PAD Manual

SV Modular

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PAD Users Manual



Figure 1: PAD

PAD is an implementation of the PADSynth Algorithm in a compact six HP module. It is a drone: every channel of the V/OCT input sounds continuously, and there is no gate or envelope, so patch your own VCA or ADSR after it to shape notes. It provides two polyphonic (stereo) outputs.

The PADSynth algorithm builds a wavetable by giving each harmonic of a note a wide, smeared band of frequencies instead of a single sharp line, then transforming the result back into audio. The outcome is a thick, choir-like tone, closer to a chorus of detuned voices than to a single oscillator. The table is regenerated in the background whenever you change a parameter, and the old and new tables are crossfaded, so turning a knob never clicks.

Signal Path

V/OCT selects the pitch of each voice. The voice reads the PADSynth table, and the left and right outputs are read from two independently generated tables, giving a natural stereo image.

Panel Controls and Functions

PAD is divided into three sections: input, tone, and output.

Tone

The *Tone* section shapes the wavetable. 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.

Tune The *Tune* parameter sets the pitch the wavetable is built around, from `C2` to `C7`, in whole semitones. Voices are played by resampling the table, so the further a voice is from the Tune note, the more the character of the table shifts. Set Tune near the middle of the range you will play for the most consistent sound.

BW The *BW* parameter controls the bandwidth of each harmonic, from `10` to `100` cents. Narrow bandwidths sound like a pure, slightly shimmering tone, wide bandwidths blur into a wash of noise-like chorus.

Bright The *Bright* parameter controls how quickly the higher harmonics fall off, from `0.5` to `3`. Lower values are dark and rounded, higher values are bright and buzzy.

Scale The *Scale* parameter changes how the bandwidth grows with the harmonic number, from `0.5` to `2`. At `1` each harmonic is smeared in proportion to its frequency. Lower values keep the upper harmonics focused, higher values smear them further.

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.