Oenkenstein Audio

RUMBLE K II BUILDER

Operation Manual

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Content

1   Introduction

Rumble K II Builder is a digital wavetable synthesizer and is an emulation of an additive wavetable Kawai K1 digital synthesizer from 1985. This Rack Extension mimics the operation system and the naming conventions on a Kawai.

Included are 256 waveforms, 96 single and multi instrument patches from the Kawai K1 ROM pack A and 120 signature patches, made by 4 skilled sound designers.

1.1   Description

This version of the Rumble K series comes with Sine, Saw and Square oscillators, a Shaper, an Amp Envelope section with DAHDSR controls, Vibrato, Auto Bend, Pitch Wheel, Low Pass Filter and Frequency panels, 7 effects devices and 7 modulation matrixes with in total 13 slots.

This device is for everyone who wants to:
- Have a collection of the original instrument patches of the Kawai K1.
- Transfer sounds from the Kawai K1 and build patches for use in Reason.
- Have a lofi 8 bit character synthesizer as an addition and counterpart of synthesizers with very clean oscillators.
- Make lofi sounds or instruments for use in genres like hip hop, but also wants to use emulations of classic sounds like the Roland TB 303 bass synthesizer, the raving Roland Alpha Juno Hoover instrument and the Roland JP 8000 trance Super Saw sound.

Rumble K II Builder uses additive wavetable synthesis to generate sounds. The additive synthesis is based on a Wave oscillator using waveforms, just one of the in total 4 oscillators that can be introduced in the sound at various times, levels and durations. The sonic results of additive synthesis can vary dramatically; from standard analog type of synthesizer sounds, via emulations of existing instruments, to extremely complex and animated timbres. The other 3 oscillators are Sine, Saw and Square wave based oscillators and are mixed with the Wave oscillator. The Sine Oscillator features Amplitude Modulation (AM) and modulates the Wave oscillator.

The Rumble K series derives its name from the legendary guitar 101 hero and inventor of the power chord: Link Wray, who used to poke a pencil in an amplifier speaker to get a gritty, distorted sound.

1.2   Specifications
- Minimal requirements for the Rack Extension: Duo Core based computer with at least 2 GHz processor, 4 GB of RAM and Propellerhead Reason 7.1 or higher running on Windows or Mac OSX.
- Type of device: Digital synthesizer.
- Method of synthesis: Additive 8 bit wavetable synthesis combined with extra analogue style sine, saw / square wave oscillators and amplitude modulation.
- Amount of oscillators: 4. Wave oscillator, Sine oscillator, Saw and Square oscillators.
- Effects:
  1. A Shaper on the oscillator's output.
  2. Bus 1: Lofi and Filter.
  3. Bus 2: Delay, Rotary, Phaser and Chorus.
  4. Bus 3: Reverb and Limiter.
- Amount of modulation matrixes: 7 with in total 13 slots.
  1. Sine oscillator modulation (1 slot).
  2. Saw / Square oscillator modulation (2 slots).
  3. Amp Envelope modulation (5 slots).
  4. Auto Bend modulation (2 slots).
  5. Filter modulation (1 slot).
  6. Glide modulation (1 slot).
  7. KS Curve 1 modulation (1 slot).

Rumble K II Builder front panel:

Rumble K II Builder back panel:
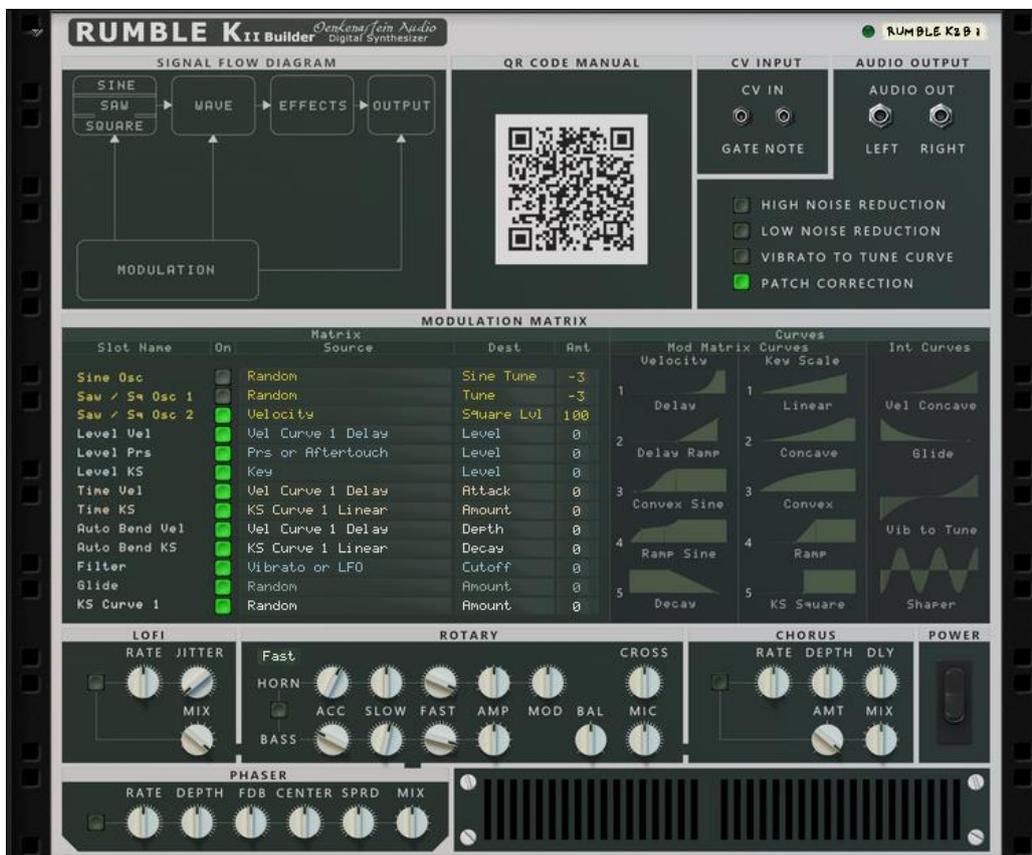
2 Front of the device

2.1 Panels overview

- **Patch Browser.**
- **Logo.**
- **MIDI Note indicator**.
- **Device name.**
- **Oscillators** Panel (1) with:
  - 4 oscillator types:
    - Wave oscillator.
    - Sine oscillator with Amplitude (AM) or Ring Modulation.
    - Saw oscillator.
    - Square oscillator.
  - Shaper to change the waveforms of all the 4 oscillators. Capable of producing distortion and adding harmonics.
- **Amp Envelope** panel (2) with:
  - Envelope Amount.
  - DAHDSR or Delay, Attack, Hold, Decay, Sustain and Release.
  - Release Timer. A source in the modulation matrix to trigger events on note or key release.
  - Amp Envelope Modulation matrix.
- **Vibrato / LFO** panel (4), default controlled by the Modulation Wheel with:
  - Depth.
  - Speed.

- o Shape.
- o PRS or Aftertouch controls.
- **KS Curve 1 Modulation** panel (5) with:
  - o Source.
  - o Destination.
  - o Amount.
- **Auto Bend** and **Aftertouch** panel (6) with:
  - o Depth.
  - o Time.
  - o Velocity and Keyboard Scaling sensitivity.
  - o Aftertouch or Pressure (PRS).
  - o Auto Bend Modulation matrix.
- **Pitch Wheel** panel (7) to change behaviour of the Pitch Bend Wheel.
- **Low Pass Filter** panel (8) with:
  - o Low Pass Filter section to set the Cutoff, Resonance or Q.
  - o Low Pass Filter Envelope with AHDSR controls.
  - o Filter Modulation matrix.
- **Frequency** panel (9) to change the tuning of the oscillators with:
  - o Keyboard Scaling.
  - o Coarse.
  - o Octave.

The output of the oscillators will then pass the Effects panels (10, 11, 12 and 13). There are also effects on the back of the device.

There are 4 **Effects** Panels on the front of the device.

- **Rotary** panel (10) with:
  - o Horn and Bass section.
  - o Crossover, Balance and Mic angle.
- **Delay** panel (11).
- **Filter** panel (12).
- **Reverb** panel (13).

The output of the oscillators, modulation and all the effects will then pass the Output panel.

- **Output** panel (3) with:
  - o Panning.
  - o Key Panning.
  - o Limiter.
  - o High Frequency Correction.
  - o Poly Mode.
  - o Sustain Pedal Mode.
  - o Glide (Portamento).
  - o Glide Time.
  - o Glide Modulation matrix.
  - o And finally the Master Volume.

3   Panels

Rumble K II Builder is divided in panels, each with one or more sections. A section uses and displays a set of various automatable controllers like rotating knobs, display's, pop up menus, On / Off buttons and faders. Some panels have a modulation matrix. The panels are connected by a green rectangle, indicating the signal flow between the panels. The white line shows the signal flow within each panel.

3.1   Panel 1: Oscillators panel

The Oscillators panel has 4 sections. The output of the Wave oscillator section (1), the Sine oscillator section (2) and the Saw / Square oscillators section (3) are routed into the Shaper (4). The output of the Oscillators panel then goes to both the Amp Envelope panel and the Vibrato / LFO panel.

3.1.1   Section 1: Wave oscillator

To construct your own sounds, Rumble K II Builder provides a waveform bank as a starting point for the Wave oscillator, based on the basic waveforms from a Kawai K1 digital synthesizer from 1985. The bank holds 256 basic 8 bit waveforms. The waveforms can be selected by clicking on the Sample Select display, which is a pop up menu.

- **1: Sample Select** (Sample Select): Determines the waveform (Scale: 001 / 256. Default: 001 Sine C4).

  Although you can scroll through the list with a mouse, to quickly navigate through the long list of waveforms, also use the keyboard.

  For example: If you want to choose waveform number 156: Press '1' on the keyboard and the waveform display pop up menu will select waveform number 100 and then use the (up and) down arrow(s) on the keyboard to scroll down to waveform number 156.

  Another example: If you want to select waveform number 256. Press '0' on the keyboard and the pop up menu will select waveform number 001. Now press the arrow up on the keyboard once to select waveform 256.
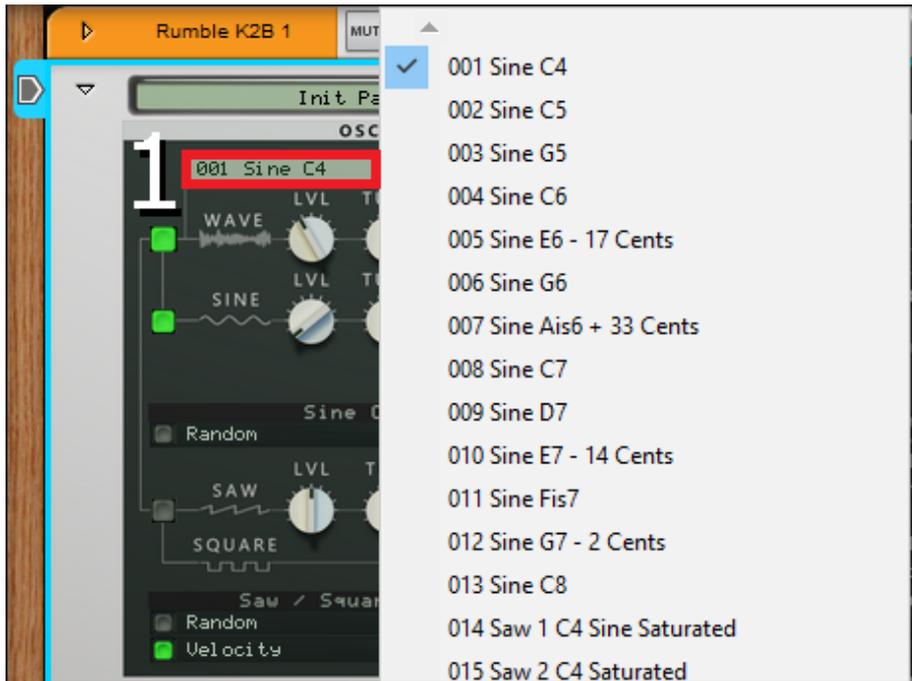
* **Waveforms without mentioning a note like Dis (or D#) behind their name are all tuned C3. Some waveform names like '012 Sine G7 -2 Cents' have a number (-2) behind their name followed by the word 'Cents'. The number indicates the Fine Tune correction needed measured in Cents (-2) to make the Waveform sound in tune with the Waveforms names note (G7).**

* **Waveforms marked with an * behind the name are one shot waveforms. All the others are looped waveforms.**

- **2: On / Off - Wave Osc On / Off** (Wave Osc On Off): Determines whether the Wave oscillator is added to the signal chain (Scale: On / Off. Default: On).
- **3: Lvl - Wave Osc Volume** (Wave Osc Volume): Determines the level or volume of the Wave oscillator (Scale: -∞ / +12 dB. Default: -13,2 dB,).
- **4: Tune - Wave Osc Tune** (Wave Osc Tune): Determines the tuning or pitch of the Wave oscillator in semitones (Scale: -36 / +36. Default: 0).
- **5: Fine - Fine Tune** (Fine Tune). Provides precise pitch adjustment (Scale: -50 / +50 cents. Default: 0).
- **6: Key Tr - Key Track** (Key Track). Determines the keyboard scaling. When set to a value of 10, each key produces a note of a different pitch. When set to a value of 0 all keys produce the same note. Use a value of -10 to 'flip' the keyboard scaling (Scale: -10 / +10. Default: +10).

3.1.2   Section 2: Sine oscillator

The Sine oscillator can be used to reinforce the fundamental or sub-octave of a voice.

- **1: On / Off - Sine Osc On / Off** (Sine Osc On Off): Determines whether the Sine oscillator is added to the signal chain (Scale: On / Off. Default: On).
- **2: Lvl - Sine Osc Level** (Sine Osc Level): Determines the Sine oscillator's volume (Scale: 0 % / 100 %. Default: 0 %).
- **3: Tune** in Semitones **- Sine Osc Tune Semitones** (Sine Osc Tune Semitones): Determines the Sine oscillator's tuning or pitch in semitones (Scale: -36 / +36. Default: 0 or C4).
  You can use the Sine oscillator as a source for Amplitude (AM) or Ring Modulation.

- **4: Key Tr - Sine Osc Key Track On / Off** (Sine Osc Key Track On Off): Determines whether the Sine oscillator's tuning should follow the keyboard (Scale: On / Off. Default: On).
- **5: AM - Sine Osc AM On / Off** (Sine Osc AM On Off): Determines whether the Sine oscillator will perform Amplitude Modulation (or Ring Modulation) with the Waveform oscillator (Scale: On / Off. Default: Off). For example: Turn the Sine oscillator (1) and the AM button (5) on. The Wave oscillator now acts as the carrier and gets modulated by the Sine oscillator. When the modulator is of subsonic frequency, the result is a slow or rapid variation in the volume level of the carrier signal which is referred to as tremolo. The frequency can be changed with the Sine Osc Tune Semitones knob (3), which follows a harmonic scale in semitones and the effect becomes more drastic using the Sine Osc Tune knob (6), which has a broader tuning range and follows a disharmonic scale in Hz.
- **6: Tune** in Hz **- Sine Osc Tune** (Sine Osc Tune): Determines the Sine oscillator's tuning or pitch in Hz. (Scale: 2,00 Hz / 20,00 kHz. Default: 263,7 Hz or C4 +3 Cents).

The Sine oscillator section has a modulation matrix. The modulation matrix slot has an On / Off button (**7**), a source pop up menu (**8**), a destination pop up menu (**9**) and an amount display (**10**) in which you set the value with the mouse.

- **Sine Osc Mod On / Off** (Sine Osc Mod On Off): Determines whether the Sine oscillator modulation is added to the signal chain (Scale: On / Off. Default: Off).
- **Sine Osc Mod Source** (Sine Osc Mod Source): Determines the source for the Sine oscillator modulation (24 sources. Default: Random).
- **Sine Osc Mod Destination** (Sine Osc Mod Destination): Determines the destination for the Sine oscillator modulation (2 destinations: Sine Tune and Sine Lvl. Default: Sine Tune).
- **Sine Osc Mod Amount** (Sine Osc Mod Amount): Determines the amount of modulation (Scale: -100 / 100. Default: -3).

An example:

Although the Sine Osc Level (2) is set to 0, the settings in the Sine Osc Modulation will produce sound based on velocity (8) when the destination is set to Sine Lvl (9) and the amount is set to 100 (10).

3.1.3   Section 3: Saw / Square oscillators

The Saw / Square oscillators module adds up to 7 detuned saw waves and square wave oscillators to the Wave oscillator's playback, typically used for creating unison. Unison is created by two or more oscillators that are slightly detuned in correspondence to each other, which makes the sound fatter. Modern synthesizers have a special oscillator type called "super saw" or "hyper saw.

- **1: On / Off - Saw Osc On / Off** (Saw Osc On Off): Determines whether the Saw and Square oscillators are added to the signal chain (Scale: On / Off. Default: On).
  Changing the Saw oscillators Tune, Oscs and Detune, will affect the Square oscillator's Tune, Oscs and Detune as well.
- **2: Lvl - Saw Osc Level** (Saw Osc Level): Determines the Saw oscillator's volume (Scale: 0 % / 100 %. Default: 50 %).

- **3: Tune - Saw / Square Osc Tune Semitones** (Saw Square Osc Tune Semitones): Determines the Saw / Square oscillator's tuning or pitch in semitones (Scale: -36 / +36. Default: 0 or C4).
- **4: Oscs - Saw / Square Oscillator Amount** (Saw Square Oscillator Amount): Determines the number of the saw and square waves (Scale: 1 / 7. Default: 4).
- **5: Detune - Saw / Square Osc Detune** (Saw Square Osc Detune): Determines the amount of detuning in Cents between the saw and square waves (Scale: 0 / 100. Default: 0).
- **6: Lvl - Square Osc Level** (Square Osc Level): Determines the Square oscillator's volume (Scale: 0 % / 100 %. Default: 50 %).

The Saw / Square oscillators section has a modulation matrix with 2 slots. Each modulation matrix slot has an On / Off button (**7**), a source pop up menu (**8**), a destination pop up menu (**9**) and an amount display (**10**) in which you set the value with the mouse.

- **Saw / Square Osc Mod On / Off 1** (Saw Square Osc Mod On Off 1): Determines whether the Saw / Square oscillators modulation is added to the signal chain (Scale: On / Off. Default: Off).
- **Saw / Square Osc Mod Source 1** (Saw Square Osc Mod Source 1): Determines the source for the Saw / Square oscillators modulation (24 sources. Default: Random).
- **Saw / Square Osc Mod Destination 1** (Saw Square Osc Mod Destination 1): Determines the destination for the Saw / Square oscillators modulation (4 destinations: Tune, Detune. Saw Lvl and Square Lvl. Default: Tune).
- **Saw / Square Osc Mod Amount 1** (Saw Square Osc Mod Amount 1): Determines the amount of modulation of slot 1 (Scale: -100 / 100. Default: -3).

- **Saw / Square Osc Mod On / Off 2** (Saw Square Osc Mod On Off 2): Determines whether the Saw / Square oscillators modulation is added to the signal chain (Scale: On / Off. Default: On).
- **Saw / Square Osc Mod Source 2** (Saw Square Osc Mod Source 2): Determines the source for the Saw / Square oscillators modulation (24 sources. Default: Velocity).
- **Saw / Square Osc Mod Destination 2** (Saw Square Osc Mod Destination 2): Determines the destination for the Saw / Square oscillators modulation (4 destinations: Tune, Detune. Saw Lvl and Square Lvl. Default: Square Lvl).
- **Saw / Square Osc Mod Amount 2** (Saw Square Osc Mod Amount 2): Determines the amount of modulation of slot 2 (Scale: -100 / 100. Default: 100).

3.1.4   Section 4: Shaper

This is a very powerful sound shaping tool, providing fully customizable wave shaping, capable of producing distortion and harmonics. The Shaper in Rumble K II Builder has a sine curve:

- **1: Shaper - Shaper Drive** (Shaper Drive): Determines the amount of wave shaping. More drive, more wave shaping / distortion. The Shaper has a heavy output if you turn it On or Off, as no automatic gain reduction is applied. Set or decrease the Wave Osc Level or volume by hand, when the Shaper Drive is increased. To avoid a sudden increase in volume when the Shaper is turned On, the Shaper Drive is set to -17,0 dB as default (Scale: -20,0 dB / +40 dB. Default: -17,0 dB).
- **2: On / Off - Shaper On / Off** (Shaper On Off): Determines whether the Shaper is added to the signal chain (Scale: On / Off. Default: Off).

3.2 Panel 2: Amp Envelope panel
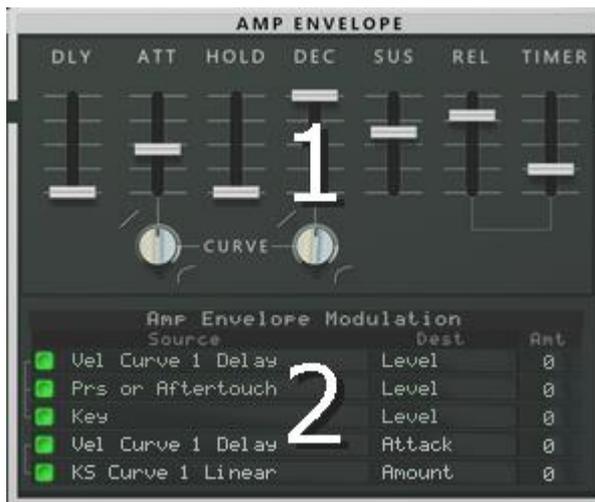
The Amp Envelope panel has 2 sections: The first section to set the envelope's Delay, Attack, Hold, Decay, Sustain and Release (1). The second section is the Amp Envelope Modulation matrix (2).

3.2.1 Section 1: Faders and curves
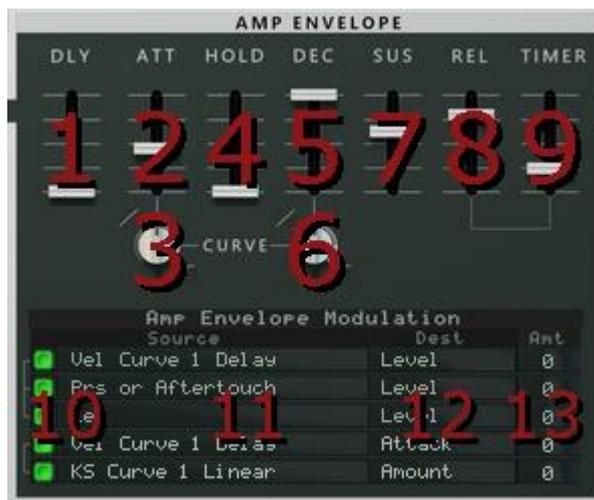
- **1: Dly - Envelope Delay Time** (Envelope Delay Time): Determines the amount of delay in seconds between when a note is played and when the effect of the Amp Envelope starts. The sound will start unmodulated, and the Amp Envelope will kick in after you have kept the key(s) pressed down for a while (Scale: 0 seconds / 12 seconds. Default: 0 seconds).
- **2: Att - Envelope Attack** (Envelope Attack): Determines the time that a sound takes to peak. When you press a key on your keyboard, the envelope is triggered. The attack parameter then controls how long it should take before the controlled parameter (pitch or filter) reaches the maximum value, when you press a key. By setting attack to a value of 0, the destination parameter would reach the maximum value instantly. By raising the Envelope Attack parameter, the value will instead slowly slide to its maximum (Scale: 0 seconds / 16 seconds. Default: 0 seconds). Values in seconds (s) shown in the tooltip are based on the Envelope Attack Curve set to 0 %.
- **3: Curve - Envelope Attack Curve** (Envelope Attack Curve): Determines the curve for the Envelope Attack from a slow reach to the final value, following a linear curve, to a fast reach of the final value, following a logarithmic curve. (Scale: -100 % / +100 %. Default: 0 %). Typically 75 - 90% for logarithmic curves.
- **4: Hold - Envelope Hold** (Envelope Hold): Determines how long the controlled parameter should stay at its maximum value before starting to decrease again. This can be used in combination with the Envelope Attack and Envelope Decay parameters to make a value reach

its maximum level, stay there for a while (Envelope Hold) and then start dropping gradually down to the Envelope Sustain level (Scale: 0 seconds / 16 seconds. Default: 0 seconds).

- **5: Dec - Envelope Decay** (Envelope Decay): Determines the time that the sound takes to fall from the peak to the Envelope Sustain level. After the maximum value for a destination has been reached and the Envelope Hold time has expired, the controlled parameter will start to gradually drop down to the Envelope Sustain level. How long it should take before it reaches the Envelope Sustain level is controlled with the Envelope Decay parameter. If the Envelope Decay is set to 0, the value will immediately drop down to the Envelope Sustain level (Scale: 0 seconds / 16 seconds. Default: 16 seconds). Values in seconds (s) shown in the tooltip are based on the Envelope Decay Curve set to -50 %.
- **6: Curve - Envelope Decay Curve** (Envelope Decay Curve): Determines the curve for the Envelope Decay from a slow reach to the final, following a linear curve, to a fast reach of the final value, following a logarithmic curve. (Scale: -100 % / +100 %. Default: -50 %). Typically 75 - 90% for logarithmic curves.
- **7: Sus - Envelope Sustain** (Envelope Sustain): Determines the volume (relative to the peak) when the key is held down. The Envelope Sustain parameter determines the value the Amp Envelope should drop back to after the Envelope Decay. If you set Envelope Sustain to full level however, the Envelope Decay setting doesn't matter since the value will never decrease. A combination of Envelope Decay and Envelope Sustain can be used for creating envelopes that rise up to the maximum value, then gradually decrease to, and stay on a level somewhere in-between zero and maximum (Scale: -∞ / 0 dB. Default: -∞ dB).
- **8: Rel - Envelope Release** (Envelope Release): Determines the time the sound takes to die out after the key is released. This works just like the Envelope Decay parameter, with the exception that it determines the time it takes for the value to fall back to zero after the key is released (Scale: 0 seconds / 16 seconds. Default: 400 milliseconds or 50).
- **9: Timer - Envelope Release Timer** (Envelope Release Timer): Used as a modulation source for attenuation of release-triggered voices depending on how long the note was held (Scale: 0 seconds / 100 seconds. Default: 0 seconds).

Example of the Envelope Release Timer as a modulation source in the Sine Osc Modulation matrix:

The result: The Sine Oscillator will be played as a note is released.

3.2.2 Section 2: Amp Envelope Modulation matrix

The Amp Envelope section has a modulation matrix with 5 slots. Each modulation matrix slot has an On / Off button (**10**), a source pop up menu (**11**), a destination pop up menu (**12**) and an amount

display (**13**) in which you set the value with the mouse. The first 3 slots affects Level, Pan and Tuning, the last 2 slots affects time based events like Attack, Hold, Decay and Sustain.

Rumble K II Builder has 10 curves as a source for modulation. 5 Velocity (Vel) curves and 5 Keyboard Scaling (KS) curves. They mimic most of the curves used on the Kawai K1 digital synthesizer to modulate the Amp Envelope and the Auto Bend. The shapes of the curves are shown on the back panel of Rumble K II Builder.

- **Level Mod Vel On / Off** (Level Mod Vel On Off): Determines whether the Level modulation is added to the signal chain (Scale: On / Off. Default: On).
- **Level Mod Vel Source** (Level Mod Vel Source): Determines the source for the Amp Envelope modulation (24 sources. Default: Vel Curve 1 Delay).
- **Level Mod Vel Destination** (Level Mod Vel Destination): Determines the destination for the Amp Envelope modulation (3 destinations: Level, Pan and Tune. Default: Level).
- **Level Mod Vel Amount** (Level Mod Vel Amount): Determines the amount of modulation of slot 1 (Scale: -100 / 100. Default: 0).

- **Level Mod Prs On / Off** (Level Mod Prs On Off): Determines whether the Prs or Aftertouch modulation is added to the signal chain (Scale: On / Off. Default: On).
- **Level Mod Prs Source** (Level Mod Prs Source): Determines the source for the Amp Envelope modulation (24 sources. Default: Prs or Aftertouch).
- **Level Mod Prs Destination** (Level Mod Prs Destination): Determines the destination for the Amp Envelope modulation (3 destinations: Level, Pan and Tune. Default: Level).
- **Level Mod Prs Amount** (Level Mod Prs Amount): Determines the amount of modulation of slot 2 (Scale: -100 / 100. Default: 0).

- **Level Mod KS On / Off** (Level Mod KS On Off): Determines whether the KS or keyboard scaling modulation is added to the signal chain (Scale: On / Off. Default: On).
- **Level Mod KS Source** (Level Mod KS Source): Determines the source for the Amp Envelope modulation (24 sources. Default: Key).
- **Level Mod KS Destination** (Level Mod KS Destination): Determines the destination for the Amp Envelope modulation (3 destinations: Level, Pan and Tune. Default: Level).
- **Level Mod KS Amount** (Level Mod KS Amount): Determines the amount of modulation of slot 3 (Scale: -100 / 100. Default: 0).

- **Time Mod Vel Attack On / Off** (Time Mod Vel Attack On Off): Determines whether curve modulation is added to the signal chain (Scale: On / Off. Default: On).
- **Time Mod Vel Attack Source** (Time Mod Vel Attack Source): Determines the source for the Amp Envelope modulation (24 sources. Default: Vel Curve 1 Delay).
- **Time Mod Vel Attack Destination** (Time Mod Vel Attack Destination): Determines the destination for the Amp Envelope modulation (6 destinations: Amount, Rate, Attack, Hold, Decay and Sustain. Default: Attack).
- **Time Mod Vel Attack Amount** (Time Mod Vel Attack Amount): Determines the amount of modulation of slot 4 (Scale: 0 / 100. Default: 0).

- **Time Mod KS On / Off** (Time Mod KS On Off): Determines whether KS or keyboard scaling modulation is added to the signal chain (Scale: On / Off. Default: On).
- **Time Mod KS Source** (Time Mod KS Source): Determines the source for the Amp Envelope modulation (24 sources. Default: KS Curve 1 Linear).
- **Time Mod KS Destination** (Time Mod KS Destination): Determines the destination for the Amp Envelope modulation (6 destinations: Amount, Rate, Attack, Hold, Decay and Sustain. Default: Amount).
- **Time Mod KS Amount** (Time Mod KS Amount): Determines the amount of modulation of slot 5 (Scale: -100 / 100. Default: 0).

3.3 Panel 3: Output panel

3.3.1 Section 1: Output

- **1: Pan - Pan** (Pan): Determines the panning of the output (Scale: -50 Left / +50 Right. Default: 0).
- **2: Key** - **Key Pan On / Off** (Key Pan On Off): Determines whether the panning should follow the keyboard scaling. When On, notes played in the lower range will output to the left channel. Notes in the higher range will output to the right channel (Scale: On / Off. Default: Off). Please note: In the Output section, enabling the Key Pan yields a perfect L/R balance on Bb2 (A#2) instead of C3, or D#3 (which is middle note of the MIDI range). To get a more balanced panning across the keyboard, it is possible to correct the amount of notes in the Amp Envelope Modulation matrix: In one of the 3 Level slots (Level Mod Vel, Level Mod Prs and Level Mod KS), set Key as source, set Pan as destination and a correction value as Amount.

- **3: Vol - Volume** (Volume): Determines the master volume (Scale: -∞ / +12,0 dB. Default: -6,1 dB).
- **4: Poly - Poly Mode On / Off** (Poly Mode On Off): Select On if you want to play Rumble K II Builder polyphonically. The maximum number of voices is 8 and the voice stealing is set to the oldest note. Select Off, if you want to play Rumble K II Builder in monophonic mode and retrigger the envelopes as soon as you play a new note (Scale: On / Off. Default: On).
- **5: HF - HF Correction On / Off** (HF Correction On Off): This corrects for high frequency loss due to sample playback interpolation. When turned On, very high frequencies are added to the signal. (Scale: On / Off. Default: On).
- **6: Lim** - **Limiter On / Off** (Limiter On Off): Turns the Limiter On or Off. Limiting is a type of dynamic range compression and is used to keep voice levels in check - e.g. when very high filter resonance is used. A limiter is a circuit that allows signals below a specified input power or level to pass unaffected while attenuating (lowering) the peaks of stronger signals that exceed this threshold. A volume drop will occur when the limiter is turned On. (Scale: On / Off. Default: Off).

- **7: Mode - Limiter Mode** (Limiter Mode): Determines the Mode of the limiter (Scale: Soft, Hard and Clip. Default: Soft). In Soft Mode the signal will be "soft-clipped" which adds a pleasant, warm sounding distortion to the signal.
- **8: Rel** - **Limiter Release Time** (Limiter Release Time): Determines how long it takes before the limiter lets the sound through unaffected. (Scale: 3, 4, 5, 6, 8 and 10 Seconds. Default: 3 Seconds).
- **9: Sus Pedal - Sustain Pedal Mode** (Sustain Pedal Mode): Switches the Sustain Pedal Mode: Off, On, Latch (sustain notes until the next note is played) or Damper. In Damper mode, sustained voices are not released while either the sustain pedal or the key that triggered the voice are held. In the normal On mode, sustained voices are released when the sustain pedal is lifted regardless of whether the key that triggered the voice has been held again (Scale: Off / On / Latch / Damper. Default: On).

3.3.2   Section 2: Output Glide and Glide Modulation matrix

- **10: Glide - Glide Mode** (Glide Mode): Glide or Portamento makes note pitch glide from previous notes to new ones, at the time set with the Glide Time knob. Switches pitch glide Off, On or Auto (only glides if a key is already held). Default is Off.
  - When Off there will be no glide.
  - When On or Auto the pitch will glide between consecutive notes.
- **11: Time - Glide Time** (Glide Time): The time it takes to glide from one note to the next (Scale: 0 / 100. Default: 0). When Glide Time is set to 0 the glide is turned off and thus modulation in the modulation matrix has no effect as well. Glide or its modulation will occur when the Glide Time value is set to 1 or higher (Zero = No glide, 1 = Start point of the Glide Time).

Glide has a modulation matrix with 1 slot. The modulation matrix slot has an On / Off button (**12**), a source pop up menu (**13**), a destination pop up menu (**14**) and an amount display (**15**) in which you set the value with the mouse.

- **Glide Mod On / Off** (Glide Mod On Off): Determines whether the Glide modulation is added to the signal chain (Scale: On / Off. Default: On).
- **Glide Mod Source** (Glide Mod Source): Determines the source for the Glide modulation (24 sources. Default: Random).
- **Glide Mod Destination** (Glide Mod Destination): Determines the destination for the Glide modulation (6 destinations: Amount, Rate, Level 1, Time 1, Level 2 and Time 2. Default: Amount).
- **Glide Mod Amount** (Glide Mod Amount): Determines the amount of modulation (Scale: 0 / 100. Default: 0).

An example: Set the Glide Mode to On and the Glide Time to 12. In the Glide Modulation matrix set Glide Mod On / Off to On, Glide Mod Source to Vel Curve 1 Delay, the Glide Mod Destination to Amount and the Glide Mod Amount to 100.

The result is a fade in of the Glide each time a note is triggered.

3.4   Panel 4: Vibrato / LFO panel

Vibrato or Low Frequency Oscillator (LFO).

3.4.1   Section 1: Vibrato

- **1: On /Off - Vibrato On / Off** (Vibrato On Off): Determines whether the vibrato is added to the signal chain (Scale: On / Off. Default: On).
- **2: Wheel - Vibrato Wheel On / Off** (Vibrato Wheel On Off): Determines whether the Mod(ulation) Wheel affects the vibrato (Scale: On / Off. Default: On). When you toggle the Vibrato Wheel On and Off, you will notice, that it enables or disables the Modulation Wheel. When turned Off, changing the Modulation Wheel has no effect to the pitch or speed.
- **3: Depth - Vibrato Depth** (Vibrato Depth): Determines the amount by which the vibrato effect alters the pitch above and below the note pitch (Scale: -50 / +50. Default: 50).
  The Vibrato Depth affects the pitch, even though Depth is at 0 and no other modulation is applied to the pitch (or the vibrato). In fact, when Wheel (Vibrato Wheel On Off) is Off, Depth has no effect and the vibrato is always on. You would expect a setting of 0 to modulate the pitch by 0 cents (so no modulation).
  The Vibrato Depth knob acts as a switch to swap the function of the Modulation Wheel. The Vibrato Depth knob is bipolar (-50 to +50). When Vibrato On / Off is set to On: Vibrato Depth with value of +50 will increase the amount of vibrato when the Modulation Wheel is turned upward or increased (Mod Wheel set to 0 = no Vibrato, Mod Wheel set to max = full vibrato). However, a Vibrato Depth with value of -50 will decrease the amount of vibrato when the Modulation Wheel is turned upward or increased (Mod Wheel set to 0 = full Vibrato, Mod Wheel set to max = no vibrato). Changing the amount of Vibrato Depth scales the swap function of the Modulation Wheel. A value of 0 disables the swap and the result is an 'always on Vibrato'.
- **4: Shape - Vibrato Shape** (Vibrato Shape): Determines the waveform for the vibrato effect (Scale: Sine, Tri, Sqr, Saw, Rnd and Drift. Default: Sqr).
  Please note: When the tempo of the song is set higher than 301 BPM in Reason and the Vibrato Shape is set to Rnd or Drift, Rumble K II Builder disables the inner working of the Vibrato Shape's random and drift function.
- **5: Speed - Vibrato Speed** (Vibrato Speed): Determines the vibrato rate in Hz (Scale: 0,01 Hz / 15,85 Hz. Default: 1,00 Hz).
- **6: Prs - Vibrato Prs to Depth** (Vibrato Prs to Depth): Pressure or Aftertouch to Vibrato Depth, links the amount of vibrato to Aftertouch, the amount of pressure on the key (Scale: -50 / +50. Default: 0).
- **7: Dest - Vibrato Wheel Destination** (Vibrato Wheel Destination): Determines whether Prs or Aftertouch (the pressure on the key) controls vibrato depth or vibrato speed (Scale: Depth and Speed. Default: Depth).

3.5   Panel 5: KS Curve 1 Modulation panel

One of the 24 modulation matrix sources is a curve called KS Curve 1 Linear. The purpose of the KS Curve 1 Modulation panel is to change the shape of KS Curve 1 Linear, which will not be linear anymore after the change and use the new shaped curve as a source for the modulation matrixes. It works similar as an Amp Envelope as a source for modulation and then changing the shape of the envelope using the ADSR faders. But instead of ADSR faders, the KS Curve 1 modulation has 5 points set in time and level.

An unaltered KS Curve 1 looks like this:

Point 4: Pos 0.502   Len 0.203   Level 0.68
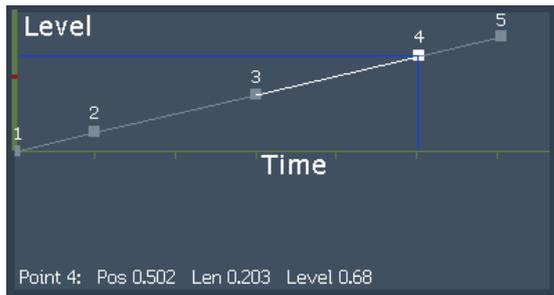
This shape of the curve can be changed by moving the position of the points in the KS Curve 1 Modulation matrix (see the example below).

3.5.1   Section 1: KS Curve 1 Modulation matrix

KS Curve 1 Linear has a modulation matrix with 1 slot. The modulation matrix slot has an On / Off button (**1**), a source pop up menu (**2**), a destination pop up menu (**3**) and an amount display (**4**) in which you set the value with the mouse.

- **KS Curve 1 Mod On / Off** (KS Curve 1 Mod On Off): Determines whether the KS Curve 1 modulation is added to the signal chain (Scale: On / Off. Default: On).
- **KS Curve 1 Mod Source** (KS Curve 1 Mod Source): Determines the source for the KS Curve 1 modulation (24 sources. Default: Random).
- **KS Curve 1 Mod Destination** (**KS Curve 1** Mod Destination): Determines the destination for the KS Curve 1 modulation (10 destinations: Amount, Rate, Level 1 to 4 and Time 1 to 4. Default: Amount).
- **KS Curve 1 Mod Amount** (KS Curve 1 Mod Amount): Determines the amount of modulation (Scale: 0 / 100. Default: 0).

An example:

Setting Random as source, Level 2 as destination and the amount to 100 will result in a changed KS Curve 1 as the Level of Point 2 is fully randomized at each note trigger:

You can use the changed KS 1 Curve as a source in all the modulation matrixes.

3.6 Panel 6: Auto Bend and Aftertouch panel

Auto Bend bends the pitch of a note.

The Auto Bend panel has 3 sections. In the first section you set the depth and duration of the pitch bend (1). The second section is the Auto Bend Modulation matrix (2). In the third section Aftertouch, you link level, panning or tuning to the pressure on the key (3).

3.6.1 Section 1: Auto Bend

- **1: On / Off - Auto Bend On / Off** (Auto Bend On Off): Determines whether the auto(matic) bend is added to the signal chain (Scale: On / Off. Default: Off).
- **2: Depth - Auto Bend Depth** (Auto Bend Depth): Determines how much the pitch alters as each key is struck (Scale: -50 / +50. Default: -50).
- **3: Vel - Auto Bend Vel To Depth** (Auto Bend Vel To Depth): Uses the chosen Vel(ocity) Curve in the Auto Bend Modulation matrix to link the depth of the auto bend effect to key velocity (Scale: -50 / +50. Default: 0).
- **4: Time - Auto Bend Time** (Auto Bend Time): Determines the time for the auto bend (Scale: 0 seconds / 16 seconds. Default: 400 milliseconds or 50).
- **5: KS - Auto Bend KS To Time** (Auto Bend KS To Time): Uses the Keyboard Scaling (KS) to link the auto bend time to key position (Scale: -50 / +50. Default: 0).
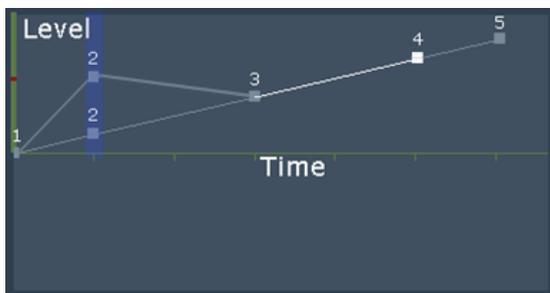
3.6.2 Section 2: Auto Bend Modulation matrix

The Auto Bend has a modulation matrix with 2 slots. Each modulation matrix slot has an On / Off button (**9**), a source pop up menu (**10**), a destination pop up menu (**11**) and an amount display (**12**) in which you set the value with the mouse. Both slots affect the envelope of the auto bend.

- **Auto Bend Vel Mod On / Off** (Auto Bend Vel Mod On Off): Determines whether the Auto Bend modulation is added to the signal chain (Scale: On / Off. Default: On).
- **Auto Bend Vel Mod Source** (Auto Bend Vel Mod Source): Determines the source for the Auto Bend modulation (24 sources. Default: Vel Curve 1 Delay).
- **Auto Bend Vel Mod Destination** (Auto Bend Vel Mod Destination): Determines the destination for the Auto Bend modulation (7 destinations: Depth, Speed, Attack, Hold, Decay, Sustain, Release. Default: Depth).
- **Auto Bend Vel Mod Amount** (Auto Bend Vel Mod Amount): Determines the amount of modulation for slot 1 (Scale: -100 / 100. Default: 0).

- **Auto Bend Mod KS On / Off** (Auto Bend Mod KS On Off): Determines whether the Auto Bend modulation is added to the signal chain (Scale: On / Off. Default: On).
- **Auto Bend Mod KS Source** (Auto Bend Mod KS Source): Determines the source for the Auto Bend modulation (24 sources. Default: KS Curve 1 Linear).

- **Auto Bend Mod KS Destination** (Auto Bend Mod KS Destination): Determines the destination for the Auto Bend modulation (7 destinations: Depth, Speed, Attack, Hold, Decay, Sustain, Release. Default: Decay).
- **Auto Bend Mod KS Amount** (Auto Bend Mod KS Amount): Determines the amount of modulation for slot 1 (Scale: -100 / 100. Default: 0).

An example of velocity based auto bending, where the attack of the bend follows a delay curve (slot 1) and the time of the decay of the bend is scaled by the keys on the keyboard (slot 2). Note C1 produces a long decay and note C6 a very short decay:

3.6.3 Section 3: Aftertouch

Links level, pan or note pitch (tune) to Aftertouch or pressure (Prs) on the key.

- **6: On / Off - Prs To Freq On / Off** (Prs To Freq On Off): Determines whether the Aftertouch or pressure is added to the signal chain (Scale: On / Off. Default: On).
- **7: Prs - Prs To Freq** (Prs To Freq). Pressure links the note pitch to Aftertouch, the amount of pressure on the key (Scale: -50 / +50. Default: 0).
- **8: Dest - Prs Destination** (Prs Destination). Links the amount of Prs or Aftertouch to the chosen destination (Scale: Level, Pan and Tune. Default: Tune).

3.7 Panel 7: Pitch Wheel panel

3.7.1 Section 1: Pitch Bend Wheel

- **1: Amount - Pitch Wheel Amount** (Pitch Wheel Amount): The Pitch Bend Wheel can be used for bending note pitches up and down. Rumble K II Builder also responds to Pitch Bend MIDI data from a connected MIDI master keyboard (Range: +24 semitones / -24 semitones in steps of 100 (41 is default or 2 semitones, 0 = no pitch change, 100 = 2 octaves).
- **2: Mod Dest - Pitch Wheel Mod Destination** (Pitch Wheel Mod Destination): The Pitch Wheel can be used to control Level, Pan or Tune (default).

3.8 Panel 8: Low Pass Filter panel

The Low Pass Filter cuts off high frequencies produced by the oscillators. The Low Pass Filter (- 24 dB / octave) has 3 sections: A section to set the Cutoff and Resonance (1), the second section is an

Low Pass Filter Envelope with Attack, Hold, Decay, Sustain and Release (2) and the last section is the Filter Modulation matrix (3).

3.8.1 Section 1: Filter

- **1: On / Off - Filter On / Off** (Filter On Off): Determines whether the low pass filter is added to the signal chain (Scale: On / Off. Default: Off).
- **2: Cut - Filter Cutoff** (Filter Cutoff). Determines the amount of cutoff in Hz (Scale: 20,00 Hz / 25,00 kHz. Default: 25,00 kHz).
- **3: Res - Filter Resonance** (Filter Resonance): Determines the amount of resonance (Scale: 0 % / 100 %. Default: 0 %).
- **4: Env - Filter Envelope** (Filter Envelope): Determines the amount of envelope applied to the filter (Scale: -100 % / +100 %. Default: 75 %)

3.8.2 Section 2: Filter Envelope

- **5: Att - Filter Attack** (Filter Attack): Determines the time the filter amplitude takes to peak (Scale: 0 seconds / 16 seconds. Default: 0 seconds).
- **6: Hld - Filter Hold** (Filter Hold): Determines how long the filter amplitude should stay at its maximum value before starting to decrease again (Scale: 0 seconds / 16 seconds. Default: 0 seconds).
- **7: Dec - Filter Decay** (Filter Decay): Determines the time the filter amplitude takes to fall from the peak to the sustain level (Scale: 0 seconds / 16 seconds. Default: 16 seconds).
- **8: Sus - Filter Sustain** (Filter Sustain): Determines the filter amplitude (relative to the peak) when the key is held down (Scale: - ∞ / 0,0 dB. Default: 0,0 dB).
- **9: Rel - Filter Release** (Filter Release): Determines the time of the filter amplitude to die out after the key is released (Scale: 0 seconds / 16 seconds. Default: 63,2 milliseconds).

3.8.3 Section 3: Filter Modulation matrix

The Low Pass Filter has a modulation matrix with 1 slot. The modulation matrix slot has an On / Off button (**10**), a source pop up menu (**11**), a destination pop up menu (**12**) and an amount display (**13**) in which you set the value with the mouse.

- **Filter Mod On / Off** (Filter Mod On Off): Determines whether the Filter modulation is added to the signal chain (Scale: On / Off. Default: On).
- **Filter Mod Source** (Filter Mod Source): Determines the source for the Filter modulation (24 sources. Default: Vibrato or LFO).
- **Filter Mod Destination** (Filter Mod Destination): Determines the destination for the Filter modulation (2 destinations: Cutoff and Resonance. Default: Cutoff).
- **Filter Mod Amount** (Filter Mod Amount): Determines the amount of modulation (Scale: -100 / 100. Default: 0).

3.9 Panel 9: Frequency panel
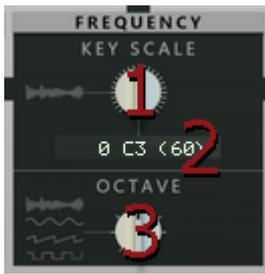
3.9.1 Section 1: Frequency

- **1: Key Scale - KS To Freq** (KS To Freq): Uses Keyboard Scaling (KS) to link the frequency or pitch of the Wave oscillator to key position (Scale: -50 / +50. Default: 0).
- **2: Coarse - Coarse** (Coarse): Determines the relative pitch of the Wave oscillator in semitones when Key Track is on (Scale: C-2 / G8. Default: C3).
- **3: Octave - Octave** (Octave): Determines the amount of tuning of all the oscillators (Wave, Sine, Saw and Square) in octaves (Scale: -3 / +3. Default: 0).

3.10 Panel 10: Rotary panel

The Rotary is an emulation of a Leslie rotary speaker cabinet containing an amplifier, a treble horn and a bass speaker. First used in combo with Hammond organs, the effect became popular later among guitarists. The cabinet is heavy, frustrating to transport and they often need repair, because of the heat inside. A musician controls the Leslie speaker by either an external switch or pedal that alternates between a slow and fast speed setting, known as "chorale" and "tremolo". In a Combinator, the programmer can be used to assign the Mod Wheel as source to the Horn and Bass Fast as targets, emulating the chorale and tremolo effect.

The panel has 4 sections. In the first section you can set the Rotary On or Off and it's speed (1). In the second section are the knobs for the Horn (2) and in the third section for the Bass (3). The last section has the crossover, the balance and the mic angle knobs (4).

3.10.1 Section 1: Rotary On / Off and Speed

- **1: On / Off - Rotary On / Off** (Rotary On Off): Determines whether rotary is added to the signal chain (Scale: On / Off. Default: Off).
- **2: Speed - Rotary Speed**(Rotary Speed): Determines rotary speed amount (Scale: Stop, Slow, Fast. Default: Fast).

3.10.2   Section 2: Rotary Horn

- **3: Horn Acc - Rotary Horn Acceleration** (Rotary Horn Acceleration): Determines the rotary acceleration and deceleration speed of the horn (Scale: 0 % / 100 %. Default: 60 %).
- **4: Horn Slow - Rotary Horn Slow** (Rotary Horn Slow): Determines the rotation speed of the horn at "Slow" speed (Scale: 00,10 Hz / 10 Hz. Default: 1 Hz).
- **5: Horn Fast - Rotary Horn Fast** (Rotary Horn Fast): Determines the rotation speed of the horn at "Fast" speed (Scale: 00,10 Hz / 10 Hz. Default: 07,59 Hz).
- **6: Horn Amp - Rotary Horn Amp Mod** (Rotary Horn Amp Mod): Determines the amplitude modulation of the horn signal (Scale: 0 % / 100 %. Default: 50 %).
- **7: Horn Mod - Rotary Horn Freq Mod** (Rotary Horn Freq Mod): Determines the frequency modulation of the horn signal (Scale: 0 % / 100 %. Default: 50 %).

3.10.3   Section 3: Rotary Bass

- **8: Bas Acc - Rotary Bass Acceleration** (Rotary Bass Acceleration): Determines the rotary bass acceleration and deceleration speed (Scale: 0 % / 100 %. Default: 25 %).
- **9: Bass Slow - Rotary Bass Slow** (Rotary Bass Slow): Determines the rotation speed of the bass at "Slow" speed (Scale: 00,10 Hz / 10 Hz. Default: 01,26 Hz).
- **10: Bass Fast - Rotary Bass Fast** (Rotary Bass Fast): Determines the rotation speed of the bass at "Fast" speed (Scale: 00,10 Hz / 10 Hz. Default: 06,61 Hz).
- **11: Bass Amp - Rotary Bass Amp Mod** (Rotary Bass Amp Mod): Determines the amplitude modulation of the bass signal (Scale: 0 % / 100 %. Default: 50 %).

3.10.4   Section 4: Rotary Overall

- **12: Cross - Rotary Crossover** (Rotary Crossover): Determines the crossover frequency between bass and horn (Scale: 0 Hz / 2000 Hz. Default: 1000 Hz).
- **13: Bal - Rotary Balance** (Rotary Balance): Determines the volume balance between bass and horn (Scale: 0 % / 100 %. Default: 50 %).
- **14: Mic - Rotary Mic Angle** (Rotary Mic Angle): Determines the simulated microphone angle towards the simulated rotary speaker cabinet (Scale: 0 degrees / 180 degrees. Default: 90 degrees).

3.11 Panel 11: Delay panel

3.11.1   Section 1: Delay

- **1: On / Off - Delay On / Off** (Delay On Off): Determines whether delay is added to the signal chain (Scale: On / Off. Default: Off).
- **2: Time - Delay Time** (Delay Time): Determines the time of the interval between repeats of the delay in seconds (Scale: 0 seconds / 4 seconds. Default: 1 second).
- **3: Fbck - Delay Feedback** (Delay Feedback): Determines the number of repeats of the delay (Scale: 1 % / 100 %. Default: 50 %).
- **4: Mode - Delay Mode** (Delay Mode): Determines the feedback mode of the delay or which channel(s) feedback is taken from. (Scale: Stereo or Cross. Default: Stereo).
- **5: Ratio - Delay Ratio** (Delay Ratio): Determines the channel to reduce. Negative values reduce the left channel delay, positive values reduce the right channel delay (Scale: 50:100 / 100:50. Default: 100:91).
- **6: Dmp - Delay Damping**(Delay Damping): Determines the progressive loss of high frequencies in the delay tail (Scale: 20 kHz / 1 kHz. Default: 19,41 kHz).
- **7: Mix - Delay Mix** (Delay Mix): Determines the amount of delay mixed with the original sound (Scale: 0 % / 100 %. Default: 50 %).

3.12 Panel 12: Filter panel

3.12.1 Section 1: Filters to EQ the audio signal

- **1: On / Off - EQ On / Off** (EQ On Off): Determines whether the effects filter is added to the signal chain (Scale: On / Off. Default: Off).
- **2: Mode - EQ Mode** (EQ Mode): Determines the effects filter mode. You can choose between a 12 dB / octave and 24 dB / octave low pass filter as well as the LP+ filter, which is a "brickwall" low pass filter with very steep roll-off. There is also a 6 dB / octave band pass filter, a 12 dB / octave high pass filter and the "brickwall" HP+ filter. Note that the LP+ and HP+ filter types do not feature Resonance control (Scale: LP, LP 24, LP+, BP6, HP12, and HP+. Default: HP12).
- **3: Cut - EQ Cutoff** (EQ Cutoff): Determines the amount of the effects filter cutoff (Scale: 20,00 Hz / 25,00 kHz. Default: 707,1 Hz).
- **4: Res - EQ Resonance** (EQ Resonance): Determines the amount of the effects filter resonance (Scale: 0 % / 100 %. Default: 0 %).

3.13 Panel 13: Reverb panel

This is an algorithmic reverb emulating a digital reverb unit. It sounds almost similar to the RV-7 Reverb (Hall).

3.13.1 Section 1: Reverb

- **1: On / Off - Reverb On / Off** (Reverb On Off): Determines whether reverb is added to the signal chain (Scale: On / Off. Default: Off).
- **2: Time - Reverb Time** (Reverb Time): Determines the length of reverb tail (Scale: 0 % - 100 %. Default: 50 %).
- **3: Pdly - Reverb Pre Delay** (Reverb Pre Delay): Determines the initial delay before reverb in milliseconds (Scale: 0 ms / 200 ms. Default: 15,7 ms).
- **4: L Cut - Reverb Low Cut** (Reverb Low Cut): Determines the low pass filter cutoff frequency (Scale: 20 Hz / 2 kHz. Default: 20 Hz).
- **5: H Cut - Reverb High Cut** (Reverb High Cut): Determines the high pass filter cutoff frequency (Scale: 20 kHz / 2 kHz. Default: 20 kHz).
- **6: Damp - Reverb Damping** (Reverb Damping): Determines the progressive loss of high frequencies in the reverb tail (Scale: 20 kHz / 2 kHz. Default: 20 kHz).
- **7: Mix - Reverb Mix** (Reverb Mix): Determines the amount of reverb mixed with the original sound (Scale: 0 % / 100 %. Default: 50 %).

4 Back of the device

The top of the back panel of Rumble K II Builder shows the logo, the Note indicator and the Device name.

4.1 Panel 1: Signal Flow Diagram panel
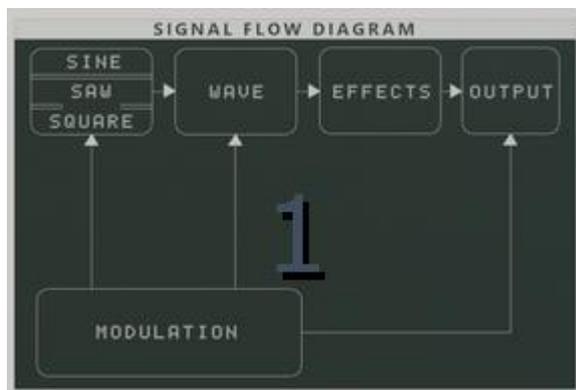
The Level output of the Saw / Square oscillators are connected and sums independently from the Sine oscillator into the Wave oscillator. The Level output of the Sine oscillator goes into the Wave Oscillator. Please note: If you change the Level on the Wave oscillator, the level of the Sine and Saw / Square oscillators will change as well.

The output of the Wave oscillator, the Sine oscillator, the Saw / Square oscillators then goes into the Shaper.
The sum of the Oscillators panel will pass through the Amp Envelope panel, the Vibrato / LFO panel, the Autobend and Aftertouch panel, the Pitch Wheel panel, the Frequency panel and then the Low Pass Filter panel.
The audio signal will then go through the 7 effects panels.

The Lofi, The Filter effects are summed together in an internal bus and then fed to second bus with the Delay, the Rotary, The Phaser and Chorus effects. The output of the second bus goes into the third bus with the Reverb and the Limiiter effects.

The signal output of the Modulation matrix affects the destination chosen in the slots. There are no modulation sources and destinations for the effects panels.

4.2   Panel 2: QR Code Operation Manual panel

Downloads the "Rumble K II Builder Operation Manual.pdf" from www.oenkenstein.nl.

4.3   Panel 3: CV Input panel

The Sequencer Control CV and Gate inputs allow you to play Rumble k II Builder from another CV / Gate device (typically a Matrix or a 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.

4.4   Panel 4: Audio Output panel

4.4.1   Audio Out Left and Right

These are the main audio outputs. When you create a new Rumble K II Builder device, these outputs are auto-routed to the first available channel in the Reason main mixer.

4.4.2   High Noise Reduction On / Off

Determines whether noise reduction is applied to the signal chain. The Kawai K1 has low quality 8 bit short cycled samples and as they were recorded on tape before the analogue to digital conversion, some noise was added. The High Noise Reduction is a Low Pass 12 Filter centred at 9,21 kHz and follows the keyboard (Scale: On / Off. Default: Off).

4.4.3   Low Noise Reduction On / Off

Determines whether noise reduction is applied to the signal chain. Low Noise Reduction is a High Pass 12 Filter centred at 118,9 Hz and follows the keyboard (Scale: On / Off. Default: Off).

4.4.4   Vibrato to Tune Curve On / Off

Determines whether a logarithmic curve is applied to the vibrato instead of a linear curve (Scale: On / Off. Default: Off).

4.4.5   Patch Correction On / Off

When loading .repatch patches and the Patch Correction is turned On, the sound of the current patch triggered by sustained note input will be muted while the next patch is loading. It also mutes the Wave Oscillator playback when a new Waveform is loaded with the Sample Select display (Scale: On / Off. Default: On).

Please note: The status of the Patch Correction is not included when a .repatch or .cmb file is saved. Also, when Patch Correction is turned Off, changing .repatch files in the Patch Browser while notes are sustained may cause a sudden jump in volume and will play the oscillators from the old patch with the settings of the new patch. The change disappears when a new note is triggered.

4.5   Panel 5: Modulation matrix panel

Rumble K II Builder has a Modulation matrix with 13 slots, each with 24 sources. Each slot can be found on the front of the device as well.

The Modulation matrix panel has two sections. The first section is the modulation matrix with 13 slots (1) and the second section shows information about the curves used as a source in the modulation matrix (2).

4.5.1 Section 1: The matrix

Each Modulation matrix slot has an On / Off button, a source pop up menu, a destination pop up menu and an amount display in which you set the value with the mouse.

- **Slot Name:** Describes the items to modulate. In the Modulation matrix you can alter parameters for all the oscillators at once. There are 8 items you can modulate:
    1. Sine Osc (1 slot).
    2. Saw / Square Osc (2 slots).
    3. Envelope Level (3 slots).
    4. Envelope Time (2 slots).
    5. Auto Bend (2 slots).
    6. Low Pass Filter (1 slot).
    7. Output Glide (1 slot).
    8. KS Curve 1 (1 slot).
- **On / Off**: Determines whether modulation is added (Scale: On / Off. Default: Off).
- **Source**: Sets the source of the item to modulate. There are 24 different sources.
    1. Constant
    2. Random
    3. Random +
    4. Pitch Bend
    5. Prs or Aftertouch
    6. Mod Wheel
    7. Key
    8. Velocity
    9. Env Release Timer
    10. Filter Envelope
    11. Amp Envelope
    12. Glide Curve
    13. Vibrato or LFO
    14. Note Auto Bend Time
    15. KS Curve 1 Linear
    16. KS Curve 2 Concave
    17. KS Curve 3 Convex
    18. KS Curve 4 Ramp
    19. KS Curve 5 Square
    20. Vel Curve 1 Delay
    21. Vel Curve 2 Delay Ramp
    22. Vel Curve 3 Convex Sinus
    23. Vel Curve 4 Ramp Sinus
    24. Vel Curve 5 Decay
- **Destination**: Sets the destination of the item to modulate.
- **Amount**: Determines the amount of modulation (Scale: -100 / +100. Default: 0). Time Vel and Glide have a minimum value of 0 and a maximum of 100.

4.5.2   Section 2: Mod Matrix Curves and Internal Curves

There are 2 types of curves. The 10 Mod Matrix Curves, used as source in the Modulation matrix and the 4 Internal Curves (invisible in the user interface). Rumble K II Builder has 10 Mod Matrix Curves as a source for modulation: 5 Velocity (Vel) curves and 5 Keyboard Scaling (KS) curves. They mimic most of the curves used on the Kawai K1 digital synthesizer to modulate the Amp Envelope and the Auto Bend.

- **Mod Matrix Curves**:
  - Vel Curve 1 Delay
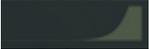
  - Vel Curve 2 Delay Ramp

  - Vel Curve 3 Convex Sinus

  - Vel Curve 4 Ramp Sinus

  - Vel Curve 5 Decay

  - KS Curve 1 Linear

  - KS Curve 2 Concave

  - KS Curve 3 Convex

  - KS Curve 4 Ramp

  - KS Curve 5 Square

- **Internal Curves**:
  - Vel Concave Curve
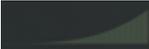
  - Glide Curve. The Glide Curve can be used as a modulation source.

  - Vibrato to Tune Curve

  - Shaper Curve

4.6 Panel 6: Lofi panel

The Lofi effect emulates degraded audio quality (Downsample / Rate Crusher) and can be used as a noise generator.

4.6.1 Section 1: Lofi

- **1: On / Off - Lofi On / Off** (Lofi On Off): Determines whether lofi is added to the signal chain (Scale: On / Off. Default: Off).
- **2: Rate - Lofi Sample Rate** (Lofi Sample Rate): Determines the down sampling rate (Scale: 2 kHz / 50 kHz. Default: 10 kHz).
- **3: Jitter - Lofi Jitter** (Lofi Jitter): Determines the random modulation of the down sampling rate (Scale: 0 % / 100 %. Default: 0 %).
- **4: Mix - Lofi Mix** (Lofi Mix): Determines the amount of lofi mixed with the original sound (Scale: 0 % / 100 %. Default: 100 %).

4.7 Panel 7: Rotary panel

The Rotary is an emulation of a Leslie rotary speaker cabinet containing an amplifier, a treble horn and a bass speaker. First used in combo with Hammond organs, the effect became popular later among guitarists. The cabinet is heavy, frustrating to transport and they often need repair, because of the heat inside. A musician controls the Leslie speaker by either an external switch or pedal that alternates between a slow and fast speed setting, known as "chorale" and "tremolo". In a Combinator, the programmer can be used to assign the Mod Wheel as source to the Horn and Bass Fast as targets, emulating the chorale and tremolo effect

The panel has 4 sections. In the first section you can set the Rotary On or Off and it's speed (1). In the second section are the knobs for the Horn (2) and in the third section for the Bass (3). The last section has the crossover, the balance and the mic angle knobs (4).

4.7.1 Section 1: Rotary On / Off and Speed

- **1: On / Off - Rotary On / Off** (Rotary On Off): Determines whether rotary is added to the signal chain (Scale: On / Off. Default: Off).
- **2: Speed - Rotary Speed**(Rotary Speed): Determines rotary speed amount (Scale: Stop, Slow, Fast. Default: Fast).

4.7.2 Section 2: Rotary Horn

- **3: Horn Acc - Rotary Horn Acceleration** (Rotary Horn Acceleration): Determines the rotary acceleration and deceleration speed of the horn (Scale: 0 % / 100 %. Default: 60 %).
- **4: Horn Slow - Rotary Horn Slow** (Rotary Horn Slow): Determines the rotation speed of the horn at "Slow" speed (Scale: 00,10 Hz / 10 Hz. Default: 1 Hz).
- **5: Horn Fast - Rotary Horn Fast** (Rotary Horn Fast): Determines the rotation speed of the horn at "Fast" speed (Scale: 00,10 Hz / 10 Hz. Default: 07,59 Hz).
- **6: Horn Amp - Rotary Horn Amp Mod** (Rotary Horn Amp Mod): Determines the amplitude modulation of the horn signal (Scale: 0 % / 100 %. Default: 50 %).
- **7: Horn Mod - Rotary Horn Freq Mod** (Rotary Horn Freq Mod): Determines the frequency modulation of the horn signal (Scale: 0 % / 100 %. Default: 50 %).

4.7.3 Section 3: Rotary Bass

- **8: Bas Acc - Rotary Bass Acceleration** (Rotary Bass Acceleration): Determines the rotary bass acceleration and deceleration speed (Scale: 0 % / 100 %. Default: 25 %).
- **9: Bass Slow - Rotary Bass Slow** (Rotary Bass Slow): Determines the rotation speed of the bass at "Slow" speed (Scale: 00,10 Hz / 10 Hz. Default: 01,26 Hz).
- **10: Bass Fast - Rotary Bass Fast** (Rotary Bass Fast): Determines the rotation speed of the bass at "Fast" speed (Scale: 00,10 Hz / 10 Hz. Default: 06,61 Hz).
- **11: Bass Amp - Rotary Bass Amp Mod** (Rotary Bass Amp Mod): Determines the amplitude modulation of the bass signal (Scale: 0 % / 100 %. Default: 50 %).

4.7.4 Section 4: Rotary Overall

- **12: Cross - Rotary Crossover** (Rotary Crossover): Determines the crossover frequency between bass and horn (Scale: 0 Hz / 2000 Hz. Default: 1000 Hz).
- **13: Bal - Rotary Balance** (Rotary Balance): Determines the volume balance between bass and horn (Scale: 0 % / 100 %. Default: 50 %).
- **14: Mic - Rotary Mic Angle** (Rotary Mic Angle): Determines the simulated microphone angle towards the simulated rotary speaker cabinet (Scale: 0 degrees / 180 degrees. Default: 90 degrees).

4.8 Panel 8: Chorus panel

The Chorus effect takes an audio signal and mix it with one or more delayed, pitch modulated copies.

4.8.1 Section 1: Chorus

- **1: On / Off - Chorus On / Off** (Chorus On Off): Determines whether chorus is added to the signal chain (Scale: On / Off. Default: Off).
- **2: Rate - Chorus Rate** (Chorus Rate): Determines the modulation rate in Hz (Scale: 0,10 Hz / 10 Hz. Default: 1,00 Hz).
- **3: Depth – Chorus Depth** (Chorus Depth): Determines the depth of the delay pitch modulation in milliseconds (Scale: 0 ms/ 32 ms. Default: 8 ms).
- **4: Dly - Chorus Delay** (Chorus Delay): Determines the initial delay for each voice (Scale: 0 % / 100 %. Default: 0 %).
- **5: Amt - Chorus Voices Amount** (Chorus Voices Amount): Determines the number of chorus voices (Scale: 1, 2 or 3 voices. Default: 3 voices).
- **6: Mix - Chorus Mix** (Chorus Mix): Determines the amount of chorus mixed with the original sound (Scale: 0 % / 100 %. Default: 50 %).

4.9 Panel 9: Phaser panel

The Phaser effect is used to filter the signal by creating a series of peaks and troughs in the frequency spectrum. The position of the peaks and troughs of the waveform being affected are modulated so that they vary over time, creating a sweeping effect.

4.9.1 Section 1: Phaser

- **1: On / Off - Phaser On / Off** (Phaser On Off). Determines whether phaser is added to the signal chain (Scale: On / Off. Default: Off).
- **2: Rate - Phaser Rate** (Phaser Rate). Determines the modulation rate of the phaser (Scale: 0 / 100. Default: 50).
- **3: Depth - Phaser Depth** (Phaser Depth). Determines the filter frequency modulation of the phaser (Scale: 0 / 100. Default: 50).
- **4: Fdb - Phaser Feedback** (Phaser Feedback). Determines the amount of feedback (Scale: 0 / 100. Default: 50).
- **5: Center - Phaser Center** (Phaser Center). Determines the center filter frequency of the phaser (Scale: 0 / 100. Default: 50).
- **6: Sprd - Phaser Spread** (Phaser Spread). Determines the offset between left and right center frequencies (Scale: 0 / 100. Default: 50).
- **7: Mix - Phaser Mix** (Phaser Mix). Determines amount of phaser added to the signal chain (Scale: 0 / 100. Default: 50).

4.10 Panel 10: Cooling panel

4.11 Panel 11: Power panel

5 Waveforms

A list of all the waveforms to use in the Wave Oscillator:

001 Sine C4	065 Harmonica	129 Steel Drum 1	193 Digi Bass 1 - 2
002 Sine C5	066 Glocken	130 Steel Drum 2	194 Pick bass 1
003 Sine G5	067 Tine	131 Voice 1	195 Pick bass 2
004 Sine C6	068 Harp	132 Voice 2	196 Round Bass 1
005 Sine E6 - 17 Cents	069 Marimba	133 Accordion 1	197 Round Bass 2 Gis - 21 Cents
006 Sine G6	070 E Tom	134 Accordion 2	198 Harmonica 1
007 Sine Ais6 + 33 Cents	071 Log Drum	135 Jazz Organ 2	199 Harmonica 2 Cis - 25 Cents
008 Sine C7	072 Jazz Organ 1	136 Rock Organ 1	200 Harp
009 Sine D7	073 Mello Pad	137 Draw Bar 1	201 Koto
010 Sine E7 - 14 Cents	074 Synth Solo	138 Draw Bar 2	202 Sitar
011 Sine Fis7	075 Synth 2	139 Pipe Organ 1	203 Marimba C - 47 Cents
012 Sine G7 - 2 Cents	076 French Horn 1	140 Pipe Organ 2	204 Synth 1
013 Sine C8	077 French Horn 2	141 Rock Organ 2	205 Bass Drum *
014 Saw 1 C4 Sine Saturated	078 Brass 1	142 Synth Solo 1	206 Ac Snare *
015 Saw 2 C4 Saturated	079 Brass 2	143 Synth Solo 2	207 Tight Snare *
016 Saw 3 C4 Sine Morph	080 Brass 3	144 Synth 2 - 1	208 E Snare *
017 Saw 4 C4 Smoothed	081 Brass 4	145 Synth 2 - 2	209 Rim *
018 Saw 5 C4 Horn	082 Trumpet 1	146 Synth 3	210 Ac Tom *
019 Saw 6 C4 Smooth	083 Trumpet 2	147 Brass 1	211 H Hat *
020 Saw 7 C4 Oboe	084 Violin	148 Brass 2	212 Crash *
021 Saw 8 C4 Dist	085 String	149 Orchestra	213 Ride *

022 Saw 9 C4 High	086 Piano 1	150 Piano 1	214 Strat Guitar C - 39 Cents *
023 Saw 10 C4 Sine Dist	087 Piano 2	151 Piano 4	215 Fuzz Mute *
024 Saw 11 C4 Organ	088 Piano 3	152 E Piano 1 - 1 E + 16 Cents	216 A Guitar *
025 Saw 12 C4 Analog	089 Piano 2 - 1	153 E Piano 1 - 2 Ais + 35 Cents	217 F Guitar *
026 Saw 13 C4	090 Piano 3 - 1	154 E Piano 2	218 Guitar Harmo *
027 Saw 14 C4	091 Piano 4 - 1	155 E Piano 3	219 Pull Bass *
028 Saw 15 C4	092 Piano 4 - 2	156 Clavi	220 Bass Harmo *
029 Saw 16 C4	093 El Grand	157 Harpsichord 1	221 Bowed String *
030 Saw 17 C4	094 E Piano 1	158 Harpsichord 2	222 String Attack *
031 Saw 18 C4	095 E Piano 2	159 Vibe Dis	223 String Sus *
032 Saw 19 C4	096 E Piano 2 - 1	160 Digi Bass 1	224 Pizzicato *
033 Square 1 C4	097 Clavi	161 Digi Bass 2 - 1	225 Piano *
034 Square 2 C4	098 Harpsichord	162 Digi Bass 2 - 2	226 El Grand *
035 Square 3 C4	099 Vibe	163 Pick Bass	227 Piano Noise *
036 Square 4 C4	100 A Guitar	164 Glocken 1 E + 17 Cents	228 Trumpet *
037 Square 5 C4	101 F Guitar	165 Glocken 2 G	229 Shakuhachi Attack *
038 Inverse Saw	102 Strat 1	166 Tine 1 Ais + 33 Cents	230 Shakuhachi Sus *
039 Triangle	103 Strat 2	167 Tine 2 Fis + 42 Cents	231 Pan Flute Attack *
040 Random	104 Ac Bass	168 Tine 3	232 Pan Flute Sus *
041 French Horn	105 Pull Bass 1	169 Tube Bell 1	233 Voice *
042 String	106 Pull Bass 2	170 Tube Bell 2	234 White Noise *
043 String	107 Round Bass	171 Tube Bell 3 C + 29 Cents	235 String Loop C - 15 Cents
044 String Pad	108 Slap Bass 1	172 Xylophone 1 E + 13 Cents	236 Shakuhachi Loop C - 18 Cents
045 Piano 1	109 Slap Bass 2	173 Xylophone 2 G	237 Pan Flute Loop

046 El Grand	110 Slap Bass 3	174 Harp E + 13 Cents	238 Voice Loop
047 E Piano 1	111 Fretless 1	175 Koto	239 White Noise Loop
048 E Piano 2	112 Fretless 2	176 Sitar 1	240 Ac Snare Loop
049 E Piano 3	113 Synth Bass 1	177 Sitar 2	241 F Guitar Loop
050 Clavi	114 Synth Bass 2	178 Kalimba 1 Ais + 39 Cents	242 Pull Bass Loop
051 Vibe	115 Harmonica	179 Kalimba 2	243 Omnibus Loop 1
052 A Guitar	116 Clarinet 1	180 Kalimba 3 C + 48 Cents	244 Omnibus Loop 2
053 F Guitar 1	117 Clarinet 2	181 Log Drum	245 Omnibus Loop 3
054 F Guitar 2	118 Oboe 1	182 Steel Drum Ais - 18 Cents	246 Omnibus Loop 4
055 Ac Bass 1	119 Oboe 2	183 Pipe Organ 3 - 1	247 Omnibus Loop 5
056 Ac Bass 2	120 Shakuhachi	184 Pipe Organ 3 - 2	248 Omnibus Loop 6
057 Digi Bass 1	121 Oriental Bell 1	185 Synth 1 Cis - 49 Cents	249 Omnibus Loop 7
058 Pick Bass	122 Oriental Bell 2	186 Synth 2 Dis - 33 Cents	250 Omnibus Loop 8
059 Digi Bass 2	123 Bell	187 Synth 3 - 1 Cis + 44 Cents	251 Ac Snare Rev *
060 Round Bass	124 Koto	188 Synth 3 - 2	252 Ac Tom Rev *
061 Fretless 1	125 Sitar	189 Synth 4 - 1	253 F Guitar Rev
062 Fretless 2	126 E Tom	190 Synth 4 - 2	254 H Hat Alt Loop
063 Flute	127 Log Drum 1	191 Clavi	255 Crash Alt Loop
064 Panflute	128 Log Drum 2	192 Digi Bass 1 - 1	256 Piano Noise Alt Loop

* Waveforms without mentioning a note like Dis (or D#) behind their name are all tuned C3. Some waveform names like '012 Sine G7 -2 Cents' have a number (-2) behind their name followed by the word 'Cents'. The number indicates the Fine Tune correction needed measured in Cents (-2) to make the Waveform sound in tune with the Waveforms names note (G7).

* Waveforms marked with an * behind the name are one shot waveforms. All the others are looped waveforms.

6 Patch List

List of all the patches released with the Rumble K II Builder Rack Extension. Included are all the 96 single and multi instrument patches from the Kawai K1 ROM pack A, 2 drum kits patches and 120 signature patches made by various sound designers. The number behind the folder names indicates the amount of patches the folder contains.

6.1 The sound designers

- Boombastix (RikkShow) designed lofi instruments, aimed for hip hop, funk and soul.
- Loque made percussion instruments which are combined into a drum kit and made emulations of the TB 303, Hoover and Super Saw.
- Navi Retlav (NRS) came with analogue style synthesizer patches.
- Eusti created patches exploring the capabilities of AM (Amplitude Modulation).
- Oenkenstein (Oenk) made patches as examples for more complex routings.

6.2 Folder structure

Root (10)
    001 K1 Wave Osc
        001 Basic Waves (40)
        002 Low (35)
        003 Mid (71)
        004 High – Mid (44)
        005 High (14)
        006 PCM (52)
        007 All Waves (256)
    002 K1 Single Instruments (64)
    003 K1 Multi Instruments (32)
    004 Drum Kits (18)
    005 Signature Patches
        001 Arp (2)
        002 Bass (11)
        003 Brass (2)
        004 FX (17)
        005 Key (35)
        006 Lead (6)
        007 Pads (19)
        008 Perc (15)
        009 Run (7)
        010 Synth (8)
        011 Voice (1)
        Single Patches
            Eusti (19)
            Loque (47)
            Navi Retlav (4)
            Oenk (2)
            RikkShow (29)

Root folder:
- BA - Analog Rub Rub - NRS.repatch
- BA - Bootsy is Back - RikkShow.cmb
- FX - Hoverstyle - Loque.cmb
- KY - 8-bit 7th Chords - RikkShow.cmb
- KY - Grand Piano - Loque.cmb
- KY - Saw Supa - Loque.cmb
- LD - RnB Pillow Talk v3 - RikkShow.cmb
- PC - Vibrato Bell - Loque.cmb
- PD - Simple Strings - Eusti.repatch
- Run - Acid Distorted - Loque.cmb

002 K1 Single Instruments folder:
- SiA-1 Airy.cmb
- SiA-1 Peace.cmb
- SiA-2 Nino Rota.cmb
- SiA-2 Stravinsky.cmb
- SiA-3 Halloween.cmb
- SiA-3 Mystery Air.cmb
- SiA-4 Jan Solo.cmb
- SiA-4 Tubbs.cmb
- SiA-5 Elec Acustc.cmb
- SiA-5 Mute Guitar.cmb
- SiA-6 Breathe.cmb
- SiA-6 Rejoice.cmb
- SiA-7 Bells.cmb
- SiA-7 Fretless.cmb
- SiA-8 Predator.cmb
- SiA-8 Slave Labor.cmb
- SiB-1 String Orch.cmb
- SiB-1 Velo String.cmb
- SiB-2 String 5ths.cmb
- SiB-2 String Oct.cmb
- SiB-3 Brass Strike.cmb
- SiB-3 Trumpet Sec.cmb
- SiB-4 Fathorns.cmb
- SiB-4 Woodwinds.cmb
- SiB-5 Karate Kid.cmb
- SiB-5 Middle East.cmb
- SiB-6 Harmonica.cmb
- SiB-6 Whistle.cmb
- SiB-7 Aluminum.cmb
- SiB-7 Elec Grand.cmb
- SiB-8 Jazz Piano.cmb
- SiB-8 Piano From Hell.cmb
- SiC-1 Accordion.cmb
- SiC-1 Under Pressure.cmb
- SiC-2 Phantom.cmb
- SiC-2 Red Onions.cmb
- SiC-3 Cuttin Keys.cmb
- SiC-3 Gritty Clav.cmb
- SiC-4 Classical.cmb
- SiC-4 Hee Haw.cmb
- SiC-5 Holiday Inn.cmb
- SiC-5 Magical Dog.cmb
- SiC-6 Chick Solo.cmb
- SiC-6 Return2 4Ever.cmb
- SiC-7 Mellow Keys.cmb
- SiC-7 Velvet Keys.cmb
- SiC-8 Digibass 2.cmb
- SiC-8 Funk Bass.cmb
- SiD-1 Kill The Fly.cmb
- SiD-1 Sky Writer.cmb
- SiD-2 Poltergeist.cmb
- SiD-2 Water Drama.cmb
- SiD-3 India Town.cmb
- SiD-3 Space Banjo.cmb
- SiD-4 Bottles.cmb
- SiD-4 Zulu.cmb

- SiD-5 Glassy.cmb
- SiD-5 Krystal Vyb.cmb
- SiD-6 Echo Plex.cmb
- SiD-6 Reverse Hit.cmb
- SiD-7 Barrel.cmb
- SiD-7 Kettle Drum.cmb
- SiD-8 Kalimba Man.cmb
- SiD-8 Rim and Snare.cmb

003 Multi Instruments folder:
- MiA-1 Miniseries.cmb
- MiA-2 Miami.cmb
- MiA-3 Innerworld.cmb
- MiA-4 Breath String.cmb
- MiA-5 Play Fusion.cmb
- MiA-6 Polic Story.cmb
- MiA-7 Zorba.cmb
- MiA-8 Scary Movie.cmb
- MiB-1 Electric Band.cmb
- MiB-2 Country and Western.cmb
- MiB-3 Jazz String.cmb
- MiB-4 Epic Film.cmb
- MiB-5 Piano Split.cmb
- MiB-6 Comping Bass.cmb
- MiB-7 Joe Beam.cmb
- MiB-8 LA Nights.cmb
- MiC-1 Blowing.cmb
- MiC-2 Overture.cmb
- MiC-3 Classic String.cmb
- MiC-4 Raga.cmb
- MiC-5 Shimmering.cmb
- MiC-6 Spaghetti.cmb
- MiC-7 Fairy Tale.cmb
- MiC-8 Wang Chunk.cmb
- MiD-1 Zero Gravity.cmb
- MiD-2 The Ninja.cmb
- MiD-3 Dog Fight.cmb
- MiD-4 Tomita.cmb
- MiD-5 Haunted House.cmb
- MiD-6 Punk Junk.cmb
- MiD-7 Glassy Echo.cmb
- MiD-8 Slapp Drums.cmb

004 Drum Kits folder:
- 001 Kick.repatch
- 002 Snare.repatch
- 003 Snare Tight.repatch
- 004 Snare Electric.repatch
- 005 Rim Shot.repatch
- 006 Tom.repatch
- 007 Hihat.repatch
- 008 Crash.repatch
- 009 Ride.repatch
- 010 Ride.repatch
- 011 Snare White.repatch
- 012 Snare Rev.repatch
- 013 Tom Rev.repatch

- 014 Crash Loop.repatch
- 014 Hihat Loop.repatch
- 016 Steel.repatch
- Run - Loque Kit.cmb
- Run - Plastic Kit.cmb

005 Signature Patches folder:
    001 Arp (2)
- ARP - Broken Skin - RikkShow.cmb
- ARP - Squelch - RikkShow.cmb

    002 Bass (11)
- BA - A Touch Of Analoque (fat) - Loque.cmb
- BA - A Touch Of Analoque - Loque.cmb
- BA - Aggresive House Bass - RikkShow.cmb
- BA - Analog Rub Rub - NRS.cmb
- BA - Black Leather Pants - RikkShow.cmb
- BA - Bootsy is Back - RikkShow.cmb
- BA - Dirty Shaper Bass - Eusti.cmb
- BA - Guitar - Loque.cmb
- BA - Guitar Dirty - Loque.cmb
- BA - Million Dollar Ba$$ - RikkShow.cmb
- BA - Twerk da Peach - RikkShow.cmb

    003 Brass (2)
- BR - Low Battery Voltage - RikkShow.cmb
- BR - Worst Ever Brass - RikkShow.cmb

    004 FX (17)
- FX - Alarm - Loque.cmb
- FX - Alarm Wisher - Loque.cmb
- FX - Dr Jerkyll - Eusti.cmb (needs Pulsar and Audiomatic Rack Extensions)
- FX - Effected Str Hit - Eusti.cmb
- FX - Gliding Tune - Loque.cmb
- FX - Hoverstyle - Loque.cmb
- FX - Loopy - Loque.cmb
- FX - Metal Hammer (Filter FX Env) - Loque.cmb
- FX - Metal Hammer - Loque.cmb
- FX - SloMo Noize Loop - Eusti.cmb
- FX - Strange Snarrling - Loque.cmb
- FX - Useless VCF Perc - Eusti.cmb
- FX - Water Drop - Loque.cmb
- FX - Water Drop2 - Loque.cmb
- FX - White Whale Noises - Eusti.cmb
- FX - Wrong Sitar - Loque.cmb
- FX - Zipper - Loque.cmb

    005 Key (35)
- KY - 8-bit 7th Chords - RikkShow.cmb
- KY - Attack String - Loque.cmb
- KY - Bamboo Boo - RikkShow.cmb
- KY - Bell Scape - Loque.cmb
- KY - Body Vox Sample - Loque.cmb
- KY - Brass (Brighter) - Loque.cmb
- KY - Brass (Brighter, Slower, Inversed attack) - Loque.cmb
- KY - Brass - Loque.cmb
- KY - Computer Luv - Loque.cmb
- KY - Computer Luv 2 - Loque.cmb
- KY - Computer Luv 3 - Loque.cmb
- KY - Deep Chords - RikkShow.cmb
- KY - Definite Deep House - RikkShow.cmb
- KY - Dream Catcher - Loque.cmb
- KY - Dreamscape - Loque.cmb
- KY - Dreamscape2 - Loque.cmb

- o KY - French Disco Pluck - RikkShow.cmb
- o KY - Grainy Keyboard - RikkShow.cmb
- o KY - Grand Piano - Loque.cmb
- o KY - Guitar - Loque.cmb
- o KY - Gypsy Violin - Oenk.cmb
- o KY - Lo-Fi Electric Piano - RikkShow.cmb
- o KY - Lo-Fi Organ - RikkShow.cmb
- o KY - Lo-Fi Pizzicato - RikkShow.cmb
- o KY - Lo-Fi Pluck - RikkShow.cmb
- o KY - Nosy String Attack - RikkShow.cmb
- o KY - Organic Piano - RikkShow.cmb
- o KY - Saw Supa - Loque.cmb
- o KY - Scary Background Voice - Loque.cmb
- o KY - Shaper Movement - Oenk.cmb
- o KY - Smooth Voicehorn - Loque.cmb
- o KY - Sword - Loque.cmb
- o KY - Thief Wave - NRS.cmb
- o KY - Trap String - RikkShow.cmb
- o KY - Vibrato Feedback Synth - Loque.cmb

006 Lead (6)
- o LD - 2Finga Distorta - Eusti.cmb
- o LD - All Together.cmb
- o LD - Bootsy Piano Talk - Oenk.cmb
- o LD - RnB Pillow Talk v1 - RikkShow.cmb
- o LD - RnB Pillow Talk v2 - RikkShow.cmb
- o LD - RnB Pillow Talk v3 - RikkShow.cmb

007 Pads (19)
- o PD - Beautiful to S.C. - RikkShow.cmb
- o PD - Dirty Flute - Loque.cmb
- o PD - Dull Cure Synth - Eusti.cmb
- o PD - Ensemble - Loque.cmb
- o PD - FM Bell - Loque.cmb
- o PD - Foggy Day - NRS.cmb
- o PD - Foggy Space Strings - Eusti.cmb
- o PD - High Sine - Loque.cmb (needs Softube Saturation Knob 1.3.13 Rack Extension)
- o PD - Messy Wave Loop - Eusti.cmb
- o PD - Noiz Padt - Loque.cmb
- o PD - Pad to Sidechain - RikkShow.cmb
- o PD - Rotary Swell - RikkShow.cmb
- o PD - Salamander - Loque.cmb (needs Radical Piano Rack Extension)
- o PD - Simple Strings - Eusti.cmb
- o PD - Simple Voice - Eusti.cmb
- o PD - Smudgy Strings - Loque.cmb
- o PD - Square Cats - Oenk.cmb
- o PD - That Sad EDM Pad - RikkShow.cmb
- o PD - Wanna Be D-50 - Eusti.cmb

008 Perc (15)
- o PC - Bongoed Kick - Loque.cmb
- o PC - Close HiHat - Loque.cmb
- o PC - Electro Bass Hummer - Loque.cmb
- o PC - From Wood To Bell - Loque.cmb
- o PC - Kick - Loque.cmb
- o PC - Pico Bell - Loque.cmb
- o PC - Popcorn - Loque.cmb
- o PC - Rider Cymbal - Loque.cmb
- o PC - Rimwood - Loque.cmb
- o PC - Robo Snare - Loque.cmb
- o PC - Snare - Loque.cmb
- o PC - Snare Tight - Loque.cmb
- o PC - Total High Hat - Loque.cmb

- o PC - Vibrato Bell - Loque.cmb
- o PC - Woody - Loque.cmb

009 Run (7)
- o Run - Acid Distorted - Loque.cmb
- o Run - Acid Distorted2 - Loque.cmb
- o Run - Arp - Oenk.cmb
- o Run - Moving Noises - Loque.cmb
- o Run - Perc - Woody2 - Loque.cmb
- o Run - Random Bleeps - Loque.cmb
- o Run - Synthed El Piano - Loque.cmb

010 Synth (8)
- o SY - 8 or Less Bit Vox - Eusti.cmb
- o SY - Dist Vel Seq - Eusti.cmb
- o SY - DM Weird FM Solo - Eusti.cmb
- o SY - Rough Fake Arp - Eusti.cmb
- o SY - Slow Organ - Eusti.cmb
- o SY - Somewhat LoFi Strgs - Eusti.cmb
- o SY - Tape Strx Faux Arp - Eusti.cmb
- o SY - Win Strategy - NRS.cmb

011 Voice (1)
- o VC - Voice We Wished For - Eusti.cmb

7 Credits

- Kawai JP for permission, Kawai US for .sysex files and manual.
- Reasontalk, beta test forum hosting.
- Propellerhead Software AB for their support.
- Navi Retlav, signature patches.
- Eusti, signature patches.
- Loque, signature patches.
- Boombastix, RikkShow signature patches.
- All the beta testers.

8 Appendixes

Browsing patches

Changing .repatch files in the Patch Browser while notes are sustained may cause a sudden jump in volume and will play the oscillators from the current patch with the settings of the new patch. The change disappears when a new note is triggered or when Patch Correction on the back panel is turned On.

Envelope decay

A few Waveforms may produce a short click when the Envelope Attack and / or Envelope Decay are set to 0. The click will be gone when the Envelope Decay is set to 10 milliseconds or higher.

Vibrato

When the tempo of a song is set higher than 301 BPM in Reason and the Vibrato Shape is set to Random or Drift, Rumble K II Builder disables the inner working of the Vibrato Shape's Random and Drift function.

Modulation matrix

A waveform with a number higher then 205 and that are marked with an * have their loop mode set to Off internally. These are one shot waveforms. If one or both of the Amp Envelope Modulation matrix envelope time slots (Time Vel and Time KS) are used, they may affect the timing of the Amp Envelope's Attack and Decay.

Aliasing

The Kawai K1 is notorious for its aliasing, which is regarded as a technical minus, but the aliasing makes the Kawai K1 have its own character. Also note that the Kawai K1 has low quality 8 bit short cycled waveforms and as they were recorded on tape before the analog-to-digital conversion, a lot of noise was added. You can correct the noise and hiss by setting the High Noise Reduction on the back panel to On.

CPU load

To reduce CPU load, on the Output panel:

- Set Poly to Off.
- Set the Limiter to On.
- Decrease the Octave.

9 MIDI Implementation Chart

In the table below, first the MIDI CC Number is mentioned and is followed by the name of the function in Rumble K II Builder:

[12] = Sample_Select
[13] = Wave_Osc_On_Off
[14] = Wave_Osc_Volume
[15] = Wave_Osc_Tune
[16] = Fine_Tune
[17] = Key_Track
[18] = Sine_Osc_On_Off
[19] = Sine_Osc_Level
[20] = Sine_Osc_Tune_Semitones
[21] = Sine_Osc_Tune
[22] = Sine_Osc_Key_Track_On_Off
[23] = Sine_Osc_AM_On_Off
[24] = Sine_Osc_Mod_On_Off
[25] = Sine_Osc_Mod_Source
[26] = Sine_Osc_Mod_Destination
[27] = Sine_Osc_Mod_Amount
[28] = Saw_Osc_On_Off
[29] = Saw_Osc_Level
[30] = Saw_Square_Osc_Tune_Semitones
[31] = Saw_Square_Oscillator_Amount
[33] = Saw_Square_Osc_Detune
[34] = Square_Osc_Level
[35] = Saw_Square_Osc_Mod_On_Off_1
[36] = Saw_Square_Osc_Mod_Source_1
[37] = Saw_Square_Osc_Mod_Destination_1
[39] = Saw_Square_Osc_Mod_Amount_1
[40] = Saw_Square_Osc_Mod_On_Off_2
[41] = Saw_Square_Osc_Mod_Source_2
[42] = Saw_Square_Osc_Mod_Destination_2
[43] = Saw_Square_Osc_Mod_Amount_2
[44] = Shaper_On_Off
[45] = Shaper_Drive
[46] = Envelope_Delay_Time
[47] = Envelope_Attack
[48] = Envelope_Attack_Curve
[49] = Envelope_Hold
[50] = Envelope_Decay
[51] = Envelope_Decay_Curve
[52] = Envelope_Sustain
[53] = Envelope_Release
[54] = Envelope_Release_Timer
[55] = Level_Mod_Vel_On_Off
[56] = Level_Mod_Vel_Source
[57] = Level_Mod_Vel_Destination
[58] = Level_Mod_Vel_Amount
[59] = Level_Mod_Prs_On_Off
[60] = Level_Mod_Prs_Source

[61] = Level_Mod_Prs_Destination
[62] = Level_Mod_Prs_Amount
[63] = Level_Mod_KS_On_Off
[65] = Level_Mod_KS_Source
[66] = Level_Mod_KS_Destination
[67] = Level_Mod_KS_Amount
[68] = Time_Mod_Vel_Attack_On_Off
[69] = Time_Mod_Vel_Attack_Source
[70] = Time_Mod_Vel_Attack_Destination
[71] = Time_Mod_Vel_Attack_Amount
[72] = Time_Mod_KS_On_Off
[73] = Time_Mod_KS_Source
[74] = Time_Mod_KS_Destination
[75] = Time_Mod_KS_Amount
[76] = Vibrato_On_Off
[77] = Vibrato_Wheel_On_Off
[78] = Vibrato_Depth
[79] = Vibrato_Shape
[80] = Vibrato_Speed
[81] = Vibrato_Prs_To_Depth
[82] = Vibrato_Wheel_Destination
[83] = Auto_Bend_On_Off
[84] = Auto_Bend_Depth
[85] = Auto_Bend_Vel_To_Depth
[86] = Auto_Bend_Time
[87] = Auto_Bend_KS_To_Time
[88] = Auto_Bend_Mod_Vel_On_Off
[89] = Auto_Bend_Mod_Vel_Source
[90] = Auto_Bend_Mod_Vel_Destination
[91] = Auto_Bend_Mod_Vel_Amount
[92] = Auto_Bend_Mod_KS_On_Off
[93] = Auto_Bend_Mod_KS_Source
[94] = Auto_Bend_Mod_KS_Destination
[95] = Auto_Bend_Mod_KS_Amount
[102] = Prs_To_Freq_On_Off
[103] = Prs_To_Freq
[104] = Prs_Destination
[105] = Pitch_Wheel_Amount
[106] = Pitch_Wheel_Mod_Destination
[107] = KS_to_Freq
[108] = Coarse
[109] = Octave
[110] = Filter_On_Off
[111] = Filter_Cutoff
[112] = Filter_Resonance
[113] = Filter_Envelope
[114] = Filter_Attack
[115] = Filter_Hold
[116] = Filter_Decay
[117] = Filter_Sustain
[118] = Filter_Release
[119] = Filter_Mod_On_Off

[128] = Filter_Mod_Source
[129] = Filter_Mod_Destination
[130] = Filter_Mod_Amount
[131] = Rotary_On_Off
[132] = Rotary_Speed
[133] = Rotary_Horn_Acceleration
[134] = Rotary_Horn_Slow
[135] = Rotary_Horn_Fast
[136] = Rotary_Horn_Amp_Mod
[137] = Rotary_Bass_Acceleration
[138] = Rotary_Bass_Slow
[139] = Rotary_Bass_Fast
[140] = Rotary_Bass_Amp_Mod
[141] = Rotary_Horn_Freq_Mod
[142] = Rotary_Crossover
[143] = Rotary_Balance
[144] = Rotary_Mic_Angle
[145] = Delay_On_Off
[146] = Delay_Time
[147] = Delay_Feedback
[148] = Delay_Feedback_Mode
[149] = Delay_Ratio
[150] = Delay_Damping
[151] = Delay_Mix
[152] = EQ_On_Off
[153] = EQ_Mode
[154] = EQ_Cutoff
[155] = EQ_Resonance
[156] = Reverb_On_Off
[157] = Reverb_Time
[158] = Reverb_Pre_Delay
[159] = Reverb_Low_Cut
[160] = Reverb_High_Cut
[161] = Reverb_Damping
[162] = Reverb_Mix
[163] = Volume
[164] = Pan
[165] = Key_Pan_On_Off
[166] = Limiter_On_Off
[167] = Limiter_Mode
[168] = Limiter_Release_Time
[169] = Poly_Mode_On_Off
[170] = HF_Correction_On_Off
[171] = Sustain_Pedal_Mode
[172] = Glide_Mode
[173] = Glide_Time
[174] = Glide_Mod_On_Off
[175] = Glide_Mod_Source
[176] = Glide_Mod_Destination
[177] = Glide_Mod_Amount
[178] = KS_Curve_1_Mod_On_Off
[179] = KS_Curve_1_Mod_Source

[180] = KS_Curve_1_Mod_Destination
[181] = KS_Curve_1_Mod_Amount

10 Device Remote information

Scope Oenkenstein Audio nl.oenkenstein.RK2B				
Remotable	**Min**	**Max**	**Input type**	**Output type**
Sample Select	0	255	Value	ValueOutput
Wave Osc On Off	0	1	Toggle	ValueOutput
Wave Osc Volume	0	4194304	Value	ValueOutput
Wave Osc Tune	0	4194304	Value	ValueOutput
Fine Tune	0	4194304	Value	ValueOutput
Key Track	0	4194304	Value	ValueOutput
Sine Osc 1 On Off	0	1	Toggle	ValueOutput
Sine Osc Level	0	4194304	Value	ValueOutput
Sine Osc Tune Semitones	0	72	Value	ValueOutput
Sine Osc Tune	0	100	Value	ValueOutput
Sine Osc Key Track On Off	0	1	Toggle	ValueOutput
Sine Osc AM On Off	0	1	Toggle	ValueOutput
Sine Osc Mod On Off	0	1	Toggle	ValueOutput
Sine Osc Mod Source	0	23	Value	ValueOutput
Sine Osc Mod Destination	0	1	Toggle	ValueOutput
Sine Osc Mod Amount	0	4194304	Value	ValueOutput
Saw Osc On Off	0	1	Toggle	ValueOutput
Saw Osc Level	0	4194304	Value	ValueOutput
Saw Square Osc Tune Semitones	0	72	Value	ValueOutput
Saw Square Oscillator Amount	0	6	Value	ValueOutput
Saw Square Osc Detune	0	4194304	Value	ValueOutput
Square Osc Level	0	4194304	Value	ValueOutput
Saw Square Osc Mod On Off 1	0	1	Toggle	ValueOutput
Saw Square Osc Mod Source 1	0	23	Value	ValueOutput
Saw Square Osc Mod Destination 1	0	3	Value	ValueOutput
Saw Square Osc Mod Amount 1	0	4194304	Value	ValueOutput
Saw Square Osc Mod On Off 2	0	1	Toggle	ValueOutput
Saw Square Osc Mod Source 2	0	23	Value	ValueOutput
Saw Square Osc Mod Destination 2	0	3	Value	ValueOutput
Saw Square Osc Mod Amount 2	0	4194304	Value	ValueOutput
Osc Shaper On Off	0	1	Toggle	ValueOutput
Osc Shaper Drive	0	100	Value	ValueOutput
Envelope Delay Time	0	99	Value	ValueOutput
Envelope Attack	0	100	Value	ValueOutput
Envelope Attack Curve	0	4194304	Value	ValueOutput
Envelope Hold	0	100	Value	ValueOutput
Envelope Decay	0	100	Value	ValueOutput
Envelope Decay Curve	0	4194304	Value	ValueOutput
Envelope Sustain	0	4194304	Value	ValueOutput
Envelope Release	0	100	Value	ValueOutput
Envelope Release Timer	0	4194304	Value	ValueOutput
Level Mod Vel On Off	0	1	Toggle	ValueOutput
Level Mod Vel Source	0	23	Value	ValueOutput
Level Mod Vel Destination	0	2	Value	ValueOutput
Level Mod Vel Amount	0	4194304	Value	ValueOutput
Level Mod Prs On Off	0	1	Toggle	ValueOutput
Level Mod Prs Source	0	23	Value	ValueOutput

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Remotable	Min	Max	Input type	Output type
Level Mod Prs Destination	0	2	Value	ValueOutput
Level Mod Prs Amount	0	4194304	Value	ValueOutput
Level Mod KS On Off	0	1	Toggle	ValueOutput
Level Mod KS Source	0	23	Value	ValueOutput
Level Mod KS Destination	0	2	Value	ValueOutput
Level Mod KS Amount	0	4194304	Value	ValueOutput
Time Mod Vel Attack On Off	0	1	Toggle	ValueOutput
Time Mod Vel Attack Source	0	23	Value	ValueOutput
Time Mod Vel Attack Destination	0	5	Value	ValueOutput
Time Mod Vel Attack Amount	0	4194304	Value	ValueOutput
Time Mod KS On Off	0	1	Toggle	ValueOutput
Time Mod KS Source	0	23	Value	ValueOutput
Time Mod KS Destination	0	5	Value	ValueOutput
Time Mod KS Amount	0	4194304	Value	ValueOutput
Vibrato On Off	0	1	Toggle	ValueOutput
Vibrato Wheel On Off	0	1	Toggle	ValueOutput
Vibrato Wheel Depth	0	4194304	Value	ValueOutput
Vibrato_Shape	0	5	Value	ValueOutput
Vibrato Speed	0	80	Value	ValueOutput
Vibrato Prs To Depth	0	4194304	Value	ValueOutput
Vibrato Wheel Destination	0	1	Toggle	ValueOutput
Auto Bend On Off	0	1	Toggle	ValueOutput
Auto Bend Depth	0	4194304	Value	ValueOutput
Auto Bend Vel To Depth	0	4194304	Value	ValueOutput
Auto Bend Time	0	100	Value	ValueOutput
Auto Bend KS To Time	0	4194304	Value	ValueOutput
Auto Bend Mod Vel On Off	0	1	Toggle	ValueOutput
Auto Bend Mod Vel Source	0	23	Value	ValueOutput
Auto Bend Mod Vel Destination	0	6	Value	ValueOutput
Auto Bend Mod Vel Amount	0	4194304	Value	ValueOutput
Auto Bend Mod KS On Off	0	1	Toggle	ValueOutput
Auto Bend Mod KS Source	0	23	Value	ValueOutput
Auto Bend Mod KS Destination	0	6	Value	ValueOutput
Auto Bend Mod KS Amount	0	4194304	Value	ValueOutput
Prs To Freq On Off	0	1	Toggle	ValueOutput
Prs To Freq	0	4194304	Value	ValueOutput
Prs Destination	0	2	Value	ValueOutput
Pitch Wheel Amount	0	100	Value	ValueOutput
Pitch Wheel Mod Destination	0	2	Value	ValueOutput
KS to Freq	0	4194304	Value	ValueOutput
Coarse	0	127	Value	ValueOutput
Octave	0	6	Value	ValueOutput
Filter On Off	0	1	Toggle	ValueOutput
Filter Cutoff	0	100	Value	ValueOutput
Filter Resonance	0	4194304	Value	ValueOutput
Filter Envelope	0	4194304	Value	ValueOutput
Filter Attack	0	100	Value	ValueOutput
Filter Hold	0	100	Value	ValueOutput
Filter Decay	0	100	Value	ValueOutput
Filter Sustain	0	4194304	Value	ValueOutput
Filter Release	0	100	Value	ValueOutput

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Remotable	Min	Max	Input type	Output type
Filter Mod On Off	0	1	Toggle	ValueOutput
Filter Mod Source	0	23	Value	ValueOutput
Filter Mod Destination	0	1	Toggle	ValueOutput
Filter Mod Amount	0	4194304	Value	ValueOutput
Rotary On Off	0	1	Toggle	ValueOutput
Rotary Speed	0	2	Value	ValueOutput
Rotary Horn Acceleration	0	4194304	Value	ValueOutput
Rotary Horn Slow	0	100	Value	ValueOutput
Rotary Horn Fast	0	100	Value	ValueOutput
Rotary Horn Amp Mod	0	4194304	Value	ValueOutput
Rotary Bass Acceleration	0	4194304	Value	ValueOutput
Rotary Bass Slow	0	100	Value	ValueOutput
Rotary Bass Fast	0	100	Value	ValueOutput
Rotary Bass Amp Mod	0	4194304	Value	ValueOutput
Rotary Horn Freq Mod	0	4194304	Value	ValueOutput
Rotary Crossover	0	100	Value	ValueOutput
Rotary Balance	0	4194304	Value	ValueOutput
Rotary Mic Angle	0	100	Value	ValueOutput
Delay On Off	0	1	Toggle	ValueOutput
Delay Time	0	100	Value	ValueOutput
Delay Feedback	0	4194304	Value	ValueOutput
Delay Feedback Mode	0	1	Toggle	ValueOutput
Delay Ratio	0	100	Value	ValueOutput
Delay Damping	0	100	Value	ValueOutput
Delay Mix	0	4194304	Value	ValueOutput
Filter EQ On Off	0	1	Toggle	ValueOutput
Filter EQ Mode	0	5	Value	ValueOutput
Filter EQ Cutoff	0	100	Value	ValueOutput
Filter EQ Resonance	0	4194304	Value	ValueOutput
Reverb On Off	0	1	Toggle	ValueOutput
Reverb Time	0	4194304	Value	ValueOutput
Reverb Pre Delay	0	100	Value	ValueOutput
Reverb Low Cut	0	100	Value	ValueOutput
Reverb High Cut	0	100	Value	ValueOutput
Reverb Damping	0	100	Value	ValueOutput
Reverb Mix	0	4194304	Value	ValueOutput
Volume	0	4194304	Value	ValueOutput
Pan	0	100	Value	ValueOutput
Key Pan On Off	0	1	Toggle	ValueOutput
Limiter On Off	0	1	Toggle	ValueOutput
Limiter Mode	0	2	Value	ValueOutput
Limiter Release Time	0	5	Value	ValueOutput
Poly Mode On Off	0	1	Toggle	ValueOutput
HF Correction On Off	0	1	Toggle	ValueOutput
Sustain Pedal Mode	0	3	Value	ValueOutput
Glide Mode	0	2	Value	ValueOutput
Glide Time	0	4194304	Value	ValueOutput
Glide Mod On Off	0	1	Toggle	ValueOutput
Glide Mod Source	0	23	Value	ValueOutput
Glide Mod Destination	0	5	Value	ValueOutput
Glide Mod Amount	0	4194304	Value	ValueOutput

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Remotable	Min	Max	Input type	Output type
KS Curve 1 Mod On Off	0	1	Toggle	ValueOutput
KS Curve 1 Mod Source	0	23	Value	ValueOutput
KS Curve 1 Mod Destination	0	9	Value	ValueOutput
KS Curve 1 Mod Amount	0	4194304	Value	ValueOutput
Mod Wheel	0	127	Value	ValueOutput
Breath Control	0	127	Value	ValueOutput
Expression	0	127	Value	ValueOutput
Sustain Pedal	0	127	Value	ValueOutput
Aftertouch	0	127	Value	ValueOutput
Pitch Bend	-8192	8191	Value	ValueOutput
Device Name	0	0	-	TextOutput
Patch Name	0	0	-	TextOutput
Select Patch Delta	0	0	Delta	TextOutput
Select Previous Patch	0	0	Trig	TextOutput
Select Next Patch	0	0	Trig	TextOutput