Gotharman's Anamono

User Manual

Index

Introduction

Dear valued GotharMusic customer,
Thank you very much for purchasing an Anamono.

Anamono is the newest model in my compact syntesizer series, that packs a lot of power in a small, affordable and very easy portable package.
Anamono packs a lot of analogue power. 2 analogue filters, 1 multimode and 1 bandpass, an analogue VCA and overdrive output stage, and a newly engineered g-RAY feedback synthesis circuit, that brings some totally new sound possibilities.
Together with the analogue section, Anamono's digital section also packs a lot of power, and inspiration to new sound ideas: 2 digital oscillators with continiously variable waveforms and oscillator sync, a routable ringmodulator, a routable digital multimode filter, a fully programable and controlable granulator/delay effects section, and many modulation sources.
It has 2 newly engineered modulation sources: An 8-step very flexible step modulator, and a 5-step. The 8-step variant has a selection of different trigger sources, and is able to put out notes and gates. The 2 modulators has, like the 2 envelopes, 2 sets of settings, that can be morped between, using any modulation source.
Anamono also has an external audio input, which makes it possible to process any audio signal with Anamono's ringmodulator, g-RAY feedback, filters, granulator/delay and analog overdrive. An envelope follower makes it possible for the external audio signal to keep control of Anamono's output level (and any other controlable parameter), to prevent unwanted noises. A drone parameter is also available, if you want to keep Anamono's output constantly open.
All Anamono parameters can be controlled using MIDI NRPN controller numbers, and many parameters can be controlled direct with MIDI controllers.
256 preset sound can be stored in eeprom's – no back-up battery required. All presets are user-writable.

I sincerely hope, that you will enjoy playing your Anamono, as much as I have enjoyed designing it.
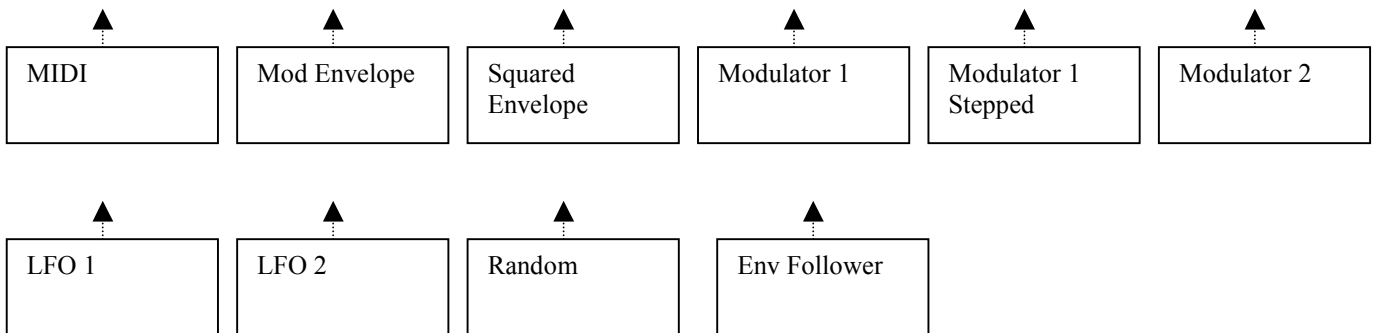
Gotharman, June 2010

Main Features

- Monophonic analogue feedback synthesizer with build in granulator/delay effects.
- 2 oscillators with waveforms morphable from sine to triangle to saw to square to noise and with osc sync.
- 2 analogue filters - 1 multimode (lpf, bpf, hpf) and 1 bpf.
- 1 routable digital multimode filter.
- New Gotharman engineered analogue feedback circuit with g-RAY - NEW sound creating possibilities.
- Analogue VCA and overdrive - fully controllable.
- Fully programable and controllable 16-step step granulator - Delay/granulator times up to 1.5 second.
- Ring modulator, that can process both internal sounds and sounds coming via the external audio input.
- External audio input lets you process any sound with Anamono's filters, g-RAY feedback circuit, granulator/delay, ringmodulator and analogue overdrive.
- 2 envelopes and 2 step-modulators, all having 2 sets of settings, that can be morphed between, using any modulation source.
- 2 LFO's with morphable waveforms and key-sync.
- 256 preset memory locations – All user-writable in eeproms – No back-up battery.
- All parameters controlable with MIDI NRPN numbers - Many direct with MIDI controllers.

Anamono Internal Flow

Osc1, Ext In, Ana VCF's, Granu

Osc2, LFO1, Ana VCF's, Granu

Ring Modulator → DSP filter, Ana VCF's, Amp

Oscillator 1 svnc

Oscillator 2

Ext Audio In

DSP Filter in position 1

Analogue Filter 1

Analogue Filter 2

DSP Filter in position 2

DSP Filter in position 3

FeedBack

g-RAY Circuit

Amp

Amp Envelope

Granulator / Delay

DSP Filter in position 4

Analogue Overdrive

MIDI

Mod Envelope

Squared Envelope

Modulator 1

Modulator 1 Stepped

Modulator 2

LFO 1

LFO 2

Random

Env Follower

Anamono Front

Edit1 / Ctrl 2: When on the preset select screen (the screen showing on the picture) and on the edit page select screen, this knob transmits midi-controller 2 internally, and tweaks all parameters, which has midi-controller 2 selected as modulation source, except if a parameter are assigned to it on the "ASSIGN EDIT 1" edit page.

When on a parameter edit screen, this knob adjusts the parameter showing at the left of the screen.

Edit2 / Ctrl 3: When on the preset select screen (the screen showing on the picture) and on the edit page select screen, this knob transmits midi-controller 3 internally, and tweaks all parameters, which has midi-controller 3 selected as modulation source, except if a parameter are assigned to it on the "ASSIGN EDIT 2" edit page.

When on a parameter edit screen, this knob adjusts the parameter showing at the middle of the screen.

Play / Enter / Freeze: This knob starts and stops Modulator 1, if Modulator 1 trigger source = Play or MIDI. It also works as a midi note on indicator – every time a midi note on, on the selected midi-channel, are received it will light up.

When you select a new preset, it will start blinking, and you will have to push it to confirm.

When on a granulator/delay edit page, this acts as a freeze knob, and freezes/un-freezes the granulator/delay every time it is pushed. It lights up, when freeze is active.

Cursor (click) value: This knob navigates around, changes preset, and changes various switch functions on the parameter edit screens.

If the cursor is blinking, turning this knob will move the cursor. Pushing it will stop the cursor from blinking, to change a value, or entering another screen.

If the cursor is not blinking, turning this knob, will change the value of the parameter, where the cusor are located. Pushing it will get the cursor blinking to move it, or it will enter another screen.

Volume: Changes the output volume on the audio and phones outputs.

Phones: Below the "Phones" text on the front-side of Anamono, a phones output are located. It is possible to connect a pair of stereo headphones to this.

Anamono Back / Connections

9VDC: Connect the supplied 9-12 VDC power adaptor to the socket. The switch near it are the power on/off switch. If your Anamono wasn't delivered with a power adaptor, or you need to replace it, it has to be:
-A 9-12 V DC, min. 500 mA unregulated power adaptor with a 2.1 mm DC connector, with the positive voltage in the middle.

MIDI in: Connect this to the MIDI out of a MIDI transmitting device (MIDI keyboard, sequencer, computer or whatever).

Audio In jack: This is the external audio input of Anamono. Connect any line-level audio source to this, to process it with Anamono's powerful audio system.

Audio Out jack: This is a line output, and needs to be amplified. Connect it to an amplifier or a mixer.

How to get around

Some main rules: If the cursor is blinking, you can move it by turning the cursor(click)value encoder.
If the cursor is not blinking, you can change the value of the parameter the cursor are located below, by turning the cursor(click)value encoder.
By pushing the cursor(click)value encoder, you change the cursor from blinking to not-blinking and vice versa.

When the cursor is located under "Edit", on the preset select page, pushing the cursor(click)value encoder, will enter the edit group select pages.

On the edit group select pages, pushing the cursor(click)value encoder, will enter the edit parameters pages, except if the edit group page is "EXIT", then it will exit to the preset select page.

If the cursor is located under an "X", pushing the cursor(click)value encoder, will exit to the previous level.

The Preset Select Page

Every time you turn on your Anamono, it will for a short while write:

<div style="border:1px solid">

Gotharman's
AnaMoNO

</div>

In it's display.
Right after that, it will go to this screen:

<div style="border:1px solid">

[VoiceYouJoy]
A<u>0</u>1 (0- 0) Edit

</div>

This is the Anamono main page.

On the top of the display it writes the name of the selected preset. It remembers what preset was selected, when it was turned off, and goes to that preset when it is turned on again.

On the bottom of the display it writes the selected preset bank and number. Anamono has sixteen banks (A-P) with each 16 sounds (256 in all). The number shown in paranthes, are the MIDI bank select number (MIDI ctrl 32) followed by a slash and the MIDI program change number you will have to transmit to Anamono, for selecting this preset, from an external MIDI-device.

As default, when entering the preset select page, the cursor is located under the preset number select, so you immediately can select a preset. It is also possible to locate the cursor under the bank select letter, or "Edit", if you wish to enter the edit pages.

To change preset: If the cursor is not blinking, push the cursor(click)value encoder, to make the cursor blink. Rotate the cursor(click)value encoder in either direction to place the cursor under the letter, if you want to change the bank number, or the number if you want to change the preset number. Push the cursor(click)value encoder, so the cursor is not blinking. Rotate the cursor(click)value encoder to select the preset you want. It will write the preset name in the top of the display. The play/enter/freeze knob will now start to blink. Push the play/enter/freeze knob to confirm change to the selected preset.

The Edit Pages

NOTICE: The edits you do, are not automatically stored in memory. If you would like to keep your creation, you wil have to SAVE the preset. How to do that, are explained later in this manual.

How to enter the edit pages from the preset select page:

If the cursor is not blinking, push the cursor(click)value encoder, so the cursor is blinking. Rotate the cursor(click)value encoder until the cursor is located under "Edit". Push the cursor(click)value encoder. Now this screen should appear:

```
1 OSC 1
-
```

If you now want to exit back to the preset select screen, rotate the cursor(click)value encoder, until this screen appears:
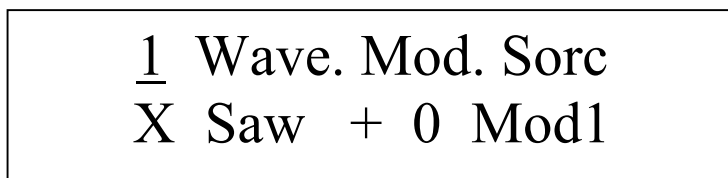
```
EXIT
-
```

Push the cursor(click)value encoder.

If you, on the other hand, wants to start edit and create some sounds, rotate the cursor(click)value encoder. You can now select among various edit pages. Pushing the cursor(click)value encoder, enters an edit page.

Inside an edit page, it might look like this:

```
1  Wave. Mod. Sorc
X  Saw  +  0  Mod1
```

By placing the cursor under the number in the upper left corner of the display, and pushing the cursor(click)value encoder you can select among various edit pages in the selected edit group. By placing the cursor under the "X" and pushing the cursor(click)value encoder, you will exit to the edit group select page.
The two parameters shown in the left and in the middle of the display are changed by rotating the edit1 and edit2 knobs. The parameter to the right is changed by moving the cursor to it, and use the cursor(click)value encoder.

Overview of the edit group pages:

1 – Oscillator 1
2 – Oscillator 2
3 – Oscillator Mod
4 – DSP Filter
5 – Feedback
6 – Analogue Filters
7 – Amp (VCA)
8 – Granulator
9 – Mod Envelope
10 – Modulator 1
11 – Modulator 2
12 – LFO 1
13 – LFO 2
14 – Random
15 – Mod Keyboard
16 – MIDI
17 – Assign Edit 1
18 – Assign Edit 2
19 – Save Preset
20 – Exit (To preset select page)

Anamono Modulation Sources

1 AMP/MOD ENV:
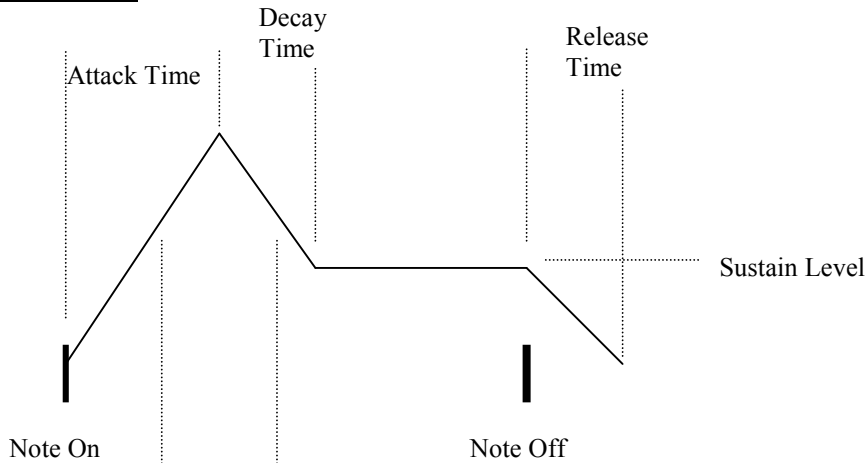
2 SQUARED MOD ENV:
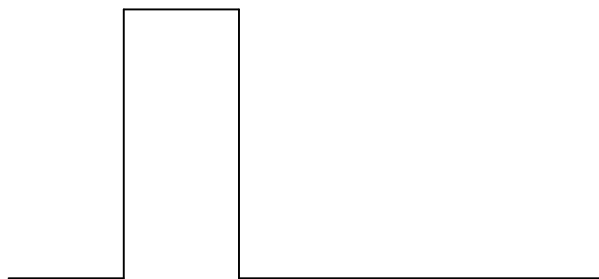
A traditional ADSR envelope. It has 2 sets of settings, that can be morphed between, using any modulator.

It also has a squared output: When the mod envelope has a value below half of it's max value, this will be zero. When the mod envelope reaches above it's half value, this will be at maximum value.

The amp section has it's own ADSR envelope, that is controlling the total output level, before the granulator and the overdrive, unless amp control = Folr. Then the envelope follower controls the output level.

3 MODULATOR 1:
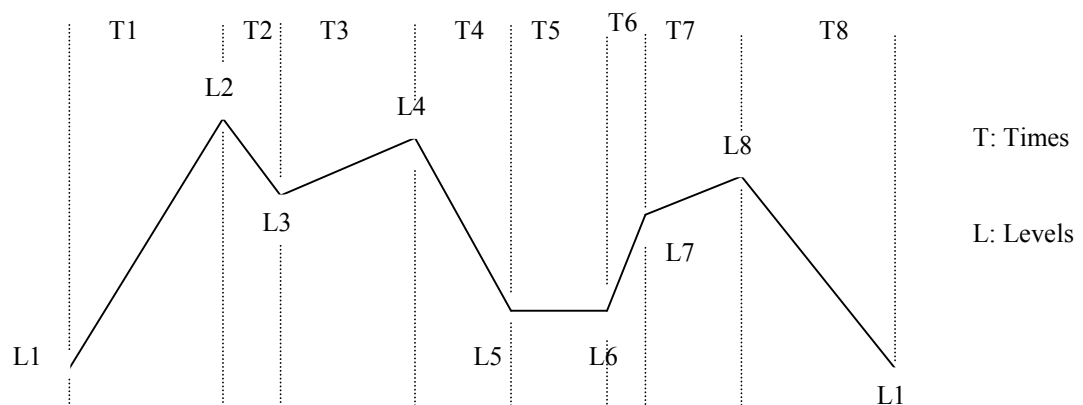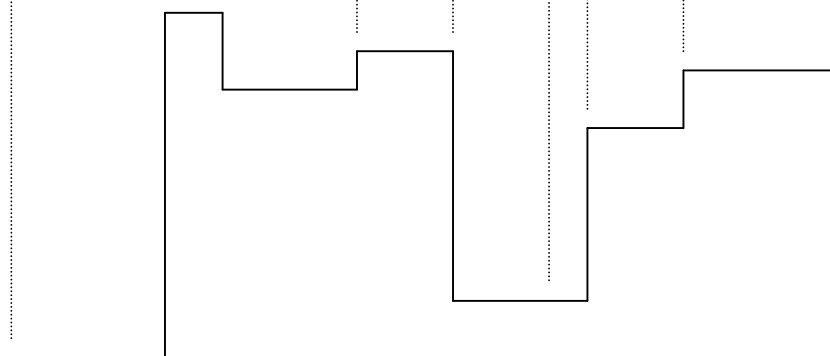
T1 T2 T3 T4 T5 T6 T7 T8

L2

L4

L8

T: Times

L3

L7

L: Levels

L1

L5 L6

L1

4 STEPPED MODULATOR 1:

An 8 step very flexible modulator with a smooth output. Each step has a value parameter, a time parameter (how long it will take to reach the next steps value), and a selection of, if it will continue, sustain or loop, after this step. It has a flexible trigger system: Off (freerun, no triggering), Key-reset (key triggered without re-triggering), Key-trigger (key triggered with re-triggering), Key'ed (advances one step, every time a note-on is received), Play (the play/enter knob starts and stops the modulator) and MIDI (synced to MIDI-clock). It has 2 sets of settings, that can be morphed between, using any modulator.
It also has a stepped output: Every time modulator 1 reaches a new step/value this is updated. This can also be set up to put out note and gate values, and used as a morphable step-sequencer.

5 MODULATOR 2:
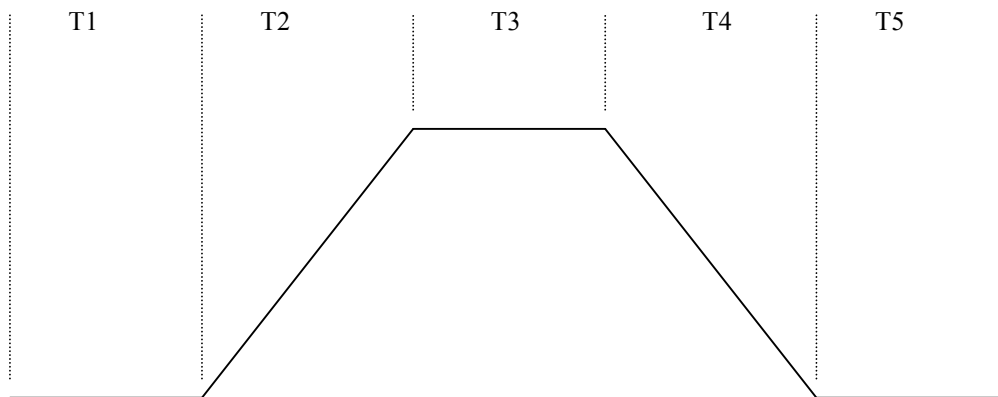
A 5-step shapable modulator. Step 1: delay time, step 2: rise time to full value, step 3: hold time at full value, step 4: fall time to zero, step 5: hold time at zero value. Can be key-triggered, looped or key-triggered and looped. It has 2 sets of settings, that can be morphed between, using any modulator.

6 LFO 1

7 LFO 2

The LFO's waveforms are continuously variable from triangle to saw to square to pulse. The LFO's can be both wave and rate-modulated, using any modulator. Both LFO's can also be key-synced, and LFO wave start-point can be adjusted.

8 Random Voltage

Each time it is triggered, it outputs a new random value. Trigger sources are: LFO1, LFO2 or key.

9 Random Pulse

A squared version of the random voltage with adjustable pw. When the random voltage puts out a value above the pw, the output of this will be zero. When the random voltage puts out a value below the pw, the output of this will be max.

10 Mod Kybd

The last received note on value are converted into a control level, using two parameters: Offset (at what note value, will the modulation start) and spread (makes the control curve more steep, at higher values).

11 Velo

The last received note on velocity value.

12 Env Folr

The audio signal present on the external audio input converted to a controller shape. With adjustable smoothing.

13 MIDI Ctrl 1

14 MIDI Ctrl 2

15 MIDI Ctrl 3

16 MIDI Ctrl 4

The last received values from these four controllers or from edit knob 1 (ctrl 2) or 2 (ctrl 3). If edit knob 1 and 2 are assigned to a parameter in the assign section, MIDI controller 2 and 3 will also be assigned to these, and ignored as modulation sources.

Explanation Of The Edit Pages

The Oscillator 1 and 2 Pages

<u>1</u> OSC 1

<u>2</u> OSC 2

Anamono does have separate settings for oscillator 1 and 2, but since these settings are equal, except for the keyboard on/off parameter, which only affects oscillator 2, they are both explained in this one section.

The oscillators in Anamono are, together with the external audio input if wanted, creating the basic building block for the sound. It is also the osillators, that dictates the basic pitch of the sound.

All Anamono waveforms has a certain number of harmonics. The sound is shaped by filtering out some of these harmonics, using the analogue and digital filters, and by adding other harmonics, using the ring modulator, oscillator sync and the analogue overdrive.

The oscillators waveforms are continiously variable from sine to triangle to saw to square to noise. The wave-shaping can be modulated from all 16 modulation sources. All waveforms can be pulsewidth and pitch-modulated.

<u>1</u> Wave. Mod. Sorc
X Saw + 0 Mod1

Edit 1 – Oscillator wave shape: Value 0 to 255, 0: sine, 64: triangle, 128: saw, 192: square, 255: noise.

Edit 2 – Oscillator wave shape modulation: Value –128 to +127. A negative value inverts the modulation source.

Encoder - Oscillator wave shape modulation source: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────────────┐
│  2 Pw  . Mod. Sorc                   │
│  X    0  + 0    Env                   │
└─────────────────────────────────────┘
```

Edit 1 – Waveform pulse width: Value 0 to 255.

Edit 2 – Pulse width modulation: Value −128 to +127. A negative value inverts the modulation source.

Encoder – Pulse width modulation source: Value: Any of the 16 modulation sources.

Pw does something different on each waveform:

Sine: A pure sine are a pure wave, without any harmonics. When pw is ”0”, the sinewave is pure. The more Pw is turned up, the more the top of the sinewave is flattened out, to introduce extra harmonics.

Triangle: When Pw is zero, a pure triangle is generated. As Pw is turned up, the triangle is amplified more and more, but instead of clipping the waveform, it wraps the signal above maximum over the zero point, and creates a totally different waveform.

Saw: When Pw is zero, a pure saw wave is generated. As Pw is turned up, it starts to sound more and more like a synced sawtooth, with the sync pitch getting more and more detuned.

Square: When Pw is zero, it generates a symmetrical square wave with pulsewidth 50% / 50%. The more Pw is turned up, the more unsymmetrical it gets, and at max value the pulsewidth is 100% / 0%.

Noise: Pw adjusts noise intensity.

```
3 Tune. Fine. Kybd
X + 0     0     On
```

Edit 1 – Tune: Tunes the oscillator in semitone steps.

Edit 2 – Fine: Fine tuning of the oscillator.

Encoder – Kybd –Oscillator 2 only: Oscillator 2 keyboard pitch control on/off.

```
4 Mod. Sorc. Levl
X +127  Env  Off
```

Edit 1 – Pitch modulation: Value −128 to +127. A negative value inverts the modulator.

Edit 2 – Pitch modulation source: Value: Any of the 16 modulation sources.

Encoder – Pitch modulation level source: Selects a source, that modulates the level of the pitch modulation. Value: Off, first 15 modulation sources.

The Oscillator Mod Pages

<div style="border:1px solid black">

3 OSC MOD

</div>

This section controls the common oscillator modulation: Portamento, sync, pitchbend range and ring modulator.

Portamento creates a "sliding" pitch effect, between two different notes.

Sync syncronizes the pitch of oscillator 2 to the pitch of oscillator 1. Every time the oscillator 1 waveform has reached a complete cycle (i.e. played back it's waveform one time), it sends out a syncronizing signal to oscillator 2, which is then resettted. If the frequency of oscillator 1 and 2 are not equal, oscillator 2 will be reset at a point where it wouldn't normally be reset, and this will create the metallic sounding "extra" frequency on top of the oscillator 2 waveform. The same effect can be obtained by choosing waveform: saw, and adjust the pw, but now that Anamono has real sync, this effect can be obtained on all waveforms.

The ring modulator takes the sum and the difference of the 2 signals present on it inputs, and puts that signal out on the selected destination. This will add harmonic sidebands to the signals. Depending on the waveforms and frequencies of the input signals, this will create a signal ranging from metallic to ringing.

<div style="border:1px solid black">

1 Porta.   Sync 2<1
X   0   Off

</div>

Edit 1 – Portamento: Value 0 to 255. The higher the value of this parameter, the slower the oscillators will "slide" from one frequency to another, when hitting a key on a connected MIDI keyboard. At value "0", there will be no sliding between notes – the oscillators pitch will immediately change to the new value.

Encoder - Oscillator sync: Value: On/off. When on, oscillator 2 will syncronize to the frequency of oscillator 1. If the frequency of oscillator 1 and 2 are not equal, the classic sync effect will be created.

```
 2  Rin1. Rin2.      .
 X  osc1   osc2      .
```

Edit 1 – Ring Modulator input 1 source: Value: osc1, ext audio in, analogue filters output, granulator output.

Edit 2 – Ring Modulator input 2 source: Value: osc2, LFO1, analogue filters output, granulator output.

```
 3  Rout. Rvol.      .
 X  Dvcf  255        .
```

Edit 1 – Ring Modulator output destination: Select where in the signal chain, you want the ringmodulated signal to appear. Value: Digital filter input, analogue filters input, amp section (VCA) input.

Edit 2 – Ring Modulator volume: The output level of the ring modulated signal. Value: 0-255.

```
 4  Rout. Sorc.      .
 X  +127   Env       .
```

Edit 1 – Ring Modulator output level modulation: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – Ring Modulator output level modulation source: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────────────────┐
│                                         │
│    5  Bender.           .               │
│    X   128              .               │
│                                         │
└─────────────────────────────────────────┘
```

Edit 1 – Bender: Adjusts how much incoming MIDI pitch bend messages will affect both of the oscillators pitch. From 0 to 255 (about 12 semitones at maximum).

The Dsp Filter Pages

<u>4</u> DSP FILTER

Anamono has 3 filters in all, 2 analogue and one digital. This section describes the digital one. The digital filter is created using digital signal processing (DSP). It can be placed in 4 different positions (routing is done in the analogue filters section, described later in this manual):
-In serial connection with and before the analogue filters.
-In parallel connection with the analogue filters.
-In the g-RAY feedback.
-After the granulator/delay.

A filter shapes the sound, by removing certain harmonics from the source audio signal, and by amplifying certain harmonics around the cutoff frequency point (using resonance).

<u>1</u> Inp . Boost   .
X   67   24   .

<u>Edit 1 – External audio input level:</u> Value 0 to 255. Adjusts the level of the audio signal present on the external audio input, going to the DSP filter input.

<u>Edit 2 - Boost:</u> Value: 0 to 255. Boost the DSP filter output signal, to make it stronger. Higher settings might introduce clipping.

```
┌─────────────────────────────────┐
│                                 │
│   2 Osc1. Osc2.        .        │
│   X   100      74       .       │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – Oscillator 1 / Analogue filters level: Value 0 to 255. Adjusts the level of oscillator 1, going to the DSP filter input. Except when DSP filter routing = feedback or granulator. When routing = feedback, this parameter adjust the level of the analogue filters output, going to the DSP filter. When routing = granulator, this parameter does nothing.

Edit 2 – Oscillator 2 level: Value 0 to 255. Adjusts the level of oscillator 2, going to the DSP filter input.

```
┌─────────────────────────────────┐
│                                 │
│   3 Cut . Reso. Type            │
│   X 255    66     bpf           │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – DSP filter cutoff frequency: Value 0 to 255.

Edit 2 – DSP filter resonance: Value 0 to 255.

Encoder – DSP filter type: Choices are: BPF: band pass mode, LPF: low pass mode, HPF: high pass mode, BP8: Sharp bandpass mode, ADD: add filter mode. The ”ADD” filter is not actually a filter, since it doesn't filter out any harmonic. Instead it amplifies the harmonics around the cutoff point.

```
 4 CutA. Sorc.      .
 X  +  0   env       .
```

Edit 1 – DSP filter cutoff modulation A: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – DSP filter cutoff modulation source A: Value: Any of the 16 modulation sources.

```
 5 CutB. Sorc.      .
 X  +  0   env       .
```

Edit 1 – DSP filter cutoff modulation B: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – DSP filter cutoff modulation source B: Value: Any of the 16 modulation sources.

```
 6 ModB Level      .
 X         Off       .
```

Edit 2 – Cutoff modulation B level source: Selects a source, that modulates the level of cutoff modulation B. Value: Off, first 15 modulation sources.

```
┌─────────────────────────────────────┐
│                                     │
│    7 Reso . Sorc.        .          │
│    ─                                │
│    X + 0   env          .           │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – DSP filter resonance modulation: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – DSP filter resonance modulation source: Value: Any of the 16 modulation sources.

The FeedBack Pages

```
5  FEEDBACK
```

Anamono's analogue feedback circuit creates an audio feedback loop from the output of the analogue filters or the granulator/delay, to the input of the analogue filters. Inside the feedback loop are a new Gotharman creation called "g-RAY". This creates a kind of intermodulation on the feedback signal, and makes it possible to create sounds similar to FM plus new and never before heard sounds.

The feedback signal can be delayed, to create comb filter like effects, and it is also possible to place the DSP filter inside the feedback loop, so only certain frequencies are fed back.

```
1  Feed .  Dly. Mode
X  100      0   Norm
```

Edit 1 – FeedBack level: Value 0 to 255.

Edit 2 – FeedBack delay: Value: 0 to 255. The amount of time that the fed back signal will be delayed. 0 = 0 mSec, 255 = 6.4 mSec.

Encoder – FeedBack mode:

Values:
-**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)

```
┌─────────────────────────────────┐
│  2  Feed .  Dly.  Sorc          │
│  X  +  0    +  0   Env          │
└─────────────────────────────────┘
```

Edit 1 – FeedBack modulation 1: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – FeedBack delay modulation 1: Value –128 to +127. A negative value inverts the modulator.

Encoder – FeedBack modulation source 1: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────────┐
│  3  Feed .  Dly.  Sorc          │
│  X  +  0    +  0   Env          │
└─────────────────────────────────┘
```

Edit 1 – FeedBack modulation 2: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – FeedBack delay modulation 2: Value –128 to +127. A negative value inverts the modulator.

Encoder – FeedBack modulation source 2: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────────┐
│  4 Mod2 Level     .             │
│  X        Off       .           │
└─────────────────────────────────┘
```

Edit 2 – FeedBack modulation 2 level source: Selects a source, that modulates the level of FeedBack modulation 2. Value: Off, first 15 modulation sources.

```
┌────────────────────────────────┐
│  5 From . gRAY.        .        │
│  X  VCF        3       .        │
└────────────────────────────────┘
```

Edit 1 – FeedBack source: VCF: Analogue filters output
                             Gran: Granulator/delay output

Edit 2 – g-RAY: Value: 0 to 3. Adjusts the amount of g-RAY intermodulation. 0: no g-RAY, 3: max g-RAY.

The Analogue Filters Pages

<div style="border:1px solid">

<u>6</u> ANALOG FILTERS

</div>

Anamono has 2 analogue filters connected in parallel to each other. Each filter can be adjusted and controlled separately. In this one section, you make the adjustments for both filters.
One of the analogue filters has selectable mode – lowpass, bandpass, highpass or off, while the other filter are always in bandpass mode.

A filter shapes the sound, by removing certain harmonics from the source audio signal, and by amplifying certain harmonics around the cutoff frequency point (using resonance).

<div style="border:1px solid">

<u>1</u> Dflt . Inp. Conn
X   88   0   ser

</div>

<u>Edit 1 – DSP filter output level:</u> Value: 0 to 255. If connection = serial: Adjusts the level of the DSP filter, going to the analogue filters input. If connection = parallel, feed or gran: Adjusts the output level of the DSP filter.

<u>Edit 2 – External audio input level:</u> Value 0 to 255. Adjusts the level of the audio signal present on the external audio input, going to the analogue filters inputs.

<u>Encoder – DSP filter connection:</u>   Values:
-ser: In serial connection with the analogue filters.
-par: In parallel connection with the analogue filters.
-fed: Placed inside the g-RAY feedback loop.
-grn: Placed after the granulator/delay.

```
 2 Osc1. Osc2.      .
 X  100     74      .
```

Edit 1 – Oscillator 1 level: Value 0 to 255. Adjusts the level of oscillator 1, going to the analogue filters inputs.

Edit 2 – Oscillator 2 level: Value 0 to 255. Adjusts the level of oscillator 2, going to the analogue filters inputs.

```
 3 Cut1.Res1. Type
 X  255     66     lpf
```

Edit 1 – Analogue filter 1 cutoff frequency: Value 0 to 255.

Edit 2 – Analogue filter 1 resonance: Value 0 to 255.

Encoder – Analogue filter 1 type: Choices are: LPF: low pass mode, BPF: band pass mode, HPF: high pass mode, Off.

```
 4 Cut2.Res2. Type
 X  255     96     bpf
```

Edit 1 – Analogue filter 2 cutoff frequency: Value 0 to 255. If you want to use only analogue filter 1, put this control to zero, and make sure, that all 3 filter 2 cutoff modulation controls are on zero too. Then filter 2 will make no sound.

Edit 2 – Analogue filter 2 resonance: Value 0 to 255.

Encoder – Analogue filter 2 type: Always BPF: band pass mode.

```
┌─────────────────────────────┐
│  5 Cu1A.Cu2A.Sorc           │
│  X + 0  + 0  Esqu           │
└─────────────────────────────┘
```

Edit 1 – Analogue filter 1 cutoff modulation A: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – Analogue filter 2 cutoff modulation A: Value –128 to +127. A negative value inverts the modulator.

Encoder – Analogue filters cutoff modulation source A: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────┐
│  6 Cu1B.Cu2B.Sorc           │
│  X + 0  + 0  Env            │
└─────────────────────────────┘
```

Edit 1 – Analogue filter 1 cutoff modulation B: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – Analogue filter 2 cutoff modulation B: Value –128 to +127. A negative value inverts the modulator.

Encoder – Analogue filters cutoff modulation source B: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────────┐
│                                 │
│   7̲ Cu1C.Cu2C.Sorc              │
│   X + 0  + 0  Env                │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – Analogue filter 1 cutoff modulation C: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – Analogue filter 2 cutoff modulation C: Value –128 to +127. A negative value inverts the modulator.

Encoder – Analogue filters cutoff modulation source C: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────────┐
│                                 │
│   8̲  ModC Level    .             │
│   X         Off      .           │
│                                 │
└─────────────────────────────────┘
```

Edit 2 – Analogue filters cutoff modulation C level source: Selects a source, that modulates the level of cutoff modulation C. Value: Off, first 15 modulation sources.

```
┌─────────────────────────────────┐
│                                 │
│   9̲  Res1. Res2. Sorc           │
│   X + 0  + 0   Env               │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – Analogue filter 1 resonance modulation: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – Analogue filter 2 resonance modulation: Value –128 to +127. A negative value inverts the modulator.

Encoder – Analogue filters resonance modulation source: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────────────┐
│                                     │
│   A  Dflt . Sorc.      .            │
│   X  +  0   env        .            │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – DSP filter output level modulation: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – DSP filter output level modulation source: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────────────┐
│                                     │
│   B  Outp. Mod. Sorc                │
│   X  255   +  0   Env               │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Analogue filters output level: Value 0 to 255.

Edit 2 – Analogue filters output level modulation: Value –128 to +127. A negative value inverts the modulator.

Encoder – Analogue filters output level modulation source: Value: Any of the 16 modulation sources.

The Analogue Amp (VCA) Pages

```
7 AMP
```

This is Anamono's analogue output stage – Amp or VCA (voltage controlled amplifier).
This section controls the output level of the sound, and it is possible to add some gritty analogue overdrive.
The main output level controllers are the amp envelope or the envelope follower (shaped after the audio signal present on the external audio input) together with the drone (VCA offset) and volume parameters. It is also possible to modulate both the output level and overdrive with all the other modulation sources, but the main controllers has to have a higher value than zero. Else there will be no output signal.
The amp envelope has 2 sets of settings, that can be morphed between, using any of the 16 modulators. It is re-triggered every time a new note-on is received, but if one key is held, while another key is pressed and released, it will not re-trigger, when the second note is released. In that way, it is possible to make it re-trigger or not, using playing techniques.
The amp section is located after the analogue filters and before the granulator/delay, in Anamono's audio chain.

```
1 A . D .    .
X  0   20    .
```

Edit 1 – Amp envelope attack time 1: Value: 0 to 255. The higher the value, the slower the rise of the sound, when a MIDI note on are received, will be. **This value is only completely active, if the morph control on AMP edit page 5 are in position zero, and morph modulation has the value + 0.**

Edit 2 – Amp envelope decay time 1: Value 0 to 255. After the amp envelope has rised to it's max value during the attack time, it will decay to it's sustain level. The higher the value, the slower it will decay. **This value is only completely active, if the morph control on AMP edit page 5 are in position zero, and morph modulation has the value + 0.**

```
┌─────────────────────────────────────┐
│  2  S .  R .        .                │
│  X 255   20            .             │
└─────────────────────────────────────┘
```

Edit 1 – Amp envelope sustain level 1: Value: 0 to 255. This is the level, the amp envelope will decay to, during the decay time. As long as a MIDI note on is held, it will stay at this level. **This value is only completely active, if the morph control on AMP edit page 5 are in position zero, and morph modulation has the value + 0.**

Edit 2 – Amp envelope release time 1: Value 0 to 255. This adjusts the time it will take, for the sound to fade out, after a MIDI note off has been received. The higher the value, the slower it will fade out. **This value is only completely active, if the morph control on AMP edit page 5 are in position zero, and morph modulation has the value + 0.**

```
┌─────────────────────────────────────┐
│  3  A2 .  D2 .        .              │
│  X  0    20            .             │
└─────────────────────────────────────┘
```

Edit 1 – Amp envelope attack time 2: Value: 0 to 255. The higher the value, the slower the rise of the sound, when a MIDI note on are received, will be. **This value is only completely active, if the morph control on AMP edit page 5 are in position 255.**

Edit 2 – Amp envelope decay time 2: Value 0 to 255. After the amp envelope has rised to it's max value during the attack time, it will decay to it's sustain level. The higher the value, the slower it will decay. **This value is only completely active, if the morph control on AMP edit page 5 are in position 255.**

```
 4 S2 . R2 .        .
 X 255   20         .
```

Edit 1 – Amp envelope sustain level 2: Value: 0 to 255. This is the level, the amp envelope will decay to, during the decay time. As long as a MIDI note on is held, it will stay at this level. **This value is only completely active, if the morph control on AMP edit page 5 are in position 255.**

Edit 2 – Amp envelope release time 2: Value 0 to 255. This adjusts the time it will take, for the sound to fade out, after a MIDI note off has been received. The higher the value, the slower it will fade out. **This value is only completely active, if the morph control on AMP edit page 5 are in position 255.**

```
 5  Mrph. Mod. Sorc
 X    0  +  0   Env
```

Edit 1 – Amp envelope morph control: Value 0 to 255. At value zero, the first set of envelope settings are used, at value 255 the second set of envelope settings are used. At values 1 to 254 it morphs between the first and the second settings.

Edit 2 – Amp envelope morph modulation: Value –128 to +127. A negative value inverts the modulator.

Encoder – Amp envelope morph modulation source: Value: Any of the 16 modulation sources.

```
 6  Vol . Drive .    .
 X 255    20         .
```

Edit 1 – Sound overall volume: Value: 0 to 255.

Edit 2 – Amp overdrive: Value 0 to 255. Adds a crunchy analogue overdrive to the sound. When turning this up, you might want to turn the overall volume down. Else it will be quite noisy!

```
+-------------------------------+
|  7  Vmod. Sorc.Levl           |
|  X   + 0   Env   Off          |
+-------------------------------+
```

Edit 1 – Sound overall volume modulation: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – Sound overall volume modulation source: Value: Any of the 16 modulation sources.

Encoder – Sound overall volume modulation level source: Selects a source, that modulates the level of the overall volume modulation. Value: Off, first 15 modulation sources.

```
+-------------------------------+
|  8  Drive Mod.        .       |
|  X  + 0   env         .       |
+-------------------------------+
```

Edit 1 – Analogue overdrive modulation: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – Analogue overdrive modulation source: Value: Any of the 16 modulation sources.

```
+-------------------------------+
|  9  Ctrl. Smooth.     .       |
|  X  env          0    .       |
+-------------------------------+
```

Edit 1 – Amp control: Values:
> **-env:** The amp envelope controls the amp output.
> **-folr:** The envelope follower controls the amp output.

Use the ”env” setting for ”normal” sounds, you play from a connected MIDI device, use the ”folr” setting, if you are processing an external audio signal.

Edit 2 – Envelope follower smoothing: Adjusts the smoothness of the envelope follower. At setting ”0”, you get a very smooth envelope follower control signal, but when turning this control up, it will get less and less smooth, and follow the input signal faster. At ”255” it's almost audio modulation.

```
┌─────────────────────────────────────┐
│                                     │
│      A  Drone.          .           │
│      X    0             .           │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Amp drone: Value 0 to 255. An overall sound volume offset parameter, that keeps Anamono's output constantly open, regardsless of the amp envelope and envelope follower.

The Granulator / Delay effect Pages

```
┌─────────────────────────────────────┐
│                                      │
│  8  GRANULATOR                       │
│  ─                                   │
│                                      │
│                                      │
└─────────────────────────────────────┘
```

This is Anamono's digital effect processor. It can be either in granulator or delay mode.

The granulator cuts the incoming audio signal up in an adjustable number of fragments (or grains). It is then possible to re-arrange the playback of these fragments (pieces of audio) using an, up to 16 step, re-arrange sequencer. It is also possible to either time-stretch or detune each step, to switch the audio playback direction between forward and reverse, and to freeze the audio content using any modulator. A feedback control is also applied. The re-arrange sequencer are continiously playing back from step 1 to the step chosen as last step, and then from step 1 again. It can't be resat or triggered in any way.

The delay works simular to a fat tape delay with adjustable and controllable time, mix, feedback, audio playback direction (forward/reverse) and audio freeze.

The granulator/delay are the last stage in Anamono's audio chain, placed right after the analogue amp, and just before the audio output, except if DSP filter connection is "gran", then the DSP filter is placed between the granulator/delay and the audio outputs. The DSP filter only affects the granulator/delay's effected output, not the clean output.

The Play / Enter / freeze button: Pushing this, when on the granulator/delay edit pages, will freeze/un-freeze the audio content of the effect. When lit, freeze is active.

```
┌─────────────────────────────────────┐
│                                      │
│   1  Mode.  Mix. Last                │
│   ─                                  │
│   X  Gran    36    16                │
│                                      │
└─────────────────────────────────────┘
```

Edit 1 – Granulator mode: Values:
                                              -Gran: Granulator mode.
                                              -Dly: Delay mode.

Edit 2 – Effect mix: Value: 0 to 255. 0 = only clean un-effected signal, 255 = only effected signal.

Encoder – Granulator re-arrange sequencer last step: Value: 1 to 16. The re-arrange sequencer will play back from step 1 to last step, and then jump to step 1 and start over again.

```
┌─────────────────────────────────┐
│ 2  Time. Fine. Frgm             │
│ X    255    36    16            │
└─────────────────────────────────┘
```

Edit 1 – Granulator/delay total time: Value: 0 to 255. Max time 1.5 second, minimum time 22,9 micro second.

Edit 2 – Granulator/delay total time fine adjust: Value: 0 to 255.

Encoder – Granulator number of fragments: Values: 1, 2, 4, 8, 16, 32, 64, 128. Adjusts how many fragments (grains), the granulator will cut the incoming audio signal up in.

```
┌─────────────────────────────────┐
│ 3  Feed.  Dir . Mode            │
│ X    73   Fwd    strc           │
└─────────────────────────────────┘
```

Edit 1 – Granulator/delay feedback: Value: 0 to 255. Adjusts how big a portion of the effected signal will be fed back to the granulator/delay input.

Edit 2 – Granulator/delay playback direction:

Values:

-Fwd: The normal forward playback mode

-Rvs: The effected signal will play back backwards.

Encoder – Granulator re-arrange sequencer step mode:
Values:
-strc: Each step in the re-arrange sequencer can be time-stretched.
-pitc: Each step in the re-arrange sequencer can be de-tuned.

```
+-----------------------------------+
|   4  Frez.  Dir       .           |
|   X  Off   Off        .           |
+-----------------------------------+
```

Edit 1 – Granulator/delay freeze modulation source: Selects a source, that modulates the freeze on/off function. Value: Off, first 15 modulation sources.

Edit 2 – Granulator/delay playback direction modulation source: Selects a source, that modulates the playback direction Fwd/Rvs. Value: Off, first 15 modulation sources.

```
+-----------------------------------+
|   5  Time.   Mix. Sorc            |
|   X   + 0   + 0  Env              |
+-----------------------------------+
```

Edit 1 – Granulator/delay time modulation: Value –128 to +127. A negative value inverts the modulator.

Edit 2 – Granulator/delay mix modulation: Value –128 to +127. A negative value inverts the modulator.

Encoder – Granulator/delay time and mix modulation source: Value: Any of the 16 modulation sources.

```
+-----------------------------------+
|   6  Xfade.           .           |
|   X    0              .           |
+-----------------------------------+
```

Edit 1 – Granulator re-arrange sequencer crossfade: Value: 0 to 254. When turned up, this makes transitions between the re-arrange sequencer steps more smooth. Useful for avoiding clicks.

```
┌─────────────────────────────────────┐
│                                     │
│    7   St01.Tune.      .            │
│   ─                                 │
│    X    1  +  0       .             │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 1 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 1 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 1 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 1, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│                                     │
│    8   St02.Tune.      .            │
│   ─                                 │
│    X    1  +  0       .             │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 2 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 2 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 2 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 2, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│                                     │
│    9   St03.Tune.      .            │
│   ─                                 │
│    X    1  +  0       .             │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 3 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 3 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 3 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 3, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│                                     │
│   A   St04.Tune.        .           │
│   ─                                 │
│   X     1   +  0        .           │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 4 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 4 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 4 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 4, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│                                     │
│   B   St05.Tune.        .           │
│   ─                                 │
│   X     1   +  0        .           │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 5 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 5 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 5 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 5, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│                                     │
│   C   St06.Tune.        .           │
│   ─                                 │
│   X     1   +  0        .           │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 6 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 6 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 6 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 6, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│  D   St07.Tune.      .              │
│  X    1   + 0        .              │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 7 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 7 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 7 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 7, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│  E   St08.Tune.      .              │
│  X    1   + 0        .              │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 8 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 8 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 8 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 8, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│  F   St09.Tune.      .              │
│  X    1   + 0        .              │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 9 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 9 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 9 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 9, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────┐
│                                 │
│    G   St10.Tune.      .        │
│    X    1  + 0        .         │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 10 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 10 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 10 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 10, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────┐
│                                 │
│    H   St11.Tune.      .        │
│    X    1  + 0        .         │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 11 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 11 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 11 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 11, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────┐
│                                 │
│    I   St12.Tune.      .        │
│    X    1  + 0        .         │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 12 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 12 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 12 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 12, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│                                     │
│      J   St13.Tune.      .          │
│      X     1  +  0       .          │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 13 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 13 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 13 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 13, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│                                     │
│      K   St14.Tune.      .          │
│      X     1  +  0       .          │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 14 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 14 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 14 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 14, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────────┐
│                                     │
│      L   St15.Tune.      .          │
│      X     1  +  0       .          │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 15 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 15 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 15 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 15, depending on the setting: Mode strc/pitc on granulator edit page 3.

```
┌─────────────────────────────────┐
│                                 │
│  M̲  St16.Tune.      .           │
│  X    1  + 0        .           │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – Granulator re-arrange sequencer step 16 fragment number: Value: 1 to 128. Selects what fragment of the incoming audio signal, step 16 of the re-arrange sequencer will play back.

Edit 2 – Granulator re-arrange sequencer step 16 Stretch/detune: Value: -128 to +127. Time-stretches or detunes the audio piece played back by step 16, depending on the setting: Mode strc/pitc on granulator edit page 3.

The Modulation Envelope Pages

9 MOD ENV

1 AMP/MOD ENV:
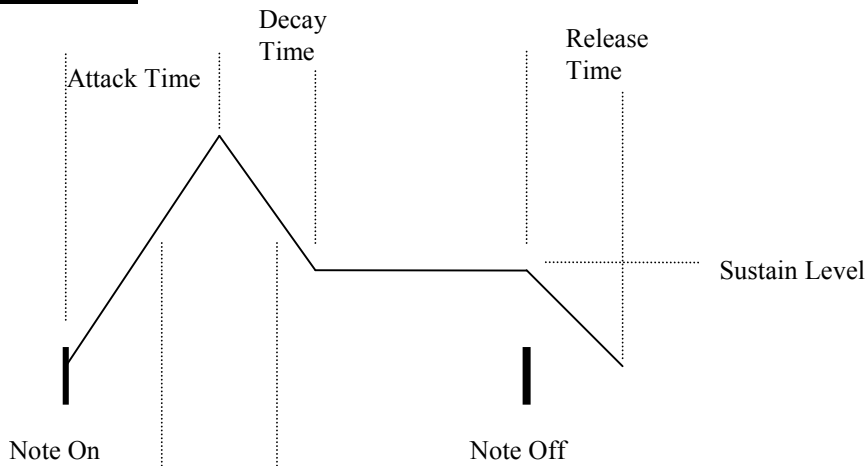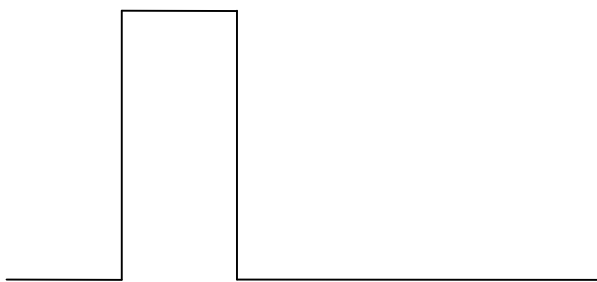
Attack Time

Decay Time

Release Time

Sustain Level

Note On

Note Off

2 SQUARED MOD ENV:

A traditional ADSR envelope. It has 2 sets of settings, that can be morphed between, using any modulator.
It also has a second squared output to the modulation bus: When the mod envelope has a value below half of it's max value, this will be zero. When the mod envelope reaches above it's half value, this will be at maximum value.

```
+-----------------------------+
|   1  A .  D .        .       |
|   X  0    20        .        |
+-----------------------------+
```

Edit 1 – Mod envelope attack time 1: Value: 0 to 255. The higher the value, the slower the rise of the sound, when a MIDI note on are received, will be. **This value is only completely active, if the morph control on MOD ENV edit page 5 are in position zero, and morph modulation has the value + 0.**

Edit 2 – Mod envelope decay time 1: Value 0 to 255. After the amp envelope has rised to it's max value during the attack time, it will decay to it's sustain level. The higher the value, the slower it will decay. **This value is only completely active, if the morph control on MOD ENV edit page 5 are in position zero, and morph modulation has the value + 0.**

```
+-----------------------------+
|   2  S .  R .        .       |
|   X  255   20       .        |
+-----------------------------+
```

Edit 1 – Mod envelope sustain level 1: Value: 0 to 255. This is the level, the amp envelope will decay to, during the decay time. As long as a MIDI note on is held, it will stay at this level. **This value is only completely active, if the morph control on MOD ENV edit page 5 are in position zero, and morph modulation has the value + 0.**

Edit 2 – Mod envelope release time 1: Value 0 to 255. This adjusts the time it will take, for the sound to fade out, after a MIDI note off has been received. The higher the value, the slower it will fade out. **This value is only completely active, if the morph control on MOD ENV edit page 5 are in position zero, and morph modulation has the value + 0.**

```
 3 A2 . D2 .        .
 X   0    20        .
```

Edit 1 – Mod envelope attack time 2: Value: 0 to 255. The higher the value, the slower the rise of the sound, when a MIDI note on are received, will be. **This value is only completely active, if the morph control on MOD ENV edit page 5 are in position 255.**

Edit 2 – Mod envelope decay time 2: Value 0 to 255. After the amp envelope has rised to it's max value during the attack time, it will decay to it's sustain level. The higher the value, the slower it will decay. **This value is only completely active, if the morph control on MOD ENV edit page 5 are in position 255.**

```
 4 S2 . R2 .        .
 X 255    20        .
```

Edit 1 – Mod envelope sustain level 2: Value: 0 to 255. This is the level, the amp envelope will decay to, during the decay time. As long as a MIDI note on is held, it will stay at this level. **This value is only completely active, if the morph control on MOD ENV edit page 5 are in position 255.**

Edit 2 – Mod envelope release time 2: Value 0 to 255. This adjusts the time it will take, for the sound to fade out, after a MIDI note off has been received. The higher the value, the slower it will fade out. **This value is only completely active, if the morph control on MOD ENV edit page 5 are in position 255.**

```
┌─────────────────────────────────┐
│  5  Mrph. Mod. Sorc             │
│  X     0   + 0   Env            │
└─────────────────────────────────┘
```

Edit 1 – Mod envelope morph control: Value 0 to 255. At value zero, the first set of envelope settings are used, at value 255 the second set of envelope settings are used. At values 1 to 254 it morphs between the first and the second settings.

Edit 2 – Mod envelope morph modulation: Value –128 to +127. A negative value inverts the modulator.

Encoder – Mod envelope morph modulation source: Value: Any of the 16 modulation sources.

The Modulator 1 Pages

10 MODULATOR 1

3 MODULATOR 1:
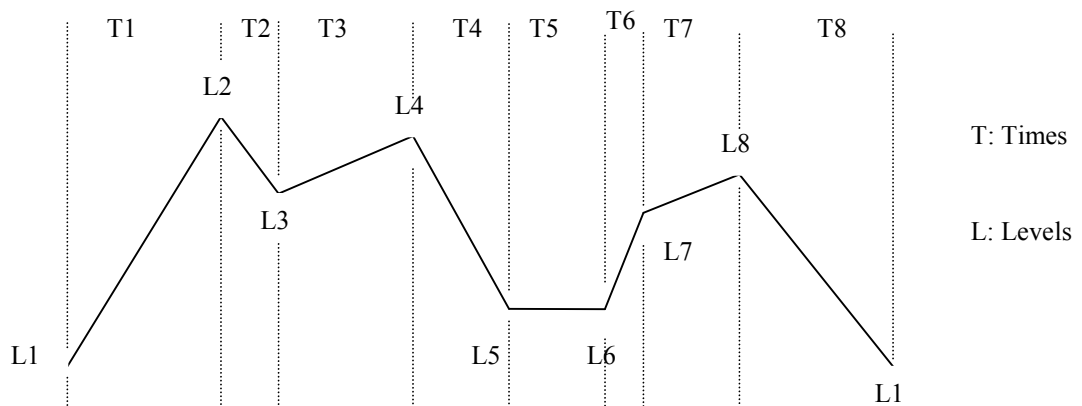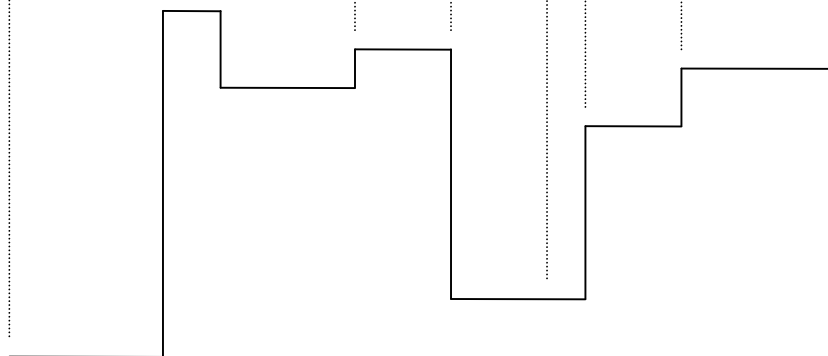
T1 T2 T3 T4 T5 T6 T7 T8

L2

L4

T: Times

L3

L: Levels

L8

L7

L1

L5 L6

L1

4 STEPPED MODULATOR 1:

An 8 step very flexible modulator with a smooth output. Each step has a value parameter, a time parameter (how long it will take to reach the next steps value), and a selection of, if it will continue, sustain or loop, after this step. It has a flexible trigger system: Off (freerun, no triggering), Key-reset (key triggered without re-triggering), Key-trigger (key triggered with re-triggering), Key'ed

(advances one step, every time a note-on is received), Play (the play/enter knob starts and stops the modulator) and MIDI (synced to MIDI-clock). It has 2 sets of settings, the "normal" settings and the "b" settings, that can be morphed between, using any modulator.

It also has a second stepped output to the modulation bus: Every time modulator 1 reaches a new step/value this is updated. This can also be set up to put out note and gate values, and used as a morphable step-sequencer.

```
┌─────────────────────────────────┐
│                                 │
│  1  Trig.  Cdiv. Note           │
│  X  Off      12    Off          │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – Modulator 1 trigger mode:
Values:

-Off: Modulator 1 is running continiously and looped.

-Krst: Single triggered key reset. When a note on are received, and no other notes are held, modulator 1 will reset to step 1 and thereafter loop. If other keys are held, when receiving a note on, it will not reset.

-Ktrg: Multi triggered key reset. Every time a note on are received, modulator 1 will reset to step 1.

-Keyd: Every time a note on are received, it will advance one step, and loop that single step, until the next note on are received.

-Play: When the Play/Enter/Freeze knob are pushed, so it is lit, modulator 1 will reset to step 1 and thereafter continiously loop, until the Play/Enter/freeze knob are pushed again. Then it will stop.

-Midi: When a MIDI start command are received, modulator 1 will reset to step 1 and thereafter loop continiously, synced to MIDI clock, until a MIDI stop command are received. In this mode it can also be started and stopped by pushing the Play/Enter/Freeze knob, as long as a MIDI clock are present.

Edit 2 – MIDI clock divide: Value: 1 to 256. A divisor that divides the MIDI clock used if trigger mode = Midi.

Encoder – Stepped modulator 1 note output: Value: Off/On. If this is on, the stepped output of modulator 1 will send note values to the 2 oscillators and key triggers to the envelopes, modulator 2, the LFO's and random. Kind of like an analogue sequencer with a few differences.

```
┌─────────────────────────────────┐
│                                 │
│   2  Stp1. Time. Will           │
│   X  255    20   Cont           │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – Modulator 1 step 1 level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Edit 2 – Modulator 1 step 1 Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Encoder – Modulator 1 step 1 Will: Determines what Modulator 1 will do, after step 1 has been executed. Possibilities are:
-Sust: It will sustain, and not loop, with this steps value, until it is re-triggered, then it will reset to step 1.
-Cont: It will continue to the next step.
-Loop: It will loop – reset to step 1.

```
┌─────────────────────────────────┐
│                                 │
│   3  Stp2. Time. Will           │
│   X    0     0   Cont           │
│                                 │
└─────────────────────────────────┘
```

Edit 1 – Modulator 1 step 2 level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Edit 2 – Modulator 1 step 2 Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Encoder – Modulator 1 step 2 Will: Determines what Modulator 1 will do, after step 2 has been executed. Possibilities are:
-Sust: It will sustain, and not loop, with this steps value, until it is re-triggered, then it will reset to step 1.
-Cont: It will continue to the next step.
-Loop: It will loop – reset to step 1.

```
 4  Stp3. Time. Will
 X     0     0   Cont
```

Edit 1 – Modulator 1 step 3 level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Edit 2 – Modulator 1 step 3 Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Encoder – Modulator 1 step 3 Will: Determines what Modulator 1 will do, after step 3 has been executed. Possibilities are:
-Sust: It will sustain, and not loop, with this steps value, until it is re-triggered, then it will reset to step 1.
-Cont: It will continue to the next step.
-Loop: It will loop – reset to step 1.

```
 5  Stp4. Time. Will
 X     0     0   Cont
```

Edit 1 – Modulator 1 step 4 level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Edit 2 – Modulator 1 step 4 Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Encoder – Modulator 1 step 4 Will: Determines what Modulator 1 will do, after step 4 has been executed. Possibilities are:
-Sust: It will sustain, and not loop, with this steps value, until it is re-triggered, then it will reset to step 1.
-Cont: It will continue to the next step.
-Loop: It will loop – reset to step 1.

```
┌────────────────────────────────┐
│  6  Stp5. Time. Will           │
│  X    0    0   Cont            │
└────────────────────────────────┘
```

Edit 1 – Modulator 1 step 5 level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Edit 2 – Modulator 1 step 5 Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Encoder – Modulator 1 step 5 Will: Determines what Modulator 1 will do, after step 5 has been executed. Possibilities are:
-Sust: It will sustain, and not loop, with this steps value, until it is re-triggered, then it will reset to step 1.
-Cont: It will continue to the next step.
-Loop: It will loop – reset to step 1.

```
┌────────────────────────────────┐
│  7  Stp6. Time. Will           │
│  X    0    0   Cont            │
└────────────────────────────────┘
```

Edit 1 – Modulator 1 step 6 level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Edit 2 – Modulator 1 step 6 Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Encoder – Modulator 1 step 6 Will: Determines what Modulator 1 will do, after step 6 has been executed. Possibilities are:
-Sust: It will sustain, and not loop, with this steps value, until it is re-triggered, then it will reset to step 1.
-Cont: It will continue to the next step.
-Loop: It will loop – reset to step 1.

```
┌─────────────────────────────────┐
│  8  Stp7. Time. Will            │
│  X    0    0   Cont             │
└─────────────────────────────────┘
```

Edit 1 – Modulator 1 step 7 level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Edit 2 – Modulator 1 step 7 Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Encoder – Modulator 1 step 7 Will: Determines what Modulator 1 will do, after step 7 has been executed. Possibilities are:
-Sust: It will sustain, and not loop, with this steps value, until it is re-triggered, then it will reset to step 1.
-Cont: It will continue to the next step.
-Loop: It will loop – reset to step 1.

```
┌─────────────────────────────────┐
│  9  Stp8. Time. Will            │
│  X    0    0   Cont             │
└─────────────────────────────────┘
```

Edit 1 – Modulator 1 step 8 level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Edit 2 – Modulator 1 step 8 Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position zero, and morph modulation has the value + 0.**

Encoder – Modulator 1 step 8 Will: Determines what Modulator 1 will do, after step 8 has been executed. Possibilities are:
-Sust: It will sustain, and not loop, with this steps value, until it is re-triggered, then it will reset to step 1.
-Cont: It will loop – reset to step 1. This step cannot continue to the next step.
-Loop: It will loop – reset to step 1.

```
+------------------------------------+
|  A  St1b. Time. Will               |
|  X    0    0        .              |
+------------------------------------+
```

Edit 1 – Modulator 1 step 1 b level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Edit 2 – Modulator 1 step 1 b Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Encoder : Has no function.

```
+------------------------------------+
|  B  St2b. Time. Will               |
|  X    0    0        .              |
+------------------------------------+
```

Edit 1 – Modulator 1 step 2 b level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Edit 2 – Modulator 1 step 2 b Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Encoder : Has no function.

```
┌─────────────────────────────────┐
│  C  St3b. Time. Will            │
│  X     0     0          .       │
└─────────────────────────────────┘
```

Edit 1 – Modulator 1 step 3 b level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Edit 2 – Modulator 1 step 3 b Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Encoder : Has no function.

```
┌─────────────────────────────────┐
│  D  St4b. Time. Will            │
│  X     0     0          .       │
└─────────────────────────────────┘
```

Edit 1 – Modulator 1 step 4 b level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Edit 2 – Modulator 1 step 4 b Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Encoder : Has no function.

```
┌─────────────────────────────────────┐
│                                     │
│   E  St5b. Time. Will               │
│   X    0    0         .             │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Modulator 1 step 5 b level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Edit 2 – Modulator 1 step 5 b Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Encoder : Has no function.

```
┌─────────────────────────────────────┐
│                                     │
│   F  St6b. Time. Will               │
│   X    0    0         .             │
│                                     │
└─────────────────────────────────────┘
```

Edit 1 – Modulator 1 step 6 b level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Edit 2 – Modulator 1 step 6 b Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Encoder : Has no function.

```
G  St7b. Time. Will
X    0    0        .
```

Edit 1 – Modulator 1 step 7 b level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Edit 2 – Modulator 1 step 7 b Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Encoder : Has no function.

```
H  St8b. Time. Will
X    0    0        .
```

Edit 1 – Modulator 1 step 8 b level: Value: 0 to 255. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Edit 2 – Modulator 1 step 8 b Time: Value: 0 to 255. The time it will take to reach the value of the next step. **This value is only completely active, if the morph control on Modulator 1 edit page I are in position 255.**

Encoder : Has no function.

```
┌─────────────────────────────┐
│   I  Mrph. Mod. Sorc        │
│   X    0   +  0   Env        │
└─────────────────────────────┘
```

Edit 1 – Modulator 1 morph control: Value 0 to 255. At value zero, the first set of modulator 1 settings are used, at value 255 the second "b" set of modulator 1 settings are used. At values 1 to 254 it morphs between the first and the second settings.

Edit 2 – Modulator 1 morph modulation: Value −128 to +127. A negative value inverts the modulator.

Encoder – Modulator 1 morph modulation source: Value: Any of the 16 modulation sources.

The Modulator 2 Pages

<div style="border:1px solid black">

11 MODULATOR 2
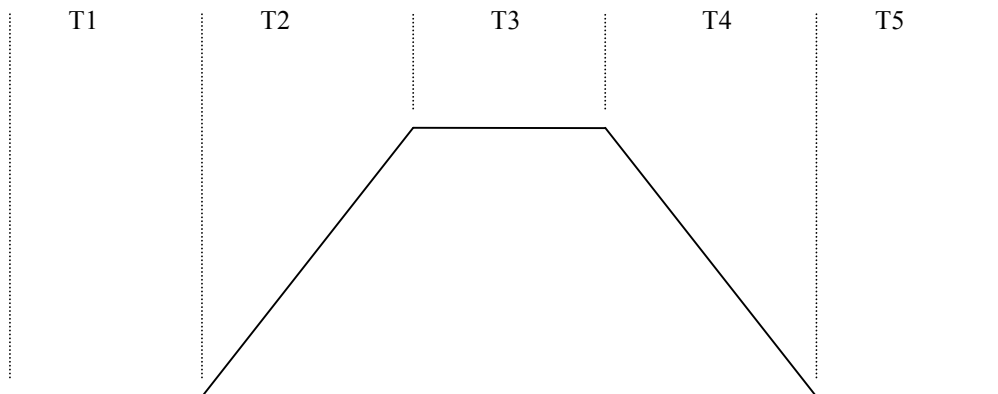
</div>

A 5-step shapable modulator. Step 1: delay time, step 2: rise time to full value, step 3: hold time at full value, step 4: fall time to zero, step 5: hold time at zero value. Can be key-triggered, looped or key-triggered and looped. It has 2 sets of settings, the "normal" and the "b" settings, that can be morphed between, using any modulator.

<div style="border:1px solid black">

```
1   T1 . Loop .     .
X    0  Off         .
```

</div>

Edit 1 – Modulator 2 T1 delay time: Value: 0 to 255. The time from it is resat, until the rise time starts. **This value is only completely active, if the morph control on Modulator 2 edit page 7 are in position zero, and morph modulation has the value + 0.**

Edit 2 – Modulator 2 Loop mode:
Values:
-Off: Modulator 2 is reset, when a note-on are received, excutes its 5 stages, ending with value zero, and stays at that value, until it is re-triggered.
-On: Freerunning loop mode. It keeps repeating its 5 stages. No key triggering.
-Ktrg: Resets when a note on are received and thereafter it continiously loops, until it is re-triggered.

```
2  T2 . T3   .   .
X    0   0       .
```

Edit 1 – Modulator 2 T2 rise time: Value: 0 to 255. The time it takes to rise to full value. **This value is only completely active, if the morph control on Modulator 2 edit page 7 are in position zero, and morph modulation has the value + 0.**

Edit 1 – Modulator 2 T3 hold time1: Value: 0 to 255. The time it will hold at full value. **This value is only completely active, if the morph control on Modulator 2 edit page 7 are in position zero, and morph modulation has the value + 0.**

```
3  T4 . T5   .   .
X    0   0       .
```

Edit 1 – Modulator 2 T4 fall time: Value: 0 to 255. The time it takes to fall from full value to zero. **This value is only completely active, if the morph control on Modulator 2 edit page 7 are in position zero, and morph modulation has the value + 0.**

Edit 1 – Modulator 2 T5 hold time2: Value: 0 to 255. The time it will hold at value zero. **This value is only completely active, if the morph control on Modulator 2 edit page 7 are in position zero, and morph modulation has the value + 0.**

```
4  T1b .       .   .
X     0            .
```

Edit 1 – Modulator 2 T1 b delay time: Value: 0 to 255. The time from it is resat, until the rise time starts. **This value is only completely active, if the morph control on Modulator 2 edit page 7 are in position 255.**

```
5  T2b .T3b   .    .
X    0    0         .
```

Edit 1 – Modulator 2 T2 b rise time: Value: 0 to 255. The time it takes to rise to full value. **This value is only completely active, if the morph control on Modulator 2 edit page 7 are in position 255.**

Edit 1 – Modulator 2 T3 b hold time1: Value: 0 to 255. The time it will hold at full value. **This value is only completely active, if the morph control on Modulator 2 edit page 7 are in position 255.**

```
6  T4b .T5b   .    .
X    0    0         .
```

Edit 1 – Modulator 2 T4 b fall time: Value: 0 to 255. The time it takes to fall from full value to zero. **This value is only completely active, if the morph control on Modulator 2 edit page 7 are in position 255.**

Edit 1 – Modulator 2 T5 b hold time2: Value: 0 to 255. The time it will hold at value zero. **This value is only completely active, if the morph control on Modulator 2 edit page 7 are in position 255.**

```
┌─────────────────────────────────┐
│   7  Mrph. Mod. Sorc            │
│   X    0   + 0   Env            │
└─────────────────────────────────┘
```

Edit 1 – Modulator 2 morph control: Value 0 to 255. At value zero, the first set of modulator 2 settings are used, at value 255 the second "b" set of modulator 2 settings are used. At values 1 to 254 it morphs between the first and the second settings.

Edit 2 – Modulator 2 morph modulation: Value –128 to +127. A negative value inverts the modulator.

Encoder – Modulator 2 morph modulation source: Value: Any of the 16 modulation sources.

The LFO 1 and LFO 2 Pages

```
12  LFO 1
```

```
13  LFO 2
```

Anamono's 2 LFO's are each has their own set of settings, but since they are equal, both LFO's are explained in this one chapter. The LFO's waveforms are continuously variable from triangle to saw to square to pulse. The LFO's can be both wave and rate-modulated, using any modulator. Both LFO's can also be key-synced, and LFO wave start-point can be adjusted.

```
1  Rate.   Rate  Mod
X      0  + 0   Env
```

Edit 1 – LFO Rate: Value 0 to 255. Sets the speed of the LFO.

Edit 2 – LFO Rate modulation: Value –128 to +127. A negative value inverts the modulator.

Encoder – LFO Rate modulation source: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────────┐
│  2 Wave.Wave  Mod               │
│  X    0   + 0   Env             │
└─────────────────────────────────┘
```

Edit 1 – LFO wave shape: Value 0 to 255. Morphs between triangle (0), saw (64), square (128) and pulse (255).

Edit 2 – LFO wave shape modulation: Value −128 to +127. A negative value inverts the modulator.

Encoder – LFO wave shape modulation source: Value: Any of the 16 modulation sources.

```
┌─────────────────────────────────┐
│  3 KeyTrig           .          │
│  X Off               .          │
└─────────────────────────────────┘
```

Edit 1 – LFO key trigger: Value Off, 1 to 255. Off: The LFO is freerunning, and not key-triggered. 1-255: The LFO is key-triggered. The value sets the LFO wave start position.

The Random Pages

```
14  RANDOM
```

Anamono's random generator has 2 outputs to the modulation matrix:

Random Voltage:
Each time it is triggered, it outputs a new random value. Trigger sources are: LFO1, LFO2 or key.

Random Pulse:
A squared version of the random voltage with adjustable pw. When the random voltage puts out a value above the pw, the output of this will be zero. When the random voltage puts out a value below the pw, the output of this will be max.

In this section adjustments for both output are made.

```
1 PulsPw.        Trig
X  128          LFO1
```

Edit 1 – Random pulse output Pw: Value 0 to 255.

Encoder – Random trigger: Values:
LFO1: Every time LFO1 restarts its cycle, a new random value will be outputted.
LFO2: Every time LFO2 restarts its cycle, a new random value will be outputted.
Key: Every time a MIDI note-on message are received, a new random value will be outputted.

The Modulation Keyboard Pages

```
15  MOD KYBD
```

The last received note on value are converted into a control level, using two parameters: Offset (at what note value, will the modulation start) and spread (makes the control curve more steep, at higher values). These possibilities are useful, if you t.ex. don't want keyboard modulation when playing the lowest key of your keyboard, but wants full keyboard modulation on the highest key. If you don't bother about this, leave both settings at zero.

```
1  Offs.Sprd     .
X     0   0      .
```

Edit 1 – Mod keyboard offset: Value 0 to 255. The incoming note-on value has to be higher than the offset, to have any effect.

Edit 2 – Mod keyboard spread: Value 0 to 7. The higher value, the more steep the keyboard modulation curve will be.

The MIDI settings Pages

```
16  MIDI
```

On this page, you can adjust the basic MIDI settings of Anamono.

```
1  Chan.  Nrpn.  Ctrl
X    01    7b    pri
```

Edit 1 – Basic MIDI channel: Value 1 to 16. This are the MIDI channel, Anamono will receive all MIDI data on. For details regarding the MIDI information recognized by Anamono, see later in this manual.

Edit 2 – NRPN controller receive mode: Values: **7b** = 7 bit, **14b** = 14 bit. Anamono can receive NRPN controllers either without fine adjust (7 bit mode) or with fine adjust (14 bit mode). For details regarding how Anamono recognizes NRPN controllers, see the parameter list section later in this manual.

Encoder – MIDI controller set: Values: **pri** = primary controller set, **sec** = secondary controller set. To allow the use of more possible MIDI controller numbers, Anamono has 2 sets of controllers. It is also possible to switch between the primary and secondary controller set, using MIDI controller 65. For details regarding how Anamono recognizes MIDI controllers, see the parameter list section later in this manual.

The Assign Edit Knob Pages

```
┌─────────────────────────────────────┐
│                                      │
│  17  ASSIGN EDIT 1                   │
│                                      │
│                                      │
└─────────────────────────────────────┘
```

```
┌─────────────────────────────────────┐
│                                      │
│  18  ASSIGN EDIT 2                   │
│                                      │
│                                      │
└─────────────────────────────────────┘
```

As a default setting, edit knob 1 sends MIDI controller 2 and edit knob 2 sends MIDI controller 3 internally in Anamono, and controls all the parameters, which has MIDI controller 2 and 3 selected as modulators. If you don't want to mess around, assigning MIDI controller 2 or 3 to a specific parameter, for live use for instance, it is possible on these edit pages, to assign any of Anamono's parameters to the edit knobs.

NOTE: When a parameter are assigned to one of the edit knobs, MIDI controller 2 and/or 3 are also assigned to this parameter, and all parameters which has MIDI controller 2 or 3 selected as a modulation source, will be ignored.

```
┌─────────────────────────────────────┐
│                                      │
│    1  Ctrl 2               .         │
│    X           Group    0            │
│                                      │
└─────────────────────────────────────┘
```

Encoder – Parameter group select:
The parameter group name writes in the top of the display, when you select a group.
Values:
0: MIDI controller 2/3 (default setting)
1: Oscillator 1
2: Oscillator 2
3: Oscillator Mod
4: DSP Filter
5: FeedBack
6: Analogue Filters
7: Amp
8: Granulator / Delay
9: Mod Envelope
10: Modulator 1
11: Modulator 2
12: LFO 1

13: LFO 2
14: Random
15: Mod Keyboard

```
+-----------------------------------+
|   2  Vcf Reso1        .            |
|   X     Parameter    7            |
+-----------------------------------+
```

Encoder – Parameter select:
The parameter name writes in the top of the display, when you select it.
Values: Any parameter in the selected group.

The Save Preset Pages

```
┌─────────────────────────────────┐
│                                 │
│  19  SAVE PRESET                │
│  ──                             │
│                                 │
│                                 │
└─────────────────────────────────┘
```

Stores your sound/effect creation in any of Anamono's 256 preset memory locations, so you can recall it, when needed.

```
┌─────────────────────────────────┐
│                                 │
│      [ Analogue    ]            │
│      SAVE  TO:  C16  X           │
│                  ──             │
└─────────────────────────────────┘
```

Use the Cursor(click)value encoder to select the location, where you want to save your sound, or move it to the "X" and push it if you regret. It will write the name of the taget location at the top of the display or write <empty>, if no sound is previously stored in the selected location.

Push the Play/Enter/freeze knob to move to the next page:

```
┌─────────────────────────────────┐
│                                 │
│      [ Analogue    ]            │
│        ─                        │
│                         X        │
└─────────────────────────────────┘
```

Name your preset. Move the Cursor(click)value encoder to select the letters you want to change, push it to change, or move it to the "X" and push if you regret.

Pushing the Play/Enter knob stores the preset and exits save mode.

The Exit Page

Exit

Exit's to the preset select page, when pushing cursor(click)value.

AnamOno MIDI-implementation

Note-on's and Note-off's are received on the MIDI channel selected on the MIDI edit pages.

Pitch bend change are received on the MIDI channel selected on the MIDI edit pages.

Program change are received on the MIDI channel selected on the MIDI edit pages. Note, that it is only possible to select 128 presets via MIDI program change. To select between banks A to H, or banks I to P, you must use bank change.

Bank change (controller number 32) are received on the MIDI channel selected on the MIDI edit pages. A value of 0 will select preset banks A to H. A value of 1 will select preset banks I to P. All other values will be ignored.

MIDI Controllers are received on the MIDI channel selected on the MIDI edit pages. Controllers 1, 2, 3 and 4 are assignable as modulation sources for many of Anamono's parameters. All other controllers are hard-assigned to specific parameters. For details see the next section: Parameter List.

MIDI NRPN Controllers (Non-registrered parameter number) are received on the MIDI channel selected on the MIDI edit pages. All Anamono's parameters can be controlled with NRPN's. For details see the next section: Parameter List.

MIDI clock, start and stop are received only by Modulator 1, when it is in MIDI sync mode.

```
Ring Lvl            68_
```

When a valid parameter MIDI or NRPN controller are received, the parameter name and the received value shows in AnamOno's display for about a second.

Parameter List

And NRPN explanation

NRPN's:

On this parameter list, there are an NRPN 99 (parameter MSB) and an NRPN 98 (parameter LSB) number. These numbers indicates the NRPN parameter number of each of Anamono's parameters. All of these NRPN numbers are in hex format.

Anamono controlled in 7 bit NRPN mode:

When the NRPN parameter on the MIDI edit page are selected to be 7b (7 bit), Anamono needs the following data to adjust a parameter:
-MIDI controller 99 (parameter MSB – see parameter list).
-MIDI controller 98 (parameter LSB – see parameter list).
-MIDI controller 6, a 7 bit value.

The parameter selected by MIDI controller 98 and 99 are immediately updated, when receiving the MIDI controller 6 value, and Anamono will write the parameter name and value in its display for about a second.

Anamono controlled in 14 bit NRPN mode:

When the NRPN parameter on the MIDI edit page are selected to be 14b (14 bit), Anamono needs the following data to adjust a parameter:
-MIDI controller 99 (parameter MSB – see parameter list).
-MIDI controller 98 (parameter LSB – see parameter list).
-MIDI controller 6, a 1 bit value. Only the LSB bit of this value are used.
-MIDI controller 38, a 7 bit value, which sets the 7 LSB bits of the value.

The LSB bit from the controller 6 value and the 7 LSB bits from the controller 38 value, are assembled to a complete 8 bit value, which Anamono needs for full range parameter control. The LSB bit from ctrl 6, are the MSB bit of the final value.
The parameter selected by MIDI controller 98 and 99 are immediately updated, when receiving the MIDI controller 38 value, and Anamono will write the parameter name and value in its display for about a second. If it only receives the controller 6 value, nothing will happen in this mode.

Controller's:

On many of the parameters there are also a MIDI controller number. This is the controller number, which is hard-assigned to the specific parameter. Some of the controller numbers are prefixed with "primary" or "secondary". This means, that the specific parameter are only controllable via MIDI if the specified primary/secondary controller group are selected on the MIDI edit page.

OSC 1

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Wave	Morph from sine to triangle to sawtooth to square to noise.	8	00h	00h
Wave Mod	-128 to +127		00h	01h
Wave Mod Source	Select between the 16 modulation sources.		00h	02h
PW –Waveform Pulsewidth	0 to 255 –Does something on all waveforms.	9	00h	03h
PWM –Pulsewidth Mod	-128 to +127		00h	04h
Pulsewidth Source	Select between the 16 modulation sources.		00h	05h
Tune	-32 to +31 –In semitone steps.	10	00h	06h
Fine Tune	0 to -255	11	00h	07h
Pitch Mod	-128 to +127		00h	08h
Pitch Mod Source	Select between the 16 modulation sources.		00h	09h
Pitch Mod Level Source	Select between ”Off” and 15 of the modulation sources.		00h	0Ah

OSC 2

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Wave	Morph from sine to triangle to sawtooth to square to noise.	12	01h	00h
Wave Mod	-128 to +127		01h	01h
Wave Mod Source	Select between the 16 modulation sources.		01h	02h
PW –Waveform Pulsewidth	0 to 255 –Does something on all waveforms.	13	01h	03h
PWM –Pulsewidth Mod	-128 to +127		01h	04h
Pulsewidth Source	Select between the 16 modulation sources.		01h	05h
Tune	-32 to +31 –In semitone steps.	14	01h	06h
Fine Tune	0 to -255	15	01h	07h
Keyboard	On/Off		01h	08h
Pitch Mod	-128 to +127		01h	09h
Pitch Mod Source	Select between the 16 modulation sources.		01h	0Ah
Pitch Mod Level Source	Select between "Off" and 15 of the modulation sources.		01h	0Bh

OSC MOD

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Portamento	0 to 255	5	02h	00h
Osc Sync 2<1	On/Off		02h	01h
Ring Modulator Input 1	Osc1, Ext In, Analogue Filters, Granulator		02h	02h
Ring Modulator Input 2	Osc2, LFO1, Analogue Filters, Granulator		02h	03h
Ring Modulator Output	Digital Filter, Analogue Filters, VCA		02h	04h
Ring Modulator Output Level	0 to 255	16	02h	05h
Ring Modulator Output Modulation	-128 to +127		02h	06h
Ring Modulator Output Modulation Source	Select between the 16 modulation sources.		02h	07h
Pitch Bend Amount	0 to 255		02h	08h

DSP FILTER

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Ext Audio In Level	0 to 255	17	03h	00h
Boost	0 to 255	18	03h	01h
Osc 1 Level	0 to 255	19	03h	02h
Osc 2 Level	0 to 255	20	03h	03h
Cutoff	0 to 255	21	03h	04h
Resonance	0 to 255	22	03h	05h
Filter Type	Bpf, Lpf, Hpf, Bp8, Add.	23	03h	06h
Cutoff Mod A	-128 to +127		03h	07h
Cutoff Mod A Source	Select between the 16 modulation sources.		03h	08h
Cutoff Mod B	-128 to +127		03h	09h
Cutoff Mod B Source	Select between the 16 modulation sources.		03h	0Ah
Cutoff Mod B Level Source	Select between "Off" and 15 of the modulation sources.		03h	0Bh
Resonance Mod	-128 to +127		03h	0Ch
Resonance Mod Source	Select between the 16 modulation sources.		03h	0Dh

FEEDBACK

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
FeedBack	0 to 255	24	04h	00h
FeedBack Delay	0 to 255	25	04h	01h
FeedBack Mode	Normal, Negative, Ultra, Ultra Negative	26	04h	02h
FeedBack Modulation 1	-128 to +127		04h	03h
FeedBack Delay Modulation 1	-128 to +127		04h	04h
FeedBack Modulation Source 1	Select between the 16 modulation sources.		04h	05h
FeedBack Modulation 2	-128 to +127		04h	06h
FeedBack Delay Modulation 2	-128 to +127		04h	07h
FeedBack Modulation Source 2	Select between the 16 modulation sources.		04h	08h
FeedBack Modulation 2 Level Source	Select between "Off" and 15 of the modulation sources.		04h	09h
FeedBack From	Analogue Filters, Granulator/Delay		04h	0Ah
FeedBack g-RAY	0 to 3	27	04h	0Bh

ANALOGUE FILTERS

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
DSP Filter Output Level	0 to 255	28	05h	00h
Ext Audio Input Level	0 to 255	29	05h	01h
DSP Filter Connection	Serial, Parallel, FeedBack, Granulator/Delay	30	05h	02h
Osc 1 Level	0 to 255	31	05h	03h
Osc 2 Level	0 to 255	33	05h	04h
Filter 1 Cutoff	0 to 255	34	05h	05h
Filter 1 Resonance	0 to 255	35	05h	06h
Filter 1 Type	Lpf, Bpf, Hpf	36	05h	07h
Filter 2 Cutoff	0 to 255	37	05h	08h
Filter 2 Resonance	0 to 255	39	05h	09h
Filter 1 Cutoff Mod A	-128 to +127		05h	0Ah
Filter 2 Cutoff Mod A	-128 to +127		05h	0Bh
Filters Cutoff Mod A Source	Select between the 16 modulation sources.		05h	0Ch
Filter 1 Cutoff Mod B	-128 to +127		05h	0Dh
Filter 2 Cutoff Mod B	-128 to +127		05h	0Eh
Filters Cutoff Mod B Source	Select between the 16 modulation sources.		05h	0Fh
Filter 1 Cutoff Mod C	-128 to +127		05h	10h
Filter 2 Cutoff Mod C	-128 to +127		05h	11h
Filters Cutoff Mod C Source	Select between the 16 modulation sources.		05h	12h
Filters Cutoff Mod C Level Source	Select between "Off" and 15 of the modulation sources.		05h	13h
Filter 1 Resonance Mod	-128 to +127		05h	14h
Filter 2 Resonance Mod	-128 to +127		05h	15h
Filters Resonance Mod Source	Select between the 16 modulation sources.		05h	16h
DSP Filter Output Level Mod	-128 to +127		05h	17h

DSP Filter Output Level Mod Source	Select between the 16 modulation sources.		05h	18h
Analogue Filters Output Level	0 to 255	40	05h	19h
Analogue Filters Output Level Mod	-128 to +127		05h	1Ah
Analogue Filters Output Level Mod Source	Select between the 16 modulation sources.		05h	1Bh

ΛΜΡ

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Amp Env Attack	0 to 255	41	06h	00h
Amp Env Decay	0 to 255	42	06h	01h
Amp Env Sustain	0 to 255	43	06h	02h
Amp Env Release	0 to 255	44	06h	03h
Amp Env Attack 2	0 to 255	45	06h	04h
Amp Env Decay 2	0 to 255	46	06h	05h
Amp Env Sustain 2	0 to 255	47	06h	06h
Amp Env Release 2	0 to 255	48	06h	07h
Amp Env Morph	0 to 255 – Morphs between settings 1 and 2.	49	06h	08h
Amp Env Morph Mod	-128 to +127		06h	09h
Amp Env Morph Mod Source	Select between the 16 modulation sources.		06h	0Ah
Amp Final Output Volume	0 to 255	7	06h	0Bh
Drive	0 to 255	50	06h	0Ch
Amp Volume Mod	-128 to +127		06h	0Dh
Amp Volume Mod Source	Select between the 16 modulation sources.		06h	0Eh
Amp Volume Mod Level Source	Select between "Off" and 15 of the modulation sources.		06h	0Fh
Drive Mod	-128 to +127		06h	10h
Drive Mod Source	Select between the 16 modulation sources.		06h	11h
Amp Control	Env, Follower		06h	12h
Env Follower Smoothing	0 to 255		06h	13h
Amp Drone Level	0 to 255		06h	14h

GRANULATOR / DELAY

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Freeze = Enter Pushbutton	Off, On	54	07h	09h
Mode	Granulator, Delay		07h	00h
Mix	0 to 255	51	07h	01h
Granulator Last Step	1 to 16		07h	02h
Time	0 to 255 (from 22 microSeconds to 1.5 second)	52	07h	03h
Time Fine Adjust	0 to 255		07h	04h
# Of Fragments	1, 2, 4, 8, 16, 32, 64, 128.		07h	05h
FeedBack	0 to 255	53	07h	06h
Playback Direction	Forward, Reverse		07h	07h
Step Mode	Timestretch, Pitchshift		07h	08h
Freeze Mod Source	Select between "Off" and 15 of the modulation sources.		07h	0Ah
Playback Direction Mod Source	Select between "Off" and 15 of the modulation sources.		07h	0Bh
Time Mod	-128 to +127		07h	0Ch
Mix Mod	-128 to +127		07h	0Dh
Time And Mix Mod Source	Select between the 16 modulation sources.		07h	0Eh
CrossFade	0 to 254		07h	0Fh
Granulator Step 1 Fragment Select	Depends on # Of Fragments setting	Primary 55	07h	10h
Granulator Step 2 Fragment Select	Depends on # Of Fragments setting	Primary 56	07h	11h
Granulator Step 3 Fragment Select	Depends on # Of Fragments setting	Primary 57	07h	12h
Granulator Step 4 Fragment Select	Depends on # Of Fragments setting	Primary 58	07h	13h
Granulator Step 5 Fragment Select	Depends on # Of Fragments setting	Primary 59	07h	14h
Granulator Step 6 Fragment Select	Depends on # Of Fragments setting	Primary 60	07h	15h
Granulator Step 7 Fragment Select	Depends on # Of Fragments setting	Primary 61	07h	16h
Granulator Step 8 Fragment Select	Depends on # Of Fragments setting	Primary 62	07h	17h
Granulator Step 9 Fragment Select	Depends on # Of Fragments setting	Primary 63	07h	18h

Granulator Step 10 Fragment Select	Depends on # Of Fragments setting	Primary 71	07h	19h
Granulator Step 11 Fragment Select	Depends on # Of Fragments setting	Primary 72	07h	1Ah
Granulator Step 12 Fragment Select	Depends on # Of Fragments setting	Primary 73	07h	1Bh
Granulator Step 13 Fragment Select	Depends on # Of Fragments setting	Primary 74	07h	1Ch
Granulator Step 14 Fragment Select	Depends on # Of Fragments setting	Primary 75	07h	1Dh
Granulator Step 15 Fragment Select	Depends on # Of Fragments setting	Primary 76	07h	1Eh
Granulator Step 16 Fragment Select	Depends on # Of Fragments setting	Primary 77	07h	1Fh
Granulator Step 1 Stretch / Tune	-128 to +127	Primary 78	07h	20h
Granulator Step 2 Stretch / Tune	-128 to +127	Primary 79	07h	21h
Granulator Step 3 Stretch / Tune	-128 to +127	Primary 80	07h	22h
Granulator Step 4 Stretch / Tune	-128 to +127	Primary 81	07h	23h
Granulator Step 5 Stretch / Tune	-128 to +127	Primary 82	07h	24h
Granulator Step 6 Stretch / Tune	-128 to +127	Primary 83	07h	25h
Granulator Step 7 Stretch / Tune	-128 to +127	Primary 84	07h	26h
Granulator Step 8 Stretch / Tune	-128 to +127	Primary 85	07h	27h
Granulator Step 9 Stretch / Tune	-128 to +127	Primary 86	07h	28h
Granulator Step 10 Stretch / Tune	-128 to +127	Primary 87	07h	29h
Granulator Step 11 Stretch / Tune	-128 to +127	Primary 88	07h	2Ah
Granulator Step 12 Stretch / Tune	-128 to +127	Primary 89	07h	2Bh
Granulator Step 13 Stretch / Tune	-128 to +127	Primary 90	07h	2Ch
Granulator Step 14 Stretch / Tune	-128 to +127	Primary 91	07h	2Dh
Granulator Step 15 Stretch / Tune	-128 to +127	Primary 92	07h	2Eh
Granulator Step 16 Stretch / Tune	-128 to +127	Primary 93	07h	2Fh

MOD ENV

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Mod Env Attack	0 to 255	Primary 94	08h	00h
Mod Env Decay	0 to 255	Primary 95	08h	01h
Mod Env Sustain	0 to 255	Primary 96	08h	02h
Mod Env Release	0 to 255	Primary 97	08h	03h
Mod Env Attack 2	0 to 255	Primary 100	08h	04h
Mod Env Decay 2	0 to 255	Primary 101	08h	05h
Mod Env Sustain 2	0 to 255	Primary 102	08h	06h
Mod Env Release 2	0 to 255	Primary 103	08h	07h
Mod Env Morph	0 to 255 – Morphs between settings 1 and 2.	104	08h	08h
Mod Env Morph Mod	-128 to +127		08h	09h
Mod Env Morph Mod Source	Select between the 16 modulation sources.		08h	0Ah

MODULATOR 1

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Trigger	Off, Key reset, Key trigger, Keyed advance, Play knob, MIDI		09h	00h
MIDI Clock Divide	1 to 256		09h	01h
Note + Gate Output	Off, On, Transposed		09h	02h
Step 1 Value	0 to 255	Secondary 55	09h	03h
Step 1 Time	0 to 255	Secondary 78	09h	04h
Step 1 Will	Sustain, Continue, Loop	Secondary 94	09h	05h
Step 2 Value	0 to 255	Secondary 56	09h	06h
Step 2 Time	0 to 255	Secondary 79	09h	07h
Step 2 Will	Sustain, Continue, Loop	Secondary 95	09h	08h
Step 3 Value	0 to 255	Secondary 57	09h	09h
Step 3 Time	0 to 255	Secondary 80	09h	0Ah
Step 3 Will	Sustain, Continue, Loop	Secondary 96	09h	0Bh
Step 4 Value	0 to 255	Secondary 58	09h	0Ch
Step 4 Time	0 to 255	Secondary 81	09h	0Dh
Step 4 Will	Sustain, Continue, Loop	Secondary 97	09h	0Eh
Step 5 Value	0 to 255	Secondary 59	09h	0Fh
Step 5 Time	0 to 255	Secondary 82	09h	10h
Step 5 Will	Sustain, Continue, Loop	Secondary 100	09h	11h
Step 6 Value	0 to 255	Secondary 60	09h	12h
Step 6 Time	0 to 255	Secondary 83	09h	13h
Step 6 Will	Sustain, Continue, Loop	Secondary 101	09h	14h
Step 7 Value	0 to 255	Secondary 61	09h	15h
Step 7 Time	0 to 255	Secondary 84	09h	16h
Step 7 Will	Sustain, Continue, Loop	Secondary 102	09h	17h
Step 8 Value	0 to 255	Secondary 62	09h	18h
Step 8 Time	0 to 255	Secondary 85	09h	19h
Step 8 Will	Sustain, Continue, Loop	Secondary 103	09h	1Ah
Step 1 Value B	0 to 255	Secondary 63	09h	1Bh
Step 1 Time B	0 to 255	Secondary 86	09h	1Ch

Step 2 Value B	0 to 255	Secondary 71	09h	1Dh
Step 2 Time B	0 to 255	Secondary 87	09h	1Eh
Step 3 Value B	0 to 255	Secondary 72	09h	1Fh
Step 3 Time B	0 to 255	Secondary 88	09h	20h
Step 4 Value B	0 to 255	Secondary 73	09h	21h
Step 4 Time B	0 to 255	Secondary 89	09h	22h
Step 5 Value B	0 to 255	Secondary 74	09h	23h
Step 5 Time B	0 to 255	Secondary 90	09h	24h
Step 6 Value B	0 to 255	Secondary 75	09h	25h
Step 6 Time B	0 to 255	Secondary 91	09h	26h
Step 7 Value B	0 to 255	Secondary 76	09h	27h
Step 7 Time B	0 to 255	Secondary 92	09h	28h
Step 8 Value B	0 to 255	Secondary 77	09h	29h
Step 8 Time B	0 to 255	Secondary 93	09h	2Ah
Modulator 1 Morph	0 to 255 – Morphs between settings a and b.	105	09h	2Bh
Modulator 1 Morph Mod	-128 to +127		09h	2Ch
Modulator 1 Morph Mod Source	Select between the 16 modulation sources.		09h	2Dh

MODULATOR 2

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Time 1 (Delay)	0 to 255	106	0Ah	00h
Loop	Off, On, KeyTriggered		0Ah	01h
Time 2	0 to 255	107	0Ah	02h
Time 3	0 to 255	108	0Ah	03h
Time 4	0 to 255	109	0Ah	04h
Time 5	0 to 255	110	0Ah	05h
Time 1 B (delay)	0 to 255	111	0Ah	06h
Time 2 B	0 to 255	112	0Ah	07h
Time 3 B	0 to 255	113	0Ah	08h
Time 4 B	0 to 255	114	0Ah	09h
Time 5 B	0 to 255	115	0Ah	0Ah
Modulator 2 Morph	0 to 255 – Morphs between settings a and b.	116	0Ah	0Bh
Modulator 2 Morph Mod	-128 to +127		0Ah	0Ch
Modulator 2 Morph Mod Source	Select between the 16 modulation sources.		0Ah	0Dh

LFO 1

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Rate	0 to 255	117	0Bh	00h
Rate Mod	-128 to +127		0Bh	01h
Rate Mod Source	Select between the 16 modulation sources.		0Bh	02h
Wave	Morphs from triangle to saw to square to pulse	118	0Bh	03h
Wave Mod	-128 to +127		0Bh	04h
Wave Mod Source	Select between the 16 modulation sources.		0Bh	05h
KeyTrigger, LFO Wave Start Point	Off, 1 to 255		0Bh	06h

LFO 2

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Rate	0 to 255	119	0Ch	00h
Rate Mod	-128 to +127		0Ch	01h
Rate Mod Source	Select between the 16 modulation sources.		0Ch	02h
Wave	Morphs from triangle to saw to square to pulse		0Ch	03h
Wave Mod	-128 to +127		0Ch	04h
Wave Mod Source	Select between the 16 modulation sources.		0Ch	05h
KeyTrigger, LFO Wave Start Point	Off, 1 to 255		0Ch	06h

RANDOM

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Random Pulse Pw (Intensity)	0 to 255		0Dh	00h
Random Trigger	LFO 1, LFO 2, Key.		0Dh	01h

MOD KYBD

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Mod Keyboard Offset	0 to 255		0Eh	00h
Mod Keyboard Spread	0 to 7		0Eh	01h

MIDI

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
MIDI Channel	1 to 16			
NRPN Mode	7 bit, 14 bit			
MIDI Controller set	Primary, Secondary	65		

ASSIGN EDIT KNOB 1

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Parameter Group	MIDI controller 2, Osc1, Osc2, Osc Mod, DSP Filter, Feedback, Analog Filters, Amp, Granulator, Mod Env, Modulator 1, Modulator 2, LFO1, LFO2, Random, Mod Kybd			
Parameter	Any parameter kan be assigned to the edit knob			

ASSIGN EDIT KNOB 2

Parameter	Values	MIDI ctrl	NRPN 99	NRPN 98
Parameter Group	MIDI controller 3, Osc1, Osc2, Osc Mod, DSP Filter, Feedback, Analog Filters, Amp, Granulator, Mod Env, Modulator 1, Modulator 2, LFO1, LFO2, Random, Mod Kybd			
Parameter	Any parameter kan be assigned to the edit knob			