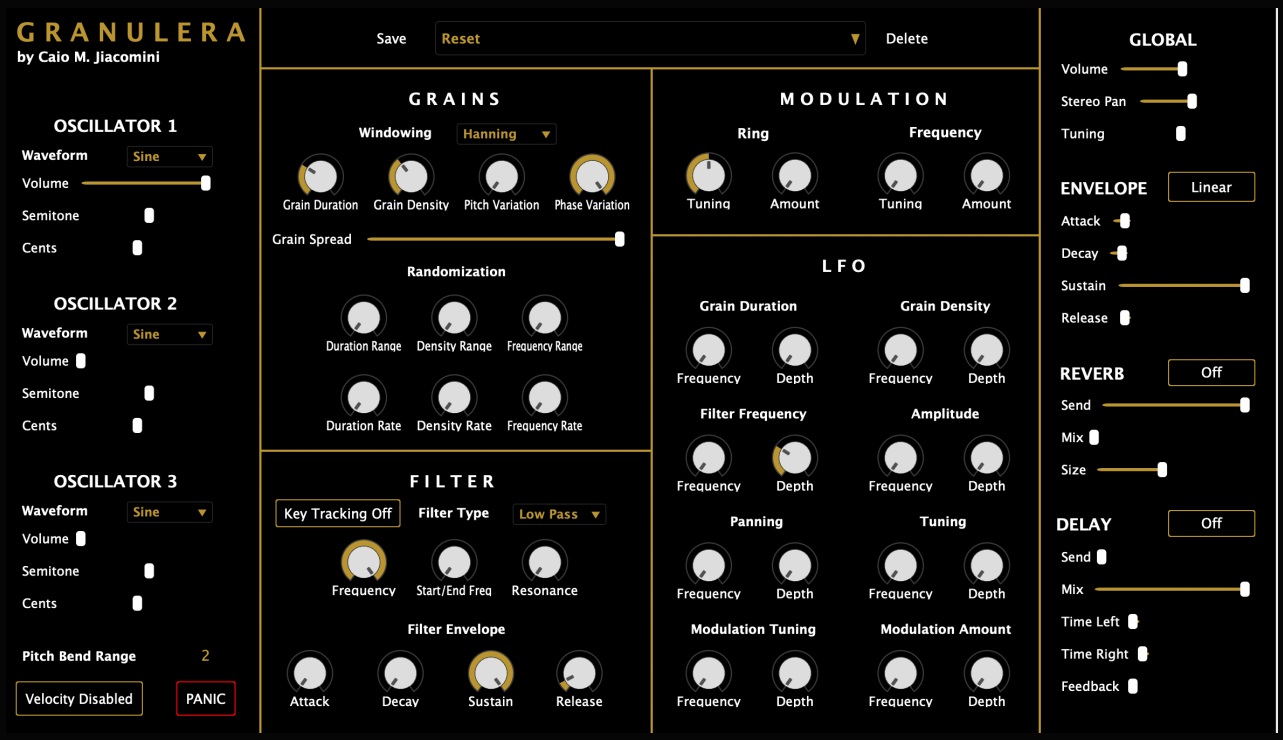
GRANULERA

by Caio M. Jiacomini



User Manual

About Granulera

Granulera is a three oscillator granular synthesizer designed to generate aleatoric and unpredictable textures developed by Caio M. Jiacomini (that's me).

This instrument was developed with the Csound language and the Cabbage Audio front-end. If you are interested, the source code is included with the download and there's also a GitHub repository here.

If there are any doubts after reading this, feel free to email me at caiojminiaudio@gmail.com.

General Instructions

Double click a parameter to reset its value

Scroll with the mouse wheel to fine tune a parameter's value.

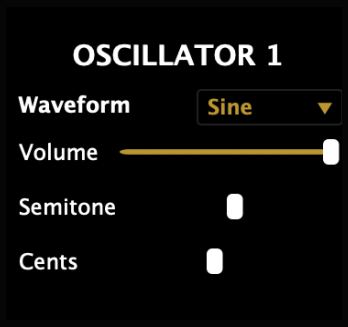
Presets

Use the dropdown menu to browse and select presets.

Click the **Save** button to save the current configuration as a preset. If you save a preset with the same name as an already existing one, it will overwrite that preset.

Click the **Delete** button to delete the currently selected preset.

Oscillators



Granulera offers three oscillators with independent configurations.

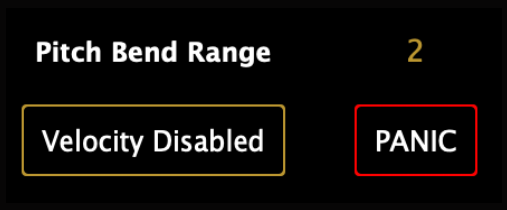
Waveform: selects the waveform for the oscillator.

Volume: sets the oscillator's volume.

Semitone: sets the oscillators tuning in semitones.

Cents: sets the oscillator's tuning in cents

Utilities

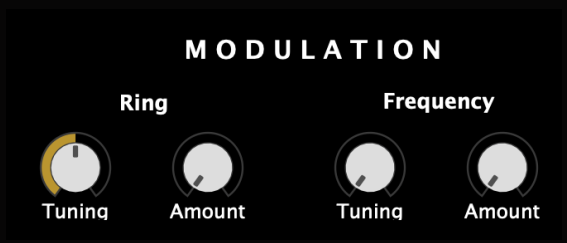


Pitch Bend Range: defines the maximum range of the pitch bend wheel in semitones.

Velocity: if enabled, the MIDI velocity will be used to alter the volume of the played note.

PANIC: while enabled, cuts all MIDI messages sent to the instrument.

Modulation

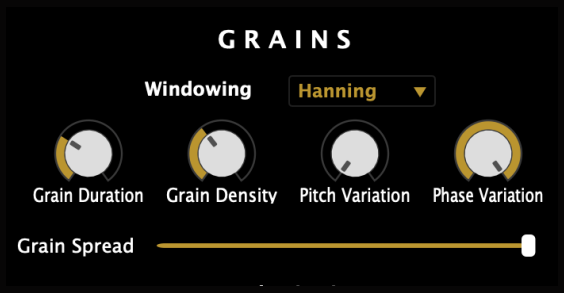


Granulera offers both Ring and Frequency modulation for further sonic manipulation. The modulator wave is a sine wave in both instances.

Tuning: determines the tuning of the modulator waveform. For Ring modulation, tuning is defined in cents relative to the instrument's pitch while for frequency modulation it is defined in absolute Hertz.

Amount: determines the amount of modulation applied to the signal.

Grains



Windowing: selects the shape of the amplitude envelope applied to each individual grain.

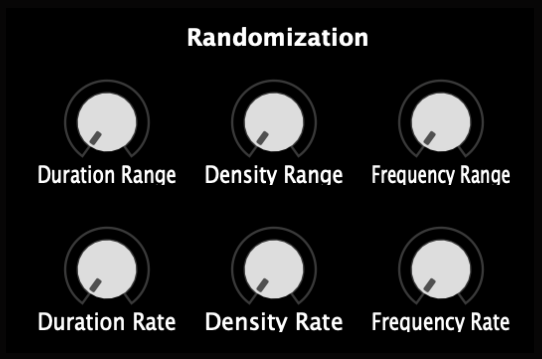
Grain Duration: determines how many seconds each grain lasts.

Grain Density: determines how many grains are generated per second.

Pitch Variation: randomly detunes each individual grain between the defined value and its negative.

Grain Spread: determines the overall stereo width of the instrument, with each grain being assigned a random pan position according the the spread defined.

Randomization



Duration Range: determines the randomization range for the Grain Duration parameter. Ranges are always between the defined value and its negative.

Duration Rate: determines how fast new random values are generated for the Grain Duration parameter.

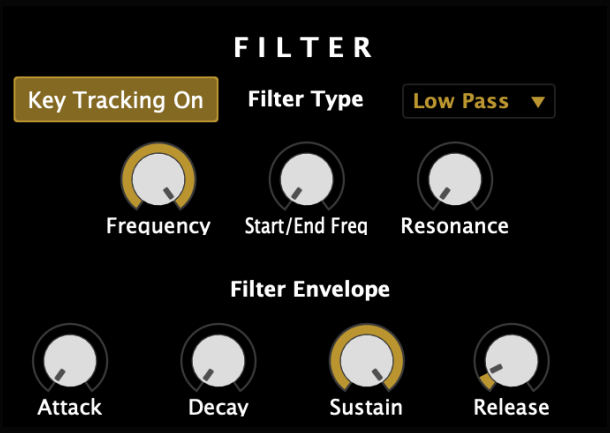
Density Range: determines the randomization range for the Grain Density parameter.

Density Rate: determines how fast new random values are generated for the Grain Density parameter.

Frequency Range: determines the randomization range for the overall tuning of the synthesizer in Hertz.

Frequency Rate: determines how fast new random values are generated for the synthesizer's overall tuning.

Filter



Filter Type: selects the type of filter between Low Pass, High Pass, and Band Pass.

Key Tracking: if on, the filter's frequency will be adjusted relative to the note played. If off, the filter frequency will be set to an absolute value.

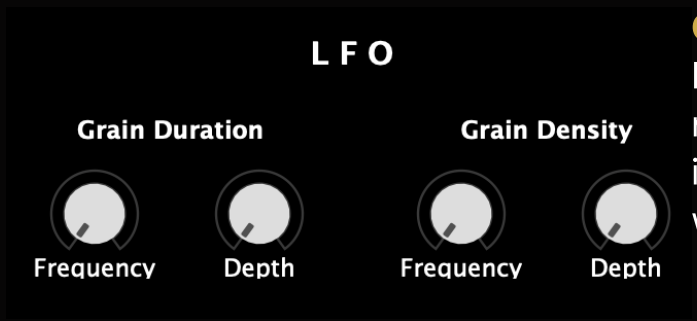
Frequency: determines the filter cutoff/center frequency.

Start/End Freq: determines the frequency where the filter envelope starts and returns to on release.

Resonance: determines the Low Pass and High Pass filters resonance amount. If a Band Pass filter is selected, the Resonance control is substituted by a **Bandwidth** parameter.

Attack, Decay, Sustain, Release: defines the envelope for the filter's frequency.

LFO

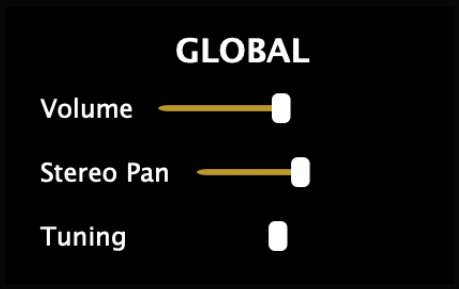


Granulera provides a series of Low Frequency Oscillators that modulate key parameters of the instrument. All LFOs use a sine wave for modulation.

Frequency: determines the frequency of the LFO in Hertz.

Depth: determines how much the signal is affected by the LFO.

Global

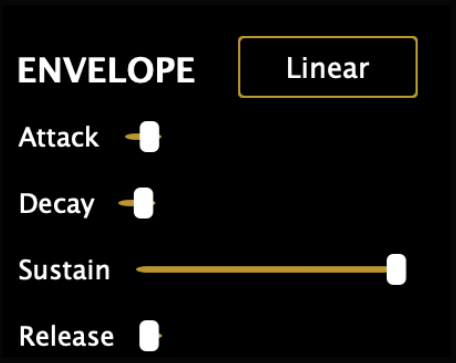


Volume: determines the global volume of the instrument.

Stereo Pan: determines the balance between the left and right channel outputs.

Tuning: determines the global tuning of the instrument in cents.

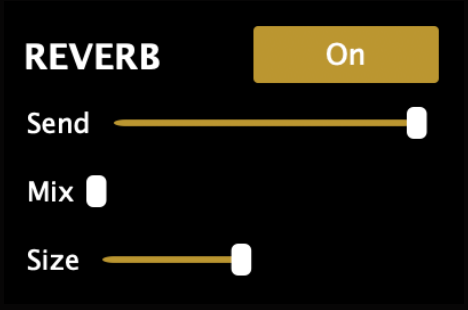
Envelope



Attack, Decay, Sustain, Release: determines the overall amplitude envelope for the instrument.

Linear/Exponential: determines if the envelope curve will be linear or exponential.

Reverb



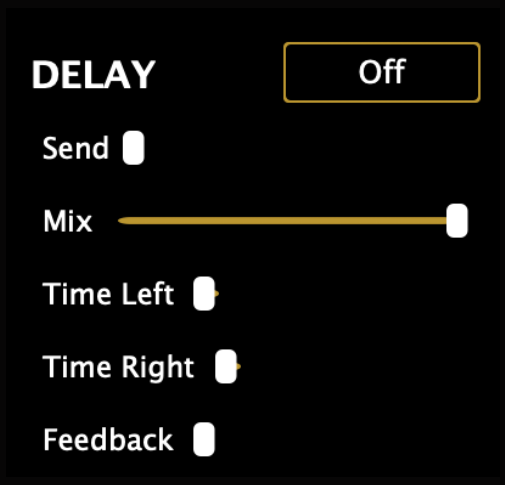
On/Off: turns the reverb effect on or off.

Send: determines the level of the signal sent to the reverb input.

Mix: determines the balance between the dry signal (0) and the affected signal (1).

Size: determines the size and duration of the reverb.

Delay



On/Off: turns the delay effect on or off.

Send: determines level of the signal sent to the delay input.

Mix: determines the balance between the dry signal and the affected signal.

Time Left/Right: sets the delay time independently for the left and right channels.

Feedback: determines the delay feedback amount.

Signal Flow

Oscillators > Grains > Modulation > Filter > Reverb/Delay > Output

The dry signal is sent in parallel to the reverb and delay effects. The final audio output is then an independent sum of the dry/wet mixes of both effects.

It's important to note that, if an effect is not bypassed, it will always output the dry signal if the mix parameter value is less than 1.

In any case, the volume of the wet signal will be determined by the send parameter, so if you have the mix set at 1 and the send set at 0, there will be no sound coming from that effect's output.

A practical example: if you want the reverb mix to dictate the overall balance between the dry and wet signal and want to output only the wet signal through the delay, you should:

1) Set the reverb send at 1
2) Set the reverb mix to taste
3) Set the delay mix at 1
4) Use the delay send to control the amount of delay