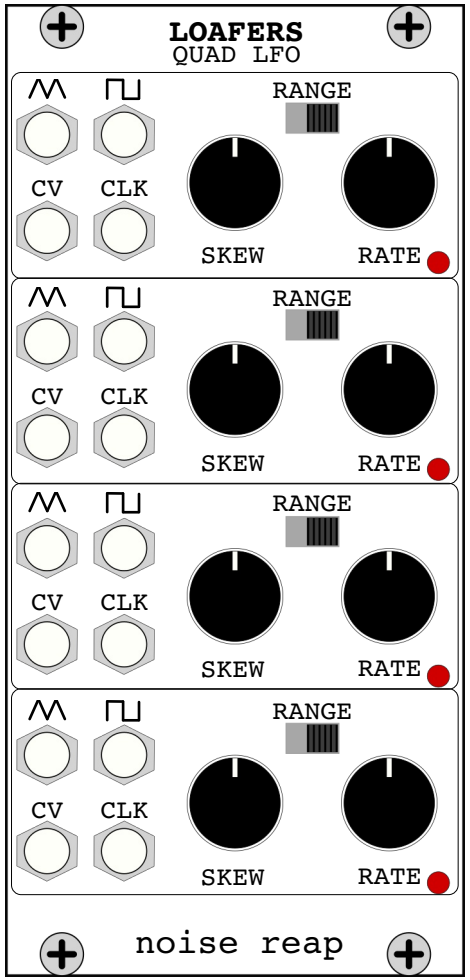
Loafers

Quad LFO

User Manual

Table of Contents



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 12hp
- Depth 22mm
- Input Impedances ~100K
- Output Impedances ~1K

Power

- Reverse Voltage Protected
- Current Draw 45mA @ +12V
- Current Draw 20mA @ -12V

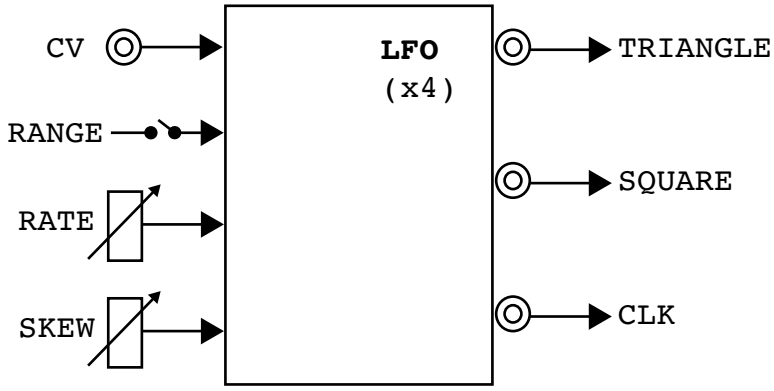
Overview

Loafers is a quad low frequency oscillator (LFO).

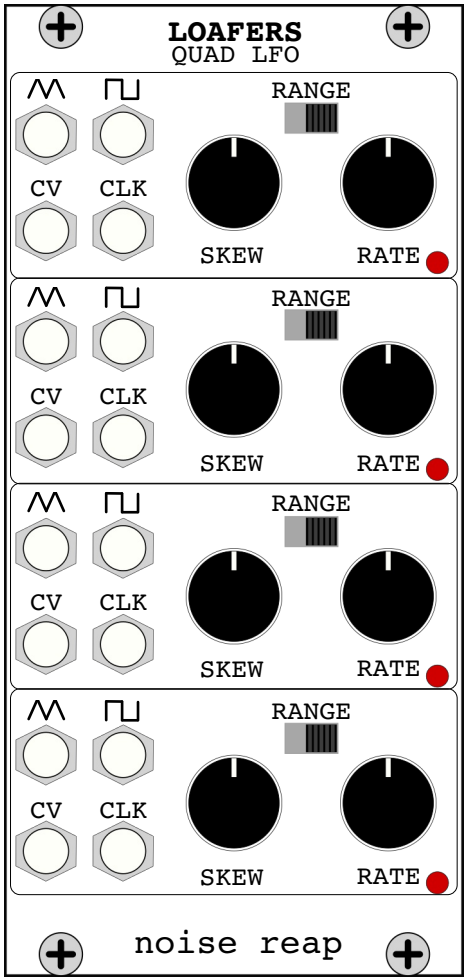
Each LFO has a wide cycle range of 50Hz to 0.008Hz (about 2 minutes).

Each LFO is skewable, and has three simultaneous outputs.

Each LFO has a unique type of CV input that allows for **speed modulation**, **gating** of the LFOs, and **syncing.**



Controls



SKEW
Changes the shape of the outputs. Going counterclockwise the triangle output gradually morphs into a **downward ramp.** And gradually morphs into an **upward ramp** in the clockwise direction.

Skew changes the **pulse width** of the square and clock outputs.

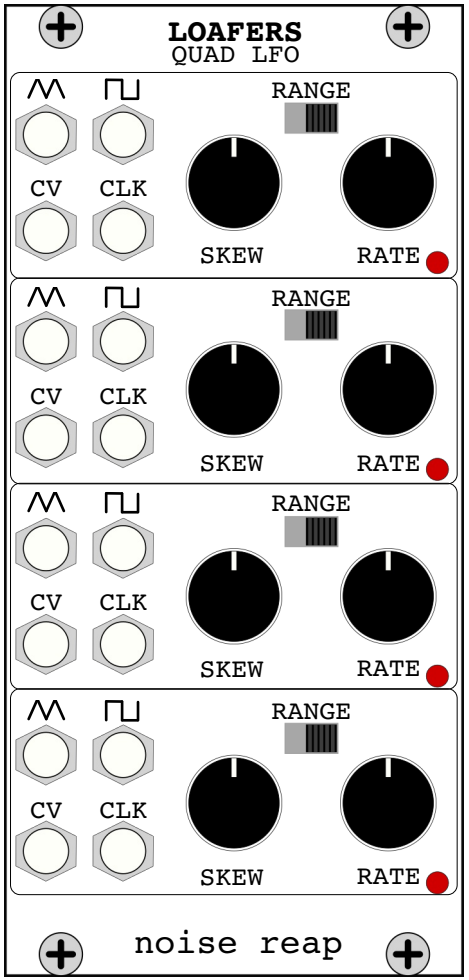
RATE
Changes the speed of the oscillation.

RANGE
Sets the minimum an maximum parameters of the RATE knob.

In one mode the LFO range is 0.5Hz to 50Hz.

In the other, the range is 0.008Hz (roughly 2 minutes) to 1Hz.

Inputs



CV
This is a very interesting input. It is essentially a 'direct injection' to the main capacitor that sets the speed of the LFO.

With a bit of attenuation and fiddling, the CV input can be used to control the **speed** of the oscillator. A positive CV signal can speed up or slow down the LFO depending on the skew.

With little or no attenuation, and a balancing of the SKEW and RATE knobs, the CV input is easily 'overridden' and behaves more as a **sync**, **reset**, or a **gated LFO.**

The syncing behavior will depend on the pulse width and amplitude of the gate/trigger/etc.

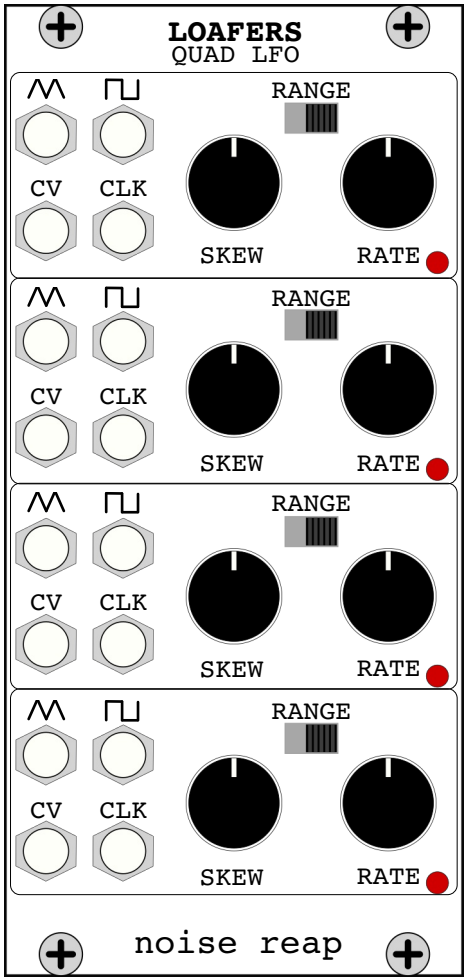
Generally, just start messing around and you will almost certainly end up with something musically interesting by using the CV inputs.

Outputs

TRIANGLE
+/-2.5V bipolar (5Vpp)

SQUARE
+/-2.5V bipolar (5Vpp)

CLK
0-5V unipolar 'clock' output.



Note:
Vpp = Voltage peak to peak

Patch Ideas

#1 - Easy Sine Output

Simply patch the triangle output of one LFO directly into the CV input of another. Keep the rates the same and don't add any skew. It works best in the mid range of possible frequencies. The triangle out of the modulated LFO should be a sine.

#2 - Cycling Envelopes (see fig. 1)

Here is a patch that uses a single Loafers LFO and two VCAs in series.

To start, a gate is sent to the Loafers CV input. The LFO will react in some way at that event and modulate the VCA1 dynamics in an interesting way.

TIP: *Start with SKEW fully counter-clockwise and RANGE switch in slow mode. For variation, use an attenuator at the Loafers CV IN.*

The same gate that triggers the Loafers is sent to VCA2 in series with the first. When the gate is ON, the VCA should be fully open, and when the gate is OFF, the VCA should be fully closed.

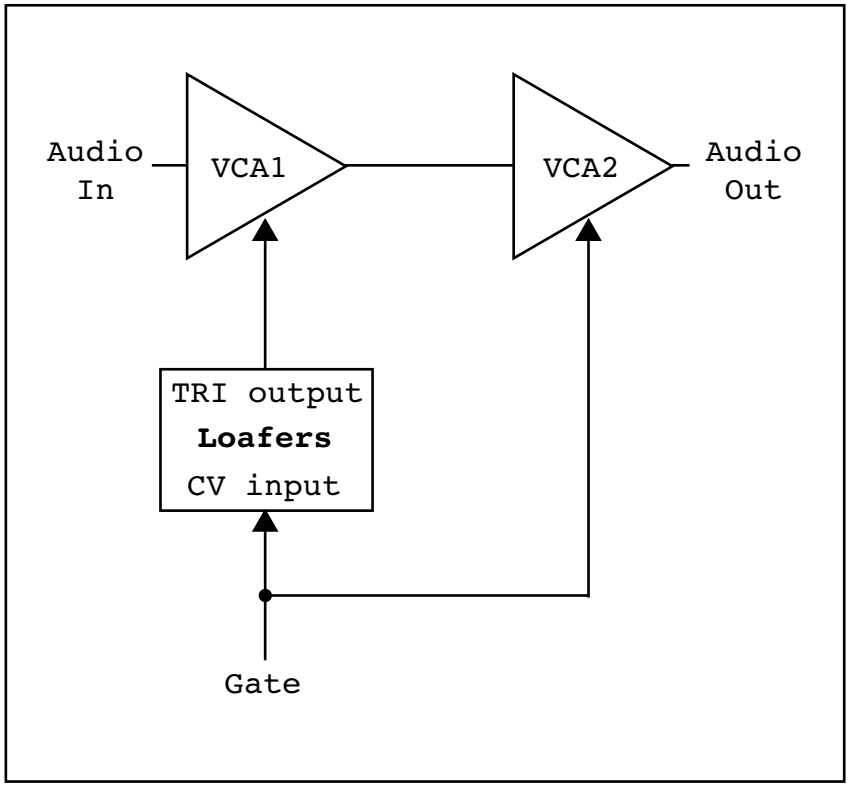


fig. 1

Mechanical Note

Unsoldered Switch Lugs
You may notice that the slide switch lugs are unsoldered on the back of your module. This is on purpose.

Basically, without getting into it, I believe this technique actually **increases** the lifespan of the switches.

And *should* they ever fail, they will be far easier to replace without damaging the PCB.