Patterns

Bit Shifter

User Manual

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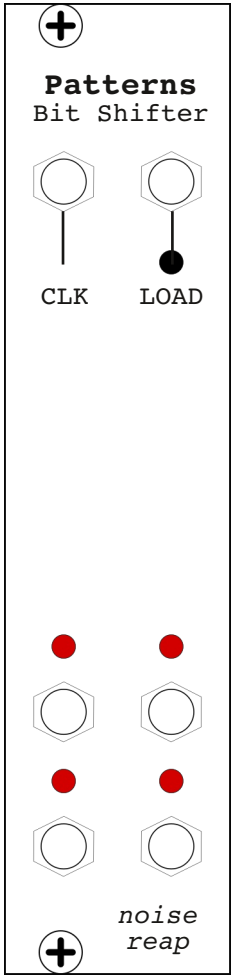


Installation

Make sure your system power is switched off. Carefully attach the floating 16-pin end of the ribbon cable from the module to your power bus. **The red stripe should match up with the -12V side of your power bus.** All Noise Reap modules are reverse voltage protected and will simply not turn on if they are accidentally installed with the opposite polarity. No harm will befall the module or your system.

Tech Specs

- Width 6hp
- Depth 22mm
- Input Impedances ~100K
- Output Impedances ~1K

Power

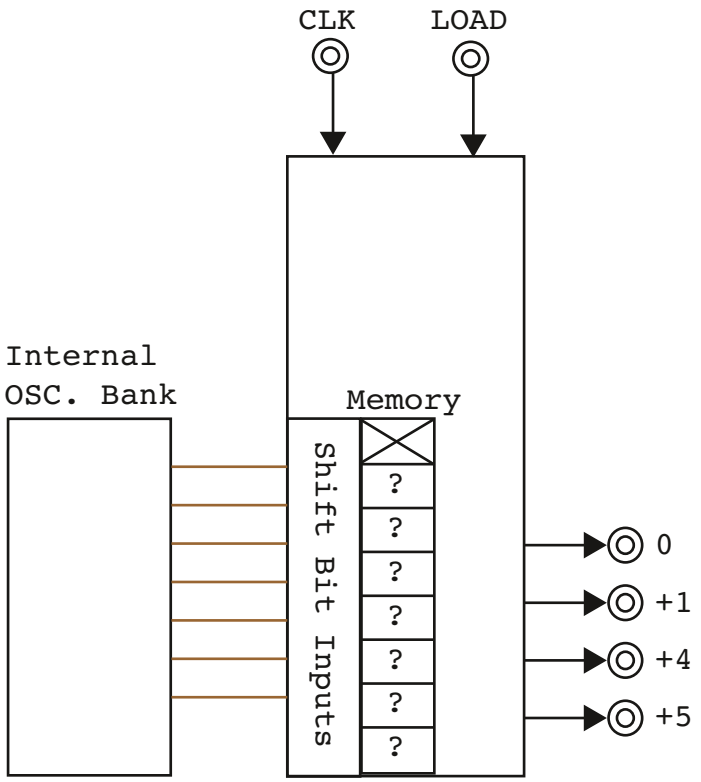
- Reverse Voltage Protected
- Current Draw 22mA @ +12V
- Current Draw 10mA @ -12V

Overview

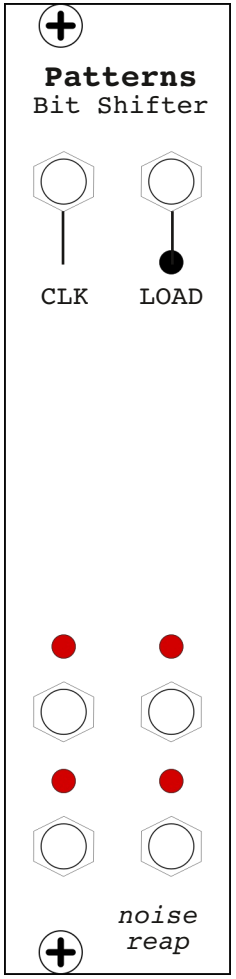
Patterns is a non-traditional 8 step gate sequencer with rhythmic 'canon' outputs.

Of the eight steps, the first step is fixed HIGH, and the remaining seven are randomly assigned a LOW or HIGH value depending on the state of seven supersonic oscillators.

This makes for 128 possible core combinations. But the staggered 'canon' outputs allow for nearly unlimited sequencing potential when mixed with other logic and sequencer modules.



Inputs & Controls



CLK
Input for an external pulse shaped waveform. Minimum trigger threshold 2V.

It takes **two rising edges** at the CLK input to advance the sequencer one step.

Basically, one clock pulse is needed to send the outputs HIGH, and another clock pulse to go LOW. Without this two step process, gates would 'bleed' into each other.

LOAD
This "refreshes" the information in the shift bit register and therefore creates a new rhythmic pattern.

It can be activated by hand with the tact switch or by a **pulse shaped voltage** at the CV input.

As long as the load input is HIGH, the shift bit register will be in a state of reading the oscillators and all outputs will be LOW.

Outputs

Canon Outputs (x4)

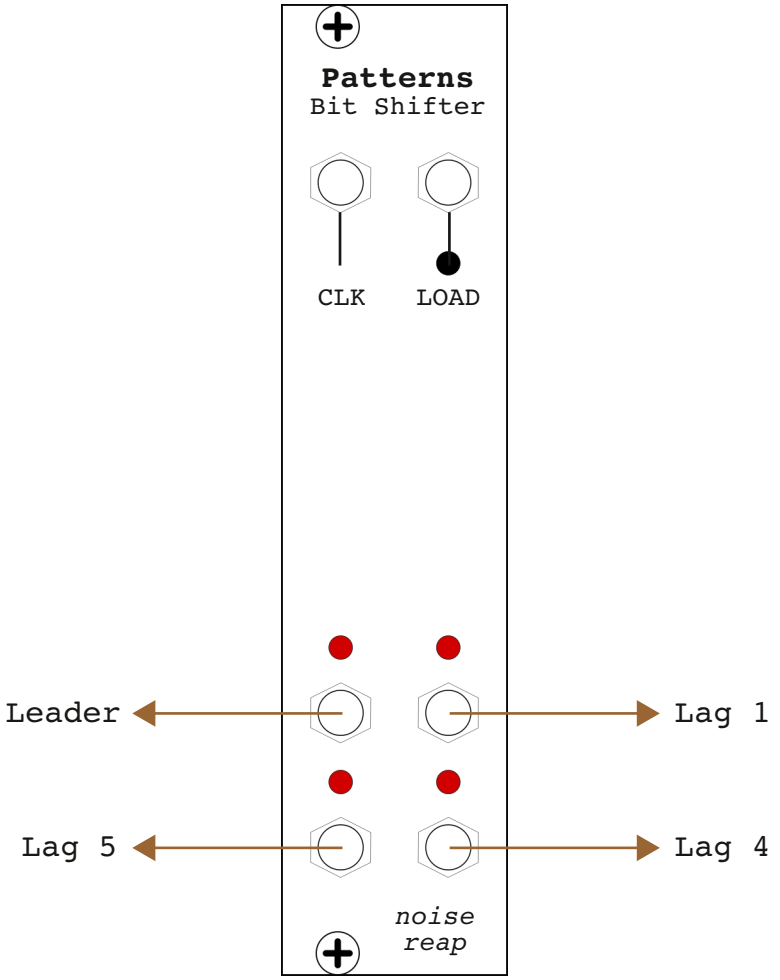
Each output is a strong 6.5V gate easily capable of driving a 4 way mult.

What does 'canon' mean?

The outputs produce the same pattern but with a time lag between them. When you watch the LEDs blink, they essentially chase each other around in a clockwise pattern.

Musically, this creates a rhythmic 'canon' effect, where the same sequence is repeated but only after a certain time duration. (Row, row, row your boat...)

Arbitrarily, if we use the upper left output as the leading point - going clockwise the lag in steps for the next three jacks are 1, 4, and 5.



Patch Ideas

#1 - Sequencing Your Sequencer

Placing Patterns between a clock source and another sequencer can form the basis for endless new ideas.

Basically, let Patterns advance an ordinary sequence in a rhythmically interesting way.

#2 - Drum Triggering

Use Patterns to create interesting drum rhythms. For instance, use one output to trigger and another to accent the same drum.

Or trigger two seprate drums, maybe toms or hats.

Or mix two outputs into a differential mixer (like the SWISS ARMY MIXER) to derive new but related drum sequences.

#3 - Suboctaves

The clock input accepts audio rates up to 200kHz. This means you can plug a VCO into the CLK input and get a mix of suboctaves from the outs.

If you hit LOAD long enough, eventually you will get a true 10101010 sequence and Patterns will produce an exact suboctave.

#4 - Non-Looping Random Patterns

If you plug a modulation source into the LOAD input that is at least 1/16th as fast as the CLK input, then Patterns will refresh before it has a chance to loop. An ever changing sequence of random gates will be produced.

Alternatively, just plug a Patterns output back into itself at the LOAD input. That output will no longer produce usable gates (an expected result of how the internal shift bit register works), but a self-generative random sequence will be created from the rest of the outputs!

#5 - Noise Generator

If one of the outputs is self patched into LOAD, and CLK is at fast audio rates, the rest of the canon outputs will create digital noise!

The timbre of the noise will be affected by the speed of the CLK.