MOTION v.2.6

Phase Distortion / Virtual Analog / Modulation Synthesis.

Quick Start Guide

INSTALLATION
Just place the .dll file into your host's VST plug-ins directory.

PROGRAMMING
The key to Motion's animated sounds is it's emphasis on modulation. Most other synths use modulation to simply accent the sound of the oscillators. In contrast, Motion's modulation sources are in serious control of the sound. This results in patches that have got tremendous life and movement.

To get the most out of Motion, its best to think of your patch programming as two phases.

>   1. Build the initial sound…like you would on any other synth.

>   2. Start programming all the modulation options with the same frame of mind that you would be in if you were recording knob, key, and slider movements into your host sequencer.

So if you keep in mind that many of the sonic alterations that you would normally only do during the song composition phase can actually be done during the initial synth programming phase…you'll be well on your way to working with Motion.

To further assist you in learning Motion, the next section of this text provides an overview of every parameter on the synth.

Parameters

Hint**:** If you hover your mouse over a control, you'll usually get a pop-up name/description.

Phase Distortion

To quote Jeff McClintock, the creator of SynthEdit: "Phase Distortion Synthesis was pioneered by Casio in the 80's. It is based on the idea of distorting the playback phase of a sine wave." This synthesis method is similar to Yamaha's FM synthesis…but to make life easy for the user, Casio (and Jeff) gave us prebuilt waveforms to pick from. So you can work with the PD oscillator pretty much like you would an analog oscillator.

For an in depth look into phase distortion, check out this site:
http://www.bluebear.org.uk/studio/cz101/cz_pd.html

I/O
Turns the phase distortion oscillator on or off.

WAVEFORM SWITCHES
Lets you select the waveforms. The results are more interesting when you use two at once.

OCTAVE & NOTE SWITCHES
these will set the oscillator's pitch.

PHASE
Use this to adjust the phase distortion.
The higher the setting, the brighter and more aggressive the sound. You can think of this as a form of filtering.

WARP
Turns the waveshaper on or off. Use this as a kind of distortion effect. WARNING: The Warp feature is prone to making some very loud and brutal sounds. ALWAYS LOWER THE VOLUME before using the Warp function to prevent damage your ears and your speakers.

-/+
Adjusts the waveshaper level. Positive and negative settings will yield different tones.

TYPE
lets you choose between multiple waveshaper types. Each one sounds different so try them all.

DT
Detunes the internal oscillators.

FILTER SELECTOR
This sets the filter type. Choose between Low Pass, High Pass, Band Pass and Band Reject.

CUT
Adjusts the filter's cutoff.

RES
Adjusts the filter's resonance. Be careful when working with high resonance levels. The filter can suddenly start screaming which, at higher volumes, can be very damaging to your ears and your speakers.

Hint: The resonance works in reverse with the Band Reject filter. As opposed to boosting a frequency, it pulls a frequency down. Sweeping the cutoff with the resonance down will give you a phaser type of effect.

VCA VEL
Switch this on to let the your keyboard's velocity control the volume. The harder you play, the louder the sound gets.

VCA
Standard ADSR envelope to control volume.

VOL
Sets the phase distortion oscillator's overall volume.

VCF VEL
Switch this on to let your keyboard's velocity control the filter cutoff. The harder you play, the higher the cutoff will go.

VCF
Standard ADSR envelope to control the filter cutoff.

LVL
Use this to adjust how much the envelope will effect the cutoff.

Virtual Analog
This one is exactly as it seems…it emulates a standard analog oscillator.

I/O
turns the virtual analog oscillator on or off.

WAVEFORM SWITCH
Lets you select your waveform. Includes white and pink noise options.

OCTAVE AND NOTE SWITCHES
these will set the oscillator's pitch.

SYNC
Switching this on will force the VA oscillator to synchronize with the PD oscillator. This has a "tight-ening" effect on the sound that many find particularly useful on basses and leads. Some other inter-esting sounds can be discovered by experimenting with adjusting the pitch of either oscillator while they are synced.

WARP
Turns the waveshaper on or off. Use this as a kind of distortion effect. WARNING: The Warp feature is prone to making some very loud and brutal sounds. ALWAYS LOWER THE VOLUME before using the Warp function to prevent damage your ears and your speakers.

-/+
Adjusts the waveshaper level. Positive and negative settings will yield different tones.

TYPE
lets you choose between multiple waveshaper types. Each one sounds different so try them all.

DT
Detunes the internal oscillators.

FM
This adjusts the amount that the PD oscillator will modulate the frequency of the VA oscillator. The more you increase this, the more harsh and metallic the VA oscillator will get. Although FM produces distortion too, it's sound is quite different from the waveshaper. This is another one that you've got to experiment with to get a good grip on exactly what it will sound like.

PW
This adjusts the width of the pulse waveform.
Hint: Hold down a note, slowly move the slider, and watch the oscilloscope at the bottom of the synth. You'll be able to see exactly what modulating the pulse width does to the waveform.

FILTER SELECTOR
This sets the filter type. Choose between Low Pass, High Pass, Band Pass and Band Reject.

CUT
Adjusts the filter's cutoff.

RES
Adjusts the filter's resonance. Be careful when working with high resonance levels. The filter can suddenly start screaming which, at higher volumes, can be very damaging to your ears and your speakers.

VCA VEL
Switch this on to let the your keyboard's velocity control the volume. The harder you play, the louder the sound gets.

VCA
Standard ADSR envelope to control volume.

VOL
Sets the phase distortion oscillator's overall volume.

VCF VEL
Switch this on to let your keyboard's velocity control the filter cutoff. The harder you play, the higher the cutoff will go.

VCF
Standard ADSR envelope to control the filter cutoff.

LVL
Use this to adjust how much the envelope will effect the cutoff.

THE 16 STEP CV SEQUENCERS
Here is where things start to get really fun.

Hint: The sequencers will reset to the second step when you start your hosts sequencer.

MAIN SEQUENCER CONTROL
These controls are located in the upper right corner of the pitch sequencers control area.

SET
Clicking this button will reset all the sequencers to the first step.
Note: This only works on a sequencer if is turned on.

I/X
This allows you to set the sequencers to either the internal clock or make them sync to an external midi clock.

IRATE
Sets the speed of the internal sequencer clock.

P SEQ (Pitch Sequencer)
You can use the pitch sequencer to create bass lines, melody lines, ambient accents, and wild pitch glitch kinds sounds. All the sequencers pitch changes are based off of the notes you play on the keyboard…so the sequencer will essentially be shifting key as you do. This can be a rather handy aid in coming up with chord progressions while composing.

RUN
Starts and stops the pitch sequencer.

PD
Allows the sequencer to control the phase distortion oscillator's pitch.

VA
Allows the sequencer to control the virtual analog oscillator's pitch.

GLIDE (portamento)
Creates a pitch bend between the sequencer's notes. The higher the setting, the longer it will take for the pitch to reach the next note.

Hint: this setting is independent of the sequencer's speed. So the slower the sequencer speed, the more the glide can do its thing.

DIVIDE
This parameter will let you adjust the sequencer's speed when it is synced to an external midi clock.

DIRECTION
This lets you choose what direction the sequencer will play in. Forward and Backward are pretty self explainatory. The other two options are Bounce 1 and Bounce 2. Bounce 1 will make the sequencer go back and forth between playing forward and backward. Bounce 2 does the same as 1 except that it will play the first and last steps twice in a row.

OCTAVE SLIDERS
These adjust the octave of each step. Each has a range of 5 octaves...from 2 below the current octave, to 2 above.

NOTE SLIDERS
These adjust the note within the octave of each step. Each has a range of 11 semi tones. The lowest setting is the current note, the highest is one semitone before the next octave.

F SEQ (Filter Sequencer)
You can use the filter sequencer to create rhythmic filtering effects, custom sweeps, etc.

RUN
Starts and stops the filter sequencer.

PD
Adjusts how much the sequencer will control the phase distortion oscillator's filter cutoff.

VA
Adjusts how much the sequencer will control the phase virtual analog's filter cutoff.

GLIDE (portamento)
Creates a sweep between the sequencer's filter steps. The higher the setting, the longer it will take for the cutoff to reach the next setting.

Hint 1: This setting is independent of the sequencer's speed. So the slower the sequencer speed, the more the glide can do its thing.

Hint 2: Experiment with using fast-to-moderate glide speeds on slow sequences to create some funk filter lines.

DIVIDE
This parameter will let you adjust the sequencer's speed when it is synced to an external midi clock.

DIRECTION
This lets you choose what direction the sequencer will play in. Forward and Backward are pretty self explainatory. The other two options are Bounce 1 and Bounce 2. Bounce 1 will make the sequencer go back and forth between playing forward and backward. Bounce 2 does the same as 1 except that it will play the first and last steps twice in a row.

CUTOFF SLIDERS
These adjust the how high the filter cutoff will be for each step. The lowest setting leaves the cutoff unchanged from how it is set in the main filter controls. Raising the sliders will increase the cutoff.

G SEQ (Gate Sequencer)
The gate sequencer is here to further help you to create patterns within your patch. Use the buttons below the LEDs to turn on or off each step.

RUN
Starts and stops the gate sequencer.

PD
Allows the sequencer to control when you hear phase distortion oscillator.

VA
Allows the sequencer to control when you hear the virtual analog oscillator.

DIVIDE
This parameter will let you adjust the sequencer's speed when it is synced to an external midi clock.

DIRECTION
This lets you choose what direction the sequencer will play in. Forward and Backward are pretty self explainatory. The other two options are Bounce 1 and Bounce 2. Bounce 1 will make the sequencer go back and forth between playing forward and backward. Bounce 2 does the same as 1 except that it will play the first and last steps twice in a row.

LFO

Time to create some serious automated animation. Here's the list of all the things you can control with the LFOs:

PD Phase
PD Cutoff
PD Resonance
PD Pan
PD Warp

VA Cutoff
VA Resonance
VA Pan
VA FM
VA Pulse Width
VA Warp

Delay Cutoff
Delay Resonance
Delay Pan

You can have 8 running all at once!…and this is in addition to the sequencers and envelopes! Now you know why I called the synth "Motion."

THE FIRST 6 LFOs

LEVEL KNOB
These adjust how much the LFO will effect (modulate) whatever parameter it has been assigned to.

LFO SPEED
These switches adjust the speed / beat division of the LFO.

WAVEFORM
Use these switches to choose a waveform for the LFO.

HINT: The Noise waveform does not create a random LFO effect as it would on most other synths. Instead it actually modulates using noise. This allows you to use it as a sort of extra noise generator.

DESTINATION
Use these switches to choose what parameter the LFO will modulate.

THE LAST TWO: WARP LFOs
These two are dedicated to modulating the Warp waveshapers.

WARP 1 & WARP 2
These switches turn on an LFO for each waveshaper level.

-/+
Use these to adjust how much the LFOs will modulate the waveshaper levels. Just as on the main Warp controls, these will make both negative and positive adjustments.

LFO SPEED
These switches adjust the speed / beat division of the LFOs.

WAVEFORM
Use these switches to choose waveforms for each Warp LFO.

DELAY
On the most part, this is a pretty straight forward delay but I've given it it's own 24db low pass filter.

I/O
Turns on and off the delay.

VOL
Controls how much you'll hear the delay. The highest setting is the same volume as the signal that fed it.

FDBK
Sets the feedback for the delay. The higher the setting, the more times you'll hear a repeat.

CUT
Adjusts the cutoff for the delay's filter.

RES
Adjusts the resonance for the delay's filter.

IN/EX
Selects whether the delay will use it's internal clock or sync to an external clock.
OFF = internal, ON = external.

TIME
Adjusts the speed of the internal clock.

DOT
Switch this on for dotted notes. (Only works when the delay is synced to an external clock.)

Hint: This is great for making counter rhythms with the delay.

DIVIDE
Selects the beat division (speed) when the delay is synced to an external clock.

MAIN

GLIDE
Adjust the main portamento speed. This adjusts the pitch sweep between the notes you play on your keyboard. This is independent of the pitch sequencer's glide control so feel free to use them both at once.

RT
Switch this on if you want the envelopes to retrigger with each new note played.

MONO
When switched on, Motion will only play monophonically. (Single notes only.)
Hint: Switching to mono can help conserve your computers processing power.

VOL
This is the master volume control for the synth.

OSCILLISCOPE

This not only looks cool, it can also help you when you are programming because it allows you to see exactly what you are doing to each oscillator's sound. It can be especially handy while you are making Warp and Pulse Width settings.

Yellow Line = Phase Distortion
Green Line = Virtual Analog

Hint: You'll be able to see what's going on much easier if you play mid and high notes. Low pitches have such long waveforms that they frequently exceed the useful visual range of the scope.

CREDITS

Synth Created by: Ugo
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Contact info:
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Ugo website:
http://www.cortidesign.com/ugo
(Flash required.)

Tools Used:
Synth construction - SynthEdit (www.synthedit.com)
GUI and masks - Adobe Photoshop

This synth incorporates SynthEdit creations by:
Chris Kerry (ck delay / ck host bpm / ck warp)
e-phonic (ep bpm 2 delay)
Bones (midi sync lfo control)
Collusioninc (cv sequencers)
Dan Worrall (sequencer control and sequencer)

TC patches by Tim Conrardy

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www.kvr-vst.com, xoxos, and...of course...Jeff McClintock
for creating SynthEdit.

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LICENCE AGREEMENT: