

# Gotharman's Urano



## Modular Synthesizer

## Quick Manual

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## Introduction

Urano is a modular synthesizer with memory. All connections between modules, module settings, sequences and sample assignments can be memorized for instant recall.

Like many other Gotharman instruments, each preset contains 2 versions of the preset, that can be morphed between. With one knob, you can morph all the settings of a complete modular system!

It will also hold all your samplings and wavetables in memory, even after a power recycle.

And it connects to your Eurorack...

Unlike the Anamono X, which had 2 separate bus systems, one for audio and one for modulation, Urano only has one bus, that handles both audio and modulation, so everything can be connected to everything.

### The build-in modules:

- **8 Oscillators** - Waveforms, noise, drum oscillators, samplings, wavetables.
- **Up to 4 analog filters** . Compatible with the Gotharman filter board system. Comes with 4 analog filters installed as standard.
- **8 digital filters** - 27 filter types. Standard filters, triple filters, sharp filters, tube filters...
- **8 VCA's** - with ADSR envelope, various curves and a clip parameter. Can be triggered by any source.
- **8 Effects Processors** - Many of the LD effects plus a new reverb, a wavefolder and some new pitch effects.
- **8 LFO's** - With variable waveform and curve. Key syncable.
- **8 Envelopes** - ADSR + decay envelope with loop options. Can be triggered by any source.
- **5 Random Generators** .
- **4 Ring VCA's** .
- **2 Mixer modules** , that can add extra inputs to any module.
- **Output module** - Sends up to 8 sources to the outputs, and handles the stereo panning.
- **Trigger Input module** - Assign the trigger inputs to parts and sequencer functions.
- **Trigger Output module** - Sends any sources to the trigger outputs.
- **CV Output module** - Send any sources to the CV outputs. Can scale to 1V/oct and 1.2V/oct.

## **Connecting Modules**

Urano has different ways of connecting the modules. They can be connected manually, by setting the source and the amount, for audio and modulation, by turning a knob, they can be connected via an overview module grid, using the touch interface, and modules in the audio path, can be added and removed into/from the signal chain, by using Urano's auto functions.

## **8 Parts**

The modules can be arranged into 8 parts, to make it possible to make tracks on Urano with 8 different sounds. Any module can be used by any part, and the modules can even be used by multiple parts at the same time.

On an initialized preset, the modules are arranged in the 8 parts, each with oscillator, filter, VCA, effects processor and envelope, to make it possible to make tracks instantly. In the standard configuration, part 1-4 also has an analog filter included.

## **Sequencer**

An LD3 style sequencer is available to compose music with the parts. It has 8 note tracks and 16 controller tracks.

## **Sample recorder/editor**

Samples can be recorded from the audio inputs and outputs, imported via USB, and edited.

## **Wavetable editor**

Not only can the Urano oscillators 1-4 play back wavetables. Urano also has a wavetable editor built in, where you can edit and draw wavetables on the touch screen, and, of course, save these.

## **Connectivity**

Urano can interface with other instruments via MIDI and minijack connectors.

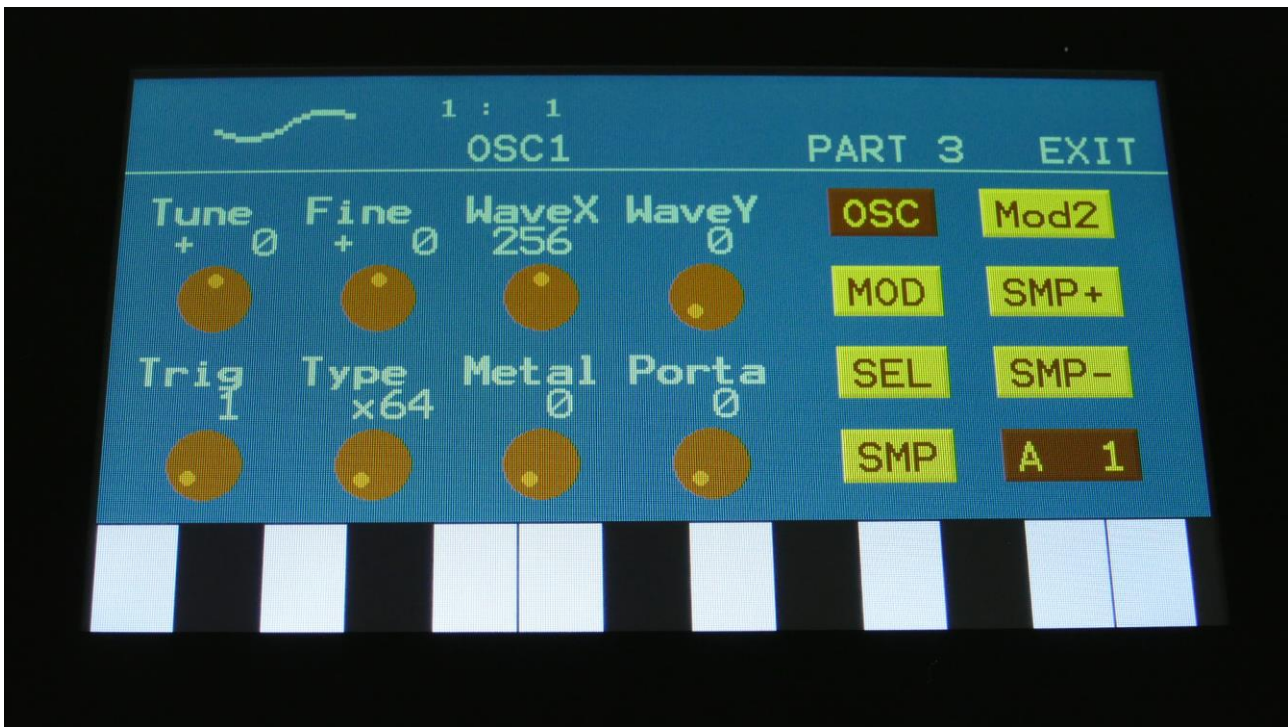
## **Touch display**

It comes with a 4.3" touch display. Most operations can be performed via knobs and buttons, but sometimes the touch display can help speeding up the workflow. The touch interface on Gotharman instruments work in a very simple way, without any annoying "touch gestures".

## **Solid**

Built to last in a steel box with extruded aluminium sides. All powdercoated with a "Black Sand" finish, that is very resistant to scratches and dust. All knobs, buttons and connectors are of the highest quality.

## OSC – Oscillators



The 8 Urano oscillators can run in several different modes, for maximum flexibility. The outputs of the oscillators can be connected to any audio and modulation inputs.

The modes:

-**Type1** : Morphs between sine wave, triangle wave, sawtooth wave, pulse wave and feedback wave. PW works on all waveforms. Pitch, wave. PW and portamento can be modulated. This oscillator type has a fat sound, without any aliasing.

-**Type2** : Morphs between sine wave, triangle wave, sawtooth wave, pulse wave and feedback wave. PW works on all waveforms. Pitch, wave, PW and portamento can be modulated. This oscillator type has a more organic sound than type1, and the pitch tracking on the higher notes are more smooth and precise.

-**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. Morphs between sine wave, triangle wave, sawtooth wave, pulse wave and feedback wave. PW works on all waveforms and Reso, the amount of resonances, can be adjusted. Pitch, wave, reso, PW and portamento can be modulated.

-**Perc, Prc2, Prc3** : Percussion oscillators. Special oscillators for creating drum sound. Each of the 3 models has different characteristics. Detune, attack, noise amount, PW and portamento can be adjusted and modulated.

**-Cymb, Cym2** : Cymbal oscillators. Special oscillators for creating hihat, cymbal and other metallic sounds. Cym2 are a bit more aggressive than Cymb. Detune, FM, PW and portamento can be adjusted and modulated.

**-Clap**: Hand Clap oscillator. A noise source controlled by a special hand clap envelope, to emulate the classic hand clap sounds. Tune, detune, PW, clap envelope amount and portamento can be adjusted and modulated.

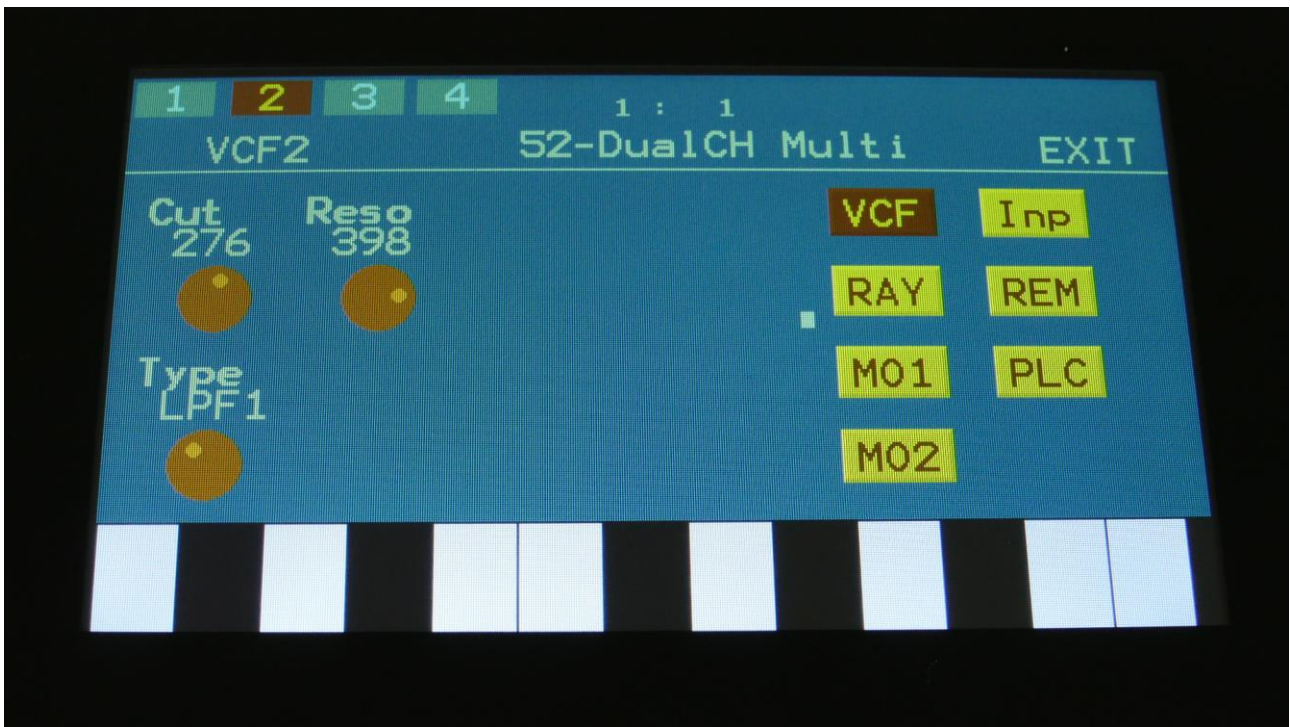
**-Smp**: Sample Playback. Pitch, sample start, sample length, chop point select and portamento can be adjusted and modulated.

**-ChKy**: Chopped sample keyboard. The chop points of the selected sampling, will be spread over the keyboard. Pitch, sample start, sample length, chop point select and portamento can be adjusted and modulated.

**-Noise**: Pitched noise generator. Pitch and PW can be adjusted and modulated.

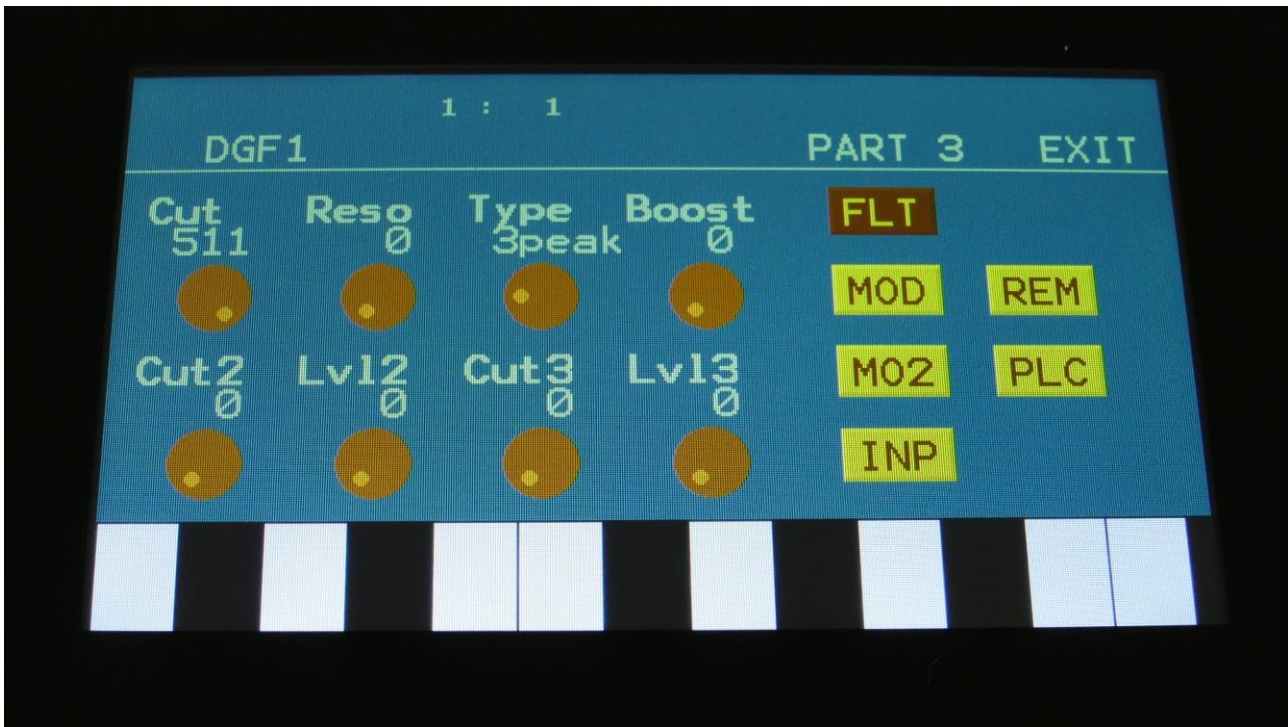
**-Wtbl**: Wavetable oscillator (Only oscillator 1-4). Plays back 32 KB wavetables with 8 or 64 single cycle waveforms. Morphs smoothly between each cycle. WaveX, WaveY, Metal and portamento can be adjusted and modulated.

## VCF - Analog Filters



Urano has 2 analog filter board slots. These are compatible with the whole line of Gotharman filter boards, and also with some new dual line filter boards, made especially for Urano. Urano comes with 2 dual line analog filter boards installed, to give it a total of 4 analog filters. VCF1 and 3 are a new very resonant feedforward filter design. VCF2 are a multi mode filter with 8 different modes, based on the VCF10 filter board with SSI2140. VCF4 are a SSI2140 lowpass filter. And of course Gotharman's G-Ray, intermodulation feedback, are available for every analog filter. Most parameters can be modulated.

## DGF - Digital Gotharman Filters



The 8 digital filters on Urano have 27 different filter types to choose from. Cutoff frequency, resonance and filter levels can be adjusted and modulated.

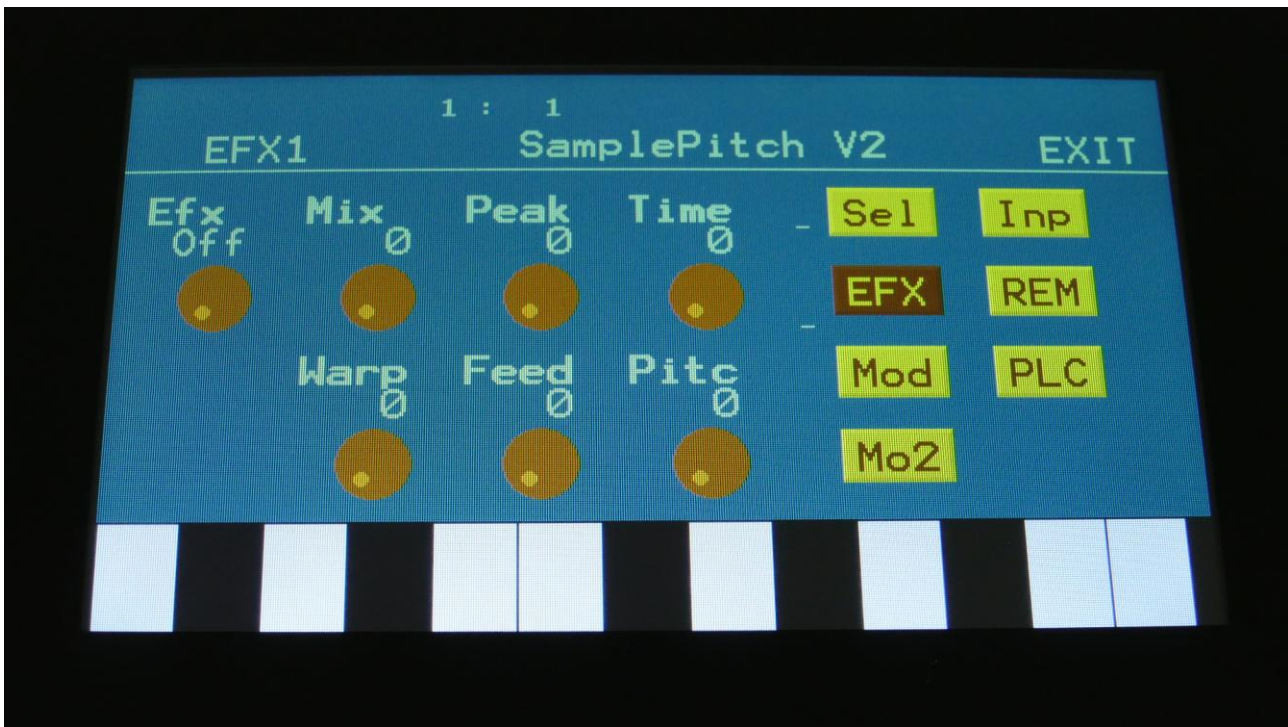
### Filter Types:

- SvfLp : 12 dB very smooth lowpass filter.
- SvfBp : 6 dB very smooth bandpass filter.
- SvfHp : 12 dB very smooth highpass filter.
- SvfNt : 6 dB very smooth band eliminate filter.
- ShpLp : 12 dB lowpass filter with a sharp response.
- ShpHp : 12 dB highpass filter with a sharp response.
- 3peak : 3 bandpass filters with a smooth response.
- 3shp : Sharp triple filters with narrow frequency bands.
- 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.
- TUB1, TUB2, TUB3, TUB4, TUB5** : Tube emulation filters with a very nonlinear and distorting response.

## EFX - Effect Processors



Urano has 8 effect processors. Effect 1 to 6 has more effect types to choose from, than effect 7 and 8, but effect 7 and 8 has a larger RAM buffer, so these are better suited for reverbs and delays. Most parameters can be modulated. Urano has many of the classic deFormer effect, but also some new ones, like a wavefolder, a new reverb, and some new pitch effects.

Effect 1 to 6 types:

- Chorus** : Gotharman's special chorus with an added Deep parameter, that adds space to the chorus.
- Resonator** : Simulates the resonances that comes, if a sound goes through a small box. Urano's resonators are synthetic, with more focus on making sounds, than on simulating actual boxes.
- Distortion** : 5 types: Valve, Sine, Fuzz, Xdis, Asym.
- Bit Crush** : Lowers the sample rate and the bit resolution of the sound, to obtain lo-fi effects.
- PitchShift** : 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.
- 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.

-**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.

-**SamplePitch V2: NEW!** A pitchshifter that is degrading the sound. A Peak parameter are available, that alters the formants, and a Warp parameter will warp the signal into another dimension.

-**Roto Pitch: NEW!** Rotating pitch shifter. This is not as smooth as the same effect in processors 7 and 8, but still usable for some weird pitch effects.

-**Variator** : Creates new variations of the input signal. Both pitch and rhythmic variations.

-**PitchShaper** : 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.

-**PitchShaper2** : 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.

-**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.

-**Filter** : The original digital Gotharman filters from the deFormer series. 16 filter types.

-**Triple BPF: NEW!** This is the same triple filter as found in the DGF section, but with an added "Gates" parameter, that "digitalizes" the filter for some special effects.

-**WaveFolder: NEW!** A dual Wavefolder.

-**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.

-**EQ** : A parametric EQ with different characteristics.

-**EQ2** : A parametric EQ with different characteristics than EQ1.

-**OverShifter** : A kind of frequency shifter, that can shift the frequency bands of the input signal up, and add feedback and ring effects.

-**Bass Enhancer** : Enhances the bass area of the sounds, that goes through it, and adds some boom to these.

- **Compressor** : Damps audio signals that are above a settable level, in order to make the signal less dynamic, and easier to record.

-**Expander** : Gains audio signals that are above a settable level, in order to add more kick to sounds.

-**Delay1** : 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.

-**Br Roto Delay** : Roto delay, but with a brighter sound, created by a resonator.

### **Effect 7 and 8 types:**

**-Delay1** : 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.

**-Br 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: NEW!** A newly designed reverb effect, that is more smooth, and has simplified parameters, for easier programming.

**-Granulator** : 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.

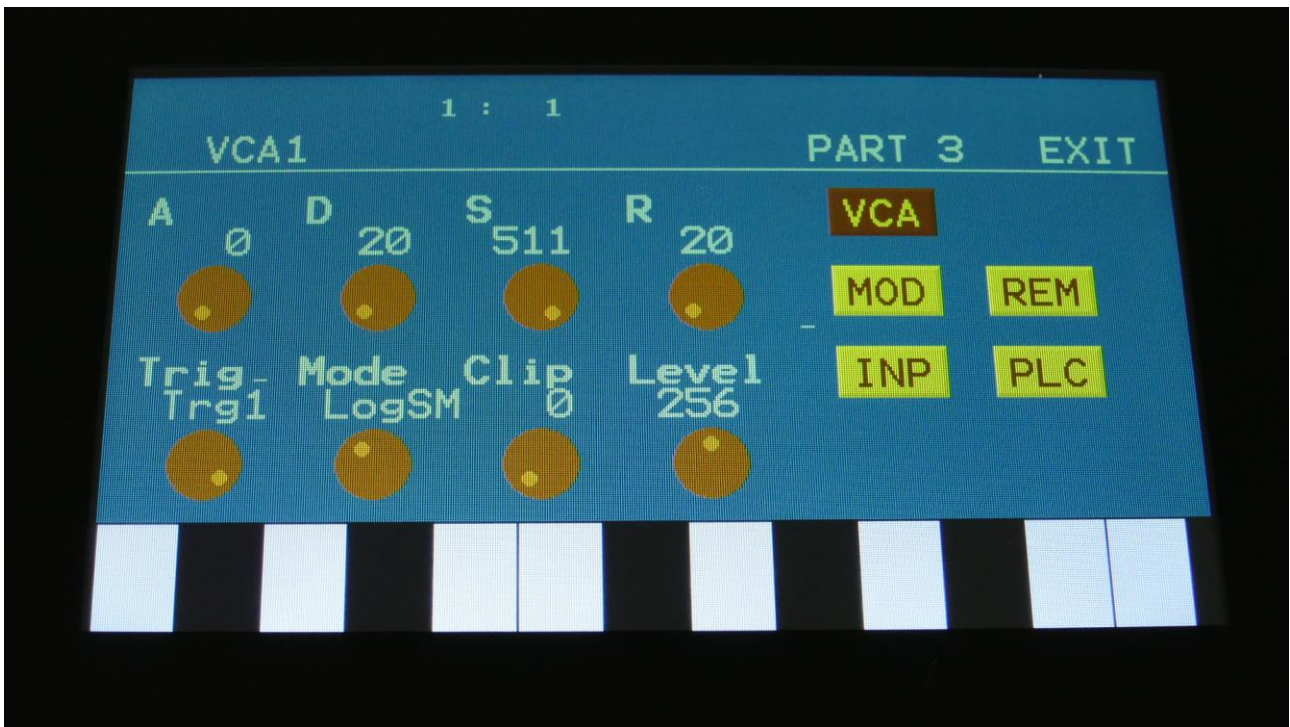
**-Xfade Granulator** : Cuts the input signal up in grains, that can be re-arranged, using the step values of a selectable controller sequencer track. This granulator plays back one grain, and then it crossfades to the next grain. It is also possible to adjust and modulate the pitch of the granular sequence, using any modulation source.

**-Abstract0** : 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.

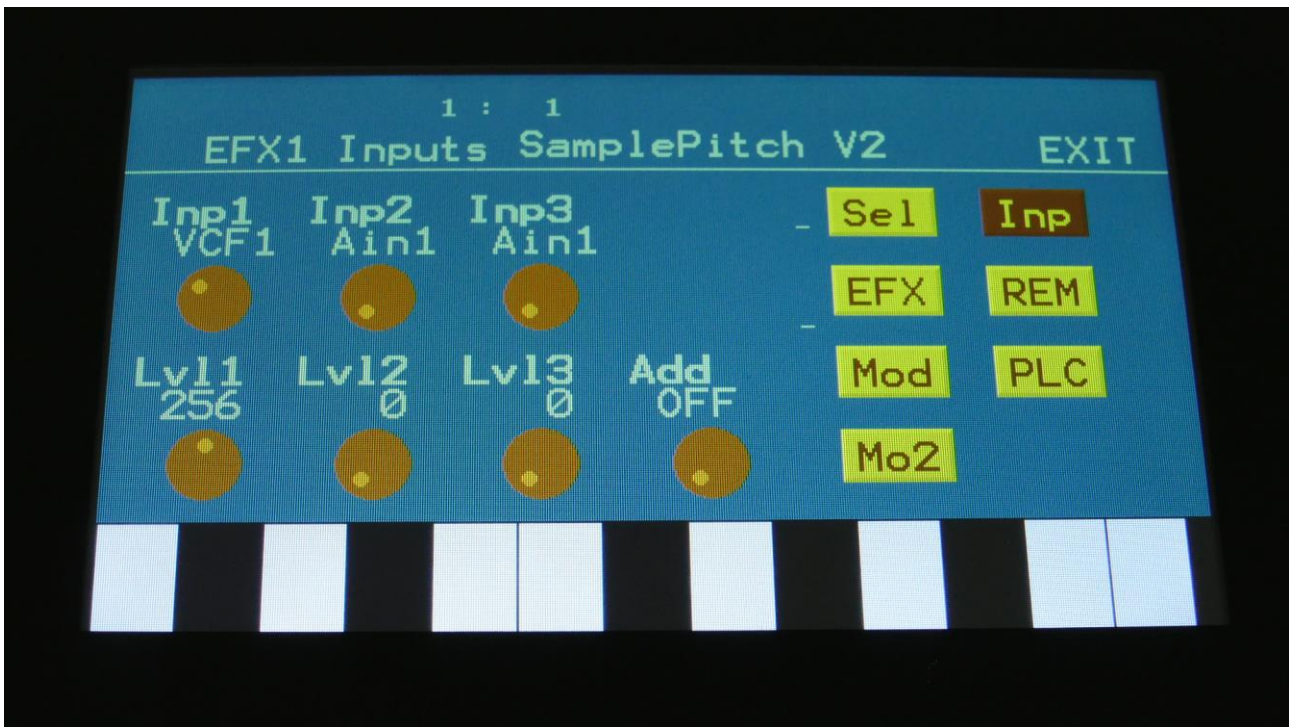
**-Roto Pitch: NEW!** Rotating pitch shifter, that can create smooth echoing pitch shifts.

## VCA

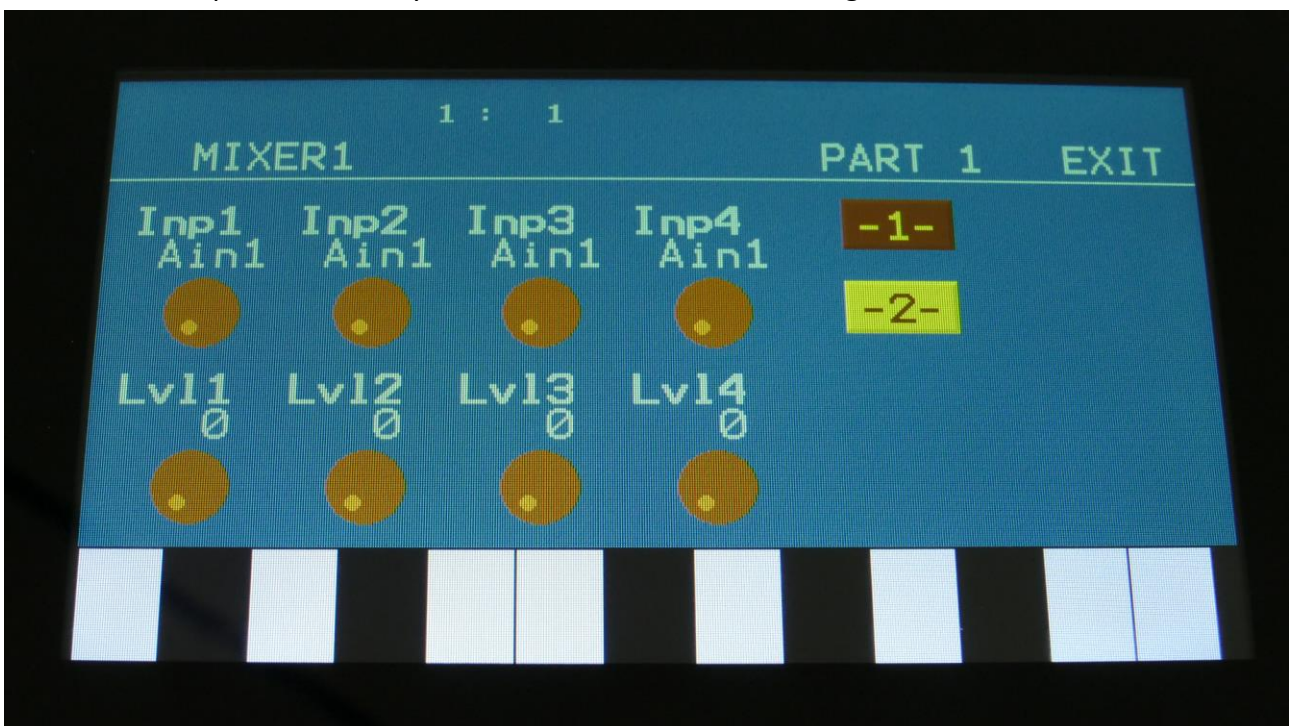


Urano has 8 VCA's with built-in ADSR Envelopes and an envelope Clip parameter, that adds more punch to the VCA. The VCA's can run in various linear and logarithmic modes, and the envelope time can be timed by 4, for long envelope times. The VCA envelopes can be triggered by any sources. The A, D, R and output level parameters can be modulated.

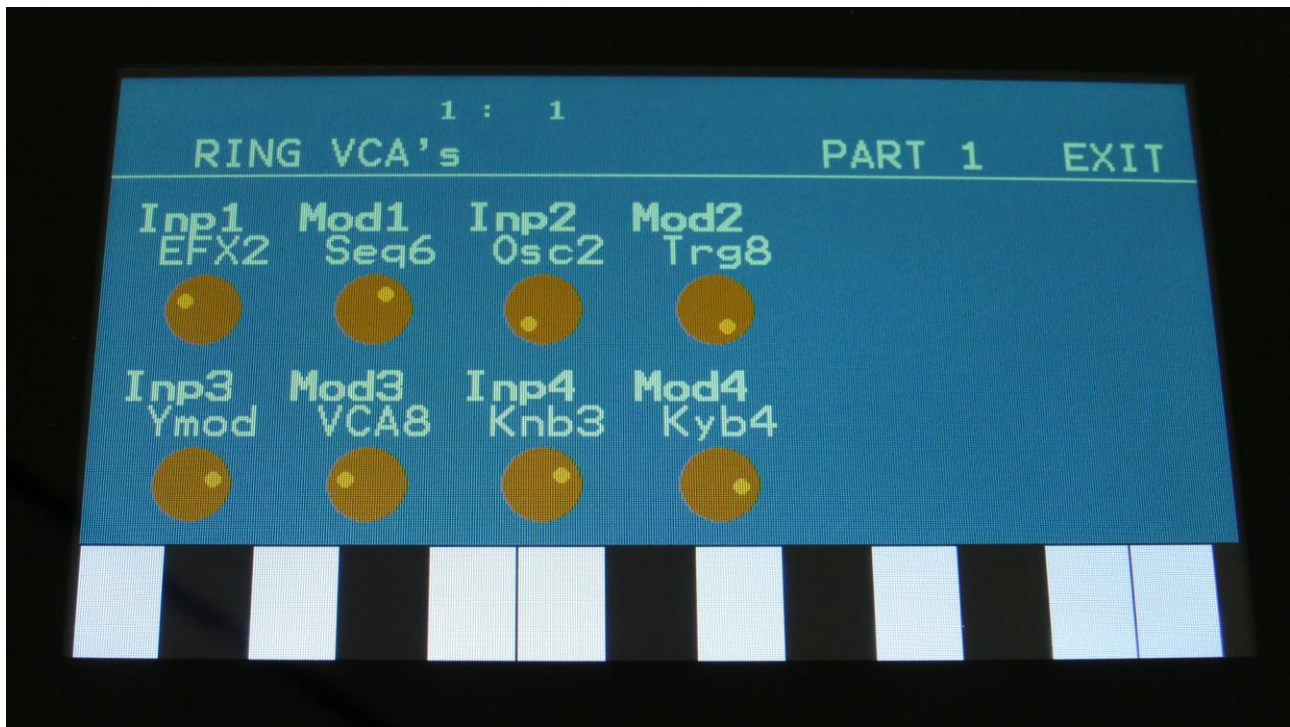
## MIX – Add Mixers



Every modules that has audio inputs, has 3 of these - DGF, VCF, VCA, EFX. If more audio inputs are needed, one of two extra "add mixers" can be added, by using the "Add" parameter. Adding an Add Mixer to a module, will add 4 extra audio inputs - 7 inputs in total. The same Add Mixer can be used in multiple modules, if you would like to add the same signals to each of these.



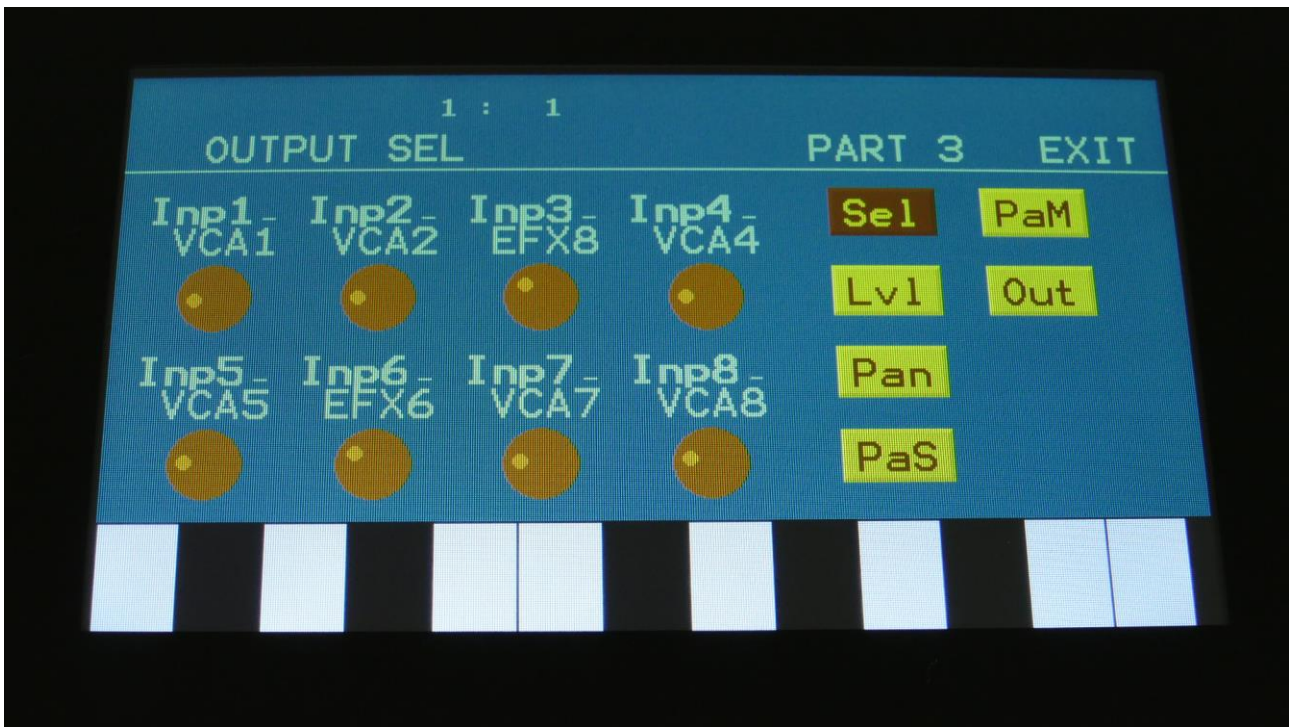
## RING VCA



Urano has 4 Ring VCA's, which can be used as both VCA's and Ring Modulators.



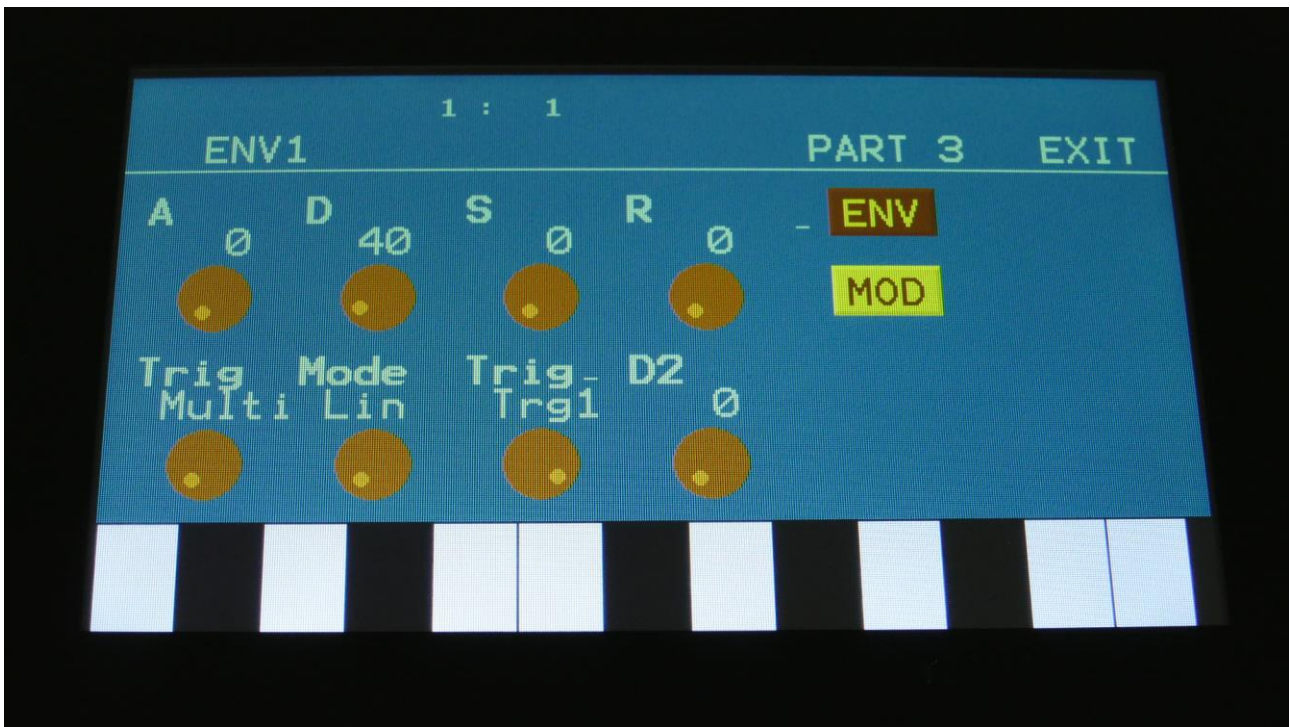
## Outputs Module



In the output module, signals can be assigned and routed to the different audio outputs. Panning of sounds and pan modulation is also done here.

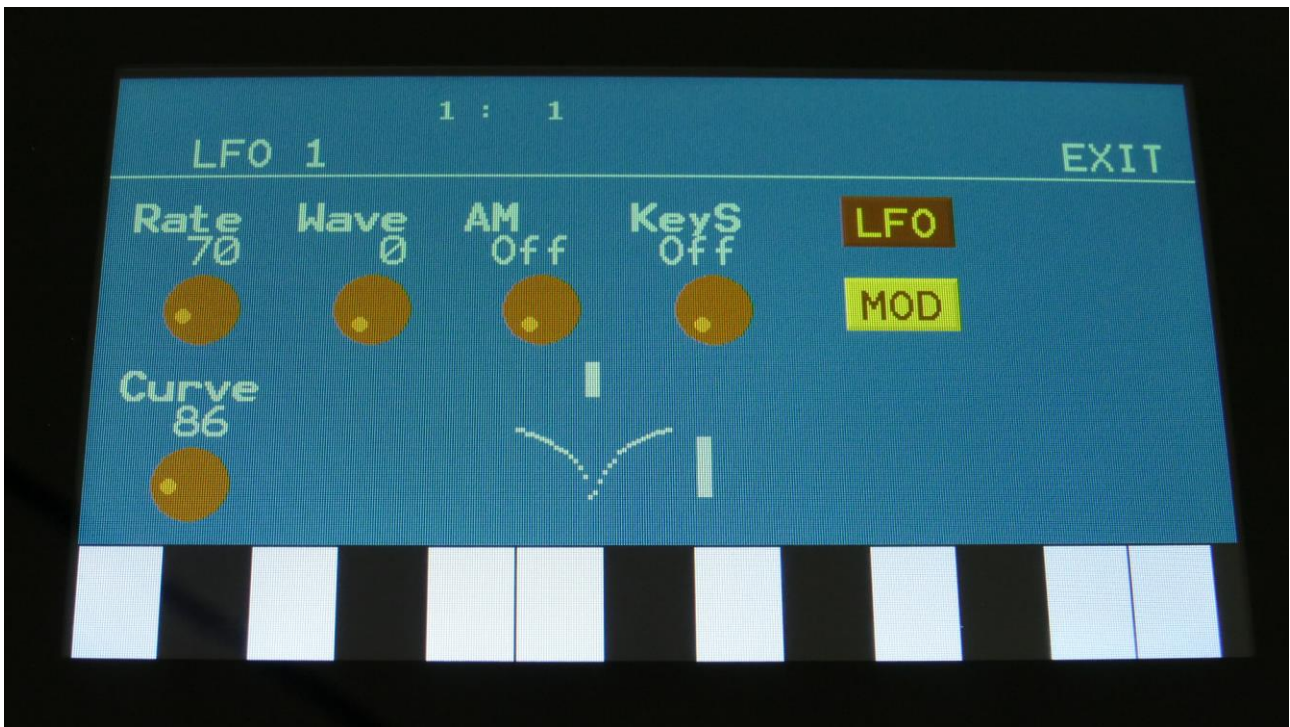
**PLEASE NOTICE:** In the standard configuration, with 4 analog filters installed, the signals sent to VCF3 and 4, are also sent to audio out 3 and 4, so signals from the output module are not sent to these. Signals can only be sent to output 3 and 4, if single line filter boards are installed.

## ENV – Envelopes



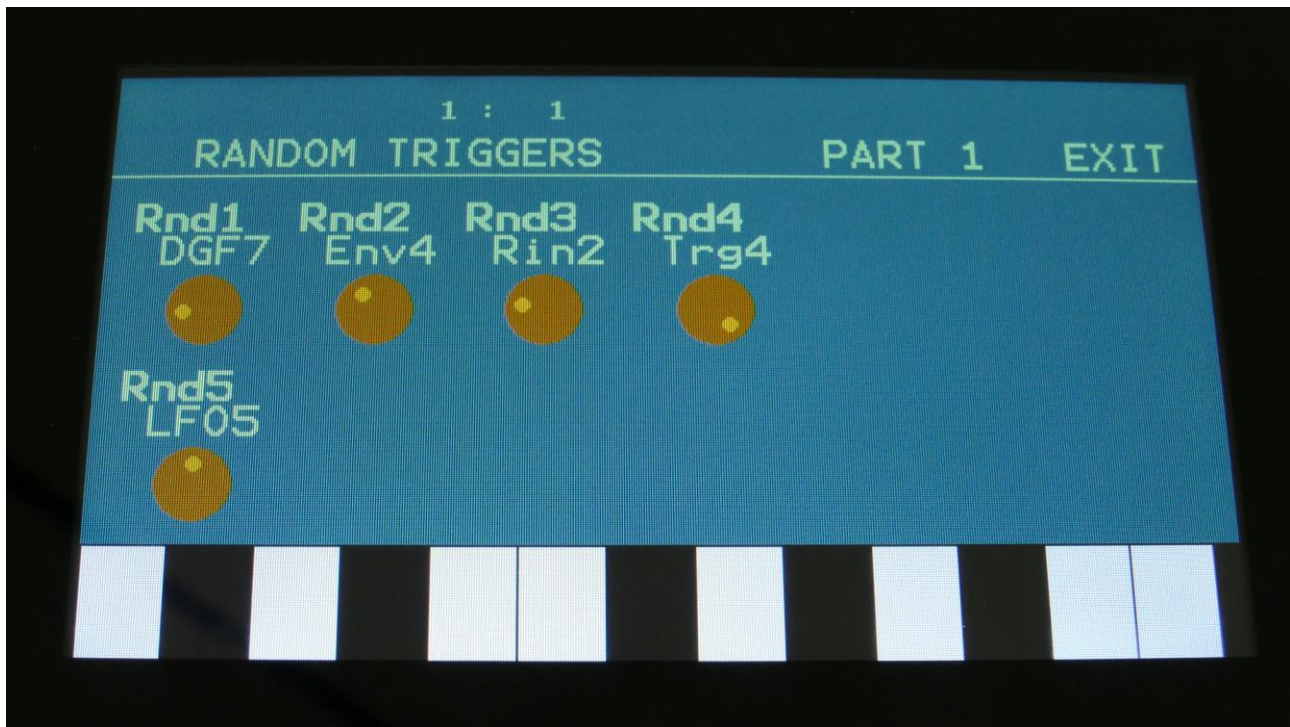
Urano has 8 envelope modules, each with an ADSR envelope and a Decay envelope. The ADSR envelope can run in various linear and logarithmic modes, the envelope time can be timed by 4, for long envelope times, and the ADS segment can be looped. The envelopes can be triggered by any sources. The A, D, R and output amount parameters can be modulated.

## LFO



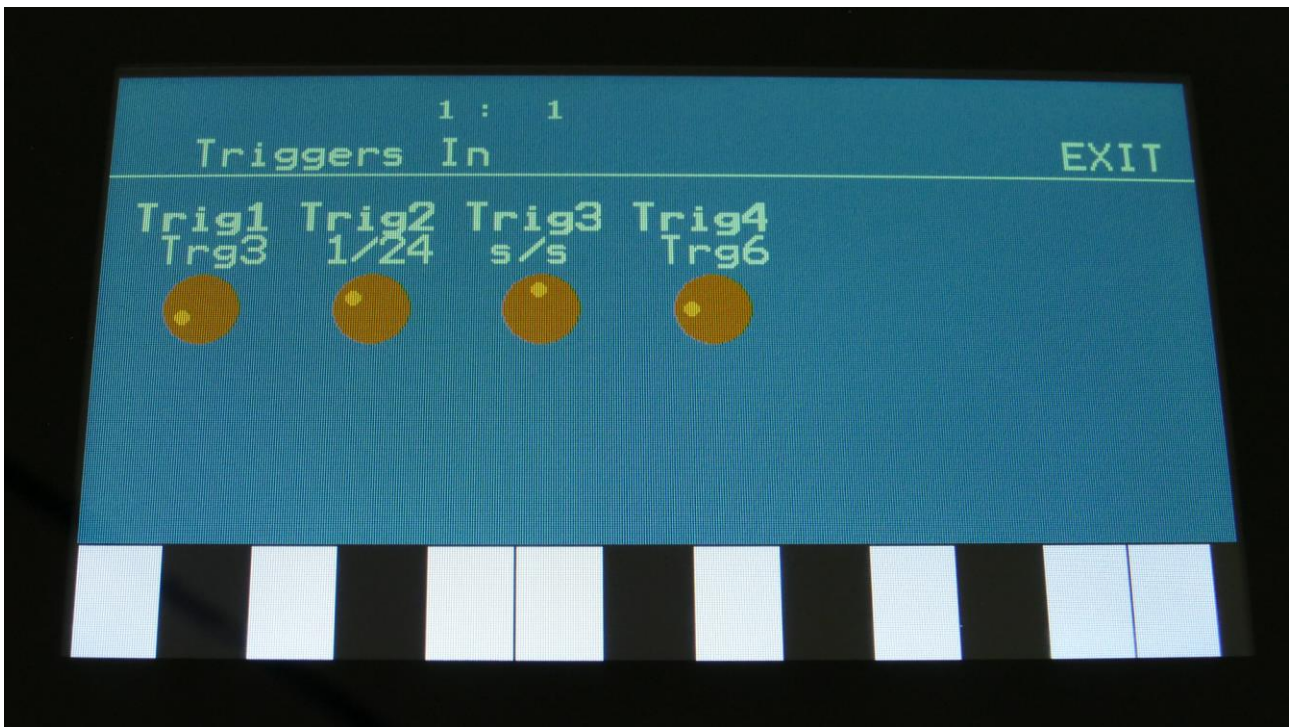
Urano has 8 LFO's with a waveform that morphs from triangle to sawtooth to pulse to FM waves. Curve can be adjusted from logarithmic to linear to exponential. The LFO's can be key synced, and a one-shot mode is available, for using the LFO's as envelopes. The Rate, Wave and Curve parameters can be modulated.

## Random Generators



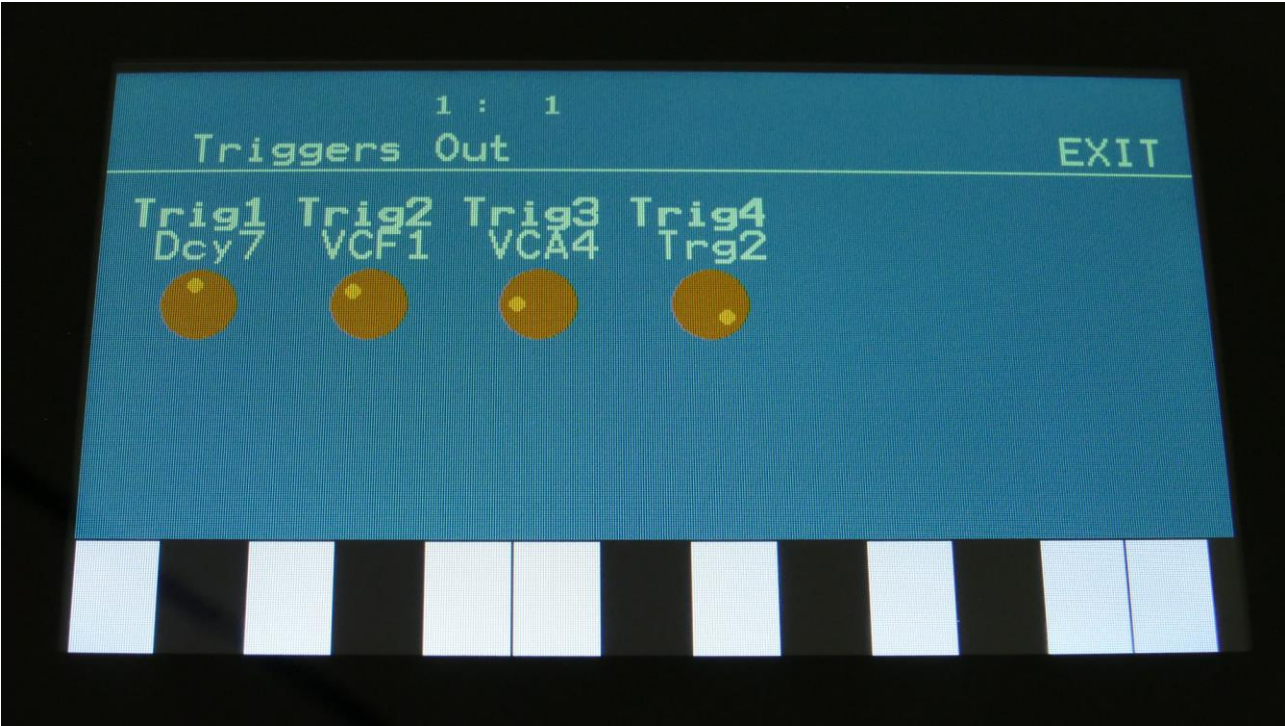
5 Random Generators are available. Every time these are triggered, they put out a new random value. Triggers can be any source.

## Triggers In



The signals applied to the 4 trigger input minijacks can trigger the 8 parts or control the sequencer clock (with divider), start/stop and reset. Signals below 1V are considered as a trigger off. Signals above 1V are considered as a trigger on. The trigger inputs can handle up to +/-45V.

# Triggers Out

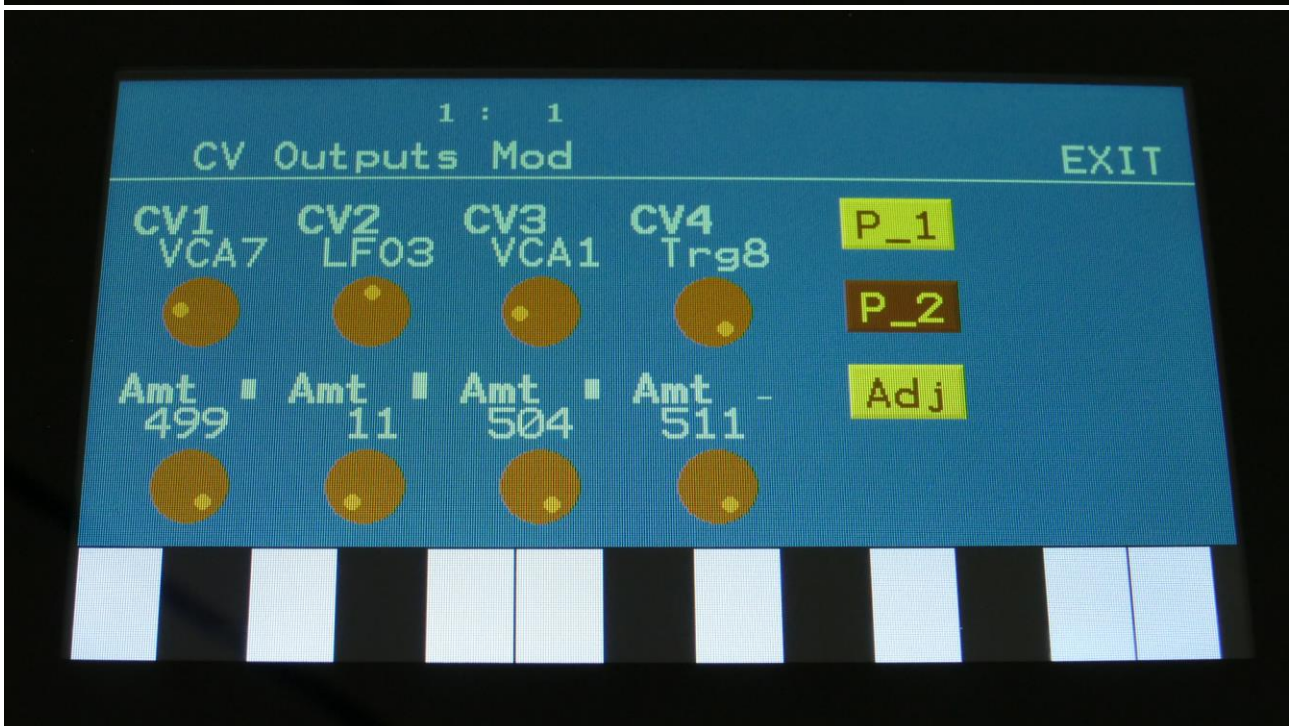
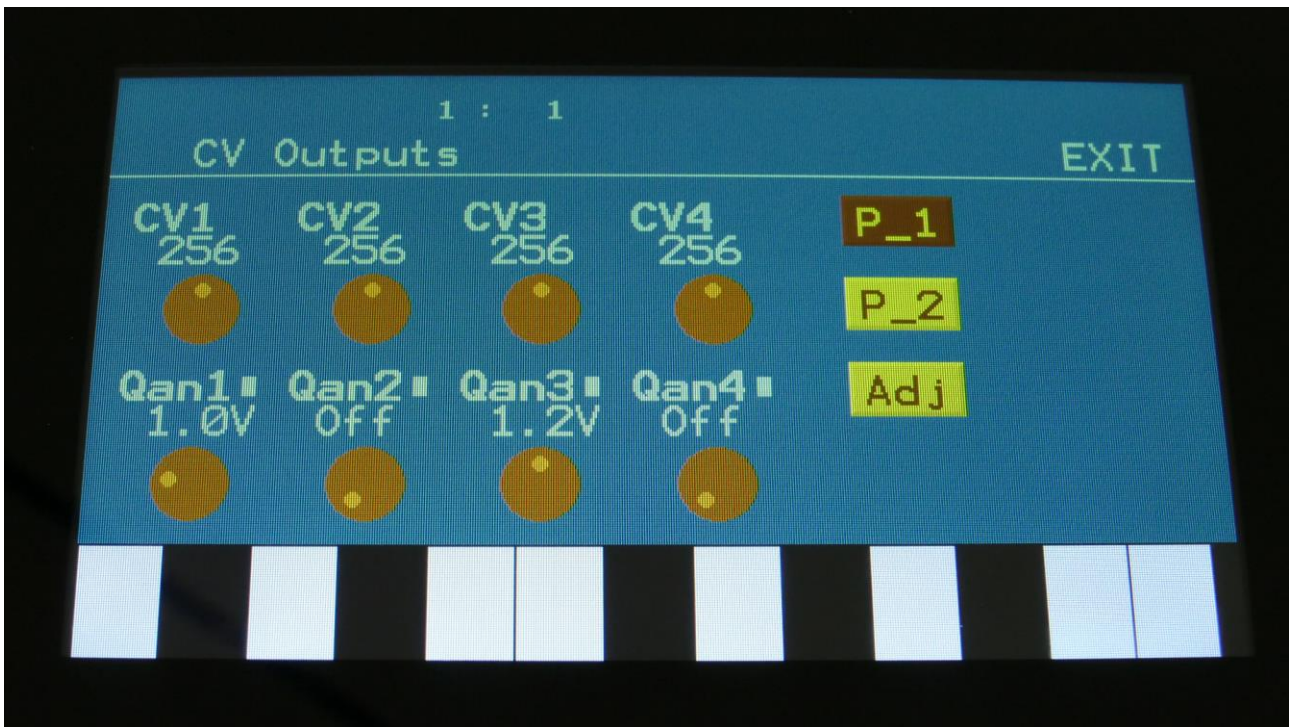


Any source can be sent to the 4 trigger output minijacks. The output range is 0V to 5 or 12V (settable via jumper).

## CV In

The CV input minijacks does not have any settings, they can just be selected as modulation sources. The input range is -5V to +5V, and it has input protection, that will protect the circuits up to +/-45V. When controlling a part trigger note with a CV input, the input is scaled to 1V/oct.

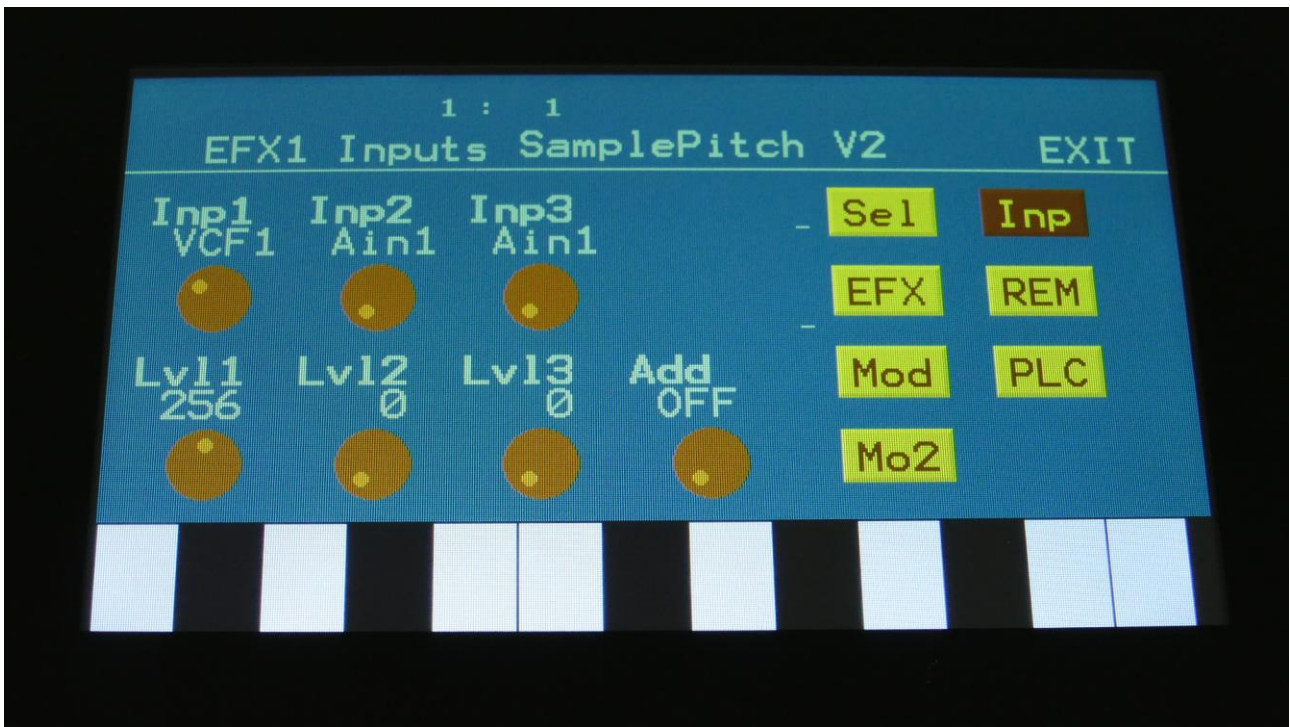
## CV Out



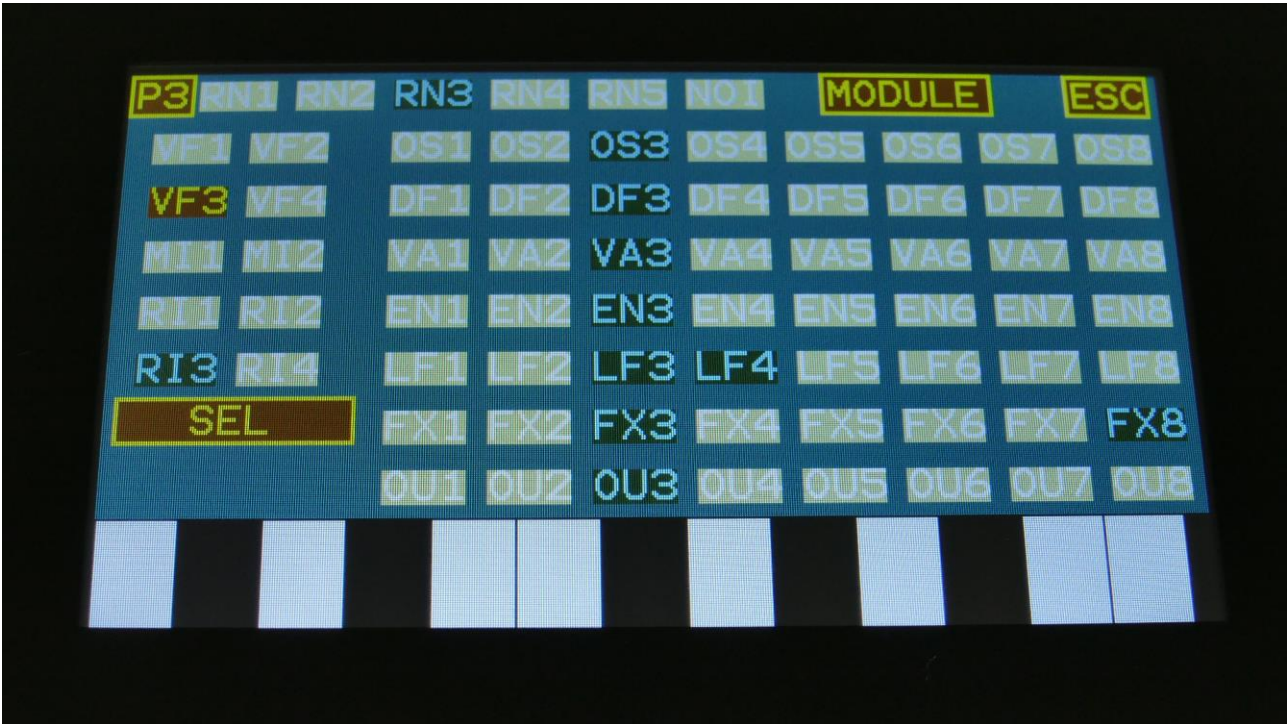
The 4 CV output minijacks can output any source. An output offset can also be set, to make it possible to "program" external CV devices. The output range is -5V to +5V. When notes are selected as the source (notes from a connected MIDI keyboard, the touch screen keyboard and the sequencer), the CV outputs can be scaled to 1V/oct and 1.2V/oct.



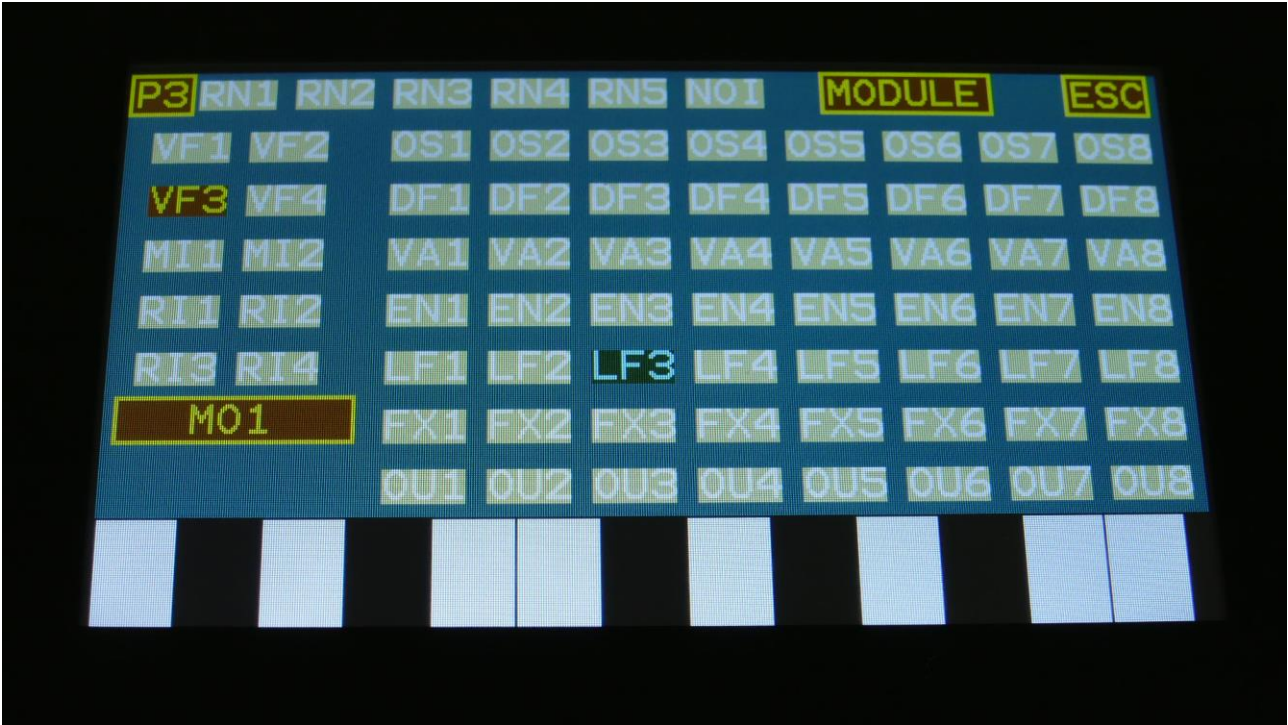
## Connecting Modules

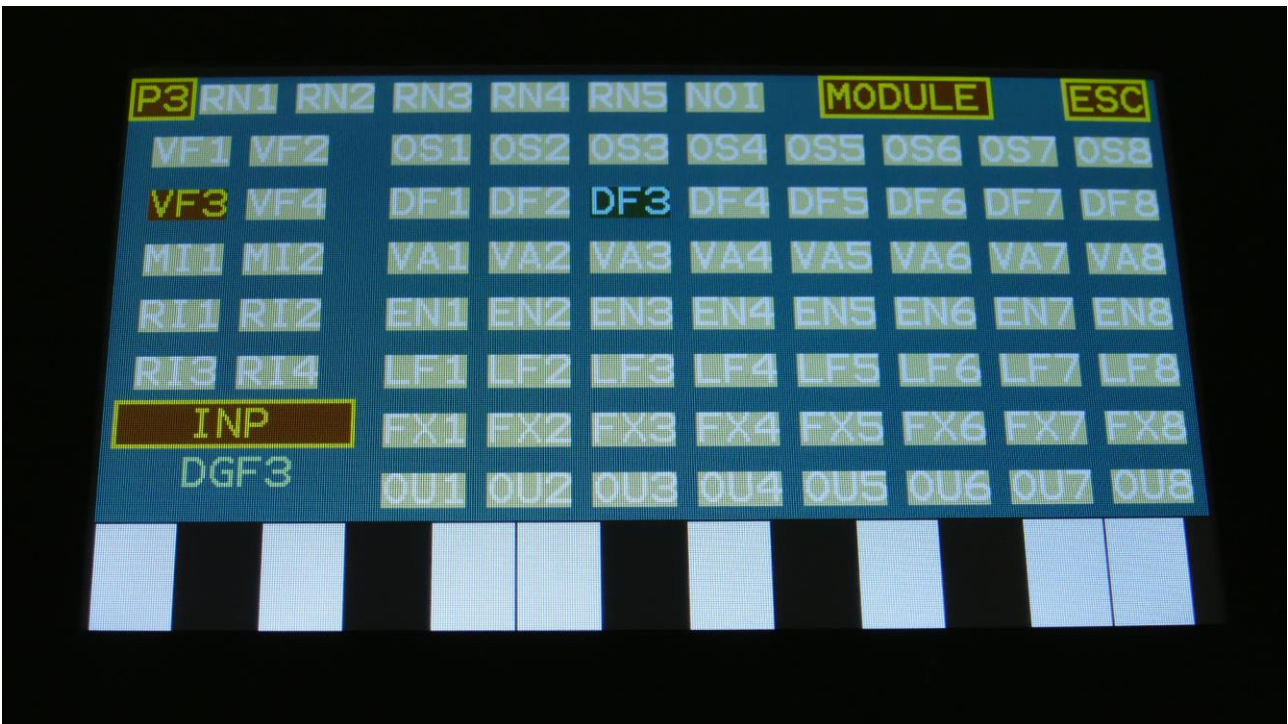
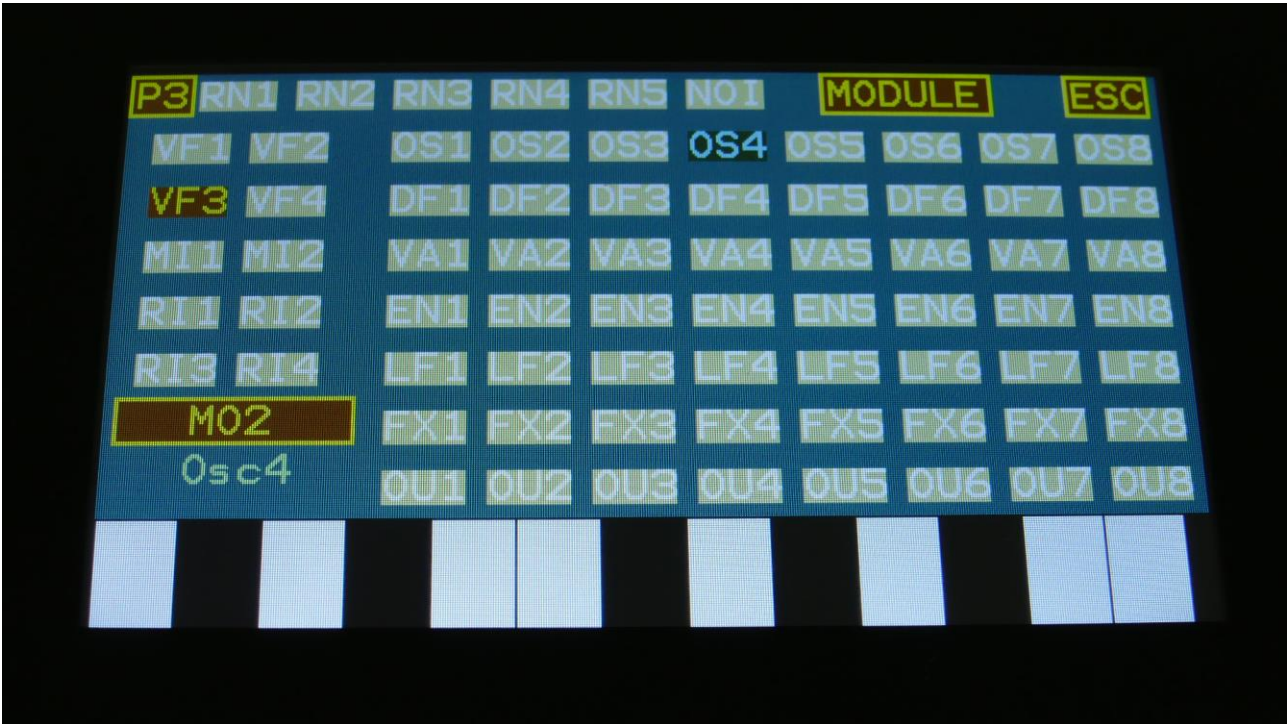


Connecting modules on Urano can be done in 3 different ways: Manually, via the module overview and automatically. The "manual" way, is to go to a modules audio or modulation input pages, and select the audio/modulation source and adjust the amount/level, using the 8 edit knobs.



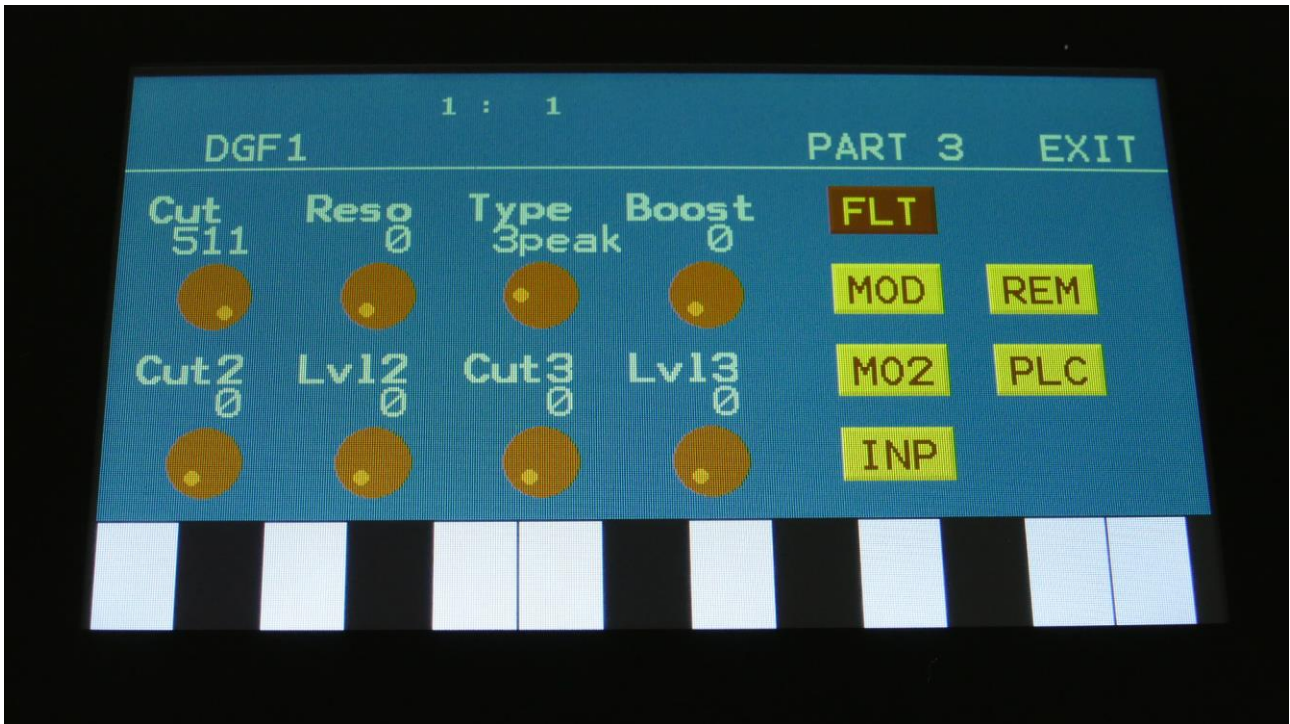
To connect modules on the overview page, first touch the module, for which you want to connect the inputs. Then touch the large SEL button. The SEL button will toggle between SEL (select module), MO1 (modulation page 1), MO2 (modulation page 2) and INP (audio inputs), every time you touch it.





On these pages, the selected module (the module which inputs you are currently connecting), is indicated as a brown box with yellow text. The module(s) that are connected to the selected modules inputs, are indicated as dark blue boxes with light blue text. If the selected module is not included in the currently selected part, the text will be white instead of yellow. When you now

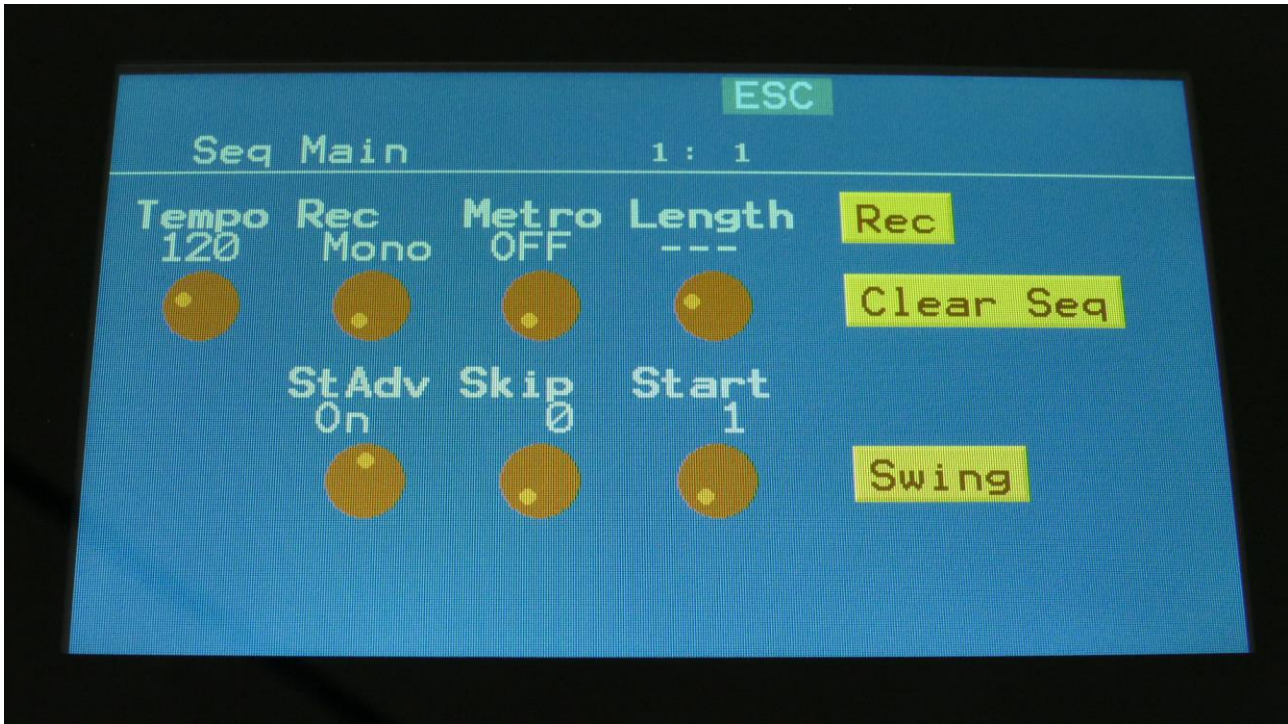
touch another module, this will be connected to modulation/audio input 1 of the selected module page, and if its color was light grey before, it will now turn blue, to indicate that it is connected. If you would like to connect the other inputs, simply turn the Edit Knob, which corresponds to that input (either the input select or the level/amount knob), and touch the module, which you would like to connect. Use Edit Knob 5-8 to adjust the amounts/levels. If you are unsure about, which parameter does what (this might take some time to learn), you can touch the MODULE button at any time, to jump to the actual module page.



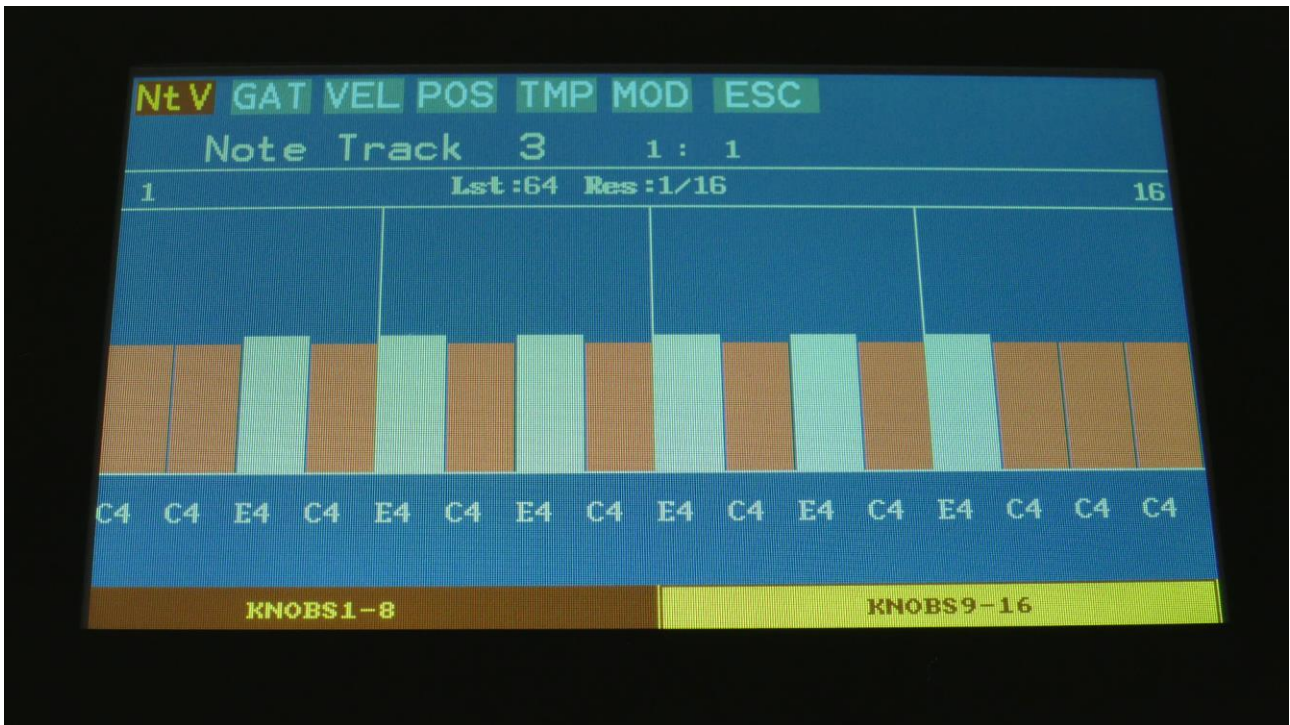
It is possible to automatically remove a module from and insert a module to an audio chain. This is only possible with modules, that have both audio inputs and outputs: DGF, VCF, VCA and EFX. To remove a module from an audio chain, select the module and jump to the module page. Touch the REM (remove) button. Urano will ask "Remove Module From Part?", and you can reply yes or no as desired. If you touched yes, Urano will now disconnect the selected module, and connect the module that was placed before this in the audio chain, to the module that was connected after the selected module. To insert a module in an audio chain, touch the modules PLC (Place) button. Urano will now jump to the Overview page and ask: "PLACE MODULE AFTER?". Now simply touch the module, that you would like the selected module to be placed after, and Urano will take care of all the connections.

## Sequencer

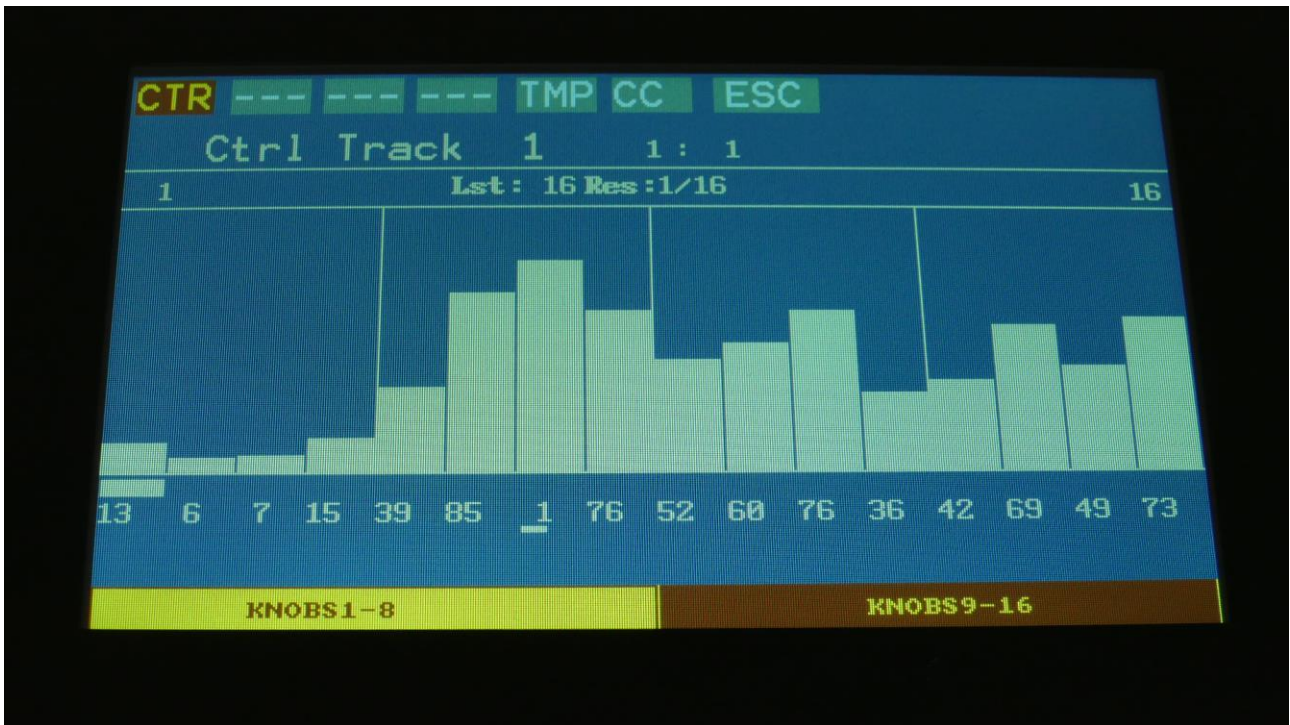
The Urano built in sequencer has 8 note tracks and 16 controller tracks. The note tracks are hard wired to the corresponding 8 parts. The controller tracks can be assigned as modulation and audio sources. Sequencer tracks can be recorded in real time, step time and in a TR way.



On the sequencer Main page, it is possible to set the sequencer tempo, set the record mode to mono or poly (poly is only useful, when controlling external MIDI gear), switch the metronome on/off, set a global length and start point for all tracks, set if step record should advance one step automatically or not, set the step skip effect, and set up global swing. Here it is also possible to clear the whole preset sequence.

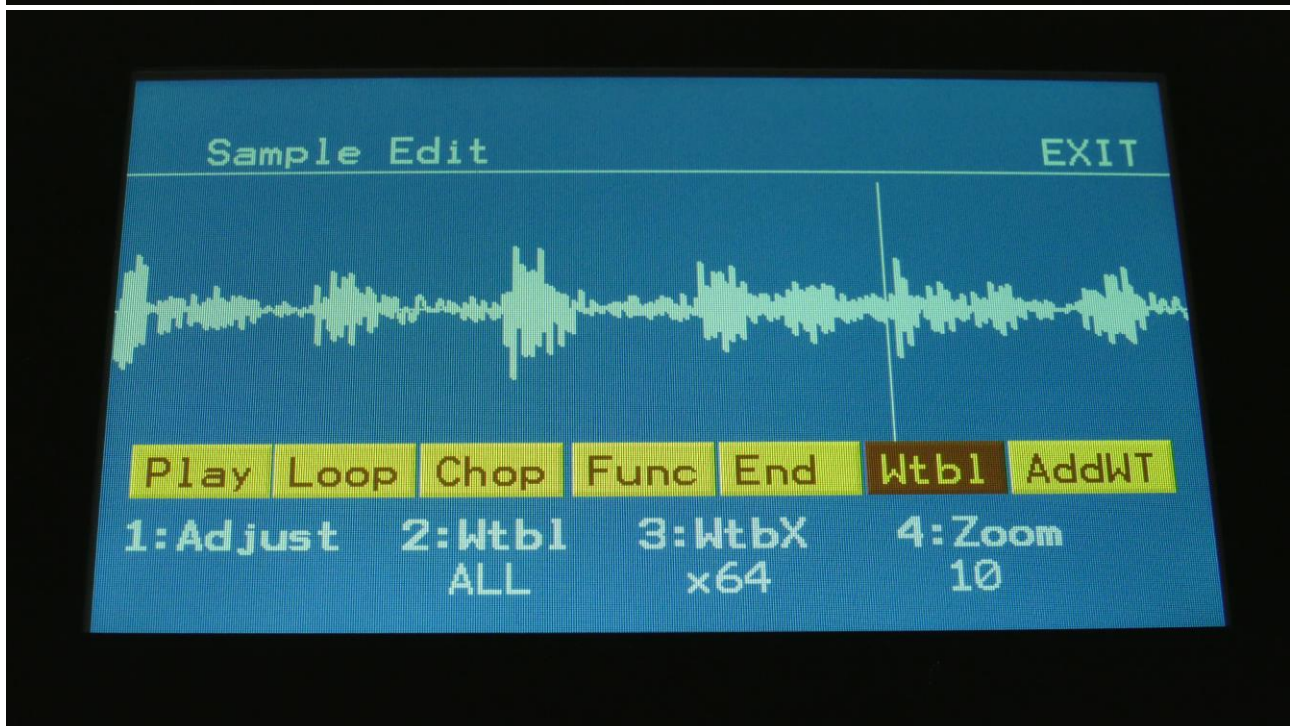
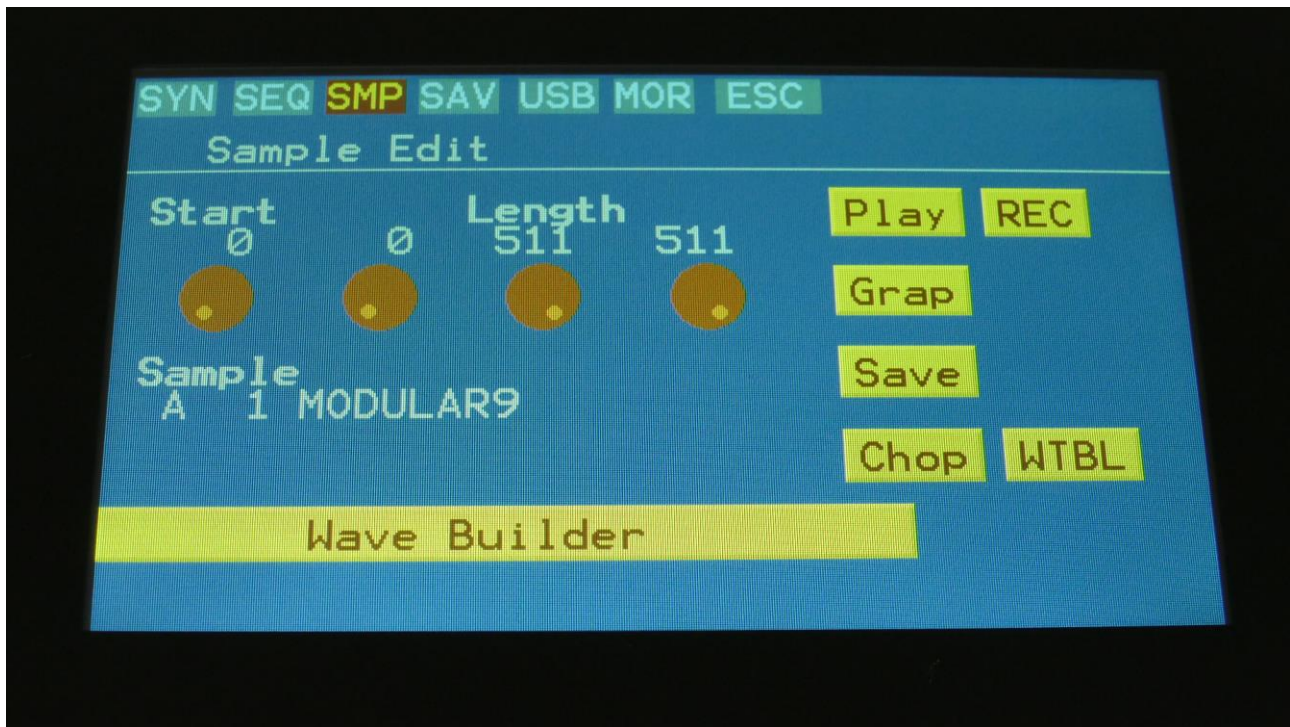


Each note track can be up to 64 steps long, and resolution can be set from 1/64 to 1/2. Steps that are on, are indicated by cream white bars, steps that are off, are indicated by yellow/red bars. The note numbers and other values can be recorded in real and step time, and adjusted by the Edit Knobs, and directly by touching the screen. The note tracks are divided into subtracks: Note number, gate time, velocity, position and sub position. Each note track has a note randomizer, on which you, via a random probability parameter, can set the probability for, how high the chance is, that each note will play back or not. The probability parameter can be controlled by a controller track, for probability per step. A random time parameter is also available. Note value, gate time, note time delay, swing, position and position rotation can be modulated. Templates can be used, for faster setting of the values.



Each controller track can be up to 128 steps long, and resolution can be set from 1/64 to 1/2. Steps values are indicated by cream white bars. The step values can be recorded in real and step time, adjusted by the Edit Knobs, and directly by touching the screen. The transition between each step can be either stepped or smooth. The controller tracks appear as modulation and audio sources, but they can also transmit MIDI CC's and pitch bend directly, both internally and externally. Program changes can also be transmitted. Templates can be used, for faster setting of the values.

## Sample Record/Edit

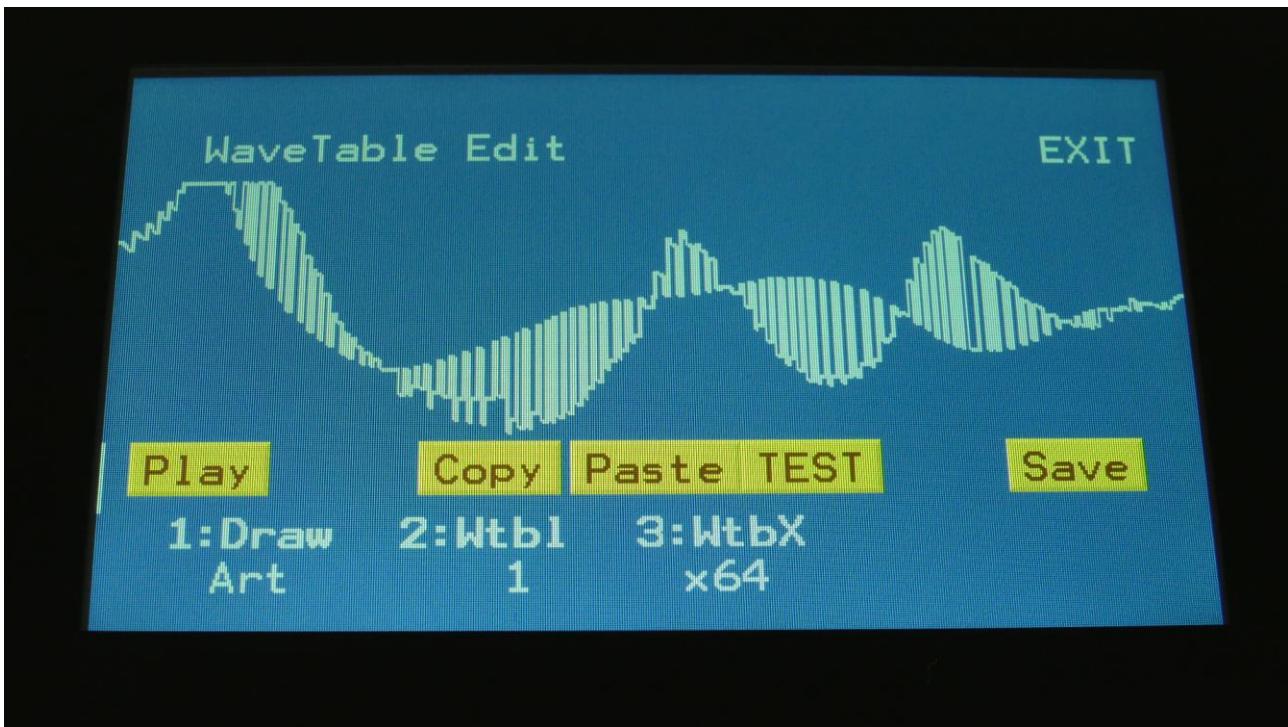


Mono wav samplings can be recorded, imported, edited and played back by the oscillator modules. Stereo samplings can also be imported, but only the left channel will play back. Chop points can be imported or generated automatically and manually. Wavetables can be assembled



from samplings. The wavetable oscillators can also play back samplings directly, but assembling them from samplings will give more control over each single wave.

## WaveTable Editor



In the wavetable editor, you can load an existing wavetable or sampling, and edit or even completely redraw each wave. You can edit each single cycle wave, by drawing with your finger on the touch screen. Two different draw modes are currently available: Nrm (normal) or Art (Artistic). In Nrm mode, the waveform drawing simply follows your finger, and you can draw any shapes easily. In Art mode, urano will generate artistic waveform patterns, as you draw. The patterns will vary after how high you place your finger on the screen, and if you draw forwards or backwards. It is possible to copy and paste single cycle waves. It is also possible to audition the single cycle wave, as well as testing the whole wavetable, directly on this page. When saving a wavetable, it is possible to name it and select the destination sample bank. It is saved as a wav file.

## Connectivity



Urano connects to your analog gear via minijacks, and to other instruments via MIDI and jack connectors.

**-DC Jack:** 2.1mm type with positive middle, 9V, 2A.

**-Audio In L/R:** Main audio inputs. Standard line level. Are sent to the audio/modulation bus and the sample recorder. 1/4" jacks.

**-Audio Out L/R:** Main audio outputs. Standard line level. Audio from the output module can be sent to these. Sample Rec monitoring, sample editing auditioning and metronome are also output through these. 1/4" jacks.

**-Audio In 3/4:** Are sent to the audio/modulation bus and the sample recorder. These are both present as minijacks and 1/4" jacks. When connecting signals to both the minijacks and the 1/4" jacks at the same time, the signals are mixed. The 1/4" jacks are compatible with standard line level sources, while the minijacks are compatible with eurorack +/- 5V sources.

**-Audio Out 3/4:** Audio from the output module can be sent to these. When dual line analog filter boards are installed, the audio sent to analog filter 3 and 4 are output from these connectors, and the signals sent from the output module are ignored. These are both present as minijacks and 1/4" jacks. The 1/4" jacks outputs on standard line level, while the minijacks outputs +/- 5V.

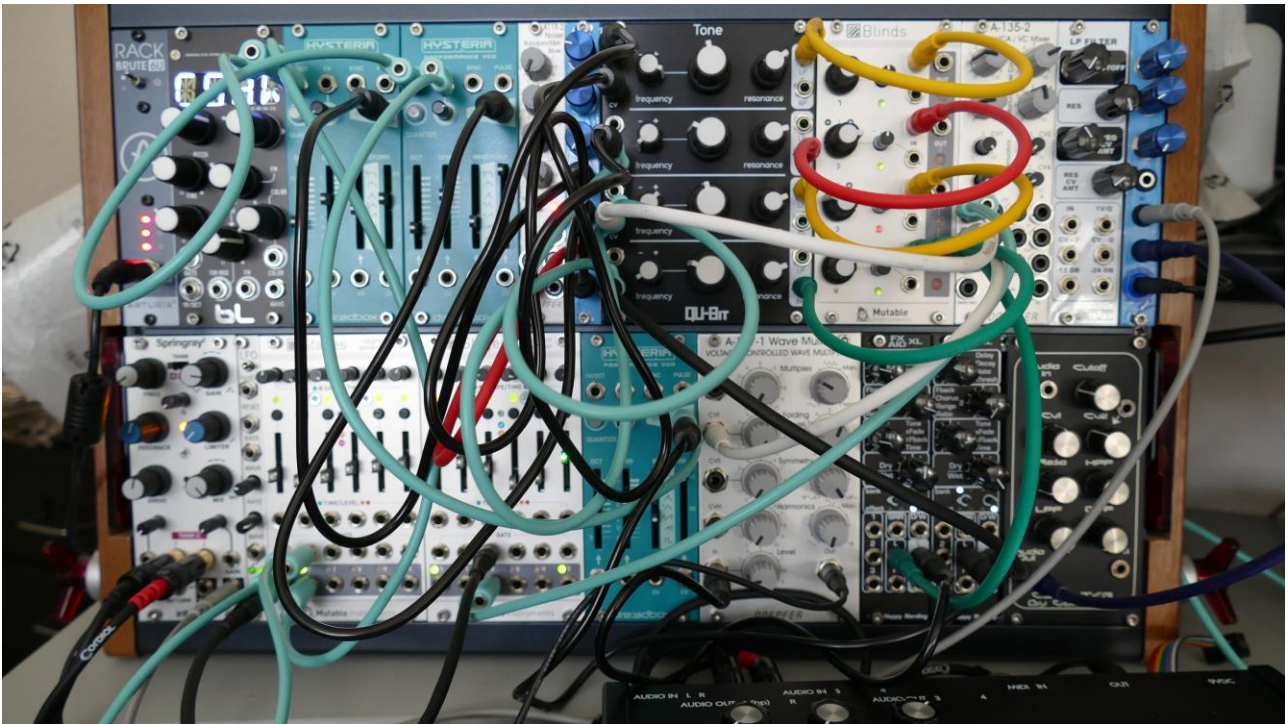
**-Trigger Inputs:** Signals below 1V is considered as a trigger off. Signals above 1V is considered as a trigger on. The trigger inputs can handle up to +/-45V. Minijacks.

**-Trigger Outputs:** The output range is 0V to 5 or 12V (settable via jumper). Minijacks.

**-CV Inputs:** The input range is -5V to +5V, and it has input protection, that will protect the circuits up to +/-45V. When controlling a part trigger note with a CV input, the input is scaled to 1V/oct. Minijacks.

**-CV Outputs:** The output range is -5V to +5V. Minijacks.

## History



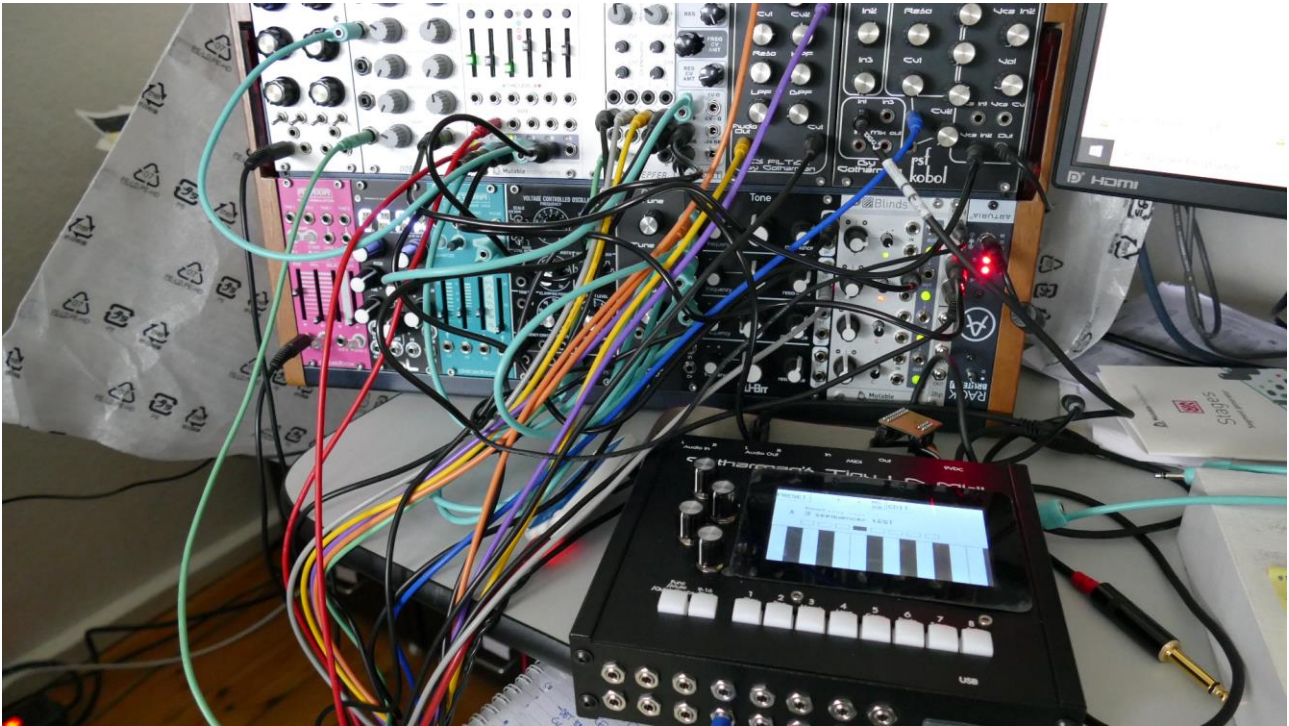
In the Christmas holidays 2020 I couldn't go anywhere on holidays, because of the pandemic travel restrictions, so I could right as well assemble a eurorack system. I did not have room for this on my studio desk, so I placed it on my computer desk. Soon I realized, that I needed a keyboard, a sequencer, and I would also like to have a sampler. How could I get this in the middle of the holidays? So I rebuilt a Tiny LD :) (Ok, I could have just moved one of my two LD3's from my studio desk to my computer desk, but that wouldn't have been fun, would it?) :)

I started out by putting a Tiny LD into a large plastic box, and added a slightly larger display, for better touch keyboard action.



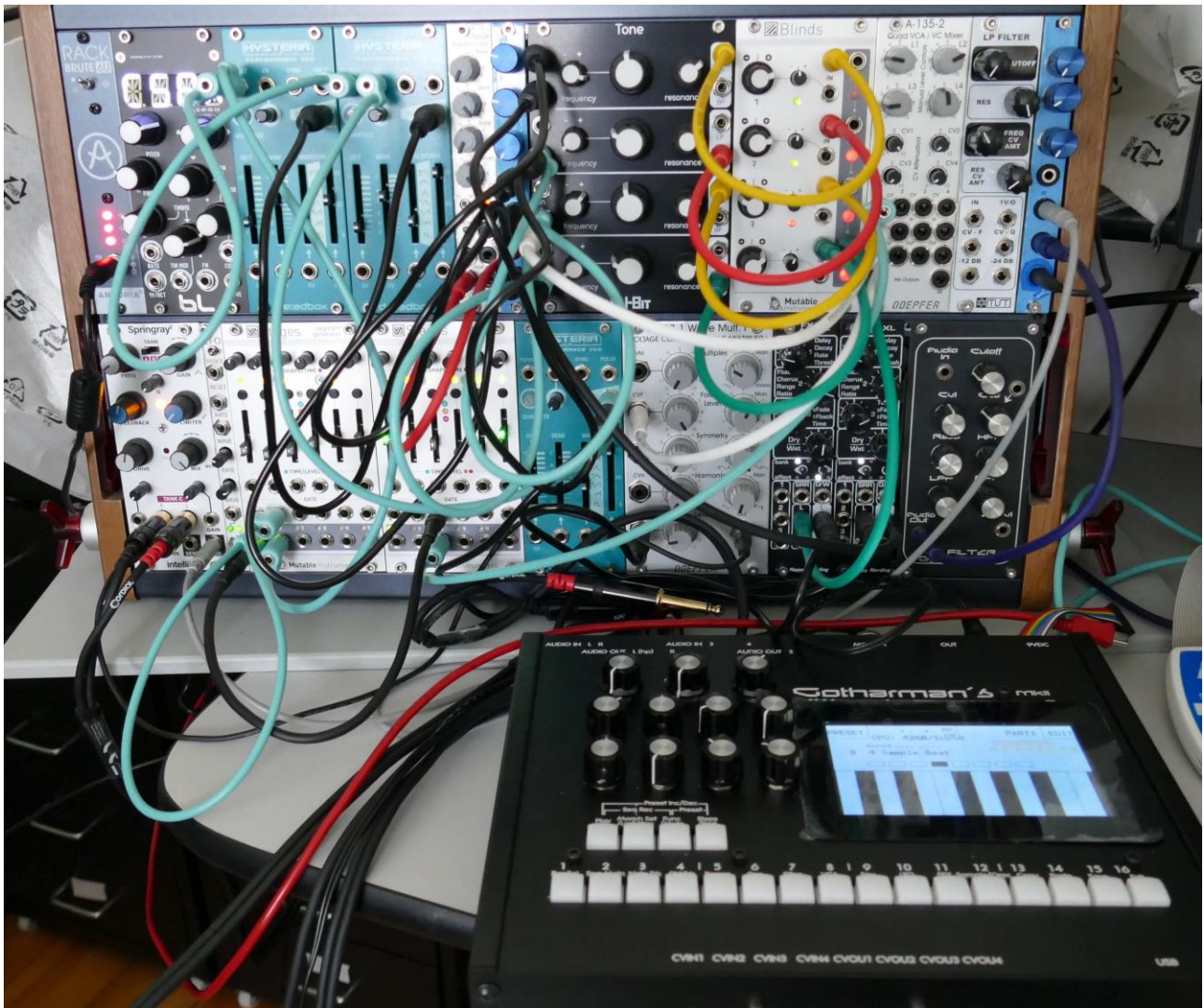
This was however too big for my desk, and felt quite impractical. So I was putting the Tiny LD back in a Tiny LD case.





There wasn't room for all the required electronics in the small box, so not all of the minijack connectors worked (only the 4 trigger ins and outs worked), but it was ok for the Christmas holidays...

While playing with it, I got more and more ideas, and one day it grew up!



## Urano Specs

Expect to release: October 2021.

- 1024 user storable presets and 1024 user storable songs.

- 8 parts . Modules can be assigned to the parts, for multiple sounds at the same time.

- 67 modules:

- 8 Oscillators - Waveforms (morph from sine to triangle to sawtooth to pulse to feedwave), resonator oscillator, noise, drum oscillators (3 x percussion, 2 x cymbal, clap), sample playback, wavetables.

- Up to 4 analog filters . Compatible with the Gotharman filter board system. A pair of new dual line filterboards are installed as standard.

- 8 digital filters - 27 filter types. Standard filters, triple filters, sharp filters, tube filters...

- 8 VCA's - with ADSR envelope, various curves and a clip parameter. Can be triggered by any source.

- 8 Effects Processors - Many of the LD effects plus a new reverb, a wavefolder and some new pitch effects.

- 8 LFO's - With variable waveform and curve. Key syncable.

- 8 Envelopes - ADSR + decay envelope with loop options. Can be triggered by any source.

- 5 Random Generators .

- 4 Ring VCA's .

- 2 Mixer modules , that can add extra inputs to any module.

- Output module - Sends up to 8 sources to the outputs, and handles the stereo panning.

- Trigger Input module - Assign the trigger inputs to parts and sequencer functions.

- Trigger Output module - Sends any sources to the trigger outputs.



- CV Output module - Send any sources to the CV outputs. Can scale to 1V/oct and 1.2V/oct.

-Sample time: Available with either 18 minutes (91MB) or 43 minutes (217MB), max 2.048 samplings, or 93 minutes (477MB) or 193 minutes (977MB) of mono samplings, max 8.192 samplings, kept in super reliable NOR FLASH memory. Samplings are immediately available when turning on -No loading time. Samplings are kept in 1 to 4 banks. Each bank holds up to 2048 samplings. Each sampling can hold up to 64 (non-destructive) chop points.

-8 sequencer note tracks . Can be set to internal or MIDI out. Up to 64 steps per track and settable resolution. Position subtrack makes it possible for any step to play back at any position.

-16 sequencer controller tracks . Can transmit MIDI CC's. Up to 128 steps per track and settable resolution.

-Synthesizer Morph Knob and Sequencer Morph Knob.

-USB: Connect a USB drive for importing and exporting of wav samplings, presets and songs, and for updating the firmware. Imports: Urano presets and songs, wav samplings, 44.1 KHz 16 or 24 bit, broadcast wavs, cue points (will be used as chop points or loop points). Exports: Urano presets and songs, wav samplings 16 bit, 44.1 KHz. Chop points are exported as cue points, for use with many computer programs.

Audio : Stereo in and out, in and out 3 and 4. Left output also functions as a headphone connector.

Audio system :

-Inputs and outputs: 24 bit, 44.1 KHz Cirrus Logic high end ADC/DAC.

-Internal: 32 bit, 44.1 KHz.

-Sampler: 16 bit, 44.1 KHz.

-Maximum audio latency : 1 sample - 22 uS (microseconds). 450 times faster than Linux based instruments!!!

-MIDI : In and out.

-High quality MultiMec pushbuttons that should be able to withstand 1.000.000 operations.

The knobs has solid metal shafts.

Box is made of steel and aluminium.

Size : 26.5 x 22.5 x 4.5 cm

Weight : 2.4 KG