

Drums

User Manual

An Official Reference for
The Polyend Drums

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Overview 1

Drums is an analog, digital, and sample-based drum machine built without compromise. Every part of it is designed to feel immediate, sound exceptional, and give you more ways to create, with less to think about. Drums have over 50 instruments, 6 sequence-able insert FX, 22 send FX and a master FX section. You can use the 8 LFOs, 1 per track, for modulation. The unit has 8 sequencing tracks with up to 64 steps each, with independent length and speed. Up to 48 songs are available for creating complete arrangements. Drums is built with connectivity in mind. MIDI in/out and thru are available through the TRS ports. It has left and right main outputs, plus a dedicated audio output for each drum channel. A headphone output is also provided. External stereo audio can also be routed into Drums for on-board effects processing.

Drums is built to an exceptional quality standard with precise engineering and carefully selected components. Drums has a single-piece aluminium body, custom metal knobs, high-end components, and 32GB of on-board storage. Every material choice, component, and surface is selected for precision, consistency, and the feel you notice the moment you touch it. 4 analog voices sit alongside high-quality digital instruments and samples. Add complex sequencing, studio-grade effects, and mastering tools. Everything you need when you want to go further. Drums is a no-compromise analogue and digital instrument, equally at home in the studio or on stage for live performance.

1. Overview

1.1 How to Use This Notebook

This book combines a formal reference and an instructional guide, collectively bringing together a comprehensive resource for Drums.

Sections are laid out to cover the full workflow with walkthroughs, step by step guides and tips.

Control conventions.

(Knob)

Rounded parentheses represent any of the channel or global control knobs.

[Function]

Square parentheses contain functions that are selectable using a dedicated, physical button - either as a primary or secondary, shift accessible option. Examples are [FX1] and [Compressor].

For controls labelled with a symbol a text representation is used. For example [Play].

The unlabelled step sequencer buttons will be referred to as [Step] and may even contain the actual step number, [Step 1].

[Function] + [Option]

Functions which require multiple, simultaneous button commands are shown with a + symbol between each button in the command. An example is the [X] + [Fill]. Secondary functions are not labelled on the Drums panel.

{Fader}

The DJ-Style cross fader control for X-Y will be represented using braces, otherwise described as 'curly brackets'.

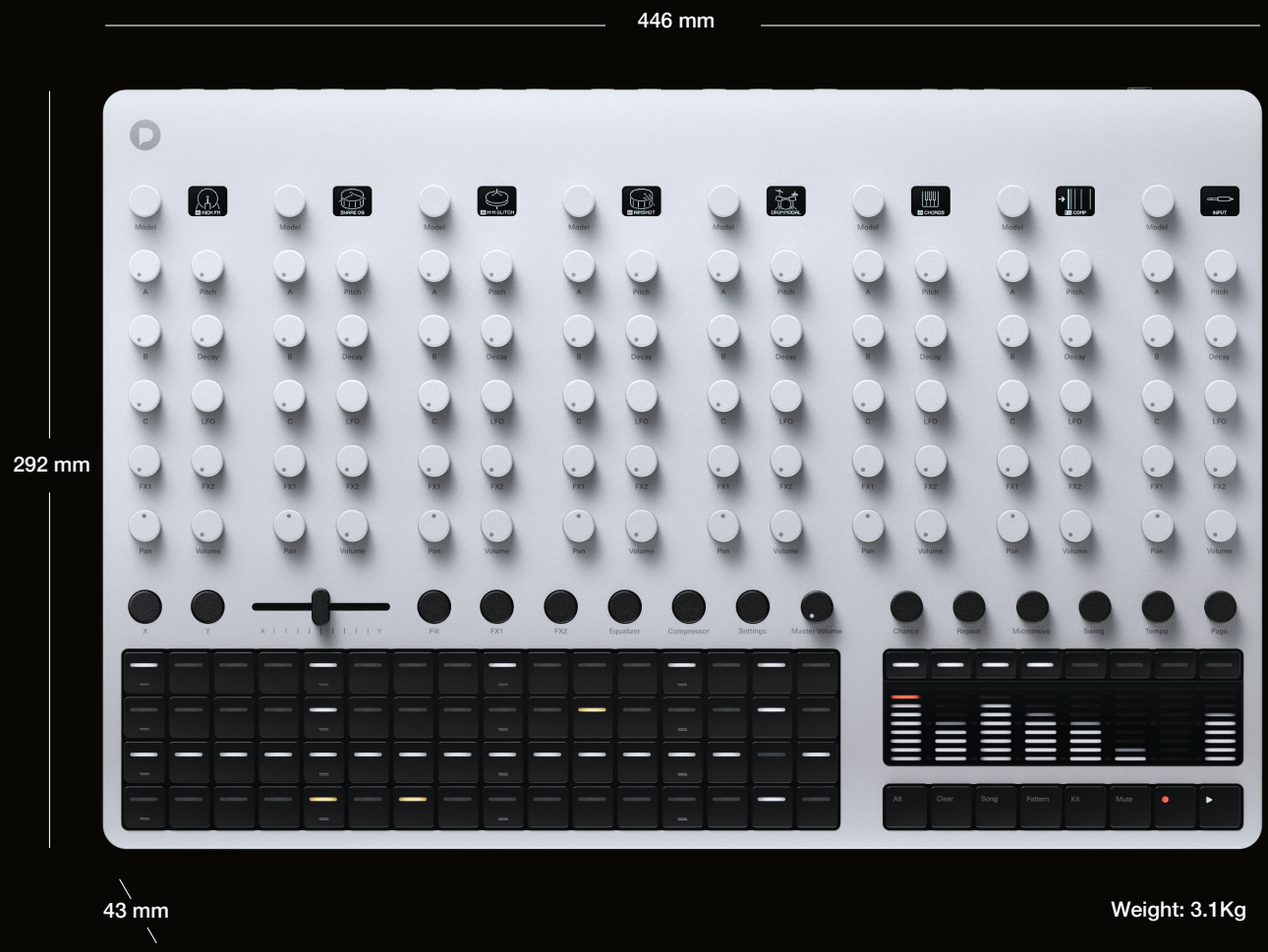
‘Text’

Any screen menu options and display specific text is indicated with quotation marks.

③

Numerical reference icons are shown on some diagrams. These are referenced to the numbers of the instructions on the same page.

1.2
Hardware Overview



Weight: 3.1Kg

Whats In The Box?

1x Drums Instrument

1x User Manual

2x MIDI Adapters 1/8in - 3.5mm to MIDI Din (Type B)

1x 12V/4A Power Supply

1. Overview



On / Off Switch

12VDC Power Jack

USB C

MIDI Out/Thru/In Jacks

Headphones Stereo Out

Line Output R/L

Line Input R/L

Separate Mono 1-8 Track Output Jacks



MIDI I/O are 3.5mm - 1/8in Jacks - Type B

Audio I/O are 6.35mm - 1/4in Jacks

1.3
Control Overview

1 Drum Model Options.
Turn to select the drum model or Push+Turn to choose from the model mutations. Also used to edit displayed context specific parameters.

2 Model Specific Drum Parameter Knobs.
Track sound parameter controls. A,B and C are model specific. The parameters will represent 3 unique model parameters.

3 Channel Strip Option Knobs.
Channel pan, level and effect sends.

6 Master Volume Knob.
Global output volume level. Also affects the headphone output level control.

7 Performance Control Knobs.
Pattern performance settings and global controls.

8 Track Select & Channel Meter
8 Track selection and mute buttons, channel level meters and track indicators.



4 X0Y Morph Controls.
X & Y editing buttons and the kit to kit morph control fader.

5 Global Effects and Settings.
Selection buttons for global commands, effects and settings.

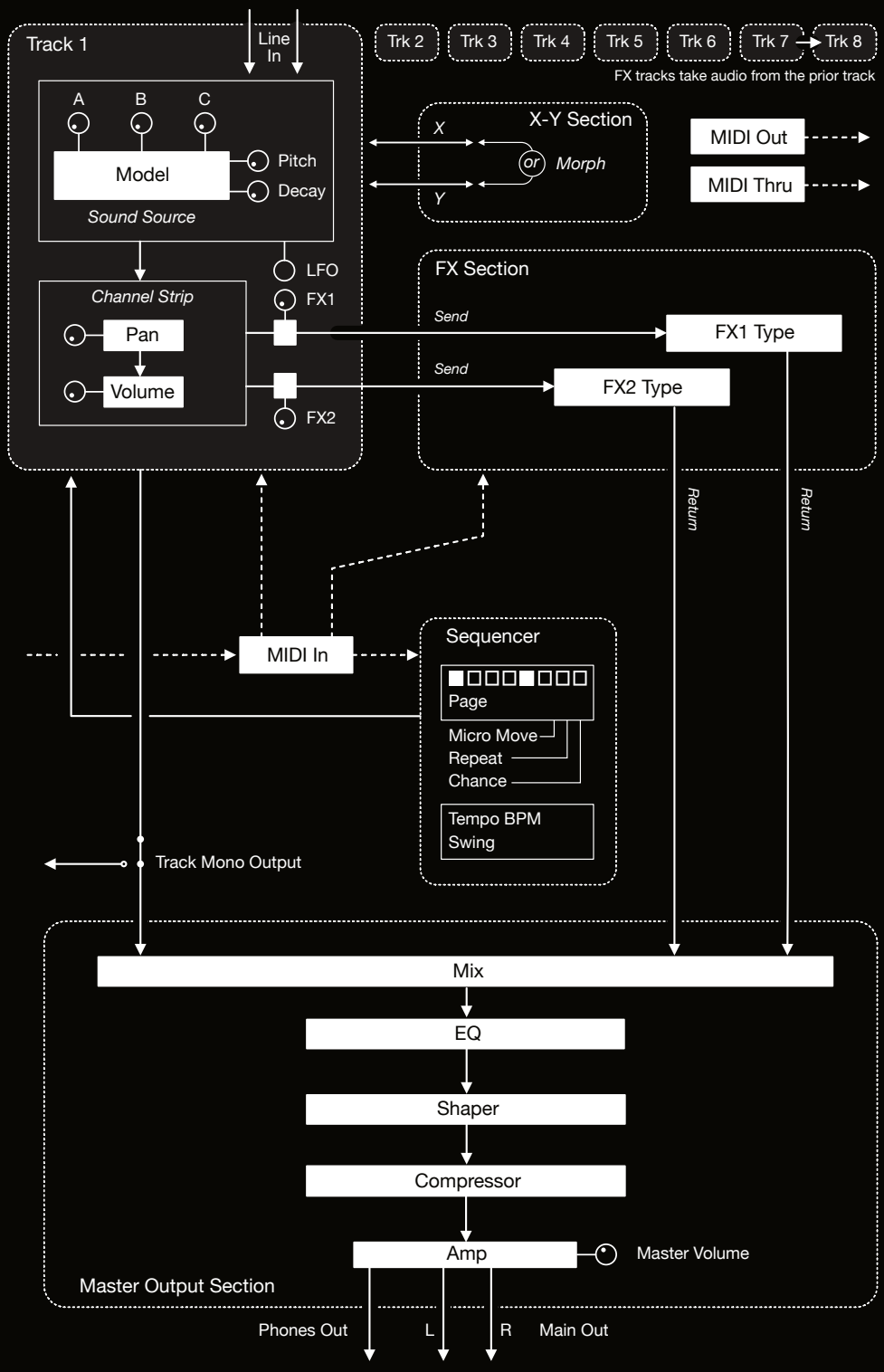
9 Sequencer Control Buttons.
Sequencer transport, grid layout, pattern editing and operating controls.

10 Sequencer Grid.
64 Step sequencing buttons, laid out per track 1-4 x 16 steps or single track x 64 steps.

1.4 Audio Architecture

The architecture diagram is an overview illustration of the audio signal path and MIDI control of Drums.

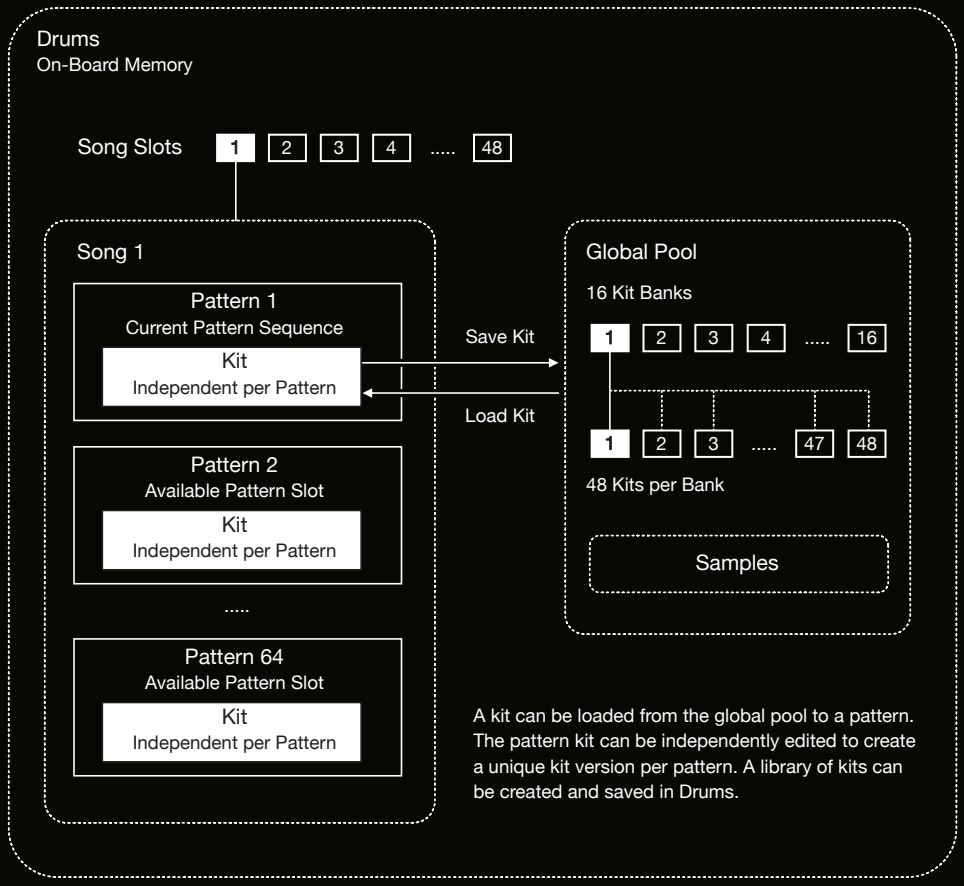
The example focuses on one instrument track plus the common global functions. The structure is repeated per track.



1.5 Pattern Data Structure

A song is the highest function in the structural hierarchy of Drums. A Song contains up to 64 patterns and up to 48 songs can be stored.

A global pool of kits contains 16 banks, each with 48 kit slots. A kit contains sounds and FX settings. A kit can be loaded to a pattern and then edited independently.



Getting Started with Kits:

1. Opening a new pattern copies the current kit to the new pattern.
2. To load another kit from the pool, press [Kit].
3. Tap [Step] 1-16, to select a bank then tap [Step] 17-64, to select a kit.
4. The kit contained in a pattern can be edited to create a unique version. The kit is automatically saved with the pattern.
5. Saving a kit manually to the pool is also useful as it makes the kit available globally. Tap [Kit].
6. Tap [Step] 1-16, for the bank then hold [Alt] + tap [Step] 17-64, to save the kit to the slot.

1.6 Power Supply

Drums is an analog drum machine and as such it is important to ensure the correct power is supplied.

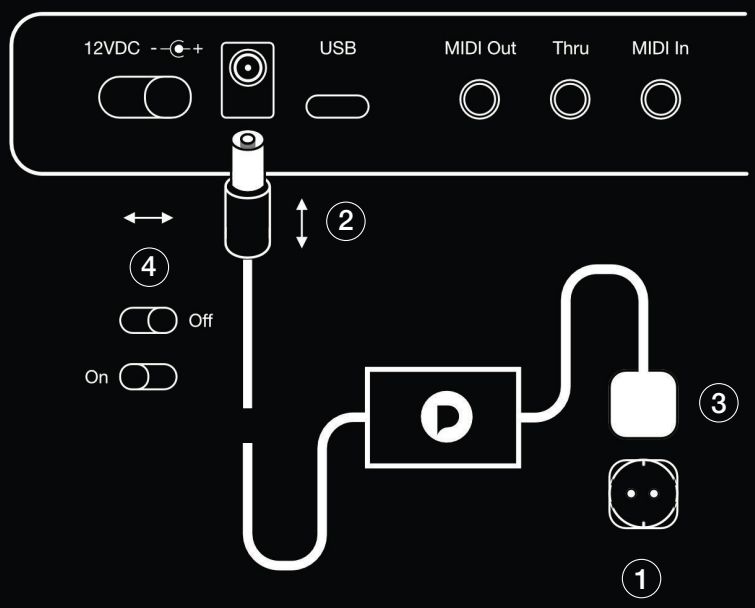
Do not use the USB-C input for supplying power.

Always use the supplied Polyend power unit for powering Drums.

Power Supply:

110V / 220V AC Input

12V DC Output, 4A.



To Power Drums On:

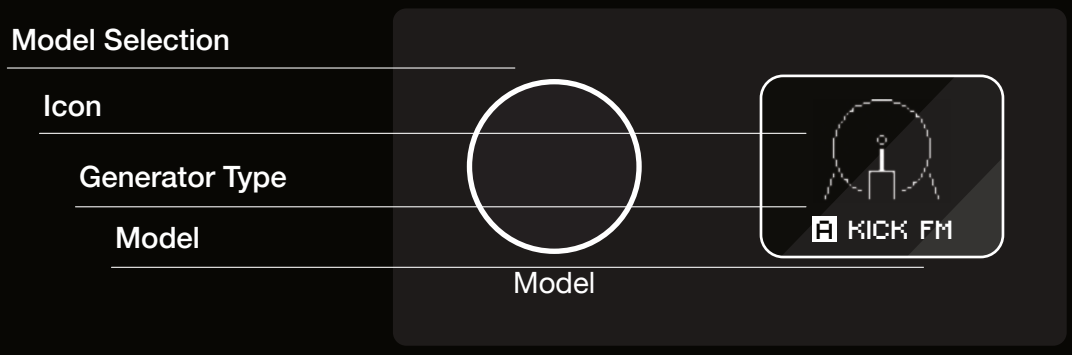
1. Ensure the mains supply source is turned off is.
2. Connect the power connection to the power input connector on the rear of Drums.
3. Connect the mains plug to the supply and turn on.
4. Slide the On/Off switch on the rear of Drums to On.
5. Before power off, save the song. Tap [Song], then hold [Alt] + Tap song slot [Step].
6. To Power Drums Off: Use the power On/Off switch to power Drums off and then remove the power supply.

1.7 Display and Control Layout

Each of the 8 drum channels can be configured individually. The process for configuration is the same for each channel. The drum model for each channel is selected by turning the (Model) knob. The display will show the icon representing the selected model along with its model and generator type.

Track knobs will edit the specific model, sound or channel parameters. While adjusting a knob, the display will present the edited parameter value.

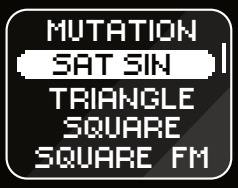
Knobs with a dot are fixed range, standard controls. Some, such as (Model) and (LFO) are push / turn rotary encoders.



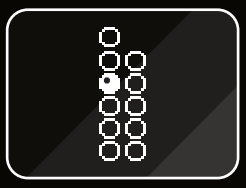
Some controls and the displays are used for a variety of parameters depending on the selected operating context. In particular, the displays are used individually for each channel setting parameter as well as collectively for presenting parameters for global functions



When adjusting a track or global parameter the value is displayed in real-time.



Menu's present options from which to select. Navigate by turning (Model) and press to list the mutations.



Steps containing parameter locks will show the lock icon along with the locked parameters dotted and highlighted.

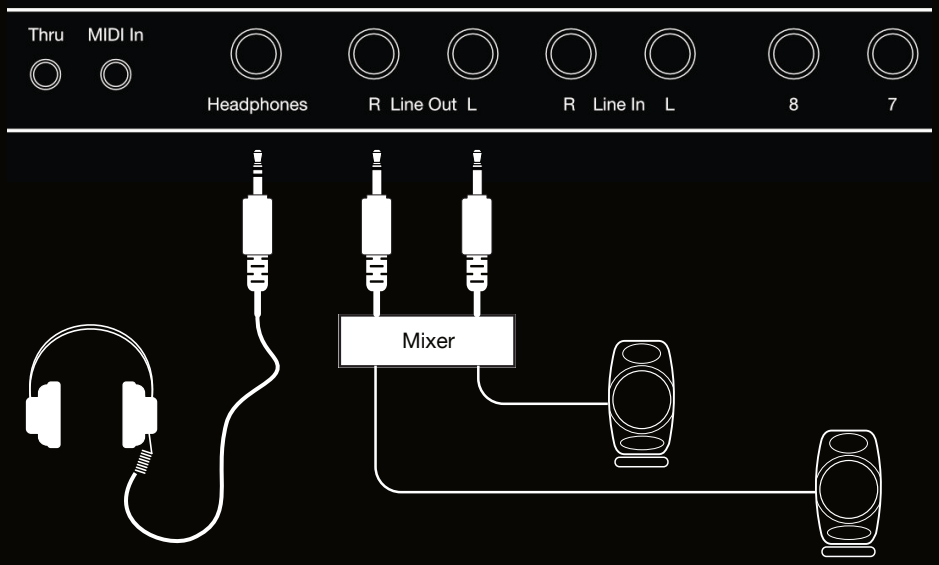
1.8 Main Outputs

The master volume controls the audio level at the 2x right and left stereo outputs and also controls the headphone output. Simply turn the (Master Volume) knob to affect the main output levels.

The knob position shows a representation of the current value. Range is 0-100%. The individual track outputs are not affected by the master volume, they are controlled by track volume level.



The main output can be connected to a mixer, audio interface or active monitors. Always consider the volume and processing levels of external gear as well as the drum channel processing when managing the gain staging of your audio chain.



1. Overview

Drum Tracks 2

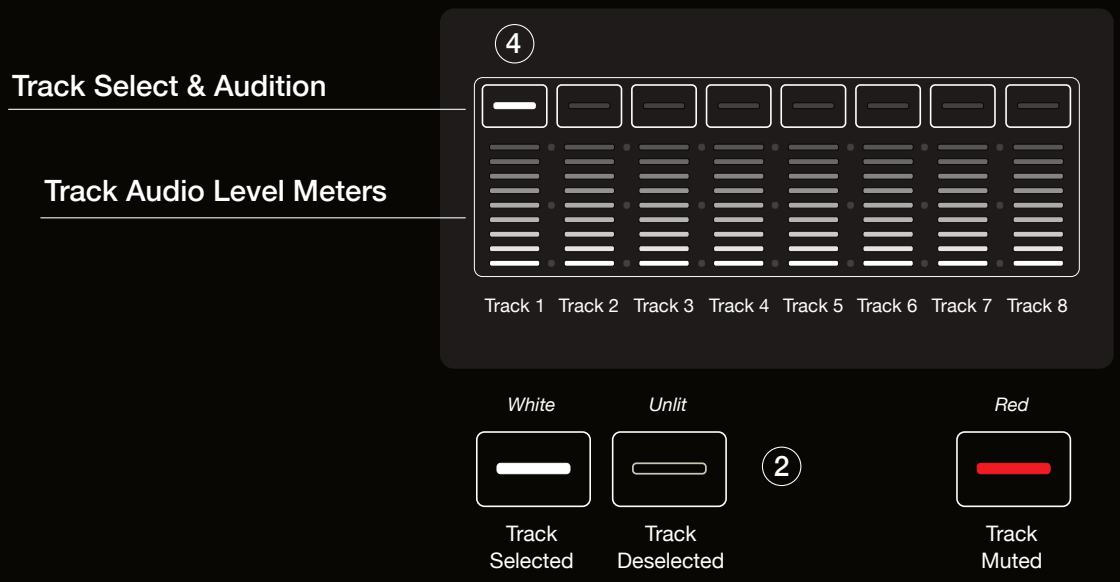
Drums consist of 8 drum tracks. Each track can use its own drum model, and you can shape each track's sound and timbre with track-specific parameters. You can choose from over 50 instrument models, plus an expanded set of over 500 model variations called mutations. Each track can be sequenced independently. The track parameters repeat across all 8 tracks, but their operation and impact depend on the assigned model. Models let you create and configure different instrument types uniquely for each track, using the model's analogue, sample, or digital foundation. You can tweak parameters for sound design or use them in a live set to create improvised performances. You can even configure tracks as effect channel strips to process incoming audio or audio routed from another track. Once you've created a set of sounds for each track, you can save all 8 tracks as a kit. Kit storage is managed in the 16 banks of 48 kit slots, quickly accessible from the grid. This lets you quickly swap kits across patterns to experiment and develop a strong combination. Each track has a dedicated mono audio output.

2. Drum Tracks

2.1 Track Selection & Settings

Drums has 8 tracks. By default the sequencer grid has 4 tracks on 16 step rows. In this mode, each set of 4 tracks is selected by tapping [Track 1] - [Track 4] buttons or [Track 5] - [Track 8].

The alternate view is for all 64 pads to represent a single track. Tap (Page) to switch grid views. A lit track button signifies a track is selected and represented as steps on the sequencer grid.



To select a track:

1. Tap a [Track] button. The sound will audition when pressed.
2. In 4x16 grid view, buttons 1-4 present tracks 1-4 on the grid and 5-8 show tracks 5-8. Each track has 16 steps on a lane.
3. In 1x64 grid view, buttons 1-8 present one of the selected tracks on the grid represented by all 64 step buttons.
4. The buttons will illuminate white to indicate the track(s) selected.

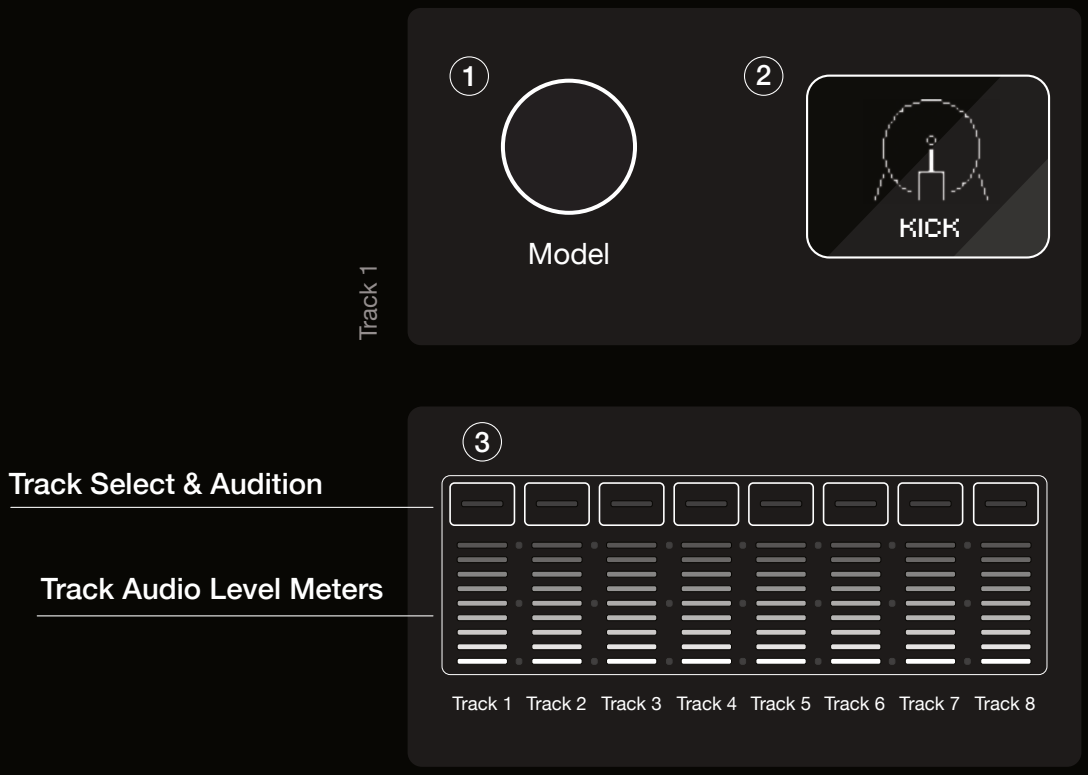
Edit the Track Settings:

1. Track settings can be edited in any view for a single track or for several tracks. Multiple settings can be edited simultaneously.
2. Buttons 1-8 select individual tracks. To edit an individual track settings, hold [Track] + Turn (Model) knob for the setting to edit.
3. To edit the settings for multiple tracks simultaneously, hold all of the [Track] buttons to edit and turn a (Model) knob. For example [Track 1] + [Track 3] + Turn (Model).

2.2 Select an Instrument

Drums has over 50 instruments. One instrument can be assigned to each of the 8 drum tracks. Assigning an instrument to each track would be a good starting point in creating a drum kit.

The 2 sound parameters; Pitch, Decay, plus the 3 model parameters; A, B and C will be assigned based on the specific model selected for the track. LFO is a common function which appears in all tracks



To select an instrument:

1. Turn the (Model) knob for the track to configure. This will scroll through all available instrument models.
2. The instrument icon and name will be displayed on the track screen while browsing.

Audition or play an instrument:

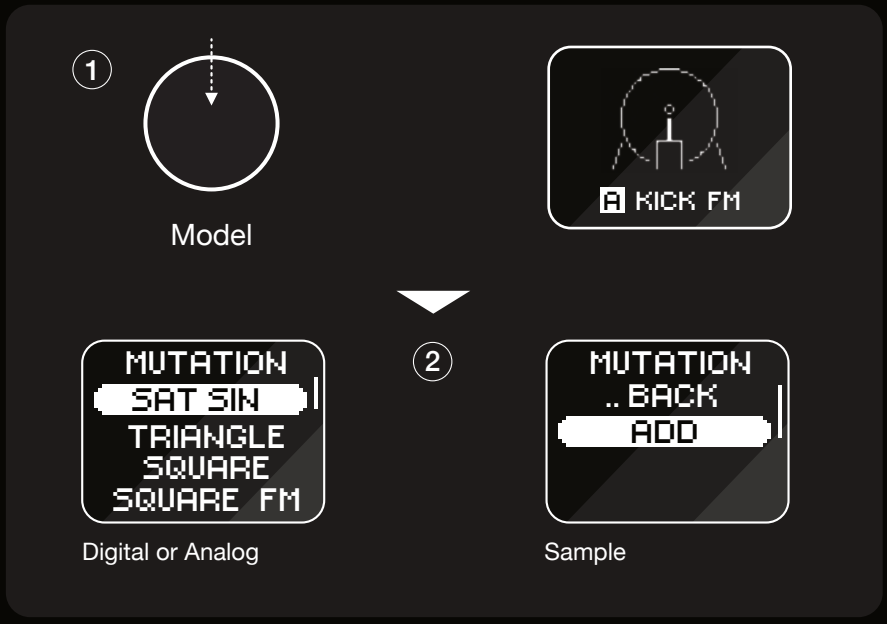
3. Tap the [Track] button to audition the current track sound.
4. The track parameters can be edited to shape and adjust the track sound and tone while auditioning.

2. Drum Tracks

2.3 Models & Mutations

As well as the instruments, directly accessible with the (Model) knob, a sub-set of the analog and digital instruments is also available. These are called mutations and are variations of the primary instrument selected.

The displayed instrument will show the name and also the generator type; A digital model has no type tag, analog tagged with 'A' and sample model with 'S'. In a sample model, tap (Model) to select a sample.



Generator Types

- MODEL Digital
- A MODEL Analog
- S MODEL Sample
- FX MODEL Effect

Drums has 4 analog voices. So each track set to an analog model will use a voice, therefore a maximum of 4 analog model tracks.

To select an mutation or a sample:

1. Tap the (Model) knob for the analog, digital or FX track to configure. Knob is a push/turn.
2. This will open the mutations for a the instrument or the FX loader.
3. Turn (Model) to browse and select an instrument mutation.
4. Tap (Model) to select and exit.

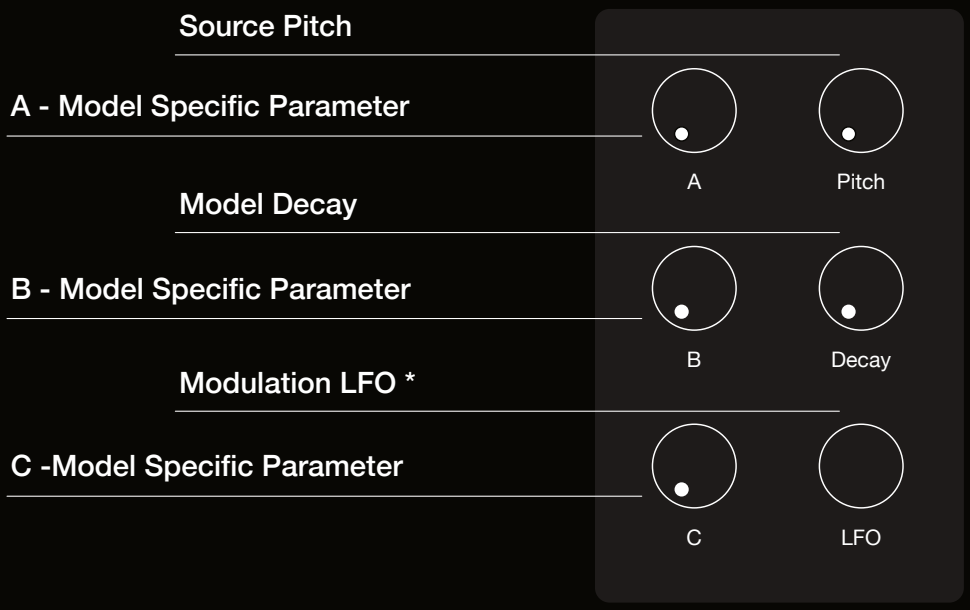
To load a sample:

1. Tap the (Model) knob for the sample track to configure. Knob is a push/turn encoder.
2. Turn (Model) to choose 'Add'. then press (Model). This will open the browser.
3. Turn (Model) to choose a sample and Tap to load.
4. Choose 'Back' to exit.

2.4 Control Overview

Each track has 6 parameters that are used for sound design and modulation. The 3 sound parameters - LFO is a common sound control function while Pitch and Decay types may be based on the active model.

The 3 parameters, A, B and C, role will be assigned when selecting an model. All 6 parameters will be oriented to the active model and, as such, will change their role when a new model is assigned to the track



* The LFO is a push / turn rotary encoder. All others are regular, fixed range rotary knobs

Pitch
Generally, represents the model oscillator/source pitch tuning. The unit value may be set in note intervals or as a frequency, depending on the active model.

Decay
Generally, sets the fade-out tail of the sound in seconds.

Decay and Pitch functions may change with the model selected.

LFO
Low Frequency Oscillator applies an amount of modulation to a selected track destination. Tap (LFO) to access all 6 LFO parameters. Each parameter is represented by the (Model) Knobs for tracks 1-6. LFO Parameters are: Amount - same parameter as the LFO knob, destination, speed, sync mode, wave shape and retrigger.

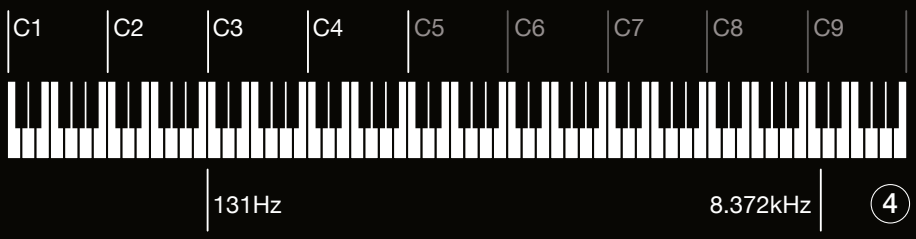
2.5 Pitch

Pitch generally sets the tuning of the sound source. Typically, for an analog or digital model, this may be an oscillator, but it can also be an audio sample. Each track has a dedicated pitch control.

The display will present the value of the parameter being edited. Depending on the model, this may be set in note intervals between the range of C1 to C4 or as a frequency value between 131 Hz, C3 to 8.372 kHz, C9.







To edit the pitch:

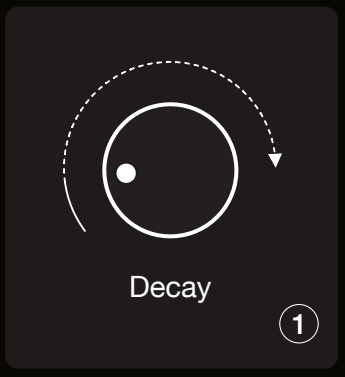
1. Turn the (Pitch) knob for the track sound to edit.
2. The track screen will display the parameter value when edited, in real-time.
3. It is recommended to listen to the sound while editing. Tap the [Track] button to audition the current track sound.
4. The units of measure will depend on the model assigned to the track.

The pitch knob is repurposed as the EQ Frequency setting if the track is configured as an external input channel. Ext input is set by changing the model to 'input'.

2.6 Decay

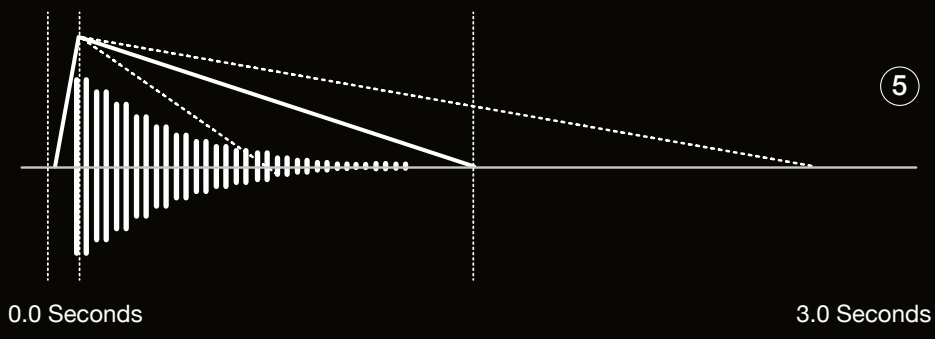
Decay generally controls the 'fade out' envelope of the track sound. Higher settings will elongate the sounds tail while lower values create shorter, more snappy sounds.

The Decay parameter behavior may change based on the model. The decay is adjusted in seconds over a range between 0.0 s and 3.0 Secs.





Other envelope options may be available for some models in the dynamic A,B or C options.



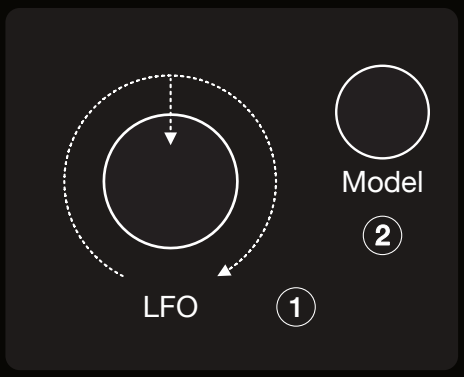
To edit the decay:

1. Turn the (Decay) knob for the track sound to edit.
2. Maximum decay may create continuous drone sounds. If needed, [Mute] + [Play] will stop playback and kill all voices.
3. The track screen will display the parameter value when edited, in real-time.
4. It is recommended to listen to the sound while editing. Tap the [Track] button to audition the current track sound.
5. Decay is adjusted in seconds.

The decay knob is repurposed as the duck time setting if the track is configured as an external input channel. Ext input is set by changing the model to 'input'.

2.7 LFO Overview

The LFO, or Low Frequency Oscillator, is a modulation source you can assign to a variety of track destinations. This will generate movement in any destination parameter. Each track has 1 LFO, which you can assign to a single destination on that track.



Push/turn type encoder.

The LFO knob directly controls the LFO amount using the push/turn encoder. Tap to view and configure several LFO parameters. These are displayed across several track screens and edited with the respective track (Model) knob.

To edit the LFO:

1. Turn (LFO) to adjust the modulation amount applied.
2. Tap (LFO) to open the settings.
3. Turn (Model) knob for each of the tracks that displays an LFO parameter.
4. Tap the [Track] button to audition the sound.



Amount of LFO modulation applied to the destination. Range is 0-100%. Turning the (LFO) knob also directly edits the mod amount.



Select the current tracks destination parameter that will be modulated.



The speed of the LFO. Speed is in Hertz if Sync is 'Off' and set in note Intervals if the Sync is set to 'On'.



Set to 'On' to synchronize the LFO speed to a chosen note interval and tempo or 'Off' for free running in Hz.



Selects the waveform shape for the LFO modulation. There are 7 waveforms available for selection.



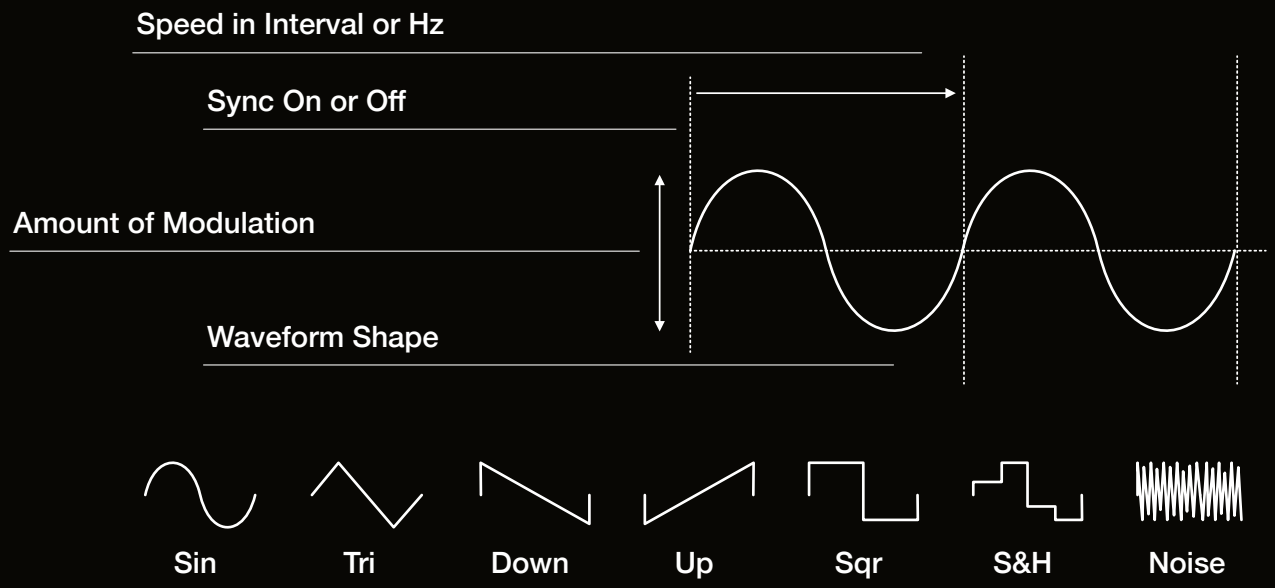
Selects behavior of how the waveform will retrigger on a new step. Choose from Trig, Free, One, S&H.

2.8 LFO Settings

Tapping the (LFO) knob opens the LFO parameter options for the track. The (Model) knobs for the first 6 tracks edit each parameter for the LFO. Turning the (LFO) knob directly will edit the first parameter, in this case, the modulation amount.

Sync works in conjunction with the Speed parameter. If sync is off this is set in Hz, if On it can be set in note intervals, including dotted and triplet intervals:-

1, 1/2D, 1/2, 1/4D, 1/2T, 1/4, 1/8D, 1/4T, 1/8, 1/16D, 1/8T, 1/16, 1/16T, 1/32, 1/32T, 1/64T



Free
The LFO will run freely and continuously. Triggering the sound will apply the LFO at its current position in the cycle.

Trig
Each time the sound is triggered, the LFO will restart and then continue to cycle.

One
Each time the sound is triggered, the LFO will restart and play through one full to cycle then stop until a new trig is received.

S&H
Each time the sound is triggered, the LFO will generate a value based on the current position in the wave cycle shape.

The LFO is triggered with a step hit from a sequencer or a manual track trigger.

2.9 LFO Destinations

The LFO destination can only be set to a parameter on the same track. The track destination list is provided here.

The LFO can modulate the standard sound and channel control parameters as well as the A, B and C parameters for the assigned model.

Destination	Knob	Description
Mutation	Model	Navigates and selects a mutation.
Pitch	Pitch	Adjusts the pitch across its note or Hz range.
Decay	Decay	Modulates the decay over the 0-3 Sec range.
A Model Parameter	A	Modulates the Parameter A for the model.
B Model Parameter	B	Modulates the Parameter B for the model.
C Model Parameter	C	Modulates the Parameter C for the model.
Volume	Volume	Modulates the track volume level 0-100%.
Panning	Pan	Modulates the track panning left / right.

2.10 A, B, C Controls

The track controls labelled, A, B and C are defined per track. The instrument model will determine the specific knob function.

Pitch and decay differences are also presented. The models can be digital, analog, sample or an FX effect for incoming audio.

Model	Generator	Pitch	Decay	A	B	C
Kick	Analog	Pitch	Decay	Wave	Transient	Drive
Kick	Digital	Pitch	Decay	Wave	Transient	Drive
Kick X	Analog	Pitch	Decay	Pitch Mod	Transient	Drive
Kick X	Digital	Pitch	Decay	Pitch Mod	Transient	Drive
Snare	Analog	Pitch	Decay	Noise Filter	Body/Tail	Body Drive
Snare	Digital	Pitch	Decay	Tone	Body/Tail	Redux
Snare X	Digital	Pitch	Decay	Tone	Body/Tail	Redux
Snare F	Digital	Pitch	Decay	Tone	Body/Tail	Redux
Tom	Analog	Pitch	Decay	Wave	Transient	Drive
Tom	Digital	Pitch	Decay	Wave	Transient	Drive
Tom X	Digital	Pitch	Decay	Wave	Transient	Drive
Hi Hat	Analog	Pitch	Decay	Noise	Decay Shape	Filter
Hi Hat G	Analog	Pitch	Decay	Noise	Decay Shape	Filter
Hi Hat	Digital	Pitch	Decay	Noise	Decay Shape	Redux
Hi Hat X	Digital	Pitch	Decay	Timbre	Decay Shape	Impact
Hi Hat G	Digital	Pitch	Decay	Noise	Decay Shape	Filter
Cymbal	Analog	Pitch	Decay	Noise	Filter	Redux
Cymbal	Digital	Pitch	Decay	Noise	Impact	Redux
Cymbal X	Digital	Pitch	Decay	Timbre	Shape	Impact
Cymbal FM	Digital	Pitch	Decay	Noise	Impact	Redux
Clap	Analog	Filter	Tail	Shape	Spacing	Resonance
Clap	Digital	Filter	Tail	Shape	Spacing	Redux
Clap FM	Digital	Pitch	Decay	Filter	Spacing	Redux
Rimshot	Digital	Pitch	Decay	Timbre	Drive	Redux
Cowbell	Digital	Pitch	Decay	Timbre	Tail	Reduc
Maracas	Digital	Pitch	Decay	Timbre	Spacing	Phaser
Shaker	Digital	Pitch	Decay	Timbre	Variation	Phaser
Claves	Analog	Pitch	Decay	Wave	Shape	Drive
Claves	Digital	Pitch	Decay	Wave	Decay Shape	Transient
Claves Nat	Digital	Pitch	Decay	Wave	Decay Shape	Transient
Zap	Digital	Pitch	Decay	Pitch Env	Decay Shape	Redux
Noise	Analog	Cutoff	Decay	Cutoff Env	Amp Shape	Resonance
Bleep	Analog	Cutoff	Decay	Cutoff Enve	Amp Shape	FX Amount
Drum FM	Digital	Pitch	Decay	FM	Pitch Mod	Feedback
Modal	Digital	Pitch	Damping	Timbre	Geometry	Position
Modal N	Digital	Pitch	Damping	Timbre	Geometry	Position
Glitch	Digital	Pitch	Decay	Delay	Feedback	Tone
Clunch	Digital	Pitch	Decay	Tone	Size	Diffusion
Transient	Digital	Pitch	Length	Timbre	Noise	Resonance
Filter	Sample	Pitch	Decay	Cutoff	Attack	Resonance
Flanged	Sample	Pitch	Decay	Delay	Attack	Feedback
Warped	Sample	Pitch	Decay	Saturation	Attack	Redux
Synth	Digital	Pitch	Decay	Cutoff	Cutoff Env	Resonance
Synth	Analog	Pitch	Decay	Cutoff	Cutoff Env	Resonance
Synth FM	Digital	Pitch	Decay	FM	FM Mod	Feedback
Chords	Digital	Pitch	Decay	Timbre	Cutoff	Cutoff Env
Chords H	Analog	Pitch	Decay	Cutoff	Cutoff Env	Resonance

2. Drum Tracks

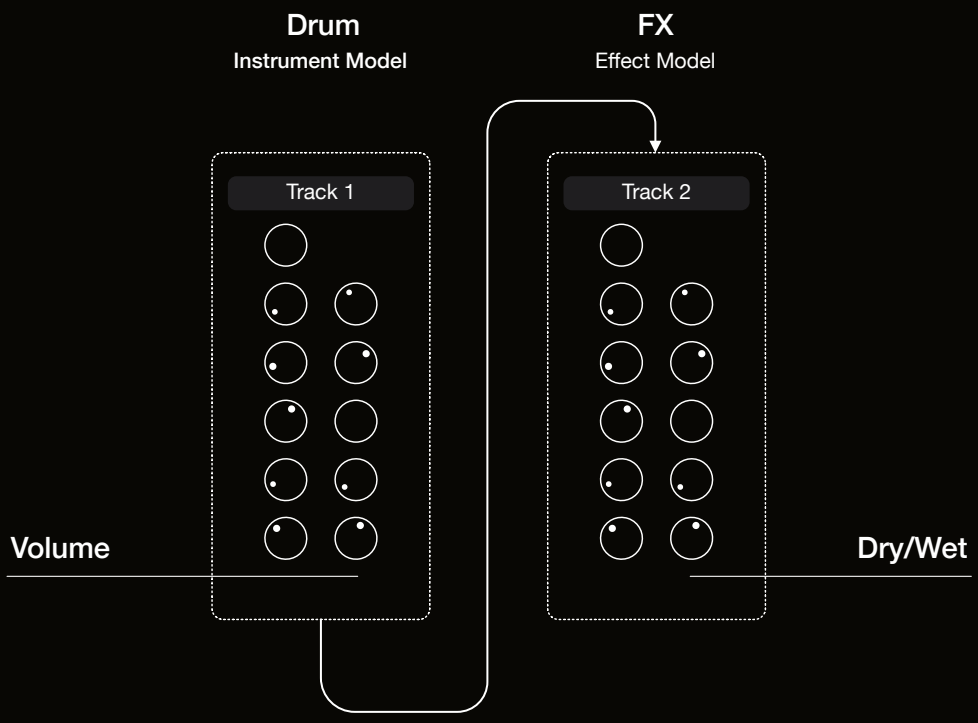
2.11 FX Tracks

The primary role of a track is to generate and manage the discrete sound. Drum tracks can also serve as effect tracks where effects like the track compressor, EQ and delay can be configured as inline effects.

An 'FX' model can be assigned to a track the same way that any other model such as a digital or analog sound model is assigned. FX tracks take the input audio from the previous track in the order 1-8.

Model	Generator	Pitch	Decay	A	B	C
Shaper	FX	-	LP Cutoff	Amount	HP Cutoff	Resonance
Comp	FX	-	Release	Threshold	Attack	Drive
EQ	FX	Low Freq	HP Cutoff	High Gain	Mid Gain	Low Gain
Drum Bus	FX	Low Freq	Low Gain	Threshold	High Gain	Drive
Mod	FX	Rate	Delay	Tone	Depth	Drive
Delay	FX	-	Time	Tone	Feedback	Modulation

All 3 of the A,B,C Model parameters can be recorded into the sequencer pattern. Turn the A,B or C knob while recording in the sequencer to also capture the parameter automation pattern.

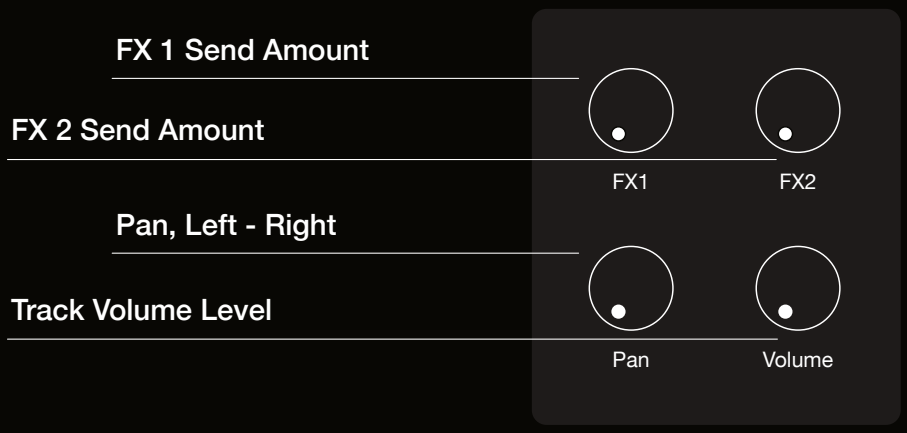


The Volume knob acts as a dry/wet control for tracks which are configured to operate as an effect track. Effect track input is routed from the previous track. If track 1 is set as an effect track, it will take its audio from the external line input.

2.12 Channel Strip

Each drum track has a set of channel strip parameters consisting of 2 x FX sends, audio volume level and pan.

The actual global effects are configured in the global effect and settings section by tapping the [FX1] and [FX2] buttons. One effect can be assigned per slot.



Channel-strip parameter values appear temporarily on the track display while editing. After loading a kit, the stored value may differ from the physical knob position. Refer to the Jump, Pickup or Scale settings in the system section for knob behaviour.

Track Volume

Volume level of the track output to the mix and to the individual track outputs. All tracks are fed into the master output section. If the track is configured as an FX track, volume will control dry/wet mix.

Pan

Pan applies to positioning mono and balancing stereo signals. Positions the audio in the stereo, left/right field.

FX1 & FX2

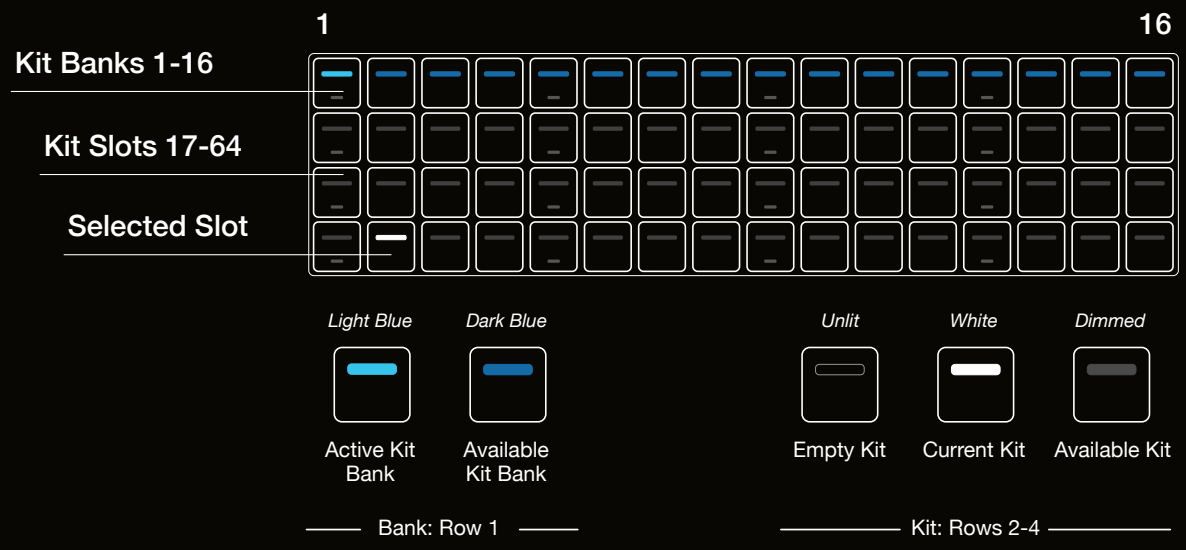
Sets the amount of audio sent from the track to the FX1 and FX2 buses. You can configure the send effect type globally for Drums, choosing from 13 FX1 and 9 FX2 send effects. You can set two different effects for the sends. Processed FX audio from all tracks is returned to the main mix.

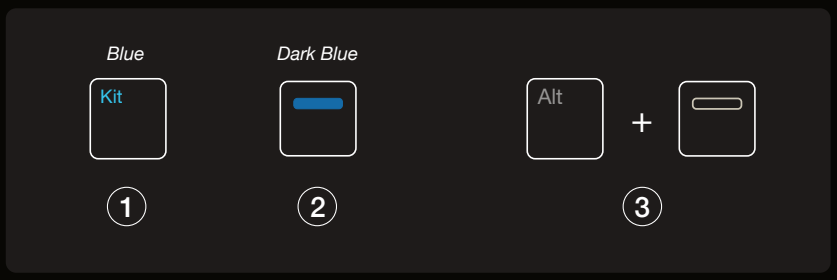
2. Drum Tracks

2.13 Save a Kit

Once you've developed a set of tracks with the desired sounds, you can save them as a kit to the global pool. You can then match a kit with various patterns. A unique kit is also saved with the pattern.

A kit contains all track sounds, including the assigned models, parameter settings, FX, channel strip and main output settings. Kits are stored in 16 banks of 48 slots, represented by the grid.





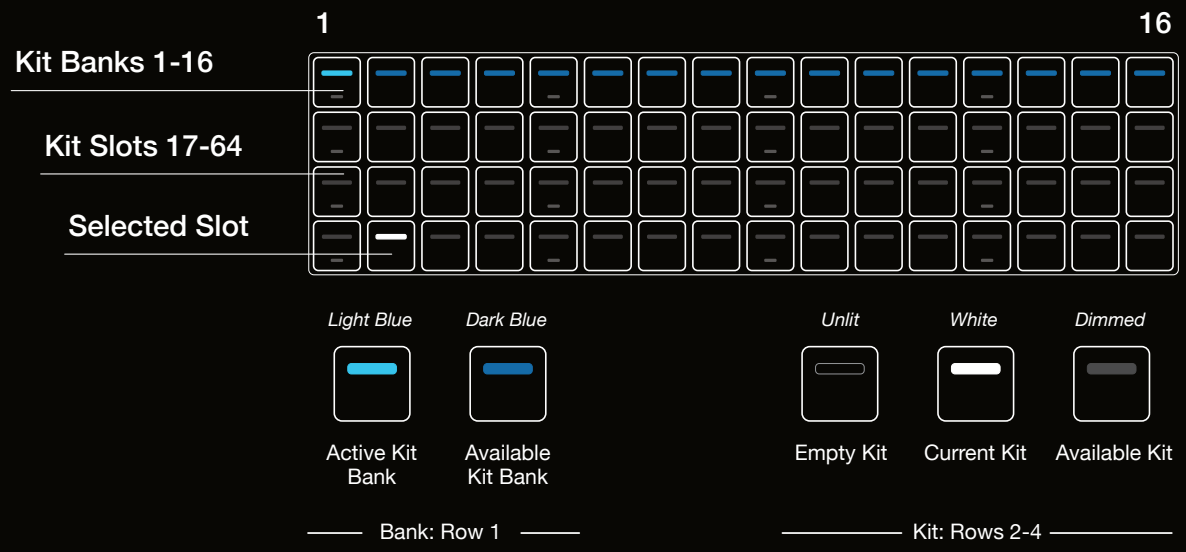
Save a Kit:

1. Tap [Kit] to open kit mode. Kit button will illuminate blue.
2. Tap [Step] 1-16, to select a bank. Top row is lit blue, brightest is the active bank.
3. Save to the same active, white lit slot. Hold [Alt] + [Step] 17-64, to save to the chosen slot.
4. Alternatively, save to a new bank or slot. Empty slots are unlit. Hold [Alt] + [Step] 1-16, to select bank, then [Step] 17-64 for the kit slot to save to. Release [Alt] before the step.
5. Existing kits can be overwritten.
6. Tap [Kit] button again to deselect and exit kit mode.

2.14 Load a Kit

A kit can be loaded into a pattern from the global pool. The kit can be edited to create a unique, independant version.

Kits can be loaded from one of the 48 kits contained in one of the 16 banks, accessed with the grid steps.





Load a Kit:

1. Tap [Kit] to open kit mode. Kit button will illuminate blue.
2. Tap [Step] 1-16, to select a bank. Top row is lit blue, brightest is the active bank.
3. Tap [Step] 17-64, to select a kit. White step is the active kit.
4. Empty slots are unlit.
5. Tap [Kit] button again to deselect and exit kit mode.

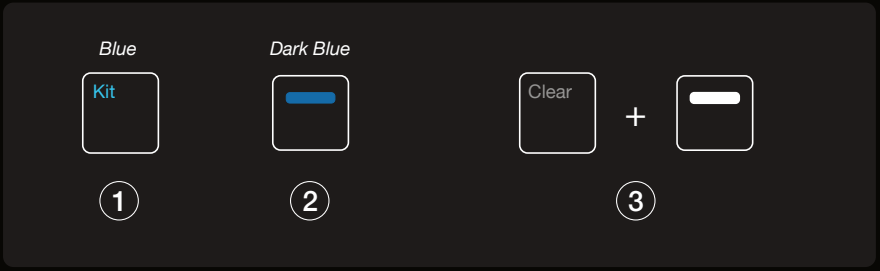
Quick Load a Kit:

5. Hold [Kit] + Tap [Step] top grid row to select a bank 1-16.
6. While still holding [Kit], Tap [Step] 17-64. This will select a kit from the selected bank.
7. This command will momentarily open kit mode. The mode will exit when releasing kit button.

2.15 Clear a Kit

It is possible to clear any kit from the kit slots. This includes clearing the currently active kit or any another saved kit.

Clearing a slot resets it to the default state. Entire banks cannot be cleared.



Clear a Kit:

1. Tap [Kit] to open kit mode. Kit button will illuminate blue.
2. Tap [Step] 1-16, to select a bank. Top row is lit blue, brightest is the active bank.
3. Hold [Clear] + Tap [Step] 17-64, to clear the stored kit. White step is the active kit.
4. Empty slots are unlit.
5. Tap [Kit] button again to deselect and exit kit mode.

The cleared kit slot will revert to unlit once clear is complete



Empty Slot

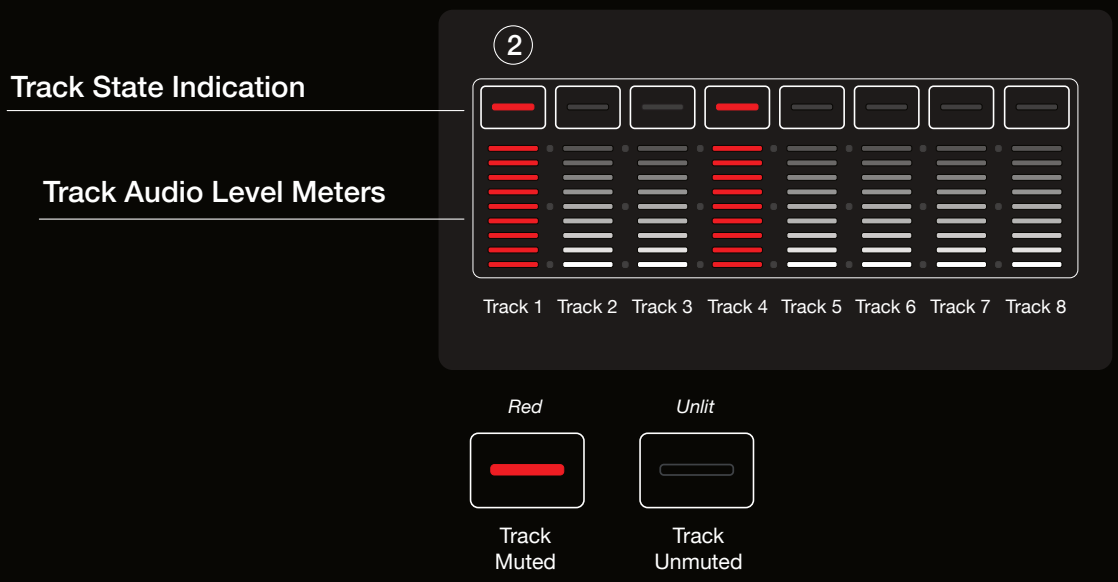
Clear is a destructive process and is activated immediately without any additional prompt. Ensure you are selecting the correct kit to clear before hand to avoid losing your kits.

2.16 Muting Tracks

Mute operates at a track level. Muting tracks can be used for developing songs, creating pattern variations or can be used in live performances.

The current mute states are real-time commands and are not saved with a pattern. If needed, [Mute] + [Play] will stop playback and kill all voices.





Quick Muting a Track:

1. Hold [Mute] + Tap [Track] to toggle mute state.
   The selected track will be muted or unmuted.
2. A muted track button and meter will be lit red. Unmuted track buttons are unlit in when mute is held.
3. Release the mute button.

Performing with Mutes:

4. Keeping the mute button active is useful for performing or quick changes on the bounce.
5. Tap [Mute]. This sets the mute mode on. The mute button, any muted track buttons and meters are lit red.
6. Tap [Track] to toggle a mute state on or off.
7. Tap [Mute] to exit mute mode.

Sequencer Setup 3

Polyend has brought years of knowledge and experience to our most advanced and intuitive sequencing system yet. The grid can be presented as the default 4-track, 16-step view, or you can tap (Page) knob to show all 64 steps on a single track. Tap a [Track] button to switch tracks. 8 tracks with up to 64 steps, plus deep per-track control, probability, micro-timing, pattern chaining, and generative tools, move you beyond simple stepped playback into expressive composition. Get creative with all-parameter locks, real-time step and parameter recording, Independent track length, speed and play modes, repeats, step conditions, chance, and micro-timing. Track randomisation and Euclidean and beat generators add more advanced sequencing. Organise and save your sequences into one of the 48 song slots to develop complete arrangements.

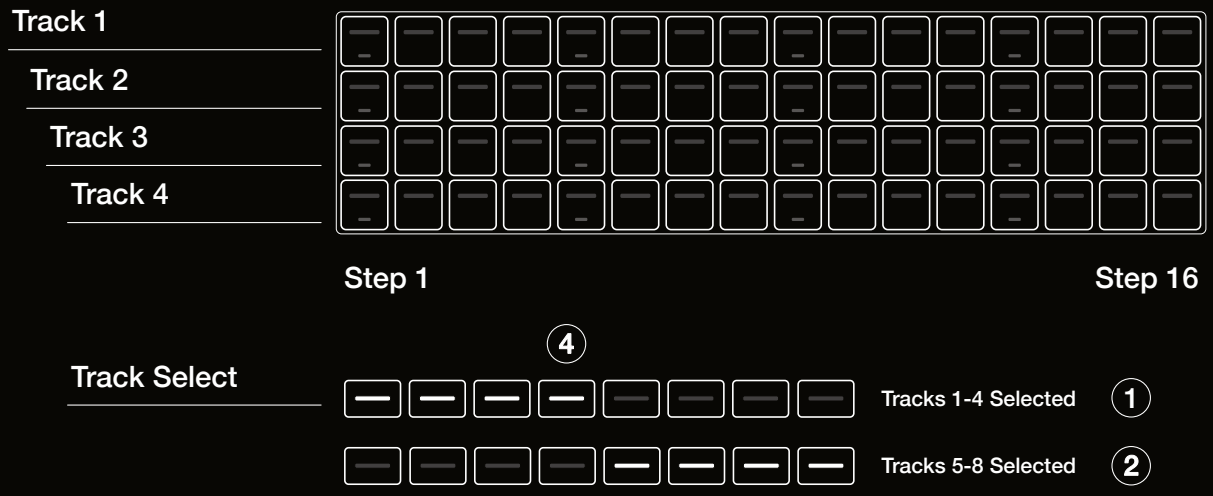
3. Sequencer Setup

3.1 Grid - Default View

Each of the 8 tracks has a 64 step sequencer. The step grid buttons offer two views for sequencing. In the default view, the grid represents the first 16 steps for 4 tracks. Alt view shows a single, 64 step track.

The buttons on the grid represents trigger steps in the pattern. All patterns are independent so different sequencer settings, such as length, can be applied per track.

Default View: 1 Track per Row, up to 16 Steps in view per page.



Tap the (Page) button to toggle between default and alternate grid.

Default Grid Navigation:

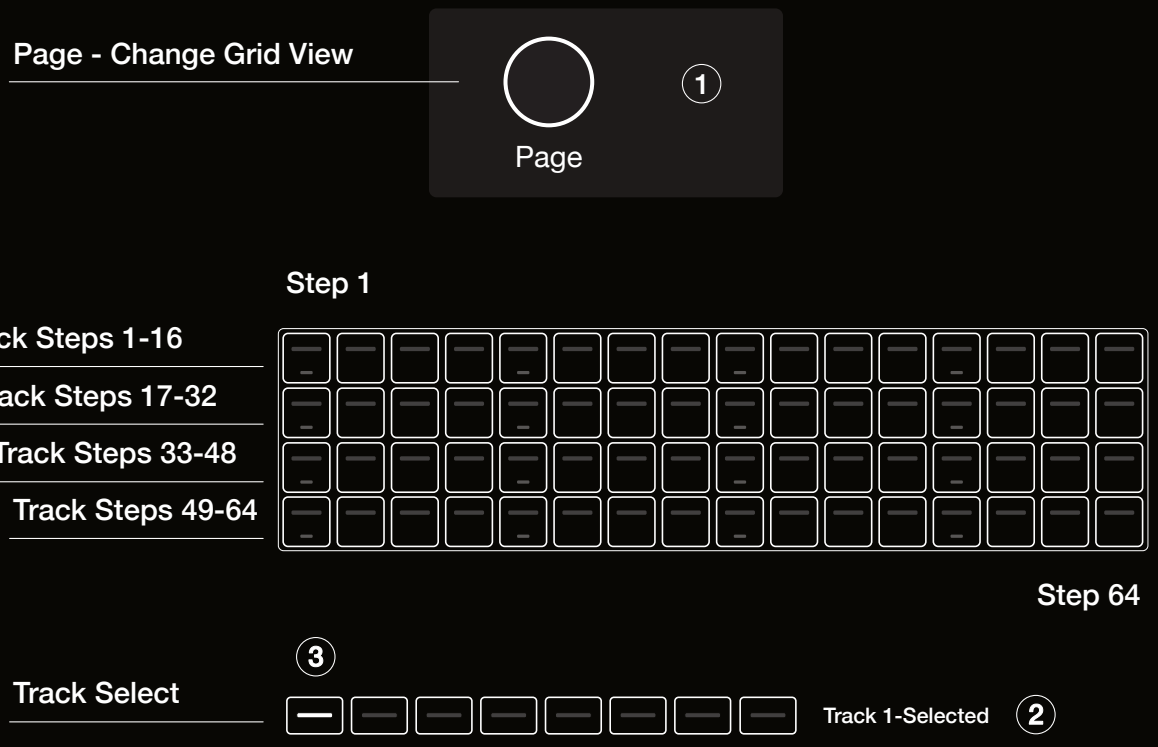
1. Tap [Track] 1-4 to present the grid with 16 steps for track 1-4.
2. Tap [Track] 5-8 to present the grid with 16 steps for track 5-8.
3. For patterns longer than 16 steps, Turn [Page] to navigate through additional pages.
4. Hold a [Track] button to temporarily present the sequencer settings for the chosen track. Edit with each tracks (Model) knobs while still holding [Track].

3.2 Grid - Alternate View

The second sequencer grid presentation is called the alt or alternate view. In the alt view, the grid represents all 64 steps for the currently selected, singular track. Select a [Track] to switch the grid to each track.

Toggle between views with the (Page) button. The track length is set in the settings, accessed by holding the [Track] to edit. The default setting is 16 steps but can be set between 1-64.

Alt View: 1 Track, up to 64 Steps in full view.



Alt Grid Navigation:

1. Tap (Page) to switch views. Alt view presents the grid with all 64 steps. All steps on the grid represent the selected track.
2. Tap [Track] 1-8 to choose the track to edit. Steps can be edited.
3. Hold a [Track] button to temporarily present the sequencer settings for the chosen track. Edit with each of the (Model) knobs while still holding [Track].

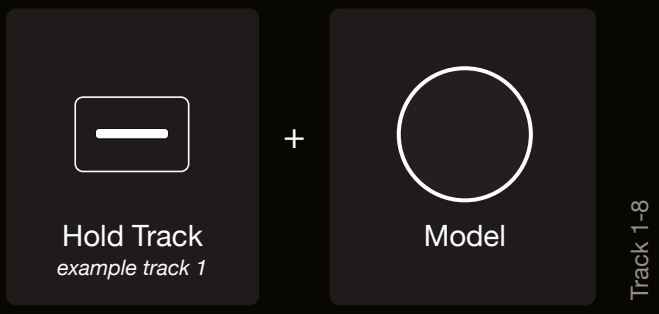
3. Sequencer Setup

3.3 Sequencer Settings Summary

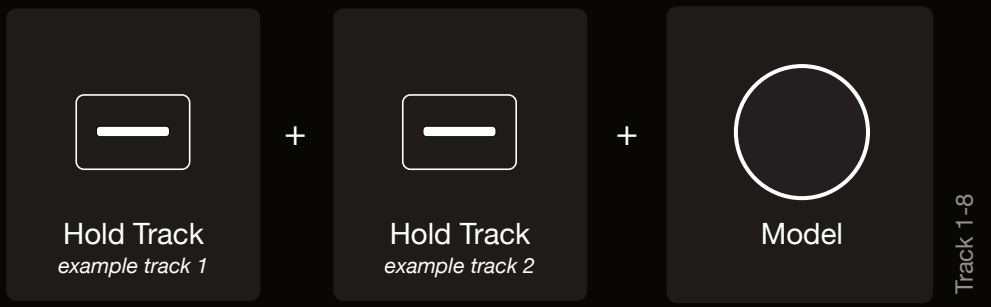
Irrespective whether the default or Alt grid view is active, the sequencer settings are edited by following the same process.

Hold [Track] + Turn (Model) to edit a parameter as displayed on the respective track. The held tracks are the ones edited.

Single Track Editing ①



Multi-Track Editing ③



Editing the Sequencer Settings:

1. Hold a track to edit [Track] + Turn (Model) for the track representing the parameter to edit. Example, track 1.
2. The track displays will show the values while editing. The model knob for each track represents the value displayed.
3. To edit the settings for multiple tracks simultaneously. Hold all tracks to edit [Track] + [Track] + Turn (Model) for the track representing the parameter to edit. Example, track 1 & 2.

3.3 Sequencer Settings Summary

Single track or multi-track editing is possible. When editing a function with multiple parameters, the settings are presented across the set of track screen displays.

Editing a parameter is performed with the respective track (Model) knob. The currently selected track is the one edited. For the generate option, tap a generator knob to generate the pattern.



Adjust the track length from 1-64 steps. The default setting is 16 steps.



Sets the sequencer speed. Options; 8x, 4x, 3x, 2x, 1x, 1/2, 1/3, 1/4, 1/8. The default speed is 1x.



Changes the behaviour of the pattern playback. Forward is default. Over 35 playmode options are available.



Assigns the pattern to a choke group 1-4 or set the group to none.



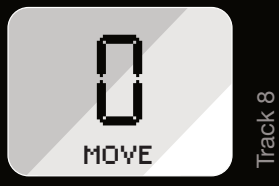
Adjust the step quantize setting from 0% to 100%. Default 0% no quantize.



Pattern generator. Used to create beat, euclidean or random patterns.



If generator is set to 'Beat', the beatfill files that can be selected and applied into the pattern.
If generator is set to 'Euclidean', track 7 parameter sets the number of euclidean events.
If generator is set to 'Random', track 7 parameter sets the random density.



Move all pattern steps forwards + or backwards -. Range is -63 to +63 steps.

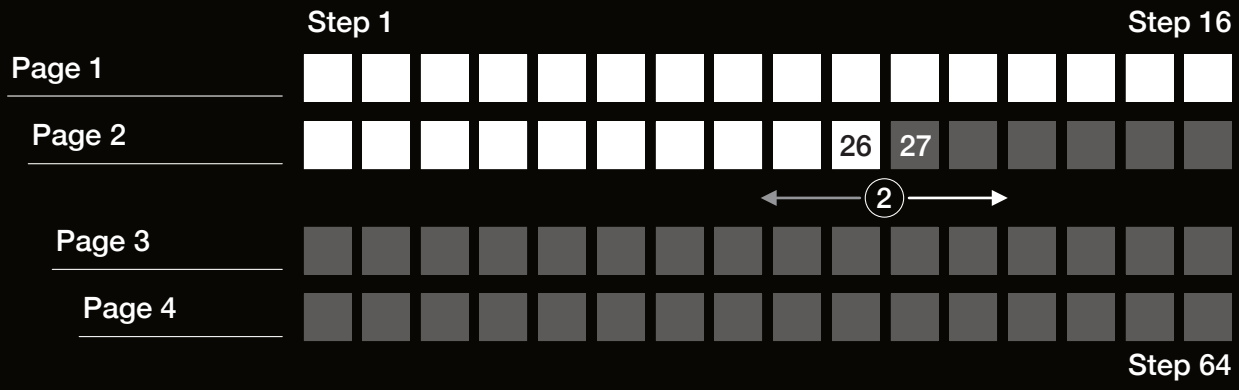
3. Sequencer Setup

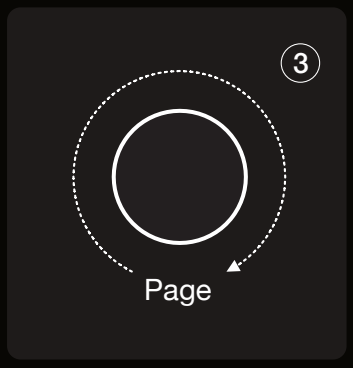
3.4 Track Length

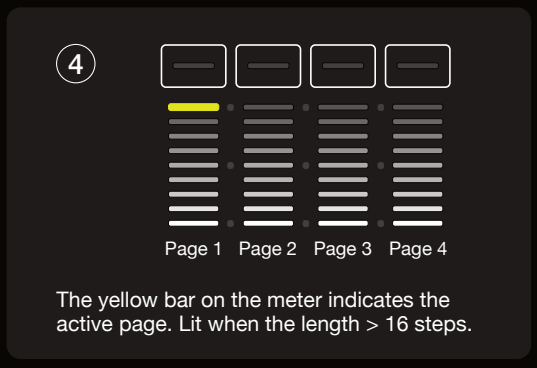
The maximum length of any track sequence is 64 steps. The grid view will govern how the steps are displayed. The track length is set in the settings, accessed by holding [Track].

The default setting is 16 steps and can be set between 1-64. Existing triggers are preserved when reducing the length until the pattern is saved or reloaded.

In default view, the grid represents 4 tracks and 16 steps per page. In alt view the entire set of 64 step buttons represent the pattern.







Editing Track Sequencer Length:

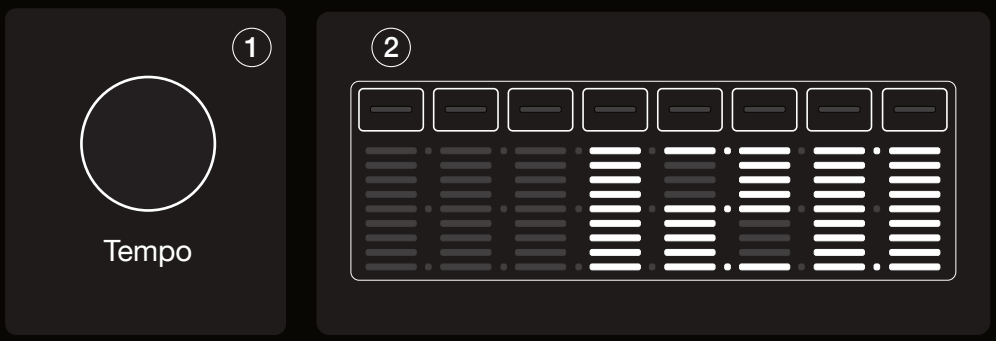
1. Hold [Track] to edit + Turn (Model) for Track 1. Knob represents track length.
2. The grid step buttons will illuminate to indicate the number of steps set in the sequence length. Unlit steps are not included in the sequence.
3. In default grid view, turn the (Page) knob to navigate and display each of the 16 step pages for the 4 tracks.
4. The yellow meter bar indicates the active page.

   Alt view shows all 64 available steps. The (Page) and yellow bar are not active in Alt view.

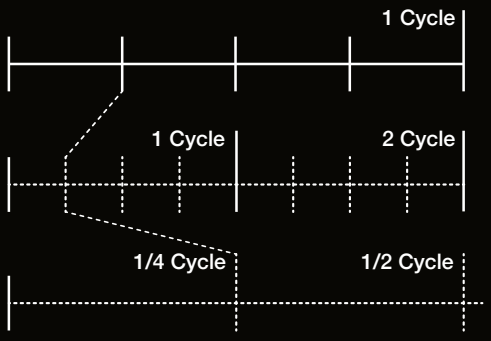
3.5 Tempo & Speed

Tempo is saved per pattern. Tempo can be set on Drums between 10-300 beats per minute. Tempo can also be synchronised to an incoming MIDI clock.

Each track also has an independent speed multiplier, referenced to the current tempo. The speed options can be setup in the track settings.



Different speeds will help to create polyrhythms and polymeters between the tracks, especially with a variety of length settings.
The sequencer speed options are; 8x, 4x, 3x, 2x, 1x, 1/2, 1/3, 1/4, 1/8.
The default speed is 1x.



Examples
Tempo 120, Speed x1 - Reference.
Sequencer runs in time with the tempo BPM.

Speed x2.
Sequencer twice as fast as the BPM pattern, completing 2 cycles to the reference 1.

Speed 1/2.
Sequencer runs half the speed of the BPM pattern. Will take twice as long to complete the same cycle as the reference.

Setting the Tempo:

1. Turn (Tempo) knob.
2. The tempo value is displayed using the track meter LEDs, presented in BPM.
3. Save the pattern to preserve its tempo setting.

Setting the Track Speed:

4. Hold a [Track] + Turn (Model) for Track 2. This will display and edit the speed parameter for the selected track.
5. The sequencer settings including speed are stored with the pattern.

3. Sequencer Setup

3.6 Playmode

The playmodes are presets that defines the behavior of how the sequencer plays its pattern. The default is forwards and can be quickly reversed. However many more options are available.

The playmode behavior will typically determine the shuffled direction and step position of the playhead when pressing [Play] for the sequencer pattern. Just give em a try!

Playmode	Description
Forward	Plays the pattern normally through its length, start to end on loop.
Reverse	Plays the pattern backwards, end to start, and continues to loop.
First Steps	Replays several of the first steps to replace sections of the pattern.
Go Go	Iterates through sections of the the full pattern forwards and backwards
2Stepper	Plays elements from the first 8 steps of the pattern forwards and back.
Thumper	Max 32 step pattern, skips 8,16, 24, 32 but repeats 7,15, 23 & 31 trigs, if present.
Doublestep	Max 32 step pattern with scattered trig variation at the end of each 16 step cyle
Euphoria	Jumps around a 32 step pattern, playing multiple repeats on some triggers.
Tristram	First 5 Step scattered phrase.
Funkster	First 5 Step scattered phrase, triggering odd steps.
Trigger	Scattered, 1, 2, 4, 5 and 30 step phrase.
Hattrick	Four steps, 1, 2, 3, 5 scattered triggers.
Averidger	Scattered steps, 1, 5 and also 2 repeated.
Reorganizer	Phrase organised with step trigger 1-5, 8, 12 and repeated 13s,
Mashup	Repeated 1,2 and 5 plus scattered steps up to 12.
Mirror	Short reverse phrases across 16 steps.
Clublab	First 5 Step, rhythmic phrase.
Clubdub	Alternate first 5 Step, rhythmic phrase with repeated 2s.
Repeater	Repeats of steps 5 & 1.
The End	Step phrase with 5 and 2 repeated plus 1.
Tripler	Repeated 1,2,3 phrase with the odd 5.
Breaker	First 5 step phrase with some doubled triggers.
Stomper	Selected random-style steps from a 16 step pattern. Emphasis on early pattern.
Tetris	Reverse and forward phrase with 3 odd steps.
Recognizer	Up/down phrase with 3 steps, 1,5 repeated, plus 2.
Varibeat	First 5, only odd steps, plus 9 added here and there.
Complicator	Repeated 9,2,3 Phrase interspersed with 4 & 5.
9th Grade	Start with 9, plus repeated 2's over a 5 step seq.
Irregulario	Short 9 step phrase, oriented around the first few steps.
Stepper	Shirt 1-5 phrase plus 9.
Revizor	15 Step pattern, jumped increments and short reversed phrases.
Baker	5 Step, random-like pattern with repeated 2s.
Lab	5 Step phrase using 1,5 and 7 interspersed with 2s.
Dub	Phrase with a 1, repeated 2 and 5.
Pixelizer	Scattered steps over a 16 step length.

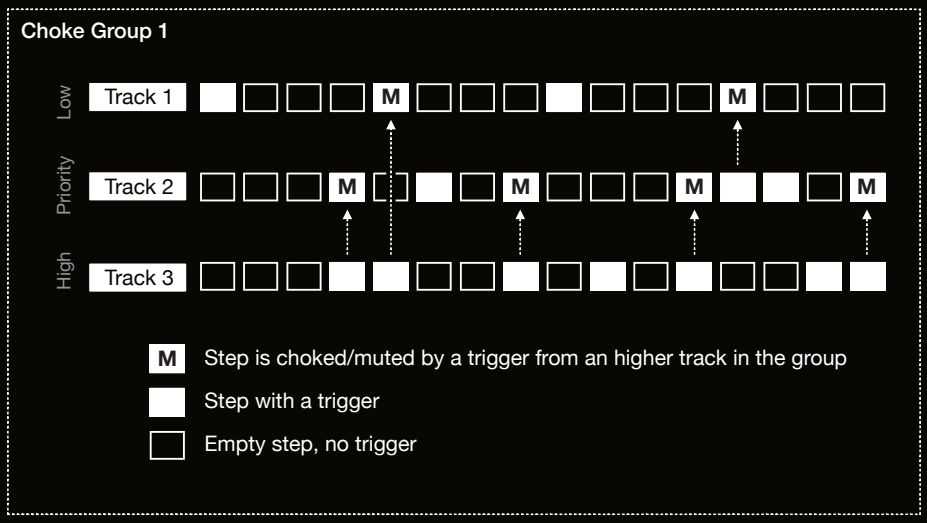
3.7 Choke Group

Any track can be assigned into a choke group. Up to 4 groups are available or the option to choose 'none' to exclude the track from a choke group. Choke group is stored with a kit.

Sounds, when played, in the same choke group will silence all other sounds in the same group. Higher track numbers take priority for simultaneous hits.

In the real world scenario, some drum instruments cannot be played together. For example the same hi-hat cannot be played open and played closed at the same time. In electronic drums, this scenario is emulated using choke or mute groups to determine which instrument, when played, will silence other instrument sounds that play at the same time.

Example



Setting up a choke group.

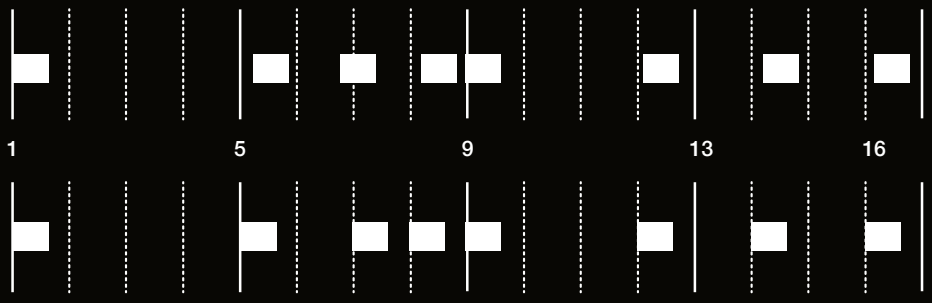
1. Set the choke group for the tracks to add to the group. Hold [Track] + Turn (Model) for track 4.
2. Multiple tracks must be assigned to a choke group.
3. The higher track number will take priority when hits occur simultaneously. So a higher choke track will mute a lower choke group track.
4. Muting of a step only takes place when the active triggers coincide or a sound tail is active during pattern playback.
5. If a track is muted, its triggers will be silent and therefore will not choke any other tracks step in the group.
6. Set a track to 'none' to disable any choke muting.

3.8 Quantize, Post Recording

When recording steps, hits or notes can be placed precisely onto the grid or with loose variations off grid. The setting quantization option is used post recording to tighten the off grid step micro-timed positions to be nearer to, or precisely on the nearest grid interval. Quantize is a non-destructive process.

Quantize at 100% will fully quantize to the micro-move offset. Swing is retained during quantization. Setting back to 0% will restore the original timing positions. Quantize is stored per track, in the pattern. Recording quantize is available from the Record button.

Step triggers recorded unquantized, off-grid



Step triggers quantized, 100% on-grid

A partially or fully unquantized pattern may be a desirable option. This will give a more human, less rigid feel and add time oriented character to the beat or rhythm.

Quantize an existing pattern.

1. Hold [Track] + Turn (Model) for track 5. This sets quantization in %.
2. Higher values tighten up the micro timing gap to grid. Lower values widen the gap.
3. To reset the quantization back to the original positions, set the quantize to 0%.

If quantize is required during the recording of a pattern, use the recording quantize method. This is a pre-recording setting.

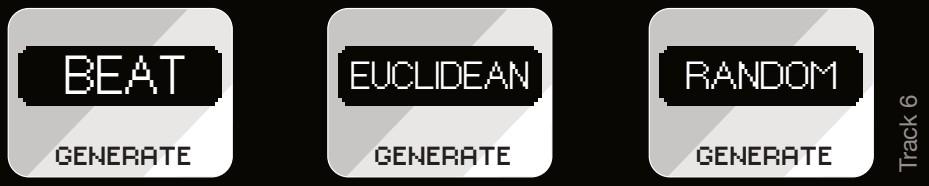
Hold [Rec] to open the recording options, including the recording quantize mode and Turn (Model) for Track 1 to set.

3.9 Generator Overview

A generator is a utility that automates the creation of patterns and step phrases. Drums has 3 generators; Beatfill, Euclidean and Random.

A Generator can be selected and configured for each track in the track settings options. Default setting is 'Beat' but with no beatfill file loaded, this renders the generator as inactive.

Generator Type.



The Beat generator uses a beatfill file to program a step phrase for the pattern.

A Euclidean generator is generated mathematically by spreading a selected number of event triggers across the pattern length.

The Random generator applies a number of triggers based on the density setting and places them randomly on the grid steps.

Generator Setting.



Choose a beatfill file which applies the preset steps into the current pattern. No files means the beatfill is empty.

Number of Euclidean trigger events that will be evenly spread across the current pattern length.

The Random density determines the amount of trigger events that will be randomly generated. Range starts from 10% and 100%, fills the pattern fully.

Generating a Pattern.

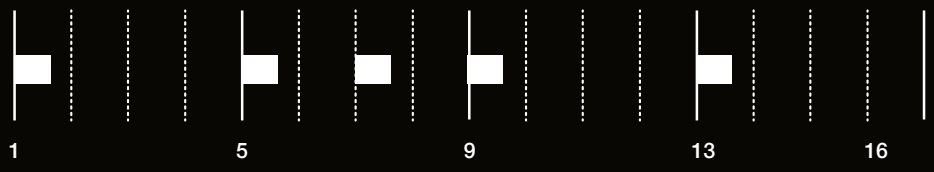
1. Set the generator for the track. Hold [Track] + Turn (Model) for track 6.
2. Set the value to either 'Beat', 'Euclidean' or 'Random'.
3. The editable setting for the chosen generator appears in track 7 parameter display.
4. Hold [Track] + Turn (Model) for track 7 to edit the parameter value for the generator.
5. Once a generator type and setting have been chosen, Tap Track 6 or 7 (Model) button while still holding [Track] to generate the new pattern. This will overwrite any existing steps and locks on the selected track.

3.10 Move

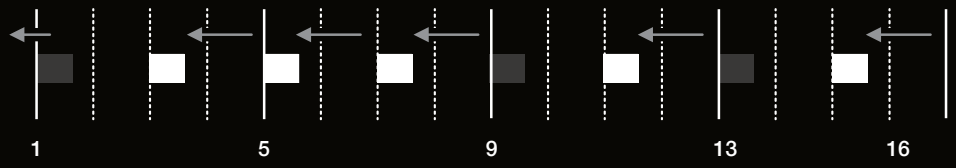
The Move option shifts all trigger steps in a tracks pattern forwards or backwards across the grid. Triggers will wrap across the start/end when moved across the limits.

The value chosen between the range of -63 to +63 refers to the amount of steps that the triggers are moved. Example: Setting of 4 will represent 4 steps of movement.

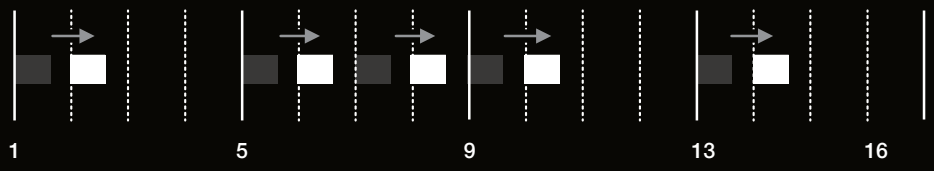
Example: 16 Step Length, 5 Triggers. Original step triggers on the pattern grid



Example: Move -2



Example: Move +1



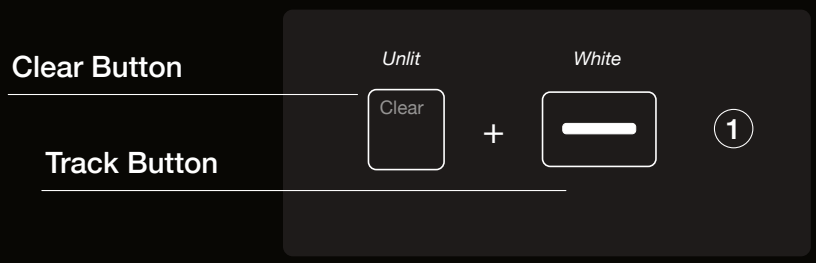
Shifting steps in a pattern.

1. Hold [Track] + Turn (Model) for track 8. This moves all steps in the current pattern for the selected track.
2. Each step increment will move all existing step triggers forwards with '+' values and backwards with '-' values.
3. Moving steps over the start or end of the pattern length will wrap the steps in the range.
4. The swing and micro-timing values are retained and do not change when moving steps.

3.11 Clear a Track

Clear will erase the entire tracks trigger steps and any automation. The current sound: instrument model and it's parameters remain intact.

To erase all tracks, use the clear pattern option. This will clear all track triggers and automation. Use clear pattern to clear the sequence and the kit.



Clear a Track:

1. Hold [Clear] + Tap [Track] 1-8 for the track to clear.
2. The triggers and automation will be immediately erased.
3. This is a destructive process so take care in clearing tracks to avoid losing data.

Patterns 4

A pattern is a collection of steps, triggers, parameter locks and settings for all 8 tracks that form the beat or melody. Tempo and Swing are is also stored with the pattern. A pattern has a maximum of 64 steps where beat or note triggers are captured along with any parameter automation. Song mode lets you chain patterns to create a full arrangement. Drums has 64 pattern slots that are used to save and load from a collection of patterns. Selecting a pattern is the starting point in creating musical ideas and sequencing to build an arrangement. Patterns switching between patterns is secure and quick. While Auto-save captures certain points in time, it is recomended to periodically save patterns manually as well as saving the song manually: Tap [Song], then hold [Alt] + Tap song slot [Step]. Manually saving ensures the latest edits are captured accurately. Changing patterns on the fly is almost instantaneous, perfect for live performances and improvisation sessions. Pattern changes are fully synchronised when playing, ideal for performing live and maintaining musical continuity.

4. Patterns

4.1 Playing a Pattern

Press the [Play] button to start or stop playback for the current pattern. Any triggers, unless muted, will play in sequence. Recording is activated with [Record] + [Play]. Stop by pressing [Play] again.

Playback will trigger any recorded step triggers. Track beats can also be manually played by using the track buttons.



Playing a Pattern:

1. Tap [Play], the button play symbol will illuminate white.
2. The sequencer will start running to play the pattern starting at the first step. The play position cursor will be visible through the steps.
3. The pattern will loop to restart when the last step in the defined length is reached and will continue playing.

Stop Playback:

4. Tap [Play] button again to immediately stop playback. Play button is unlit when stopped.
5. If play is restarted it will always start at the first step.
6. If needed, [Mute] + [Play] will stop playback and kill all voices.

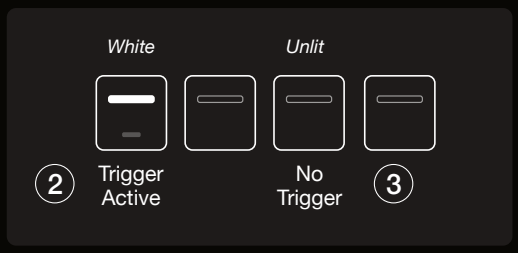
When switching between patterns, the change is goverened by the switch mode settings, configured by holding [Pattern]

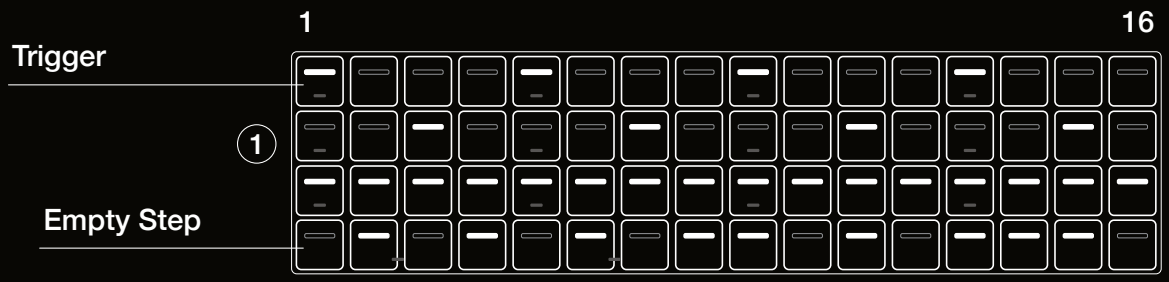
4.2 Step Sequencing a Pattern

Beat or melodic patterns are created in one of two ways. Step sequencing: tapping the step buttons to activate or deactivate triggers on the selected steps. Step sequencing is the default grid editing mode.

Alternatively, step recording enables the track buttons to record beats or notes on the track while recording and playing is active for the sequencer.

Step Sequencing





Add / Remove Triggers:

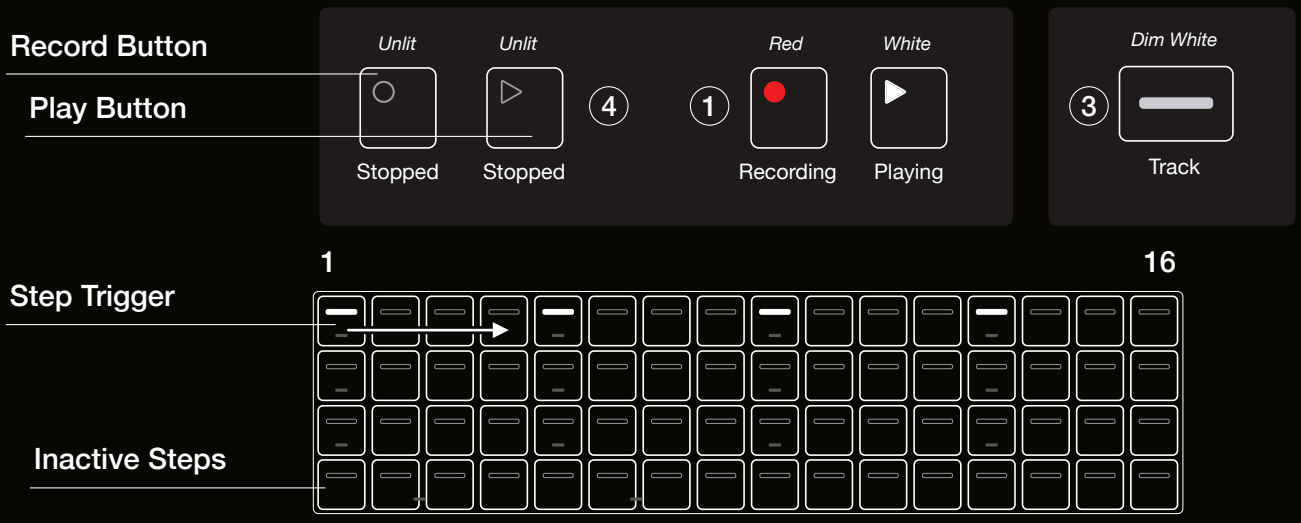
1. Tap [Step] 1-64 to activate or deactivate a trigger on the chosen step.
2. An active step trigger button will be lit white.
3. Inactive/empty steps are unlit.

4. Patterns

4.3 Step Recording a Pattern

Step recording requires the playing of beats or notes on the track buttons. Step recording is performed while recording.

Recording is activated with [Record] + [Play] and the sequencer is stopped by pressing [Play] again. Tracks played in this mode are recorded to the grid pattern.



Recording a Pattern:

1. Tap [Record] then Tap [Play], the play button will illuminate white and record will be lit red.
2. The sequencer will start running to record and play the pattern.
3. Tap [Track] for the instrument to record. Each tap records the trigger beat or melody in real time into the track grid.

Stop Recording & Playback:

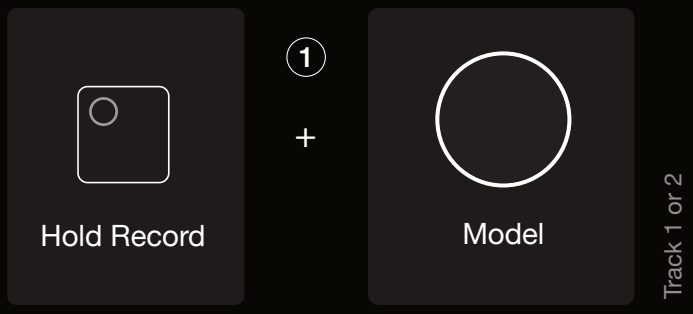
4. Tap [Record] button again to exit recording mode. playback. will continue.
5. Tap [Play] to stop playback. If play is restarted it will start at the first step.
6. If needed, [Mute] + [Play] will stop playback and kill all voices.

4.4 Step Recording Settings

Two recording settings are available: Overdub allows existing steps to be overwritten. Recording Quantize, corrects any off-grid timing and places recorded hits or notes precisely onto the grid.

Record quantize is a real-time recording option. There is also a post recording quantize located in the track settings.

Recording Settings





With overdub set to off, any recordings will be placed along with existing steps. With overdub on, recording over an existing trigger step will overwrite it.

Quantize off will place triggers exactly as recorded, even if they are micro-timed off grid. Quantize on will adjust any deviations, during recording, to grid intervals.

Setting up Overdub:

1. Hold [Record] + Turn (Model) for Track 1.
2. Set the option to On or Off.
3. When off steps are added to the extisting steps and on will overwrite existing steps.

Setting up Quantize:

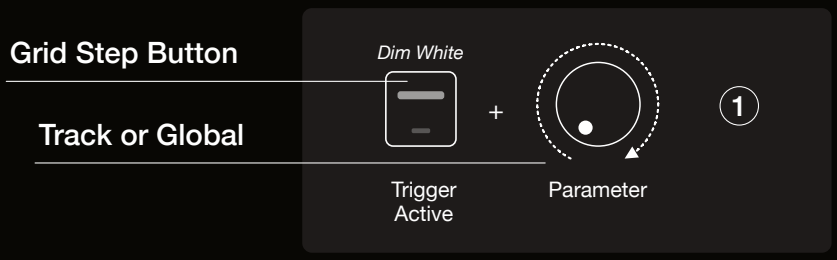
1. Hold [Record] + Turn (Model) for Track 2.
2. Set the option to On or Off.
3. Triggers are recorded as played when off, otherwise when on, the timing is corrected to grid.

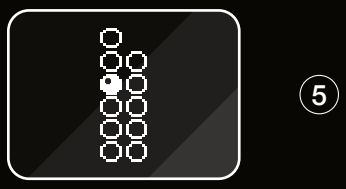
4.5 Parameter Automation & Locks

Steps are initially created with the current parameter settings. Variations to the values of the 11 track parameters including the mutations can be recorded or programmed across a pattern. This is called automation.

Parameter automation can be recorded across an entire pattern adding movement and interest. Variations on individual steps is also possible. Setting a discrete value to a step is called a parameter lock.

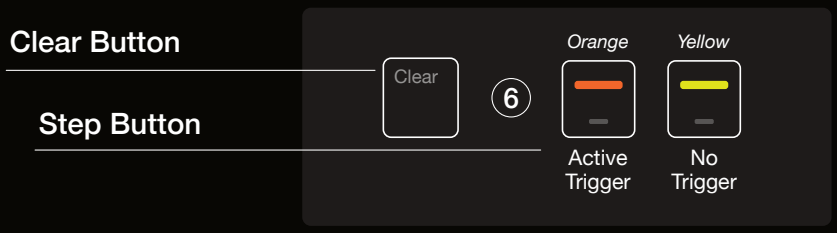
Locking a Step Parameter





Holding any step will display the automation icon. If a parameter lock is applied to the step, the locked knobs are indicated within the knob icon filled. Example shows, Model B knob locked.

Viewing Locks



Parameter Locking a Step

1. Hold [Step] to edit + Turn (Knob) for the track parameter to edit.
2. Multiple steps can held and edited simultaneously.
3. The new parameter value will be applied to the held step.
4. Re-applying a step will restore the previous automation Cleared tracks do not restore previous automation.

Viewing Locked Steps:

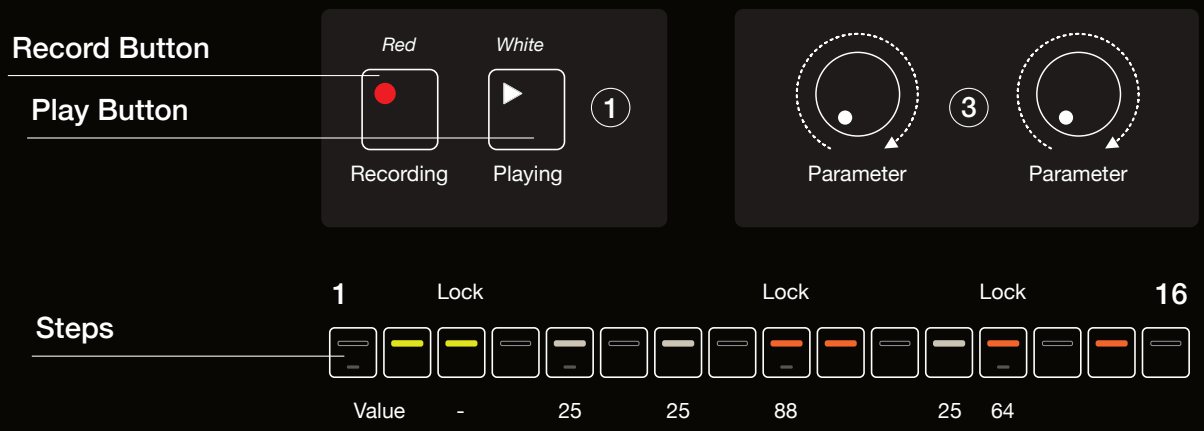
5. When holding a step, the automation symbol will be displayed. The symbol also shows which parameter knobs contain a lock.
6. Hold [Clear] to view locked steps. All active trigger steps with a lock are lit orange, locked, but inactive trigger steps are lit yellow.

4.5 Parameter Automation & Locks

Automation can also be applied across multiple steps while recording. Simply turn a knob to record its parameter dynamic pattern. The values are recorded per step in the pattern.

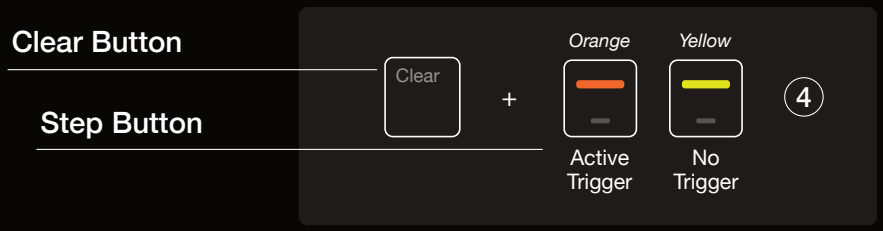
Recording automation is performed in the same recording mode used to record steps.

Recording Automation



Parameter locked steps can be viewed while holding [Clear].
Triggers + locks are orange, locks with no trigger are lit yellow.

Clearing Automation & Settings



Clear + Step will clear the parameter locks but will also clear repeat, micromove and chance settings. The trigger is not cleared.

Recording Automation:

1. Tap [Record] and Tap [Play] to start recording.
2. Turn a parameter knob for any track to record its parameter locks to steps in real-time.
3. Tap [Record] to stop recording.

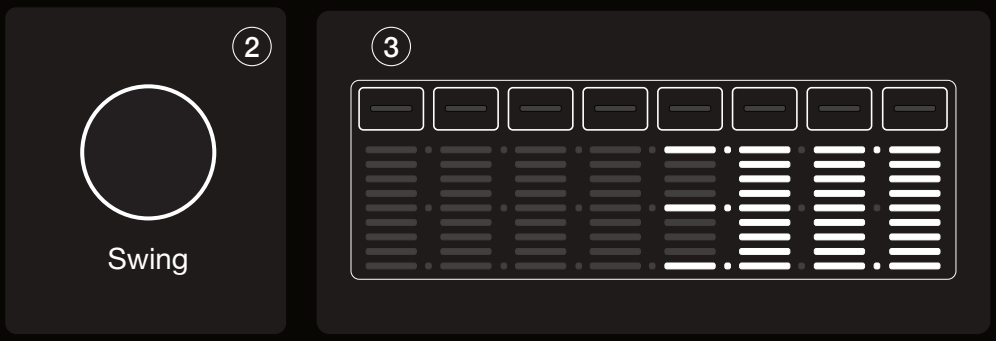
Clearing Step Automation Locks:

4. Hold [Clear] + Tap a step containing a parameter lock. These are lit orange or yellow.
5. Multiple steps can be cleared by holding the [Steps] and tapping [Clear]
6. The automation and settings are cleared. Triggers remain intact.

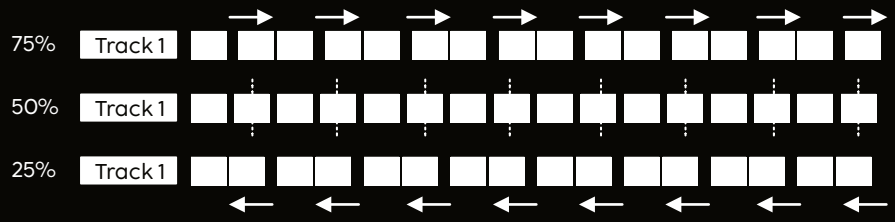
4.6 Swing

Swing refers to the rhythmic nature of a pattern. The swing setting shuffles the timing of the sequencer to trigger even numbered steps, slightly forwards or backwards, creating a groovy push/pull feel.

Swing ranges from 25, to bring even numbered steps forwards to 75, which delays even triggers. 50 applies no swing. Adjust with the (Swing) knob, the value is displayed on the metering bars. Swing is stored with the pattern.



Example



Swing adjusts the sequencer playback to add a rhythmic shuffle to the beats.

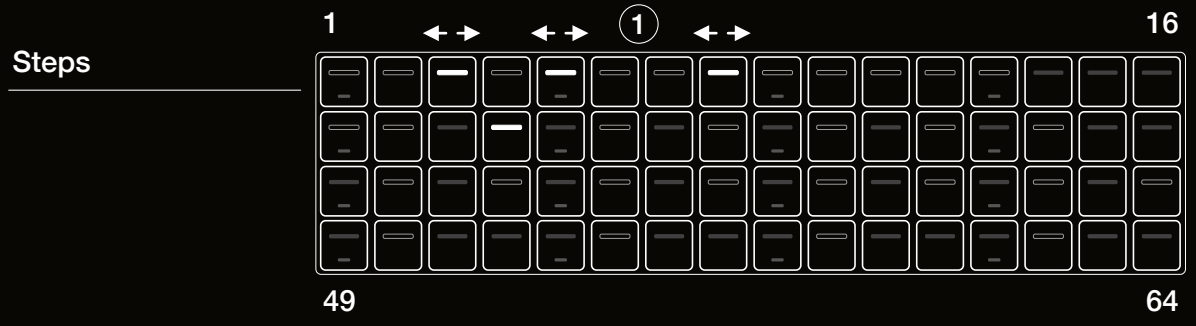
Add Swing:

1. Swing is applied across the sequencer, all tracks on even numbered steps.
2. Turn (Swing) to adjust the amount of swing 25-75.
3. The swing value is presented on the LED metering display while editing.
4. Swing will affect the timing of the sequencer to push even notes and hits later or pull them forwards.
5. A value of 50 is neutral, no swing applied.
6. Save the pattern to retain swing settings.

4.7 Micromove

Micromove operates at an individual step level. One or more steps can be moved in small positional increments forwards or backwards with respect to their current position.

Steps must be selected on one or more tracks before adjusting the (Micromove) knob. The adjustment range is +/-11 tics. Micromove editing can be parameter locked to the steps.







The micromove display is presented for any track being edited. This will show the micromove value for the chosen steps being held and edited.

Move step triggers for a track:

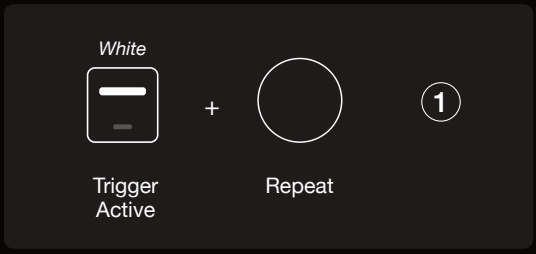
1. Hold one or more [Step]s to edit. Steps may also be selected from multiple tracks.
2. The parameter lock icon is displayed for each track being edited.
3. While holding the steps, Turn (Micromove) knob.
4. All tracks being edited will display the micromove values. Only the steps held are edited.
4. Micromove works in conjunction with quantize
5. Micromove edits values as an offset from their current position.
6. To clear the parameter lock, micromove, repeat and chance settings, hold [Step] + Tap [Clear].

4.8 Repeat

A repeat can be applied to one or more trigger steps in a pattern. When the step triggers it will repeat the beat/note with the repeat behavior and, optionally, the velocity applied.

The repeat knob is a push/turn encoder. Repeat can only be applied by locking one or more steps. Useful for performing or improvisation.

Locking a Repeat Step



Quickly Locking a Repeat:

1. Hold one or more active [Step]s + Turn (Repeat) to set the behaviour value for the repeat.
2. The selected repeat behaviour will be applied to the chosen steps.
3. Press [Play] to play the pattern and hear the trigger behaviors.

Clear a Repeat & Settings:

4. To clear the parameter lock, micromove, repeat and chance settings, hold [Step] + Tap [Clear].

4.8 Repeat

The repeat can add ratchets over a defined length and additionally a velocity variation.

The repeated triggers are also influenced by the swing and micro-move settings.

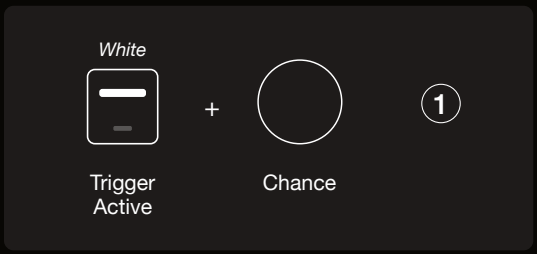
Repeat	Description
Off	No repeats applied.
STD 2 1	Play 2 triggers (main + 1 repeat) over the duration of 1 step.
STD 3 1	Play 3 triggers (main + 2 repeats) over the duration of 1 step.
STD 4 1	Play 4 triggers (main + 3 repeats) over the duration of 1 step.
STD 8 1	Play 8 triggers (main + 7 repeats) over the duration of 1 step.
STD 3 4	Play 3 triggers (main + 2 repeats) evenly over the duration of 4 steps.
STD 4 4	Play 4 triggers (main + 3 repeats) evenly over the duration of 4 steps.
STD 6 4	Play 6 triggers (main + 5 repeats) evenly over the duration of 4 steps.
STD 8 4	Play 8 triggers (main + 7 repeats) evenly over the duration of 4 steps.
STD 16 4	Play 16 triggers (main + 15 repeats) evenly over the duration of 4 steps.
FADE 2 1	Play 2 triggers (main + 1 repeat) over the duration of 1 step, reducing in velocity.
FADE 3 1	Play 3 triggers (main + 2 repeats) over the duration of 1 step, reducing in velocity.
FADE 4 1	Play 4 triggers (main + 3 repeats) over the duration of 1 step, reducing in velocity.
FADE 8 1	Play 8 triggers (main + 7 repeats) over the duration of 1 step, reducing in velocity.
FADE 3 4	Play 3 triggers (main + 2 repeats) over the duration of 4 steps, reducing in velocity.
FADE 4 4	Play 4 triggers (main + 3 repeats) over the duration of 4 steps, reducing in velocity.
FADE 6 4	Play 6 triggers (main + 5 repeats) over the duration of 4 steps, reducing in velocity.
FADE 8 4	Play 8 triggers (main + 7 repeats) over the duration of 4 steps, reducing in velocity.
FADE 16 4	Play 16 triggers (main + 15 repeats) over the duration of 4 steps, reducing in velocity.
RISE 2 1	Play 2 triggers (main + 1 repeat) over the duration of 1 step, increasing in velocity.
RISE 3 1	Play 3 triggers (main + 2 repeats) over the duration of 1 step, increasing in velocity.
RISE 4 1	Play 4 triggers (main + 3 repeats) over the duration of 1 step, increasing in velocity.
RISE 8 1	Play 8 triggers (main + 7 repeats) over the duration of 1 step, increasing in velocity.
RISE 3 4	Play 3 triggers (main + 2 repeats) over the duration of 4 steps, increasing in velocity.
RISE 4 4	Play 4 triggers (main + 3 repeats) over the duration of 4 steps, increasing in velocity.
RISE 6 4	Play 6 triggers (main + 5 repeats) over the duration of 4 steps, increasing in velocity.
RISE 8 4	Play 8 triggers (main + 7 repeats) over the duration of 4 steps, increasing in velocity.
RISE 16 4	Play 16 triggers (main + 15 repeats) over the duration of 4 steps, increasing in velocity.
RND 2 1	Play 2 triggers (main + 1 repeat) over the duration of 1 step, with random velocities.
RND 3 1	Play 3 triggers (main + 2 repeats) over the duration of 1 step, with random velocities.
RND 4 1	Play 4 triggers (main + 3 repeats) over the duration of 1 step, with random velocities.
RND 8 1	Play 8 triggers (main + 7 repeats) over the duration of 1 step, with random velocities.
RND 3 4	Play 3 triggers (main + 2 repeats) over the duration of 4 steps, with random velocities.
RND 4 4	Play 4 triggers (main + 3 repeats) over the duration of 4 steps, with random velocities.
RND 6 4	Play 6 triggers (main + 5 repeats) over the duration of 4 steps, with random velocities.
RND 8 4	Play 8 triggers (main + 7 repeats) over the duration of 4 steps, with random velocities.
RND 16 4	Play 16 triggers (main + 15 repeats) over the duration of 4 steps, with random velocities.

4.9 Chance

Chance enables the probability that a step will be triggered or not. The chance options will apply a logical condition to the selected steps. One chance can be applied per step.

The chance knob is a push/turn encoder. Chance can only be applied by locking one or more steps. Useful for performing or improvisation.

Locking a Chance Step



Quickly Locking Chance:

1. Hold one or more active [Step]s + Turn (Chance) to set the logic condition.
2. The selected chance logic will be applied to the chosen steps.
3. Press [Play] to play the pattern and hear the trigger behaviors.

Clear a Chance:

4. To clear the parameter lock, micromove, repeat and chance settings, hold [Step] + Tap [Clear].

4.9 Chance

The default setting is 'Always' which plays every step which contains a trigger. No logic is applied.

A trigger must be applied to a step for the chance logic to activate. A step trigger will be activated when its chance logic is true and will mute when false.

Chance	Description
Always	No logic condition applied. Triggers always play.
90%	Step will trigger an average of 90% of the time on each pattern cycle.
80%	Step will trigger an average of 80% of the time on each pattern cycle.
70%	Step will trigger an average of 70% of the time on each pattern cycle.
60%	Step will trigger an average of 60% of the time on each pattern cycle.
50%	Step will trigger an average of 50% of the time on each pattern cycle.
40%	Step will trigger an average of 40% of the time on each pattern cycle.
30%	Step will trigger an average of 30% of the time on each pattern cycle.
20%	Step will trigger an average of 20% of the time on each pattern cycle.
10%	Step will trigger an average of 10% of the time on each pattern cycle.
AS LAST	Step will only trigger if the previous chance step logic, on the same track, is true.*
FILL	Step will only trigger in the sequence, while the dedicated fill button is held/latched.
NOT FILL	Step will only trigger in the sequence, while the dedicated fill button is not held/latched.
P1 S1	Play 1, Skip 1. Plays step on pattern cycle 1 then skips on the next cycle and so forth.
P1 S2	Play 1, Skip 2. Plays step on pattern cycle 1, skips on the next 2 cycles and so forth.
P1 S3	Play 1, Skip 3. Plays step on pattern cycle 1, skips on the next 3 cycles and so forth.
P1 S4	Play 1, Skip 4. Plays step on pattern cycle 1, skips on the next 4 cycles and so forth.
P2 S1	Play 2, Skip 1. Plays on pattern cycle 1 & 2 then skips on the next cycle and so forth.
P2 S2	Play 2, Skip 2. Plays on pattern cycle 1 & 2, skips on the next 2 cycles and so forth.
P2 S3	Play 2, Skip 3. Plays on pattern cycle 1 & 2, skips on the next 3 cycles and so forth.
P2 S4	Play 2, Skip 4. Plays on pattern cycle 1 & 2, skips on the next 4 cycles and so forth.
P3 S1	Play 3, Skip 1. Plays on pattern cycle 1, 2 & 3 then skips on the next cycle and so forth.
P3 S2	Play 3, Skip 2. Plays on pattern cycle 1, 2 & 3, skips on the next 2 cycles and so forth.
P3 S3	Play 3, Skip 3. Plays on pattern cycle 1, 2 & 3, skips on the next 3 cycles and so forth.
P3 S4	Play 3, Skip 4. Plays on pattern cycle 1, 2 & 3, skips on the next 4 cycles and so forth.
P4 S1	Play 4, Skip 1. Plays step on 4 pattern cycles, skips on the next cycle and so forth.
P4 S2	Play 4, Skip 2. Plays step on 4 pattern cycles, skips on the next 2 cycles and so forth.
P4 S3	Play 4, Skip 3. Plays step on 4 pattern cycles, skips on the next 3 cycles and so forth.
P4 S4	Play 4, Skip 4. Plays step on 4 pattern cycles, skips on the next 4 cycles and so forth.

* The 'Always' option is not considered as a chance condition when evaluating other steps to establish the current step trigger. Consider the 'Aways' option as the default, condition off mode.

4.9 Chance

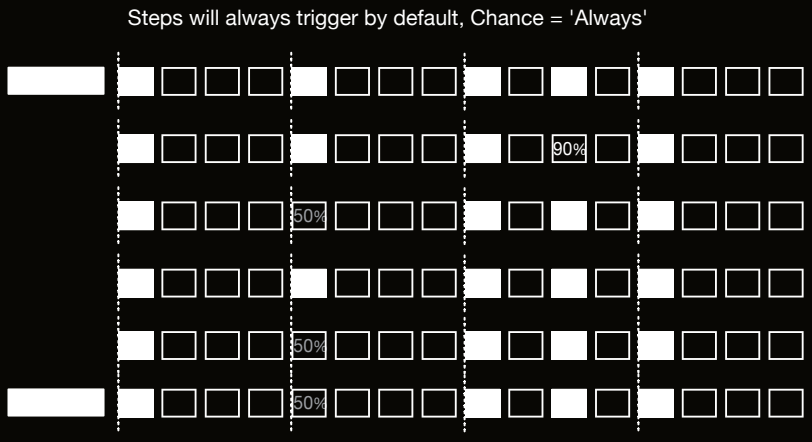
Chance logic condition table - continued

Repeat	Description
S1 P1	Skip 1, Play 1. Skips step on pattern cycle 1 then plays on the next cycle and so forth.
S1 P2	Skip 1, Play 2. Skips step on pattern cycle 1, plays on the next 2 cycles and so forth.
S1 P3	Skip 1, Play 3. Skips step on pattern cycle 1, plays on the next 3 cycles and so forth.
S1 P4	Skip 1, Play 4. Skips step on pattern cycle 1, plays on the next 4 cycles and so forth.
S2 P1	Skip 2, Play 1. Skips on pattern cycle 1 & 2 then plays on the next cycle and so forth.
S2 P2	Skip 2, Play 2. Skips on pattern cycle 1 & 2, plays on the next 2 cycles and so forth.
S2 P3	Skip 2, Play 3. Skips on pattern cycle 1 & 2, plays on the next 3 cycles and so forth.
S2 P4	Skip 2, Play 4. Skips on pattern cycle 1 & 2, plays on the next 4 cycles and so forth.
S3 P1	Skip 3, Play 1. Skips on pattern cycle 1, 2 & 3 then plays on the next cycle and so forth.
S3 P2	Skip 3, Play 2. Skips on pattern cycle 1, 2 & 3, plays on the next 2 cycles and so forth.
S3 P3	Skip 3, Play 3. Skips on pattern cycle 1, 2 & 3, plays on the next 3 cycles and so forth.
S3 P4	Skip 3, Play 4. Skips on pattern cycle 1, 2 & 3, plays on the next 4 cycles and so forth.
S4 P1	Skip 4, Play 1. Skips step on 4 pattern cycles, plays on the next cycle and so forth.
S4 P2	Skip 4, Play 2. Skips step on 4 pattern cycles, plays on the next 2 cycles and so forth.
S4 P3	Skip 4, Play 3. Skips step on 4 pattern cycles, plays on the next 3 cycles and so forth.
S4 P4	Skip 4, Play 4. Plays step on 4 pattern cycles, plays on the next 4 cycles and so forth.

4.10
Chance Examples

Examples.

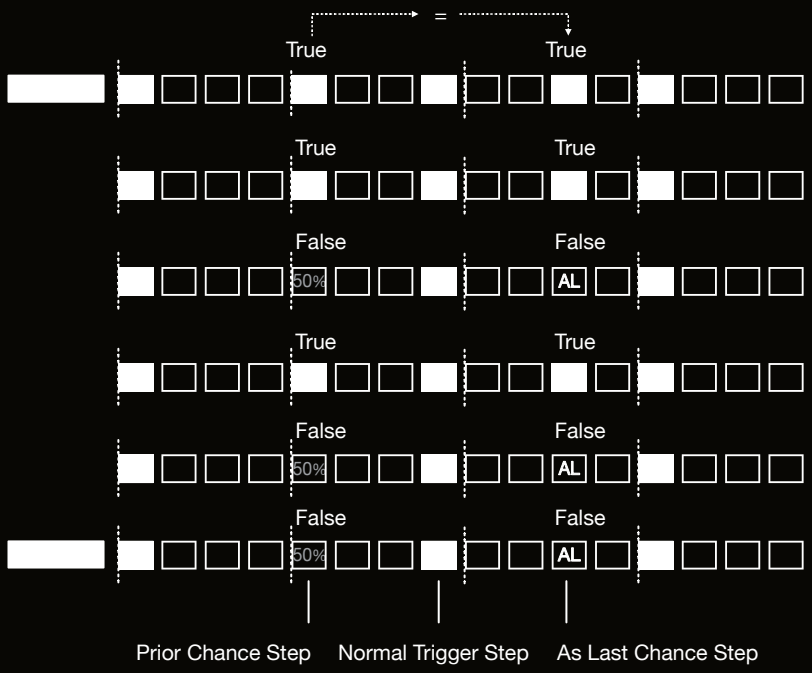
Chance X%, 16 Steps



Steps with a % chance will trigger occasionally on each cycle. 90% average will trigger more often than 50%. The nature of the % average is not predictable and operates to an overall average rather than in a cyclic on/off pattern.

Chance As Last, 16 Steps

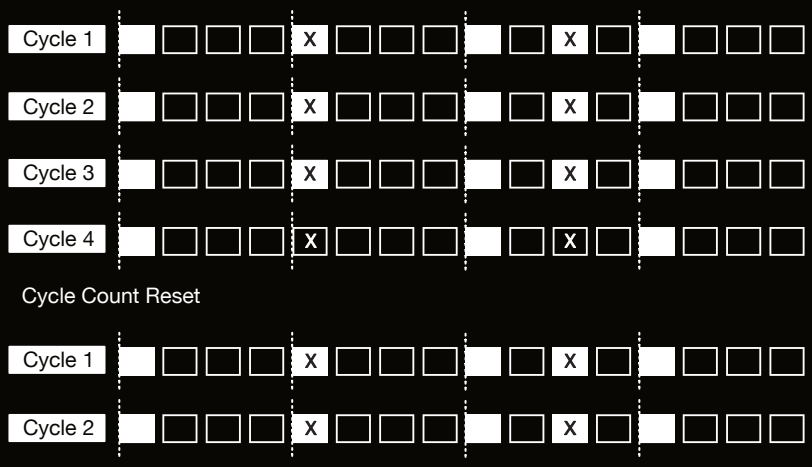
The 'As Last' - AL step will trigger if the logic of the most recent prior chance step, on the same track, is true



4.10
Chance Examples

Play 3 Skip 1, 16 Steps

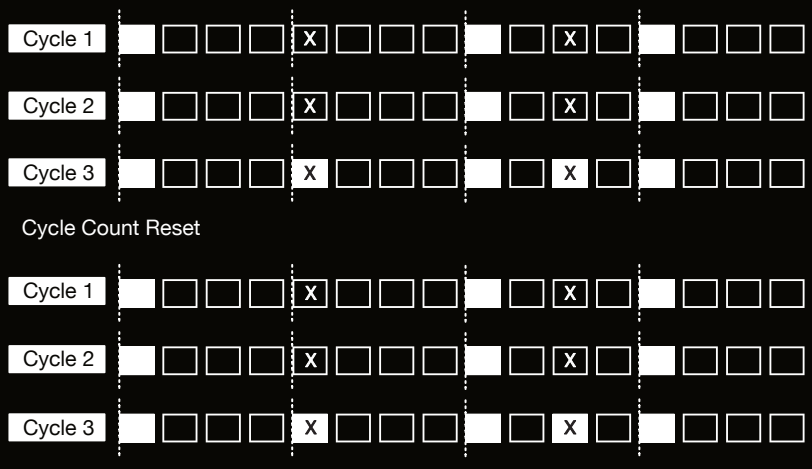
The count commences from the initial play, first cycle. The chance step trigger - X will be active for each of the 'play' cycles, for example 3 and then skip for the defined number of 'skip' cycles, in this case 1



Cycle count is reset at the total Play + Skip cycles. Example 4.

Skip 2 Play 1, 16 Steps

The count commences from the initial play, first cycle. The chance step trigger - X will be active for each of the 'skip' cycles, for example 2 and then play for the defined number of 'play' cycles, in this case 1

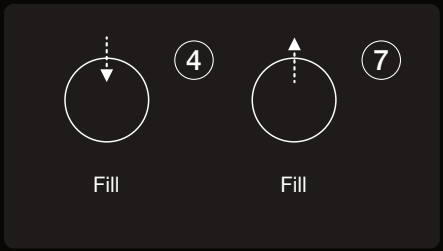


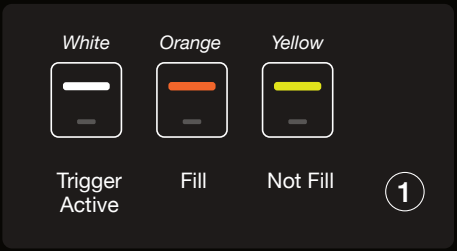
Cycle count is reset at the total Skip + Play cycles. Example 3.

4.11 Fill

Fill is a special chance function which is manually controlled by the dedicated [Fill] button.

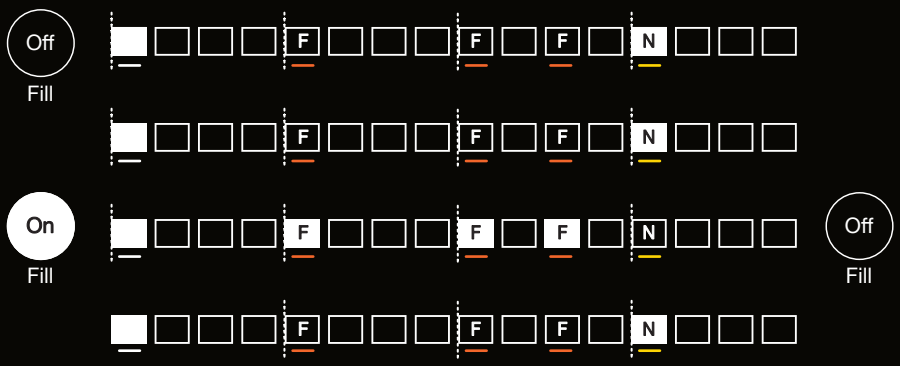
The behavior of the pattern steps will be governed by whether the [Fill] button is held/latched or not held/unlatched.





Fill, 16 Steps

Steps assigned to 'Fill' - F, will only trigger when the fill button is held at the time of the step trigger occurring.



If a step is set to 'Not Fill' - N, it will play normally unless the dedicated fill button is held, in which case it will not trigger.

■ is an active trigger.

Applying a Fill:

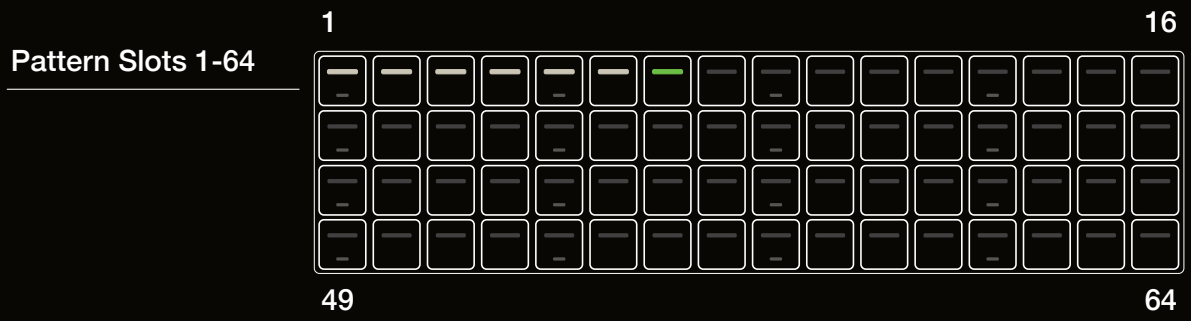
1. Ensure steps have been assigned a 'Fill' or 'Not Fill' chance lock.
2. Playing the pattern will trigger steps. The Chance step behaviour is governed by the setting and the fill button state.
3. Triggers with 'Fill' assigned will be silent and triggers with a 'Not Fill' chance will play.
4. Hold the [Fill] button. The option to latch fill mode ON is possible with [Alt] + [Fill].
5. While [Fill] is on, held or latched, a 'Fill' step is lit orange and when activated it will play.
6. While [Fill] is on, a 'Not Fill' step is indicated as yellow and when activated it will not play.
7. Release or tap to unlatch [Fill] and revert to default. Steps are lit to reflect any triggers applied.

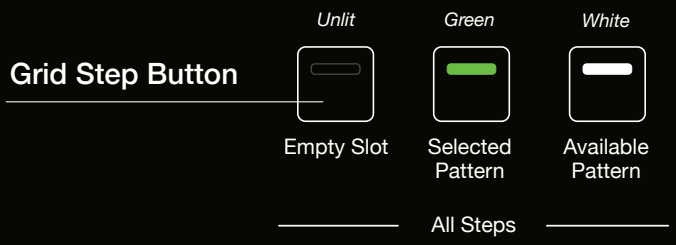
4. Patterns

4.12 Save a Pattern

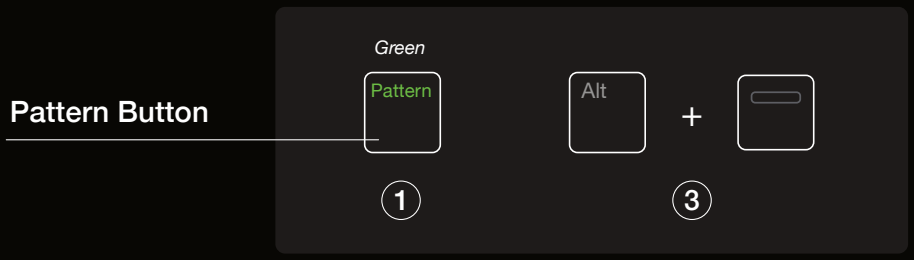
It is recommended to manually save the active pattern regularly to ensure it is always up to date. Save into the same slot or copy it into a new slot.

Saving patterns is useful when developing a full track. Save each iteration as it progresses to build a library of variations. These can later be assembled into a song. Maximum 64 slots.





Drums saves changes when playback starts or stops. Switching to another pattern saves the pattern being left. Opening another Song saves the current Song first



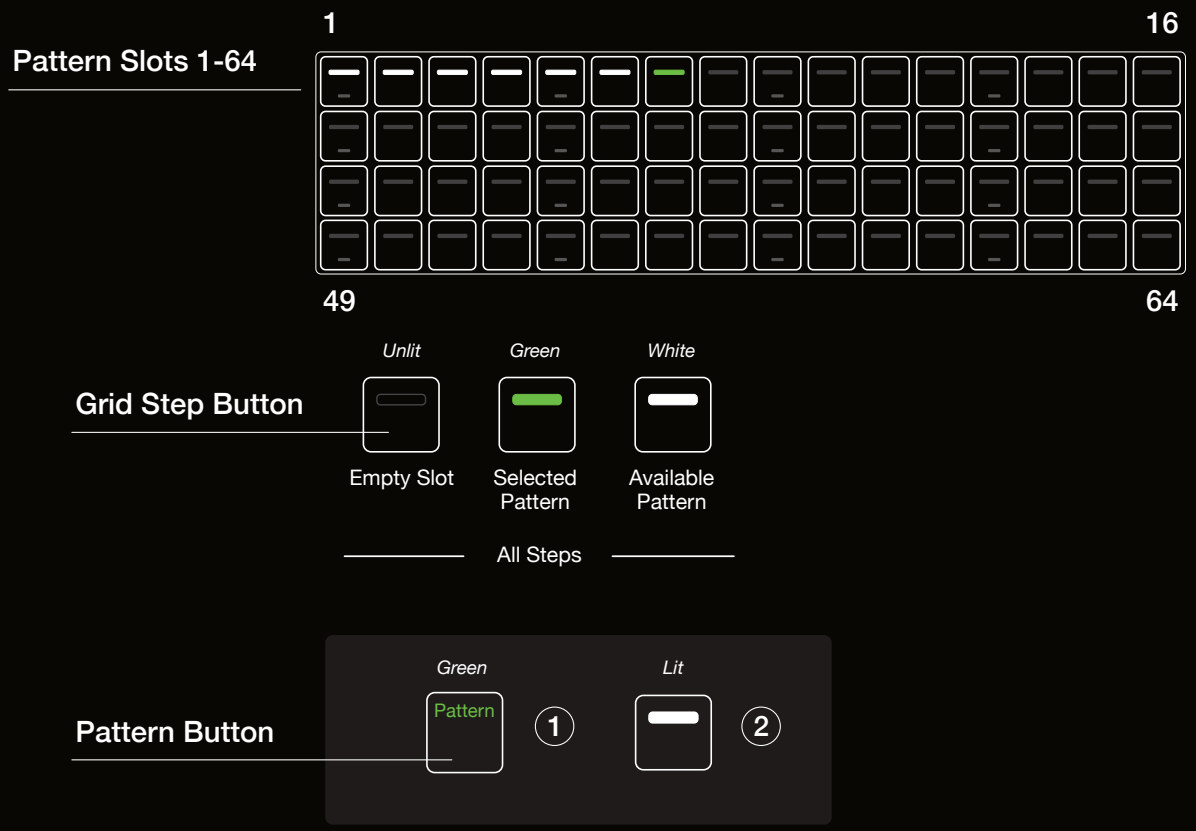
Save a Pattern:

1. Tap [Pattern] to open the grid pattern manager. Pattern button will illuminate green.
2. To save pattern edits to the same slot, Hold [Alt] + Tap the [Step] for the active slot.
3. To save to another slot, Hold [Alt] + Tap [Step] for the slot to save into. Always save before powering off the device.
4. Patterns can be saved to a blank slot or overwrite an existing pattern.
5. Pattern slots containing patterns are lit while empty slots are unlit.
6. Tap [Pattern] to exit pattern mode.

4.13 Load a Pattern

Patterns can be loaded, almost instantly and cued in sync with the playing pattern. Great for live performance and improvisation.

Patterns are stored in the pattern manager accessed on the grid. Up to 64 pattern slots are available. The previously pattern is re-loaded upon start up.



Load a Pattern:

1. Tap [Pattern] to open pattern selection mode. Pattern button will illuminate green.
2. Tap [Step] to load the pattern from the selected slot. New patterns will cue and play next, based on the switch settings.
3. Empty grid step slots are unlit, patterns are lit white and the currently selection is lit green.
4. Tap [Pattern] again to exit

Quick Load a Pattern:

5. Hold [Pattern] + Tap [Step]. This will momentarily open pattern mode.
6. Release the buttons to automatically revert back to the normal grid mode.

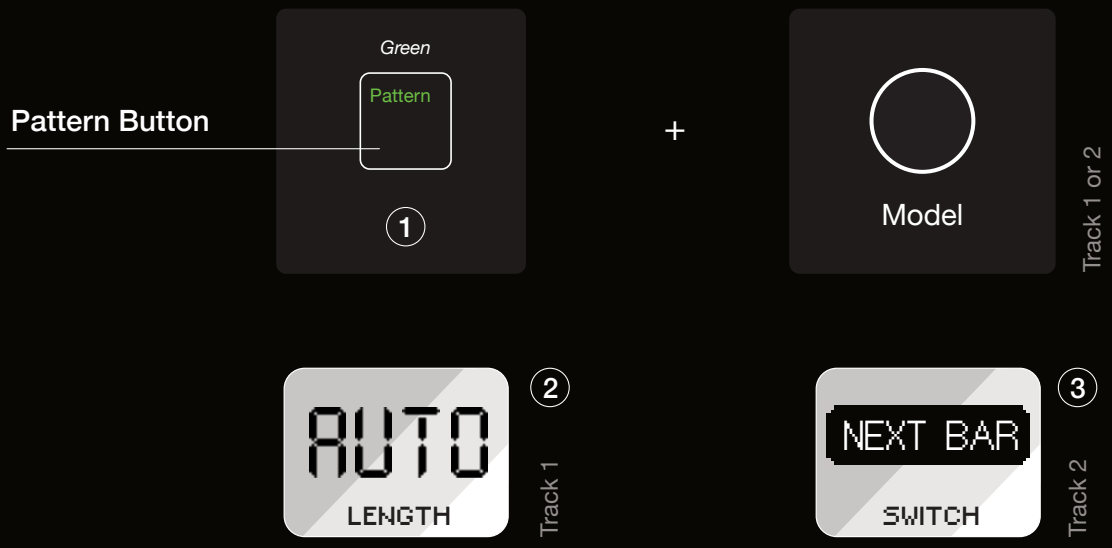
Note that Swing and Tempo are also stored with the pattern and as such these may affect the sequencer when changing patterns.

4. Patterns

4.14 Switching Patterns

When changing between patterns, for example loading another pattern, the changeover behavior will be governed by the pattern switch settings.

Use the Track 1 (Model) knob to adjust Length, which is stored per pattern, and the Track 2 (Model) knob to adjust Switch, which is a global device setting retained after restart.



Sets the pattern length to Auto, 16, 32, 48 or 64 Steps. Stored per pattern.

Switch sets the global behavior of how the next pattern, for example when loaded, takes over playing from the current pattern.

Configuring the Pattern Settings:

1. Hold [Pattern] to open the pattern manager. Pattern button will illuminate green.
2. While holding [Pattern] + Turn (Model) for Track 1 to adjust the current pattern length.
3. While holding [Pattern] + Turn (Model) for Track 2 to adjust the pattern switch behavior.
4. Release [Pattern] button when complete.

Switch Modes

Immediate
The pattern will change to the new pattern immediately when loaded.

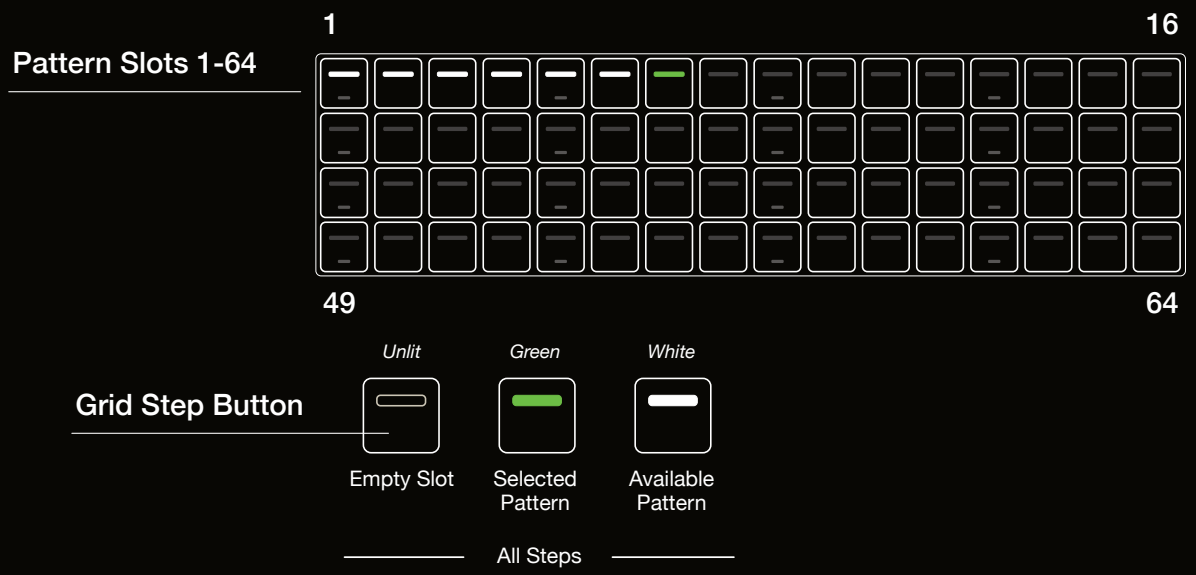
Next Bar
The new pattern will takeover from the current pattern and start playing at the next bar interval.

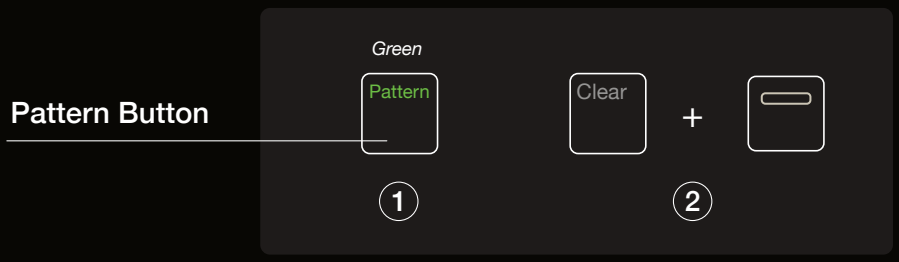
Pattern Length
The new pattern will takeover from the current pattern and start playing at the end of the defined pattern length - set by Track 1 (Model).

4.15 Clear a Pattern

A pattern can be cleared of all its sequenced data by clearing the pattern slot. This can be the active or another pattern slot. Clearing before starting to build a fresh pattern is good practice.

Clearing is a destructive process so take care when deleting patterns. An alternative is to use clear track to retain the kit sound when clearing.





Clear a Pattern:

1. Tap [Pattern] to open pattern selection mode. Pattern button will illuminate green.
2. Hold [Clear] + Tap [Step] for the pattern slot to clear.
3. The pattern will be erased and grid button reverts to unlit.

When opening new, empty patterns, the current kit will be copied into the newly created pattern. The kit can subsequently be edited to create a new version.

Clearing a pattern also removes its pattern kit. Kits saved in the Global Pool, accessed through KIT, are unaffected.

Effects & X0Y 5

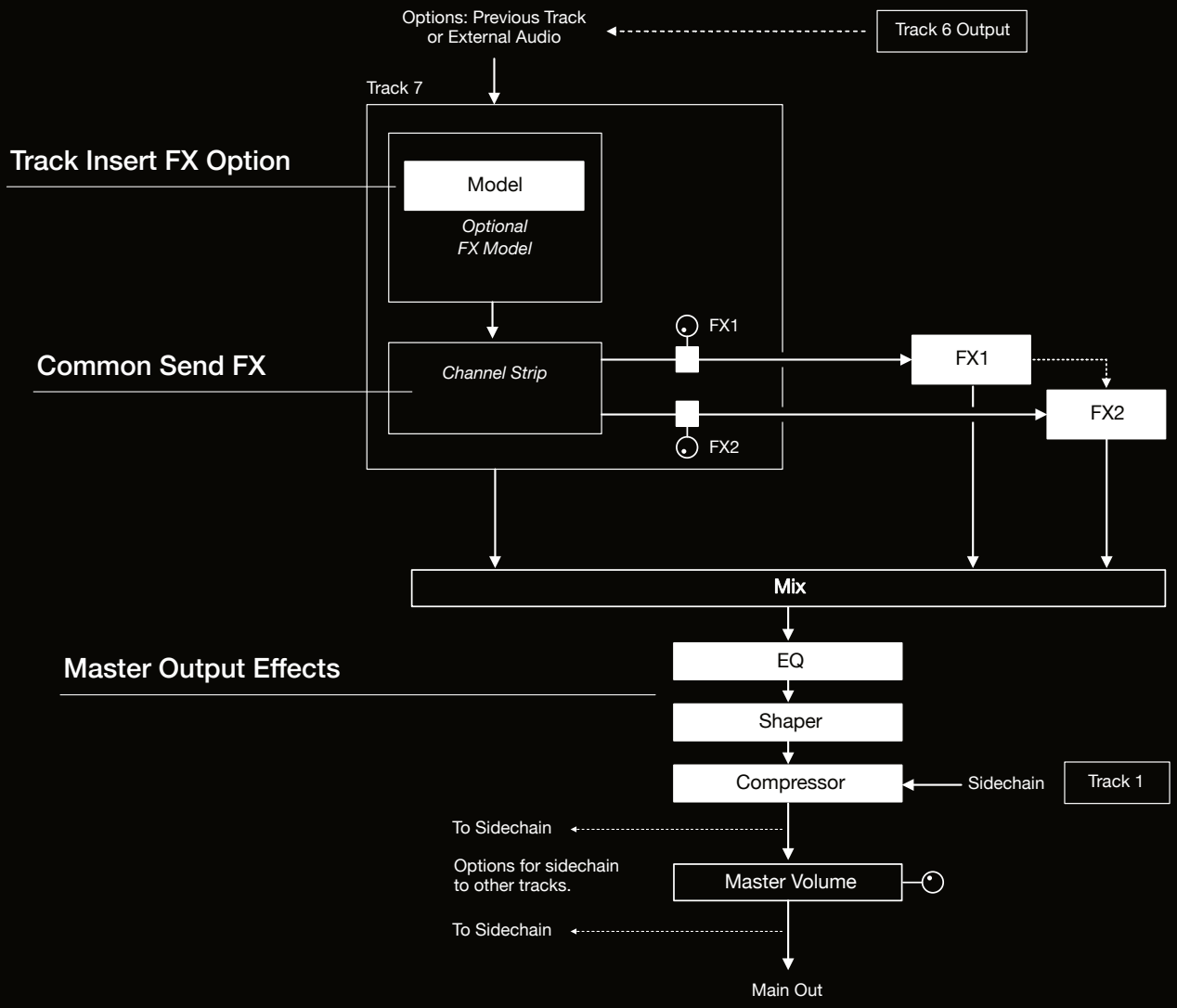
Polyend Drums has 3 effect sections. Firstly, the send effects consist of 2 effect buses, each of which can be configured with 1 effect from the Drums effect library. Each track can send audio from its channel to the FX1 and FX2 buses, which then return the audio to the main mix. 22 send effect models are available to select from. FX1 focuses on delay and shaping effects, and FX2 on reverb. The master effect section is positioned at the output stage. All tracks are routed through the master output. These effects consist of an 8-band EQ followed by a master compressor to glue the final mix. Optionally, you can configure each track as an insert effect track by selecting one of the 6 insert FX types as the model. You can route external audio or the prior track's audio through the effect track for additional processing before outputting to the master bus. The X0Y function stores two track parameter states as X-Y positions. The X0Y Fader then morphs between the two states, transitioning musically between the parameter sets. The central 'O' position is the current base values for the parameters.

5. Effects & X0Y

5.1 Effects Routing

The global send FX1 and FX2 are common to all tracks and are configurable from a library of effect options. The track sound model can be exchanged for one of the insert FX models. An insert effect track can be sequenced.

The master bus effects include an 8-band EQ, shaper and a master compressor. The master effect models are fixed and apply to all tracks.



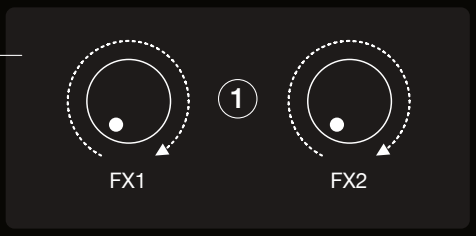
Example.
The example above illustrates Track 7 with an insert effect and two send amounts. The FX track input comes from the previous track; in this example, Track 6. The master compressor's sidechain is set to use Track 1 audio as its input.

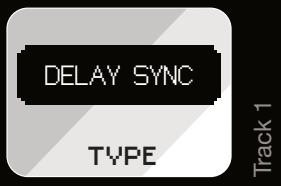
5.2 Send Effects

FX1 and FX2 refer to the send effects. Each tracks channel parameters controls the amount of audio sent to each global effect. The common effects are configured with the global FX1 and FX2 buttons.

The option to route audio from the main FX1 into FX2 at a global level is also possible. This is configured in FX1 settings.

Per Channel





Global



Knob position may not reflect the actual value when loading a kit. Refer to the Jump, Pickup or Scale settings for knob behaviour in the system section.

Adjust the Send Amount:

1. For each channel, turn (FX1) or (FX2) to adjust the amount of audio sent to each effect.
2. The amount is set by the knob position. It is recommended to adjust by ear and to shape the sound as desired.

Setting up the Effects:

4. Hold [FX1] or [FX2] + Turn (Model) to momentarily open and edit the FX parameters.
5. Alternatively, Tap the global [FX1] or [FX2] button to open its settings.
6. Turn the (Model) knob for the parameter to edit. Track 1 (Model) will set the FX type and the patch.
7. Tap the global [FX1] or [FX2] button to close its settings once editing is complete.

5.2
Send Effects

FX1 & FX2 Options

FX1 Type	Track 2	Track 3	Track 4	Track 5	Track 6	Track 7	Track 8
Chorus	Delay	Tone	Feedback	Rate	Depth	FX1>FX2	-
Flanger	Delay	Tone	Feedback	Rate	Depth	FX1>FX2	-
Delay - Free	Time	Tone	Feedback	Stereo	Flutter Amount	Flutter Frequency	FX1>FX2
Delay - Sync	Ratio	Tone	Feedback	Stereo	Flutter Amount	Flutter Frequency	FX1>FX2
Delay - PP Free	Time	Tone	Feedback	Stereo	Flutter Amount	Flutter Frequency	FX1>FX2
Delay - PP Sync	Ratio	Tone	Feedback	Stereo	Flutter Amount	Flutter Frequency	FX1>FX2
Delay - 2 Tap Free	Time	Tone	Feedback	Time 2	Flutter Amount	Flutter Frequency	FX1>FX2
Delay - 2 Tap Sync	Ratio	Tone	Feedback	Ratio 2	Flutter Amount	Flutter Frequency	FX1>FX2
Delay - 3 Tap Free	Time	Tone	Feedback	Time 2	Flutter Amount	Flutter Frequency	FX1>FX2
Delay - 3 Tap Sync	Ratio	Tone	Feedback	Ratio 2	Flutter Amount	Flutter Frequency	FX1>FX2
Shaper - Redux	Amount	Tone	FX1>FX2	-	-	-	-
Shaper - Bitcrush	Amount	Tone	FX1>FX2	-	-	-	-
Shaper - Waveshaper	Amount	Tone	FX1>FX2	-	-	-	-

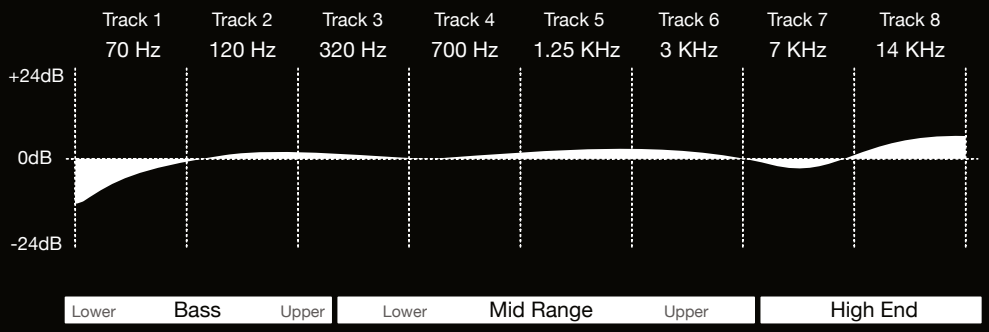
FX2 Type	Track 2	Track 3	Track 4	Track 5	Track 6	Track 7	Track 8
Reverb - Plain	Time	Predelay	Tone	Size	Diffusion	Geometry	-
Reverb - Plate	Time	Predelay	Tone	Size	Diffusion	Geometry	-
Reverb - Warp	Time	Predelay	Tone	Size	Diffusion	Geometry	-
Reverb - Chamber	Time	Predelay	-	-	-	-	-
Reverb - Metallic	Filter Frequency	Filter Gain	-	-	-	-	-
Reverb - Ambient	Time	Tone	-	-	-	-	-
Reverb - Wash	Time	Filter Gain	-	-	-	-	-
Reverb - Late Plate	Time	Predelay	-	-	-	-	-
Reverb - Hall	Time	Tone	-	-	-	-	-

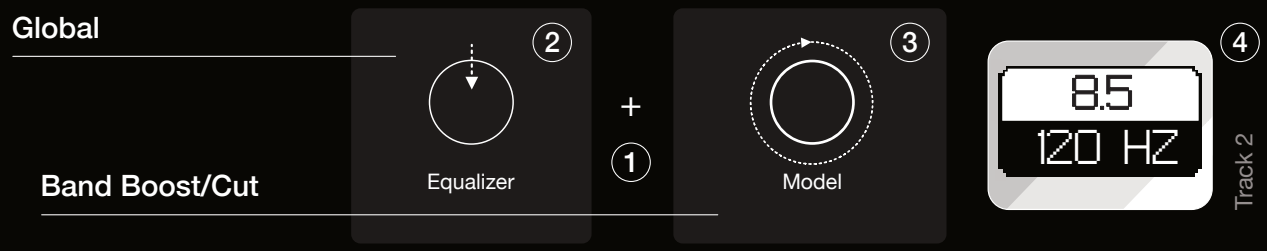
Parameters are represented by the track (Model) knobs when in the FX Page

5.3 Master EQ Effect

The first of the two master effects is the 8-Band, graphic equalizer. This has a 8 fixed frequency bands with adjustable gain and cut for each band.

The attenuation range is -24.0dB to +24.0dB, adjustable in 0.5dB increments. The EQ is applied on the master bus so will affect all tracks contributing to the mix.





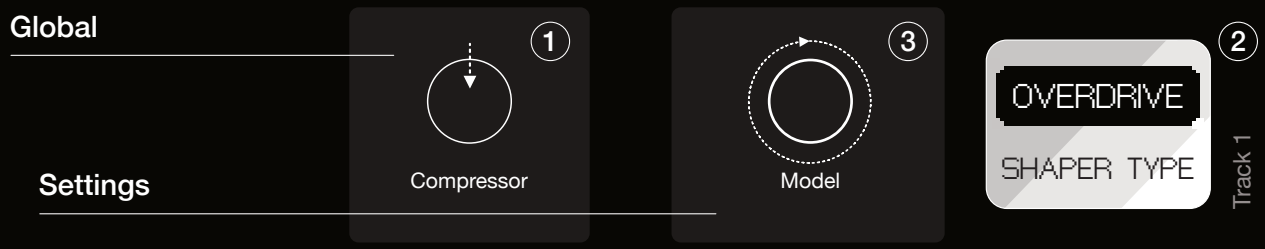
Edit the EQ Settings:

1. Hold [EQ] + turn (Model) for the track representing the EQ Hz band to edit. The EQ parameters will momentarily open until the button is released.
2. Alternatively, tap [EQ] to open the EQ parameter settings.
3. Turn (Model) for the track representing the EQ Hz band to edit.
4. The track displays will show the fixed frequency band being edited and the adjustable dB boost or cut applied for the specific frequency band.
5. Tap [EQ] again to exit.

5.4 Shaper

A master shaper adds distortion, saturation and a gritty character to the master output. The shaper is positioned post-EQ / pre-compressor.

The shaper model type is set with Track 1 (Model) and the amount applied with Track 2 (Model). These settings are found alongside the master compressor settings.



Master Shaper

Saturator

Overdrive

Diodeclipper

Asymmetric

Sin Wavshaper

Sin2 Wavshaper

Fuzz

Bitcrush

Rectifier

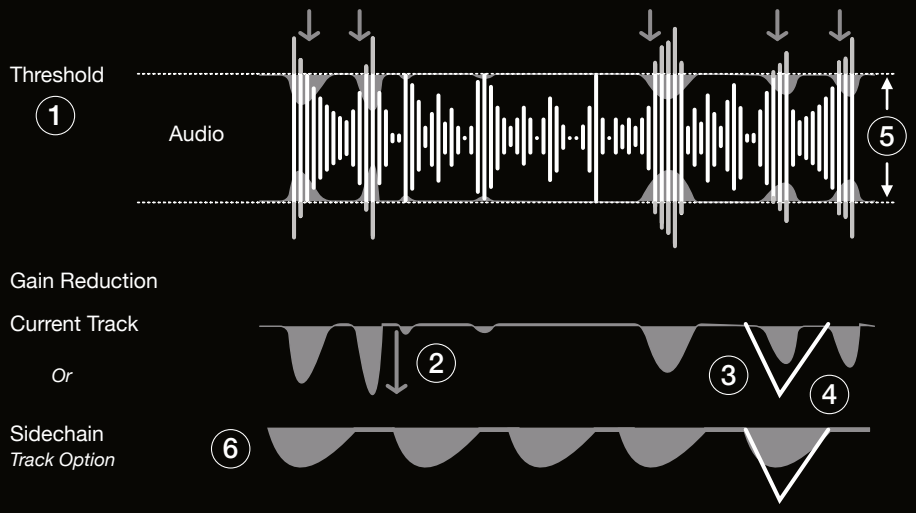
Redux

1. Tap [Comp] to open the parameter settings.
2. Turn (Model) for Track 1 to set the shaper model type.
3. Turn (Model) for Track 2 to set the amount of shaper applied.
4. Tap [Comp] to exit.

5.5 Master Compressor

The master compressor is applied to the entire master mix. The compressor will help 'glue' the final mix, adding musical cohesion, taming the levels and controlling the dynamics.

The master compressor has a sidechain option which uses another tracks audio as the compressor detector source. Try using a sidechained kick to add a pumping effect.



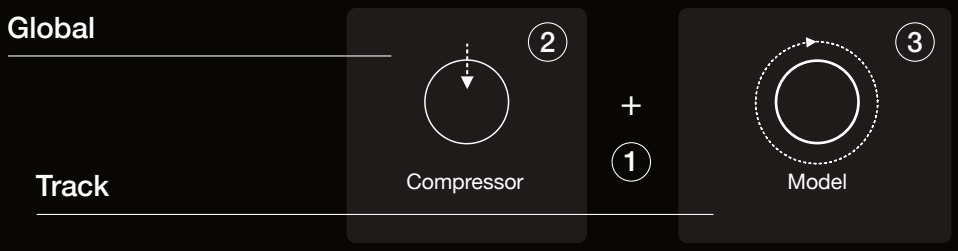
Parameter	Options	Default	Description
1. Shaper Type	Various Options	None	Selects the shaper model used in the master out.
2. Shaper Amount	0-100	0	Amount of shaper applied to the post EQ audio prior to entering the compressor.
3. Threshold	-96dB to 0dB	-10dB	When audio exceeds the threshold, the compressor will initiate gain reduction to control the peaks.
4. Ratio	Limiter, 16:1-2:1, Off	Off	Ratio determines how much gain reduction is applied with respect to the audio level above the threshold. Higher values generate a higher, more aggressive gain reduction.
5. Attack	0.03ms to 30ms	10ms	Determines the speed at which the compression is applied when the threshold is exceeded.
6. Release	10ms to 1000ms	100ms	Determines the speed at which the compression removed once the audio returns below the threshold.
7. Gain	-24dB to +24dB	0dB	Gain trim, used to compliment the automatic make up gain. Increase or attenuate impact and loudness.
8. Sidechain	Off, Track 1-8	Off	Select the sidechain source from track 1 to 8, pre or post the source channel volume control. Can be set to off.

5. Effects & X0Y

5.5 Master Compressor

The compressor would typically be the last function to setup. The workflow here is provided as a guide. The exact process and settings applied will depend on the mix and content.

Setting up a compressor is an iterative process, working between parameters with small increments to hone in on shaping the sound while the tracks play.



Smoothing the Master Out:

1. Hold [Comp] + turn (Model) for the track representing the parameter to edit. The compressor parameters will momentarily open until the button is released.
2. Alternatively, tap [Comp] to open or close the compressor parameter page settings.
3. Turn (Model) for the track parameter to edit.
4. To glue and smooth the master output, maybe add punch and impact, tap [Play] to firstly play the mix.
5. Start with the defaults, a mid gentle ratio, say 4:1.
6. Adjust the threshold gently until compression starts to be applied. Peaks will be reduced.
7. Maybe try a higher or lower ratio, listen to the output. Aim for what sounds good but don't worry about the levels. Things may get quieter.
8. Try adjusting the attack and release. The impact will be affected. Tweak to find the sweet spots.
9. Once the mix starts to sound good, adjust the gain trim. Automatic make up gain is applied so this adds a trim.
10. The perceived loudness will be higher.
11. Iterate between the parameters with small tweaks to see what works best.

5.5 Master Compressor

While creating a smooth and coherent mix is a primary role of the compressor, the sidechain can also be used as an effect in the overall mix.

The sidechain can be used to create a gentle or heavy pumping or ducking effect. The source can be an existing track from the mix or one created purely as the sidechain source.



Track 1

Source Tracks T1 - T8 use the post-volume audio from the selected track. Tracks T1P - T8P use the track's pre-volume audio.

Add a Ducking Effect:

1. Hold [Comp] + turn (Model) for the track representing the sidechain on Track 8.
2. Change from 'Off' to another track as the source. Track audio source can be selected from before or after the track channels volume. Pre-vol will ensure any track mix adjustments do not impact the sidechain.
3. Choose a rhythmic beat such as a kick to duck the master out audio.
4. Set up the compressor parameters iteratively. The threshold and ratio will particularly impact how much ducking is applied.
5. The attack and release envelopes will affect the punch and aggression.
6. The output audio will duck in sync with the source rhythm.
7. Iterate between the parameters with small tweaks to see what works best.

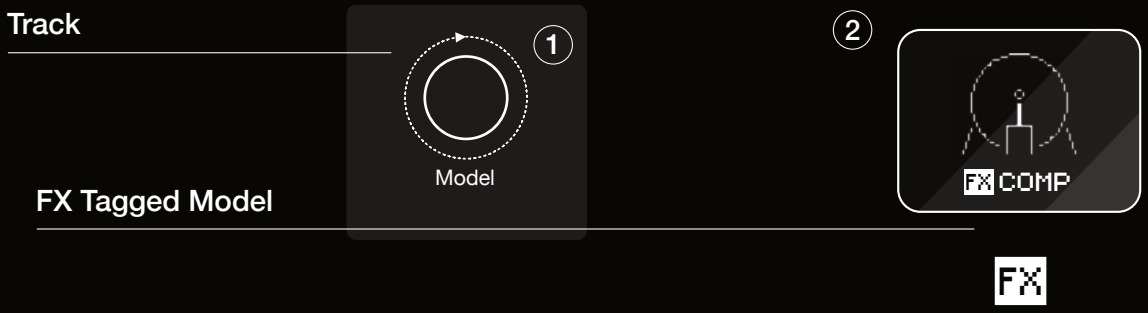
Note: A track can be configured as an external input channel. The track parameters include a ducking option when set as an 'Input' track. This can be useful as a sidechain source.

5. Effects & X0Y

5.6 Track Insert Effects

A tracks model will typically be the sound source such as a digital or analog model or a sampler. A track can however be configured with an insert effect. All audio into the track passes through this effect.

The audio into an insert effect is generated from the previous track. For example, if an effect is assigned to track 2, then track 1 audio will be routed through track 2. An FX on Track 1 uses the external audio input.



Model	Generator	Pitch	Decay	A	B	C
Shaper	FX	-	LP Cutoff	Amount	HP Cutoff	Resonance
Comp	FX	-	Release	Threshold	Attack	Drive
EQ	FX	Low Freq	HP Cutoff	High Gain	Mid Gain	Low Gain
Drum Bus	FX	Low Freq	Low Gain	Threshold	High Gain	Drive
Mod	FX	Rate	Delay	Tone	Depth	Drive
Delay	FX	-	Time	Tone	Feedback	Modulation

Creating an FX Track:

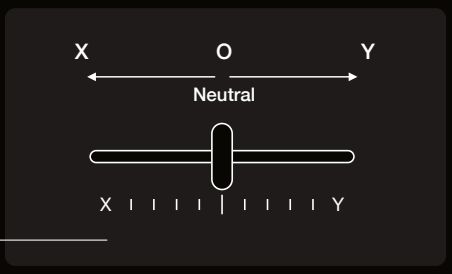
1. Remember that the audio source for the track will be the prior track or external audio.
2. Turn (Model) to choose an FX model for the selected track. The 'FX' tag indicates an effect model.
3. The track prior to the chosen track will be the default audio source. Track 1 -> Track 2 -> Track 3 etc.
4. If an external source is required, a track can be set to use the line in 'Input' set with the (MODEL) type for the track.
5. Adjust the insert FX channel parameters to suit.
6. The output will be routed to the master bus, unless the following track is an FX track. Multiple tracks can be routed in series with FX models.

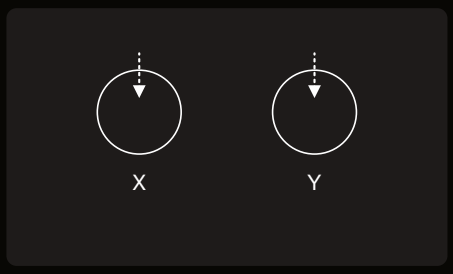
5.7 X0Y Overview

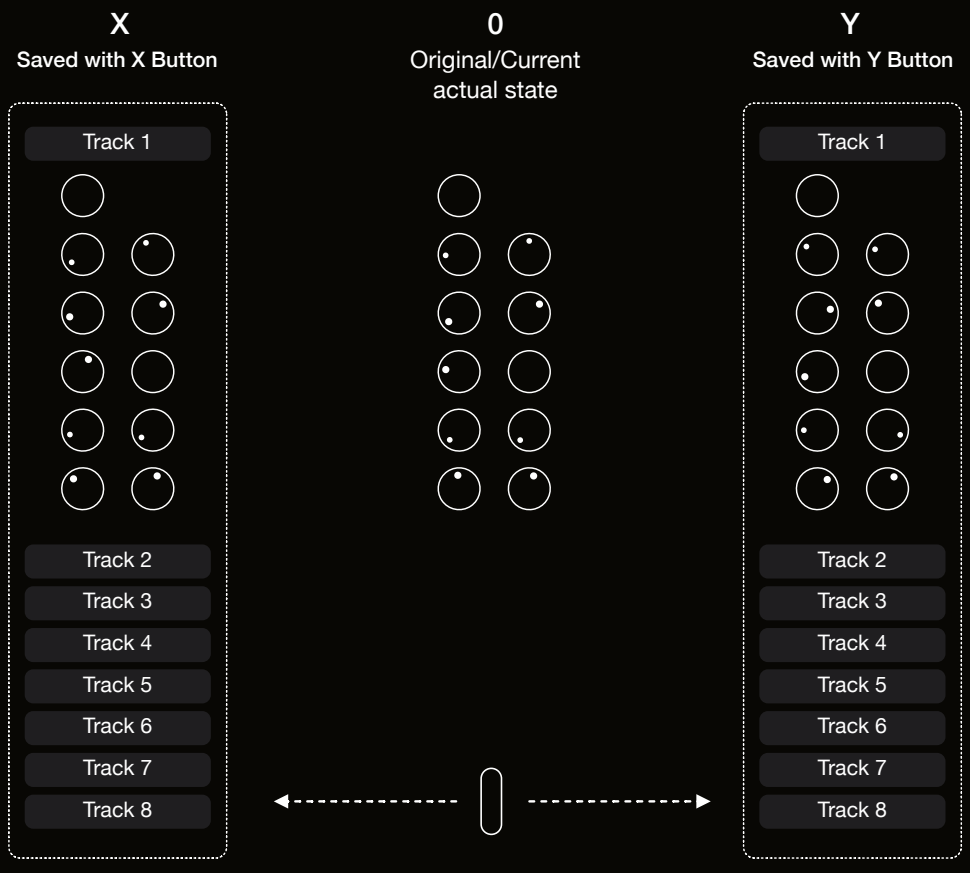
X0Y captures two track parameter states to the X and Y buttons. Think of these as two parameter snapshots, each containing a set of assigned parameter values.

The performance {Fader} is then used to morph the sound between the two X & Y states. X0Y is great for live performances and on-the-fly improvisation.

X0Y Fader







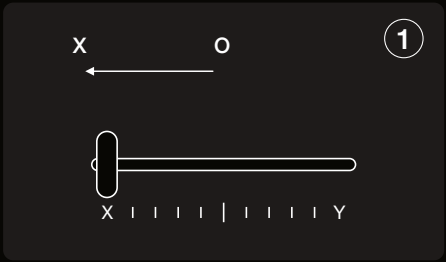
The two states are assigned to the X and Y by holding the respective knob when adjusting the track parameters. The central '0' position is the base parameter values. The parameters affected by the X0Y function include the 10 track model and channel strip controls. Each of the tracks model assignment is unaffected.

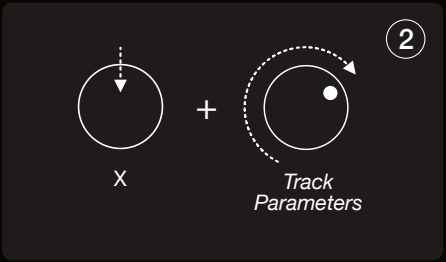
5. Effects & X0Y

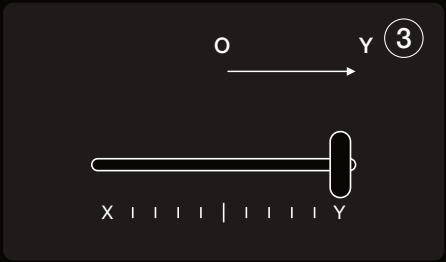
5.8 Applying X0Y

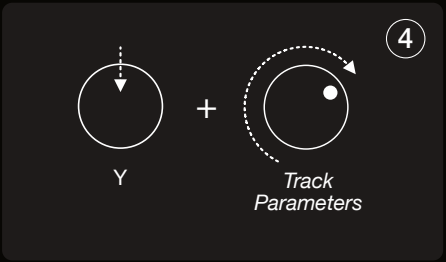
Hold an X or Y button while adjusting the track parameters to assign the variation to X or Y position. Parameters from any track can be assigned.

To hear the output from each state, the X0Y fader must be set to the appropriate position. The base value '0' position will be the current track settings.









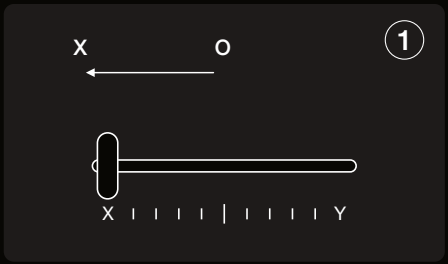
Creating the X-Y States:

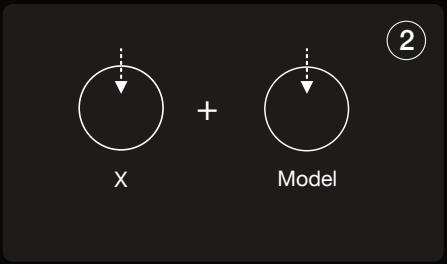
1. Optionally, move the {Fader} to the X position. This will ensure the audio out is 100% wet to the X setting.
2. Hold [X] button and turn one or more parameters on the tracks. The selected parameter values will be recorded as a snapshot to the X state.
3. Optionally, move the {Fader} to the Y position. This will ensure the audio out is 100% wet to the Y settings.
4. Hold [Y] button and turn one or more parameters on the tracks. The selected parameter values will be recorded as a snapshot to the Y state.
5. The central '0' position of the fader will be base position meaning that the original parameter values will apply.
6. Sliding the fader between the X & Y position will morph, in real-time, between the two parameter states.
7. Using the fader in live performances adds variation and creativity to the mix and enables improvisations with the safety to restore the original settings quickly.
8. To erase and clear either state, Hold [X] or [Y] + Tap [Clear].

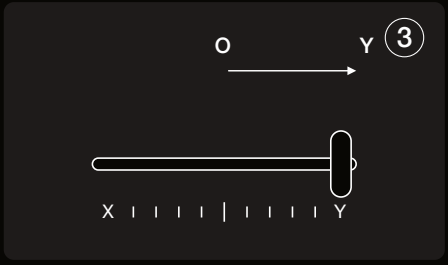
5.9 Random X0Y

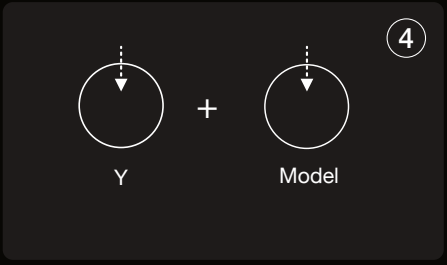
It is possible to capture random parameters and values for the selected tracks to the X & Y positions.

Random values can be applied for some parameters and manually selected values for others. experiment with both.









Random X-Y States:

1. Optionally, move the {Fader} to the X position. This will ensure the audio out is 100% wet to the X setting.
2. Hold [X] button + tap (Model). Random parameters and values will be recorded for the selected track as a snapshot to the X state.
3. Optionally, move the {Fader} to the Y position. This will ensure the audio out is 100% wet to the Y settings.
4. Hold [Y] button + tap (Model). Random parameters and values will be recorded for the selected track as a snapshot to the Y state.
5. The central '0' position of the fader will be base position meaning that the original parameter values will apply.
6. Sliding the fader between the X & Y position will morph, in real-time, between the two parameter states.
7. Using the fader in live performances adds variation and creativity to the mix and enables improvisations with the safety to restore the original settings quickly.
8. To erase and clear either state, Hold [X] or [Y] + Tap [Clear].

Song Mode 6

Song mode lets you chain patterns in series to create a longer or full arrangement. To create a song, you need a collection of patterns ready to use as building blocks for a song arrangement. For example, a collection of patterns may form the intro, verse, chorus, drop, buildup, etc. Song arrangement mode is the tool for chaining and structuring patterns. While you edit, and you can load another song from the grid song browser if required. Drums has 48 song slots to manage and store songs. It is highly recommended to save manually when editing songs and before power off. Drums does however save a song automatically when opening another song. In Song mode, Hold [Alt] + [Step] for the song slot to save.

6. Song Mode

6.1 Song Overview

A song consists of a set of unique, chained patterns and the number of cycles each plays. Selecting the patterns for each song section creates the musical arrangement.

It makes sense to prepare a mental or written overview of the structure before building the song. This example uses 8-bar sections, which combine to form the full song's structure.

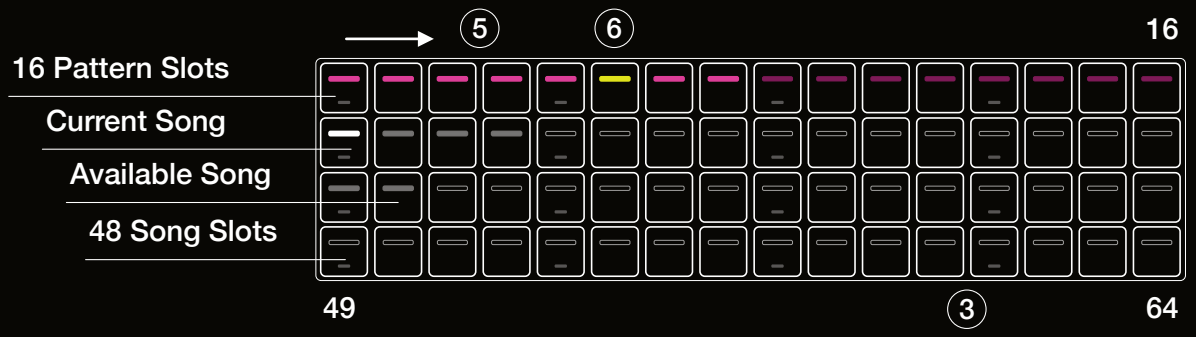
Example Song Structure	Each Section is 8 Bars	Max 16 Chain Slots		
Intro	32	Pattern 1	Play 1	1
		Pattern 1	2	
		Pattern 1	3	
		Pattern 2	Play 1	2
Build Up	16	Pattern 3	Play 1	3
		Pattern 3	2	
Drop 1	16	Pattern 4	Play 1	4
		Pattern 4	2	
Drop 2	16	Pattern 5	Play 1	5
		Pattern 5	2	
Breakdown	8	Pattern 6	Play 1	6
Bridge	16	Pattern 7	Play 1	7
		Pattern 7	2	
Build Up	8	Pattern 3	Play 1	8
Drop 3	16	Pattern 4	Play 1	9
		Pattern 4	2	
Drop 4	16	Pattern 5	Play 1	10
		Pattern 5	2	
Outro	32	Pattern 8	Play 1	11
		Pattern 1	Play 1	
		Pattern 1	2	12
		Pattern 1	3	

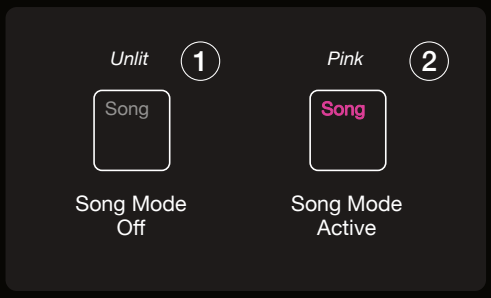
This example illustrates a generic tech house style track. While other genres and styles would form a different structure, the process and principles of converting ideas into a song is the same.

6.1 Song Overview

Song mode has 48 song slots. Each slot can hold a chain of up to 16 patterns which will play in series. Organizing patterns into a song is managed in the Song arrangement mode.

Bear in mind that the playback behavior operates differently when in or out of song arrangement mode.





Accessing Song Mode:

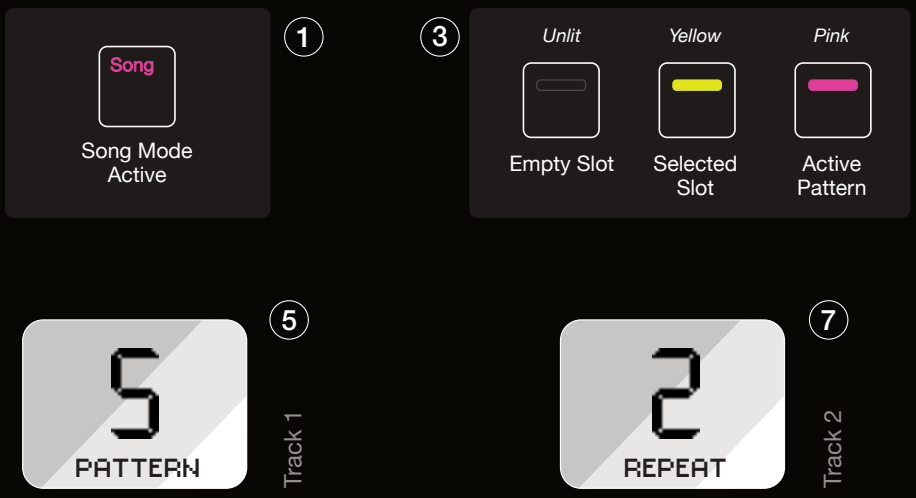
1. Tap [Song] to open song arrangement mode.
2. The [Song] button is lit pink when active and unlit when off.
3. Grid steps 17-64 represent the 48 song slots. Tap a slot to open a song. The current song is lit white. Other available songs are dimly lit white.
4. The top row, steps 1-16 represent a pattern slot for the song chain. Max 16 slots.
5. The song chain steps are lit bright pink when a pattern is assigned and dimly lit pink when empty.
6. Tap a step 1-16 to select the chain slot for editing. The selected slot is lit yellow.
7. Tap [Song] to exit song mode. If a Song is playing, the chain continues from its current position and the [Song] button keeps flashing. Otherwise, the pattern assigned to the selected chain entry becomes active.

6. Song Mode

6.2 Creating a Song

Firstly, the pattern to play in the chain is assigned to the selected song slot. Pattern numbers start at 1. Use the track model control to edit.

Also set the repeats - the number of times it will play in the chain sequence before proceeding to the next step. Repeat options are 1-99.



This example would play pattern 5 when the chain slot is active. Pattern 5 will play twice, before moving on to the next chain slot.

Creating a Song:

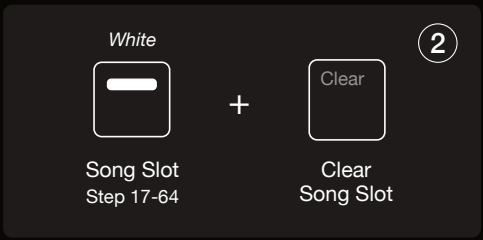
1. Tap [Song] to open song mode.
2. Tap a [Step] 17-64 to select a song slot to edit.
3. The top row is the song chain and each step 1-16 can be assigned with a pattern to play.
4. Tap the first, top row chain slot. This will be lit yellow. Empty slots are lit dimmed pink.
5. With the slot selected, turn (Model) for track 1 to choose a pattern to assign.
6. Grid will switch to show the pattern browser when tapping or turning (Model) 1.
7. Turn (Model) for track 2 to choose the repeats. Sets how many cycles the pattern plays before moving on.
8. Active patterns in the chain are now lit bright pink.
9. Repeat instructions 4-8 to add more patterns to the song, max 16 slots. Add patterns to the chain in sequential order of the chain slots.

6.3 Clearing a Song or Pattern

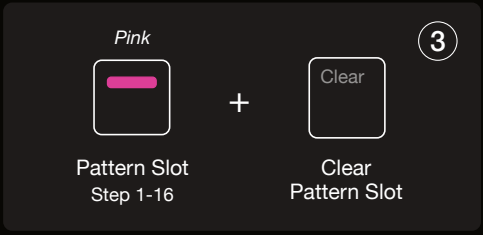
A song slot can be fully cleared and reset to empty. A Song can be cleared even when it is currently selected or is the only saved Song. Clearing the active Song stops playback and resets it to a new Song state.

Individual patterns slots can also be cleared from a song. when clearing, any other active slots are shuffled down the order to fill the gap created.

Clear a Song



Clear a Song Pattern



Clear a Song:

1. Tap [Song] to open song mode.
2. Hold [Step] 17-64 + Tap [Clear]. A Song can be cleared even when it is currently selected or is the only saved Song. Clearing the active Song stops playback and resets it to a new Song state.
3. The song will be cleared and the step will be unlit signifying that it is empty.

Clear a Song Pattern:

1. Tap [Song] to open song mode.
2. Hold [Step] 1-16 + Tap [Clear]. Patterns steps are lit pink.
3. The currently selected step can be cleared.
4. The pattern will be cleared from the song and any following pattern steps will move down.

6. Song Mode

6.4 Playing Songs

Playback behavior differs between song mode and the default pattern grid. The mode and commands applied determine whether to play a pattern or the entire song chain.

Playing a song always runs left to right on the grid. Pattern playback may be governed by the playmode, but default runs forward, left to right on the grid.

Default Sequencing Mode

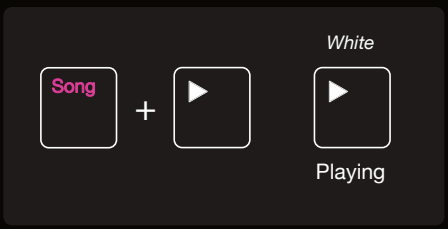


Press [Play] to play the current pattern, based on the playmode, from the start. Once it reaches its last step it will restart and continue to loop playback. Press [Play] to stop and reset. Tap [Play] again to restart at the first step in the pattern.

Song Mode



Press [Play] in song mode to start from the currently selected song slot. The pattern will play for the defined repeats until the end. The song slots playing will flash. When complete play will move to the next pattern slot and continue seamlessly. When the last chain pattern is complete, play will stop. Also Tap [Play] to stop anytime.

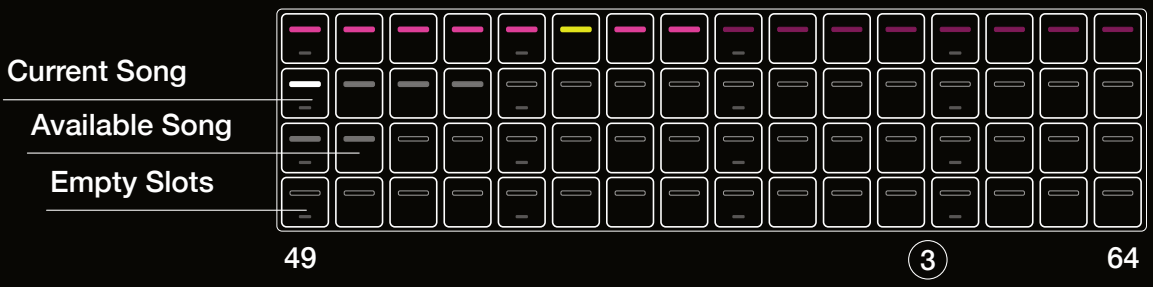


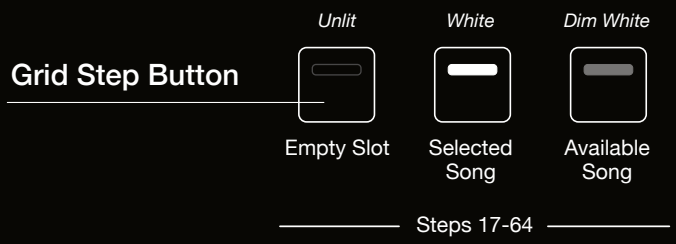
In any mode, Hold [Song] + [Play] to play the current song from the start. Song button will flash. Each step in the chain will play in sequence, transitioning to the next slot when all repeats are completed. When the last chain pattern is complete, play will stop. Also Tap [Play] to stop anytime.

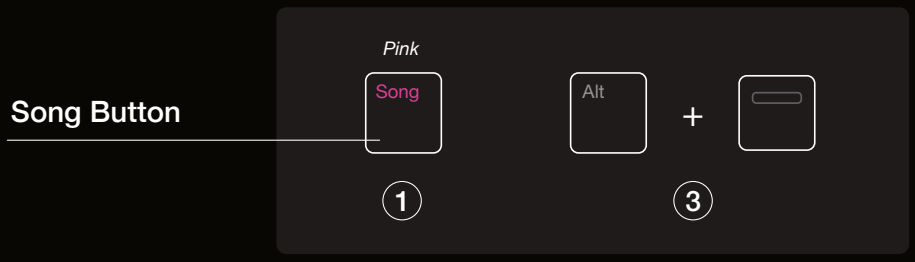
6.5 Saving / Copying Songs

It is recommended to manually save the active song into the same slot or copy it into another slot.

Copying songs to other slots is a useful technique in order to A & B different variations or arrangements. There are a maximum 48 song slots.







Save a Song:

1. Tap [Song] to open song mode. Song button will be lit pink.
2. To save to the same slot, Hold [Alt] + Tap [Step] to save the complete song including the pattern chain.
3. To save to another slot, Hold [Alt] + Tap [Step] for the slot to save into.
4. Songs can be saved to a blank slot or can overwrite an existing song. Always save any edits before powering off.
5. Song slots containing a song are dimly lit while empty slots are shown as unlit.
6. Tap [Song] to exit song mode.

Connectivity 7

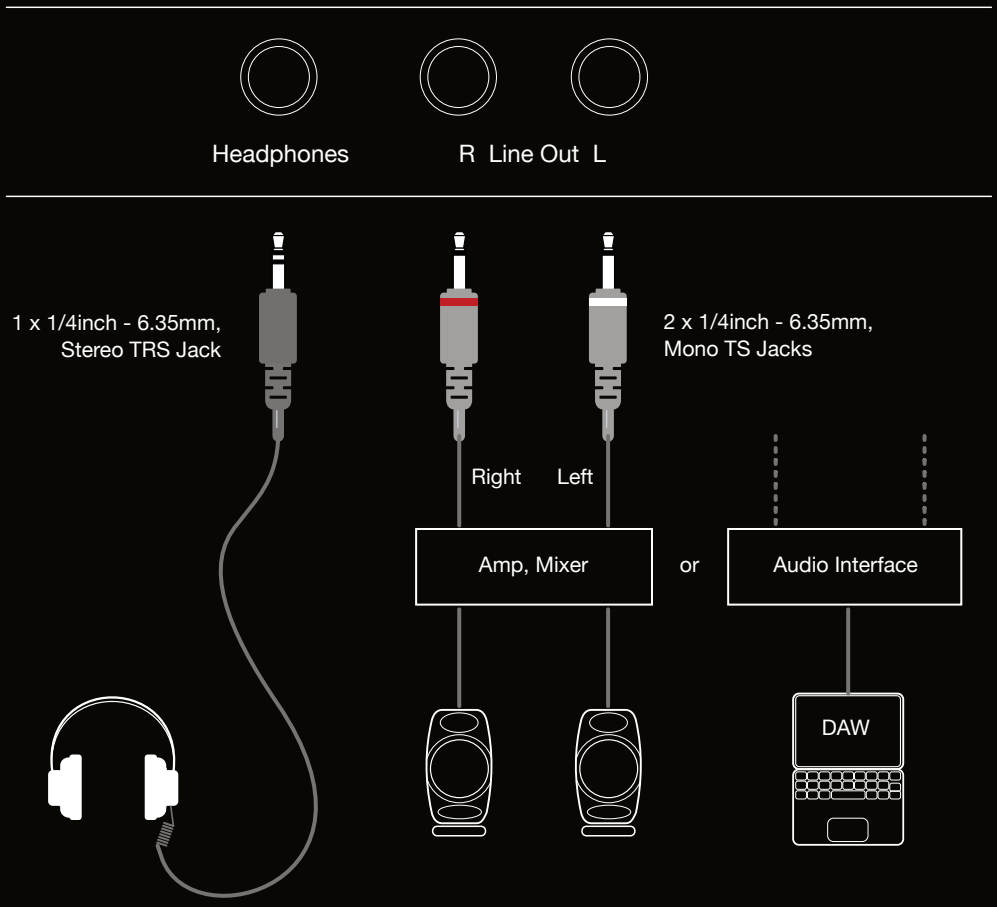
Drums has an extensive range of inputs and outputs, offering high flexibility when connecting with other gear. In addition to the main left/right and headphone outputs, each track's audio is available on its own dedicated output. Connecting an individual track output does not remove that track from the main L/R or headphone mix. You can also input audio to Drums, process it through a selected track, and add it to the mix. MIDI Input and output are available on TRS jacks, with 2 x TRS-to-5-pin DIN MIDI adapters supplied for traditional MIDI cables. MIDI is also available over the USB-C connection.

7. Connectivity

7.1 Main Audio Outputs

The main mix is output on the two, left and right, TS outputs. These can be connected to an amp / mixer / audio interface or directly to active monitors.

The main mix is also replicated at the headphone TRS out. Both the Line and Headphone outs are controlled by the master volume control.

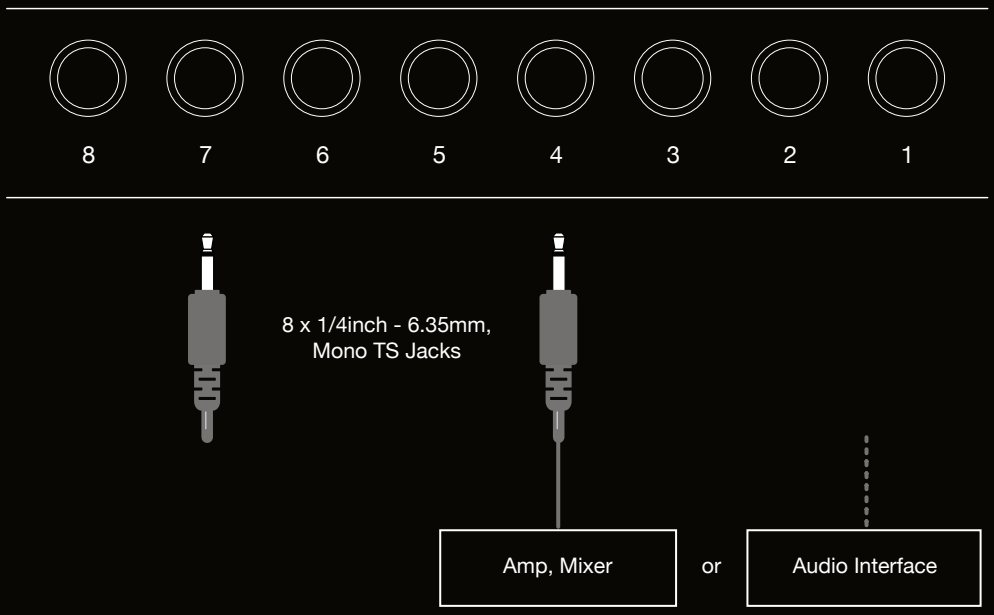


The main output is based on the master bus mix of all tracks. Connecting an individual track output does not remove that track from Main L/R or the headphone mix.

7.2 Individual Audio Outs

The individual mono audio outputs represent each individual track. The track's channel volume level controls the individual channel and output volume.

Any physically connected track output audio will still be included in the master left and right line outs and the headphone out.



7. Connectivity

7.3 Audio Input

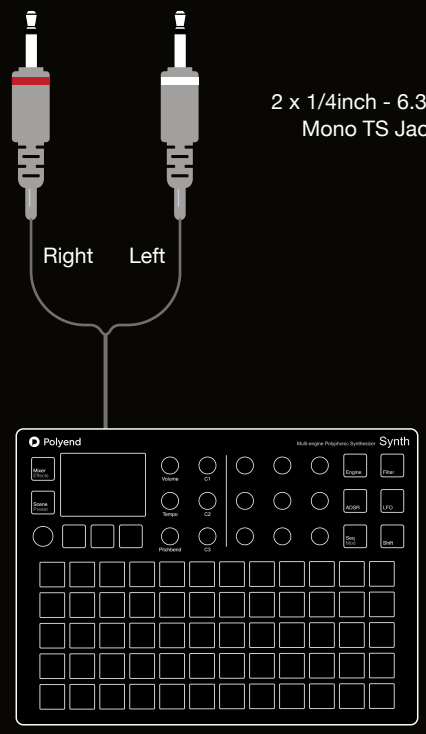
Two left/right line inputs allow external stereo audio to be routed into Drums. An external synth, audio device, DAW or the output from an effect module or chain can be routed in.

Once physically connected, the audio input is routed to a selected track by configuring it with an external audio model.



R Line In L





EQ: A single band EQ is located controls the incoming audio of the channel. The frequency band and gain at the selected frequency is controlled by the Pitch and A knobs respectively.

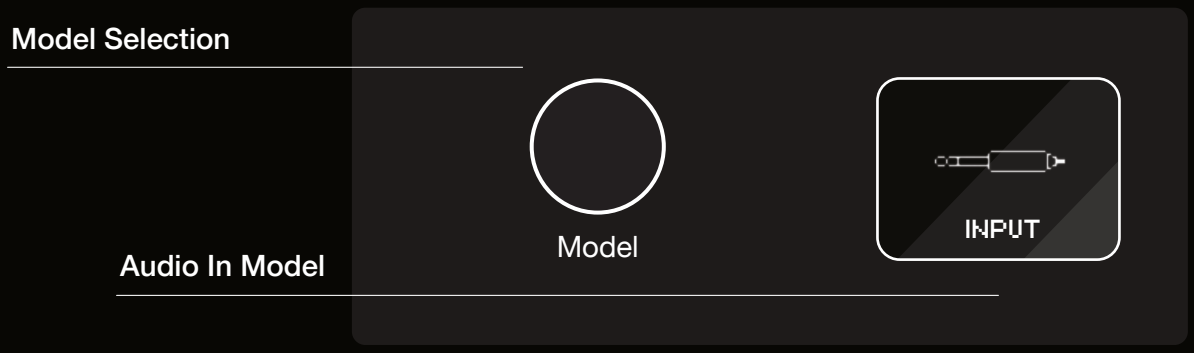
Duck: Ducking is a feature which modulates the audio level up or down, triggered by the track's pattern steps to generate creative audio phrases or to make space in the audio for other instruments. The time of the ducking can be controlled. Particularly useful when using the external input channel as the source track for the compressor sidechain.

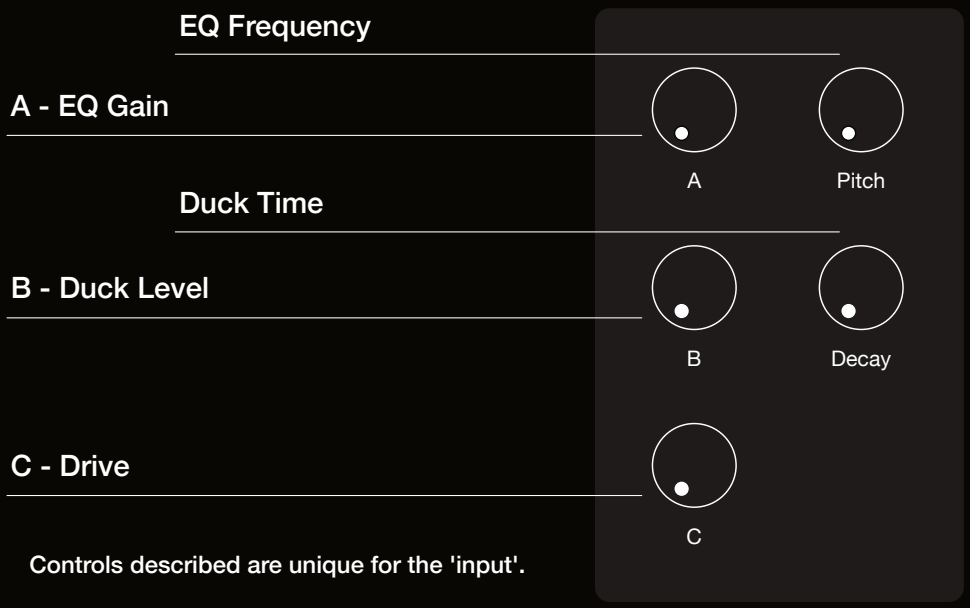
The main output is based on the master bus mix of all tracks. Connecting an individual track output does not remove that track from Main L/R or the headphone mix.

7.3 Audio Input

The audio inputs are configured and routed at a track level. Select the model generator as 'Input' for the tracks to route the external audio into.

Additional channel settings will be available once this model is assigned. The channel has a single band EQ and a Ducking feature.





Controls described are unique for the 'input'.

Line In Channel:

1. Turn the (Model) knob for the track to configure.
2. The browser will open. Turn to select the 'Input' option.
3. This routes the line in audio through the selected track.

Input Configuration

1. Hold + Turn (Model) to choose the channel used for the track.
2. The options are Stereo, using both line in's, Left or Right each which uses a mono channel.

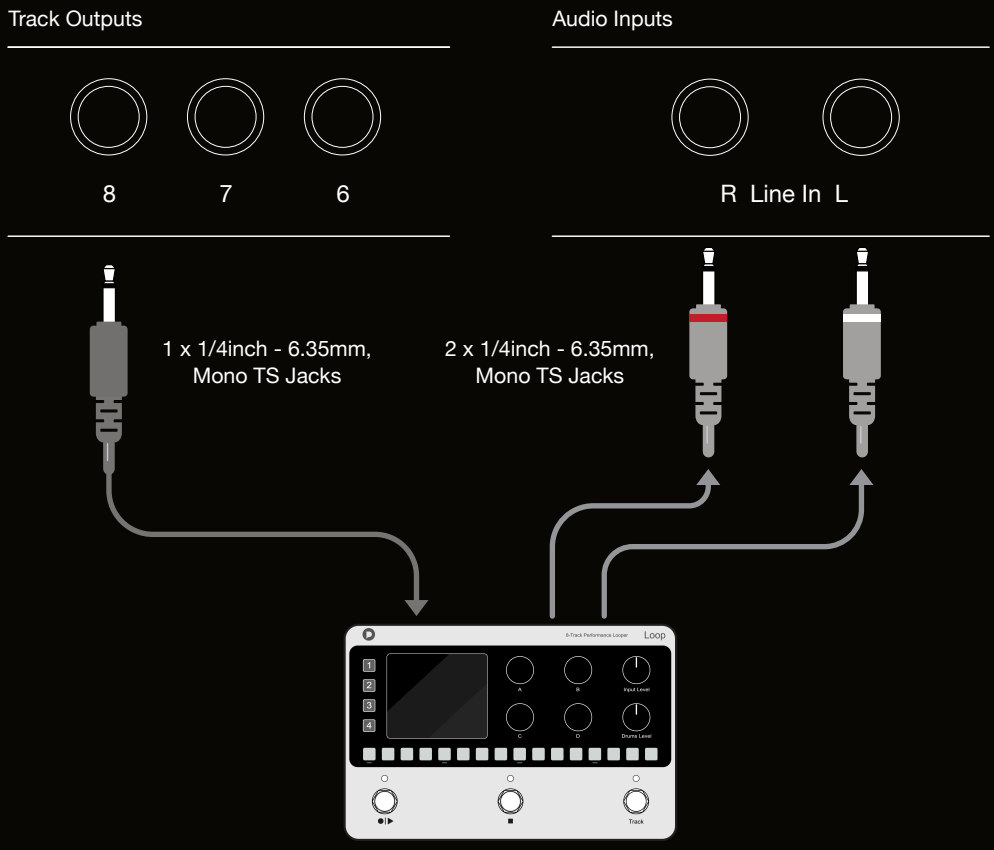
7. Connectivity

7.4 External Effects

Drums is highly versatile when using external effects. An effect can be positioned inline to the main outputs or even from the individual track outputs.

In addition, external audio, say from an effect output can be routed back into Drums audio input ports.

Example: Polyend Loop



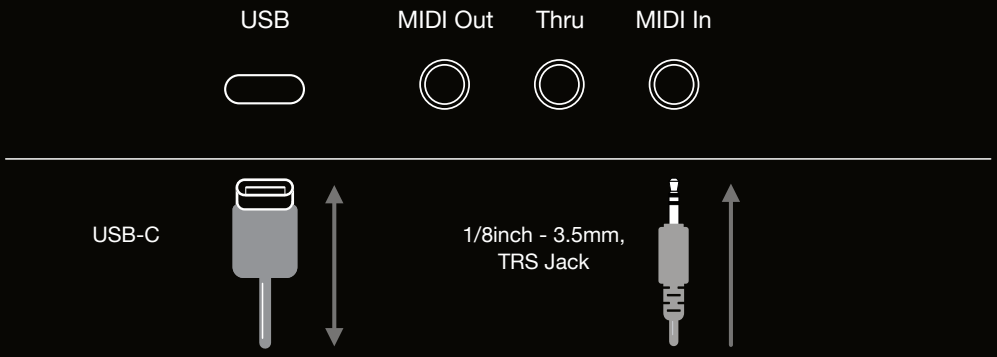
Track 8 percussion is routed out of Drums while its original signal also remains in the main and headphone mix. Processed audio Loop return is then added to track 7.

Track 7 is configured as an audio input track in Drums. This will route the output from the Loop pedal, back into Drums. The audio will be track 8 processed by Loop and then returned to Drums main mix through channel 7. Track 7 can even be sequenced in Drums to add more movement and creative interest.

7.5 MIDI Config

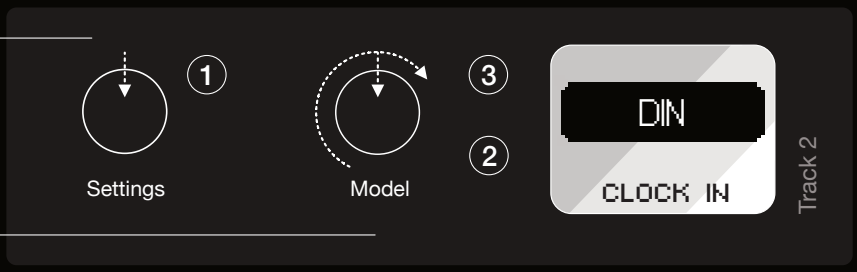
Connect an external controller, clock, or sequencer to Drums to expand the setup. Drums can respond to external transport and clock tempo.

The MIDI Input is a TRS Type 'B' connection and can be connected to a traditional 5 Pin MIDI using the supplied adapter. MIDI In and Out is also available through the USB-C connection.



Global Settings

Option



Options for Clock In and Out, and for Transport In and Out can be selected. The settings for each will choose the receiving or sending port. Port is either DIN for the 3.5mm TRS Jacks, USB for the USB-C connection, both or it can be set to internal only.

Change MIDI Settings:

1. Tap [Settings].
2. Track 2 Model adjusts the MIDI options and settings. Turn to select a MIDI option.
3. Push + Turn (Model) for Track 2 to change the setting for the selected option.

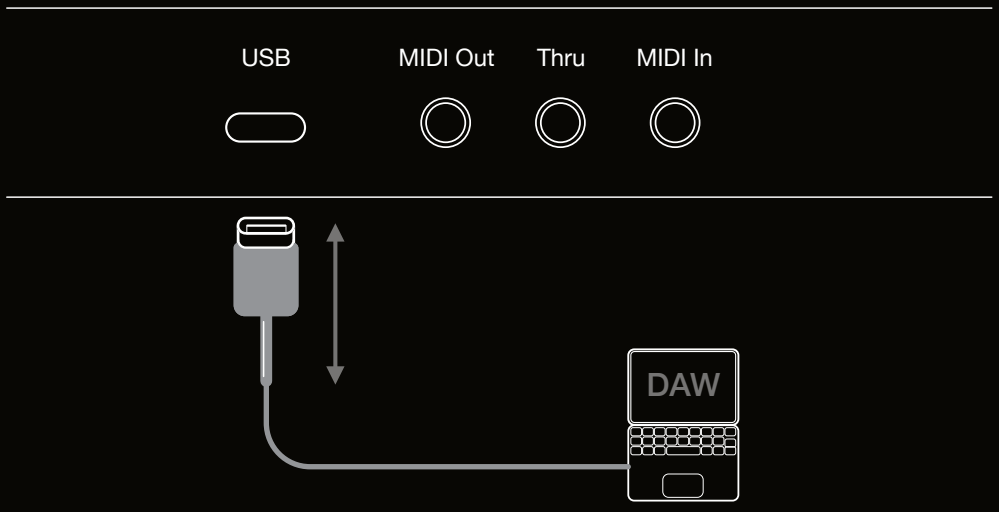
The MIDI settings are set globally and apply across all tracks. There are no track independent MIDI settings.

7. Connectivity

7.6 Connecting to a DAW

The USB-C connection would typically be used to connect to a PC or Mac, although it is also possible to use the MIDI TRS when using a MIDI interface.

Drums connects by MIDI to the Digital Audio Workstation to manage the clock sync. Audio is not transferred over the USB connection.

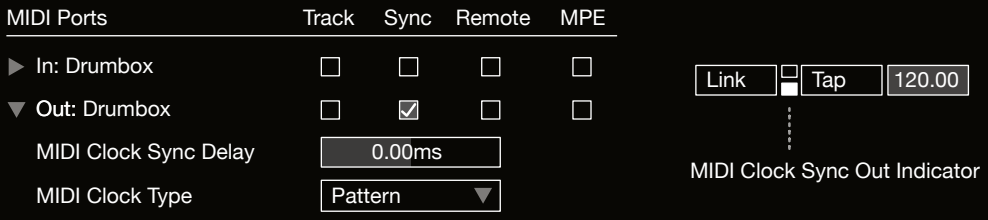


Drums will appear in a DAW's configuration settings labelled 'DrumBox'.

Connecting to Ableton Live.

When synchronising Drums to Live via MIDI clock:-

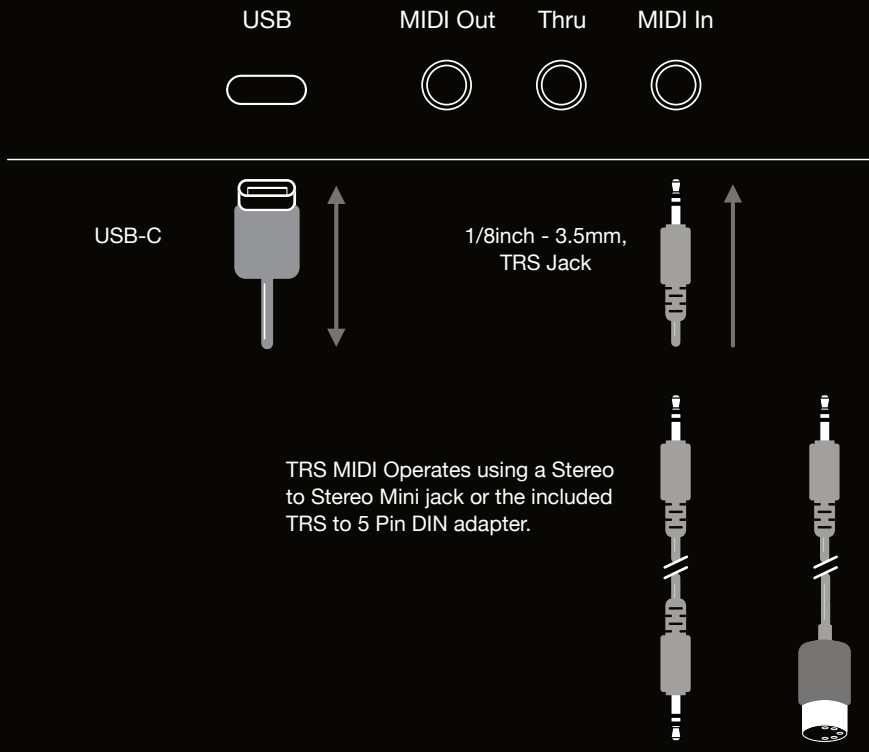
1. Set the 'Sync' for MIDI output in Ableton Live Settings to ON/Checked.
2. Set MIDI Clock Type to Pattern for the MIDI output port connected to Drums. Using Ableton Live's MIDI Clock type 'Song' can cause the first sequencer step to play late.
3. The clock sync can be monitored with the sync indicator in Live.



7.7 MIDI In

Connect an external controller, clock, or sequencer to Drums to expand the setup. Drums can respond to external clock for tempo control and transport play/stop controls.

The MIDI Input is a TRS Type 'B' connection and can be connected to a traditional 5 Pin MIDI using the supplied adapter. MIDI In and Out is also available through the USB-C connection.

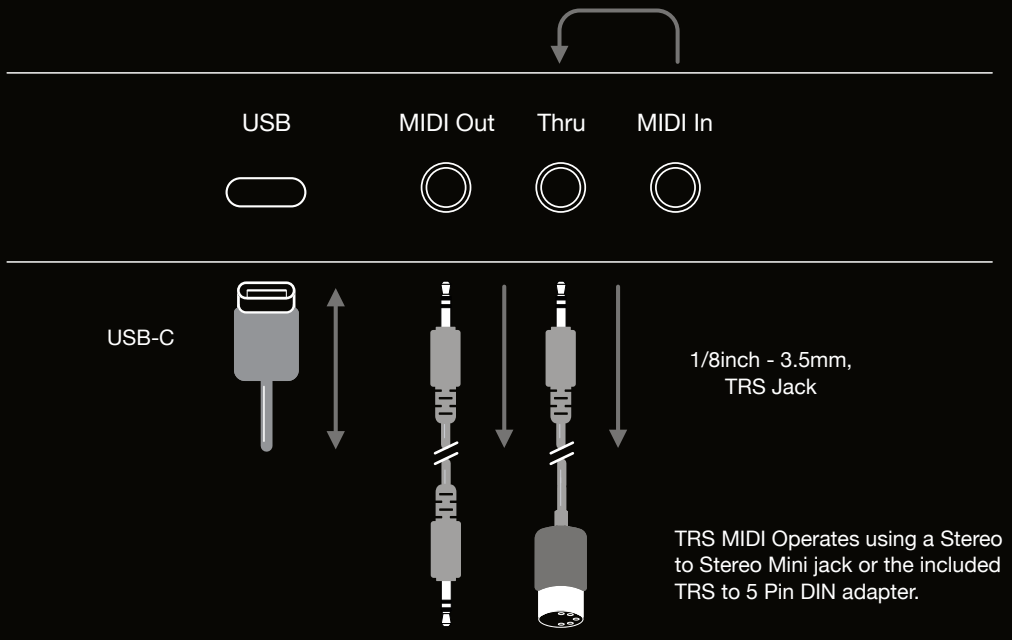


7. Connectivity

7.8 MIDI Out & Thru

Connect an external synth or effect to expand the setup. Drums can send MIDI transport, and clock tempo to an external device.

The MIDI Outputs are TRS Type 'B' connections and can be connected to traditional 5 Pin MIDI using the supplied adapter. MIDI In and Out is also available through the USB-C connection.



The MIDI Thru port will communicate out all messages received on the MIDI In port. MIDI Thru sends messages without any additional processing and exactly as received at the MIDI in.

7. Connectivity

System Options 8

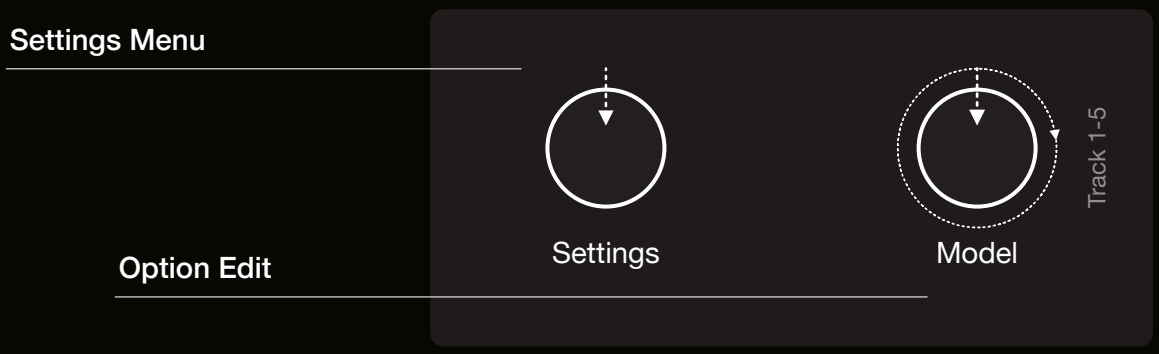
This section covers a number of topics that have not been covered elsewhere. Learn how to apply firmware updates, manage files and configure Drums system settings. This covers some housekeeping topics as well as some user experience settings. It is advised to at least familiarize yourself with this section and be aware of what exists at system level.

8. System Options

8.1 System Settings

The system settings contain several global configuration options and device management utilities.

Press [Settings] button to open the menu. Each option is viewed on the track screen. Turn (Model) to navigate and Push & Turn (Model) to edit a setting..



Settings



Knob behavior mode. Default is Jump which will immediately set the parameter to the new value. Pickup and scale are other options available.



Clock and transport. Set the Drums clock and transport inputs and outputs to: internal, TRS Din, USB or both Din & USB.



Tap to start the USB storage mode. A connected Mac or PC will now see Drums storage as an external drive.



Tap and turn to select a firmware version and tap to start the firmware update process. The .pdmf Firmware file must be already copied to the Drums /Firmware folder.



Start the analog circuit calibration process. This is an optional onboard automated activity.

8.2 Knob Behaviour

The tactile and hands on experience of drums revolves around its physical interface. The sounds are carved and constructed with extensive modulation of the track knobs.

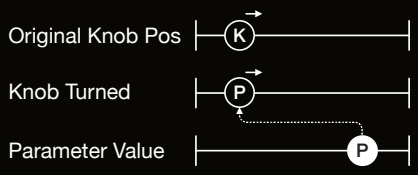
Editing of parameters is reliant on the current knob position. Meaning its role may change, for example with a mutation change, but its physical position is preset. Control behavior can be managed in several ways.

Knob Mode Track 1



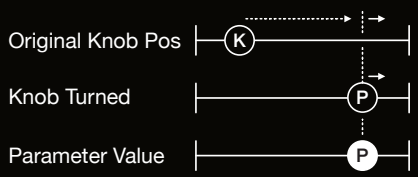
Jump Mode - Default

The parameter which the knob represents will 'jump' to the current knob value when the knob is turned. The knob will therefore edit the value starting from its current position.



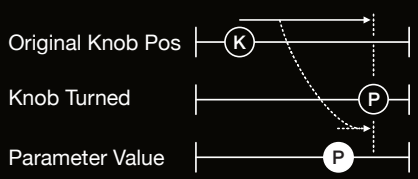
Pickup Mode

Pickup mode will hold the current parameter value while the knob is being turned. Once the knob position reaches the actual parameter value, the knob will takeover control of the parameter. Edits will then continue with the knob.



Scale Mode

As the knob is turned the actual parameter value moves towards a common target at a scaled rate. Once the values match, the knob takes over control of the parameter.



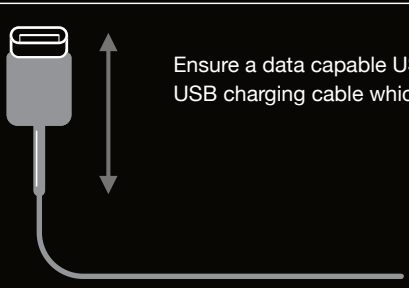
8. System Options

8.3 Storage Mode

Storage mode enables Drums file structure to be accessible from a USB connected PC or Mac. Drums will appear as an external drive on the computer.

Once connected, activate storage mode in the [Settings] options by tapping the Track 3 (Model) Knob.





Ensure a data capable USB cable is used and not just a USB charging cable which may not handle data correctly.

USB Storage Track 3



Setting USB Storage Mode:

1. Connect a PC or Mac to the Drums device using the USB-C connection.
2. Tap [Settings] to open the settings option menu.
3. Tap (Model) for Track 3.
4. Drums will appear in the file manager of the PC/Mac as an external drive.

Backing Up Drums:

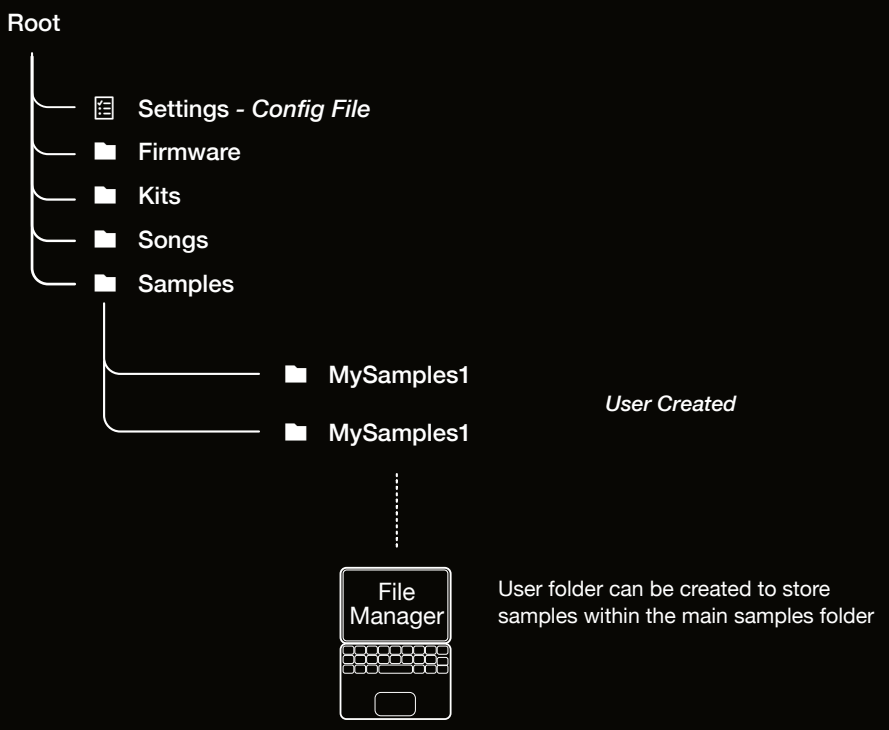
5. Samples and presets can be copied into drums as well as firmware update files.
6. Copy and paste the Drums folders to the PC or Mac to backup the Drums data.
7. Tap Track 3 (Model) again to exit USB storage mode.

8.3 Storage Mode

User samples can be copied to the /Samples folder on Drums. It is possible to also create sub folders to organise your samples.

Use a PC or Mac's file browser to create folder and transfer samples to Drums when it is in storage mode.

Samples Folder



Copy WAV samples into the Samples folder on the Drums drive using USB Storage. Subfolders are supported. Drums supports mono and stereo PCM WAV files at 8, 16, 24 or 32 bits. Filenames must use ASCII characters and contain no more than 31 characters, including the .wav extension.

Loading a User Sample to a track:

1. With a sample based model loaded to a track, tap (Model) to open the sample browser
2. Navigate to 'Add' and tap (Model).
3. The samples and any subfolders will be visible.
4. Navigate to select the sample to load.
5. Tap (Model) to load the sample to the track model.

8. System Options

8.4 Firmware Updates

From time to time new Firmware versions are released by Polyend to add new features, optimize performance and fix any software issues.

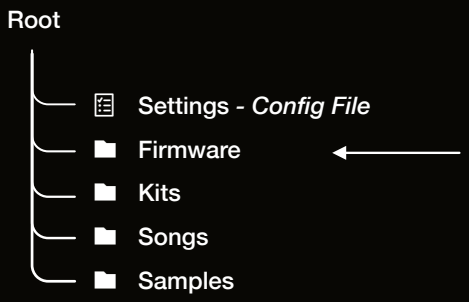
Firmware is downloaded, copied to the Drums firmware directory, then loaded using the settings 'FW update' Option. Tap [Settings] to access FW Update.

FW Update Track 4



Before starting, download the latest Drums OS .pdmf file and transfer it to the firmware folder by using the USB Storage procedure. Follow the specific instructions released with each update to ensure a smooth process. These instructions are general guidelines only.

Drums File Structure



Firmware File:
PolyendDrums_1.pdmf
Copy into Here.

To view the currently installed OS version, Turn the Firmware - Track 4 (Model) knob while in the settings page.

Updating Drums Firmware:

1. Connect PC/Mac and copy the update file to the Drums /Firmware folder then exit USB storage mode.
2. Tap [Settings] to open the settings option menu.
3. Tap (Model) for Track 4 to view the firmware files.
4. Turn (Model) to highlight and choose the firmware to install.
5. With the file highlighted, Tap (Model) for track 4.
6. At the prompt, Turn (Model) to choose 'Cancel' or 'Update'. Tap to execute.
7. Follow any on screen prompts and wait to the installation is complete and Drums has restarted.

8.5 Analog Calibration

Analog calib calibrates the analog oscillators to help maintain accurate tuning and consistent pitch across the analog voices.

If you notice tuning issues or after a significant change in ambient temperature you can run this function after the device has warmed up.

Analog Calibration Track 5



All analog circuitry is affected by the temperature and environmental conditions. With audio equipment this may appear to affect tuning of the sounds. Ensure the Drums is powered up and fully warmed up before using it. Drums has a built in diagnostic process that will calibrate the channels analog circuitry and compensate for the current environment. It is recommended to use this process only if there is a noticeable tuning issue.

Performing Analog Calibration:

1. Ensure the device is powered on and fully warmed up before performing an analog calibration routine.
2. Tap [Settings] to open the settings option menu.
3. To start the Analog Calibration process, Tap (Model) knob for Track 5.
4. To process is automated and will perform the routine internally.
5. Once complete, Drums will notify completion.

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