Adder Manual

SV Modular

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Adder Users Manual

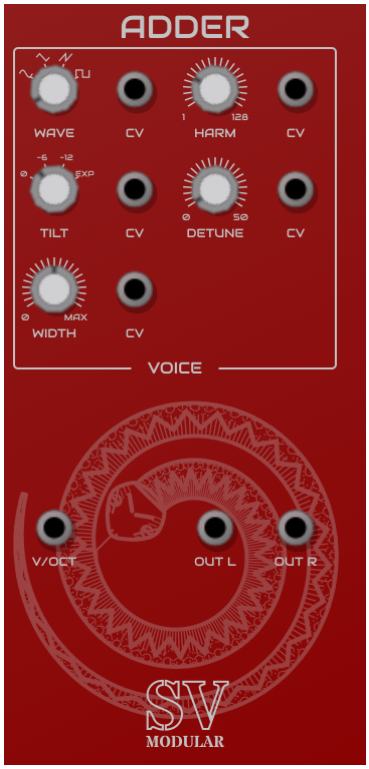


Figure 1: Adder

Adder is an additive synthesizer. It builds a tone by adding together up to 128 sine wave partials, whose frequencies and levels are taken from a classic waveform. It is a drone: every channel of the V/OCT input sounds continuously, so patch your own VCA or ADSR after it to shape notes. It provides two polyphonic (stereo) outputs, with up to 16 voices.

Additive Synthesis

Any repeating sound can be described as a sum of sine waves at whole-number multiples of the fundamental frequency, the *harmonics*. Additive synthesis works from that idea in reverse: pick the harmonics, set their levels, and add them together. Adder starts from the harmonic recipe of a sine, triangle, sawtooth or square wave, then lets you limit how many harmonics are used and change how quickly they fade away.

Partials that would rise above the Nyquist frequency are dropped, so the output does not alias at high pitches.

Panel Controls and Functions

Adder is a single *Voice* section. Each knob has a CV input to its right. A CV of `10v` sweeps the knob across its whole range, and the result is clamped to the range of the knob.

Voice

Wave The *Wave* parameter selects the harmonic recipe.

Sine Wave contains only the fundamental.

Triangle Wave contains odd harmonics falling off with the square of the harmonic number.

Sawtooth Wave contains every harmonic falling off with the harmonic number.

Square Wave contains the odd harmonics falling off with the harmonic number.

Harm The *Harm* parameter sets the number of harmonics that are added, from `1` to `128`. Fewer harmonics sounds dull and soft, more harmonics sounds bright. Sweeping it by CV is a simple low-pass filter effect.

Tilt The *Tilt* parameter changes how the level of the harmonics falls with their number, applied on top of the chosen wave. There are four settings: `0`, which leaves the levels equal, `−6`, which falls at 6 dB per octave, `−12`, which falls at 12 dB per octave, and *Exp*, which fades exponentially. Higher settings give a darker sound.

Detune The *Detune* parameter spreads the partials away from perfect harmonics, from `0` to `50` cents. Each partial except the fundamental receives its own fixed offset, so the sound moves from a pure tone to a bell-like or chorused one.

Width The *Width* parameter controls the stereo spread, from `0` to the maximum. Odd harmonics are panned to the left and even harmonics to the right. At `0` both outputs are identical.

Input

V/OCT The *V/OCT* input sets the pitch, at 1 volt per octave, with `0v` as C4. The input is polyphonic, and up to 16 channels will each play a voice.

Output

OUT L / OUT R The *OUT L* and *OUT R* outputs carry the left and right channels of the sound at +/-5 volts. Both outputs are polyphonic: channel *n* carries voice *n* of the V/OCT input. Use a polyphonic mixer to sum the voices.