Monolith - User Manual

Firmware 0.0.2

Dictionary

- CV - control voltage
- FM - frequency modulation
- VOCT - voltage per octave (pitch CV)

Hardware Specs

- 14 HP
- 35 mm deep
- 150 mA +12V
- 30 mA -12V
- 0 mA 5V

Usage

monolith is a pitch-shifter reverb inspired by west coast synthesis techniques. It utilizes a time-domain based exponential FM algorithm that acts as a shimmer.

Inputs:

Note: CV inputs do NOT have a circle graphics around their hex nuts

- **in l and in r** - audio input; left will be converted from mono to stereo input if the right input CV jack remains unplugged.
- **blend** - knob and CV for controlling the fade between the dry and FM effect audio signals. When the FM effect is turned off, blend will fade between the clean input audio signal and a filtered input audio signal.
- **dj filter** - knob and CV for controlling the reverb delay line filtering; these controls can also filter the input audio signal based on different blend knob positions and FM effect on/off states.
- **wet** - knob and CV for controlling the reverb decay
- **mod** - knob and CV for controlling the scale of FM modulation. A low mod value will correspond with microtonal pitch shifts. high mod values correspond with multiple octave shifts. Two different pitch shift tables are available through press and hold of the quant button. More details are provided below.
- **on** - button, CV gate and LED for toggling on/off FM modulation. when FM modulation is turned on, the FM modulator oscillator is reset. The on button can be pressed and held to toggle between two different FM effect filtering behaviors. When the LED is solid while on, the input audio FM effect will bypass the dj filter. When the LED is flashing while on, the input audio FM effect will be fed through the dj filter.
- **quant** - button, CV gate and LED for toggling on/off FM pitch quantization. pressing and holding the quant button can toggle between two pitch modulation tables for the FM effect. If the quant LED is solid while on, the FM modulation will shift up and down in pitch with equal offset values (VOCT: [-1,1], etc). If the quant LED is flashing while on, the FM effect will shift up and down in pitch with uneven offset values (VOCT: [-2/12,3/12], etc).
- **freq and v/oct** - knob and CV for controlling the frequency of the FM modulator oscillator. This control also influences reverb pre-delay.
- **shape** - knob and CV for controlling FM modulator oscillator shape. shape wavetable transitions from sine wave (8 o'clock) to triangle wave (12 o'clock) to square wave (4 o'clock).
- **clock** - CV gate and LED for tempo syncing modulator oscillator period.

Outputs:

Note: CV outputs have a circle graphic around their hex nuts

- **out l and out r** - audio output
- **gate** - CV gate out and LED that are period synced with the FM modulator oscillator. The period of this gate can be reset by turning off and on the FM shimmer effect. Changes to the FM modulator oscillator frequency will cause this gate to move in and out of phase with an input clock signal.

Additional Resources

https://github.com/rawyawmedia/eurorack/tree/main/firmware