

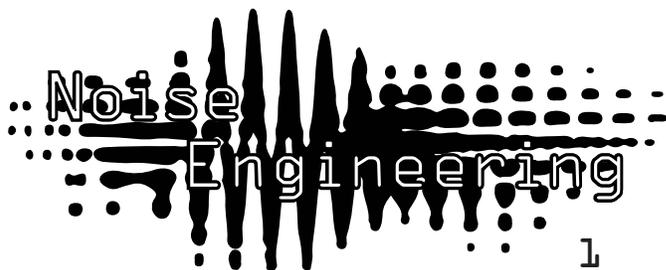
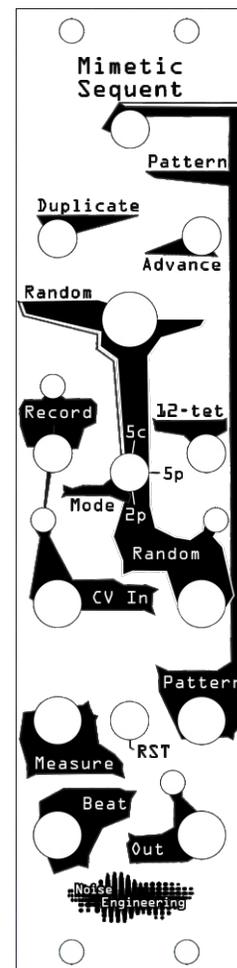
Noise Engineering Mimetic Sequent

6HP CV randomizer and recorder

Overview

Type	CV Randomized sequencer
Size	6HP Eurorack
Depth	.8 Inches
Power	10-pin Eurorack
+12 mA	50 mA
-12 mA	50 mA

Mimetic sequent is a sixty-four step pitch-aware CV recorder and randomizer with the ability to save and modify three unique patterns. Switch between stored patterns or use the Mimetic Multium expander to output all three patterns simultaneously in addition to four separate randomized rhythm sources.



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Interface

Pattern

switch that controls which of three patterns is selected for output.

Duplicate

copies the currently selected pattern to the other two patterns.

Advance

manual advance of the step in the pattern. Equivalent to a rising edge on beat.

Random

randomization knob. When fully CCW, the knob locks the current pattern. The angle affects both the likelihood and the method used for the randomization. This is the heart of Mimetic Sequent and is documented in more detail in the section entitled Less Random.

Record

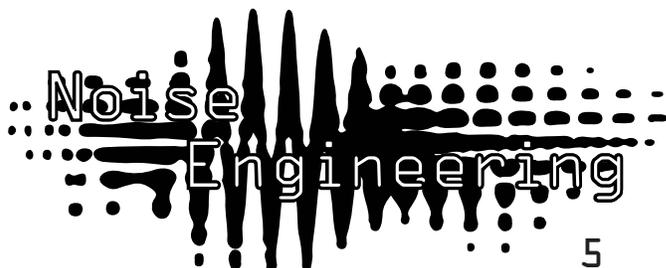
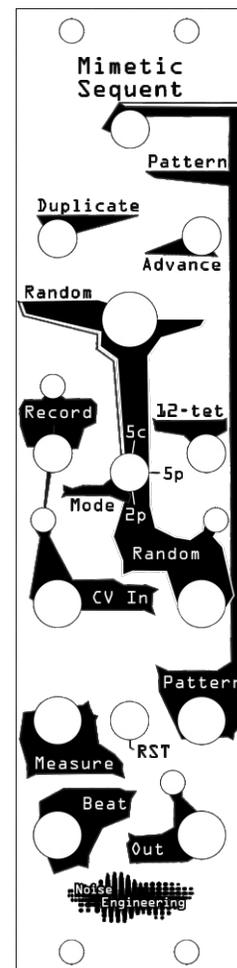
a three-position switch that controls record mode. When fully down, record mode is disabled. In the middle position, short-record mode is enabled which will record until either 64 steps have been recorded or a rising edge of measure is received. In the fully up position, MS enters free-record mode that will continue until turned off.

Mode

controls the method by which the stored voltages are randomized. Methods are detailed below in the section entitled Less Random.

12-tet

in the up position, the output voltages will be quantized to the common 12-note equal-tempered scale.



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Interface

CV in

CV input for recording voltages.

Random (jack)

CV control over the randomization knob. When the jack is in use the Random knob scales the voltage applied to the jack.

Measure

a clock input to indicate the start of a measure. When Measure receives a clock in, MS resets to the beginning of the pattern.

RST

reset button. While depressed, MS ignores any clock input. On release, MS resets the current step the beginning of the pattern.

Pattern (jack)

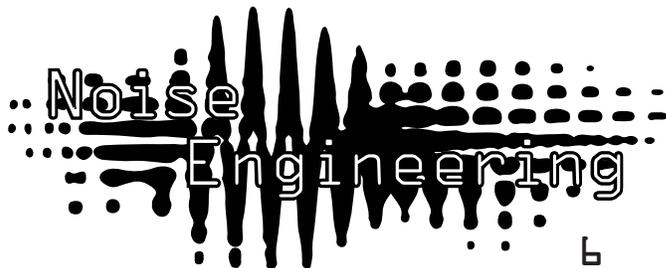
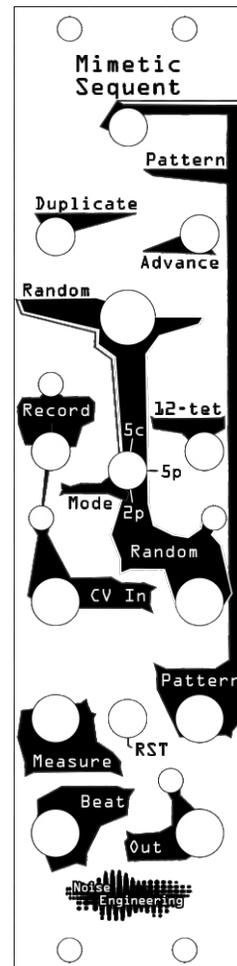
CV control over pattern switch.

Beat

a clock input to advance the current step.

Out

CV output.



Noise Engineering Mimetic Multium

LHP CV randomizer and recorder expander

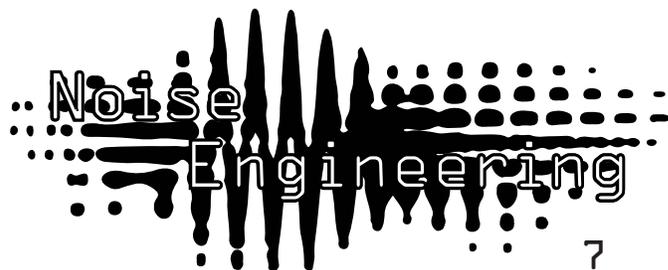
Interface

Patterns

allows for simultaneous output of all three pattern currently on MS

Gates

outputs four separate gates that are randomized using the rules and controls of MS.



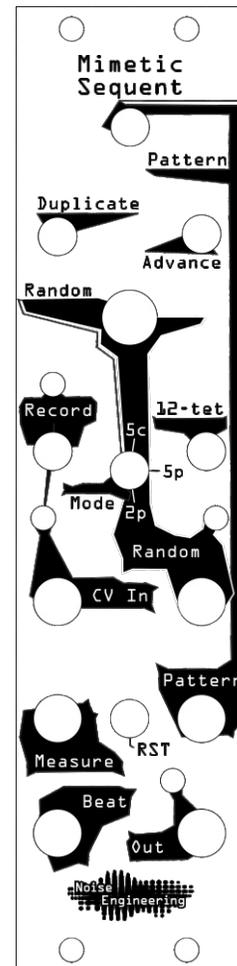
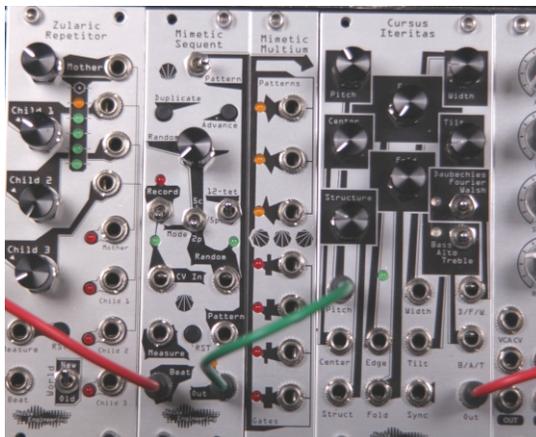
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Patch Tutorial

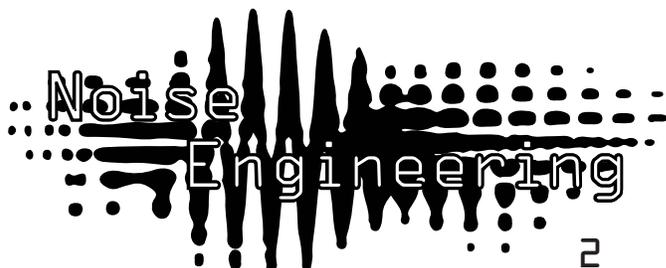
Basic Pitching

Turn record mode off, set Mode to 2P, and, if desired, turn on the 12-tet quantizer. Connect a clock to the Beat input. Patch the Out to the pitch CV control of the module of your choice (Loquelic Iteritas or Cursus Iteritas are good options). Turn the Random knob clockwise and experiment. When you find a pattern you like, turn the knob fully CCW to lock the pattern in. For broader range of pitches randomized, switch MS to 5P mode. If you would like the pattern to be shorter send the output of a clock divider to the measure input.



Mimetic Sequent and Other Parameters

Turn record mode off, set Mode to 5C. Connect a clock to the Beat input. Patch the Out to any parameter CV control of the module of your choice (try Noise Engineering's Basimilus Iteritas Alter, Loquelic Iteritas or Cursus Iteritas, for example). Turn the Random knob clockwise and experiment. When you find a pattern you like, turn the knob fully CCW to lock the pattern in.



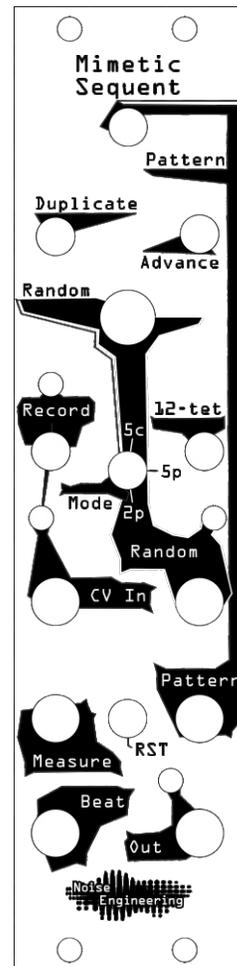
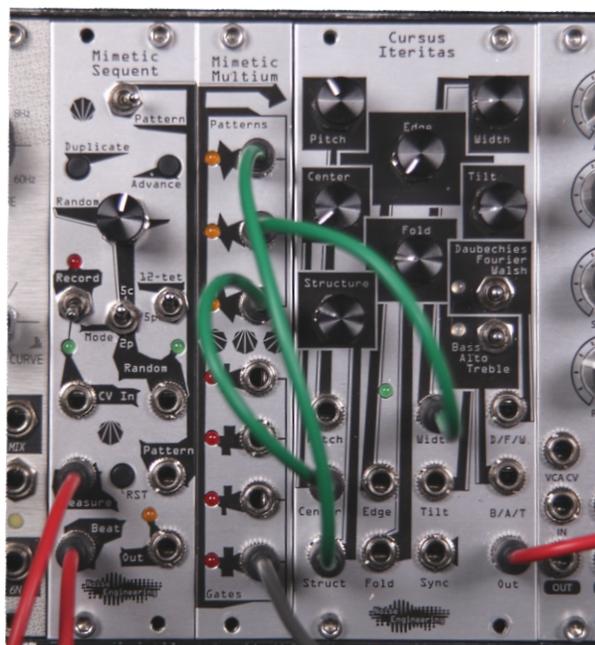
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Patch Tutorial

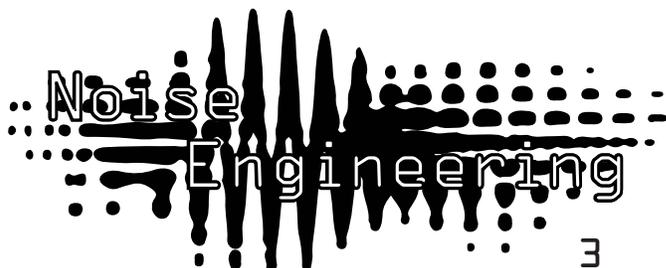
Multiple Outputs

With Mimetic Multium optional expander, each pattern out maps to one of the three patterns stored by MS. Patch the three Pattern outs to pitch or parameter CV controls (choosing the appropriate mode on MS). Patch up to four gate outs to trigger or CV-control other modules.



Sample and Hold

Mimetic Sequent can operate as a unipolar sample-and-hold by keeping it in record mode. Patch the signal you want to sample into the Record input. Send the sampling clock to the beat input. Flip the Record switch to the top position. The MS will sample the input when it receives a beat input.



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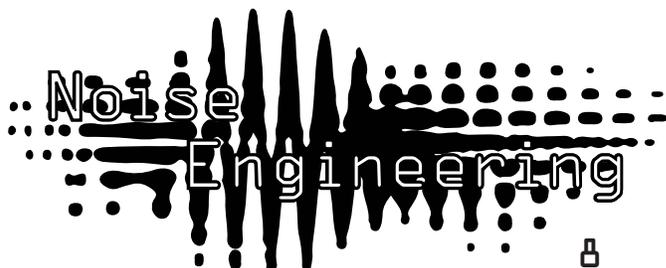
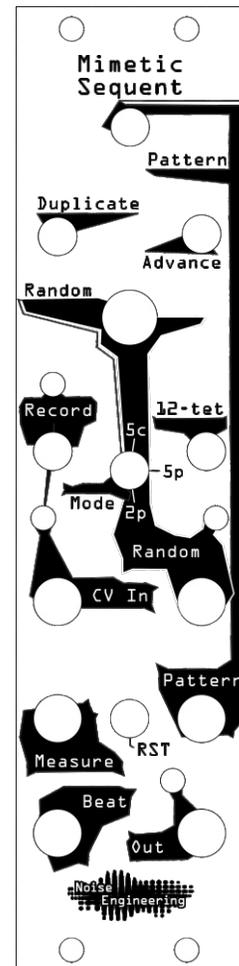
Less Random

Randomization is a tricky subject—particularly when human perception is involved. In designing MS, I wanted to build in different options for people who might want to incorporate different ideas of “random” for synthesis. The result is a three-mode module that gives the user the ability to define the amount and type of randomization they want.

In all modes the randomization knob controls both the probability the current step will be randomized as well as how extreme the randomization will be. Turning clockwise both increases both the chance the step will be randomized and the amount of randomization. Randomization occurs only to the current step in the current pattern on the beat.

The mode switch on Mimetic Sequent allows three different ways of randomizing. The simplest mode is 5C. This mode treats the voltages as values. When it chooses to randomize a step, it uses the random knob to control the maximum movement from the current value so when the knob is mostly CCW it will only make small changes to the current pattern. This mode is not pitch cognizant and is best used for controlling other parameters.

Mode 2P was designed specifically for pitch. Mode 2P only randomizes across 2 octaves of pitches, but when it randomizes, it modifies the voltage in ways that make sense for the values being pitches. For example, in this mode, MS may offset by a fifth or copy another note from a different part of the pattern. As the knob is turned more clockwise the actions that it chooses between become less consonant and at the maximum becomes entirely random. By careful playing of the random knob musical variations can easily be produced on the fly. Mode 5P is similar to Mode 2P but instead randomizes over 5 octaves for a much broader range of sounds. Although these modes were designed with pitch in mind, their utility is definitely not limited to pitch CV.



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Saving to Flash

Mimetic Sequent's patterns are saved to flash. To reduce wear and tear on flash—as it has a finite number of uses—this only occurs when

- randomization is turned off (if the random knob is fully CCW)
- recording is completed, either when short mode completes or when the record switch is manually disabled

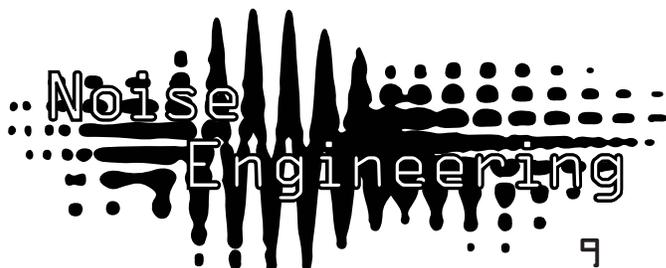
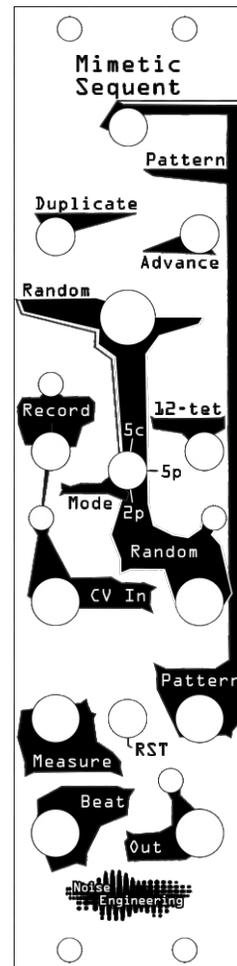
Because patterns are saved to flash memory, power cycling will not erase them; take your patterns wherever you want.

Design Notes

Mimetic Sequent was a problem child from the very start. The very first prototype was a 6HP ribbon controller/recorder that happened to have randomization built in. The randomization ended up being more fun than the ribbon controller and was dropped after the first build. We had a continual stream of last-second problems that caused us to punt on manufacturing many times.

One module that the second prototype was often compared to was the Turing Machine and it pretty quickly became a goal to make a more musical, more jammable, and smaller turing machine. The crux to achieving this was the Musically Random algorithm documented in the Less Random selection.

More so than any other module I have worked on the design was guided by our many testers. There were 20 hardware revisions and endless suggestions from our friends in the three years Mimetic Sequent has been in development.



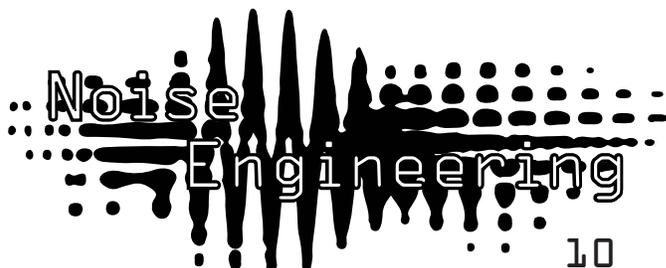
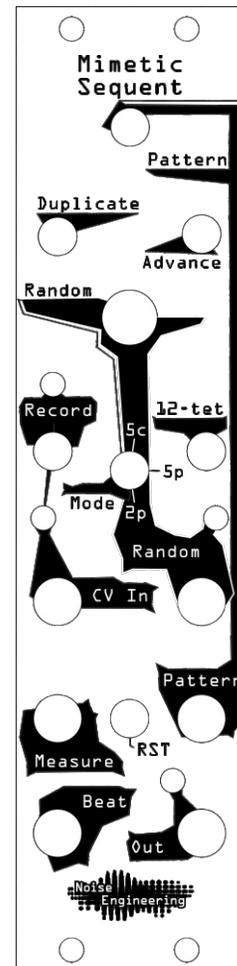
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Calibration

Mimetic Sequent comes pre-calibrated. If MS drifts over time, the device can be calibrated. Calibration of Mimetic Sequent requires a Mimetic Multium and an accurate voltage meter.

1. Connect a MM to MS via 10 pin ribbon
2. Connect MS to euro power
3. Put panel into initial position: randomize fully CCW, record down, quantize up, mode down, pattern left.
4. Depress the RST switch from before power on until the record LED stops blinking.
 - * RST held down during bootup enters calibration mode.
 - * calibration mode has two submodes determined by the quantize and record switch.
 - submode 1 (quantize up) is for calibrating the outputs and sets all outputs to 3v.
 - submode 2 (quantize down) is for calibrating the input and sets the MS output to equal the input voltage.
 - submode 3 (record up, either quantize) primary adjustment mode.
5. Set calibration submode 1 (quantize up).
6. Connect MS output to voltmeter.
7. Adjust output trimmer until output equals 3v.
8. If calibrating the connected MM, adjust the MM trimmers until the MM outputs are 3v.
9. Set calibration submode to 3 (record up), connect CV out to CV record in via cable.
10. Adjust input trimmer until both of the top gate outs on MM are blinking at approximately the same frequency.
11. Press duplicate to save current configuration to flash.



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All of the many people who contributed to testing this module over the past three years

