

vorb

FORMANT SHIFTING VOCODER WITH SYNTHESIZER

CREATED BY



www.orbitone.org

Manual Revision 1.0

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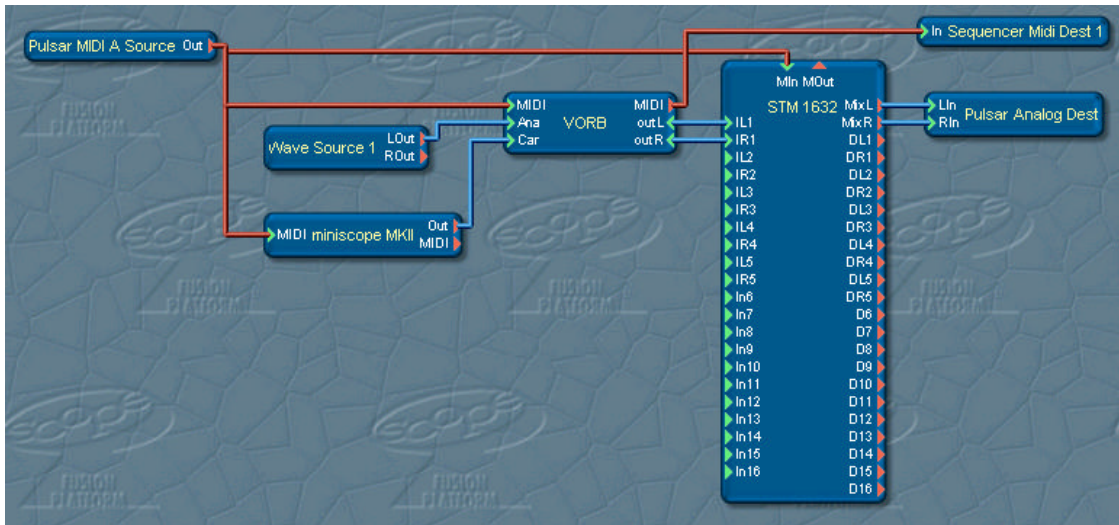
1.0 Main features



Vorb is a 16-band vocoder with an intuitive and flexible feature set, and unprecedented modulation capabilities. From classic vocoder sounds to new and unique textures, Vorb won't disappoint you.

- Intuitive and easy to use
- Equipped with internal wave synthesizer, with 64 internal waveforms and the ability to drag in your own!
- 16 band adjustable vocoder - make your own scan figures, or choose from our factory scans.
- Formant shifting XY controller - unique sound and control.
- Elaborate modulation section - endless sound possibilities.
- Big LCD view.
- Pre Vocoder FX - to enhance diction, and block room-tones.
- Post vocoder FX - a bundle of effects to richen your sound.
- Dynamically allocated - decide for yourself how much DSP Vorb is going to take.
- Supreme sound!
- Allows the user to go beyond the regular everyday vocoding techniques.
- It's beautiful - an excellent ornament for your SFP environment

2.0 Connections



Connect your MIDI source to the Vorb's **MIDI** input.

Connect the signal to be analyzed (e.g. your voice) to the Vorb's **Ana** input (Wave Source 1 in the above picture).

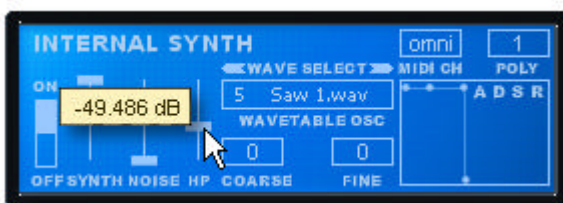
If you wish to use the Vorb's internal synth as the carrier, you do not need to connect a signal to the Vorb's **Car** input (See [the Internal Synth section](#)). But if you plan to use an external carrier (a synth or other signal), or wish to mix the internal synth with an external carrier, connect a signal to the **Car** input (miniscope MKII in the above picture).

Connect the Vorb's **OutL** and **OutR** to your mixer.

Connect the Vorb's **MIDI** output to a MIDI dest, if you wish to record knob movements.

3.0 Controls

To assign a MIDI controller to Vorb's controls, first select a MIDI channel in the Vorb's internal synth (see [the Internal Synth section](#)) or in the live bar. Then, right-click the control you wish to automate, and set the desired MIDI controller for it.



Most of the faders and knobs in Vorb are equipped with tool tips.

To see the numerical value of a control, click on it, wait, and the tool tip will appear. Note, occasionally tool tips show values in dB instead of % - 0 db is equivalent to 100% and -6 db is 50%.

You can use the keyboard to fine tune Vorb's control settings. Use the keyboard arrows to set values for any of Vorb's faders, knobs, and text faders. Left is minus right is plus. For instance, you can use browse through wave tables by clicking the number inside the wavetable osc, and pressing the keyboard arrow keys to move forward and backward.

4.0 Main View



Blue Button - Closes Vorb's control panel



Vol Fader - Adjusts the device's output level. This fader's value is not stored in the presets.

Car Fader - Adjusts the Carrier signal (e.g. synth) input level, if a carrier source is connected on the Vorb's Car input. (see the [Connections section](#)). Note, that this fader does not control the level of the internal synth, when it is used as the carrier (See the [Internal Synth section](#)).

Ana Fader - Adjusts the Analyzed signal (e.g. voice) input level

Spectrum button - Switches the LCD to the Spectrum View (see the [Spectrum View section](#))

Int Synth Button - Switches the LCD to the Internal Synth View (see the [Internal Synth section](#))

Modulation Button - Switches the LCD to the Modulation View (see the [Modulation section](#))

Effects Button - Switches the LCD to the Effects View (see the [Effects section](#))

Presets Button - Opens the Preset List

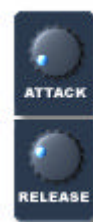
Bypass Button - Bypasses Vorb's Engine and lets you listen to its inputs - on the left side you will hear the analyzer input (the input effects will not be bypassed, unless you set them to 0), and on the right side you will hear the carrier (depending on Vorb's levels setup - the internal synth, the carrier input, or if set as an effect the analyser input).



LCD Screen - Displays the controls and settings for the currently selected view. Think of it as a touch screen, since it contains both information display, and controls, like knobs and buttons, which you can use to control the Vorb.

Attack Knob - adjusts Vorb's attack response. Smaller attack values will lead to punchier sound, with more definition, while bigger values spread the sound and makes it less percussive.

Release Knob - Adjusts Vorb's release response. Smaller release values will lead to tighter and shorter sound, while bigger values give a longer decay.

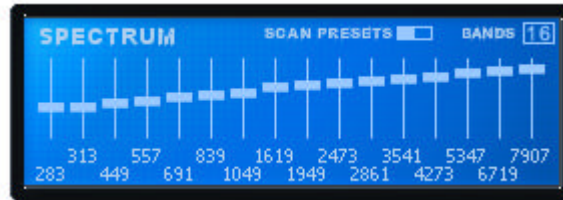




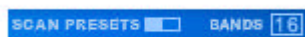
X/Y control - controls the filtering of the sound. Move the cursor vertically to control the formant shifting and horizontally to control the Q (resonance). See the [Modulation section](#).

5.0 Spectrum

The spectrum screen allows you to control the way Vorb analyses and processes the sound, by specifying the frequencies of the Vorb's internal filters. Changing the spectrum scan will produce different vocoding sounds, from classic vocoding textures, to new and unusual creations.



Spectrum faders - control the frequency of each of the 8 or 16 bands of Vorb. (The number of bands is selected using the Bands selector). Each fader controls a different band's frequency, and is equipped with text input in Hz for more precise scan design.



Scan Presets Button - a preset list for Spectrum scans only. You can save and manage your scans, or choose from one of the provided factory scans.

Bands Selector – allows you to choose between 16 bands for a higher fidelity sound, but more DSP usage, or 8 bands for a more lo-fi sound, and less DSP usage. If 8 bands are selected, only bands 1-8 will be functional.

6.0 Internal Synth

The Internal synth is a simple Wavetable synth that is designed produce high polyphony using very little DSP. If enabled, it is used as the carrier signal (combining with whatever carrier signal is connected to Vorb's Car input, if any). It is equipped with 64 factory wave tables, and can be customized with user wave tables as well.



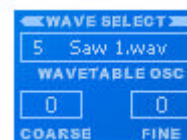
On/Off Switch – If you plan to use an external carrier signal connected to Vorb's Car input (See the [Connections section](#)), you can turn the internal synth off, which also reduces the Vorb's DSP usage.

Synth fader - Adjusts the synth's overall level (it is not affected by the main panel's Car fader, which controls the external Car signal level). You can combine the internal synth with an external carrier by setting the relative levels of this synth fader, and the main panel's Car fader.

Noise fader - adjusts the synth's noise level.

HP fader – The analysis signal is passed in parallel through a high pass filter, and this fader adjusts the amount of this signal that is added in after the vocoder. Increasing the level can improve diction and word understandability.

Wavetable osc - you can select different factory wavetables by clicking on the arrows to the left and right of the "wave select" title or using the number of the wavetable as a text fader (click and drag the number up/down). You can also drag your own wave (.wav) file into the waveform-name box. To prepare your own waveform, use an audio recording with its original pitch at C, and be sure that you set up a loop in the waveform, using sample editing software.



Coarse tune selector - Transpose the wave oscillator in semitones by clicking on the text and dragging up and down, or by inputting the figures using your keyboard.

Fine tune selector - Control the wave oscillator's fine tune in cents by clicking on the text and dragging up and down, or by inputting the figures using your keyboard.



ADSR - a simple 4-stage envelope that controls the amp of the synth. To change the envelope, drag the dots along the surface. The first dot controls Attack time; the second dot controls Decay time, the third dot controls Sustain level, and the fourth dot controls Release time.



MIDI ch control - changes the MIDI channel of Vorb's synth and MIDI control assignment (1-16, or drag all the way up for Omni). Note that the Vorb does not respond to MIDI preset changes

Poly control - adjusts the number of voices from 1 – 16. Fewer voices uses less DSP.

7.0 Modulation

Vorb's modulation section consists of an LFO and an envelope. These control the filters formant shifting and Q (resonance). By using the modulation features of Vorb, you can make unique evolving vocoding sounds.



The modulation section also has two faders for Q and Formant (corresponding to the main panel's X/Y control).



Q fader - controls the Q (resonance) of Vorb's filters. Right click on the fader to assign a MIDI controller.

Formant Fader - controls the formant shift of Vorb's filters. Right click on the fader to assign a MIDI controller.

LFO

On/Off switch - activates or deactivates the LFO. When deactivated, the LFO does not use DSP.



Freq knob – set the frequency of the LFO using this knob

Wave selector - select the shape of the LFO by clicking the text fader and dragging up and down, or using the page up/down keys. Choices are Sin, Square, Saw-Up, Saw-Down, Triangle, Random.

Phase knob – Set the LFO's phase, when retriggered.

Retrig switch - when on (in the right position), the LFO retriggers (restarts from the phase start point) on every MIDI note-on.

Q Knob - controls the amount of LFO modulation applied to the Q.

Form Knob - controls the amount of LFO modulation applied to the formant-shift.

Envelope



On/off switch - activates or deactivates the envelope. When deactivated, the envelope does not use DSP.

Q knob - controls the amount of envelope modulation applied to the Q.

Form knob - controls the amount of envelope modulation applied to the formant-shift.

ADSR - To change the envelope, drag the dots along the surface. The first dot controls Attack time; the second dot controls Decay time, the third dot controls Sustain level, and the fourth dot controls Release time.

8.0 Effects



Input



Gate slider - adjusts the threshold of a gate applied before the analysed signal, to reduce room tones or feedback. Useful when using Vorb live with a microphone. When set all the way left (off), the gate function will not use DSP.

Push slider - "pushes the sound" by applying compression and aural enhancement before the analysed signal. Useful to improve diction and word understandability through Vorb. It is also can be used to make the sound punchier.

Distortion

On/off switch - activates or deactivates the distortion effect. When deactivated, the distortion does not use DSP.



Drive knob - adjusts the distortion's gain. For more drive, turn the knob towards the right.

Tone knob - controls the frequency of a lowpass filter after the distortion. For a brighter sound, turn the knob towards the right.

Level knob - Adjusts the level of the signal coming from the distortion.

Chorus



On/off switch - activates or deactivates the chorus. When deactivated, the chorus does not use DSP.

Rate knob - Adjusts the chorus modulation rate.

Depth knob - Adjusts the chorus's modulation depth.

Mix L knob - mixes between the dry and wet signal on the left side. When set to the right, the chorus signal will be 100% wet, when set to the middle, it will be dry, and when set to the left, the chorus signal is inverted

Mix R knob - mixes between the dry and wet signal on the right side. When set to the right, the chorus signal will be 100% wet, when set to the middle, it will be dry, and when set to the left, the chorus signal is inverted

Delay



On/off switch - activates or deactivates the delay. When deactivated, the delay does not use DSP.

Left selector - adjusts the time of the left delay. Click the text and drag up and down, or input the figures using your keyboard.

Right selector - adjusts the time of the right delay. Click the text and drag up and down, or input the figures using your keyboard.

FB knob - adjusts the feedback of the delay.

Dry/Wet knob - adjusts the ratio between the delayed signal (wet) and the delay's input signal (dry).