User Guide

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Welcome

PunchBD-RE is the Reason Rack Extension version of the Bass Drum section of Rob Papen's Punch.

It has four different drum modules: two bass drum synthesizer models, a click/noise module and a sample player module.

All Patches of the original Punch library are included and if you are a Punch user, you may recognize them. In most cases these Punch Patches use a single model only, sometimes augmented with the 'click/noise' module. However, with PunchBD-RE you have four models at your disposal to build unique bass drum sounds.

In addition to the four models, there is a distortion module and a synth inspired filter to further shape the sound.

There are ample modulation options for all PunchBD-RE's parameters and they include freely assignable modulation paths, external CV inputs and dedicated envelopes and LFOs. Also included is the option to play PunchBD-RE sounds melodically as you hear Hip Hop and Hardstyle dance productions.

NOTE: Be prepared for the dynamic power of PunchBD-RE. At all times keep an eye on your volume levels during editing, tracking and mixing to avoid damaging audio peaks.

Rob Papen and the RPCX team, December 2013

Patches and Globals

At the top of the PunchBD-RE rack you find the Patch section and Global controls.

Patch Controls

PunchBD-RE uses the standard Reason patch controls. The Patch menu displays a list of patches available in the current folder. Clicking on the up and down buttons scrolls through these Patches one-by-one.

The Patch Browser button opens the patch browser, The Patch Browser lets you select Patches directly from any Folder.

The Save Patch button saves the current Patch. The Preview button lets you audition the chosen Patch without having to load it first.

The Midi Input button lights up when there is midi input.

Mod Wheel

The Mod Wheel works the same as the one on your controller keyboard. It is included here to allow you to work on Patches without having to have a keyboard connected.

Pitch Bend Controls

The Pitch Bend wheel allows you to bend the pitch of sound up and down by moving the wheel. The maximum amount of pitch change can be set independently for both directions. The range operates from Off, down or up to 48 semitones (4 octaves).

Volume

The Volume control determines the overall volume of the drum sound.

Velocity

The Velocity control determines the impact of velocity (strength with which a note is played) on the volume of the sound. This control ranges from 0% (no impact) to 100% (volume fully controlled by note velocity).

Pan

The Panning control places the sound in a stereo-field. Fully counter-clockwise means hard left and fully clockwise places the sound hard right. The centre position is at the 12 o’clock setting.

Model 1

Model 1 is a synthesized bass drum model. In this model, an oscillator generates the basic bass drum sound. The model uses two envelopes. One is available to modulate oscillator pitch. The second envelope determines the volume contour of the sound.

Osc Wave	Selects the Oscillator Waveform
Curve	Frequency envelope curve shape, 'low' or 'high'. These create different type of drum sounds

Oscillator Frequency Envelope

Start	Start sets the Pitch of the oscillator.at the envelope start point.
End	End sets the Pitch of the oscillator.at the envelope end point.
Decay	The Oscillator frequency envelope decay parameter sets the time it takes for the envelope to travel from the start pitch to the end pitch.
Curve	The curve parameter determines how the envelope changes from start to end pitch. The range is from linear (0%) to exponential (100%).

Oscillator Amp Envelope

Hold	Hold sets the time for which the Oscillator amp envelope stays at its maximum level after the start of a note. This works essentially as a delay function before the Decay phase kicks in.
Decay	The Decay parameter determines the time it takes for the envelope to go from full volume to silence. In practice, this control determines how quickly the drum sound fades out.
Curve	The curve parameter determines how the envelope changes the volume from full volume to silence. The range is from linear (0%) to exponential (100%).

Model 2

Model 2 is another synthesized bass drum model. While Model 1 is a more generic oscillator model, Model 2 is crafted to give you some unique percussion oriented parameters to control the sound. It is especially useful for very hard hitting and dynamic percussive sounds.

Oscillator Frequency

Base	Base sets the base oscillator pitch.
Drop	Drop determines how far the oscillator pitch will fall after triggering.
Decay	The decay parameter sets the time it takes for the envelope to travel from its Base+Drop pitch to Base pitch.
Curve	The curve parameter determines how the decay travels back to base pitch. The range is from linear (0%) to exponential (100%).

Punch Envelope

Amount	The Amount sets the punch level added to the oscillator pitch.
Decay	The Decay parameter determines the time it takes for the punch envelope to go from its maximum amount back to zero.
Curve	The curve parameter determines how the punch envelope changes the pitch from the maximum punch amount to zero punch. The range is from linear (0%) to exponential (100%).

Click/Noise Model

The Click Model is useful to add non-pitched and non-harmonic components to the drum sound like clicks and noise. It can help you to make a synthesized drum sound more realistic. Check out the Patch 02 Kick and PinkNoise in folder 99 Examples. This Patch uses the pink noise feature of the click model. It also can be combined with a sample. Check out the patch 04 Smpl and PinkNoise.

White noise is a useful ingredient to make a drum sound brighter and more prominent in a mix. Listen to Patch 03 Kick and WhiteNoise. The click part is useful to give a bass drum sound more body or to make it sound fuller. Check out Patch 01 Kick and Click in folder 99 Examples.

Click

Colour	The colour control lets you dial in a transition from sine wave (0%) to white noise (50%) to pink noise (100%) as the basis for the click sound
Frequency	The Frequency control sets the base frequency of click sinus oscillator/noise filter cutoff setting.
Drop	Drop sets the amount the oscillator pitch change (drop) or filter cutoff frequency drop (If colour is a noise setting)
Decay	The Decay control sets the time it takes for the sinus waveform oscillator/filter cutoff frequency to drop to the base frequency, and simultaneously sets the time it takes for the amp (volume) envelope to fade to zero.
Spread	The Spread creates a stereo effect from the filtered noise source. At 0, the noise starts as a mono source. From 1% to 100% the stereo image widens. Check the patch '02 Kick and PinkNoise' in folder 99 Examples. Close the dial to hear the difference between 0% spread and 100% spread.
Offset	The Offset control creates a difference in filter frequency between the left and right channels. Note: to make this work, the 'spread' function control must be at value 1% or higher. Check patch '02 Kick and PinkNoise' in folder 99 Examples.

Global Synth Attack

Model 1, Model 2 and the Click / Noise Model share an attack envelope. The Attack envelope allows you to soften the start of drum sound. You could use it to subtly alter the attack transients of a kick drum sound. Bear in mind though, that one of the characteristics of a typical percussive sound is that it starts at full level; the equivalent of an Attack value of 0. With attack values higher than zero you can take away any harshness from the sound.

Sample Player

The fourth sound generation method in Punch-BD RE is the sample player. Upon receiving a note trigger, Punch-BD RE will play a selected sample. For a list of the available samples, please see the appendix of this manual.

Menus

Sample	The sample control selects which sample is played.
Filter	The filter control sets the filter type
LFO Mode	The Mode setting determines the triggering and reset patterns of the LFO. The options are: • *Poly* – Each note has its own LFO (polyphonic) and the LFO resets on new notes • *Free* - the LFO is monophonic and does not reset on new notes, i.e. it is free running • *Mono* - the LFO is monophonic and resets with every new note played
LFO Sync	The Sync switch determines whether the LFO speed is synchronised to Reason's tempo.

Tuning

Semi	The Semi control sets the coarse tuning of the sample in semitone steps
Fire	The Fine control sets the fine tuning of the sample in cents (1/100th of a semitone)
Vel	The Vel control assigns velocity modulation to tuning. This lest you control the tuning of the sample by velocity. At a setting of 0% there is no impact of velocity on sample tuning.
Rnd	The Rnd control adds subtle tuning variations to the sample's pitch. Use this control to add a more human effect to the notes played.

Filter

Frequency	The Freq control sets the base operating frequency of the filter, i.e. the frequency at which the filter becomes active.
Q	The Q control determines the resonance of the filter. This emphasizes frequencies around the filter frequency. This creates a peak in the frequency spectrum. Higher Q values result in higher peaks.
Vel	The Vel control assigns velocity modulation to the filter frequency. This lets you control the filter frequency by velocity. A typical use is to make the sound brighter as you play harder
LFO Amount	The LFO Amount control sets the modulation depth of the filter frequency by the filter LFO
LFO Speed	The Speed sets the frequency of the filter LFO.
Env	The Env control sets the modulation depth of the Envelope
Attack	Envelope attack time; determines how quickly the envelope reaches maximum value after it is triggered
Hold	Determines how long the envelope stays at its maximum level after having moved through the Attack phase
Decay	The Decay control sets the time the envelope takes to fade to zero after the hold time

Amp Envelope

Attack	Envelope attack time; determines how quickly the envelope reaches maximum value after it is triggered
Hold	Determines how long the envelope stays at its maximum level after having moved through the Attack phase
Decay	The Decay control sets the time the envelope takes to fade to zero after the hold time

Samples

Sample Offset	Sample Offset alters the sample playback start position.
Sample Re-triggers	This control\ sets the number of times a sample is re-triggered. The sample only plays once, if this setting is Off.
Sample Re-trigger Time	The Sample Re-Trigger Time determines the time between retriggered samples
Sample Reverse	If Sample Reverse is On, PunchBD-RE will play the sample backwards

Mod Section

Envelope

The envelope mod section uses PunchBD-RE's free envelope to control Punch's parameters.

Attack	Envelope attack time; determines how quickly the envelope reaches maximum value after it is triggered
Hold	Determines how long the envelope stays at its maximum level after having moved through the Attack phase
Decay	The Decay control sets the time the envelope takes to fade to zero after the hold time

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LFO

The LFO section uses PunchBD-RE's free LFO to control Punch's parameters.

Wave	Wave selects the LFO Waveform. There are 6 shapes to choose from - Sine, Triangle, Saw Up / Down, Square and Sample and Hold.
Sync	The Sync switch determines whether the LFO speed is synchronised to Reason's tempo.
Mode	The Mode setting determines the triggering and reset patterns of the LFO. The options are: • *Poly* – Each note has its own LFO (polyphonic) and the LFO resets on new notes • *Free* - the LFO is monophonic and does not reset on new notes, i.e. it is free running • *Mono* - the LFO is monophonic and resets with every new note played
Speed	The Speed control sets the LFO frequency. When in Sync mode, Reason's tempo determines the LFO speed
Human	The Human control introduces slight variations to the LFO tempo. Use this control to make the LFO's effect less mechanic.
Sym	Sym controls the LFO's waveform symmetry. It sets the waveform midpoint and in doing so, changes the LFO waveform. If the LFO Waveform is Square, then the Sym control sets the pulse width.

Modulation

The modulator section lets you set up 4 modulation paths in a Patch. Each modulation path connects a source to a destination. The Amount controls the strength of the connection.

Source	Modulation source.
Destination	Which parameter is modulated by this source.
Amount	Sets the overall amount the modulator source modulates the destination parameter.

Output

The output of the models 1 and 2, the click and sampler modules are passed through a distortion module. The signals are then mixed and sent through the filter.

Distortion

All sound generating models in PunchBD-RE can be selected for distortion individually. This gives you precise control over the amount of crunch you may want to add to a Patch.

Distortion Type

PunchBD-RE has a large number distortion effect types, with two controls. For most distortion types, *Amt 1* controls the amount of distortion and *Amt 2* the dry / distortion mix.

The distortion types are

None	No distortion.
Bits	Bit reduction effect, *"Amt 1"* controls the bit rate.
Clipper	Hard clipper, *"Amt 1"* controls the top clipping amount, *"Amt 2"* the bottom clipping amount.
Cos	Cosine distortion effect.
Cross 1	Cross distortion type 1.
Cross 2	Cross distortion type 2. *"Amt 1"* controls the top crossing amount, *"Amt 2"* the bottom crossing amount.
Foldover	Fold-over distortion, this amplifies and then 'folds over' the sound.
Fuzz	Fuzz-box distortion, "*Amt 2"* controls its frequency.
Gapper	Gapper distortion, "*Amt 1"* controls the frequency of the gapping.
Hard Limiter	Hard-limiter, "*Amt 1"* controls the limit.
OverDrive	Classic Over-drive effect
Octave	Octave effect, this shifts the sound up an octave, *"Amt 1"* controls the upper mixing, "*Amt 2"* controls the lower mixing.
Octave 2	Octave effect type 2, *"Amt 1"* controls the frequency of the shift.

Power	Power wave-shaping effect.
Rectify	Rectifies the signal. "*Amt 1"* controls the amount of rectification.
S&H	Sample & holds the signal, "*Amt 1"* is the sample rate.
Saturate	Saturation effect.
SoftLimit	Soft-limiter, "*Amt 1"* controls the mixing between the normal and soft-limited signal.
Square	Squares the signal, *"Amt 1"* controls the upper mixing, "*Amt 2"* controls the lower mixing.
Transient	Distorts the transients, i.e. the beginnings of sounds. *"Amt 1"* is the transient range, and *"Amt 2"* the amount of distortion.

Mixer

The mixer brings the sound of all four models, post distortion, together. Each model has its own volume slider.

Filter

The output of the Mixer passes through a multi-mode filter. The Filter can be turned On and Off in its entirety. When active, the Filter gives you the following controls:

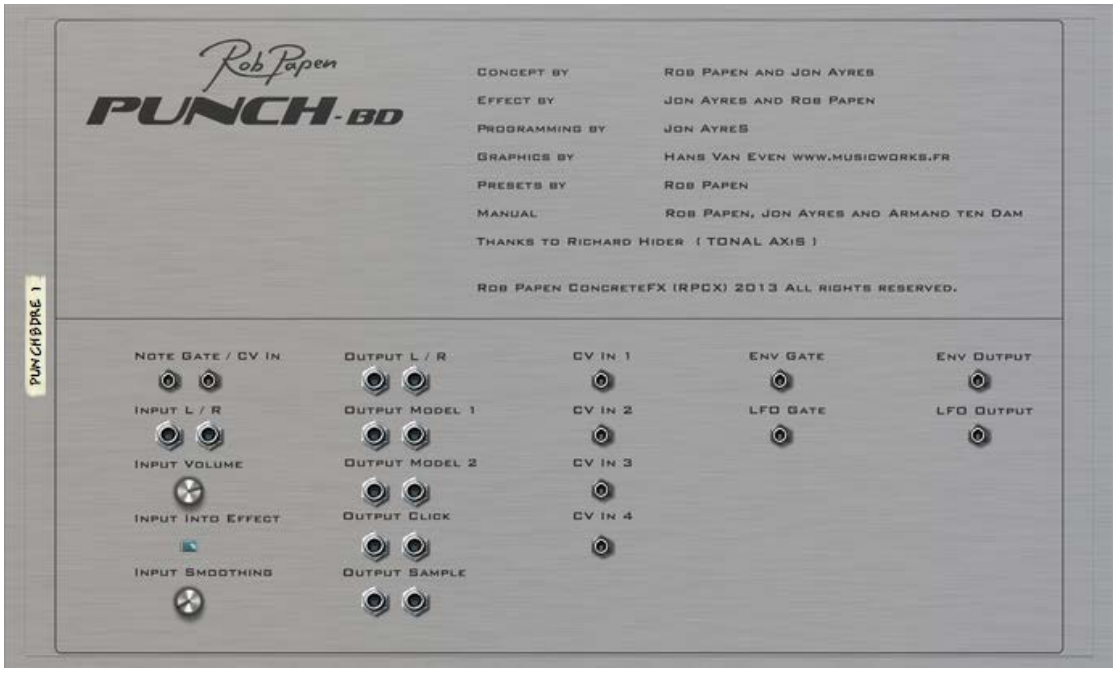
Mode	The filter Mode sets the type of the filter and the slope of the filter. The filter types are low pass, band pass and high pass. The slope can be either 12 dB/octave or 24 dB/octave.
Freq	The Freq control sets the base operating frequency of the filter, i.e. the frequency at which the filter becomes active..
Q	The Q control determines the resonance of the filter. This emphasizes the frequencies around the filter frequency. This creates a peak in the frequency spectrum. Higher Q values result in higher peaks.

Play Mode

The Play Mode section determines PunchBD-RE's response to Midi notes. It concerns the basic pitch of sounds and whether drum sounds can be played melodically or with a fixed tuning.

Tuned	The Tuned control allows you to play drum sounds melodically on a keyboard. The pitch of the drum sound changes with the pitch of each key played. When the Tuned control is off, the drums sound will play at a fixed pitch, regardless of the note played off,
Base Note	The Base Note is the reference note where the drum sound will played at its original programmed tuning or pitch. This setting is relevant only when the Tuned control is on.
Semi	The Semi control sets the coarse tuning of the Patch in semitone steps
Fine	The Fine control sets the fine tuning of the Patch in cents ($1/100^{th}$ of a semitone)

Back Panel



If you go to the PuncBD-RE back panel, you will find a number of less frequently used controls, settings and inputs. It also lists the credits and information about the rack extension.

Input

The Input section has a note / gate CV input pair which allows other Reason modules to control PunchBD-RE. The left / right input can be used as modulation sources or fed into the effect section. The input smoothing, filters out abrupt changes in the input signal and the Input Volume lets you match the level of the Input Signal

Output

The Output section offers PunchBD-RE's mixed output and individual outputs for each of the models. Please note that the individual outputs are pre-distortion and pre-filter. All outputs are stereo, a pair of left and right connectors.

CV Input

PunchBD-RE has 4 CV inputs, which can be used as modulation sources.

CV Gate

Punch-BD RE has two gate inputs (for the free envelope & LFO). A trigger signal on the Gate input will reset the LFO and the Envelope on their respective inputs.

CV Output

Punch-BD RE has two CV outputs which contain the control signal as generated by the free envelope and the LFO. Hook these up to other Reason modules for synchronised modulation setups.

Sample List

01	Roland CR-78 BD
02	Roland TR-808 BD
03	Roland TR-909 BD
04	Korg KR-77 BD
05 -35	Rob Papen collection BD including mixed types and orchestral BD
36	Raintube sound hit
37	Glass in water hit
38	Greece (Island Samos) stone dropped into water boil. Studio recording
39	Flat hit on water in studio
40	Little Paiste going in water boil.
41	Experimental sound during bamboo recording session
42	Experimental sound of 39 thrown into RP-VERB and resampled
43	Woodhoop Yamaha snare / sidestick from RP collection
44	Experimental sound while recording drums, ‘clack’ sound
45	Djembe sound
46	Dry DW snare
47	Frame drum with RP-VERB
48	Quinto percussion instrument with RP-VERB
49	Door slam (Location Echt... at home)
50	Quinto FX percussion instrument with RP-VERB
51	Tom sound with room ambience
52	Floor tom with room ambience
53	Tumba FX hit
54	Udo hit with RP-VERB hall.

Modulation Sources

Source	Description
None	None
Mod Wheel	Modulation Wheel (Midi CC 1)
Pitch Bend	Pitch Bend
Sustain	Sustain (Midi CC 64)
Expression	Expression (Midi CC 11)
Breath	Breath (Midi CC 2)
After	Key Aftertouch
After/Mod Wheel	Key Aftertouch / Mod Wheel
Note	Note Midi Value
Velocity	Note Velocity Value
Random Note 1	Random Note 1 Value
Random Note 2	Random Note 2 Value
Offset	Constant Offset
Random	Random Value
Model 1 Pit Env	Model 1 Pitch Envelope
Model 1 Amp Env	Model 1 Amp Envelope
Model 2 Pit Env	Model 2 Pitch Envelope
Click Pit Env	Click Pitch Envelope
Click Amp Env	Click Amp Envelope
Sample Amp Env	Sample Amp Envelope
Sample Filter Env	Sample Filter Envelope
Sample Filter LFO	Sample Filter LFO
LFO	Free LFO
Envelope	Free Envelope
CV1	CV1 Input
CV2	CV2 Input
CV3	CV3 Input
CV4	CV4 Input
Audio Input	Smoothed Audio Input
Audio Input Left	Smoothed Left Audio Input
Audio Input Right	Smoothed Right Audio Input

Modulation Destinations

- *None*
- *Volume*
- *Velocity*
- *Pan*
- *General Pitch*
- *General Fine*
- *Synth Pitch*
- *Synth Speed*
- *Attack*
- *Model 1 Pitch*
- *Model 1 Volume*
- *Model 1 Env Speed*
- *Model 1 Freq Start*
- *Model 1 Freq End*
- *Model 1 Freq Decay*
- *Model 1 Freq Curve*
- *Model 1 Amp Hold*
- *Model 1 Amp Decay*
- *Model 1 Amp Curve*
- *Model 2 Volume*
- *Model 2 Env Speed*
- *Model 2 Freq Base*
- *Model 2 Freq Decay*
- *Model 2 Freq Drop*
- *Model 2 Freq Curve*
- *Model 2 Punch Amount*
- *Model 2 Punch Decay*
- *Model 2 Punch Curve*
- *Click Volume*
- *Click Envelope Speed*
- *Click Colour*
- *Click Freq*
- *Click Freq Drop*
- *Click Freq Decay*
- *Click Spread*
- *Click Offset*
- *Sample Volume*
- *Sample Env Speed*
- *Sample Semi*
- *Sample Fine*
- *Sample Vel > Pitch*
- *Sample Random Pitch*
- *Sample Amp Speed*
- *Sample Amp Attack*
- *Sample Amp Hold*
- *Sample Amp Decay*
- *Sample Filter Freq*
- *Sample Filter Q*
- *Sample Vel > Filter*
- *Sample Filter LFO Amount*
- *Sample Filter LFO Speed*
- *Sample Filter Env*
- *Sample Filter Env Speed*
- *Sample Filter Attack*
- *Sample Filter Hold*
- *Sample Filter Decay*
- *Sample Offset*
- *Sample Retrigger*
- *Sample Stereo Position*
- *Sample Stereo Speed*
- *Envelope Speed*
- *Envelope Attack*
- *Envelope Hold*
- *Envelope Decay*
- *LFO Speed*
- *LFO Symmetry*
- *LFO Humanization*
- *Mod 1 Amount*
- *Mod 2 Amount*
- *Mod 3 Amount*
- *Mod 4 Amount*
- *Distort 1*
- *Distort 2*
- *Filter Frequency*
- *Filter Q*
- *Input Volume*

Default Midi CC Assignments

CC	Control
7	Volume
10	Velocity
16	Pan
17	Tracking Off / On
18	Global Tuning
19	Global Fine Tuning
20	Pitch Bend Up
21	Pitch Bend Down
22	Model 1 Off / On
23	Model 1 Volume
24	Model 1 Wave
25	Model 1 Curve
26	Model 1 Frequency Start
27	Model 1 Frequency End
28	Model 1 Frequency Decay
29	Model 1 Frequency Curve
30	Model 1 Amp Hold
34	Model 1 Amp Curve
35	Model 1 Amp Decay

36	Model 2 Off / On
37	Model 2 Volume
39	Model 2 Wave
40	Model 2 Curve
41	Model 2 Frequency Base
42	Model 2 Frequency Drop
43	Model 2 Frequency Decay
44	Model 2 Frequency Curve
45	Model 2 Punch Amount
46	Model 2 Punch Decay
47	Model 2 Punch Curve

48	Click Off / On
49	Click Volume
50	Click Colour
51	Click Frequency
52	Click Frequency Drop
53	Click Decay
54	Click Spread
55	Click Offset
56	Global Synth Attack

57	Sample Off / On
58	Sample Volume
59	Sample Semi Tuning
60	Sample Fine Tuning
61	Vel > Sample Pitch
62	Random > Sample Pitch
63	Sample Filter Frequency
65	Sample Filter Q
66	Sample Vel > Filter
67	Sample Filter LFO Sync
68	Sample Filter LFO Amount
69	Sample Filter Speed in Hz
70	Sample Filter Speed in QB
71	Sample Filter Envelope Amount
72	Sample Filter Envelope Attack
73	Sample Filter Envelope Hold
74	Sample Filter Envelope Decay
75	Sample Amp Attack
76	Sample Amp Hold
77	Sample Amp Decay
78	Sample Offset
79	Sample Retrig Num
80	Sample Retrig Time
81	Sample Reverse Off / On
82	Sample Stereo Start
83	Sample Stereo End
84	Sample Stereo Time

85	Free Envelope Attack
86	Free Envelope Hold
87	Free Envelope Decay
88	Free LFO Sync
89	Free LFO Speed in Hz
90	Free LFO Speed in QB
91	Free LFO Symmetry
92	Free LFO Humanization

93	Mod 1 Amount
94	Mod 2 Amount
95	Mod 3 Amount
102	Mod 4 Amount

103	Filter Off / On
104	Filter Frequency
105	Filter Q

106	Distort Off / On
107	Distort Amount 1
108	Distort Amount 2
109	Model 1 to Distort
110	Model 2 to Distort
111	Click to Distort
112	Sample to Distort
130	Sample
131	Sample Filter Mode
132	Sample Filter LFO Mode

133	Free LFO Mode
134	Free LFO Wave
135	Mod 1 Source
136	Mod 2 Source
137	Mod 3 Source
138	Mod 4 Source
139	Mod 1 Destination
140	Mod 2 Destination
141	Mod 3 Destination
142	Mod 4 Destination
143	Distort Type
144	Filter Mode
145	Centre Note