

# VONGON ultrasheer

User Manual - Version 1.0

## Overview

Ultrasheer is a stereo reverb and vibrato combination inspired by the early digital studio effects units of the late 1970's, capable of moving you from a lush warbled space to a shallow room through an intuitive and satisfyingly tactile interface.

### Reverb

The reverb algorithm is based on the plate reverb sounds of the classic Lexicon 224 from 1978. The digital processing is downsampled to 16 bits and follows the topology described in the Dattorro paper linked below. This mix of legacy digital processing with modern high quality hardware creates a retro lush sound that we love.

### Vibrato

The vibrato is a smooth and transparent digital pitch shifter that preserves the full bandwidth of your input signal and does not darken the sound which is often found in the analog counterparts. Two modulation waveforms are available, "cycle" which is a sine wave for classic Leslie-speaker-type sounds and "random" which is a smoothed sample and hold waveform that creates pitch warbles similar to a warped vinyl or sun-baked cassette.

### Dynamic Stereo Routing

The digital processing automatically adjusts for mono in/mono out, mono in/stereo out, or full stereo based on the configuration of input and output cables plugged into the device.

### Walnut Enclosure

Housed in a high quality single block of dark walnut

Dattorro paper: <https://ccrma.stanford.edu/~dattorro/EffectDesignPart1.pdf>

**audio outputs**- Instrument level 1/4" unbalanced outputs.  
» mono "tip-sleeve" cables only

**power input**- Standard 2.1mm center negative 9 Volt DC input. Current draw is 180 mA

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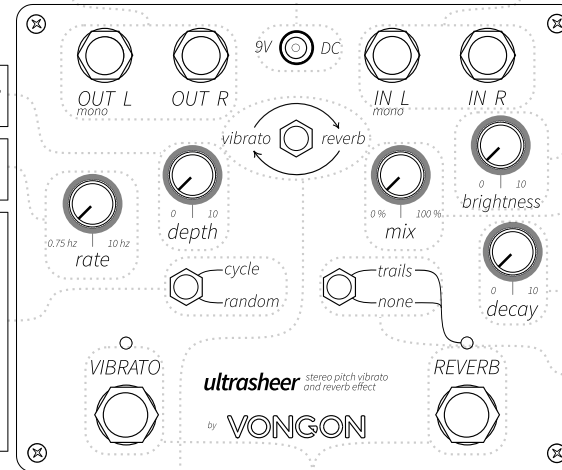
### Vibrato Controls

**depth**- Vibrato pitch bend amount, at "0" there is no vibrato effect

**rate**- Speed of the vibrato pitch change

**cycle**- Vibrato pitch change follows a sine wave pattern, for a classic leslie-like effect

**random**- Vibrato pitch changes are randomly chosen, creating a tape machine-like warble. Use the rate and depth controls to dial subtle pitch bends or bold detuned trills.



### Reverb Controls

**brightness**- Affects lowpass filter in the reverb feedbackloop, interacts with decay

**mix**- Balance of dry / wet signal from reverb, dry signal starts attenuating after 50%

**decay**- Reverb time length ranging from ~0.25 seconds to ~30 seconds, decreases as brightness decreases.

**trails**- Reverb trails will continue after effect is bypassed. When active, dry signal is always passed through the digital converters.

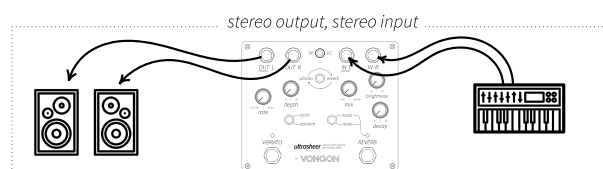
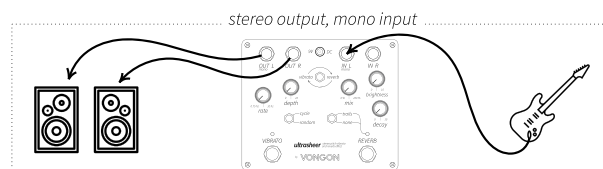
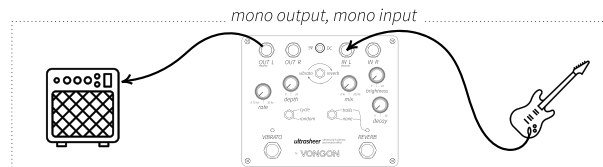
**effect order**- Toggle the order of the effects  
Toggle up- vibrato into reverb  
Toggle down- reverb into vibrato

**effect bypass**- Soft touch toggle switches for each effect. Effects are always bypassed when pedal is powered on.

» unbalanced mono cables (opposed to balanced stereo cables) are required for automatic stereo / mono detection to work properly.

### Stereo / Mono Configurations

Ultrasheer automatically changes internal routing based on the inputs cables plugged into the device. Here are the recommended configurations.

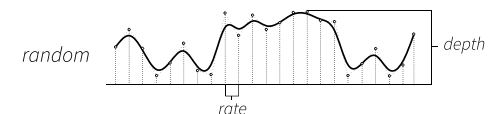


### Vibrato Waveforms

The vibrato offers two waveforms, cycle and random. Both modes can be shaped by the "rate" and "depth" parameters as illustrated below.

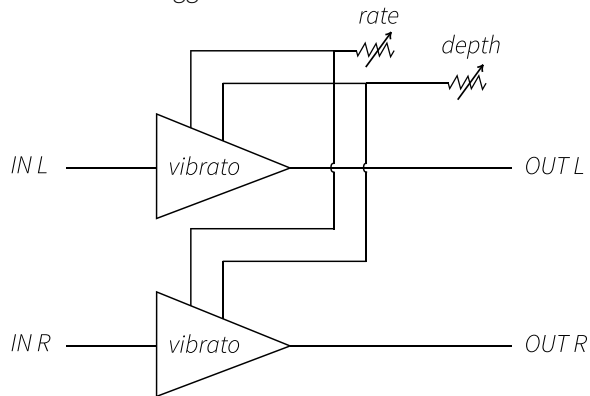
In "cycle", you have control over the frequency ("rate") and amplitude ("depth") of a sine wave.

In "random", you can use "rate" to control how often a new random value is introduced, and "depth" to control the range of random values that can occur.



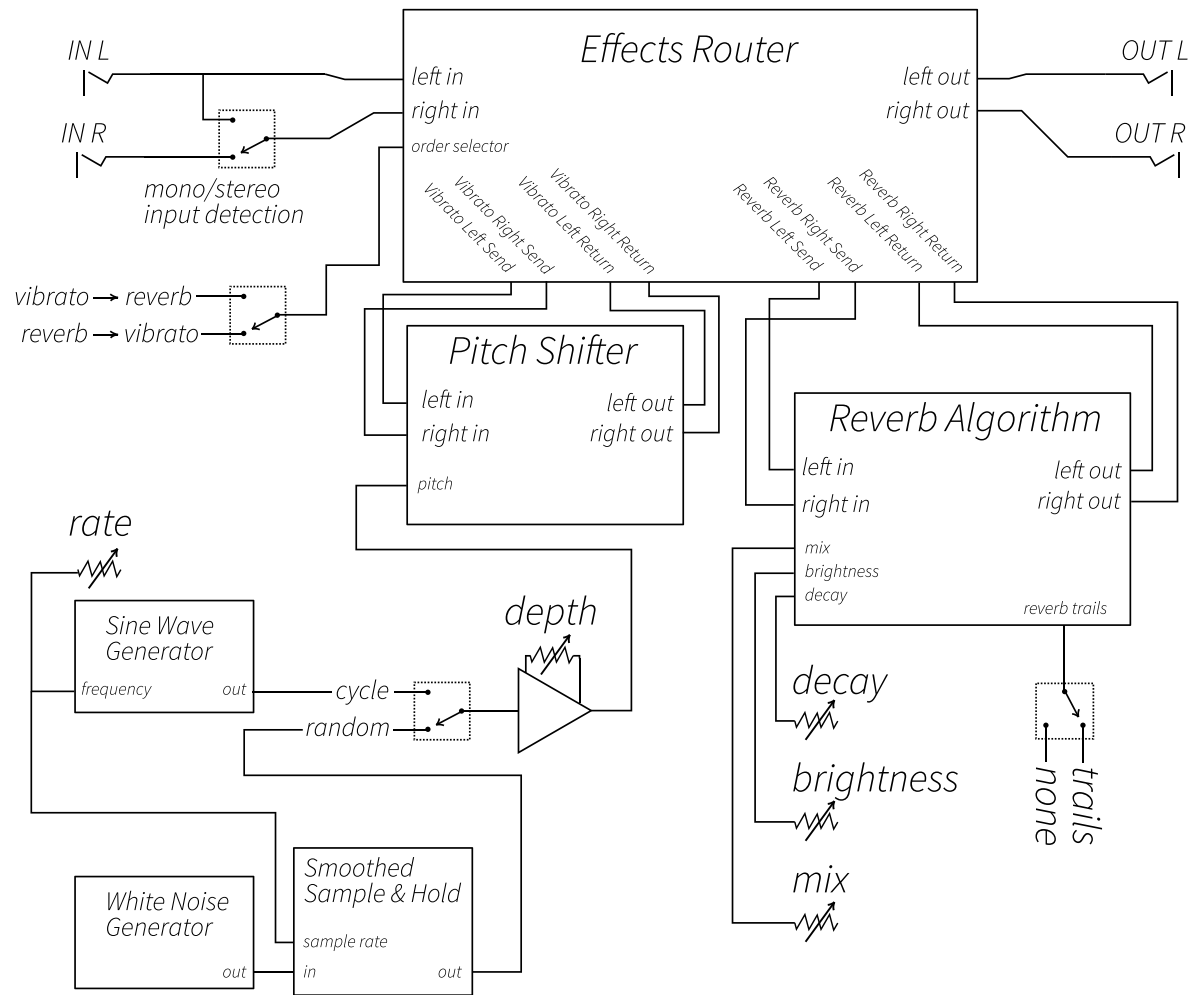
### Vibrato Stereo Signal Path

The vibrato does not add any stereo content, but it will preserve the stereo image of the input signal. This stereo input signal could be from your instrument, or if you are using a mono source (like an electric guitar) then the stereo image is created from the reverb algorithm if you have the reverb in front of the vibrato via the "order toggle"



### Features + Specs

- > 32 bit floating point DSP (except for 16 bit vintage reverb algorithm)
- > 24 bit / 48 khz digital converters
- > Input impedance: 53K Ohms
- > Output impedance: 40 Ohms
- > Analog buffered bypass
- > Soft touch foot switches
- > Stereo / Mono modes automatically selected based on the cables plugged in
- > Genuine Rogan knobs made in USA
- > Wooden enclosure made from a single block of dark walnut
- > Matte black aluminum faceplate with gold traces
- > Power - 2.1mm 9VDC Center Negative 180mA
- > Dimensions - 6.5" wide, 5.5" long, 2.25" tall
- > Designed and built in Oakland, California U.S.A.



### Powering

Ultrasheer was designed to operate using your typical center negative, regulated 9-9.6 VDC power supply. The pedal is protected against reversed polarity and overvoltage conditions. Always check your power supply for proper voltage and polarity before connecting. There is no battery connection inside the pedal.

### Contact Us

For all inquiries, please email [ryan@vongon.com](mailto:ryan@vongon.com)

### Extended Warranty

Vongon will repair or replace any malfunctioning product for a period of 1 year after purchase date. Problems resulting from modifications or misuse may cancel this warranty. The owner will cover all shipping expenses. This warranty applies only to the original owner of the product. Proof of purchase might be required.

In general, the best thing to do is to contact us as soon as possible with a description of the symptoms, even if the warranty is expired.