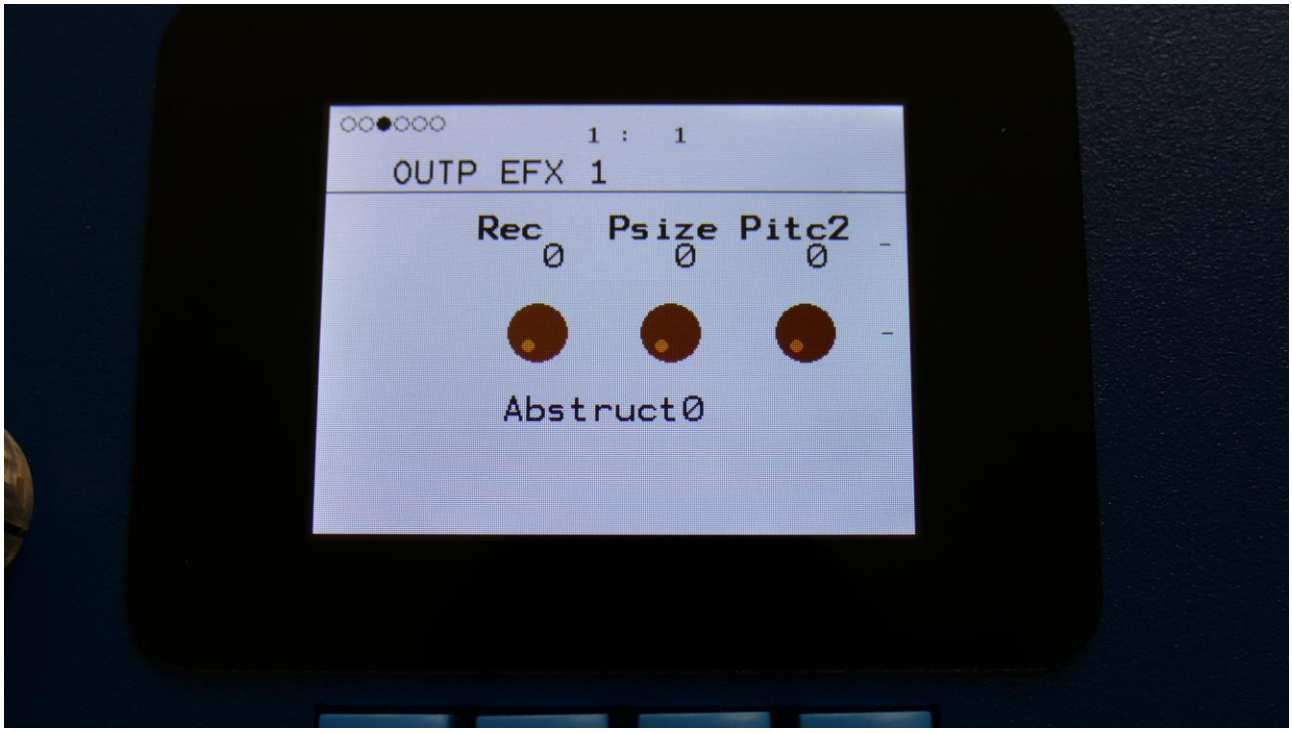


The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Output effect output gain. A negative value attenuates the output signal, a positive value gains the output signal.

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

Play1, Play2: 0 (Off), 1 to 511. Sets for how long time each of the playback heads should play back, until it jumps to a new random location.

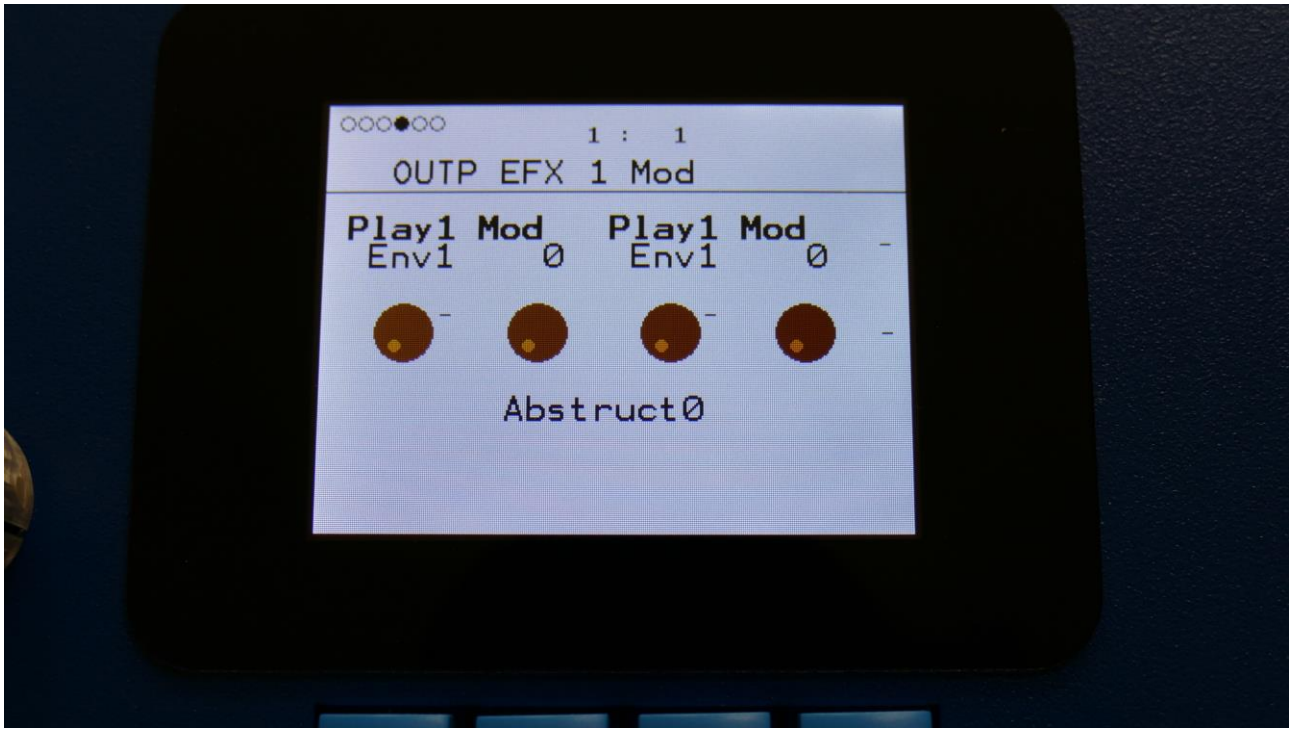


Rec: 0 to 511. Sets the record buffer size. Determines for how long time it should record the input, before it starts over again.

Psize: 0 (Off), 1 to 255. This parameter sets the total playback buffer size, independent of the record buffer size. If this parameter is 0, the Rec parameter determines the playback buffer size, but if it is at any other value, this parameter determines the playback buffer size. It can be used as a fast way of adjusting the playback length of both playback heads at the same time. At low settings, granular effects with very small grains can be obtained. If the value of this is higher than the Rec parameter, it will play back areas of the record buffer, that is not being recorded, and create a ”Freeze” effect.

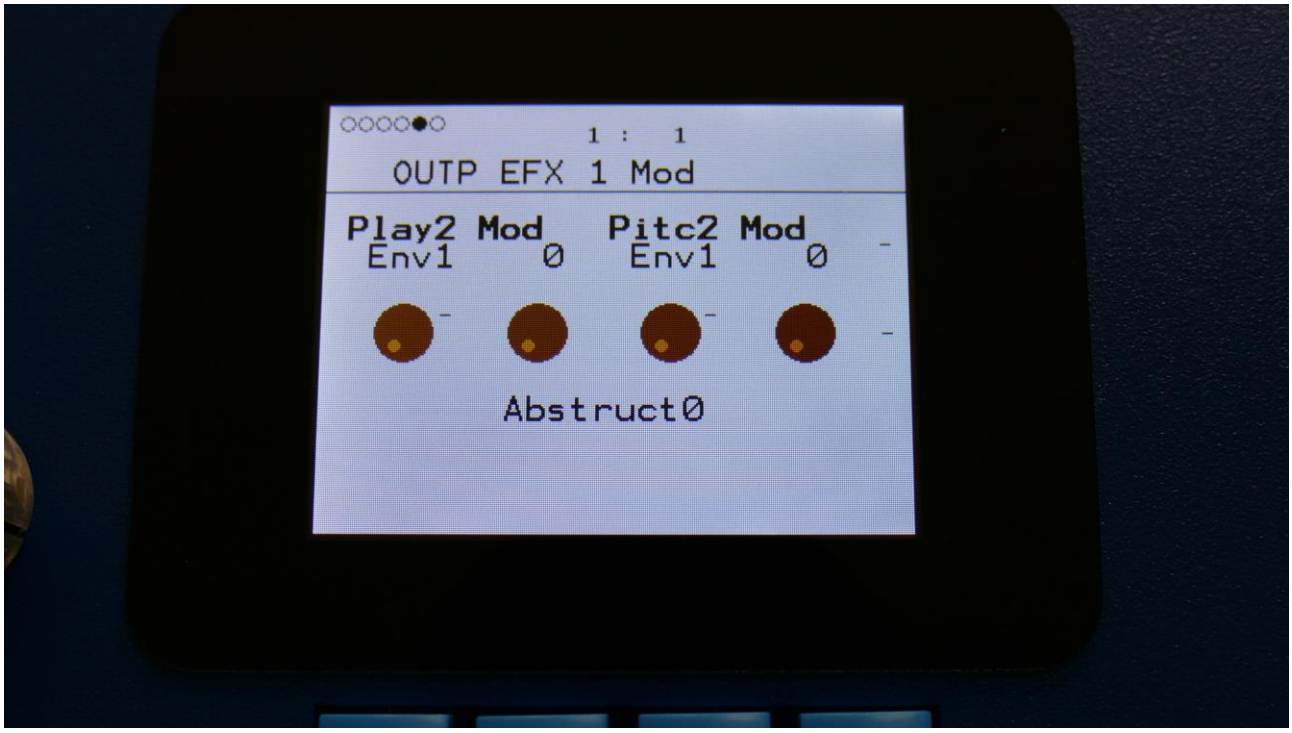
Pitc2: 0 to 511. Sets the pitch of the playback for playhead 2. A value below 256 will pitch the signal down, a value above 256 will pitch it up.

Abstruct0 Modulation



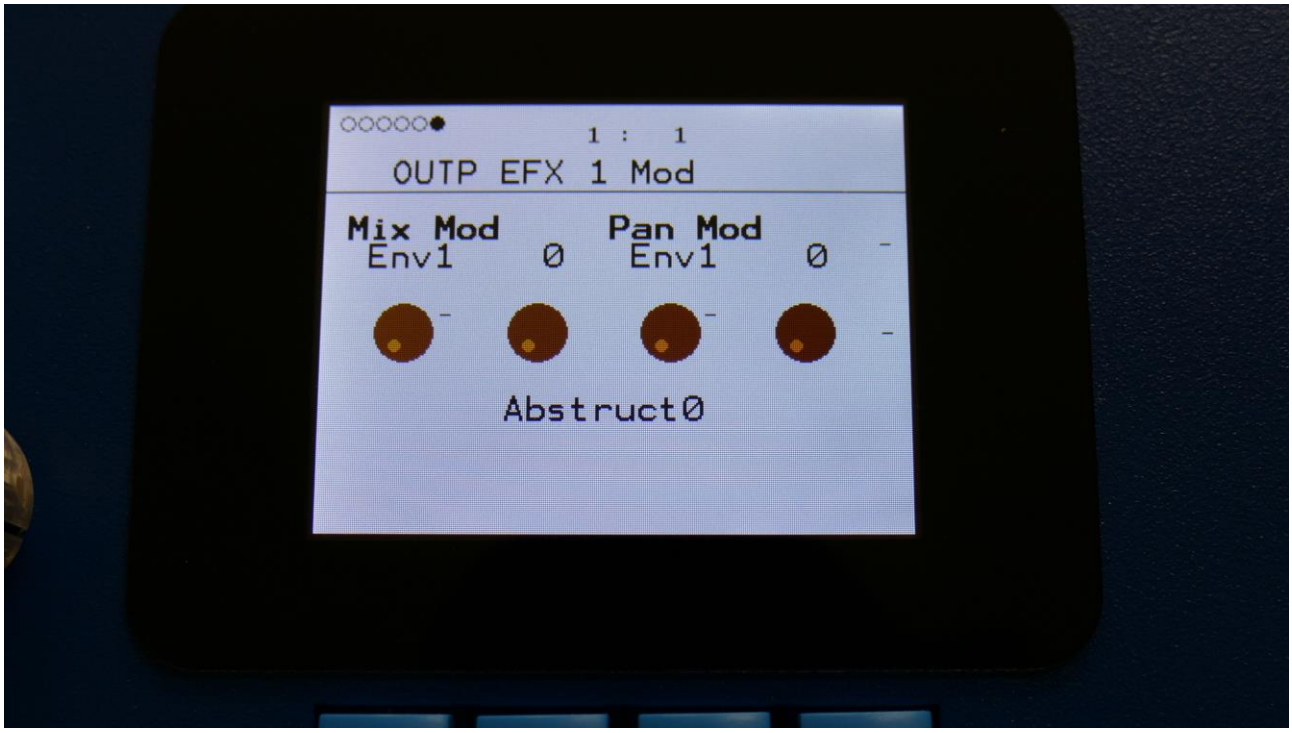
Play1 Mod: Select a modulation source and adjust the amount of modulation for the Play1 parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Play1 Mod: Select a modulation source and adjust the amount of modulation for the Play1 parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Play2 Mod: Select a modulation source and adjust the amount of modulation for the Play2 parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

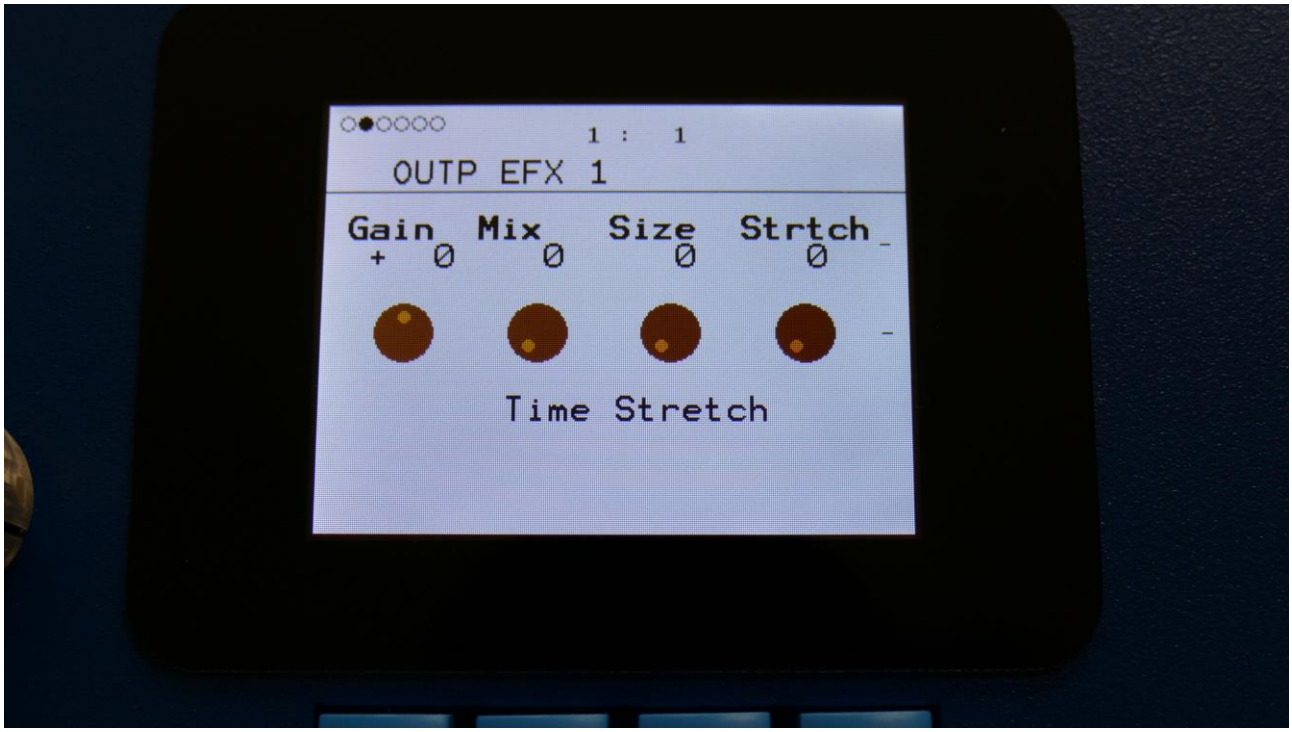
Pitc2 Mod: Select a modulation source and adjust the amount of modulation for the Pitc2 parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pan Mod: Select a modulation source and adjust the amount of modulation for the Pan parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Time Stretch



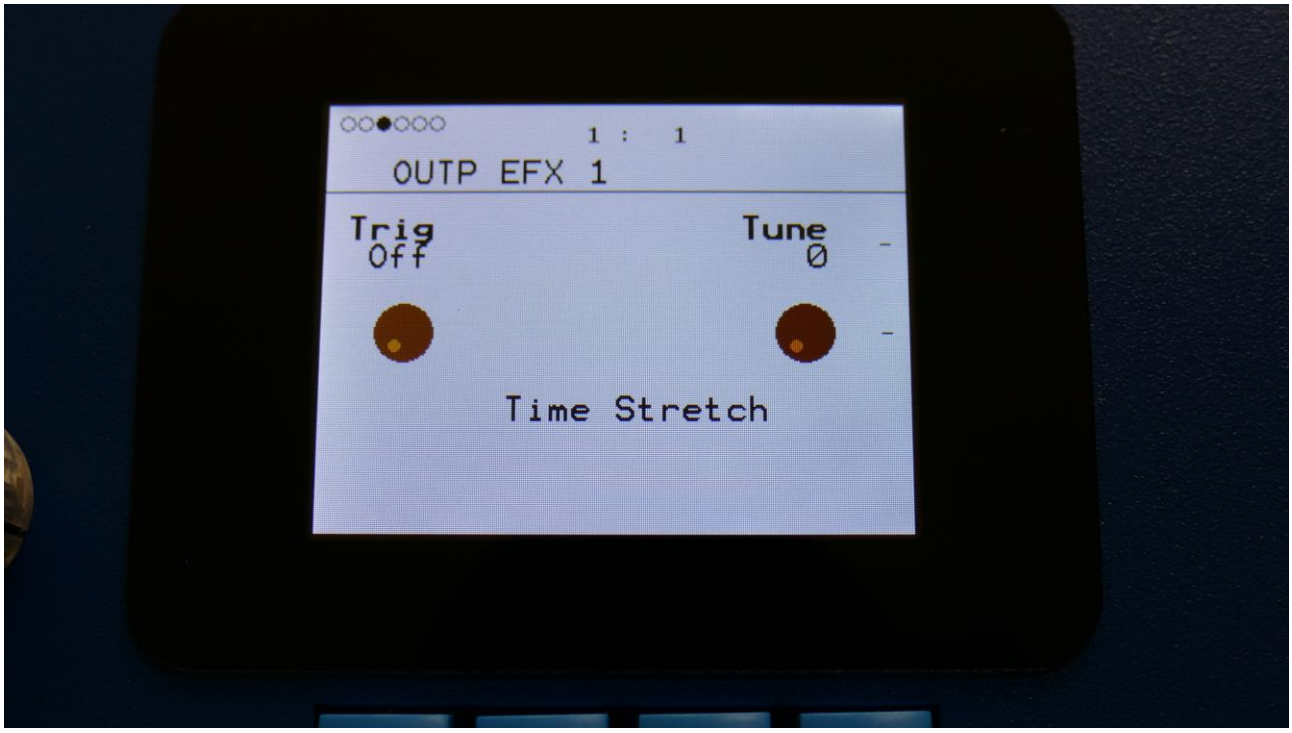
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Output effect output gain. A negative value attenuates the output signal, a positive value gains the output signal.

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

Size: 0 to 511. The size of the RAM buffer used for the TimeStretcher.

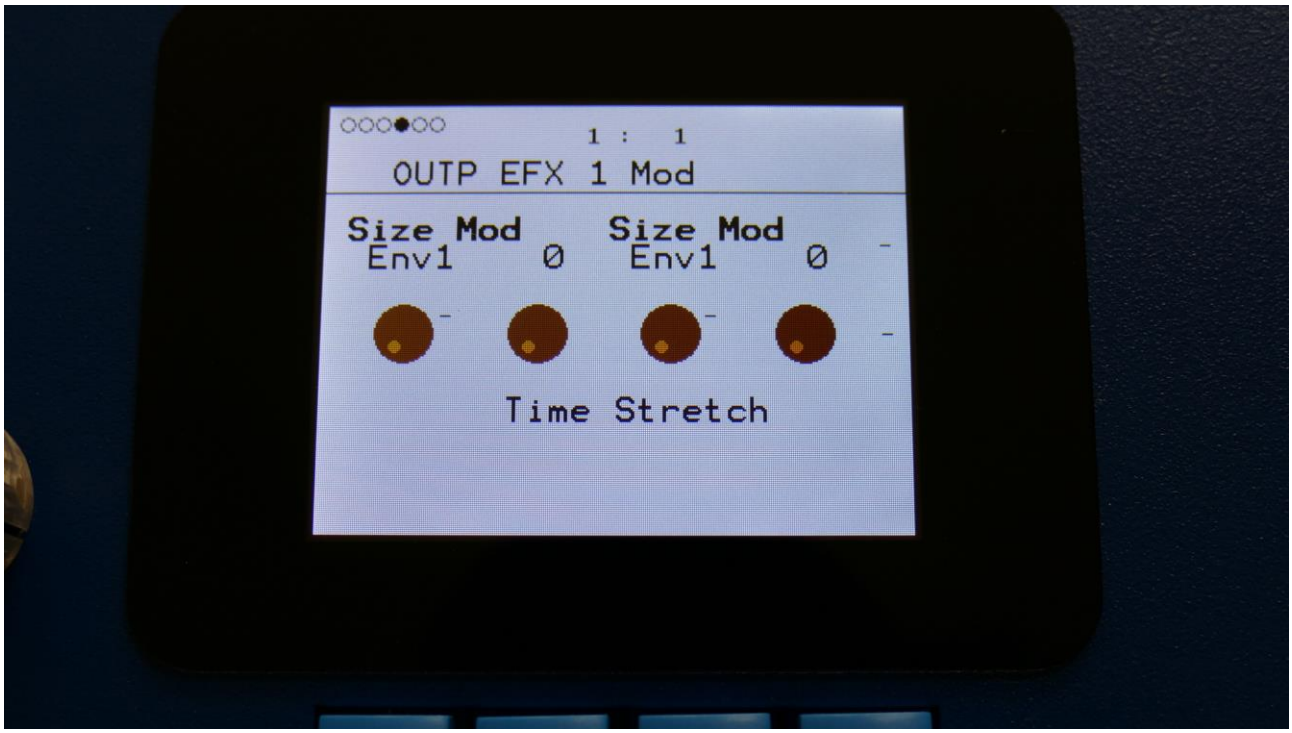
Strtch: 0 to 511. Time stretch. A value below 256 will stretch the sound longer, a value above 256 will compress the sound to become shorter.



Trig: Off, 1 to 16. Determines if the time stretch effect should be trigged by a part or not.

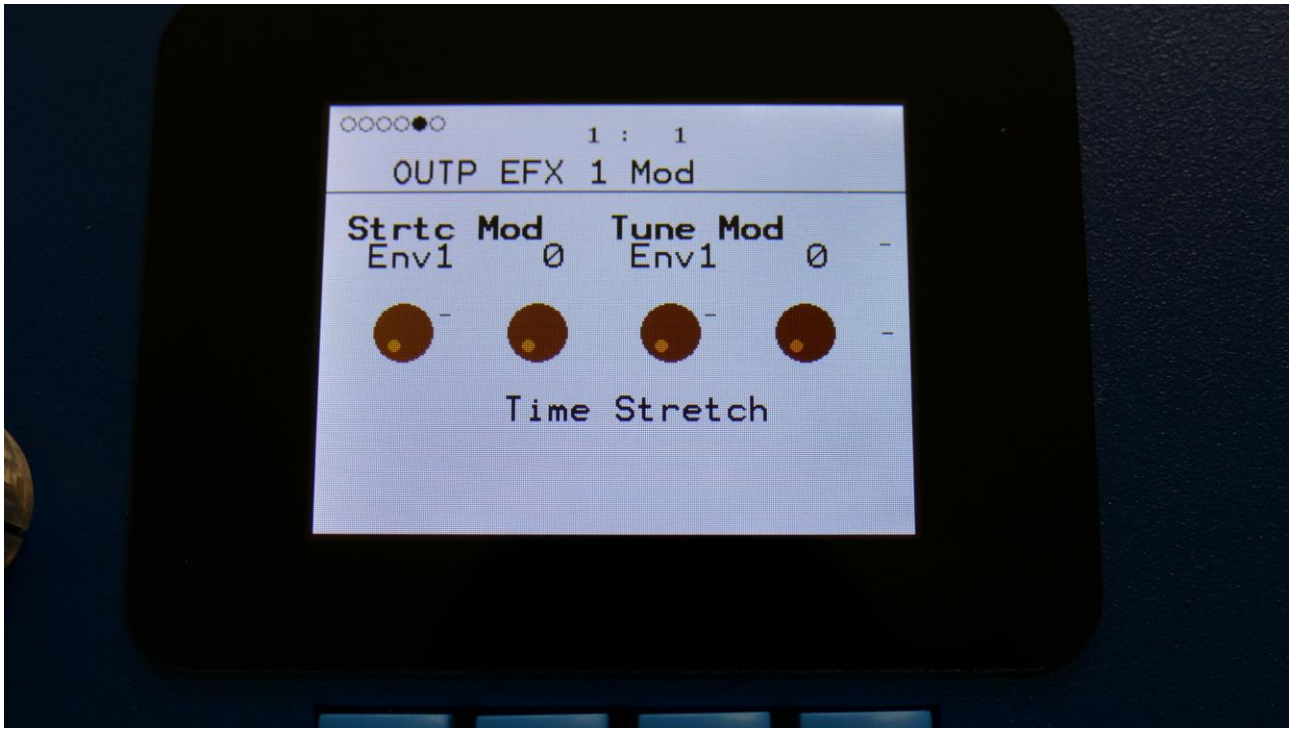
Tune: Pitch Coarse. A value below 256 will pitch the signal down, a value above 256 will pitch it up.

Time Stretch Modulation



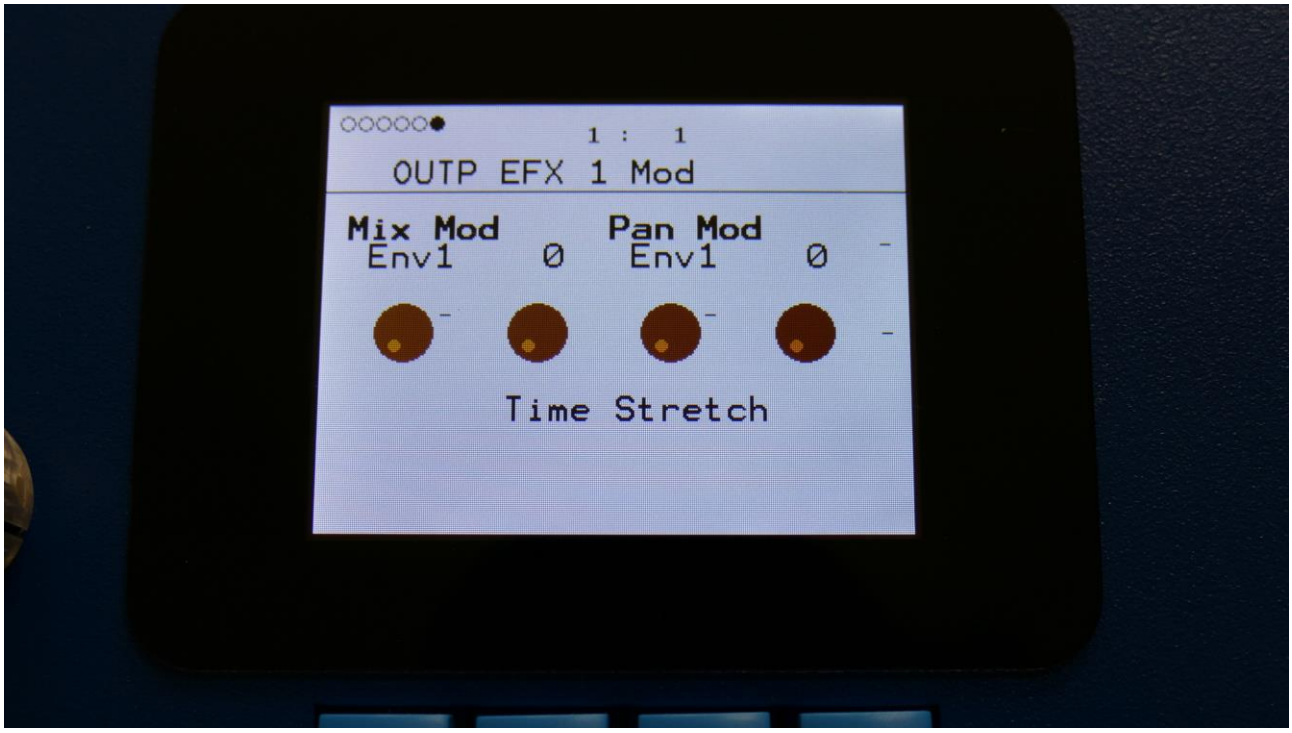
Size Mod: Select a modulation source and adjust the amount of modulation for the Size parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Size Mod: Select a modulation source and adjust the amount of modulation for the Size parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Strtc Mod: Select a modulation source and adjust the amount of modulation for the Strtch parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

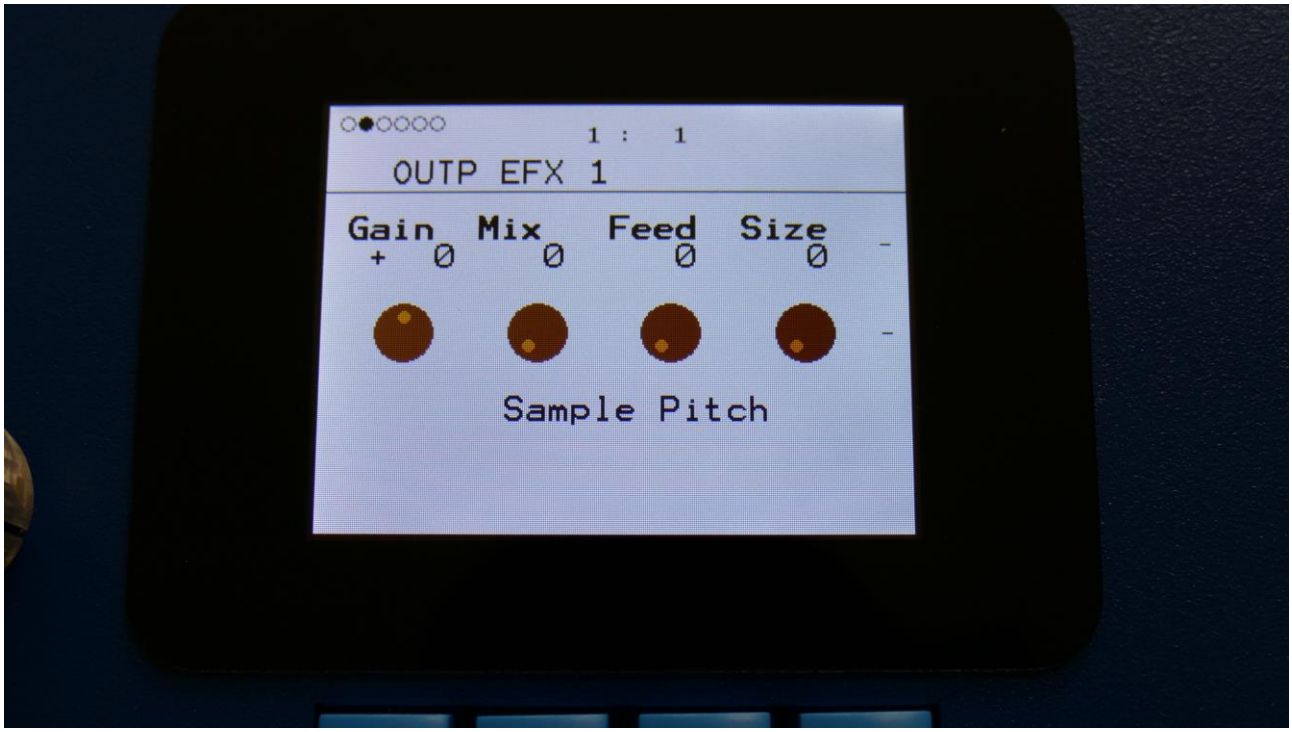
Tune Mod: Select a modulation source and adjust the amount of modulation for the Tune parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Mix Mod: Select a modulation source and adjust the amount of modulation for the Mix parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pan Mod: Select a modulation source and adjust the amount of modulation for the Pan parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Sample Pitch



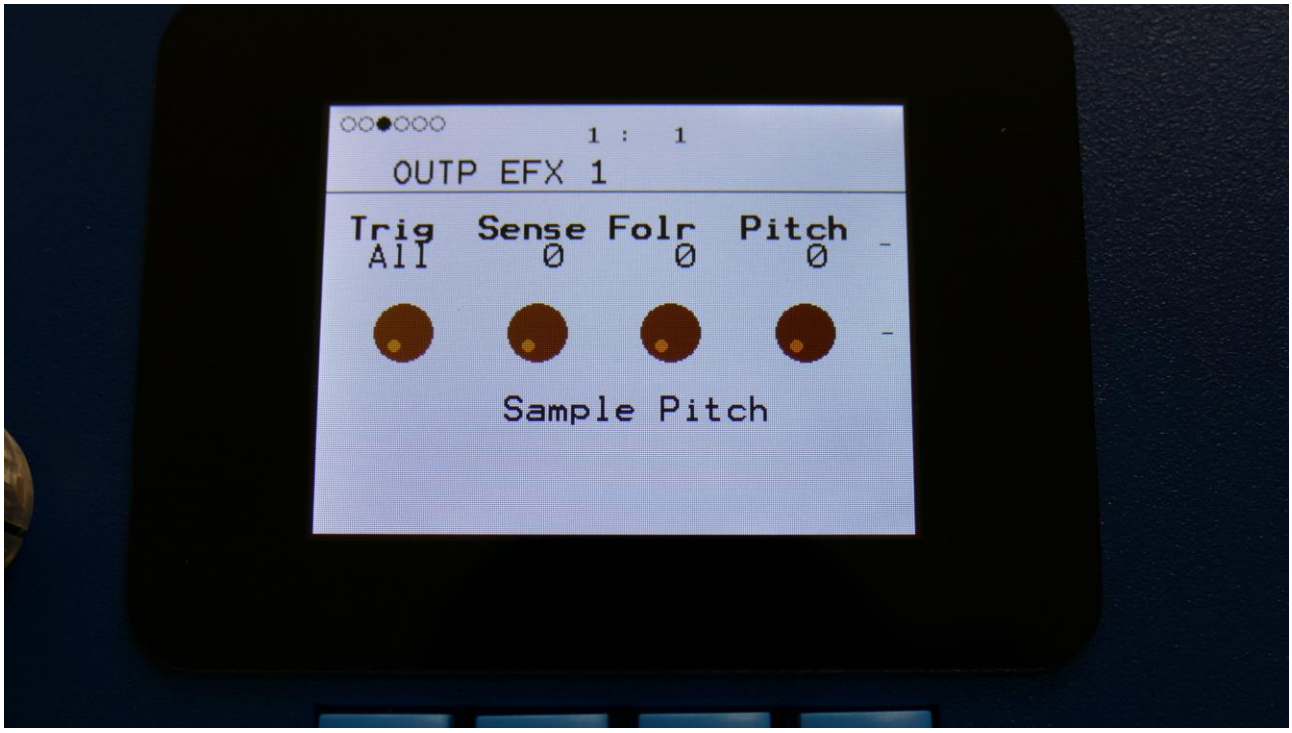
The 2 VU-meters at the right of the screen, shows the Effect input and output.

Gain: Output effect output gain. A negative value attenuates the output signal, a positive value gains the output signal.

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

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

Size: 0 to 511. The number of wave frames used for each pitch grain.



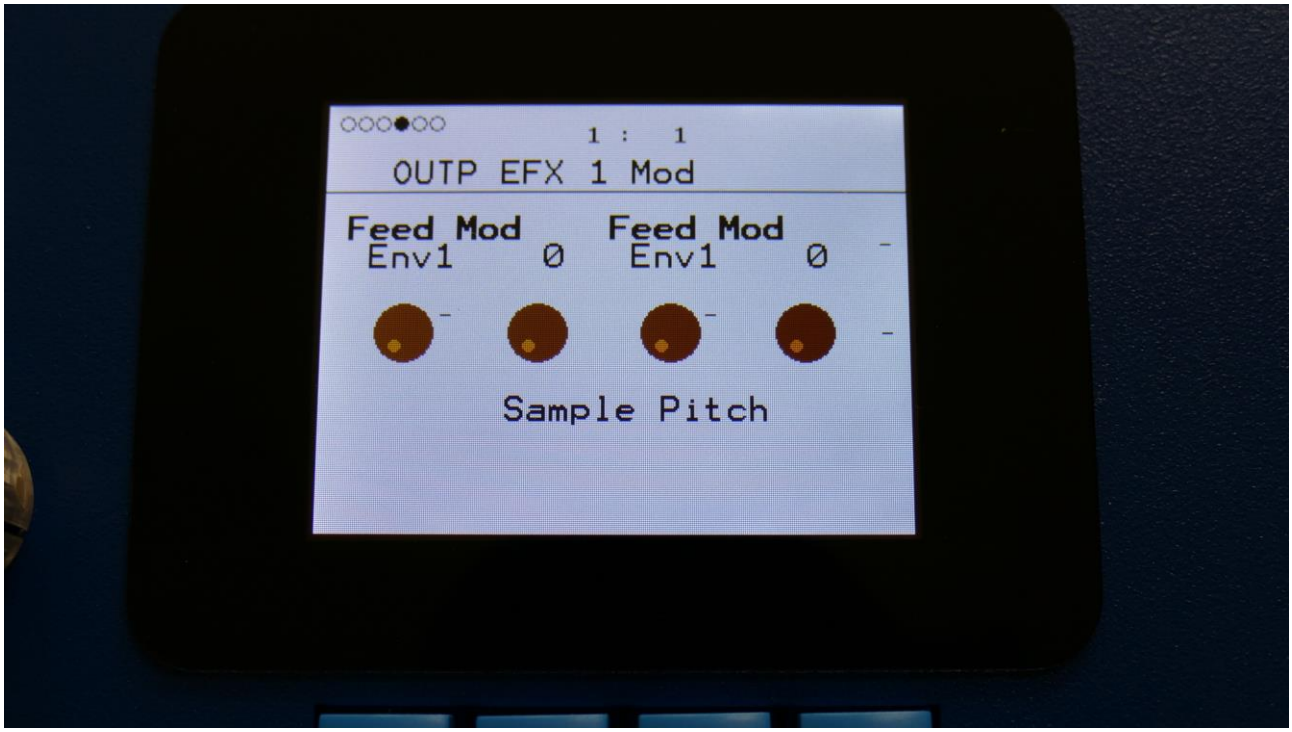
Trig: Off, 1 to 16, OffM, 1M to 16M. Determines if the sample pitch effect should be trigged by all parts or a single part. The “M” suffix indicates that the playback pointer will be moving in another pattern, that will give slightly different results.

Sense: Pitch detection sense. The higher this is turned up, the less frames it will detect for the pitch generation.

Folr: The sample pitch effect output envelope follower rate.

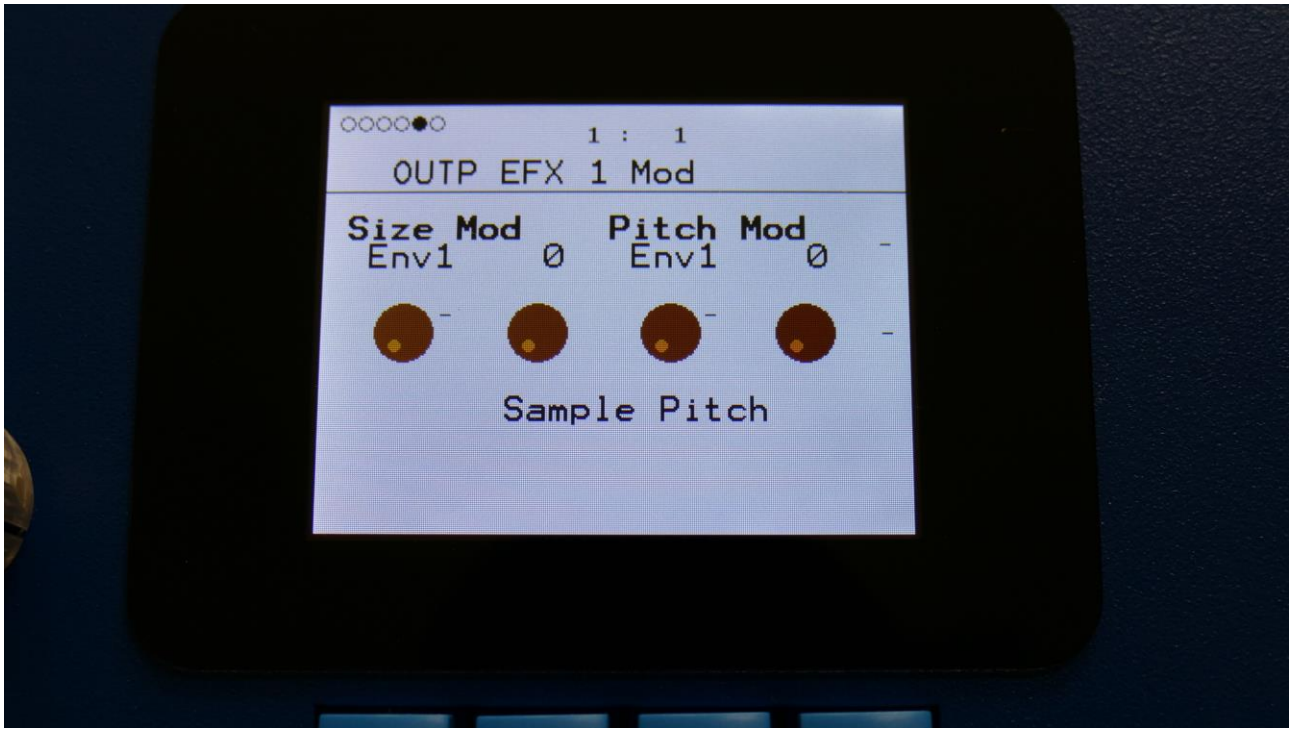
Pitch: The playback pitch. Values below 256 will tune down, values above 256 will tune up.

Sample Pitch Modulation



Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Feed Mod: Select a modulation source and adjust the amount of modulation for the Feed parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.



Size Mod: Select a modulation source and adjust the amount of modulation for the Size parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

Pitch Mod: Select a modulation source and adjust the amount of modulation for the Pitch parameter. The small VU-meter next to the modulation source selector, shows the output of the selected modulation source.

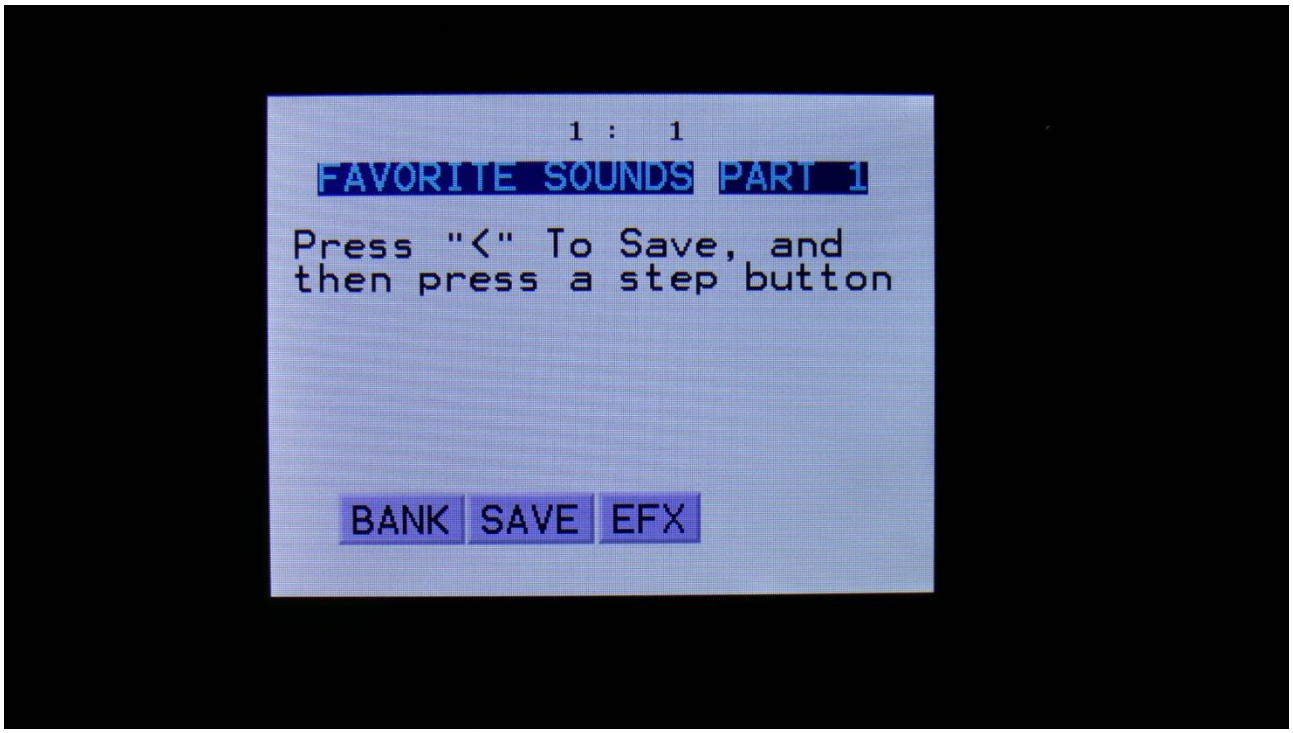
Favorite Sounds

It is possible to store 256 favorite sounds, for instant recall, when you are making your preset setup. These sounds are stored and recalled for each part, with or without the insert effects.

You can, for instance, use this for storing good starting points for sounds, or as a 256 sound copy/paste buffer!

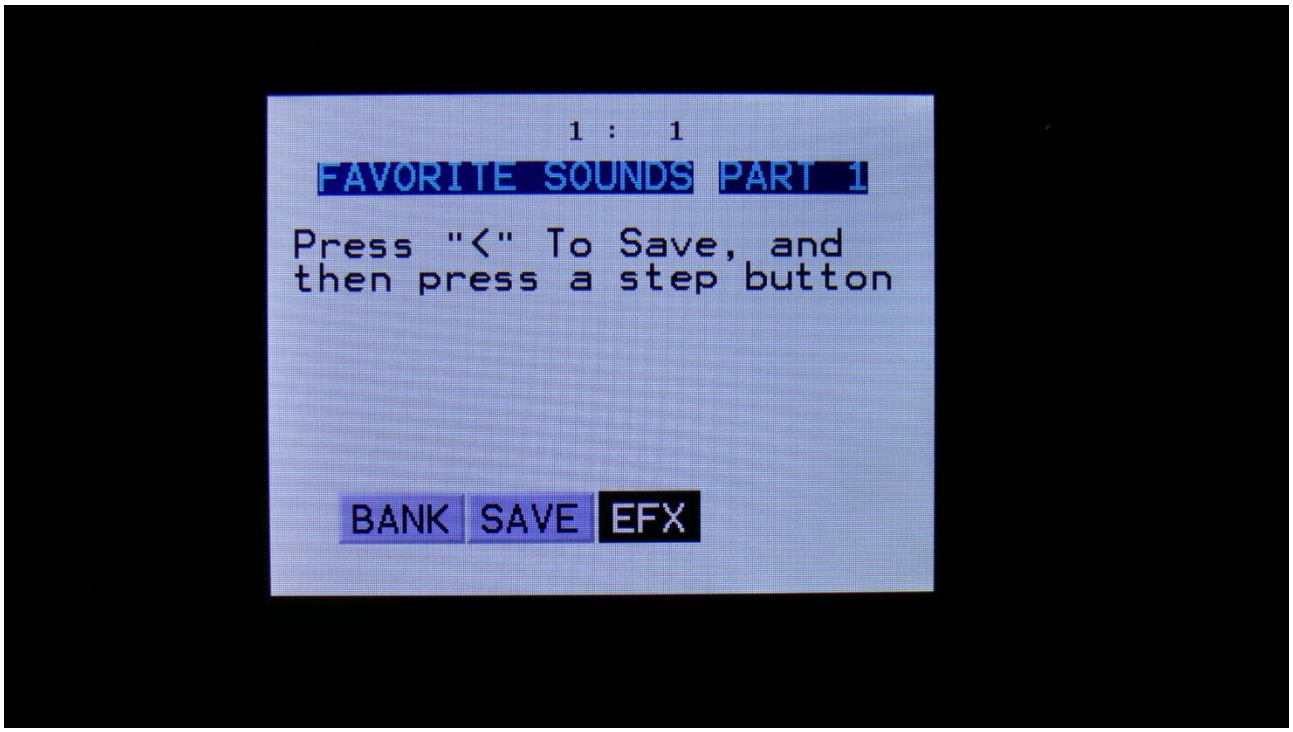
The favorite sounds simply points to a space in the SpazeDrum preset memory, so if you change the sound of the original preset, the favorite sound will be changed as well.

To access the favorite sounds page, from the Drum Osc, Digital Osc, VCF, DGF, VCA, ENV or LFO edit pages, push the Edit button.



When on the favorite sounds page, pushing a step button will load a sound to the currently selected part, while playing the sound back for auditioning. Step buttons that has a favorite sound stored, will light up.

Initially the sounds are loaded without the insert effects settings. To load sounds with the insert effects included, push the > button, or touch the EFX touch button on SpazeDrum Black, so that EFX turns black, and then push a step button, to load a sound. EFX only affects loading of sounds, not saving.



To load sounds without the insert effects, simply push the > button again, so that EFX turns grey.

When a sound is loaded into a part, it can be edited, just like any other sound. Editing a favorite sound, that is loaded into a part, does not affect the preset, where the sound was loaded from.

When you have selected and edited the sounds you need for each part, remember to save the preset, to keep your edits.

Selecting The Favorite sounds bank

Since SpazeDrum only has 16 step buttons, only 16 favorite sounds can be selected at a time. The rest of the favorite sounds can be accessed by selecting 16 banks.

To access a bank, push the Edit button, or touch the BANK touch button on SpazeDrum Black, so that BANK turns black.

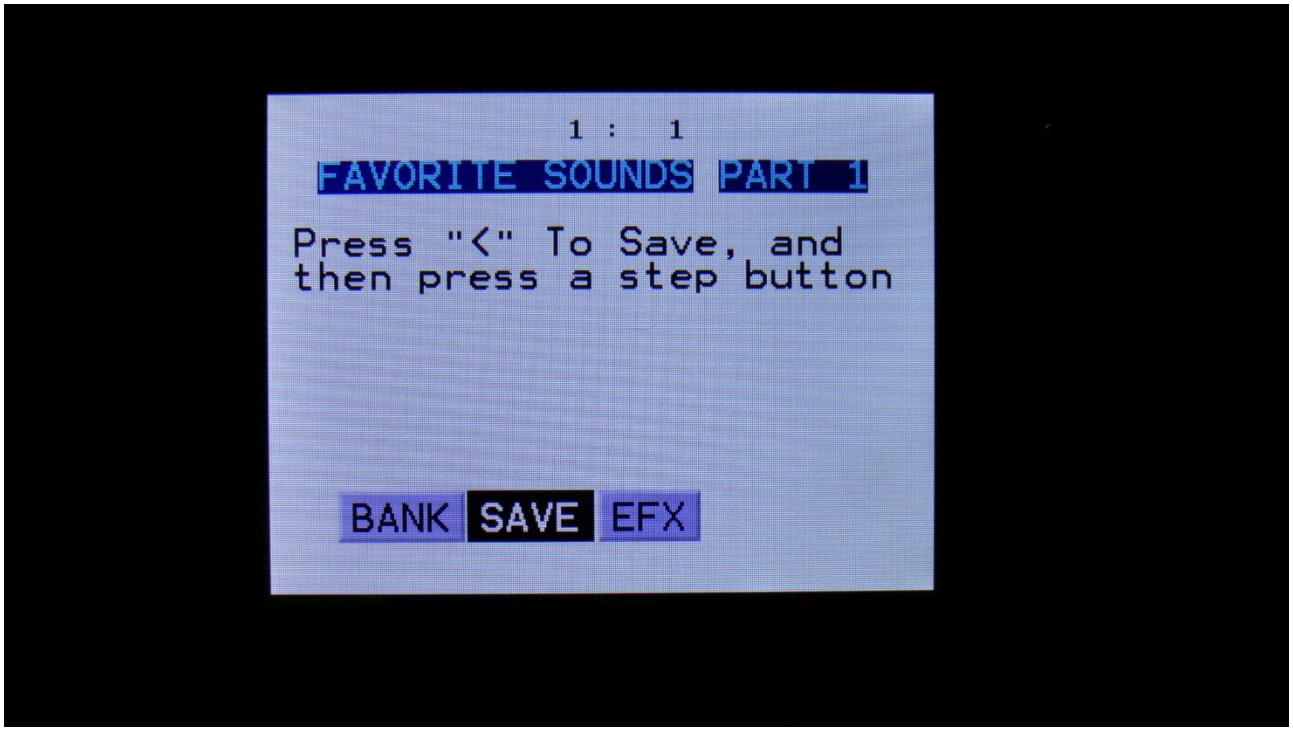
Now the selected bank will be shown on the step buttons, by one step button lighting up. Push a step button to select another bank.

When you have the desired bank selected, push the Edit button again, so that BANK turns grey, to return to the favorite sound select.

Saving a Favorite Sound

Select the favorite sounds bank, in which you would like to store the sound of the currently selected part.

Push the < button, or touch the SAVE touch button on SpazeDrum Black, so that SAVE turns black.



Push the step button, that equals the desired location.

SAVE will now turn grey, and the sound has been stored.

Please notice that only the location of the sound is stored, not the sound itself. You will still have to save the preset, in order to keep an edited sound.

The Sequencer

The SpazeDrum sequencer has 2 different types of tracks: Note tracks and knob controller tracks. It has 16 note tracks and 4 knob controller tracks per part -64 knob controller tracks in total.

Each note track controls 1 drum part – Note track 1 controls drum part 1, note track 2 controls drum part 2 and so on, and each track has a note number subtrack, a gate time subtrack, a velocity subtrack, a position subtrack, a sub-position subtrack and a step on/off subtrack. Note number, gate time, delay time, swing, velocity, position and position rotation can be modulated. Swing can also be added to all 16 note tracks at the same time, by the “Swing All” function. Each note track can be up to 64 steps long, and the resolution can be set from 1/64 to 1/1. Each step of a note track, can play back at any position of the sequence, via the position sub track.

Each knob controller track controls an Edit Knob, when they are switched on. Any parameter that is set up to be controlled by an Edit Knob, will also be controlled by the knob controller track. They can be up to 64 steps long, and resolution can be set from 1/64 to 1/1. A smooth parameter are available, that when on, will make a knob controller track slide from one step value to the next.

All tracks has separate last step, start step and resolution settings, so even polyrhythmic sequences are possible.

The tempo of the sequencer can be set between 51 and 306 BPM. It can sync to MIDI clock, and it is both possible to transmit and re-send MIDI clock to MIDI out.

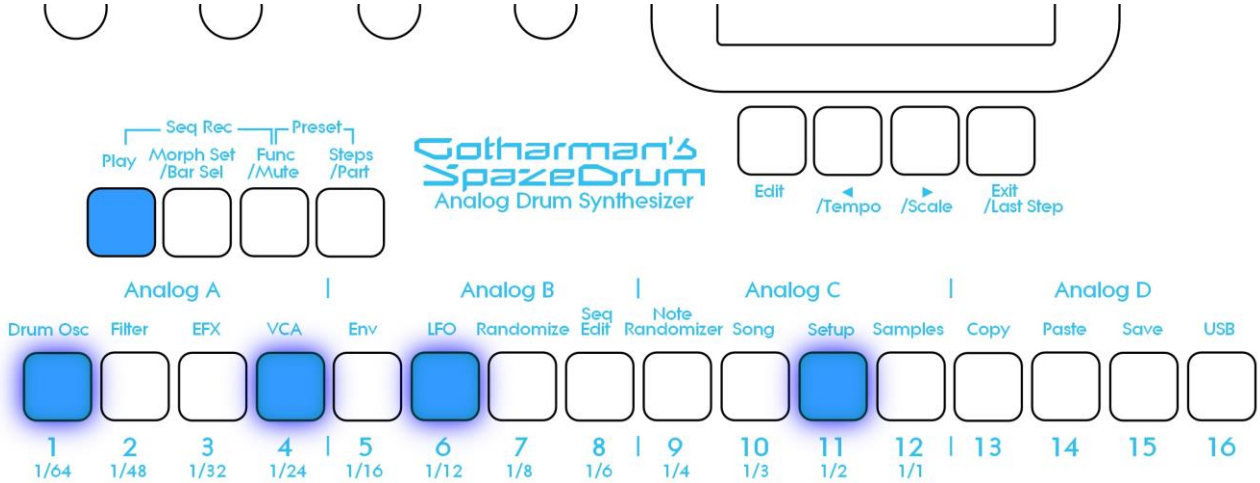
Inputting of note number values can be done in analog/TR fashion, via the step buttons, and it can be done by realtime recording, and by step recording. To assist the realtime recording, a metronome is present.

Inputting of knob controller track values can be done by realtime or step 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 SpazeDrum off. See how to in the ”Save Preset” section.

Starting and stopping the Sequencer:



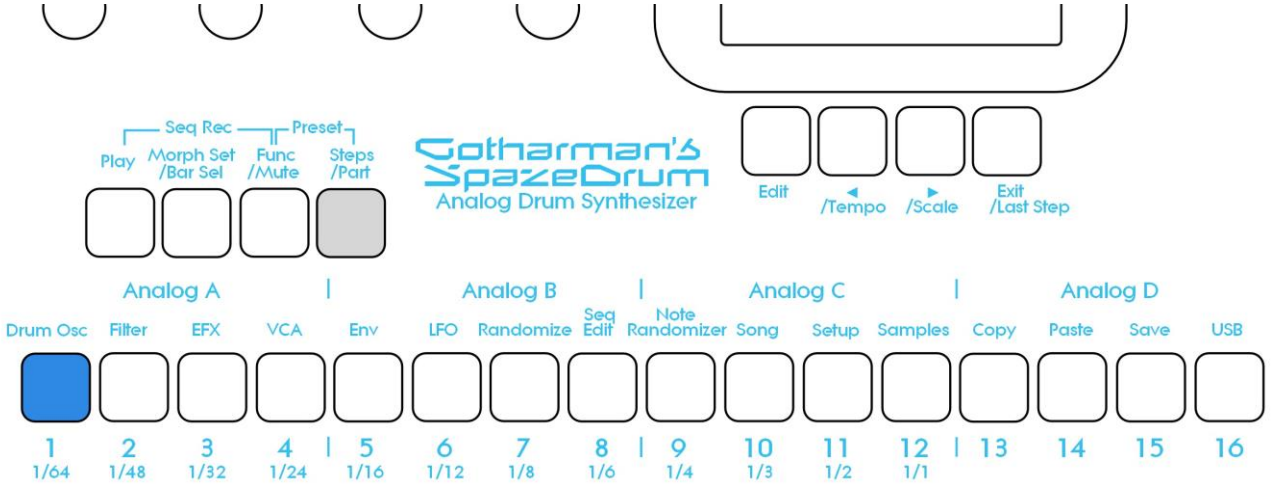
To start the sequencer playback, push and release the Play button, so that it lights up.

The sequencer will now start to play back. When the Func/Mute and the Steps/part buttons are not lighting up, every time a drum part is trigged to play back, the corresponding step button will light up shortly.

To stop the sequencer, simply hit the Play button again, so that it is no longer lighting up.

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

Selecting a track:



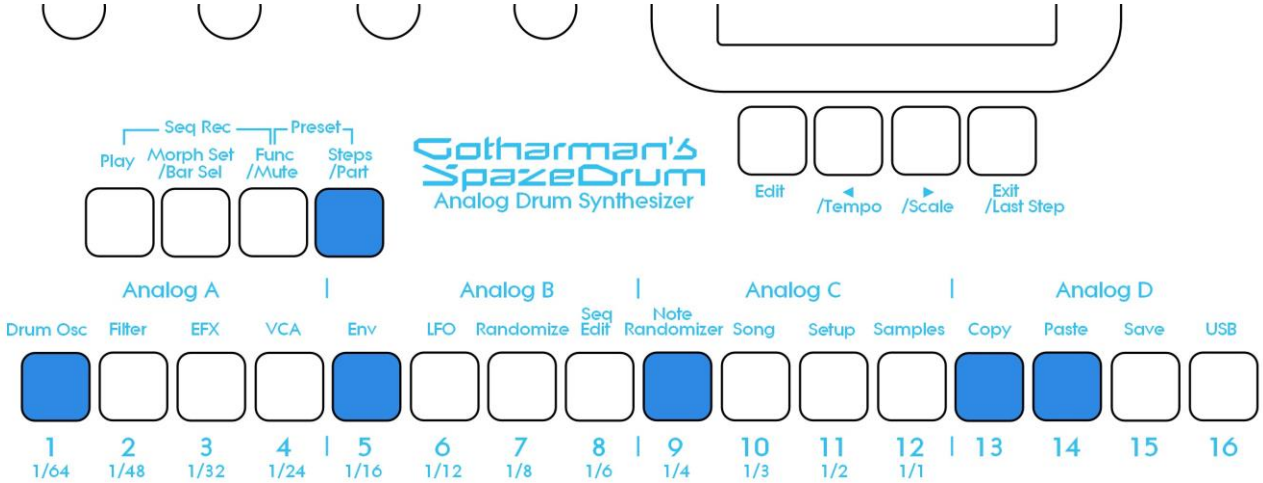
Push and hold the Steps/Part button.
The selected track number will now be shown, by one of the 16 step buttons lightning up. The number above the step button, is the track number that is currently selected.
To select another track, while still holding down the Steps/Part button, push any of the 16 step buttons.

The selected track, is the track which parameters will be shown on the display, when entering the edit pages.

When entering the Knob Sequencer Controller tracks, it is only possible to select track 1-4.

Note tracks are selected together with the part, while Controller tracks are selected separately.

Sequencer Note Track Steps view/edit:



First, select the track, for which you would like to view/edit the note steps, as described earlier in this manual. You can, of course, select another track at any time, also after you have entered note step edit mode.

To enter note step edit mode, push and release the Steps/Part button. This should now light up. Any note sequencer steps that are switched on to play back, will now also light up on the 16 step buttons.

If the sequencer is running, the light state of each step button will be reversed, when a step is playing back.

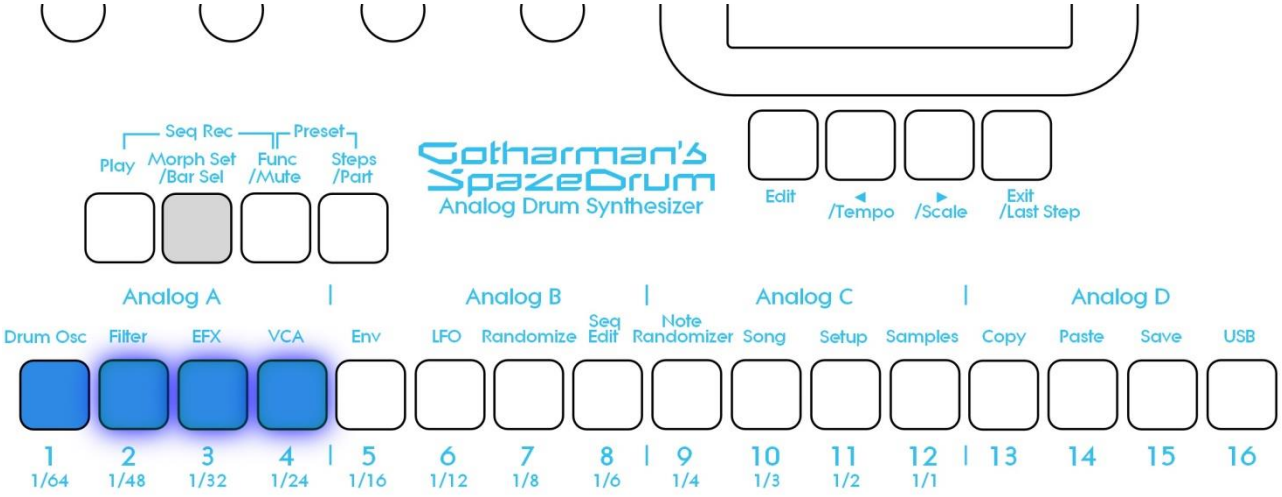
To switch a step on or off, simply hit the corresponding step button, at it will toggle its state.

When the sequencer are in recording mode (the Play button is flashing), pushing any of the step buttons, will set record mode to step mode, and select this step for recording. The step button will now flash.

When using the SpazeDrum sequencer as a usual step sequencer, the steps will play back from left to right. In this case, step 1 plays back at position 1, step 2 plays back at position 2 and so on.
On the SpazeDrum sequencer, it is however possible to break this pattern, and make each step play back on any position, using the position subtrack.

Only 16 steps are shown at a time. The note tracks of SpazeDrum has 64 steps. Please read on, to experience how to switch between step 1-16, 17-32, 33-48 and 49-64.

Selecting Sequencer Track steps 1-16, 17-32, 33-48 and 49 to 64:



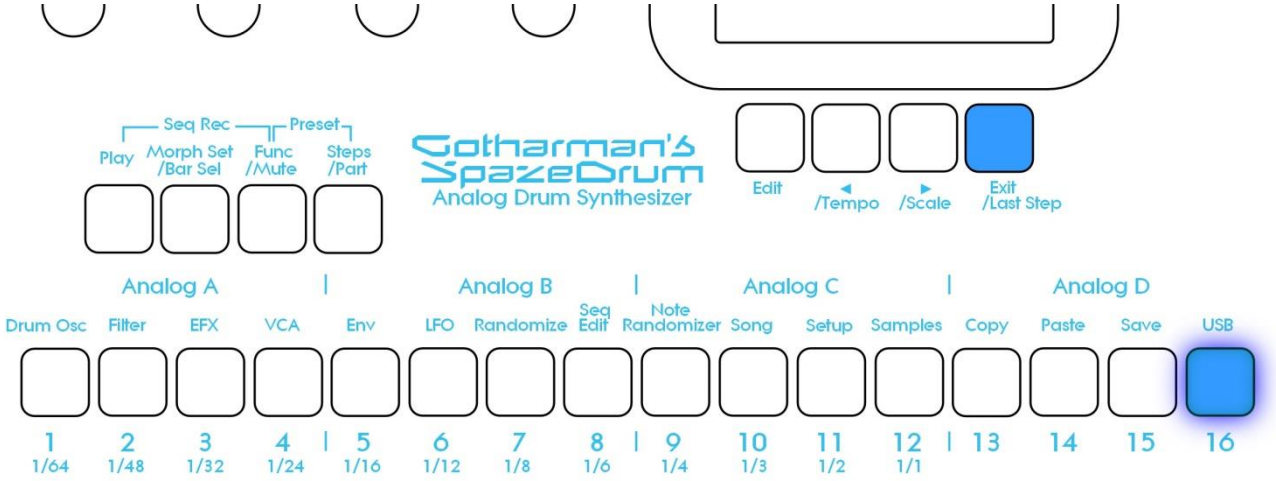
Push and hold the **Morph Set/Bar Sel** button. Now pushing step buttons 1 to 4 will select bar 1 to 4, of the currently selected track. The button of the bar that is selected, will light up. The other 3 bar select buttons will flash.

Note tracks: When you are located on any other pages, than the sequencer knob controller tracks pages, bar is selected to be viewed for a note track. The selected bar, is the bar that is shown on the step buttons, and on the note track pages.

Hit Bar Sel, so that it lights up.

Controller tracks: When you are located on any of the controller track pages, bar is selected to be viewed for the currently selected controller track. The selected bar, is the bar that is shown on the controller track pages.

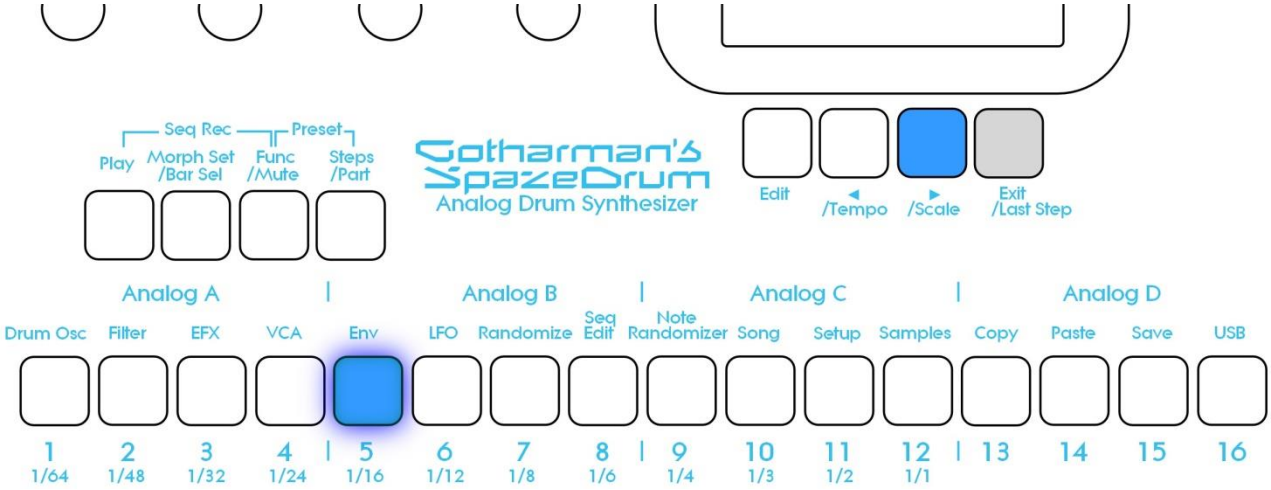
Setting the last step of a Note Track



This can be done on the Note Tracks edit pages, but it can also be done via the pushbuttons.

First, select the Bar, where you want the last step to be, as described on the previous page. Now, while on the Preset Select page, push and hold the Exit/Last Step button. If the last step of the selected note track is already located on the selected bar, this will now be shown, as a step button that lights up. Push any step button, while still holding down the Exit/Last Step button, to set the last step of the selected Note Track.

Setting the Scale/Resolution for a Note Track

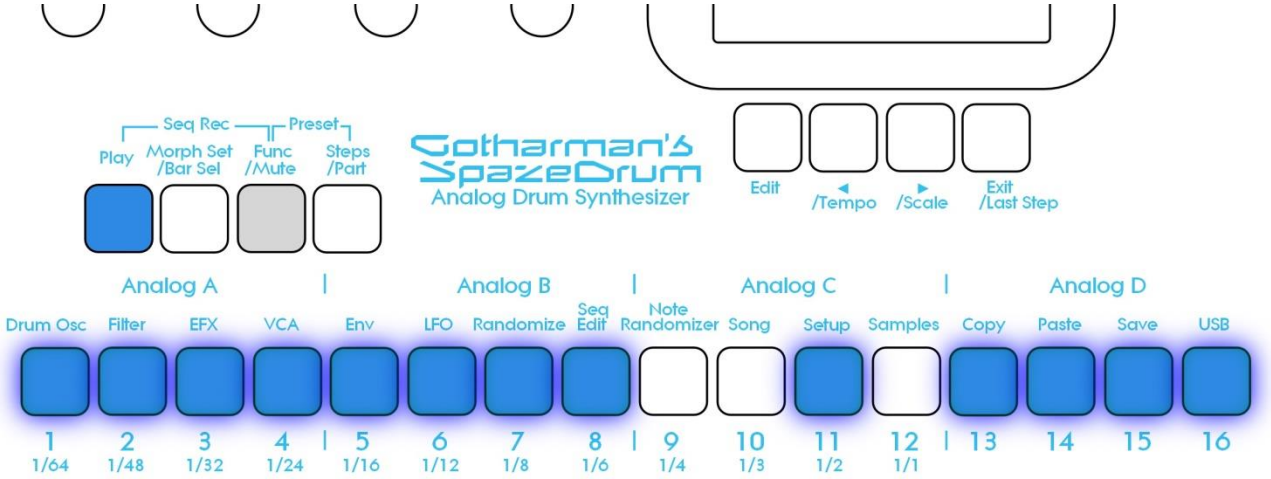


While on the Preset Select page, push and hold the Exit/Last Step button. While holding this, puch and hold the >/Scale button. Now one step button will light up, indicating the currently selected resolution for the currently selected Note Track. The resolution values is shown right below the step button numbers.

While still holding the Exit/Last Step and the >/Scale buttons, push a step button to set the desired resolution.

This can also be set as a parameter on the Note Track edit pages.

Mute/Unmute Note Tracks:



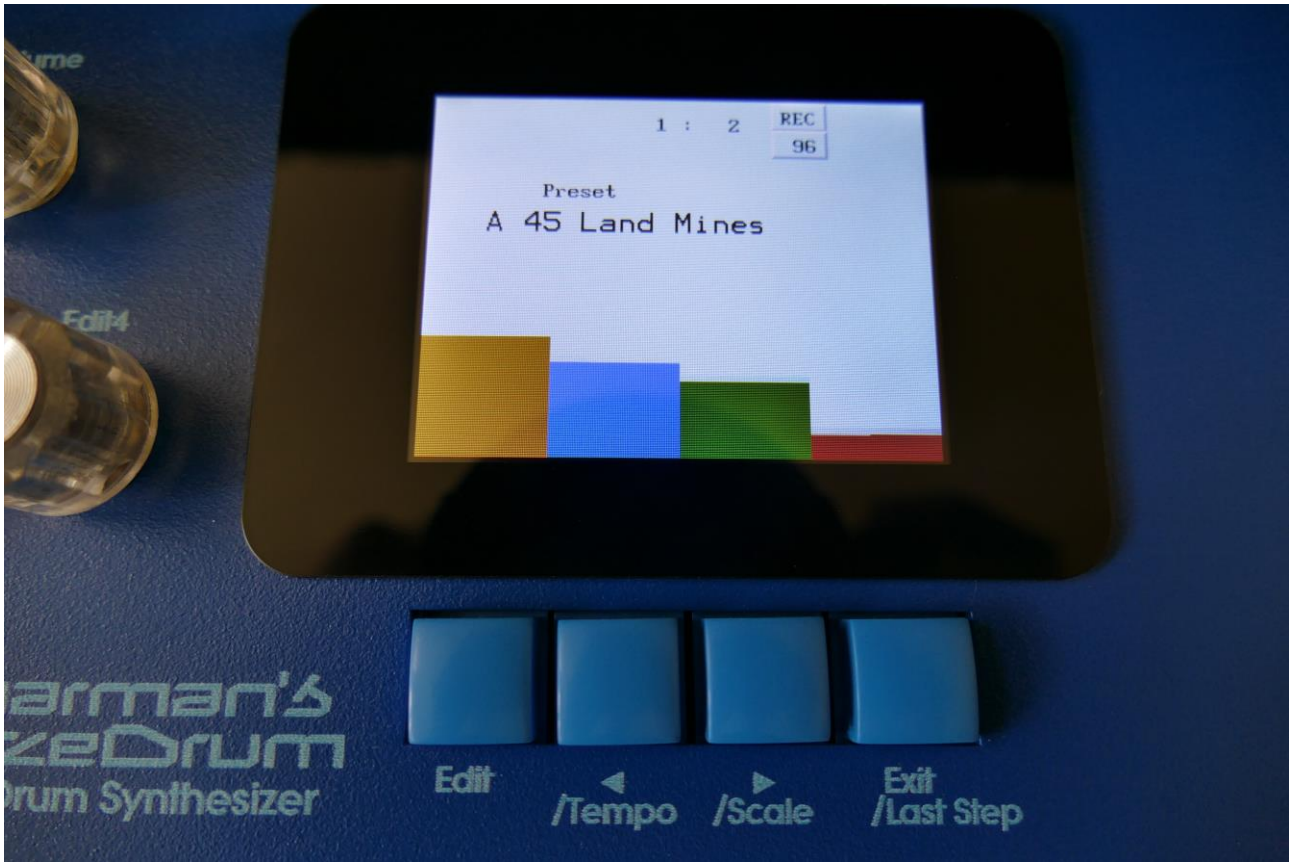
To mute, unmute or view the mute state of the 16 note tracks, push and hold the Func/Mute button.

Unmuted tracks will now be shown by a step button that is lighting up, and shortly flashes off, every time the track is triggering.

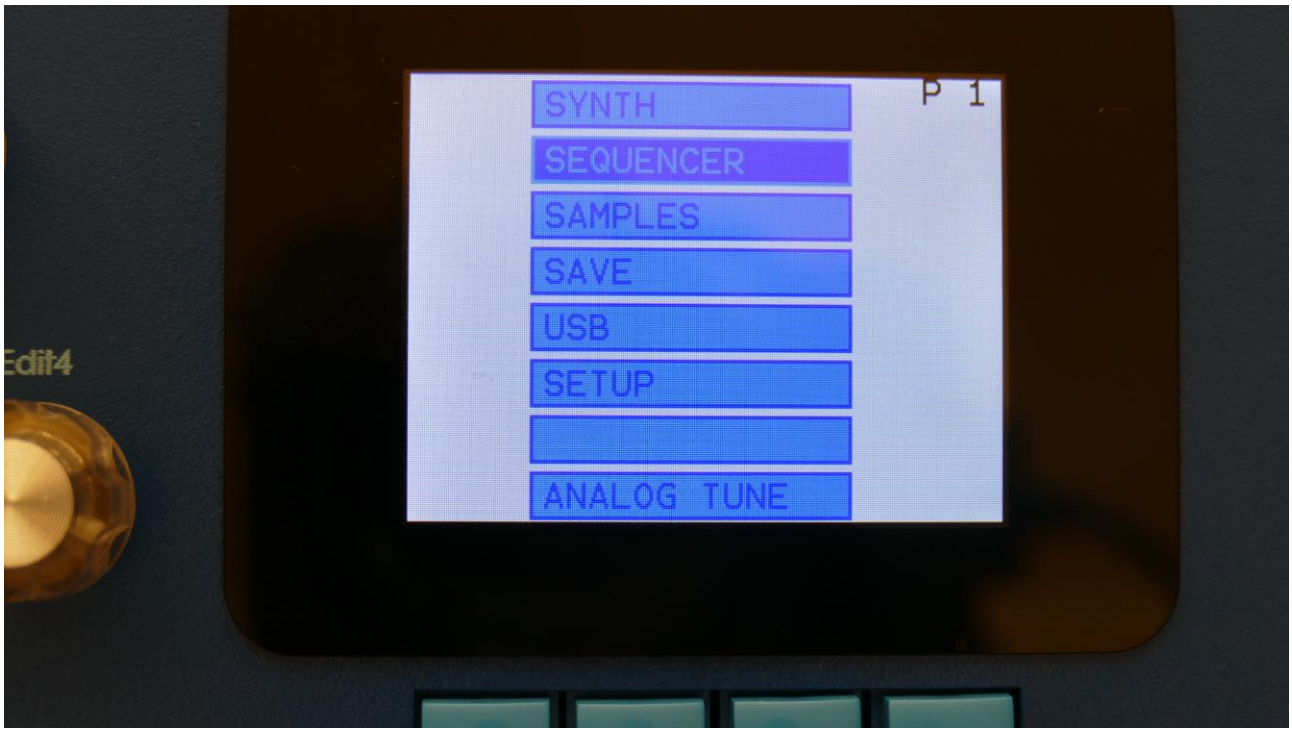
Muted tracks are shown by a step button that is unlit, and that lights up shortly, every time the track would have triggered something, if it weren't muted.

To mute or unmute a track, simply hit the corresponding step button, while still holding down the Func/Mute button.

Entering the Sequencer

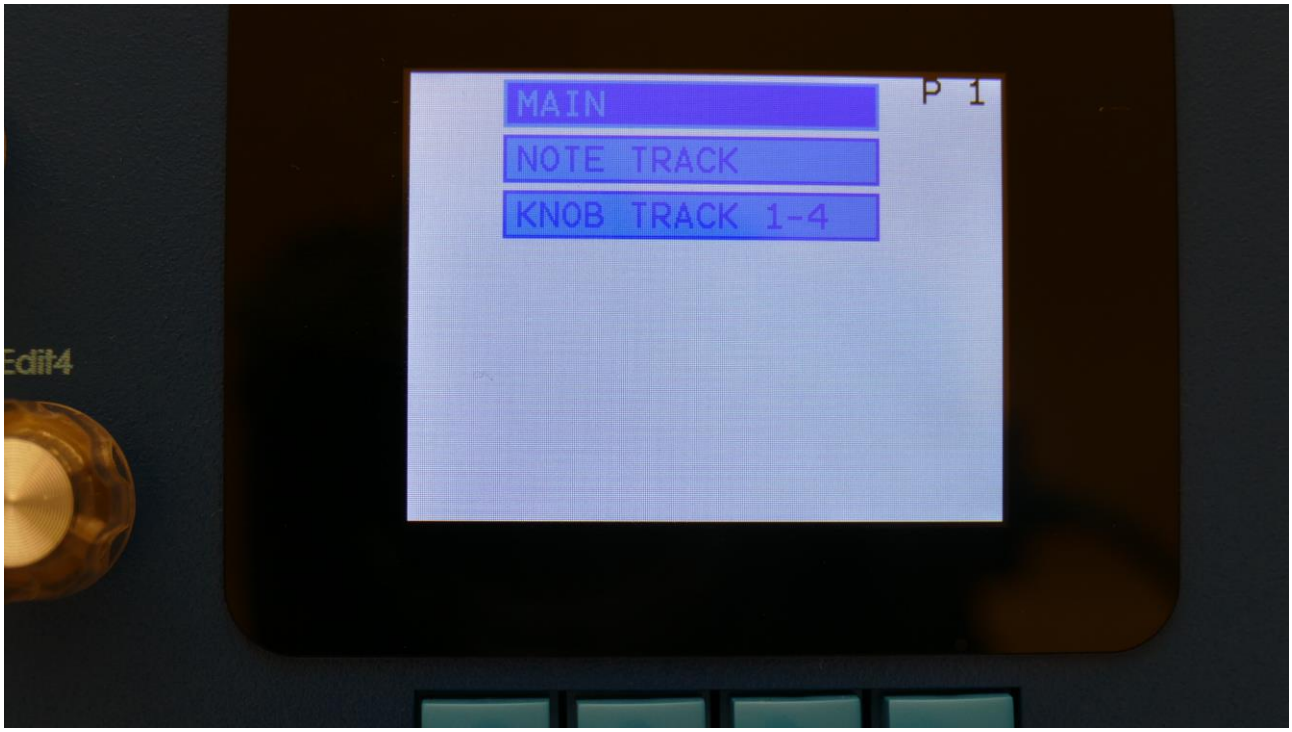


From the Preset Select Screen, push the Edit button right below the display.



Select SEQUENCER, using the < and > buttons, and push the Edit button to enter, or touch the SEQUENCER module on SpazeDrum Black.

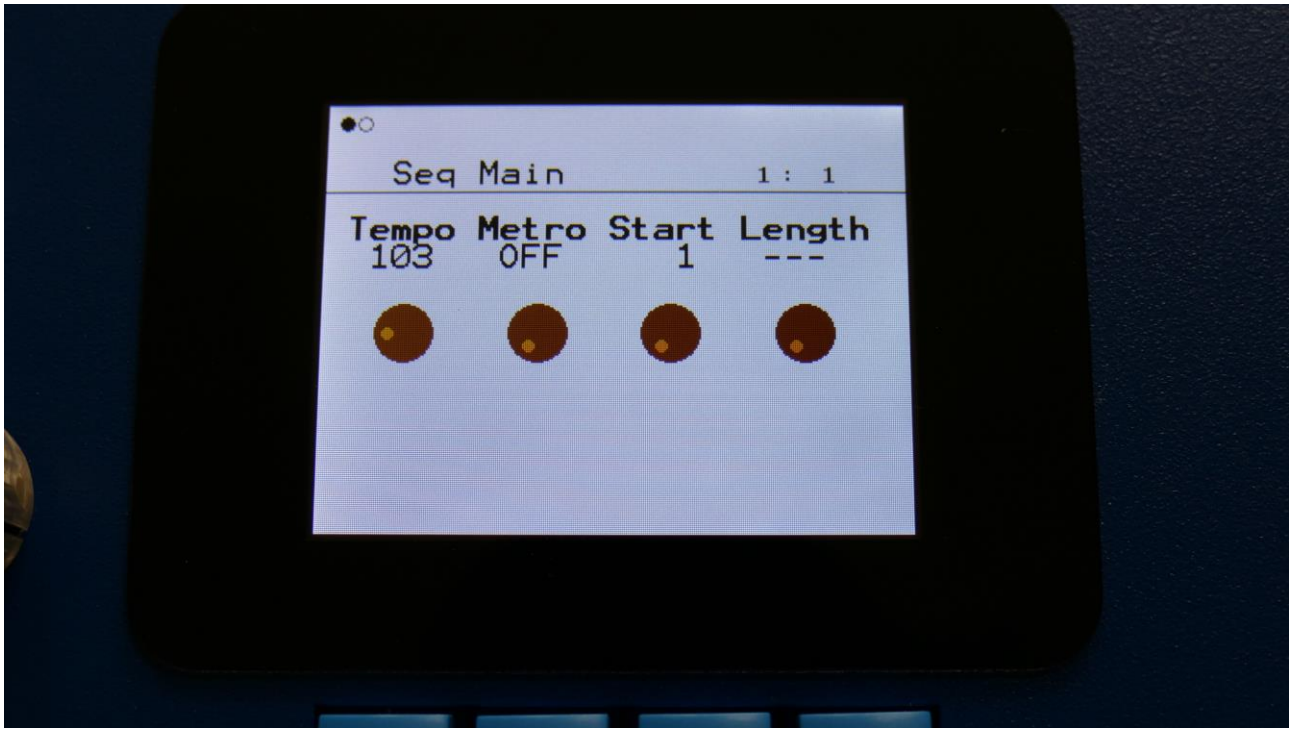
This will bring you to the Sequencer access page:



To enter the Sequencer Main page or any of the tracks, simply select the text showing the name of the group that you would like to enter, using the < and > buttons, and then push the Edit button, or touch the MAIN module on SpazeDrum Black.

To exit to the Preset Select page, push the Exit button.

Sequencer Main



The parameters of this page:

Tempo: Sets the sequencer tempo between 51 and 306 BPM. To make the sequencer sync to external MIDI gear, this must be set up in the “MOR>COMMON” section, described later in this manual.

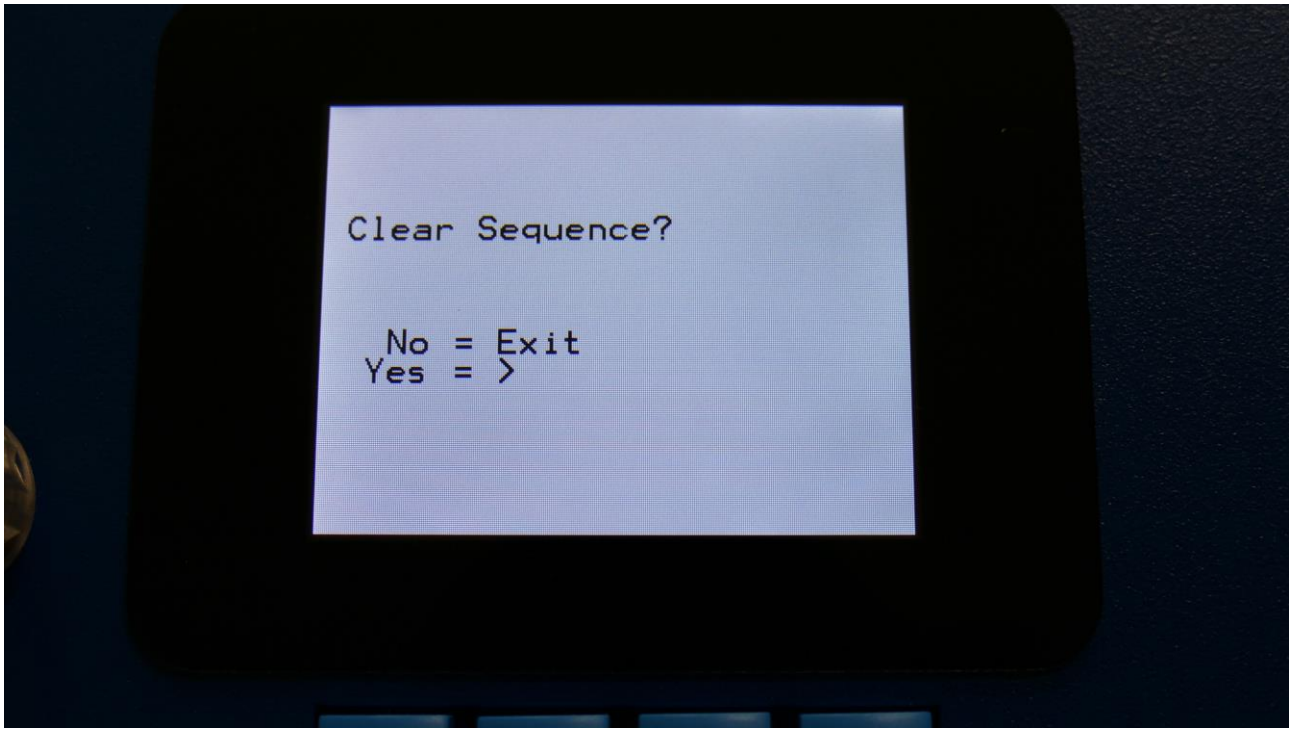
Metro: Metronome Off, On, Rec.
-Off: The metronome is off, and will make no sound.
-On: The metronome is on, and when the sequencer is playing, it will put out a click to audio output 1, every time note track 1 passes a 4/4 beat. Every time note track 1 starts over, it will make a click that is slightly 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.

Start: Global note tracks start step. Sets the start step for all the 16 Note tracks equal with one parameter. From step 1 to step 64. Track steps can be set individually for each track, in the separate track menu’s.

Length: Global note tracks length. Sets the step length for all the 16 Note 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.

Clear Seq:

Pushing the Edit button, while on the Seq Main page, will make SpazeDrum jump to this page:

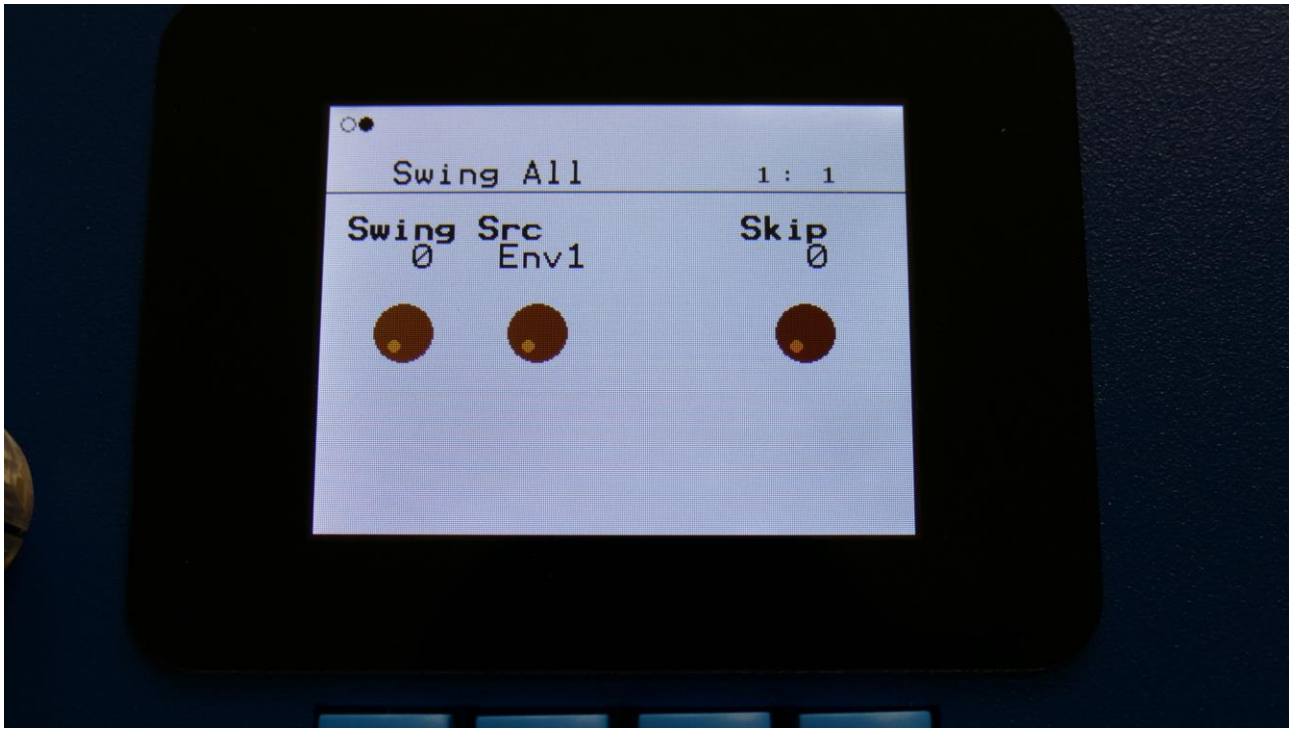


If you push the “>” button here, you will clear all tracks of the current preset, and reset all values.

If you do not wish to do that, push “Exit”.

Swing All:

Pushing the > button, from the Seq Main page, will make SpazeDrum jump to this page:



Swing All will let you add modulated swing to all 16 note tracks at the same time. For creating traditional swing, you should modulate with a controller track, and program the swing pattern on this, but on SpazeDrum, any modulation source can be used for swing, so there are quite a lot of possibilities to deform a sequence with this.

For separate swing on each track, please use the track modulation.

Set the amount of swing with the **Swing** parameter, and select the swing modulation source, using the **Src** parameter. Any SpazeDrum modulation source can be selected.

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 note tracks at the same time.

Note Tracks

Note Subtrack

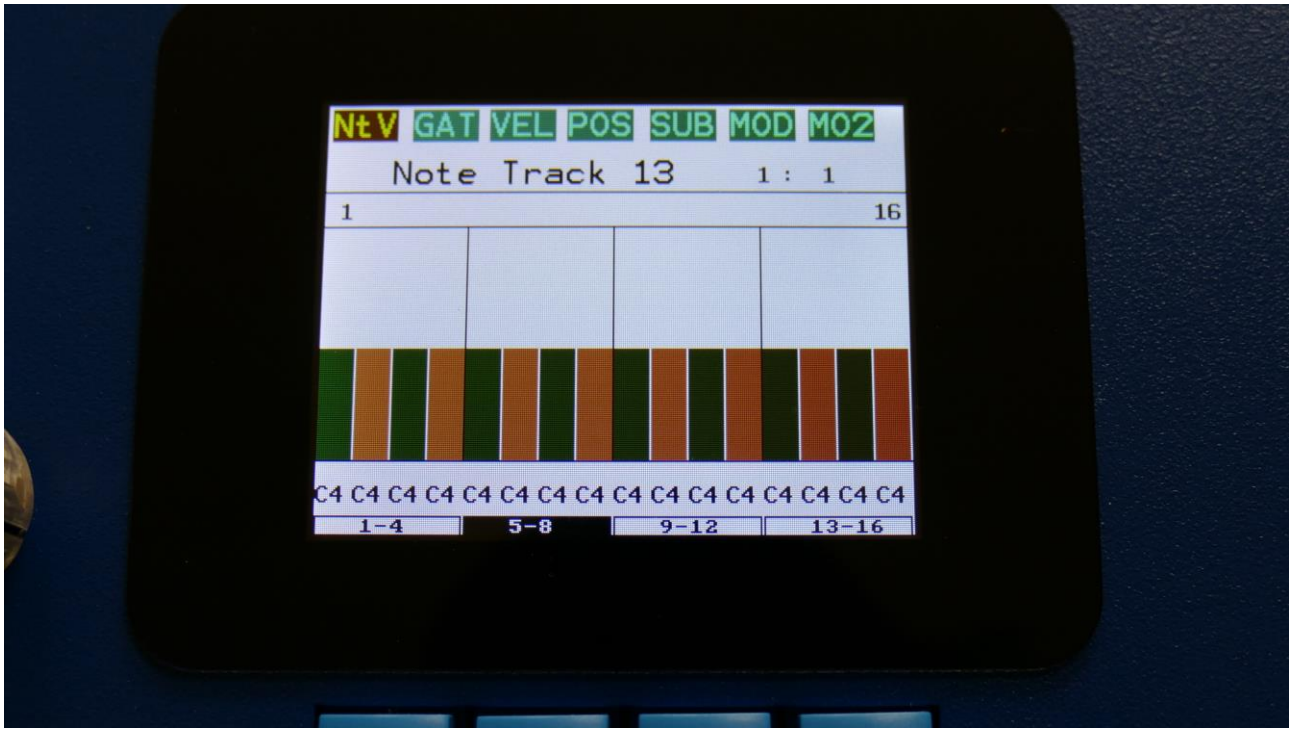
From the sequencer access page, select Note Track, using the < and > buttons, and then press the Edit button. Now you will enter the first page on the note track of the selected part:

The most of this page is taken up by 16 bars, that shows the note number for 16 steps at a time. Right above these, to the left and to the right, the first and last step numbers, of the steps that is currently shown by the note value bars, are indicated.
In the top left side, a small VU-meter is shown, that will indicate every time a note is played back (not visible on the picture…).

When a value bar is green, it means that the step is on, and will play back. When it has a yellow/red color, it is off, and will not play back.
Push and release the Steps/Part button, so that it lights up. Now you can, by pushing the step buttons, switch each step on and off.

The note values for each step is shown right below the note value bars. If a black underscore is shown below the number, it means that it is a # note.

To change the note values, push the Edit button.



Now one of the fields in the bottom of the page, named “1-4”, “5-8”, “9-12” or “13-16”, will turn black. On SpazeDrum Black, these fields can also be selected, simply by touching them.
Now the 4 selected steps can be edited, using Edit Knob 1-4.

Push the < and > buttons to select the 4 steps, which you would like to edit. If you push the > button, when “13-16” is selected, it will jump to the next 16 steps.
If you push the < button, when “1-4” is selected, it will jump to the previous 16 steps.

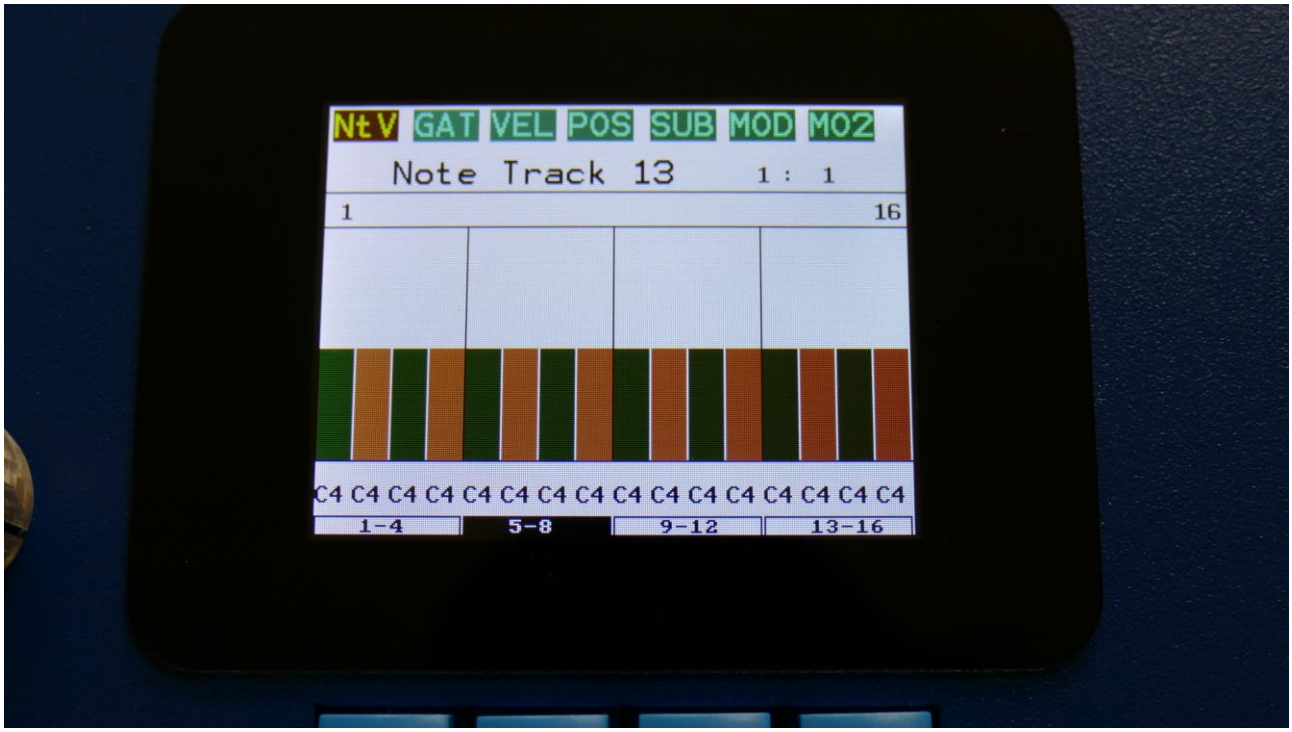
On SpazeDrum Black it is also possible to edit these values, by touching the screen.

Randomize step values

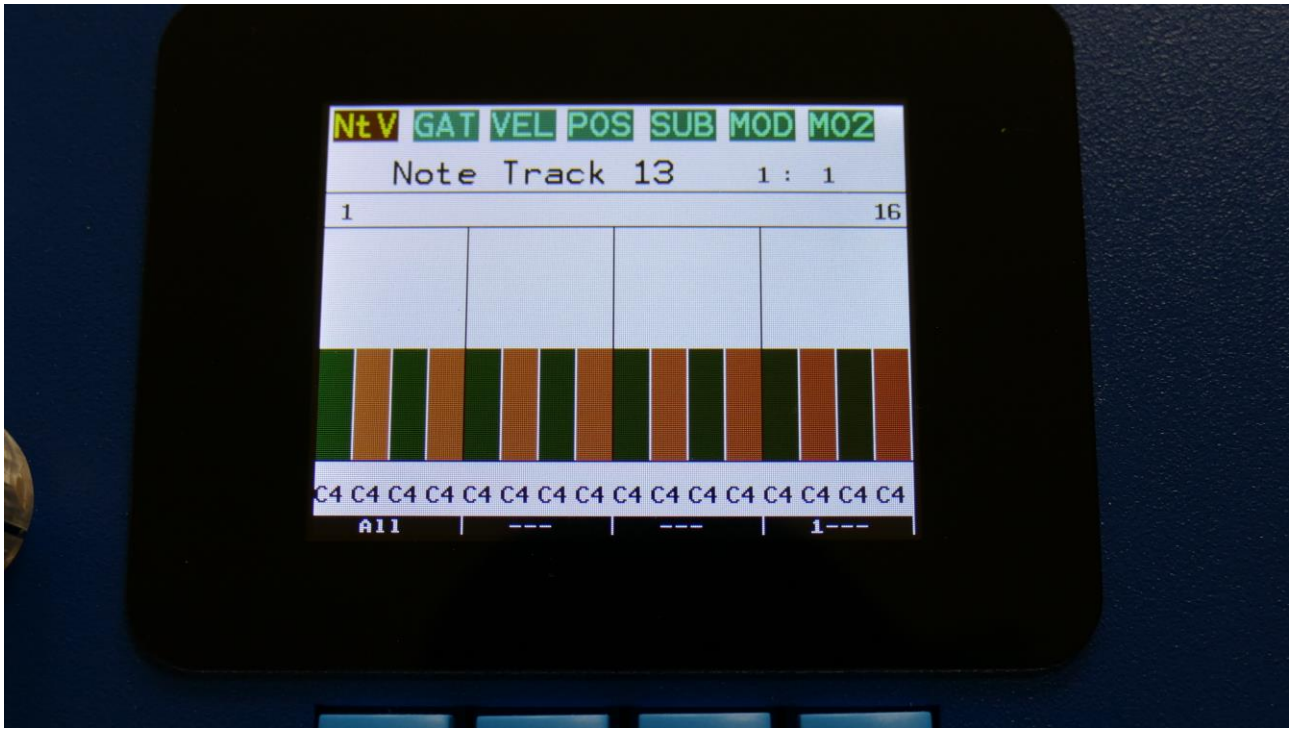
Push the Func/Mute button, so that it is lighting up. Push step button 7 (Randomize). The 4 selected values will now be set to random values.

Adjusting the offset of all values at the same time

This can be done on any subtrack, except for the sub position track.



When you have selected a group of steps, to be edited using the Edit Knobs, push the Edit button one more time, and it will switch to “All”. On SpazeDrum Black you can also just touch the active field one more time, to switch to All.



You can now, by turning Edit Knob 1, adjust the offset of all steps at the same time. Middle position of Edit Knob 1 is zero, above middle will turn the offset up, below middle will turn the offset down.

SPECIAL NOTE FOR THE POSITION SUB TRACK:

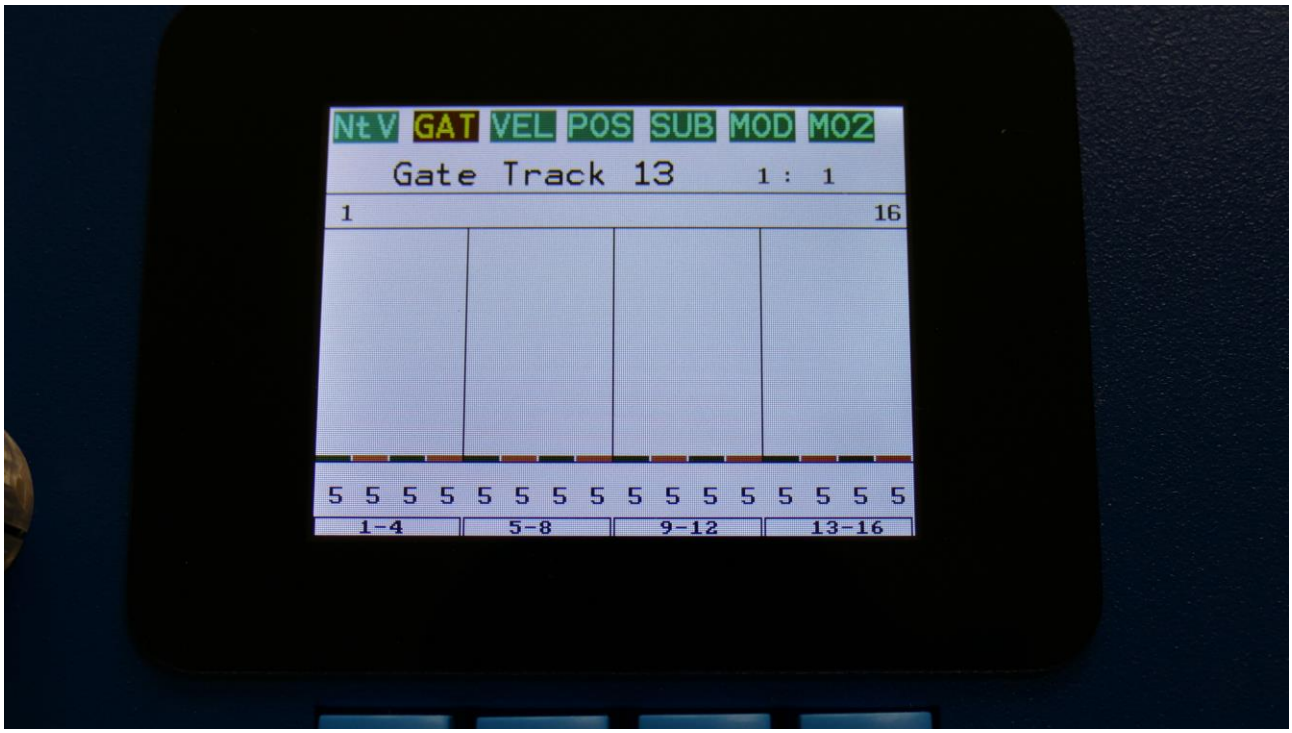
When adjusting the offset of the step positions on the position sub track, the positions will “roll over” around the selected last step. This means, that if you are turning the offset up, the last steps before the last step, will now be placed on the first steps of the track. Likewise, if you turn the offset down, the first steps of the track, will now be placed on the last steps of the track.

SPECIAL NOTE FOR THE SUB-POSITION SUB TRACK:

Offsets can’t be adjusted on this. If “All” is selected on the sub-position track, the offset of the position track will be adjusted, without any visualizing.

Gate Time Subtrack

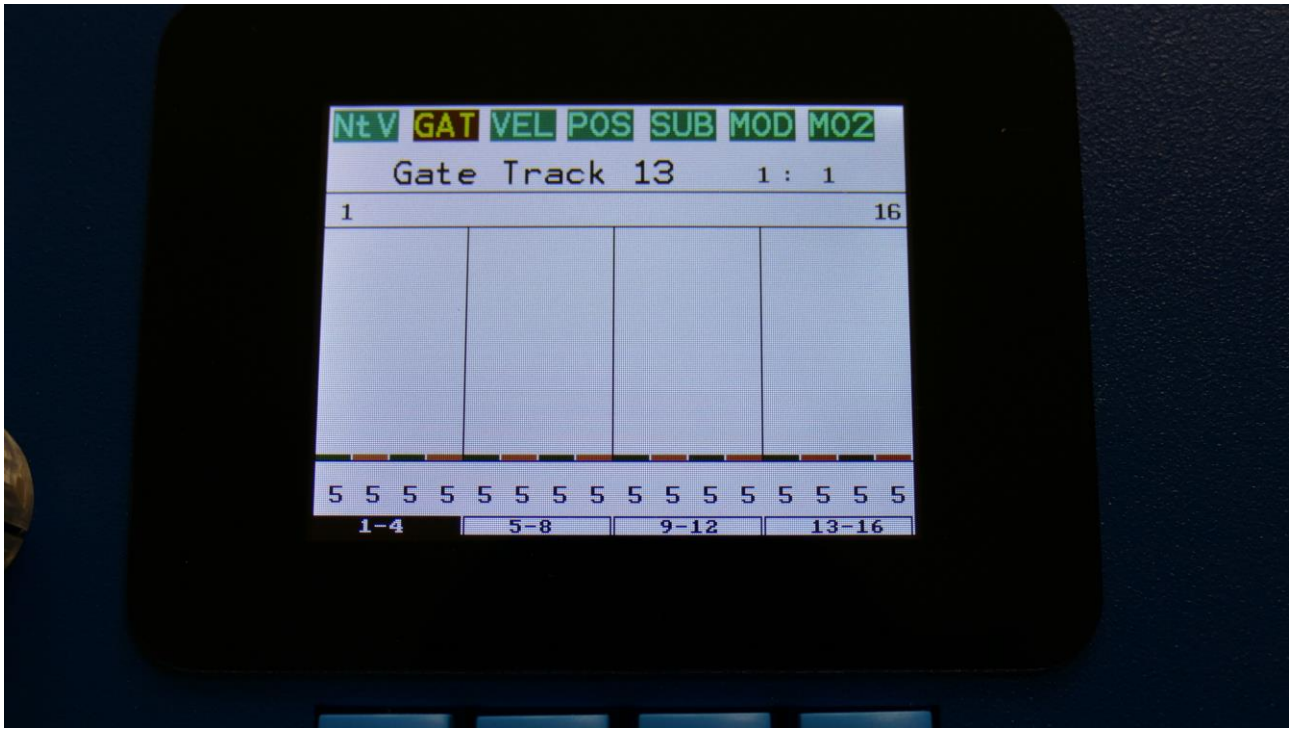
From the Note subtrack, make sure that none of the Edit knob selectors in the button of the page are black. If they are, push the Edit button, maybe a number of times, until they are all white. Now push the > button, to enter the gate time subtrack. On SpazeDrum Black you can simply touch the “GAT” field, to enter the gate subtrack.



The gate time values for each step is shown as bars in the value grid, and as numbers right below the value grid. If a black underscore is shown below the number, it means that it is above 100.

Pushing “Exit” will exit you to the Sequencer access page.

To change the gate time values, push the Edit button.



Now one of the fields in the bottom of the page, named “1-4”, “5-8”, “9-12” or “13-16”, will turn black. On SpazeDrum Black, these fields can also be selected, simply by touching them.
Now the 4 selected steps can be edited, using Edit Knob 1-4.

Push the < and > buttons to select the 4 steps, which you would like to edit. If you push the > button, when “13-16” is selected, it will jump to the next 16 steps.
If you push the < button, when “1-4” is selected, it will jump to the previous 16 steps.

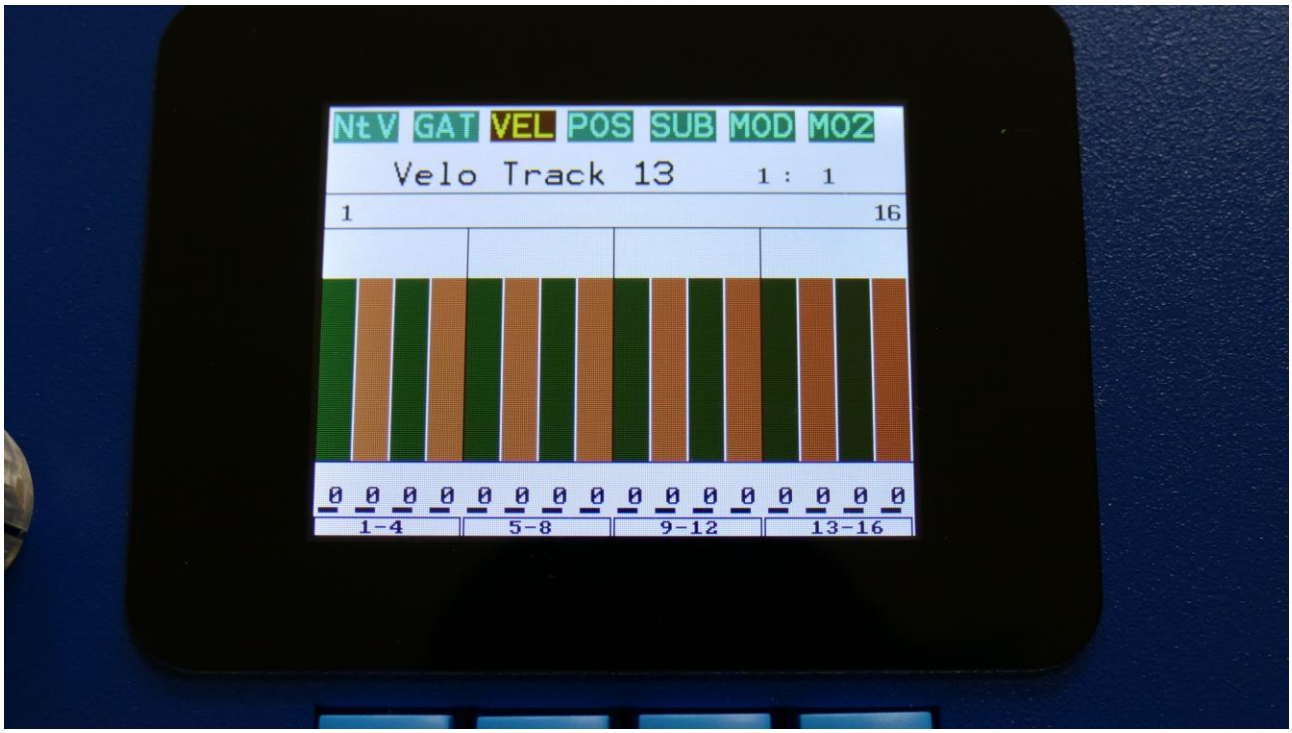
On SpazeDrum Black it is also possible to edit these values, by touching the screen.

Randomize step values

Push the Func/Mute button, so that it is lighting up. Push step button 7 (Randomize). The 4 selected values will now be set to random values.

Velocity Subtrack

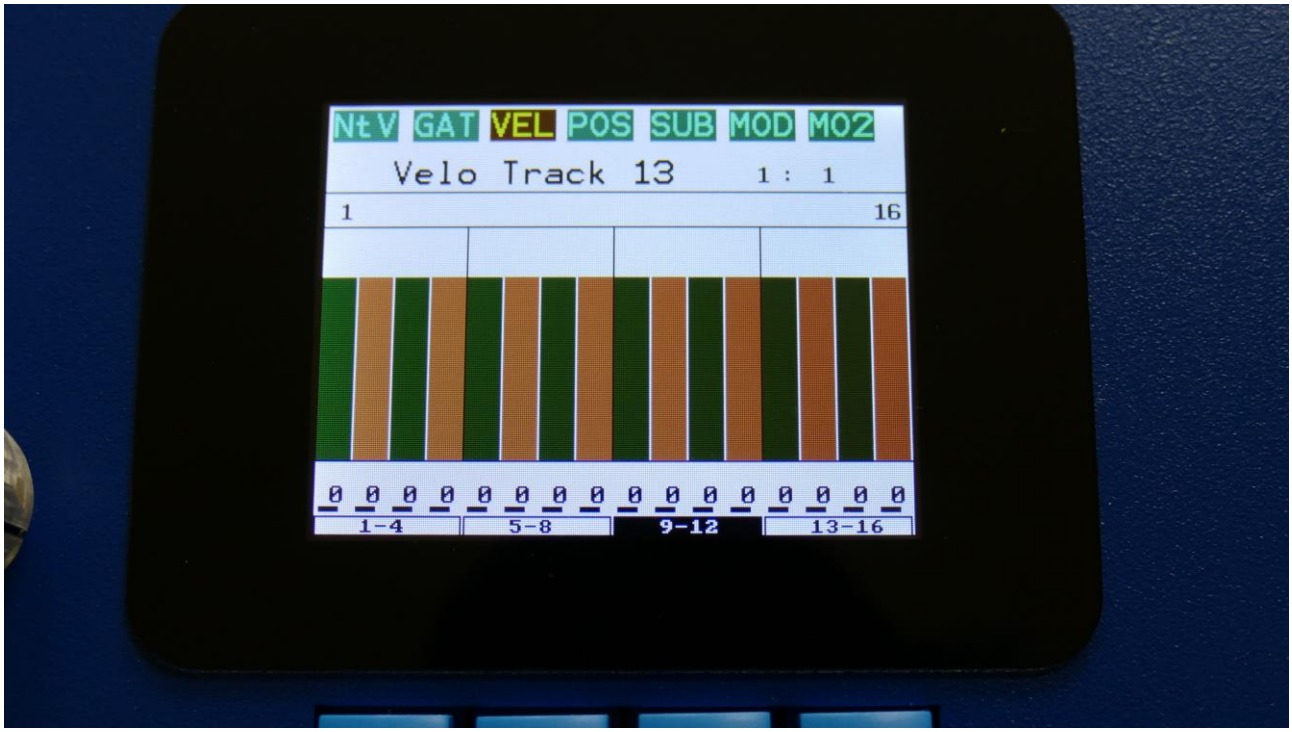
From the Gate Time subtrack, make sure that none of the Edit knob selectors in the button of the page are black. If they are, push the Edit button, maybe a number of times, until they are all white. Now push the > button, to enter the velocity subtrack. On SpazeDrum Black you can simply touch the “VEL” field, to enter the velocity subtrack.



The velocity values for each step is shown as bars in the value grid, and as numbers right below the value grid. If a black underscore is shown below the number, it means that it is above 100.

Pushing “Exit” will exit you to the Sequencer access page.

To change the velocity values, push the Edit button.



Now one of the fields in the bottom of the page, named “1-4”, “5-8”, “9-12” or “13-16”, will turn black. On SpazeDrum Black, these fields can also be selected, simply by touching them.
Now the 4 selected steps can be edited, using Edit Knob 1-4.

Push the < and > buttons to select the 4 steps, which you would like to edit. If you push the > button, when “13-16” is selected, it will jump to the next 16 steps.
If you push the < button, when “1-4” is selected, it will jump to the previous 16 steps.

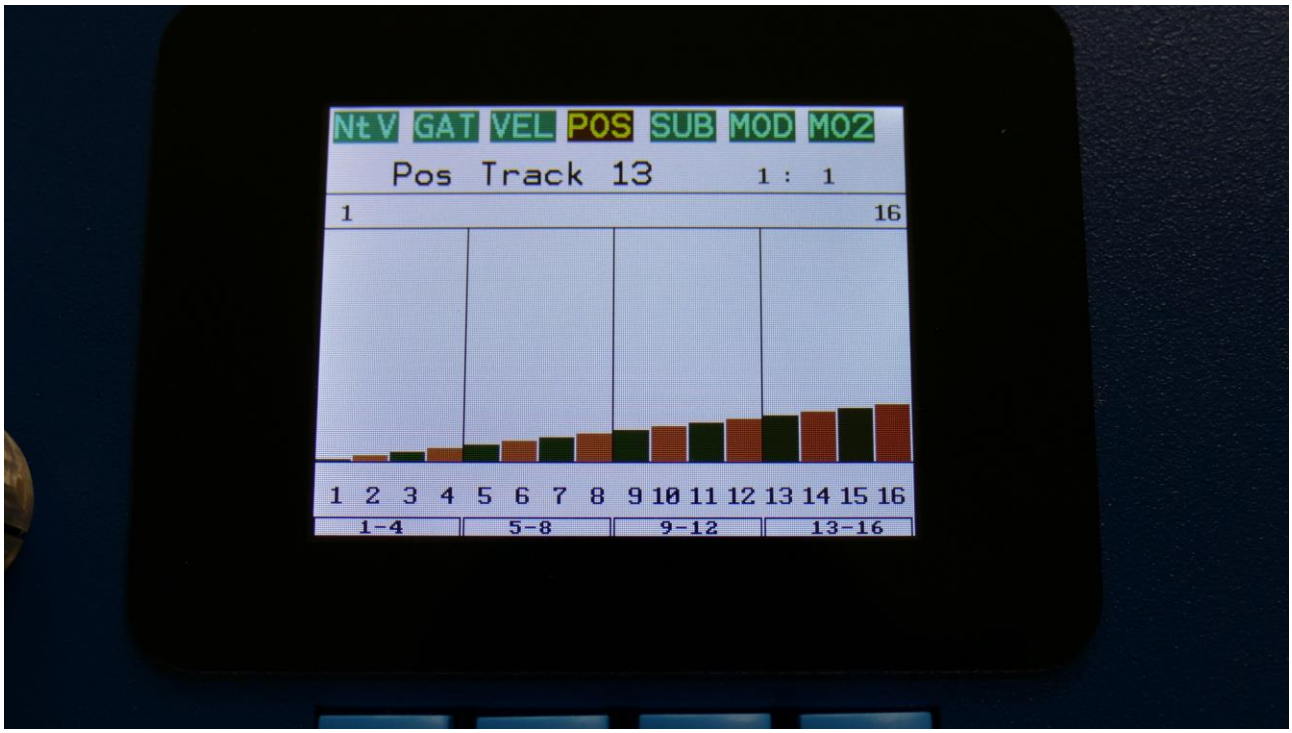
On SpazeDrum Black it is also possible to edit these values, by touching the screen.

Randomize step values

Push the Func/Mute button, so that it is lighting up. Push step button 7 (Randomize). The 4 selected values will now be set to random values.

Position Subtrack

From the Velocity subtrack, make sure that none of the Edit knob selectors in the button of the page are black. If they are, push the Edit button, maybe a number of times, until they are all white. Now push the > button, to enter the Position subtrack. On SpazeDrum Black you can simply touch the “POS” field, to enter the position subtrack.



Unlike many other step sequencers, the position for each step on the SpazeDrum note tracks, can be set. For traditional step sequencing, you would leave it at its default setting, where step 1 is played back at position 1, step 2 is played back at position 2 and so on.
But the note sequencer in SpazeDrum can go further than that. Step 2 can be set to play back at position 31, if desired, just to deform a track, or experiment with it.

The position for each step is shown as bars in the value grid, and as numbers right below the value grid.

Pushing “Exit” will exit you to the Sequencer access page.

To change the position values, push the Edit button.

Now one of the fields in the bottom of the page, named “1-4”, “5-8”, “9-12” or “13-16”, will turn black. On SpazeDrum Black, these fields can also be selected, simply by touching them.
Now the 4 selected steps can be edited, using Edit Knob 1-4.

Push the < and > buttons to select the 4 steps, which you would like to edit. If you push the > button, when “13-16” is selected, it will jump to the next 16 steps.
If you push the < button, when “1-4” is selected, it will jump to the previous 16 steps.

On SpazeDrum Black it is also possible to edit these values, by touching the screen.

Randomize step values

Push the Func/Mute button, so that it is lighting up. Push step button 7 (Randomize). The 4 selected values will now be set to random values.

Sub Position Subtrack

From the Position subtrack, make sure that none of the Edit knob selectors in the button of the page are black. If they are, push the Edit button, maybe a number of times, until they are all white. Now push the > button, to enter the Sub Position subtrack. On SpazeDrum Black you can simply touch the “SUB” field, to enter the sub position subtrack.

Here a value between 0 and 3 can be added to the step position for “micro-timing”.

The sub position for each step is shown as bars in the value grid, and as number right below the value grid.

Pushing “Exit” will exit you to the Sequencer access page.

To change the sub position values, push the Edit button.

Now one of the fields in the bottom of the page, named “1-4”, “5-8”, “9-12” or “13-16”, will turn black. On SpazeDrum Black, these fields can also be selected, simply by touching them.
Now the 4 selected steps can be edited, using Edit Knob 1-4.

Push the < and > buttons to select the 4 steps, which you would like to edit. If you push the > button, when “13-16” is selected, it will jump to the next 16 steps.
If you push the < button, when “1-4” is selected, it will jump to the previous 16 steps.

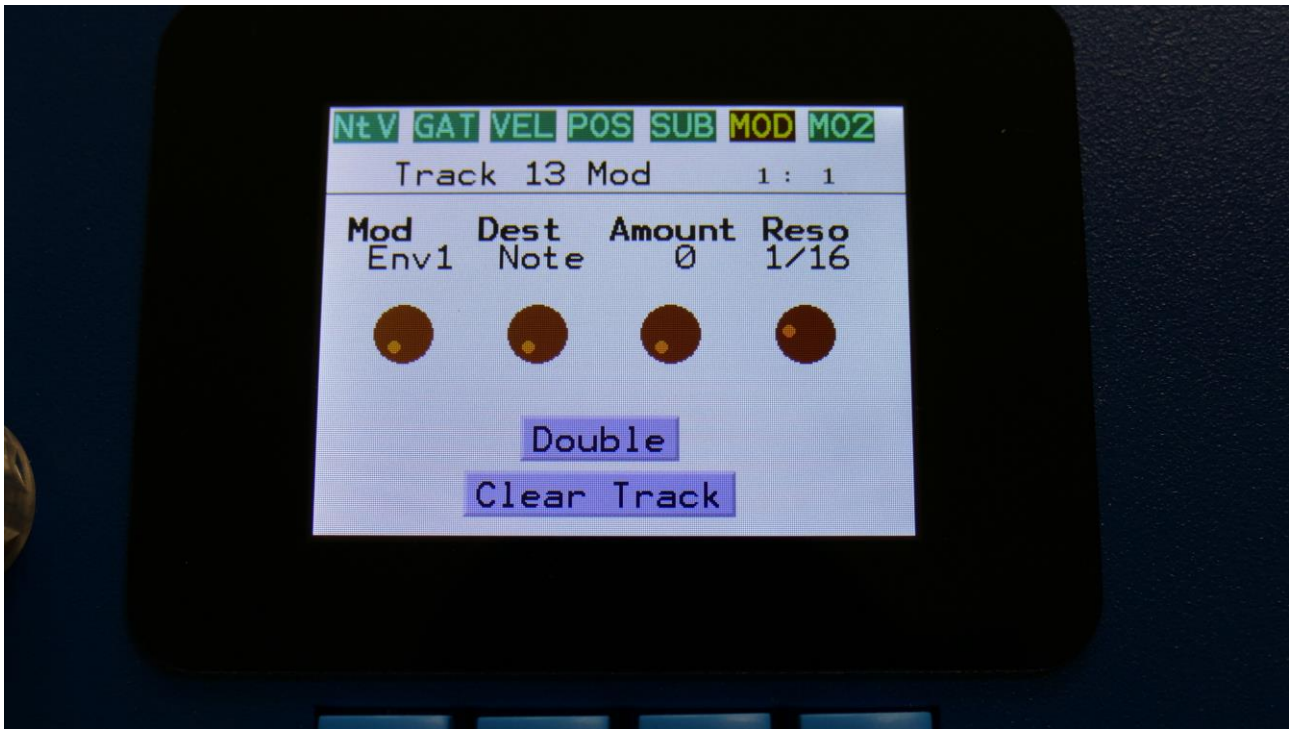
On SpazeDrum Black it is also possible to edit these values, by touching the screen.

Randomize step values

Push the Func/Mute button, so that it is lighting up. Push step button 7 (Randomize). The 4 selected values will now be set to random values.

Note Track Mod Page

From the Sub Position subtrack, make sure that none of the Edit knob selectors in the button of the page are black. If they are, push the Edit button, maybe a number of times, until they are all white. Now push the > button, to enter the Note Track Mod page. On SpazeDrum Black you can simply touch the “MOD” field, to enter this page.



Here you can set up note track modulation and the resolution of the track. It is also possible to clear or double the track.

The parameters of this page:

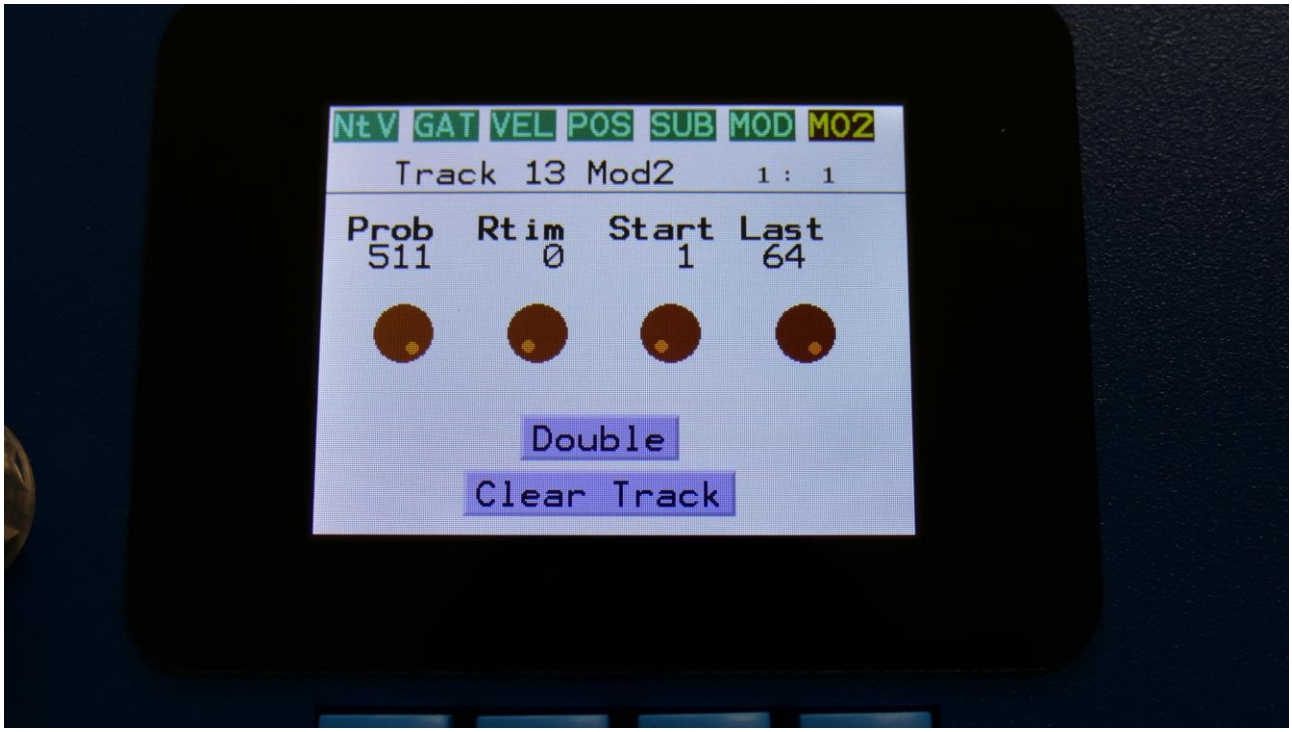
Mod: Note Track modulation source. Any SpazeDrum modulation source can be selected to modulate the track. For a complete list of modulation sources, see the list in the start of the drum part section in this manual.

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.
-Velo: The velocity values of the track will be modulated.
-Pos: The position subtrack positions will be modulated.
-Strum: The Strum parameter will be modulated.
-Rota: Position Rotation Modulation. Will rotate the positions of the position subtrack around the selected last step.

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

Reso: Track resolution. Values: 1/64, 1/48, 1/32, 1/24, 1/16, 1/12, 1/8, 1/6, 1/4, 1/3, 1/2, 1/1.

Push the > button again, to go to the **MO2 page.** On SpazeDrum Black you can simply touch the “MO2” field, to enter this page.



Here you can set up the track Note Randomizer, the start step and the last step of the track. It is also possible to clear or double the track.

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 the will not play back are selected randomly.

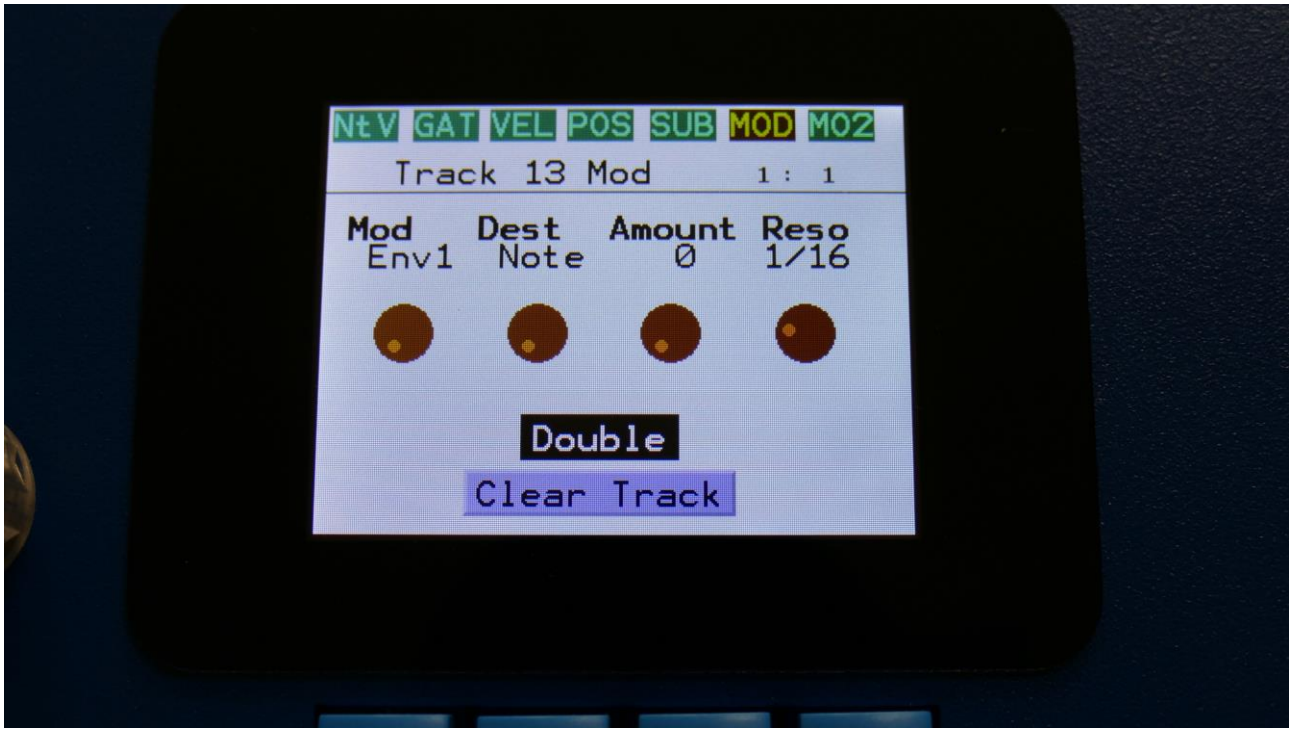
Rtim: Track Note Randomizer Time. When turned up, it will create random delays on the programmed note steps triggering.

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.

Last: 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.

Clear Note Track

On the MOD or MO2 pages, push the Edit button.

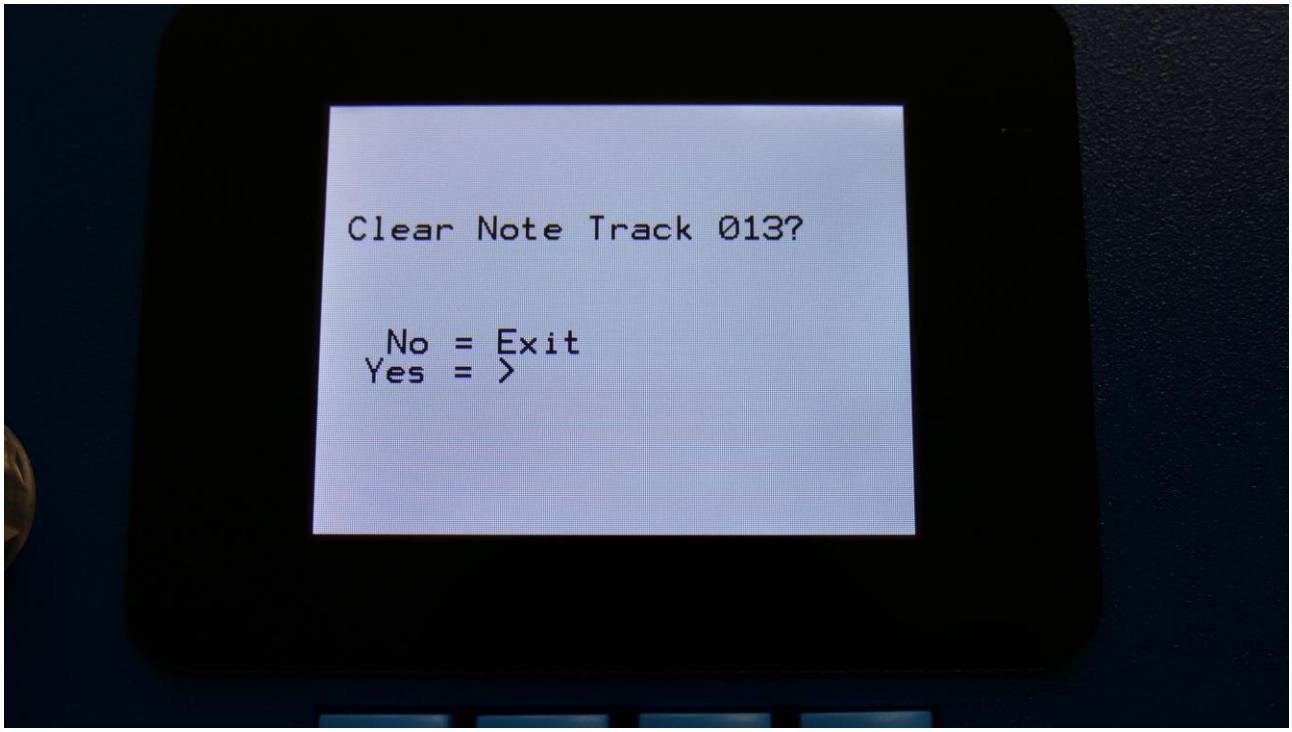


Now “Double” will be selected.

Push the > button, to select “Clear Track”.

On SpazeDrum Black you can simply touch the Clear Track field.

Push the Edit button. Now this page should appear:

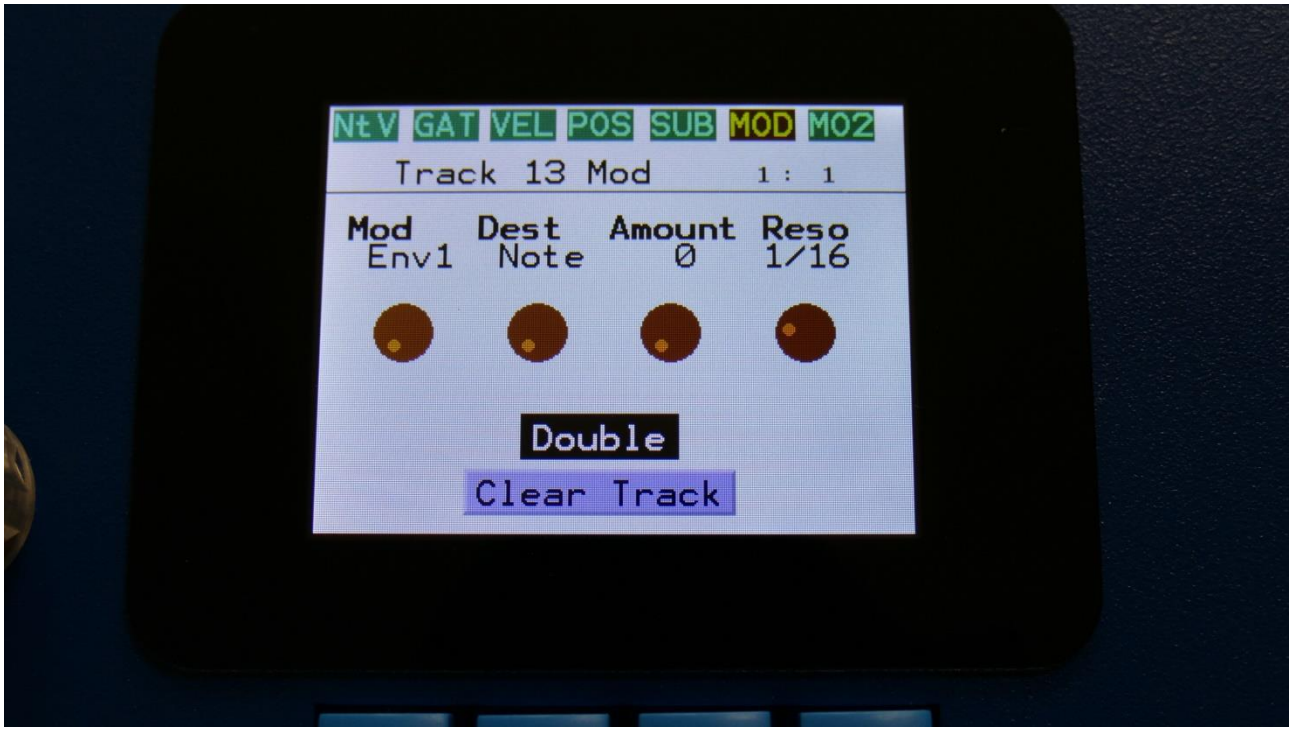


Pushing the > button from here, will initialize all step values and parameters of the currently selected note track, except for the Last Step parameter.

If you would not wish to do this, push the Exit button, to exit to the track Mod page.

Double Note Track

On the MOD or MO2 pages, push the Edit button.



Now “Double” will be selected. On SpazeDrum Black you can simply touch the Double field.

Push the Edit button again, to double the length of the track. All events from the original track, is copied to the new half. Useful if you need some extra variation in a track.

PLEASE NOTE: The track lengths cannot exceed 64 steps for the note tracks.

Realtime recording of notes

You can, at any time, hit the Steps/Part button, and switch note steps on or off, but sometimes you might like to just record something, that you play on a connected MIDI device, like a keyboard or a drum pad, or on SpazeDrum's trigger buttons. For this, realtime recording is usable.

You can start realtime recording by holding down the Func/Mute button, while pressing the Start/Stop button. If the sequencer is already running, it will immediately enter realtime recording mode, and any note you play will be recorded. If the sequencer is stopped, you will have to push the Start/Stop button, to start it. Before it starts realtime recording, it will count in for 2 bars with audible metronome.

When realtime recording, the Start/Stop button will flash in time with the beat.

To switch off realtime recording, simply hit the same button combination again, so the Start/Stop button stops flashing.

Step Recording of Notes

On top of the xox style and realtime recording methods, step recording of notes and knobs are also possible.

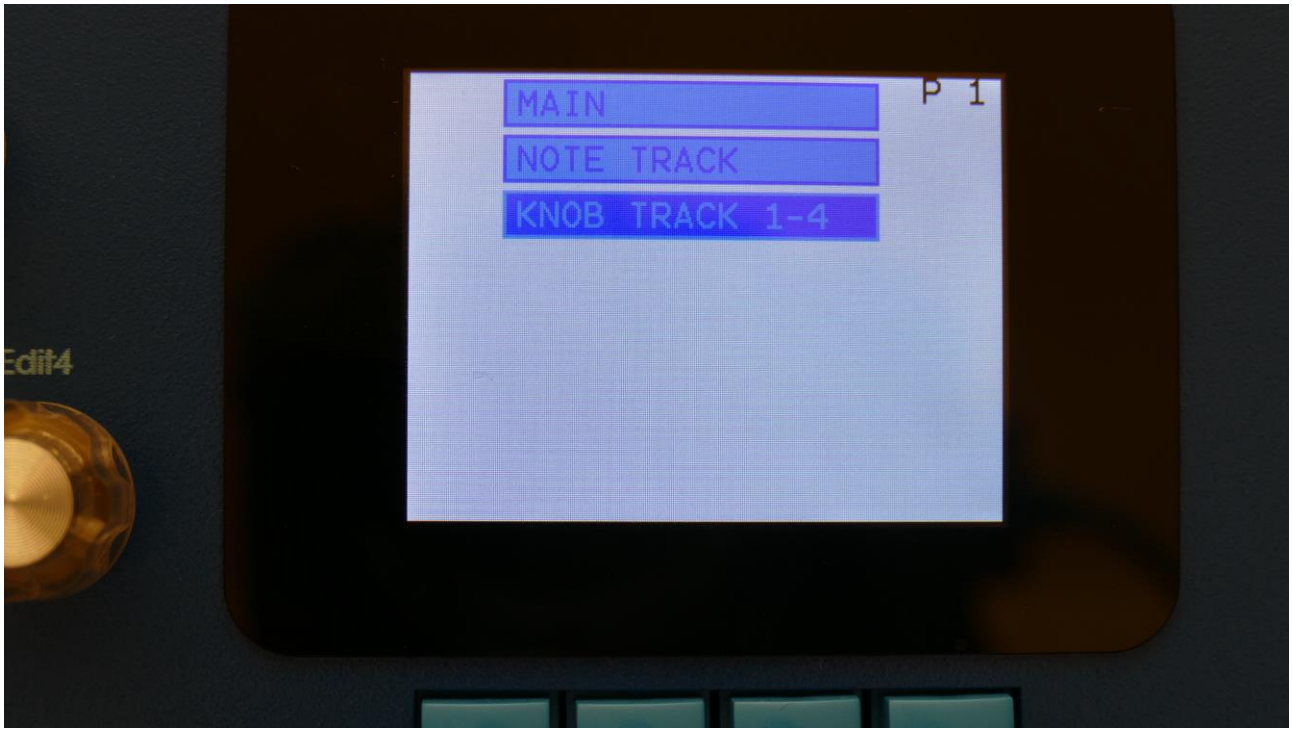
To initiate step recording:
-Set SpazeDrum in sequencer recording mode, by pushing and holding the Func/Mute button, while pressing the Play button.
-Start the sequencer playback, if desired. Step recording is possible no matter if the sequencer is running or not.
-Push and release the Steps/Part button, so that it lights up, and puts the 16 step buttons in step mode.
-Push the step button, that has the position for the step, that you would like to record. This will now flash.
-Play a note on an attached MIDI device. This will now be recorded. Knob movements can also be recorded to specific steps this way (explained in the next section).
-SpazeDrum will advance to the next step, every time it receives a note off.

If the sequencer is running, while step recording, the time you hold down a note, will be recorded. If the sequencer is stopped, resolution will determine the note length.

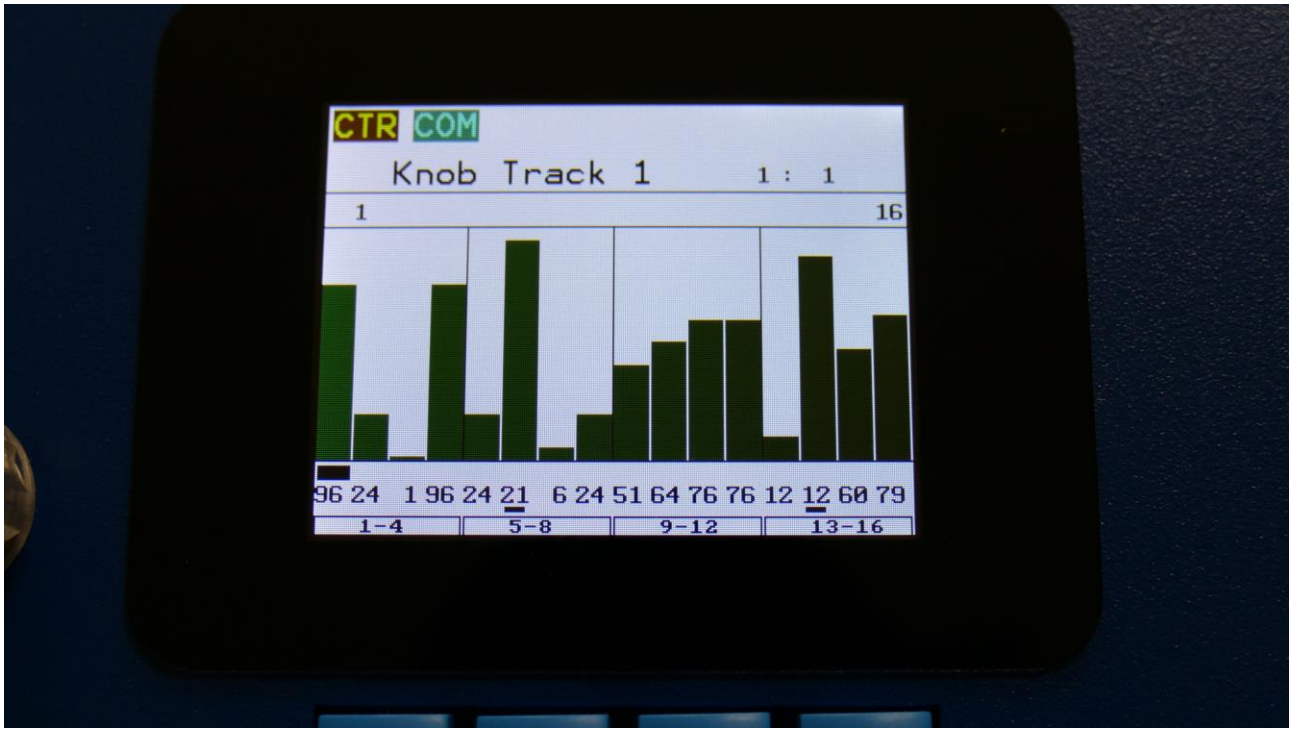
The Knob Controller Tracks

Each of the 16 SpazeDrum parts has 4 knob controller tracks (64 in total). These can control the parameters, that has any of the 4 Edit Knobs assigned as their modulation source. Each of these tracks only have one subtrack: The knob controller track values. Each track can be on up to 64 steps long, and a Smooth function can be turned on, that will automatically create values between the steps, from one step value to another, for smooth transitions between them.

Knob Controller track Step Values



From the sequencer access page, select KNOB TRACK 1-4, using the < and > buttons, and push the Edit button to enter the knob tracks. On SpazeDrum Black you can also just touch the KNOB TRACK 1-4 module.



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

At most of this screen, you will see the value grid. Right above this, to the left and to the right, the first and last step numbers, of the steps that are currently shown in the value grid, are indicated. In the top left side, a small VU-meter is shown, that show the value currently being outputted by the track (not visible on the picture…).

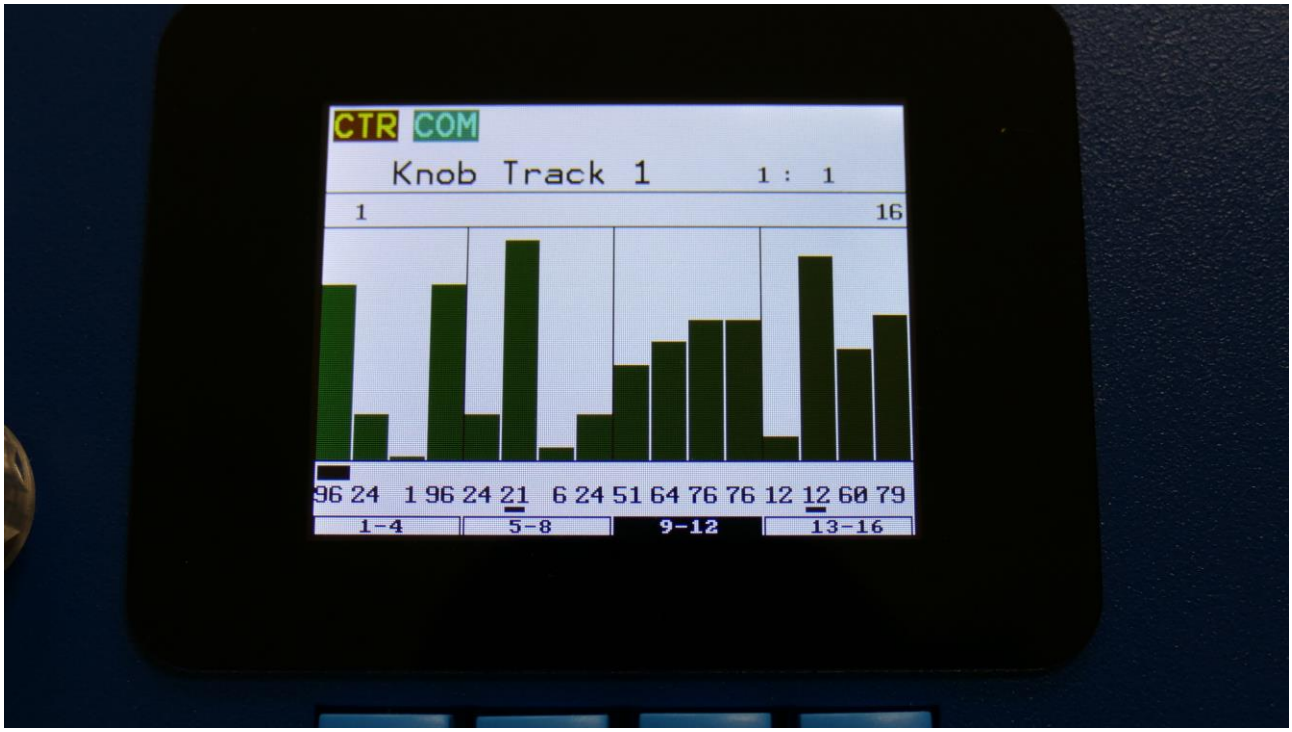
Pushing the “Exit” button will exit you to the Sequencer Access page.

The controller values for each step is shown right below the value grid. If a black underscore is shown below the number, it means that the value are above 100.

Knob controller track 1 controls Edit Knob 1, track 2 controls knob 2 and so on.
To select a specific knob controller track, push and hold the Steps/Part button, while pushing Step Button 1-4, to select a part knob controller track.

If you would like to select a knob controller track on another part, exit back to the sequencer main access page, and select another part, using the Steps/Part + step button 1-16 combination.

To change the knob controller values, push the Edit button.



Now one of the fields in the bottom of the page, named “1-4”, “5-8”, “9-12” or “13-16”, will turn black. On SpazeDrum Black, these fields can also be selected, simply by touching them.
Now the 4 selected steps can be edited, using Edit Knob 1-4.

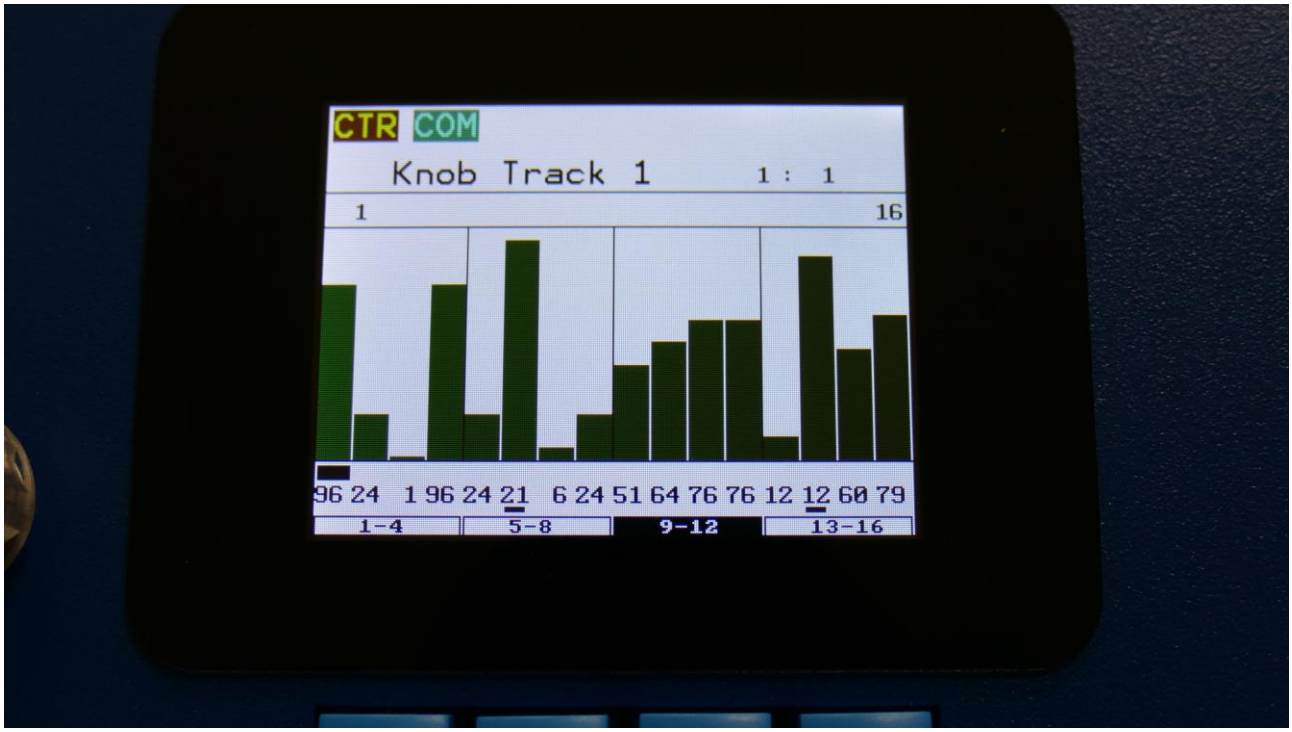
Push the < and > buttons to select the 4 steps, which you would like to edit. If you push the > button, when “13-16” is selected, it will jump to the next 16 steps.
If you push the < button, when “1-4” is selected, it will jump to the previous 16 steps.

On SpazeDrum Black it is also possible to edit these values, by touching the screen.

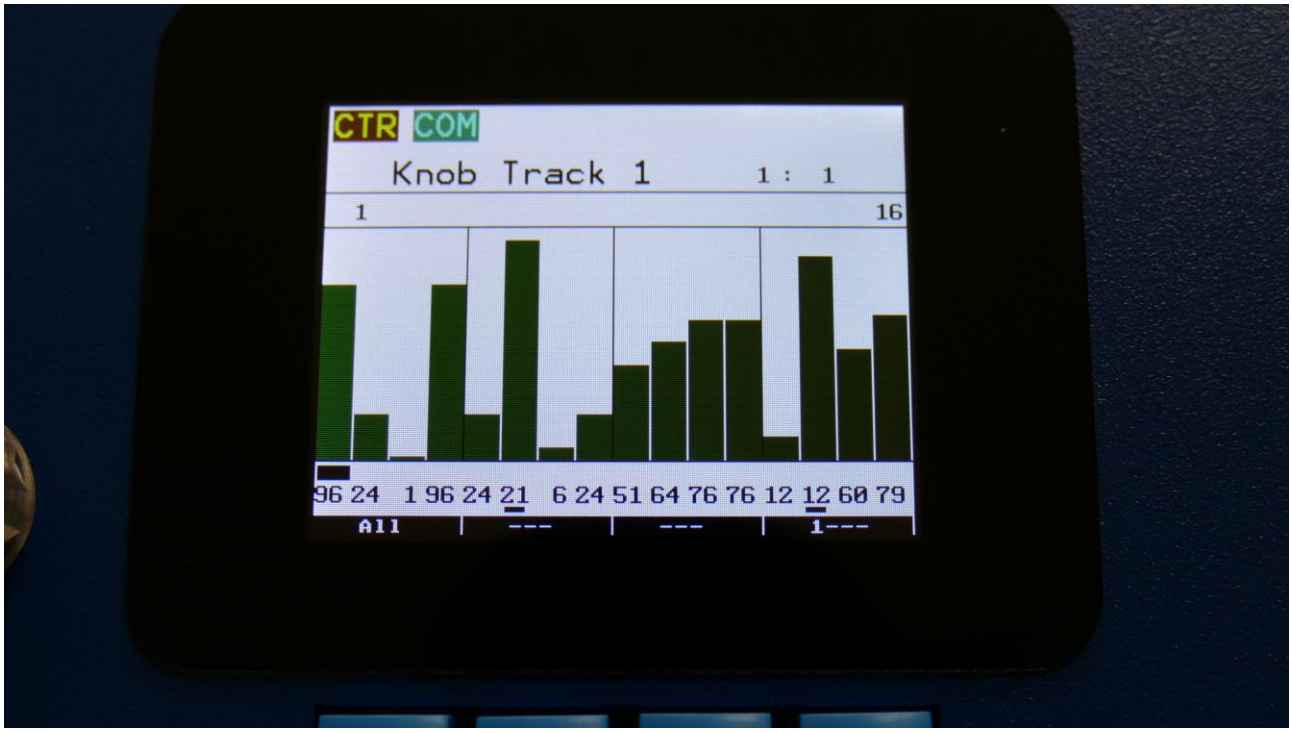
Randomize step values

Push the Func/Mute button, so that it is lighting up. Push step button 7 (Randomize). The 4 selected values will now be set to random values.

Adjusting the offset of all values at the same times



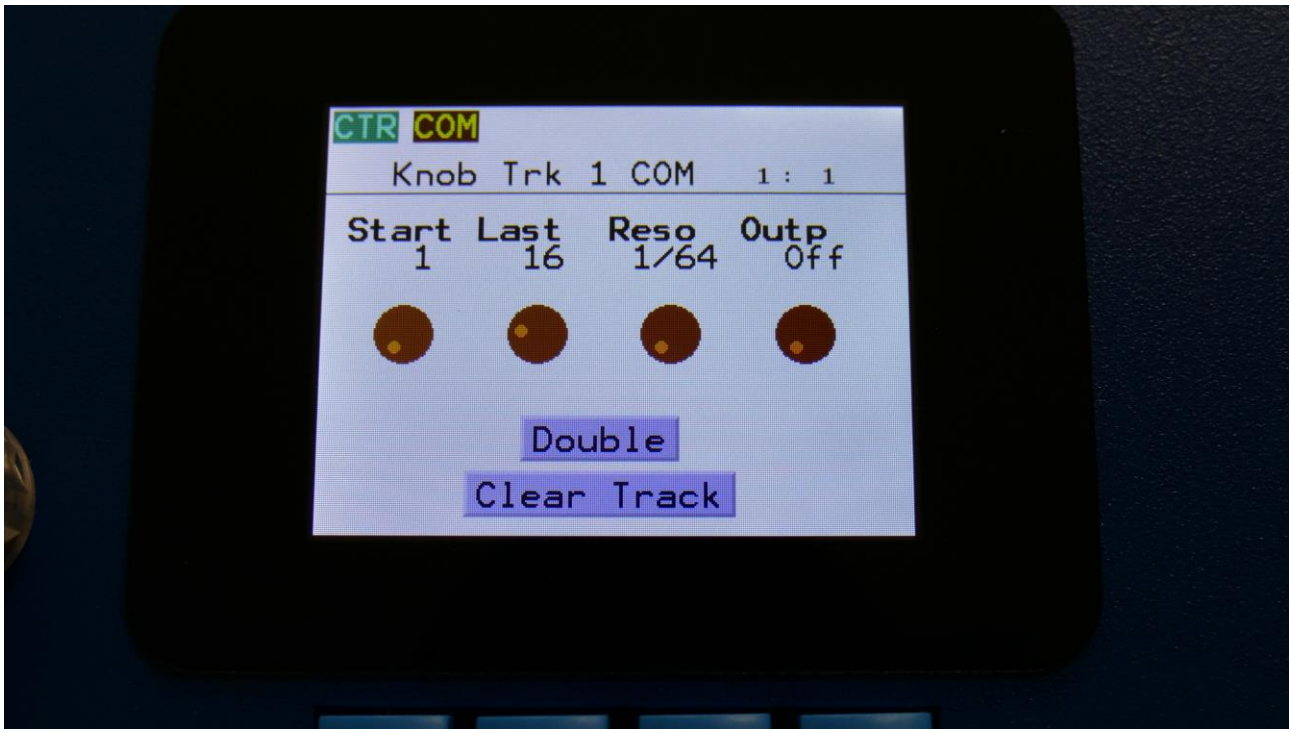
When you have selected a group of steps, to be edited using the Edit Knobs, push the Edit button one more time, and it will switch to “All”.



You can now, by turning Edit Knob 1, adjust the offset of all steps at the same time. Middle position of Edit Knob 1 is zero, above middle will turn the offset up, below middle will turn the offset down.

Knob Controller Tracks Com page

From the knob controller track values page, make sure that none of the Edit knob selectors in the button of the page are black. If they are, push the Edit button, maybe a number of times, until they are all white. Now push the > button, to enter the knob controller tracks Com page. On SpazeDrum Black you can simply touch the “COM” field, to enter this page.



The parameters of this page:

Start: 1 to 64. Sets the track start step. This will be the step, the track starts at, when hitting the Play button, or when entering this preset from another preset, while the sequencer is running.

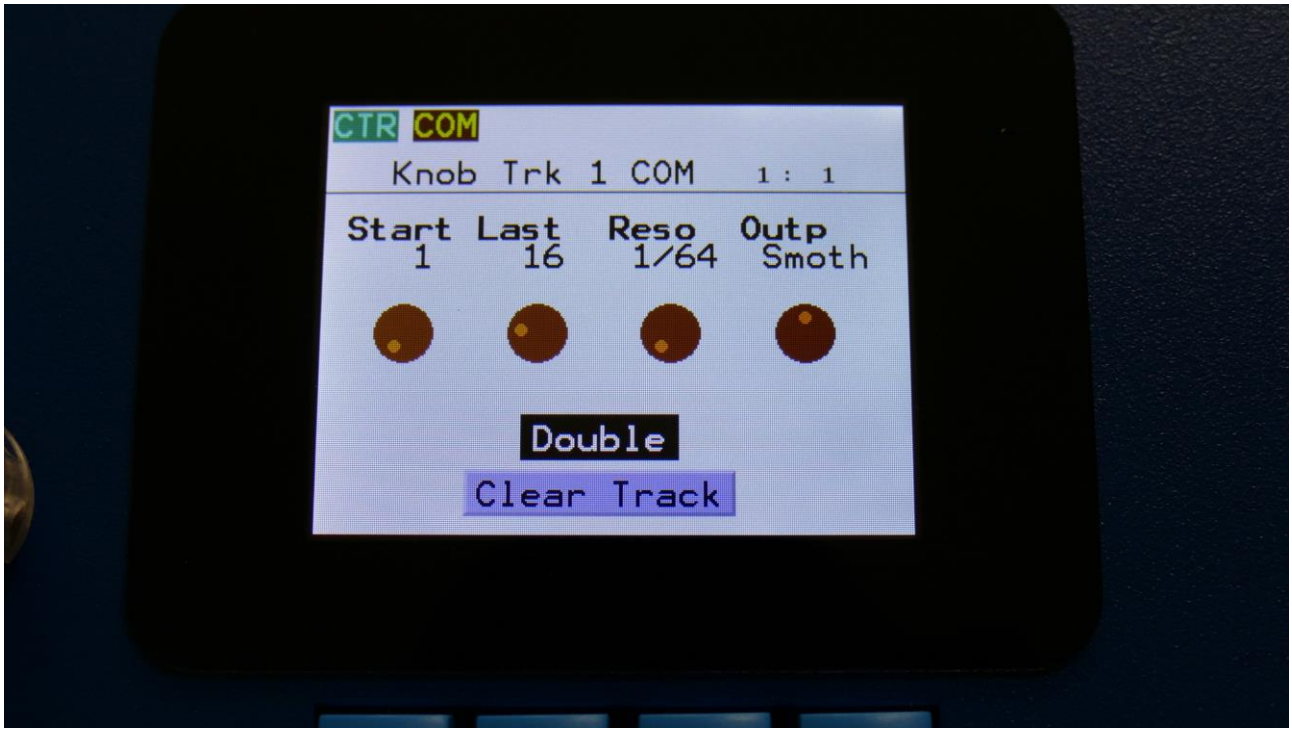
Last: 1 to 64. Sets the last step that will be played back on this track, before it loops back, and plays the track again.

Reso: Sets the track resolution. Values: 1/64, 1/48, 1/32, 1/24, 1/16, 1/12, 1/8, 1/6, 1/4, 1/3.

Outp: Sets the knob controller track output mode.
-Off: The knob controller track will not control the Edit Knob.
-On: The knob controller track will control the Edit Knob without any smoothing.
-Smoth: The knob controller track will control the Edit Knob and apply smoothing between each step.

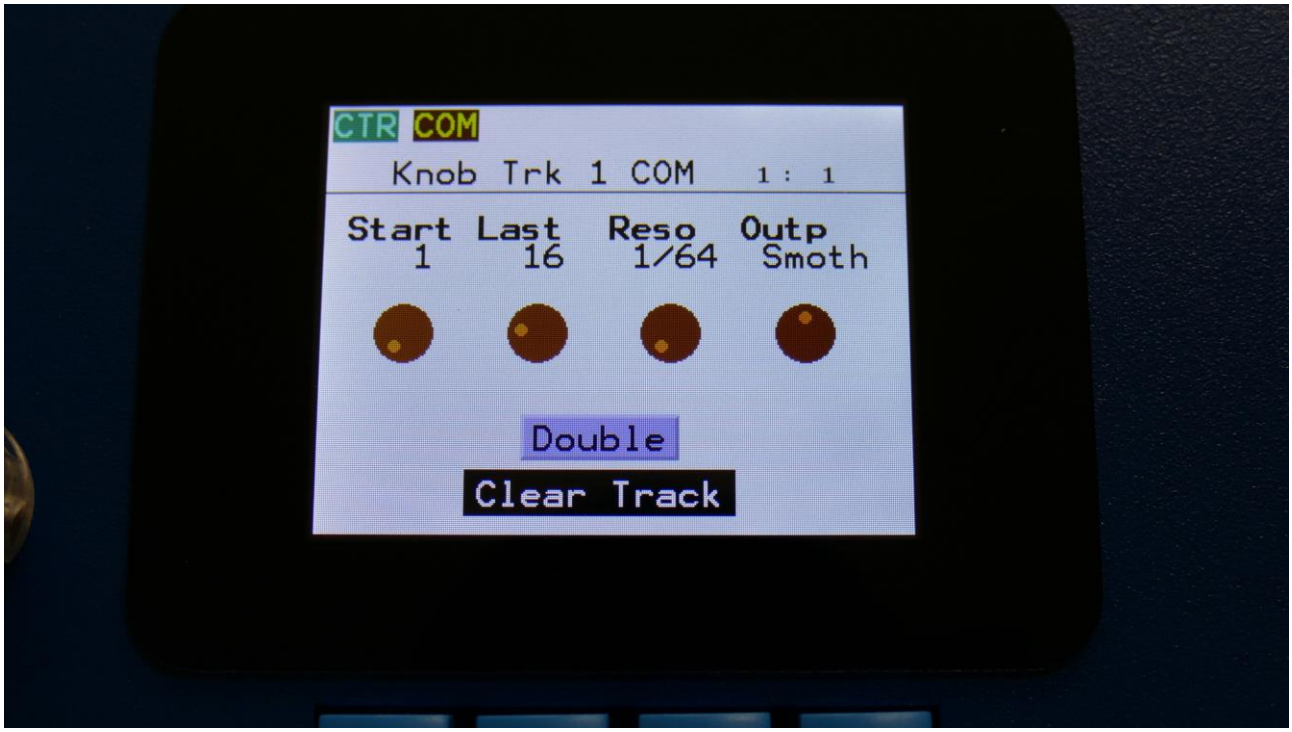
Clear Knob Controller Track

On the COM page, push the Edit button.



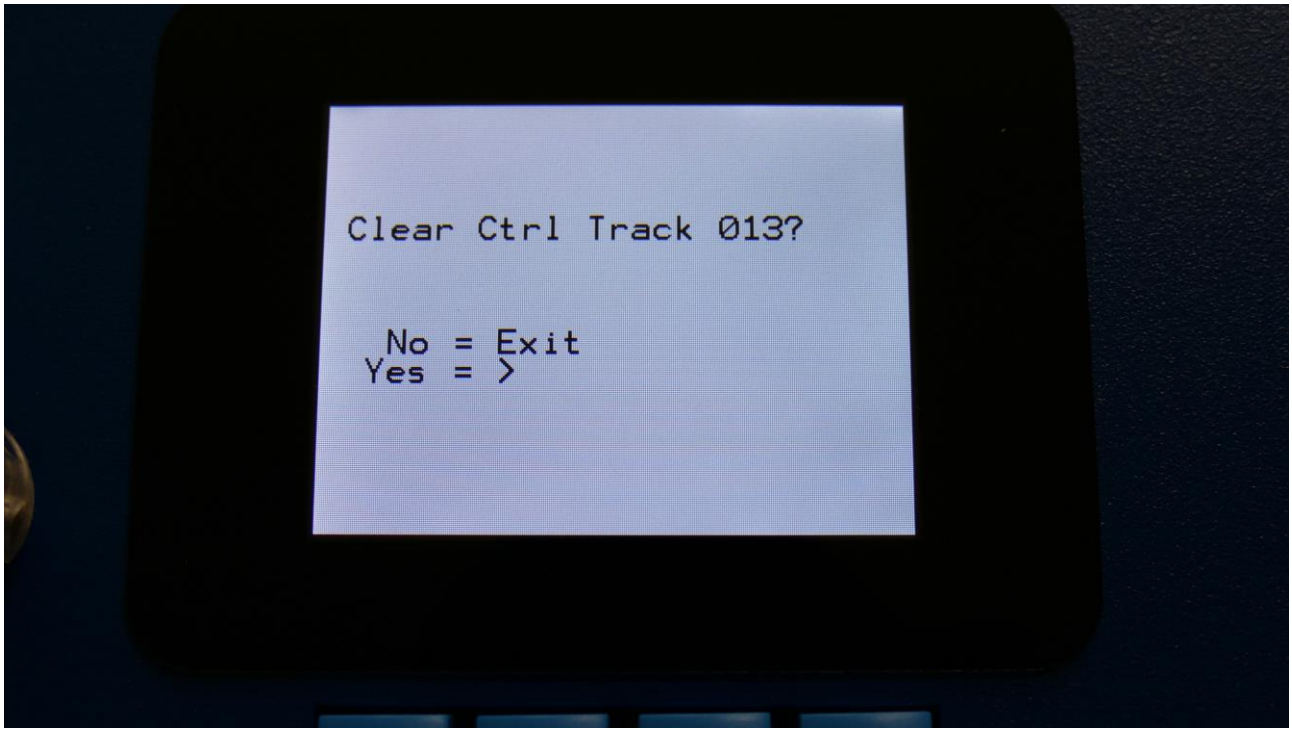
Now “Double” will be selected.

Push the > button, to select “Clear Track”.



On SpazeDrum Black you can also just touch the Clear Track field.

Push the Edit button. Now this page should appear:

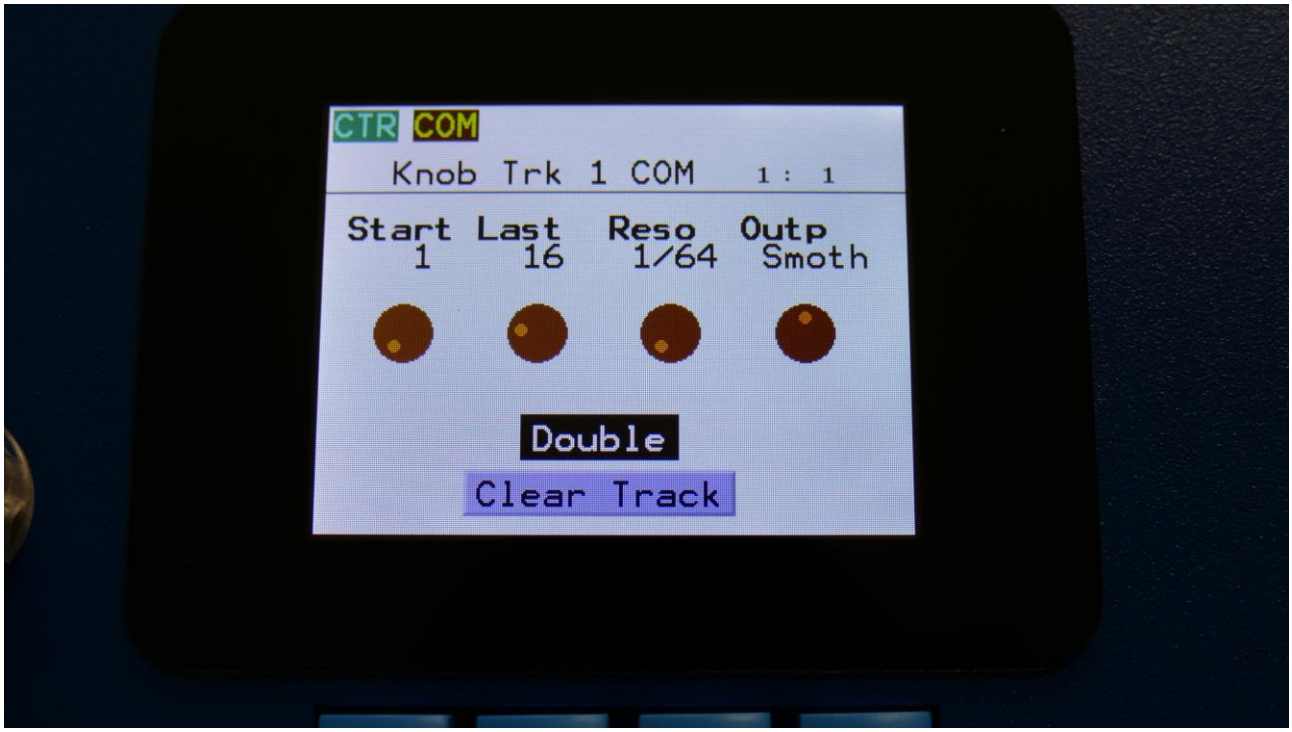


Pushing the > button from here, will initialize all step values and parameters of the currently selected knob controller track, except for the Last Step parameter.

If you would not wish to do this, push the Exit button, to exit to the COM page.

Double Knob Controller Track

On the Com page, push the Edit button.



Now “Double” will be selected.

Push the Edit button again, to double the length of the track. All events from the original track, is copied to the new half. Useful if you need some extra variation in a track.

On SpazeDrum Black you can also just touch the Double field.

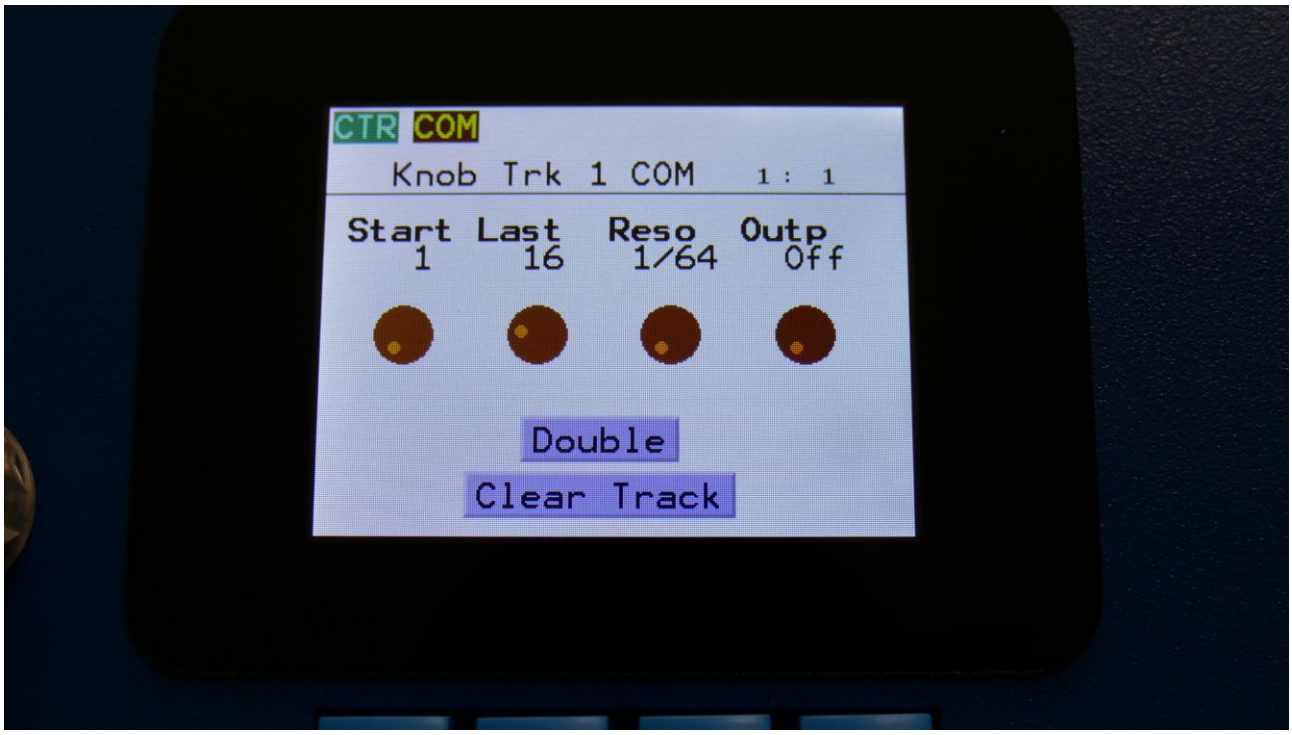
PLEASE NOTE: The track lengths cannot exceed 64 steps for the knob controller tracks.

Knob Controller Tracks Realtime Recording

Edit Knob 1-4 tweaks can be realtime recorded on the knob controller tracks.

At first, set up some parameters, to be modulated by Edit Knob 1-4.

Then you might want to navigate to the controller track COM page, to set the track length (the last step). This step is though not required, if you are ok with just a one bar sequence.



Navigate back to the Preset Select (main) page, and make sure, that the Edit Knobs are controlling the right parameters.

Now start the sequencer.

Start sequencer recording, by pushing and holding the Func/Mute button, while pressing the Play button.

Now, when you start tweaking an Edit Knob, it will start recording this knob controller track. It will record the track for the number of steps, that the track is set up to. Then it will stop the recording of the track, and switch it to Smooth mode, and play back will start.

Knob Controller Tracks Step Recording

It is also possible to step record knob controller events.

To initiate step recording:
-Make sure to be located on the Preset Select page, and that the Edit Knobs controls the right parameters.
-Start sequencer recording, by pushing and holding the Func/Mute button, while pressing the Play button.
-Start the sequencer playback, if desired. Step recording is possible no matter if the sequencer is running or not.
-Push and release the Steps/Part button, so that it lights up, and puts the 16 step buttons in step mode.
-Push the step button, that has the position for the step, that you would like to record. This will now flash.
-Set the Edit Knob to the value, you would like this step to hold.
-Select another step to record.

Drum Parts and Sequencer Morphing

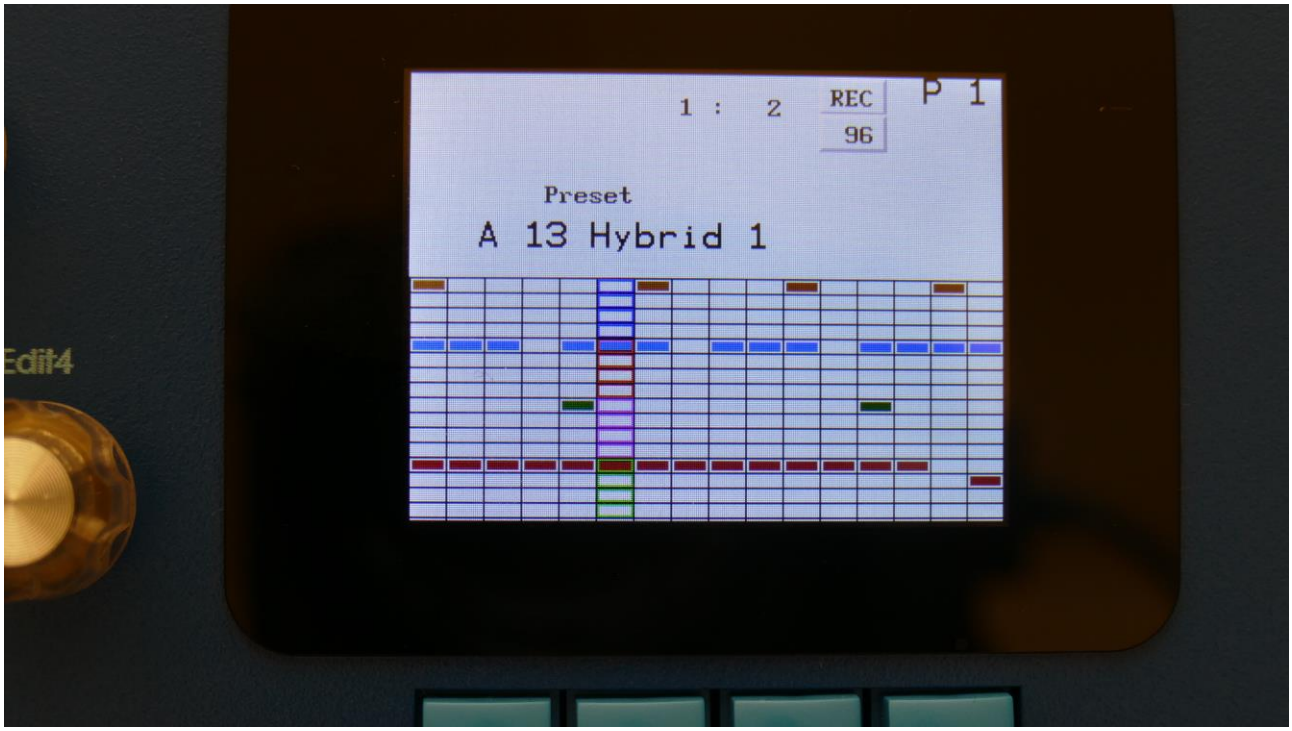
On SpazeDrum it is possible to morph between 2 layers of parameters, layer A and B, by turning the Morph knob for the drum parts parameters, and the Seq Morph knob for the sequencer parameters. The Morph knob transmits and receives MIDI CC 1 (The Mod Wheel) via MIDI in and out, and the Seq Morph knob transmits and receives MIDI CC2.

To access the parameters of the second layers, on any drum part and sequencer page, hit the Morph Set button, so it 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.

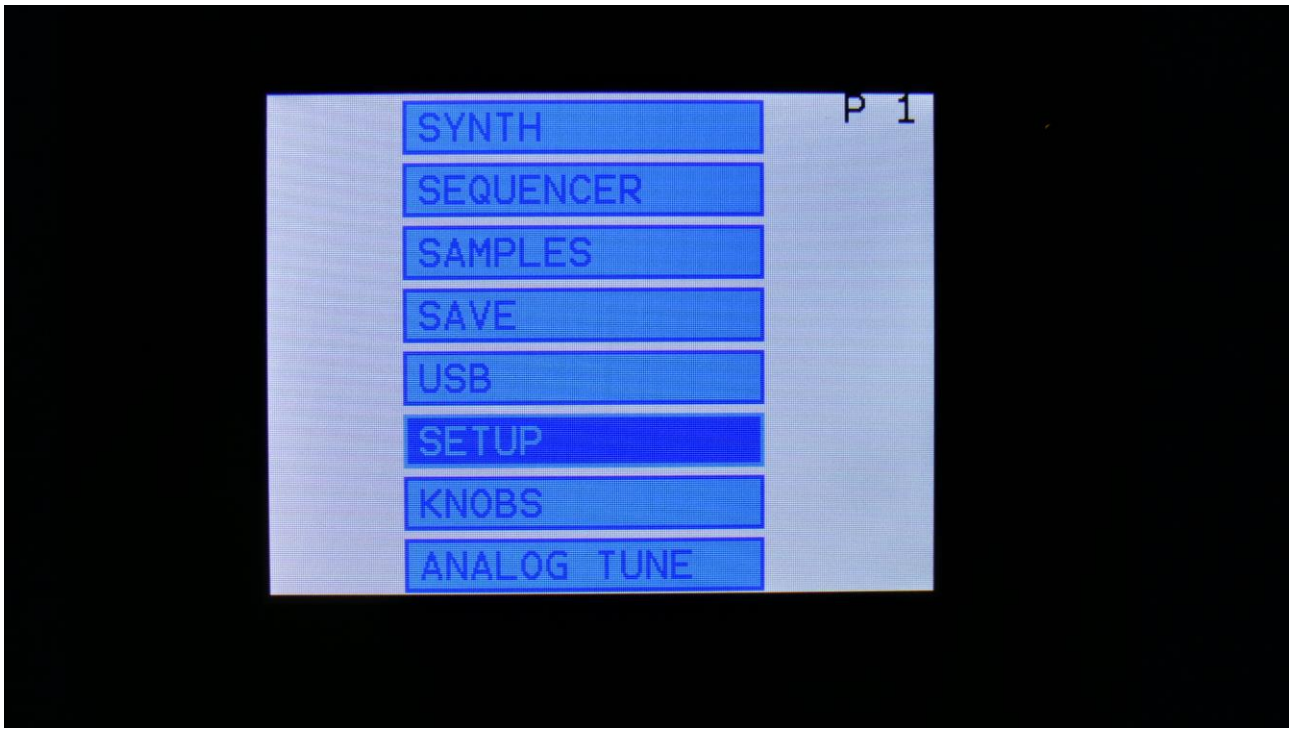
All continuously adjustable parameters can be morphed. Switches are not morphed, except for the note tracks steps on/offs.

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

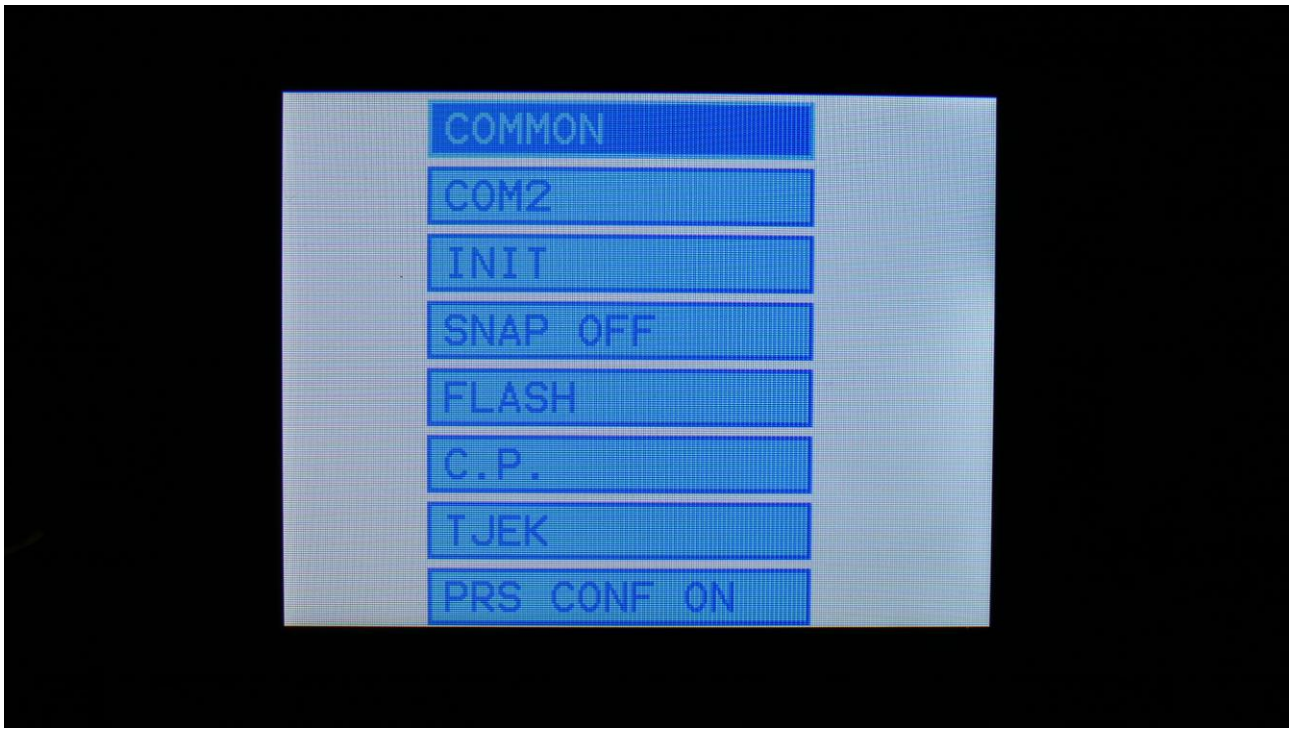
Setup



From the Preset Select page, push the Edit button.



Select SETUP, using the < and > buttons, and push the Edit button, or touch the SETUP module on SpazeDrum Black.



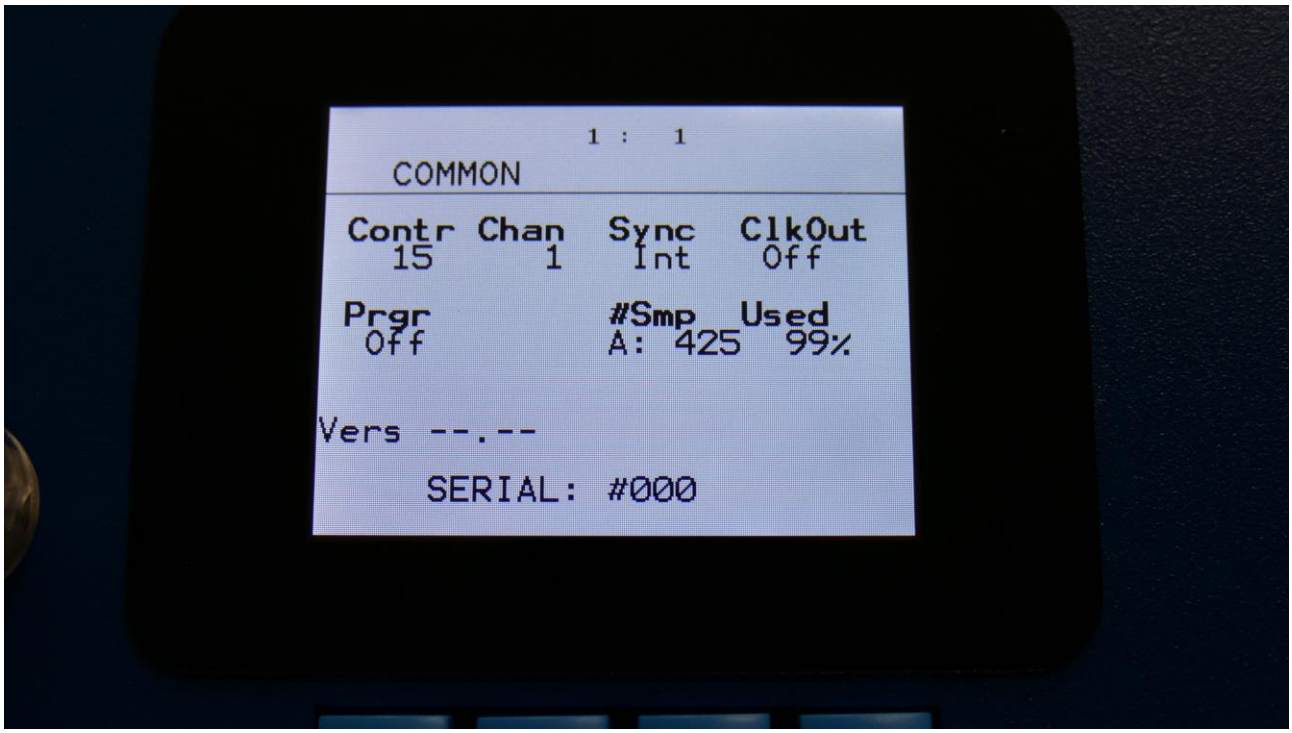
This will get you to the Setup main page. Here you can set up all the basic SpazeDrum things, check and erase the SpazeDrum memory and initialize the preset.

To select a specific setup page, use the < and > buttons, and push the Edit button to enter, or touch the desired module on SpazeDrum Black.

On the following pages, each section of the Setup pages is described.

Common

On this page, you can adjust the display contrast and MIDI settings and check the sample memory, serial number and currently installed firmware version.



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

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

Chan: The SpazeDrum global MIDI channel. All MIDI data to SpazeDrum will be received on this channel. MIDI CC's from the 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: SpazeDrum's sequencer will be clocked internally at the rate set by the "Tempo" parameter in each preset.
-Ext: SpazeDrum'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 SpazeDrum will re-transmit MIDI clock and start/stop events to MIDI out. Even if SpazeDrum 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, SpazeDrum will receive MIDI program and bank changes. Bank change is MIDI CC 32.

Settings that can't be adjusted:

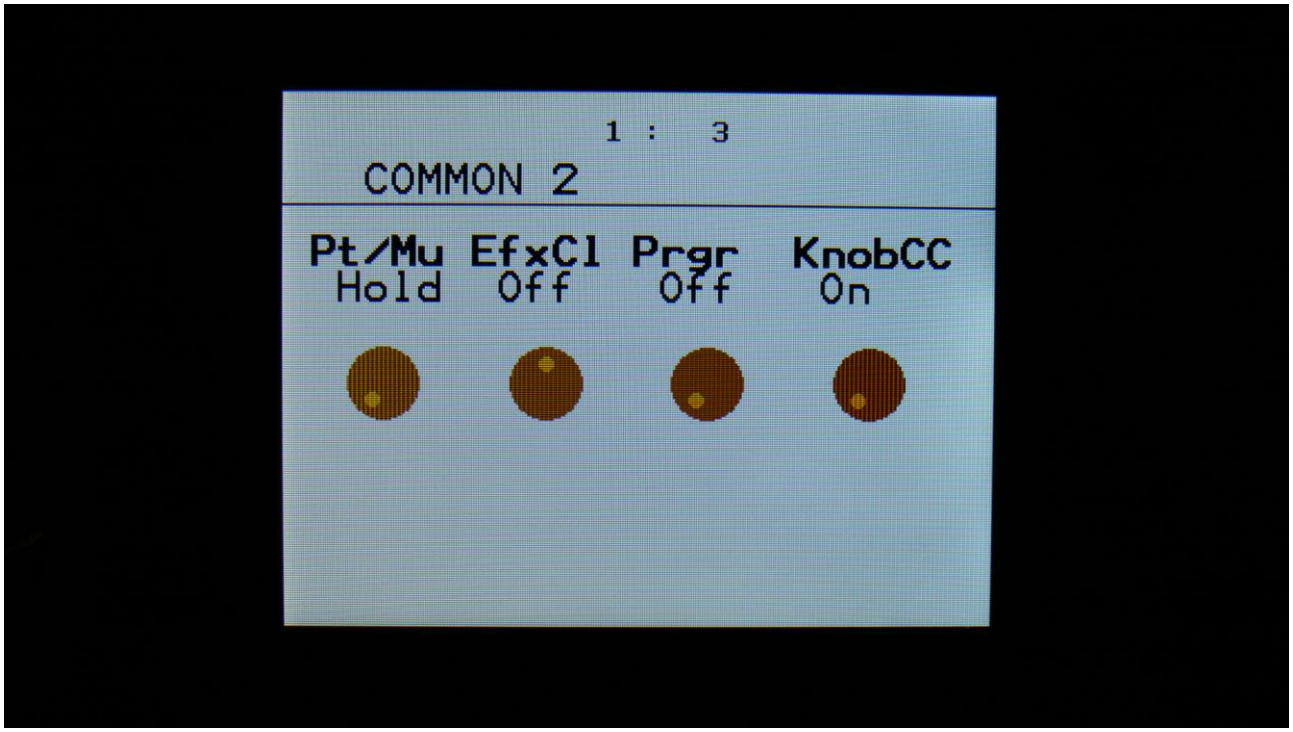
#Smp: Shows how many samples that are held in the sample bank.

#Used: Shows in percent how much of the sample memory is occupied by samplings.

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

COM2

On this page you can set if the part select and part mute buttons should latch or not, and if SpazeDrum should transmit Edit Knob MIDI CC's.



Here you can, by rotating Edit Knob 1, set the **Pt/Mu** button to:
-Hold: You will have to hold the Func/Mute or Steps/Part buttons, while pushing a step button, to select or mute a part.
-Latch: When pushing and releasing either the Func/Mute or the Steps/Part buttons 2 times, the button will start to flash, and you can select or mute parts, by pushing the step buttons. It is still possible to select and mute parts, by holding any of these buttons.

EfxCL: Effects buffer clear. When SpazeDrum is shifting from one preset to the next, the effect RAM buffers are cleared, to avoid any fractures of the sounds from the previous preset, to sound in the new preset. This will give a tiny break in the effect processing. If you would like to avoid this tiny break, or if you do like effects like delay and granulators to keep the sounds from a previous preset, when shifting to a new one, please set this parameter to "off".

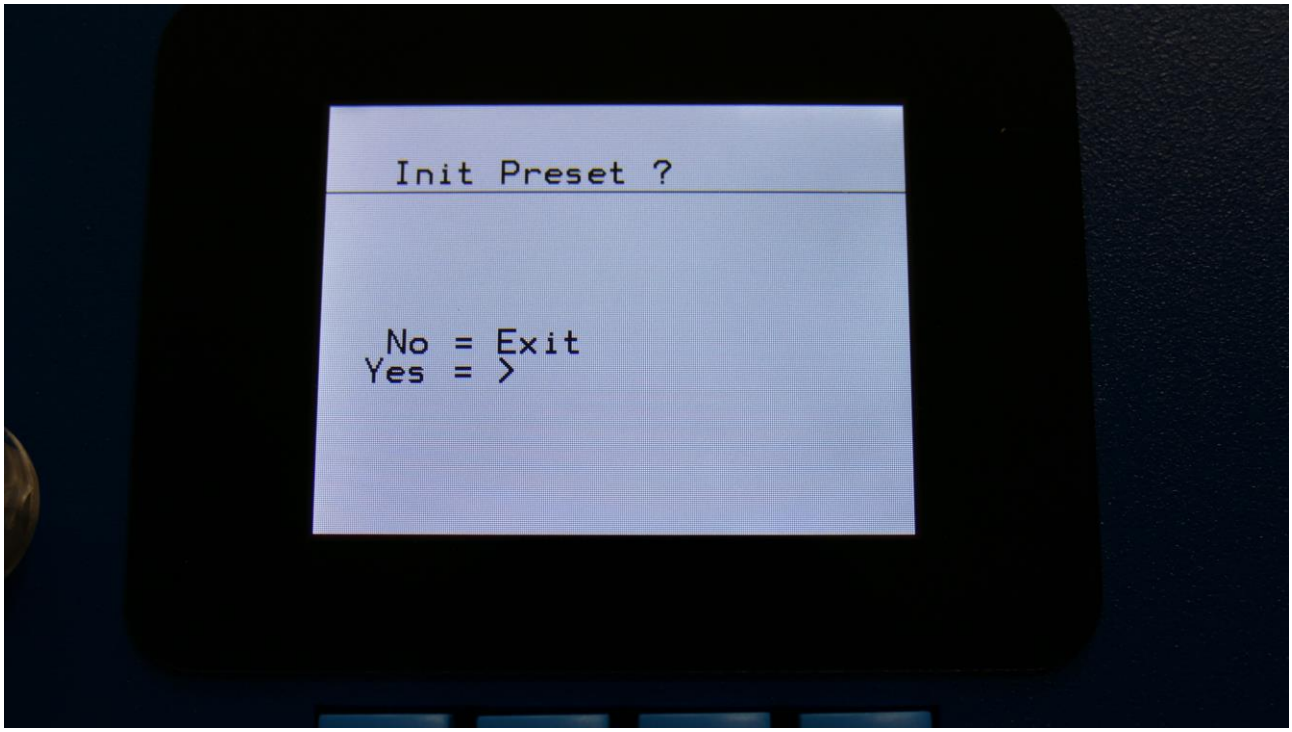
Prgr: Program/bank Change receive. When this is set to on, SpazeDrum will receive and react to program and bank change messages received on MIDI in. When it is set to off, SpazeDrum will not react to MIDI program and bank change messages. Please see the MIDI implementation chapter, later in this manual, for a complete description on how program and bank changes are handled.

KnobCC: On, Off. When on, the 4 Edit Knobs and the 2 Morph knobs will transmit MIDI CC's to MIDI Out, when turned. When off, they will not transmit any MIDI CC's on MIDI out.

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, or by using the reload function.

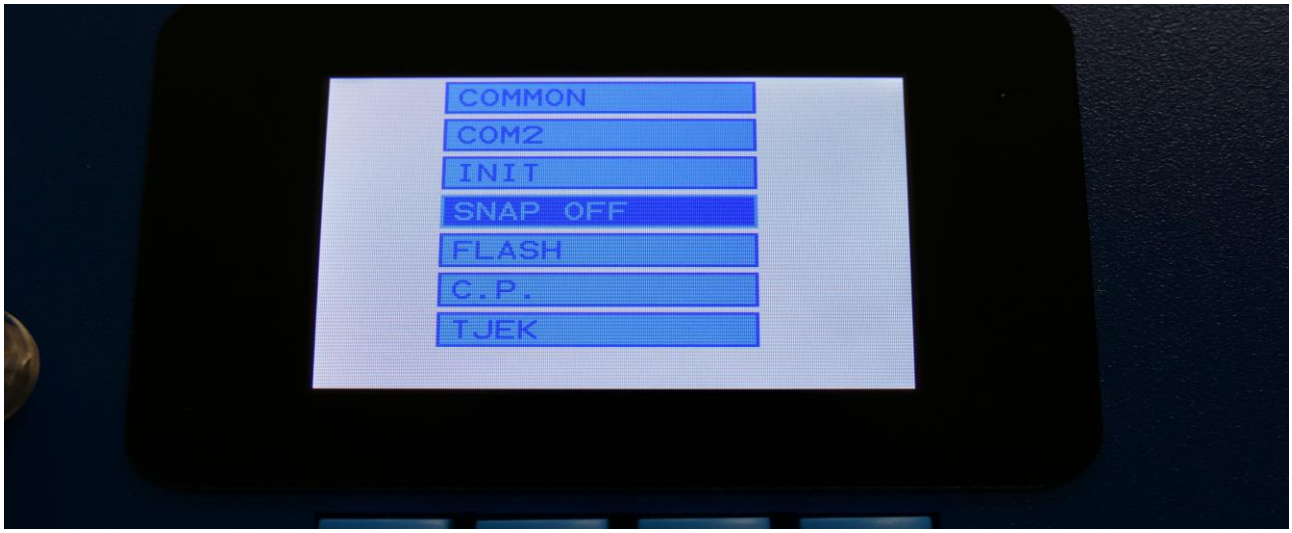


SpazeDrum will now ask you to confirm.

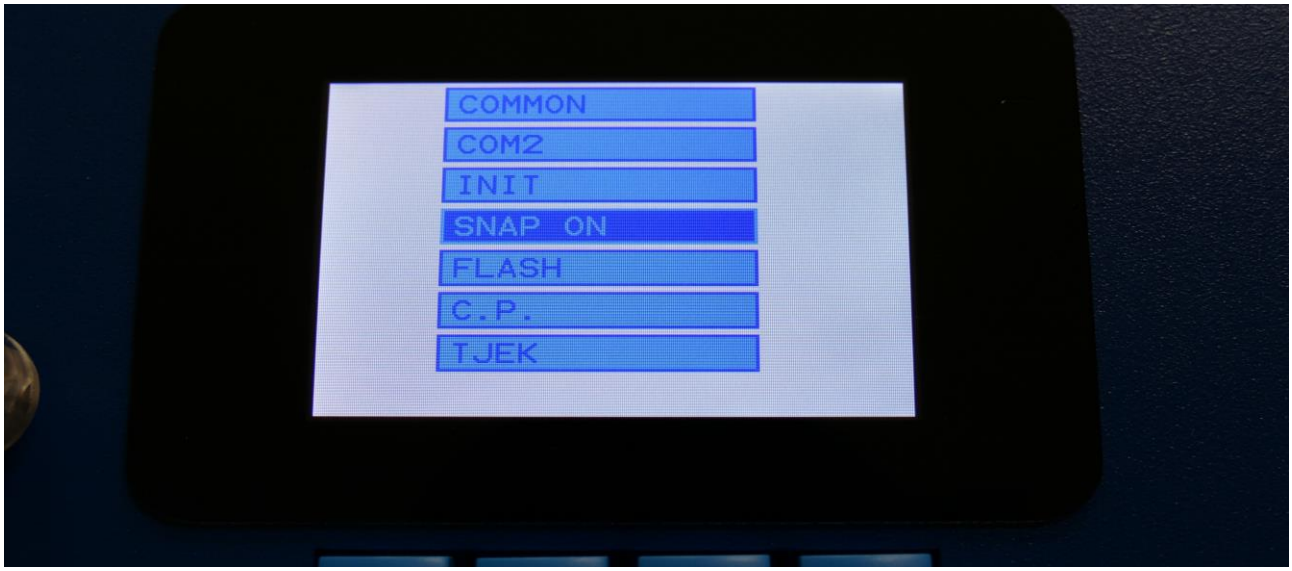
Press ”>” to initialize the currently selected preset and return to the previous page, or press ”Exit” just to exit, without initializing.

Parameter Snap Mode

A drum part parameters “Snap” mode are available. When this is set to “On”, any drum part parameter value will not be changed, when turning a knob, until it passes the original value, that the parameter was set to. This will avoid “jumps” in the sound.



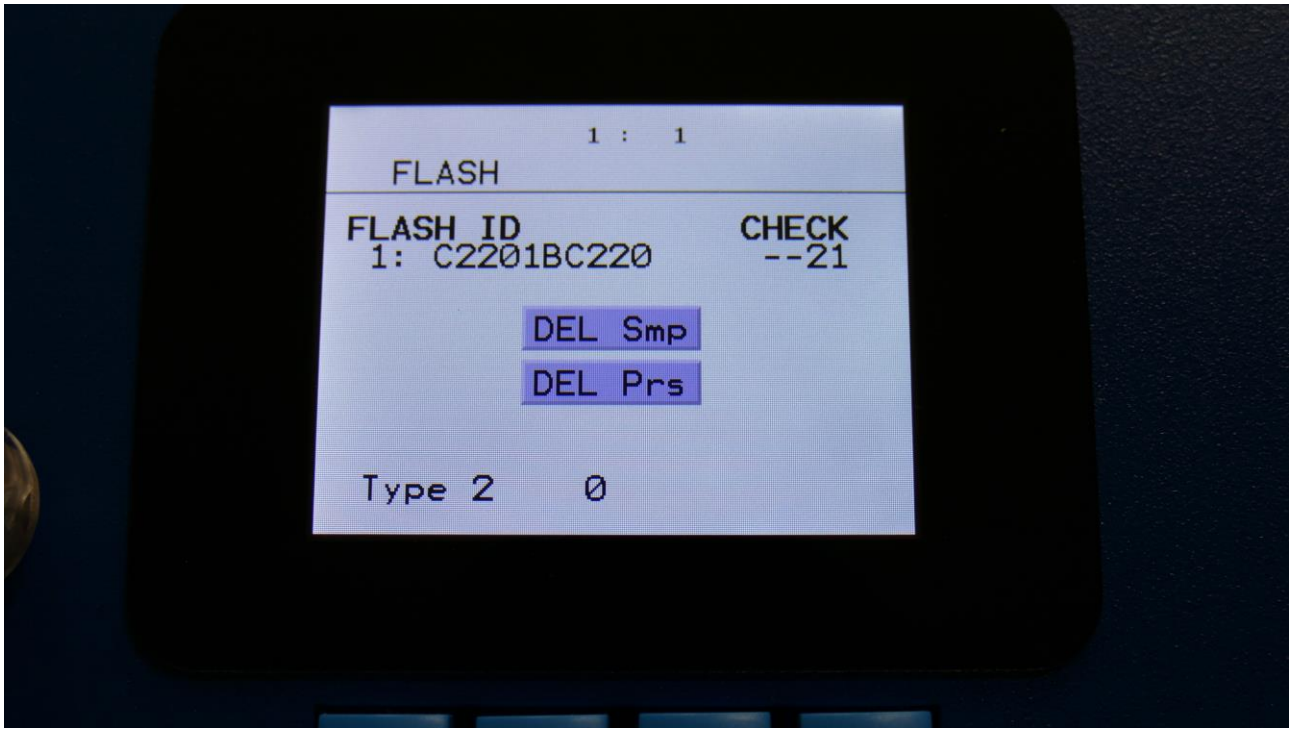
On the Setup main page, select the “SNAP OFF” text. Push the Edit button. Now the text will change to “SNAP ON”. On SpazeDrum Black you can also just touch the SNAP module, to change the on/off state.



To turn it off, push the Edit button again.

FLASH

On this page you can check the FLASH memory, and erase all the preset and samplings, that your SpazeDrum holds.



When you enter the FLASH page, it should look exactly like on the picture, if there are no issues with your SpazeDrum's FLASH memory.
If you should ever experience any issues with missing samples or presets, please take a picture of this screen, and email it to Gotharman's.

Delete the Sample Bank

It is possible to completely erase the sample bank. Please think about it, before you do this, 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.

On the FLASH page, push the Edit button, to select Del Smp.

Touch the Edit button again.

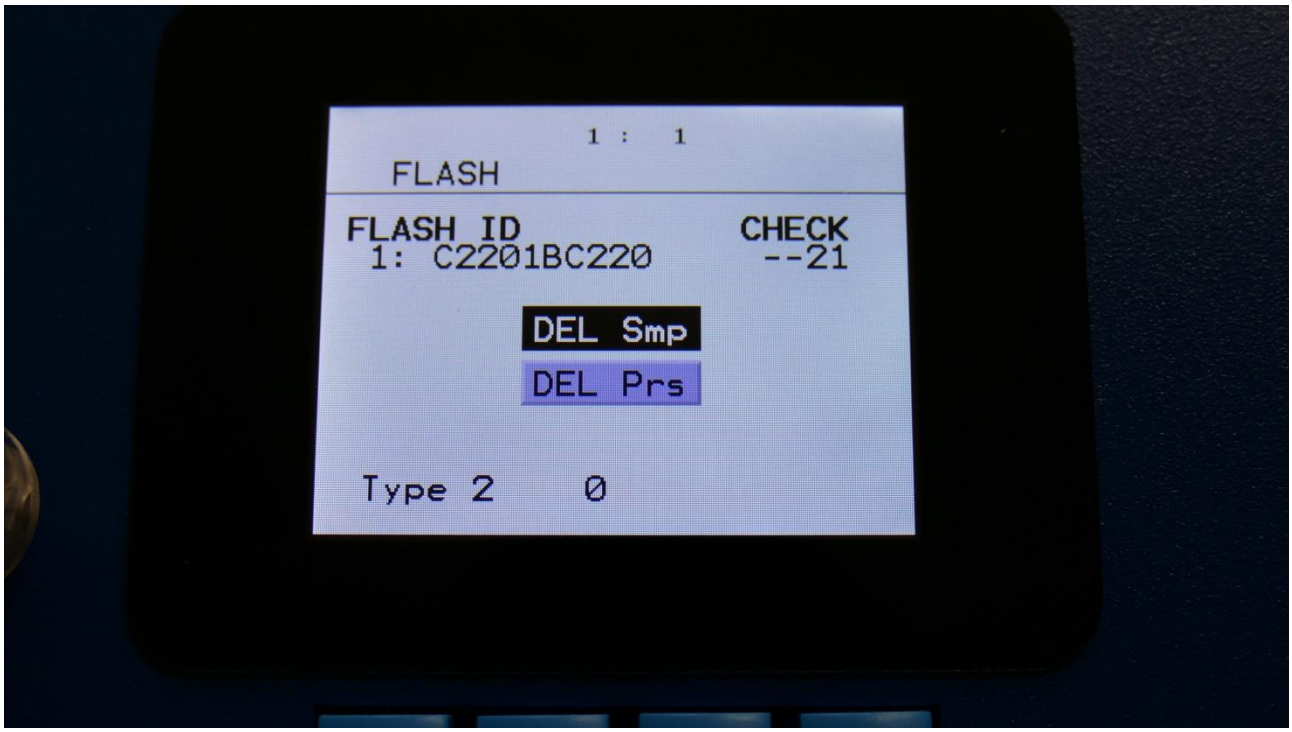
Follow the instructions on the screen, if you are certain, that you would like to delete all the samplings.

Delete all Presets and Songs

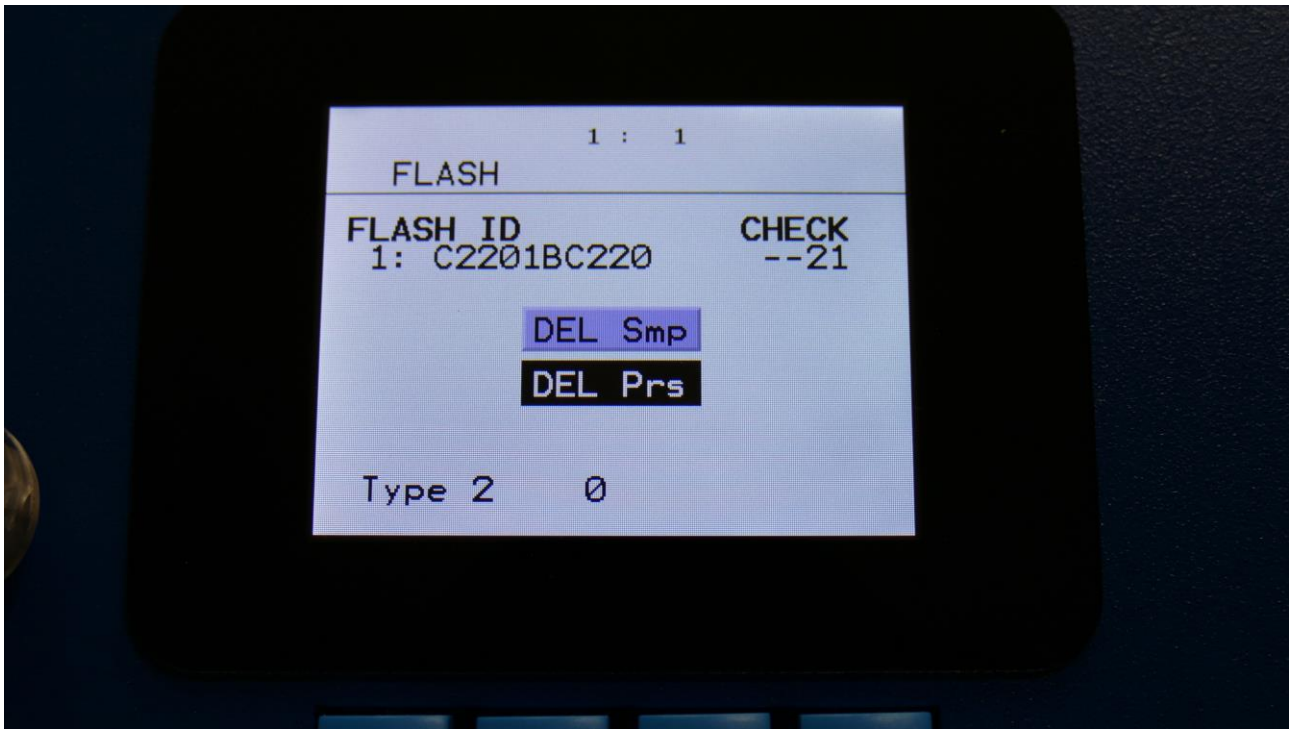
It is possible to completely erase all presets and songs.

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.

On the FLASH page, push the Edit button, to select Del Smp.



Push the > button one time, to select Del Prs.



Push the Edit button.

Follow the instructions on the screen, if you are certain, that you would like to delete all the presets and songs.

C.P. and TJEK

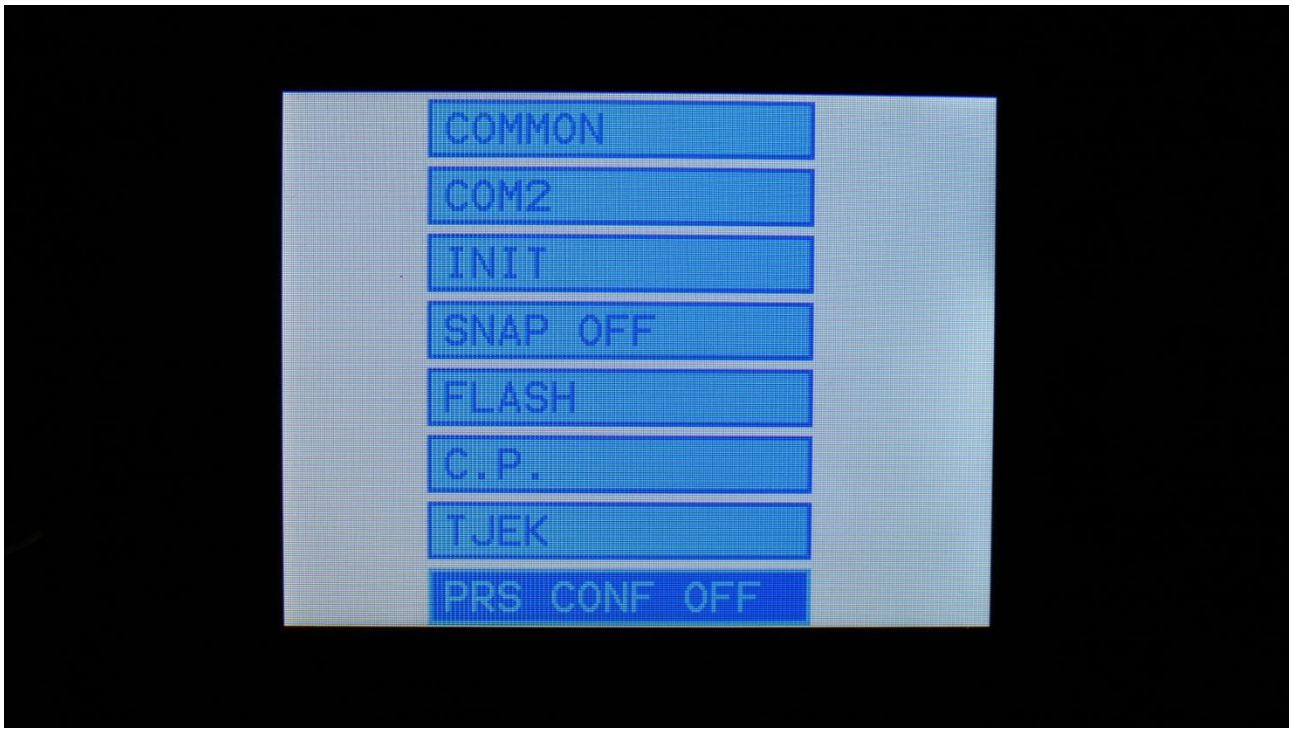
Pages for some testing. Has no functions.

Preset Change Confirm

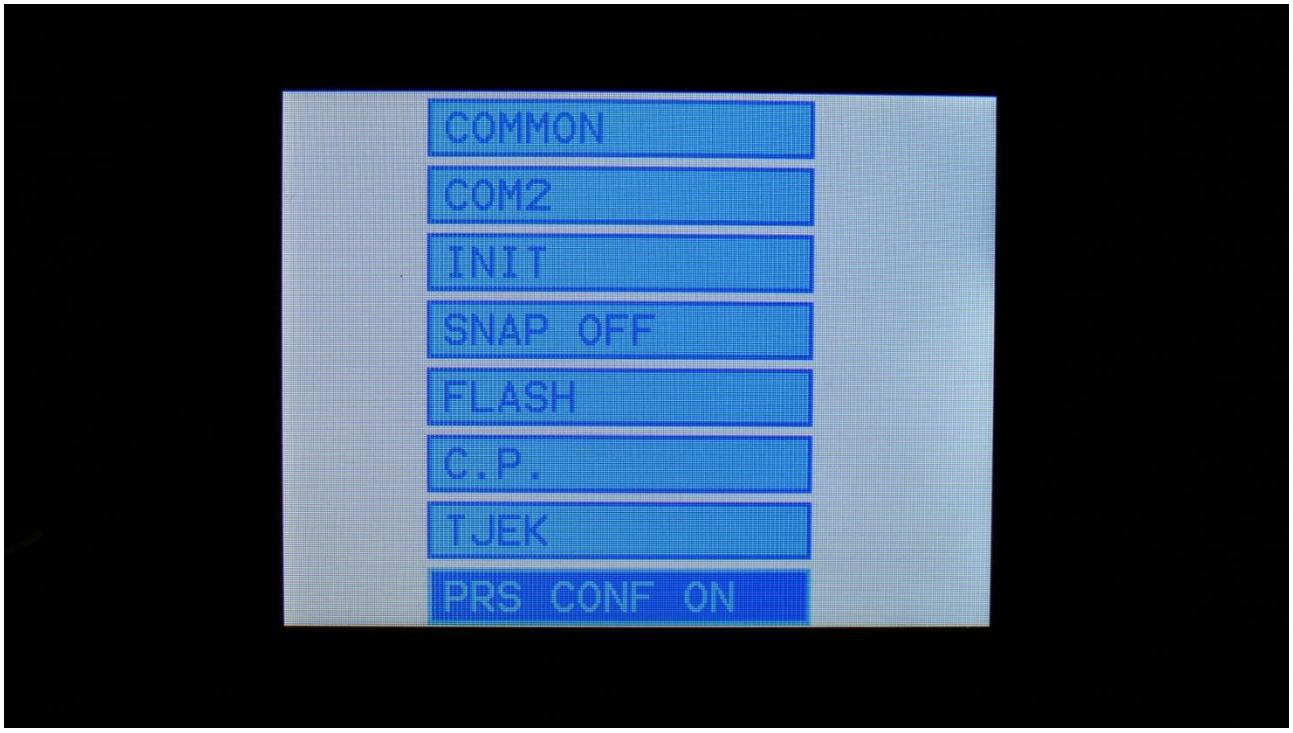
When changing the preset, by using the < and > buttons, SpazeDrum will change the preset, when the button is released, and note track 1 starts over. Sometimes this can lead to unintended preset playback.

To prevent this, a preset change confirm function was added. This can be switched on or off as desired.

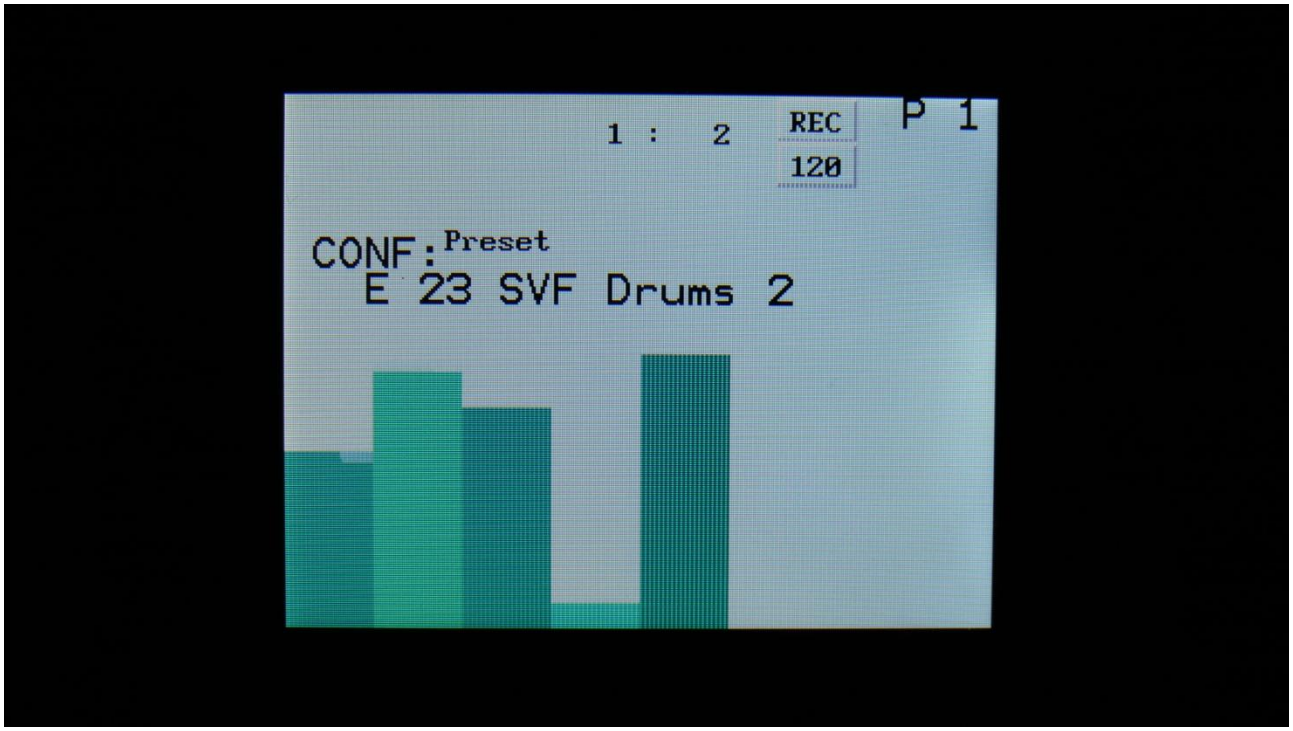
To switch the preset confirm function on or off, go to the Setup Menu page.



Select “PRS CONF OFF” in the bottom of this page, using the < and > buttons, and push the Edit button to change.


COMMON
COM2
INIT
SNAP OFF
FLASH
C.P.
TJEK
PRS CONF ON

When the preset change confirm function is on, and you change the preset, using the < and > buttons, SpazeDrum will now ask you to confirm, before it jumps to the new preset, by writing “CONF” on the Preset Select page”.



To confirm the preset change, push the Edit button. Now CONF will change to NEXT, until note track 1 starts over, and the preset change happens.

If you do not wish to change the preset anyway, simply push the Exit button, when it says CONF on the display. This will discard the preset change.

Analog Tune

If the presets of your SpazeDrum starts to sound very different from, what they are supposed to, its analog circuits might need to be tuned.

Before you start the analog tuning process, you should leave your SpazeDrum on, for at least one hour, and then enter this page.

When you have entered this page, simply push the Play button, to start the tuning process.

SpazeDrum will now automatically perform the tuning process, and jump back to the Setup main page, when it is done.

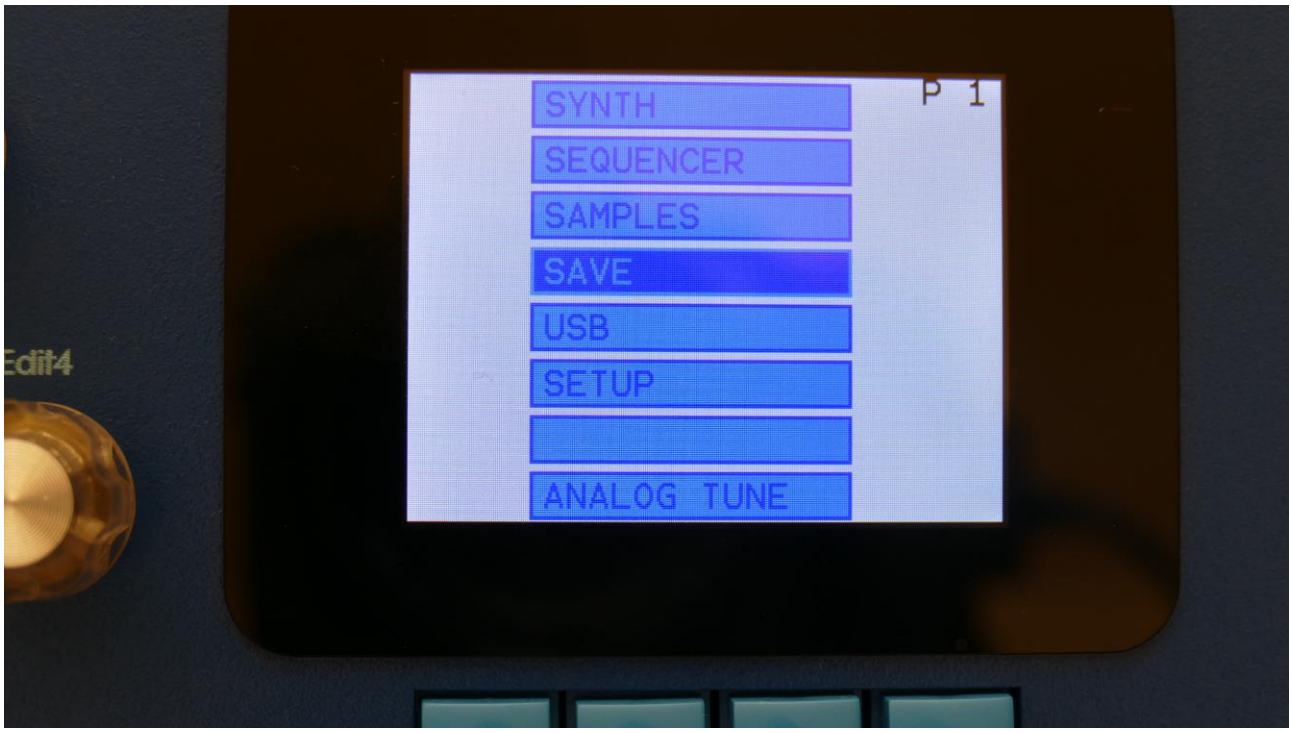
The whole process will take a couple of hours. Please don't interrupt SpazeDrum while it is tuning. This might cause it to malfunction.

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 SpazeDrum.

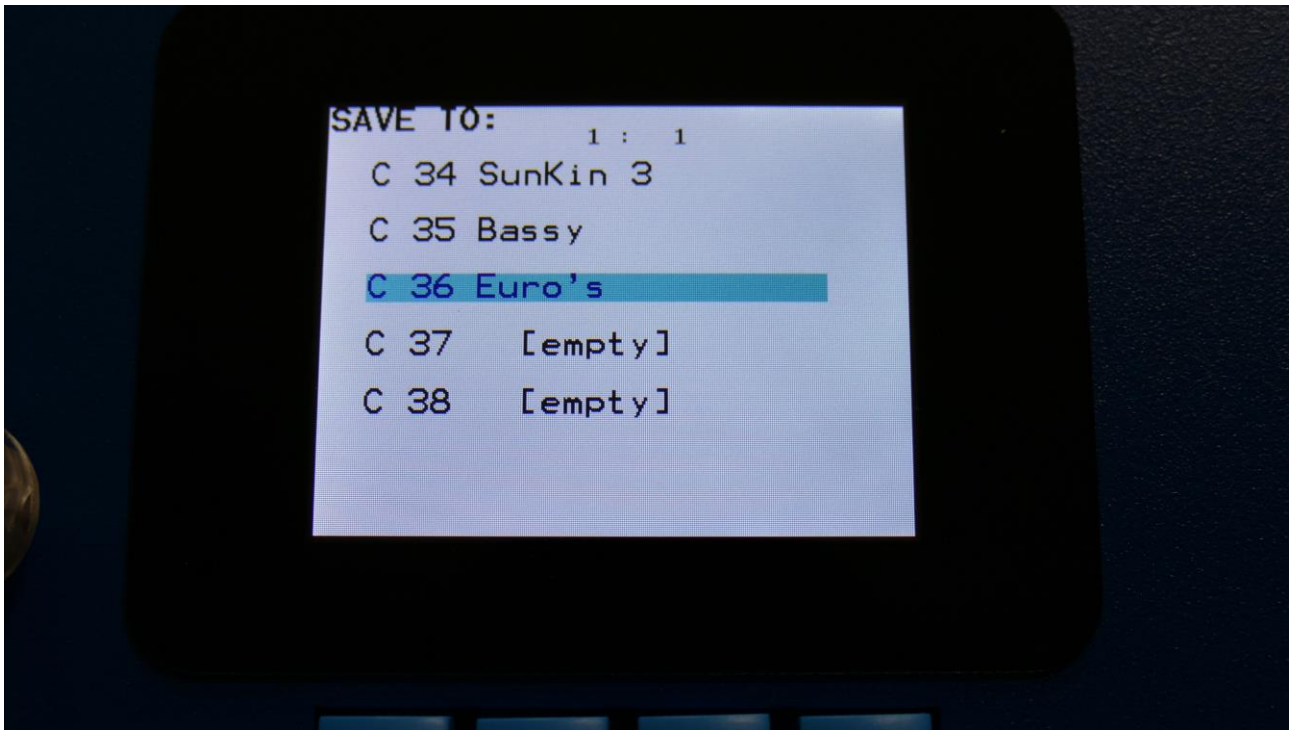
A preset that is saved on SpazeDrum contains all the data previously described in this manual:
-All sequencer data
-All drum parts settings
-All effects settings

From the Preset Select screen, push the Edit button, or touch the SAVE module on SpazeDrum Black. It is also possible to enter the save pages, by using the quick jump buttons, as described in the “Operating SpazeDrum” chapter (Hit the Func/mute button, so it lights up, and hit step button 15, marked “Save”).



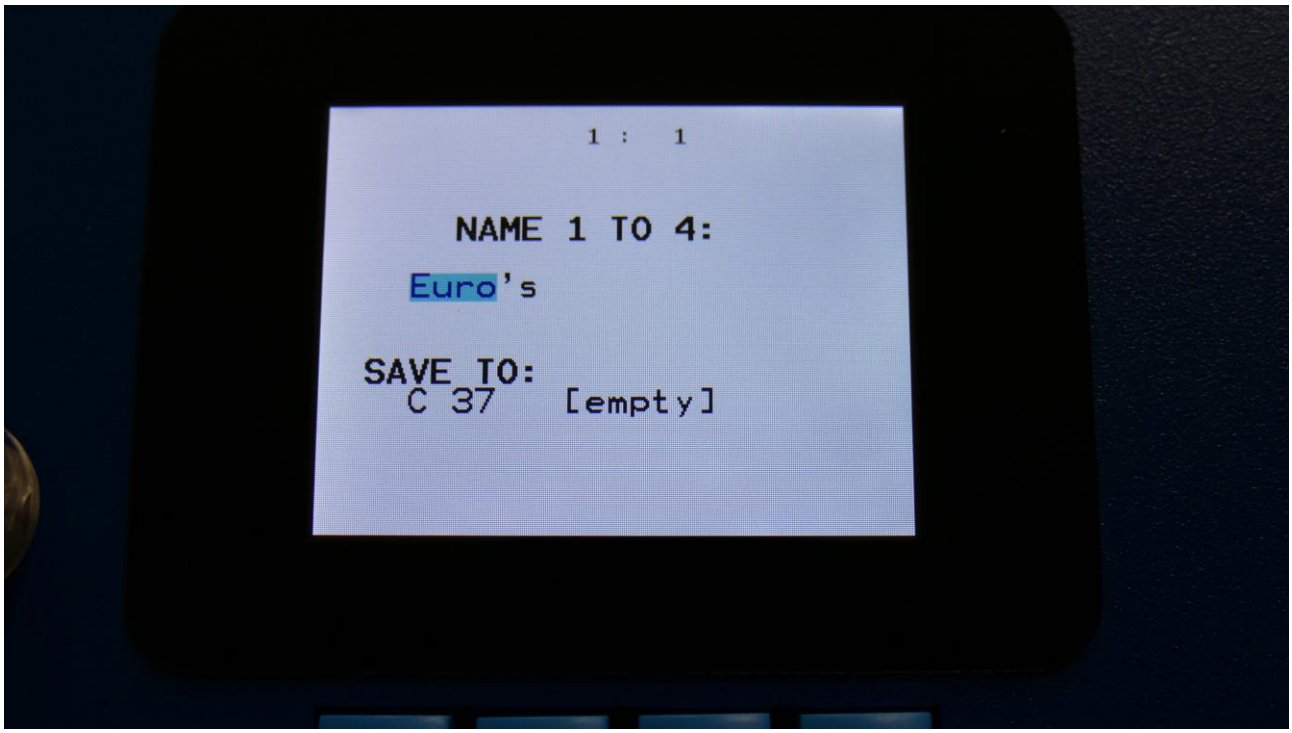
Select SAVE, using the < and > buttons, and hit the Edit button.

You should now enter this page:

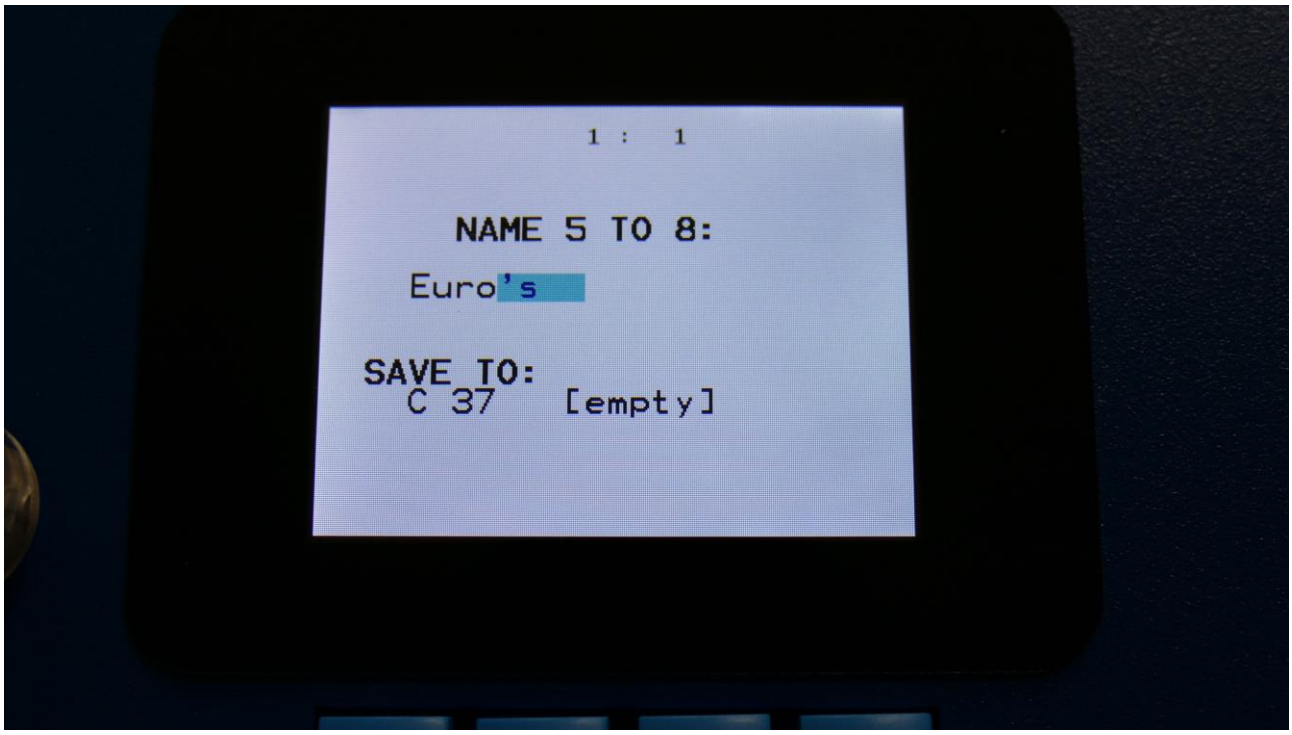


Preset number and name is shown for presets that are already saved. If you save your new preset on such a location, the old preset will be overwritten. On preset locations, where a preset has not yet been saved, the name will be shown as ”[empty]”.

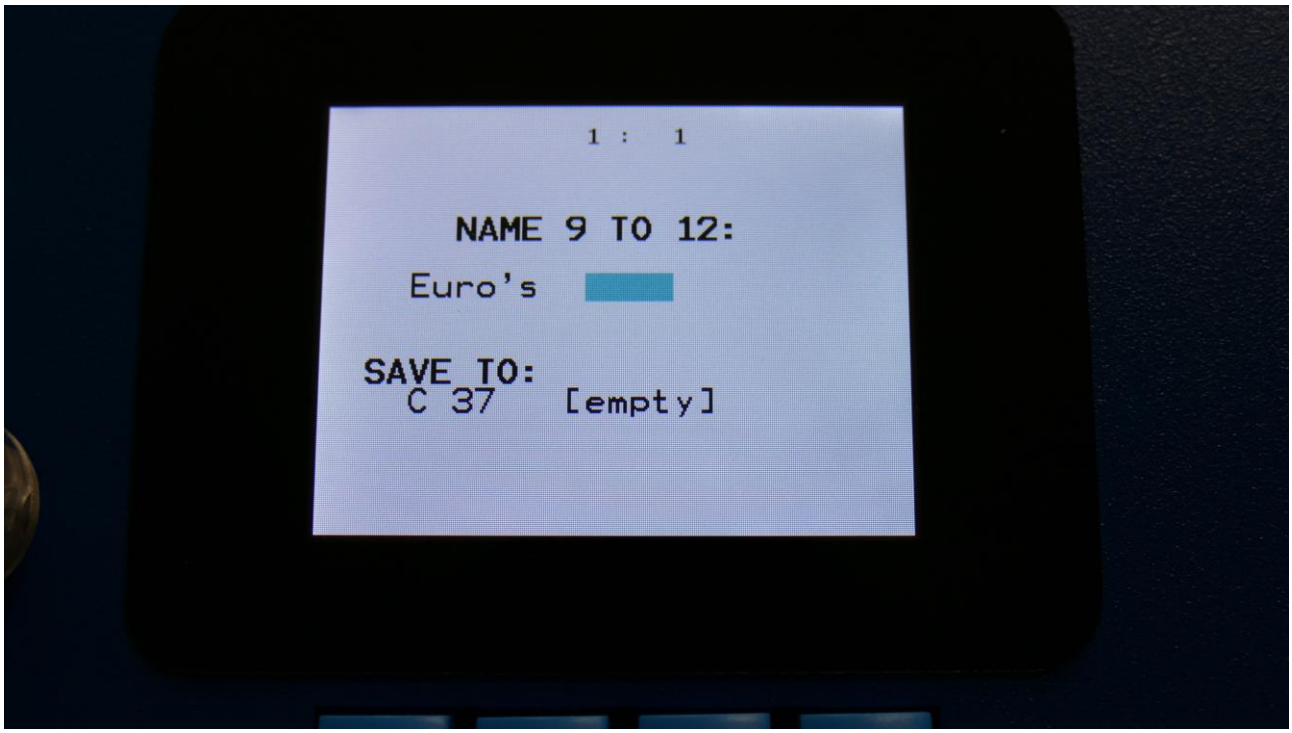
Select the preset location, on which you would like to save your new preset, using the < and > buttons. Push the Edit button to enter the next Save page.



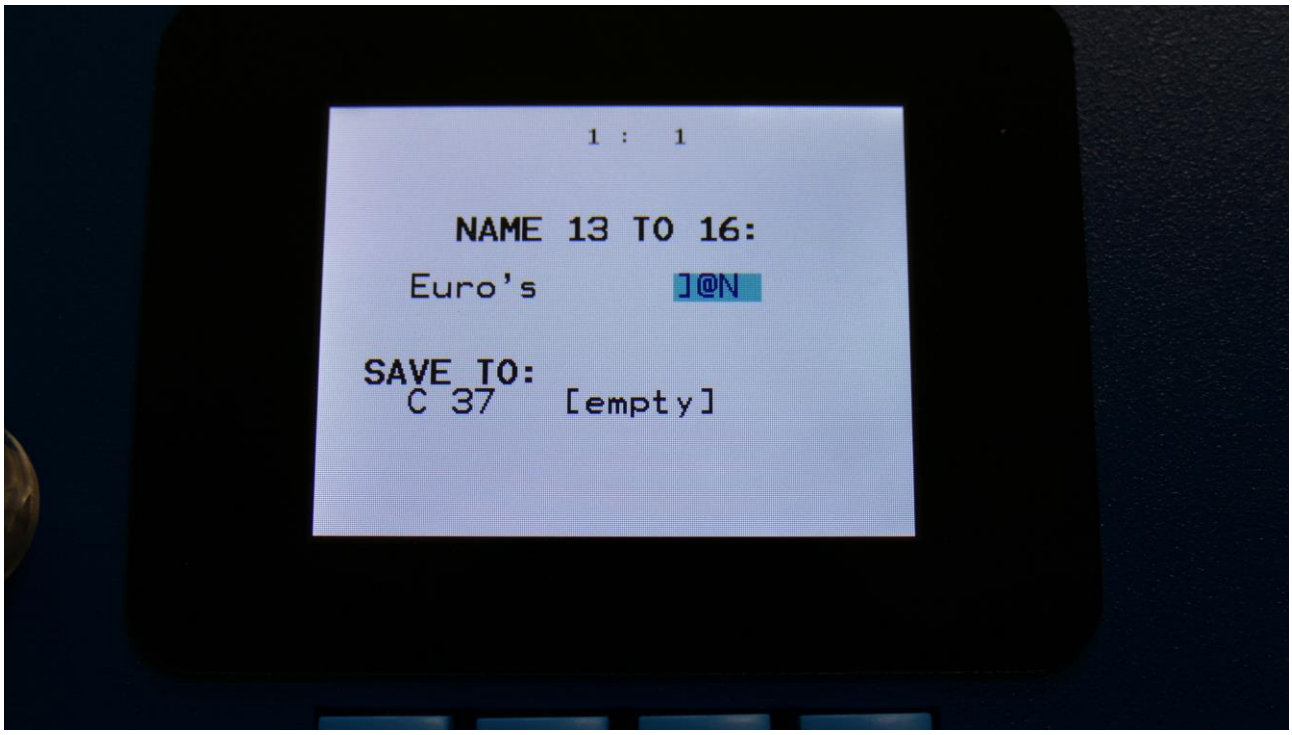
Set the first 4 letters of the new preset name, using Edit Knob 1-4. The preset name can be up to 16 characters long. Push the Edit button to advance to the next save page.



Set the next 4 letters of the new preset name, using Edit Knob 1-4. Push the Edit button to advance to the next save page.



Set the next 4 letters of the new preset name, using Edit Knob 1-4. Push the Edit button to advance to the next save page.



Push the Edit button when you are done. Your preset will now be saved, and SpazeDrum 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, it can be set how many times track one of the preset should play back, until it advances to the next song step, and tracks can be muted/unmuted.

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 putting the sequencer in Rec mode, and then play back the presets that you want in your song.

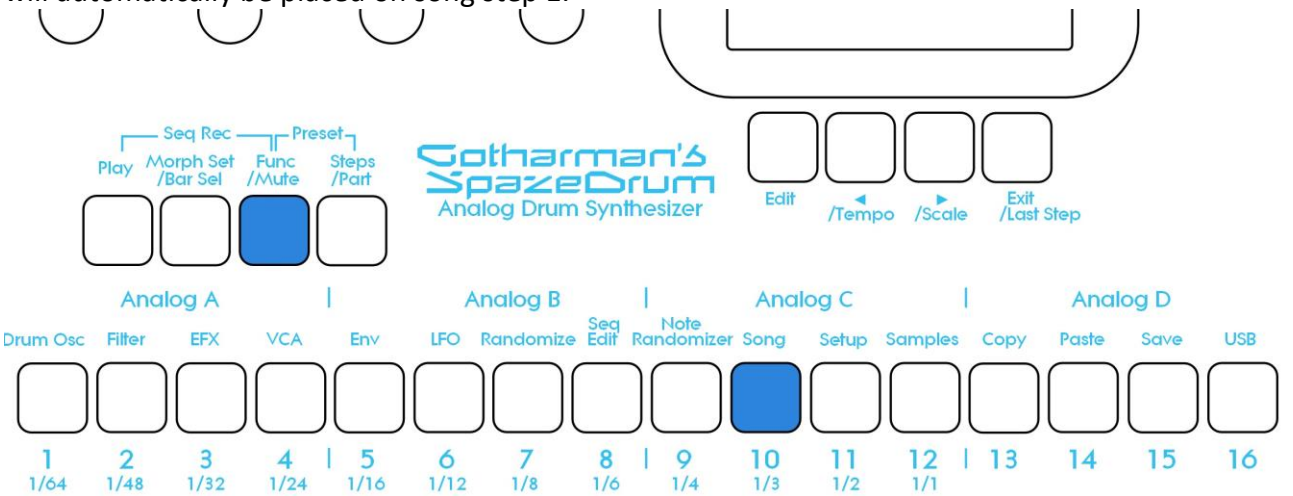
Songs can also be recorded/edited by putting the Preset numbers and number of times to play back, into a list.

Any presets can be used in any songs.

In song mode you still have access to edit all preset drum part 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.

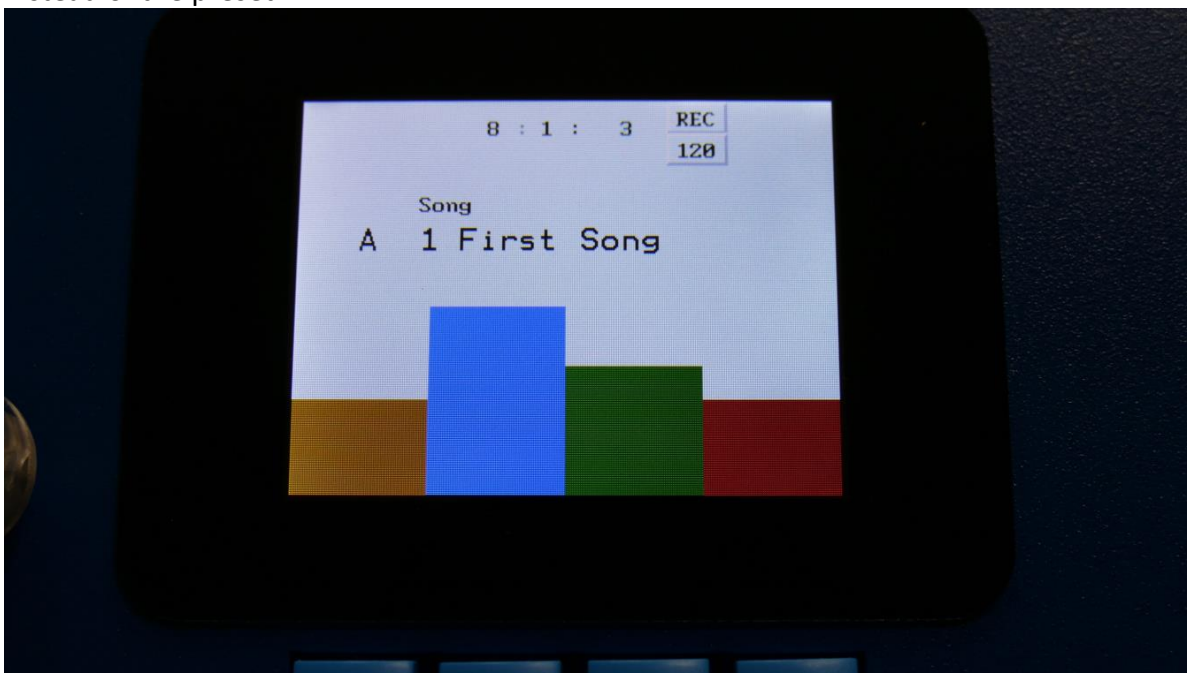
Accessing Song Mode

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 enter 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.



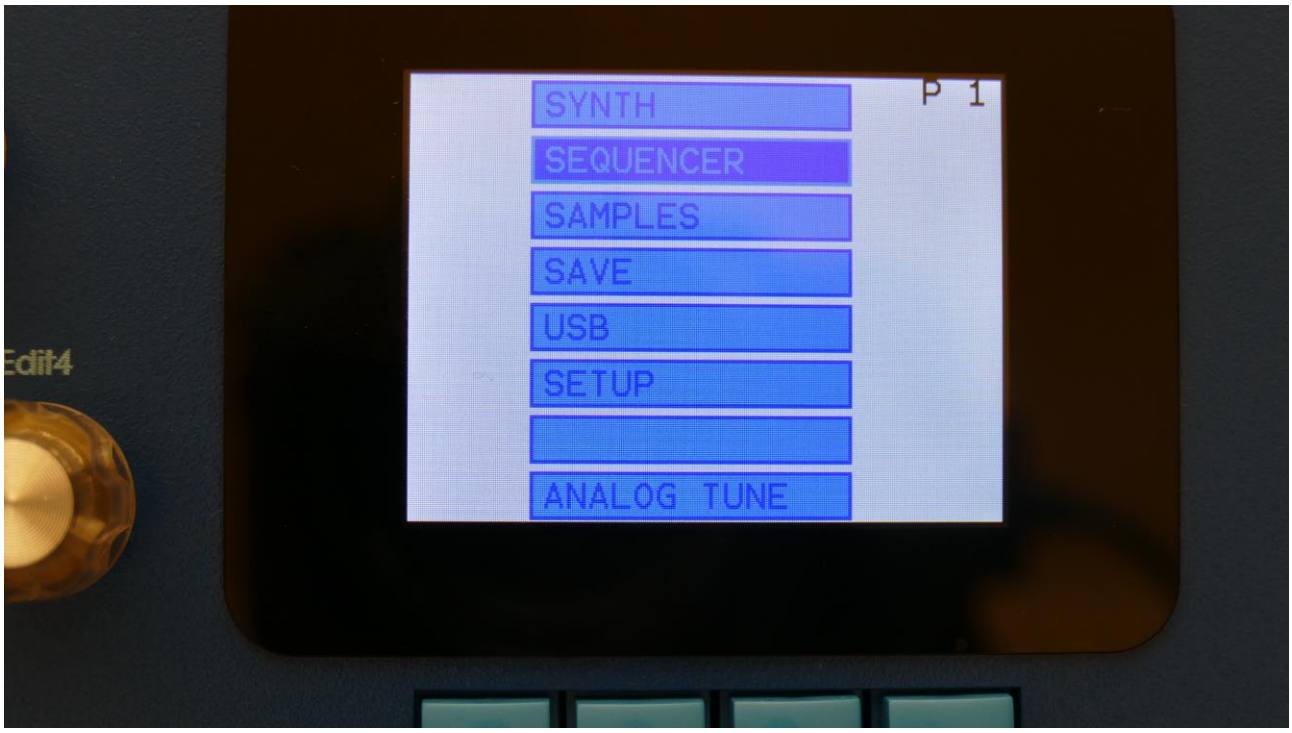
To put Spazedrum in Song mode, push and release the Func/Mute button, so that it lights up. Now press step button 10 (song) for around 3-4 seconds, until this lights up too. It is only possible to switch between preset and song mode, while the sequencer is stopped. To go back to preset mode, perform the same operation again

SpazeDrum are now in song mode, and the current song will be shown on the Preset Select page, instead of the preset.

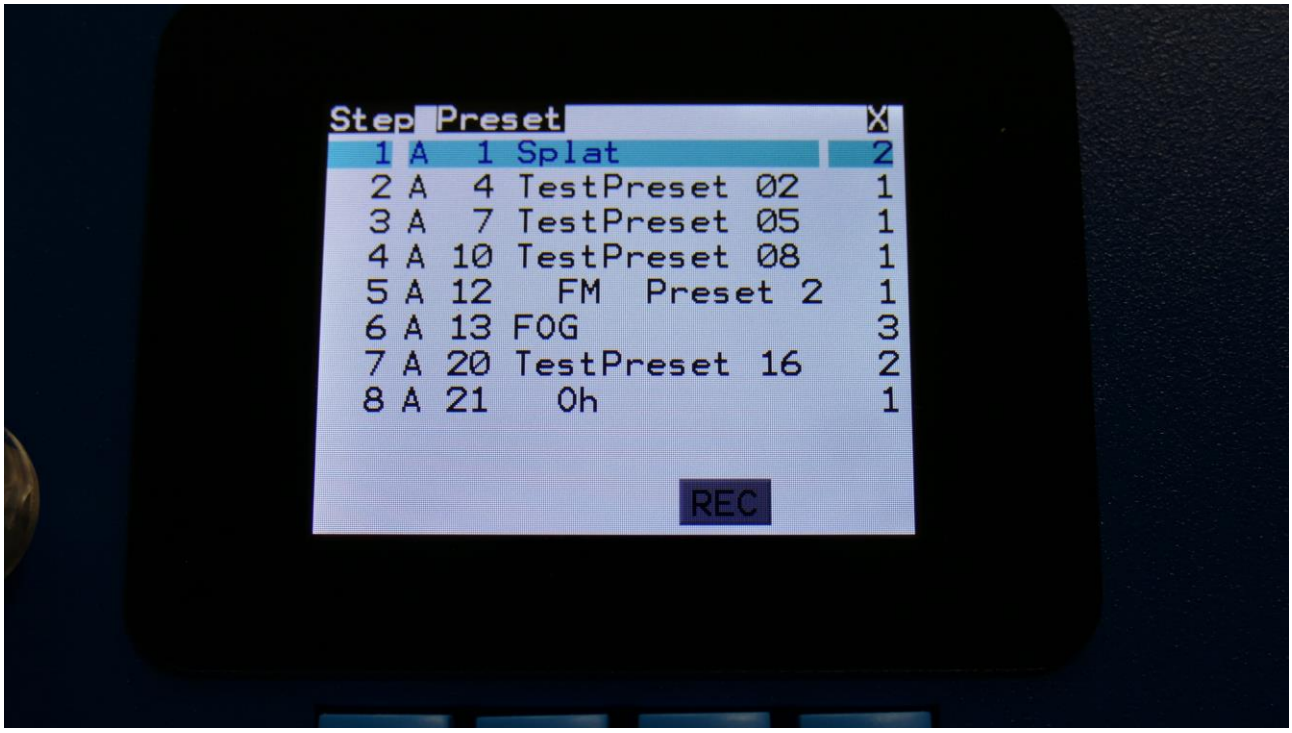


The Song Edit Page

To enter the Song Edit page, from the Song Select page, push the Edit button, or touch the SEQUENCER module on SpazeDrum Black.



Select SEQUENCER, using the < and > buttons, and push the Edit button. You will now enter the Song Edit page.



On the Song Edit page, you have an overview of the programmed song steps, and the possibility of editing these.

By pushing the < and > buttons, you can select a step for editing. The selected step is shown, boxed in blue. A 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.

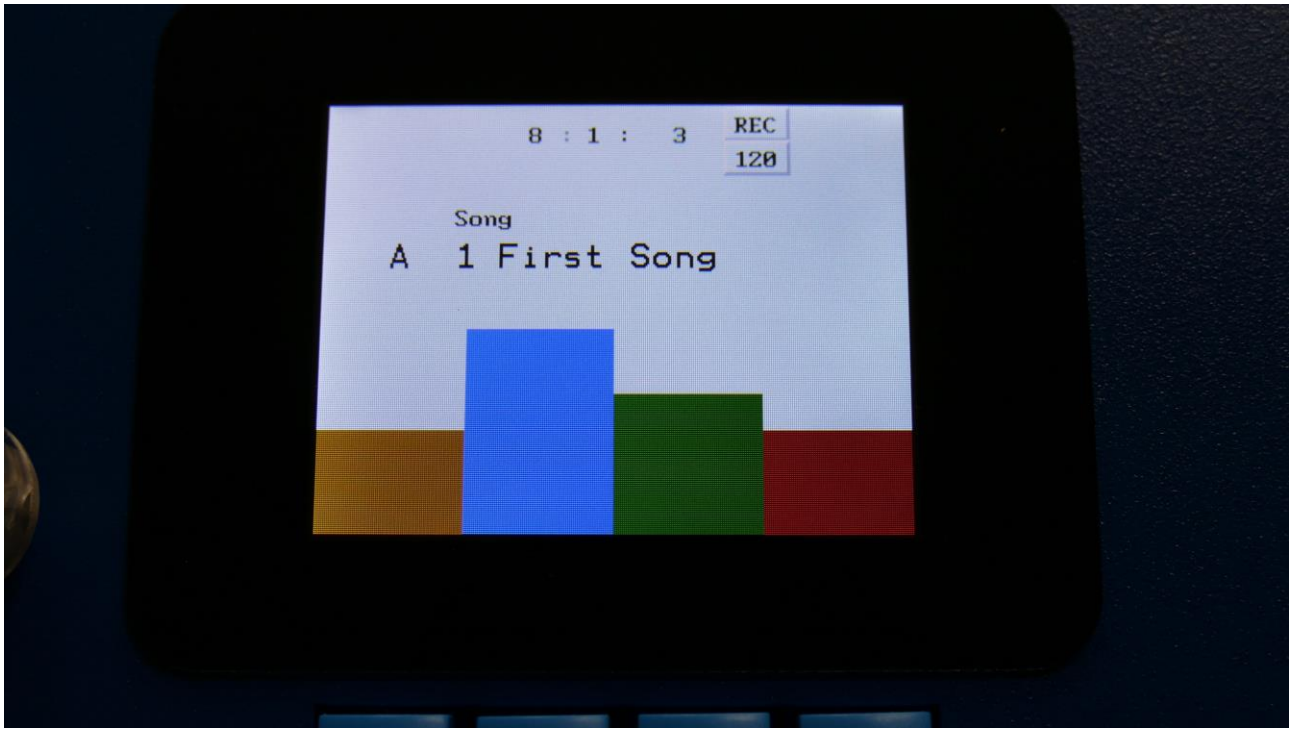
Turn edit knob 2 to select the preset number, and edit knob 3 to select the number of times, you want track 1 to play back, for that step.

Push and hold the Func/Mute button, to mute/unmute tracks on the selected song step, via the step buttons. Only tracks that are unmuted in the preset itself, can be muted by the song sequencer.

8 song steps are shown at a time. When the 8th step is selected, and you push the > button, it will advance to the next 8 steps. When the first step is selected, and you push the < button, it will go back to the previous 8 steps.

Push the Exit button to exit from the Song Edit page.

The Song Select Page



When you, in song mode, exit from the Edit 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.

Another change to this, compared to the Preset Select page, is that when you push the < and > buttons on this page, you will now change song instead of preset. 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 drum part parameters of the currently playing preset.

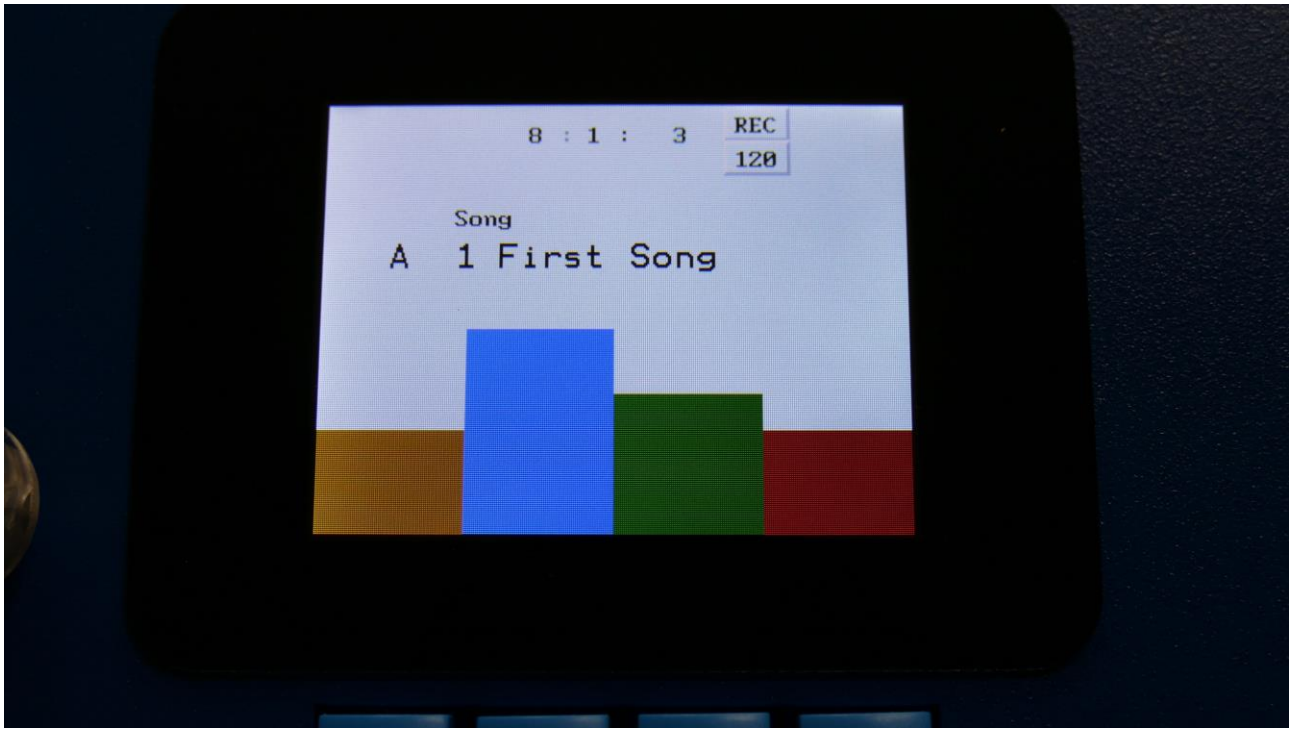
Selecting a song:

Make sure that the sequencer is stopped.

Push the < or > button to select the previous or next song. 1024 songs can be selected, from A01 to P64.

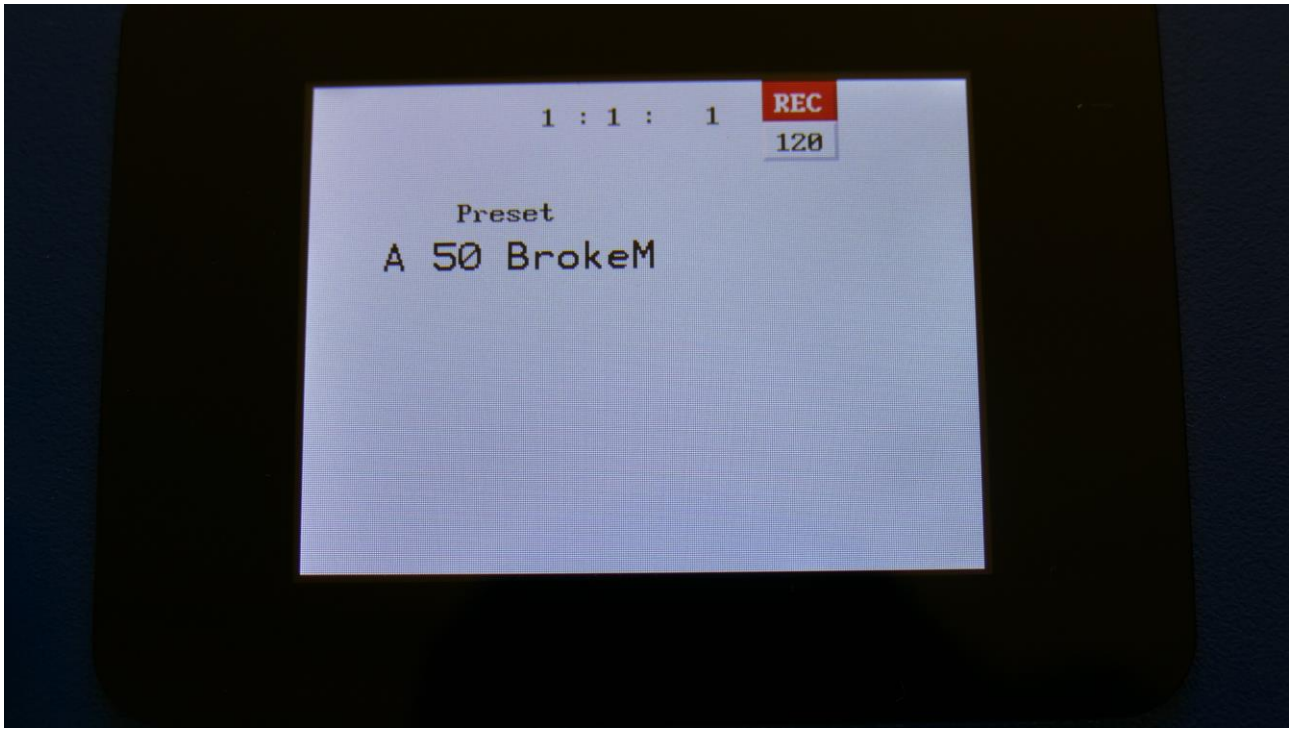
When SpazeDrum is turned off, it will remember which song was selected, and start up with this, when turned on again. It will also remember if it was in preset or song mode, and start up in the same mode.

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 put the SpazeDrum sequencer in Rec mode, by pushing and holding the Func/Mute button, while pushing the Play button.



SpazeDrum will now show the Preset select page. The REC indicator on the preset select page, has now turned red, indicating that SpazeDrum is in recording mode.

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 Play button.

If you would like another preset on step 1 of your song, please select this, using the < and > buttons, and then push the Play button, to start the recording of the song.

The preset you selected will now start to play back.

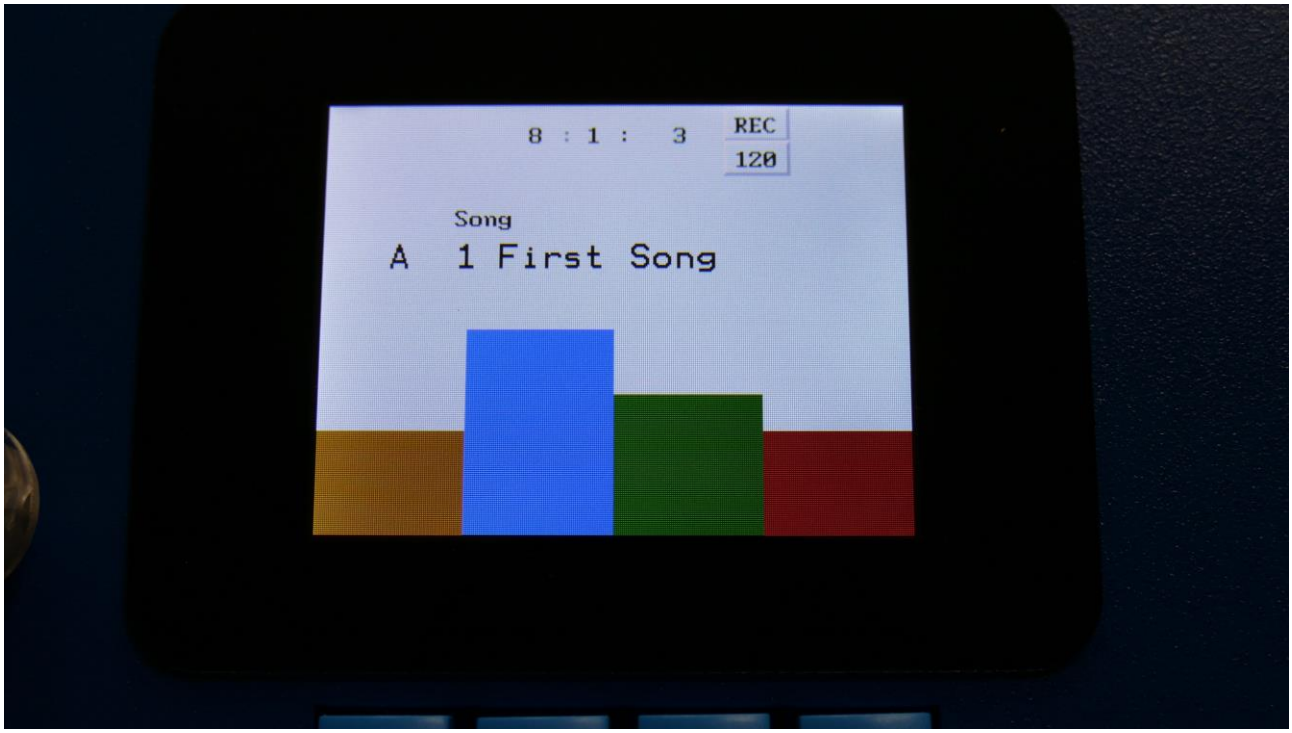
From here you can now select other presets, at the time you want these to play back in your song.

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 have been registered, the song step number in the position ruler will increment by one.

While any preset is playing back, it is possible to mute/unmute the sequence tracks. Push and hold the Func/Mute button, and switch tracks on or off, using the step buttons.
To advance to the next song step, to have other tracks of the same preset muted/unmuted, simply reload the preset, by pushing and holding the Morph Set button, while pressing the Play button.

When you are done changing presets, and you think that your song is ready, hit the Play button to stop song recording.

Push and hold the Func/Mute button, while pushing the Play button, to exit song rec mode. SpazeDrum will now return to the Song Select page, and the REC indicator will turn white.



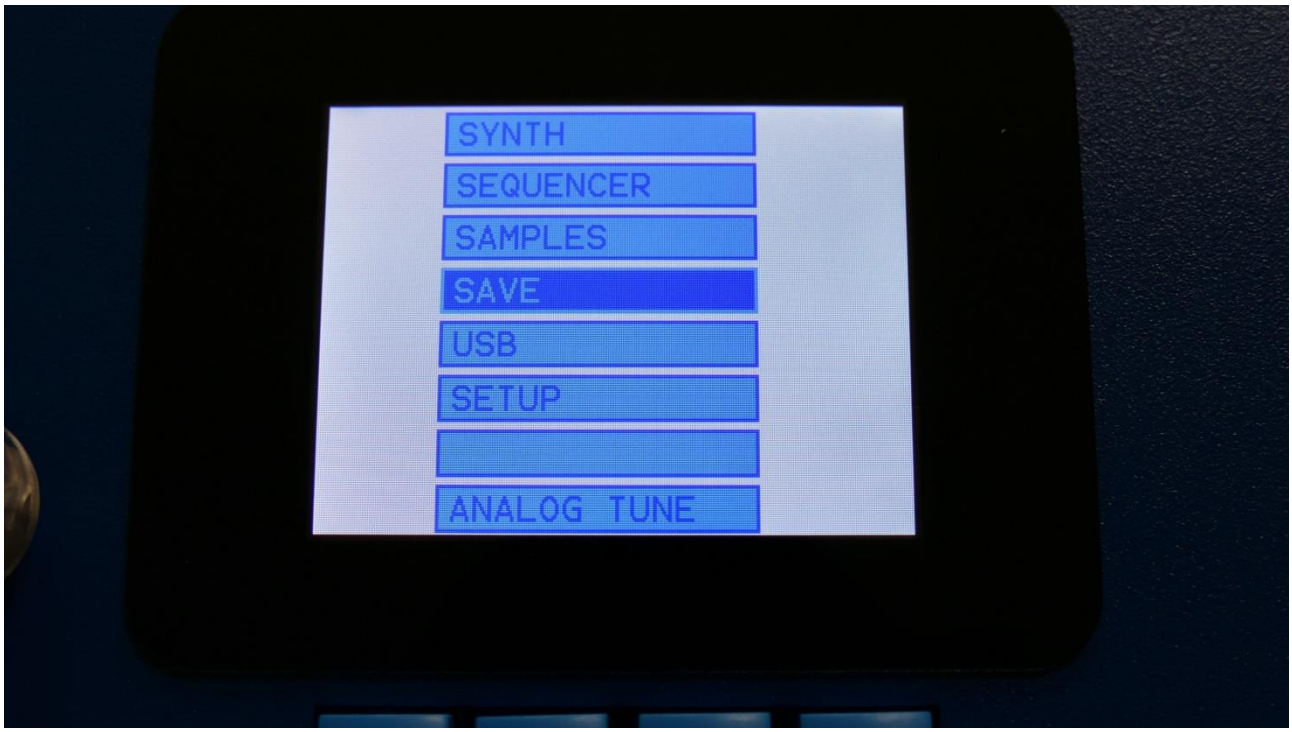
To listen to the song you have just created, just hit the Play button.

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.

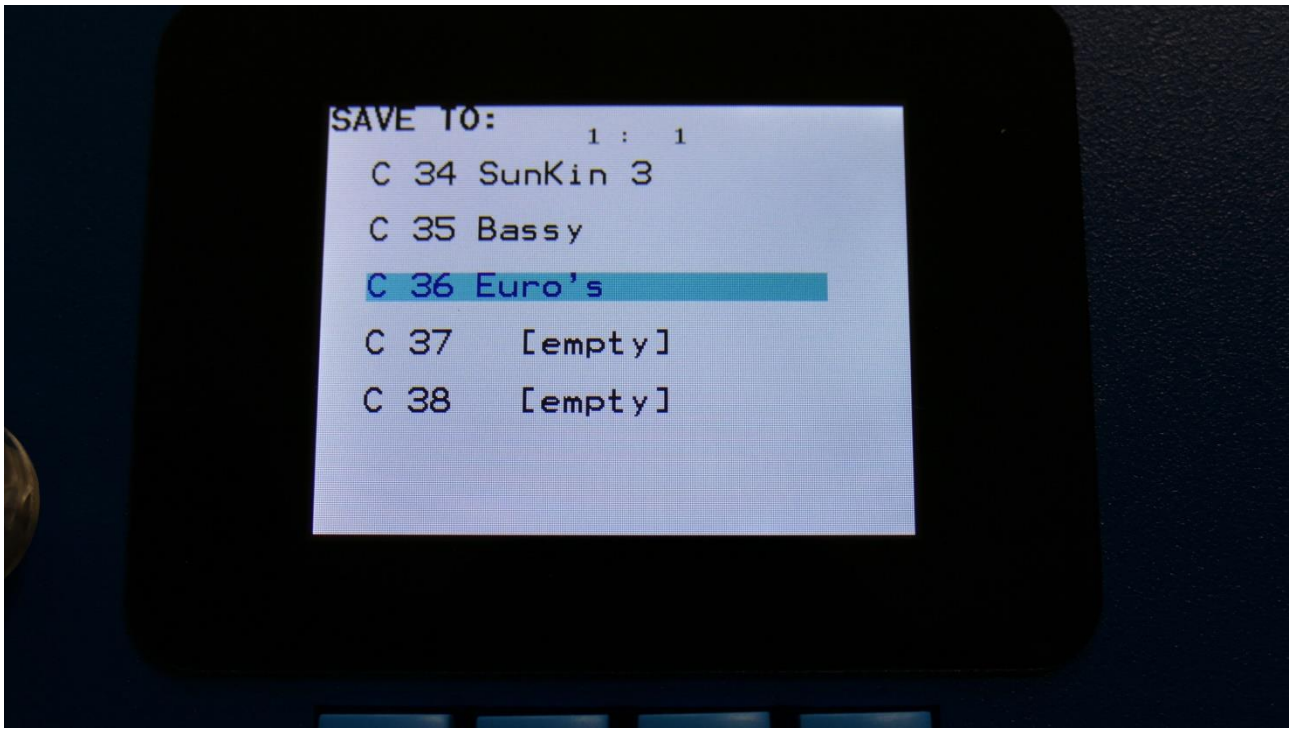
Save Song

SpazeDrum 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, push the Edit button. It is also possible to enter the save pages, by using the quick jump buttons, as described in the “Operating SpazeDrum” chapter (Hit the Func/mute button, so it lights up, and hit step button 15, marked “Save”).



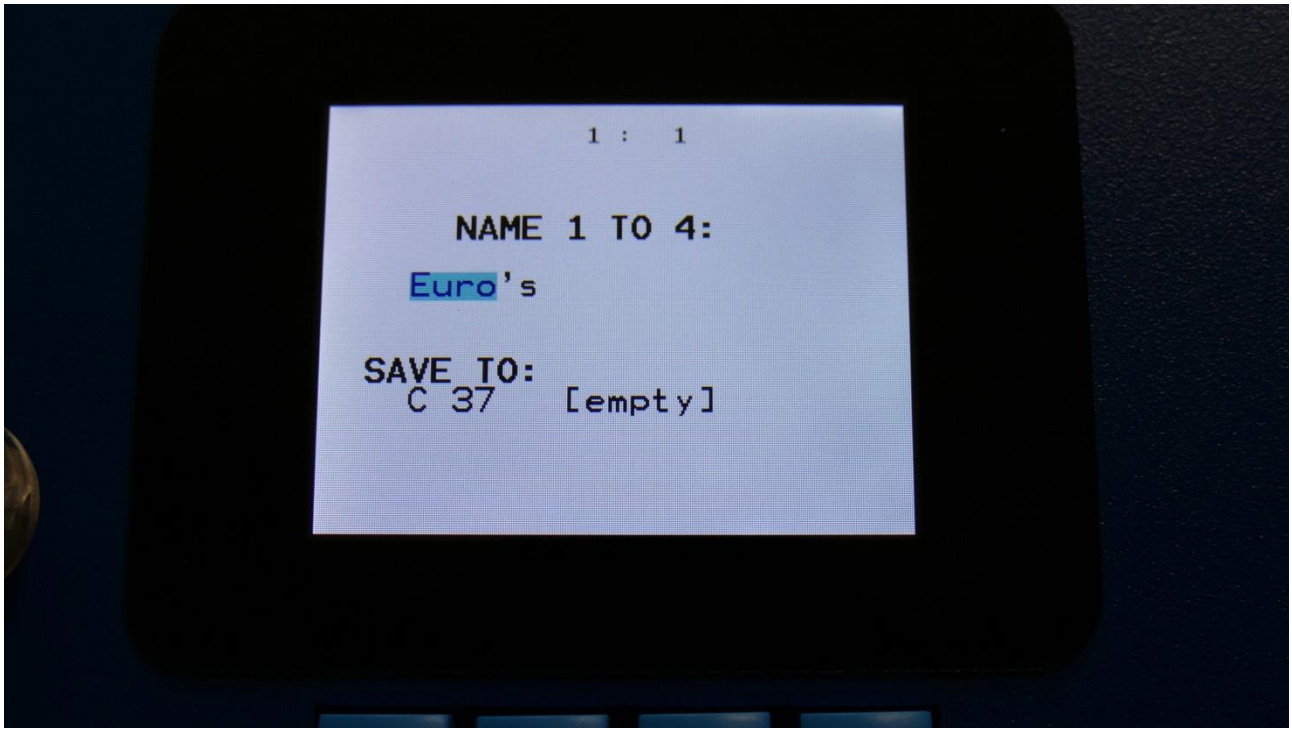
Select SAVE, using the < and > buttons, and hit the Edit button, or touch the SAVE module on SpazeDrum Black.

You should now enter this page:

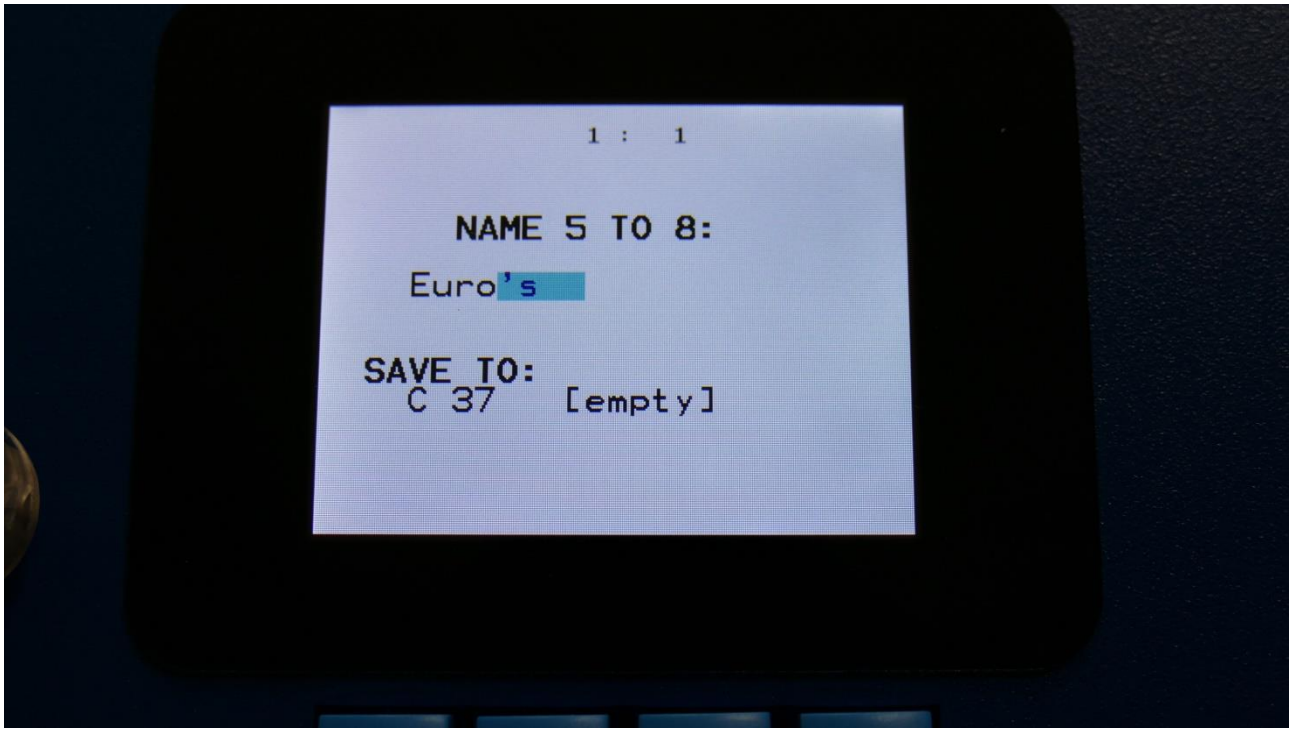


Song number and name is shown for songs that are already saved. If you save your new song on such a location, the old song will be overwritten. On song locations, where a song has not yet been saved, the name will be shown as ”<empty>”.

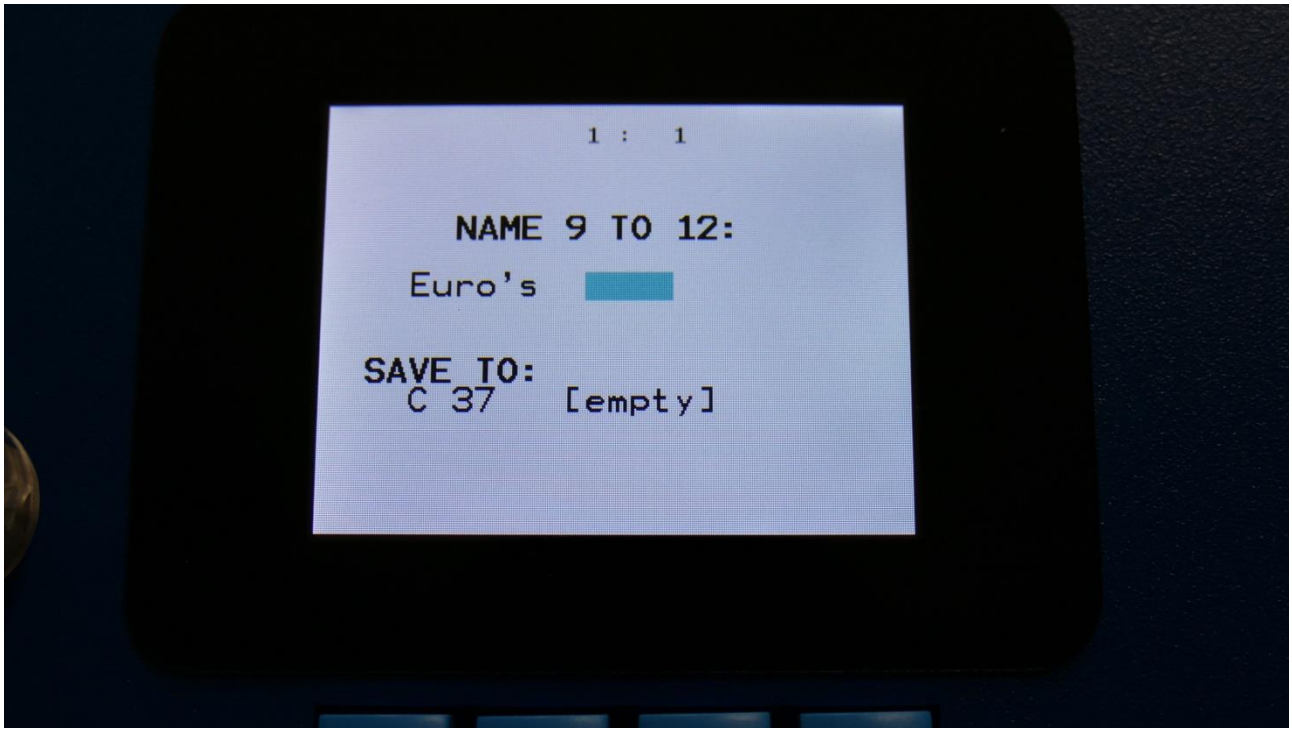
Select the song location, on which you would like to save your new song, using the < and > buttons. Push the Edit button to enter the next Save page.



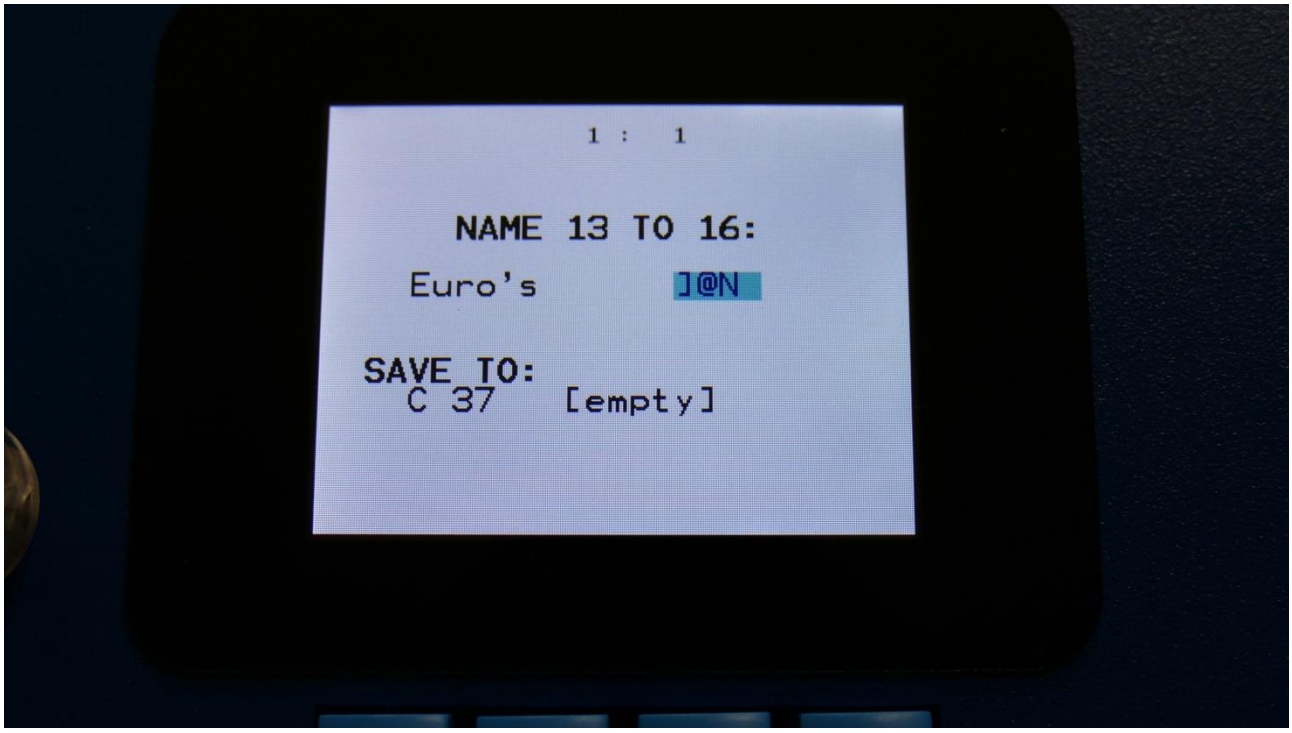
Set the first 4 letters of the new song name, using Edit Knob 1-4. The song name can be up to 16 characters long. Push the Edit button to advance to the next save page.



Set the next 4 letters of the new song name, using Edit Knob 1-4. Push the Edit button to advance to the next save page.



Set the next 4 letters of the new song name, using Edit Knob 1-4. Push the Edit button to advance to the next save page.



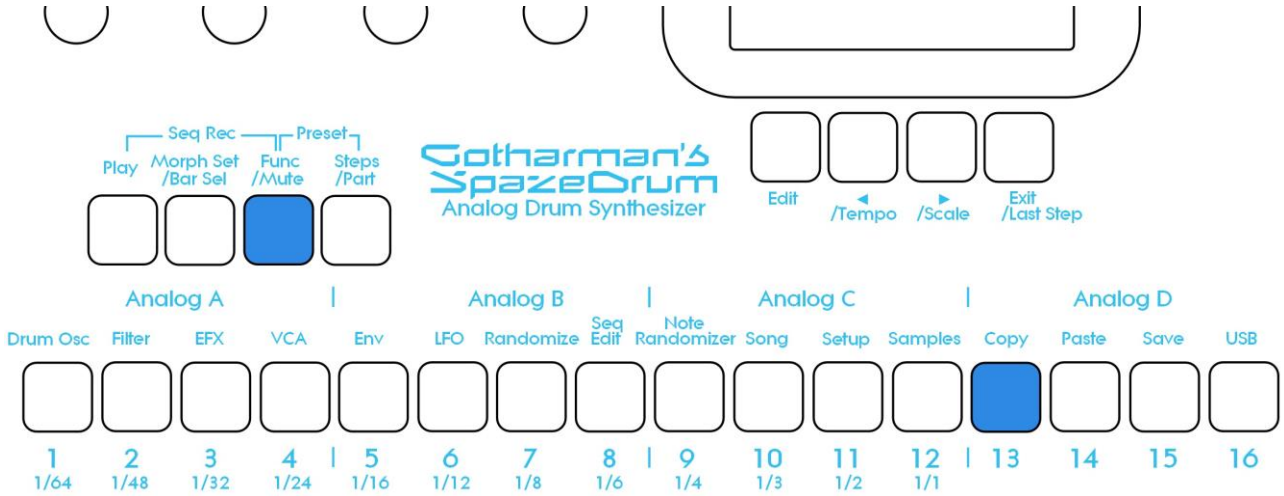
Push the Edit button when you are done. Your song will now be saved, and SpazeDrum will exit from the save pages.

Copy/Paste

On SpazeDrum it is possible to copy morph layer A, B or the parameter setting at the position of the Morph knob. It is possible to copy one or two layers of the whole preset, or only a section of the preset, like a drum part, the settings of an effect, a sequencer track, and much more.

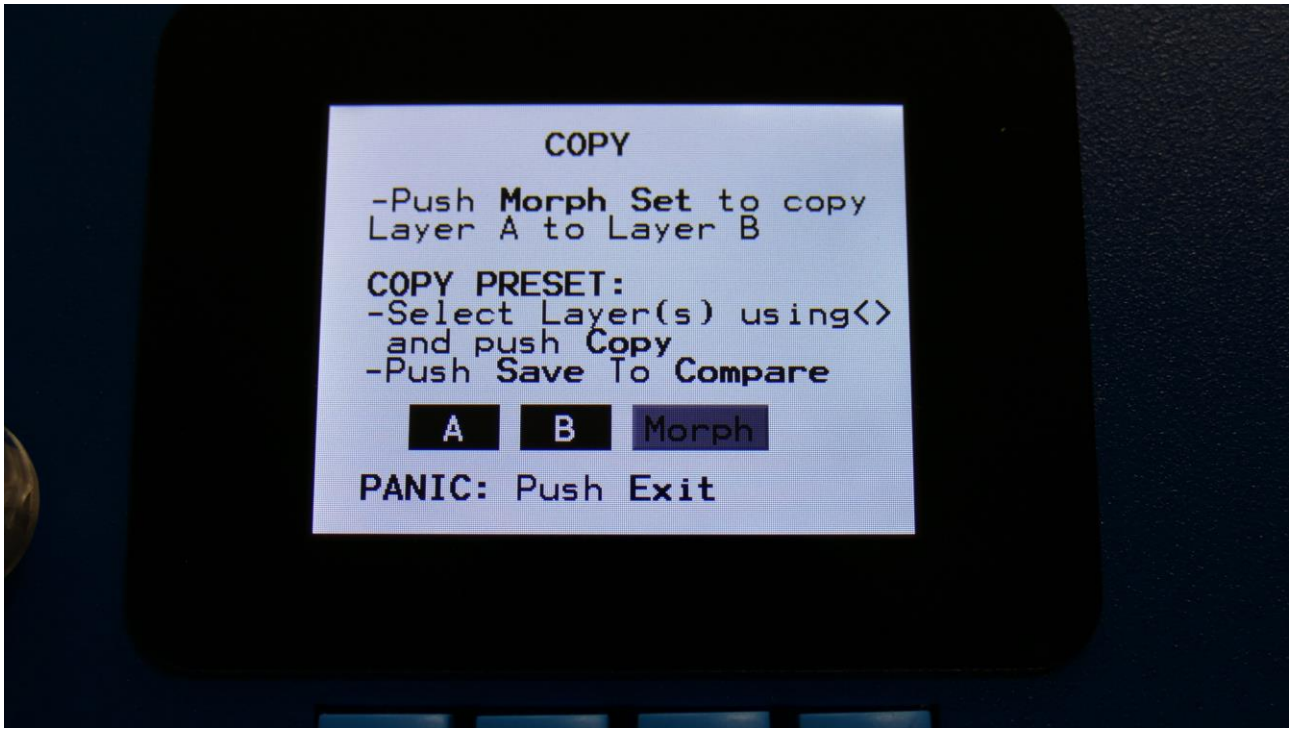
Whatever is held in the copy buffer can then be pasted to another preset or another section.

To copy anything, first go to the page, that will make SpazeDrum copy the desired settings. Possibilities are:
-Preset select page: SpazeDrum will copy one or two layers of the whole preset.
-Drum part page (Any drum part page, except for the EFX): SpazeDrum will copy one or two layers of the selected part. Included in this are the oscillator, the analog filters, the digital filters, VCA and Envelope settings. The effects are not included.
-Drum Oscillator page:SpazeDrum will copy one or two layers of the selected part. Included in this are the oscillator, the analog filters, the digital filters, VCA and Envelope settings. The effects are not included.
-Analog Filter page: SpazeDrum will copy one or two layers of the selected part. Included in this are the oscillator, the analog filters, the digital filters, VCA and Envelope settings. The effects are not included.
-Digital Filter page: SpazeDrum will copy one or two layers of the selected part. Included in this are the oscillator, the analog filters, the digital filters, VCA and Envelope settings. The effects are not included.
-VCA page: SpazeDrum will copy one or two layers of the selected part. Included in this are the oscillator, the analog filters, the digital filters, VCA and Envelope settings. The effects are not included.
-LFO page: SpazeDrum will copy one or two layers of the LFO settings, of the currently selected LFO.
-EFX page: SpazeDrum will copy one or two layers of the EFX settings, of the currently selected EFX.
-Sequencer overview page: One or two layers of all the sequencer tracks will be copied.
-Sequencer track page: One or two layers of the currently selected sequencer track will be copied.



When you are located at the right page, push and release the Func/Mute button, so that it lights up, to enter the function buttons. Now hit step button 13 (Copy).

The display will now show some instructions:



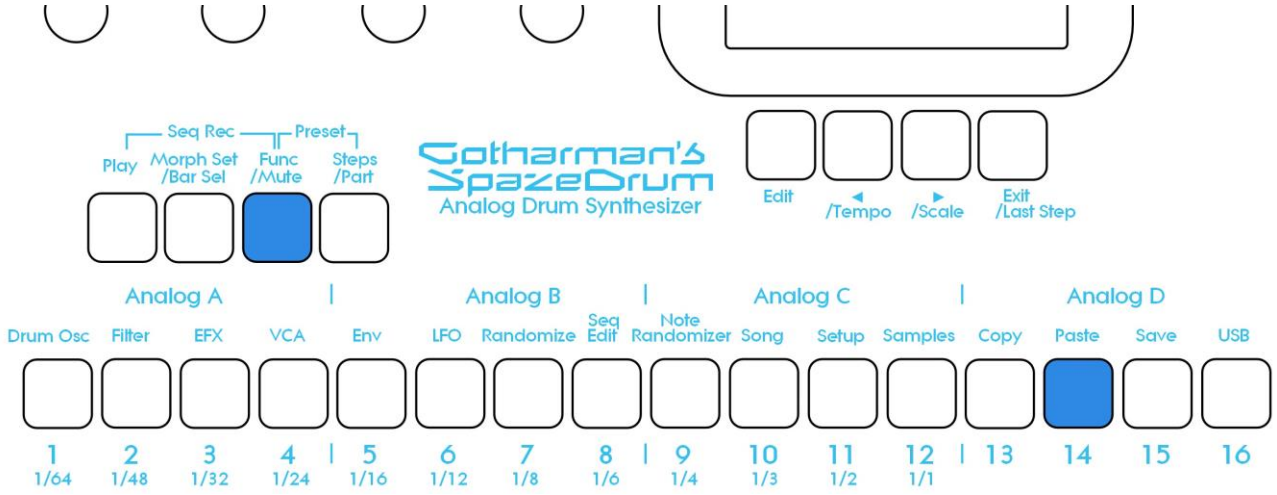
It will tell you how to copy layer A to layer B, and right below this, it will tell you, what it will copy. In the example, the copy function was entered from the preset select page, and SpazeDrum tells you, that it will copy the whole preset.
If you had entered the copy page from a filter page, it would have said “COPY Part 1” instead.

Now select/deselect the desired layers. Push the < button to toggle layer A on and off. Push the > button to toggle between layer B, Morph layer and layer B plus Morph layer off. If a layer button is black, it means that this layer will be copied, if it is grey, the layer will not be copied. It is only possible to copy either layer B or the morphed layer. It is not possible to copy both of these at the same time. Layer A can be switched on or off independently of the B/Morph selection. If 2 layers are copied, SpazeDrum will also paste to 2 layers. If only one layer is copied, SpazeDrum will paste to the layer selected by the Morph Set button. On SpazeDrum Black it is also possible to select the morph layers to be copied, by touching the buttons on the screen.

To copy, hit step button 13 (Copy) again.

Now, when the function buttons are active (the Func/Mute button lights up), every time you enter a page, where the copy buffer holds something, that can be pasted, step button 14 (Paste) will light up.

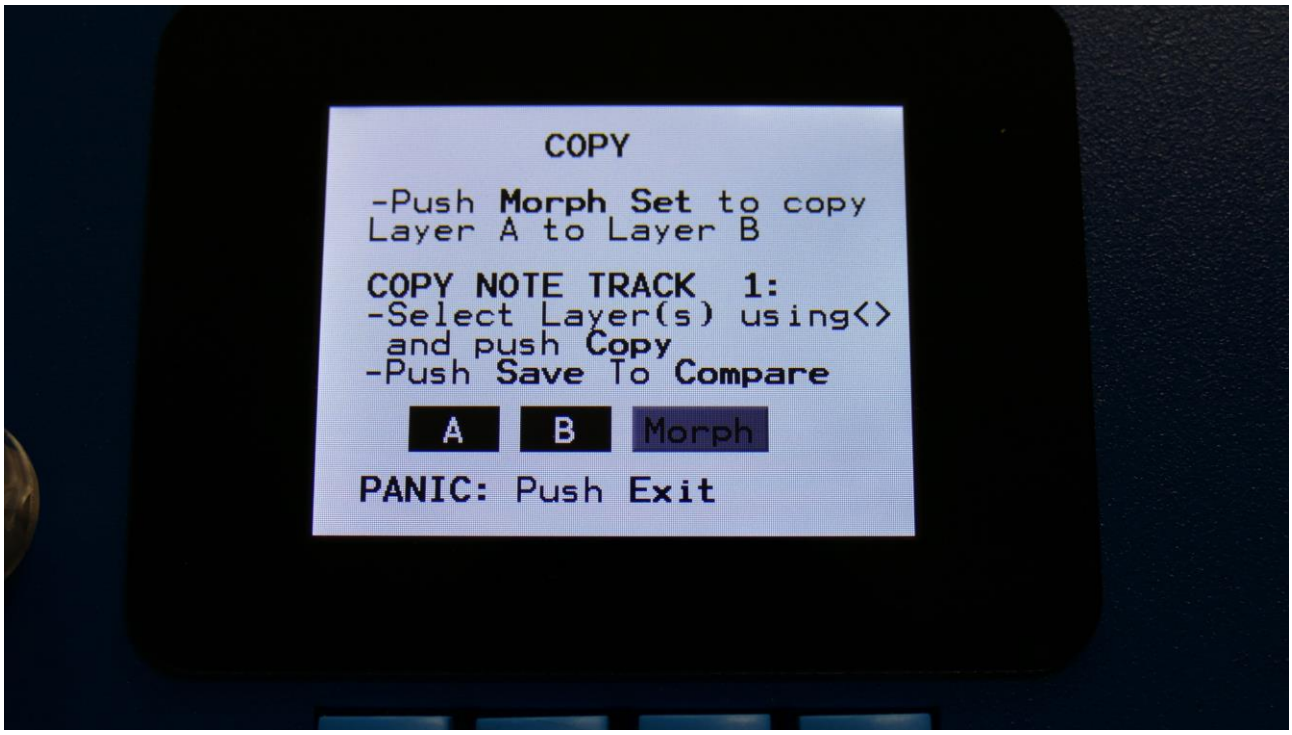
To paste something, navigate to the desired page, where you would like to paste the settings. Make sure that step button 14 (Paste) lights up. Hit step button 14 (Paste). Your settings has now been pasted.



Sequencer Steps Copy/Paste

It is possible to copy/paste a specific range of steps, from any location of a sequencer track, to any location of any track. This is possible only when copying a single track, not when copying all tracks or the whole preset.

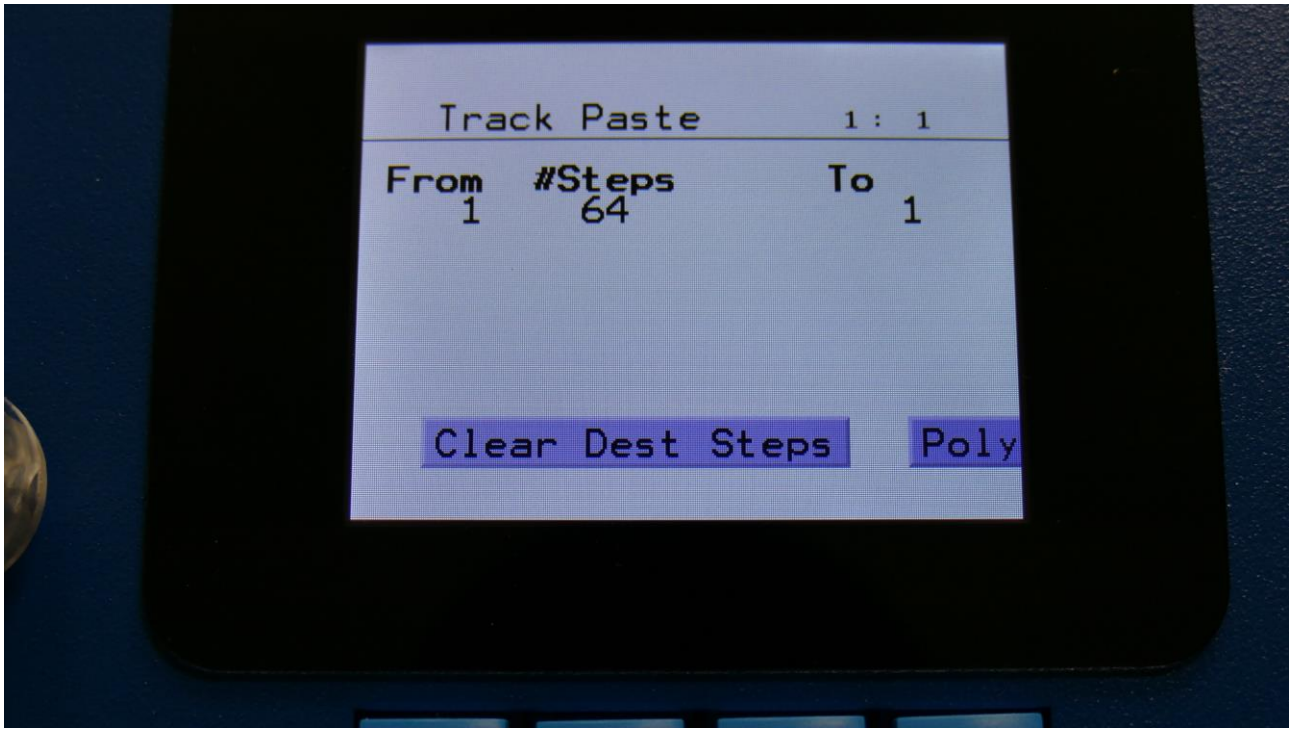
Simply go to the sequencer track, that you would like to copy from, and hit the Copy button, as usual. The Copy screen will now pop up:



As usual, simply hit the Copy button again, to copy the track.

Now, you can stay on the same track, to copy a range of steps, to another location of the same track, or you can go to another track, to paste all the steps, or a number of steps, to any location on this.

When you have navigated to the destination track, simply hit the Paste button, and this screen will pop up:



You can now set the following parameters:

From: The first step of the source track, that you would like to copy from. Range 1 to 64 on note tracks and 1 to 128 on controller tracks.

#Steps: The number of steps, that you would like to copy. Range 1 to 64 on note tracks and 1 to 128 on controller tracks.

#To: The step on the destination track, that you would like to paste the selected range of steps to. Range 1 to 64 on note tracks and 1 to 128 on controller tracks.

Additional options, on note tracks only:

Clear Dest Steps: Push the < button, to toggle this on and off. If you copy from or paste to a track, where the positions has been moved around, or “Poly” (explained below) is on, switching this function on, will make SpazeDrum clear all steps, which position is inside the range of the steps to be pasted, before the pasting.
If this function is off, and “Poly” is on, the steps will be placed on top of each other, without any steps being cleared. A sort of “overdub” pasting.

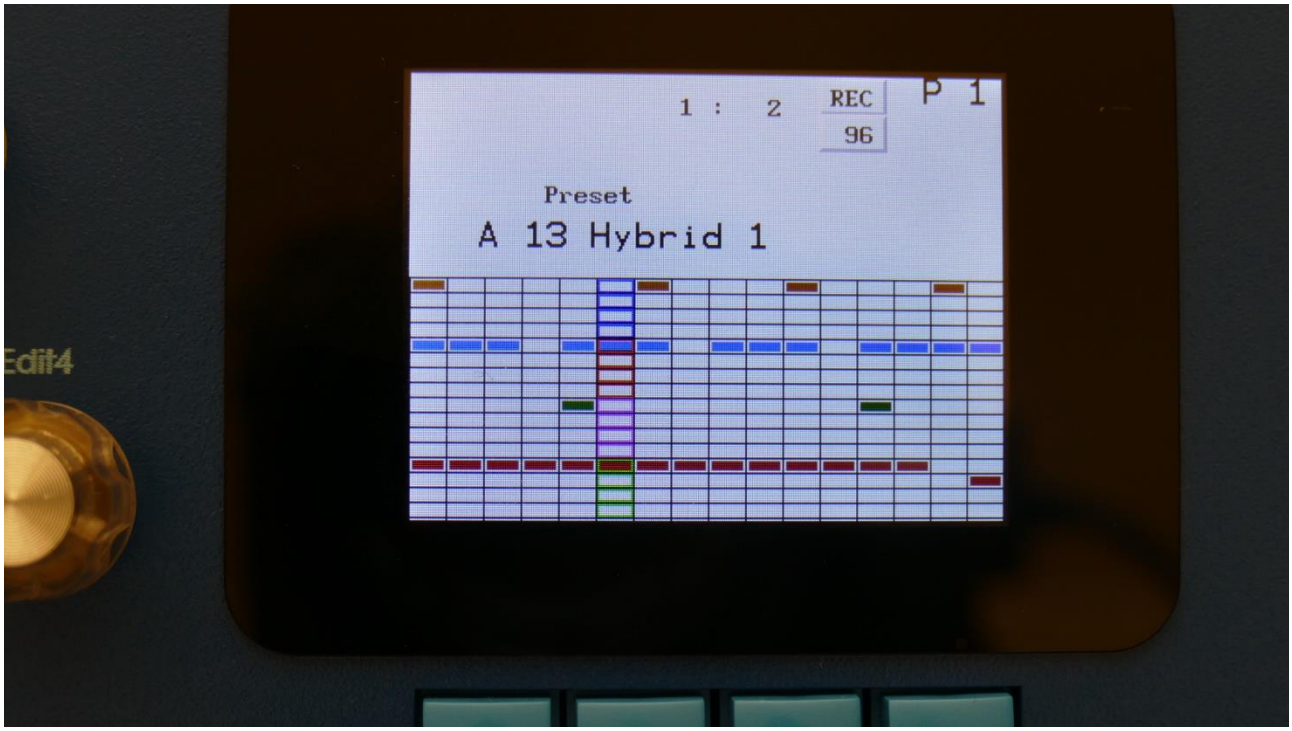
If you copy from and paste to a track, where the positions are linear (the position track has not been edited), and “poly” is off, steps will be overwritten anyway, so it doesn’t really matter, if this function is on or off.

Poly: Push the > button, to toggle this on and off. With this switched off, both the source and destination tracks will be treated as monophonic tracks, with a linear position track, going from position 1 to position 64, and steps will be copied 1 to 1 on the step locations, without altering the position track.
With this switched on, the destination track will be treated as a non-linear positions track, and steps will only be pasted to steps, that are already off. The position track will be altered.
If “Clear Dest Steps” is off, no steps will be overwritten.

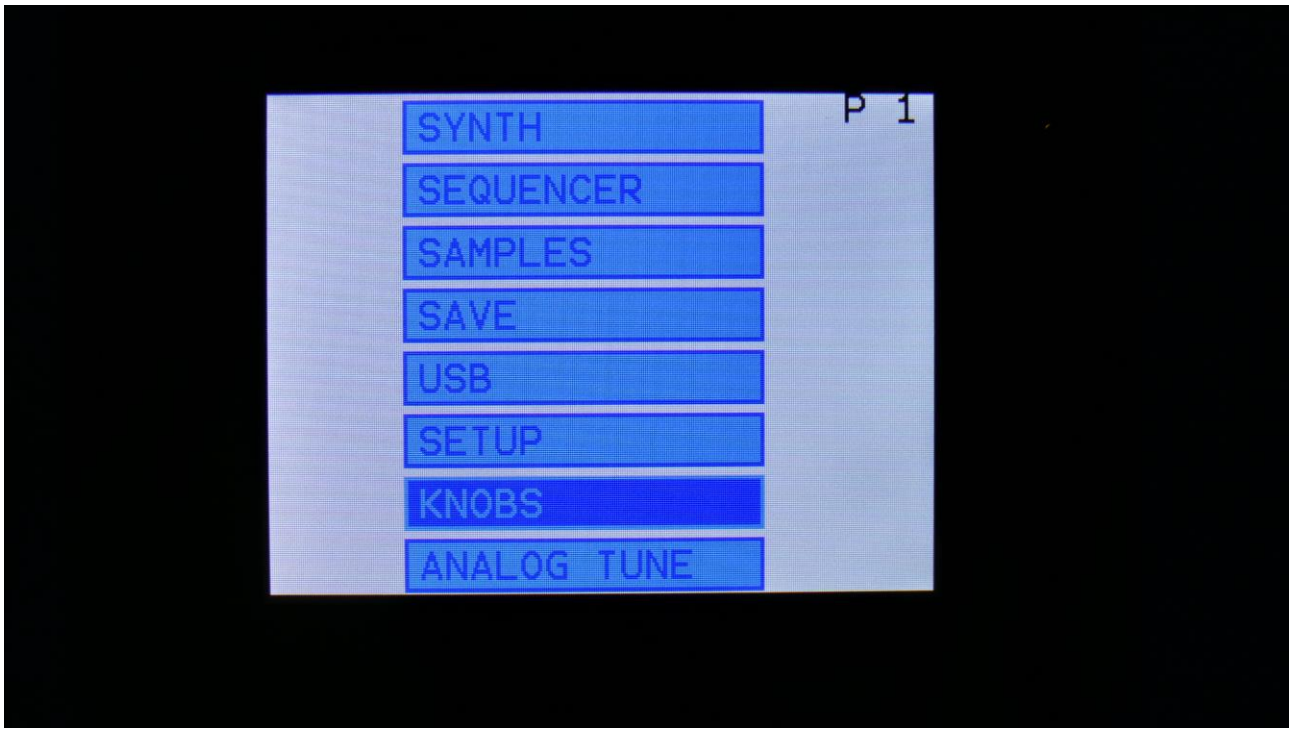
When entering the Track Paste Page, SpazeDrum will analyze both the source and destination tracks, and if any of these are non-linear positions tracks, it will automatically switch Poly on. If both tracks are monophonic tracks, it will switch Poly off. You should only change this setting to deform things…

When you have done your settings, simply hit the Paste button again, and your steps has been copied.

Edit Knobs And X/Y Controller Setup

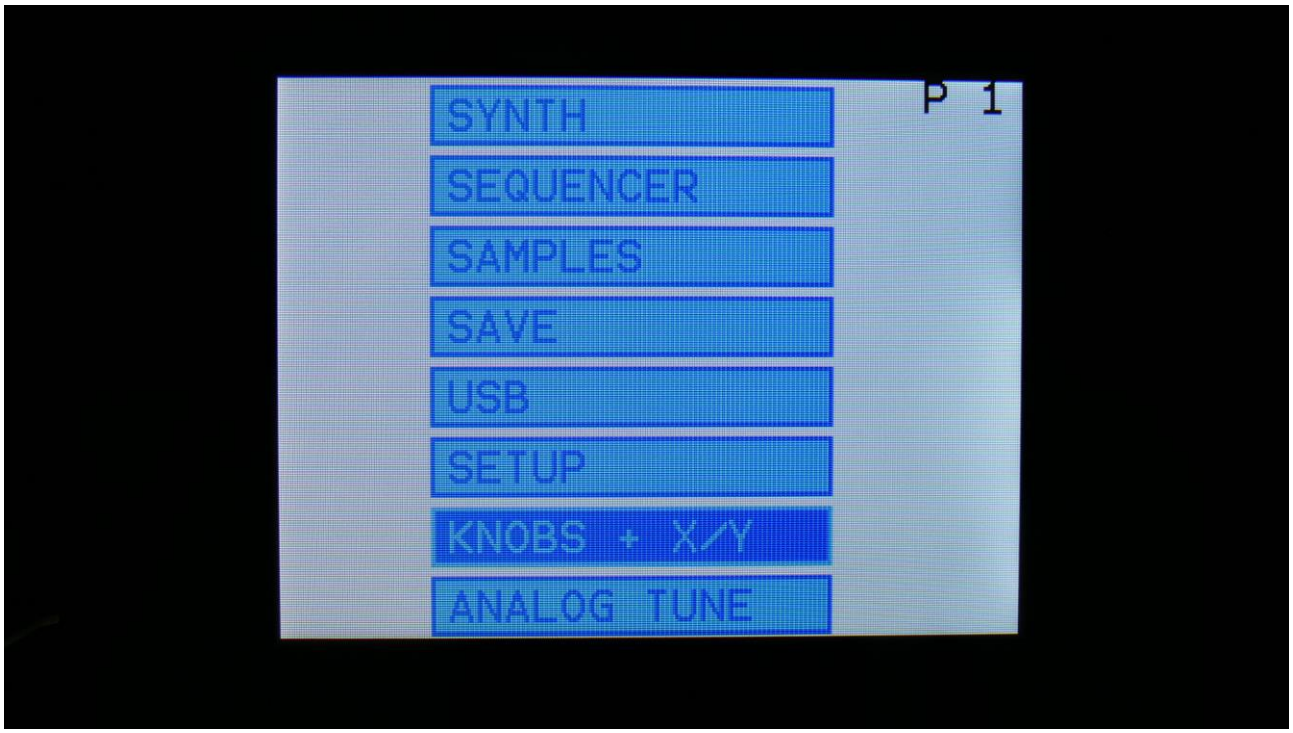


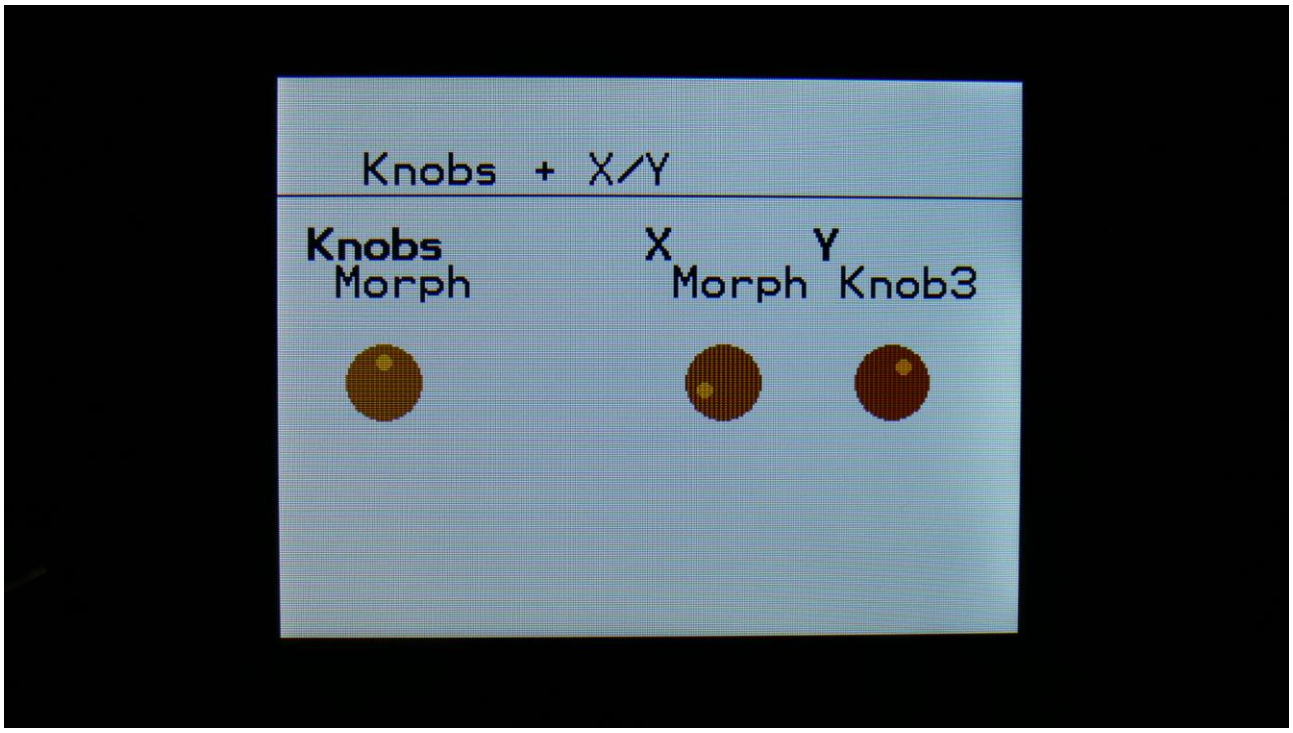
From the Preset Select page, push the Edit button.



Select KNOBS, using the < and > buttons, and push the Edit button.

On SpazeDrum Black it looks a little bit different, since on this it is also possible to set up the touch X/Y controller for the preset select page. Here you can just touch the KNOBS + X/Y module, to enter this page.





On the Knobs page, you will find the **Knobs** parameter. This can be set to:

-Mod: The 4 Edit Knobs will work as modulation sources. 4 knobs per part.

-Level: The 4 Edit Knobs will control the level of each analog group, by controlling the Insert Effect 1 Gain parameter. 4 global knobs.

-Morph: The 4 Edit Knobs will each morph one analog group. The Morph parameter will still morph all parts at the same time. 4 global knobs.

X: On SpazeDrum Black only. This sets the destination knob for the Preset Select screen X/Y touch controller X direction. Destinations can be: Off, Morph, SqMrp, Knob1, Knob2, Knob3, Knob4.

Y: On SpazeDrum Black only. This sets the destination knob for the Preset Select screen X/Y touch controller Y direction. Destinations can be: Off, Morph, SqMrp, Knob1, Knob2, Knob3, Knob4.

Sample Edit

SpazeDrum can hold a bank of samplings, to be used in the sample players of the drum parts.

This bank holds up to 18 minutes of mono samplings, maximum 2047 samplings. One sampling can maximum be 18 minutes long.

To get samples into SpazeDrum, for using them in the drum parts section samplers, you can resample the left audio output of SpazeDrum or import .wav files from a USB drive. For how to import .wav files, please see the USB section of this manual.

Stereo samples will only play back in stereo in this Edit section. On the drum parts, samples will only play back in mono. For stereo samplings, only the left channel will play back.

All samples that are recorded and imported, stays in SpazeDrums's FLASH memory, even after a power off. Since they are played back directly from the FLASH memory, there are no loading times. All SpazeDrum's samplings are immediately available, right after power on, and can be selected in the drum parts, just like synth waveforms.

SpazeDrum has some sample editing facilities, like adding chop points, adjusting the start/ends of a sampling, and delete samplings. This is described in this chapter.

ReSampling

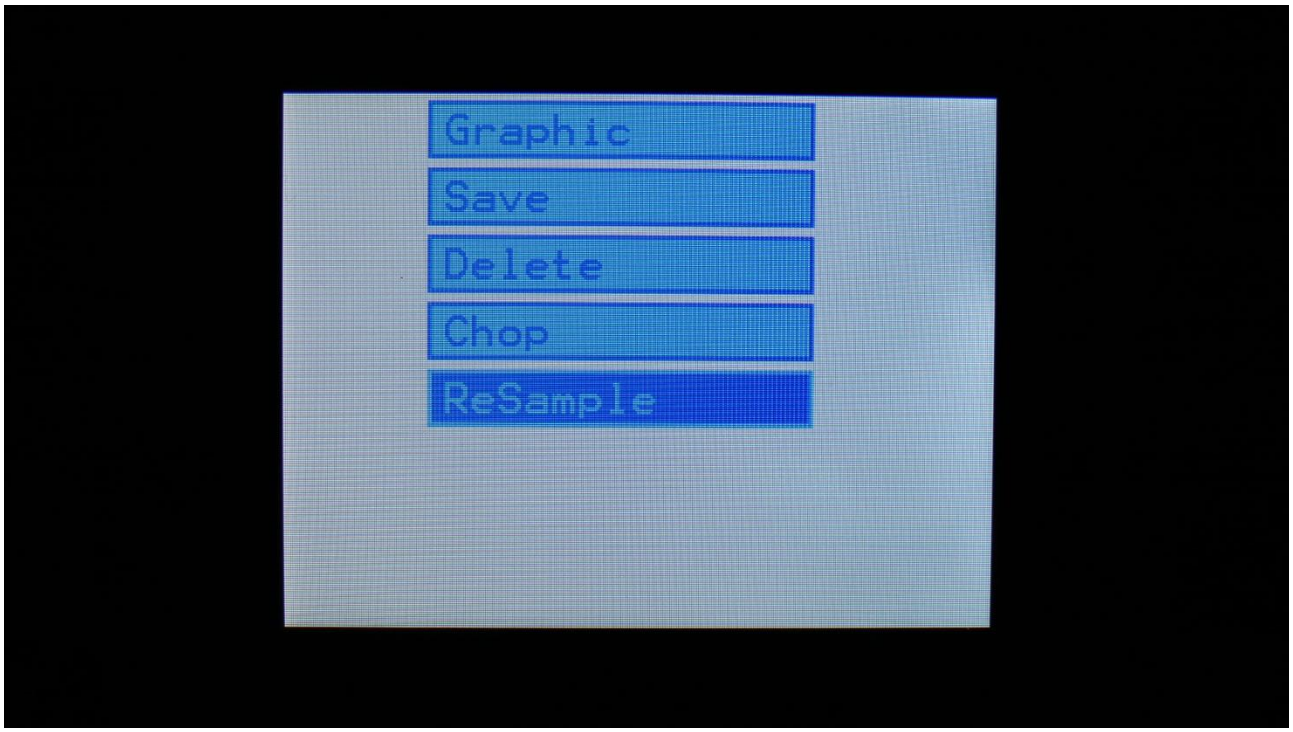
It is possible to record the left output of SpazeDrum as a sampling. It is possible to set the sample recording length in number of bars, and it is also possible to make SpazeDrum insert chop points, while it is recording.

To enter the ReSample page, either:

-Push the Func/mute button so that it lights up, and push step button 12 (Samples) two times.

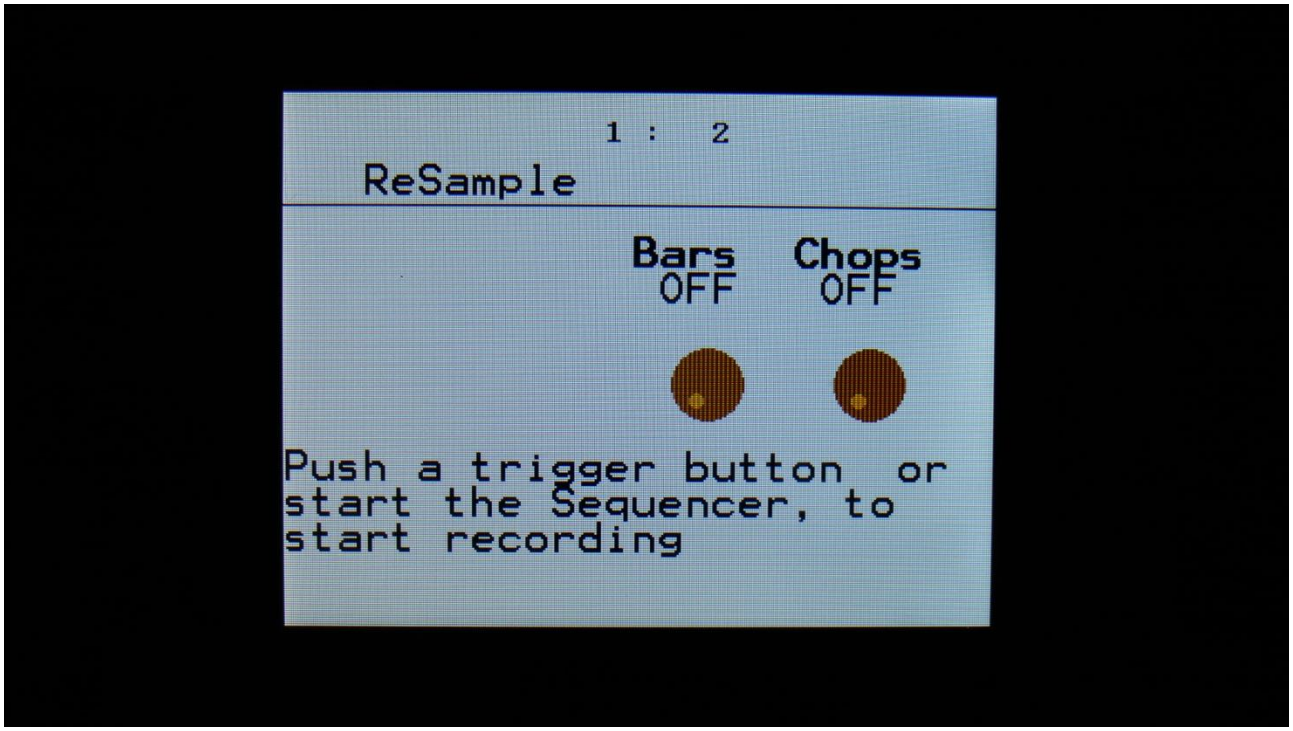
Or:

From the sample edit page, push the Edit button, so that the sample menu pops up:

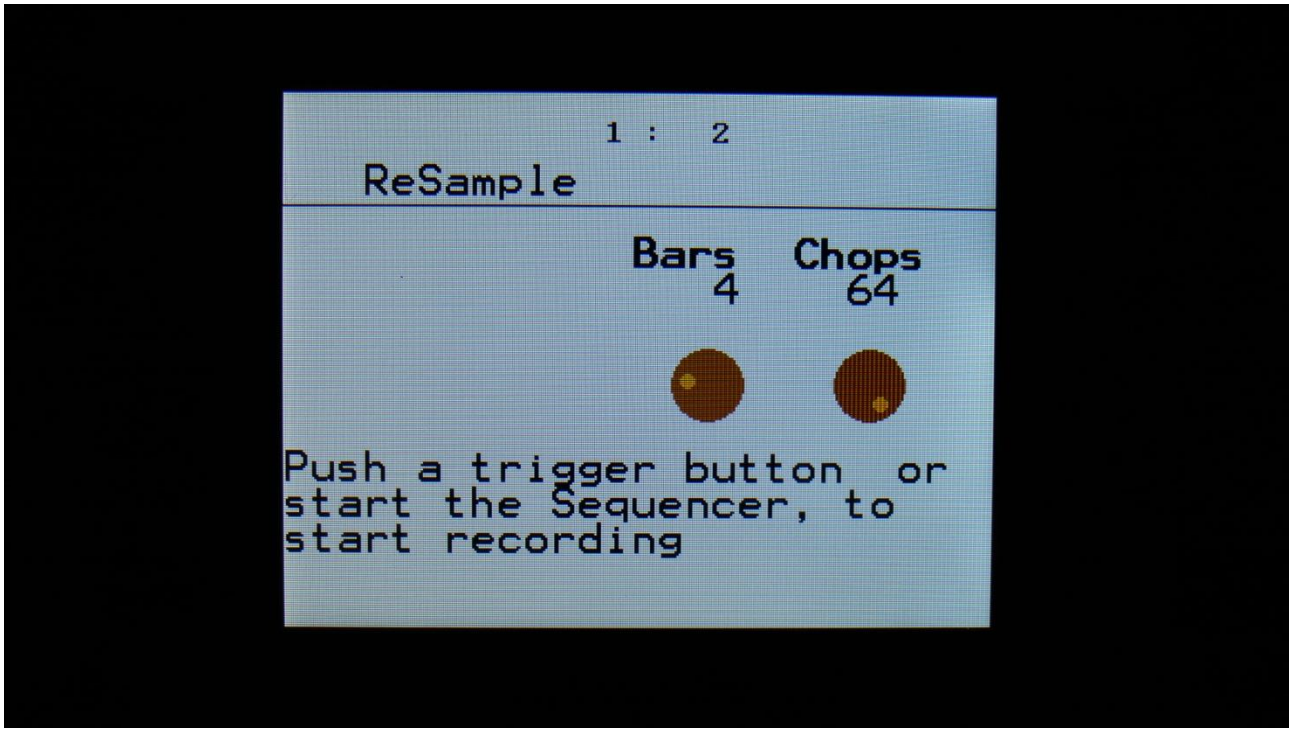


Select ReSample with the < and > buttons, and push the Edit button again.

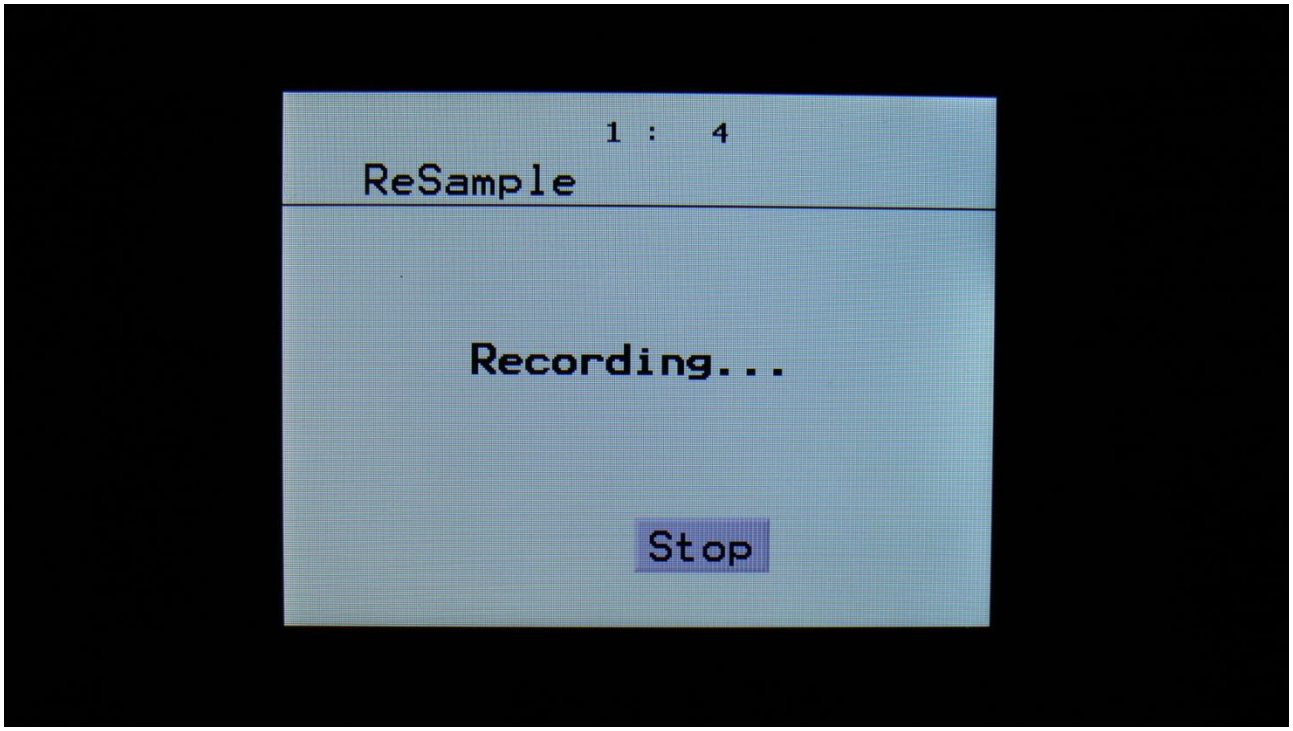
You should now have entered the ReSample page:



If you would like the sampling to be a specific number of bars, and/or if you would like chops generated while recording, set the desired values, using the Edit Knobs. If you want to manually stop the sampling, and don't need chop points, or will add chop points later, leave both settings to Off.



To start the Resampling, start the sequencer, or hit any of the 16 trigger buttons. Sample recording will now start:



When recording has started, you can leave the ReSample pages, by pushing the Exit button, and go tweak some parameters, while it is recording, if desired.

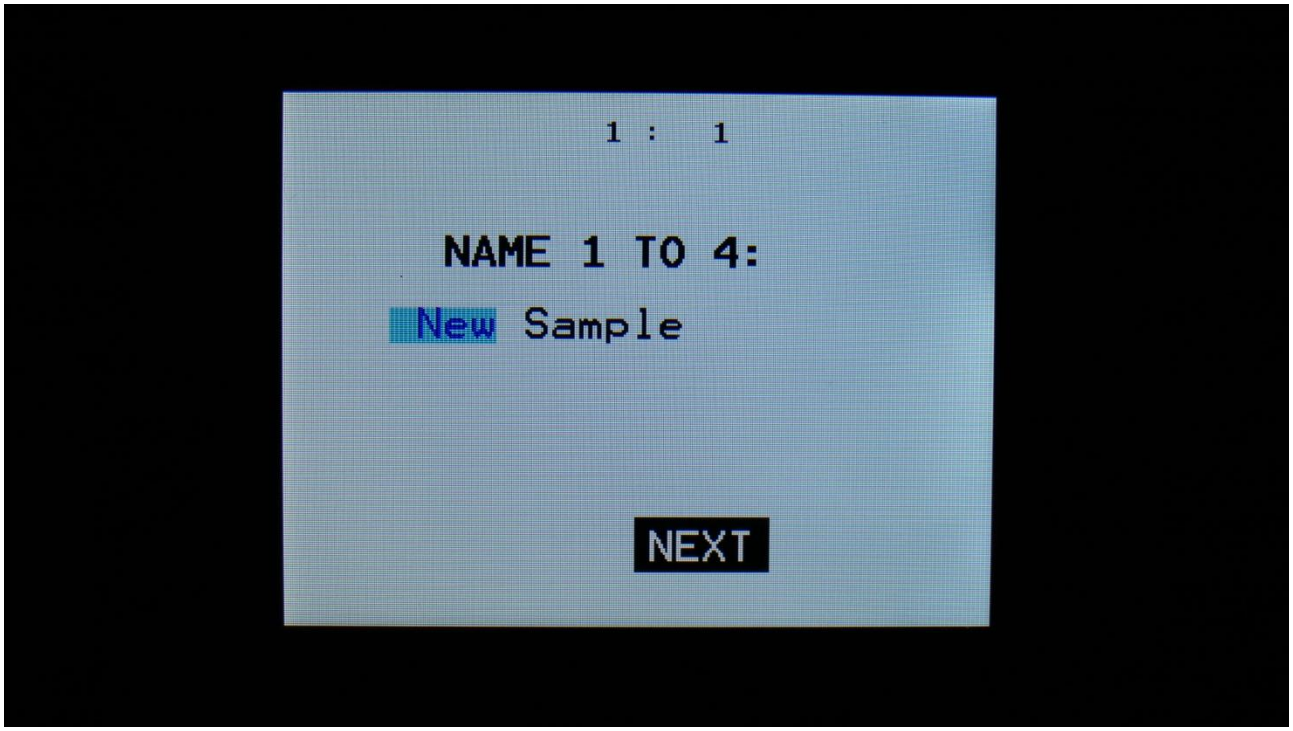
To stop sampling manually, you must go back to the ReSample page, and push the > button.

SpazeDrum will now jump to the audition/save page.

Push the > button to audition the sample, that you have just recorded.

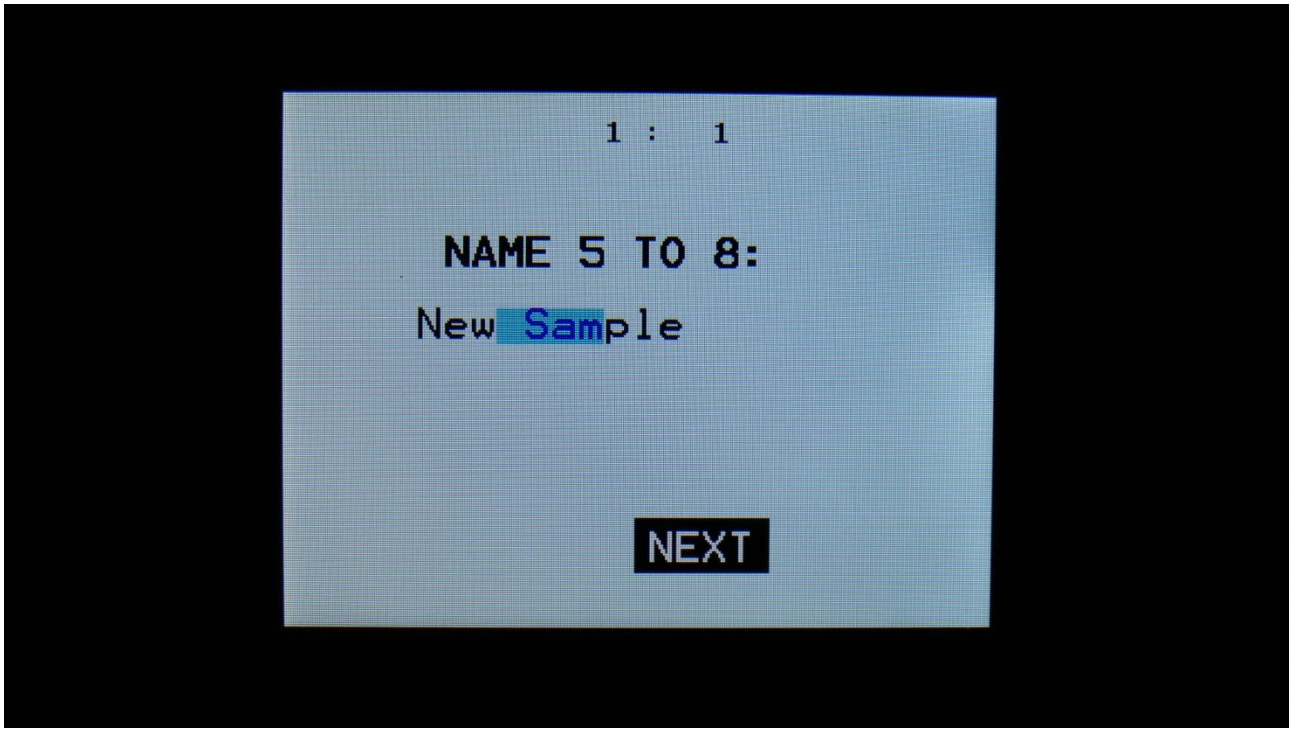
The audition box will turn black, while the sampling is playing back, and turn grey again, when it has stopped.

If you would like to keep the sampling, that you have just recorded, you must save it. From the audition/save page, push the < button.



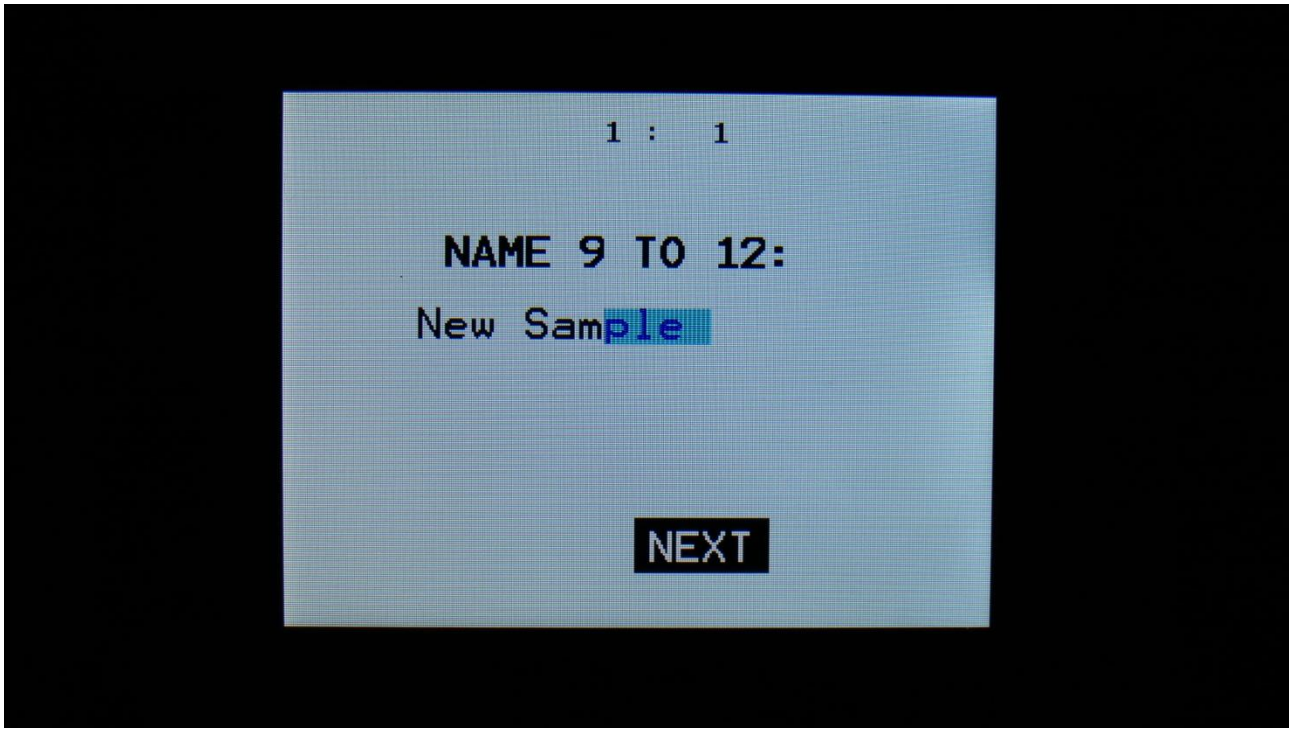
Input the first 4 characters of the name for the new sampling, using Edit Knob 1 to 4.

Push the > button, to go to the next 4 characters.



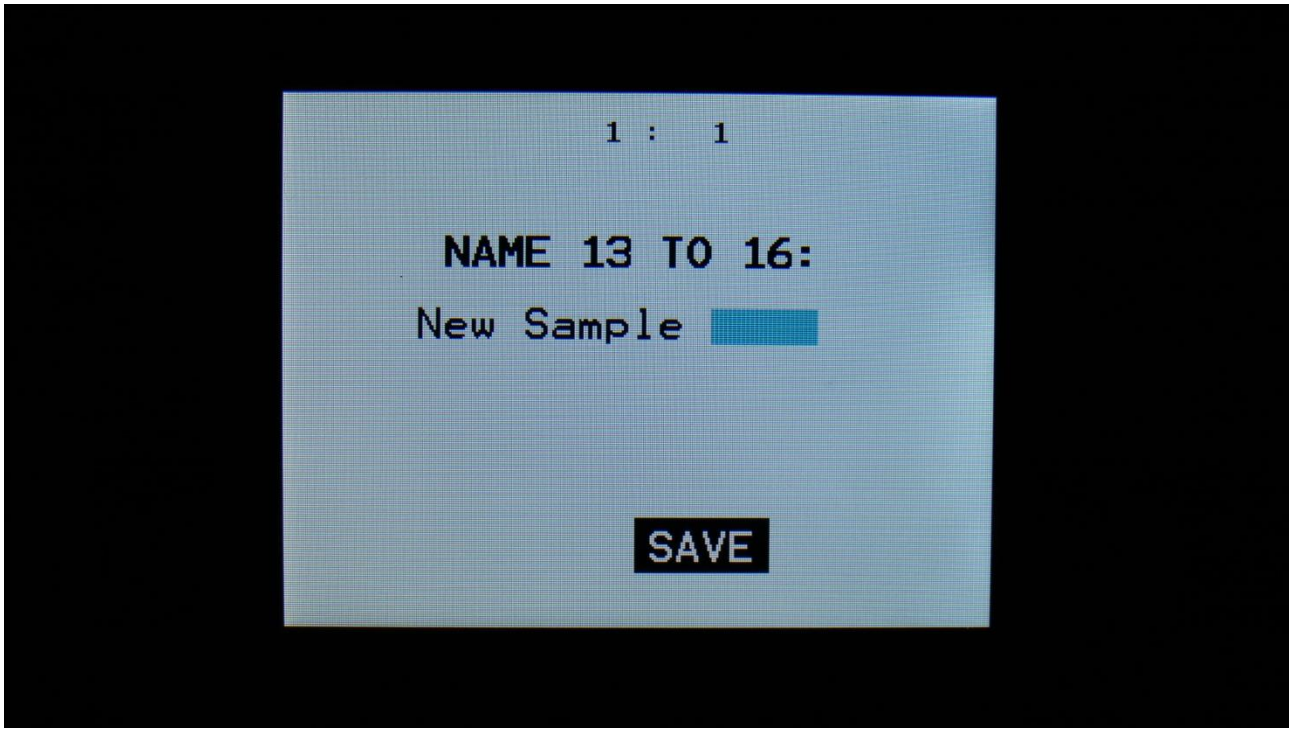
Input the next 4 characters of the name for the new sampling, using Edit Knob 1 to 4.

Push the > button, to go to the next 4 characters.



Input the next 4 characters of the name for the new sampling, using Edit Knob 1 to 4.

Push the > button, to go to the next 4 characters.

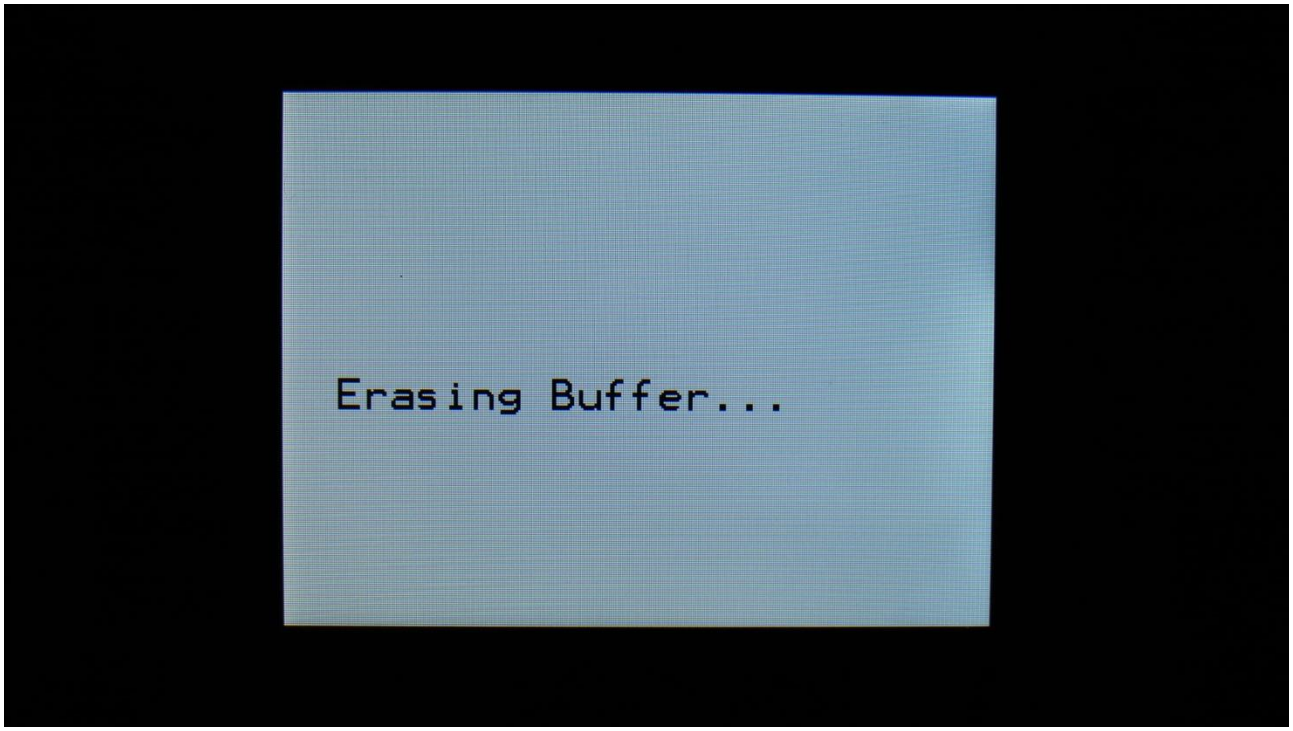


Input the last 4 characters of the name for the new sampling, using Edit Knob 1 to 4.

Push the > button, to save the sampling.

After the sampling has been saved, it can immediately be recalled on the Sample Edit pages, and on the 16 drum parts.

If you however do not wish to keep the sampling, push the Exit button. SpazeDrum will now erase the sampling, while the step button LEDs are running a sequence, and it is saying:

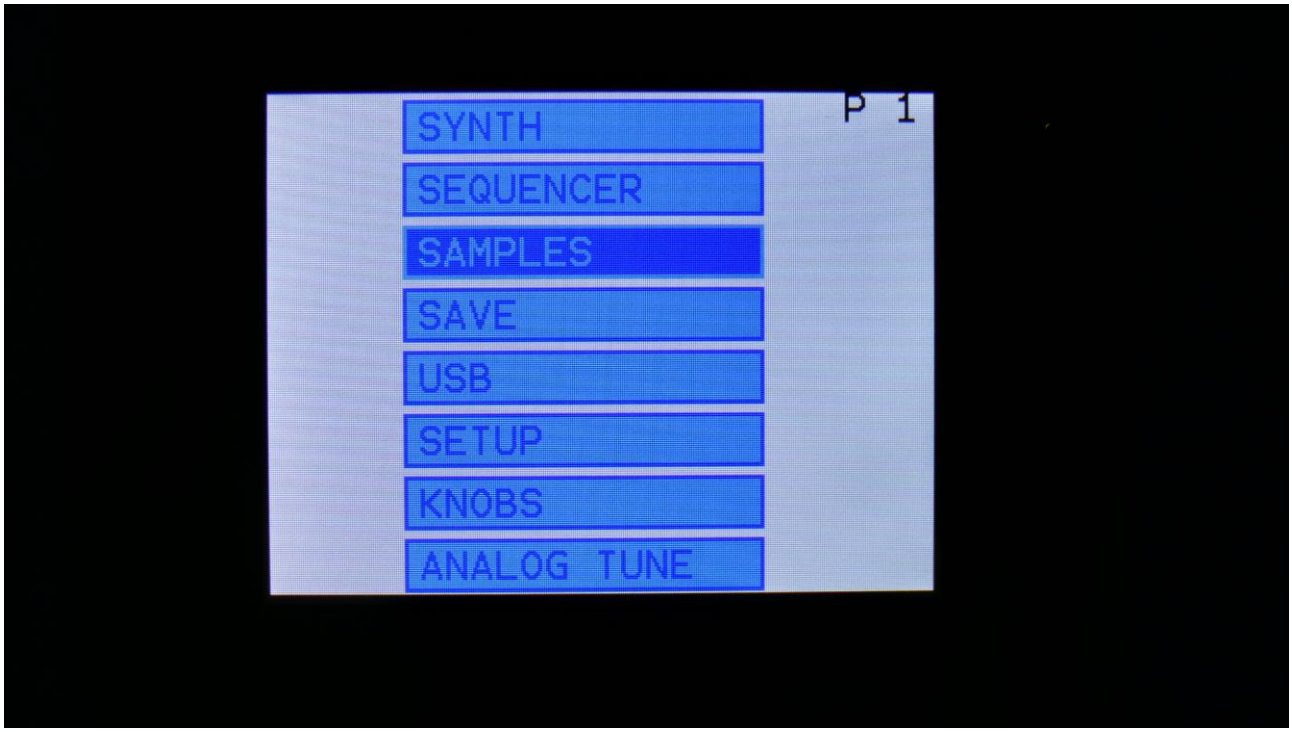


As soon as the sampling has been erased, it will exit from the ReSample pages.

PLEASE DO NOT TURN OFF YOUR SPAZEDRUM, WHILE IT IS ERASING OR WHILE AN UNSAVED SAMPLING IS HELD IN MEMORY. THIS MIGHT CAUSE THE FLASH MEMORY TO MALFUNCTION.

Edit A Sampling

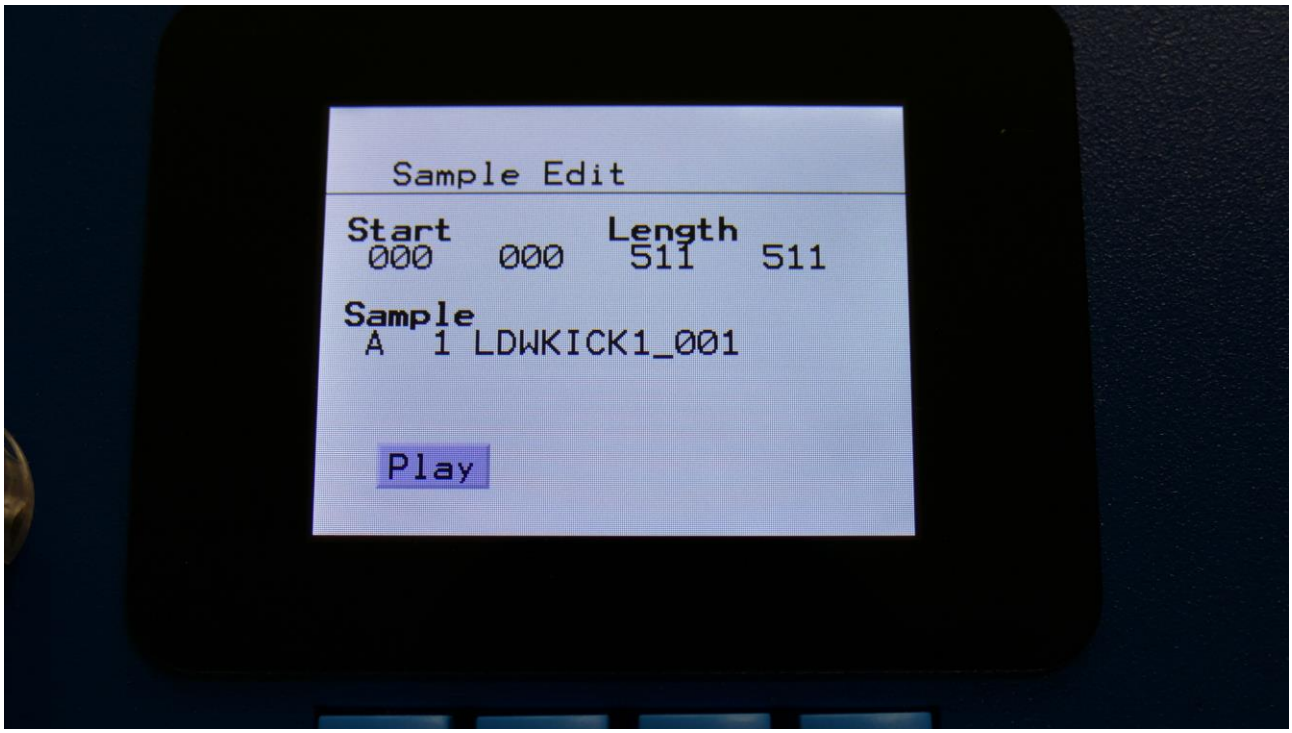
To enter the sample edit pages, from the Preset Select page, push the Edit button, to enter this page:



Navigate to SAMPLES, using the < and > buttons, and push the Edit button, or touch the SAMPLES module on SpazeDrum Black.

OR: Hit the Func/Mute button, so it lights up, hit step button 12 ”Samples”.

You should now have entered the Sample edit main page:

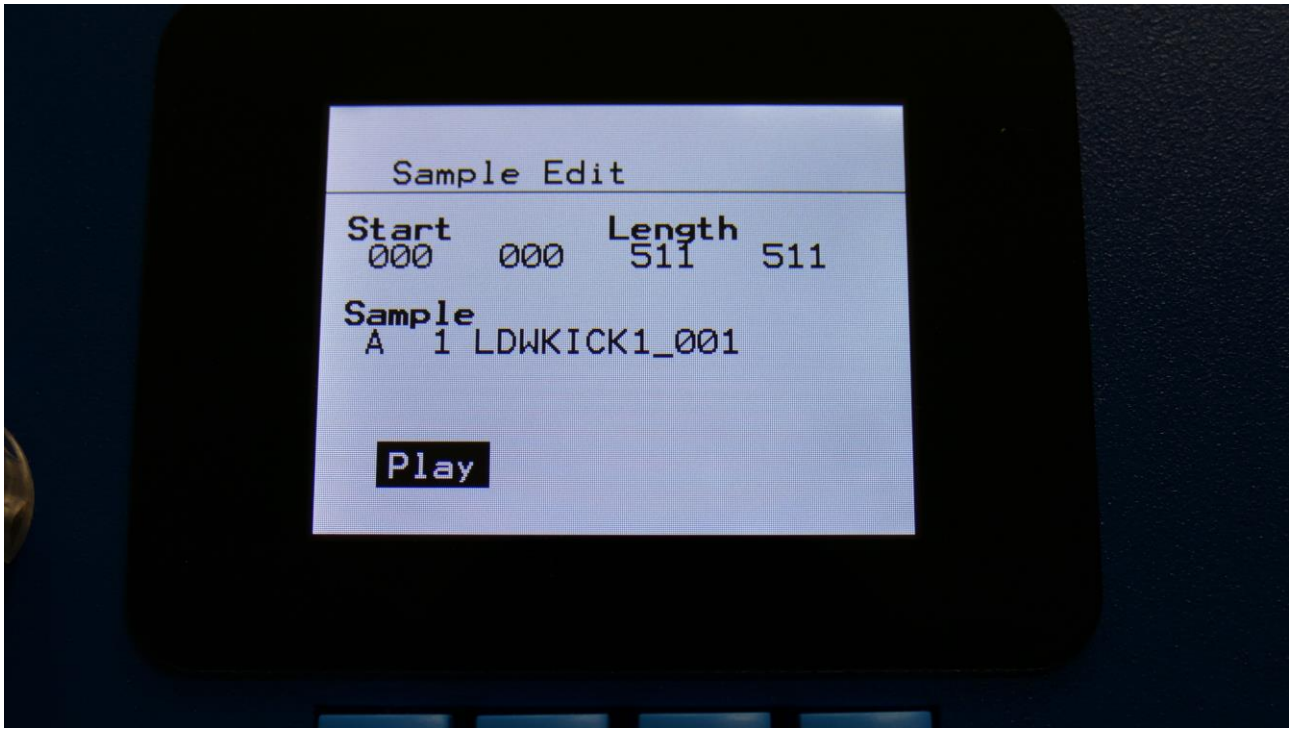


On this page you can audition samples from the FLASH memory, adjust the samples start and end points, and access other sample edit menu's.

To select a sampling from the FLASH memory bank, push the < and > buttons.

To audition this sampling, push the Play button. On SpazeDrum Black you can also touch the PLAY button on the screen.

The play button will now light up and the Play field on this page will now turn black, and stay like this, for as long as the sampling is playing back.

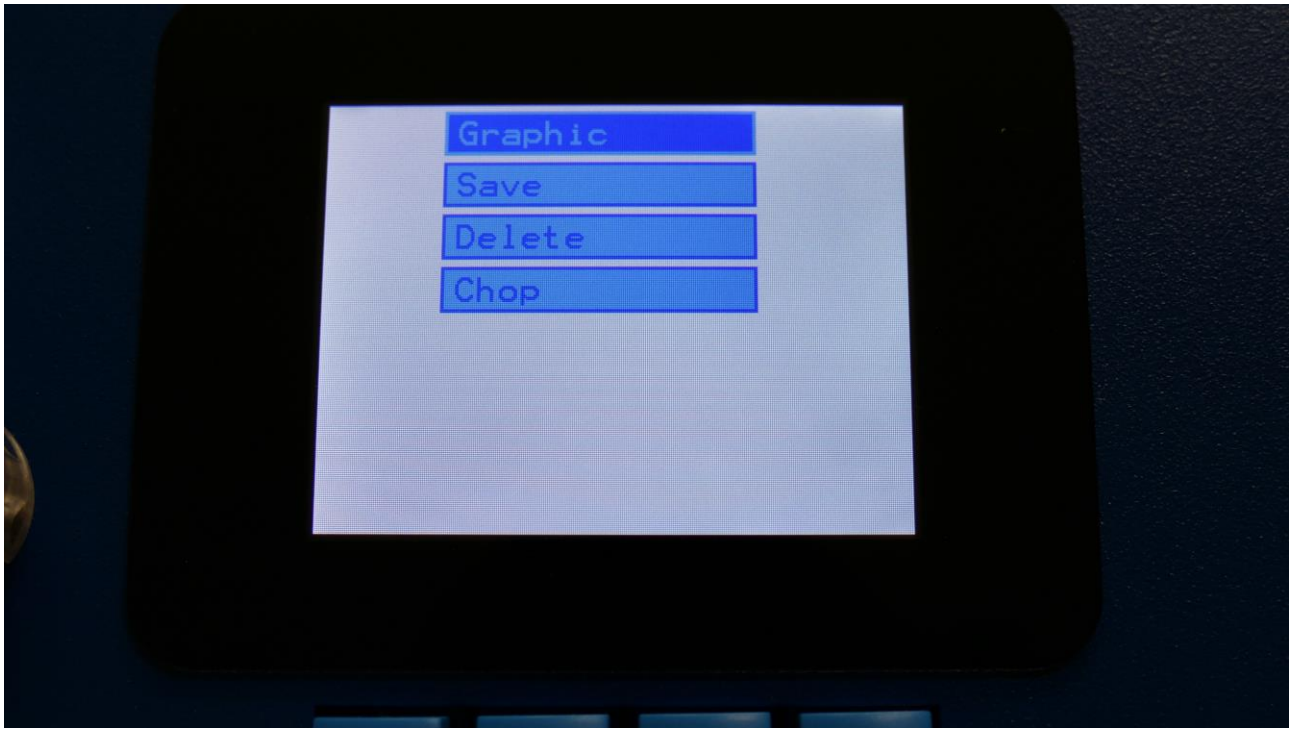


When the sampling stops playing back, the light in the Play button will go off, and the Play field will turn grey again.

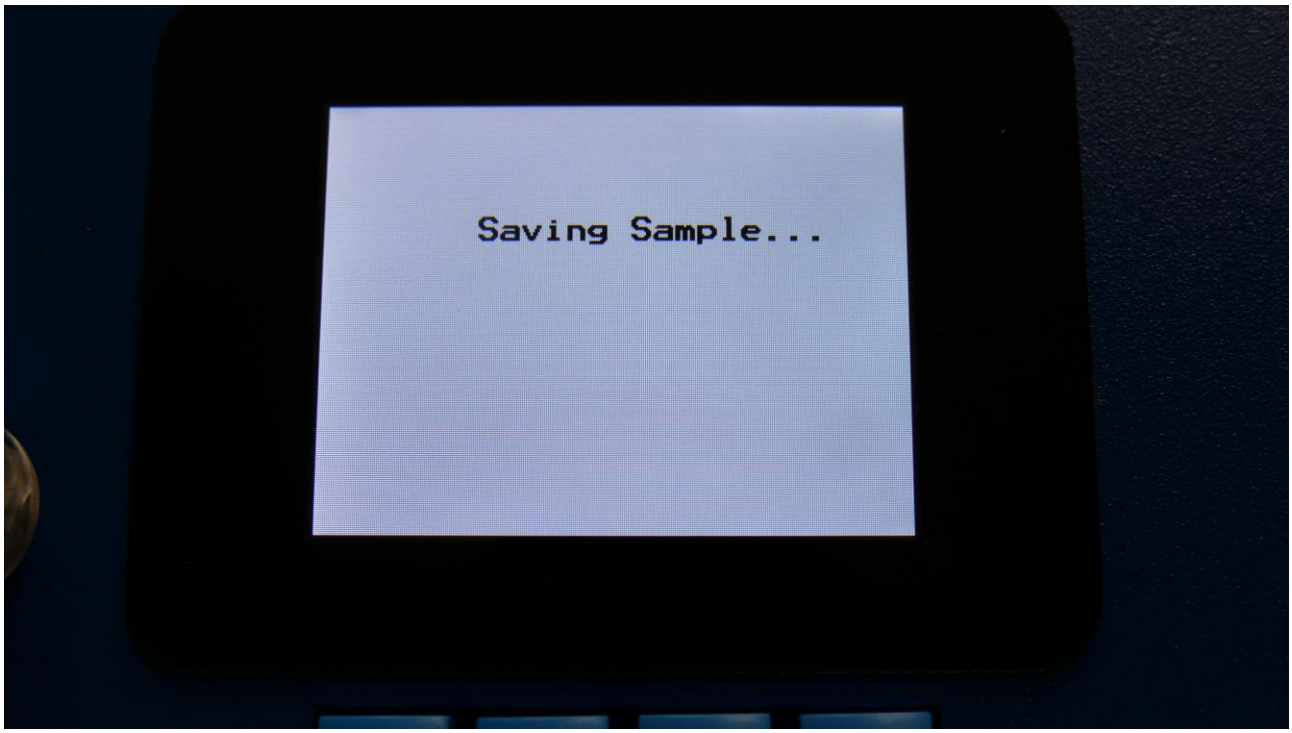
To stop a sampling from playing back manually, simply select another sampling.

To adjust the start and end points of the selected sampling, use Edit Knob 1-4.

To save the adjusted start/end edits, push the Edit button. A menu will now show:



Navigate to Save, using the > button, and press the Edit button, or touch the Save module on SpazeDrum Black. The display will now show:



For a short while, and return to the main sample edit page.

Sample Chops

On SpazeDrum 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 drum part 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 SpazeDrum isn't though limited to this. On SpazeDrum 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.

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.

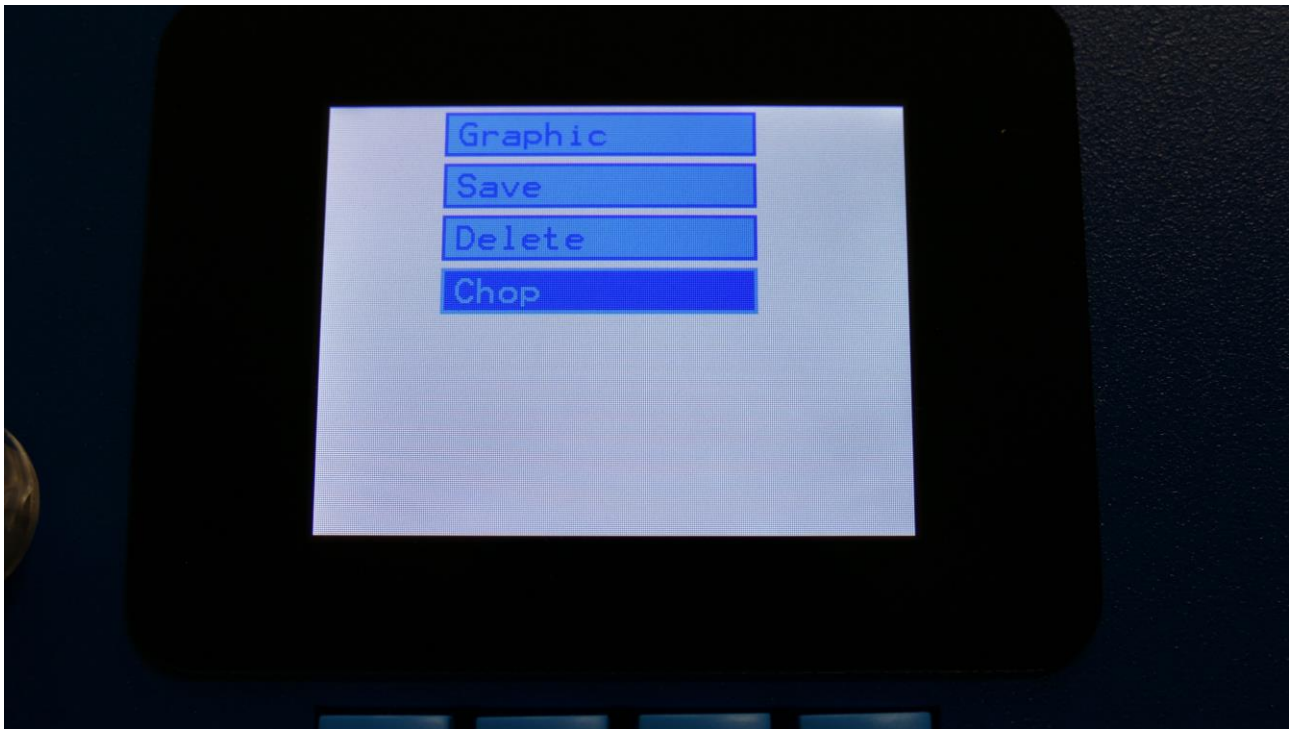
Up to 64 chop points can be created for each sampling.

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.

If you have already created chop points on a sampling, in a computer program that uses cue points, like FL Studio, or any other gear that generates cue points, SpazeDrum will import these as chop/loop points. When you exports SpazeDrum samplings via USB, any generated chop points will also be exported as cue points, for use in other gear or computer programs.

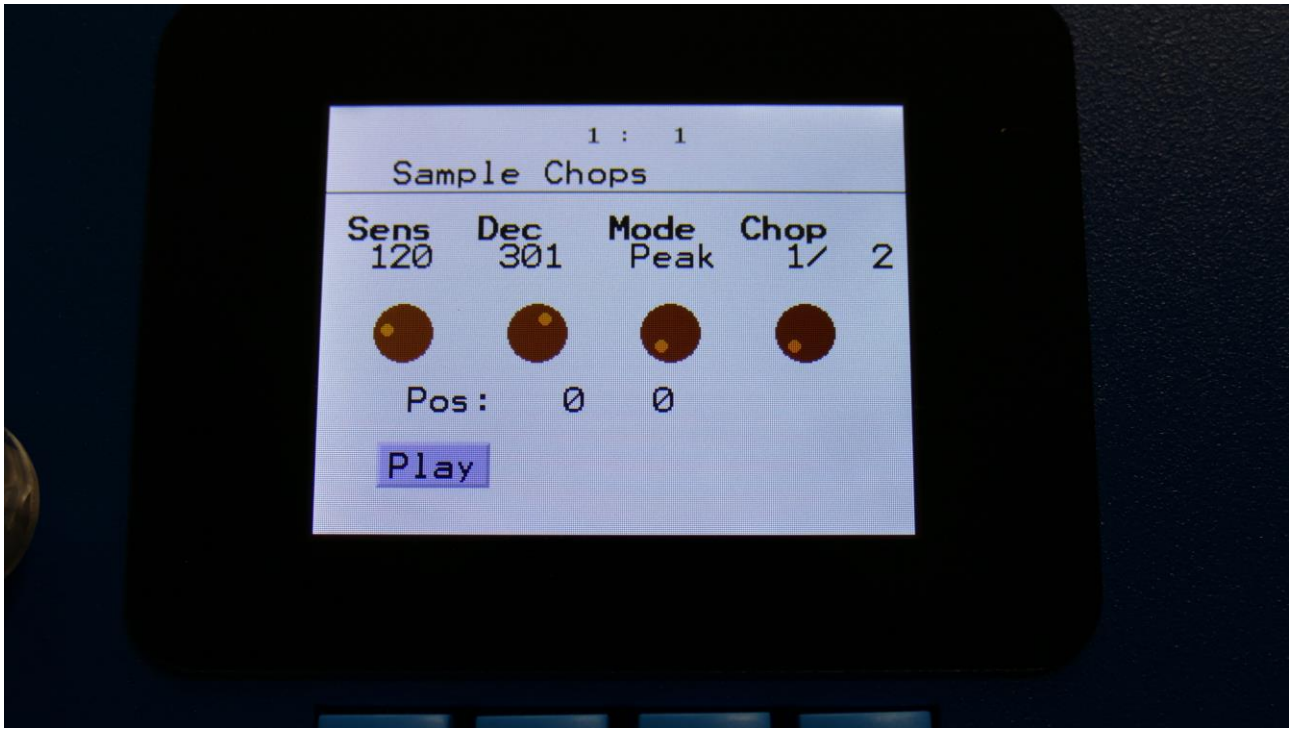
Remember to save the chop points. Else they will be lost!

To create and/or edit sample chop points, from the Main Sample Edit page, push the edit button:



Navigate to Chop, using the > button, and hit the Edit button, or touch the Chop module on SpazeDrum Black.

You should now have entered the Chop 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.

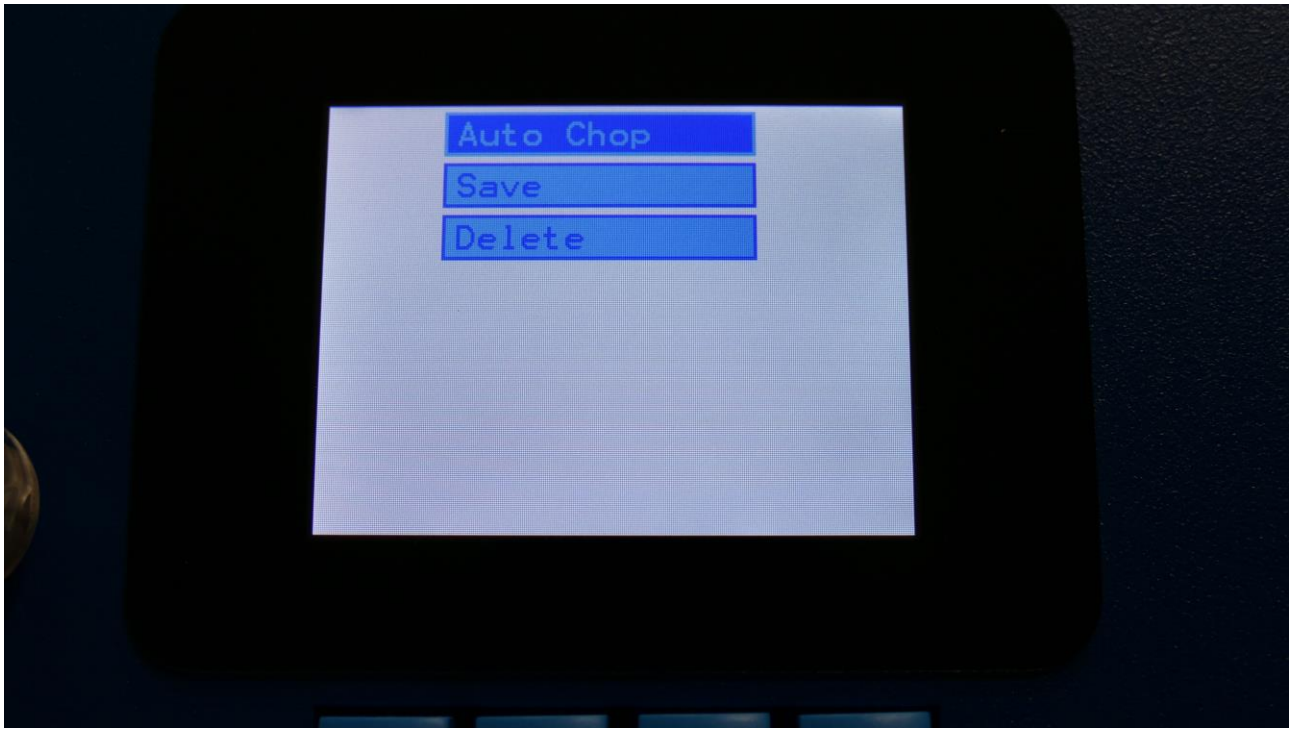
Mode: Different modes are available, for generating non-destructive chop points:
Peak: It will generate the chop points from peak detection, according to the settings of the Sens and Dec parameters.
Wave: It will generate the chop points from zero point detection, according to the settings of the Sens and Dec parameters. When auditioning chops in this mode, the playback will be looped.
A number between 2 and 64: It will divide the sample length by the selected number, and generate equally sized chop points from that, regardless of the settings of the Sens and Dec parameters.

Chop: Select a chop number for auditioning. Total number of chops is shown right after the /.

Generating Sample Chop Points

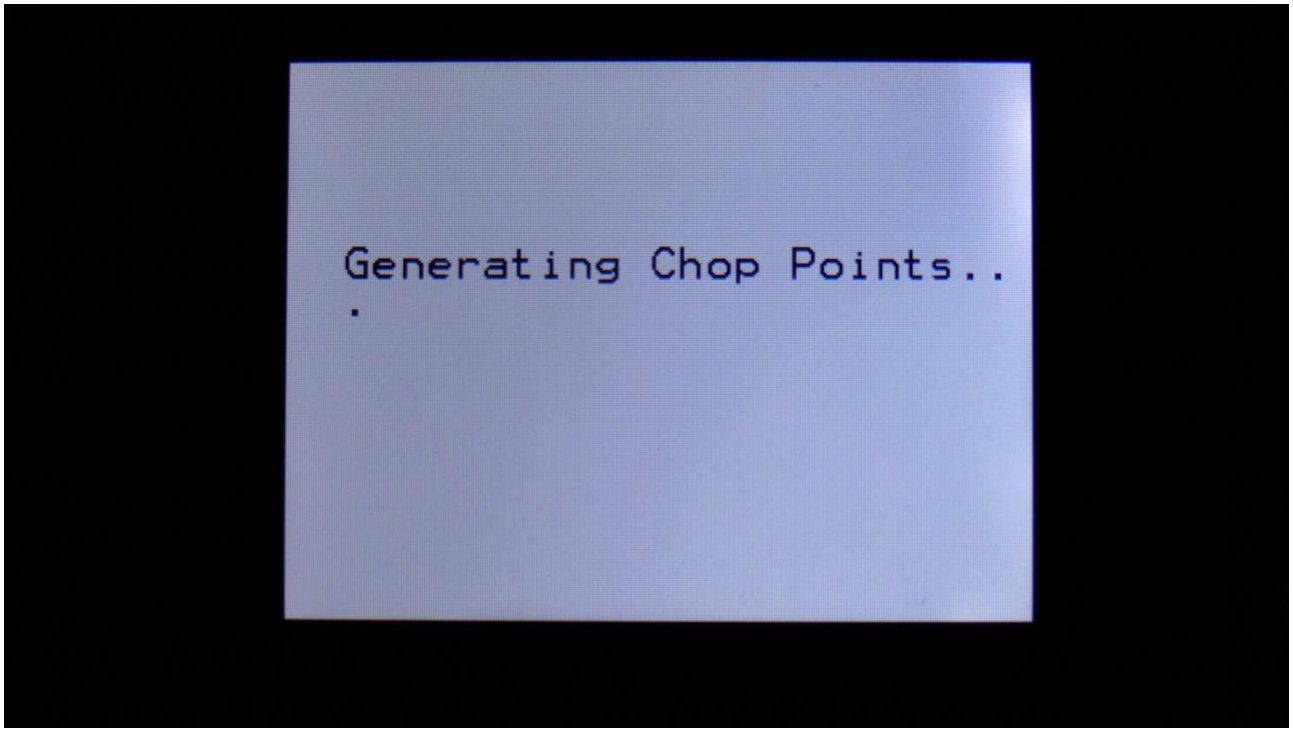
On the Sample Chops page, adjust the Sens and Dec parameters as desired, and set the desired chop mode.

Push the **Edit** button, and this menu will show:

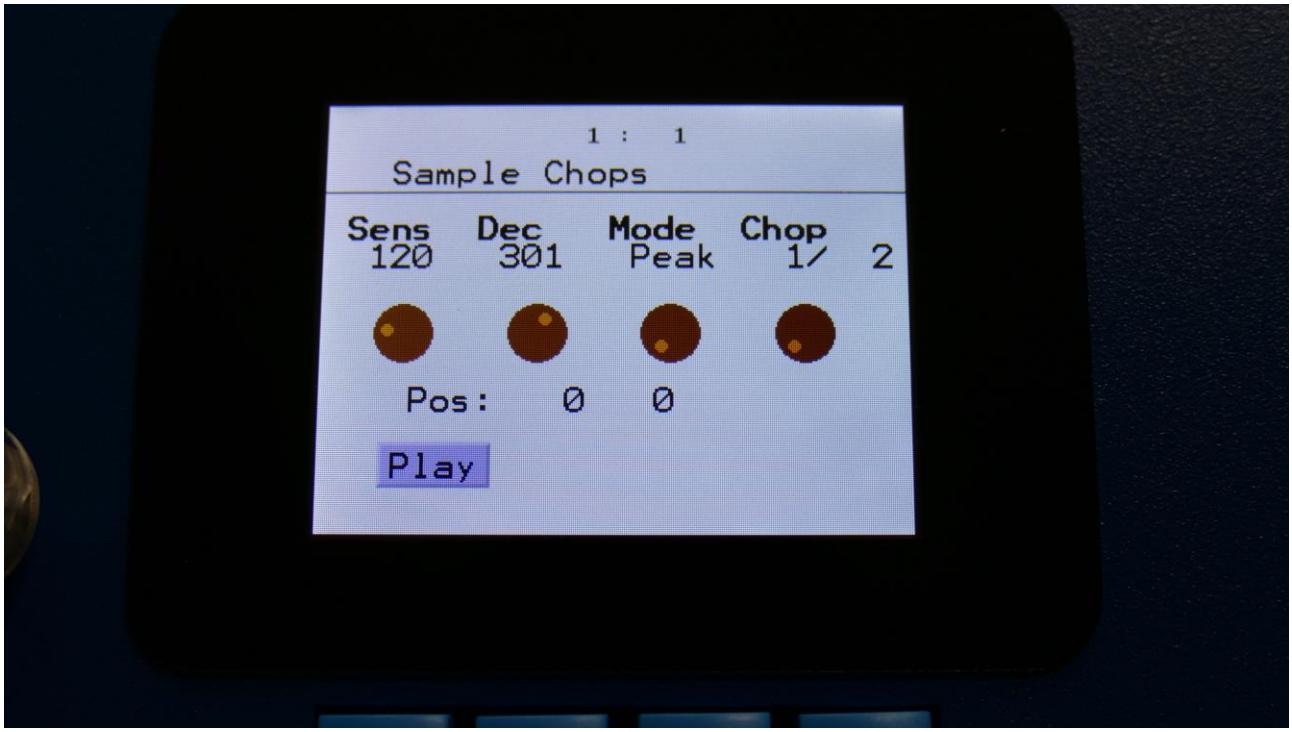


Select Auto Chop, using the < and > buttons, and hit the Edit button, or touch the Auto Chop module on SpazeDrum Black.

SpazeDrum will now look for chop points, in the selected sampling:



When it is done, it will jump back to the Sample Chops screen:



By adjusting the Chop parameter, it is now possible to select and audition the chop points that SpazeDrum has found.

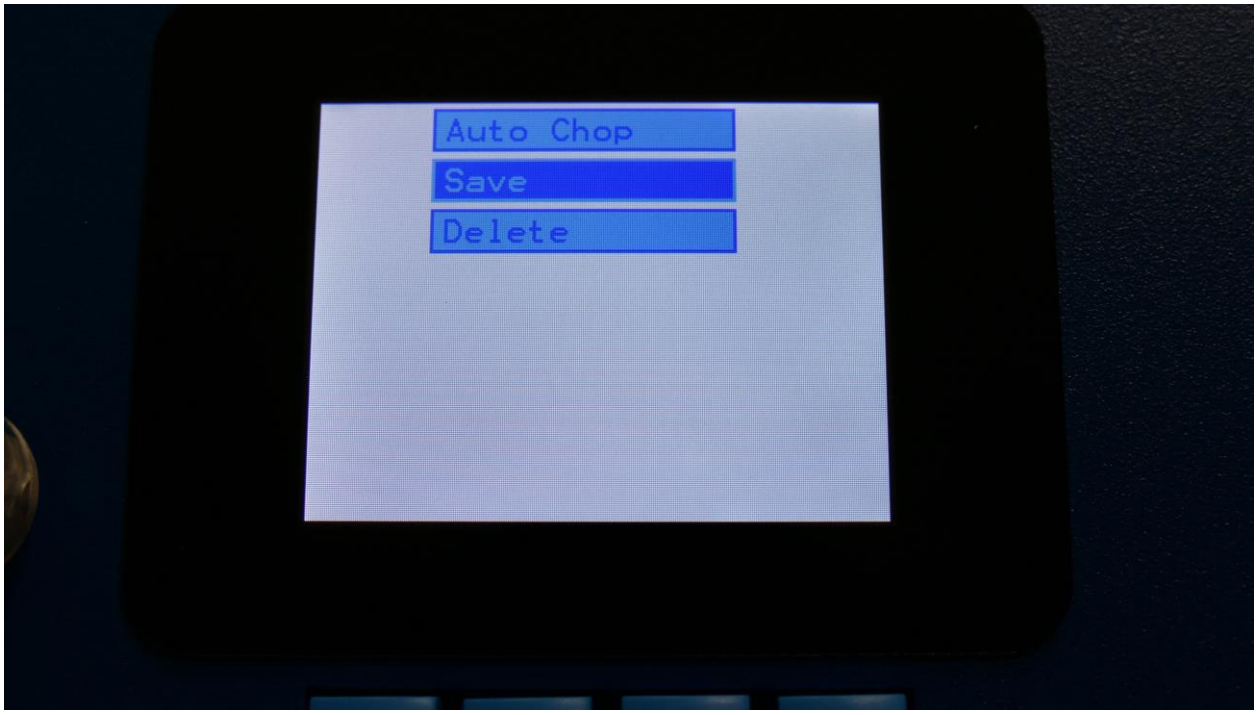
Audition the chop points by hitting the “Play” button. If some chop points shouldn’t be there, delete them by hitting the “Del” button.

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 Main Sample Edit page, and set the Sample Start point to this value.

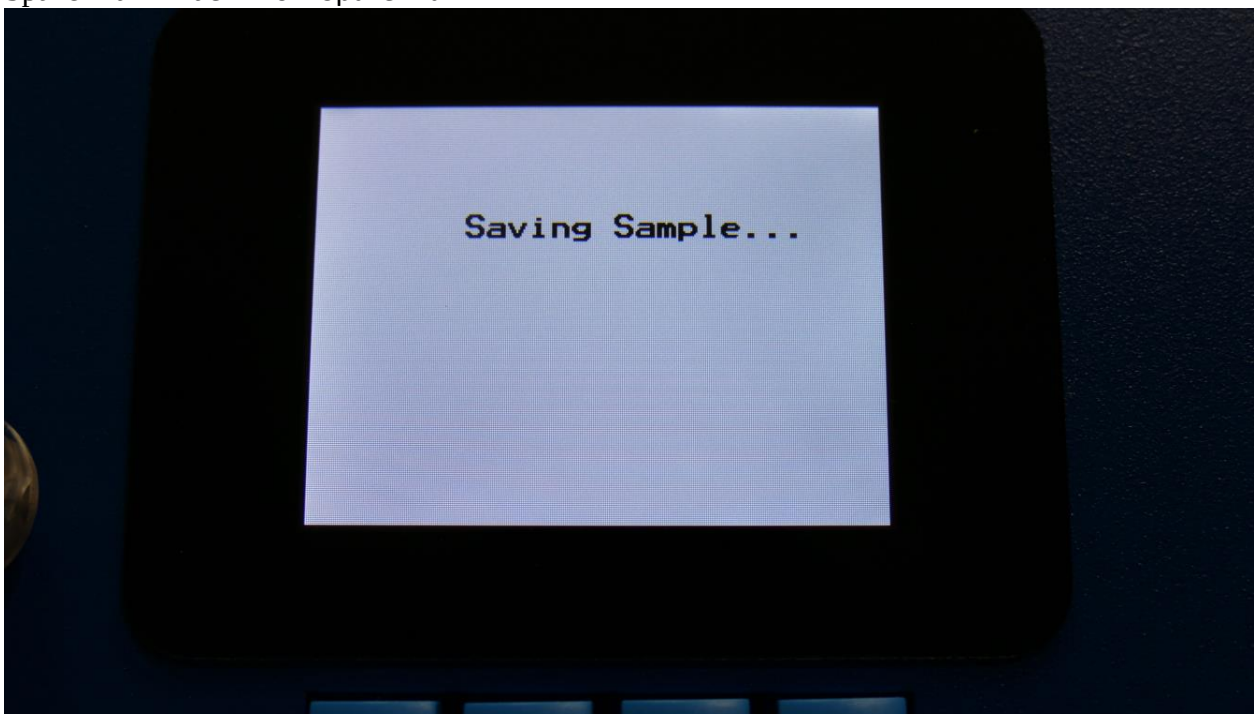
When you are satisfied with the chop points, remember save them. The chop points are saved together with the sample data, and are also imported/exported via USB as cue points.

Save Chop Points

From the Chop page, push the Edit button, to access the chop menu:



Select Save, using the < and > buttons, and hit the Edit button, or touch the Save module on SpazeDrum Black. Now SpazeDrum will:



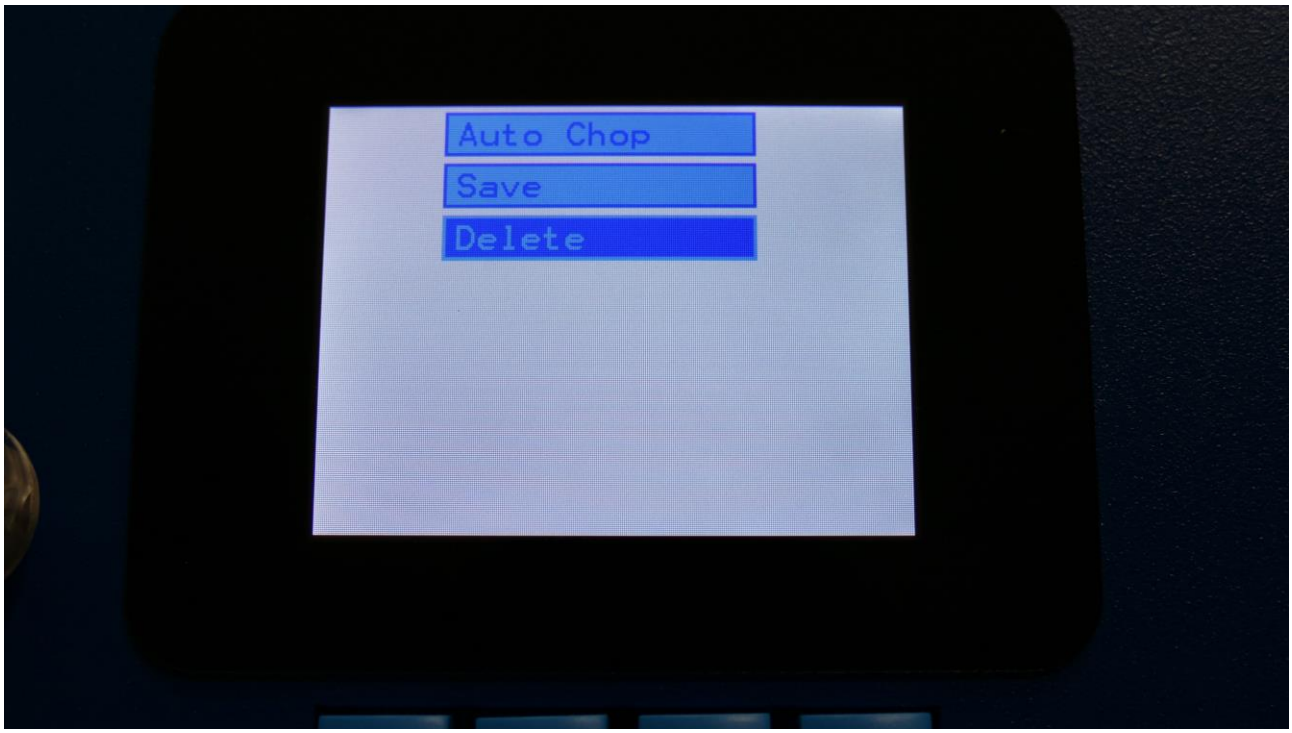
For a short while, and thereafter return to the Chop page.

Delete a chop point

If some chop points shouldn’t be there, it is possible to remove them.

On the Chop page, select the chop you would like to remove, by setting the Chop parameter.

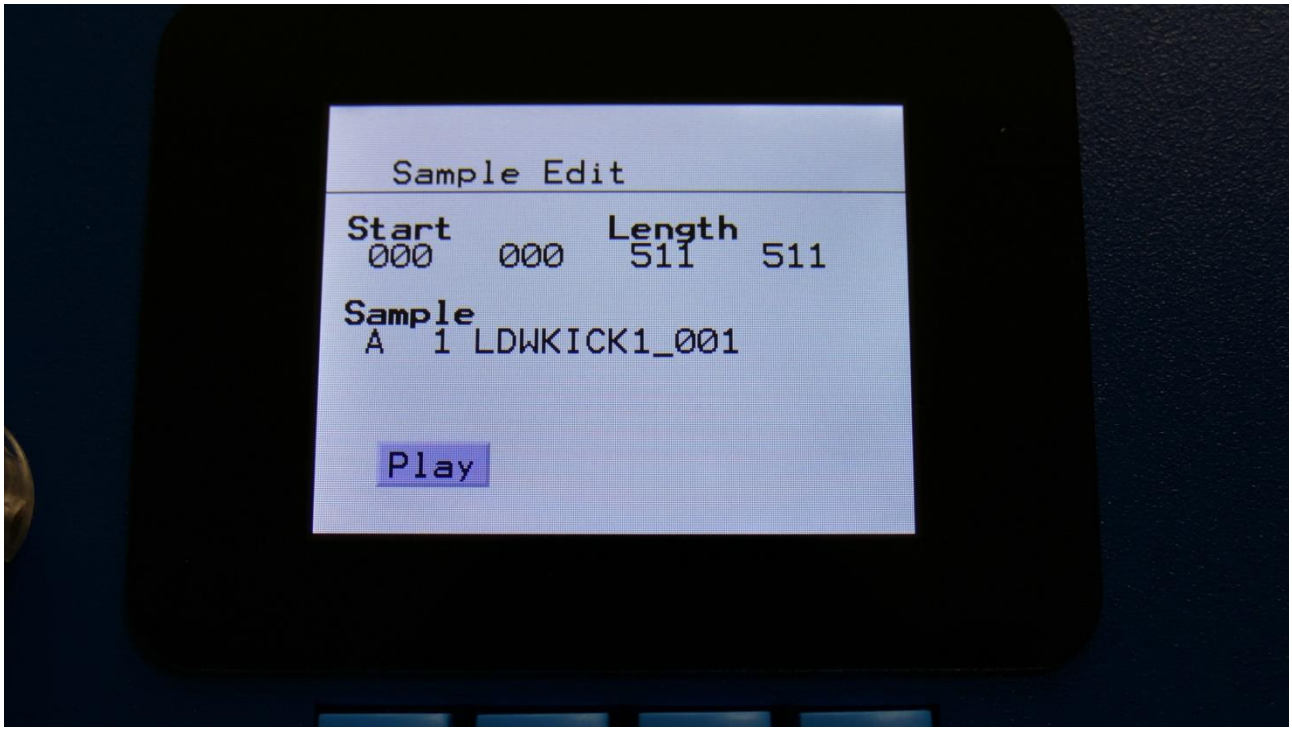
Push the Edit button, to enter the chop menu:



Navigate to Delete, using the < and > buttons, and hit the Edit button, or touch the Delete module on SpazeDrum Black. SpazeDrum will now jump back to the Chop page, and the selected chop point has been deleted.

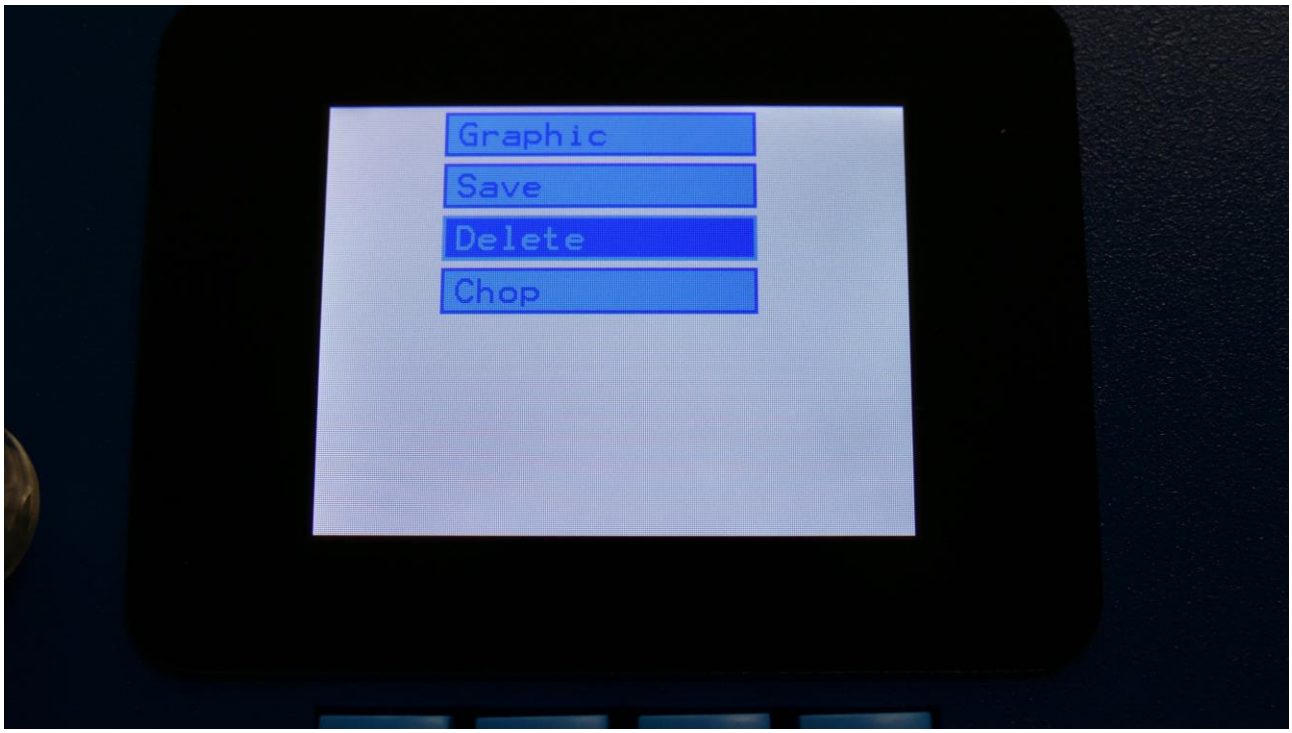
Deleting a sampling

On the Main Sample Edit page, it is possible to delete the selected sampling.



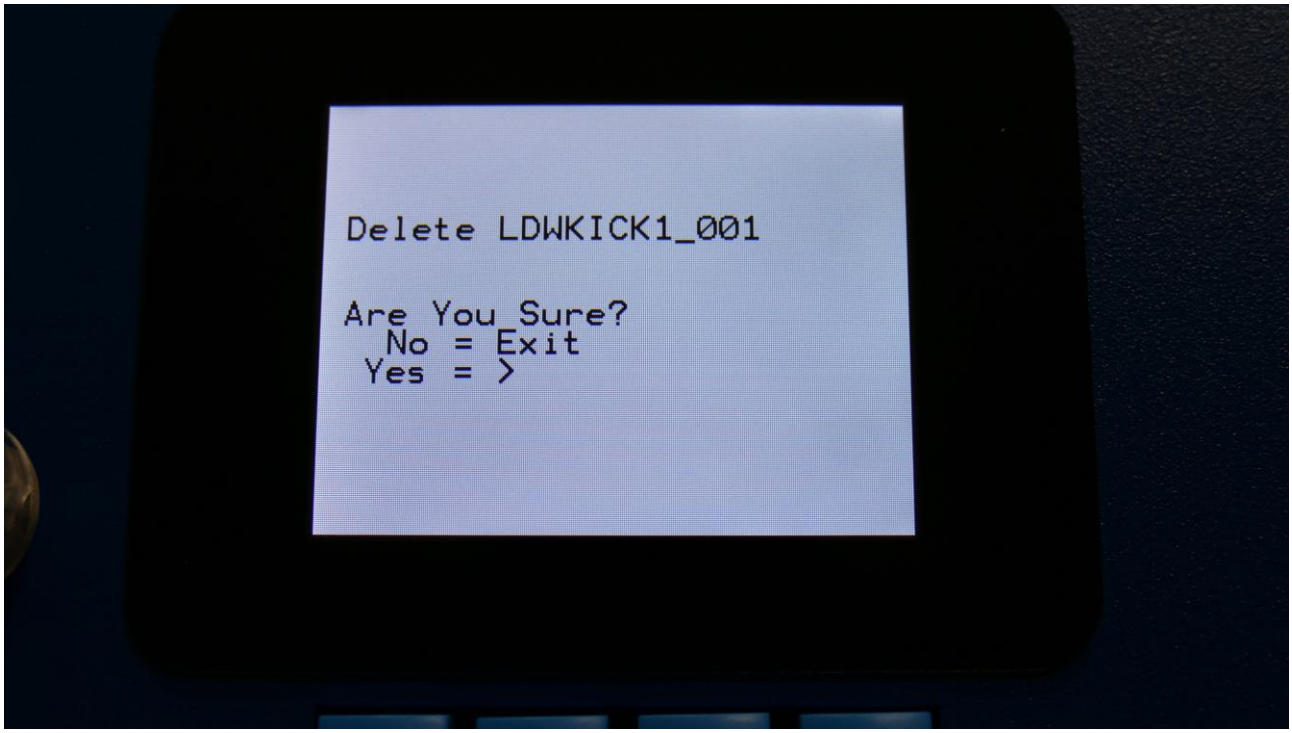
Select the sampling, that you would like to delete, using the < and > buttons.

Push the Edit button, to open the sample edit menu:



Navigate to Delete, using the < and > buttons, and then hit the Edit button, or touch the Delete module on SpazeDrum Black.

SpazeDrum will now ask:



Push the > button, if you are sure, that you would like to delete this sampling.

Push the Exit button if you regret, to return to the main sample edit page.

If you decided to delete the sampling, SpazeDrum will now run a light sequence on the step buttons 1-16, while it is deleting the sampling. Since this is FLASH memory, it might take some time.

When it is done, if this was not the last recorded sampling, SpazeDrum will freeze for a couple of seconds max, while it is moving some sample data, and then it will return to the Main Sample edit page.

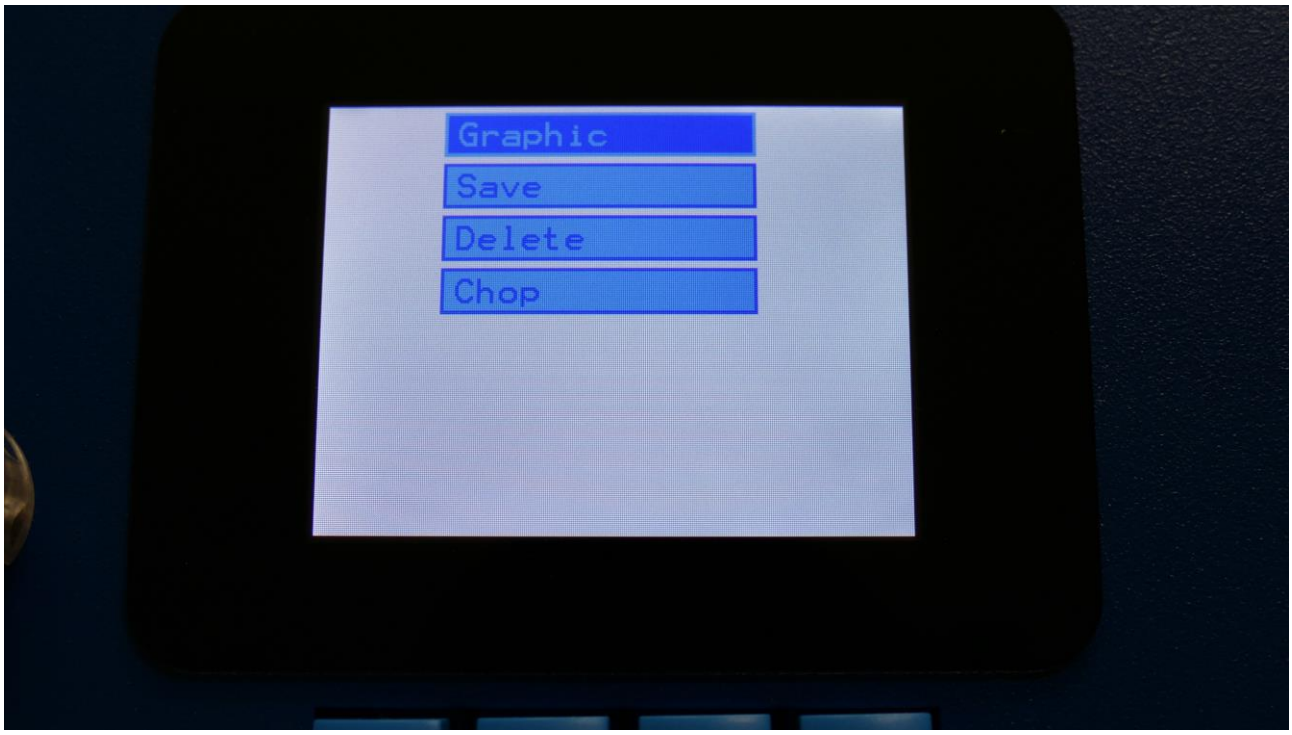
DO NOT TURN SPAZEDRUM OFF, WHILE IT IS DELETING A SAMPLING. THIS WILL MAKE THE FLASH MEMORY MALFUNCTION.

Graphical sample editing

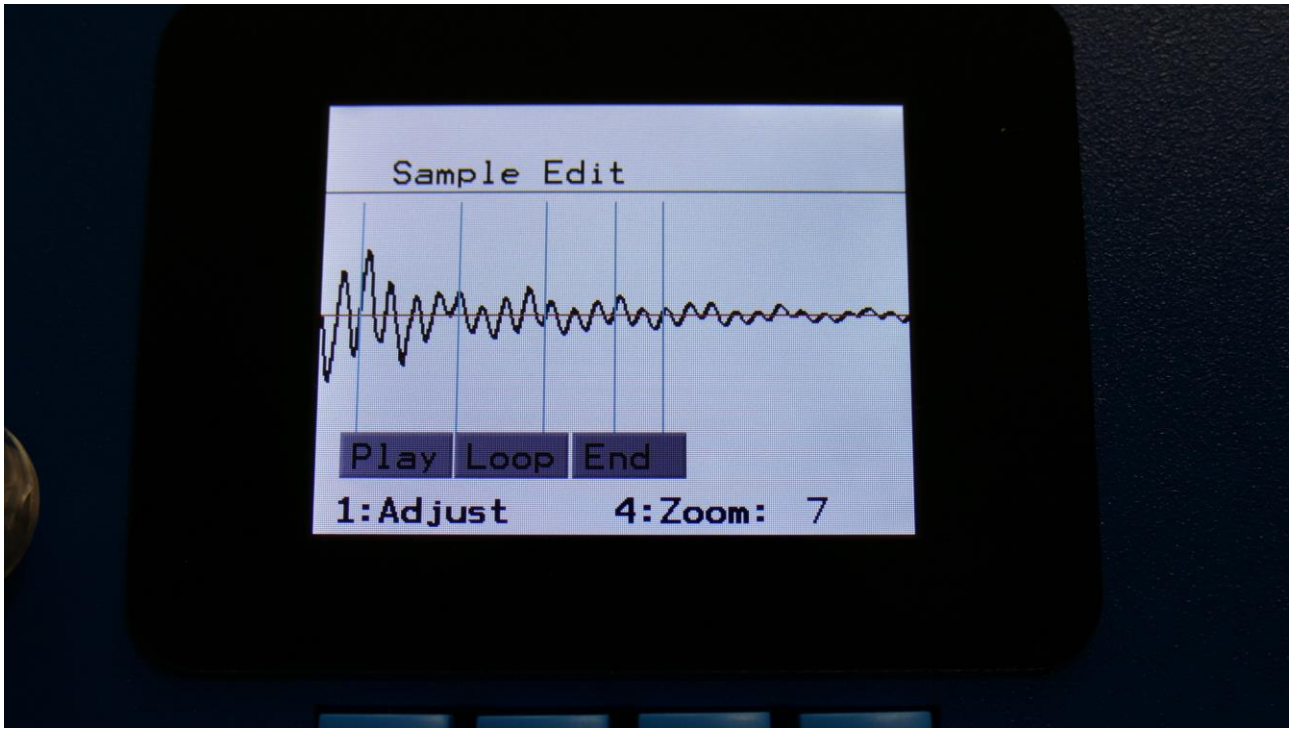
To make sample editing a bit easier, SpazeDrum has a graphical sample editor.

On the graphical sample edit pages you can add and remove chop points and select a portion of a sampling, to be saved as a new sampling.

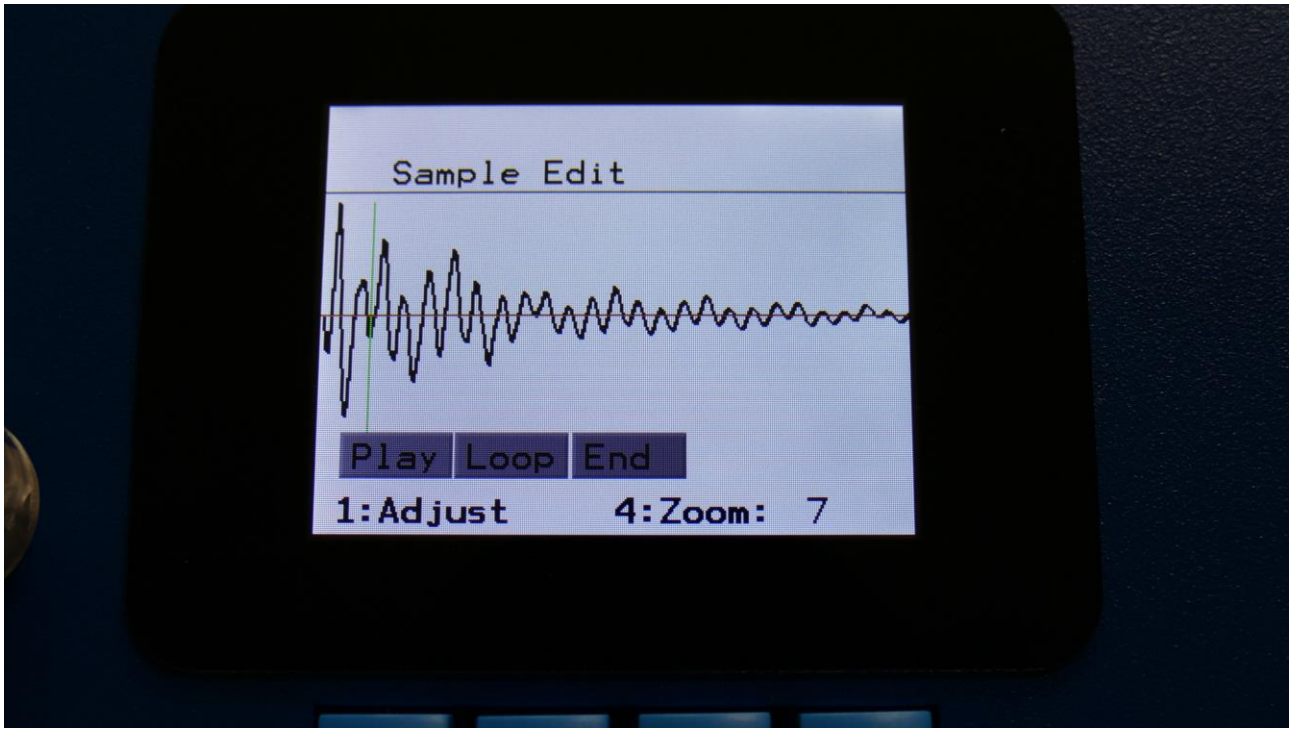
From the Main Sample Edit page, push the Edit button, to enter the main sample menu:



Select Graphic, using the < button, and press the Edit button to enter the graphical sample edit pages, or touch the Graphic module on SpazeDrum Black.

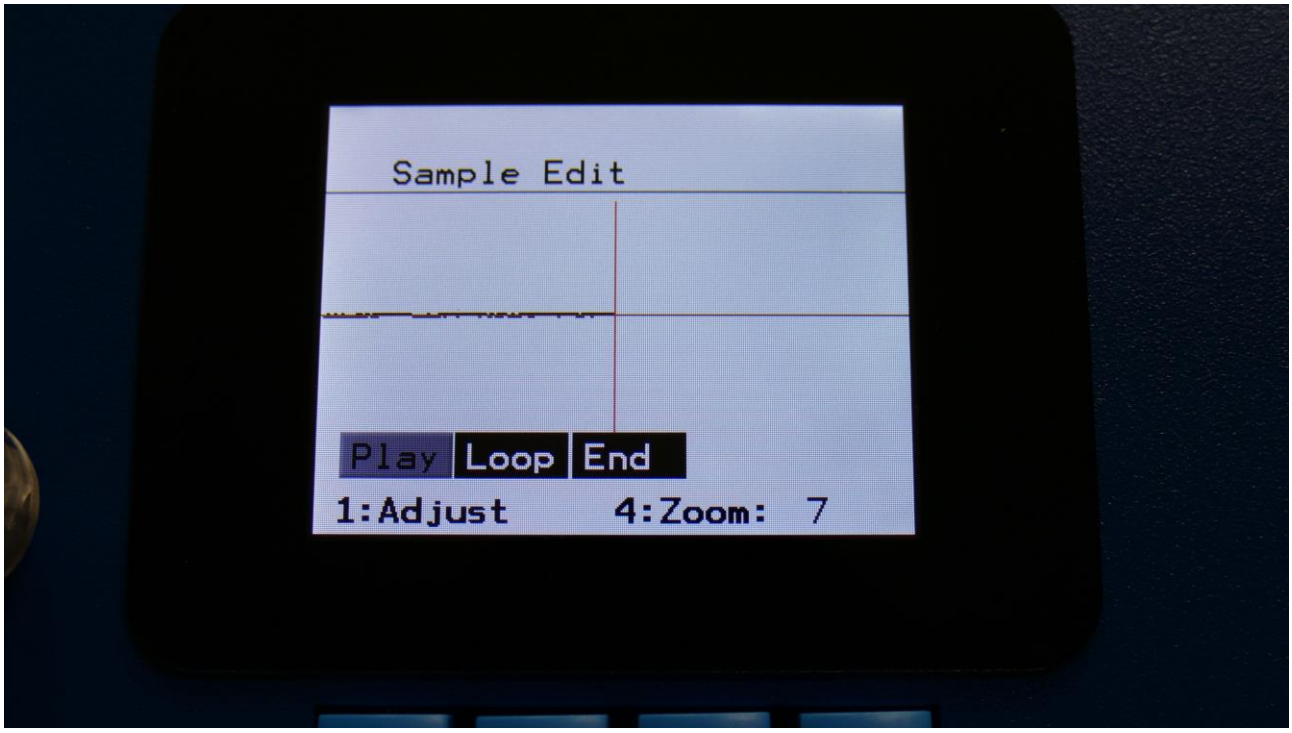


On this page, you will see a graphical presentation of the selected sampling. Chop points are indicated as vertical blue lines, and the sample zero point is indicated as a horizontal red line.



By rotating Edit Knob 1, you can select a start point. This is indicated by a vertical green line.

By rotating Edit Knob 4, you can zoom in and out.



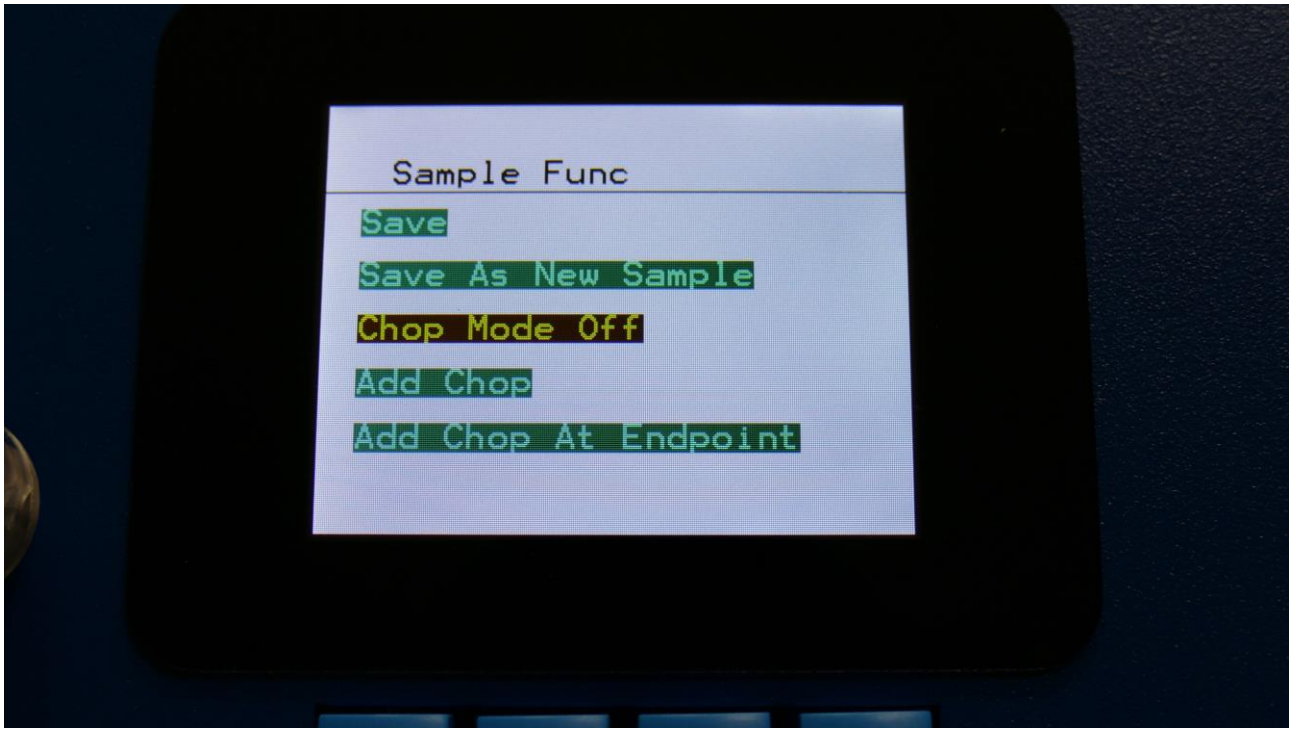
By pushing the > button, so that the End field turns black, the screen will now be focused on the end point, which is indicated as a vertical red line. When you rotate Edit Knob 1 now, the red line will move, indicating that the end point is selected.

If you push the Play button, the sample will play back from the start point to the endpoint, and then stop.

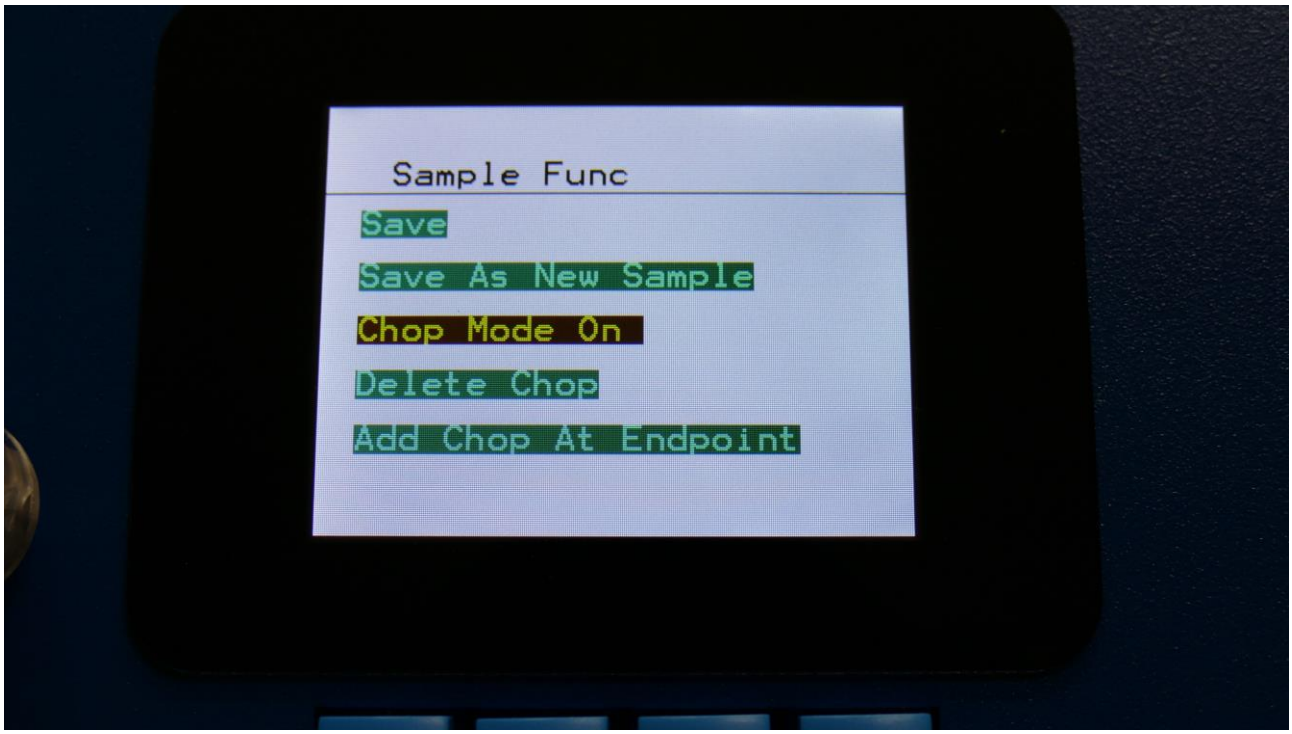
If you push the < button, so that the Loop field turns black, and then push the Play button, the sample will play back from the start point to the end point, and then loop back to the start point, and play back the selected piece again, until it is stopped, by pushing the < button again, to turn Loop off.

Selecting and edit chop points

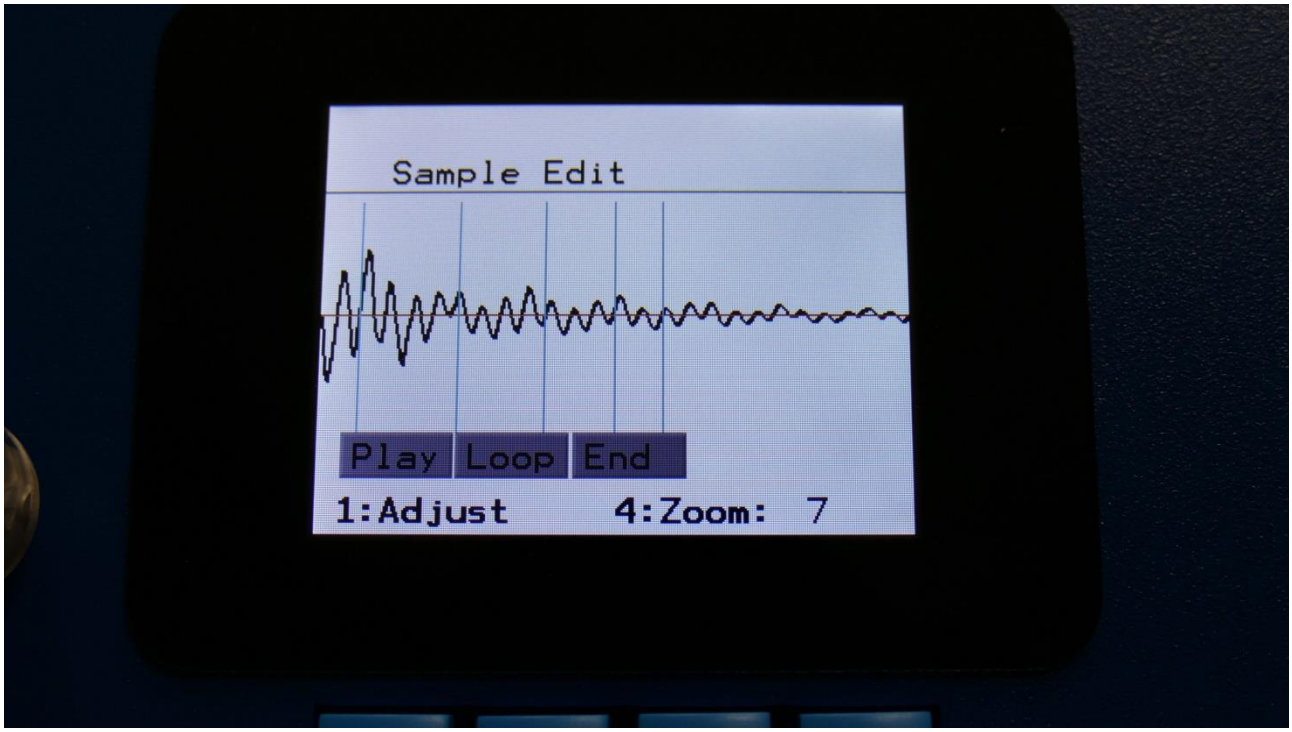
Push the Edit button, to enter the graphical sample edit menu.



Select the “Chop Mode Off” field, by using the < and > buttons.
Push the Edit button. Chop mode will now turn on.



Push the Exit button, to return to the graphical sample edit page. Chop points will now be shown.



Push one of the 16 step buttons to select a chop point. The step button will light up, to show the selected chop. To select chop points 17-64, use the Bar Sel function (push and hold the Morph Set/Bar Sel button, while pushing step button 1-4, to select chop 1-16, 17-32, 33-48 or 49-64).

Rotate Edit Knob 1 to adjust the chop point. Rotate Edit Knob 4 to zoom in and out.

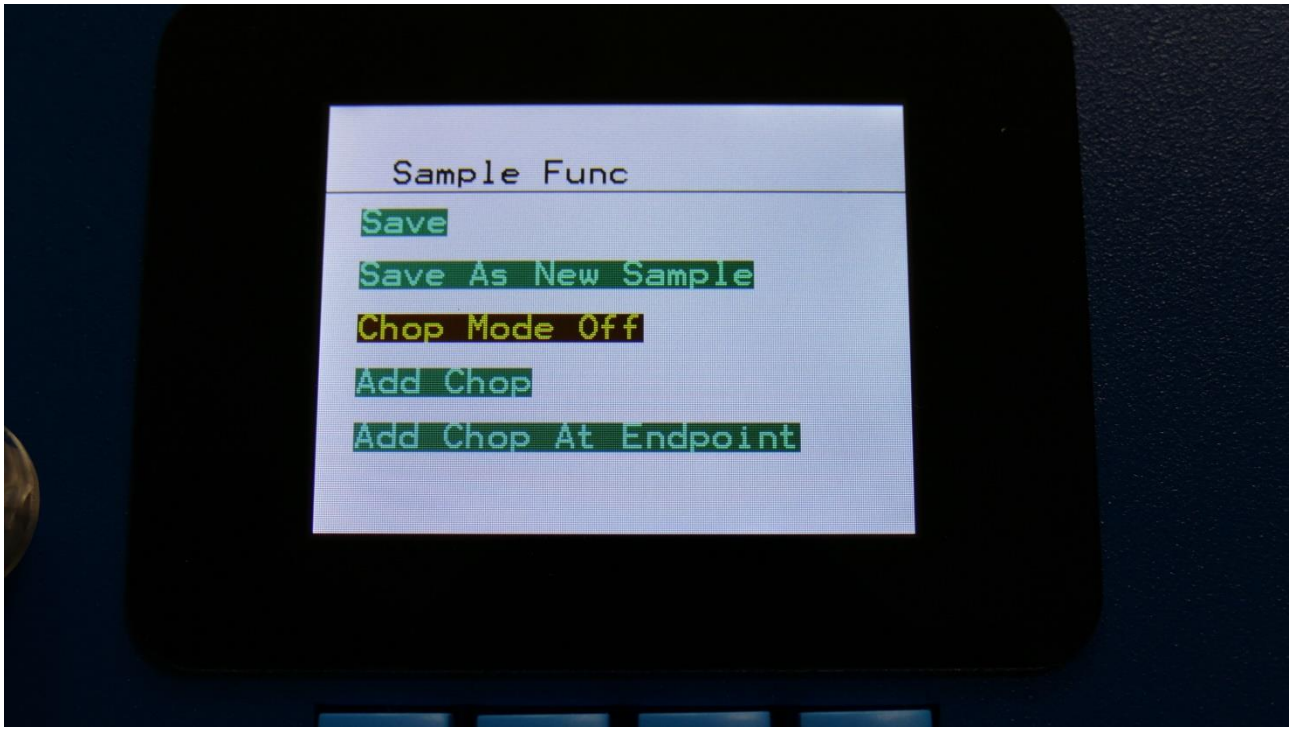
If you push the Play button, the sample will play back from the selected chop point to the next chop point, and then stop.

If you push the < button, so that Loop field turns black, and then press the Play button, the sample will play back from the selected chop point to the next chop point, and then loop back to the selected chop point, and play back the selected piece again, until it is stopped, by pushing the < button again, to turn Loop off.

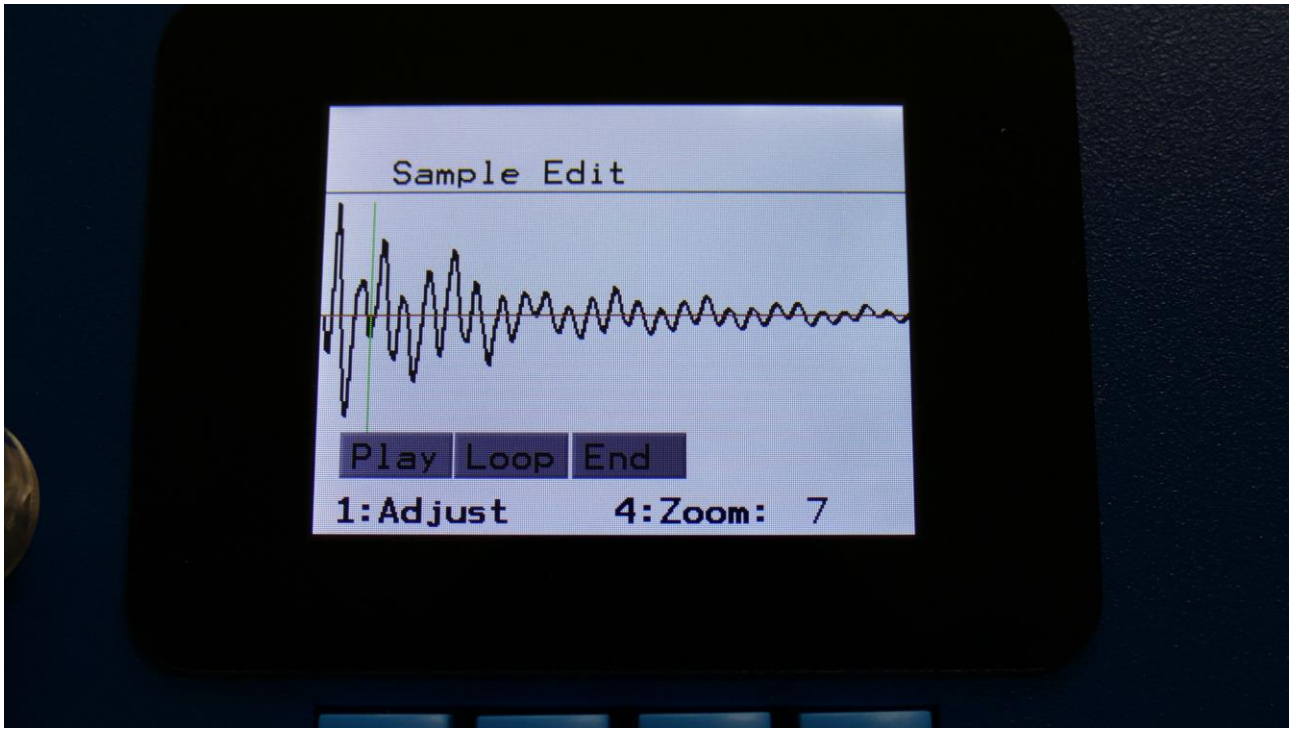
By pushing the > button, so that the End field turns black, it is possible to adjust the next chop point, which is also the end point of the selected chop, by rotating Edit Knob 1.

Adding a chop point

Make sure to check in the graphical sample edit menu, the Chop Mode is off.

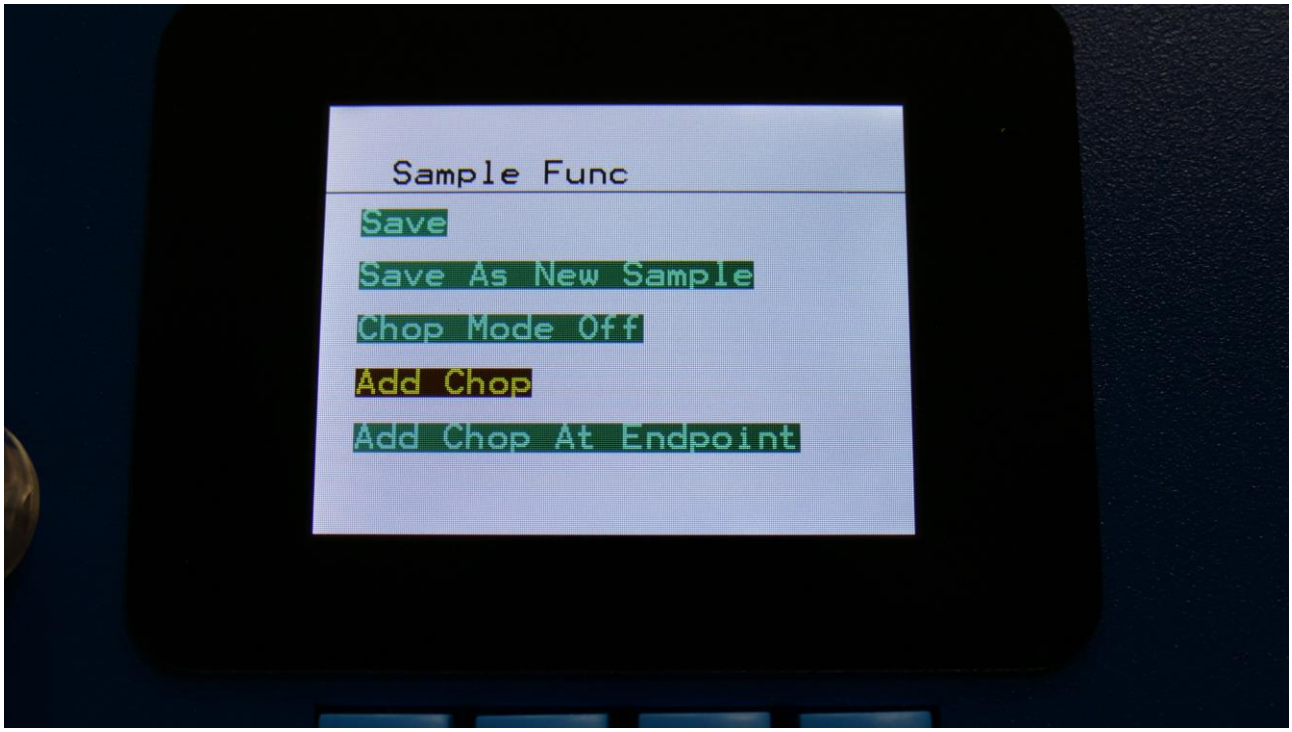


On the graphical sample edit page, set the start point, where you want the chop point to be, by rotating Edit Knob 1.



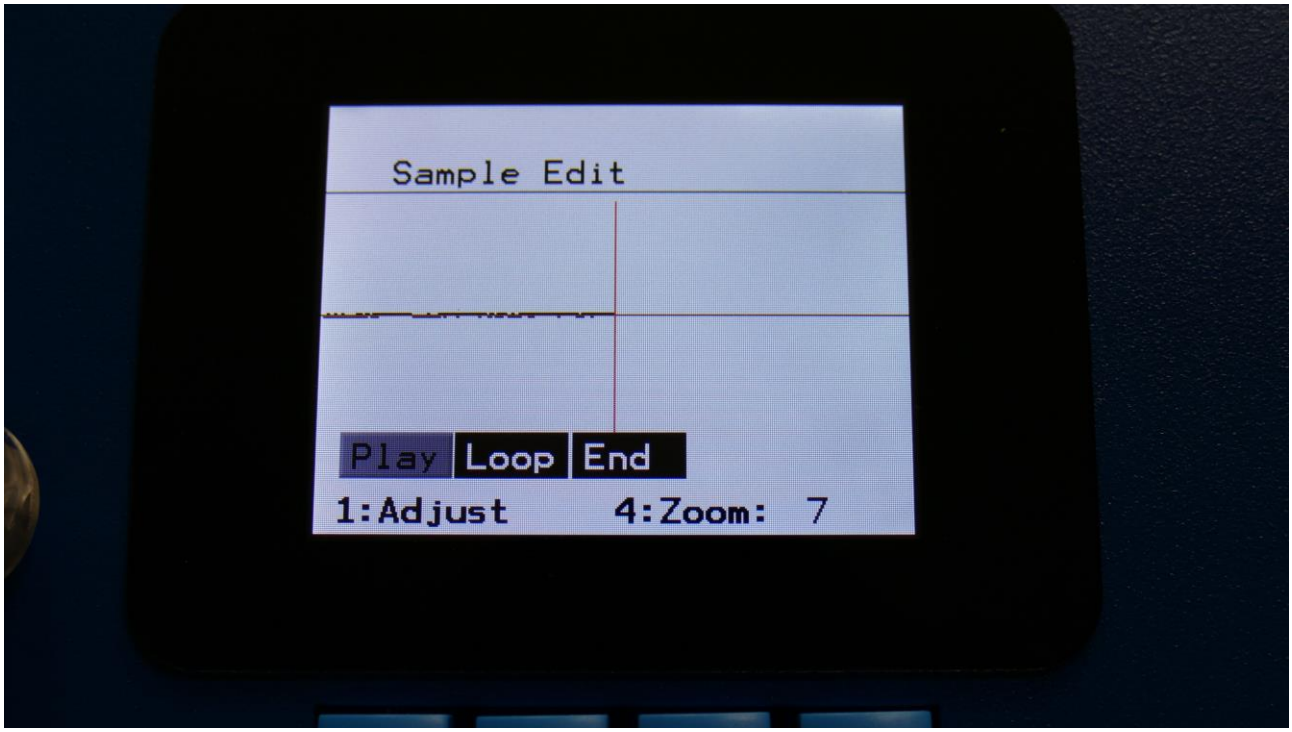
Push the Edit button.

Now you will enter the graphical sample edit menu:



Select “Add Chop”, using the < and > buttons, and push the Edit button. SpazeDrum will now jump back to the graphical sample edit page, and a chop point will be added at the selected start point.

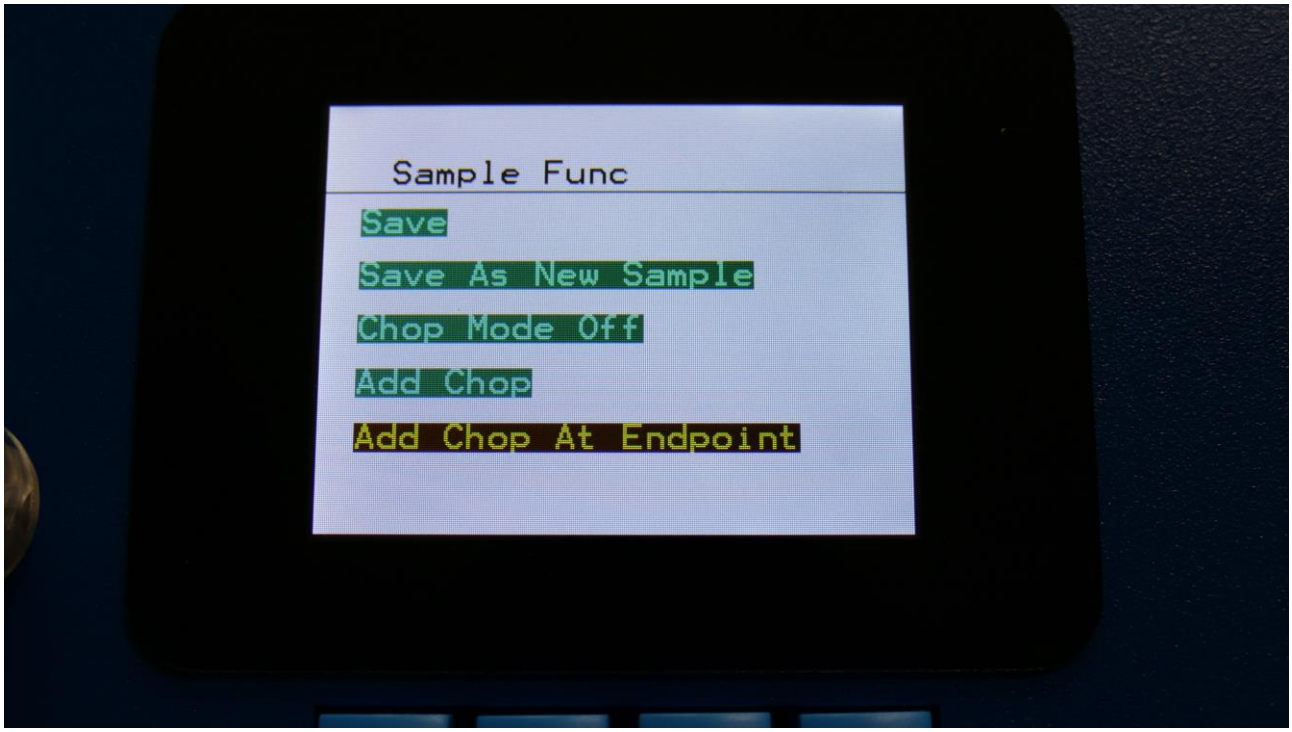
Adding a chop point at the selected end point



Set the end point, where you want the chop point to be.

Push the Edit button.

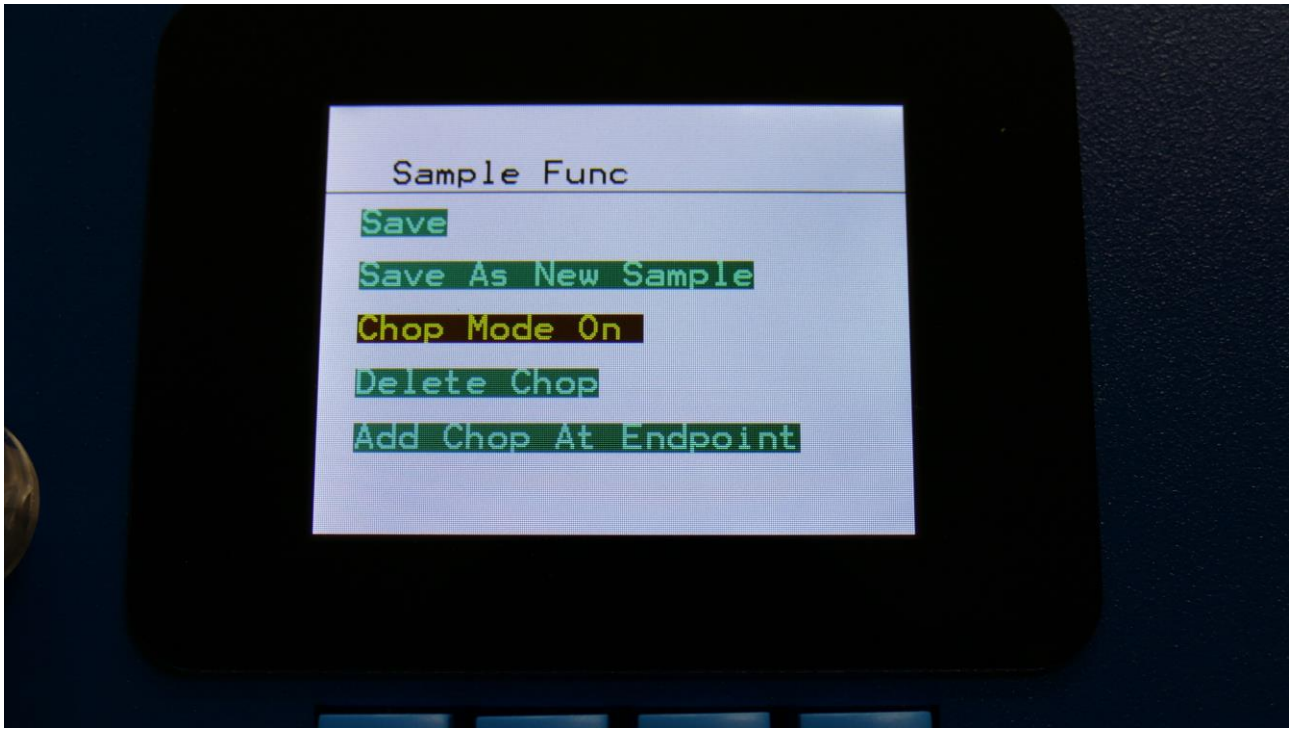
Now you will enter the graphical sample edit menu:



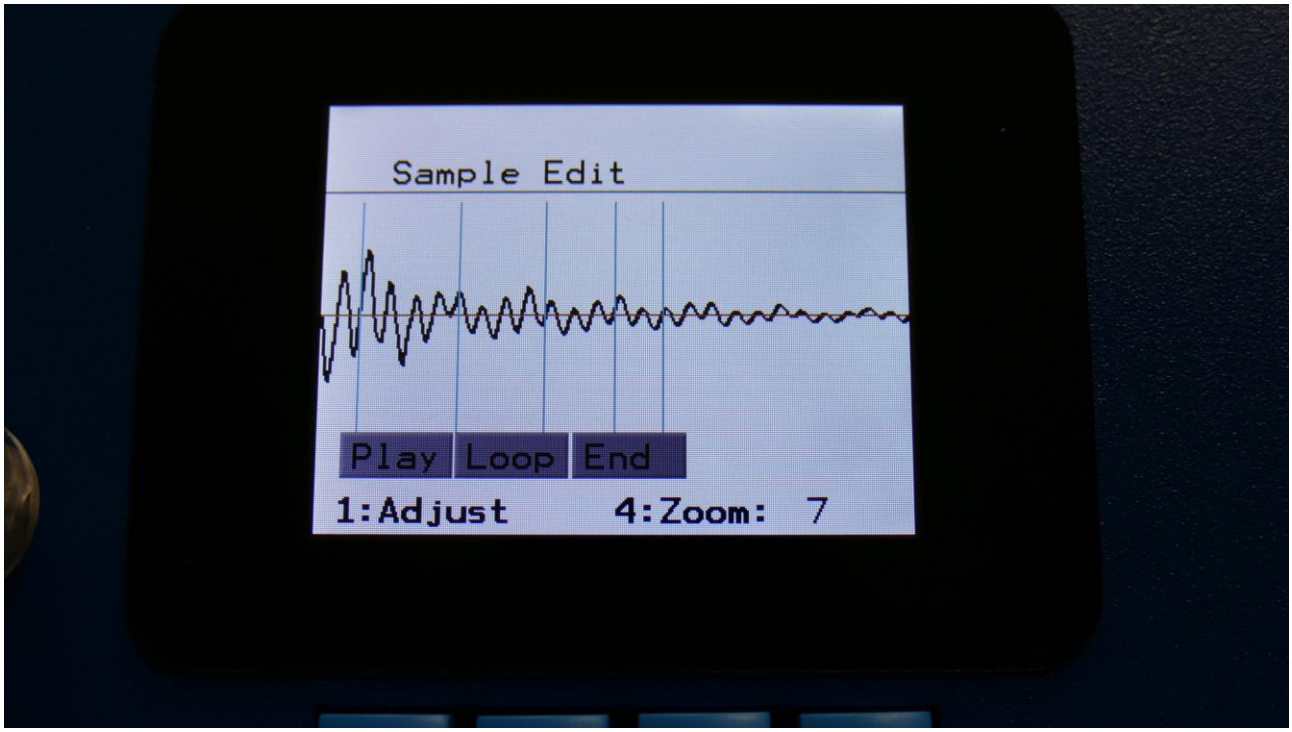
Select “Add Chop At Endpoint”, using the < and > buttons, and push the Edit button. SpazeDrum will now jump back to the graphical sample edit page, and a chop point will be added at the selected end point.

Delete a chop point

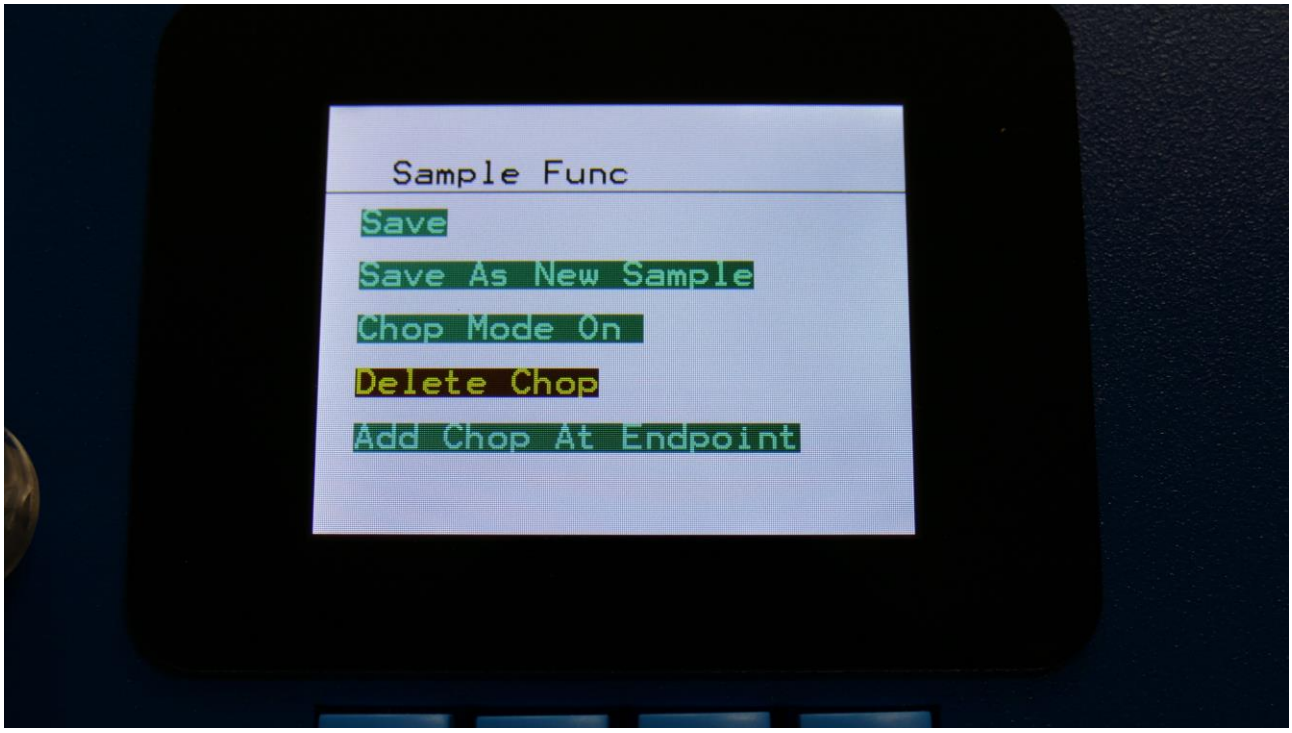
Make sure that chop mode is on, in the graphical sample edit menu:



On the graphical sample edit page, select the chop point, that you would like to remove.



Push the Edit button, to enter the graphical sample edit menu.

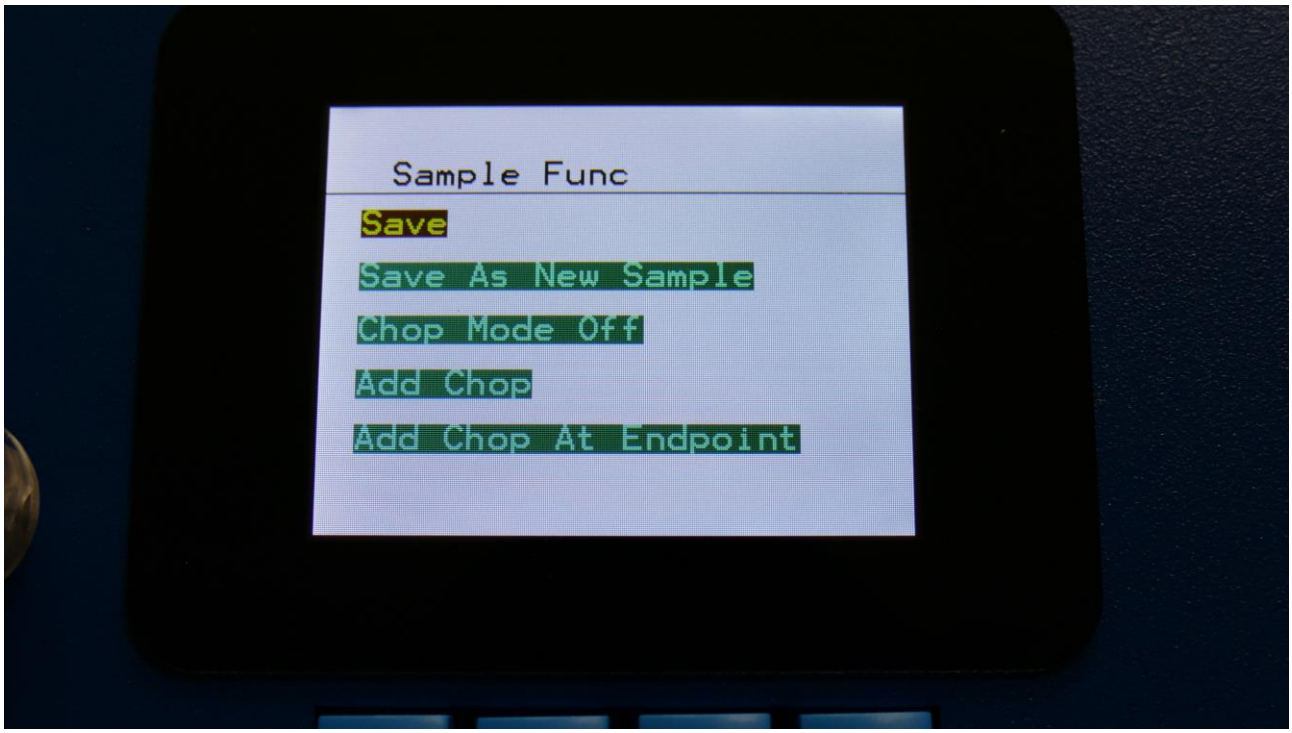


Select “Delete Chop”, using the < and > buttons, and push the Edit button. SpazeDrum will now jump back to the graphical sample edit page, and the previously selected chop point will have been removed.

Saving the start, end and chop points

After you have edited a sampling, you must save the changes, in order to keep them.

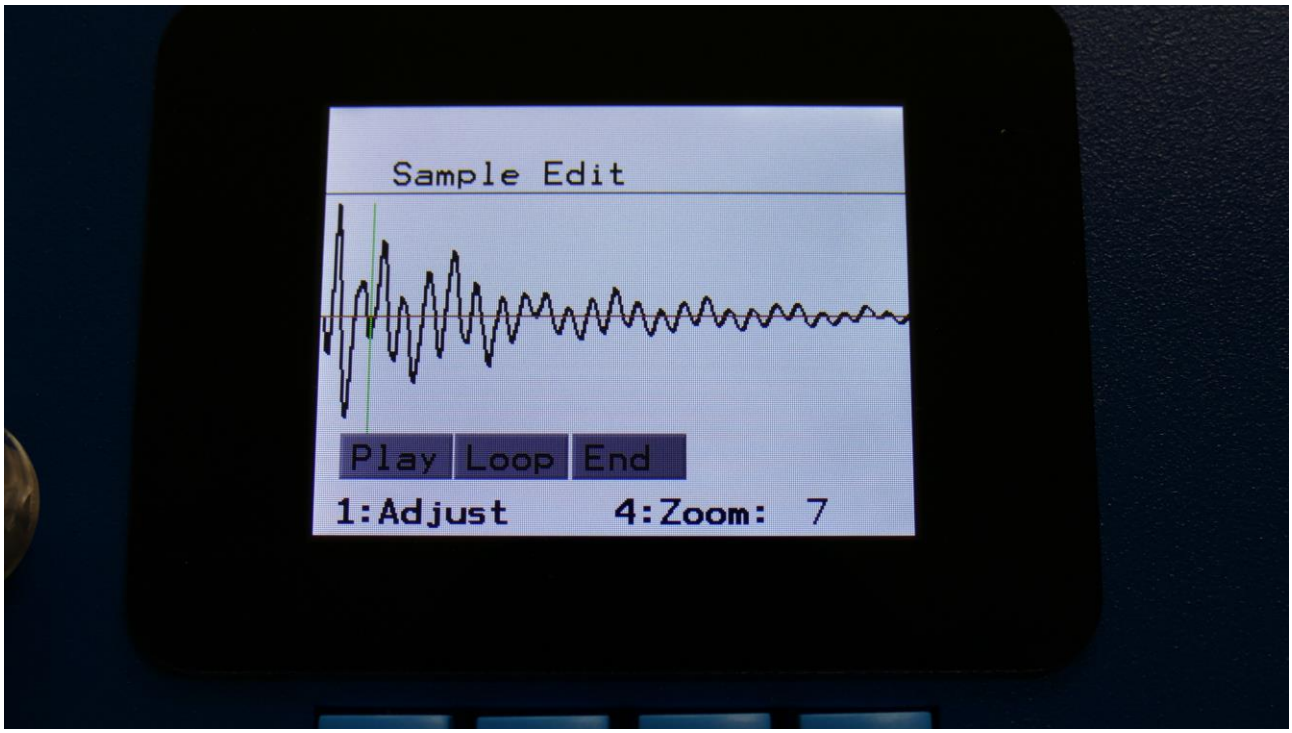
This is also done from the graphical sample edit menu. Push the Edit button, to enter this.



Select “Save ”, using the < and > buttons, and then hit the Edit button. SpazeDrum will now save your edits, and return to the graphical edit page.

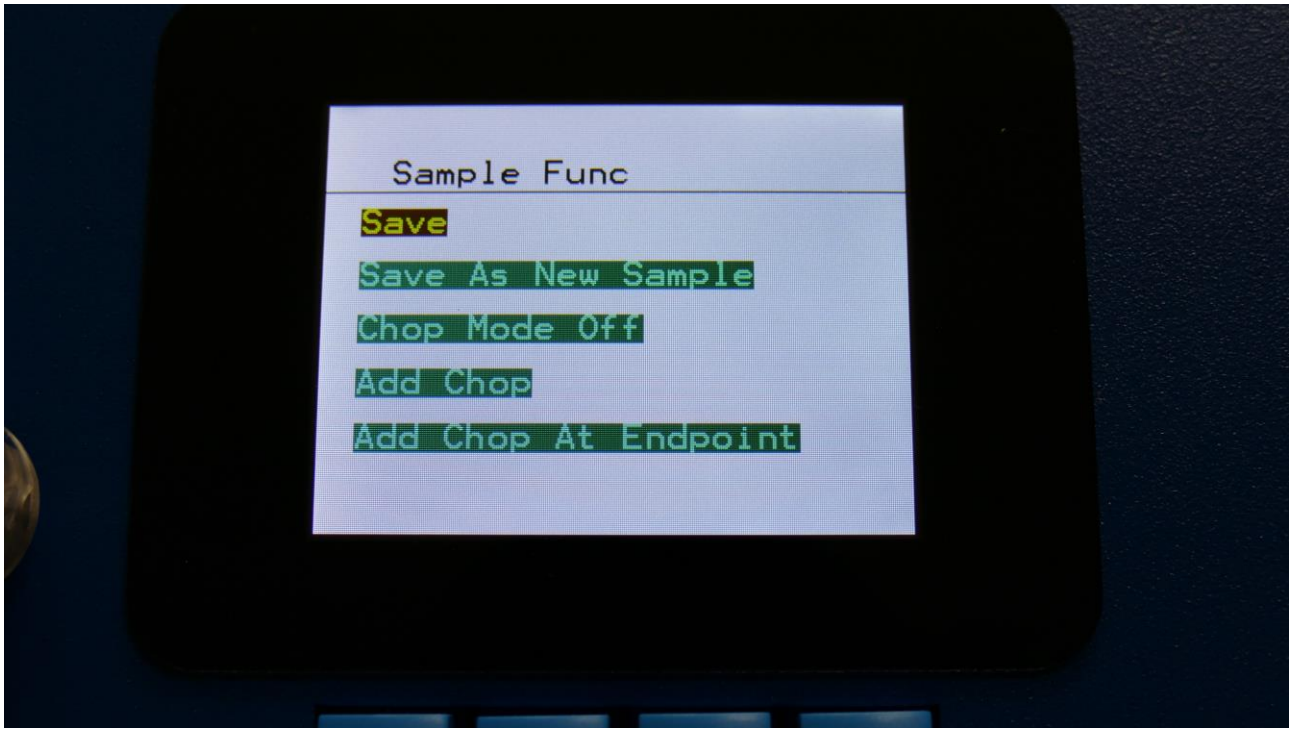
Creating a new sampling from a portion of the selected sampling

If you want to completely remove unused start and/or end portions of a sampling, use a portion of the sampling for a loop, or just wants to copy the whole sampling to another sample location, you can use this function.



First, set the start and the end points, of the portion of the sampling, that you would like to copy, OR select a chop, it this is what you would like to copy.

Push the Edit button, to enter the graphical sample edit menu.



Navigate to ”Save As New Sample”, using the < and > buttons, and push the Edit button.

SpazeDrum will now write “Saving Sample...” for some time, and then it will jump back to the graphical sample edit page.

A new sampling has now been stored, with the extension –PART.

USB

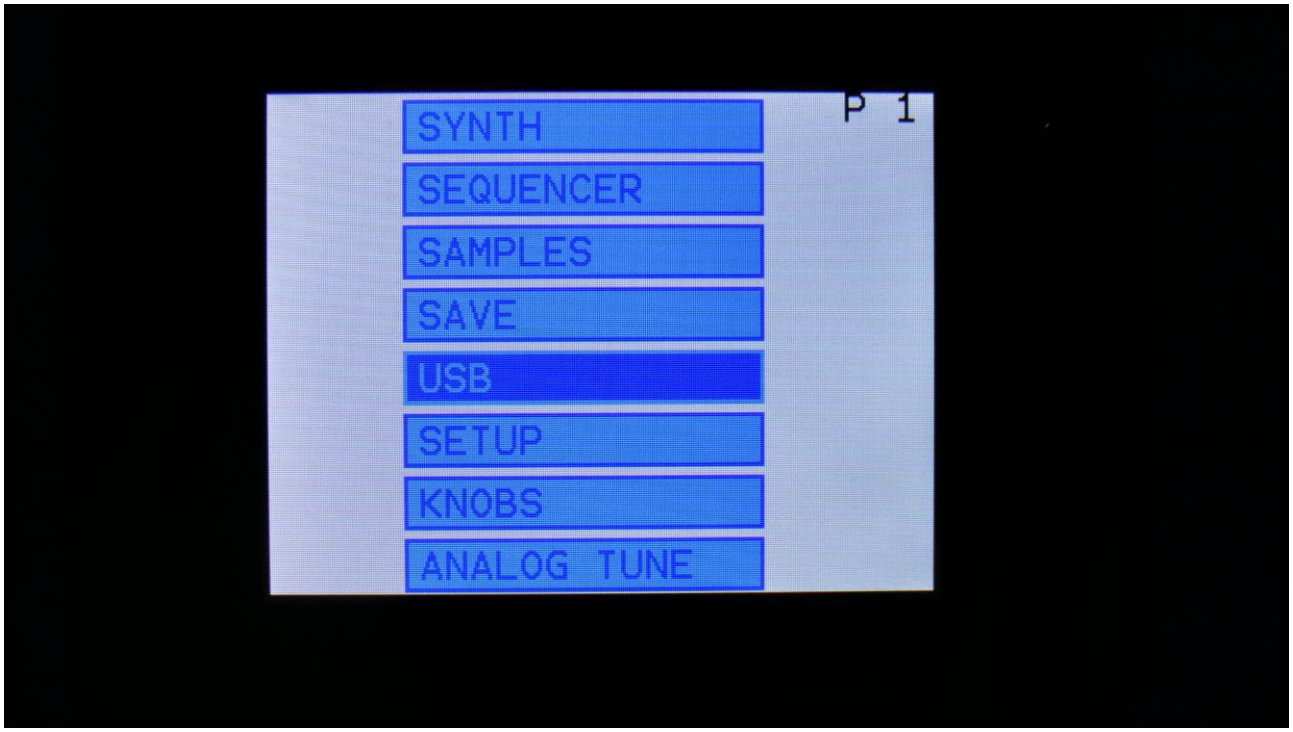
The USB pages lets you access the files and directories of a USB drive, attached to SpazeDrum's USB connector.

You can import and export samples as .wav files, import and export presets and songs, update the SpazeDrum firmware, and make new directories.

USB drives used with SpazeDrum should be:
-Maximum 32 GB
-FAT formatted
-Please find a list of tested USB drives at www.gotharman.dk .

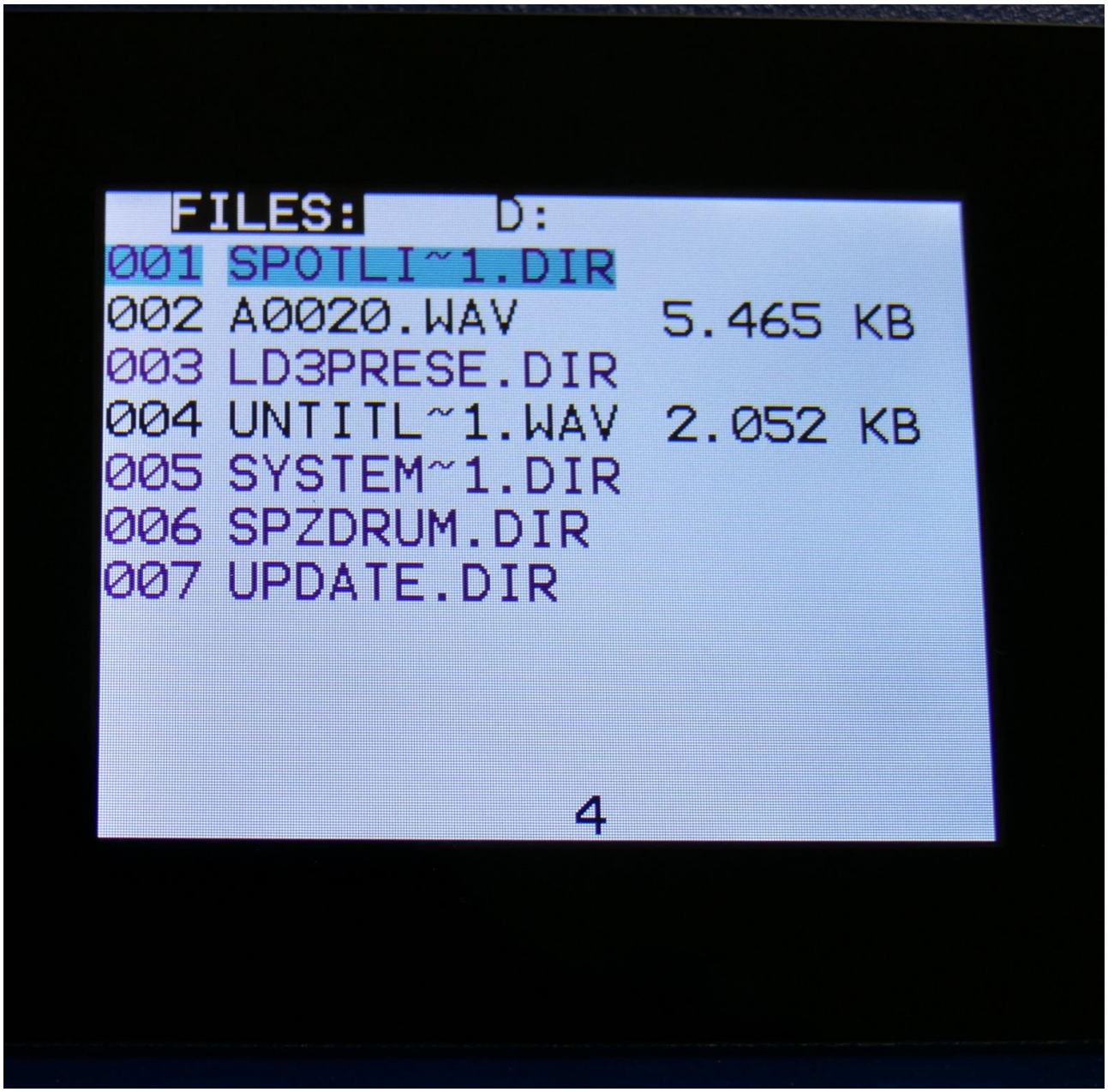
Accessing the USB pages

From the Preset Select screen, push the Edit button:



Select USB, using the < and > buttons, and push the Edit button.

OR: Push and release the Func/Mute button, so that it lights up. Push step button 16 (USB).



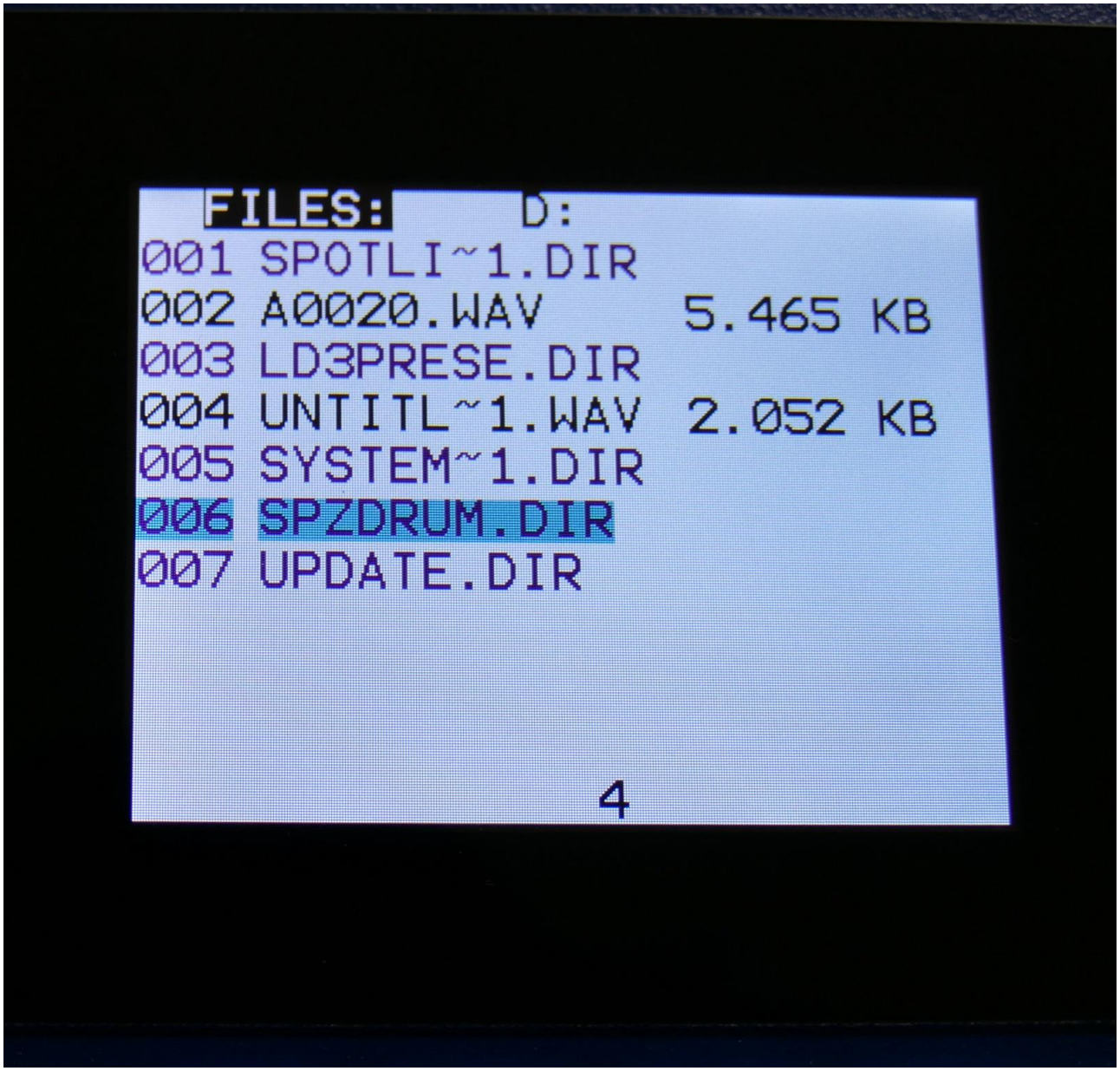
On this first page that you will enter, the root directory of the connected drive is shown. You can see that it is the root directory, by the ”D:” in the top of the page. If you have accessed a directory, the name of this will replace ”D:”.

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, use the < and > buttons.

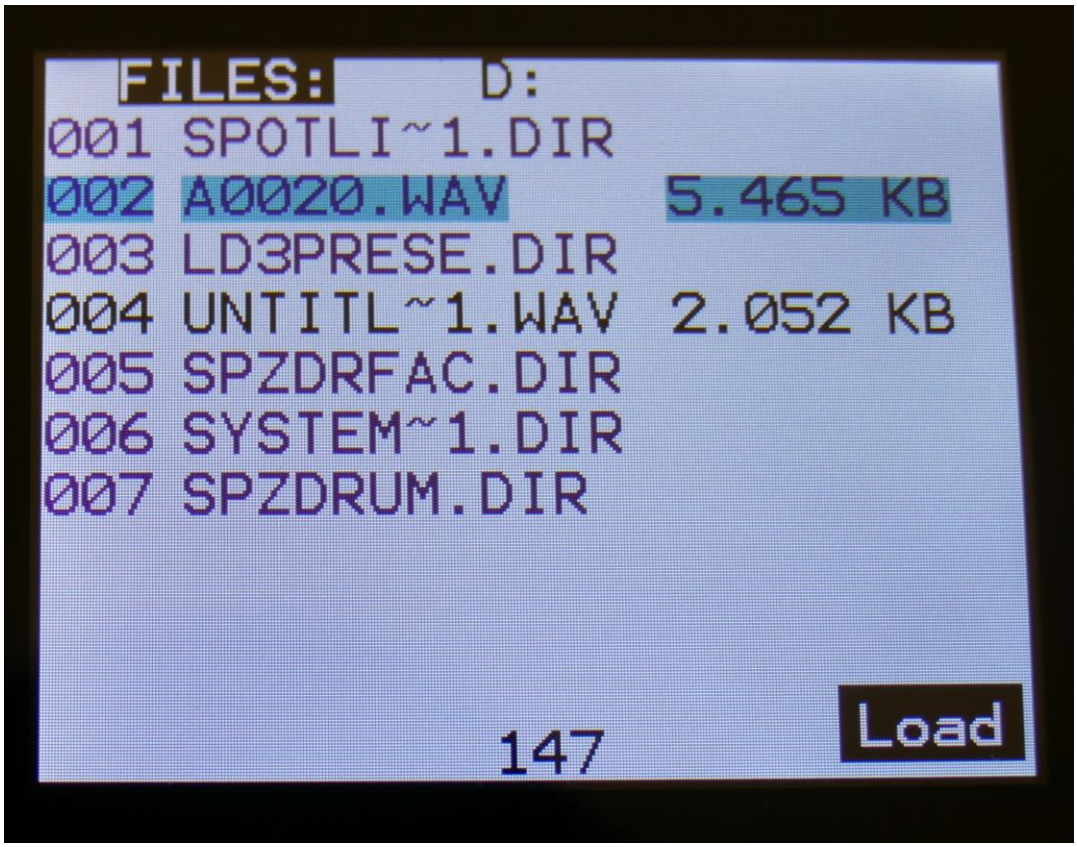
SpazeDrum will show 7 files/directories at a time. If the 7th file is selected, and you push the > button, the next 7 files will be shown. If the first file is selected, and you push the < button, the previous 7 files will be shown.

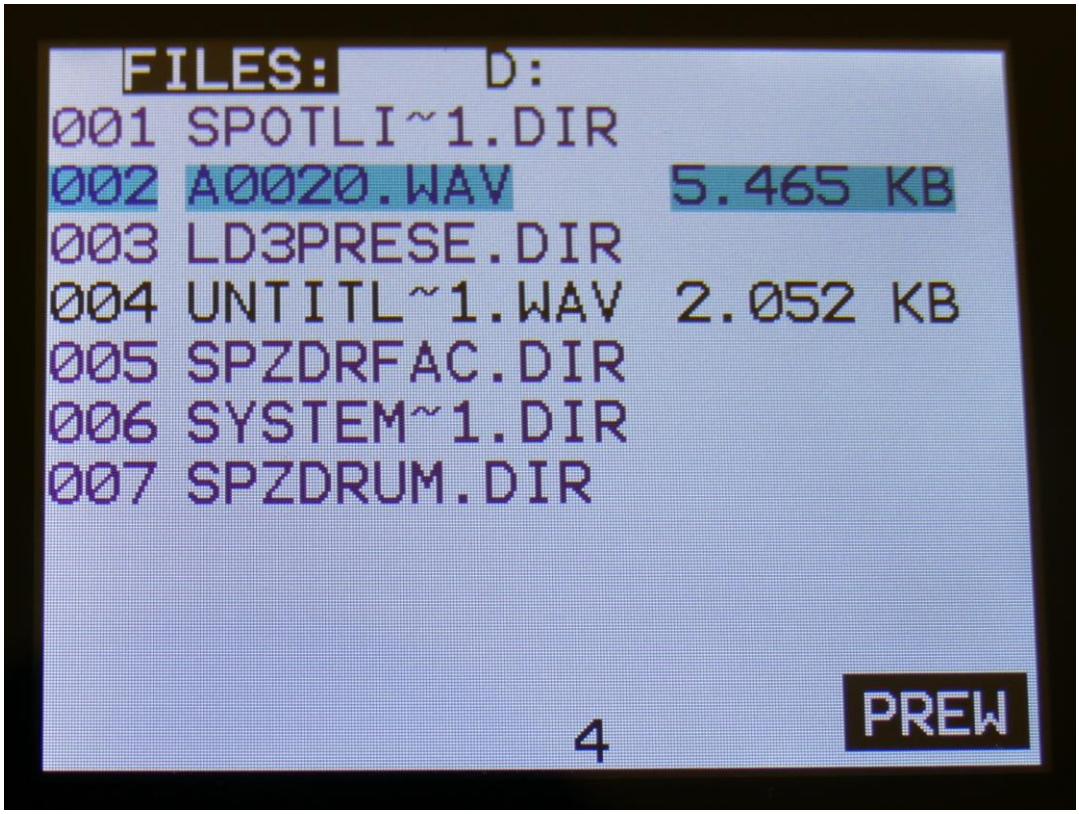
USB Sample Preview



Wav samples can be previewed directly from a USB drive.

Select the sampling, that you would like to preview, push the Play button button. A field on the screen will now first show LOAD, then PREW, while playing back the first 6 seconds of the sampling.

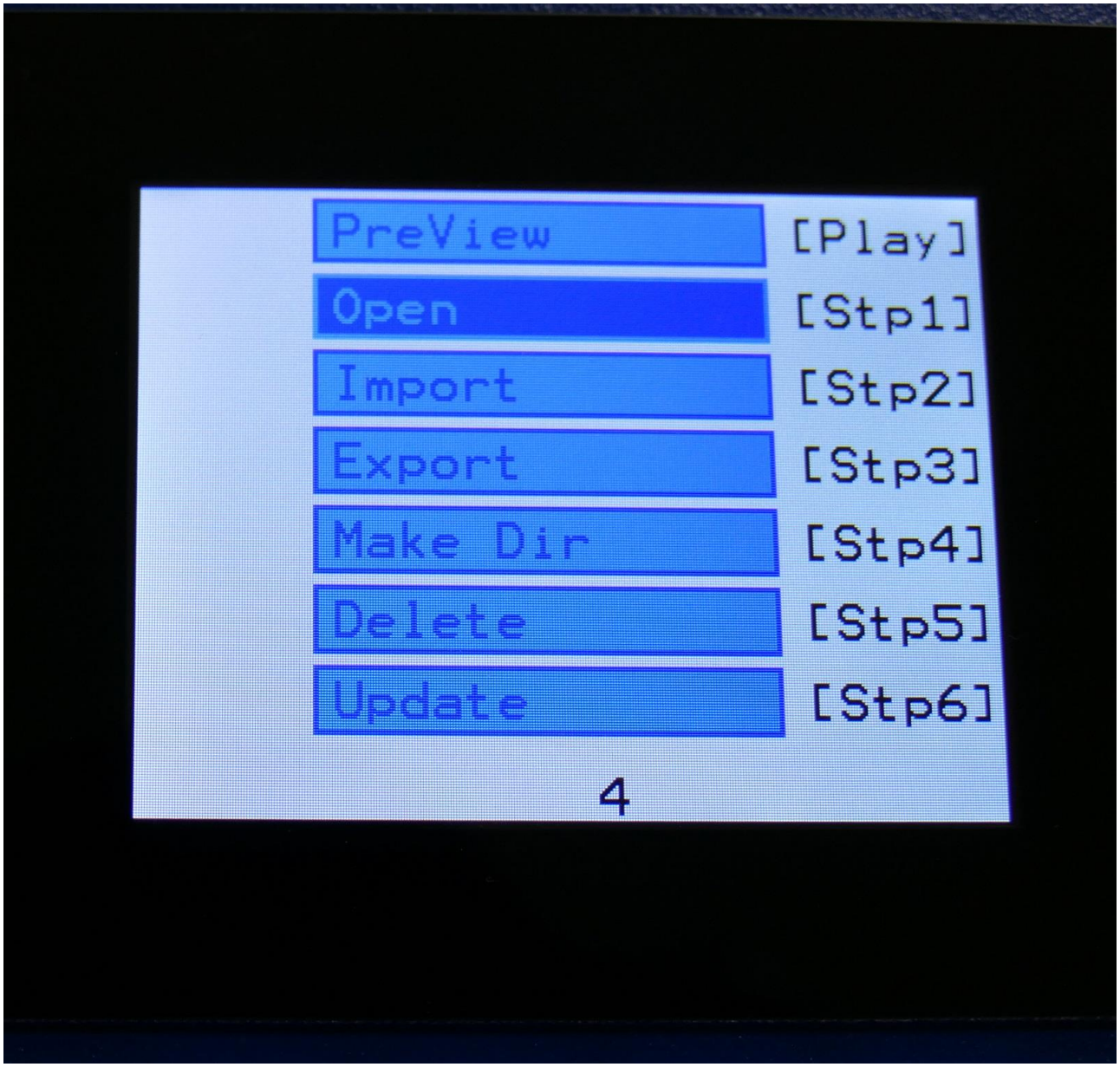

FILES: D:
001 SPOTLI~1.DIR
002 A0020.WAV 5.465 KB
003 LD3PRESE.DIR
004 UNTITL~1.WAV 2.052 KB
005 SPZDRFAC.DIR
006 SYSTEM~1.DIR
007 SPZDRUM.DIR
147
Load


FILES: D:
001 SPOTLI~1.DIR
002 A0020.WAV 5.465 KB
003 LD3PRESE.DIR
004 UNTITL~1.WAV 2.052 KB
005 SPZDRFAC.DIR
006 SYSTEM~1.DIR
007 SPZDRUM.DIR
4
PREW

Open a directory (or folder)

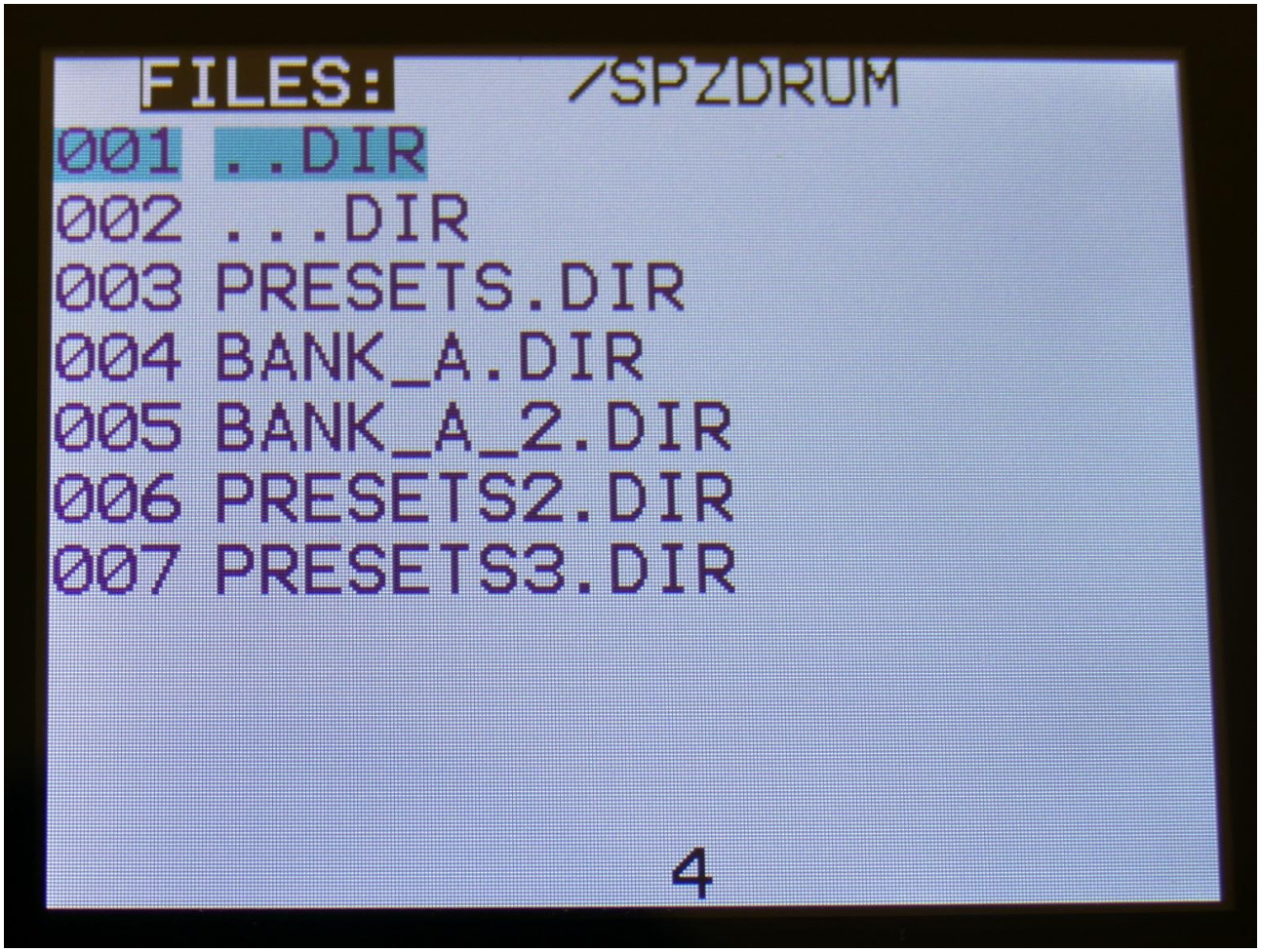
To open a directory, to see what's inside, or to import single files or sub-directories, simply select the directory you would like to open, and push the Edit button.

The USB menu will now show.



Open is the default selected function, when you open the menu, so just push the Edit button again, to open the directory. You can also push step button 1, to do this.

SpazeDrum 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.


FILES: /SPZDRUM
001 ..DIR
002 ...DIR
003 PRESETS.DIR
004 BANK_A.DIR
005 BANK_A_2.DIR
006 PRESETS2.DIR
007 PRESETS3.DIR
4

Importing files

Files that can be imported to SpazeDrum are:
-Samplings with the ending .WAV, including SpazeDrum generated chop points, and cue points generated by other gear/computer programs.
-Little deFormer samplings with the ending .LDS, including chop points.
-Presets with the ending .SDP
-Songs with the ending .SDO

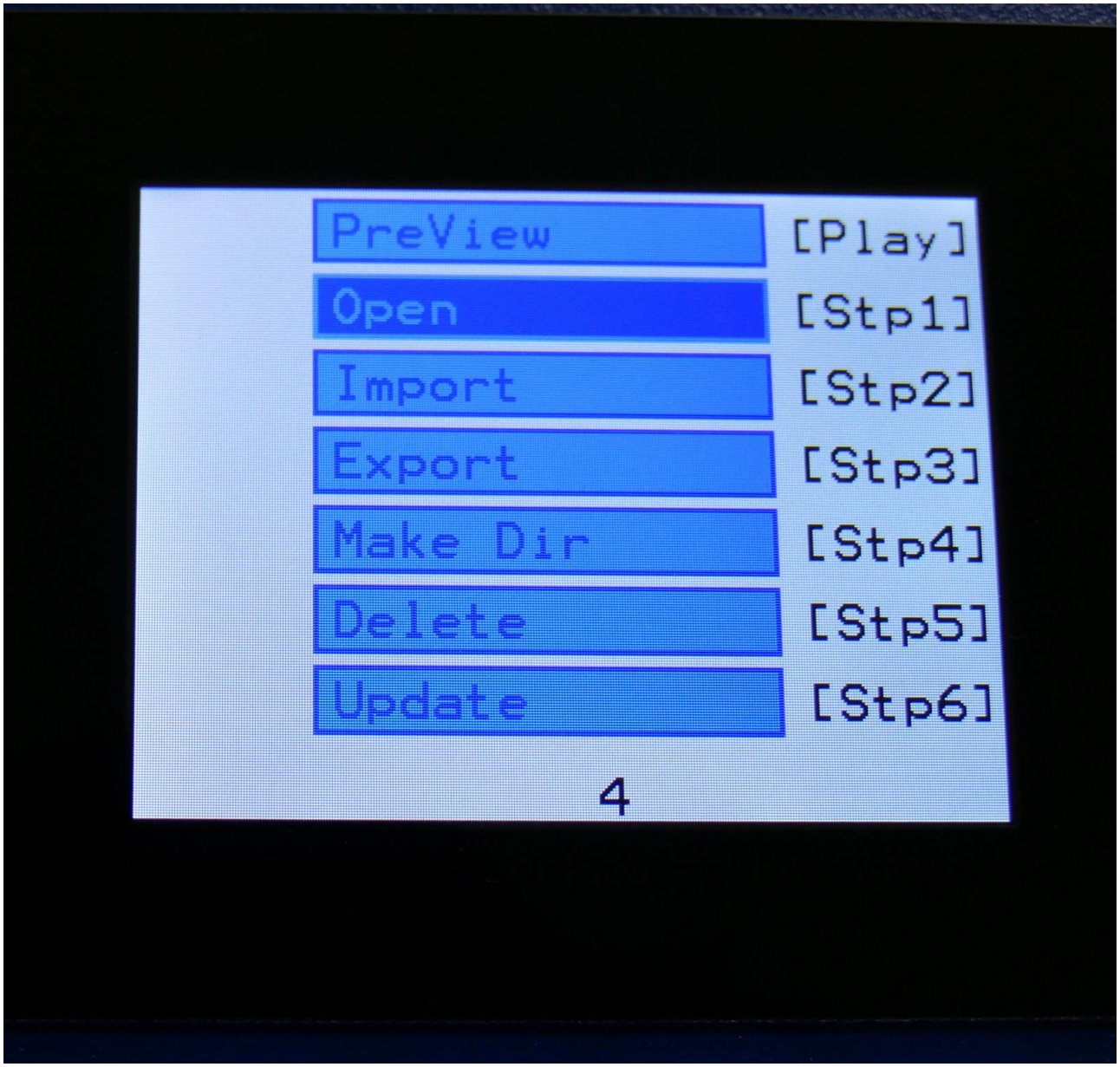
Files that are shown, but can't be imported directly are:
-Update files with the ending .HEX

Files with any other ending will not be shown on SpazeDrum's screen, regardless of if they are present on the drive.

To import a single sampling or preset/song, select the .WAV/.LDS/.SDP/.SDO file you would like to import.
Samples are imported to the next available sample location in the sample bank.
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.
When importing multiple presets or songs from a directory, the first preset/song will be placed at the currently selected preset/song location, and the next ones will be placed on the following locations, so make sure, that there are room enough, before you import a bunch of presets/songs.

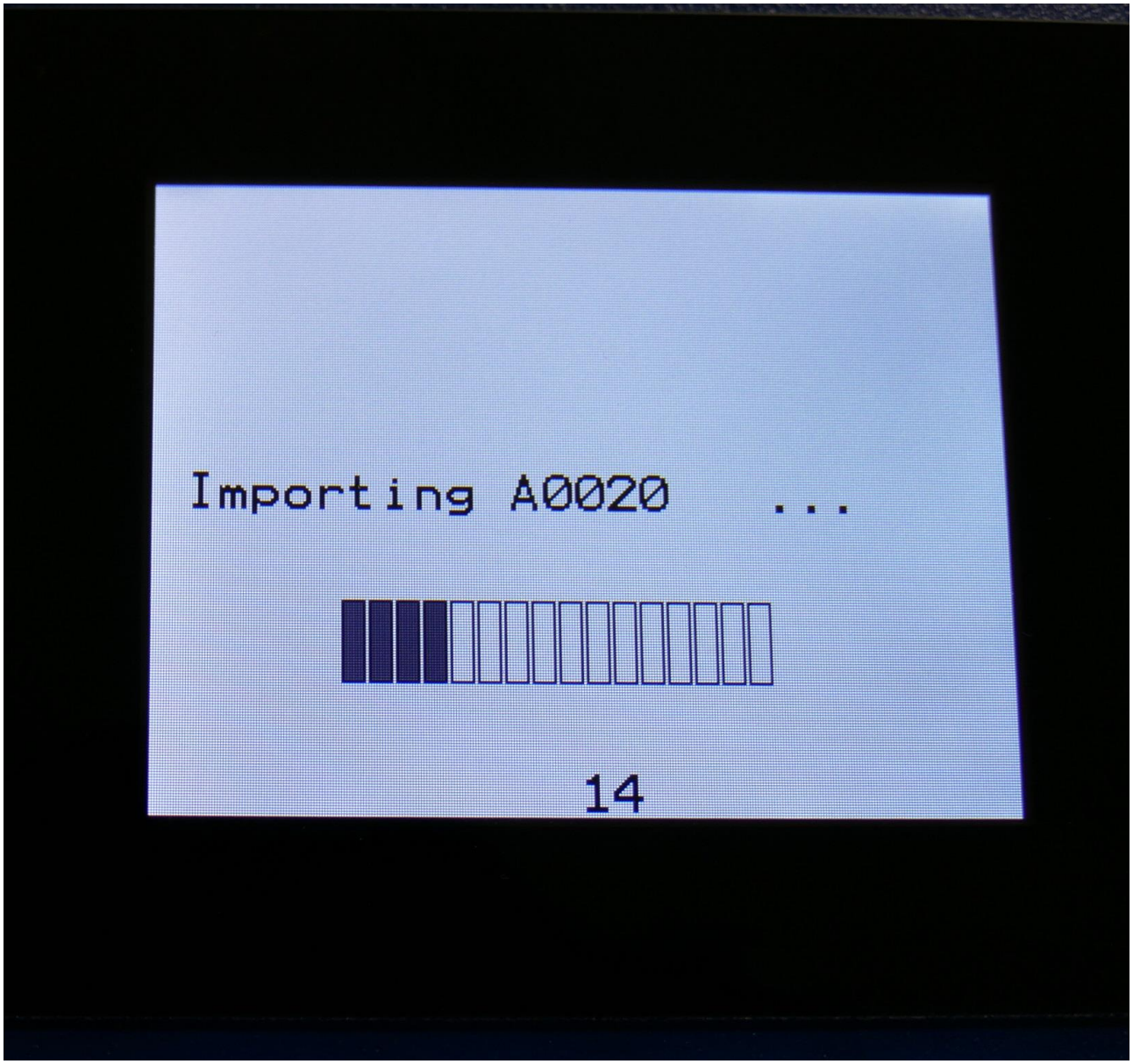
Samples that were exported from a Gotharman instrument, can be imported either with the "LD" name (the imprinted sample name shown for the sampling on the sample pages), or the file name. To select this, see the next sub chapter of this manual "Importing Multiple Files".

Push the Edit button. The USB menu will now be shown:



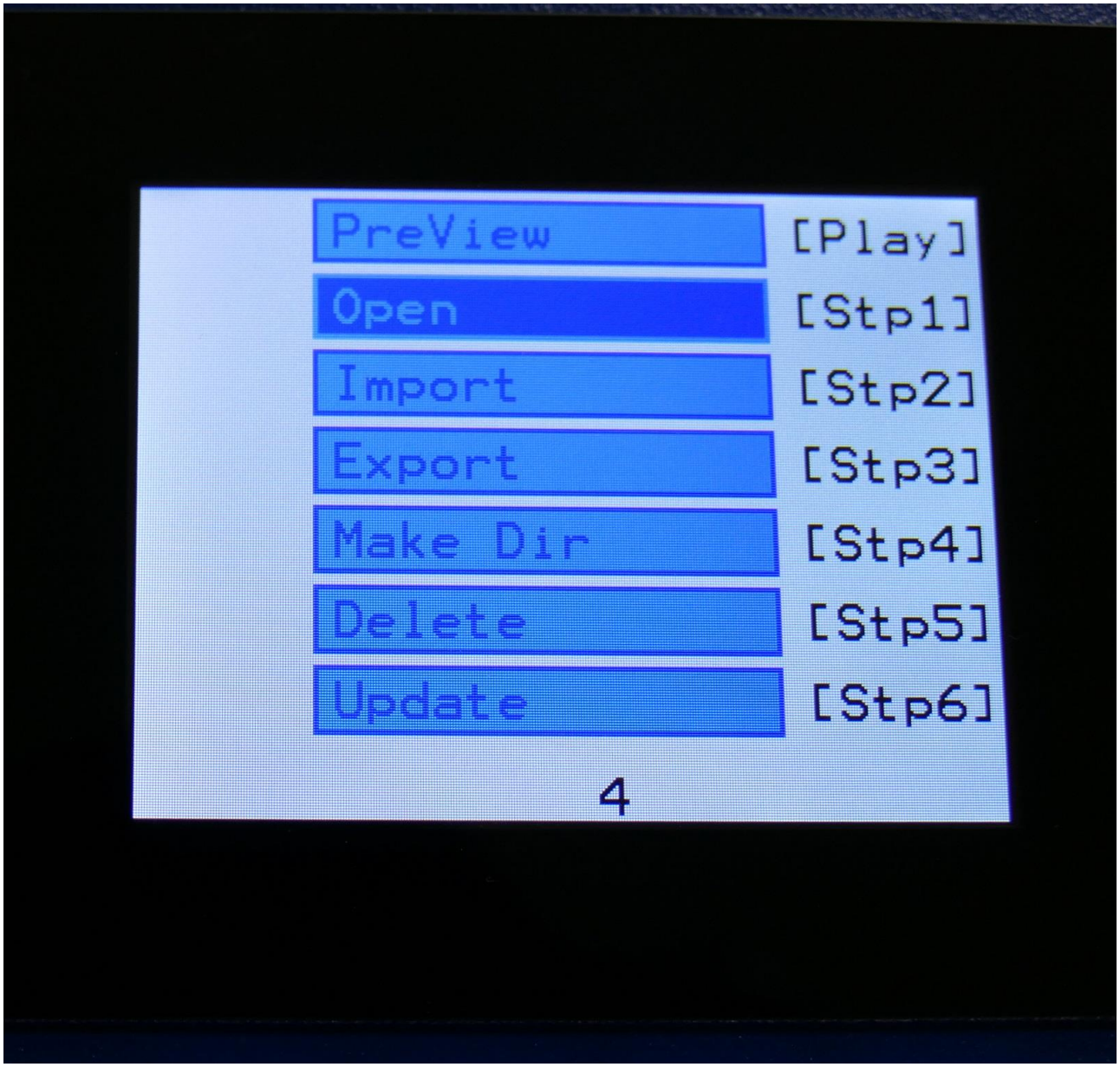
Navigate to Import, and push the Edit button again, or push step button 2.

SpazeDrum will now import the file.



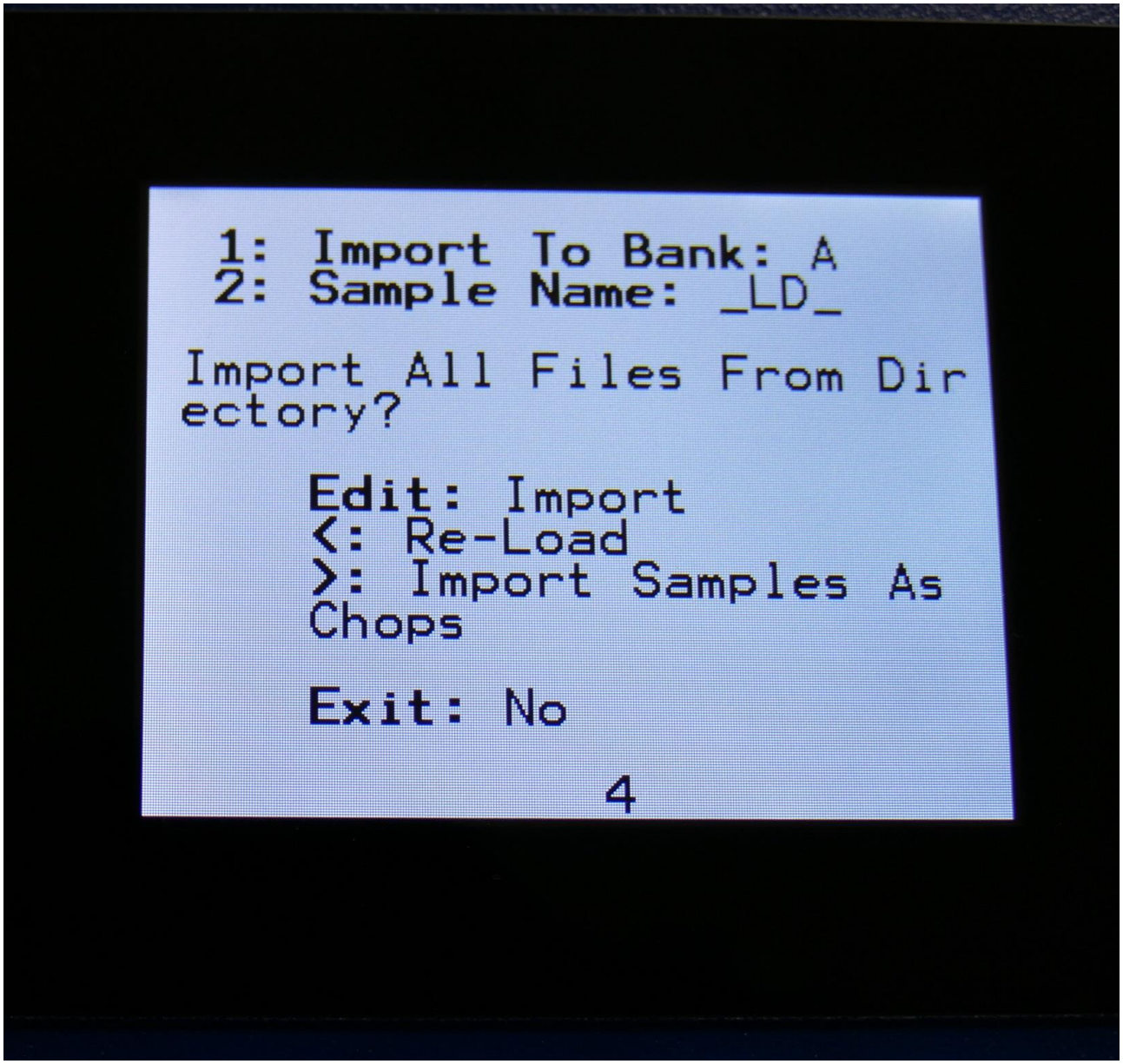
Importing multiple files

To import multiple files at one time, select a directory. Push the Edit button.



Navigate to Import, and push the Edit button again, or push step button 2.

SpazeDrum will now ask:



Push the Edit button to continue, or the Exit button to abort.

If you pushed the Edit button, SpazeDrum 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. 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.

Samples that were exported from a Gotharman instrument, can be imported either with the “LD” name (the imprinted sample name shown for the sampling on the sample pages), or the file name. To select this, turn Edit Knob 2, to select either “_LD_” or “File”.
This setting will be valid until you turn your SpazeDrum off, or gets back here to change the setting. The setting is valid both when importing multiple samples, and when importing single samples.

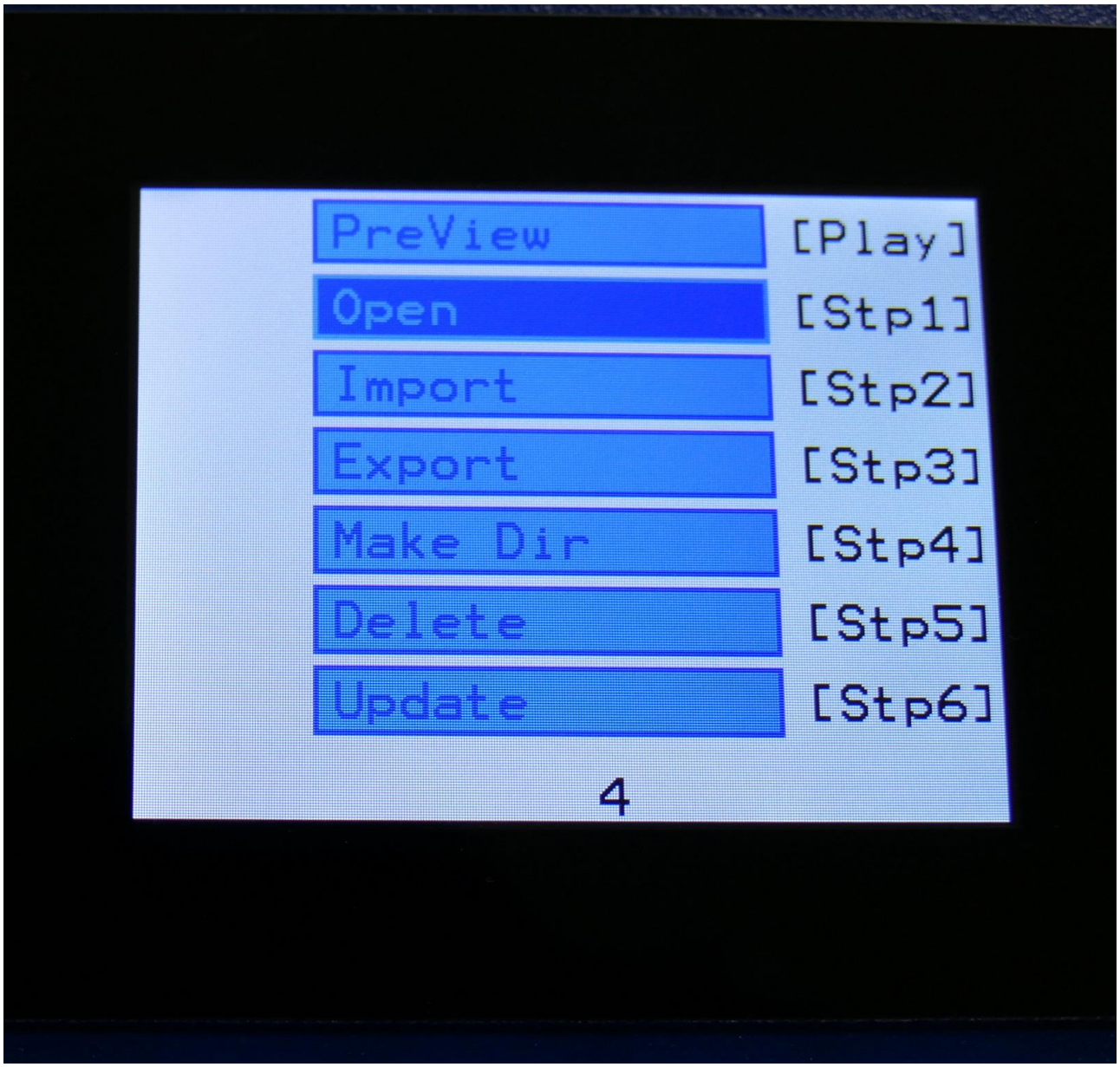
Reload multiple files

A reload function is also available. This will only import presets, songs and samples that has been exported from SpazeDrum, or that has been renamed to to fit the SpazeDrum 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.SDP, A02.SDP….A64.SDP, B01.SDP, B02.SDP…..P64.SDP .

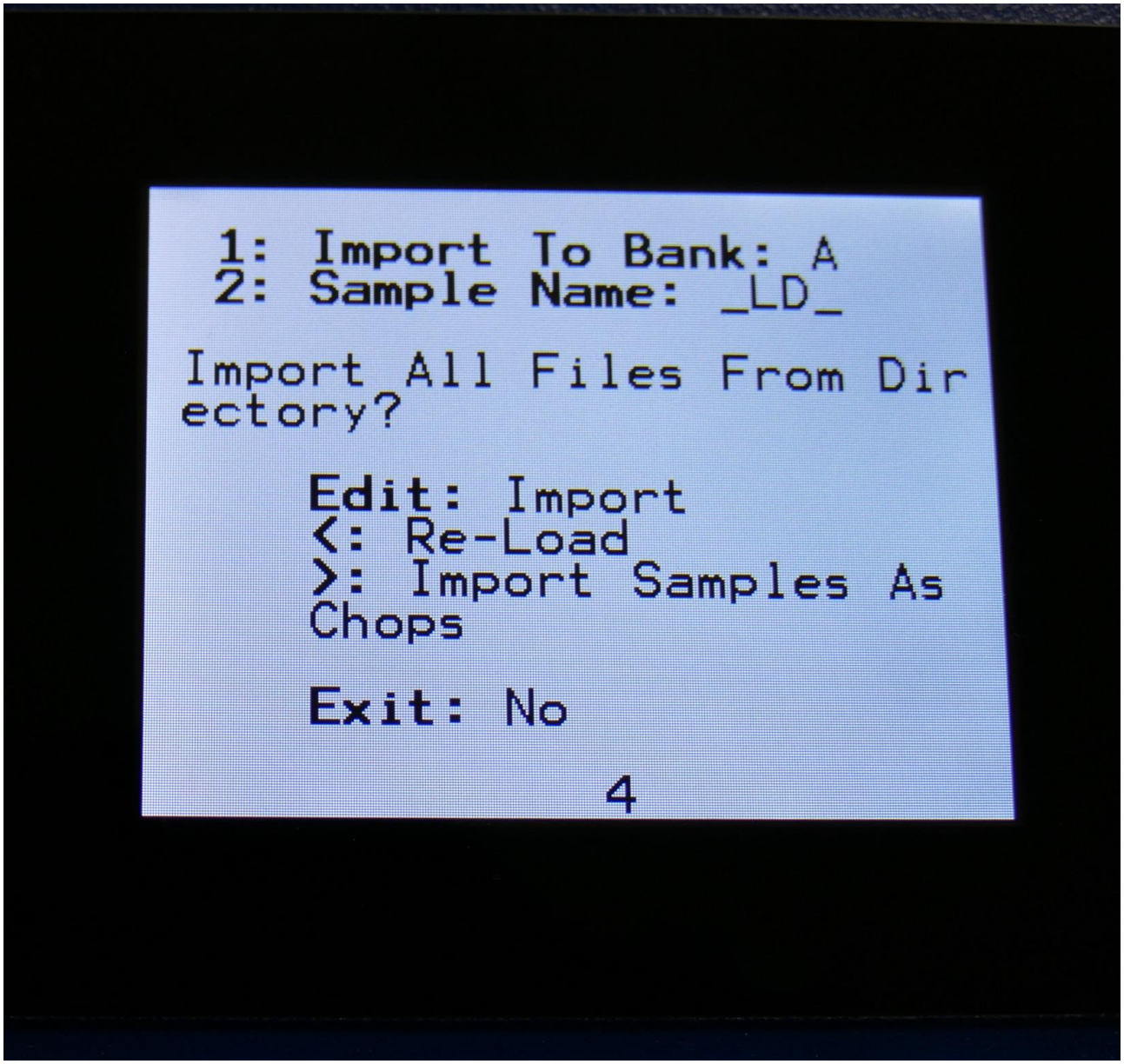
This function will import presets and songs to the same locations as they were originally stored to.

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 the sample bank, if you want a complete reload.

To Reload multiple files, select a directory and push the Edit button.



Navigate to Import, and push the Edit button again, or push step button 2.



Push the < button to continue, or the Exit button to abort.
If you pushed the < button, SpazeDrum 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:
-If you would like to import a number of wav files in a specific order, 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.SDP, A02.SDP….A64.SDP.

Import Multiple Samplings From Directory As one sampling with Chop points

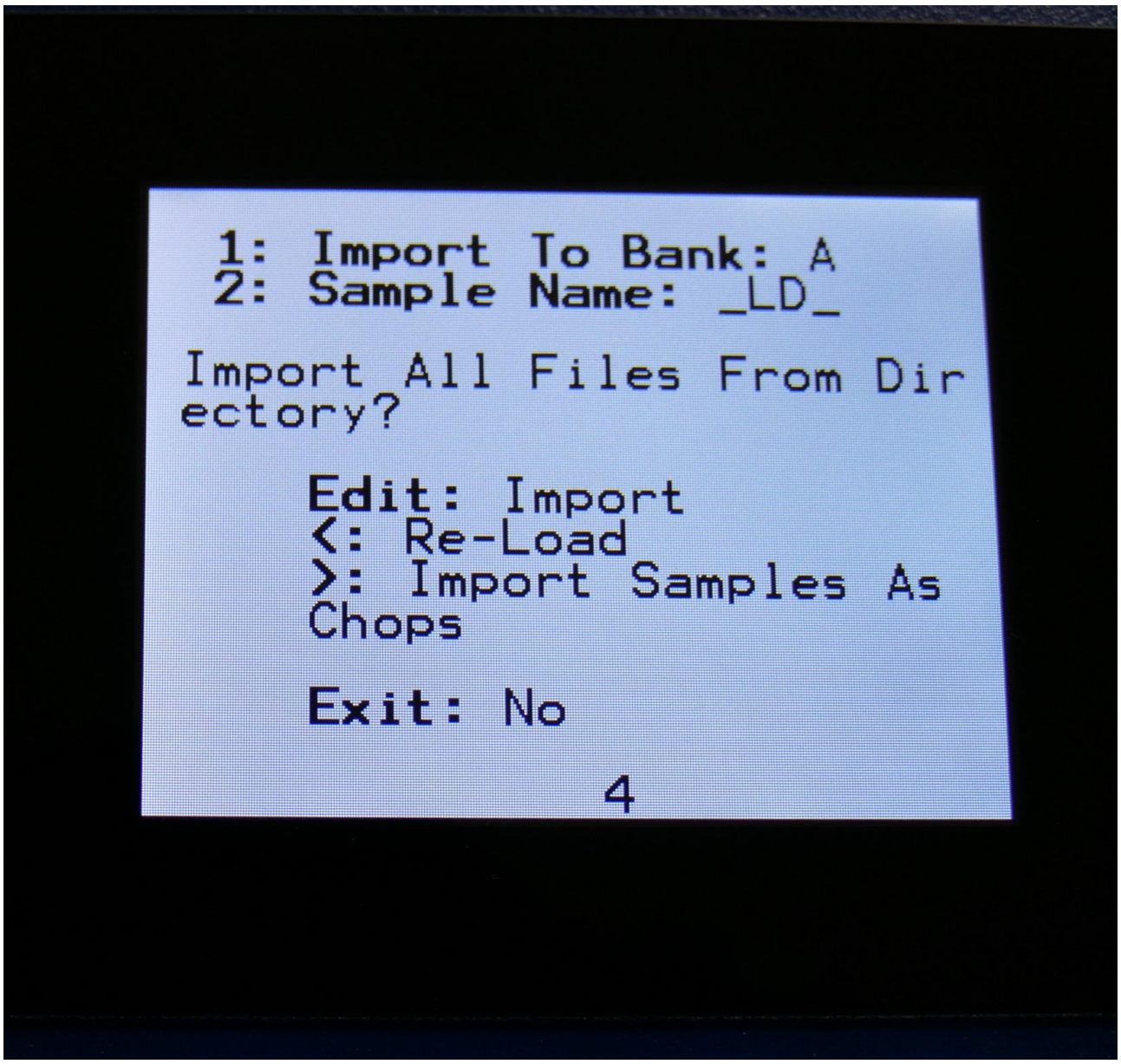
On your computer:
Make a directory (or folder) on a SpazeDrum compatible USB drive. Name the directory with the name, that you want the sampling to have. Copy any single samplings you would like this sampling to contain, into the directory. Max 64 samplings.
NOTICE that SpazeDrum will import the samplings in the order that they were placed in the directory.

Create multiple such directories, if desired.

Unmount the USB drive from your computer, and insert it in the LD3 USB port.

Enter the USB menu, select the directory you just created, and push “Import”.

This screen will now show:



Push the > button.

SpazeDrum 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.

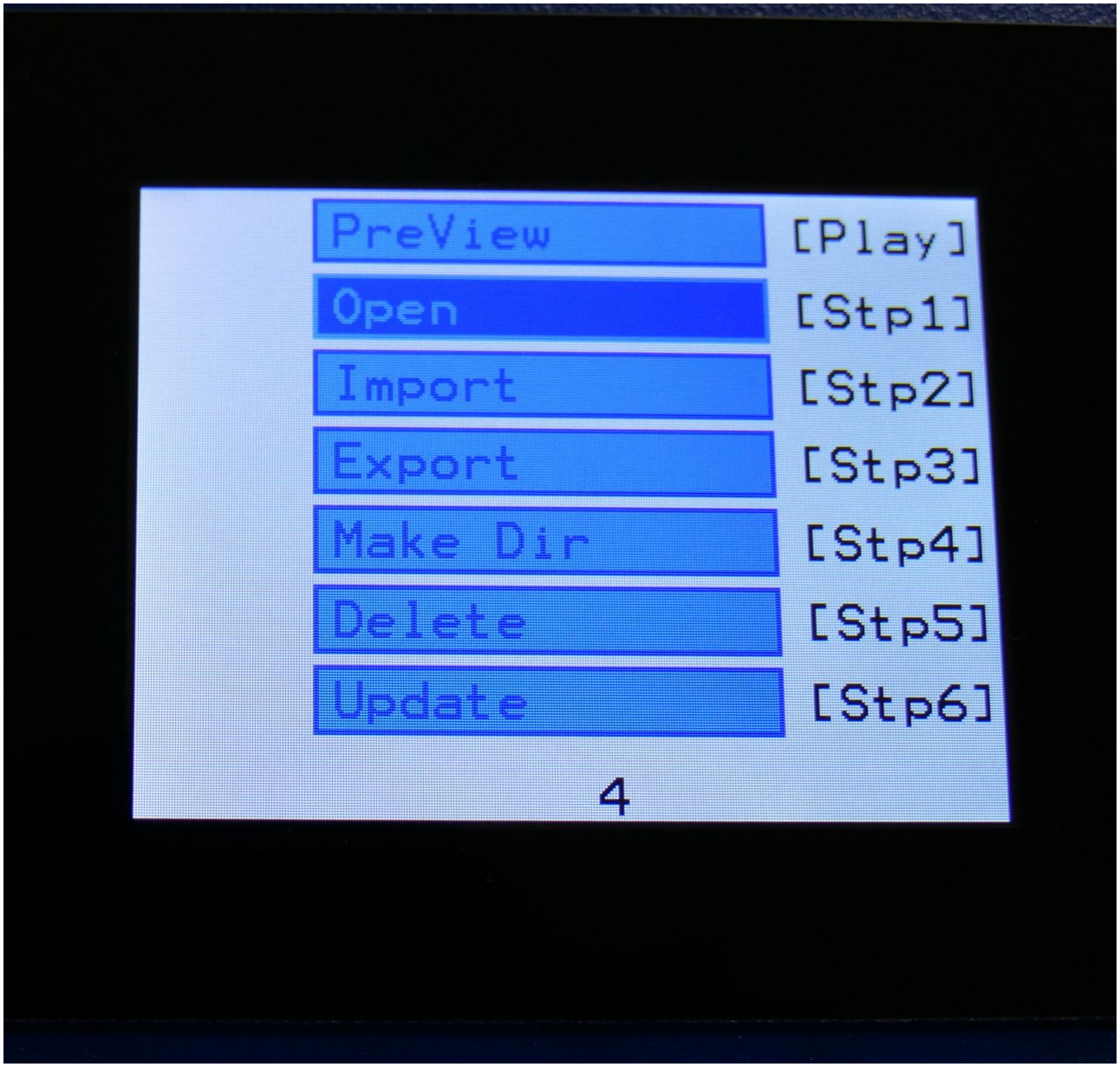
On the drum part pages, the procedure is the same. Select the sampling, and select the chop point. Modulate the chop point selection, to create great variation.

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

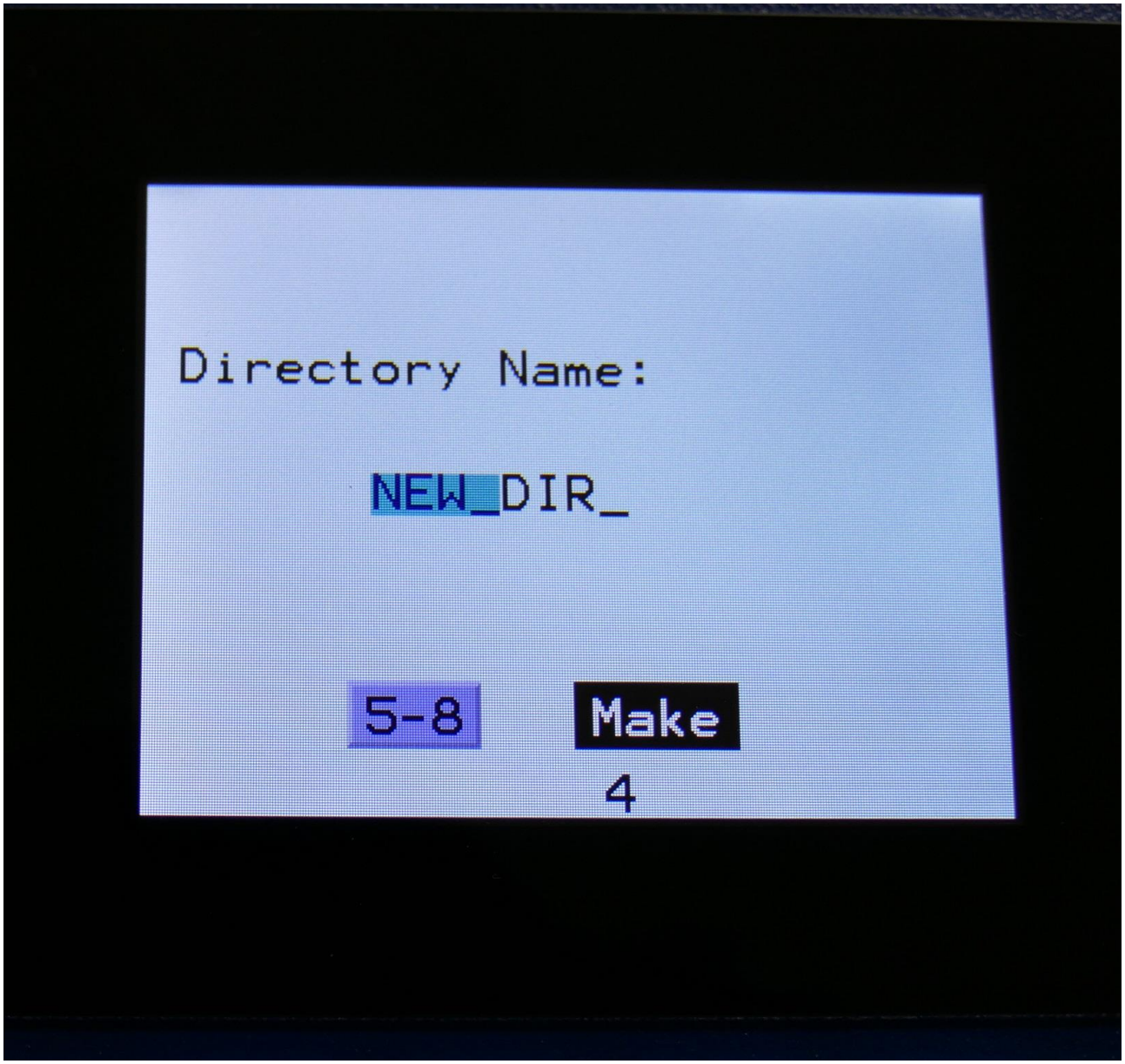
A new directory can be created in the root directory, or inside another directory.

To do this, push the Edit button:



Navigate to Make Dir, or push step button 4.

This page will now show:



Turn the Edit Knob 1-4 to select the first 4 characters of the name for the new directory.

Push the < button, so that the 5-8 field turns black. Turn the Edit Knobs to select the last 4 characters of the directory name.

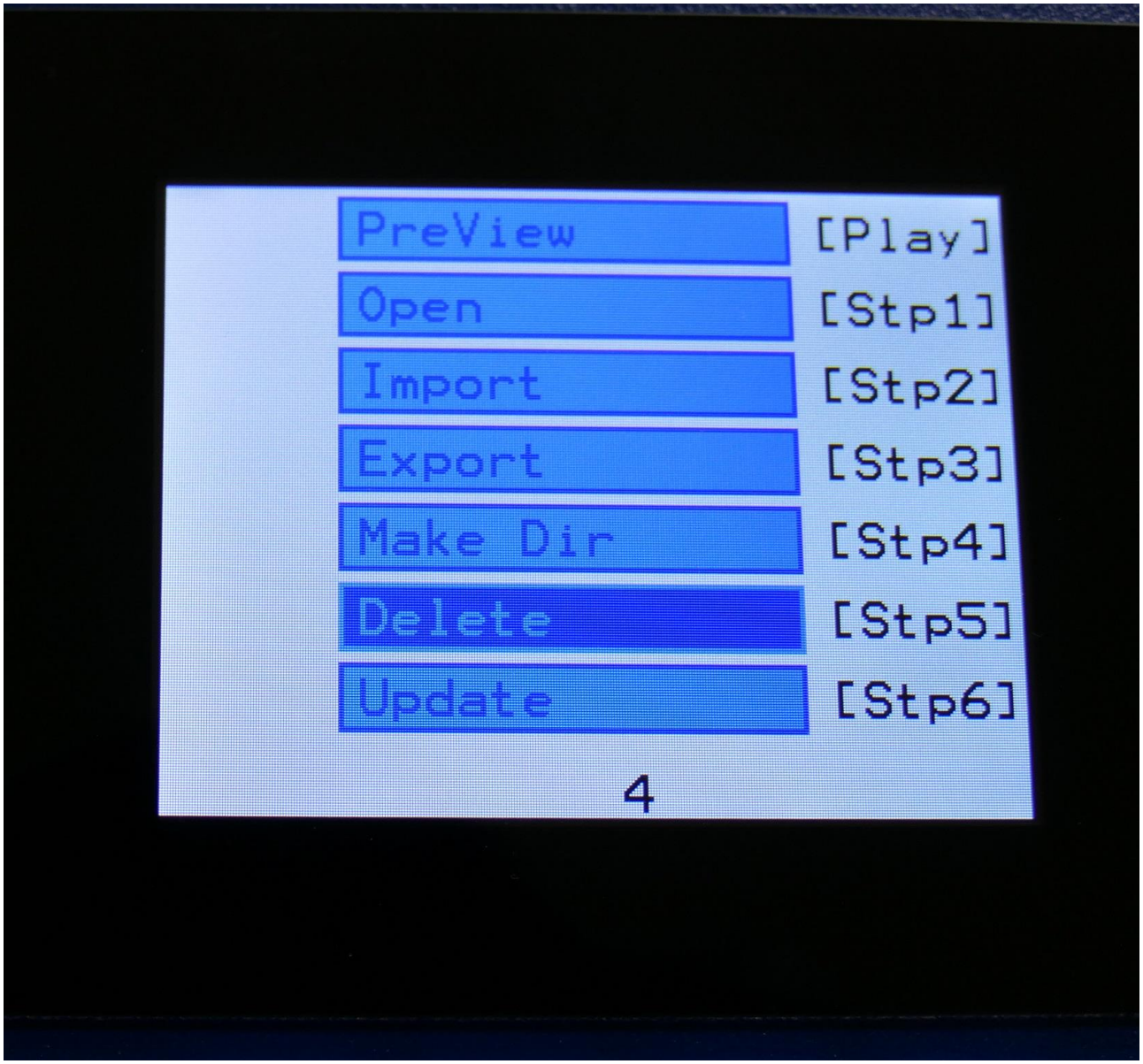
When you are done, push the > button. The new directory will now be created.

You can, of course, also just push the Exit button, if you do not want to make a directory anyway.

Delete file from USB drive

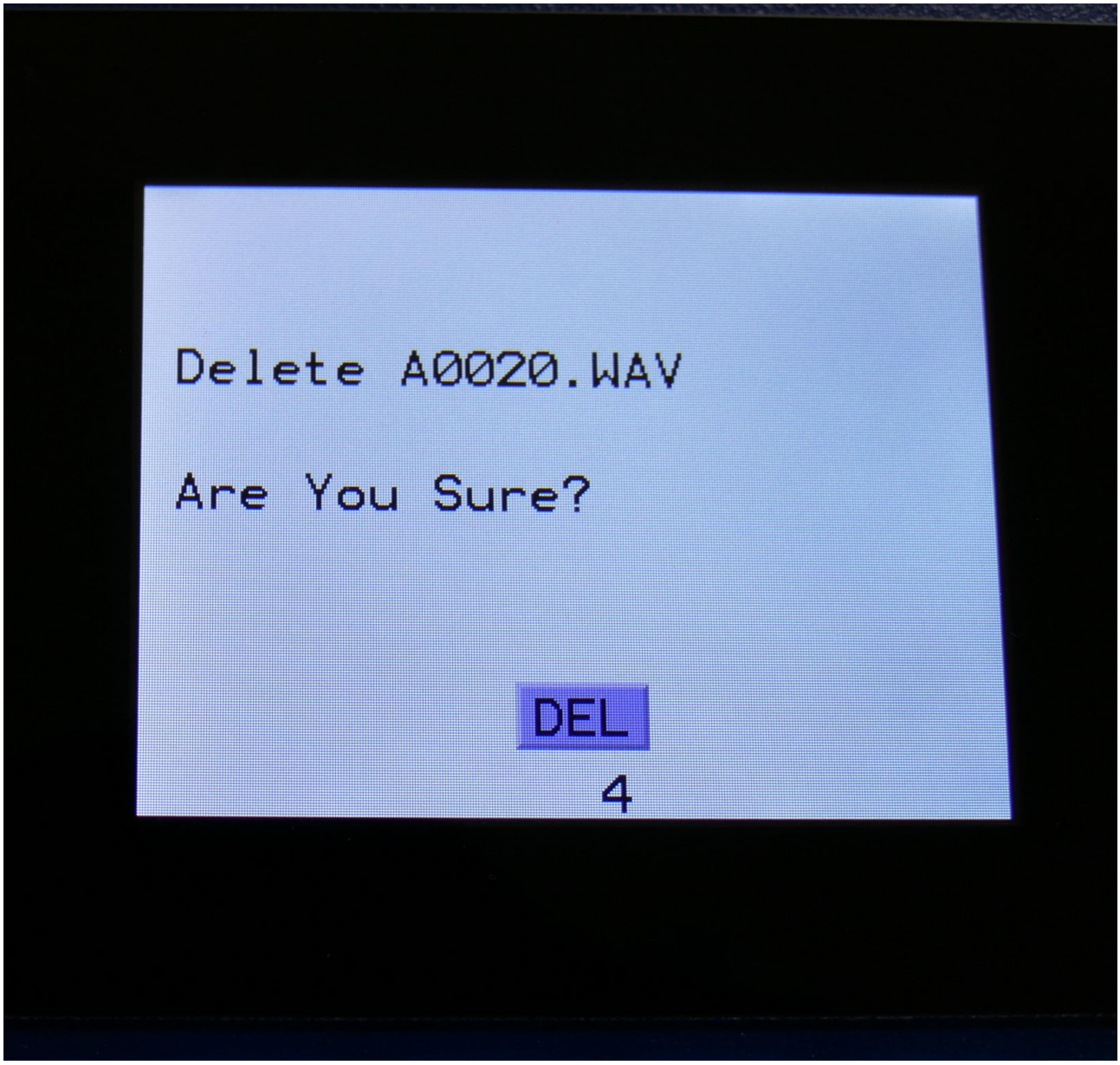
It is possible to delete a file from the attached USB drive, directly from SpazeDrum.

To do this, select the file you would like to delete, and push the Edit button.



Navigate to Delete, and push the Edit button again, or push step button 5.

SpazeDrum will now ask:



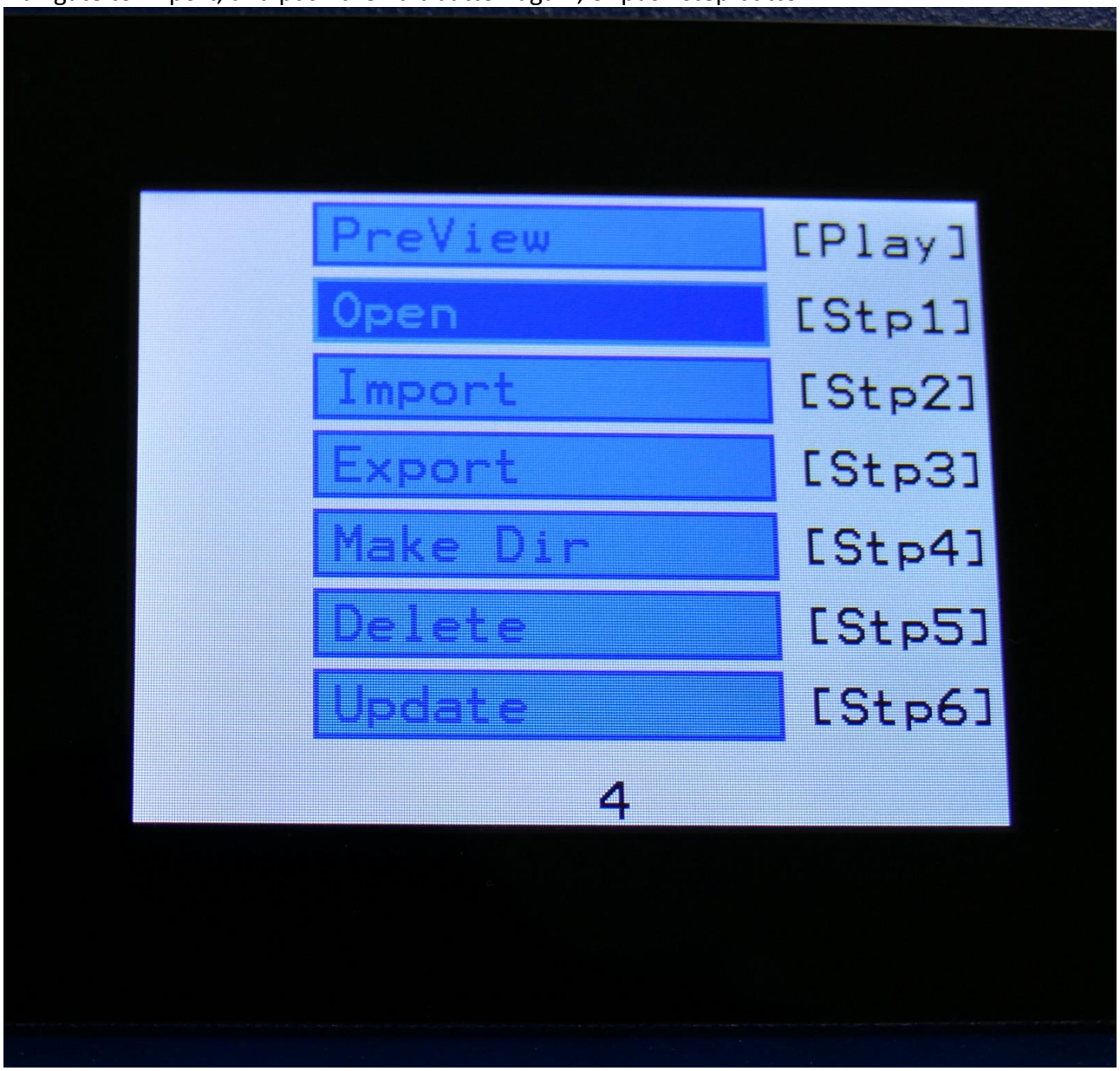
Push the > button to proceed.

Export samples, presets and songs to a USB drive

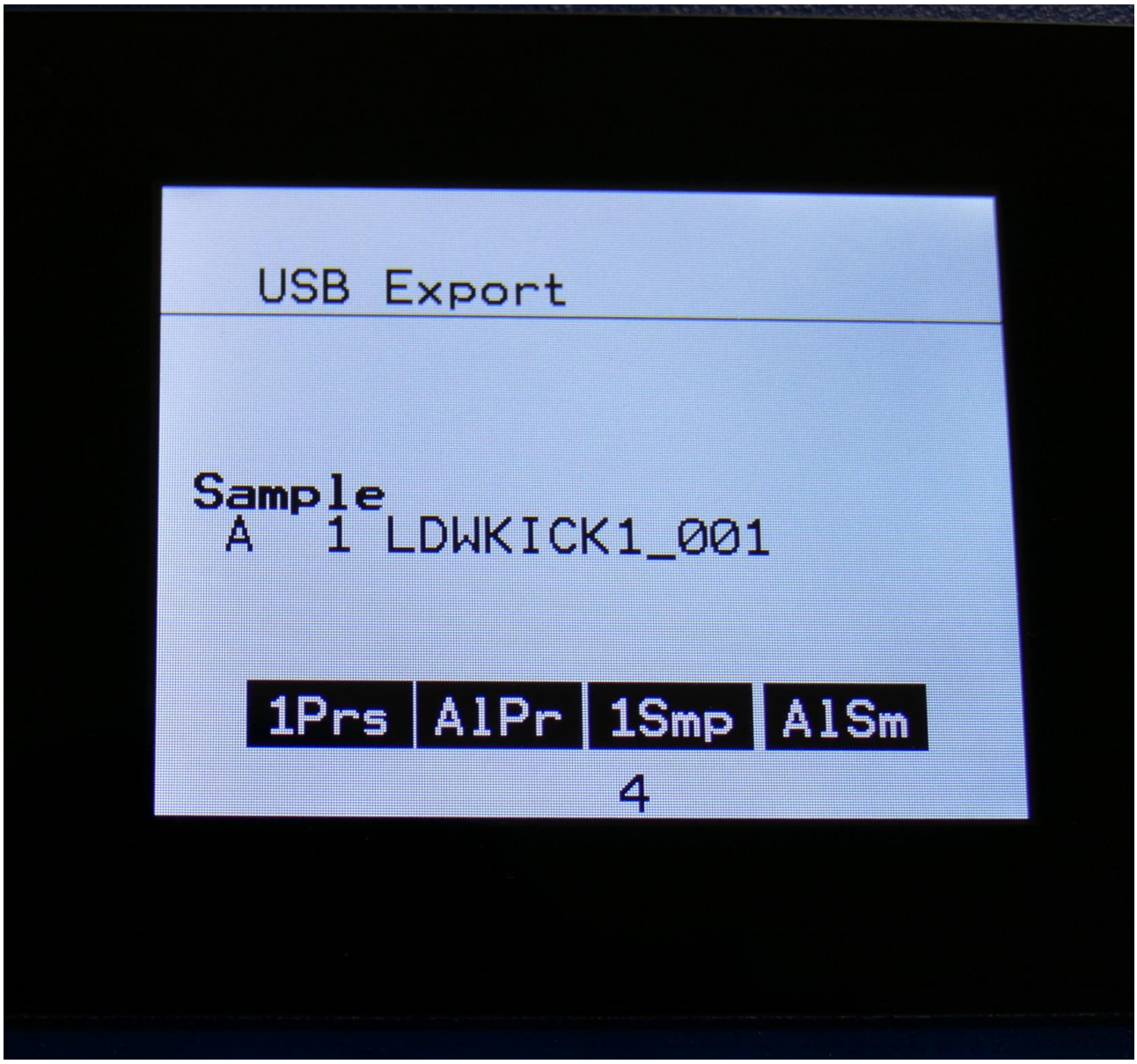
The samples, presets and songs held in SpazeDrum's FLASH memory can be exported to a USB drive, for back-up, or for use with other gear or computers. SpazeDrum exports samples as standard 16 bit, 44.1 KHz, native PCM .wav files, so they can be used with any other gear, that supports this format. SpazeDrum exports presets and songs in its own .sdp/.sdo format, so these can at writing moment only be used by SpazeDrum.

To enter the export page, push the Edit button:

Navigate to Import, and push the Edit button again, or push step button 2.



Navigate to Export and push the Edit button again, or push step button 3.



All exports are done to the currently open directory. There are 4 different possibilities for exporting:

”1Prs”
Export 1 preset (song). Pushing the Edit button will export the currently selected preset. If SpazeDrum are in song mode, it will export the selected song.

”AlPr”
Export All Presets/Songs . Pushing the < button will export all programmed presets. If SpazeDrum are in song mode, it will export all programmed songs.

”1Smp”
Export 1 Sample. Pushing the > 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 “100’s” of the sample number, and Edit Knob 3 to select the 10’s and 1’s.

”AlSm”
Export All Samples. Pushing the Exit button will export all samples of the sample bank.

Updating the SpazeDrum firmware

Now and then updates will be available for SpazeDrum, that adds new functionality and fixes bugs. These will always be available for download at:
http://www.gotharman.dk

To update SpazeDrum, you must have a computer with an internet connection, and a SpazeDrum compatible USB drive ready. See the start of this section, for which USB drives that are SpazeDrum compatible.

Then you should follow these steps:

1. Download the update file of the latest update, from the SpazeDrum Updates site, to your computer, and unzip it.

2. Connect the USB drive to your computer.

3. Make sure that the USB drive is FAT formatted.

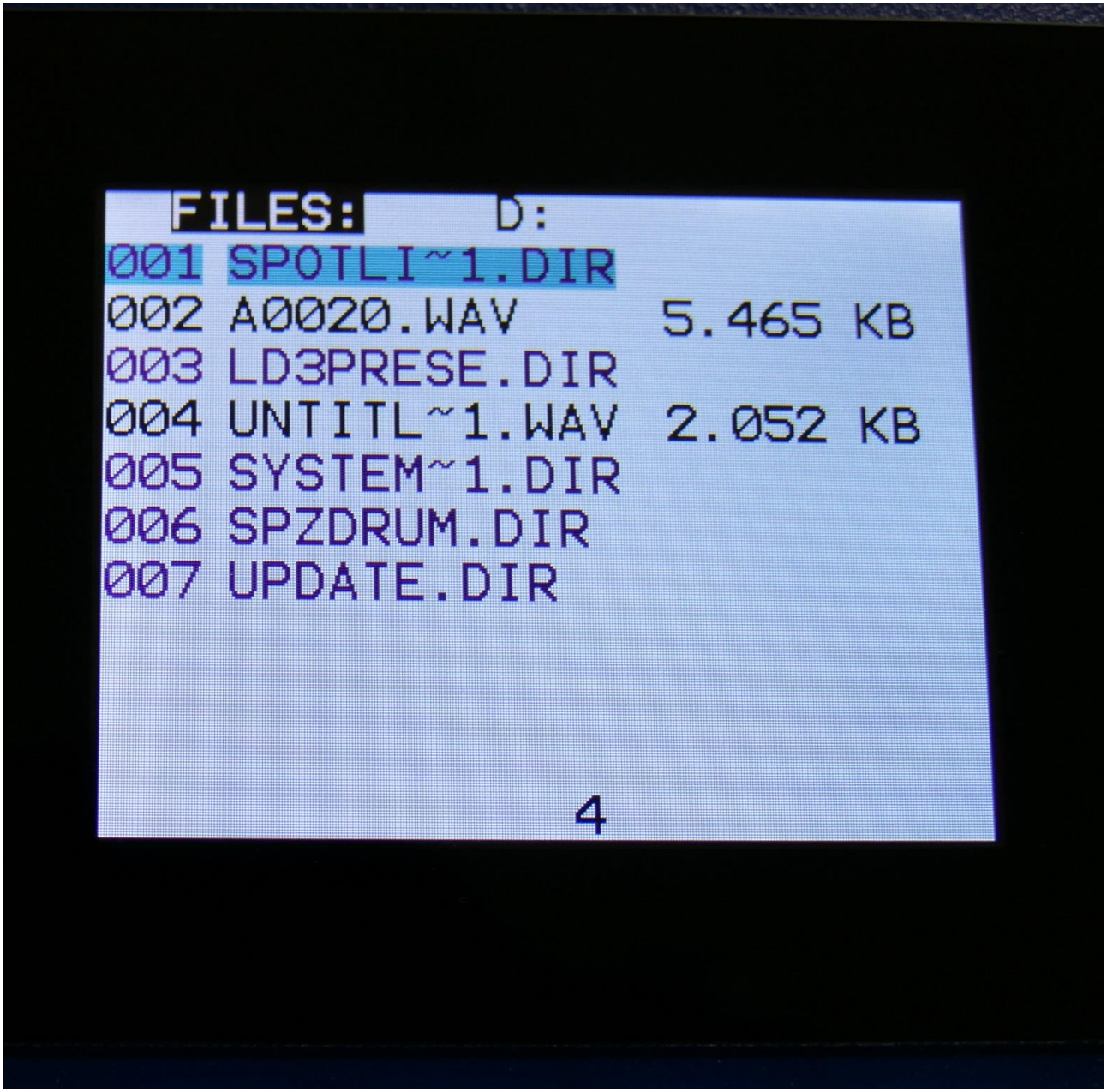
4. Create a directory in the root directory of this USB drive, that is named "UPDATE".
If the USB drive already contains a directory called UPDATE, please delete all files inside this.

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.

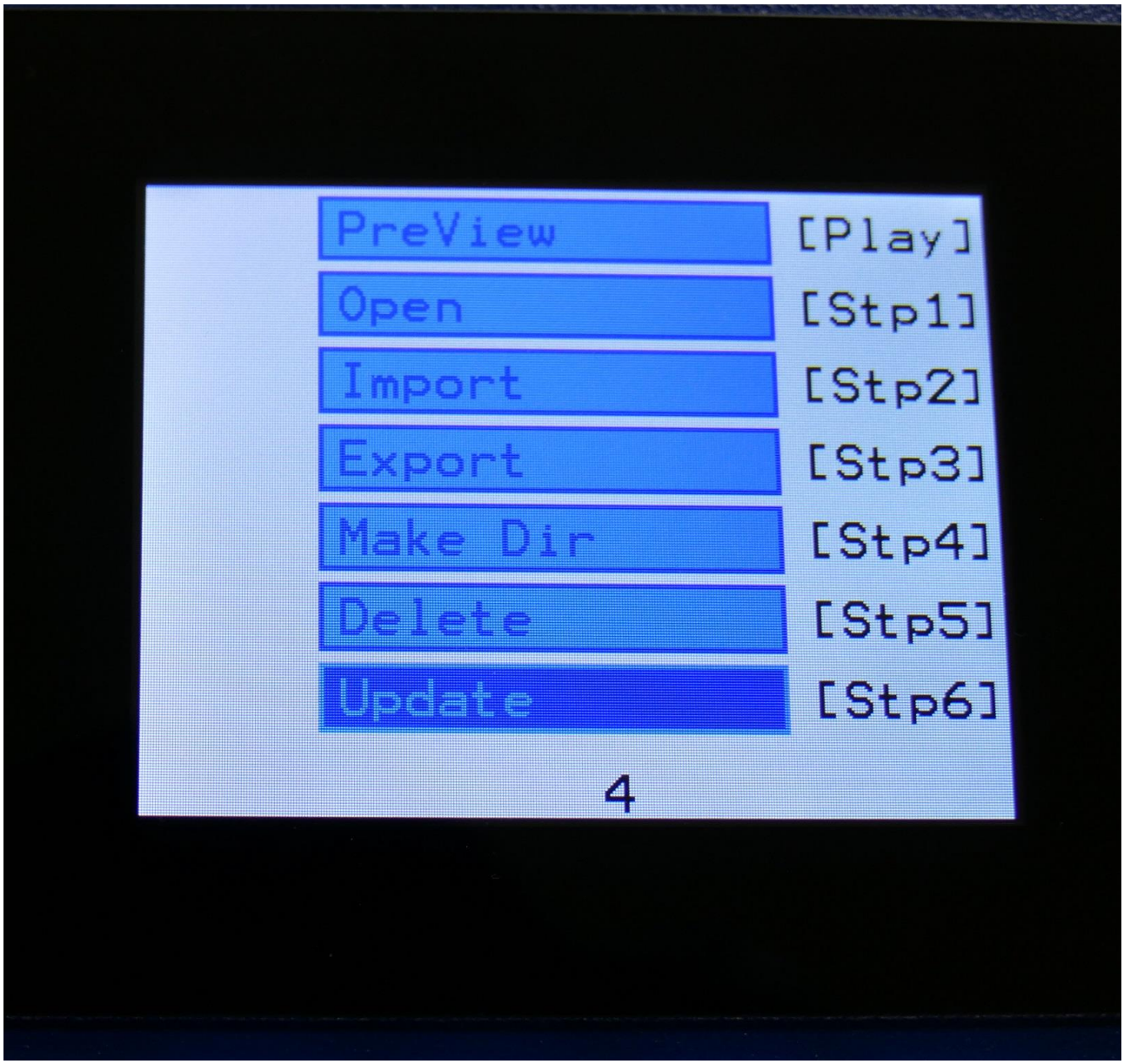
6. Eject and remove the USB drive from your computer, and connect it to SpazeDrum 's USB connector.

7. Turn SpazeDrum on, if it isn’t already turned on.

8. Enter the USB pages.

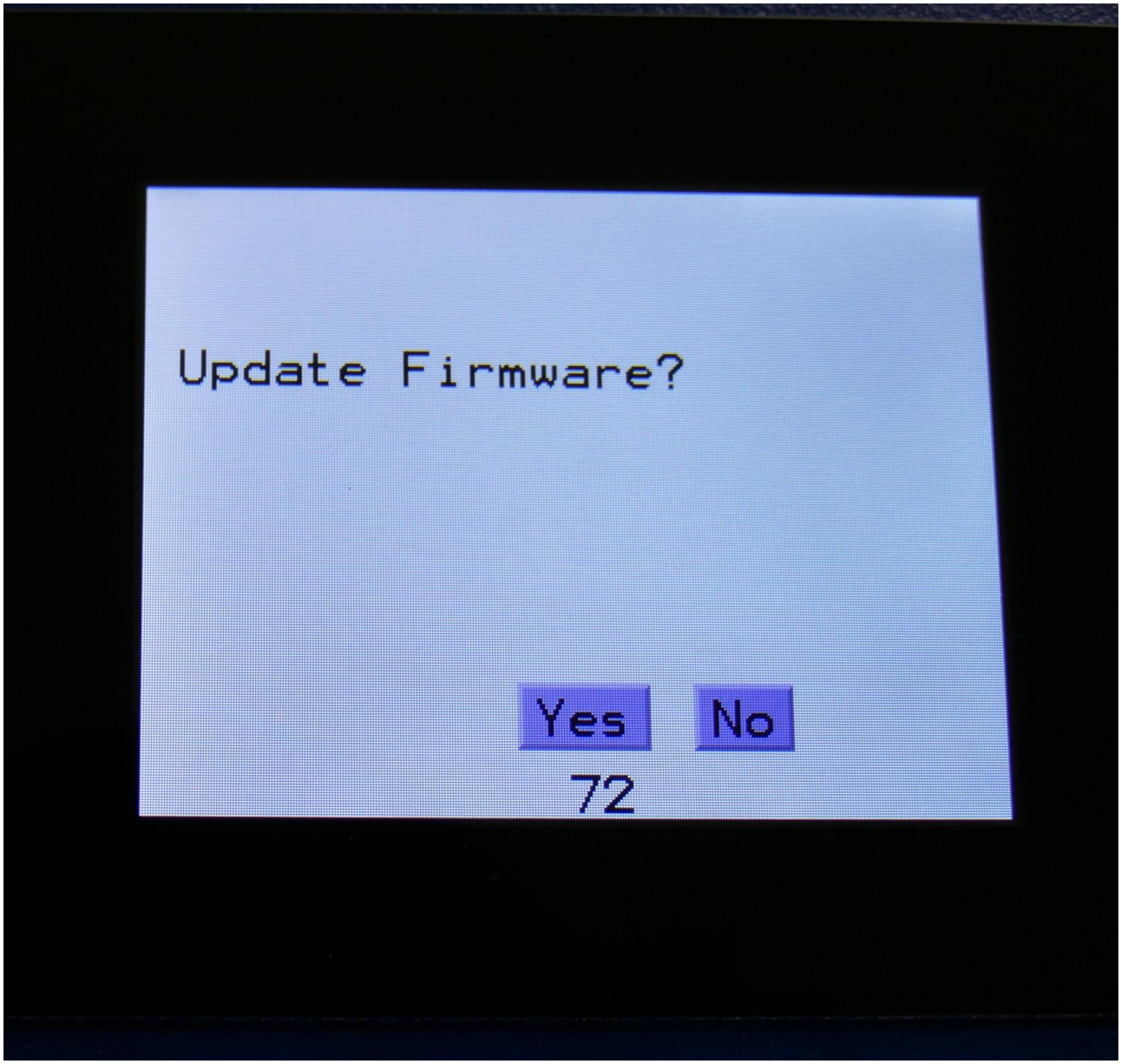


9. Push the Edit button.



10. Navigate to Update and push the Edit button again, or push step button 6.

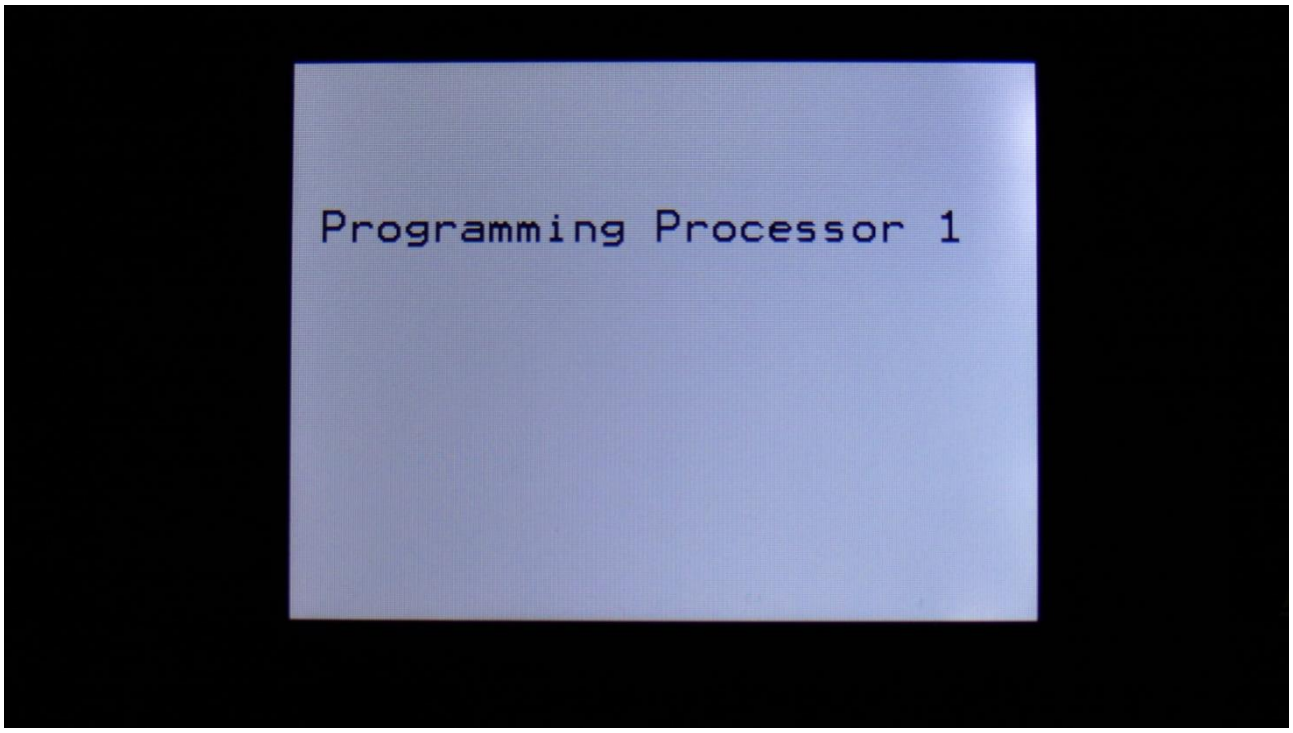
11. SpazeDrum will now search for the "UPDATE" folder and a valid update file. If it finds both, it will ask: "Update Firmware?"



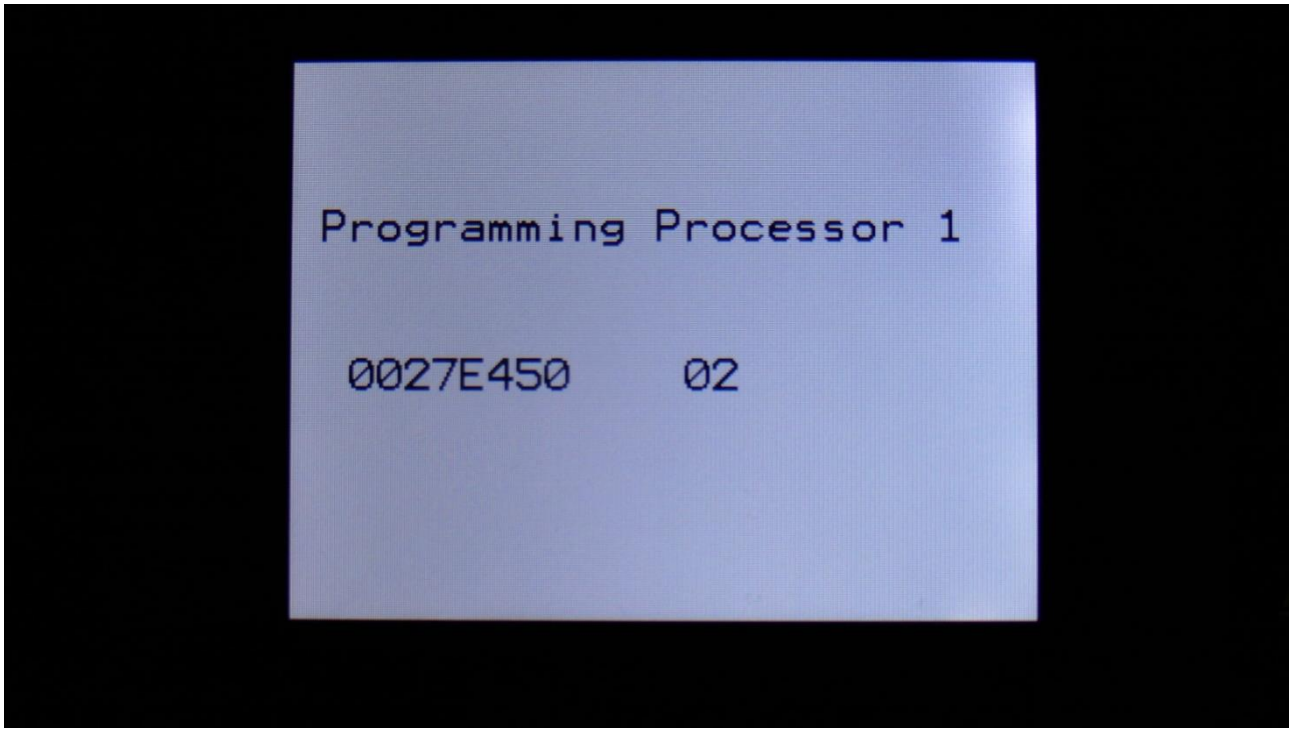
12. Push the > button to start the update process, or the Exit button to abort.

13. If you pushed the > button in step 13, SpazeDrum 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.

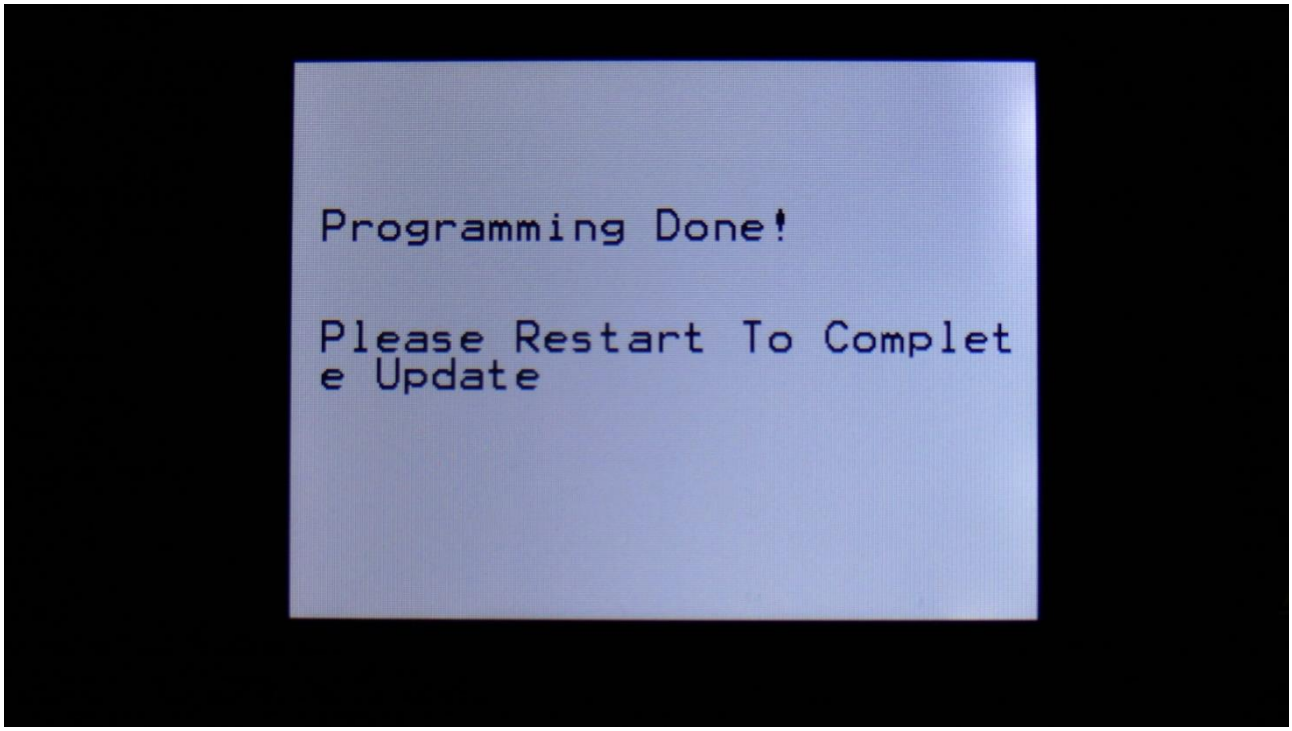
Erasing the program memory of the processor:



Programming processor (counter in the bottom counts up):



14. When programming is done, SpazeDrum will ask you to restart it. Please turn SpazeDrum off and then on again.



15. SpazeDrum has now been updated! Enjoy the new functions!

MIDI Specs

Receives:

-Note on/offs on the SpazeDrum global MIDI channel. These can trigger the parts and be recorded by the sequencer, when it is in reatime rec mode.
The MIDI notes and ranges for each part, can be set on the “Zone+Prs Lvl” page.

-MIDI CC 1 on the global MIDI channel controls the Morph Knob.

-MIDI CC 2 on the global MIDI channel controls the Seq Morph Knob.

-MIDI CC 3, 4, 5 and 7 can be used as modulation sources.

-MIDI CC 8 to 73 controls the Edit Knobs for part 1 to16, that are assigned as modulation sources, if the Edit Knobs are set to Mod on the KNOBS page:

MIDI CC 8-part 1 knob1
MIDI CC 9-part 1 knob2
MIDI CC 10-part 1 knob3
MIDI CC 11-part 1 knob4

MIDI CC 12-part 2 knob1
MIDI CC 13-part 2 knob2
MIDI CC 14-part 2 knob3
MIDI CC 15-part 2 knob4

MIDI CC 16-part 3 knob1
MIDI CC 17-part 3 knob2
MIDI CC 18-part 3 knob3
MIDI CC 19-part 3 knob4

MIDI CC 20-part 4 knob1
MIDI CC 21-part 4 knob2
MIDI CC 22-part 4 knob3
MIDI CC 23-part 4 knob4

MIDI CC 24-part 5 knob1
MIDI CC 25-part 5 knob2
MIDI CC 26-part 5 knob3
MIDI CC 27-part 5 knob4

MIDI CC 28-part 6 knob1
MIDI CC 29-part 6 knob2
MIDI CC 30-part 6 knob3
MIDI CC 31-part 6 knob4

MIDI CC 33-part 7 knob1
MIDI CC 34-part 7 knob2
MIDI CC 35-part 7 knob3
MIDI CC 36-part 7 knob4

MIDI CC 37-part 8 knob1
MIDI CC 38-part 8 knob2
MIDI CC 39-part 8 knob3
MIDI CC 40-part 8 knob4

MIDI CC 41-part 9 knob1
MIDI CC 42-part 9 knob2
MIDI CC 43-part 9 knob3
MIDI CC 44-part 9 knob4

MIDI CC 45-part 10 knob1
MIDI CC 46-part 10 knob2
MIDI CC 47-part 10 knob3
MIDI CC 48-part 10 knob4

MIDI CC 49-part 11 knob1
MIDI CC 50-part 11 knob2
MIDI CC 51-part 11 knob3
MIDI CC 52-part 11 knob4

MIDI CC 53-part 12 knob1
MIDI CC 54-part 12 knob2
MIDI CC 55-part 12 knob3
MIDI CC 56-part 12 knob4

MIDI CC 57-part 13 knob1
MIDI CC 58-part 13 knob2
MIDI CC 59-part 13 knob3
MIDI CC 60-part 13 knob4

MIDI CC 61-part 14 knob1
MIDI CC 62-part 14 knob2
MIDI CC 63-part 14 knob3
MIDI CC 65-part 14 knob4

MIDI CC 66-part 15 knob1
MIDI CC 67-part 15 knob2
MIDI CC 68-part 15 knob3
MIDI CC 69-part 15 knob4

MIDI CC 70-part 16 knob1
MIDI CC 71-part 16 knob2
MIDI CC 72-part 16 knob3
MIDI CC 73-part 16 knob4

When the Edit Knobs are set to Level or Morph modes, only CC 8 to 11 is used.

-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:

- All MIDI CC's that are received are also transmitted, if "KnobCC" on the COM2 page is set to on.

-Notes are transmitted from the sequencer note tracks and from the trigger buttons, and re-transmitted from MIDI in, if one or more parts are set to "External MIDI".

-MIDI clock, start and stop messages are transmitted, if the "ClkOut" parameter on the COMMON page is set to on.

Written by:
Flemming Christensen
Gotharman
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