

# FREQUENCY CENTRAL WAVERIDER DIGITAL VCO



Based on the Electric Druid PIC 16F1847 VCDO1: <http://www.electricdruid.net/datasheets/VCDO1Datasheet.pdf>

**Frequency** The Frequency CV input accepts 0-5V control voltages, quantized to semitones, to cover the MIDI note range 0-63. It is possible to limit the CV input with the CV attenuator. The basic frequency range of the VCDO is ten octaves from MIDI Note 0 to MIDI Note 120 (8.18Hz to 8372Hz), and can be selected by the manual Frequency knob.

**Detune** The Detune CV input is not quantised, and allows for -5V to +5V CV to modulate +/-8 semitones. The manual Detune knob allows adjustments to be made +/-100 cents.

**Waveform** The VCDO section has 16 waveforms which you're unlikely to have seen before, arranged as a wavetable. The VCDO is able to crossfade from one to the next, creating a wavetable which you can scan through under voltage control, -5V to +5V. It would have been easy to include standard waveforms like ramps and triangles, but there are many oscillators that produce those. This oscillator has its own character and provides something different.

**Sub Wave** As well as the main oscillator, there is also a sub oscillator with 8 waveforms. Each waveform can be selected at one of four octaves, either +1 octave (above the main osc pitch!), in unison, -1 octave, or -2 octaves. Additionally, the Sub Wave can be selected externally by CV, -5V to +5V.

**Glide** Waverider also includes a glide/portamento effect, glide times range from 12ms/octave to 2.4secs/octave. Turning the Glide knob to minimum switches the glide effect off. Additionally, Glide can be externally controlled by any gate source, 0V = Glide off, 5V = Glide on.

**Crush** The Crush knob controls the sample bit resolution of the output (ie bitcrushing). This can be reduced from 8-bit down to 1-bit in eight steps.

**VCDO and Sub Osc Outputs** 8-bit, 62.5KHz sample output rate. The internal waveforms and calculations are 8-bit, and new samples are output via the on-chip PWM modules at 62.5KHz. The PWM modules' outputs are at 125KHz.

<http://www.frequencycentral.co.uk/>