

RumpelKiste

A rhythm composer, from the schematic up



Version 0.2.0

CLAP and VST3 instrument for Linux and Windows

Part of the Audio Plugins

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RumpelKiste — manual

A drum machine with its own step sequencer. Linux and Windows, CLAP and VST3.

Version 0.2.0

Contents

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- 1. What it is
- 2. Playing it
- 3. The voices
- 4. The drive bus
- 5. The hi-hats and cymbals, and what stands in for the ROMs
- 6. The sequencer
- 7. The pattern generator
- 8. Presets and kits
- 9. Where the numbers came from
- Appendix. Every parameter

1. What it is



The whole instrument: every voice's knobs across the top, the drive bus and the generator under them, the step grid and the pattern bank below.

RumpelKiste models the voicing board of the classic 1984 rhythm composer — the grey box with the orange keys that house and techno were built on — as its service notes draw it. Eleven voices: bass drum, snare, three toms, rim shot, hand clap, closed and open hi-hat, crash and ride. The first seven are analog circuits and are modelled as circuits: triangle oscillators, capacitor envelopes, filters and amplifiers, with every time constant and corner frequency worked out from the component values. The hi-hats and cymbals were six-bit samples in the machine's ROMs, and here they run through the same six-bit path with a synthesised stand-in for the recordings — see §5.

It plays two ways: from the host, on the machine’s own MIDI key numbers, or from its own sequencer, which runs one to sixty-four steps and draws on a bank of sixty-four patterns.

One stage is added that the machine does not have: a **drive bus** with ten distortion models, which can take the whole kit or only the voices you choose — see §4.

Seventy-six parameters, nineteen presets.

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2. Playing it

Mode, on the SEQUENCER panel, says whether the pattern plays.

- **Sequencer** runs the pattern bank locked to the host’s transport. Start the host and the pattern starts on the song’s beat; loop, scrub or change the tempo and it follows. With the host stopped, the **PLAY** button in the grid’s title row runs the pattern on its own at the host’s tempo.
- **MIDI** switches the sequencer off and leaves the host to play the voices.

In both modes incoming notes play the voices, on the machine’s own key numbers — which are also where the General MIDI drum map puts them:

KEY	VOICE	KEY	VOICE
35, 36	Bass drum	42, 44	Closed hi-hat
37	Rim shot	45, 47	Mid tom
38, 40	Snare drum	46	Open hi-hat
39	Hand clap	48, 50	Hi tom
41, 43	Low tom	49, 57	Crash
		51, 53, 59	Ride

So you can play along with the pattern from a pad controller, or program the drums in the host’s piano roll with Mode on MIDI.

ACCENT

The machine’s accent is a switch, not a curve, and it has two kinds:

- **Total accent** is a property of a step. Every voice playing on an accented step is raised by the **Accent** knob on the MASTER panel.
- **Local accent** belongs to one voice on one step, and has a fixed strength (**Local Accent**, under ADVANCED).

An accent does more than raise the level. It reaches every envelope in a voice: an accented kick sweeps from higher up and clicks harder, an accented snare has more snap. And an unaccented hit is quiet — about a third of an accented one on the bass drum, which is how the machine is. **A pattern with no accents in it will sound small**; the accent row is the first thing to reach for.

From MIDI, a note at or above **Accent At** (default 100) plays with the Accent knob’s accent, and one below plays plain.

3. The voices

Every Level knob is a plain volume. What the others do is below; the numbers in brackets are what the circuit gives.

BASS DRUM

A triangle oscillator rounded towards a sine by a pair of diodes, swept down from well over five times its final pitch, with a click on the front. The kick holds its full level for the first 45 milliseconds or so before it starts to fall, whatever Decay says; that hold is much of its weight.

- **Tune** does not tune the kick. It sets how long the pitch *stays up* after the hit (an 8 ms to 29 ms time constant), which is heard as a higher, longer “boom” or a short, dry “thud”. The note the kick settles on is fixed by the circuit; it is **BD Pitch** under ADVANCED.
- **Attack** mixes a pulse and a burst of low-passed noise into the first millisecond or two. Even fully down there is a little click, as on the machine; the knob does most of its work in the top half of its travel.
- **Decay** shows the time constant of the circuit’s envelope (15 ms to 345 ms). What you hear after the hold is a fall of 16 ms to 64 ms. Fully down leaves a short thump, which is what the machine’s own manual suggests for muting it.

SNARE DRUM

Two oscillators a fifth apart, bent up at the hit, and two noise paths.

- **Tune** moves both oscillators together, across one octave.
- **Tone** is how long the noise tail lasts (a 24 ms to 77 ms time constant). A longer tail is a brighter, splashier snare.
- **Snappy** is how much noise there is at all: a short burst of high-passed noise as long as the trigger, and the low-passed tail Tone sets. Fully down is the drum with the snares off.

TOMS

Three oscillators per tom. The one you hear as the pitch has a second a fifth below it, which comes in a moment after the hit and gives the drum its body, and a third higher up that is gone within a few tens of milliseconds. All three bend down at the hit, with a wash of noise and a tick at the front.

- **Tune** spans one octave. At the same setting the mid tom sits 1.22 times above the low one and the hi tom 1.5 times — so the three overlap, and can be tuned to a phrase. The **Melody Toms** preset does that. The bend at the hit is the same number of hertz wherever Tune is, so a tom tuned low bends further, as an interval, than one tuned high.
- **Decay** shows the time constant of the circuit’s envelope (38 ms to 378 ms). What you hear is shorter and moves less, as on the machine: the tom holds for a moment and then dies away over roughly 45 to 115 ms on the low tom, a little faster on the other two.

RIM SHOT AND HAND CLAP

Neither has a control beyond its level.

- The **rim shot** is three resonators rung by one pulse — near 220 Hz, 490 Hz and 1 kHz — clipped hard by a pair of diodes for the first eight milliseconds or so, lopsidedly, and then left to ring on at the lowest of them. The clipping is the crack; the ring after it is the wood.
- The **hand clap** is noise through a 960 Hz band-pass, cut into four bursts ten or eleven milliseconds apart — not quite evenly, as on the machine — with a darker tail that comes in with the last one.

HI-HAT

One voice with two decays, because on the machine it is one voice: the same sample memory read from two places through one amplifier. **A closed hat cuts off an open one**, and one Level serves both.

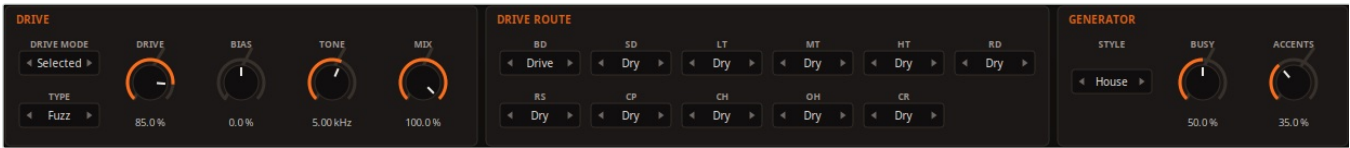
- **CH Decay** and **OH Decay** set how fast the level falls. The amplifier is a logarithmic one, so the hat falls evenly in decibels. The knobs show the circuit’s charging times; what you hear is a closed hat of 9 ms to 45 ms and an open hat of up to 120 ms, as on the machine.

CRASH AND RIDE

- **Tune** is the speed the sample memory is read at, about four semitones either way. Like retuning a sample, a higher setting is higher *and shorter*, all of it at once.

The ride has a ping and a cluster of bell tones over a longer wash; the crash is one long shimmer. Both fade faster towards their end, the way the machine's do.

4. The drive bus



The drive bus, its route switches and the generator.

The machine has no distortion. This is an insert on its output: ten models, each an equation out of the literature or a pedal's own circuit, and built differently from each other rather than merely curved differently.

Drive Mode says what goes through it:

- **Off** — nothing. The machine as it is.
- **Master** — the whole mix, like a drum machine plugged into a pedal.
- **Selected** — only the voices whose switch on the DRIVE ROUTE panel says **Drive**. The rest stay clean. A distorted kick under crisp hats, or a clap through a fuzz on its own.

Drive is how hard the bus is pushed, level-matched so that turning it up thickens rather than simply gets louder. **Bias** moves the model off its centre, which puts even harmonics in. **Tone** takes the top off afterwards. **Mix** blends the driven bus with its clean self — a hard model at 30 % is a layer under the drums rather than instead of them.

MODEL	WHAT IT IS
Soft Clip	The gentlest: a smooth ceiling.
Overdrive	Clean below a third of full scale, so quiet hits pass untouched and loud ones break up.
Tube	Sits off centre on its curve: much harder on one half of the wave, which is where its even harmonics come from.
Valve Stack	Three gain stages in a row with a filter between them.
Fuzz	No clean region at all.
Rectifier	Folds the wave, which doubles every pitch: on a kick or a tom, an octave above itself.
Crush	Bit reduction.
Germanium	A 1970s stompbox, modelled component by component: it distorts the upper harmonics and leaves the fundamental alone.
Crunch	One channel of a 1993 dual overdrive, from its service notes.
Lead	The other channel of the same pedal: more gain, a different circuit.

The hi-hat is one voice, so the closed and open hat each follow their own route switch according to which one played last.

5. The hi-hats and cymbals, and what stands in for the ROMs

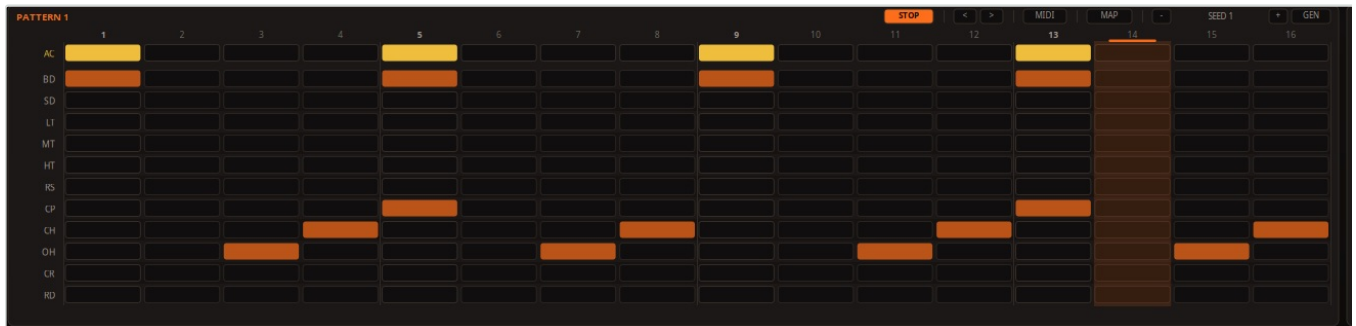
On the machine the hats, crash and ride are recordings of real cymbals, stored as six-bit samples. The samples were **compressed** before they were stored — flattened out, so the quiet end of each sound kept its resolution — and the circuit puts the decay back afterwards with an amplifier driven from the read position or from a decay capacitor.

The recordings themselves are not reproduced here. What plays instead is a synthesised metal sound, shaped to the spectrum of the real one, generated one sample at a time at the memory's own clock and put through everything the real data goes through: the six-bit converter, the hold between clock edges, and the envelope that restores the decay. That last part matters more than it sounds. Because the decay comes *after* the converter, the six-bit grit fades with the cymbal instead of sitting under it, which is a large part of why these voices sound the way they do.

Under **ADVANCED**:

- **Hat Color** and **Cym Color** set how bright the stand-in is.
- **DAC Bits** is the converters' resolution. Six is the machine. Four is louder grit; sixteen is clean.

6. The sequencer



The step grid: the accent row on top, the eleven voices below it.

THE GRID

Twelve rows. The top one, **AC**, is the total accent. The eleven below are the voices in the machine's key order: BD, SD, LT, MT, HT, RS, CP, CH, OH, CR, RD.

- **Click** a step to cycle it: off, on, accented, off. Accented steps are the bright ones.
- **Shift-click** a bass drum, snare or tom step to **flam** it (see below). A flam shows as a notch in the cell.
- **Right-click** clears a step.
- **Drag** paints whatever the first click made along the row — the only civilised way to write sixteen hats. A shift-drag paints the flam and leaves each step's level alone.
- **Click a voice's name** to mute it; it turns red and stays silent until clicked again. **Right-click a name** to hear the voice once. A name lights up when its voice plays.

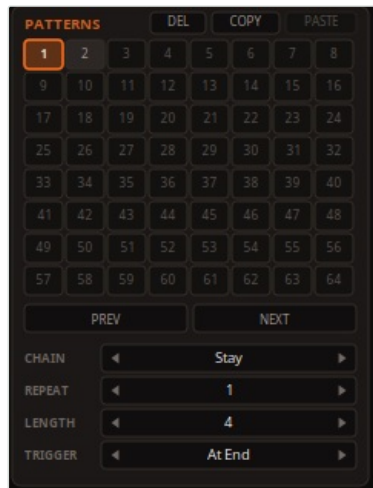
The < and > buttons walk the whole pattern a step left or right, every row at once.

LENGTH, SCALE, SHUFFLE AND FLAM

On the SEQUENCER panel:

- **Last Step** is where the pattern starts again, 1 to 64. The machine stopped at sixteen. Past sixteen the grid shows thirty-two narrower columns, and past thirty-two it scrolls.
- **Scale** is what one step is worth: a sixteenth, an eighth-note triplet, a thirty-second or a sixteenth-note triplet. The triplet scales want Last Step on 12 for one bar.
- **Shuffle** has the machine's seven settings. 1 is straight; each setting above it delays the second step of every pair a little more, and 7 is a triplet feel.
- **Flam** has the machine's eight settings: the gap between the two strokes of a flammed step. The first, lighter stroke lands on the step and the full one follows — and the gap does not change with the tempo.

THE PATTERN BANK



The bank: sixty-four patterns, the chain controls under them.

Sixty-four patterns, as an eight-by-eight grid beside the steps. Click one to edit it and to play it next; a used pattern is shaded, the playing one has a bright outline, and a pattern waiting for its turn flashes.

- **PREV** and **NEXT** step through the bank.
- **DEL** empties the selected pattern. **COPY**, click another, **PASTE**.
- **CHAIN** is what the pattern on screen does when it has played through. Every pattern has its own: **Stay** repeats it, **Next** moves to the following one and wraps round at **LENGTH**, **First** goes back to pattern 1, **Random** picks one from inside the chain.
- **REPEAT** is how many times the pattern plays before its chain moves on.
- **TRIGGER** is when a pattern you pick while the sequencer runs takes over: **At End** waits for the playing one to finish, which is the machine; **Instant** switches on the next step and keeps the place in the bar; **Restart** switches on the next step and plays the new one from its start.

The chain is worked out from the host's beat position, so looping a bar or jumping around the song always lands on the pattern that belongs there.

CHANGING PATTERNS FROM A PAD: MAP

MAP turns the bank into a pad layout. Click MAP, click a pattern (or PREV or NEXT), then play the note you want for it. From then on that note selects the pattern instead of playing a drum. Right-click a pattern in MAP to unbind it, or right-click MAP itself to clear every binding. MAP is only there in Sequencer mode. The bindings belong to your setup rather than to a sound, so they are saved with the project and not with presets.

TAKING THE PATTERN WITH YOU

Drag the **MIDI** button into the host and drop it on a track: the pattern arrives as a MIDI clip, on the key numbers above, with accents as velocity and flams as two hits. Set Mode to MIDI and the plugin plays it back as it was.

WHAT GOES OUT OF THE NOTE PORT

While the sequencer runs, every hit also goes out of the plugin's note output, on the same keys, so the pattern can drive another instrument or be recorded.

7. The pattern generator

GEN, in the grid's title row, writes a new pattern into the one on screen, using the GENERATOR panel's settings:

- **Style**: House, Techno, Electro, Breaks, Garage or Wild. Each is a set of likelihoods for every voice on every step of the bar — where the kick lands, where the claps go, whether the hats run in sixteenth or sit on the off-beat. Wild keeps a kick on one and throws the rest away. A pattern longer than a bar gets a fill in its last bar.

- **Busy:** how much is written. Low keeps what defines the style; high adds ghost notes, tom runs and extra hats. Turning it up **adds** hits to the pattern you have rather than writing a different one.
- **Accents:** how many steps carry an accent. It moves accents and nothing else.

Every pattern comes from a **seed**, shown between the - and + buttons. The same seed with the same settings always writes the same pattern, so a groove you like is a number you can write down. GEN picks a new seed; - and + step through them; click the seed to type one.

8. Presets and kits

The preset bar's arrows step through the library and the name opens the browser. **SAVE** writes the current state as a preset: the sound, the whole pattern bank and every pattern's chain. Type "Folder/Name" to save into a folder. The browser can write a folder out as one pack file and read packs back in.

A preset that carries patterns replaces the bank. **A kit** is a preset that carries none: it changes the sound and leaves the patterns — and how they are played — alone, so it can be tried under whatever groove is running. The factory library has three, and a preset you write becomes a kit if you delete its pattern lines.

RESET, clicked twice, puts every control back to the factory, including the mods, but leaves the patterns, the play mode and the clock alone.

THE FACTORY LIBRARY

19 factory presets ship with the plugin. They are installed beside the binary and exposed through CLAP preset discovery, so they appear in the host's own browser as well as in the plugin window's.

Acid Companion

Written to sit under a bass line: four to the floor, sixteenth-note closed hats with the accents on the off-beats, a rim shot where the line tends to leave a hole, and brighter hat metal. Around 130 BPM.

Big Room

Four bars chained, about 126 BPM: a crash on the first beat of the first, a long kick with its sweep held right up, and a snare roll building through the last bar with flams at the top of it.

Bitcrushed

The whole kit through the Crush model on the drive bus, mixed back at 70 %, with the hats' converter taken down to five bits. A techno groove that comes apart at the edges.

Breaks

A breakbeat at about 135 BPM: the kick on one and the and-of-three, a backbeat snare with ghost notes round it and a flam before the last one, eighth hats and an open hat at the end of the bar. Shuffle 2 loosens it just a little.

Deep Kit

A kit and nothing else: it changes the sound and leaves the patterns playing, so it can be tried under whatever groove is loaded. A low, long kick, a darker snare, deep toms and soft hats.

Dirty Kit

A kit and nothing else: kick, snare and clap through the Valve Stack on the drive bus, the hats and cymbals left clean on top. Load it under any pattern.

Factory

The machine as it leaves the factory, every knob where the table puts it, over the groove it was built for: the kick on every beat, claps on two and four and the open hat on the off-beat with the accent on it. A starting point and a reference.

Hardcore Fuzz

The kick alone through the drive bus – Drive Mode on Selected, only BD routed, the Fuzz model pushed hard with the top taken off – at 170 BPM and up. Everything else stays clean, which is what keeps the hats readable over a distorted floor.

Hot Desk

The kit through the Tube model on Master, as if the whole machine were driven into a warm desk channel: a little even-harmonic weight on everything, Bias off centre, mixed at 80 %. A house groove at about 124 BPM.

Jack Box

Chicago at about 122 BPM with Shuffle on 3: every second sixteenth late, so the closed hat skips. Claps doubled on the last sixteenth of the bar, a rim shot on the and-of-two, and a tight kick.

Melody Toms

The owner's-manual idea of a melody tom, taken seriously: each tom tuned to a note of a minor pentatonic phrase, the sweep turned down so the pitches read, long decays, and a soft floor under them. Around 118 BPM.

Minimal

Short everything: a tight kick, a rim shot and a closed hat doing most of the work, one clap in the bar and space between them. About 125 BPM.

Motor City

Around 128 BPM, the toms tuned to a minor triad and answering each other across two bars, the ride on the quarter notes and the rim shot pushing the off-beat. Mid and hi tom are tuned up from the low one rather than down, which the octave of each Tune knob allows.

Planet Funk

Electro at about 110 BPM: a broken kick with a long, low boom and its sweep held up, a bright snare on two and four with the clap under it, eighth-note hats and the toms running down at the end of the bar.

Rectified

The kick and the toms through the Rectifier model: it folds the wave over, which doubles every pitch it is given, so the drums grow an octave above themselves. Mixed at 50 % so the fundamental stays. About 120 BPM.

Six Bit Metal

The ROM voices up front: the converters down to four bits, bright metal, the ride on every quarter note and the crash on the top of the bar, so the grit that follows each cymbal down is the thing you hear. About 128 BPM.

Tight Kit

A kit and nothing else, for under a busy pattern: short, clicky kick, a snare with its tail cut and plenty of snap, closed hats barely longer than a tick.

Two Step

Garage at about 132 BPM with Shuffle on 5: a skipping kick, rim shots in the gaps, the closed hat on the sixteenths between the eighths and the clap doubling the snare.

Warehouse

Four patterns chained, about 130 BPM: the floor, then a rim shot working against it, then the ride, then a tom fill back to the top. A longer kick with its sweep held up by Tune, and the snare tail pulled short so the claps carry the backbeat.

9. Where the numbers came from

Every number in this instrument is one of four things: worked out from the circuit diagram's component values, printed in the service notes, measured from recordings of a working machine, or fitted because none of those gives it.

The worked-out ones are fixed. The toms' oscillators sit where the ratios of their capacitors put them; the rim shot's resonators sit near where their resistors and capacitors put them; the toms and the snare tune over an octave because their tuning pots sit in a two-to-one divider; the clap has four bursts because the printed waveform shows four.

The measured ones are everywhere a circuit diagram leaves something unsaid. How far and how fast each drum's pitch bends, how its envelopes hold and fall across the whole travel of every knob, how the toms' three oscillators are balanced, how the rim shot's clipping leans to one side, where the clap's bursts land, how fast the cymbals' memories are read, what the hats and cymbals sound like, how hard accent hits each voice and how loud the eleven are against each other were all measured from recordings of a real machine, voice by voice, and the voices were fitted to them until they matched. Where a recording and a component value disagreed a little — a resonator a few per cent off its nominal frequency, as real parts are — the recording won. **The fitted ones are all controls.** They are the mods under ADVANCED, and the number that was

fitted is each one's default: the frequency the kick settles on, how far it sweeps, the snare's and the toms' pitch, how long the rim shot's gate stays open, the clap's spacing, the brightness of the cymbal stand-ins, the strength of the local accent, the shuffle and flam units. The guesses are a starting point you can disagree with, not decisions buried in the engine.

The honest summary: this is built from a circuit diagram and its printed waveforms, and every voice has been measured against recordings of a real machine and fitted to them. It has not yet been compared with one by ear.

Appendix. Every parameter

The chapters above explain what each control is for. This table is the complete list, with every range and every starting value, generated from the instrument itself when this manual was built.

Every parameter, its range and where it starts, grouped the way the plugin window groups them. This table is generated from the instrument itself, so it cannot disagree with the build. What each control is for is in the chapters above. Every one is automatable and modulatable from the host, and every one can be typed in directly by clicking its value in the window; the name in `code` is the key used in preset files.

BASS DRUM

PARAMETER	RANGE	DEFAULT
Tune <code>bd_tune</code>	0.0 % ... 100.0 %	50.0 %
Level <code>bd_level</code>	0.0 % ... 100.0 %	80.0 %
Attack <code>bd_attack</code>	0.0 % ... 100.0 %	50.0 %
Decay <code>bd_decay</code>	15.5 ms ... 345 ms	73.1 ms

SNARE DRUM

PARAMETER	RANGE	DEFAULT
Tune <code>sd_tune</code>	0.0 % ... 100.0 %	50.0 %
Level <code>sd_level</code>	0.0 % ... 100.0 %	80.0 %
Tone <code>sd_tone</code>	0.0 % ... 100.0 %	50.0 %
Snappy <code>sd_snappy</code>	0.0 % ... 100.0 %	50.0 %

LOW TOM

PARAMETER	RANGE	DEFAULT
Tune <code>lt_tune</code>	0.0 % ... 100.0 %	50.0 %
Level <code>lt_level</code>	0.0 % ... 100.0 %	80.0 %
Decay <code>lt_decay</code>	38.0 ms ... 378 ms	150 ms

MID TOM

PARAMETER	RANGE	DEFAULT
Tune mt_tune	0.0 % ... 100.0 %	50.0 %
Level mt_level	0.0 % ... 100.0 %	80.0 %
Decay mt_decay	38.0 ms ... 378 ms	150 ms

HI TOM

PARAMETER	RANGE	DEFAULT
Tune ht_tune	0.0 % ... 100.0 %	50.0 %
Level ht_level	0.0 % ... 100.0 %	80.0 %
Decay ht_decay	38.0 ms ... 378 ms	150 ms

RIM / CLAP

PARAMETER	RANGE	DEFAULT
Rim Shot rs_level	0.0 % ... 100.0 %	70.0 %
Hand Clap cp_level	0.0 % ... 100.0 %	70.0 %

HI-HAT

PARAMETER	RANGE	DEFAULT
Level hh_level	0.0 % ... 100.0 %	70.0 %
CH Decay ch_decay	10.0 ms ... 110 ms	33.2 ms
OH Decay oh_decay	100 ms ... 1.10 s	332 ms

CRASH

PARAMETER	RANGE	DEFAULT
Level cr_level	0.0 % ... 100.0 %	60.0 %
Tune cr_tune	0.0 % ... 100.0 %	50.0 %

RIDE

PARAMETER	RANGE	DEFAULT
Level rd_level	0.0 % ... 100.0 %	60.0 %
Tune rd_tune	0.0 % ... 100.0 %	50.0 %

MASTER

PARAMETER	RANGE	DEFAULT
Accent accent	0.0 % ... 100.0 %	70.0 %
Volume volume	-inf dB ... 0.00 dB	0.00 dB
Accent At accent_threshold	1 ... 127	100

SEQUENCER

PARAMETER	RANGE	DEFAULT
Mode mode	MIDI, Sequencer	Sequencer
Scale scale	1/16, 1/8T, 1/32, 1/16T	1/16
Last Step steps	1 ... 64	16
Shuffle shuffle	1 ... 7	1
Flam flam	1 ... 8	3
Pattern pattern	1 ... 64	1
Chain chain_mode	Stay, Next, First, Random	Stay
Chain Length chain_length	1 ... 64	4
Trigger pattern_trigger	At End, Instant, Restart	At End
Chain Repeat chain_repeat	1 ... 256	1

GENERATOR

PARAMETER	RANGE	DEFAULT
Seed gen_seed	0 ... 4294967295	1
Style gen_style	House, Techno, Electro, Breaks, Garage, Wild	House
Busy gen_busy	0.0 % ... 100.0 %	50.0 %
Accents gen_accent	0.0 % ... 100.0 %	35.0 %

MODS

PARAMETER	RANGE	DEFAULT
BD Pitch bd_pitch	35.0 Hz ... 90.0 Hz	50.0 Hz
BD Sweep bd_sweep	1.00 x ... 8.00 x	5.60 x
BD Shape bd_shape	0.0 % ... 100.0 %	50.0 %
SD Pitch sd_pitch	120 Hz ... 300 Hz	174 Hz
Tom Pitch tom_pitch	50.0 Hz ... 160 Hz	86.0 Hz
Tom Sweep tom_sweep	0.0 % ... 100.0 %	50.0 %
Tom Noise tom_noise	0.0 % ... 100.0 %	50.0 %
Rim Gate rs_decay	2.00 ms ... 200 ms	47.0 ms
Clap Spread cp_spread	4.00 ms ... 20.0 ms	10.6 ms
Hat Color hat_color	0.0 % ... 100.0 %	50.0 %
Cym Color cym_color	0.0 % ... 100.0 %	50.0 %
DAC Bits dac_bits	4 bit ... 16 bit	6 bit
Local Accent local_accent	0.0 % ... 100.0 %	60.0 %
Shuffle Unit shuffle_unit	2.00 % ... 16.00 %	8.33 %
Flam Unit flam_unit	1.00 ms ... 10.00 ms	4.00 ms
Flam Grace flam_grace	0.0 % ... 100.0 %	60.0 %

DRIVE

PARAMETER	RANGE	DEFAULT
Drive Mode drive_mode	Off, Master, Selected	Off
Type dist_type	Soft Clip, Overdrive, Tube, Valve Stack, Fuzz, Rectifier, Crush, Germanium, Crunch, Lead	Soft Clip
Drive drive	0.0 % ... 100.0 %	35.0 %
Bias dist_bias	-100.0 % ... 100.0 %	0.0 %
Tone drive_tone	800 Hz ... 18.00 kHz	8.00 kHz
Mix dist_mix	0.0 % ... 100.0 %	100.0 %

DRIVE ROUTE

PARAMETER	RANGE	DEFAULT
BD route_bd	Dry, Drive	Dry
SD route_sd	Dry, Drive	Dry
LT route_lt	Dry, Drive	Dry
MT route_mt	Dry, Drive	Dry
HT route_ht	Dry, Drive	Dry
RS route_rs	Dry, Drive	Dry
CP route_cp	Dry, Drive	Dry
CH route_ch	Dry, Drive	Dry
OH route_oh	Dry, Drive	Dry
CR route_cr	Dry, Drive	Dry
RD route_rd	Dry, Drive	Dry