

HAILSTORM

Percussion Sequencer
2.0



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Introduction

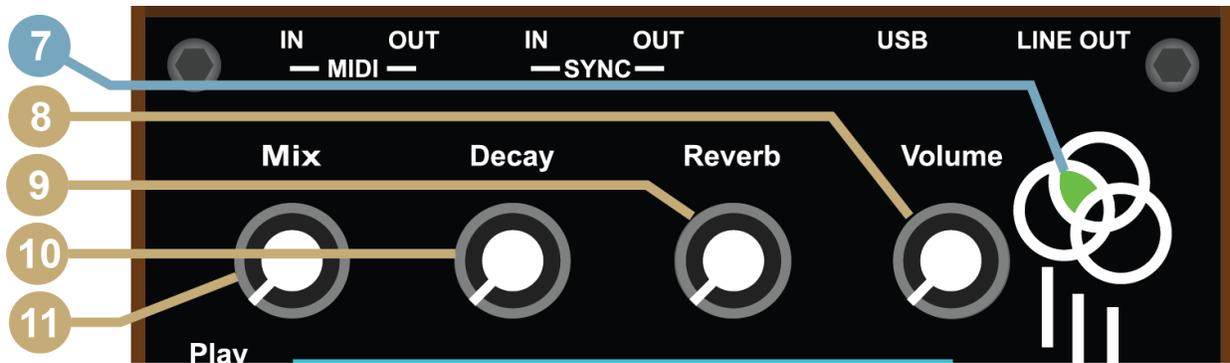
Hailstorm is a four voice percussion based sequencer that uses built in synthesized drum sounds as well as user samples. Hailstorm uses touch to control nearly all aspects of sound generation and manipulation. MIDI clock and analog clock connections allow playback sync across a wide variety of devices. USB connection offers MIDI as well as a class compliant audio interface for recording into a DAW. Automation of all parameters can be recorded into the sequencer and sequences can be chained together to create longer compositions.

Ins & Outs



1. 3.5mm TRS-A MIDI input
2. 3.5mm TRS-A MIDI output
3. Analog sync input
4. Analog sync output
5. USB - Power, MIDI in/out, Audio out
6. Line level output

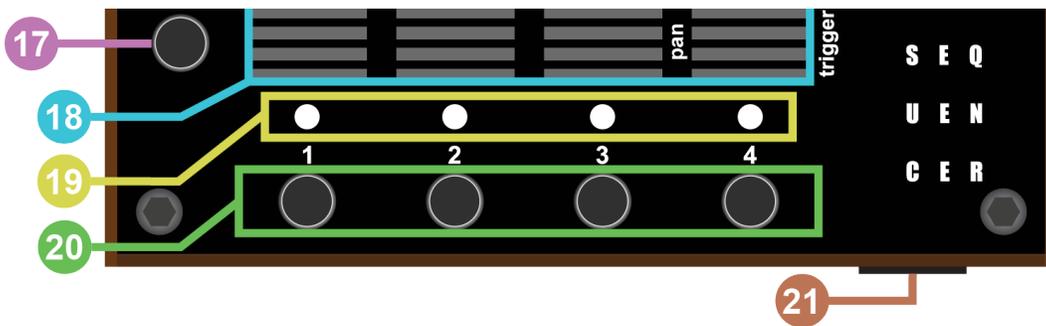
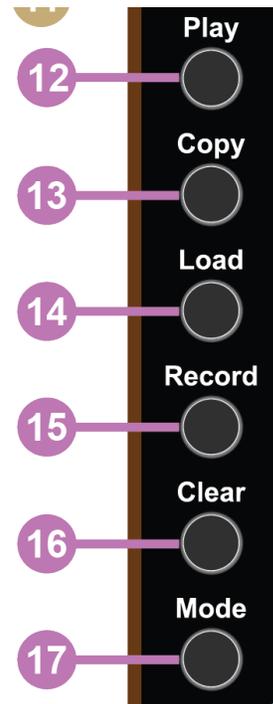
Knobs / Run LED



7. Sequencer running LED - Yellow on first beat and half the phrase, green on all others
8. Global volume
9. Reverb size and mix
10. Global decay
11. Mix between synthesized drums and samples

Buttons, LEDS, Touch Strips

- 12. Toggle sequencer playing
- 13. Copy pattern to new bank
- 14. Load sequences and change banks
- 15. Toggle record mode
- 16. Toggle clear mode
- 17. Mode, scale, root note and tempo selection



- 18. Touch / LED strips
- 19. Amplitude and mute display for voices
- 20. Mute for voices and bank selection while in load mode
- 21. SD card

Basic Operation

Press play button to start sequencer playback. The touch strips will illuminate, showing the recorded pattern for each voice. Touch the strips to hear the patterns change. As you slide your finger up the strip, the voice will trigger in greater frequency. Use the mute button below each strip to toggle mute.

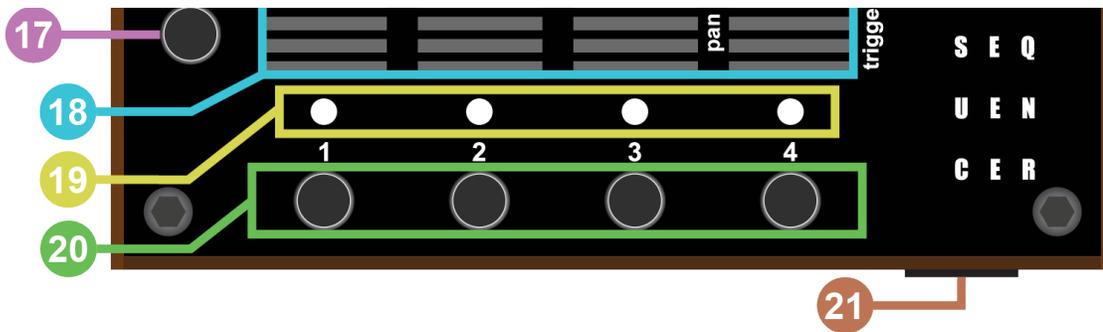
Recording

Press the Record button. The mute LED's will blink red. Now play the touch strip however you wish. When you are done recording press the record toggle again to return to playback mode.

Clearing

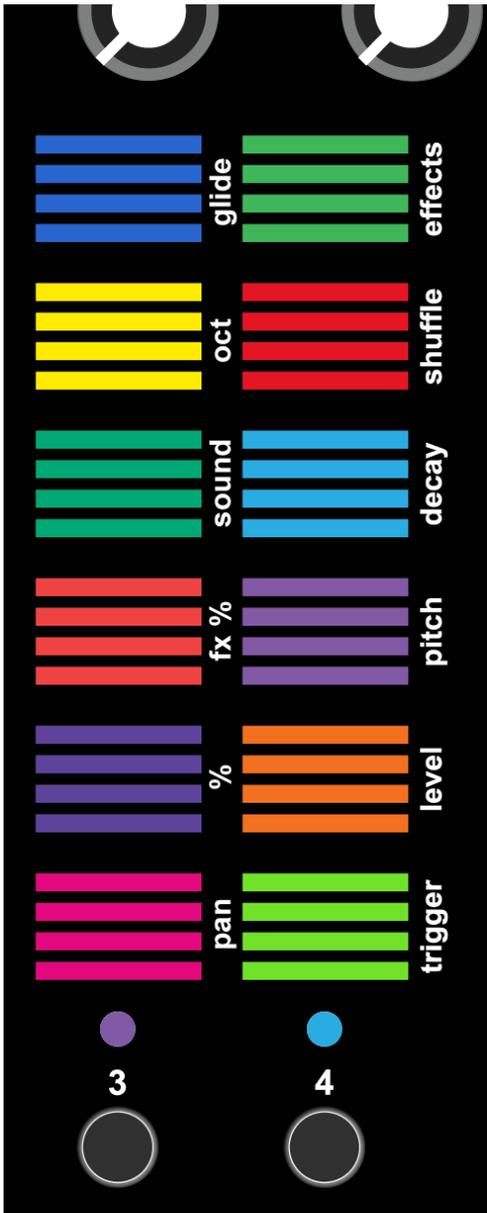
Each voice can be cleared independently. Hold the Clear button. The mute LED's will turn blue. Press any touch strip to clear that voice then release the Clear button.

Recording and clearing of touch strips is the same across all modes.



Modes

To switch modes, hold the Mode button and press one of the modes indicated by the LED's on the two right columns. Depending on when you purchased Hailstorm, you may have fewer labels on the front panels than those in the image below.



TRIGGER MODE

This mode allows you to input trigger patterns for all 4 voices.

LEVEL MODE

Adjust volume of all four voices.

PITCH MODE

Adjust pitch of all four voices. Below middle position will shift pitch down, above middle position will shift pitch up. Pitches are quantized to scale and root note of the sequence.

DECAY MODE

Adjust amplitude decay envelope of all four voices.

SHUFFLE MODE

Adjust shuffle pattern of all four voices. Shuffle is not swing, it changes the pattern of a sequence resulting in some steps removed and some added. The bottom position is no shuffle.

EFFECTS MODE

All effects are momentary, they only engage when strip is touched.

- First touch strip is a beat repeat. Move up to increase frequency.
- Second strip is pitch. Move up to increase pitch and down to decrease pitch by octaves.
- Strip three is a lowpass filter. Move up to increase frequency of filter cutoff point.
- The fourth strip is overdrive. Move up to increase the drive amount.

PAN MODE

Adjust pan for all four voices. The bottom position is hard left, top is hard right.

PROBABILITY (%)

The probability sliders set the likelihood of a trigger occurring. If the slider is set to the top position, it will occur 100% of the time, if it's at the bottom the probability is 10%.

EFFECTS PROBABILITY (FX %)

The probability sliders set the likelihood of an effect occurring. If the slider is set to the top position, it will occur 100% of the time, if it's at the bottom the probability is 10%.

SOUND

Sound is used to select samples and presets on the internal synth engine. Each step of the slider will change to a new preset or sample.

OCT

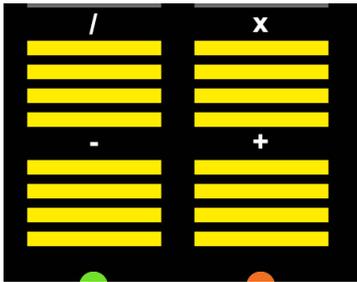
Move up and down by 6 scale degrees for each step of the slider. Note, this is not quite an octave as that would be 8 scale degrees.

GLIDE

Glide or 'portamento' for each track. Moving up increases glide time.

Changes in all modes can be recorded and cleared.

Changing Tempo



To change internal tempo, hold down the Mode button.

The bottom left 4 touch LED blocks become buttons.

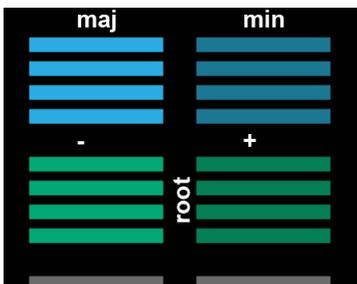
Top left is divide, top right is multiply.

Bottom left is minus, bottom right is plus.

These do not affect tempo if the sequencer is being clocked externally.

Tempo is not saved in sequences but will be saved through power cycles.

Scale & Root Note



All pitch changes in Hailstorm are quantized to a scale and root note.

These settings are saved per sequence. When holding down Mode, the top left 4 touch LED blocks control scale and root note. The top teal blocks represent major and minor scales. This works as a toggle and can be recorded into a sequence.

The bottom green blocks are used as +/- buttons to transpose the root note of the scale. Each press of + or - will move 1 semitone and the LED brightness will reflect the change.

External Sync

Hailstorm can be clocked by MIDI through the MIDI In jack or USB. Hailstorm can also be clocked using the Sync input with devices like Pocket Operators, Volcas or even Eurorack level signals. Analog clock sync input works best with a mono cable and a 2ppqn clock. Hailstorm will always output a 3.3v sync pulse signal out of the sync out jack while sequencer is running.

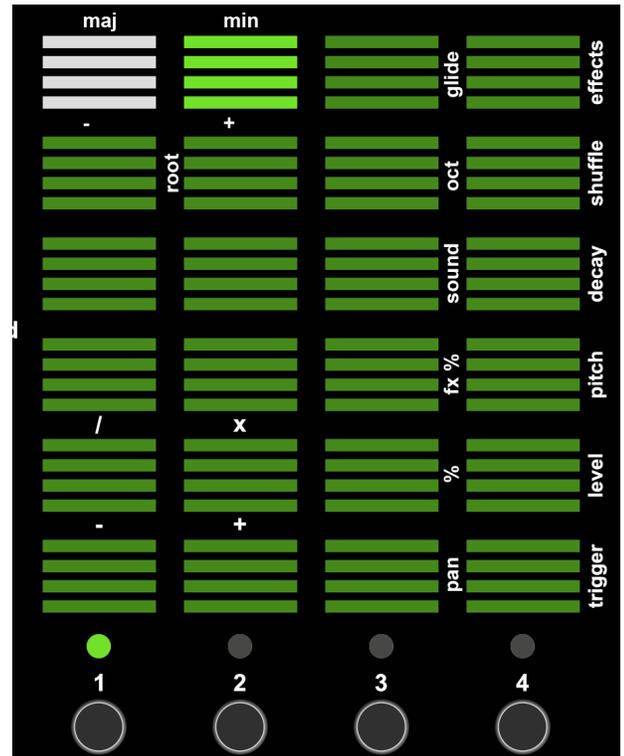
MIDI

MIDI in and out are mostly used for clock. MIDI in also accepts note on messages to trigger the four voices. MIDI out will send note on/off message and can be used as a very basic MIDI controller. MIDI note numbers for output are 36-39. MIDI channel can be selected in global settings.

Banks / Load

Hailstorm has 4 banks which contain 24 sequences, 24 samples and 24 internal synth presets. To change banks or load / chain sequences hold the Load button. While in load mode, the bottom mute buttons act as bank selections. Pressing 1-4 will switch to that bank and the LED strips and mute button colors will reflect that change.

While in load mode, all touch sensors represent sequences. Brightly lit pads indicate a sequence is save to that location. The currently selected sequence will blink white.



Chaining

It is possible to chain up to 16 sequences together to make a song. When first entering Load mode, the first pad you press will clear all previous chains and start a new one. If you would like to only have one sequence play and not chain, simple release the Load button after your selection.

To chain multiple sequences, first hold Load, then tap the sequences in the order in which you would like them to play. One sequence can be tapped multiple times to repeat. Empty sequences can also be added to a chain to insert silence into a song. The chain is displayed with a white blinking LED and will animate based on the chain entered. Sequences on different banks cannot be chained together, but chains will persist across bank changes. Chains are not saved on the device when powered off.

Copying

You can copy sequences into other slots in copy mode. Hold the Copy button to enter copy mode. Press the sequence slot you would like to copy. It will begin blinking yellow. Now press the destination slot. The sequence is now copied to a new slot. You may also copy a sequence to a new bank by first selecting the the sequence you would like to copy, then changing the bank, then pressing the destination slot. If the destination slot already has a sequence saved to that location, it will be replaced.

Copying is an easy way to build up many sequences and then record subtle changes into each. Try copying a simple pattern into a couple new slots. Now chain the slots together as shown in the chaining section. Now you can let the sequences play and record live adjustments to all sequences as they play.

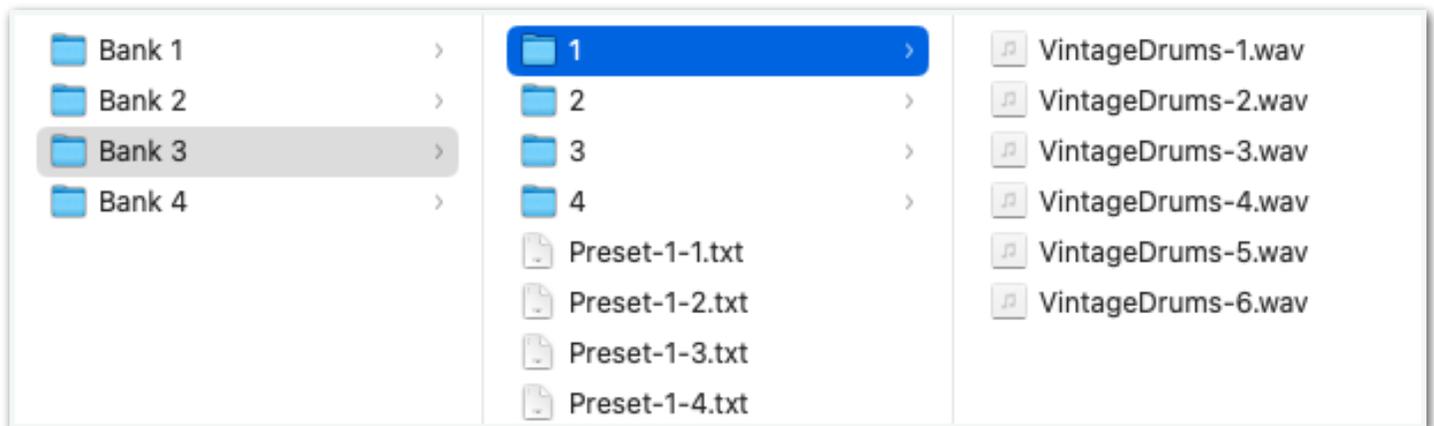
Saving / Deleting Sequences

Sequences have no save function. Sequences are automatically saved to a sequence text file on the SD card whenever the clock stops, be it internal or external. To quickly delete a sequence, enter Load or Copy mode then hold clear. While holding both buttons (Load/Copy + Clear), press the slot of the sequence you would like to delete. Another way to delete a sequence is to load it first, then while holding Clear, press the play button.

SD Card

The SD card can be tricky to remove and re-insert. The SD card does not have a push spring function to remove, you must pull it out manually. Folding a small piece of tape onto the end of the SD card can be helpful if you are removing the SD card often. Only remove and re insert SD card while powered off. It will not hurt the unit to remove or re-insert while power is on, but may result in Hailstorm crashing.

File Management



Files on the SD Card must not exceed 8MB. All samples are loaded into RAM at startup and the max capacity is 8MB. Above is an example of how files are stored on the SD card. Note: previous firmware versions had different file structures.

The top level folders must be labeled as Bank 1-4 as in the image above. These represent the 4 banks that store sequences, samples and presets. During startup, a LED animation will show samples found in each bank.

Inside each bank there will be 4 folders. These represent the 4 voices and can have any name, although it's recommend to keep the names 1-4. These folder names as well as the wave file inside will be alphabetized before loaded into RAM. There should be 6 wave files inside each voice folder that correspond to the touch sliders on the Sound mode. If more than 6 wave files are in one voice folder, they will be ignored.

Stereo or mono 44.1kHz, 16bit wav files are supported. Samples cannot contain any metadata. If a sample is not playing correctly and it is 44.1kHz/16bit, try opening it in a wav file editor such as Audacity and re-exporting it without any metadata.

Inside each Bank there will also be a number of Preset files and a Sequence file. Sequence files store all sequence data for that bank and the Preset files store the internal synth engines presets. See [Hailmaker](#) for more info on preset creation. These text files should generally be left alone although they can be copied between banks.

If an SD card issue is found during startup, the LED touch strips will sequentially illuminate red. If this happens, check to make sure the SD card has been inserted properly and that the file structure is correct.

Global Settings

Enter Global Settings mode by holding the Mode button and pressing the Record button. LED's should look similar to the image on the right.

These global settings are adjusted with knobs:

1. Mix knob sets threshold for touch. Set to lower value if touch strips are not reacting well to touch. Set higher if strips are triggering too often.
2. Decay knob sets MIDI channel for input and output. Bottom square is channel 1 and top is channel 6.



Press any button to exit Global settings mode. Global settings are stored internally and will remain through power cycles.

HAILMAKER

rainydayei.com/hailmaker

The screenshot shows the Hailmaker web browser based preset editor interface. On the left side, there is a control panel with the title "HAILMAKER FOR HAILSTORM". Below the title, there are two dropdown menus: "Select Device:" with "HAILSTORM" selected, and "Select Bank:" with "Bank 1" selected. Below these are 24 green square buttons arranged in a 6x4 grid, with the bottom-left button being greyed out. At the bottom of this panel are three buttons: "LOAD" (green), "SAVE" (red), and "CLEAR" (orange).

The main area of the interface is divided into two sections: "Body" and "Metal / Noise".

Body Section:

- FM Envelope:** Three sliders for ATTACK, DECAY, and AMOUNT.
- FM Modulator:** Two sliders for PITCH RATIO and AMOUNT.
- AMP Envelope:** Two sliders for ATTACK and DECAY.
- Octave:** One slider for OFFSET.
- Drive:** One slider for AMOUNT.
- Volume:** One slider for VOLUME.

Metal / Noise Section:

- Metal:** Five sliders for PITCH 1, PITCH 2, ATTACK, DECAY, and VOLUME.
- Noise:** Three sliders for ATTACK, DECAY, and VOLUME.
- HPF:** Two sliders for FREQUENCY and RESONANCE.

At the bottom center of the interface, there is a copyright notice: "© 2025 Rainy Day Electronic Instruments".

Hailmaker is a web browser based preset editor for Hailstorm. Hailmaker can be used to create 96 total custom sounds stored in 4 banks of 24. Google Chrome is the required browser. Note, this editor will not work on iPads or iPhones as Apple restricts Web MIDI on those devices.

1. Connect Hailstorm to a computer using usb.
2. Using Google Chrome, visit: www.rainydayei.com/hailmaker/
3. Click to the Allow button if chrome asks if you would like rainydayei.com to reprogram your MIDI devices.
4. Hailstorm should automatically be selected in the Device dropdown. If not, select it.
5. Select a bank you would like to edit. Note, selecting a bank on Hailstorm will also change the bank in the editor.
6. Select a preset you would like to edit from the 24 pads. These pads represent the location of the preset in that bank which can be selected in Sound mode.
7. Click the Load button to load a preset from Hailstorm into the editor.
8. Loading a preset will cause Hailstorm to automatically select that preset in the Sound mode.
9. You can now change any of the parameters using the sliders to the right.
10. You can play the pads on Hailstorm manually or even run a sequence to audition changes live. Be aware that sequences can change the current selected preset during playback. If a sequence changes the preset, you might not be hearing the preset you are editing.
11. When you are done editing you can save the preset by hitting the Save button.
12. You can also select a new preset location and hit save to copy one preset to another slot. This can also be done across banks.

Support

Please use contact form on RainyDayei.com/contact. Thank you for purchasing Hailstorm!