FrequencyCrystal Manual

Synthetic FX

November, 2026

FrequencyCrystal Users Manual



Figure 1: FrequencyCrystal

FrequencyCrystal runs the input through a single-sideband frequency shifter and then into a bank of eight tuned comb resonators. The shifter moves every frequency by the same number of Hz (harmonic relationships are destroyed: it is not a pitch shift), and the combs, spaced a semitone apart around one base frequency, turn the result into glassy, metallic, ringing tones.

Inputs and Outputs

- `IN L` and `IN R`: audio in. If only `IN L` is patched, it feeds both sides.
- `OUT L` and `OUT R`: stereo audio out (dry/wet mix).

FrequencyCrystal is not polyphonic: polyphonic cables are summed to one signal.

Parameters

Every parameter has a CV input to the right of its knob. The CV is additive, and `10 volts` sweeps the full range of the parameter from the knob position.

Parameter	Range	Default	Notes
SHIFT	-500 – +500 Hz	+30 Hz	Frequency shift of both channels.
SPREAD	0 – 50 Hz	4 Hz	Left is shifted by SHIFT - SPREAD/2, right by SHIFT + SPREAD/2: stereo beating.
FREQ	50 – 2000 Hz	200 Hz	Base frequency of the comb bank (squared knob curve).
DECAY	0.1 – 3 s	1 s	Comb ring time (T60).
FDBK	0 – 85%	40%	Shifter output fed back into its own input: each pass shifts again, giving rising or falling glissandi.
MIX	0 – 100%	50%	Dry / wet.

About the shifter

The shifter is the one from the AU plugin, kept on purpose. Its quadrature network is not a textbook one, so it leaks the mirror sideband: SHIFT +100 Hz puts a copy of each partial 100 Hz above *and* 100 Hz below. That is what gives FrequencyCrystal its thick, chorused, metallic character, so it is not “corrected”.