Polyend Tracker

Tracker
Version: 1.6

Standalone Audio Workstation

Index:

Jog Wheel Usage Hints

First Steps

Quick Guide

https://www.youtube.com/embed/IlWanjY9Ev8?feature=oembed

Basics:

- Play Pattern: press Play.
- Play Song: Song + Play (from the Pattern view).
- Main volume: Master key + jog-wheel.
- To edit anything in the Pattern/Song/Performance modes > press Rec key first (red frame), press it once again to disable Edit mode, and work in the Preview mode (green frame).

From Sample to Instrument:

- Capture audio using Sample Recorder > set source > set gain > record > crop > save & load as an instrument.
- Select audio files > use Sample Loader key to open SD card browser > add samples to project instruments by copying them from the left to the right side. Set their attributes using the Instrument Properties module.
- Turn samples into wavetable/granular synthesizers or chop them in the Sample Playback module.
- Use the Sample Editor module to access the Instrument overview and apply renderable lossy audio effects.
- You can choose the line input channel mode for recording from Stereo (which will be recorded as a mono file), Mono Left, and Mono Right in the General Config.
- A chord played and recorded to the Tracker will consume as many tracks as there are notes in it. Use the Render Selection tool to overcome this limitation.

From Step to Pattern:

- A step is a Note, an Instrument, and two Fxs displayed as lines of colored characters.

- Use Pattern module to enter sequencer screen > choose pattern number and its length.
- Input/edit any step parameters > enter Edit mode with a press of the Rec key.
- Input values step by step > using grid pads, jog-wheel, and arrows.
- Live-record pattern (Rec + Play).
- To switch between step values use the four colored function keys.
- Use the Fill tool to populate tracks with steps automatically.
- The Step function adjusts the interval for the incremental value input.
- Press and hold one of the dedicated Fx keys to see the list of available step Fx. Use the Description screen button to unfold the detailed information about a selected step FX.
- In order to use the Arp step Fx, it must be combined with the Chord step Fx.
- Each step can trigger an internal sample-based Instrument or an external MIDI instrument.

From Pattern to Song:

- Press Song key > add/del Slots with patterns for arrangement > press Play Song.
- Render song to audio > Go to File > Export > choose what will be rendered.

From Pattern to Performance:

- Use Perform key to tweak tracks, patterns, or songs in a “live – on the fly” way.
- Performance Mode will work through the entire song. You can use the Shift + Play keys shortcut or the screen Loop Pattern / Continue Song button while on the Performance screen to toggle between looping /playing the entire song without stopping playback.
- Customize and use up to 12 Punch-in effects at the same time: turn on Edit mode > select effects with their values per grid pad row (first is off by default, remaining three are configurable) > using the 1 to 8 screen buttons point the tracks which will be affected > use effect corresponding pad rows with set values to perform.
- Mix selected tracks from different patterns: hold the screen button + up/down arrow keys > remix tracks from different patterns.
- Shift + 1-8 screen button shortcut mutes each of the eight tracks in the Pattern screen. The same is possible in the Master section with add of track Solo + visual track volume feedback.

Shortcuts

https://www.youtube.com/embed/9pCyZ1nDt_M?feature=oembed

Important shortcuts:

- Tempo: Song key + jog-wheel.
- Record Pattern live: Rec + Play.
- Arm the selected tracks for live recording in Pattern mode: Shift + Rec.
- Go to the top step of the pattern: Shift + Insert (Home) in Edit mode (Rec is on).
- Select more than one step on one or more tracks > Shift + arrows (works for clips in Song mode too).
- Select all steps in the track: when on the top of the sequence: Shift + Up arrow (once again to select all steps in all tracks).
- Use the Home (Shift + Insert) key shortcut in the Song mode to immediately jump to the top of your composition.
- Copy/Paste entire Pattern: while in edit mode (Rec is on) hold Pattern key (right to the color keys) + press Copy > go to new Pattern > hold Pattern key + Paste (Shift + Copy).
- Use the Shift + Play keys shortcut while in the Performance mode to toggle looping without stopping playback.
- For faster pattern increment/decrement in Song mode when using the Shift + Jog Wheel.
- Press the Shift + Instrument Parameters keys to turn on the MIDI Synth Mode.

Tips & Tricks

MIDI I/O latency compensation:

- Set the Clock sync delay in the Config menu to compensate for the latency of the incoming sync signal. Works with “Clock in” set to MIDI input jack or USB.
- The MIDI output latency compensation setting is available from the step MIDI Instrument Parameter screen as the Offset.

Important features and information:

- Firmware update: go to Config > Firmware > chose file from SD card > Confirm.
- Switching Pattern view: hold Pattern key + one or two of the Note/Ins/Fx colored keys.
- You can choose between Vertical and Horizontal Pattern arrangement view in the Config menu up to your preferences.
- Off/Fade/Cut step: turn the jog-wheel all the way left.

- Changing (transposing) many parameters at once: select steps > choose the parameter (Note/Instrument/Fx1/Fx2) > use the jog-wheel.
- Overwrite all steps with a single value: select steps > choose the parameter > use grid pads.
- Copy/Paste/Del works in: Pattern – for all the selected steps; Song – for slots/tracks, Sample Loader – samples/instruments.
- All changes in your project are being autosaved.
- Press the Rec button while in the Master 2/3 Track Mixer screen to rename a selected track.
- The Tracker runs on 5V/1A and can be powered from a power bank, yet the best method to power up your tracker is to use the original AC adapter. Notice that an “intelligent” power bank with advanced power management systems or even a “smart” computer USB port used for powering your unit can possibly cause issues and turn your Tracker unstable.

Introduction

The Polyend Tracker is a unique take on a retro form factor, aimed at artists who break patterns daily. Despite the retro look, it is equipped with powerful modern functionality, Fx, and a handful of forward-thinking creative tricks. The Polyend Tracker is an innovative, inspiring and immediate tool for making music. It functions as a sampler, a synthesizer, and equips you with a powerful and creative sequencer. Tracker has a large screen, ergonomic keyboard, and a big knob for fast and easy navigation. With Bidirectional MIDI control, it plays nice with other gear. It is also standalone and portable – everything you need to produce music anywhere you are.

Tracker features an 8-track sequencer. Each project you create can hold 255 patterns with up to 128 steps each. Every step on each track has dedicated slots for inserting Notes, Instruments, and 2 Effects. Use Song Mode to arrange different patterns together to create a Song, Take advantage of the Perform Mode to mangle, remix, and apply global Fx parameters to different tracks on different patterns. Finally render your sequences to audio files internally, without the use of a computer.

Our new instrument was made to bring back the fun to a process of music composing and sound design. Something we feel we all became very ignorant about with time and all the new technologies around us, and something best about it at the same time. It is certainly a

machine that will bring a new fresh breath of enjoyment to your creative process.

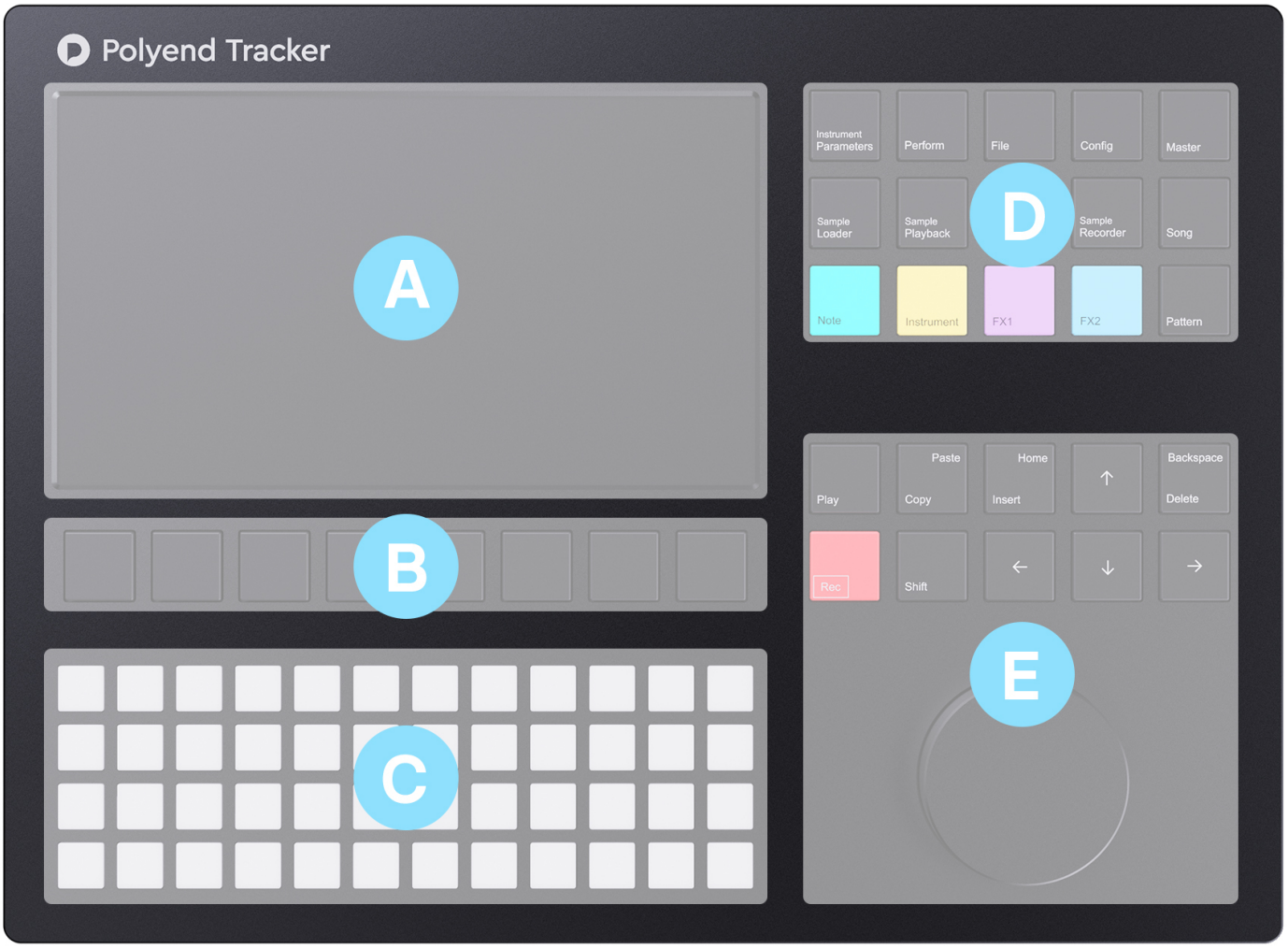
Your new adventure starts here, enjoy.

https://www.youtube.com/embed/iw_KCCByqZg?feature=oembed

Interface & Controls

Interface

The Polyend Tracker user interface is divided into five sections:



A – **Display** – 7″ LCD TFT 800 x 480. A center point of the instrument that displays all the functions and operations in real-time. With brightness level control.

B – **Screen keys** – mechanical controls that correspond to what s displayed on the screen directly above them.

C – The **Grid pads** – 4 x 12 grid of multifunctional (not velocity-sensitive) silicone buttons. It serves as a customizable pitch/tone input keyboard, scalable controller for quick value entering, regular QWERTY keyboard for naming files, and for many other functions explained below. Comes with brightness level control. The pads can also visually display the notes/instruments used in the pattern/track sequences (this can be toggled on in the Config menu).

D – The **Function keys** – a dedicated group of quick-access keys that allows fast access to different modules.

E – The **Navigation keys** & **Jog-wheel** – dedicated controls, transport, arrow keys for navigation, Insert/Home, Copy/Paste, Delete/Backspace and Shift function keys for all the basic and advanced operations.

Important: The encoder parts are subject to wear as a result of the high force applied to the knob. To minimize the risk of damage, avoid pressing its edges.

Dedicated Controls

Polyend Tracker's user interface offers different types of controls that can all be used alternatively to navigate and operate the instrument.

Most of the values/data input in the Tracker is done by using the silicone **grid pads**, aluminum **jog-wheel**, the dedicated mechanical **function keys,** and the display corresponding **screen keys**.

In most scenarios, these controllers can be used interchangeably – e.g. volume Fx1 value can be precisely entered using the jog-wheel scrolling for the desired value but also entered with a single press of the pad with the exact value.

The multifunctional grid pads can have various applications. They can serve as:

- Customizable tonal keyboard (with scales) for pitched instrument playback.

- Both per pad internal sample-based and external MIDI Instruments triggering.
- Per pad slice triggering.
- QWERTY keyboard.
- Fast and convenient tool to enter the preprogrammed values (where the first pad is always 0%, and the last one is 100%.)
- Visual feedback > in the Pattern screen, pads can highlight the notes in the active line. Choose between highlighting only the active track's notes, or the entire pattern's active line using the Config menu options,

Important:

- Shortcuts – while most of the Polyend Tracker functionalities are rather self-explanatory (just look at the scheme and key names), there are some tricks and shortcuts implemented to speed up the composition process which might not be so obvious at first glance. Most sections are using shortcuts. It s good to master them to compose music in a fast and easy manner.
- Shortcuts apply in similar ways in different sections of the Tracker and are mentioned in these particular sections of the manual, but a few are worth mentioning here at the beginning:
    - Master key + jog-wheel > Master volume control,
    - Song key + jog-wheel > Song Tempo control,
    - Insert/Home key > always work as the onscreen Enter key corresponding to the selected screen key,
    - Delete/Backspace key > always works as the onscreen Delete key corresponding to the selected screen key.

https://www.youtube.com/embed/9pCyZ1nDt_M?feature=oembed

Using the Pads as a Custom Controller

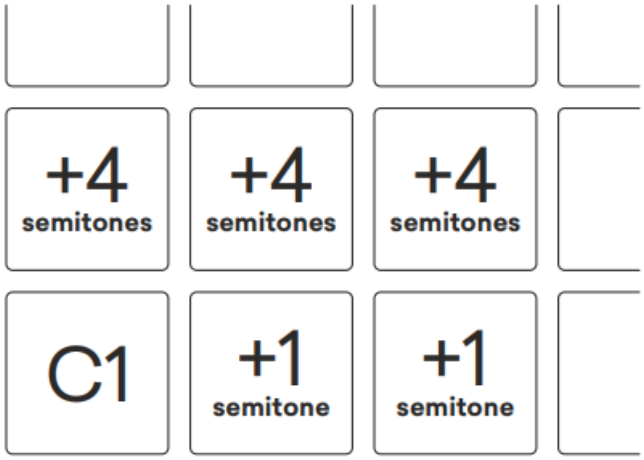
In the **Config/**Project Settings menu you can set grid pads:

- Musical scale filter (see a list in the appendix).
- Layouts.
- Root note.
- MIDI middle C.

The 4 x 12 grid of low-profile silicone pads allow you to easily strum fingers across pads. They work great for playing both internal and external instruments live. With or without one of the 39 included **musical scales** filters applied. Not only the scale filter can be set but the **pads layout** too (the relationship of notes on the pads) and the **root note** too.

The playable matrix of pads is laid out with the lowest note value being in the lower left pad (pad 37), incrementing a semitone with each position to the right. If pad 37 were a C1, then the next note on pad 38 would be a C#1, pad 39 would be a D1, and so on until pad 48 which would be a B1.

How the adjacent pads change pitch depends on the chosen Layout from the Config menu. Choose a pad, and the pad directly to the right will increase the pitch one semitone regardless of the chosen Layout. For Layout 1, the pad directly above will increase the pitch 1 semitone. For Layout 2, the pad directly above will increase the pitch 2 semitones. For Layout 4, (see the illustration) the pad directly above will increase the pitch 4 semitones.



Keyboard layout 4

Back Panel

Connectors

On the back panel, from left to right – find the following ports:

Out – headphones/main line stereo audio output port – use a 3.5mm stereo plug (adapter to 1/4" jack included in the kit).

- Any cable inserted into this port will serve as the onboard FM radio antenna.

Line input port – use a 3.5mm stereo or mono plug. The line input allows both audio recordings, and **live audio monitoring** of the external audio sources.

- The line input passthrough allows live stereo monitoring. But when you are recording audio from the line input it will get converted to a mono audio file. The audio input is offering an L/R mono choice for recording separate audio channels in the Config menu too.
- Control input passthrough volume and apply Delay and Reverb to it in the Master 3/3 Global Mixer section.
- Line input monitoring is by default toggled off in the Master 3/3 Global Mixer section.
- You can control the volume on Master 3/3 and see the stereo volume bars jumping next to it.
- It allows sampling of external instruments while they're being MIDI sequenced by Tracker.

https://www.youtube.com/embed/E9A7E-T90eU?feature=oembed

Microphone input port – use a 3.5mm stereo or mono plug. Will record mono audio file.

MIDI data **output** port – use the included TRS type-B 3.5mm jack to MIDI DIN adapter to connect to MIDI Input of an external MIDI device.

MIDI data **input** port – use the included TRS type-B 3.5mm jack to MIDI DIN adapter to connect to MIDI Out of an external MIDI device.

SD card slot – use the included 16 GB micro SD card as data storage.

- The micro SD card must be formatted to a FAT32 MBR partition. This is the only supported file system by the Tracker.
- The micro SD card needs to be inserted in the port in order to make the Polyend Tracker operational.
- Use the included micro SD card to USB type-A dongle adaptor to access the SD card from a computer.
- The included SD card is 16GB but SD cards with a bigger capacity can be used too.
- Sample folders containing more than 100 files will be automatically split into subfolders.
- There's a limit of a 100 displayed project list, even if there's more visible on the SD card on your computer.

Reset button – hidden reset button for emergency flashing procedure (explained in the Firmware update section of this manual).

USB Type–C port – 5V 1A power input from any USB power source (included Polyend AC adapter/USB port/power bank).

- The Tracker runs on 5V/1A and can power up from a power bank. But the best method to power up your tracker is to use the original AC adapter. Notice that an "intelligent" power bank with an advanced power management system. Or even a computer USB port used for powering your unit can cause issues and turn your Tracker unstable. Suitable power banks? The simpler the better.
- It also provides bidirectional MIDI class-compliant communication.

Power switch – press once shortly to turn the unit on or press and hold for a couple of seconds to toggle it off.

Audio Ports Electric Specifications

Audio input

Unbalanced mono, with the tip sleeve only.

- Line Input:

  Audio input impedance: 29k
  Input level: 8.2 dBu peak

SNR: 90 dB

- Microphone Input:

  Microphone input impedance: 2,9k
  Input level: 8.2 dBu peak

Audio Output

- Line Output:

  Output level: 9 dBu peak (when 10 k Load)
  SNR: 97 dB

- Headphone Output:

  Output level: 17,6 dBm (when 16 Load)
  SNR: 98 dB

Loading & Saving Projects

Use the **File** key to access all the operations performed on project files.

New project > create a new project.

Open > use arrow keys to select the desired project name. Use the Open screen button or Enter function key to load it. Use the Delete screen button on the selected projects to remove them from the micro SD card.

Import mod files.

Save > save a project.

Save as > save another instance of a project,

Export > export song, song stems, chosen pattern, chosen pattern stems, export to an .it file, export samples from .pti instruments.

Games > starting from the v1.3.0 firmware, the Tracker is able to run the onboard games (located in the SD card root directory Games folder). Start them here. Use the power switch to toggle off/exit the game.

Important:

- The work you do on a project is constantly **autosaved**. When a project is named and ready, or even while working on a default "blank" project – everything that is being done is being automatically saved. There is no need to remember to save all the time. It is normally possible to recover current work even when Tracker was accidentally switched off.
- When copying project folders to the SD card, their folders need to be placed directly in the Projects folder. Project subfolders won't be displayed by the browser.
- Use the dongle USB SD card reader to copy existing samples to the SD card.
- The **project list** displayed on the device is limited to 100 folders. Tracker won't display project subfolders.

https://www.youtube.com/embed/HC0bi5856J8?feature=oembed

Importing & Exporting Projects

Polyend Tracker is able to import/export classic tracker project files with their basic properties (samples/instruments, notes/patterns, song structure, and volume info).

Open .mod/.it (many other classic tracker project file formats like .xm/.s3m can be opened in the Schism Tracker or Milky Tracker and then converted and saved as .it and so imported to Polyend Tracker).

Export .it files that are compatible with the Renoise, Schism Tracker, or Milky Tracker.

Important:

- Files that you want to import to the Polyend Tracker need to be placed in the MOD folder on the SD card so they can be accessed. Subfolders won't be displayed by the browser.
- When exporting your project to .it files the used LFOs settings are transformed into envelopes.

Note: The .mod file import and .it export may not 100% work as expected.

Accomplishing full unity in terms of exports and imports is not entirely achievable. Even when considering a standardized level of compatibility. It's not possible to convert or provide data to convert projects one to one. There's a variety of tracker applications out there, they're working on a different basis usually.

And that's also why the import/export capabilities are limited to the currently supported parameters and values. In other words, you may need to adjust the instruments and their particular values, maintain samples and volume levels manually.

The Sampler

The Polyend Tracker is a sampler with a built-in sequencer. Single-shot and short-loop monophonic audio files are what it works best with. The per-project memory is 133 seconds of mono samples. Or double as much when using the low-quality sample Import function. Main/headphones output is in stereo (you can set the internal L/R channel panning, reverb, and delay for spatial effect).

Classic tracker workflow relied on the use of one-shot and short-loop-type samples. With their limited sampling time memory was not meant to work as sample loopers. Polyend Tracker is not different. This is a conscious choice – its limitations are here to force your creativity and let you stay focused. Working inside limitations is one of the things that made the classic trackers so unique.

Recording Audio

https://www.youtube.com/embed/Te_K0jw0y5g?feature=oembed

Press the **Sample Recorder** key to open the audio recording section. Choose the sampling source: line input, FM radio, or microphone input with a choice of high and low gain. Set the recording gain and toggle the monitoring on. Use the onscreen Record key to start recording, and press the stop key when ready.

When you record a sample, you can edit, trim, and crop both its start and end points. You can save it to the SD card. Or to the project pool as one of the sample-based Instruments using the Save & Load function. You can change the name of any audio file too. Use the grid pads as a QWERTY keyboard or try the **auto-naming** function.

Use Tracker's pads or run it as a MIDI sequencer to trigger external gear while recording. And capture its audio signal. You can activate the metronome in the Sample Recorder view. Toggle it on in the Config menu.

The **line input** allows both mono recordings. And stereo monitoring with an L/R channel choice of the external audio sources. You can control the volume on Master 3/3 and see the stereo volume bars jumping next to it. It allows the sampling of external instruments while you're sequencing them using your Tracker.

The Tracker can either record samples or playback the audio sequences. It cannot do these two things at the same time. Although, it can play the MIDI sequences and record the audio input from the steered MIDI instruments at once.

https://www.youtube.com/embed/E9A7E-T90eU?feature=oembed

The Tracker will only play audio or record audio. Never both at the same time. You can't hear your patterns as audio while sampling the external input. Yet, while sampling, the sequencer will output the MIDI sequences if you want it to. It is possible to hear the line input in stereo while internal audio plays but you cannot record it at the same time.

Tweak the recorded samples using the **Sample Playback** and **Sample Editor** sections.

Important:

- The internal engine is working with uncompressed 44.1/16bit mono PCM WAV files.
- The device can import WAV files in any 16/24/32-bit mono/stereo sample rate. And will convert them automatically to the supported format.
- The longest recorded audio file can be 30 seconds long max.
- The onboard FM radio is equipped with automatic fine-tuning.
- Any cable connected to the Output jack port becomes the FM radio antenna.
- Samples loaded into the Polyend Tracker sample pool are interpolated. You can toggle the anti-aliasing function on/off in the Config menu.
- Notice that the volume of samples recorded from any of the sources is the same as the original source. You can use the Gain function to influence this. Their playback volume depends on factors such as the volume set in Instrument Parameters. And the track volume from the Master section mixer.
- The line input can track live input sources in stereo. But is recording it only as monophonic audio files (with an L/R mono choice in the Config menu).
- While in the Sample Recorder screen, you can press and hold the yellow Instrument button to gain access to a quick MIDI instruments/channels selection popup.
- It is possible to use the Tracker to sequence an external synth using MIDI channel sends and then record that audio back into the Tracker while it is playing the pattern. Go to Sample Recorder, press the Record screen key, and then press the dedicated Play button to start and stop the sequence. This will start your MIDI sequence playback while simultaneously sample recording from the audio input connector.

Sample Playback

The **Sample Playback** key gives access to all the Tracker's playback types. Including a Slicer, Beat Slicer, sample-based Granular and Wavetable synthesis instruments. Available options are:

- **1-shot** (preview, set start point, set endpoint, zoom),
- **Forward/Backward/Pingpong Loop** (preview, set start point, set loop start, set loop end, set endpoint, zoom).

https://www.youtube.com/embed/bH2Fhnet_kY?feature=oembed

- **Slice** – use to chop any sample. Add and adjust slice points. Use the auto slicing function. It will detect dynamic amplitude changes and slice the audio files. Adjust the separate slices portions can later on. Access the number of the slices via per step Slice Fx (S).

https://www.youtube.com/embed/x4pQgCjYP7c?feature=oembed

- **Beat Slice** – use to play and record the sample slices per step. In this play mode dedicated pads display each beat slice.

Important:

- In both of the Slice play modes press the Shift button to apply an **equal** number of slices and their desired number.
- You can select slice points in Beat Slice mode by pressing the corresponding pads.
- Separate Beat slices can be triggered by a MIDI controller sending out notes.

https://www.youtube.com/embed/xoOuMXdj7sY?feature=oembed
https://www.youtube.com/embed/O5T824g5NRk?feature=oembed

- **Wavetable** – play a Wavetable synthesizer by using any sample or interpolated wavetable audio files. Apply position modulations using available LFO or envelopes.

Important:

- To get classic wavetable results. Use the prepared wave files that give a smooth transition when changing its position. Wavetables that have 256 frames will do best. There are several wavetable sample standards. You can adjust them using the Window parameter indicating the length of the frame and use any kind. Note that it's possible to use other wavetable samples too. Files that are available for software synthesizers like Xfer Records Serum and Arturia Pigments use the 2048 window. Ableton Live uses 1024

windows). To transform the shape of Wavetable use available automation (LFO or Envelope).
- Using the WT Smoother tool available in the Sample Editor section. You can turn any sample into an interpolated wavetable synthesis sound source.

https://www.youtube.com/embed/pNzkm4xPpK0?feature=oembed

- **Granular** – this is a particular approach to granular synthesis. Where each voice has one grain, it is simple yet very musical. Set the grain position, length, and shape and adjust the direction of the playback loop. Choosing from the Forward, Backward, Pingpong types. Apply position modulations using available LFO or envelopes.

https://www.youtube.com/embed/vKt4IUvVoog?feature=oembed

Sample Editor

The **Sample Editor** key gives you access to a section that provides an overview of the selected sample. Set the sample start and endpoints using a precise zoom tool. Use the preview function to hear changes. Crop their desired parts and cut out what's not needed to free up the sample batch memory. Keeping it tidy is a good habit considering the limited memory.

https://www.youtube.com/embed/KTrkka6zT8Q?feature=oembed

Apply the effects to the entire sample/instrument. Or to their parts selected by the start and endpoint markers only.

Apply one of the available audio effects and render them into the edited sample:

- Normalizer – adjusts the gain by a constant amount of gain to bring the amplitude to a target level (the norm).
- Crop.
- Reverse.
- Amplifier – apply a selected amount of gain to an audio recording.
- Overdrive – adds distortion using gain and type values.

- Delay – with ping-pong, sync, feedback, and time parameters.
- Bitcrusher – with adjustable bit rate.
- Chorus – with settings of length and voices.
- Flanger – with length, offset, depth, and rate parameters available.
- Equalizer – with access to Low & Mid dB and Frequency settings and High at 12kHz settings.
- Limiter – with adjustable threshold, attack, and release parameters.
- Compressor – with threshold, ratio, attack, and release options.
- WT Smoother – turn any sample to an interpolated wavetable by setting its window number (from 1 to 256) and length (from 1 to 2048).
- Timestretch Beat – with Tempo, Steps Micro-step, and Granule settings.
- Timestretch Note – with Length and Granule parameters available.
- Fade In.
- Fade Out.

Note: Sample Editing is destructive for the sample. It changes the sample itself in your project. All modifications can be undone at any time until the file is saved. The original sample will remain intact on the SD card.

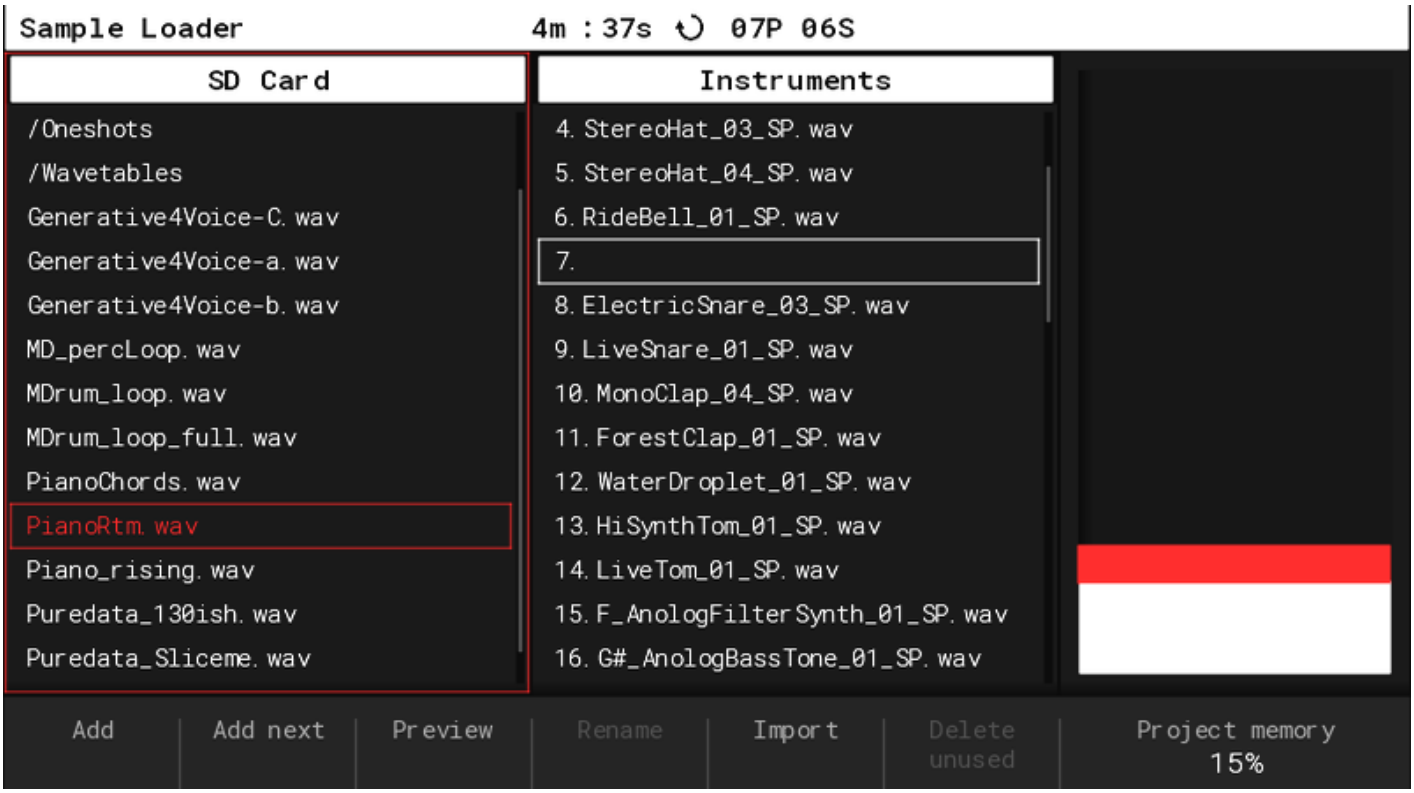
https://www.youtube.com/embed/JnS6v63Xdfw?feature=oembed

Sample Loader

The **Sample Loader** key opens the SD card browser. You can preview samples here. Use them to prepare instruments which will be later used to create patterns and songs.

Create instruments by loading the samples to the project sample pool from the SD card. Copy a sample from the browser on the left side of the screen to its right side by using the **Add** function. Or the **Add next** function where the cursor will jump one position down after adding an instrument.

Samples copied to the internal memory become **Instruments**. With their own number, name, and separate settings. Instruments can be **renamed** with the use of a Rename screen button or **removed** with the use of the Delete key.



The instruments are automatically saved into the current project subfolder in a .pti format. It contains every sound you've created in that project among every setting change you've made to them. While working on another project, you can browse for other projects' subfolders within your Tracker. And then load the existing instruments from the previous project into the new project easily. Just like you do when you are loading up anything else into your Instrument Pool.

You can also browse the SD card content using your computer. And copy instruments already existing in project folders into the Instruments folder created in the SD card root note. The instruments folder allows you to use subfolders in order to arrange your sounds. Copying instruments within folders is not possible in the Tracker interface itself. This functionality was brought in firmware 1.5. Projects created in earlier firmware versions need to be opened and **resaved** to convert the existing instruments to standalone versions.

Important:

- You can export your .pti project' instrument samples to wave files. Go to File > Export > Export Samples. The selected wave files are saved to Project/<your project's name>/samples.

https://www.youtube.com/embed/U1gsXg8tdTM?feature=oembed

Use the **Import** function to load pieces of long samples that are too long to be loaded to the sampling pool as a whole. Or to use the **Low-quality** Import to save memory space.

The **Delete unused** function will purge the sample pool out of the Instruments not used in the project.

https://www.youtube.com/embed/XSkrjryXYE0?feature=oembed

Tweak instruments using the Instrument Parameters and Sample Playback. Use the audio files in the one-shot Sampler or in the Sample Slicer. Or use them as a source for the Wavetable and Granular sample-based synthesis engines.

Important:

- A maximum number of 48 sample-based Instruments is available.
- To duplicate the instrument use the Copy/Paste in the Sample Loader module.
- Press and hold the yellow Instrument key to pop up an instrument browser window from the Pattern screen level.
- Press and hold the Preview screen button in order to preview long samples.
- Hold down the Preview screen button while using Arrow keys or Jog-wheel to preview samples fast,
- Load another sample to an already occupied position to replace an existing instrument. All other properties of the instrument remain the same.
- The progress bar is showing the sample pool capacity in percent (displayed in white). The red color displays the space needed to load a certain sample as an instrument. The green color is showing when a replaced sample will free up some of the sample pool time.
- Use the USB SD card reader attached to the kit dongle to copy existing samples to/from the SD card.
- Shortcuts:
    - Left arrow in the left browser > takes to the very top of the browsed folder,
    - Use Shift + arrows > for batch selection (more than one file at a time),
    - Use Copy/Paste > for duplicating the Instrument,
    - Use the Insert/Home key as an Enter.

Parameters & Automation

https://www.youtube.com/embed/Aail2W47jfg?feature=oembed

The **Instrument Parameters** key gives access to two screens (marked in the upper left corner of the screen **1/2** and **2/2**).

Screen **1/2** – Instrument Parameters. Where both sample-based and MIDI instrument properties are available:

- Volume (in dB + Gain).
- Panning (from -50L to 50R).
- Tune (from -24 to 24).
- Fine-tune (from -100 to 100).
- Filter type (disabled, low-pass, high-pass, band-pass).
- Filter cutoff (from 0 to 100%).
- Filter resonance (from 0 to 100%).
    - Instrument Effects – Overdrive (from 0 to 100), Bit depth (from 16bit to 4bit), Reverb send & Delay send (from -inf to 0 dB).

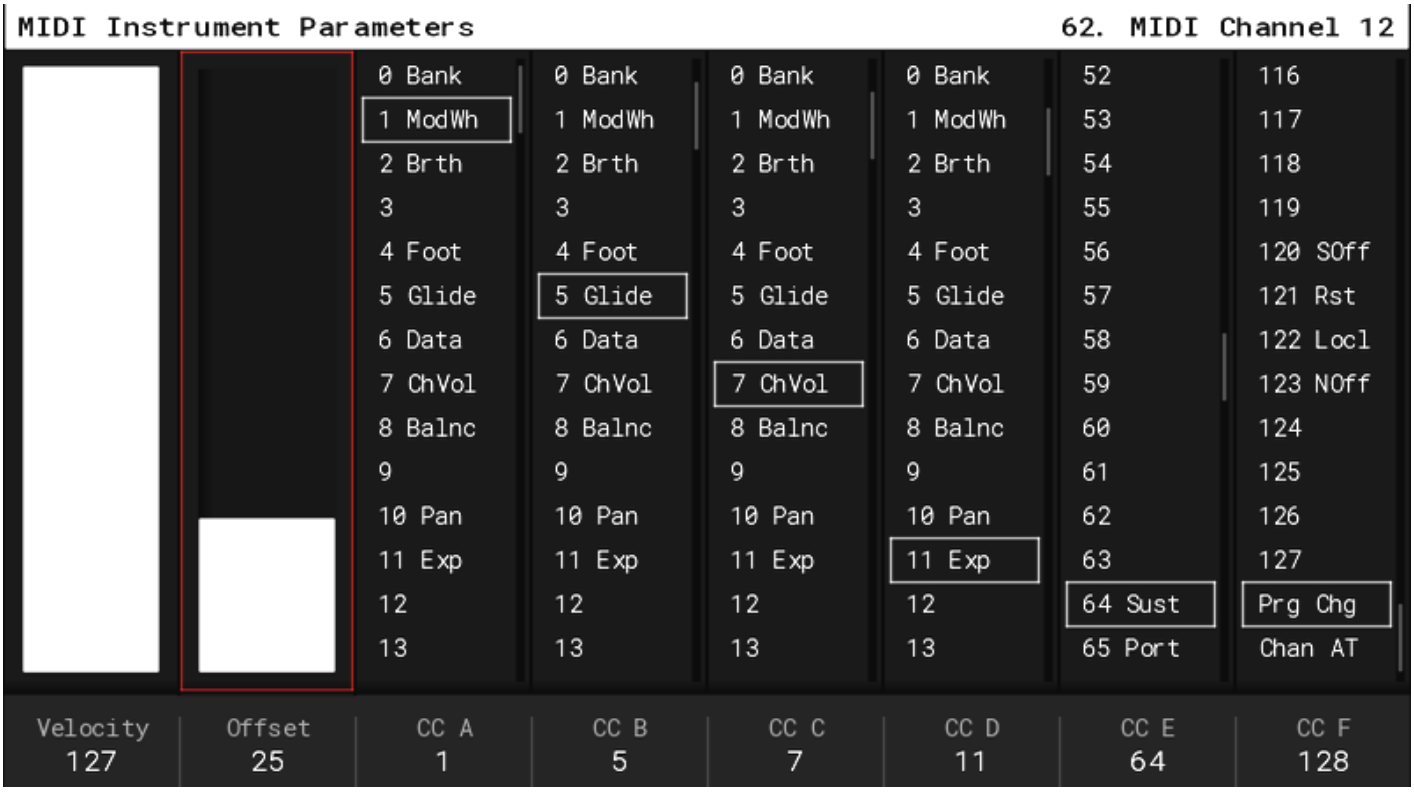
Screen **2/2** – Instrument Automation:

- Destination – the automation can be targeted to the following destinations:
    - Volume.
    - Panning.
    - Filter Cutoff.
    - Wavetable Position.
    - Granular Position.
    - Finetune.
- Automation type:
    - Off.
    - **Envelope** with Attack, Decay, Sustain, Release, and Amount settings.
    - **LFO** with Shape (Rev Saw, Saw, Triangle, Square, Random), Speed (from 24 to 1/64 steps for Volume value and from 128 to 1/64 steps for all the other destinations), and Amount settings.

Important:

- The LFO speed is always hard synced with the project tempo.
- The number indicating the speed of LFO is corresponding to steps. For example Speed = 16 means that one LFO cycle will last for 16 steps.

- To access the instruments list from the Instrument Parameters screen level. Press and hold the yellow Instrument key and a pop-up list of instruments will appear.
- When you select a MIDI instrument for a step from the pop-up list or by using the Jog-wheel in the Pattern editor. A list of CC properties for the a – f step effects will appear on this screen. This is also where the **MIDI output latency compensation** function is available. Under the name of the Offset parameter.
- Use the Shift + Instrument Parameters button shortcut to enable the **MIDI Synth Mode** (explained in detail in this manual's Config section).



From Step to Pattern

Pattern mode

Use the **Pattern mode** to create musical sequences. Place the steps consisting of Note/Instruments/Fx1/Fx2 and their values, as events in time.

This is Tracker's main screen. The one you will be spending most time working with, and one of the most important ones.

Here, you will create your project's patterns. It is possible to store up to 255 such patterns per project. Each pattern consists of 8 audio/MIDI tracks which can be from 1 to 128 steps long. You can put these patterns together into an entire composition using the Song mode later on.

Press and hold the Pattern screen button to see the existing patterns. The occupied pads will light up.

By default, on the Pattern screen, you see four tracks of eight available, with their names on top of them. You can adjust the way this is displayed. For this reason, you can use different Pattern view modes (explained in a section below).

There are several **playback modes** available in the pattern mode:

- Press Play > play the pattern from the 1st step.
- Press Shift + Play > play pattern from the currently highlighted step.
- Press Song + Play > play the song arrangement.

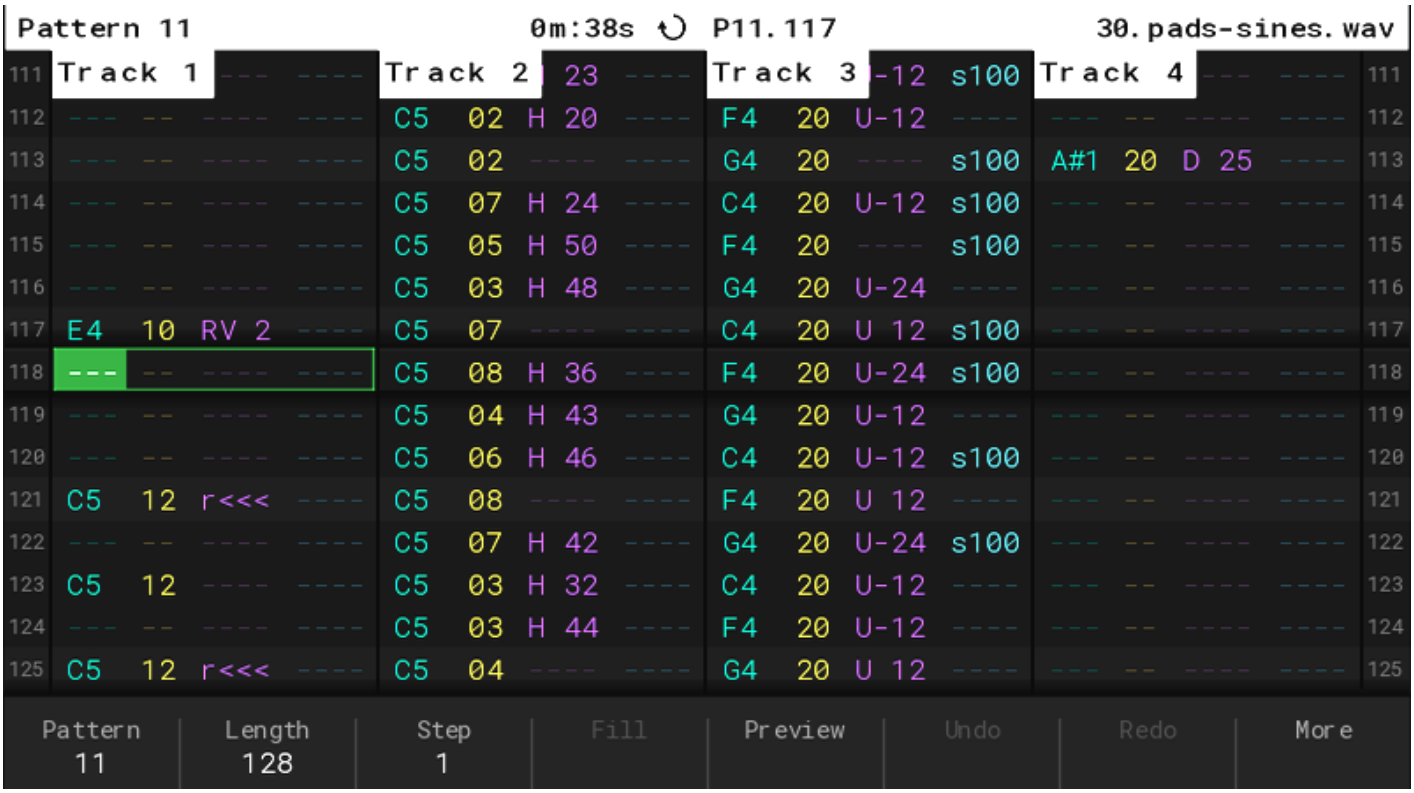
You can change patterns from one to another in different manners. Both when working on or performing them.

- By using the Pattern function key and:
    - Left/right arrows for a **sequential** change – patterns change after the currently playing pattern phrase reaches its end (pattern number will blink red).
    - Up/down arrows and/or Jog wheel for an **immediate** pattern change.

- By using the **Pattern screen** button and:
    - Left/right arrows for a **sequential** change – patterns change after the currently playing pattern phrase reaches its end (pattern number will blink red).
    - Grid pads for an **immediate** pattern change.
    - Up/down arrows and/or Jog wheel for an immediate pattern change.

The Pattern view is displaying a Status bar. It is showing all the important information about what is currently going on. You can adjust this in the Config menu General section.

In the Polyend Tracker, each track you see in the Pattern view can be **both audio and MIDI at the same time**. It's the Step properties. Here you can determine what's triggered. The internal sample-based instrument or external MIDI instrument. This is all explained in detail in the Step section below.



Pattern – screen buttons:

- Pattern – press and choose the currently edited pattern from 1 to 255 using the grid pads, arrow keys, or the Jog-wheel.
- Length – sets the length of the current pattern. Each pattern can have its own different length.
- Step Jump function – sets the interval for entering the steps by incremental, one by one step data input. This can speed up your value entry workflow radically.
- Fill tool – allows entering multiple steps with different values with just one click.
- Preview – previews the selected step or steps within the selection.
- Render selection – renders selection to a new audio sample.
- Undo – reverts the last made changes.
- Redo – reverses the undo or advances the buffer to a more recent state.
- More – gives access to a set of another 8 functions.
- Invert – vertically inverts all of the steps within the selection.
- Duplicate pattern – doubles the length of the pattern and automatically duplicating all the existing steps.
- Expand pattern – doubles the length of the pattern by adding empty steps in between existing ones.
- Shrink pattern – divides pattern length by two by deleting each second step.
- Copy pattern – is copying the entire current pattern.

- Paste pattern – is pasting the entire current pattern.
- More – reveals access to a set of previous 8 functions.

All the above functions are explained in detail in the sections below.

What is a Step?

A **step** is a **Note**, an **Instrument** number, and two **Fx** slots. You can see these four values as a line of colored characters. They correspond to the colored Function keys located on the right side next to the display. Use them to toggle between step properties.

Each step can be set to trigger the internal audio sample-based instrument. Or an external MIDI instrument.

To set a selected step instrument to MIDI. Navigate the jog-wheel in the left direction. After project instrument 01 it will access MIDI instruments. Select from M01 to M16 (these represent the sixteen MIDI channels).

Scrolling the Jog in the right direction will give you access to the 1 to 48 sample-based instruments.

You can see that MIDI instrument numbers are displayed with a different type of font than the one used for internal instrument numbers. All the MIDI instruments settings are available in the Instrument Parameters section. Select a MIDI instrument for at least one step to gain access to it.

The detailed step MIDI instrument settings are available under the Instrument Parameters menu.

What are these numbers all about? Let s take a look at the example:

- C5 (turquoise) > Note and octave or note-off (OFF/CUT/FAD).

- 14 (yellow) > Instrument number.
- H 30 (purple) > Fx1 – a letter or a symbol indicating the type of used effect and the number right representing its value.
- P -2 (blue) > Fx2 – the same as in Fx1.

Note that the Fx in the Polyend Tracker is not all audio effects. Not like the ones you'll find in other types of electronic music instruments. They often serve more as automation/modulation information. Each Fx has a different letter and separate effective value associated. They offer 25 automation options and an extra 6 MIDI CC/PC and 1 MIDI chord Fx's.

An onscreen Fx **description popup** is available while in the Pattern sequencer view. Press and hold one of the colored Fx keys. It will show the Fx list and the corresponding screen button underneath. Use it to expand their description. It contains the available parameters and their ranges (see the full list in the appendix).

Important:

- Step/note length is a distance between a note and the next note or "note off" (shown as OFF in the pattern).
- To enter a note-off value (OFF) turn the jog-wheel all the way to the left,
- When note hits the note-off (OFF) Envelope Release is being run,
- Use CUT (cuts the sound immediately) and FAD (gently fades the sound out).
- CUT and FAD also turn off MIDI notes.
- Change the currently edited step properties (Note/Instrument/Fx). Use the four colored corresponding Function keys to toggle between their values.
- Entering a Note always inserts the number of an Instrument. And vice versa entering the desired Instrument inputs a default Note value. When these step properties are already present on the desired step, add one or two Fx s with their own values too.
- To simplify the workflow for non-hardcore classic tracker users, the Polyend Tracker is using a decimal system for values/data entering. Unlike most of the classic trackers, PT is displaying decimal values for the sequence step enumeration. You can change the sequence step enumeration to hexadecimal in the Config menu if you prefer so.
- Hold down the Pattern screen button to see the occupied/stored patterns/pads.

https://www.youtube.com/embed/1qINKD6bAwE?feature=oembed
https://www.youtube.com/embed/PL5rtwW9ziM?feature=oembed
https://www.youtube.com/embed/B20U3T8qgns?feature=oembed

Pattern Mode Views

The default displays 4 of its 8 tracks. But it is possible to display and work on 8 tracks at the same time too. While all the four positions of a step: Note/Instrument/Fx1/Fx2 are visible – only four tracks fit on the screen. Narrow the columns of the steps using the following shortcuts:

- Pattern function key + Note key.
- Pattern function key + Instrument key.
- Pattern function key + Fx1 key.
- Pattern function key + Fx2 key.

Combine displayed step information/properties by pressing Pattern key + Note + Instrument key. 8 rows of Note and Instrument couples for each track are being displayed. This works in any combination. Press Pattern key itself again to bring back the default step view.

The default step sequencer view is the classic tracker vertical layout. But if you prefer so, switch it to a horizontal display mode in the Config menu too.

https://www.youtube.com/embed/Cib3g6D1IYM?feature=oembed

Pattern Editing

Start a new project. Load samples and go to Pattern screen. Turn on Edit mode (press Rec) and use the arrow keys to navigate. Input steps with the grid pads or the Jog wheel or use the tools explained below.

Use the jog-wheel and/or arrow keys to overview track sequences. The current pattern step position is marked with a **green** frame when you're working in the Preview mode. To make any changes in the patterns, press the red Rec function key to activate the Edit mode. A **red** frame will appear around the currently selected step/steps. It will mark the currently edited positions. In the Edit mode, you use the arrow keys for navigation. And jog-wheel to input/change desired step properties, input or change the step values, copy steps or patterns, etc.

Most of the step edit actions performed in the Pattern section can be done both on a single or multiple selections of steps. One of the classic tracker strengths was the ability of quick

values/data input and edition. Knowledge and fluent use of the shortcuts mentioned below will be crucial to achieving the coveted effect on this field.

Backspace/Delete – to remove the selected step/steps or their Fx values. To delete the entire step > delete the Note or the Instrument number. Delete the step Fx values separately. Deleting an Fx value itself won t erase the entire step, just the selected Fx.

Copy/Paste (Shift + Copy) – to move existing steps/selections/tracks/patterns around quickly. It is possible Copy/Paste the selected Fx value only.

Insert/Home – press to add an empty step and move down all the steps already existing on the track/tracks.

Use Backspace (Shift + Delete) to move all steps on the track in the up direction.

Shortcuts:

- Shift + Insert (Home) > jumps to the first step of a track sequence.
- Shift + Up arrow (when on the first step of a sequence) > selects all the steps in the track
- Shift + Up arrow + Up arrow (when on the first step of a sequence) > select all the steps in all the 8 track sequences.
- Shift + arrows > marks more the one step on one or more tracks.
- Pattern key + Up/Down arrow > switches the current pattern.
- Copy/Paste entire Pattern > hold Pattern key + Copy key > go to new Pattern and hold Pattern key + Shift + Copy (Paste) to paste.
- Input OFF/Fade/Cut step > turn the jog-wheel all the way left,

Important:

- Set pattern/project **Tempo** in BPM (from 40 to 800BPM) in the Song section.
- To transpose/change multiple values, make a selection of steps > turn the jog-wheel.
- To step input a **chord** > select as many adjacent tracks as many notes you want in your chord using Shift + arrow keys while in the edit mode and use pads or external controller to input multiple notes at the same time.
- The pattern length and timing scale are always the same for all eight tracks, same as in classic trackers.
- Use Length and Step + left/right buttons to change their values with predefined intervals (2,4,8,16).
- Insert spaces on multiple columns simultaneously by using Shift+ Arrow keys across columns before pressing the Insert key.

- When browsing for instruments > navigating jog wheel in left direction will access to MIDI instruments from M01 to M16, while jog wheel scrolling in the right direction will access the internal instruments from 1 to 48. The MIDI instrument numbers will be displayed with a different type of font than the one used for internal instrument numbers.
- When using the pads for playback of both the internal sample-based and MIDI instruments – there are differences between the green and red (edit) modes. The green mode is playing back the note and instrument only and is more of a controller type. The red (edit) mode will playback the entire step with its fx and its relation to the project's BPM.
- External source MIDI clock and transport in the Pattern mode will playback the current pattern on a loop, while in Song mode will play the entire song.
- Particular tracks can be **renamed** in the Master section.
- **Transpose** octaves by using the Jog-wheel + Shift while editing step's Note.

Step Jump & Fill Tools

Besides the basic step input options. The Polyend Tracker is offering two compelling step input/editing tools. Step jump and Fill functions are crucial to master to get a quick musical output without spending too much time. They will speed up both the composition process and productivity.

The **Step** jump function allows setting the interval for that incremental step input range. When steps are being entered on a track – the timeline row will jump down to another step position. Use Step with setting from 0 to 32 to set this interval. Now, the Tracer will enter each step in the exact desired spots without the need to navigate to them.

https://www.youtube.com/embed/y3_ET2HusU0?feature=oembed

The **Fill** function is a sophisticated sequence editing utility. It allows entering multiple-step values to a selected edited area with a single click. Depending on the used mode, there is a variety of applications of the Fill tool. Available are Fill Notes/Fill Instruments/Fill Fx. You can choose from the following settings:

- Where? – Indicates where to insert a Note/Instrument/Fx:

    - Note – applies (replaces) new notes to all of the steps with already existing notes within the selection.
    - No Note – fills all steps that contain no notes within the selection.
    - Fx – finds and fills all steps with Fx within the selection.
    - No Fx – finds and fills all steps where there is now Fx assigned within the selection.
    - Random – with selectable density in %, randomly fill steps within the selection.
    - Euclidean – set many events from 1 to 32 to generate a rhythmic pattern. The spacing resulting in a pattern depends on how the step length divides by the number of events. For example. An eight-step sequence with four events will result in an evenly-spaced pattern. With one-hit every other step, whereas an eight-step sequence with five events will result in a less even pattern with hits falling on steps 1, 2, 4, 5, and 7.
    - Each 1-32 – evenly fills steps with the chosen interval within the selection.
- Scale (only in Fill Note) – applies a chosen musical scale filter for the Note input.
- Fx Type (only in Fill Fx) – pick one (or many random) Fx types to be filled into the sequence steps. Please note that the Random Fx Type does not use the Tempo Fx for filling.
- Fill type:
    - Constant – fills the same chosen value for the selected steps.
    - From-To – fills in the selected area, evenly distributing the values within the chosen range.
    - Random – randomly chooses the values within the selected range.

https://www.youtube.com/embed/Q_jZj8EXtE8?feature=oembed
https://www.youtube.com/embed/OrePpoHd8aU?feature=oembed

A short example of how to use the Fill tool in a few steps would be to make a random melody:

- Highlight all steps in a track (or tracks) > Shift + Home (Insert) then Shift + Up arrow in Edit mode on (Rec).
- Press the Fill screen button.
- Determine what needs to get filled in, eg:
    - Choose Note.
    - Choose Chromatic scale.
    - Choose Random fill type, set the density.
    - Indicate its root note.
- Confirm with a press of the Fill screen button.

You can create a random melody in a Chromatic scale this way. Use the same trick to populate steps on one or more selected tracks. For the Notes/Instruments/Fx at the same time with one press of a button.

Pattern Variation Tools

The preview is a function that allows listening to a selected step with all its properties. Or an entire edited selection on one or more tracks.

The Undo/Redo – functions are useful when making many changes at a time. Every change made in the Pattern editor is auto-saved. So hitting the wrong button by mistake can be problematic. Use these functions by pressing the Undo or Redo Screen buttons. It works up to 20 steps both ways.

More – is giving access to a set of another 8 functions.

Render Selection (to sample) is a very useful and creative function. It allows rendering a selected step or step selection into a single audio file. Turn Edit Mode on (Rec) in the Pattern section. Use Shift + arrow keys to select the desired area. Now use the Render screen button to create a new sample clip. The send fx's are being rendered too. If used on the selected steps/instruments, this includes their "tails" too.

https://www.youtube.com/embed/IUBl6acjzDE?feature=oembed

Invert – inverts all the sequence steps within the edited selection. This allows adding more variations to patterns in a simple manner.

Duplicate pattern – doubles the length of the pattern and automatically duplicates all the existing steps.

Expand pattern – doubles the length of the pattern by adding empty steps in between existing ones.

Shrink pattern – divides pattern length by two by deleting each second step.

Copy pattern – is copying the entire current pattern.

Paste pattern – is pasting the entire current pattern.

More – is giving access to a set of previous seven functions.

https://www.youtube.com/embed/aXrfFVFOM9U?feature=oembed

Real-Time Pattern Recording

To start **live-recording** the pattern. Hold Rec and press the Play key. Start adding notes or values in a "live" manner using the grid pads as be playing a regular keyboard. After recording the sequences of events. Edit them as mentioned in the previous section if needed. A metronome with a pre-roll function is available in the Config menu. It may make the live recording easier.

Arm tracks selected for live recording in Pattern mode by pressing: Shift + Rec. By default all tracks are armed. If you want to lock to a single track, disarm all the other ones.

There are three different modes of live recording in the sequencer. To switch between these modes use the colored Note/Instrument/Fx buttons. The recording is available in the following modes:

- Notes – where the "note off" action will be also recorded. Useful to record chords and melodies.
- Instruments – where the "note off" action is not recorded. Appropriate to record drum beats.
- Fx – where the "note off" is not recorded either.

https://www.youtube.com/embed/TuvGzyp84pM?feature=oembed

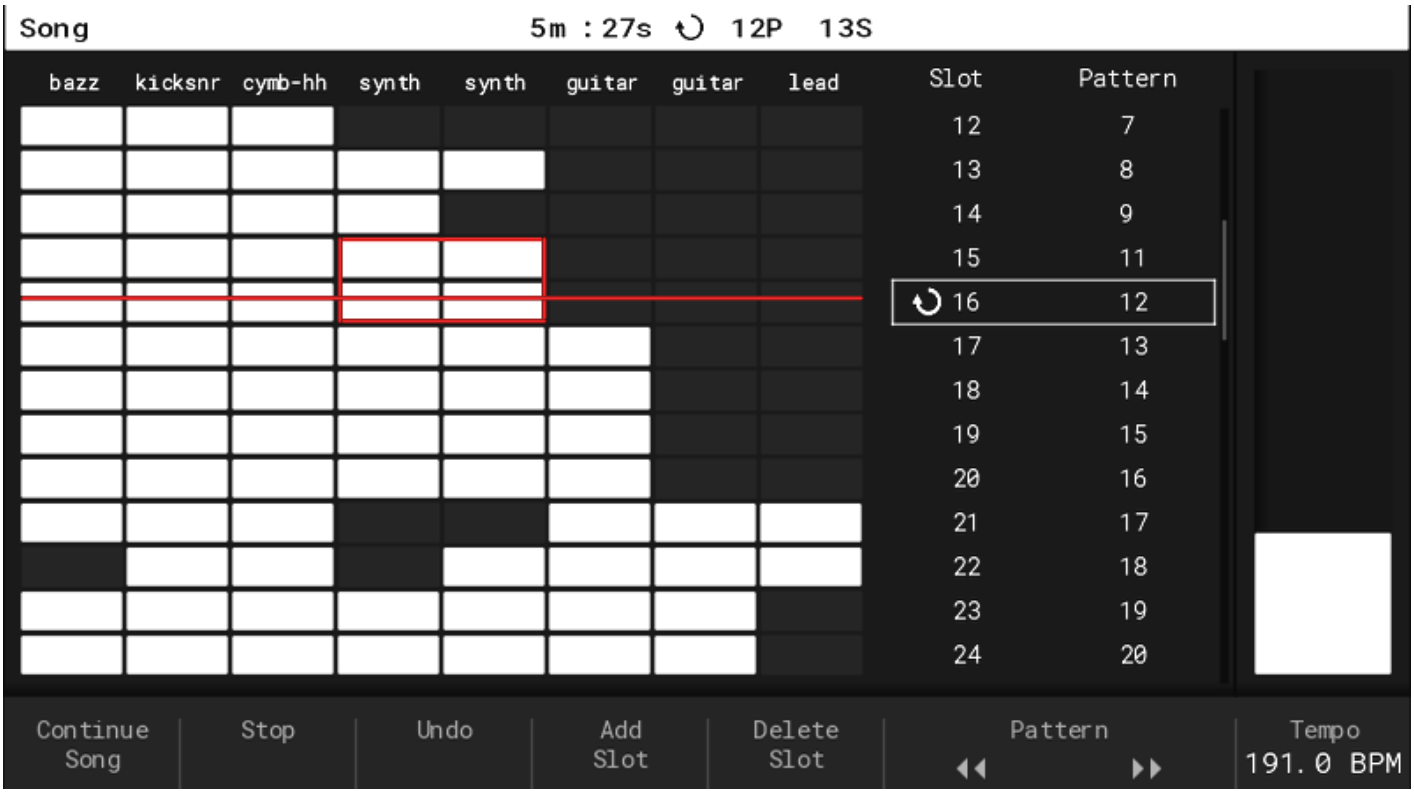
Important:

- Choose what parameter (Note/Instrument/Fx) is being recorded using the colored keys.
- When recording notes from the grid pads, micro-timing is also being recorded as one of the Fx. To quantize the recording, simply delete all the "m" Fx.
- Polyend Tracker offers 8 monophonic audio/MIDI tracks. That means if a triad chord is played while live recording – it consumes three of its eight tracks. There's a MIDI chord step Fx available to help you overcome this limitation.
- Unless you've Armed selected tracks for live recording, it starts with the track that is currently being edited.

- When live recording to an occupied track step with already existing notes/values, Tracker will record changes on the track to the next one to the right. It won't overdub the steps with existing notes/values.
- Exit and enter the Live recording mode again without stopping the sequencer by pressing the red Rec button.
- The grid pads are not velocity-sensitive. And the "live record" mode will record notes with micro-moves Fx but won't record the velocity Fx. Use an external velocity supporting keyboard to record both unquantized notes and velocity.
- Change patterns by pressing the Pattern screen button + grid pads/arrow keys/jog-wheel.
- Find the **metronome** with its options in the Config section.
- Find the global quantization option (Record micro moves on/off) in the Config menu.

Song Mode

Making a pattern or a few of them is usually quick and fun. But how to turn them into a composed and arranged piece? The **Song mode** is the answer! In the Polyend Tracker terminology. A song is an arrangement of patterns in the desired order of playback.



In the Song mode. The timeline runs moving down. Line-by-line from the top of a pattern/phrase to the bottom. Triggering the pattern sequences containing Notes/Instruments/Fx stored in each line.

In the Song mode, you will work in the **Preview** mode (**Green**). Where the screen is scrolling down together with the timeline. Here, without stopping the sequencer, you can toggle between the **Pattern** and **Song** play modes. And in the **Edit** mode (**red** – press Rec key), where you can build your song structures.

This mode is offering a simple way of arranging the earlier prepared patterns. You are adding **Slots** one after another, and indicating the pattern numbers in each of them.

Use the screen buttons, Add Slot, Delete slot, Arrow keys, and the Jog-wheel. And prepare the sequences of patterns to create songs. Copy/paste/delete any of the pattern tracks represented as clips. A song can have up to 255 Slots.

A Slot always consists of eight cells/clips. These represent eight tracks of ready patterns. A filled cell/clip means there s a sequence on this particular track. Empty one means that this particular track does not contain any sequences with steps.

You can add or delete song rows/slots and copy/paste the pattern tracks using the onscreen commands + keys. Use these functions to move the selected pattern s track 1 to track 2, and so. With these simple yet versatile tools, it is possible to create a whole song. Use the Master screen or the Pattern view to mute/solo the song tracks

It's **important** to remember, that the clips which represent the patterns in the Song mode. Are connected with the patterns in the Pattern mode. It's possible to spoil the pattern sequences while fooling around with the clips in Song mode.

There is a **timestamp** indicator at the top bar of all the screens (besides Pattern view). It is helpful to keep orientation in the song's exact playback time. Show minutes, seconds, patterns, and step numbers. For easier orientation on what's exactly happening while switching between different screens. The Tracker is displaying Playback mode icons on the screen headers.

https://www.youtube.com/embed/IanUvCa_CNU?feature=oembed

Important:

- Set project **Tempo** in BPM (from 40 to 800BPM) by using:

    - Song + Jog-wheel/Arrow keys shortcut.
    - Holding the Tempo screen button + Jog-wheel/Arrow keys,
    - Use of the **tap tempo** function will activate and set the tapped tempo. Works after four clicks on the Tempo screen button.
    - Change the BPM value in decimal values (0.1) with the Shift key pressed.
- You can preview a track by holding Shift and pressing the first screen button.
- If you accidentally delete a track, use the 10 levels of **Undo** function available as a screen button.
- For faster pattern increment/decrement in Song mode when using the Shift + Jog Wheel.
- Use the Home (Shift + Insert) key shortcut in the Song mode to immediately jump to the top of your composition.
- While the song mode is playing back the rows of the pattern's tracks. Toggle between the Song mode and the Pattern modes.
- While the sequencer is playing the song mode arrangement. Use the Performance mode to apply different effects in a live manner.
- In the Song mode. The external MIDI clock and transport will play back the entire song. While in Pattern mode will loop the current pattern.
- The Song mode playback does not stop with the last row of tracks/clips, it gets back to the initial row and is playing the composition again.
- Besides the onscreen Play Pattern and Play Song commands buttons use:
    - Play > plays a song.
    - Shift + Play > plays the highlighted slot/pattern.
    - Shift + Play on a selected slot/pattern clip > preview that certain selected clip/track only.

- When switching from the Song mode to Perform mode. The currently played pattern loops. And a "random" indicator icon is displayed on the screen header. This way the Performance mode indicates that tracks from different patterns can be mixed together. Switch back to the Song screen and press **Continue song** to resume playing the entire song.

Master Section

Located in the upper right corner **Master** key give access to three screens. Marked in the upper left corner of the screen from **1/3** to **3/3**. You have access to the eight **tracks**, **live input monitoring**, and **send Fx volume** mixers here. The Master section is also allowing to **rename** the particular tracks. Here you also have access to track **Mute** and **Solo** functions.

https://www.youtube.com/embed/L7w8s2VaLEg?feature=oembed

Screen 1/3 - Master

Gives you access to the basic functions like the main output volume and effects. But it is also offering control over the main output sound enchantments. Available are 5-band **EQ**, **Bass Boost**, **Stereo Enhancer, a**nd the **Limiter** (which is featuring two different characteristics).

- Volume – main/headphones stereo output volume level in dB + Gain,
- Reverb properties:
    - Size.
    - Damping.
    - Predelay.
    - Diffusion.
- Delay properties. Where the number indicating the delay rate is corresponding to steps. For example, 16 means that one delay cycle will last for 16 steps.:
    - Ping-Pong – on/off.
    - Sync – on/off.
    - Rate – from 8 to 1/32.
    - Time – from 1ms to 3500 ms.
    - Feedback – from 0 to 99.
    - Filter – from 100 to 20000 Hz.
- Limiter properties:
    - Attack – from 0.001 to 1s.
    - Release – from 0 to 0.0100s.
    - Threshold – from 0 to 100%.
    - Gain reduce meter.
    - Sidechain – disabled, tracks 1-8, line input L/R.
- EQ – 5-band equalizer with the following tweakable ranges available: 115Hz, 330 Hz, 990 Hz, 3000 Hz, and 9900 Hz.
- Bass Boost – slightly (0-5dB) increases 80Hz.
- Space Enhancer.

https://www.youtube.com/embed/AfDBT3PTTKI?feature=oembed

Screen 2/3 - Track Mixer

Allows you to control the volume in dB and add **Gain** to the individual tracks. and gives access to **Mute** and **Solo** for the desired tracks. It's where it's possible to rename tracks. Plus a visual level check.

- Press and hold one or more screen buttons corresponding to chosen tracks. And use Arrow keys or Jog-wheel to adjust the volume.
- Use the 8 screen buttons to Mute the corresponding tracks.
- Use the Shift + corresponding screen button in order to Solo the selected track.
- On this screen, you can use the following shortcut to **rename** the tracks. Press and hold the Rec button and choose one of the eight screen buttons. These correspond to the particular track you want to rename.

https://www.youtube.com/embed/Hr-IQ0709YY?feature=oembed

Screen 3/3 - Global Mixer

Allows the control of the volume in dB and adding **Gain** to the Delay, Reverb, Dry Mix, Line input, Line input Delay and Reverb. Plus a visual level check.

- Press and hold one or more screen buttons corresponding to Send fx mixes. Now use Arrow keys or Jog-wheel to adjust their volume.
- Use the screen buttons to Mute them.
- Use the Shift + corresponding screen button in order to use the Solo function.

Important:

- **Main Volume shortcut** > Master + jog-wheel.
- You can use the Shift key + 1 to 8 screen button shortcut. This will Mute each of 1 to 8 tracks in the Pattern screen.
- In the Master section. Hold down more than one screen button pressed to edit more than one corresponding value.
- Reverb and Delay **Send fx** can be applied both on the **pre** and **post-volume fader** basis (as a Config choice).

- There are two different types of **Limiter** settings > **Subtle** or **Extreme** (as a Config choice).
- The **Line input** function allows constant monitoring of the incoming audio signal. The line input is stereo so it plays through in stereo. It is by default disabled in the Master Mixer section.
- The Master section mixer can be controlled using MIDI CC communicates where:
    - Tracks volume mix – from CC71 to CC78.
    - Delay mix – CC 79.
    - Reverb mix – CC 80.
    - Dry mix – CC 81.
    - Line input – CC 82.

- Using the Mute function in the Master section differs from how it works in the Pattern view (Shift + the eight Screen buttons corresponding to each track). Here, the Mute action will take place when you let go of the key, not when you press it. Knowing this may help you with the mix transitions from the Master screen level.

Performance Mode

Not only is the Tracker inviting you to compose music, but is also introducing an entertaining way of performing it. Press the **Perform** key to access a mighty inspiring live performance tool it is offering you. Here you will work in either the **Preview** mode (**green**), in which you can trigger the effects. Or in the **Edit** mode (**red**), accessed by a press of the Rec key, where you will prepare and edit your fx setup.
Note: In the Config menu, you can toggle between global and/or per-project Performance template storing modes.

https://www.youtube.com/embed/oAsghDzZIXQ?feature=oembed

Punch-in Effects

Performance mode gives access to a number of configurable effects that you can youse at the same time. There are twelve effects slots available. This allows you to build an fx set that suits your concept (see the available Fx list in the appendix).

You can trigger the performance effects in real-time using the grid or by MIDI CC input. There are four values for each of the chosen effects. The first one (—), on top, is off by default. The remaining three positions below are customizable. The grid pads represent the presets. Turn them on by pressing the corresponding grid pad.

These **punch-in** effects will sound only on the indicated tracks. Use the eight Screen buttons (on the bottom of the screen) to select particular tracks that are going to be affected. Processed tracks will be marked in red.

Important:

- Organize selected performance effects by moving them left and right using the Shift + left/right arrow shortcut when Edit mode is on (Rec).
- All the changes made in the Performance mode are disabled when exiting the mode.
- Customize Performance effects when being in Edit mode (press the Rec key). Navigate with the left/right arrow keys and choose the type of effect using the up/down arrow keys and. Try switching effects on different Fx slots by holding Shift and pressing arrow keys.
- Performance mode will work through the entire song. To toggle between the pattern looping. Or playing the entire song without stopping playback. While on the Performance screen, use the Shift + Play keys shortcut. Or the screen Loop Pattern / Continue Song button.
- There are 20 unique **custom** play mode Fx's available. They're giving you the option to shuffle your existing patterns. Works based on predefined algorithmic changes to the existing steps (relocation, repeat, rolls).
- You can switch between the Performance screen and Instrument Parameters without resetting the performance. This allows even more live modulation options.
- When switching between Performance and Pattern screens. The effect affected tracks indicators are getting back to default/off. This prevents unexpected things to happen when playing live.
- Mute actions are available in the Performance mode using the Shift key + Screen buttons.
- The Status bar shows a custom Performance icon to let you know the performance pattern is playing with your chosen effects.
- Performance mode Fx's can be externally controlled using MIDI CC input communicates from CC51 to CC62 and are represented by the top row of values.
- The effects are applied in correspondence to the pattern or instrument parameters values. When the volume effect value is 10. It means that when it is on. It will add 10 to the value of Volume set in instrument parameters or to the value set in the pattern.

Pattern Tracks Remixing

There is one more very useful function of the Performance mode available. Tracks from different patterns can be mixed together here. Use it to make real-time changes of different patterns tracks in a Song mode. And even **remix** entire compositions. It's convenient to make breakdowns and achieve unexpected results.

https://www.youtube.com/embed/0AmQu04Wfuw?feature=oembed

To switch between the pattern's tracks, get out from the Edit mode (press Rec key), then hold the desired Screen key and use:

- Left/right arrows for a **sequential** change – patterns change after the currently playing pattern phrase reaches its end (corresponding pattern number will blink red on the display).
- Up/down arrows and Jog wheel for an **immediate** pattern change.

Important:

- Change more than one pattern track at the same time, just hold more than one screen key and use the up/down arrow or the jog-wheel.
- When mixing tracks from patterns of different lengths it takes the longest one and loops it whereas the shorter are cut.
- Performance mode track selection can be externally triggered by MIDI CC input communicates from CC41 to CC48.
- The Pattern Length effect will apply to the length of every track, no matter if they are selected or not.

Audio Rendering

Polyend Tracker offers the functionality of rendering audio files directly to the SD card. Choose what is being rendered – single patterns, separate tracks, or entire song mixdown as one track. Only active tracks will get rendered, Muted tracks will be ignored.

Go to File > **Export** > and choose what needs to get rendered into an audio file (Song, Song stems, Pattern, Pattern stems). The Tracker will play the currently rendered material.

- Song export is about 20% faster and usually faster than wall clock song time,
- Stem rendering takes place one at a time and depending on the project complexity can be time-consuming (around twice the wall clock song time). The timestamp and progress bar is indicating the ongoing rendering. Rendered audio files are saved to the Tracker's SD card root directory Export folder, in a current project's named subfolder.
- While **rendering stems**, the Tracker exports:
    - 8 mono track files,
    - 2 send Fx (Delay, Reverb) mono files,
    - Single master stereo mix file,
- Rendered stems are PCM .wav audio files with a sampling rate of 44100Hz/16bit.
- The volume of separate rendered stems files can be set in the Master 2/3 section. The rendered master track volume is being set in the Master 1/3 section and it's always rendered with the Limiter and its current values.
- The MIDI Clock has to be set to Internal in order to render the stems/master tracks.

There's a **Render selection** to sample function accessible from Pattern/sequencer screen. It's a very useful and creative function that allows rendering of a selected step or step selection (on one or more tracks at the same time) into a single audio file. In Pattern section > turn Edit Mode on (Rec) > use Shift + arrow keys to select the desired area > now use the Render screen button to create a new sample clip.

- Both the selection renders and stems/master audio tracks are stored in the Export folder.

General & MIDI Config

All the Tracker s configuration options are available under the **Config** key. They come together with a short description, and are as follows:

- Project Settings:
    - Performance presets – store Perform presets > Global – globally (same settings for all projects), Project – locally (each project has its own presets).
    - Pattern divider – highlights each chosen step, to give better visual feedback in the pattern > from 1 to 16.

    - Pads scale – see appendix for the scale filters list. All scales use equal temperament tuning. Use the chromatic scale for the pads to use all twelve semitones. This gives four full octaves with a base note in the first column of each line.
    - Pads root note – from C2 to C4 > determines which note is played by the lowest leftmost pad in the pads grid.
    - Pads layout – from 1 to 12 > sets how many semitones higher should the pad right above the root note pad be. The root note pad is the lowest leftmost pad in the grid, eg. in layout 1 the pad above the root pad will play the 2nd note of the chosen scale. In layout 4 the pad above the root pad will play the 5th note of the chosen scale.
    - Anti-aliasing – On, Off > disabling anti-aliasing gives the vintage feeling, samples are harsher when detuned heavily.
    - Limiter mode – Subtle, Extreme > determines how the attack and release of the limiter are treated. Subtle limiting gives a more transparent sound bit that will not be able to catch very sudden changes in amplitude. Extreme limiting reacts much faster which colors the sound.
    - Sends mode – pre-fader, post-fader > pre-fader sends are independent of the instrument volume. This allows the wet signal to be louder than the dry signal. Post-fader sends are proportional to the instrument volume. This gives a more consistent sound when the volume is modulated,

- General configuration:
    - Radio Region – adjusts radio frequencies to the chosen region > Europe, US, Australia, Japan.
    - Display Brightness – high, medium, low.
    - Display Theme – Original, Monochrome.
    - Display Font – Original, New.
    - Pads Brightness – high, medium, low.
    - Pads preview – Off, Track, Pattern > On the Pattern editor screen, the grid pads can highlight the notes in the active line. Choose between highlighting only the active track's notes, or the entire pattern's active line.
    - Recording options – set what information you are recording. Only notes – quantized notes only. Microtiming – notes with microtiming. Velocity – quantized notes with velocity. Microtiming + Velocity – or notes with microtiming and velocity. For recording notes from external MIDI devices. Tracker is scaling external MIDI recordings velocity 0-127 to V step fx values.
    - Hexadecimal numbers – On, Off > enable the throwback hex goodness. Pattern step numbers start with 00 and use sixteen digits (A means 10, B means 11, and so

on all the way to F which means 15). This allows for easy alignment with music: bars will always start with pattern steps 00, 10, 20, 30, and so on. Each bar's quarter-note beat steps end with the digits ..0, ..4, ..8, and ..C.
    - Pattern arrangement – Vertical (default classic tracker sequencing style display), Horizontal (for the most popular left to right time-line sequencing style display).
    - Pattern top info – Additional info, Track names (default), Off.
    - Line in Channel – sets line input channel mode > Stereo, Mono Left, Mono Right.

https://www.youtube.com/embed/lMfeOLy-jSY?feature=oembed

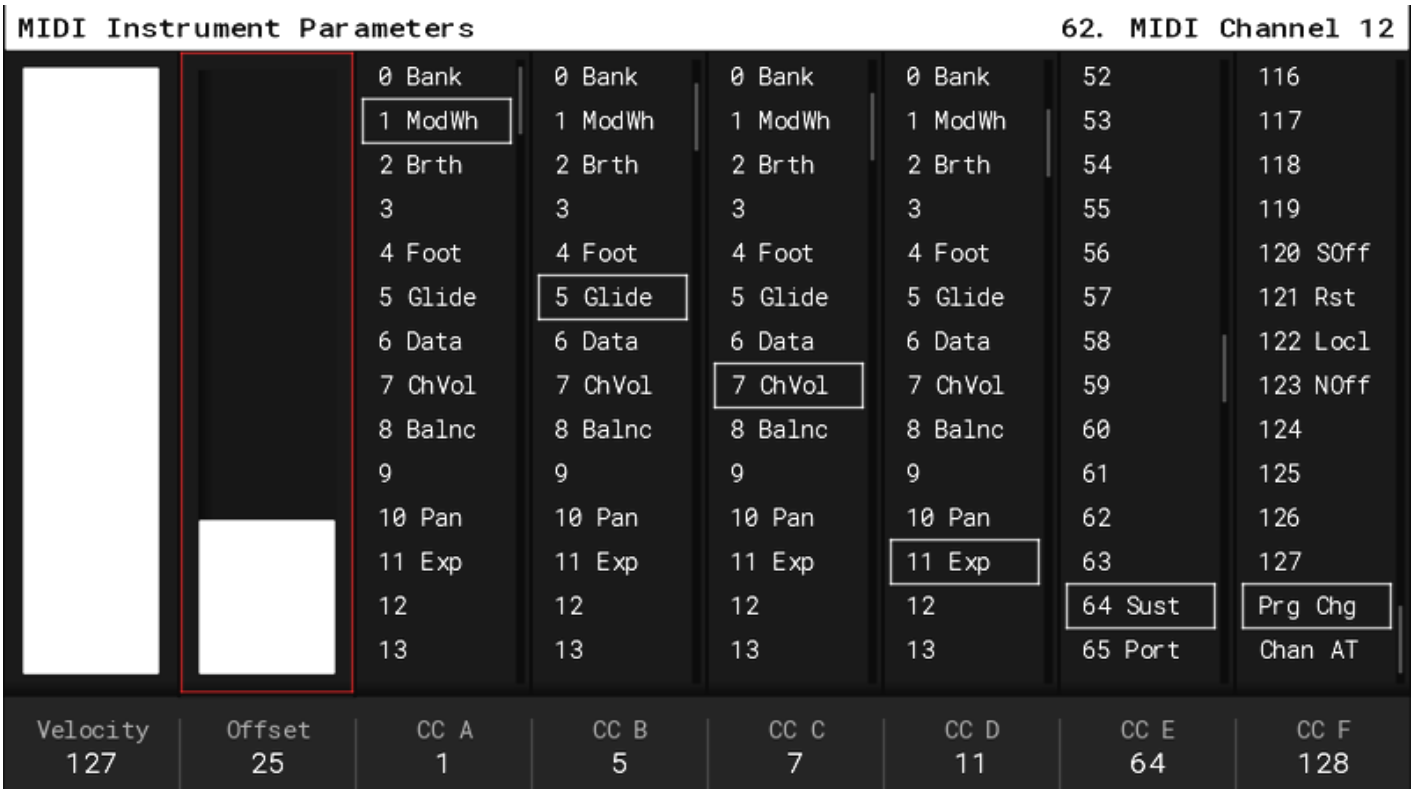
- Available MIDI input/output controls:
    - Clock In – Internal, USB, MIDI In jack.
    - Clock Out – Off, USB, MIDI Out jack, USB + MIDI Out, jack.
    - Transport In – Off, USB, MIDI In jack, USB + MIDI In jack.
    - Transport Out – Off, USB, MIDI Out jack, USB + MIDI Out jack.
    - Notes input mode – Off, USB, MIDI In jack, USB + MIDI Out jack.
    - Notes input channel – All, Ch1 to Ch16.
    - MIDI Out mode – Off, USB, MIDI Out jack, USB + MIDI Out jack.
    - CC input – Off, USB, MIDI In jack, USB + MIDI In jack (Supported incoming CC messages: CC41 – 48 Performance mode tracks, CC51 – CC62 Performance mode Fx slots, CC71 – CC82 Master mixer levels).
    - CC input channel – inputs from All or MIDI Ch1 to Ch16.
    - Middle C – available settings from C3 to C6.
    - Clock sync delay – from -50 to 50 (Allows compensating latency of the incoming sync signal. Use this with "Clock in" set to MIDI input jack or USB. Unit is tempo-dependent: 1.0 is 1/250 or a pattern step).
- Metronome: State (on/off), Pre Roll (on/off), Time signature num & denum (from 1 to 12), Volume (from 0 to 100).
- Firmware: here you can check the current version. **Update** the **firmware** version. And perform the Config reset if needed.
- Manual: view the onboard Polyend Tracker Quick-Start.
- Credits.

https://www.youtube.com/embed/soQu5xIKHbw?feature=oembed

Important:

- We've equipped the Polyend Tracker with a bidirectional MIDI (class-compliant over USB) implementation. It allows it to use both ways with external MIDI gear. Its internal PPQN resolution is 192.
- Be aware that MIDI Clock is being sent out based on the current tempo. Synchronizing anything over MIDI while using Tempo step Fx will affect the MIDI sync.
- The exact MIDI CC settings for the "a to f" step Fx outputs. Such as PC, channel aftertouch, and polyphonic aftertouch. Are available in the MIDI step Instrument Parameters section:
    - Choose an instrument like M01, you can check and edit the available assignments. Each MIDI channel has its own now.
    - While working on the Patterns, you now need to specify which MIDI channel you want for each of the Step "a to f" effects. Choose the MIDI instrument for that step. Refer to the MIDI Instrument parameters view.
    - There are 16 MIDI channels available in the MIDI Instruments from M01 to M16. It's possible to assign six different CCs to each of those channels.

- Notes played with an external controller now use constant velocity if "Velocity" is not enabled in the Config's Recording Options.
- Notes played with an external controller passed to a MIDI Instrument are now velocity-sensitive.
- There's a **MIDI** output latency **compensation** setting. It is available from the MIDI step Instrument Parameter screen as the Offset.
- Hint: The MIDI program change message is being sent right before the MIDI notes are. There's a very small gap between them. If there's a need, try setting the PC change on a step before. The last step of the previous pattern. If this solution would be sending the PC change too early, then you can try using the micro move step fx on that particular step. This way, you should be able to match the used devices.
- It is possible to use the Tracker to sequence an external synth using MIDI channel sends and then record that audio back into the Tracker while it is playing the pattern. Go to Sample Recorder, press the Record screen key, and then press the dedicated Play button to start and stop the sequence. This will start your MIDI sequence playback while simultaneously sample recording from the audio input connector.
- While in the Sample Recorder screen, you can press and hold the yellow Instrument button to gain access to a quick MIDI instruments/channels selection popup.
- Tracker's MIDI output can serve as a MIDI thru port.



MIDI Synth Mode

Press the Shift + Instrument Parameters keys and a new Instrument Synthesizer screen will appear. It allows you to play the selected instrument using the MIDI protocol. With up to 8 voices at the same time, with the possibility of changing certain parameters of this instrument via MIDI CC. With the following settings available:

- On the left side, you can see a reference list of available instrument parameters that can be modified with assigned CCs (see the list in the Appendix of the following manual).
- On the right side, a list of all available sample-based instruments (0-48) with their names, allows you to select the target affected instrument via MIDI protocol.

Important:

- The MIDI Synth Mode will work only when the Tracker's sequencer is stopped.
- This mode can be used normally outside of this screen and the instrument being played is always the currently / last used instrument (the one displayed on the bar at the top).
- Communication with external instruments over MIDI is based on the standard MIDI settings selected in the Config menu.

- The following mode was introduced in the 1.6 firmware to use the Tracker as a companion to the Polyend Play but can be used with any other MIDI rigged instrument as well.

Note: In any of the Tracker sections – Press Shift + on/off button to take a screenshot which will get saved directly to the SD card.

Firmware Updates

To update the firmware > copy the firmware file to the Firmware folder on the SD drive. Go to Config > Firmware. Choose the desired version of the .ptf (Polyend Tracker Firmware) file.

And confirm using the screen key.

Use the attached microSD card USB dongle reader o copy the firmware files or any other files to the Tracker's microSD card.

Find the latest official firmware release here.

https://www.youtube.com/embed/YB_h0qTBGKk?feature=oembed

In Case of Trouble

Start by disconnecting the USB C cable connector from its port located on the back panel. This will cause a complete shutdown. This usually helps. Another thing to do in such a case is to try the config reset in the Config/Firmware section.

The SD file structure might get damaged if your device loses power during a firmware update. If that happens, or the firmware doesn't boot up for any other reason, you can perform one of the two emergency flashing procedures as follows:

First method:

- Press the hidden reset button on the back panel of the instrument. It will auto flash with a randomly picked firmware .ptf file from the SD card Firmware/ folder.

Second method:

- Download the Polyend Tool.
- Download a known working firmware file either from the Polyend website or one of the previous beta .ptf files.
- Remove the SD card from the Tracker's port.
- Connect your Tracker directly to your computer with a USB cable (avoid USB hubs and dongles).
- Power up the Tracker.
- In the Polyend Tool, choose the .ptf file you want to flash with.
- Use a pin, needle, or similar object to press the hidden Reset button next to the Tracker's USB C port.
- Wait for the firmware update to complete.
- If the update reaches 100% but the device doesn't reboot on its own, restart it manually.
- Re-insert the SD card into the Tracker's slot.

Important: Unit is still crashing? Try this: connect your SD card to your computer and delete the hidden “Workspace” folder.

Where possible, Polyend will fix any firmware-related issues considered bugs. Polyend is always keen on hearing user feedback about possible functionality improvements, however, we are not obligated to implement such feature requests. Please respect that while we appreciate our customers’ opinions and wishes, we cannot guarantee or promise to implement them.

Obtain the beta firmware versions files here.Start by disconnecting the USB C cable connector from its port located on the back panel. This will cause a complete shutdown. This usually helps. Another thing to do in such a case is to try the config reset in the Config/Firmware section.

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Warranty & Safety

Polyend warrants this product, to the original owner, to be free of defects in materials or construction for one year from the date of purchase. Proof of purchase is necessary when a warranty claim is processed. Malfunctions resulting from improper power supply voltages, abuse of the product, or any other causes determined by Polyend to be the fault of the user won't get covered by this warranty (standard services rates will be applied). All defective products will be replaced or repaired at the discretion of Polyend. Products must be returned

directly to Polyend with the customer paying the shipping cost. Polyend implies and accepts no responsibility for harm to a person or apparatus through the operation of this product.

Please go to **polyend.com/help** in order to start a return to manufacturer authorization, or for any other related inquiries.

Important Safety and Maintenance instructions:

- Avoid exposing the unit to water, rain, moisture. Avoid placing it in direct sunlight or high-temperature sources for a long time.
- Do not use aggressive cleaners on the casing or on the LCD screen. Get rid of dust, dirt, and fingerprints using a soft, dry cloth. Disconnect all cables while cleaning. Only reconnect them when the product is totally dry.
- To avoid scratches or damage, never use sharp objects on the body or screen of the Tracker. Do not apply any pressure to display.
- This apparatus, by itself or used with amplifiers, headphones, and speakers is able to produce high sound levels. Do not operate at levels that are uncomfortable. Protect your ears.
- Unplug your instrument from the power sources during lightning storms or when it is not used for long periods of time.
- Make sure that the power cord is safe from harm.
- Do not open up the instrument chassis. It is not user repairable. Leave all servicing to qualified service technicians. Servicing may be required when the unit has been damaged in any way – liquid has been spilled or objects have fallen into the unit, has been dropped, or does not operate normally.
- A sound peak occurs on the stereo output of the Polyend Tracker when it's being toggled on/off. You may like to turn down the volume on all speakers and headphones before.
- The **encoder** parts are subject to wear as a result of the high force applied to the knob. To minimize the risk of damage, avoid pressing its edges.

EU Regulations

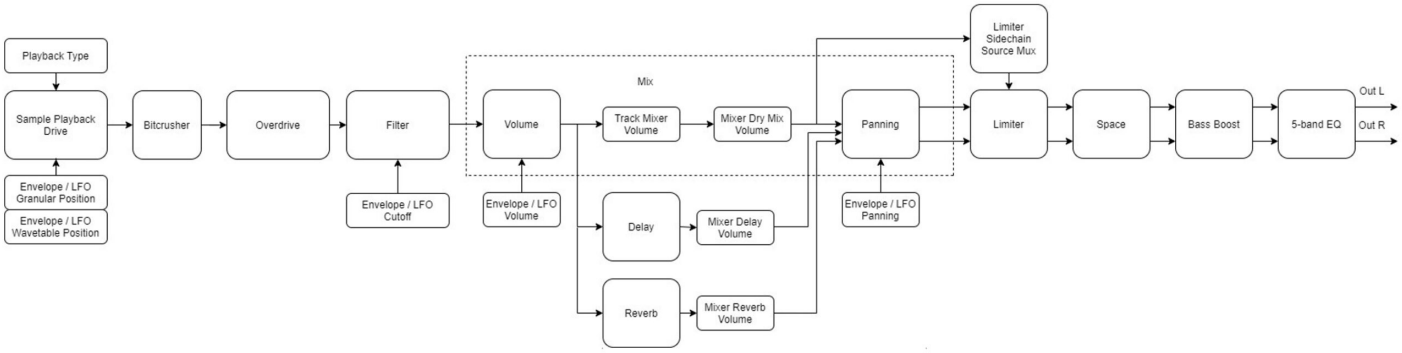
European Union regulation compliance statement. This product has been tested to comply with the Low Voltage 2014/35/UE and Electromagnetic Compatibility 2014/30/UE directives.

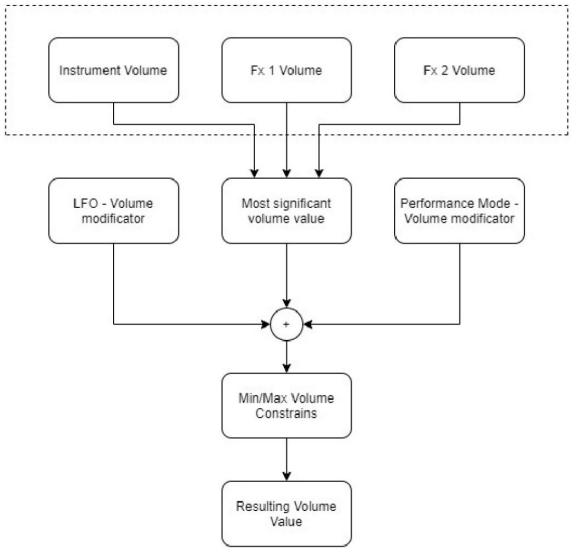
Appendix

Audio Architecture

The schematics shown below will help you understand the workflow. The first diagram demonstrates the Polyend Tracker's audio signal flow with the list of steps that input sound goes through in order to be heard through the output (the signal flow is the same for each of its eight audio voices).

The second diagram presents each instrument's amplifying structure.





The Step Effects List

While in the Pattern sequencer view. Press and hold one of the Fx keys to show the Fx list. Use the screen button underneath. It will expand their description popup.

– – None, indicates that there is no effect used on the desired step.

! – Off, toggles off the effect used on the previous step.

V – Velocity sets the Velocity of an Instrument from 0% to 100%. When V is not specified, the default velocity set in Instrument Parameters is used.

P – Panning sets the Panning of an Instrument from -50 (L) to +50 (R).

M – Micro-tune sets the micro-tuning adjustments from -99 cents to +99 cents. Works over MIDI output.

G – Glide sets the time it takes for the pitch of the previous note to travel to the pitch of the corresponding note from 0-49% (0-1s) to 50-100% (1-15s).

T – Tempo changes pattern tempo from 10BPM to 400BPM. Handy to create custom swings or grooves. Notice that MIDI Clock output is based on the current tempo. Synchronizing anything over MIDI while using Tempo step Fx will affect the MIDI sync. It supports the full stop command with the STP setting > jog-wheel max to the left.

I – Swing sets the pattern swing from 25% to 75%, where 50% is no swing. Put it on the first or any other step in one of your eight sequences to set a swing effect for the entire pattern. Affects the MIDI clock output.

m – Micro-move slightly moves (nudges) forward the step position from 0% to 100%.

q – Gate Length sets the length of a note if you need it shorter than step length from 0% to 100%. Performs in relation to the Instrument's sustain parameter. Works over MIDI output.

C – Chance, sets a chance of a step being played from 0% to 100%.

R – Roll sets the type and value of the (step divider) parameter from 0 to 16 for each Roll type. R – regular Roll. Rv – decreasing volume Roll. RV – increasing volume Roll. Rn – decreasing note. Roll RN – increasing note Roll RR – random note Roll. Works over MIDI output.

A – Arp, combined with the Chord step Fx (0xx) to arpeggiate in the given tempo divider, either in raising /, falling \, or random R pitches. Works over MIDI output.

n – Random Note, sets the range of randomization for Note with each sequencer pass from +/- 0 to +/- 100. Working accordingly to the global musical scale selected for the pads in

Config.

i – Random Instrument, set the range of randomization for Instrument number with each sequencer pass from +/- 0 to +/- 47.

f – Random Fx value, sets the range of randomization for the Fx that is in the same step with each sequencer pass. For example, if the randomizer value is 10 and the affected Fx value is 100, the algorithm will pick the value from 90 to 110 from +/- 0 to +/-255.

v – Random Volume, sets the range of randomization for Velocity with each sequencer pass from +/- 0 to +/- 100.

r – Reverse Sample Playback, changes the sample playback direction. Values: <<< and >>>.

p – Position works in relation to the chosen sample playback type. Changes the position of Sample start, Wavetable position, or Granular position from 0% to 100%.

S – Slice sets the slice number of an instrument with a Slice playback type from 1 to 48.

g – Volume LFO sets the LFO rate for instrument Volume. LFO is synced to project Tempo. With the following values: 6; 4; 3; 2; 3/2; 1; 3/4; 1/2; 3/8; 1/3; 1/4; 316 (3/16); 1/6; 1/8; /12 (1/12); /16 (1/16); /24 (1/24); /32 (1/32); /48 (1/48); /64 (1/64).

h – Panning LFO, Sets the LFO rate for Panning. LFO is synced to project Tempo. Values the same as above.

j – Filter LFO sets the LFO rate for the selected filter type. LFO is synced to project Tempo. Values the same as above.

k – Position LFO sets the LFO rate for the selected playback type (Wavetable, Granular) Position with respect to the project tempo (BPM). Values the same as above.

l – Finetune LFO sets the LFO rate for finetuning value. Values the same as above.

D – Overdrive sets the amount of Overdrive effect from 0% to 100%.

L – Low-pass sets the cutoff amount of the Low-pass Filter from 0% to 100%.

B – Band-pass sets the cutoff amount of the Band-pass Filter from 0% to 100%.

H – High-pass sets the cutoff amount of the High-pass Filter from 0% to 100%.

s – Delay sets the amount of Delay send effect from 0% to 100%.

t – Reverb sets the amount of Reverb to send effect from 0% to 100%.

E – Bit Depth sets the bit depth from 4 bits to 16 bits.

U – Tune sets the tuning adjustments. From -24 semitones to 24 semitones.

F – Slide up sets the slide-up amount in steps of 1/16th semitone from o to 255.

J – Slide down sets the slide-down amount in steps of 1/16th semitone from o to 255.

a – **f** – MIDI CC or PC, channel aftertouch, or polyphonic aftertouch outputs. Sends MIDI values from 0 to 127. Choose one of the MIDI instruments. And check or edit the available assignments in the Instrument Parameters. Each MIDI channel has its own now. While working on the Patterns, you now need to specify which MIDI channel you want for each of a – f step effects. Choose the MIDI instrument for that step. There are 16 MIDI channels available in the MIDI Instruments from M01 to M16. It's possible to assign six different CCs to each of those channels.

0 – MIDI Chord sends many MIDI notes. Numbers represent semitones above the base note. Eg. C-4 047 will play a major chord: C-4 (base note), E-4 (base+4), and G-4 (base+7). This is a MIDI exclusive step fx unless used with ARP.

MIDI Chord Step FX List

- Sus2 – 027
- Sus2 #5 – 028
- DimTriad – 036
- Min – 037
- Maj – 047
- AugTriad – 048
- Sus4 – 057
- Stack4 – 05A
- Open4 – 05C
- Sus #4 – 067
- Open5 – 07C
- Stack5 – 07E
- Sus2add6 – 0279
- Sus2 b7 – 027A
- Sus2Maj7 – 027B

- Dim7 – 0369
- HalfDim – 036A
- Min b6 – 0378
- Min6 – 0379
- Min7 – 037A
- MinMaj7 – 037B
- Maj6 – 0479
- Dom7 – 047A
- Maj7 – 047B
- Aug add6 – 0489
- Aug b7 – 048A
- AugMaj7 – 048B
- Sus4 b7 – 057A
- Sus4Maj7 – 057B

MIDI CC Input Chart

Supported incoming CC messages:

- CC41 – CC48 – Performance mode track change.
- CC51 – CC62 – Performance mode Fx slot values.
- CC71 – CC82 – Master section mixer volume levels.
- CC79 – Delay mix.
- CC80 – Reverb mix.
- CC81 – Dry mix.
- CC82 – Line input.

Supported incoming CC messages per instrument in the MIDI Synth Mode:

- CC5 – Tune.
- CC3 – Finetune.
- CC7 – Volume.
- CC10 – Panning.
- CC9 – Filter Type.
- CC1 – Cutoff.
- CC11 – Resonance.

- CC12 – Overdrive.
- CC13 – Bit Depth.
- CC14 – Reverb Send.
- CC15 – Delay Send.
- CC20 – Volume Automation type.
- CC21 – Volume Attack – Shape LFO.
- CC 22 – Volume Decay – Speed LFO.
- CC23 – Volume Sustain.
- CC24 – Volume Release.
- CC25 – Volume Amount.
- CC26 – Panning Automation Type.
- CC27 – Panning Attack – Shape LFO.
- CC28 – Panning Decay – Speed LFO.
- CC29 – Panning Sustain.
- CC30 – Panning Release.
- CC31 – Panning Amount.
- CC83 – Cutoff Automation Type.
- CC 84 – Cutoff Attack – Shape LFO.
- CC85 – Cutoff Decay – Speed LFO.
- CC86 – Cutoff Sustain.
- CC87 – Cutoff Release.
- CC88 – Cutoff Amount.
- CC102 – Wavetable Position Automation Type.
- CC103 – Wavetable Position Attack – Shape LFO.
- CC104 – Wavetable Position Decay – Speed LFO.
- CC105 – Wavetable Position Sustain.
- CC106 – Wavetable Position Release.
- CC107 – Wavetable Position Amount.
- CC108 – Granular Position Automation Type.
- CC109 – Granular Position Attack – Shape LFO.
- CC110 – Granular Position Decay – Speed LFO.
- CC111 – Granular Position Sustain.
- CC112 – Granular Position Release.
- CC113 – Granular Position Amount.
- CC114 – Finetune Automation Type.
- CC115 – Finetune Attack – Shape LFO.
- CC116 – Finetune Decay – Speed LFO.
- CC117 – Finetune Sustain.

- CC118 – Finetune Release.

https://www.youtube.com/embed/soQu5xIKHbw?feature=oembed

Performance Mode FX List

- Volume from -100 to 100.
- Panning from -100 to 100.
- Tune from -48 to 48, works for MIDI.
- Low-pass filter cutoff from -100 to 100.
- High-pass filter cutoff from -100 to 100.
- Band-pass filter cutoff from -100 to 100.
- Delay Fx send from -100 to 100.
- Reverb Fx send from -100 to 100.
- Sample position from -100 to 100.
- Sample end from -100 to 100.
- Sample playback: Fwd – forward, Back – reverse, Rnd – Random.
- Volume LFO Speed from -28 to +28.
- Panning LFO Speed from -28 to +28.
- Finetune LFO Speed from -28 to +28.
- Filter LFO Speed from -28 to +28.
- Granular/wavetable LFO Speed from -28 to +28.
- Step repeater from 16 to 1/16.
- Pattern play mode: Forward, Backward, Random, Custom from C1 to C20 (unique algorithmic custom play modes).
- Pattern length from 1 to 128.
- Bit Depth from -12 to +12.
- Overdrive from -100 to +100.

Musical Scales Filters

Name – Abbreviation.

- Chromatic – Chromatic

- Minor – Minor
- Major – Major
- Dorian – Dorian
- Lydian – Lyd Maj
- Lydian Minor – Lyd Min
- Locrian – Locrian
- Phrygian – Phrygian
- Phrygian Dominant – PhrygDom
- Mixolydian – Mixlydian
- Melodic Minor – Melo Min
- Harmonic Minor – Harm Min
- BeBop Major – BeBopMaj
- BeBop Dorian – BeBopDor
- BeBop Mixlydian – BeBopMix
- Blues Minor – Blues Min
- Blues Major – Blues Maj
- Pentationic Minor – Penta Min
- Pentatonic Major – Penta Maj
- Hungarian Minor – Hung Min
- Ukrainian – Ukrainian
- Marva – Marva
- Todi – Todi
- Whole Tone – Wholetone
- Diminished – Dim
- Super Locrian – SLocrian
- Hirajoshi – Hirajoshi
- In Sen – In Sen
- Yo – Yo
- Iwato – Iwato
- Whole Half – WholeHalf
- Kumoi – Kumoi
- Overtone – Overtone
- Double Harmonic – DoubHarm
- Indian – Indian
- Gypsy – Gypsy
- Neapolitan – NeapoMaj
- Neapolitan Minor – NeapoMin
- Enigmatic – Enigmatic

https://www.youtube.com/embed/_3vrRQKyoys?feature=oembed

Polyend Tracker & Poly 2 Eurorack Integration

When using Poly 2 USB type A Host port for powering the Tracker or any other instrument. Make sure to provide a stable +5V from your case AC adapter.

There's a jumper switch on the back panel of the Poly 2.

By default, the jumper is set to provide the 5V straight from the case AC adapter 5V bus if available. If there's no dedicated 5V bus in your case. Then the Host port may not be able to power up connected instruments. In such a case, change the jumper switch position to provide power for the USB host port from the 12V bus.

What's in the Box?

Polyend Tracker onboard original accessories.

- USB-A power adapter (with different standard plugs set).
- USB-C cable (2 m).
- Audio 3.5 mm jack to 2x 6.3 mm jack adapter.
- 1x MIDI 3.5 mm jack to MIDI DIN adapter.
- 16GB Micro SD Card.
- Micro SD to USB-A dongle adapter.
- Warranty and manual information card.

https://www.youtube.com/embed/iYJE6BGxVCA?feature=oembed

Polyend Tracker Licences

Software licenses

Sample sounds license agreement

Tracker Scene

There's a lively community going on around the Polyend Tracker phenomena. You can find a lot of inspiring, free-to-download Tracker projects and samples there. It's called a Polyend Tracker Scene and is located at the Polyend What's Up? blog. C'mon join us!

Jog Wheel Usage Hints

The encoder parts are subject to wear as a result of the high force applied to the knob. To cut the risk of damage, avoid pressing its edges while operating the unit. If there are any issues with your Tracker's jog wheel, please let us know here.

https://www.youtube.com/embed/S8LwGsTOXxY?feature=oembed

Polyend Tracker Cheat Sheet for nerds.

Polyend Tracker MIDI Exporter.