Mangrove User Manual

System Lizard

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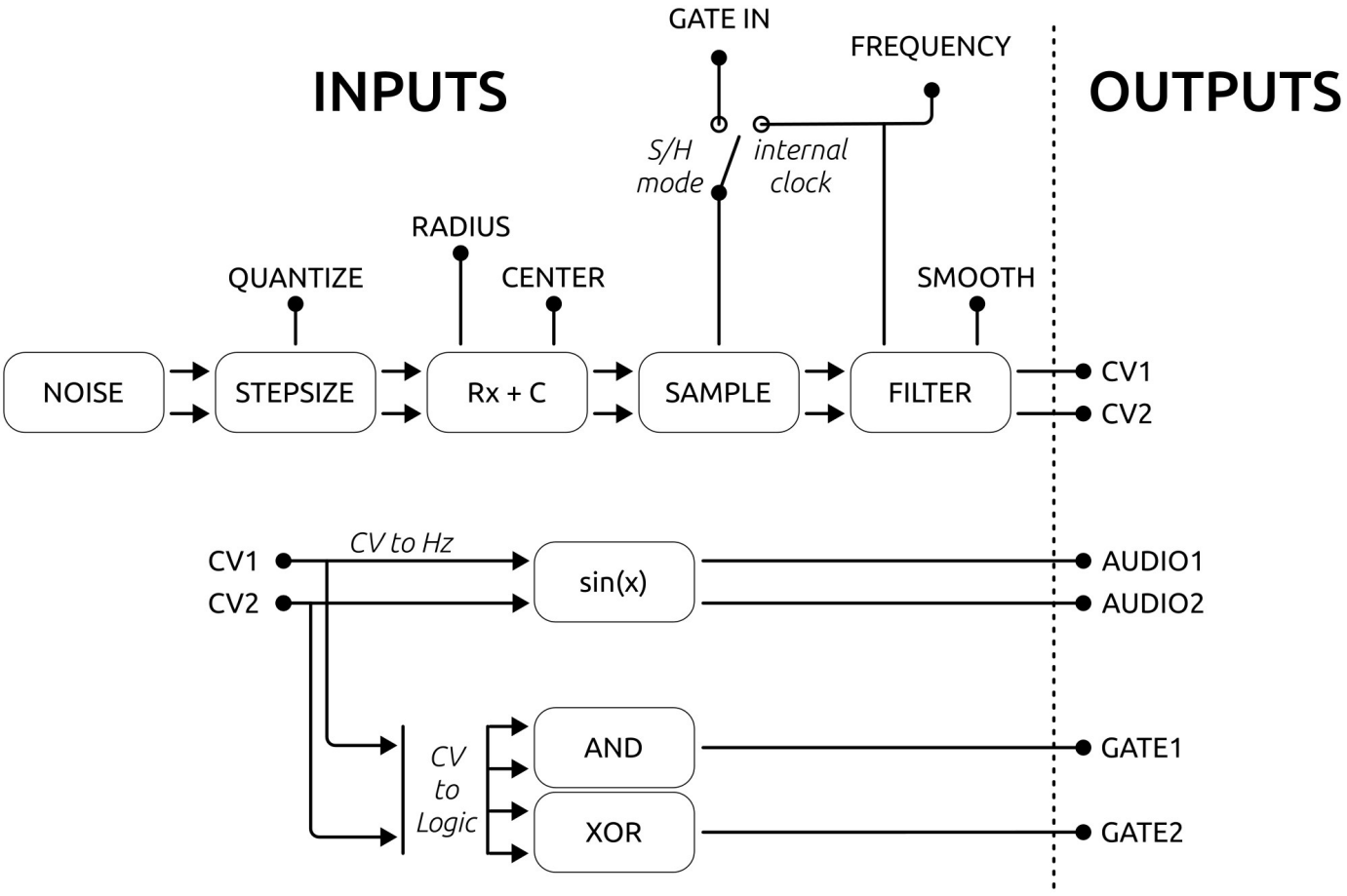
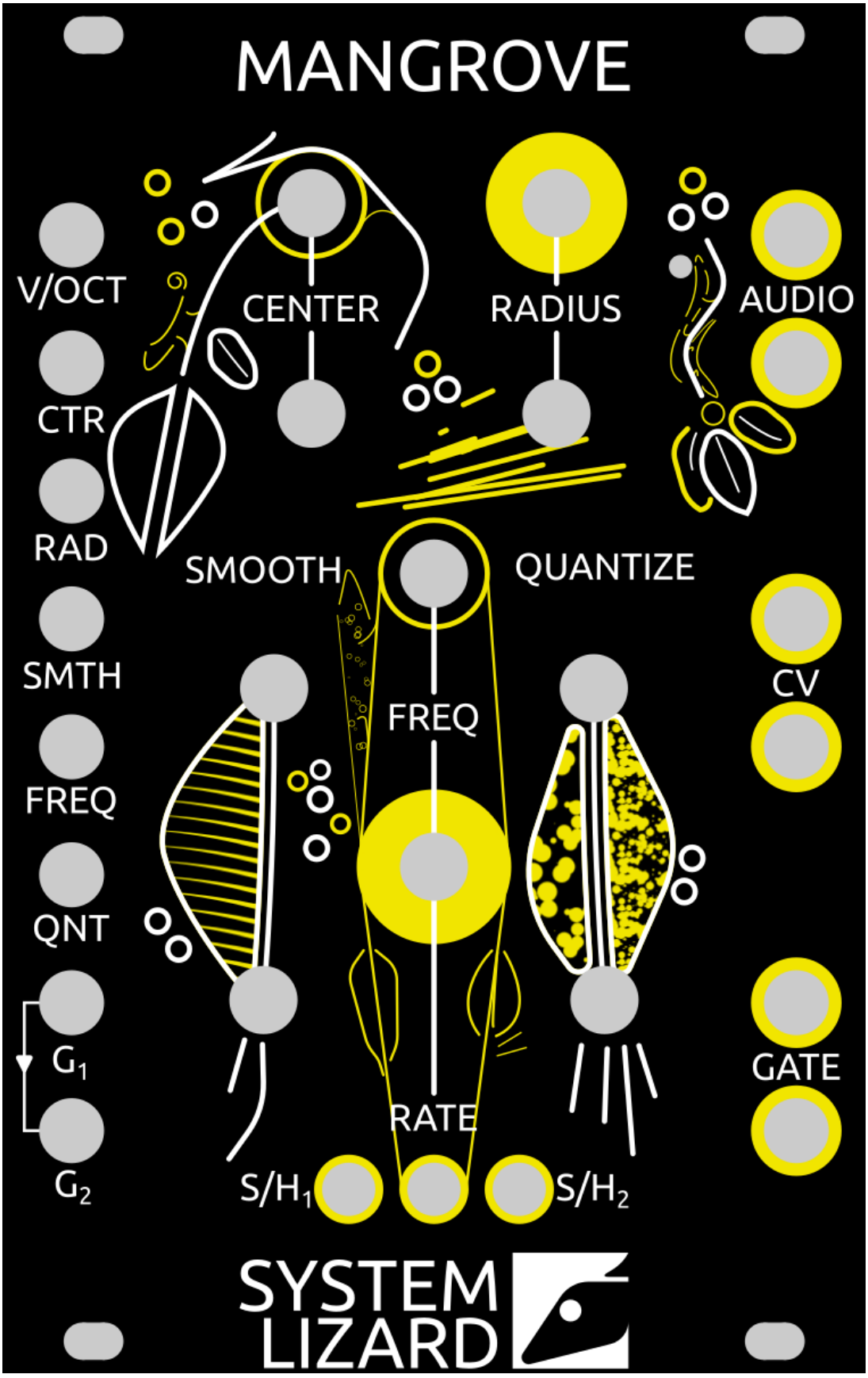
1 Introduction

At its core, Mangrove is a chaotic oscillator capable of recreating the beautiful ebb and flow of the Everglades. Begin with the scenery. Admire the calls of parakeets, and the ocean breeze before zooming in to discover unique ecosystems hidden behind the dense cover that mangroves have to offer.



2 Controls and Connections



2.1 Center / Radius

The frequencies generated by the random source. are scaled to an interval

$$\{x : (x - c)^2 \leq r^2\}$$

with a center c and radius r that can be CV controlled.

The center of this interval can track volt per octave with the **V/OCT** input, allowing the module to follow pitched sequences.

With the radius at 0, Mangrove will generate a single frequency. Increasing the radius will introduce more frequencies into the signal path, allowing us to generate noise.

2.2 Quantize

A quantizer is placed immediately after the noise source with values in $[0, 1]$. This dictates the number of unique frequencies present in the output.

For example, with the quantize control all the way counter clockwise, the noise is rounded to values in $\{0, 1\}$. Pushing this control up by a little bit, we get the values in $\{0, \frac{1}{2}, 1\}$. This increases exponentially, following the pattern:

$$\{0, \frac{1}{n}, \frac{2}{n} \ldots, \frac{n}{n}\}$$

Patch Note: If you want to get sounds that resemble a telephone operator, push the quantizer to lower values. If you want clean noise, push the controls clockwise.

2.3 Frequency

The frequency control serves two purposes.

For one, when the **S/H** switch is turned off, this will determine the internal clock rate for how often the noise signal is sampled.

For two, independently of if the **S/H** switch is enabled or disabled, this will affect how quickly the **smoothing** happens.

The **Rate** control will change the clock rate factor, pushing it from slow to fast.

2.4 Smoothing

Smoothing allows us to linearly interpolate the CV signal. An effect of this is that since our sine waves are tracking that signal exponentially, the perceived pitch will also ramp up and down exponentially.

2.5 Inputs / Outputs

All inputs except for the **V/OCT** and **GATE** inputs have a corresponding attenuation knob that controls the amount of modulation. These attenuation knobs are slightly smaller than the knobs used to bias the inputs.

The **AUDIO** outputs generate sinusoidal functions based on Mangrove's internal state, allowing us to get a high quality noise signal for listening purposes.

The **CV** outputs give us signals which produce noise that is better suited for modulating external devices, or for patching back into Mangrove's inputs. The character of noise generated here will appear harsh to listen to.

Note: The CV outputs do not track V/Oct.

The **GATE** outputs are the result of logical AND (for the top output) and XOR (for the bottom output) after discretizing the CV outputs.

This is useful in getting random sources for triggering envelopes, or getting geiger counter sounds.

3 Specifications

Mangrove is built according to the Doepfer A-100 Eurorack specifications.

Width: 16 HP

Power:

- +12 V : 90 mA
- -12 V : 5 mA

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4 Support

Mangrove is designed, built, and tested to last a lifetime and features many technical aspects that will require exploration to fully appreciate.

If you believe Mangrove is not operating up to specifications, or if you need any assistance using Mangrove for your musical applications, please reach out to the System Lizard team.

Notice: The contents in this manual are believed to be accurate at the time of printing. However, System Lizard reserves the right to change the specifications at any time without notice.