PhazOsc - Phase Distorted Synth Manual

Fretted Synth Audio

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1 Guitar & Computer Setup

1.1 Installation

Place **PhazOsc.dll** and/or **PhazOscVSTi.dll** into the VSTplugin directory of your host.

1.2 Using (only applicable for VST version)

Hook up your guitar to your soundcard with a line level matching device (DI box, mic preamp). For low latencies a fast ASIO soundcard is required. The level you send to PhazOsc is very important to the pitch and gate tracking. (see control section) TURN YOUR PICKUP SELECTOR TO THE NECK POSITION FOR PROPER TRACKING.

In your VST host load PhazOsc. If using in a multi-track program load as a track insert fx. PhazOsc has a mono input for the guitar signal.

First USE YOUR NECK PICKUP......adjust the level of your guitar signal sent to your soundcards input. Increase the level until you have stable tracking and moderate sustain (don't overload your soundcards input as a distorted signals pitch does not track well). Then adjust the GATE and DECAY controls. Adjust the GATE control until proper triggering is obtained. Turn higher if notes do not trigger or sustain is weak. Turn down if the gate does not re-trigger with successive notes. The DECAY knob can aid in the trigger response; turn down for fast re-trigger; turn up for more sustain.
Note: If the decay is set too low with long sustained notes the gates will re-trigger (flutter).
Once setup for good sustain you may also use the level on your guitar to adjust tracking. Turn the level down a little when you need faster picking response turn up for more sustain.

If you are wondering, YES, it tracks to a mic. I did some tests and it tracked quite nicely. It is best if you sing, "do, do, ooh, aah" type styles as S's, T's and most spoken words will cause only noise.

I would like to say you could play your guitar as you normally would, however, when triggering a gate and using preset time envelopes for the sound you may have to play in a style that matches the preset sound or edit the preset? Muting of the strings becomes very important in that if two notes are sustained at once the pitch will flutter. A thick pick seems to work best. You can also bend, shake, wiggle and wammy with quite accurate pitch tracking.

2 Controls

2.1 About the GUI controls

All knobs move by linear mouse movement (up and down). Fine adjustments of the controls can be made by holding the Ctrl key on your computer keyboard while moving the control.
The attack controls of the synth do not use a linear curve, very small changes in time will be noticed in the first half of the attack controls range. This makes it possible to control very short attack times. (works well for removing clicks from the gate attack)

2.2 The Synth

2.2.1 Oscillator section

- The oscillator section has two phase distortion oscillators.

WAVEFORM 1 - selects the waveform for oscillator 1, there is a choice of eight
waveforms.
WAVEFORM 2 - selects the waveform for oscillator 2, there is a choice of eight
waveforms.
OCTAVE - selects -1, 0 or +1 octave transposition for both oscillators.

2.2.2 Filter section

- The filter section really is not a filter at all, but changes between a sine wave and the 2-oscillator waveform.

ATTACK - sets attack time
DECAY - sets decay time
SUSTAIN - sets sustain level
RELEASE - sets release time *(only works when using MIDI trigger)*
CUTOFF - Although labeled as "cutoff" the control really is a depth control, changing
between a sine wave and the 2-oscillator mixed waveform.
ENV - sets envelope amount
INV - inverts the Filter Envelope *(VSTi version only)*

2.2.3 Tone section

- The tone section contains different filters for adjusting the tone.

AIR - gives an excited top end to the sound
WIDTH - controls the bandwidth (Q-factor) of the "AIR" filter

CENTER   - controls the center frequency of the "AIR" filter
HIGH PASS   - controls the High Pass filter amount
LOW PASS   - controls the Low Pass filter amount
SUB   - controls the Sub Bass level, this adds bottom end to the sound

2.2.4 Amplifier section

- The amp section is a standard ADSR amp control.

ATTACK   - sets attack time
DECAY   - sets decay time
SUSTAIN   - sets sustain level
RELEASE   - sets release time *(only works when using MIDI trigger)*
VOLUME   - adjust the overall volume of the synth
VELOCITY   - controls both the amp and filter velocity tracking
                        amount
INV   - inverts the Filter Envelope *(VSTi version only)*

Also provided is a standard delay and chorus both conserve CPU when disabled.

2.3 Control Section

2.3.1 VST version

* A note about using PhazOsc with an audio input:
It works best if you try to achieve proper tracking using the input level to your soundcard first. Increase the level until you have stable tracking and moderate sustain (don't overload your soundcards input as a distorted signals pitch does not track well). Turn the input level up if notes do not trigger or sustain is weak. Turn the input volume down if successive notes do not retrigger. Then use the **Gate & Decay** controls to fine tune the synth's tracking. Use your **neck pickup**.
** The gate and decay knobs do not respond to VST or MIDI program change.

PORTA	- sets the Glide/Portamento time.
GATE	- (only when audio triggered) Used to adjust the synths input to different audio signals. Turn the gate control up if notes do not trigger and for more sustain. Turn the gate down if successive notes do not retrigger the gate.
DECAY	- (audio triggered only) Used to adjust the gates time to retrigger. Turn Decay down for fast response. Turn the decay control up for more sustain. (if the decay control is set too low with sustained notes the gate will retrigger or flutter)

Please consider this a performance control also: with a midi controller switch pedal set up to control this slider. You may then in real time change from zero very fast response, to ten slower response more sustain. (if your host allows you to restrict a controllers response try different top and bottom settings)

AUDIO/MIDI	- switches between audio and midi input to the synth. (only in hosts that support audio and midi input). Although originally made for preset design you can hook up a midi keyboard and trigger the synth. When set to **AUDIO**, the unit is audio triggered, when set to **MIDI**, the unit is midi triggered (but again this feature is only designed for preset creation).
RETRIG	- when on, restart the sound on each new note.

2.3.2 VSTi version

BEND RANGE	- sets the Pitch-Bend wheel range between 0 and 12 semitones. *(12 semitones = 1 octave)*
PORTA	- sets the Glide/Portamento time.
MOD SPEED	- sets the vibrato speed of the Mod-Wheel. *(CC #1)*
POLY/MONO	- switches between monophonic mode and 8-voice polyphonic mode.
RETRIG	- when on, restart the sound on each new note.

2.4 Continuous Controller Map

No CC #'s were mapped as many host applications allow re-mapping of controls.
The VSTi version has a simple vibrato modulation controlled by CC#1.

3 About & Credits

Known Limitations
Notes played farther down the neck (4th or 5th fret down) when sustained the pitch tends to flutter but usually in octaves. The cause is due mainly to the large amounts of pitch changes because of the string vibration and its harmonics. (work for new versions :-)
(not really a limitation)
Bugs: This plugin was made in SynthEdit but as you can see Jeff has put his all into quality. I am limited to only repairing bugs with the structure not SE itself. Should any errors occur I would, of course, try to see if fixes could be made.

Credits
VST Plugin and ASIO by Steinberg Media Technologies AG
© 2006 Fretted Synth Audio
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www.frettedsynth.com
Graphics by: Rick Christy www.designermonkey.us (great job on the UI Grymmjack)
Special thanks to Jeff McClintock for SynthEdit
Thanks also to: David Haupt, Marc Lindahl and J&H for custom SE modules used in this plugin.
and to all of the SE contributors....thanks
Thanks to asseca for the webpage and manual design www.asseca.com

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