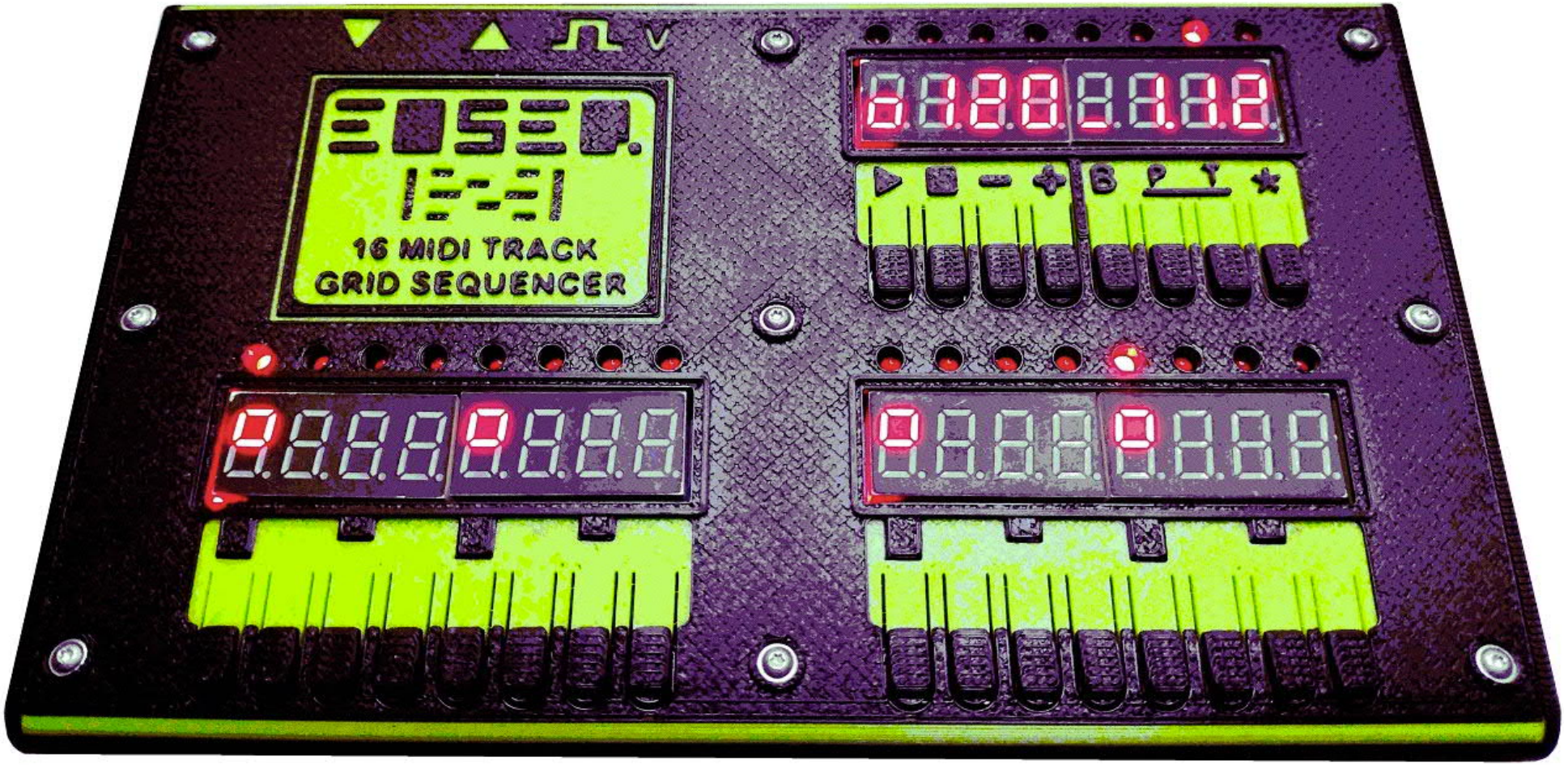
* * * EOSEQUENCER * * *



QUICK START MANUAL

SOFTWARE VERSION 2.0

INTRODUCTION - * WHAT IS EOSEQUENCER? *

EOSequencer is a minimalistic 16-track step sequencer built entirely around DIN MIDI.
The segment display design draws inspiration from classic pinball machines.
Featuring an internal GM synth it can be used as a portable sequencing device.

Interface & Workflow
16-step grid-based sequencing with 16th note quantization
Classic LED chase playback, Segment LED display interface, Clicky tactile buttons

Track Types
Each track has 3 velocity levels (editable per step)
Independent MIDI channel per track
Tracks 1–10: Drum tracks - Single note playback
Optional 32nd step support (e.g. for flams / rolls)
Tracks 11–16: Note tracks
Monophonic with legato / slide

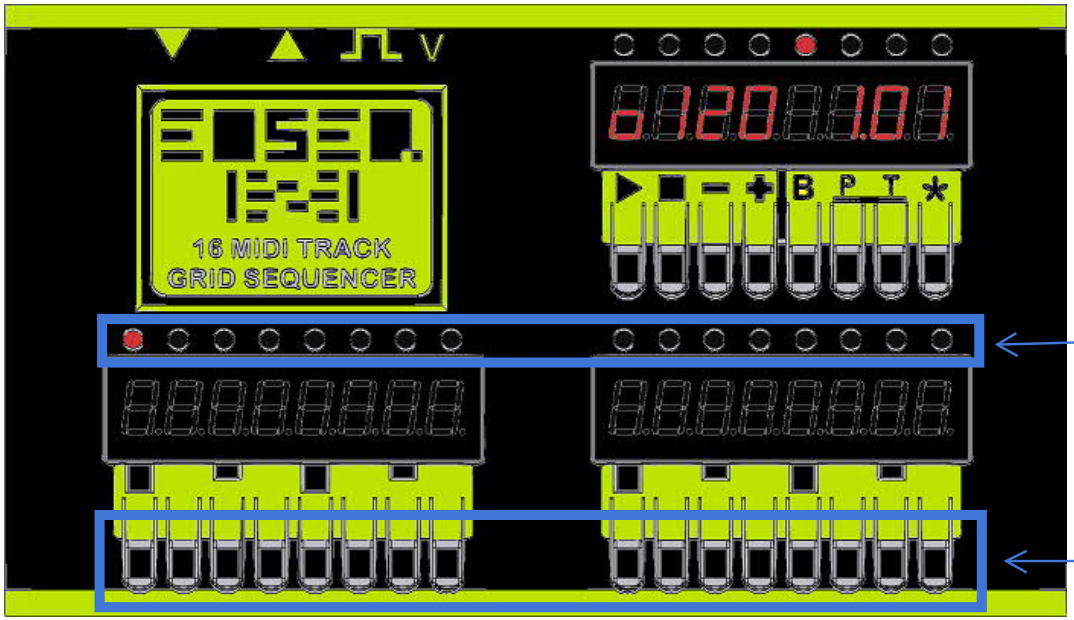
Pattern Structure
Up to 64 steps per pattern, 64 steps = 4 variations per pattern (A, B, C, D)
Mirror mode for editing all variations at once
16 banks × 16 patterns = **256 total patterns**

Note Input & Editing
Classic **x0x-style** step entry
Live MIDI input recording, Single-track or multi-track recording mode
Fast note editing: transpose, velocity, step nudging
Additional tools: randomization, chance-based playback
All important parameters (note, channel, note length, etc.) are saved per pattern

Timing & Sync
External MIDI clock sync
Internal clock output (optionally divided down) or external clock forwarding
Internal clock tempo range: 1–999 BPM - High speed sequencing - increased resolution
Click Sync Out for TE Pocket Operators / Korg Volca
Shuffle (Roger Linn style with half resolution 24 PPQN)

Advanced Performance Features
Per-track polymetrics: 1–16 steps per track looping independently
Pattern chaining + performance mode
Program Change per track
Pattern change via incoming MIDI notes
Deep copy / paste functions for tracks, patterns, and parameter sets

EOSEQUENCER MAIN SCREEN



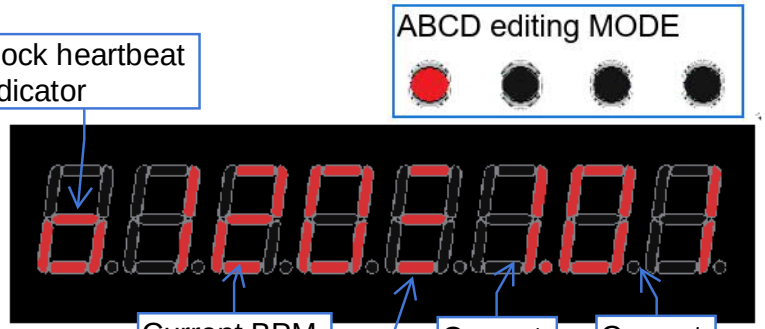
Indicator LEDs
Normally showing currently edited track.
During Playback, currently played step is displayed additionally (x0x style editing).

STEP buttons

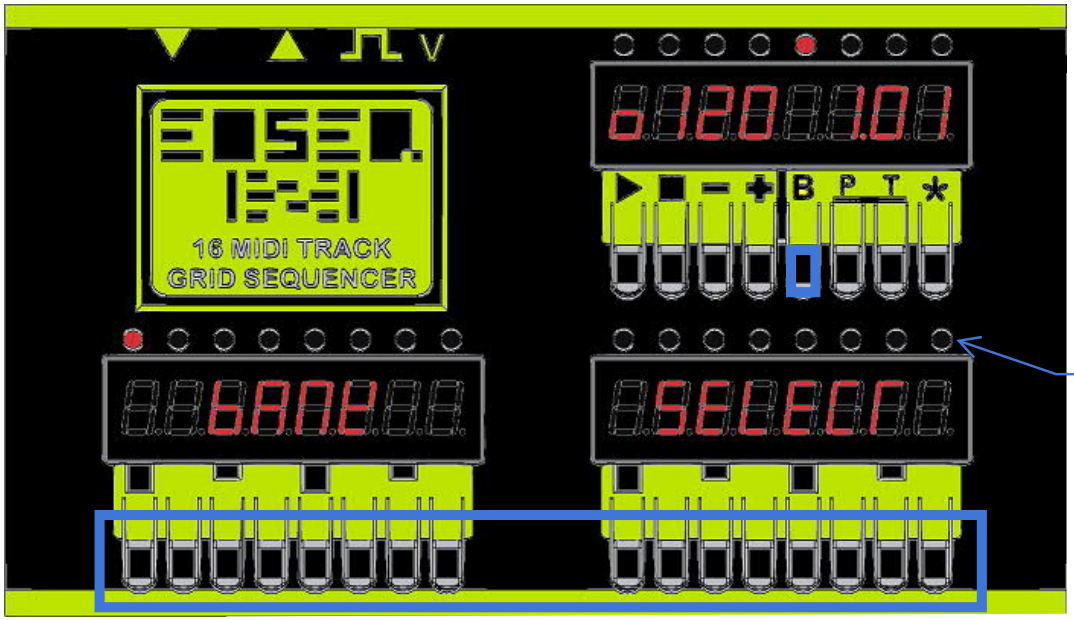
Main Interface buttons

- START PLAYBACK - RECORD MIDI IN ON/OFF
- STOP PLAYBACK
- DECREASE VALUE
- INCREASE VALUE
- **B** BANK SELECT
- **P** PATTERN SELECT
- **T** TRACK SELECT
- MULTIPLE FUNCTIONS

TOP DISPLAY



Playback MIDI load indicator (based on midi baud rate)
No or 1 line - low
2 - medium
3 - close to overload
Useful for double/quadruple time highspeed sequencing.



Push and HOLD B, P or T to select **BANK, PATTERN, TRACK**.
16 PATTERNS are arranged in 16 BANKS for a total of 256 patterns.

BANKS are indicated by numbers and letters:
1 2 3 4 5 6 7 8 9 A B C D E F G
PATTERNS are indicated by numbers 01 - 16.

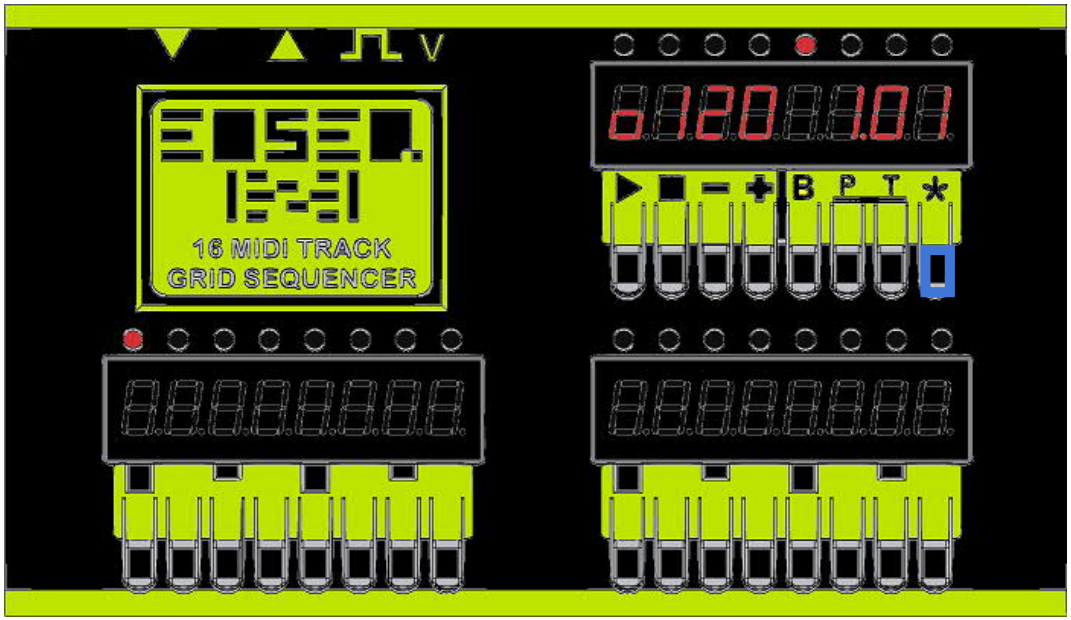
Each pattern consists of 16 TRACKS:
TRACK 1-10 are DRUM tracks that can play only one assigned note,
TRACK 11-16 are monophonic note/melody tracks.

Indicator LEDs
Now showing current BANK, push steps to select

Indicator LEDs
Now showing current PATTERN,
push steps to select or -/+ for previous/next pattern inside current bank

Indicator LEDs
Now showing current TRACK,
push steps to select or -/+ for previous/next track

Changing a pattern during playback will load and play the next selected pattern in followup. A rotating "8" figure instead of MIDI load indicator will show that a patternchange is upcoming, the display will show the selected target. When a different bank is selected, pattern 01 of that bank will be loaded, as long as the rotating "8" figure is displayed it is still possible to dial in a different pattern inside that bank.



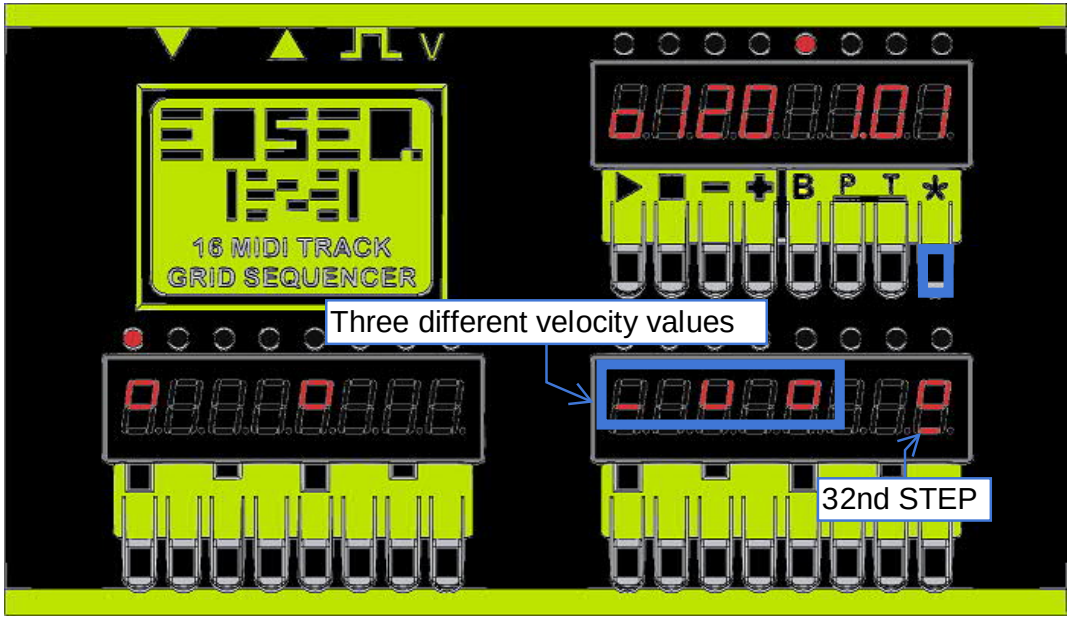
VARIATION & VELOCITY EDITING

Push * one time to cycle through the different editing modes.

Each pattern consists of up to 64 steps in four variations A B C D, (patterns can be restricted in setup to only use A, AB or ABC).

ABCD Editing modes:

- ● ○ ○ ○ CHASE, EDIT WHAT IS CURRENTLY PLAYED
- ● ● ● ● MIRROR, EDIT/CLONE A B C D IDENTICALLY
- ○ ● ● ● EDIT ONLY VARIATION A
- ● ○ ● ● EDIT ONLY VARIATION B
- ● ● ○ ● EDIT ONLY VARIATION C
- ● ● ● ○ EDIT ONLY VARIATION D



DRUM & NOTE track step and velocity editing:

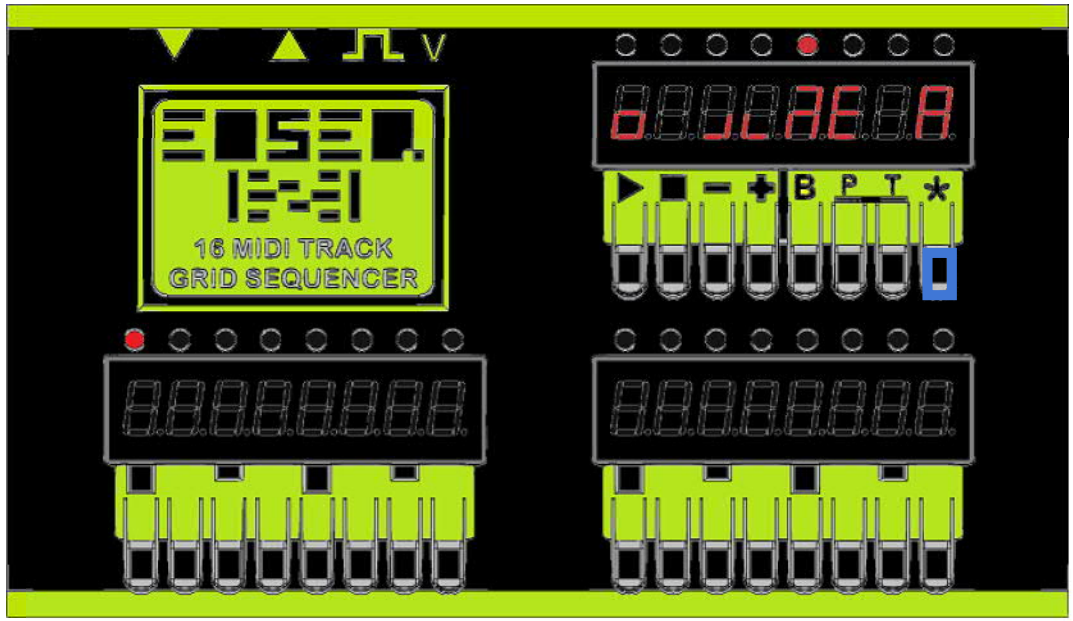
Normally pushing a step will set the step to maximum velocity.
Push and HOLD *,
then push one or several step(s) to change step velocity.
Last used velocity is saved and used when pushing empty steps.

DRUM track 32nd note (double step) editing:

Hold a step long (without *) to set an additional 32nd note, this is only possible on DRUM tracks.

Segment DOTs will indicate playback activity on each of the 16 tracks and also show if data at MIDI IN is received on respective midichannels and drum notes.

If a track is muted (MUTE SCREEN) the DOT indicator is also inactive.



DRUM & NOTE track QUICK EDIT functions

HOLD * and top display will change.
Additionally push one of the buttons to the left:

▶ during PLAY - PLAYBACK MODE (explained later)

■ SEND PATTERN SYSEX DUMP (explained later)

– NUDGE STEPS LEFT

✚ NUDGE STEPS RIGHT

B RANDOMIZE STEPS

P ERASE CURRENT TRACK

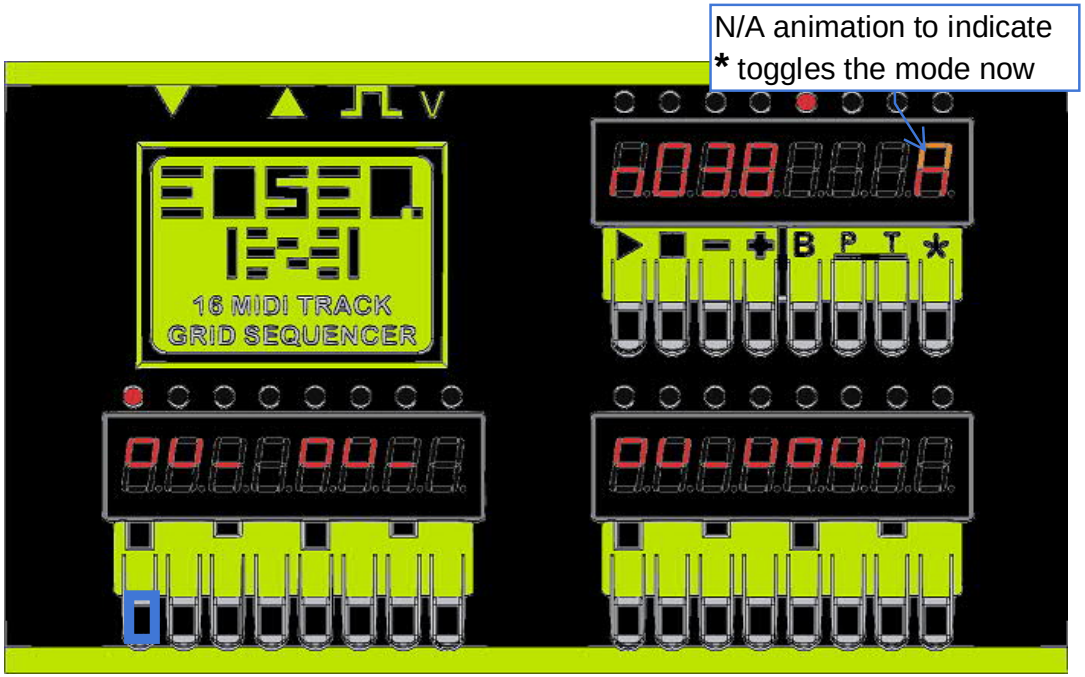
T not used

✱ SHOWS ABCD animation, if nothing is pushed additionally and * is released, ABCD mode is cycled

NUDGE, RANDOMIZE and ERASE depend on current ABCD editing MODE:

● ○ ○ ○ NUDGE/ERASE ALL VARIATIONS	● ○ ○ ○ RANDOMIZE SAME STEPS ON ALL VARIATIONS BUT DIFFERENT VELOCITIES/NOTES
● ● ● ● NUDGE/ERASE ALL VARIATIONS	● ● ● ● RANDOMIZE ALL VARIATIONS IDENTICAL
○ ● ● ● NUDGE/ERASE ONLY VARIATION A	○ ● ● ● RANDOMIZE ONLY VARIATION A
● ○ ● ● NUDGE/ERASE ONLY VARIATION B	● ○ ● ● RANDOMIZE ONLY VARIATION B
● ● ○ ● NUDGE/ERASE ONLY VARIATION C	● ● ○ ● RANDOMIZE ONLY VARIATION C
● ● ● ○ NUDGE/ERASE ONLY VARIATION D	● ● ● ○ RANDOMIZE ONLY VARIATION D

Randomize on NOTE tracks generates notes that are in range of +/- 1,5 octaves from the last edited note on that track. About 40% of empty steps will be randomized.



NOTE track editing, only track 11-16

HOLD one of the active note steps and top display will change.

NOTE EDIT mode:
n038 is the note number on the currently held step.
Use +/- to change note number of held step.
Release step to finish editing.

When holding several steps at the same time display will show n000. This is the offset value for all currently held steps.
Use +/- to change all currently held steps at the same time.
Release steps to finish editing.

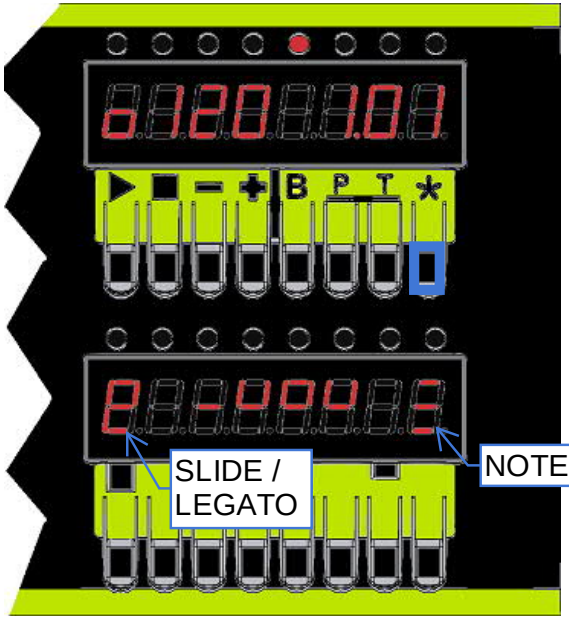
While HOLDing one of the active steps,
push the * button to toggle the editing mode.

ALL TRSP editing mode:
Top display will show A000, offset value for transposing all current steps. Use +/- to transpose all notes. Release step to finish editing.

If one of the edited or transposed notes reaches a value below 001, the step will be deactivated.

Transpose mode depends on current ABCD editing mode:

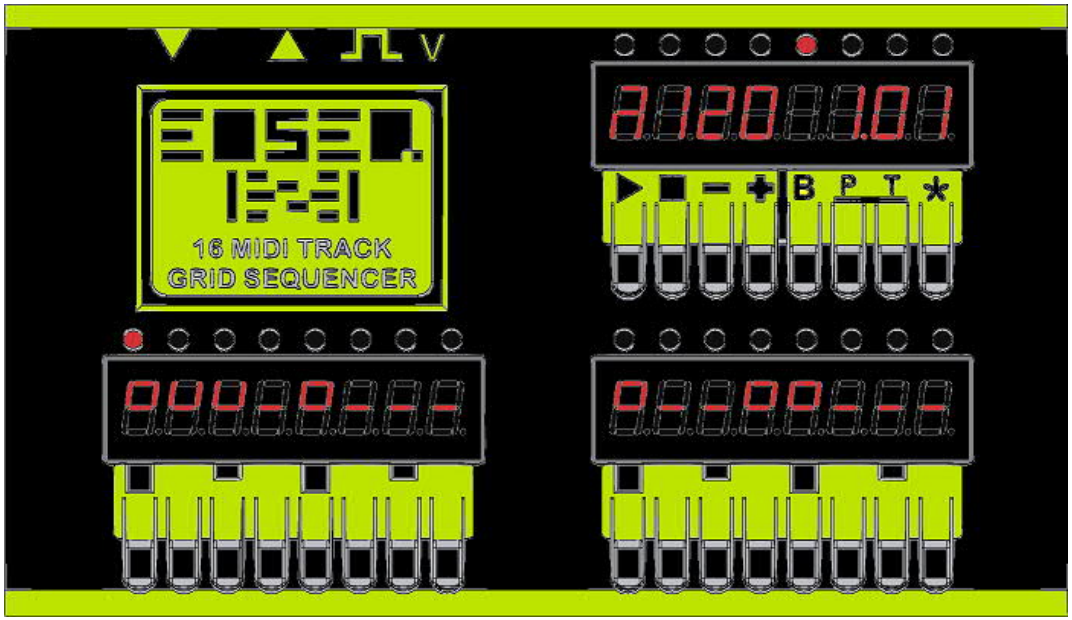
● ○ ○ ○	TRANSPOSE ONLY THE VARIATION THAT WAS LIT WHEN THE STEP WAS HELD
● ● ● ●	TRANSPOSE ALL VARIATIONS
○ ● ● ●	TRANSPOSE ONLY VARIATION A
● ○ ● ●	TRANSPOSE ONLY VARIATION B
● ● ○ ●	TRANSPOSE ONLY VARIATION C
● ● ● ○	TRANSPOSE ONLY VARIATION D



Adding slide/legato to note steps:
Hold * button and
push note step one time long.

Adding manual note off:
Hold * button and
push note step two times long.

Important is the long press, else it will be registered as velocity change.



RECORD depends on current set ABCD editing MODE:

- ● ○ ○ ○ RECORD ALL FOUR VARIATIONS, 64 STEPS
- ● ● ● ● RECORD 16 STEPS, FOUR TIMES IDENTICAL
- ○ ● ● ● RECORD ONLY VARIATION A
- ● ○ ● ● RECORD ONLY VARIATION B
- ● ● ○ ● RECORD ONLY VARIATION C
- ● ● ● ○ RECORD ONLY VARIATION D

Enabling **RECORD MODE** during playback

During playback, press PLAY a second time to enable recording from MIDI IN. Note off's are not recorded, step playback length for each track is defined in SETUP.

What is recorded how depends on SETUP parameters:

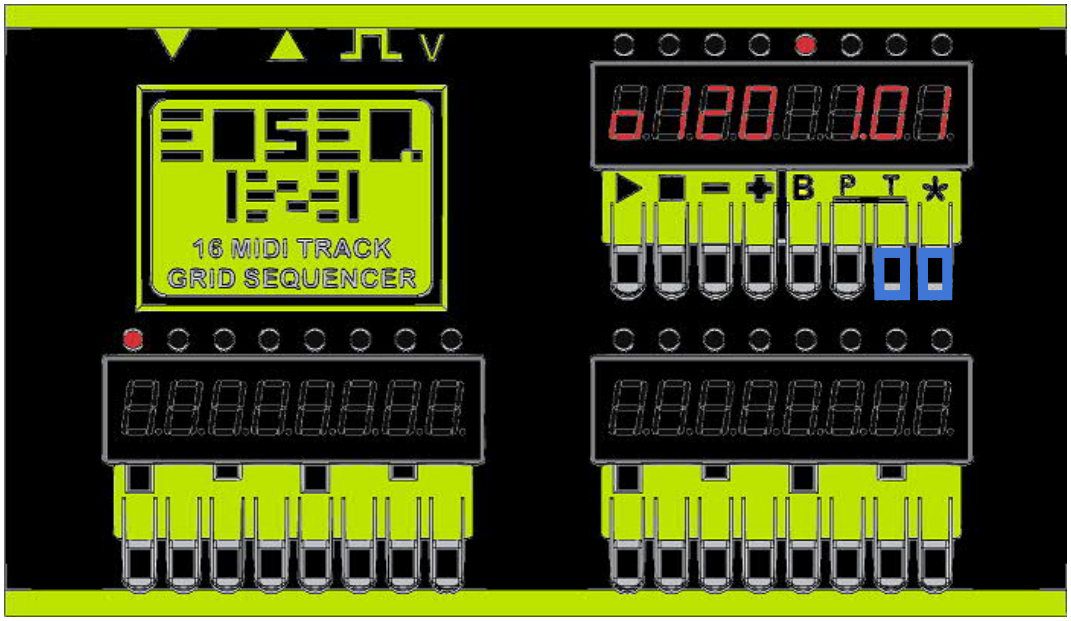
SINGLE will always record ANY incoming midichannel on the current selected track, in case of a DRUM track also any incoming midinote is quantized to the current selected track DRUM note (SETUP parameter). It is possible to record over already
recorded notes.

MULTI will record all incoming channels and tracks but only on the current set track midichannel and DRUM notes, NOTE tracks only on the currently set midichannel(s). It is possible to set several NOTE tracks to the same midi channel to record incoming chords. If a chord is detected (several notes on one step), the notes are sorted and assigned to the available tracks from left to right.

The sequencer is not aware which tracks have been already recorded, so if all six NOTE tracks are set to channel 1 and a four note chord is recorded on the first step, the first four tracks from the left are used. If later recording a single note on the same channel and step, the most left track step will be erased (removing one note from the chord) and replaced with that new incoming note. At the same time it is possible to record over and replace the current chords anytime. If a chord sequence has been perfectly captured, best practice is to change the midichannel and use remaining tracks for bass, lead etc.

The segment DOT which is used for indicating playback also shows incoming midi notes on all tracks, but only when incoming notes are on the correct track channel or setup DRUM note in **MULTI** mode, only on selected track in **SINGLE** mode.

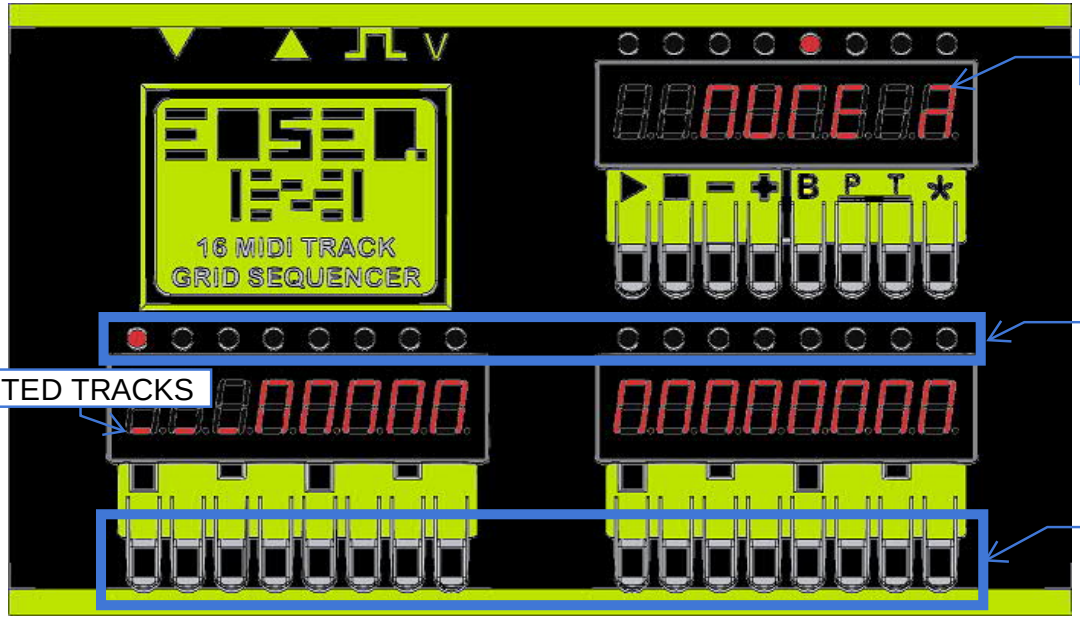
The velocity of incoming notes is quantized to the three velocity values (SETUP).



ONE finger TWO button combos

Push T and * to enter MUTE SCREEN

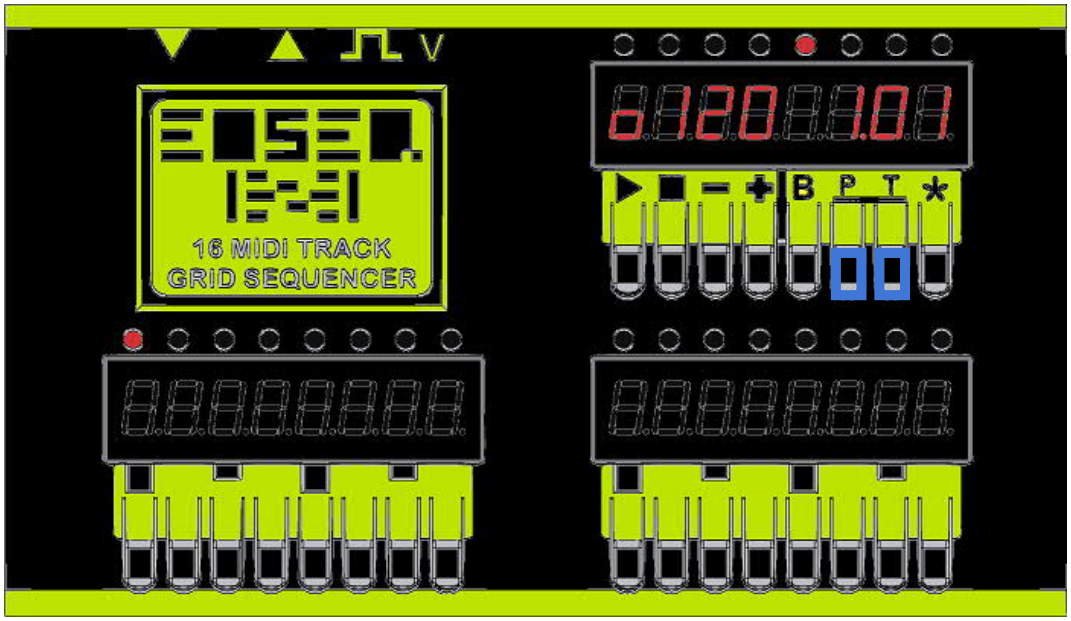
MUTE screen



Push * to RETURN TO MAIN SCREEN

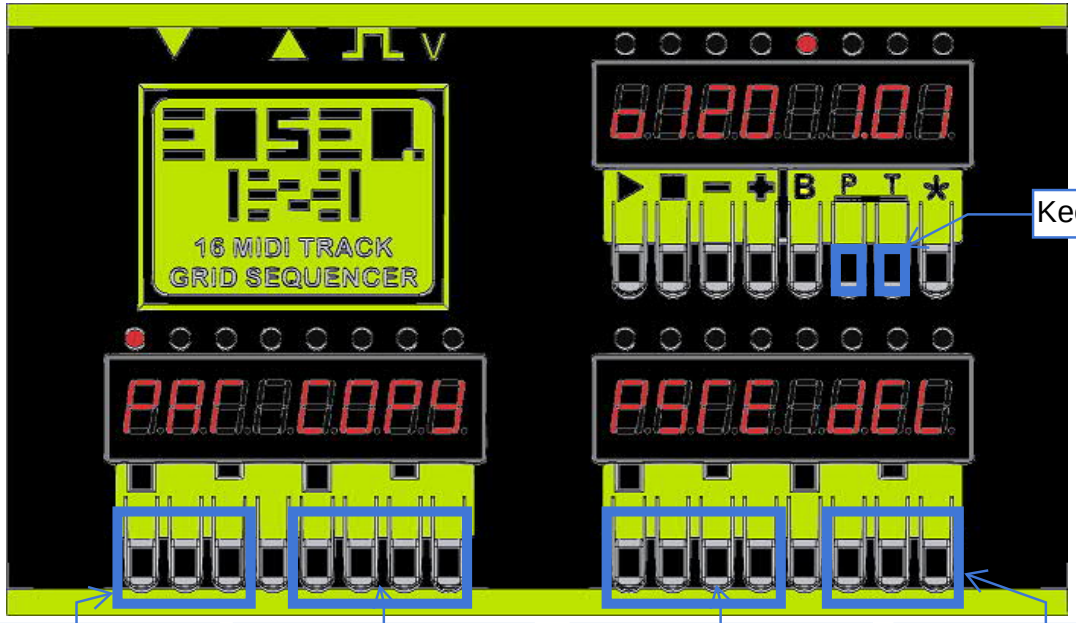
LEDs show track playback activity, also when track is muted

Push steps to mute / unmute



ONE finger TWO button combos

Hold P and T to show COPY menu (menu does not latch)



Pattern COPY MODE

Keep holding to make a choice

COPY will copy the complete pattern and all pattern setup values

PASTE will paste the complete pattern and all pattern setup values

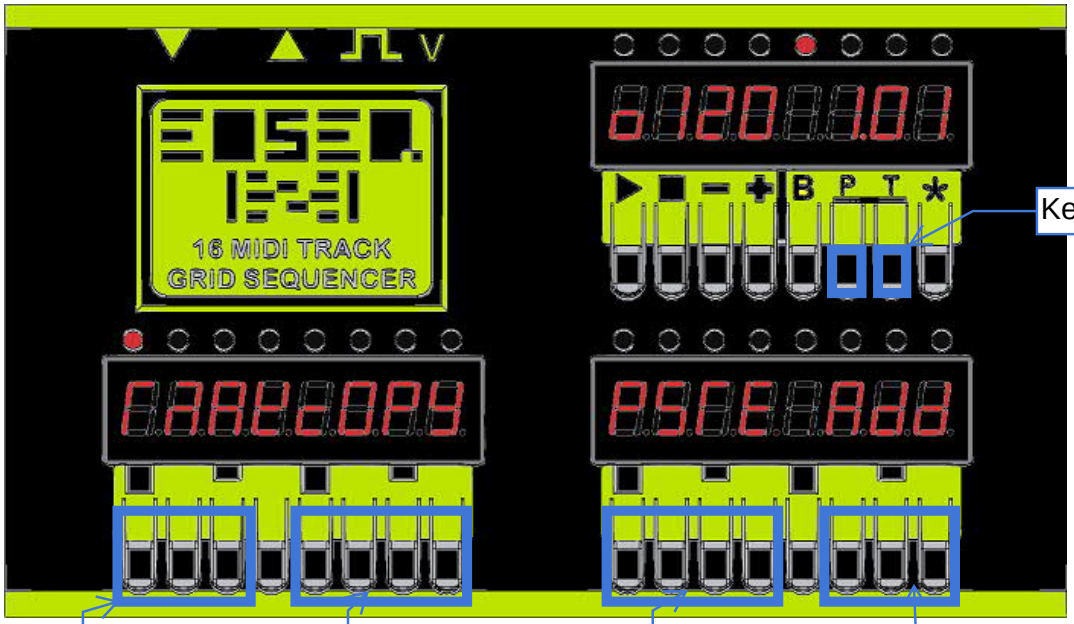
DEL will only clear all steps inside the current pattern,
setup values stay unchanged.

Toggle PATTERN / TRACK mode

Copy PATTERN and complete SETUP

Paste PATTERN and complete SETUP

Delete ALL steps in current pattern



Track COPY MODE

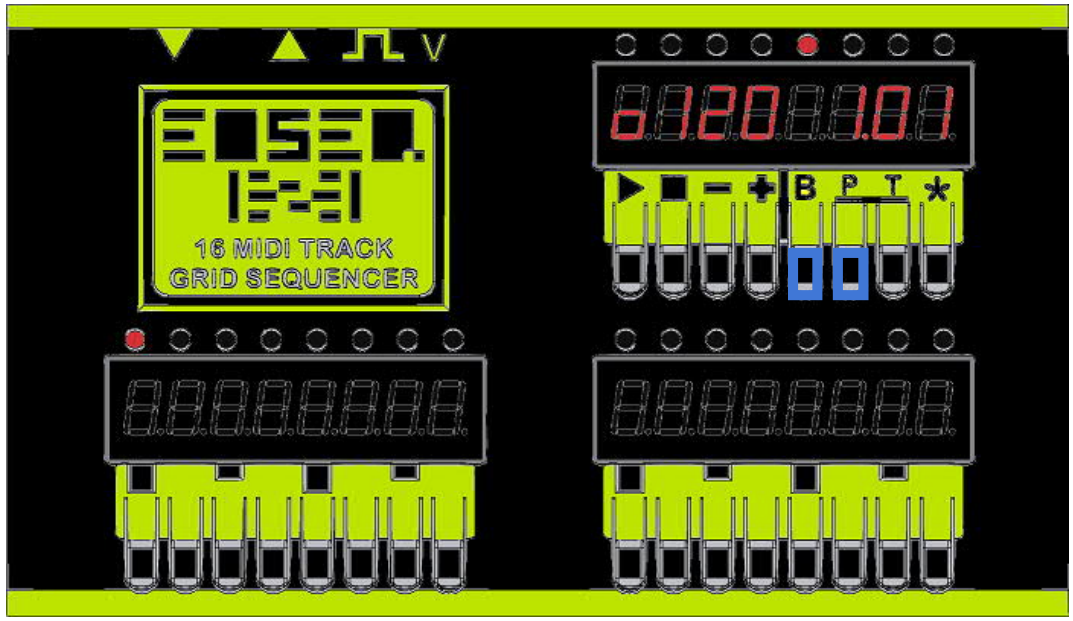
It is possible to copy from drum tracks to note tracks and vice versa.

In the case of drum to note the target note track will be set to the drum note of the copied track, 32nd note steps cannot be copied.

Legato/Slide and Note Off steps from note tracks also cannot be copied to drum tracks.

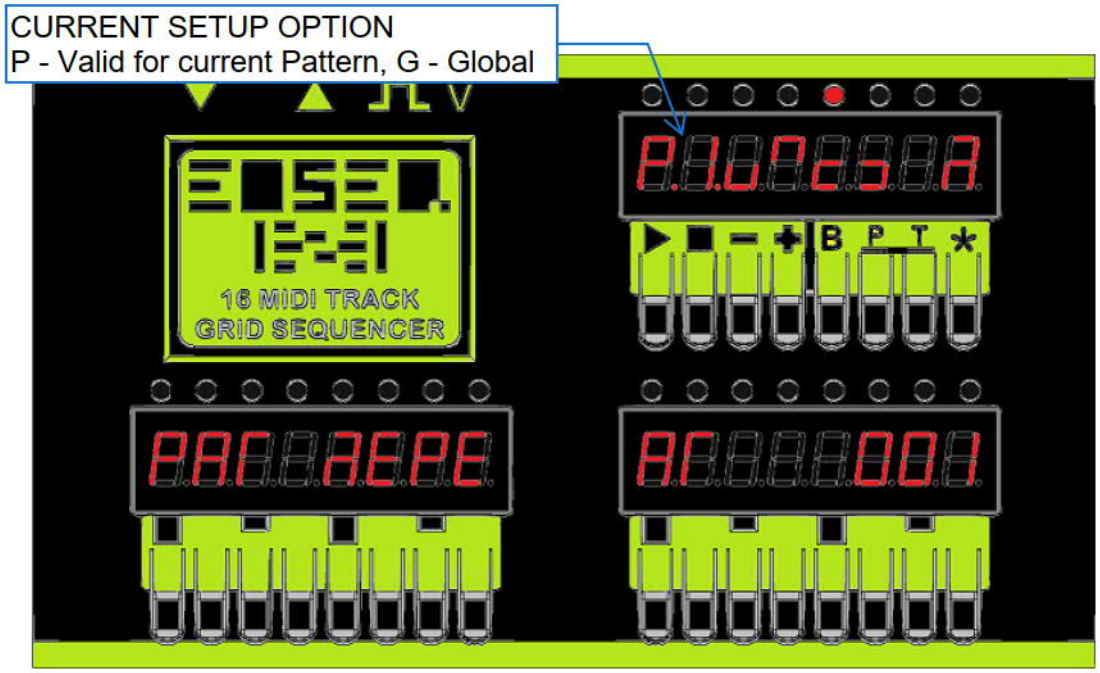
COPY PASTE behaviour in different ABCD editing MODEs:

	IF ALL VARIATONS ABCD WERE COPIED	IF ONLY ONE VARIATION WAS COPIED
Copy all variations	Paste all variations	Paste one variation to its original place
Copy all variations	Paste all variations	Paste one variation to all positions ABCD
Copy only variation A	Paste only variation A	Paste one variation to A
Copy only variation B	Paste only variation B	Paste one variation to B
Copy only variation C	Paste only variation C	Paste one variation to C
Copy only variation D	Paste only variation D	Paste one variation to D



ONE finger TWO button combos

Push B and P to enter SETUP MENU



SETUP MENU

- not used
- not used
- DECREASE SETUP VALUE
- INCREASE SETUP VALUE
- **B** PREVIOUS OPTION
- **P** NEXT OPTION
- **T** not used
- RETURN TO MAIN SCREEN

See next page for description of all setup parameters.

PATTERN SETUP

P.1. PAT REPEAT - INF / 001-255 (INF is infinite)
How many times to repeat current pattern before switching to next pattern.
If a pattern is repeated the last time, the top display pattern number will blink.

P.2. NEXT PAT - PLUS ONE / 1.01-G.16
Which pattern to play next, plus one is the next pattern in the bank or directly set BANK and PATTERN. It is possible to build a pattern chain loop by routing back to the first pattern at the last pattern of a chain.

P.3. CHAIN REPEAT - INF / OFF / 001-254
When building a pattern chain loop the amount of chain repeats can be set on the last pattern in the chain. If a chain has reached the end, the complete top display will blink during the last pattern playback. After a chain has ended, the standard pattern to play next is "PLUS ONE".

P.4. MIDI CHN - 001-016
Midi channel settings for all 16 tracks, DRUM channels are factory set to 10,
Note tracks are set to channel 1 through 6.

P.5. DRUM NOTE (only for DRUM tracks)
Drum notes can be set for DRUM channels. After selecting a track and pushing the step button a second time, a drum note can be midi learned from midi input (only on it´s respective midi channel), incoming midi note is identical to note that will be sent for playback.

P.6. NOTE LEN 001-129
Note playback length per track. Note length in MIDI tics (24 PPQN), a standard 16th note has a length of 6 tics. Drum tracks are factory set to length 1, note tracks are set to length 6.

P.7. VELOCITY 1 P.8. VELOCITY 2 P.9. VELOCITY 3
Three velocity values as represented by the three symbols.
These values are also used to velocity quantize incoming midi notes.

P.A. PRGCHNG OFF / 001-128 (000-127)
Program change (sound) can be set for each track, ideally one value per midi channel.
Command will be sent at the beginning of a pattern and also when they are changed in setup.

P.b. PAT VARI ABCD
Amount of variations in a Pattern. ABCD = 64 steps, ABC = 58 steps, AB = 32 steps, A = 16 steps

P.C. TRAKLEN 016 / 001-016
Track length per track - polymetric mode. Each track will wrap its individual length. Only possible for maximum 16 steps, Pattern variations will be automatically set to "A" when this mode is used. Pattern switching happens based on the longest track of the polymetric pattern.

P.d. SHUFFLE / 000-005 (000 = no shuffle)
A very rough shuffle option, all even steps are delayed by up to 5 midi tics.
This is based on the Roger Linn shuffle principle, but just offers half the resolution.

P.E. TRAKSTEP SKIP / 000-100
Track step skip, probability playback setting per track, based on a randomized value. 000 = No steps are skipped, 100 = all steps are skipped, value can be set in increments of 10.

Setup contains two types of values,
PATTERN and **GLOBAL** settings.
PATTERN setup values are unique for each pattern.
GLOBAL values are generally valid and apply to all patterns.

ALL pattern options can be changed during playback.

Some PATTERN options can be set per track, as indicated per lit track selection led.
Use step buttons to select the track.

Options with settings per track:
P.4. MIDI CHN - 001-016
P.5. DRUM NOTE (only for DRUM tracks)
P.6. NOTE LEN 001-129
P.A. PRGCHNG OFF / 001-128
P.C. TRAKLEN 016 / 001-016
P.E. TRAKSTEP SKIP / 000-100

Example **PATTERN CHAIN**:

PATT	PAT REPEAT	NEXT PAT	CHAIN REPEAT
01	04	02	OFF
02	04	03	OFF
03	04	04	OFF
04	04	01	4

Actual playback from this chain setup:
01 01 01 01 02 02 02 02 03 03 03 03 04 04 04 04
01 01 01 01 02 02 02 02 03 03 03 03 04 04 04 04
01 01 01 01 02 02 02 02 03 03 03 03 04 04 04 04
01 01 01 01 02 02 02 02 03 03 03 03 04 04 04 04
05 05 05 05 05 05 05 05 05 05 05 05 05 05 05 05
05 05 05...

PLAYBACK MODES

Hold * and push PLAY, only during playback

NORMAL PLAY - Standard CHAIN playback
KEEP CHAIN - repeat chain INFINITE
ONE PAT REPEAT - repeat current pattern INFINITE

GLOBAL SETUP OPTIONS

G.1. CLOCK AUTO / INTERN
Midiclock automatic or internal only. Playback must be stopped for AUTO to switch.
G.2. CLOCKOUT ON / OFF
Output midi clock, either internal generated or from external clock.
G.3. CLOCKDIVIDER 001-016
Divide down internal clock. If using higher BPM rates for more resolution, internal midiclock can be divided by the given value to have external gear in sync. Depending on value triplets etc are also possible.
G.4. MIDI THRU ON / OFF
Processed midi thru. Notes received at midi in are only forwarded to midi out if they are on currently set up note midichannels and DRUM midichannel/notes. Behaviour of midi thru also depends on SINGLE or MULTI setting.
G.5. TRAK REC SINGLE / MULTI
SINGLE reroutes ANY midichannel and note to the currently selected track,
MULTI receives all channels as they are set up.
G.6. PULSE RATE 001 OFF / 001-016
Rate for external TRS click, standard Volca/Pocket operator value is 002. The signal is output by TRS jack.
G.7. PULSE LENG 001-016
Length for external TRS click, standard Volca/Pocket operator value is 001.
G.8. MIDI PAT CHNG OFF / 001-016
Midichannel external pattern switching, the channel selected here will not be available for recording.
The first incoming midinote selects bank, the second incoming note selects pattern. All 16 possible values are mapped across the whole midi noterange so switching is easy in any octave range.
G.9. PROTECT OFF / ON
Memory can be protected from automatic saving, this is useful if you have a finished set you are not planning to change or if you want to improvise something temporarily but not have the changes saved.

G.A. do RESET NONE
Protection screen to prevent accidential operations
do SETUP PAT.2BANK
Copy current PATTERN SETUP values to all patterns in current bank, without changing the steps of patterns. This is useful if e.g. setting new drum notes and they should be applied to a whole set of patterns.
do CLONE PAT.2BANK
CLONE (copy) the complete current pattern, SETUP AND STEPS to all patterns in current bank.
do RESET BANK
Reset current bank to "Factory" values, all steps and pattern setup information in bank will be erased.
do RESET FACTORY
Reset the whole sequencer to "Factory" values, every pattern and global setup will be initialized.

Press any of the step buttons to proceed with the selected action.

G.b. BRIGHT DISP 000-002
Set brightness of display

About saving DATA:
To reduce wear on the flash memory chip, data (Steps & Setup) is only saved when patterns are changed, either immediately on a manual triggered pattern change or at the end of the pattern (when inside a pattern chain) - or when playback is stopped.

Setup options are not saved automatically if editing setup values or steps. When sequencer is stopped, push STOP button to trigger a manual save of all changed values.

Saving data causes a short disruption in playback timing, if running on external midi clock this can cause that Eosequencer loses sync with the external clock, more with every save.

If running Eosequencer on internal clock, all midi clock sync of external gear will also be disrupted for a short moment, but all devices will stay in sync after the write.
Copying a pattern will also cause a short disruption as flash memory is used for temporary storage.

Reading data from flash will not cause any disruptions in playback.
SYSEX BACKUP:
Hold * and push STOP - when sequencer is stopped - to send out a midi sysex dump of current pattern steps and pattern setup.
The received dumps are not bound to current pattern location and can be dumped back to any other location.
Sequencer must be stopped for all sysex dump operations.

* * * FREQUENTLY ASKED QUESTIONS * PART 1 * * *

Can I connect the sequencer to a DAW or is it only for standalone use?
Yes, it can be connected to a DAW, but your computer must have a 5 pin DIN MIDI interface.

Is it possible to update the sequencer firmware later on?
The development for version 2.0 is basically finished, but we are planning to release the source code at a later point so users can add new features. If you find a bug, please send an email at INFO@EOSEQ.COM.

What kind of power supply do I need to run the sequencer?
In either of the two build versions (9V or 5V DC), the EOSequencer typically requires 400 mA. If running from a power bank, you can extend runtime by reducing the brightness.

Do I need to stop the sequencer to change setup values?
Almost all values can be changed during playback. Only the following require the sequencer to be stopped: SETUP PAT.2BANK, CLONE PAT.2BANK, RESET BANK, and RESET FACTORY. If you find pattern chain editing too cumbersome, you can also do it during playback in Setup. First set P.2. NEXT PAT, then set P.1. PAT REPEAT to chain patterns easily without much menu switching.

Audio and MIDI Troubleshooting
I can't hear any sound from my instrument. What could be wrong?
Always check if the track is muted. Note that the segment dot playback indicators will not show muted tracks.

I can't hear or record anything from the keyboard connected to MIDI IN. What should I check?
MIDI THRU must be enabled and properly configured. If you are recording in MULTI mode and play note 38 on channel 10, there must be a drum track assigned to channel 10, note 38 otherwise it won’t play. Also, only channels 1 to 6 are passed through in the default setting. If you play on channel 7, it won’t be heard. In SINGLE mode, any MIDI channel and note will play, but only on the currently selected track.

My drum sounds are getting cut off. Why is this happening?
The default note length for drum tracks is 1, which works well for synth modules but can truncate samples on a sampler. Increase the note length for longer playback. You can use the SETUP PAT.2BANK function to apply the updated setting to the whole bank.

How does the built-in General MIDI synth work?
The internal synth is based on a SAM2695 GM chip, which outputs only to its internal speaker in the standard configuration. Sounds can be changed with Program Change messages. Channel 10 offers a few drum sounds, while all other channels provide a full GM sound set. Playback volume can be set by changing velocity values. See the SAM2695 datasheet for a complete instrument list.

I edit steps, but they are not being played back. What might be the issue?
Make sure Mirror mode is enabled when editing (all four ABCD LEDs lit). If Mirror is off, your steps are only recorded into the currently selected variation.

When I press a step button in Mirror mode, nothing shows up. Why does the step not appear?
If the step is active in another variation but not in the one currently shown, the first press will remove it from that unseen variation. A second press is needed to add the step in all variations. Mirror mode always displays only the currently playing variation. This double-push mechanism is intentional and ensures clean variation handling.

* * * FREQUENTLY ASKED QUESTIONS * PART 2 * * *

What happens when I change the playback mode during a repeated pattern or chain?
If you switch to KEEP CHAIN or ONE PAT REPEAT, the current chain or pattern will loop indefinitely. This allows for extended jamming even if a part was originally set to repeat only e.g. 16 times. The blinking character display during the last repeat helps you decide when to extend. NORMAL PLAY will follow the programmed setup values (PAT REPEAT, NEXT PAT, CHAIN REPEAT). Switching back to NORMAL PLAY resets all repeat counters, which may not be desirable in all cases. To exit an infinite part cleanly, switch to a pattern outside the loop or the next prepared pattern chain.

What happens when I use shuffle together with polymeter?
Polymetric tracks loop independently, but shuffle always applies to steps 2, 4, 6, etc., based on a full 16-step grid.

Why does the step nudge feature behave strangely when polymeter is active?
Step nudging always shifts all 16 steps, regardless of polymeter settings. This is a performance feature, allowing you to shift steps in and out of the active playback window set by track length.

I copied a pattern, but after powering off and on, it's gone. Why wasn't it saved?
There are 8 slots for copy/paste. Each time you copy a pattern, the slot advances to reduce flash wear. If you want a specific pattern to persist after power-off, you need to copy it 9 times. However, if you copy/paste patterns frequently, the clipboard will eventually be overwritten.

Playback stutters when I copy a pattern. What causes this?
This is due to flash memory writes. Because of limited RAM, it's not possible to copy a pattern to flash without some CPU impact, which may cause momentary stuttering, similar to saving data when changing patterns.

What is a SysEx dump and how is it used?
A SysEx (System Exclusive) dump is a block of MIDI data used to store or recall sequencer settings and patterns. An Eosequencer pattern dump is around 2 kilobytes and includes all pattern steps and setup data - not global data. You can use tools like Bome's SendSX or any standard MIDI monitor to send/receive dumps. The sequencer must be stopped during SysEx transfers. If the Protect setting is enabled in Setup, dumps cannot be received.

There is a gap at the beginning of the pattern when I send a program change. Why does this happen?
Some grooveboxes and synths take time to respond to a Program Change message. EOSequencer sends the Program Change just before playback starts or just before the first note of a pattern. Depending on the receiving device, this may cause a delay or missed note.

I made a mistake while recording a take. How can I retry without erasing the entire pattern?
The best workflow is to prepare all MIDI channels as needed, and then lay down a basic click track or beat on drum tracks. Before recording, copy the pattern to the clipboard. If the take fails, immediately paste the backup pattern and try again, no need to stop playback. Once satisfied, copy the new version and continue layering.