*electro*ACOUSTIC

user guide

Soniccouture

TABLE OF CONTENTS

LIBRARY SPECIFICATIONS

- 15 vintage drum machines. All original settings sampled at 5 round robins per hit.
- Channels: Dry, Neve 1073, EMI TG12345 Desk compressor, Ampeg Bass Amp, Thermionic Culture Rooster preamp, PA mics HiGH, MID, LOW, State Of The Ark Studio Room mics, Monnow Valley glass room mics, Drum resonance mics, Drum shell rattles
- 24 bit 48 khz sampling
- 30 GB library (14 GB with NCW compression)
- over 87,000 samples
- Custom KSP Beat Tools: Euclidean Beats, Poly Beats, Beat Shifter

STUDIO DRUM MACHINES

The PA setup at Monnow Valley, March 2016

Electro-Acoustic was born from an idea to make a different studio drum instrument - not an acoustic drum VSTi, with thousands of layers and mic channels, sounding totally realistic, but something with a similar spec, focussed toward electronica, hip-hop and pop production. Since vintage drum-machine sounds are still the main currency in those forms of music, we wanted to see if it was possible to add an acoustic, organic edge to those classic sounds and create something new.

The first stage was to extensively sample a selection of drum-machines at line level, using a high-grade mastering AD convertor. In order to make this a comprehensive set, every setting possible on each unit was sampled. For example, in the case of the TR-808, each of the 11 marker positions around each knob was sampled, with every combination of every other knobs 11 positions. This was an exhausting process, and one which results in the 808 kick drum occupying 1GB of data by itself.

March 2016: a studio session was booked at Monnow Valley Studios in Wales, UK: a studio with a rich rock heritage. The idea was to set up a club PA as a 'drum-kit' to project the sound in a broadly similar way into the room, to capture the room ambience.
An Ampeg Bass cabinet with a valve-head was set up in the studio's amp cupboard, and driven very hard. Additionally, an single channel was taken through the studios Thermionic Culture Rooster preamp - with some 'attitude' dialled in. A rattling window was mic'd with a contact mic, and a stack of unused toms was placed at the far end of the room and mic'd up to capture drum shell resonances.

The PA setup at SOTA Studios, August 2016

This was very much a 'first experiment' into the studio drum machines concept. Some of it worked, some of it didn't. Upon listing to the recordings back in the SC studios, what became clear is that the PA mics themselves were also very interesting indeed, something that hadn't been part of the original idea. Unfortunately, because the PA had been setup in an unusual way, the phase relationships between the PA mics were all over the place, so could not be used.

A second session was booked in August 2016, at State of The Ark studios in London. A smaller room this time, but with a killer selection of vintage analogue gear - the pride of place being an EMI TG desk, previously used by The Rolling Stones, amongst others. This time the PA was set up in a conventional stack formation, and the mics lined up with precision. In the studios drum booth we set up an acoustic drum kit, and a small sub-woofer to send a sub only feed from the drum machines - in this way we planned to capture the sound of the drum kit shaking, then filter out the sub-bass later. A channel was also routed through the legendary compressor on the EMI desk, and driven hard.

This session was very successful, with some great sounds captured over 2 days recording.

An additional session at SC studios captured more 'rattle' sounds - another drum kit, room rattles, boxes of screws, tins - a selection of small sonic artefacts that could be triggered with drums at a low level to give a real life, organic recording feel.

The combination of the channels captured at the two studios made a very exciting set of different colours to work with to create new drum sounds. Combing these into a flexible Kontakt instrument was the next challenge, turning into one of the most complex programming jobs on many of our instruments.
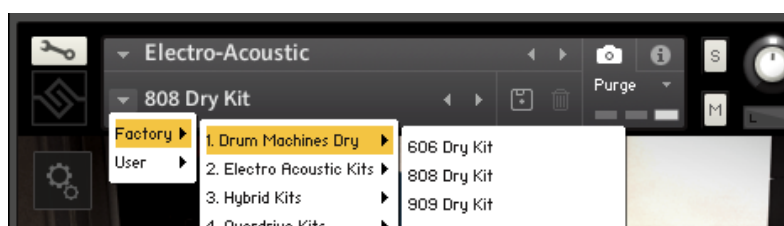
THE KONTAKT INSTRUMENT

 You can hover your mouse over any control in this library to get information about its function if you have the Kontakt Info pane activated.

SNAPSHOTS

To access the preset kits, click the 'camera' icon at the top of the Kontakt window. From here you can load the snapshot presets and save your own.

DRUM MACHINE PANEL

Clicking on any drum in the main image will show the corresponding panel at the bottom left of the screen. Here you can choose a drum type from a list of 15 different drum machines.

DRY: The pure line level signal from the original unit

ACCENT: This sets the level of the accent sample where one is available. Accents are triggered above Velocity 100.

PARAMETER CONTROLS: The two lower knobs contain original sampled hardware parameters, where available. In the case of the 909, shown, there is **TUNE** and **ATTACK**. Each of the 11 positions on both knobs represents a different 909 sample set. e.g. setting TUNE 1, ATTACK 4 will give the corresponding setting from the original 909 hardware unit. This means there are 121 different settings between the two knobs.

PADLOCK : Because so much memory is used by all the samples required for the 808 + 909 main drums, the second knob only loads the setting shown. If the Lock is shown in the 'unlock' position all samples are loaded, requiring much more RAM. The lock can be unlocked and relocked as desired to reduce RAM load.

THE CHANNELS

Each of the 11 channel knobs represents a different sampled signal for the selected drum. These can be blended with the dry signal for subtle effects, or used solo or in any combination desired.

1073: Sampled from a vintage Neve 1073 preamp. The signal was overdriven hard, so that it can be blended with other signals to give a variable amount of harmonic distortion effect, or used an extreme sound-design element at higher amounts.

VALVE: Sampled from a Thermionic Culture Rooster preamp. A moderate overdrive setting was used, in contrast to the 1073 channel, it is still far from clean.

EMI COMP: Sampled from the EMI TG12345 desk at State Of The Ark studios, this is an extreme compression effect. This channel is very useful for adding extra attack to a drum.

AMP: Sampled from an Ampeg Bass Amp. Driven hard, very crunchy, this is great blending with kick drums and hi-hats for a totally new character.

ROOM 1: Sampled from the live room at State Of The Ark studios - a stereo Royer ribbon mic in the far back corner of the rooms mezzanine area, this has huge character and features the sound of the wire metal staircase shaking at high volume from the PA speakers.

ROOM 2: Sampled from the live room at Monnow Valley Studios. a stereo pair of KM84s high up in the glass area, behind the PA speakers, give a very big, indirect ambient room sound.

KIT RES: Sampled at Monnow Valley studios - a pile of unused tom drums was left in the huge live room. We mic'd it up and recorded the sound of the drums resonating as the PA speakers saturated the room with sound. Blending this signal gives a huge sound to kick drums and a realistic ring to snares and toms.

RATTLE: This channel is slightly different to the others as it does not contain a 'direct' signal from the drum machines - so it does not have an individual sample-set for every single hit as the others do. Instead, it is a collection of drum shell rattles - whole kits, single drums, snare wires, etc. Each still has 5 round robins per hit, as do all channels in Electro Acoustic, but if you select the 'full drum kit' sound in the menu, then this will be the same sound whether you add it to a kick or a snare.

The set is divided into drum rattles at the top of the list, and general rattles and artefacts in the bottom half. The 'Exit Sign' rattles were recorded in SOTA studios, using a contact mic on an exit sign above the door.

At the bottom of the rattles pull-down menu there is a STEREO / MONO switch, so you can adjust the stereo width of the rattles themselves.

```
OFF
Drum Kit_____
Full Drum Kit
Full Drum Kit Long
Kick & Snare Only
Full Drum Kit Damped
Full Drum Kit Snare
Full Drum Kit 2
Snare Wire Loose
Snare Wire Tight
Snare Wire Tom Rattle 1
Snare Wire Tom Rattle 2
Room_____
    *   Batteries
Box of Stuff Long
Brackets
Cutlery
Drum Rattle
Oven Tin
Room Rattle
Screwbox
Step Ladder Quiet
Tambourine
Tissue Tunnel
Exit Sign Short
Exit Sign Medium
Exit Sign Long
    _____
    *   Stereo
Mono
```

PA HI: A stereo signal made up of a close tweeter mic and a close high-mid mic on the PA system. Both are panned to centre, but if you want to increase the stereo width, use the STEREO WIDTH control on the mixer channel.

PA MID: A stereo pair a few feet back from the PA, aiming at the midrange units. This has an unusual colour and some ambience in it.

PA LOW: A mono signal from the PA subwoofers. Recorded with Neumann FET47s into Neve preamps, this sounds incredibly fat and can be used to reinforce kicks and snares or with the PA high channel to make big, organic drum sounds.

CONTROL BAR

Seven buttons appear in the control bar, above the editor in the middle.

On the Left edge there are two, these are:

OPTIONS

This selects the Options page.

MIXER

This selects the Mixer page.

On the Right edge there are five, these are, from left to right:

PLAY

This starts and stops the current Beat Tools sequence.

MIDI SELECT

If the MIDI Select button is on, your playing will select the drum for editing.

AUDITION

If the AUDITION button is on, clicking on the drum graphics will play that drum.

LINK

If you have the LINK button activated (or else hold down ALT) while adjusting any of the CHANNEL controls, that control will be copied to all the drums at once. NB. This does not link the Parameter Panel functions, like the filter, and EG controls, etc.

FOCUS

If you click on FOCUS, a single drum will be spread across the entire keyboard. The last drum played before you hit FOCUS is the chosen drum to FOCUS.

THE PARAMETER PANEL

These controls shape the sampled signals on the channel knobs. The pitch, envelope, and velocity response of a drum can be controlled here using the various knobs.

A second set of controls featuring high and low pass filters can be accessed by clicking the white squares in the bottom right corner, as shown in the pic sure to the left. The filters can be bypassed using the white squares, this will save CPU.   RES applies to LPF only.

CURVE: This changes the ATTACK curve from concave (far left) to Convex (far right)

IMPORTANT: EDIT MODE!!

ALL: If 'ALL' is displayed then the parameter knobs will affect all that drum's channels at once (1073, AMP, VALVE, etc)

ONE: If 'ALL' is clicked and 'ONE' is displayed (see pic above), *then only the channel selected will be edited by the parameter knobs.* Channels are selected by clicking on the knob.

In the above example, the VALVE channel is selected for editing, as indicated by the white highlight. This means that if you change the envelope, or the pitch, or the velocity or the filters, then *ONLY THE HI-HAT VALVE CHANNEL WILL BE AFFECTED.* This can be confusing until you get used to it, but it's a very very powerful feature which enables complex and fun sound design.

THE MIXER

Open the Mixer panel using the button near the left end of the control bar.

MIXER CHANNELS:

Select each mixer channel by clicking on the drum name. Channels can be SOLO'd or MUTED by clicking the red or green squares. Each drum has its own channel strip featuring:

EQUALISER: 3band EQ with sweepable midrange. Activate using square at top right.

COMPRESSOR: Simple compressor unit. Activate using square at top right.

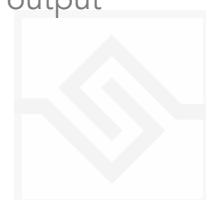**SAT:** Saturation effect. Adds gentle distortion to the sound.

REVERB: The send level to the Reverb unit, which can be edited by clicking on the REVERB channel.

STEREO: increase or decrease the stereo width of the channel. Mono signals will be unaffected, so if you have not used any of the stereo drum channels (ROOM1 + 2, RATTLE, PA HI + MID) you will not hear any effect.

OUTPUT: Route the entire drum channel to a different Kontakt output, for mixing in your DAW.
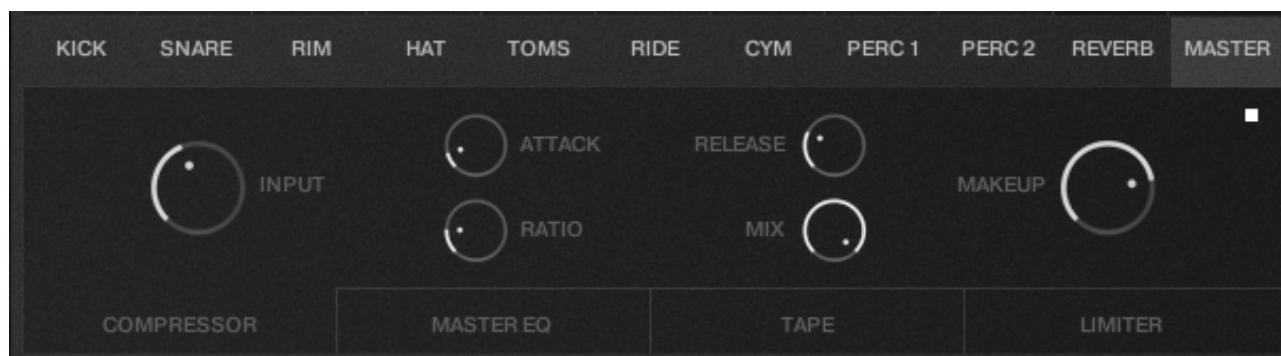
REVERB

The reverb unit is a custom convolution processor featuring our own IR collection, and is used by increasing the send control on the individual mixer channels. The overall output of the reverb unit can be controlled using the dedicated reverb fader.

Activating the reverb will use extra CPU.

MASTER CHANNEL

Selecting the Master channel brings up 4 different processors, which affect the main stereo output only. Each effect can be selected using the tabs at the bottom, and activated using the white square at the top right. Be aware that each extra processor you activate will increase CPU usage.

COMPRESSOR: A feedback compressor. The harder you drive the input, the more of the signal is compressed. Use the MIX control for a parallel compression effect.

MASTER EQ: modelled SSL-type EQ with 4 bands.

TAPE: Tape saturation effect. GAIN increases the drive, WARMTH fattens the signal, and HF cut chops the top off.

LIMITER: Limits the output to prevent clipping.

OPTIONS

Open the options panel by clicking the button left edge of the control bar. Here you can adjust certain settings for each drum.

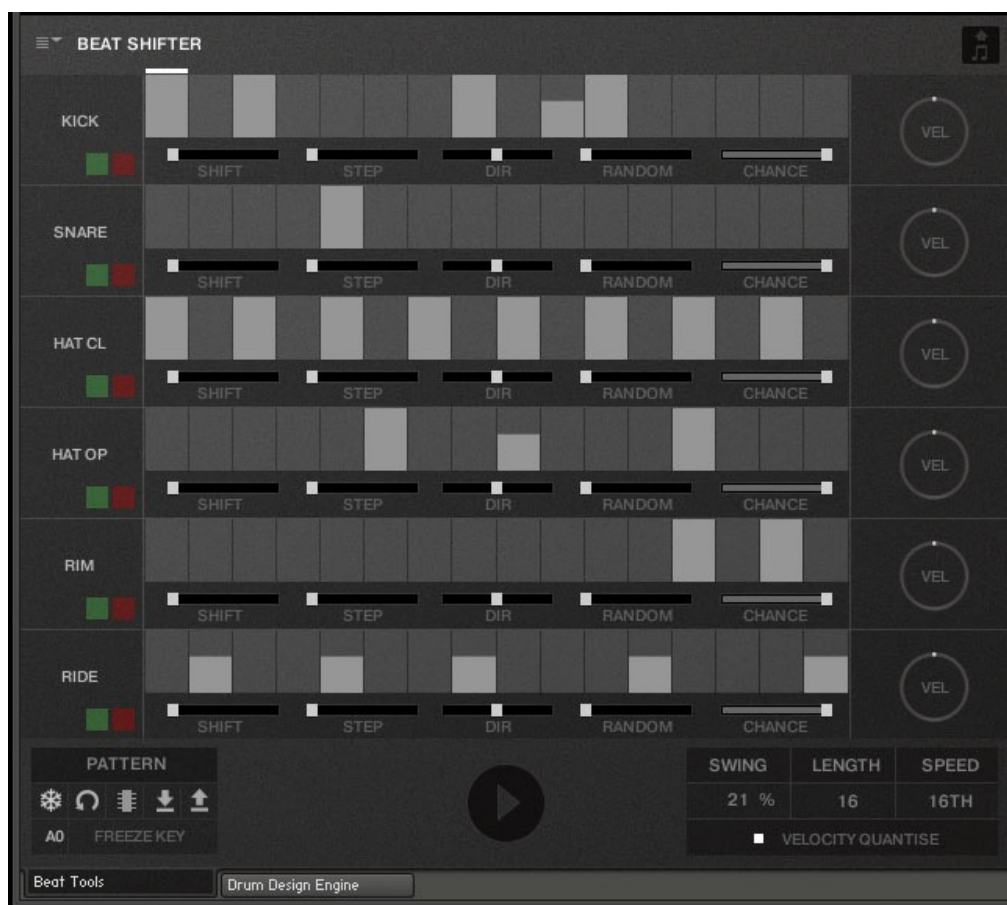

MIDI KEY: edit which key the drum appears on.

POLY LIMIT: Because each drum has 11 channels, Electro-Acoustic can quickly use a lot of polyphony. To address this, we have a custom polyphony limiting system, which you can set to either 1 or 2 hits of each drum (including all 11 channels in total).

e.g. POLY LIMIT 1 = 11 kontakt voices used before being cut off, POLY LIMIT 2 = 22 kontakt voices used before cut off.

ROUND ROBIN : The small R to the right of each drum name is the round robin enable switch.   By default these are on, but you can disable round robin behaviour for any individual drum if you like.

BEAT TOOLS: BEAT SHIFTER

BASIC CONTROLS

PLAY: The Beat Shifter is enabled when the play arrow is pressed (bottom centre). If Electro-Acoustic is running within a host DAW, the host transport will control the start and stop of the beat.

There are six tracks that have identical controls. Firstly, using the drop down menu on the left, you can choose which sound in the current kit you want to trigger with that row, here the first row is set to KICK. The table allows you to draw notes at varying velocities, which will be triggered by the cursor as it moves across the screen.

VEL adjusts a velocity offset for that track.

SOLO or **MUTE** that track if you like with the green and red square buttons.

BEAT SHIFTING

Where things get interesting are with the five small sliders along the bottom of each track, which are labelled **SHIFT, STEP**, **DIR**ection, **RANDOM**, and **CHANCE**.   These introduce changes that evolve the pattern while it's repeating.

SHIFT controls the likelihood of the hits in that track moving shifting to the left or right (earlier or later) in time.   When it's at zero, all the way left, the pattern hits stay exactly as you drew it, and no shifting will happen.   The further right the slider the higher the chance of a SHIFT, the more likely it is that the hits will shift on each repeat.   When the pattern SHIFTS, it moves your programmed beat to other positions on the grid, thus altering and evolving the beat based on what you started with.

STEP size tells the generator how far to shift, if a shift is to happen.   If STEP is set to 1, then a note can only shift one grid position at a time. If it's set to 2, then if a note shifts, it will shift two grid positions, etc.   Note that if you set STEP to even numbers your beat will evolve in more naturally rhythmic ways than if you set STEP to odd numbers.
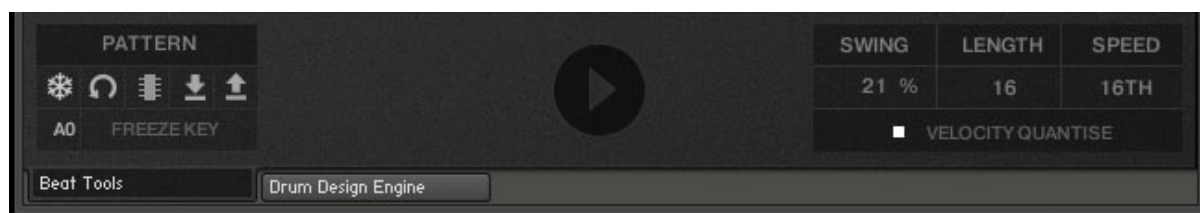
DIRECTION tells the generator in which direction to shift the beats, if a beat is to be shifted.   When it's in the middle (default), the chance of a hit moving to the left or to the right (i.e. earlier or later in the bar) is equal, so beats can move in either direction.   If the DIRECTION is set all the way to the right, then beats will ONLY move to the right (later), and if set all the way to the left, beats will only move to the left.   Note that hits will "wrap" from the end of the bar to the beginning, or from the beginning to the end, if moved beyond the beat LENGTH.

RANDOM slider introduces small amounts of randomicity to the velocity of the played notes if you want to introduce some more human feel.

CHANCE slider sets the percentage chance of a hit happening.   If CHANCE is at 100%, the beat will play as you see it, if CHANCE is at 50% then about half of the hits won't play at all.

GLOBAL CONTROLS

PATTERN MENU

FREEZE sets all SHIFT sliders to zero, freezing the pattern as it is, and stops it evolving on the next repeat. This is useful if you suddenly hear a pattern you like, and want to keep it. You can assign a MIDI note below the FREEZE icon to trigger the FREEZE function if you like.

REVERT sets the pattern to how it was the last time you hit STORE

STORE stores the current state of the pattern

SAVE saves the pattern to disk, so you can share it with other kits

LOAD loads a pattern from disk

SEQUENCER CONTROLS

SWING adds swing to the rhythm of the beat.

LENGTH is the length of the pattern in steps.

SPEED sets the duration of each step.

VELOCITY QUANTISE: forces the editor to quantise velocities to either 0, 100, or 127. Note that VELOCITY QUANTISE doesn't quantise the existing pattern, but only those you attempt to edit. This way you can mix quantised tracks with unquantised tracks.

MIDI DRAG icon that lets you drag the current pattern out to your DAW or your desktop as a standard MIDI file.

BEAT TOOLS: EUCLIDEAN BEATS

Euclidean Beats are a way of thinking about rhythm that has become popular over the last few years. Essentially the basic idea is to take a number of STEPS (say a bar of 16 steps) and evenly distribute a number of HITS within those steps. If you use 16 STEPS and evenly distribute 4 HITS, you get a very basic 4 beat bar, since the most even way to divide 4 HITS in 16 STEPS is to put one HIT every 4 STEPS. So far so disco.

It gets more interesting when the numbers are less even. For example, 3 HITS in 8 STEPS gives you a nice funky rhythm that's quite commonly heard in a lot of different musical styles.

Another thing you can then do to those HITs is SHIFT their position. The default is always to start with a HIT, so the first HIT will typically occur on STEP 0. However if you SHIFT earlier or later you get a slightly different rhythm, even though it will still be built from same basic ratio of 3 HITS to 8 STEPS.

TRACK CONTROLS

There are six tracks each with identical controls.

STEPS sets the length of the pattern

HITS sets the number of times to strike that drum during those STEPS. You cannot alter how those HITS are distributed within the STEPS, they are always evenly distributed (Euclid's algorithm).

SHIFT moves the position of the hits earlier or later.

ACCENT lets you add a certain number of accents to the hits. ACCENTS are evenly distributed among the HITS using the same algorithm used to distribute the HITS among the STEPS (Euclid again).

GLOBAL CONTROLS

PLAY Clicking on this PLAY control starts the beat pattern. Clicking again on it will stop the beat pattern. Within a DAW the generator will start and stop with your host transport.

RATE is the sync note value (from 1/4 note to 1/32 note), and is always calculated in relation to the host tempo. SWING adds a shuffle to the beat.

LOOP forces the pattern to restart after a certain number of steps. This might not be obvious at first, but you can potentially create a pattern with odd numbered steps needing several years before the sequence would naturally repeats at the beginning again. To force those kind of things into a usable musical time-frame you can set the LOOP as you like. (You can also set LOOP to NEVER if you don't like to dance.)

MIDI DRAG You can drag the pattern as a MIDI file to your DAW using the MIDI drag button at the top right.

If you'd like to read more about Euclidean beats and why they're getting so much attention, Google Godfried Toussaint, he wrote an original paper that started the fad some years ago.

BEAT TOOLS: POLY BEATS

Poly Beats is a way to divide the bar into arbitrary subdivisions, or polyrhythms.

(This is distinct from the poly*metric* behaviour of Euclid, which loops different tracks after various numbers of steps, but in which the steps are all the same duration. In a poly*rhythm* the overall pattern length stays constant, and the duration of the steps is adjusted to fit the required steps into that pattern length. The pattern length in Poly Beats is always one bar.)

Polyrhythms can quickly sound very strange and unnatural, this is definitely the beat programmer for the left field composer.

CONTROLS

There are 6 identical tracks.

ON / OFF   LOCK   VELOCITY MENU   VEL   GRID SIZE

DRUM TYPE

Drum type and On/Off switch at the far left of each track.   On the far right the large knob with the numerical is the divisor. If you set this to 8, you will divide the bar into 8th notes. Note that you are only adjusting the GRID size… where you choose to draw your beats is still up to you, the velocity etc is still editable.

VELOCITY FADER offsets the velocity values of the entire track

VELOCITY MENU contains quick tools for populating the steps with different patterns.

LOCK Any track with the padlock shut will be excluded from the RANDOMISE function, see below.

GLOBAL CONTROLS

PLAY starts or stops the sequence. If you are in a DAW the host transport control will also start and stop the sequence.

RANDOMISE randomly changes the grid size of each track, and notes occurring on that track. To the right is a menu with some choices about how to randomise the polyrhythmic grids, choosing only powers of 2 or 3, even, or odd values.

MAXIMUM STEPS The maximum grid size that randomise can create.

VELOCITY QUANTISE forces any edits made to set the velocity of each step to quantise to 0, 100, or 127.

MIDI DRAG You can drag the pattern as a MIDI file to your DAW using the MIDI drag button at the top right.

SUPPORT

If you have any problems or questions relating to the use of this product, please feel free to contact us. You can email us at :

support@soniccouture.com

We will always endeavour to reply to any enquiry within 12 hours. We are based in the UK, so please bear in mind differences in time zones.

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