

# cronch

Firmware 1.1

## About the module

This crunchy drum module was designed as a kick that can also make snare sounds. The noise knob can add some bite to your kick, or can be turned up to make a full on snare drum sound. 5 waveforms go from clean sine wave to a crunchy overdriven wave. The module only plays one sound at a time but you can get creative with the input jacks and play different sounds with each gate, effectively creating multiple drums.

You can think of the module as having an oscillator that runs all the time, the amp decay altering an envelope, making the oscillator audible, while the pitch decay makes the pitch go up or down. The max pitch is determined by the pitch offset, and the overall pitch is determined by tune.

## Wave

Press the wave button to move between waveforms.

Waveform 1: soft sine wave.

Waveform 2: triangle wave with light overdrive.

Waveform 3: triangle wave with light overdrive and wavfolding.

Waveform 4: medium overdriven triangle with more wavfolding.

Waveform 5: heavily overdriven triangle wave (acts more like square wave).

## Amp Decay:

A one stage envelope, dictating the length of the decay of the oscillator upon a gate. The decay jack controls the same analog to digital converter (ADC) as the knob, so you will have more range to the jack if the knob is turned all the way down. The jack accepts control voltage of 0-5v, however a negative voltage will pull down the positive voltage on the knob.

## Pitch Decay:

Determines the time that it takes the oscillator to go from maximum pitch to minimum pitch.

## Pitch Offset:

Determines the amount of rise that pitch decay will affect the oscillator's pitch.

## Noise:

Mixes white noise into the oscillator. Amp decay knob/jack will affect the noise equally as it affects the oscillator. The higher noise is turned, the less you will hear the oscillator. For kick sounds, try only slightly turning noise up to add some crunch.

## Tune:

The tune knob will affect the frequency of the entire oscillator sound. Turning it up will increase both the minimum and maximum pitch reached from the pitch decay.

## 1v/o:

This module follows the 1 volt per octave standard, meaning each volt you increase the 1v/o will increase the pitch by an octave. This makes it useful for playing bass lines with kick.

## Output:

The LEDs display the output wave and are identical. The output wave can swing from +-5 to a maximum of about +-10v. Before sending to external equipment, be sure to use an output module, mixer, or attenuator to reduce the volume to a range that typical audio equipment can handle.

## Calibration

On the back of the module there is a small trim potentiometer that calibrates the modules tuning. This knob comes calibrated, but if it were to go out of calibration for any reason, it can be calibrated by the user. As you turn the calibration knob clockwise, the notes become more spaced out, so if you notice higher notes are too high, you can turn this knob counterclockwise, and vice versa.