

RANDY'S REVENGE

Ring Modulator

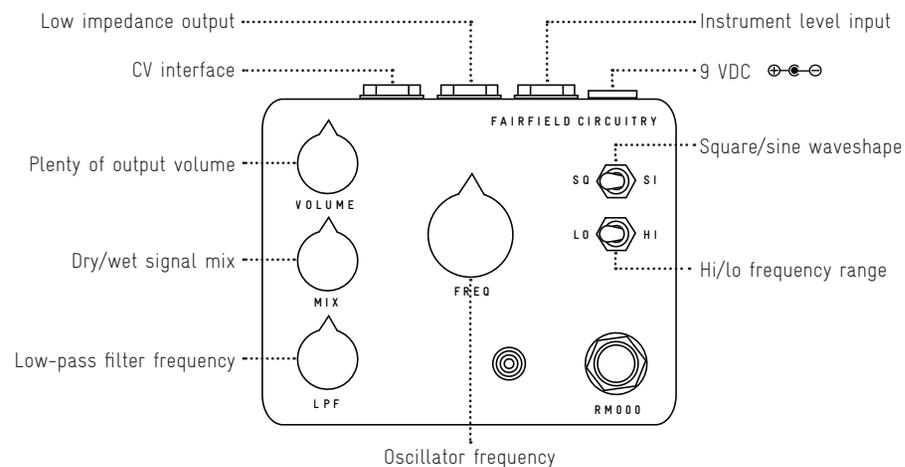


OVERVIEW

Ring modulation at its finest, in a considerably small package, powered by your typical 9V power supply, all analogue, hand stamped, pure sine wave oscillator, low-pass filtered with a touch of class and apparently musical. These are the requirements of warp speed space travel; a regular occurrence when dealing with Randy's hardware.

The lower oscillator frequencies create rich trem/vibe effects, excruciatingly slow or chopped up rhythmic flavours. As the frequency goes up, thick bells, tuned intervals, low-fidelity synth-like effects are only the beginning. Experimenting with the low-pass filter cutoff frequency and the dry/wet mix will yield tones as strange or subtle as desired.

Featuring expanded control voltage (CV) capabilities that allow for interactions beyond the simple stacking of effects, Randy can be used to control and be controlled by other CV capable devices. The stereo CV is switch-programmable for use with an expression pedal or as a 2-channel CV port. Both the oscillator and low-pass filter frequency are voltage-controllable. The internal oscillator is also available as an output, turning Randy into a stand-alone voltage-controlled oscillator (VCO).



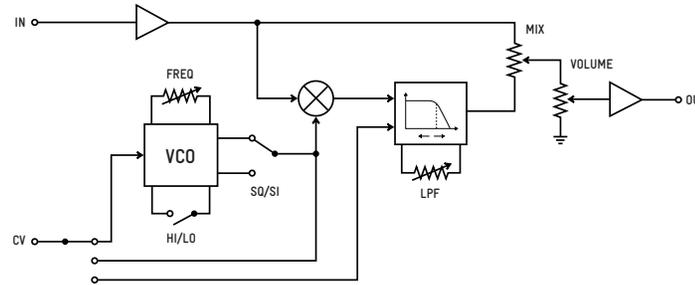
FAIRFIELD
• CIRCUITRY •

TECHNICALS

- input impedance 1 M Ω
- output impedance 1 k Ω
- power supply 9 to 9.6 VDC
- current draw 85 mA

PHYSICALS

- true true bypass
- 1/4" mono input/output jacks
- 1/4" stereo CV jack
- 2.1mm DC connector
- 4.7" x 3.8" enclosure dimensions



THE VOLTAGE-CONTROLLED OSCILLATOR

The VCO generates a low distortion sine wave whose frequency can be controlled in many ways. The HI/LO switch sets the operating range of the VCO; LO for 0.5Hz - 45Hz, HI for 18Hz - 2.4kHz. The FREQ control sets the oscillator's rate within the selected range. The shape of the waveform sent to the analogue multiplier is selected with SQ/SI switch; SQ for square, SI for sine.

THE FOUR-QUADRANT MULTIPLIER

The effect commonly known as ring modulation is simply the multiplication of two signals. The result of which is the sum and difference of all frequencies involved. Ideally, this also means that none of the original signals should be present in the output. In reality, all multipliers exhibit some degree of bleedthrough. As is the case with noise in general, bleedthrough will become more audible when higher gain is involved.

THE VOLTAGE-CONTROLLED LOW-PASS FILTER

Located after the multiplier, the second order low-pass filter affects only the modulated signal, not the clean one. This proves useful in taming the incoherent mess generated by the multiplication. The LPF control sets the cutoff frequency of the filter.

THE INPUT AND OUTPUT SECTIONS

When engaged, the input is first buffered by a discrete JFET gain stage, providing an ideal interface for instrument level sources and a characteristic tone. The MIX control is quite simple, ranging from fully dry to fully wet. The output level is set with VOLUME control. Unity gain is obtained when the control is set around noon. When disengaged, the signal is true bypassed.

THE CV JACK

By default, the control voltage (CV) jack is to be used with an expression pedal to control the oscillator's frequency. Expression pedal must follow the "wiper to tip" standard. It is possible to do much more with the CV jack by understanding the micro-switches located inside the pedal.

Please refer the Programmer's Reference Manual for more information.

NOTES ON POWERING

Randy's Revenge was designed to operate using your typical centre 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.

EXTENDED WARRANTY

Fairfield Circuitry will repair or replace any malfunctioning product for a period of 2 years 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 original owner of the product. Proof of purchase might be required.

In short, 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.

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