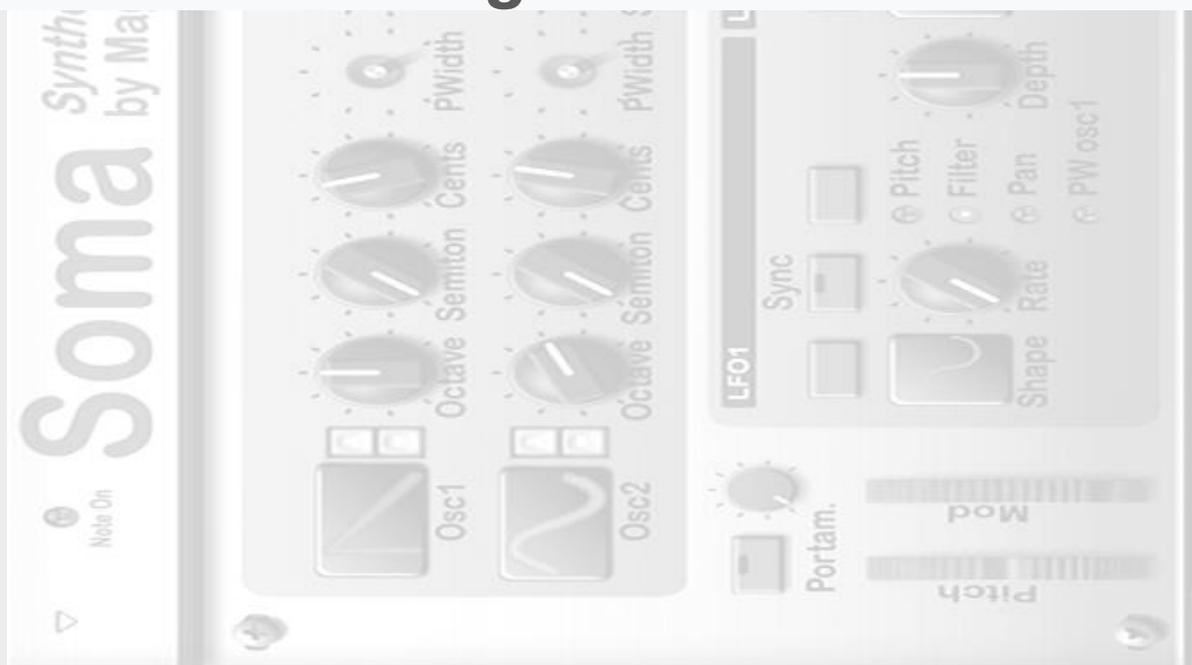


Soma Synthesizer

Classic virtual analog modeling 1.0



MagmaSonic



The Soma synthesizer with a somewhat forced acronym - although in Spanish it has its meaning - (**S**ynthesizer **O**riented **M**odeling **A**nalog), a name inspired by the science fiction novel "Brave New World" by the writer Aldous Huxley, Soma is a type of recreational drug used in the novel Brave New World.

My first experience with synthesizers, back in the early 90s, was quite traumatic. Those tiny screens full of menus and submenus to get to the synthesizer parameters.

That's why my intention when designing Soma was to have everything at first glance, that the design was easily implemented in a hardware controller (which will be a project for the future), at the same time that it was a didactic and educational synthesizer, the first synthesizer that when I was a teenager I would have liked to have.

As a musical instrument, it is a synthesizer composed of two oscillators with classic waveforms (sine, triangle, sawtooth and square wave), pitch envelope, amplitude and filter, with two LFO generators with multiple modulation destinations and with 8 voices of polyphony.

The Waveform Generator Section



Each type of Wave generated (Sine, Triangular, Sawtooth and Square Wave) It can be selected in oscillator 1 or in oscillator 2. If the square wave is chosen, the pulse width can be selected with the PWidth knob. The mix knob will allow the signals from oscillators 1 and 2 to be mixed, while the Spread knob will distribute the signals from oscillators 1 and 2 in the stereo field.

The Pitch Envelope



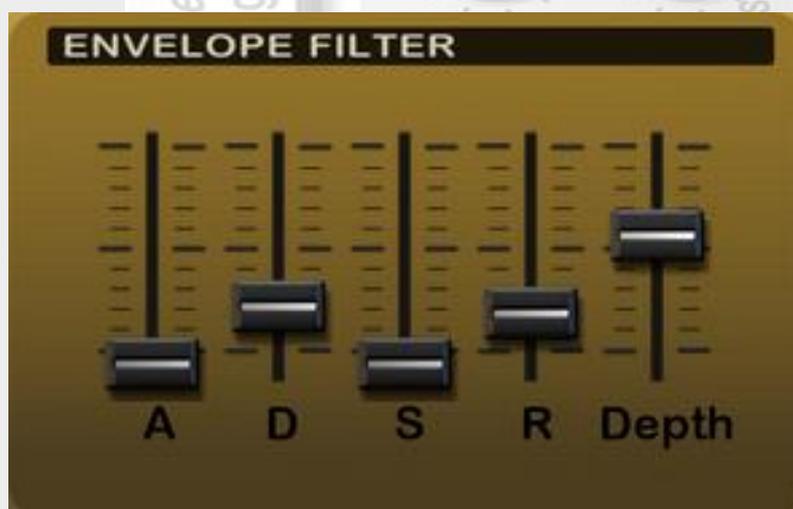
The pitch envelope, made up of the Attack and Decay faders, will allow us to control the pitch envelope with the Depth fader.

The Signal filtering section



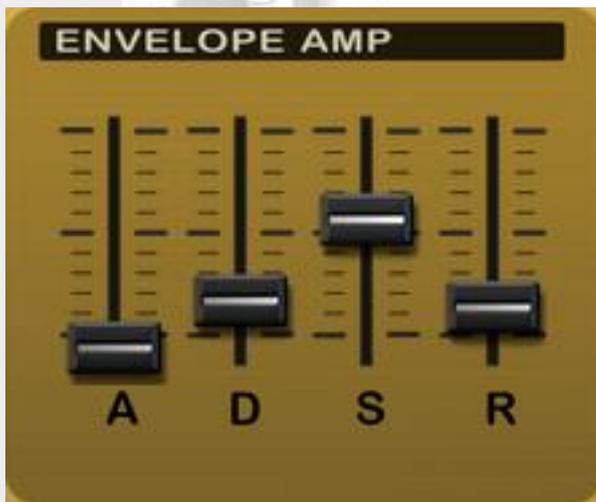
The filter can be low pass (LPF), high pass (HPF) or band pass (BPF) type and can be selected with a slope of 12dB or 24dB. The Cutoff (filter cutoff) and Res (Resonance) knobs configure the filtering section. The filter is based on a modeling of the classic transistor ladder filter.

The Filter Envelope



The filter can be governed by the dedicated filter envelope, located at the bottom of the filter panel, it has ADSR type controls (Attack, Decay, Sustain and Release), the Depth fader will allow you to filter the signal from the oscillators.

The Amplifier Envelope

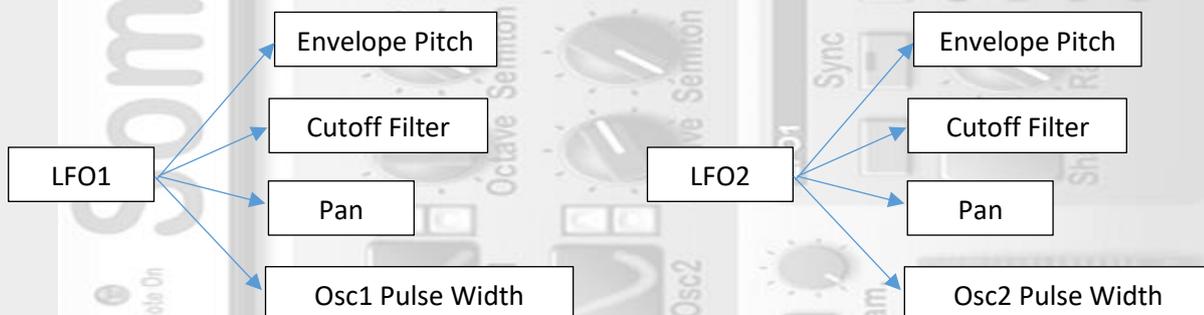


With an ADSR type configuration (Attack, Decay, Sustain and Release) you can configure the Amplifier output signal that will be routed to the effects section.

LFO1 and LFO2 section

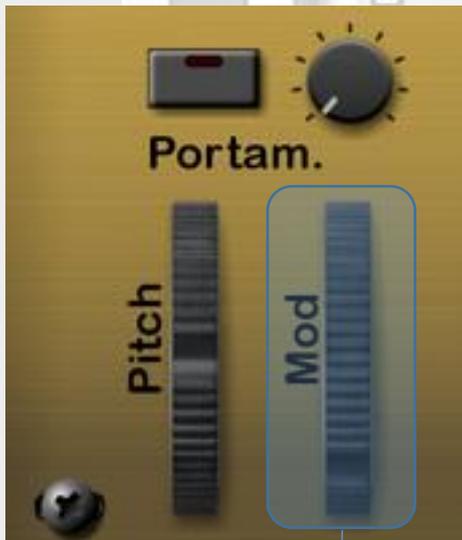


Two configurable 0.05Hz-10Hz low frequency oscillators will allow modulation of the following destinations:

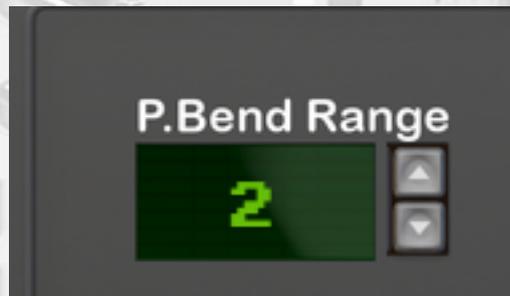


The shape of the LFOs can be sinusoidal, sawtooth, triangular, square and decreasing exponential. The LFO rate and synchronization with the tempo of the DAW can be 4/1, 3/1, 2/1, 7/4, 6/4, 4/4, 1/2, 1/4, 1/8, 1/8T, 1/16.

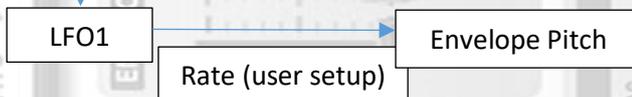
Modulation Wheels Section



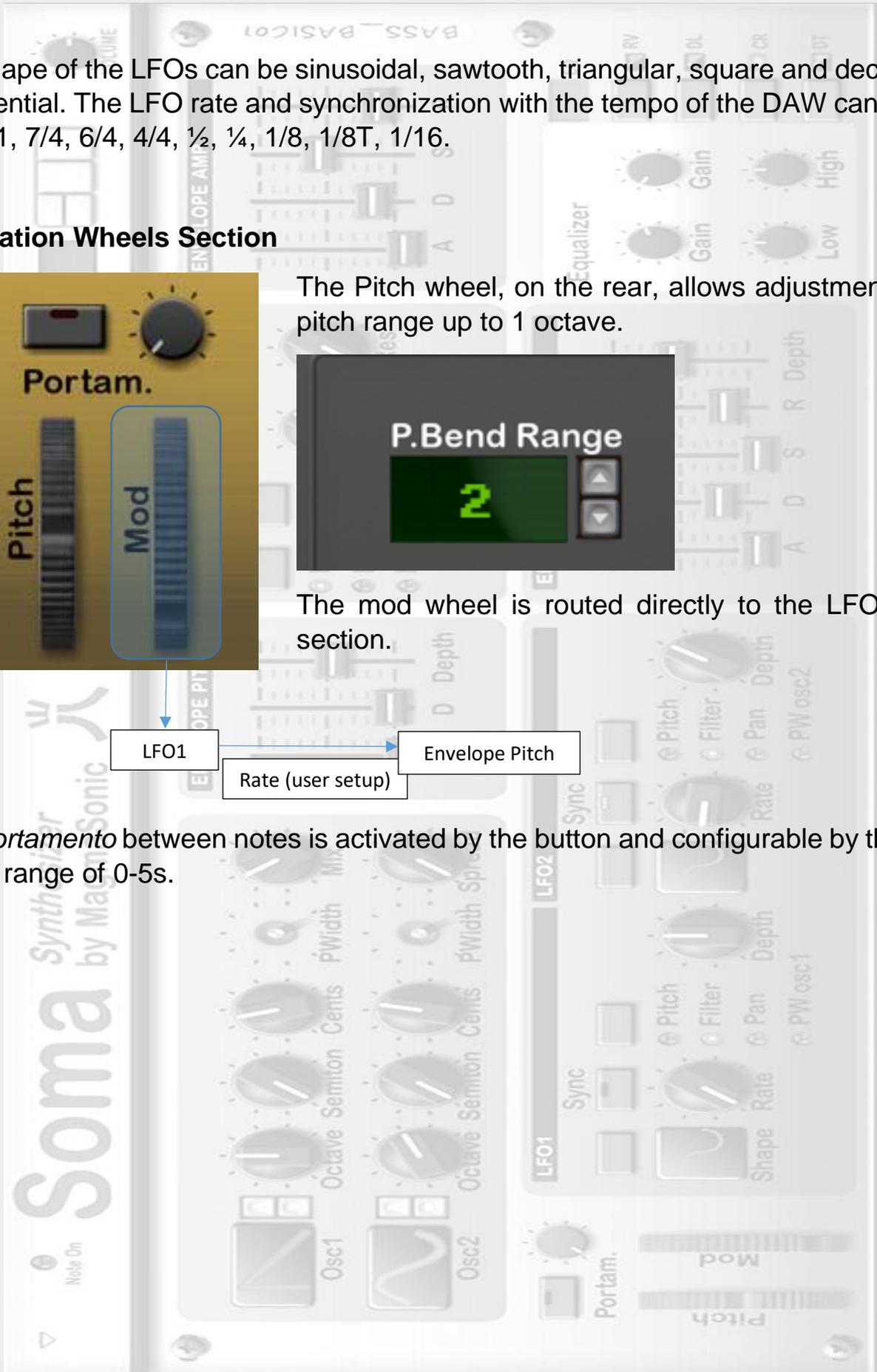
The Pitch wheel, on the rear, allows adjustment of the pitch range up to 1 octave.



The mod wheel is routed directly to the LFO1 Pitch section.



The *Portamento* between notes is activated by the button and configurable by the knob from a range of 0-5s.



Additional features for sound shaping



- The Legato button will allow you to play the next key without triggering the amplifier envelope.
- The Velocity>>Attack button will allow you to affect the attack of the amplifier envelope depending on the force you exert on the key (MIDI Velocity).
- The Pitch>>Decay button will allow the decay of the amplifier envelope to be shortened if the high notes on the keyboard are pressed.
- The Keytrack>>Filter button together with the knob below will allow the lower range keys to be affected by the filter cutoff.

CV (controlled voltage) input section



The CV inputs will allow triggering notes from a sequencer or arpeggiator with CV Pitch and CV Gate inputs and the CV Cutoff and CV Resonance inputs will allow control of the filter from a device with CV Out.

Effects section



The Equalizer is a Shelving type with two bands, the low one from 30-600Hz, and the high one from 3kHz-12kHz, allowing the gain of each band to be adjusted. With Zero Gain on each band, the equalizer is disabled.



The reverb effect has 3 knobs that allow you to adjust the low-pass filter (Damp), the decay of the reverb (Decay), the density of the bounces (Dens.) and the amount of wet signal mixed (Mix).



The Delay effect introduces a delay in the signal that can be synchronized to the DAW tempo using the Sync button, and it also has four Knobs. The volume of the dry signal Dry, the number of echoes using the Regen knob, the delay of the first echo using the delay 1-2000ms knob and the volume of the wet signal using the Wet knob.



The chorus effect also has three knobs, the Delay knob delays the signal 0.5-40ms, the signal modulator LFO ranges from 0.5-10Hz and with the Depth knob we can adjust the amount of modulation applied to the signal, and by lastly, with the Mix knob we adjust the amount of wet signal applied to the mix.



With the distortion effect we will apply saturation to the signal. The amount of saturation is controlled by the Gain knob and the type of saturation can be Hard Clipping, Soft Clipping, Exponential and the more radical fullWaveretifier and Halfwaveretifier.

Soma Synthesizer by MagmaSonic

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Canary Islands (Spain)