

Music Unfolding GyroVibe Audio Unit User Guide



Requirements:

OS X 10.6 or higher is required. GyroVibe requires an Audio Unit (AU) capable host. A host that supports Cocoa user interfaces (UI) for AU's is preferred. Please check GyroVibe's operation in your host of choice for suitability before purchasing.

Installation:

GyroVibe can be installed in any of the standard Audio Unit component locations. These are commonly `/Library/Audio/Plug-Ins/Components` and `~/Library/Audio/Plug-Ins/Components` (where "~" stands for the user's home directory). Drag GyroVibe.component into the Components directory and relaunch your AU host software. The included presets also need to be installed into one of the standard locations (`/Library/Audio/Presets/MusicUnfolding/GyroVibe` and `~/Library/Audio/Presets/MusicUnfolding/GyroVibe`). If you already have a MusicUnfolding directory in your "Presets" directory, then drag the GyroVibe directory into this location. If not, drag the MusicUnfolding directory that contains the GyroVibe presets directory into the "Presets" directory.

Introduction:

First, we'll start with a quick introduction to the editing controls for GyroVibe. All controls are set using the same knob. Click the desired control readout to select and then move the knob to control. The active (selected) control is indicated by the green end caps. The knob works on a circular motion. The closer to the center you are dragging the knob, the rougher the increments. Moving farther out makes the increments finer. You can even click the surface of the knob and drag out of the surface of the knob and then move in a circular motion if you want finer control. To set a parameter to an exact value, double click the parameter readout. This brings up a text box where the parameter value can be set exactly.

Double-clicking the knob sets the selected parameter to its default value. The knob will act with a linear, logarithmic, or power response depending on the parameter that is selected. One of the common features of the Twister Series of AU's is that many of the parameters have a very large effective range. GyroVibe shares this feature in its "Base Delay", "Delay" and "Spread" parameters. Useful ranges for these parameters can be from around 0.001 ms to 50.0 ms. In addition, fine control is needed across the entire range. This common characteristic motivated the development of the single knob UI.

The controls also support click-and-drag directly on the surface of the readout. Clicking-and-dragging in a vertical direction changes the parameter values. Dragging in a horizontal manner causes the value to change ten times slower. The control behavior (linear, log or power) is the same as it is while using the knob for parameter control. In addition, hovering the mouse over the control and using the scroll wheel also changes the control value. If you have a mouse with a horizontal scroll wheel motion, scrolling horizontally changes the parameter value with 10 times finer control.

The colors of the parameter displays can be changed in the preferences/registration panel. To bring up the panel, click on the name tag/badge for the AU. Select the colors of your choice and then to see the new colors in effect, you must close and reopen the AU. The preference is applied in all hosts for a given user. Note that these color preferences apply to all of the Twister series AUs. Setting your color preference in one will apply this preference to all of the Twister AUs.

GyroVibe has three sections – a Filter with LFO, a Vibrato/Chorus section, and the the Mix section. The Filter section is based on our new multi-stage driven filter. It is an active filter with up to four sections. Each section of the filter can be heavily driven. This can result in a large degree of distortion. But, the distortion is very smooth. The LFO has several different waveforms. The vibrato/chorus section is a multi-voice, vibrato chorus that can generate modulation effects from vibrato to chorus and flanger and phaser-like. The mix section provides basic control for wet/dry effect levels and the final output volume for GyroVibe.

The Sections:

Filter: The filter type can be selected using the drop down menu/click selector below the "Filter Type" label. Clicking the red end caps of the menu selector steps through the filter types. The LFO type is selected the same way using the menu/selector below the "LFO Type" label. Choosing a filter type of "None" turns the filter section off. "Frequency" sets the base cutoff frequency of the filter. "Resonance" is between zero and one and not surprisingly sets the filter peak resonance level. "Drive" sets the distortion level for the driven filters, and ranges from zero to one. A value of zero adds a small degree of harmonics. A value of one pushes the filter very hard. Values around 0.5 to 0.8 provide a very creamy smooth distortion. The amount of distortion depends on the number of stages the filter has. The "LFO Rate" is the rate of the frequency sweep for the filter. "LFO Sweep" is the frequency sweep of the filter. The filter will sweep through a range of frequencies from Frequency to Frequency + LFO Sweep. The "Stereo Separation Phase" sets the phase difference of the LFO's for the two stereo channels. For the sinusoidal-like LFO's a value of 0.25 probably gives you what you want. For the ramp-like LFO's, 0.5 is more likely to be what you are looking for. The range is from zero to one.

Vibrato: There are four vibrato voices. When in "Vibrato" mode, the voices move in sync (the same LFO phase). When in "Chorus" mode, the voices are separated (the LFO phases are evenly spread). There are different LFO types to choose from. The LFO rate sets the rate of vibrato. All of the voices are always moving at the same rate. The "Delay" parameter sets the starting delay for all of the voices. The "Base Delay" and "Spread" combine together to set the delay sweep of the vibrato. It is clearest to set out the formulas for this. Take $LFO(t)$ to be the value of the LFO as it oscillates over time. Then let $V1$, $V2$, $V3$, and $V4$ be the vibrato delay of the four voices and then

$$\begin{aligned} V1 &= \text{Delay} + LFO(t) * \text{Base Delay} \\ V2 &= \text{Delay} + LFO(t) * (\text{Base Delay} + \text{Spread} / 3) \\ V3 &= \text{Delay} + LFO(t) * (\text{Base Delay} + 2 \text{ Spread} / 3) \\ V4 &= \text{Delay} + LFO(t) * (\text{Base Delay} + \text{Spread}). \end{aligned}$$

So, "Spread" works to cause the four voices to have different levels of vibrato depth.

A couple of hints will help. When in "Vibrato" mode, higher LFO rates are probably desirable. When in "Chorus" mode an LFO rate of less than 1.0 Hz is usually needed. Setting the "Delay" value to around 20 to 30 ms is a good starting point for chorus like settings.

Mix/Output: These parameters do pretty much what you expect. The only interesting thing here is that the "Dry Level" can be set from negative one to positive one. Negative values can be good for getting phase shifter-like sounds.