

Noise Engineering

Zularic Repetitor

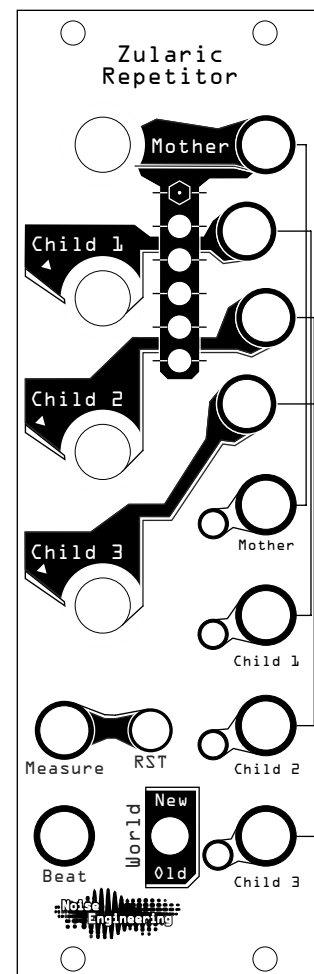
Dynamic Rythmic Generator

Overview

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

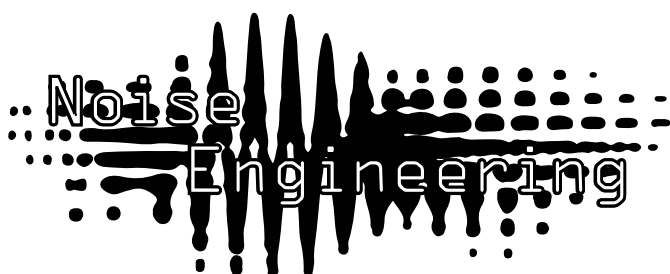
Zularic Repetitor is a rhythmic gate generator based on African music theory. A core pattern forms the basis and variation is achieved by offsetting this pattern in time relative to the base. This module contains 30 mother rhythms from African, Indian, Latin, Funk and Rock roots. Each pattern outputs four parts and allows the offset (controlled by knob or CV) of three parts relative to the mother.

Zularic Repetitor requires only a beat clock to run, but also includes a measure input to resync parts. It also includes two special modes: one turns Zularic Repetitor into a three-section CV/knob-controllable divider, and the other generates random gates where the probability is determined by the knob/CV.



Input & output voltages

Zularic Repetitor's trigger inputs trigger around 2.5v. Its CV inputs have a range of about 7v and its outputs are around 6v.



Power

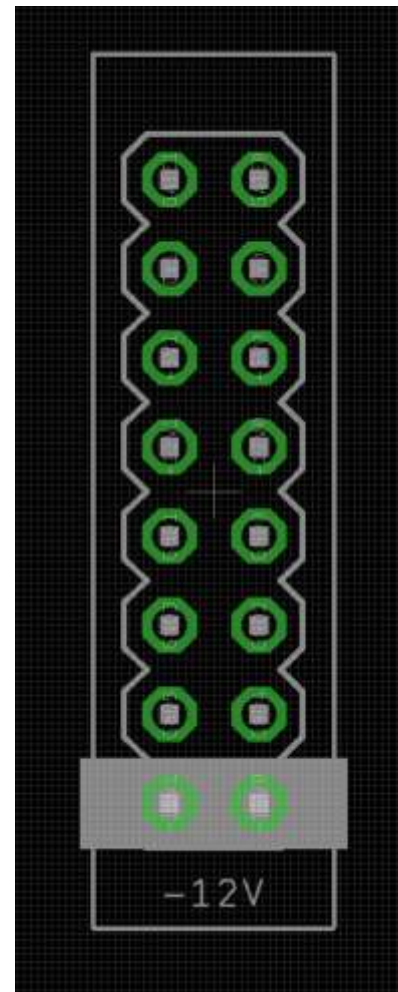
To power your Noise Engineering module, turn off your case. Plug one end of your ribbon cable into your power board so that the red stripe on the ribbon cable is aligned to the side that says -12v and each pin on the power header is plugged into the connector on the ribbon. Make sure no pins are overhanging the connector.

Line up the red stripe on the ribbon cable so that it matches the white stripe and/or -12v indication on the board and plug in the connector.

Screw your module into your case BEFORE powering on the module. You risk bumping the module's PCB against something metallic and damaging it if it's not properly secured when powered on.

You should be good to go if you followed these instructions. Now go make some noise!

A final note. Some modules have other headers -- they may have a different number of pins or may say NOT POWER. In general, unless a manual tells you otherwise, DO NOT CONNECT THOSE TO POWER.



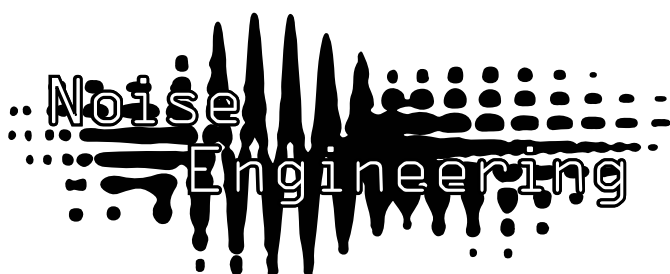
Warranty

Noise Engineering backs all our products with a product warranty: we guarantee our products to be free from manufacturing defects (materials or workmanship) for one year from the date a new module is purchased from Noise Engineering or an authorized retailer (receipt or invoice required). The cost of shipping to Noise Engineering is paid by the user. Modules requiring warranty repair will either be repaired or replaced at Noise Engineering's discretion. If you believe you have a product that has a defect that is out of warranty, please contact us and we will work with you.

This warranty does not cover damage due to improper handling, storage, use, or abuse, modifications, or improper power or other voltage application.

All returns must be coordinated through Noise Engineering; returns without a Return Authorization will be refused and returned to sender.

Please contact us for the current rate and more information for repairs for modules that are not covered by our warranty.



Noise Engineering

Zularic Repetitor

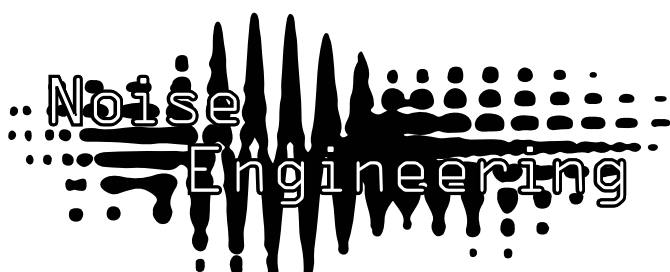
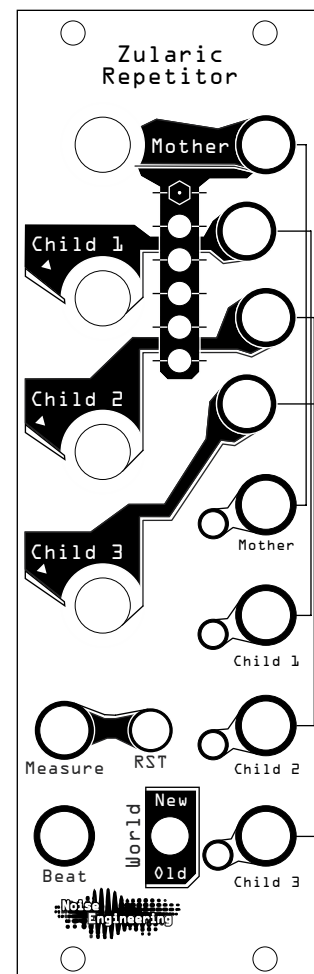
Dynamic Rythmic Generator

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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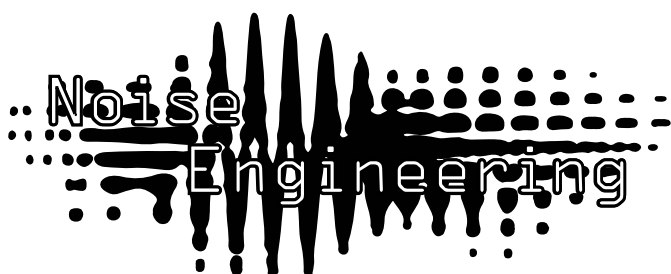
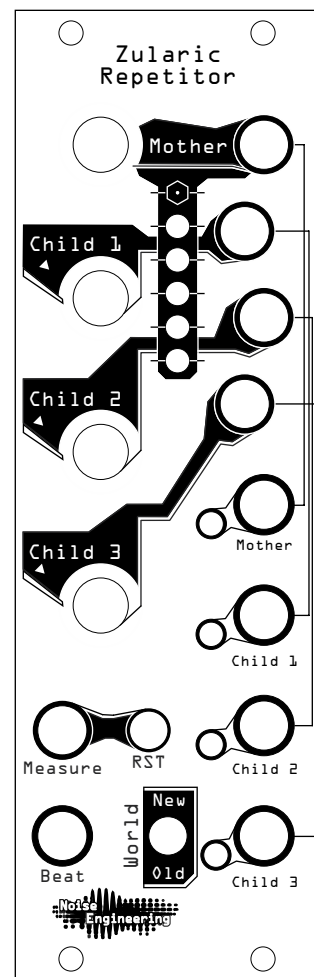
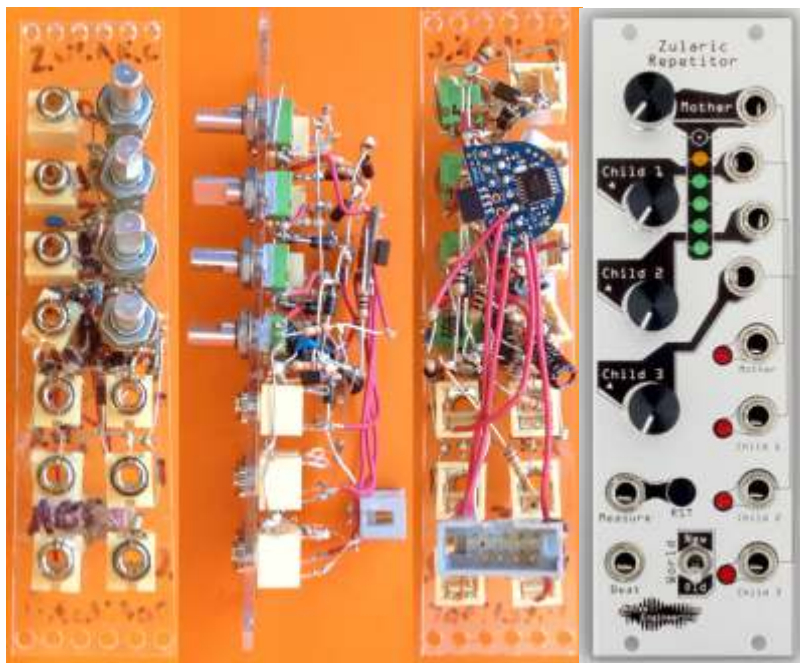
Zularic Repetitor

Dynamic Rhythmic Generator

Design Notes

The African and African-derived rhythms come from the music theory book *Rhythm and Transforms* by Sethares, and the terminology comes from his work as well. Sethares's taxonomy appears to be mostly based on King's work (an ethnomusicologist and the namesake of the king rhythm), though are obviously simplified to work in a modular format. The core variation technique of offsetting the first beat in time is very common in music throughout Africa; in many ways, this is more important to the module than the rhythms themselves.

The Indian references were transcribed by ear from a Hindustani drum machine Stephen borrowed from a friend, and the names of these patterns come from the presets on the drum machine. These machines are available online and we learned a lot from the one we had access to if you are curious about them.



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Zularic Repetitor

Dynamic Rythmic Generator

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. The knob acts as an attenuator for the input CV

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 an attenuator 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

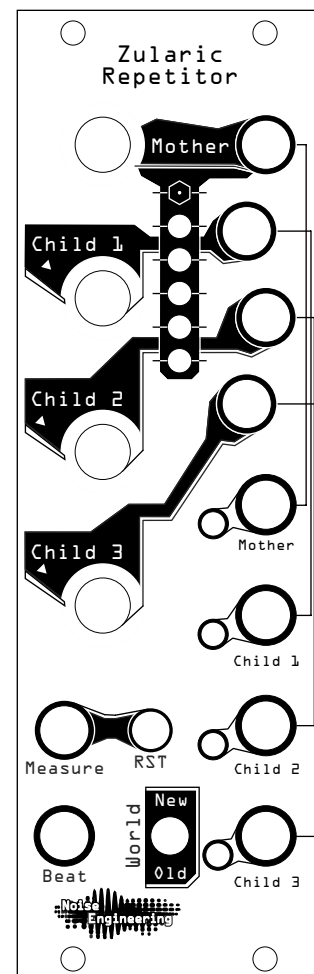
The RST button will pause the advancement of time while depressed and when released reset the time back to the start of the measure.

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.

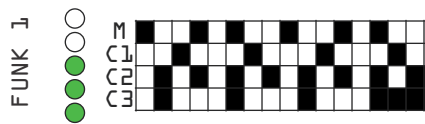
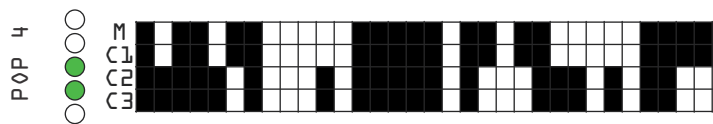
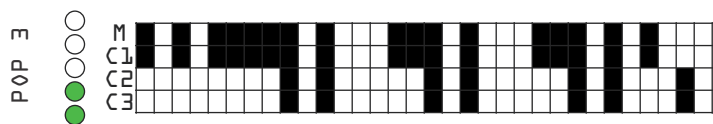
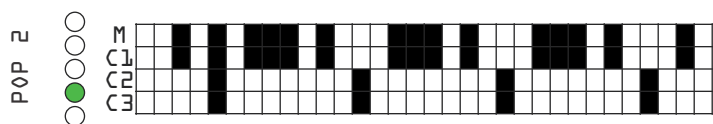
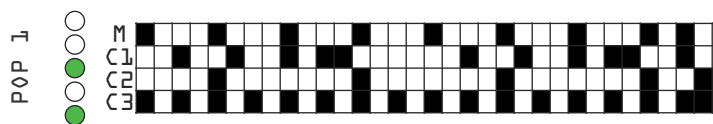
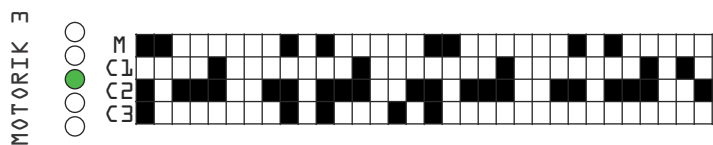
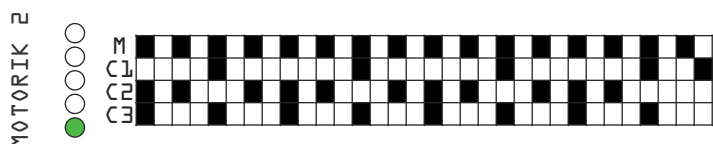
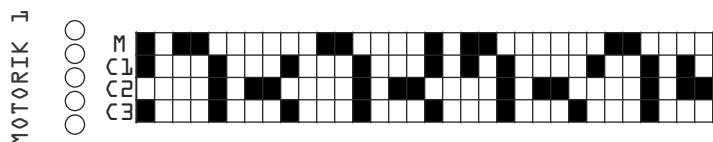


Noise Engineering

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Dynamic Rythmic Generator

Patterns: New World

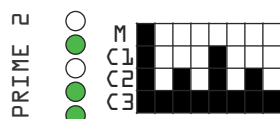
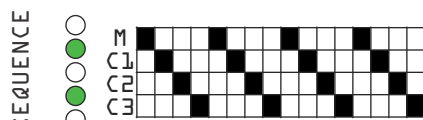
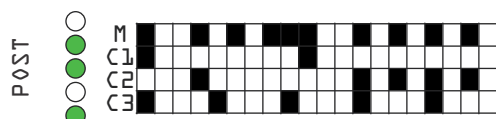
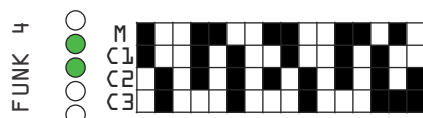
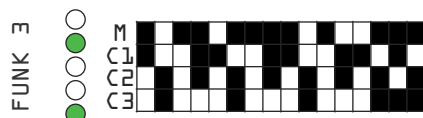
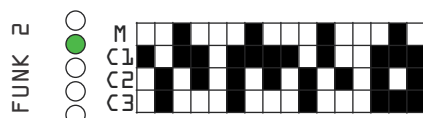


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Zularic Repetitor

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Patterns: New World



RANDOM

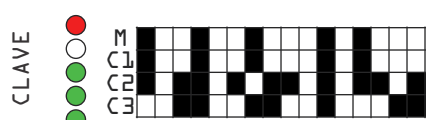
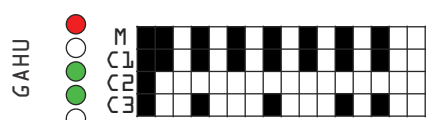
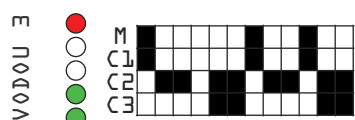
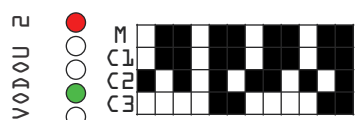
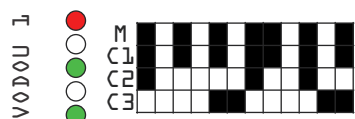
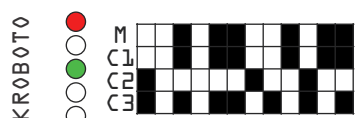
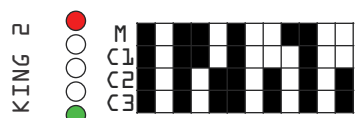
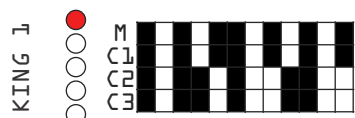
- M BEAT at 25% probability
- C1 BEAT at probability given by C1 (CV/knob)
- C2 BEAT at probability given by C2 (CV/knob)
- C3 BEAT at probability given by C3 (CV/knob)

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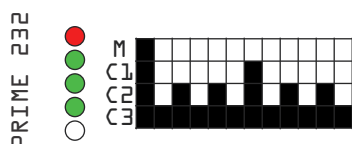
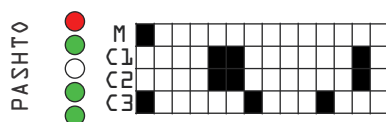
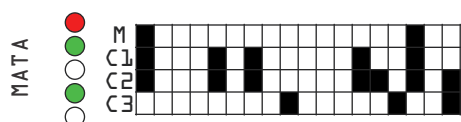
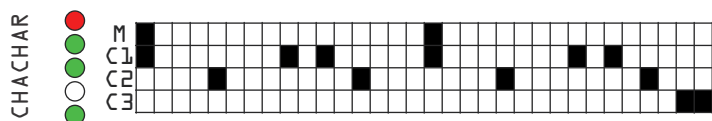
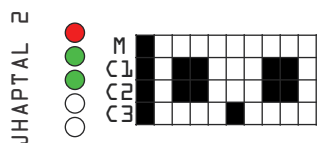
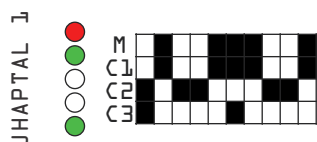
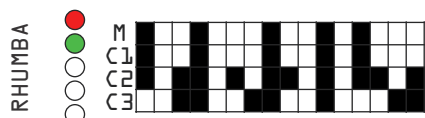


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Patterns: Old World



DIVIDER

- M BEAT divided by four
- C1 BEAT divided by C1 (CV/knob) (1-32)
- C2 BEAT divided by C2 (CV/knob) (1-32)
- C3 BEAT divided by C3 (CV/knob) (1-32)

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Special Thanks

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Alex Anderson

