

Maestro

A Monophonic Synthesiser

By Istvan Kaldor

v 1.2



Welcome to Maestro, a monophonic VST synthesiser, made with Synthedit, but with a difference. This synth has been designed from the ground up, with the keyboard player in mind, and it features extensive, real-time performance control via the modulation matrix, making it one of the most expressive VST synths around.

Although for a monosynth it's quite heavy on the CPU (av. 9%), it is capable of some very big sounds.

Ideally you should use a MIDI keyboard with aftertouch, Mod wheel, Data slider, and a foot pedal. But it's not absolutely necessary, as most VST hosts will allow you to write MIDI CC data into a track.

The main features are:

- Two oscillators with the standard SE waveforms
- 2 pole to 4 pole low pass filter
- Dedicated LFO's for amplitude, oscillator pitch and filter cutoff
- Assignable modulation LFO
- Assignable modulation ADSR envelope
- 6 modulation destinations
- 20 modulation sources including Off min and Off max
- A delay effect, and an auto panner

(Note) All of the important controls have "hints" which you can see by moving the cursor over them.

Installation

Un-zip the file (which you've already done if you're reading this), and copy the .dll file into your VST folder. Launch your host program and Maestro will show up as a VST instrument.

Play Maestro

There are 128 varied presets already programmed into Maestro so you can get a good idea of how good it sounds by trying them out. Most (but not all) of the presets have various modulation sources assigned, so feel free to play with the modulation wheel, data slider, foot pedal, and aftertouch. Maestro responds to MIDI channel 1, so make sure you're transmitting on that channel.

Programming Maestro

If you're used to analogue synthesisers, you'll be on familiar ground with Maestro, as it follows the standard oscillator, filter, amplifier format. However, there are a few extras, so read through this for a description.

The oscillators



Two oscillators with sine, saw, ramp, triangle, pulse, white noise, and pink noise waveforms. Oscillator 1 has an octave range from -2/+2. Oscillator 2 is the same, but with a variable note range as well. Both oscillators can be de-tuned against each other with the "Detune" knob.

When using a pulse wave, the width of the pulse can be varied with the "PW" knob, one for each oscillator. Turning the PW knob completely anti-clockwise will result in a square wave output.

The "Lev1" and "Lev2" knobs control the levels of each oscillator, and the "Main L" knob is the master level control for both.

"Filter" sends the oscillator signals to the filter section. Turned completely anti-clockwise, the signal by-passes the filter. Fully clockwise, and all the signal goes to the filter.

The oscillators have a dedicated LFO to modulate the amplitude, the pitch or fm level. This is controlled with "Lfo F" (the speed of the LFO), and "Lfo L" (the amount of amplitude or pitch modulation).

"Drift F" and "Analog" work together to give a random "out-of-tune-ness" quality to the sound, like those wonderful old analogue synths of days gone by. Drift F is the speed, and Analog is the amount.

"Unison" makes the oscillators sound fatter by creating the effect of several oscillators playing together. Anyone who's used a Korg Poly 6 will be familiar with this.

"A D S R" is the standard amplifier envelope, and "Porta T" controls the amount of portamento.

For basic fm tasks, Osc1 can frequency modulate Osc2. The level can be set by the "fm L" knob. There is also a dedicated fm envelope, "fmA fmD fmS fmR" as well as "fm Env" knob to adjust modulation level.

The "Pitch Mode" selector toggles between normal keyboard input (the notes you play are the notes you hear), and "freeze" mode, where the pitch is set and can be adjusted with the "Loc pitch" knob.

The filter



A low pass, 2 pole to 4 pole filter with all the usual stuff, cutoff frequency, resonance, etc. "2P|4P" controls the steepness of the curve. "Tone" is a simple, 1 pole low pass filter after the main filter. "Lfo F" and "Lfo L" control the filter's LFO speed and depth respectively.

The filter's ADSR envelope depth is controlled with, you guessed it, the "Env" knob. However, this control serves two purposes, it can also cause the envelope to be inverted by turning it anti-clockwise before the twelve-o-clock position (notice the "Inv" LED light up).

The "Note" knob controls how much the filter will open according to which note is played on the keyboard, also known as key follow.

At high resonance settings, the filter will go into self oscillation, producing a shrill, whistling sound. This can be controlled by lowering the cutoff and turning the Note control all the way up. Some of the presets feature this, check out "Moon Cave", "Dirty Bar Steward" and "Self Osc Piccolo".

The modulators



This is where the fun really starts. There are 6 parameters (destinations) which can be controlled in real-time from a choice of 20 different modulation sources. The 6 destinations are;

- Filter cutoff frequency
- Osc LFO amount
- Osc LFO speed
- Filter LFO amount
- Filter LFO speed
- The pitch of both oscillators

The "Depth" knobs alongside each destination control the maximum amount of modulation when the source is at its highest level. However, the oscillator pitch depth works in two directions; halfway there is no modulation, below halfway, the pitch will fall, above halfway and the pitch will rise.

The modulation sources can be selected by clicking on the buttons just below the destination names. The 20 sources are;

- Random – a random signal generated with each note on
- ADSR – the modulation envelope
- LFO – the modulation LFO
- LFO*CC 01 – mod LFO modulated by the Mod wheel
- LFO*aftT - mod LFO modulated by aftertouch
- ADSR*CC 01 – mod envelope modulated by the wheel
- ADSR*aftT – mod env modulated by aftertouch
- ADSR*LFO – LFO modulated mod env (added in [1.1])
- Aftertouch – also known as key pressure
- Mod Wheel – MIDI continuous controller 1
- Data Entry - MIDI continuous controller 6

- Foot Pedal - MIDI continuous controller 4
- None (max)
- None (min)
- Joystick 1 (cc12, cc13)
- Joystick 2 (cc14, cc15)
- Joystick 3 (cc16, cc17)

The modulation LFO offers the standard SE waveforms and has a pulse width control. You can also use the noise waveforms here to generate randomness or introduce noise to the sound (check out the "Alien Swarm SFX" preset).

The modulation envelope can be inverted in the same way as the filter envelope, and can also be triggered by the LFO instead of the usual note on. The LFO can be synced to midi note on, or free running.

The "offset" knob adjusts the baseline of the LFO signal. With this the mod envelope can be triggered in different phase relative to the LFO (Applies to LFO trigger mode).

The three joysticks respond to the MIDI CC numbers as stated above, and can also be used by dragging them with the mouse. For an example, check out preset 128 "Joystick Toy".

The LED's at the bottom-left of the modulation section will light when Maestro receives the corresponding modulation signal.

And finally



There is a simple delay effect which is NOT synced to the host's tempo, and a main output stage which gives control over the auto-pan depth and rate, and master volume.

The "Phase" control gives a nice, fat, stereo effect to the sound (don't ask me how, I'm just writing the manual). And the "Sat L" control alters the timbre, but be careful, turned fully anti-clockwise the sound will disappear.

"Trigger" controls how Maestro responds to your playing style. When it's on, the envelopes will re-trigger with each new note on. When it's on/off the envelopes will re-trigger regardless of any long decay. And when it's set to Legato, the envelopes will continue to their sustain stage as long as notes are held down

The LED's "Bender" and "Midi" will light up when Maestro receives pitch wheel and note on messages respectively. The "Range" button sets the maximum range of the pitch wheel; this is independent of the "Pitch" control in the modulation section.

Comments

We hope you enjoy using Maestro and if you have any comments or suggestions please send an e-mail to...

ikaldor@mindspring.com

Credits

Synth designed by Istvan Kaldor

GUI designed by Ian Webster

Manual written by Andy McDonough

Synthedit by Jeff McClintock

VST technology belongs to Steinberg