

Polyend Tracker+ Essentials

A Collection of Essential References
for The Polyend Tracker+



Overview

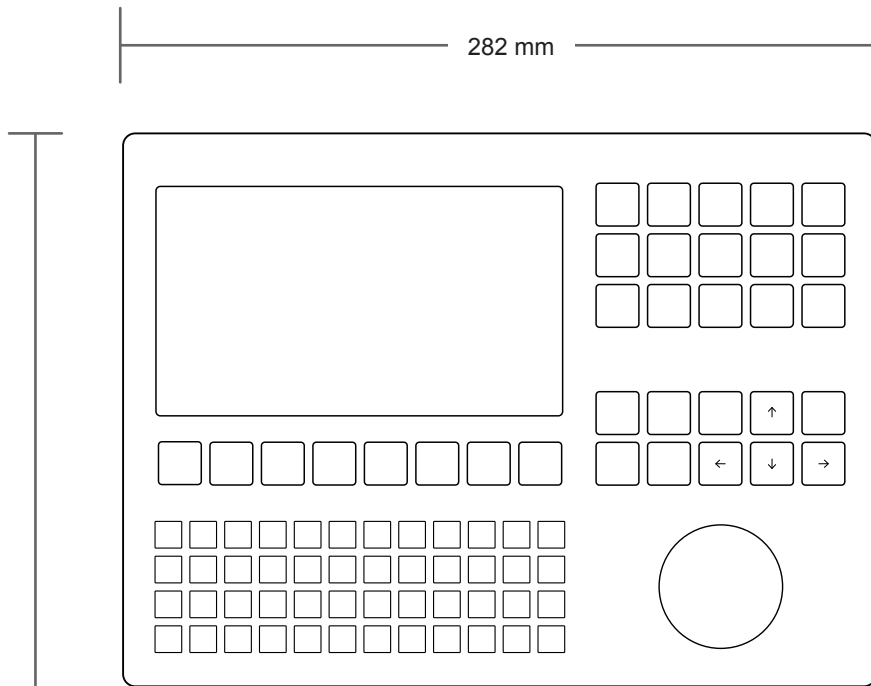
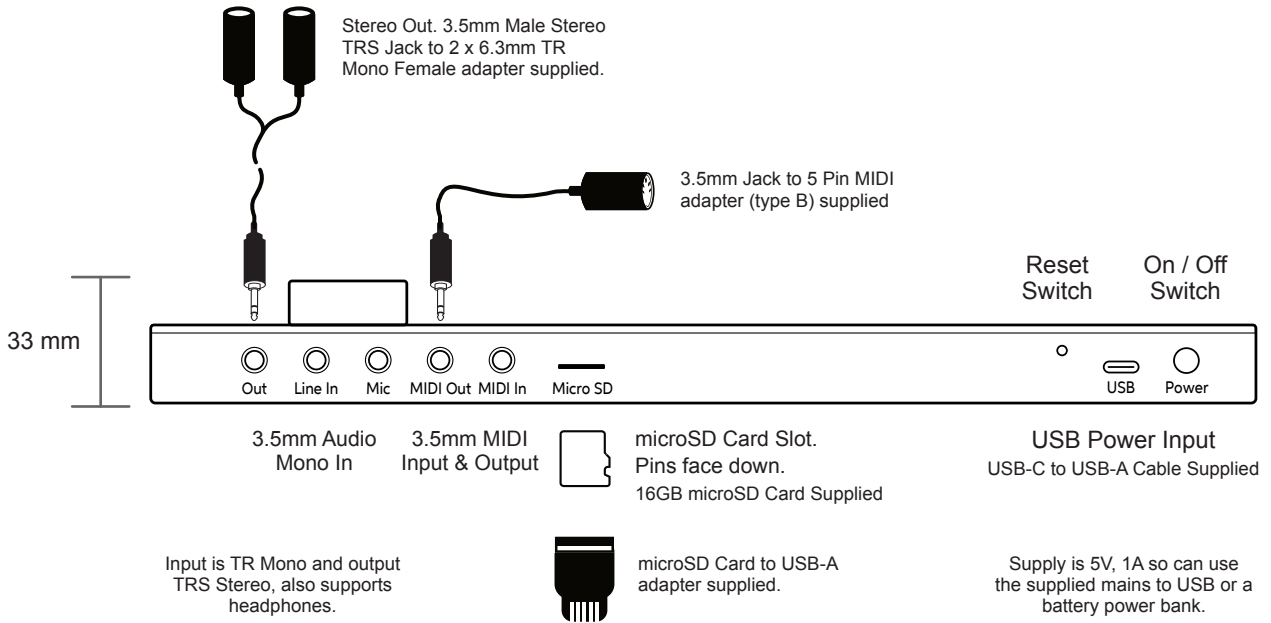
The Polyend Tracker+ is a modern hardware implementation of a classic software music application and is the next generation of Polyend Tracker with **upgraded hardware and extended feature set**. Trackers emerged in the late 80's as music making tools mainly on gaming machines and in the 90's Trackers also became popular on personal computers. A Tracker is a utility that assembles a linear series of notes that typically triggers samples and associated parameters. Unlike standard digital audio workstations (DAW's), Trackers generally run top to bottom when playing tracks. The Polyend Tracker can also play a loop of selected note steps. Don't be fooled by this quirky programming style of music making which may appear unusual, but does provide a very powerful and creative approach to production. Polyend Tracker+ presents this vintage application in a modern and stylish box with **16 sequenced tracks** and a variety of

synth and sample instruments, MIDI, effects and audio inputs and outputs contained within multiple workflow environments. The feature set is wide with some interestingly creative and unexpected elements such as retro games and a radio receiver. Tracker+ brings more power and more features contained within a familiar form factor and user interface. Tracker+ includes a **stereo audio pathway** including **stereo sampling with extended sample time**. In addition the ability to interface with other gear using **audio over USB** covers multiple tracks. Tracker+ introduces a collection of **synthesizer instrument models** alongside sample based instruments all of which support it's portability and position as an 'all in one' workstation. This guide aims to help with the speed up of learning and also to get the very best from the device. The Tracker+ journey at first glance may appear unusual but is a fun, powerful, professional music making unit giving rewarding results.

Tracker+ Essentials

Hardware Overview

Stereo audio output also serves as headphone out.



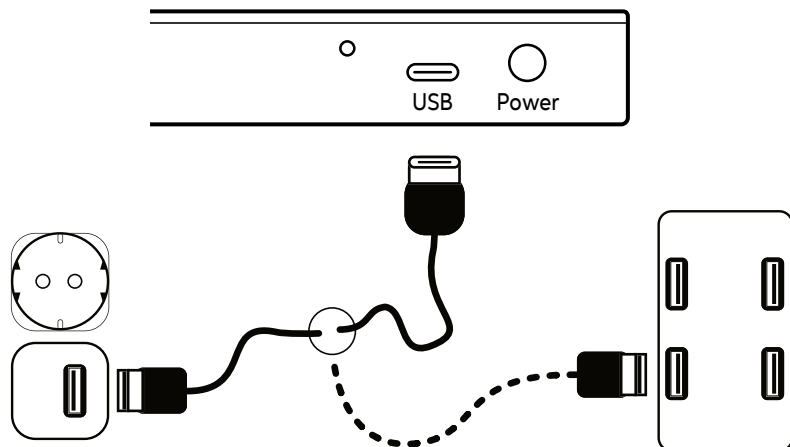
Start Up

Tracker+ is a low power user and can therefore be powered from the supplied mains USB adapter or from a rechargeable battery power bank. When restarting Tracker+ the previously open project will be re-opened.

POWERING ON / OFF TRACKER+

1. Connect the supplied USB-C Mains cable between Tracker+ and the supplied USB plug. Also Tracker+ can operate with a portable USB power bank*. Tracker+ uses a 5V, 1A rated supply.
2. Ensure the microSD Card is installed correctly for Tracker+ to operate.
3. Quickly press the small power button located on the rear left (looking from the top). Tracker+ will start up and the previous project reopened.
4. To power off, press and hold the small power button located on the rear left (looking from the top) until the timer bar ends. Tracker+ will power off and the on/off button can be released.

Supply is 5V, 1A from the supplied mains to USB adapter.



Alternatively use a battery power bank.
Start up instantaneous current is approx 1.2A with normal state around 0.5A

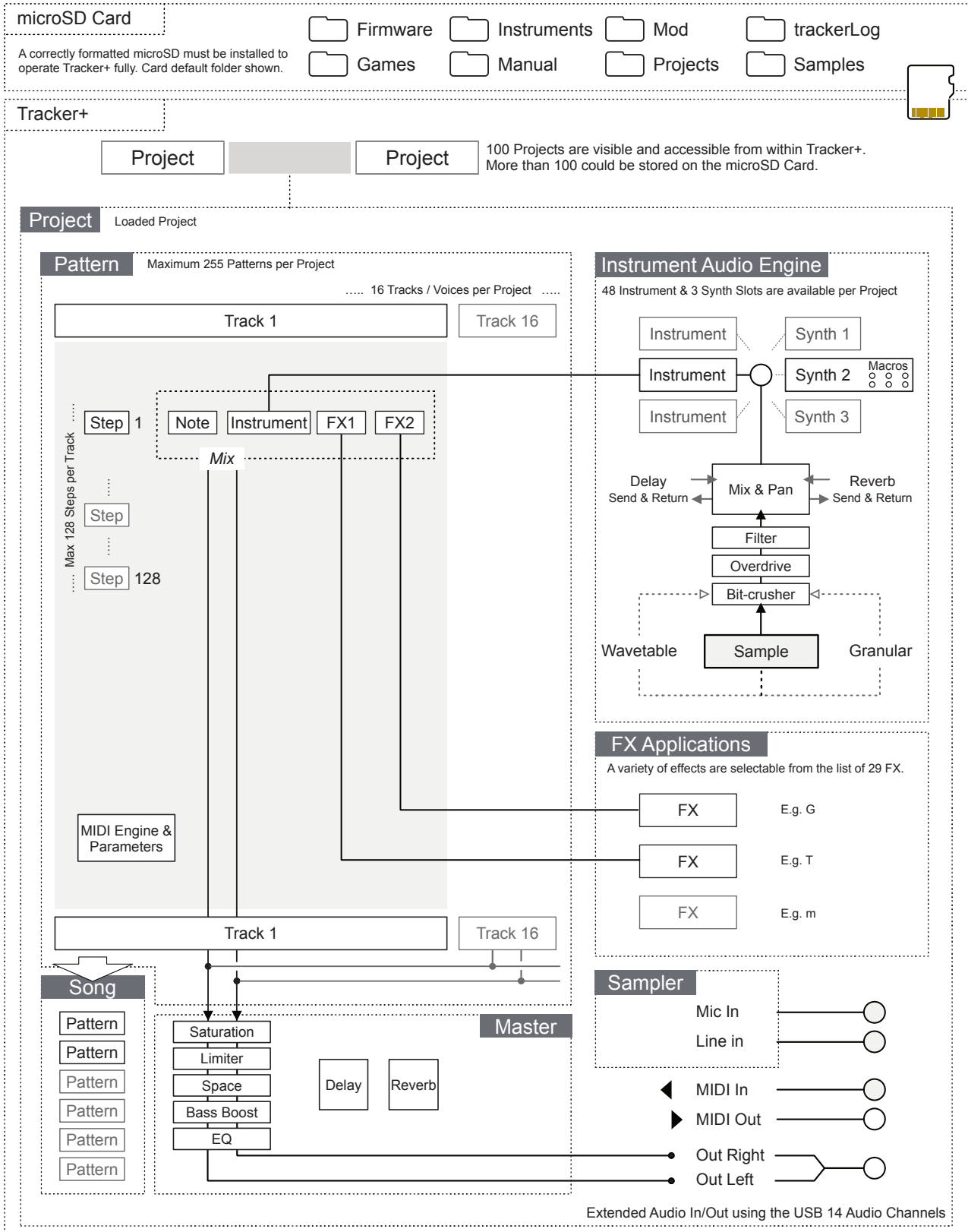
** It is recommended by Polyend to use a standard power bank without smart features. Intelligent / smart power banks or PC / Mac power may have features that interfere with the continuous supply required by Tracker+. A USB - C to USB - A cable is supplied. Also a USB - C to USB - C can be used on later Tracker+ models.*

Warning:

Under-powering the Tracker from a hub or computer can result in performance issues or microSD card failure.

Tracker+ Essentials

Tracker+ Audio Structure



1 LCD Display
7 Inch, LCD TFT 800 x 480 Display.

3 Grid Pads
4 x 12 grid of silicon multifunctional [PADS].

5 Dedicated Note Button
Selection of the [Note] element of a step.

7 Dedicated FX1 Button
Effect selection for [FX1] of a step.

9 Dedicated Pattern Button
[Pattern] mode / page selection.

10 Sample Loader Button
[Sample Loader] opens browser for sample selection.

11 Sample Playback Button
[Sample Playback] opens playback option menu.

12 Sample Editor Button
[Sample Editor] opens editor options.

13 Sample Recorder Button
[Sample Recorder] mode / page selection.

14 Song Mode Button
[Song] mode / page selection.

15 Instrument Parameter Button
Opens the [Instrument Parameter] options.

16 Perform Mode Button
Selects the [Perform] mode / page.

18 Config Button
Opens the [Config] options.

20 Play Button
Plays when pressing [Play] the pattern or song. Pressing again stops playback. Play again restarts.

22 Insert / Home Button
Pressing [Insert/Home] will insert. Pressing [Shift] + [Insert/Home] will return 'home', to the top of the pattern.

24 Rec Button
Pressing [Rec] will toggle the record mode on or off for editing patterns and perform settings.

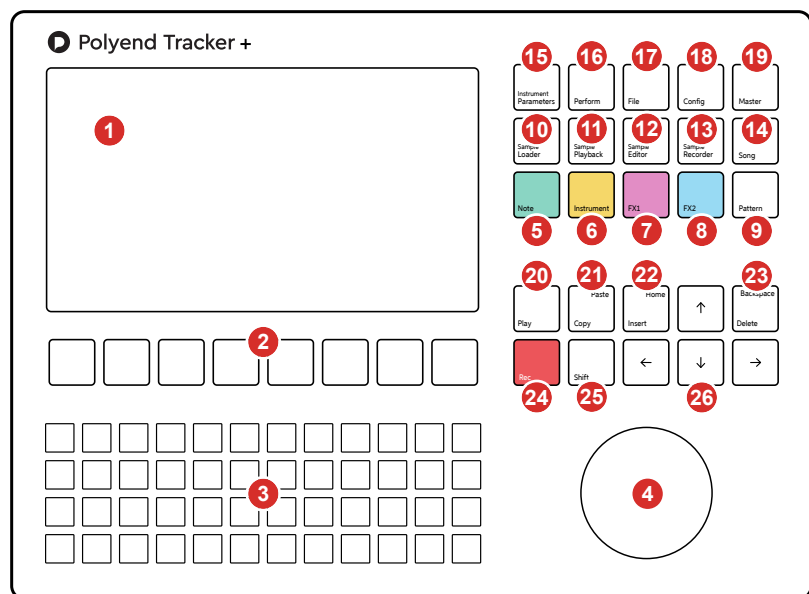
26 Navigation Buttons
Four navigation buttons [Up], [Down], [Left], [Right]. Used to manoeuvre through menus and options.

2 Screen Buttons
Dynamic [Screen buttons] are dependant on the function displayed above each button.

4 Jog Wheel
Rotary (Jog) wheel used for navigation and parameter adjustment.

6 Dedicated Instrument Button
Selection of the [Instrument] for a step.

8 Dedicated FX2 Button
Effect selection for [FX2] of a step.



17 File Button
Selects the [File] management options.

19 Master Button
Selects the [Master] mode / page containing master effects and the mixer functions.

21 Copy / Paste Button
Pressing [Copy/Paste] will copy the selected item. [Shift] + [Copy/Paste] will paste any copied item.

23 Delete / Backspace Button
Pressing [Delete/Backspace] will reset or step back. [Shift] + [Delete/Backspace] will delete the selected item.

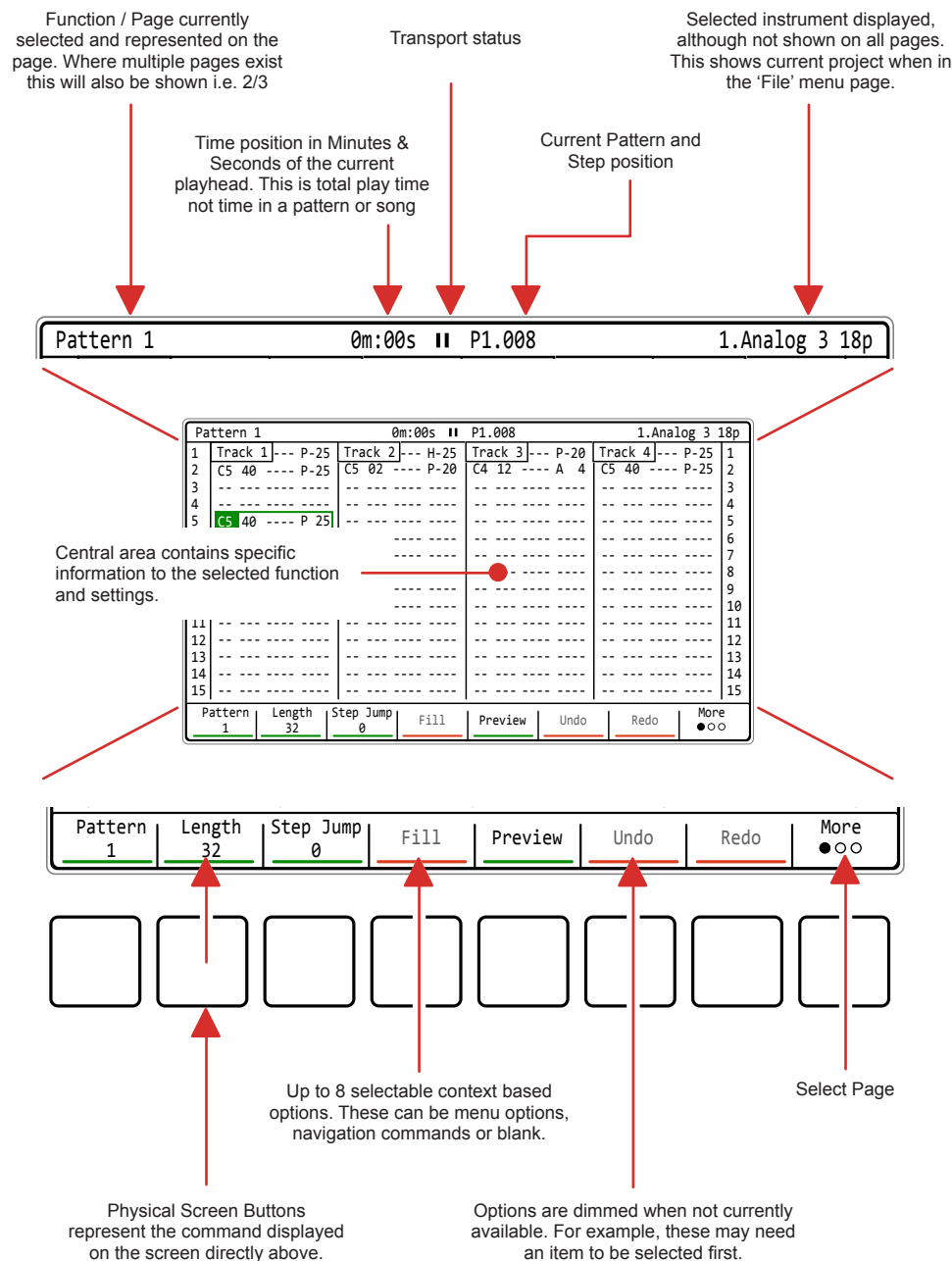
25 Shift Button
Pressing [Shift] + Another button will select its secondary function.

Note that while the screen brightness is adjustable, the command buttons are not backlit which may be an issue in dark environments and during live gigs and performances.

Tracker+ Essentials

Page Layout.

Each page will display the information and control options for the selected function. While this may be unique to the context there are some common features and navigation principles that apply across all (or most) of the generic pages of Tracker+. There are 16 tracks available, the first 8 can be Sample, MIDI or Synth while tracks 9-16 focus on MIDI or Synths.



QWERTY Keyboard.

Some pages will require text editing for naming tracks or projects etc. The same functionality applies whenever the Alpha numeric pop-up editor is used. The screen will display the QWERTY keys and the text to edit, while the 4 x 12 pad grid will act as the keyboard's keys. The screen buttons are used to enter, cancel or save.

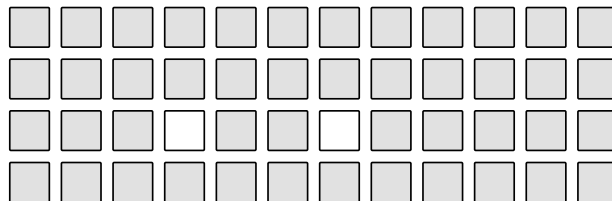
The screen will display the keys which are represented by the grid pads. The 'f' and 'j' keys are highlighted to give a reference between the pads and the screen characters.

1	2	3	4	5	6	7	8	9	0	Backspace	
q	w	e	r	t	y	u	i	o	p	-	+
a	s	d	f	g	h	j	k	l	@	Caps Lock	
z	x	c	v	b	n	m	Space				

Enter	Auto Name						Cancel	Save
-------	-----------	--	--	--	--	--	--------	------

The characters and the title can be selected by using [Up], [Down], [Left] or [Right] to navigate and Press [Enter] - 1st Screen Button to select the character.

Option to [Cancel] - 7th from Left Screen Button is also possible. Save when complete using [Save] - 8th Screen Button to save the name.



QWERTY Keyboard is represented by the 4 x 12 Grid Pads. The 'f' and 'j' keys are highlighted. The selected character using arrows will also be highlighted bright, and lit on the pads to serve as a reference. Using the pads is a simpler method in entering characters.

The following Tracker+ buttons operate in the naming editor when the naming screen is presented:-

- [Up], [Down], [Left], [Right] will navigate the selection across the keyboard. Will navigate left / right in the text of the name when the name is highlighted .
- [Insert/Home] will insert the currently highlighted character into the name at the cursor position.
- [Delete/Backspace] to delete characters and backspace in the name from the text cursor position.

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Summary of Configuration Options

A number of options can be set in the 'Config' menu. These defaults may be good enough to get started but specific changes may suit certain workflows and situations better. The details of these will be covered in relevant main manual sections. An overview of global settings is provided here.

Menu	Option	Description	Book Section
Project Settings	Performance Presets	Allows performance presets to be saved either as a global configuration or local to each project.	Performance Mode
Project Settings	Pattern Divider	Sets the highlight level for the selected step offering better pattern visualisation.	Pattern Format
Project Settings	Pads Scale	Sets the scaling of the 4 x 12 grid pads when used for note playback / selection.	Sequencing Steps
Project Settings	Pads Root Note	Sets the root note between C2 - C4 of the bottom left pad in the 4 x 12 grid pad matrix.	Sequencing Steps
Project Settings	Pads Layout	Sets the note offset in semitones 1-12 for the pad located directly above the root note in pad grid.	Sequencing Steps
Project Settings	Anti-aliasing	Anti-aliasing set to 'On' gives a cleaner sound for sample playback. Off is more lo-fi vintage feel.	
Project Settings	Limiter Mode	Sets the characteristics of the limiter attack and release between subtle and extreme.	Master Effects
Project Settings	Sends Mode	Sets the sends to pre-fader i.e. independent of volume or post-fader.	Master Effects
Project Settings	Extra Headroom	Avoid clipping by adding extra headroom in the output audio.	
Project settings	Snap to Zero	Snap audio crossings to zero points, Used as green markers in the sample playback page.	Instruments
General	Radio Region	Sets the radio frequencies to match the geographic region, Europe, Australia, US, Japan.	Audio
General	Display Brightness	Adjusts the brightness level of the 7" display between three settings: High, Medium, Low.	System
General	Display Theme	The colour scheme of the screen. Original has the dark background while monochrome is bright. Also 10 th Anniversary theme is available.	System
General	Display Font	Text font option. Original has the classic consolas look while 'new' is smaller, more standard.	System
General	Pad Brightness	Adjusts the brightness of the 4 x 12 grid pads: High, Medium, Low.	System
General	Pads Preview	Allows the grid pads to be used to highlight notes in the active track or pattern lines in the grid editor.	

Menu	Option	Description	Book Section
General	Recording Options	Sets the options for what is recorded i.e. notes, quantization, micro-timing, velocity.	Sequencing Steps
General	Numbering Mode	Sets all numbers to the decimal starting at 0 or 1 or hexadecimal format. Classic look and feel.	System
General	Pattern Arrangement	Sets the pattern display to the traditional vertical original, vertical revolver or horizontal display.	Patterns
General	Pattern Top Info	Allows the top part of the pattern screen to display only the track name, additional info or off.	Patterns
General	Line In Channel	Selects the audio input of the line in between stereo, mono left or mono right.	Audio
MIDI	Clock In	Sets the source of the master clock, Internal (default) or external USB or MIDI In jack.	MIDI
MIDI	Clock Out	Sets the Tracker+ Mini clock output. Off, USB, MIDI Out jack, USB + MIDI Out jack.	MIDI
MIDI	Transport In	Sets the source of transport control commands, Internal (default) or external USB or MIDI In jack.	MIDI
MIDI	Transport Out	Sets the output of transport control commands, Off, USB, MIDI Out jack or USB+MIDI jack options.	MIDI
MIDI	Notes In	Sets the input routing of external notes in. Set to Off, USB, MIDI In jack or USB+MIDI jack options.	MIDI
MIDI	Notes Input Channel	Sets the MIDI channel for incoming notes from external gear. Select All channels or Ch 1-16.	MIDI
MIDI	MIDI Out	Sets the MIDI output routing between, Off, USB, MIDI Out jack or USB+MIDI jack options.	MIDI
MIDI	CC In	Sets CC (control change) input routing to Off, USB, MIDI In jack, USB+MIDI In jack.	MIDI
MIDI	CC In channel	Sets MIDI channel for CC (control change) incoming messages. Select All channels or Ch 1-16.	MIDI
MIDI	Middle C	Sets middle C as C-3, C-4, C-5, C-6. Calibrates range in Tracker+ with external gear.	MIDI
MIDI	Clock Sync Correction	Latency compensation for incoming sync. -6 to +6. Use with MIDI Jack or USB clock in.	MIDI

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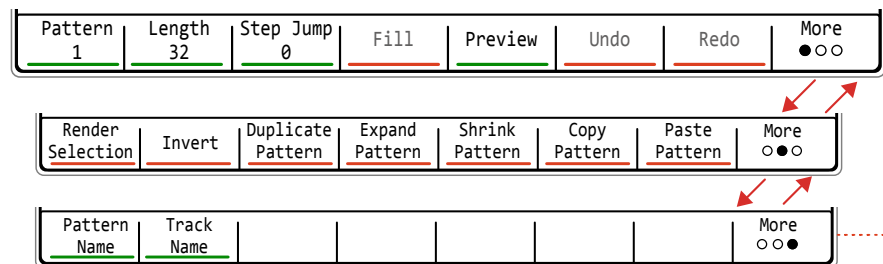
Menu	Option	Description	Book Section
Metronome	State	Turns the metronome on or off for live recording.	Projects
Metronome	Pre Roll	Provides a count in of 4 before starting to record.	Projects
Metronome	Time signature num	Upper numerator of the time signature	Projects
Metronome	Time signature denum	Lower denominator of the time signature	Project
Metronome	Volume	Volume level of metronome	Projects
Firmware	Firmware Update	Activates a firmware update based on the OS located on the microSD card in the 'firmware' folder.	System
Firmware	Current version	Displays current version of installed OS. Visual indicator only.	System
Firmware	Build	Firmware build version display	
Firmware	Reset config	Resets this configuration menu to the default original settings.	System
USB	USB Storage	A USB connected PC / Mac will see the Tracker+ microSD Card as an external storage drive. Files can be then be transferred directly to / from the installed microSD when in this mode.	System
USB	USB Audio	Enables USB audio In, Out or both. Can also disable the USB audio by setting to off.	Audio

The book sections referred are found in the main manual available as a separate download from Polyend.

Configuring a Pattern.

Pattern and step editing is performed in 'Pattern' Mode. The first requirement is to create the pattern itself where steps can later be added to create the melody or beat. Commands for the pattern are available from the dynamic screen buttons located at the bottom of the page. These will change depending on the mode or selection made.

The dynamic screen buttons labeled at the bottom of the page will control options for creating patterns. Underscored red color indicates if recording mode is required to be on to access the command.



Menu Option	Function	Description
Pattern	Pattern Selection	Selects a pattern to edit. This will select a pattern number between 1-255 in the project.
Length	Pattern Length	Adjust the number of step rows in the pattern. Default is 32 but a maximum of 128 rows are available in a pattern.
Step Jump	Programming Aid	Assists in recording steps with the pads. Will automatically jump the selection cursor in defined steps.
Fill	Programming Aid	Assists in programming steps. Will automatically fill steps based on defined selection criteria
Preview	Instrument Preview	Will play the instrument for the step to allow previewing of the sound.
Undo	Undo Last Command	If available, will reset the previous state prior to the last action, effectively undoing the last (up to 20) commands.
Redo	Redo Last Command	If available, will restore the previous state after to the last action, effectively redoing the last (up to 20) commands.
Render Selection	Bounce Audio	Renders the selection to a new audio sample. Useful to use elsewhere or to reduce track consumption.
Invert	Invert Steps	Inverts all steps in the selection vertically
Duplicate Pattern	Extends Pattern	Extends the entire pattern and its associated steps, extending the pattern to double the length.
Expand Pattern	Extends Pattern	Extends the pattern by adding blank steps in between existing steps, extending the pattern to double the length.
Shrink Pattern	Contracts Pattern	Contracts the pattern length by deleting every 2nd step, reducing the pattern to half the length.
Copy Pattern	Copy	Copies the entire pattern to the virtual clipboard.
Paste Pattern	Paste	Pastes the copied pattern from the virtual clipboard into the location starting at the current position.
Pattern Name	Name the Pattern	Opens the alpha-numeric keyboard to change or edit the current pattern name.
Track Name	Name the Track	Opens the alpha-numeric keyboard to change or edit the current track name.
More	Change Page	Selects the next page of commands

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Pattern and step editing is performed in 'Pattern' Mode, selected by pressing the [Pattern] button. To edit steps, select [Rec]. The view in pattern mode can be changed in the config options.

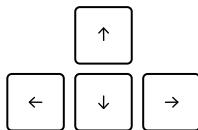
Press [Shift] + [Insert / Home] to reset the cursor position to the start, step 1

Change the pattern info for the top bar in the Config settings: General > Pattern top info. Top bar: Off, Tracks Only or additional Info

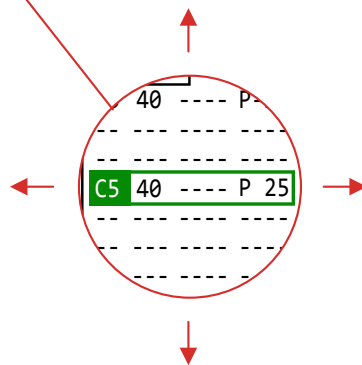
The 'top down' view can be changed to 'left right' in the Config settings: General > Pattern Arrangement

Step Row

To select a step
Press [Up] or [Down] or Turn (Jog) to navigate vertically in the Tracker+ grid. Cursor will wrap past the end to the start when using arrow keys



Press [Left] or [Right] to navigate horizontally in the Tracker+ grid



Switch to 8 Track view.
Displays a single element across blocks of 8 tracks

Track 1	Track 2	Track 3	Track 4	Track 5	Track 6	Track 7	Track 8
---	C5	---	---	---	---	---	---
---	C5	C4	D2	---	---	---	---
---	---	C4	---	---	---	---	---

[Pattern] + [Note] - Displays 8 tracks, with only the note parameters

[Pattern] + [Instrument] - Displays 8 tracks, with only the instrument parameters

[Pattern] + [FX1] - Displays 8 tracks, with only FX1 parameters

[Pattern] + [FX2] - Displays 8 tracks, with only FX2 parameters

Hold [Pattern] + A combo of max 2 parameter buttons: Note, Instrument, FX1, FX2 to display 2 parameters per track across 8 tracks.

Press [Pattern] to return to 4 tracks, all step parameters

Steps.

A step is a building block which triggers events such as playing a note or beat or activating a MIDI action and is used for creating patterns. Steps are programmed across pattern rows which represent each of the eight available tracks in the pattern sequence.

A step is a combination of 4 main components each of which has a dedicated selection button:-

Note. This sets the pitch of the step and is important for creating melodies or beats based on sample mapped drum hits.

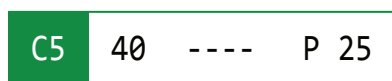
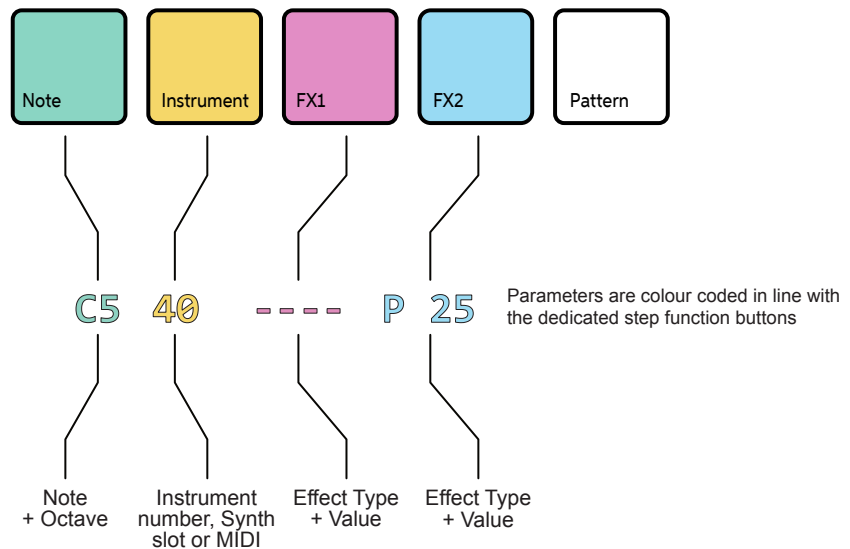
Instrument. This is synth or a sample and the combination of parameters and settings assigned to it. Also for setting MIDI Channel.

FX1. The first effect slot where the modulation and audio effects can be applied for the step.

FX2. The second effect slot where the modulation and audio effects can be applied for the step.

Step Dedicated Parameter Buttons

Pattern page is selected by pressing [Pattern] while the Note, Instrument, FX1 and FX2 have dedicated buttons for editing the selected step.

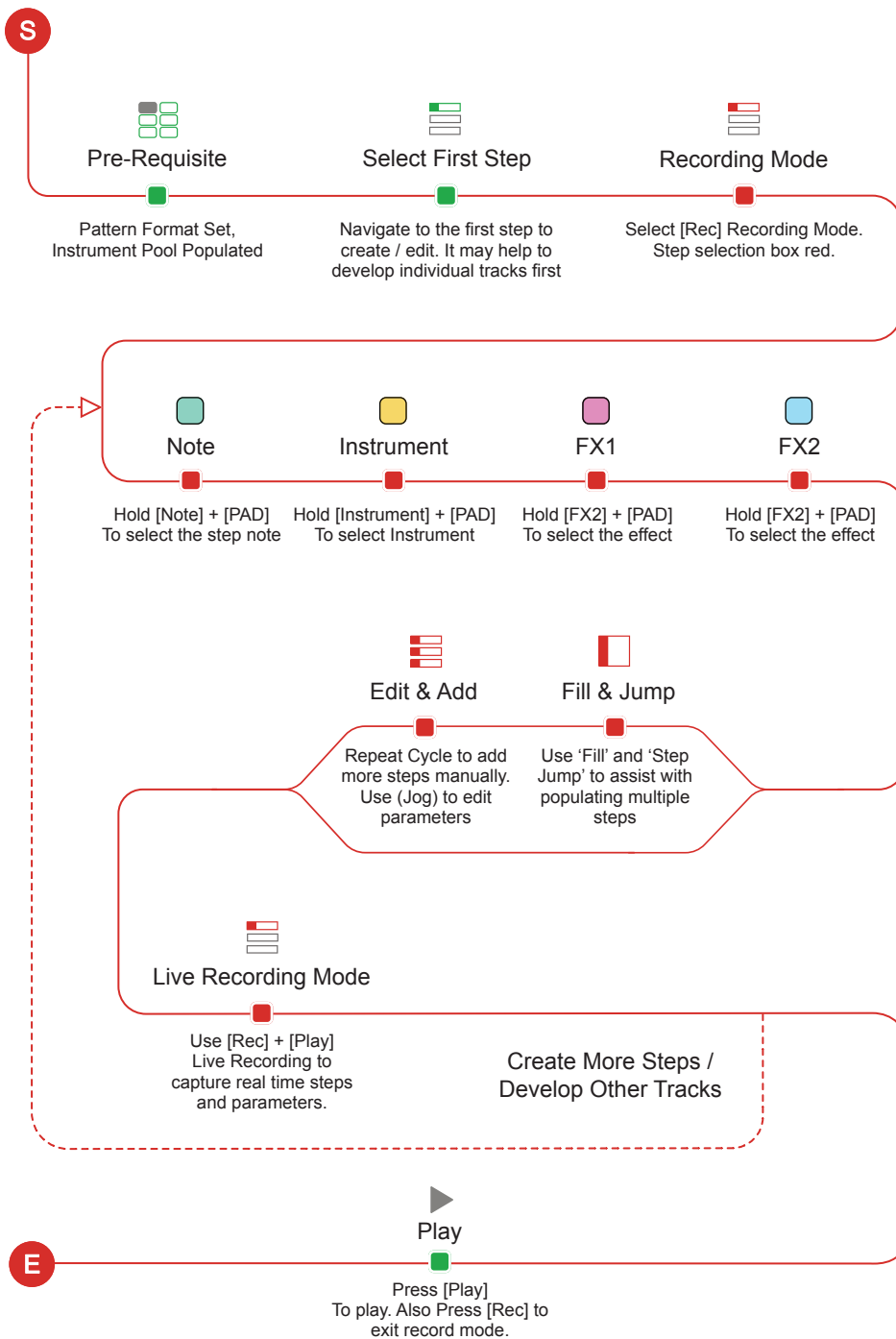


The step selection box will show solid colour on the selected option part. Example: Note is shown highlighted here.

Note that sample based instruments can only be configured on Tracks 1-8. All tracks can use a synth or MIDI based instrument.

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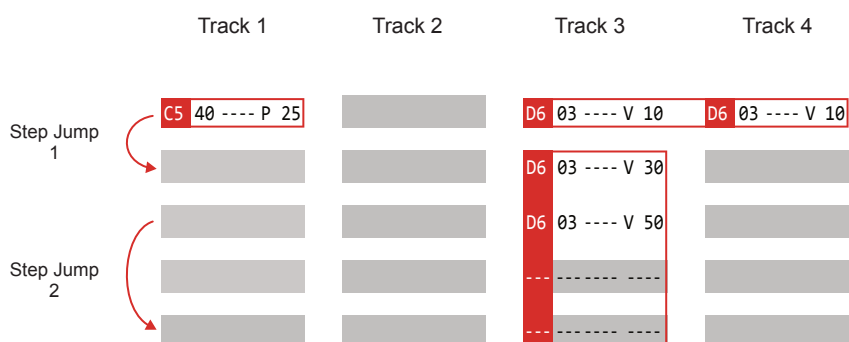
Steps are sequenced in the Tracker+ each of which contains a Note, Instrument, and two FX slots options. It is good practice to structure these into tracks of relevance. For example kick drum on track 1, especially at the starting point.



Manual Step Entry



Recording mode on to edit steps in the pattern



Steps can be added individually.
Example: Hold [Note] + [PAD] to select an option.

Select multiple step rows with [Shift] + [Up] or [Down].
Also across multiple tracks [Shift] + [Left] + [Down]

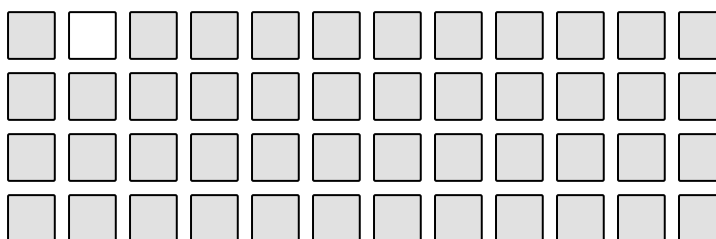
Subsequent steps are recorded when pressing pads.
This will record iteratively the selected parameter into rows defined by the 'Step jump' intervals.

On the top row [Shift] + [Up] will select all steps in the track. Press [Shift] + [Up] + [Up] to select all steps.

Edits to any existing parameters can be made simultaneously, but only if a parameter is already set. These changes will be relative to the original value. Unassigned elements of a step will remain empty.

Playing [PAD] in recording mode will record the respective parameter value depending on 1) the parameter selected for the step and 2) the actual pad number chosen.

Example shows Pad 2 selected.



- D6 03 ---- V 50** Note Selected, Pad 3 which represents D6.
- D6 03 ---- V 50** Instrument Selected, Pad 3 which represents Instrument #3.
- D6 03 ---- V 50** FX1 Selected, FX Effect not applied.
- D6 03 ---- V 50** FX2 Selected, Pad 3 which represents effect #3 - Volume = 50.

Quick Tap Dedicated Parameter Button to lock the selection e.g. [Instrument]

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When steps are added using a [PAD] the active step is automatically advanced to the next step when complete. The intervals for this are based on the 'Step Jump' feature. This is useful for creating patterns with defined intervals and speeding up workflow.

Step Jump Examples



Recording mode on to edit steps in the pattern

		Track 1	Track 2	
[PAD]	Step Jump 0	1 = ▶ C5 40 ---- P 25	D5 40 ---- P 25	The selected step will not advance and will remain at the same step position
		2 [greyed out]	D5 40 ---- P 45	
[PAD]	Step Jump 1	1 C5 40 ---- P 25	D5 40 ---- P 25	The selected step will advance automatically to select the next step position
		2 C5 40 ---- P 25	D5 40 ---- P 45	
[PAD]	Step Jump 4	1 C5 40 ---- P 25	D5 40 ---- P 25	The selected step will advance four steps forward. In this example selecting the next 'on beat' position.
		2 [greyed out]	D5 40 ---- P 45	
		3 [greyed out]	[greyed out]	
		4 [greyed out]	[greyed out]	
		5 C5 40 ---- P 25	[greyed out]	
		6 [greyed out]	[greyed out]	

The Step Jump setting is useful when populating specific intervals, for example each on beat step or each off beat step or alternate steps for percussion. This speeds up the workflow and helps in creating interesting sequences.

FX Steps.

The two FX slots can be populated from a library of FX effects. Each FX has an effect type plus the associated value.

FX Type	Description
-	None. Empty FX1 or FX1 effect. No effect applied.
!	Off. Will toggle off the effect used on the prior effect step.
V	Volume or Velocity (NOTE OFF) for MIDI.
P	Positions the step sound left / right in the stereo plane.
M	Micro Tune. Fine pitch tuning of note and MIDI Out.
G	Glide time from previous to current note - based on the note pitch.
T	Tempo change. Changes the pattern tempo.
l	Swing. Applies a swing from any step track for the entire pattern.
m	Micro move nudges forward by a small amount the step position.
q	Gate length. Adjusts the step note gate length.
C	Chance is the probability of a note playing.
R	Roll, beat repeats the note also with options for volume or pitch inc/dec.
A	Arpeggiator, for creating pitch based melodies. (Also needs MIDI Chord)
n	Random note. Sets a range of notes for random playback.
i	Random instrument. Sets a range of instruments for random playback.
f	Random FX. Sets a random FX to the step from a selected range.
v	Random Volume. Sets a random velocity variation on each cycle
r	Reverses sample playback. Played end to start.
p	Sets the playback position for a sample start, wavetable or granular position
S	Plays the selected slice for the step - sliced samples
g	Volume LFO Rate
h	Panning LFO Rate
j	Filter LFO Rate
k	Position LFO Rate
l	Finetune LFO Rate

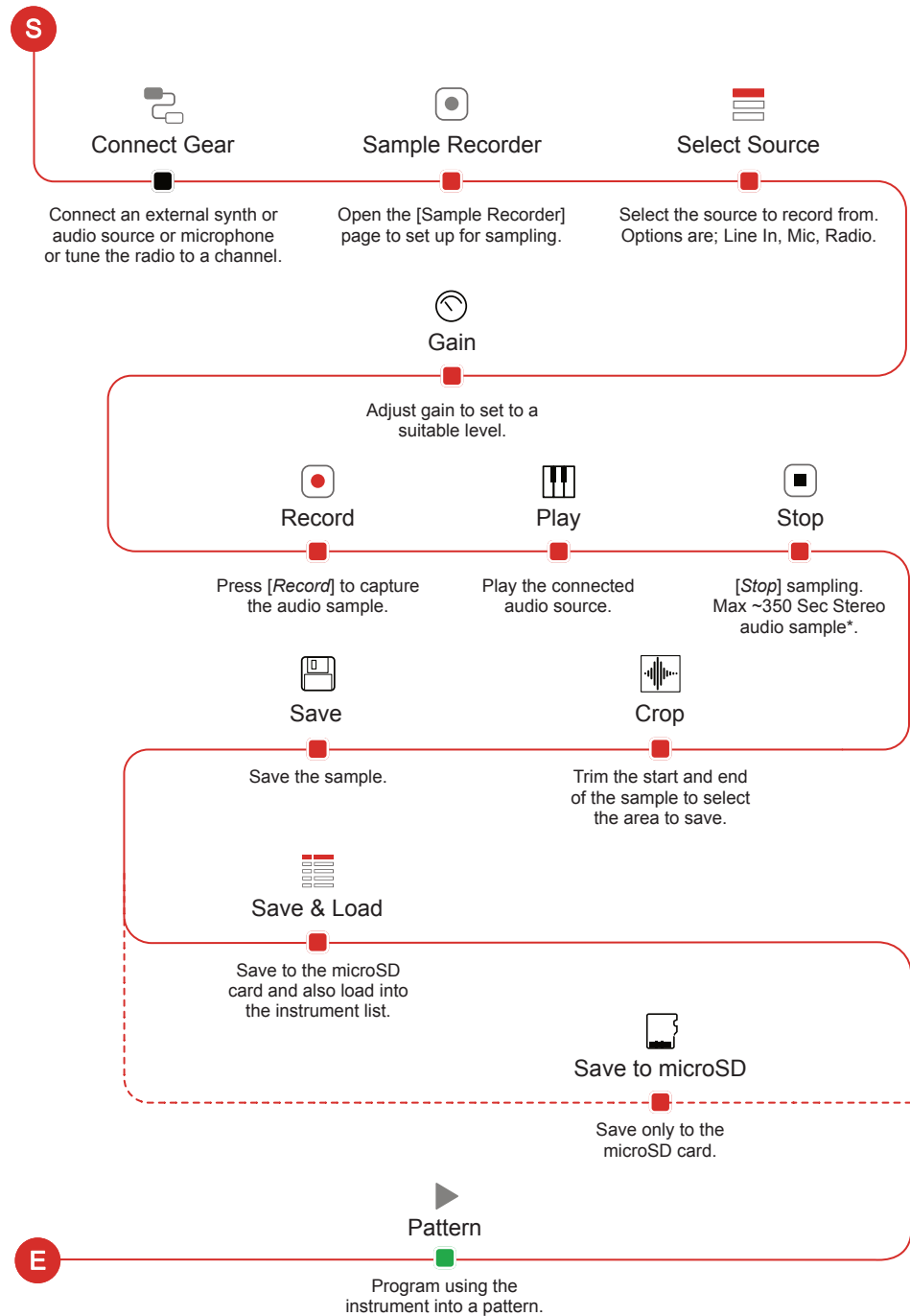
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NOTES

FX Type	Description
D	Overdrive amount for the step
L	Low Pass Filter Cutoff. Frequency represented by 0-100%
B	Low Pass Filter Cutoff. Frequency represented by 0-100%
H	Low Pass Filter Cutoff. Frequency represented by 0-100%
s	Delay. Amount of send effect 0-100%
t	Reverb. Amount of send effect 0-100%
E	Bit depth. 4 Bits to 16 Bits.
U	Tuning. -24 semitones to +24 Semitones. 4 Octave range.
F	Slide up amount. Range is 0-255 with 1/16 th semitone increments.
J	Slide down amount. Range is 0-255 with 1/16 th semitone increments.
a	CC A / Macro 1 (MIDI CC Number of Synth Macro). MIDI also needs an assigned channel & Instrument to the step.
b	CC B / Macro 2 (MIDI CC Number of Synth Macro). MIDI also needs an assigned channel & Instrument to the step.
c	CC C / Macro 3 (MIDI CC Number of Synth Macro). MIDI also needs an assigned channel & Instrument to the step.
d	CC D / Macro 4 (MIDI CC Number of Synth Macro). MIDI also needs an assigned channel & Instrument to the step.
e	CC E / Macro 5 (MIDI CC Number of Synth Macro). MIDI also needs an assigned channel & Instrument to the step.
f	CC F / Macro 6 (MIDI CC Number of Synth Macro). MIDI also needs an assigned channel & Instrument to the step.
0	MIDI Chord, note output. (Used also with Arp).

Recording Audio

Sampling in Tracker+ takes place in the 'Sample Recorder' page. This is the first step in the process and is followed by editing the audio captured. Sampling in this page can be stereo or mono L or R (set in configuration) from the Line In or Radio, Mic LG or HG audio sources.

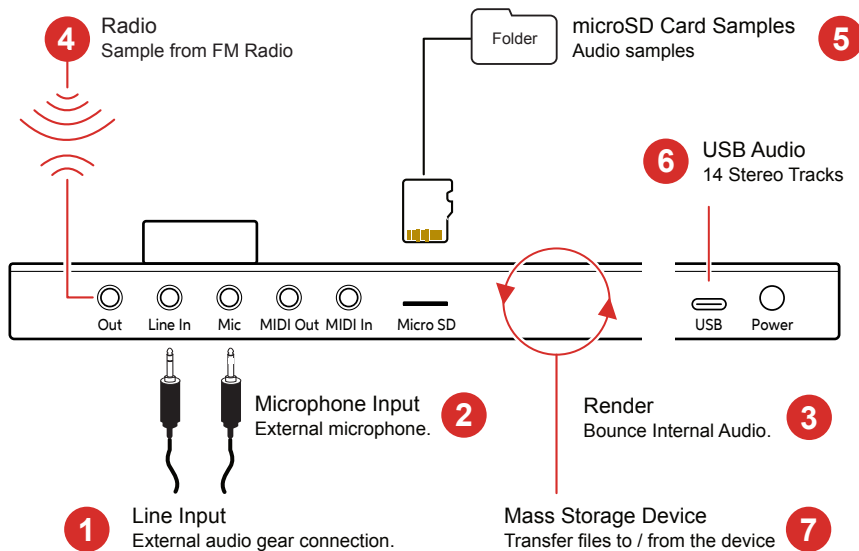


*Sample Time: Max ~350 Sec Stereo / ~700 Sec Mono.

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Audio Sources

There are a number of sources where Tracker+ can access audio. Some of which are 'live' sources and can easily be sampled. Others manually managed or rendered within the device.



- 1** **Line Input**
3.5mm Input jack which allows Stereo (TRS) audio inputs. Stereo signals are recorded as stereo.
- 2** **Mic Input**
3.5mm Microphone Input jack which allows Mono (TS) audio inputs. Stereo signals are converted to mono when recorded as L or R. This does not supply 48V phantom power so typically use a dynamic microphone. Mic has a Low Gain - LG and High Gain - HG option.
- 3** **Render**
A feature which is available with the internal functions is render. This bounces or exports an audio file based on the selected pattern / tracks which can then be made immediately available as a sample or to use from the instrument list.
- 4** **FM Radio**
Tracker+ has an inbuilt FM radio. Reception can be improved by connecting an arial or cable into the output connection. The reception region can be set in the radio function. Radio can be recorded and sampled directly within Tracker+.
- 5** **microSD Card**
Audio samples are stored on the microSD Card. These can be sampled and stored from within Tracker+ but also can be manually transferred onto the microSD card from and external source using a PC or Mac.
- 6** **USB Audio**
The USB Audio interface allows sending 14 stereo tracks: a master stereo track, eight stereo sample-based tracks, three synth instrument tracks, reverb and delay sends to a connected DAW or compatible audio device. USB Audio is designed for recording completed songs. Composing, and sound design over USB can cause audio playback issues. Scrolling synth patches during audio playback via USB is not recommended. Loading projects while USB audio is engaged can also cause connection issues.
- 7** **Mass Storage Device**
Audio files can be transferred to/from the Tracker+ with a PC or Mac. Tracker acts like a remote hard drive when connected.

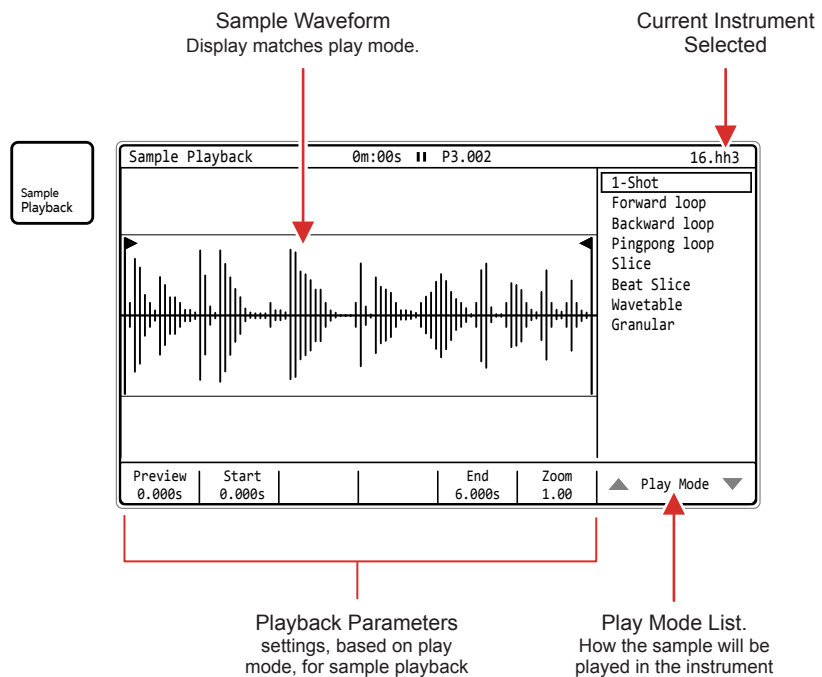
Tracker+ is supplied with a 3.5mm Stereo Male Jack to 2 x 6.3mm Mono Female Socket adapter to allow interfacing with external gear and using the more common 6.3mm mono cables.

Sample Playback Overview

An instrument can be a synth or a sample, edited or raw. A raw '.wav' sample can be added to the instrument list. When a sample is edited and developed further as an instrument it can be saved as a '.pti' instrument, for example 'drumkit1.pti'. This can be used across all projects or distributed to other producers. Sample based instruments are only used on steps in Tracks 1-8 while MIDI and Synths can be used on all tracks.

This section covers the basics of using .pti instruments, and not the end-to-end capturing, editing and sampling which is covered elsewhere.

How a sample is applied as an instrument is handled in the 'Sample Playback' page, accessed by the dedicated [Sample Playback] button.



Note: Playback is not visually animated in the waveform display when playing.

Type	Play Mode	Description
Play	1-Shot	Basic sample playback. Plays start to end once.
Loop	Forward Loop	Sample playback. Plays start to end and cycles on loop.
Loop	Backward Loop	Sample playback. Plays end to start and cycles on loop.
Loop	Pingpong Loop	Sample playback. Plays start to end to start on loop.
Slice	Slice	Sample is sliced
Slice	Beat Slice	Sample is sliced
Synthesizer	Wavetable	Sample is used as the wavetable, like a synth.
Synthesizer	Granular	Sample grains are used and played, like a granular synth


Tracker+ Essentials

Synthesizers.

NOTES

Tracker+ has 3 synthesizer slots each of which can be assigned 1 of 5 synthesizer models. Each synthesizer has six editable, model dependant macros directly available within the knob section and which contribute to the overall synth patch.


ACD

 ACD transports you back to the golden age of electronic music with its recreation of iconic single-oscillator monophonic analog synths. Paying homage to Japanese legends, ACD not only captures the essence of these classics but also propels you into the future with a lightning-fast synthesis experience. It offers a rich palette of options, ranging from faithful monophonic analog recreations to entirely unique and innovative soundscapes.

FAT

 FAT is a powerhouse synth engine that epitomizes the lush, vintage warmth of classic analog synthesizers. At its core, FAT hosts three virtual analog oscillators and offers an intuitive drift and detune control, ensuring you can effortlessly sculpt iconic massive sounds. The presets contain two distinct flavors of ladder filters inspired by two unique analog classics. It offers a versatile range of sounds, from deep reese basses to ethereal pads, expressive leads and classic keyboards.


VAP

 VAP is a virtual analog polysynth, boasting a dual-oscillator architecture and a versatile modulation matrix. Complete with multiple filter flavors and pulse width modulation, VAP allows you to sculpt intricate patterns. This engine shines when it comes to creating mesmerizing, evolving textures, crafting lush pads, and conjuring up one-of-a-kind sound effects.

WTFM

 WTFM is a unique 2-operator FM synth engine that utilized wavetable based oscillators driven by a 3x feedback system. The operators are based on sweeping wavetables, ranging from fundamental sine waves to harmonically rich timbres, offering a diverse tonal palette. Whether you're sculpting smooth, enveloping pads or crafting cutting-edge metallic tones, WTFM empowers you to achieve unique textures with precision and authenticity.

PERC

 PERC is a unique drum machine that is loaded into one synth engine instrument. It uses 1 voice but can play back up to five unique drum sounds at once. Drums include a Kick, Tom, Snare, open and closed Hi-Hats, Cymbal, and Perc. The perc drum has multiple options including snare, clap, cowbell and more. Each drum is individually tweakable with multiple parameters for each hit, for a massive variety of drum tones.

Hold [Instrument] to select a synth for the step. On a synth instrument step to select the synth to assign a model, Press [Instrument Parameters]. Select from the 5 available synth models to assign per slot or load a synth patch.

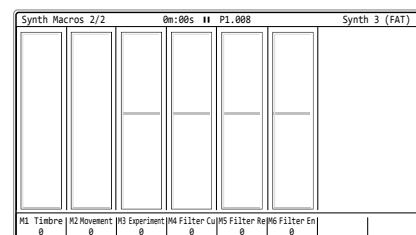
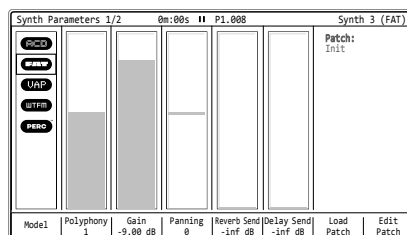
More new synth models will be added to the Tracker+ option list in future OS updates.

SELECTING A SYNTH

1. Ensure the project in which to work is open and active and a pattern selected for editing.
2. Select a synth for the step instrument. On the desired step, Hold [Instrument] + Turn (Jog) or use arrows to select Synth 1, Synth 2 or Synth 3 instrument slot.
3. The selected Synth and its assigned model will be applied to the step. Synths can be applied on steps for any of the 16 tracks.
4. To edit the synth and change the model for the synth on the selected step, Press [Instrument Parameters]. Ensure page 1/2 is selected.
5. Press [Model] to cycle the synth model for the selected slot.
6. A synth patch can be loaded by pressing [Load Patch].
7. Other parameters are available in the instrument parameter page. To configure and design a synth patch, Press [Edit Patch] to open the patch editor to create and save sounds.
8. The synth macros allow assignment of specifically assigned easy access parameters. These are available for adjustment on page 2/2 of the instrument parameters page and are assigned within the patch.

Example Synth Parameters & Macros

Synth model, editor and patch selection is available on page 1 and patch specific macros are available within page 2 of the instrument parameters page.



ACD
FAT
VAP
WTFM
PERC

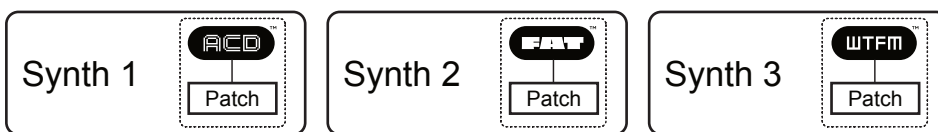
Macro 1
Macro 2
Macro 3
Macro 4
Macro 5
Macro 6

Tracker+ Essentials

Synthesizer Patch Editor

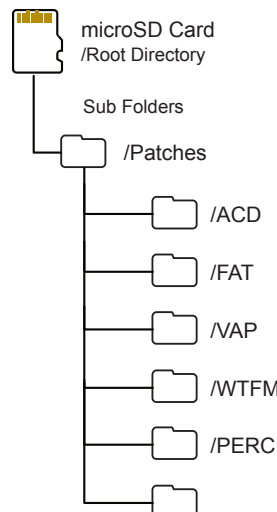
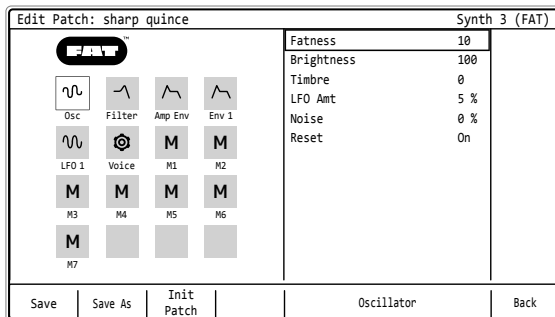
Tracker+ has 3 synthesizers which operate with patches to define the precise sound. Each patch will be representative of the synth model assigned. Parameters can be controlled directly from the macro knobs. A patch can be created and edited within Tracker+ patch editor. The macro assignments and parameter settings of the knobs can also be configured for each patch.

3 Synths are available, each can be assigned one of the 5 synth models



The patch editor is located [Instrument parameters] - Page 2 When a Synth is selected.

Patches for each synth model can be edited and can be saved to the microSD card. These then are available to be loaded per synth slot.

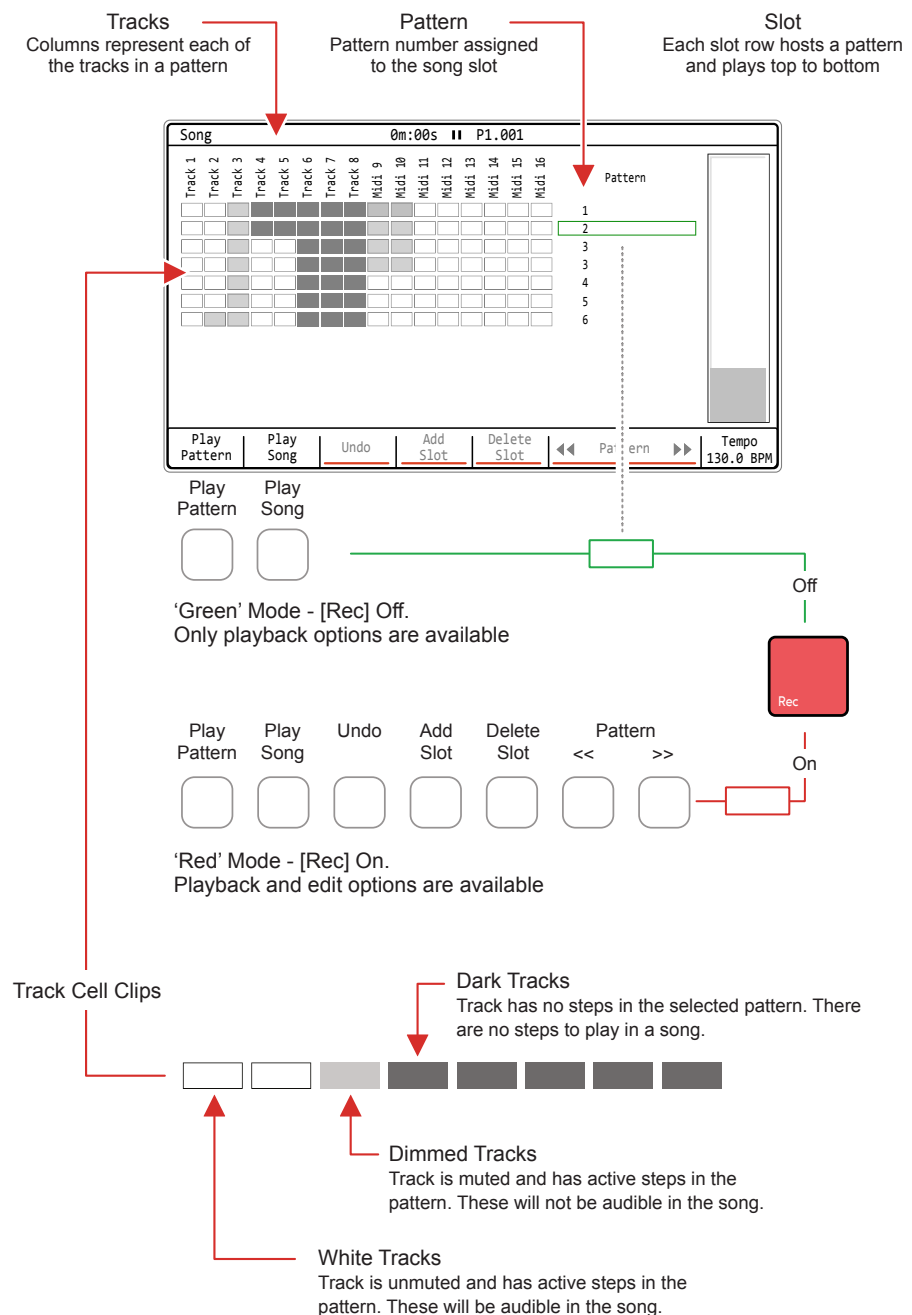


Patches can be edited and saved when selecting a synth step. The synth patch editor is located in the [Instrument Parameters] section.

- The model is changed directly on instrument parameter page 1.
- Select [Load Patch], button 7 to load a patch from the microSD.
- Select the [Edit Patch], button 8 to open the synth editor.
- The 4x4 Pads will select the synth function to edit. The available options will be based on the synth model type selected.
- Navigate parameters with the arrow buttons and use the (Jog) control for parameter value editing.

Song Mode

Select the song page by pressing [Song] or hold [Song] to temporarily display the page from within another page, reverting back to this page when [Song] is released. The interface for song mode is by default empty other than a single slot 1 with pattern 1. Up to 255 Song slots are available. Pressing [Play] in song mode will play the song not just individual pattern. Tracks in a pattern for the slot are represented as cell clips.



Muting Tracks
Muting is not performed in song mode. Use the Pattern page or the Track Mixer - Master Page 2/3 to mute / unmute.

Tracker+ Essentials

MIDI

NOTES

A pre-requisite to working with MIDI is to ensure that the configuration settings in the [Config] menu are applied for the desired MIDI gear setup. These will dictate if Tracker+ leads on functions like clock and transport or if it acts as a secondary follower, responding to control and synchronisation from another primary device control. Also Note and CC behaviour is set.

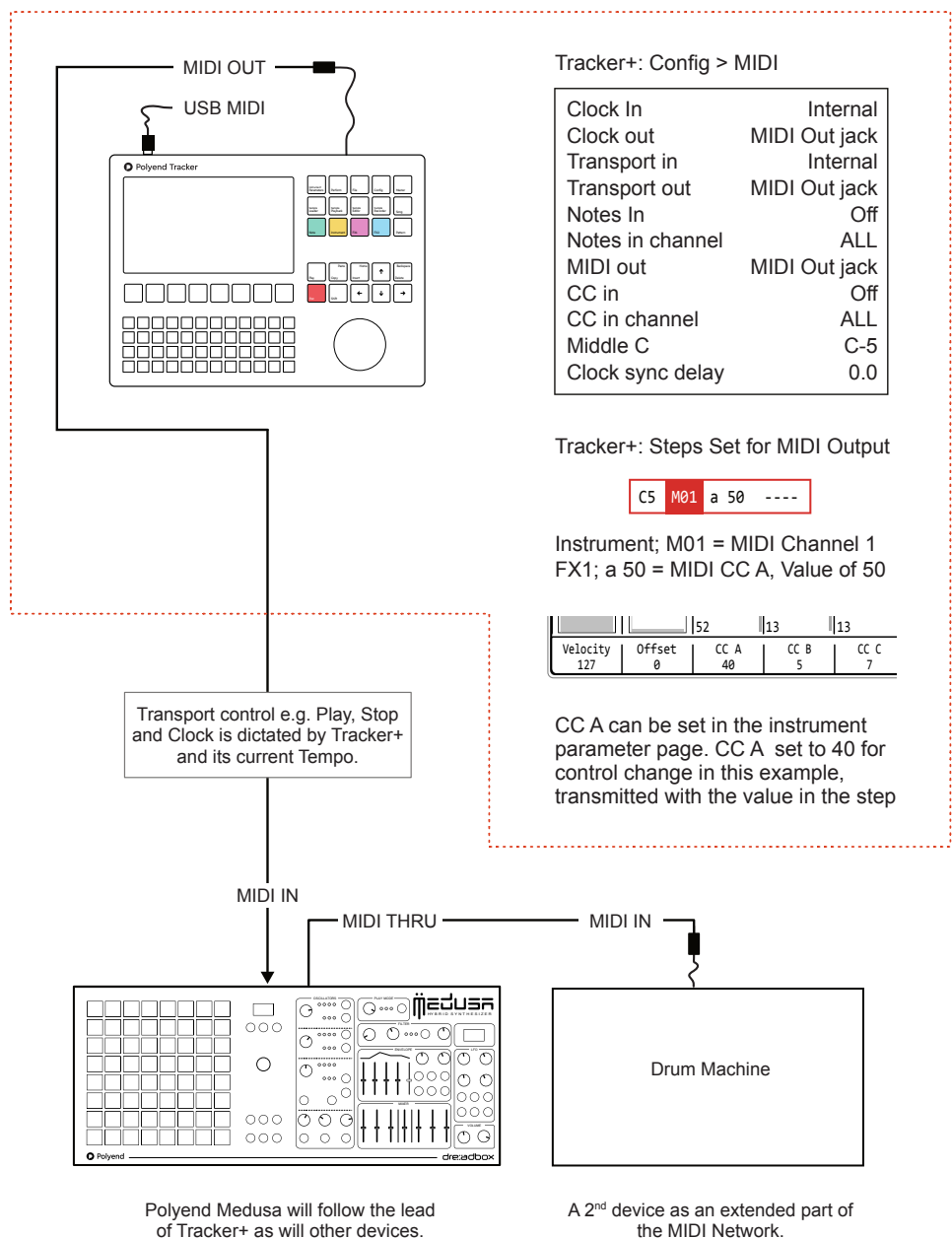
Menu	Option	Description
MIDI	Clock In	Sets the Tracker+ clock between the internal generated clock (default) or an external clock received through the USB or MIDI In jack.
MIDI	Clock Out	Sends the Tracker+ clock output to other devices. Off, USB, MIDI Out jack or USB+MIDI jack options.
MIDI	Transport In	Sets the source of transport control commands, Internal (default), or control from an external device received through the USB or MIDI In jack.
MIDI	Transport Out	Sends Tracker+ transport control commands to other devices. Set to Off, USB, MIDI Out jack or USB+MIDI jack options.
MIDI	Notes In	Sets the input of how notes are received from an external device. Set to Off, USB, MIDI In jack or USB+MIDI jack options.
MIDI	Notes Input Channel	Sets the MIDI channel for external note inputs. Select All channels or Ch 1-16.
MIDI	MIDI Out	Sets the output routing of MIDI to communicate to other devices. Set to Off, USB, MIDI Out jack or USB+MIDI jack options.
MIDI	CC In	Defines how the CC (control change) input from external devices is handled. Set to Off, USB, MIDI In jack, USB+MIDI In jack.
MIDI	CC In channel	Sets the MIDI channel that is used to receive CC (control change) messages. Select All channels or Ch 1-16.
MIDI	Middle C	Sets Tracker+'s middle C as C-3, C-4, C-5, C-6. This will calibrate the note ranges to external gear if this does not naturally match.
MIDI	Clock Sync Delay	Latency compensation for incoming clock synchronisation. Options range from -50 to +50 with each unit = 1/250 of pattern step. Leave at the default 0.0 unless there are synchronisation errors.

Velocity can be recorded from an external MIDI controller, but this must be set in the recording options.

Menu	Option	Description
Project	Recording Options	This option sets the recording options for the project. To record velocity from an external controller one of the velocity inclusive options should be selected.

There are many configurations that can be set up with MIDI gear. Some are complex and involve multiple devices while a simple set up can have two devices communicating. Some typical examples are shown.

Example Configuration 1: Tracker+ as the primary lead.



Devices should be configured to receive clock and transport and the MIDI Channel which Tracker+ communicates, for example, Channel 1. CC 40 In Medusa represents the Filter Cutoff frequency in this example each step in Tracker+ will set the filter cutoff.

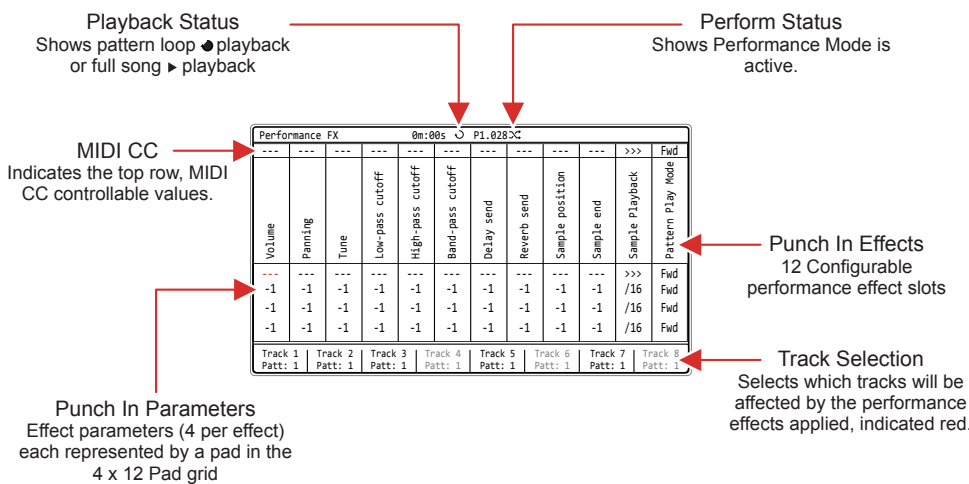
Tracker+ Essentials

Performance Mode Overview

Performance mode allows real time improvisation control over tracks, patterns and songs adding variation and interest when playing live. This is normally handled in the 'Perform' page although MIDI Input can also be set to control the performance parameters.



Performance Mode
Press [Perform] to select the performance mode screen, Edit parameters and configure the effects in record mode, press [Rec]. It is possible to cycle between pattern and song pages while performance mode is active.



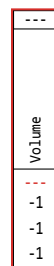
Pad Grid
Each pad represents the turning On or Off of the value defined for the 12 effects. The effect values are configurable with row 1, by default set to off (- - -).

---	---	---	---	---	---	---	---	---	---	---	>>>	Fwd
-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	/16	Fwd
-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	/16	Fwd
-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	/16	Fwd

Selected effects are indicated green or red (if editing) on the Tracker+ screen and the respective pad is lit.



REC Mode
Press [Rec] to edit the perform configuration. The selections will be indicated red as will the effect selection bounding box. Effects can be configured and the values edited in REC mode of Perform.



Perform Effects List

Tracker+ has 21 performance effects that can be selected and loaded into each of the 12 effect slots. The same effect can be applied to multiple slots. While these are called effects, they in fact control parameters that apply variations to the parameter values.

Effect #	Name	Range / Comments
1	Volume	-100 to +100. Volume level adjustment
2	Panning	-100 to +100 Stereo Position
3	Tune	-48 to +48 Semitones. Also applies to MIDI.
4	Low-Pass Cutoff	-100 to +100. Filter frequency adjustment
5	High-Pass Cutoff	-100 to +100. Filter frequency adjustment
6	Band-Pass Cutoff	-100 to +100. Filter frequency adjustment
7	Reverb Send	-100 to +100. FX Send level
8	Delay Send	-100 to +100. FX Send level
9	Sample Position	-100 to +100. Audio sample start position
10	Sample End	-100 to +100. Audio sample end position
11	Sample Playback	<<< >>> Backward, Forward direction.
12	Volume LFO Speed	-28 to +28. LFO Speed
13	Panning LFO Speed	-28 to +28. LFO Speed
14	Finetune LFO Speed	-28 to +28. LFO Speed
15	Filter LFO Speed	-28 to +28. LFO Speed
16	Grain/WT LFO Speed	-28 to +28. LFO Speed
17	Step Repeater	Off, 16, 12, 8, 6, 4, 3, 2, 1, 1/2, 1/3, 1/4, 1/6, 1/8, 1/12, 1/16.
18	Pattern Play Mode	Fwd, Back, Rnd, C1-C20 Fixed or Predefined algorithm 'C' play modes
19	Pattern Length	1-128 Total length (all tracks - selected or not)
20	Bit Depth	-12 to +12 Bit depth adjustment
21	Overdrive	-100 to +100 Overdrive adjustment

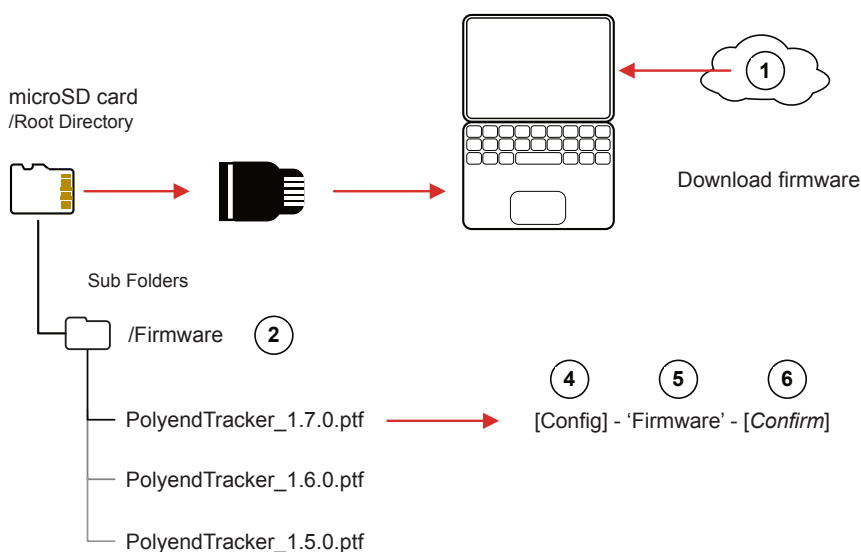
Tracker+ Essentials

Generic Firmware Update

Firmware updates may be provided by Polyend from time to time, to fix bugs or add new features. The process of updating can be performed in several ways. When performing updates it is strongly advised to follow the Polyend instructions supplied with each update. The instructions here are a generic guide.

FIRMWARE UPDATE

1. Download the latest firmware from the official Polyend Site for Tracker+.
2. Copy the downloaded .ptf firmware file into the /Firmware folder. This can be found in the root directory of the microSD card.
3. Insert the microSD card into Tracker+ and power up
4. Press [Config] to open the configuration and settings menu.
5. Navigate to the 'Firmware' menu. In the central window, select the firmware option to install.
6. Press [Confirm], Screen button.
7. The firmware will install and the on screen prompts provided will guide. The install process is typically less than 1 minute.
8. Tracker+ should restart, but press On/Off if a manual start is required after 100% of the update is completed.

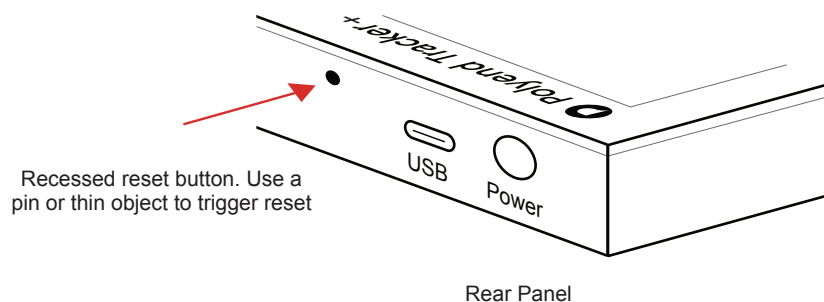


Emergency Firmware Update

Alternative options for firmware update are available which are not the preferred first choice but may be used in troubleshooting instances. A reset button is provided, recessed behind the rear panel. Also a special Polyend tool can be downloaded and used for updates. Both methods should only be used if there are issues with the primary update method or to clear Tracker+ issues and should not be used as a regular process for updates.

TRACKER+ & FIRMWARE RESET

1. Download the latest firmware from the official Polyend Site for Tracker+.
2. Copy the downloaded .ptf firmware file into the /Firmware folder. This can be found in the root directory of the microSD card. Also ensure any previous update files remain in the firmware folder.
3. Insert the microSD card into Tracker+.
4. Use a pin or thin object to press the internal reset button. This is located on the rear of the device behind the case next to the USB connection.
5. Tracker+ will reset and search the firmware folder on the microSD card. A random firmware will be selected and installed in order to recover Tracker+ to a working state. The install process is typically less than 1 minute.



The reset option is useful if any lock ups or freezing occurs on Tracker+. It is not necessary in these situations to download a new OS. It is advised to keep a series official, known good, firmware releases in the /firmware folder. For example 1.7.0, 1.6.0, 1.5.0. That way steps 4-5 can be performed in case of issues and a random update will be performed from a known state. A manual update in the 'config' menu to select the latest version can then follow.

Tracker+ Essentials

Quick Reference Commands

Function	Action	Tracker+ Buttons	Description
Master	Master Volume	[Master] + Turn (Jog)	Adjusts the master output
Master	Master Tempo	[Song] + Turn (Jog)	Adjusts the master tempo
Master	General Navigation	[Up], [Down], (Jog)	Generally navigate, scroll menu selections and options
Master	General Navigation	[Left], [Right]	Generally navigate, across page windows, sub menu's, functions and display columns.
Master	Copy / Paste	[Copy/Paste]	Depending on the context, will copy and paste between functions ie copy patterns.
Master	Delete / Backspace	[Delete/Backspace]	Depending on the context, will delete / backup. Will also reset any selected parameter to its default state.
Master	Edit Values	[Shift] + Turn (Jog)	Faster incremental changes on all pages. Use (Jog) alone for standard adjustment.
Pattern	Pattern Mode Page	[Pattern]	Selects the pattern mode page.
Pattern	Play Pattern	[Play]	Plays the pattern from the start. Stops / Pauses the pattern if it is already playing
Pattern	Continue or Loop	[Shift] + [Play]	Restarts play of the pattern from the currently paused position. If a range of steps are selected, plays these on loop.
Pattern	Play Song	[Song] + [Play]	Play song from within the pattern mode page.
Pattern	8 Track Note View	[Pattern] + [Note]	Display all 8 tracks with only notes instead of default 4 tracks. 2 elements can be displayed i.e. + [FX1], [FX2], [Instrument]
Pattern	8 Track Inst View	[Pattern] + [Instrument]	Display 8 tracks with only instrument instead of 4 tracks. 2 elements can be displayed i.e. + [FX1], [FX2], [Note]
Pattern	8 Track FX View	[Pattern] + [FX1] or [FX2]	Display all 8 tracks with only FX instead of default 4 tracks. 2 elements can be displayed i.e. + [Note], [Instrument]
Pattern	4 Track View	[Pattern]	Restores default 4 tracks when viewing 8 tracks
Pattern	Check Patterns	Hold [Pattern] Screen Button	Hold pattern screen button to display the available patterns reflected by the lit pads.
Pattern	Select Pattern	[Pattern] + [Up], [Down], (Jog)	Select Pattern number
Pattern	Sequential change	[Pattern] + [Left] or [Right]	When playing, selects a new pattern to cue playback to start when the current pattern ends. Pattern blinks red.
Pattern	Sequential change	[Pattern] + [Left] or [Right]	When playing, selects a new pattern to cue playback to start when the current pattern ends. Pattern blinks red.
Pattern	Immediate change	[Pattern] + [Up] or [Down]	When playing, selects a new pattern to trigger a start immediately.
Pattern	Immediate change	[Up] or [Down] or (Jog) or [PAD]	When playing, selects a new pattern to trigger a start immediately.
Pattern	Multiple Step Select	[Shift] + [Up] [Down] [Left] [Right]	Will select groups of multiple steps for editing collectively.
Pattern	Multiple Step Select	[Shift] + [Up] On first step	Will select all steps for the current the track
Pattern	Multiple Step Select	[Shift] + [Up] + [Up] On first step	Will select all steps for all of the tracks
Pattern	Mute Tracks	[Shift] + Screen Button	Screen button 1 - 8 will toggle mute / unmute tracks 1 - 8 respectively when in pattern mode page.
Pattern	Lock Parameter Selection	Tap Dedicated Param Btn	Will lock the selection of the Note, Instrument, FX1 or FX2 parameter when editing or navigating. Also [Shift] +

Quick Reference Commands

Function	Action	Tracker+ Buttons	Description
Pattern	Arm / Disarm	[Shift] + [Rec] + Screen Btn	Arms or Disarms the track for recording. Disarmed tracks will not allow recording. Screen buttons represent tracks.
Pattern	Live Rec > Play	[Rec]	When live recording, pressing [Rec] will continue to play but leave recording mode.
Pattern	Live Rec Start	[Shift] + [Rec]	Start Live Recording
Pattern	Select Top Row	[Shift] + [Insert/Home]	When stopped, resets the playhead to the top row start of the song or start of the pattern.
Song Mode	Song	Press or Hold [Song]	Pressing [Song] switches to song page. Holding [Song] button will temporarily display song page from within another page.
Song Mode	Play Song	[Play]	Plays the song from the start of the current song row.
Song Mode	Stop Song	[Play]	Stops / Pauses the song playback.
Song Mode	Loop Row	[Shift] + [Play]	Loops the current song row / pattern playback
Song Mode	Select Top Row	[Shift] + [Insert/Home]	When stopped, resets the playhead to the top row start of the song or start of the pattern.
Song Mode	Tempo	[Song] + Turn (Jog)	Adjust project tempo, 40 - 800 BPM in 1 BPM increments. Also option to use [Up] or [Down] Instead of (Jog)
Song Mode	Tempo	[Shift] + [Song] + Turn (Jog)	Adjust project tempo, 40 - 800 BPM in 0.1 BPM increments. Also option to use [Up] or [Down] Instead of (Jog)
Perform	Play	[Play]	Plays pattern
Perform	Play	[Shift] + [Play]	Plays song
Perform	In Rec Mode	[Shift] + [Up], [Down] or (Jog)	Change performance effect in current slot
Perform	In Rec Mode	[Shift] + [Left] or [Right]	Swap effects between slots
Perform	In Rec Mode	[PAD] + Turn (Jog)	Edit the effect value offset for the respective pad row
Perform	Not In Rec Mode	[PAD] + Turn (Jog)	Temporary change effect value for the respective pad row
Perform	Select	[Track x]	Selects tracks to apply any triggered effect. Track labelled red.
Perform	Perform	[PAD]	Triggers the selected value for the effect for the selected track.
Perform	Remix	[Track x] + Turn (Jog)	Immediately load a new pattern for the selected track(s). Live remix mode. Live remix mode.
Perform	Remix	[Track x] + [Up] or [Down]	Immediately load a new pattern for the selected track(s). Live remix mode. Live remix mode
Perform	Remix	[Track x] + [Left] or [Right]	Load a new pattern for the selected track(s) once the current pattern completes. Live remix mode.
Perform	Mute / Unmute	[Shift] + [Track x]	Mute or unmute the selected track
Sample Loader	Navigate	Hold [Left]	In the sample loader browser hold [Left] to jump to start of the left side microSD card browser.
Sample Loader	Batch Select	[Shift] + Arrows	Batch select sample in the sample loader

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by

Synthdawg

www.synthdawg.com



 **Polyend**

