

# Voice of Saturn Synth Operating Manual

Welcome to the sonic wilderness that is The Voice of Saturn Synth. It is noisy, non-linear, explosive, and unpredictable, not unlike the mighty Sun Ra and his Arkestra (from which our namesake drew inspiration). This manual will help you find some interesting territories as you begin your exploration. If you need more help, post a question in our forums: [CuriousInventor.com/forums](http://CuriousInventor.com/forums)

**Main Components:** The core of the synth consists of three oscillators that are loosely based on a circuit-bent version of the Atari Punk Console.

**OSC1, OSC2, and an LFO (Low Frequency Oscillator) Modulation:** OSC1 produces a simple square wave tone, the pulsewidth of which is modulated with OSC2, and then amplitude modulated with the LFO oscillator. The circuit-bent nature of the VOS also introduces several unexpected interactions: OSC1 can affect the LFO, and the LFO in some configurations will affect OSC1 even when “off.” This is the chaos that makes the VOS an interesting world to explore.

**Space:** Just as there is vast emptiness in space, the VOS has many regions of silence, but don’t be dismayed; knob settings that produce silence in some combinations yield more interesting sound in others. Keep exploring.

**Begin:** To start off, set **OSC 2** and **LFO Mode** switches to the **down** or “**off**” position, and turn on the machine. The LFO light should be blinking or solid if the **LFO Rate** knob is all the way clockwise, but it won’t affect the sound (it always blinks). The **OSC 1 Pitch** and **OSC 1 & 2 Range** knobs should be the only knobs that affect the sound. Both will affect the pitch. (Turning the LFO Rate to full clockwise will change the sound slightly). Don’t max out the volume (see below).

**Turn on OSC 2 switch:** The sound is now being modulated by a second oscillator, OSC 2. Adjusting the **OSC 2 Pitch** knob changes the pitch of the 2<sup>nd</sup> oscillator, and will have different effects depending on the position of the OSC 1 and Range knobs. Most of the interesting range for all these knobs is in the last 3<sup>rd</sup> of the clockwise direction.

**Turn on the LFO Mode Switch:** You may hear nothing. While the LFO Mode is ON, the OSC 1 Pitch and Range knobs have very limited operating zones. Set the **OSC 1 & 2 Range** knob to 1/10 a turn from full clockwise. Set **OSC 1 Pitch** to about the same setting—just short of full clockwise. Now set **LFO Type** to 3 o’clock, and **LFO Depth** to 12 o’clock. Set the **LFO Rate** to 3 o’clock. You should now hear a sound with slight tremolo. Experiment with the type and depth knobs to hear their affect.

While the LFO Mode switch is on, the **OSC 1 Pitch** and **OSC 1 & 2 Range** knobs will have very large effects for small motions, but they generally must be kept in the last ¼ turn from full clockwise to generate any sound.

**CV1 and CV2:** CV1 affects the OSC1 Pitch while CV2 affects the OSC Range knob. To get full effect from the Control Voltage 1 inputs, set **OSC 1 Pitch** and **OSC 1 & 2 Range** to almost full clockwise. **CV2** requires **OSC 1 & 2 Range** to be set to full **counter**-clockwise.

**Power:** The VOS requires 1 9V battery. If you’re feeling handy, you may be able to replace that battery with a 9V wall wart power supply, or purchase one of the regulated add-on supplies available at the main VOS kit page: [CuriousInventor.com/kits/voice\\_of\\_Saturn](http://CuriousInventor.com/kits/voice_of_Saturn)

**Volume:** If the volume knob is maxed out, it can have an effect on the pitch, and also allow the LFO to bleed through more than normal. Keep the volume below about 4 o’clock.

- schematic, parts list, building instructions are here: [CuriousInventor.com/kits/voice\\_of\\_saturn](http://CuriousInventor.com/kits/voice_of_saturn)