PINK NOISE STUDIO

LUNA DUAL PERFORMANCE SYNTH

OPERATION MANUAL

version 1.8

Written by Andras Haasz

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1. Introduction

Luna is a high-powered performance synth that combines powerful analogue sounds with custom digital flexibility. Powered by the sounds of the legendary minimoog Voyager, Luna creates unique synth sounds through a two-part audio-architecture. Both synth engines contain 92 original multisample sets that can be combined, isolated and re-synthesized into a new exciting synth sound.

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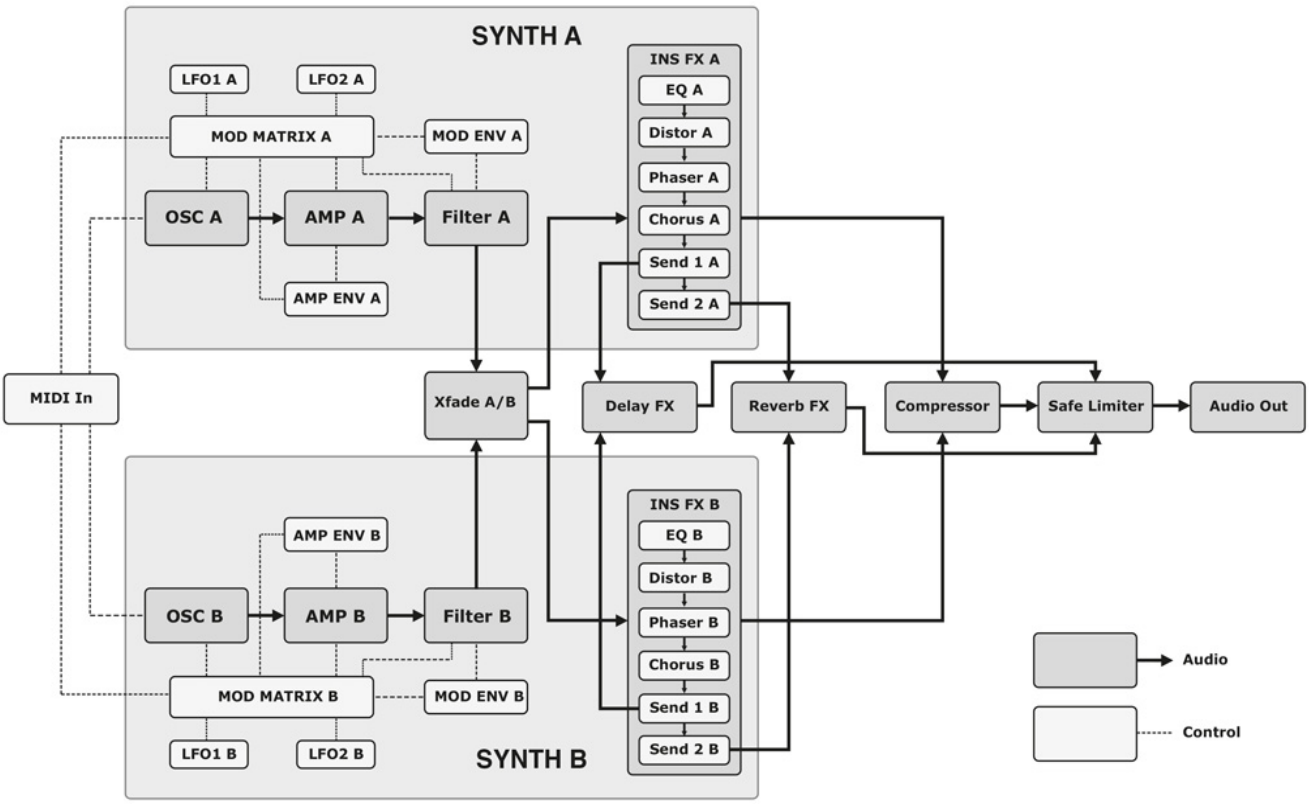
2. Structure of Luna

Now let's see the structure : this is the first step to understanding Luna.



OSC: the name “Oscillators” are borrowed from the analogue synth's terminology: these are the building blocks of the instrument. In fact, they're multisampled sound layers, sorted by sound types: Bass, Key, Lead, Osc, Pad and Sfx. Please note, these types are not set in stone, they're just a guide to getting started.

AMP: Each OSC has an amplifier with a dedicated AMP envelope. Please note that the AMP envelope can also be used as a destination in the Modulation Bus.

FILTER: each synth engine contains a ladder filter with 6 different modes: highpass, bandpass or four different slopes of lowpass. The filter cutoff is controlled by MOD ENV by default, but MOD ENV can control other parameters as well.

LFO: each synth engine has two low frequency oscillators to use as modulator source in the Modulation Bus. The LFOs have two modes: the frequency rates can be set in Hz (cycles per seconds) or in beats (quarternotes per cycle).
There are 8 waveforms available: Sine, Triangle, Square, Saw, Random (random steps), Drift (smooth random), Saw Up and Saw Exp (exponential decay).

MOD MATRIX: or Modulation Bus, it makes connection between various modulation sources and destination parameters. Each synth engine has 6 modulation slots.

X-Fade A/B : balances the volume of synth A and Synth B using an equal power crossfade algorithm. It looks like a mixer, but it handles the two signals separately, by setting their ratio, providing a smooth morph between synth A and Synth B.

Insert FX: both synth engines have a dedicated insert FX chain: EQ, Distortion, Phaser, Chorus and two sends for the global Delay and Reverb effects.

Global FX: as you can see, after the insert FX chain the outputs of the two engines are mixed in the Compressor, and then go further to the Safe Limiter, which also provides inputs for the two send effects' (delay and reverb) return.

Audio Out: this is the main stereo output of the Synth, located on the back panel.

Note: all insert effects are bypassed in the signal chain by default.

3. Front Panel overview

The front panel of Luna contains the following sections:

1. **Patch controls** (for browsing, loading and saving device patches).
2. **Synth programmer section** (controls for the currently selected synth engine).
3. **Performance section**, provides global performance and play controls.
4. **Global effects section**.

4. Using Luna

4.1 Patch Controls

The patch operation in Luna is the same as in any other Reason device. To select a patch, either click on the patch name, the folder icon or the arrow buttons. To save a patch, click on the disk icon.

4.2 Controlling parameters

Knobs, faders, and numerical displays are controlled by left-clicking on them, then dragging the mouse up or down in vertical direction. Hold down Shift while turning knobs to slow down the movement, in order to set precise values. Use Ctrl+Click to set the controllers to the default position.

4.3 Global performance and play controls

PITCH

The Pitch bend wheel can be used for bending note pitches up and down. Luna also responds to Pitch Bend MIDI data from a connected MIDI master keyboard. You set the desired pitch bend range with the "PB" range control.

MOD

The Mod wheel can be used as a modulation source in the Modulation Bus. The synth also responds to MIDI CC1 data from a connected MIDI master keyboard.

AT

The Channel Aftertouch can be used as a modulation source in the Modulation Bus. Luna also responds to Channel Aftertouch data from a connected MIDI master keyboard, and displays the current value.

OSC TABLE

The Osc table switch can enable or disable the two Oscillator Tables. When enabled, the tables may override the settings of the Synth Programmer's OSC selectors (at the top of the synth).

MONO

The default setting is off. Use this mode if you want to play Luna polyphonically. You can set the polyphony on the back panel. If you enable it, Luna switches to a classic monophonic mode and always retrigger the envelopes as soon as you play a new note.

GLIDE

Glide (or portamento) allows the synth to regularly slide in pitch with each new note.

Glide modes:

off (no glide)

on (always glide)

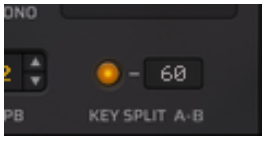
auto (only glide if a key is already held).

Glide time: specifies in how much time the sound slides to the next key.

KEY SPLIT

This function allows you to split the keyboard in two sections, each playing separate sounds.

The Key Split has 3 parameters:



Split Keyboard button led: when it is activated, it splits the keyboard in two sections, each playing separate sounds.

Split point: you can set the split point (the key where the keyboard should be split) by clicking on the number and dragging the mouse up or down in vertical direction. The default value is 60 (C3 key).

Split order: The A-B setting is the default, in this case Synth A will be played from the lower (left) part of the keyboard, while Synth B will be played from the upper (right) part.

You can set the split order (A-B or B-A) by clicking on the "A-B" text.

4.4 LINK options

On the Filter, Amp Env, Mod Env and Send FX panels you can see a special **LINK** button.

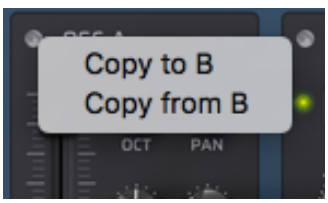
It links the engine of synth B to synth A on the appropriate panel, and when enabled, all parameters of A and B will be changed together.
Please note that when LINK is enabled, the appropriate controllers of synth A will take control over synth B, and you will only see the parameters of synth A (even if you switch to panel B).

Any changes to synth B (eg. when you automate it) are recorded in the background, so when you turn LINK off, the actual settings of synth B will be restored.

If you want to automate parameters when LINK is enabled, use the controllers of synth A (and synth B will follow the changes). If you automate synth B at the same time, changes will be ignored, but recorded for further use. They will reappear when you turn LINK off.

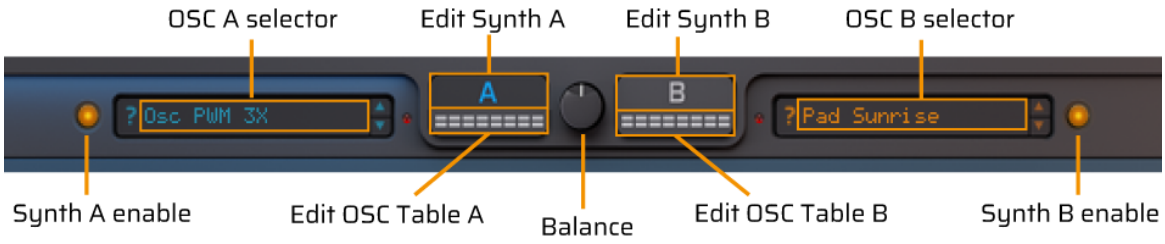
4.5 Advanced editing options

You can see a small round symbol in the upper left corner of each panel. If you click on it, a drop-down menu will appear with additional editing features, like copy parameters between the synth engines.



5. Synth programmer

Luna features two identical Sound Engines (A and B), which can be layered together.



OSC selector

Click on the display to bring up a drop-down list of the included instruments, and then select the desired instrument from the list. You can also click the Up/Down buttons to step up/down in the list and load the next/previous instrument. The oscillators are grouped into the following submenus:

?: when the Oscillator table overrides the current setting of OSC selector, a question mark appears before the instrument name.

Special keys: [Shift] – click results a simple drop down list with no submenu.

[Ctrl] -click loads the default value (OSC Sawtooth)

Edit views

You can select which Sound Engine you want to edit by clicking on the A or B switch button. As you can see, these buttons are divided into two parts: while the upper part is for editing the parameters of the synth engines (filter, envelopes and LFOs), the lower part (with the grid symbol) opens the **OSC Table editor**. The two Sound Engines have different colour schemes to help you to identify which engine is in focus when you're editing.

Balance

The Balance knob lets you morph between the two A/B synths with constant overall volume using equal power crossfade.

5.1 Main Programmer panel

Each Sound Engine can hold a multisampled instrument (oscillator), which can be modulated and controlled from the programmer panel. Both Sound Engines feature identical parameters and controls. The main programmer panel is divided into 7 sections, similar to the analogue synthesizers' layout.

5.1.1 OSC panel

VOL: sets the maximum volume of the corresponding Engine.

TD: trigger delay. When enabled (default setting is off) it forces the engine to start a certain time after Note On. Selectable values: OFF, 1/64, 1/32, 1/16T, 1/16, 1/8T, 3/32, 1/8, 2/8T, 3/16, 1/4, 5/16, 4/8T, 3/8, 1/2, 3/4, 4/4.
Please note: since the Trigger Delay is an audio delay, the Note Off is also delayed by the set delay time.

OCT: sets the octave for the current Sound Engine in 5 octave range (+/- 2).

SEMI: changes the Sound Engine pitch in semitone steps. Range: +/-12 semitones.

FINE: sets the Sound Engine pitch in 1 cent steps. Range: +/- 50 cents (down or up half a semitone).

PAN: controls the stereo balance of the current Sound Engine.

VEL: sets the velocity control of the Amp Envelope.

S.START: the Sample Start offset defines where in the sample the playback should start. Note that the effect could be different depending on the selected instrument.

5.1.2 FILTER panel

Filter enable: you can disable or enable the filter by clicking on the orange led.

LINK: it links the filter knobs of synth B to synth A. Please note that **Filter enable** and **Filter type display** won't be linked, so you can set different filter types while linking other parameters. For more info, see the **LINK options** section.

Filter type display: Click on and drag up/down on the Filter display to select one of the available filter types, or step through the filter types by clicking the Up/Down arrow buttons. The following filter types are available:
Lowpass 24 dB/octave, Lowpass 18 dB/octave, Lowpass 12 dB/octave, Lowpass 6 dB/octave, Bandpass 12 dB/octave, Highpass 12 dB//octave.

CUTOFF: sets the cutoff/center frequency. The cutoff parameter sets where in the frequency range you want the resonance and attenuation to appear.
RESO: sets the resonance amount. The resonance parameter amplifies the frequencies at, and around the cutoff/center frequency.

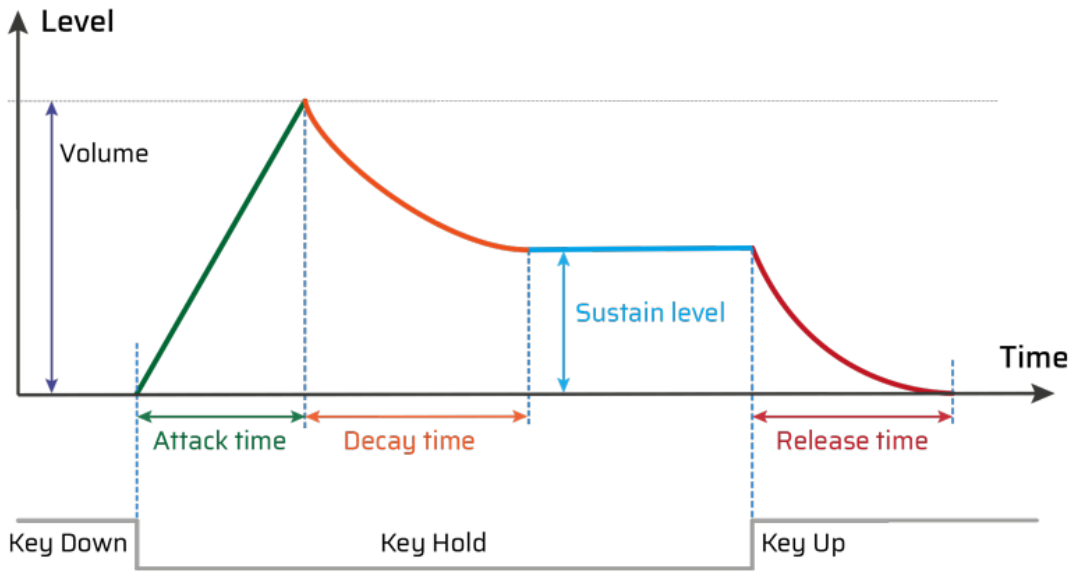
ENV: sets how much you want the Modulation Envelope to affect the CUTOFF frequency. Range: -100% via 0% (no modulation) to 100%.

KEY: keyboard tracking sets how much the cutoff/center frequency should track incoming MIDI Notes. Range: 0% (no tracking /constant frequency) to 200% (2 semitones per key).

VEL: sets how much the cutoff/center frequency should be modulated by Keyboard Velocity. Range: 0% to 100%.

5.1.3 AMP ENV panel

The Amp Envelope is a standard ADSR envelope which controls the amplitude of the corresponding Sound Engine over time. By default the Amp Envelope controls the Volume, but it also can be used as a modulation source in the Modulation Bus. The picture below shows the various stages of the ADSR envelope:



LINK: it links the envelope parameters of synth B to synth A.

A(ttack): when you play a note on your keyboard, the envelope is triggered. This means it starts rising from zero to the value set with the Volume knob. How long this should take, depends on the Attack time setting. If the Attack is set to "0", the Volume value is reached instantly. If the Attack value is raised, it will take a longer time before the Master Volume value is reached.

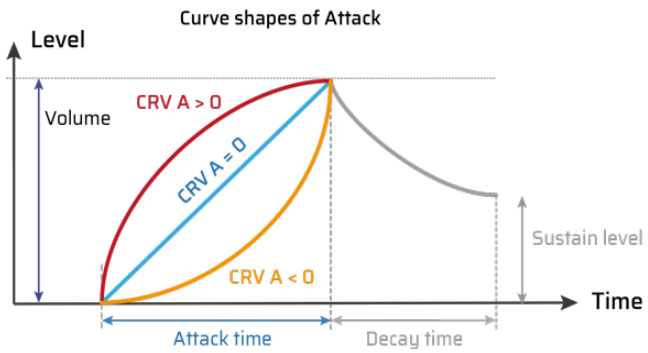
D(ecay): after the Volume value has been reached, the level starts to drop. How long this should take is governed by the Decay time parameter.

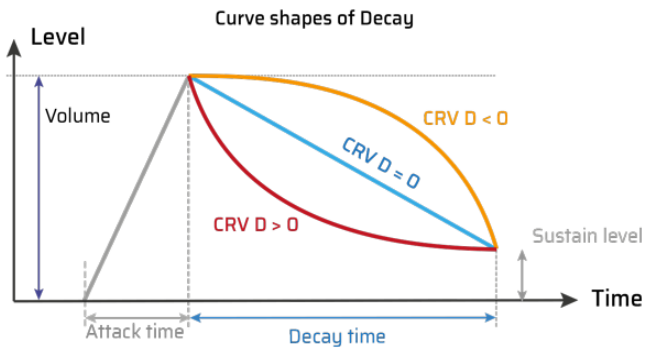
If you want to emulate the volume envelope of a note played on a Bass Guitar for example, the Attack should be set to "0", the Decay parameter should be set to a medium value and the Sustain level should be set to "0", so that the volume gradually decreases down to silence, even if you keep holding the key down. Should you want the decay to drop to some other value than zero, you raise the Sustain parameter.

S(ustain): The Sustain level parameter determines the level the envelope should rest at, after the Decay stage. If you set Sustain to full level, the Decay setting is of no importance since the volume of the sound is never lowered. Often a combination of Decay and Sustain is used to generate envelopes that rise up to the Volume value, then gradually decreases to finally land to rest on a level somewhere in-between zero and the Master Volume value. Note that Sustain represents a level, whereas the other envelope parameters represent times.

R(elease): the Release time parameter works just like the Decay parameter, except it determines the time it takes for the volume to drop back to zero after you release the key.

CRV A: determines the curve shape of the Attack. The default settings is 0, which means linear curve. Positive value will result in a convex shape, the Attack curve is "rounded", the volume starts rising fast and reaches the final value slow. Negative value results concave shape, the Attack curve starts slow and reaches the final value fast (good for sudden rising sounds).





CRV D: sets he curve shape of the Decay. The default settings is 50, which results in natural sounding logarithmic curves. Negative values give a convex shape, which means that the decay phase starts to fall slow and reaches the final values fast. At setting 0 the curve is linear.
Positive value will result in concave shape, so the curve will start to fall fast and then reach the final sustain level slowly. Setting between +50 and +90 gives a logarithmic fade.

5.1.4 MOD ENV panel

The Modulation Envelope controls the filter cutoff frequency modulation over time by default. You can adjust the modulation amount with the ENV knob on the FILTER panel.

But this is just a predefined option: feel free to use this envelope to control other parameters of the synth via Modulation Bus: pitch, LFO amount, pan, etc.
The structure of the Modulation Envelope is the same as the Amplitude Envelope.

The ADSR envelope characteristics are described in detail in the “AMP ENV panel” section.

5.1.5 LFO panel

An LFO (Low Frequency Oscillator) is used for generating cyclic modulation. Each synth engine has two low frequency oscillators to use as modulator source in the Modulation Bus.

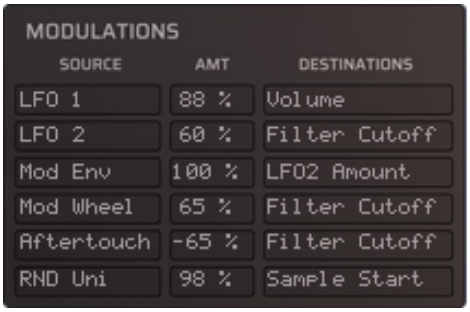
Waveform: click and drag up and down on the waveform display to scroll through the available shapes.
There are 8 waveforms available: Sine, Triangle, Square, Saw, Random (random steps), Drift (smooth random), Saw Up and Saw Exp (exponential decay).

SYNC: The LFOs have two modes: the frequency rates can be set in Hz (cycles per seconds) or in beats (quarternotes per cycle). Selectable values: 16/4, 12/4, 8/4, 7/4, 6/4, 5/4, 4/4, 3/4, 2/4, 3/8, 1/4, 3/16, 1/8, 1/8T, 1/16, 1/32.

RETRIG: when enabled, the LFO restarts each time you press a new note, otherwise it runs free.
Please note that when RETRIG is enabled, the LFO runs in polyphonic mode, each note has its own LFO modulation. It's recommended for tempo synced modulations. When RETRIG is OFF, the LFO runs in monophonic mode. This latter can be useful for slow filter sweeps, panning effects, vibrato, etc.

RATE: controls the LFO frequency (Hz) in absolute mode. In tempo synced mode the Rate parameter controls the time divisions.

5.1.6 MODULATIONS panel



The Synth Engine already contains some common pre-wired modulations (Amp Velocity, Filter Velocity, Key to Cutoff Filter, Mod Env to Cutoff filter). The MOD MATRIX extends these possibilities providing very flexible routings.
On the modulation panel you can make connections between various modulation sources and destination parameters. Each synth engine has 6 modulation slots.

Modulation Sources
The following modulation sources are selectable:

- **Modulation Wheel**: incoming MIDI CC1 message
- **Channel Aftertouch**: incoming MIDI Channel Pressure message (monophonic)
- **Velocity**: incoming MIDI velocity
- **Key**: Keyboard position relative to C3.
- **LFO 1**: internal source
- **LFO 2**: internal source (LFOs can be monophonic or polyphonic, see the LFO panel)
- **Mod Env**: Modulation Envelope, internal source (polyphonic)
- **Amp Env**: Amplitude Envelope, internal source (polyphonic)
- **RND Bi**: Random bipolar (-1 - +1), internal source (polyphonic)
- **RND Uni**: Random unipolar (0 - +1), internal source (polyphonic)
- **Pitch Bend**: Incoming MIDI pitch bend message
- **CV in 1**: incoming CV message
- **CV in 2**: incoming CV message (the two CV connectors are located on the back panel)

Modulation Amount (AMT)
The default setting is 0. You can modify the values in -100% - +100% range by clicking on the number and then dragging the mouse up or down in vertical direction.

Modulation Destinations

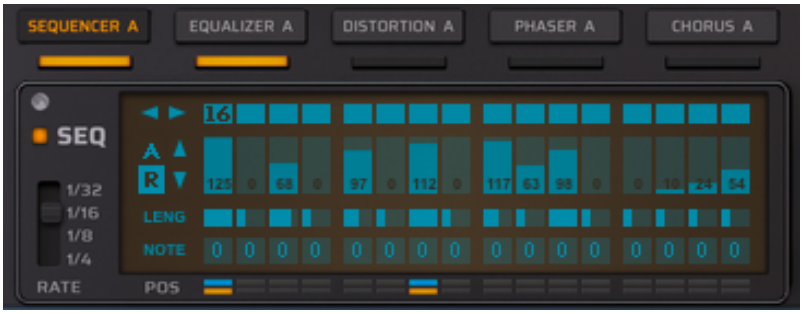
Clicking on the appropriate row on the Destinations column, you can choose from various destinations.

The following modulation destinations are available:

- **Volume**: you can modulate the Synth Engine's main volume
- **Pan**: modulates the stereo balance of the current Sound Engine
- **Pitch**: for pitch modulation, 100% equal to one octave (12 semitones)
- **Sample Start**: Sample start offset, the effect depends on the selected instrument
- **Filter Cutoff**: modulates the Filter Cutoff frequency
- **Filter Reso**: modulates the Filter Resonance amount
- **LFO1 Amount**: you can scale the amount of LFO1
- **LFO1 Rate**: you can modulate the LFO1 rate with another source
- **LFO2 Amount**: you can scale the amount of LFO2
- **LFO2 Rate**: modulates the LFO1 rate with another source
- **Mod Env Atk**: modulates the Attack phase of Modulation Envelope
- **Mod Env Dec**: modulates the Attack phase of Modulation Envelope
- **Mod Env Sus**: modulates the Sustain level of Modulation Envelope
- **Mod Env Rls**: modulates the Release phase of Modulation Envelope
- **Amp Env Atk**: modulates the Attack phase of Amplitude Envelope
- **Amp Env Dec**: modulates the Decay phase of Amplitude Envelope
- **Amp Env Sus**: modulates the Sustain level of Amplitude Envelope
- **Amp Env Rls**: modulates the Release phase of Amplitude Envelope
- **Mod Env Int**: intensity, you can scale the amount of the Modulation Envelope
- **Mod Env Rate**: modulates the time of the ADR phases of the Modulation Envelope
- **Amp Env Int**: intensity, you can scale the amount of the Amplitude Envelope
- **Amp Env Rate**: modulates the time of the ADR phases of the Amplitude Envelope

5.1.7 Pattern editor / Insert FX panel

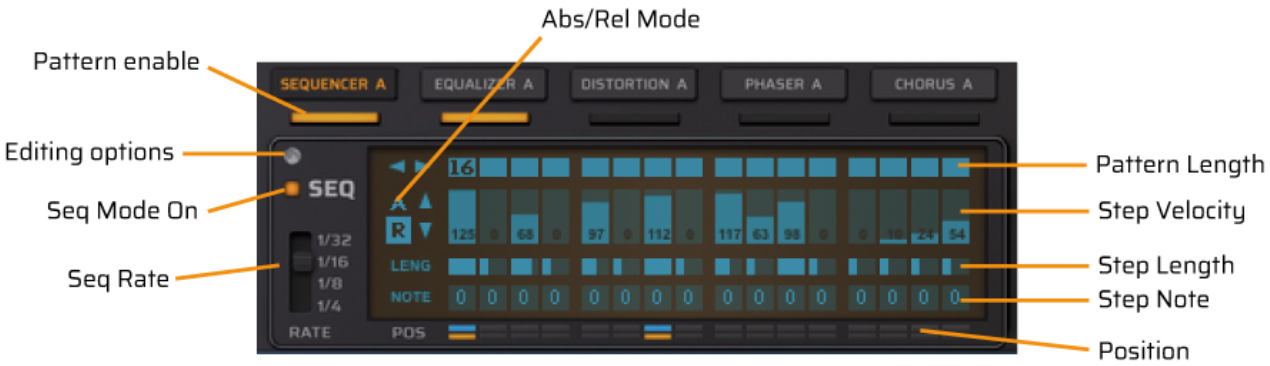
Each synth engine has a dedicated insert FX chain: Equalizer, Distortion, Phaser, Chorus and two sends for the global Delay and Reverb effects. The effects are processed from left to right, in the order they appear.



You can enable or disable each effect by clicking on the small elongated effect switches. If you click on the effect name, the appropriate effect will appear for editing.

5.1.7.1 SEQUENCER PATTERN EDITOR

It's a 16 steps pattern editor for the Step Sequencer. If Luna is in Sequencer mode and the pattern is enabled, when you play a note, the sequence will start and play continuously until you release the key. It's also possible to set different step lengths in the two pattern editor to create poly-rhythmic patterns. The Sequencer is polyphonic, which means each sequence runs independently from each other, and you can play and trig entire chords or polyrhythmic runs.



Parameters of the Pattern Editor:

Seq Mode
It's on by default. If you set this switch to off, both Pattern A and B will be disabled as well.

Editing options: you can access the editing options by clicking on that small round symbol.

Pattern enable: if enabled (and Seq Mode is on), when you play a note, the Step Sequencer will trigger notes according to the active pattern.

Sequencer Rate: you can set the desired Sequencer Rate (in relation to the main sequencer tempo in Reason). Please note that this parameter is global.

Pattern Length: You can set the length of the currently active Pattern. Just click to the desired length or draw it horizontally. Special options:
- [Ctrl]-click will set the length to the default value (16).
- [Alt]-click will rearrange the pattern, where you click will be the first step in the pattern. For example if you [Alt]-click on the 9th step, the whole pattern will be wrapped left and the ninth step will be the first: a very quick way to rearrange the active pattern with a single click! :)

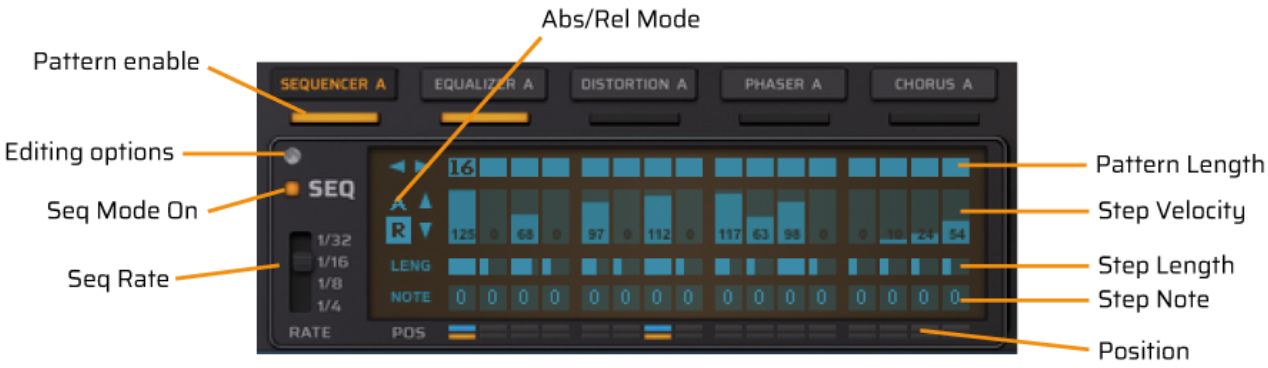
Abs / Rel: sets the handling of the incoming velocity (absolute or relative). When the switch is set to ABS, the played velocities will be ignored and taken from the columns in the pattern grid. When the switch is set to REL, the played velocities will be scaled by the columns of the grid.

Each step has 3 parameters: velocity, length and note.

Step Velocity: you can set the desired velocity of each step by clicking and drawing on the grid and/or drag it up/down. [Ctrl]-click will set the value to maximum (127), [Alt]-click will set it to 0.
If you press shift while the mouse button is pressed, the editor will switch to “precise” mode. In precise mode the cursor “sticks” to the current step and you can make very precise modifications by dragging it up/down. If you release the mouse button, the editor returns to normal mode.

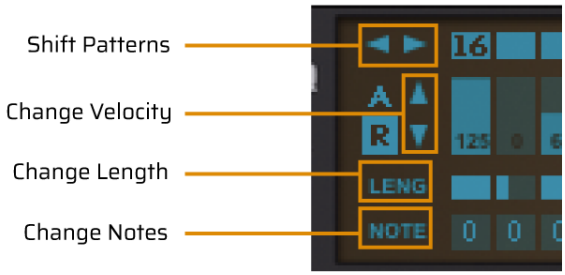
Step Length: it's a horizontal fader, you can select the desired note length for each step by clicking on the field and dragging it horizontally to adjust. The selectable values: 25, 50, 75, 99.

Step Note: set a note offset to each step, can be used to create melodic sequences.
You can set the desired note offset by click-holding on the number and dragging up/down. The available range is +/- 24 semitones. [Ctrl]-click will set the default value (0).



Position: It's a LED display, shows the the current position of the running steps.

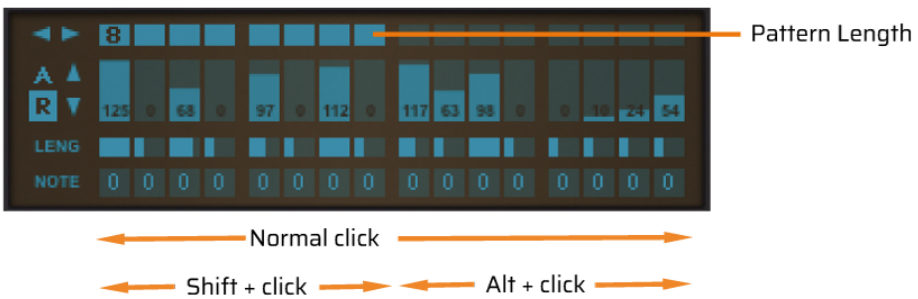
STEP SEQUENCER EDITING TOOLS



You can find some useful editor tools on the LCD panel of the Step Sequencer.

Shift Patterns

It's a left-right momentary button, it shifts/rotates the elements of the whole pattern left or right.
Special options: [Shift]-click moves the elements inside the pattern length range, [Alt]-click moves only those elements that are outside of the pattern length range.



Note: you can rearrange the pattern by [Alt]-clicking on the Pattern Length bar: in this case the column that you clicked will be the first element, and the whole pattern will be shifted accordingly.

Change Velocity

You can increase or decrease the velocity of the steps in the pattern length range.
Normal click changes the values of velocities by five. For smooth changes press the [Shift] button.
[Alt]-click will change only those values that are not 0 (at increasing), or not 127 (at decreasing), it may help to keep the original sequence's structure.

Change Length

This hidden button has two positions: you can increase (right side) or decrease (left side) the steps's length in the pattern length range. This button has no special modifier keys.

Change Note

Same as the previous one, but it changes the notes in the -24 - +24 semitone range.

5.1.7.2 EQUALIZER

It's a four-band equalizer with two parametric middle bands.

EQ parameters:
LF FREQ: Low shelf frequency
LF GAIN: Low frequency boost or cut
LMF FREQ: Low-mid center frequency
LMF GAIN: Low-mid frequency boost or cut
LMF Q: Low-mid bell bandwidth
HMF FREQ: High-mid center frequency
HMF GAIN: High-mid frequency boost or cut
HMF Q: High-mid bell bandwidth HF GAIN: High frequency boost or cut HF FREQ: High shelf frequency
OUTPUT: level trim to compensate for any gain change due to equalization

5.1.7.3 DISTORTION

Stereo distortion/overdrive effect.

Distortion parameters:
Drive: input gain to the distortion
Mode: Transistor (stereo hard clipping) or Tube (soft clipping with DC bias)
Rectify: degree to which negative signal peaks are converted to positive
Low Cut: highpass filter before distortion
High Cut: lowpass filter before distortion.
Dry: level of the unprocessed input signal sent to the output

Wet: level of the effected signal

5.1.7.4 PHASER

Phaser effect with up to 8 poles (4 peaks/notches).

Phaser parameters:
Rate: modulation rate in Hz Depth: center frequency modulation amount
Feedback: Add resonant peaks between the notches
Invert: flip feedback polarity for a different sound character
Center: center frequency
Spread: offset between left and right center frequencies
Poles: number of stages (more stages = more peaks and notches)
Mix: dry/wet mix.

5.1.7.5 CHORUS

Chorus effect for creating a thicker, fatter, wider sound.

Chorus parameters:
Rate: modulation rate in Hz
Depth: depth of delay (pitch) modulation.
Delay: pre-delay for each voice
SQR/Sine switch: Square or sine wave LFO modulation
Voices: number of chorus voices
Mix: dry/wet mix.

5.1.7.6 DELAY SEND

Turn the DELAY knob to set the signal level to the global Delay send effect.

5.1.7.7 REVERB SEND

Turn the REVERB knob to set the signal level to the global REVERB send effect.

LINK: it links the send reverb and delay parameters of synth B to synth A.

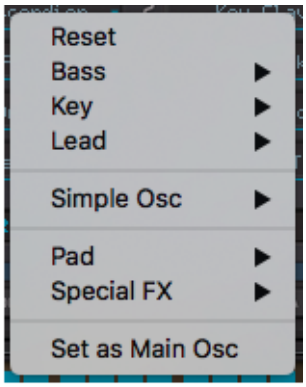
5.2 Oscillator Table Editor

Oscillator table is an exciting feature of Luna providing a unique way to create continuously changing sequences, melodies or bass lines. Wave sequencing is a method of polytimbral sound generation in which different PCM waveform data are played successively, resulting in continuously evolving sounds. Most conventional synthesizers require you to pre-select the type of oscillator or preset. The OSC table doesn't have this limit. It can work perfectly either with the internal step sequencer or you can use them with any player device of Reason.

Click the small grid symbol below the A / B switch to open the editor window. The tables contain up to 16 fields, and you can specify different Oscillators to each slots. While playing, Luna can switch among these Oscillators in real time.

As you can see, each slot has a small LED to display the playing notes. These LEDs can be in 3 states: off, on and half-glowing. The first two functions are quite obvious, the LED lights until the slot is active. The glowing state will be visible when the Osc Table is in “step” mode and the step sequencer's pattern is active. It shows the pattern of the Step sequencer in the active range. If the length of the Osc Table is greater than the Step Sequencer's length, the whole first cycle of the active range will be calculated.

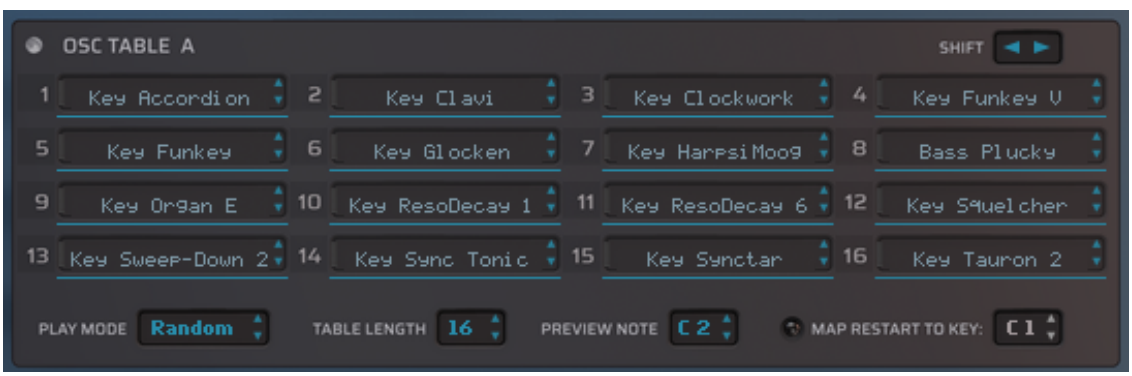
Parameters of the editor:



Oscillator slot 1-16: click on the display to bring up a drop-down list of the included oscillators / instruments, and then select the desired instrument from the list. The default setting is "- no change -".
In this case Luna will use the instrument that you set on the main OSC Selector.
The last option in the list, "Set as Main Osc" will set the current field's OSC as the main OSC of the current synth engine. It can be useful if you want to pick an OSC from the table. This function works even if the OSC Table is disabled.

Shift: is a left-right momentary button, it rotates the elements of the whole table left or right.
Special options: [Shift]-click moves the elements inside the table length range, [Alt]-click moves only those elements that are outside of the table length range.

Preview buttons: the serial numbers before the fields are not just numbers - they're also preview buttons. Click any of them, and you will hear the oscillator in question. It can be helpful when you build up a sequence and want to listen to the oscillators one by one.



Play Mode: there are three modes to choose from: step, velocity or random.

- step mode: the playback progresses step by step in the active range and then restarts.

- velocity mode: the elements of the Osc table will be selected according to the incoming note's velocity. The velocity scales depend on the Table Length, see the Appendix for the details.

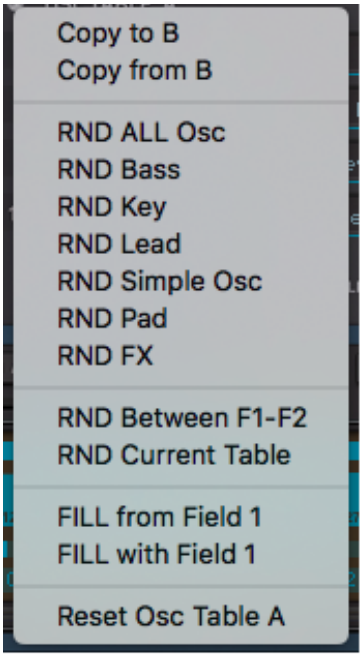
- random mode: this mode selects the elements randomly in the active range.

Table Length: specifies the active range of the Osc Table.

Preview Note: You can define which note to be played when you click on the preview buttons. When the Osc Table is in velocity mode, the notes will be played with the appropriate velocities.

Map Restart to Key: you can specify a key on the keyboard to restart the Osc Table. When enabled, the selected key works as a restart switch and it will be excluded from the playing keys. This function only works when OSC tables are in step mode. When you press the key, it restarts the counters of the OSC tables, and the next note will play from position 1. It can be helpful if you play a melody on the keyboard and don't want to go through the whole table.

ADVANCED EDITING OPTIONS



If you click on the small round symbol at the top left corner, a drop-down menu will open, giving you further editing options.
Copy to / Copy from: you can copy the content of the current active table to the other (B) table or vica versa. The tables contain the following data: osc table values of the 16 slots, play mode and oscillator table length.

RND: the randomizer provides several options on how to fill the active range with randomized oscillators.
You can select sound types (All, Bass, Key, etc.), or you can define a range with the “RND Between F1 -F2” option: select an oscillator in field 1 and another one in field 2, and they will define a range for randomization.
The “RND Current Table” function uses the current content of the table, and randomly shuffles its elements.

FILL: These functions fill the Oscillator fields starting from Field 1 up to table length or fill all fields with the content of the first field in the table length range.

Reset: you can reset the current table's content to the default values. This option is inactive when all table elements are in default position.

6. GLOBAL EFFECTS

The GLOBAL EFFECTS section is located under the Synth Programmer panel. These effects – as the name suggests - are global, which means they're applied to both Synth engines – see the "Structure of Luna" section for more information on how they're connected.

6.1 DELAY

Stereo delay effect with adjustable feedback routing and left/right panning option.

Delay parameters:
ON/OFF switch: you can enable or disable the effect
SYNC: sets the TIME parameter to seconds or quarternote beats
PING PONG: activate it to get the delay repeats alternating from the left and right channels. Note that this also doubles the delay tempo.
TIME: sets the delay time
DAMP: lowpass filter for progressive damping of each delay repeat
FEEDBACK: feedback form delay output to input to create multiple repeats

6.2 REVERB

Luna features two different reverb models: a Convolution reverb and an algorithmic reverb.

Convolution Reverb

Algorithmic Reverb

Common parameters:
ON/OFF switch: you can enable or disable the effect
CONV switch: you can switch between the two reverb model

Convolution Reverb parameters:
Convolution type: click on the display to bring up a drop-down list of the included impulses, and then select the desired impulses from the list.
PRE DELAY: initial delay before reverb
DECAY: applies a volume ramp (decreasing or increasing) to the impulse to adjust the perceived reverb time

Algorithmic Reverb parameters:
TIME: length of reverb tail.
PRE DELAY: initial delay before reverb
HI DAMP: progressive loss of high frequencies in reverb tail
LO DAMP: progressive loss of low frequencies in reverb tail

6.3 COMPRESSOR

Compressor effect for controlling dynamic range and shaping transients.

Compressor parameters:
ON/OFF switch: you can enable or bypass the effect
Threshold: audio level above which compression is applied.
Ratio: amount of gain reduction to apply
Attack: time it takes for gain reduction to increase when the signal level rises
Release: time it takes for gain reduction to increase when the signal level falls
Output: adjust the output volume to compensate for any loss in level due to compression

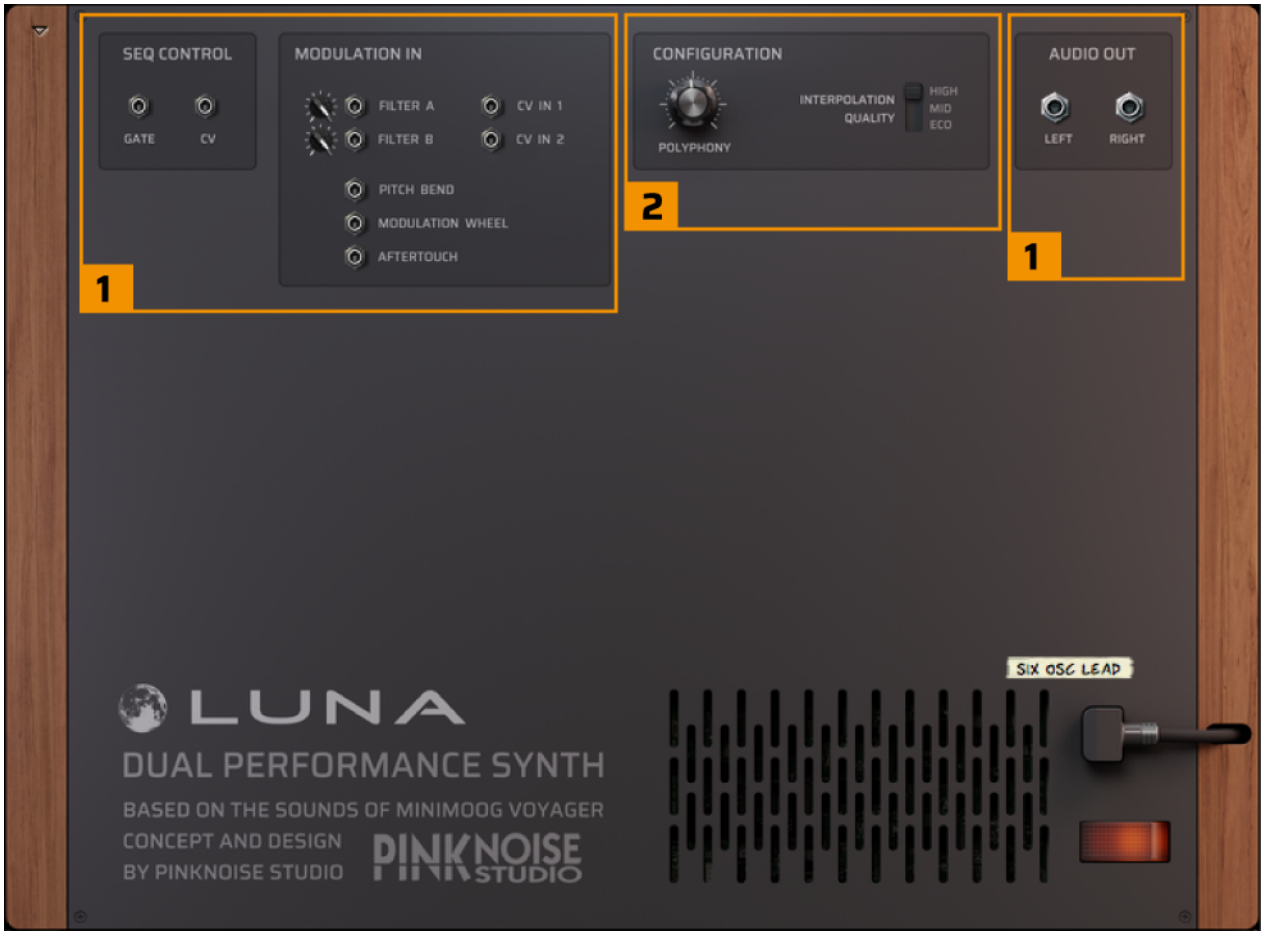
6.4 LIMITER

It's a safety limiter to keep levels in check, with a fixed 0 dBFS threshold. It has no parameter, you can enable or bypass it.

The **Master Volume** sets the main instrument's volume.

7. Back panel

The back panel contains two sections: connections and configuration.



7.1. Connections

SEQ CONTROL

The Sequencer Control CV and Gate inputs allow you to play Luna from an another CV/Gate device (eg. Matrix or RPG-8). The signal to the CV input controls the note pitch, while the signal to the Gate input delivers note on/off along with velocity.

MODULATION IN

These control voltage (CV) inputs can receive external CV messages from other Reason devices. CV IN 1 and CV IN 2 can be used in the Modulation Bus as a modulation source.

AUDIO OUT
Stereo output of Luna. When you create a new Luna device, these outputs are auto-routed to the first available Mix Channel in the Reason main mixer. If there is no Mix Channel available, a new one will be automatically created.

7.2. Configurations

These settings control the CPU usage of Luna.

Polyphony
Polyphony adjusts how many simultaneous notes can be played by setting the number of Luna voices. A synth voice is active when its amp envelope value is not zero.

Interpolation quality
Sample playback interpolation mode. Each mode has a different trade-off between CPU load and sound quality.

Mode High: higher quality and CPU load.

Mode Mid: Middle quality and moderate CPU load.

Mode Eco: Standard 4-point Lagrange interpolation. Sufficient quality for most sounds with low CPU load.

8. Credits

Andras Haasz: concept and UX design, programmer, sound recording & editing, sound & patch design

Voger Design: GUI

Additional patch design:

Eric Corminier (EC)

Loque (LQ)

Special thanks to: **Mihaly Botyanszki, Adam Davidovics, Denes Dobai, Samuel Haasz, Mats Karlöf, Paul Kellett, Lukas Lyrestam, Patrick Maerker, Roland Pauk, Marco Raaphorst**

9. Appendix

9.1 Oscillator List

0	Off	31	Key ResoDecay 3	62	Lead Sync Rude
1	Bass Bitter	32	Key ResoDecay 4	63	Lead Tony
2	Bass Citadel	33	Key ResoDecay 5	64	Osc Bruce
3	Bass Diet	34	Key ResoDecay 6	65	Osc PWM 3X
4	Bass Froggy	35	Key Squelcher	66	Osc PWM Reso
5	Bass Growl	36	Key Sweep-Down 1	67	Osc SAW Emerson
6	Bass HairBall	37	Key Sweep-Down 2	68	Osc Square
7	Bass Impact	38	Key Sweep-Up 1	69	Osc SuperSaw
8	Bass Jan Hammer	39	Key Sweep-Up 2	70	Osc Triangle
9	Bass Katy	40	Key Sync Tonic	71	Pad DiveBomb
10	Bass Moog Dry	41	Key Synctar	72	Pad LFO Sweep 1
11	Bass Old Smooth	42	Key Tauron 1	73	Pad LFO Sweep 2
12	Bass Plucky	43	Key Tauron 2	74	Pad Overcast Atm
13	Bass Raw Meat	44	Lead Back2 Roots	75	Pad Shimmer
14	Bass Reso Wet	45	Lead BigBoy	76	Pad String Class
15	Bass ResoSweep	46	Lead Brassy	77	Pad Sunrise
16	Bass Smooth Dbl	47	Lead Bright	78	Pad Sweep Fat 1
17	Bass Snappy Sub	48	Lead BurningDown	79	Pad Sweep Fat 2
18	Bass Square Open	49	Lead Daily	80	Pad Sweep Res1
19	Bass Voco	50	Lead Fifth	81	Pad Sweep Res2
20	Key Accordion	51	Lead Flute	82	SFX Bubbles
21	Key Clavi	52	Lead FrogMan	83	SFX Bubble-Up
22	Key Clockwork	53	Lead Harmonics	84	SFX Bullets
23	Key Funkey V	54	Lead HotPepper	85	SFX Filter Dmg
24	Key Funkey	55	Lead ManChild	86	SFX FM Madness
25	Key Glocken	56	Lead Mechanics	87	SFX MetalJunk
26	Key HarpsiMoog	57	Lead Model-D 1	88	SFX Noise Bubble
27	Key Organ Ambi	58	Lead Model-D 2	89	SFX Ring Mod
28	Key Organ E	59	Lead Saw Model-D	90	SFX Zap Drums
29	Key ResoDecay 1	60	Lead Soft	91	SFX Zapper FM
30	Key ResoDecay 2	61	Lead Sync Guitar	92	SFX White Noise

9.2 Velocity Scales of the Osc Table