

# Noise Engineering

## Zularic Repetitor

Dynamic Rythmic Generator

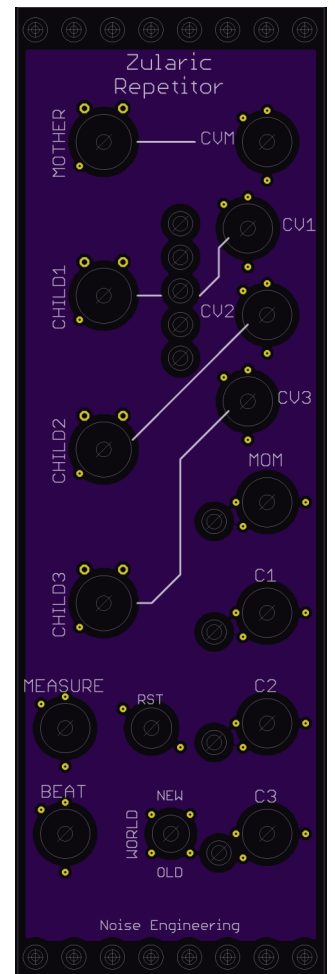
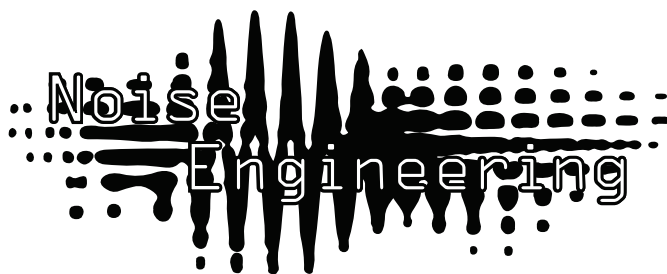
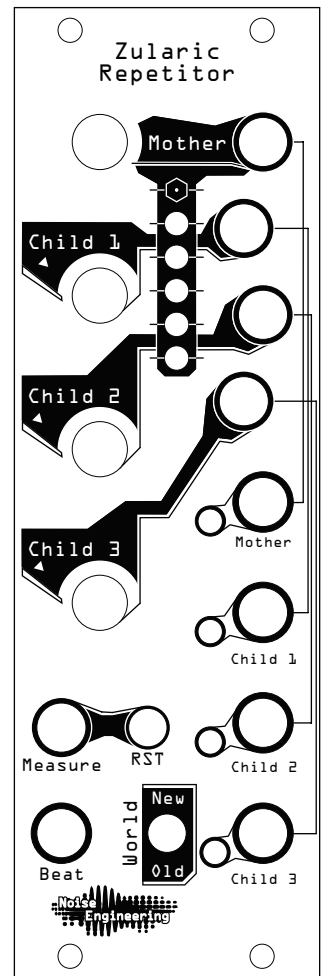
### Overview

Type	Rythm Generator
Size	8HP Eurorack
Depth	.8 Inches
Power	2x5 Eurorack
+12 mA	50
-12 mA	5

Zularic Repetitor is a rhythmic gate generator based on African music theory. A core pattern forms the basis and variation is achieved by offsetting this pattern in time relative to the base.

This module contains 30 mother rhythms from African, Indian, Latin, Funk and Rock roots. Each pattern outputs four parts and allows the offset of three parts relative to the mother. The offset is CV and knob controllible. It requires only a beat clock to run.

Also included are two special modes. One turns Zularic Repetitor into a 3 section CV/knob controllible divider. The other generates random gates where the probability is determined by the knob/CV.



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### Interface

#### MOTHER (knob)

The MOTHER knob selects the pattern set that is output. The MOTHER knob acts as a scalar for the MOTHER CV. The current patch is displayed on the LEDs near the center top. A key to the patterns is included later in the manual.

#### CHILD 1-3 (knob, input CV)

The CHILD knobs control the offset in beats of each part versus the mother rhythm. The knob acts as a scalar for the input CV.

#### WORLD

The WORLD switch selects which bank of patterns to use. They are grouped by world. Old world contains Indian, African and African relatives such as Vodou. New world contains Funk, Rock and other more modern rhythms. The status of the WORLD switch is indicated by the orange LED.

#### BEAT

The BEAT input is a clock input that advances the time on the rising edge and returns any active gates to zero on the falling edge.

#### MEASURE

The MEASURE input resets the beat to the start of the measure on a rising edge.

#### RST

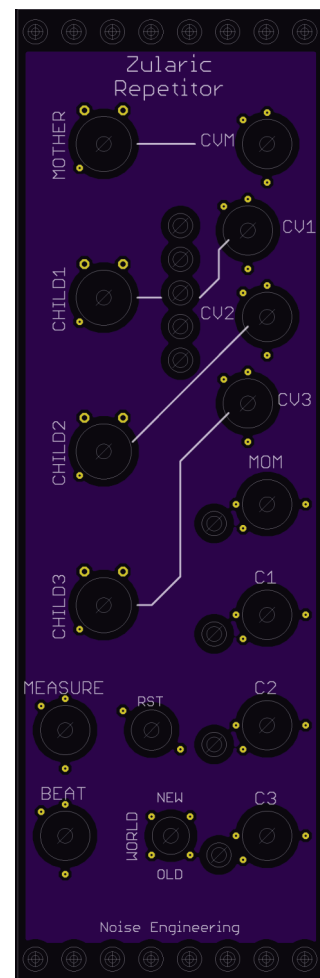
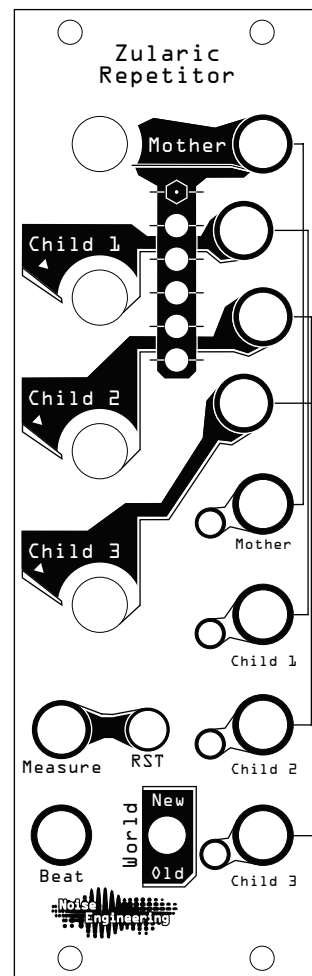
The RST button will pause the advancement of time while depressed and when released reset the time back to the start of the measure.

#### MOTHER (output)

MOTHER outputs a 6v low impedance gate suitable for controlling most any gate driven device.

#### CHILD 1-3 (output)

CHILD outputs a 6v low impedance gate suitable for controlling most any gate driven device.



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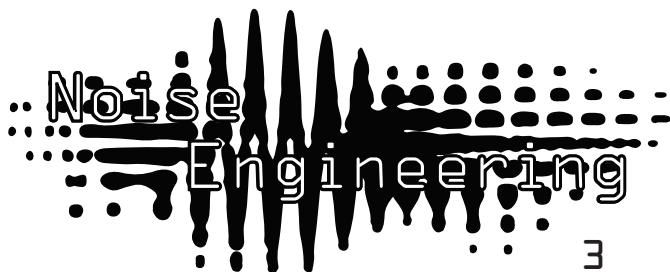
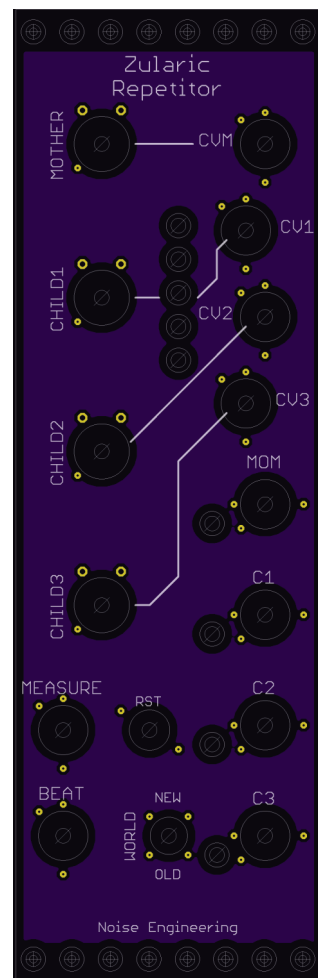
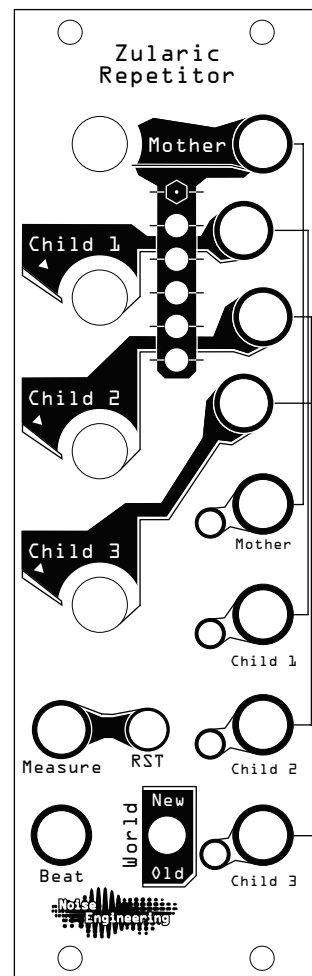
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### Patching Suggestions

The simplest way to get to know Zularic Repetitor is to simply patch a master clock into BEAT and connect each of the four outputs to the gate of four different percussion modules. You can get an idea of the patterns included by adjusting the MOTHER knob and a feel for how the time offset works by playing with the CHILD knobs.

The next step is to patch a CV. A CV sequencer or just a simple gate input are both useful for controlling either the MOTHER pattern or the CHILD offset. These can be used to generate a wide variety of related rhythms and dynamic variations. A simple CV example is to take the beat clock being sent to Zularic Repetitor and divide it by 64. Send this divided beat in to one of the CHILD inputs. Adjust the related CHILD knob to control the amount of time offset that occurs to the CHILD every 64 beats.

Many more complicated schemes are possible to dynamically vary the rhythms. Any slow control voltage or gate might produce an interesting variation!



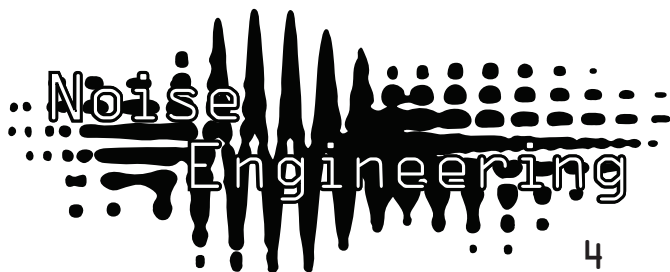
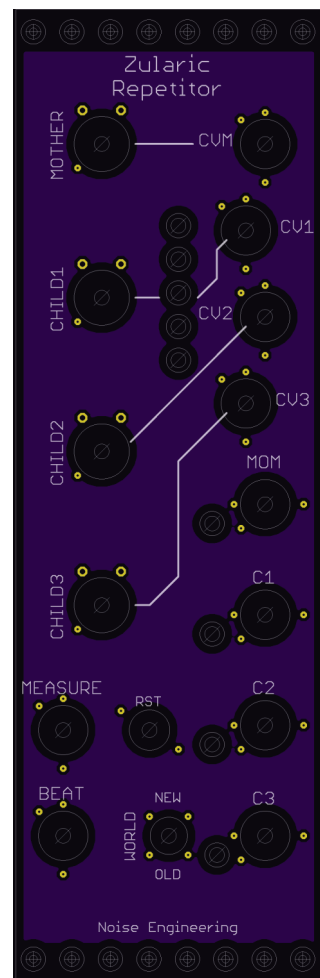
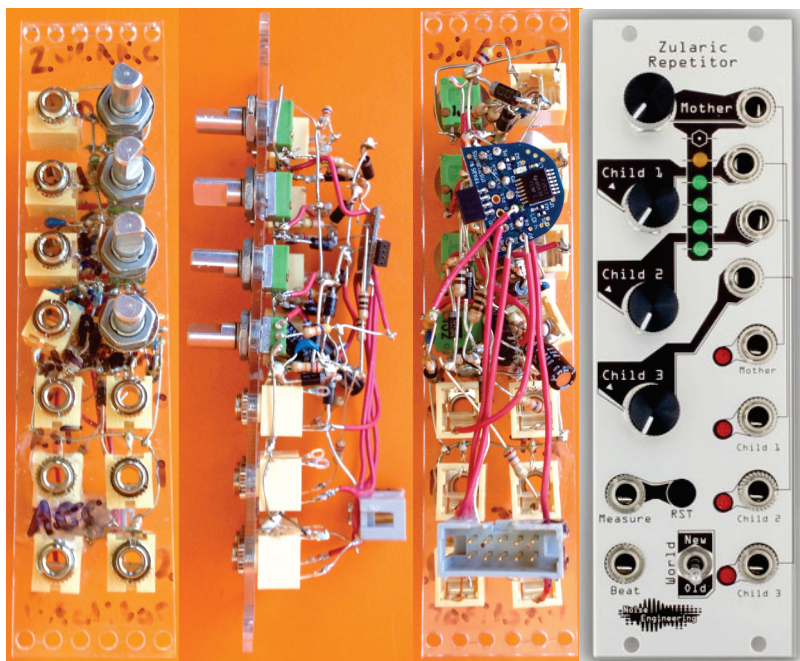
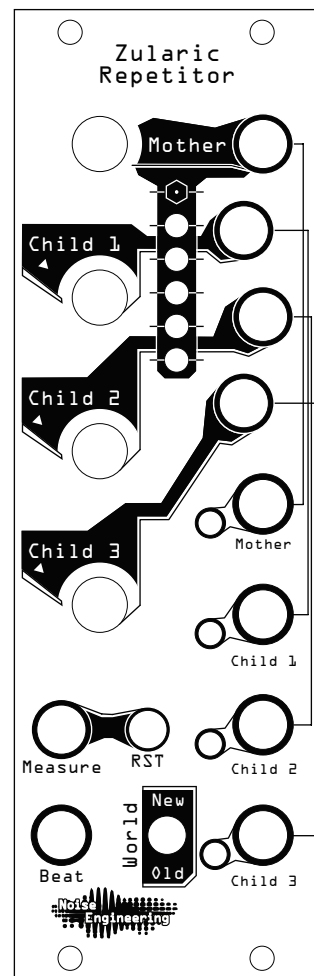
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### Design Notes

The Zularic Repetitor was conceived of when I was reading “Rhythm and Transforms” by William Sethares. This book provided the initial rhythms for the very first prototype of Zularic Repetitor. It was developed on a Texas Instruments MSP430 microcontroller. The first prototype was compelling from the start though it took more than a year of use, feedback and polish to produce what was finally released.

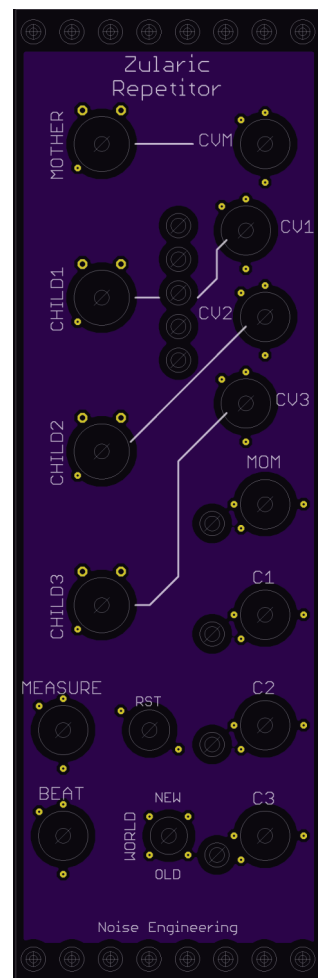
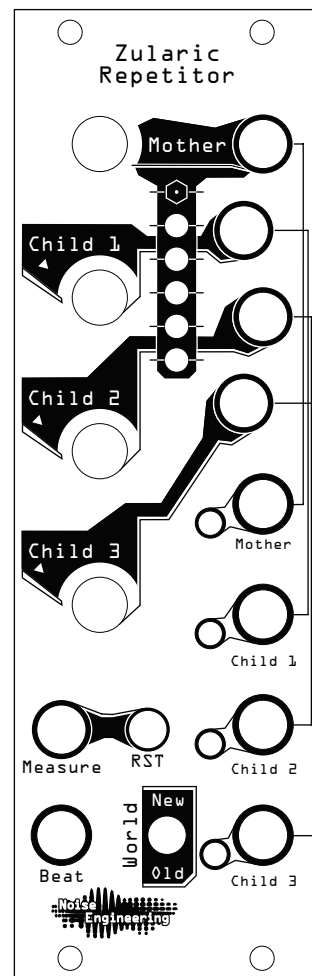
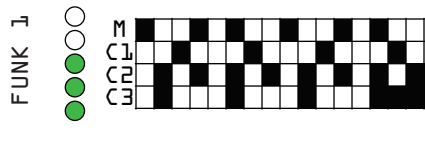
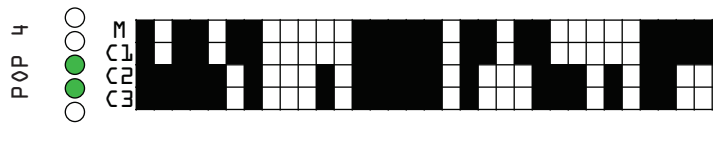
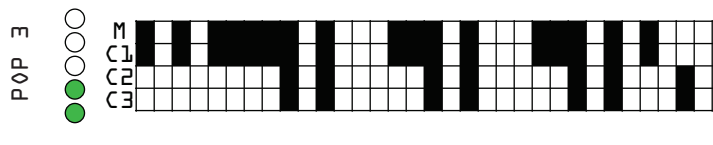
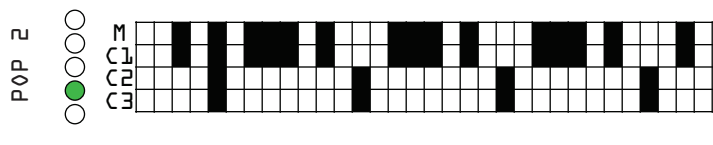
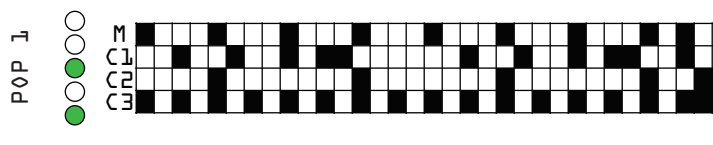
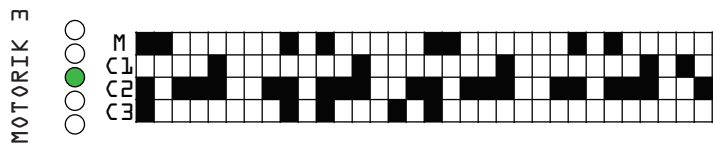
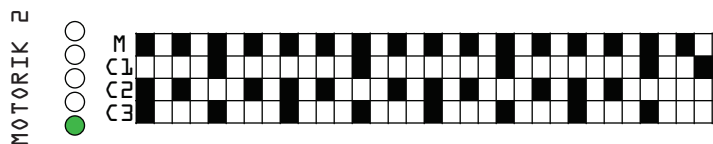
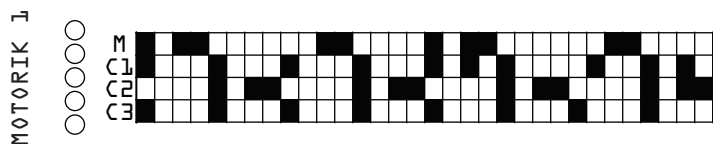


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### Patterns: New World

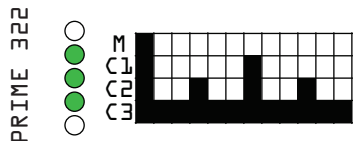
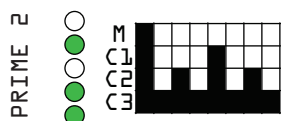
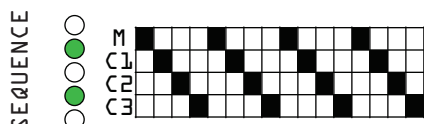
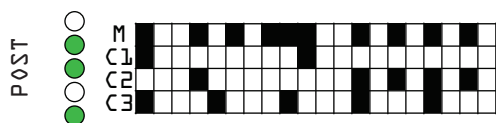
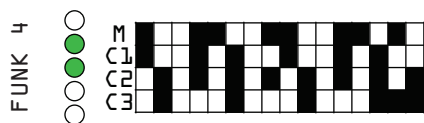
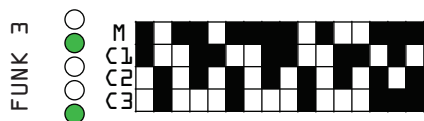
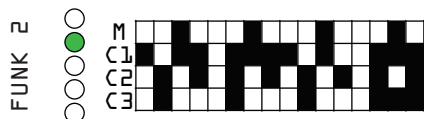


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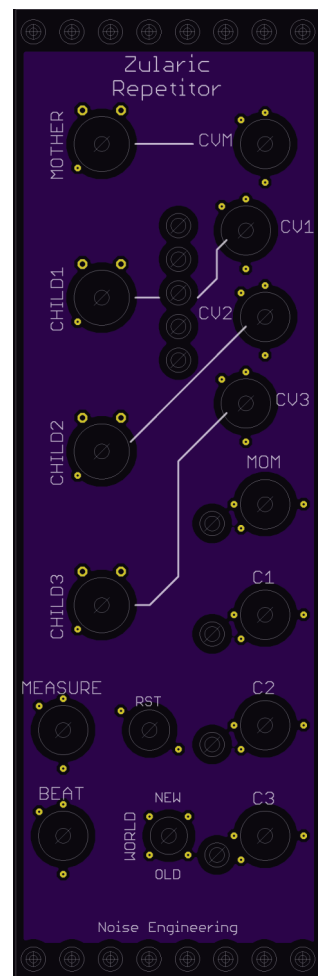
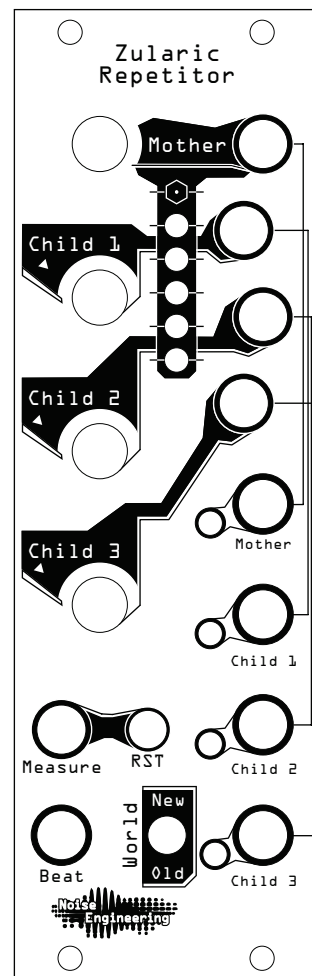
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### Patterns: New World



- RANDOM
- M BEAT at 25% probability
  - C1 BEAT at probability given by C1 (CV/knob)
  - C2 BEAT at probability given by C2 (CV/knob)
  - C3 BEAT at probability given by C3 (CV/knob)

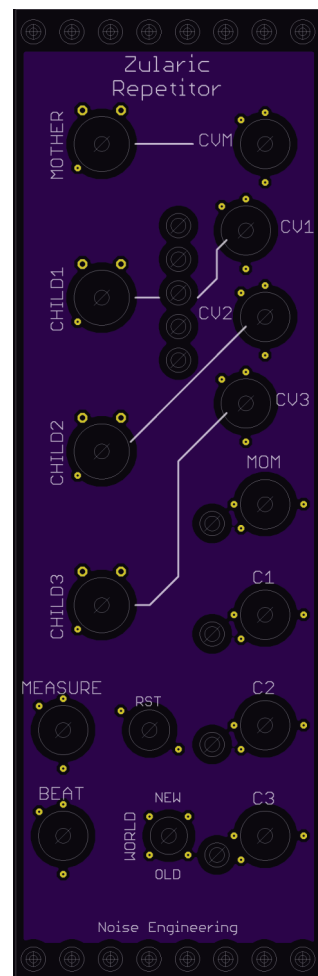
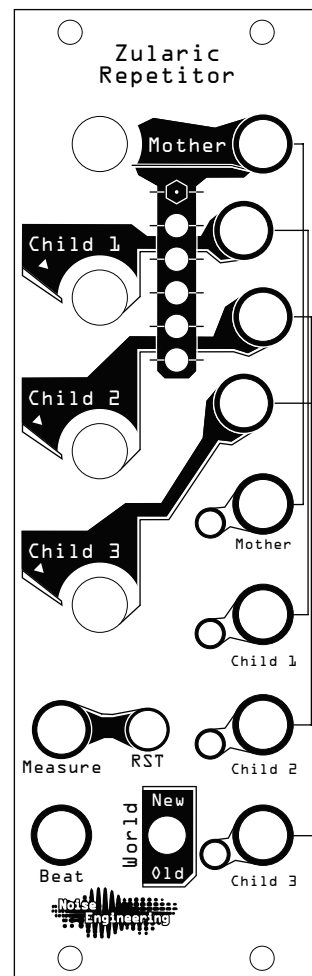
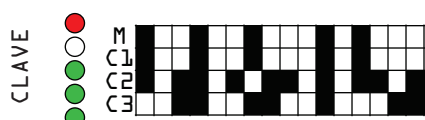
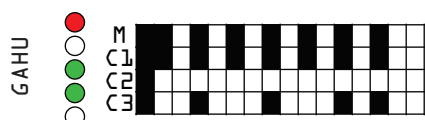
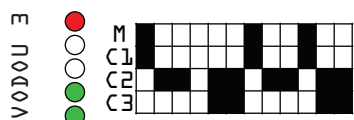
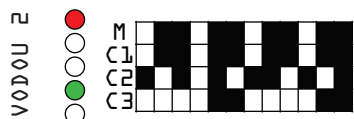
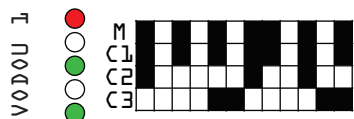
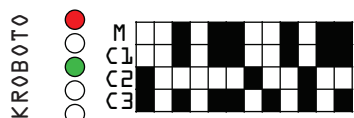
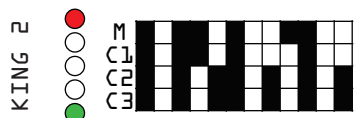
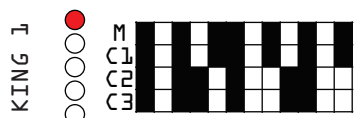


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### Patterns: Old World





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