VS 1000R Owners Manual

Overview

MST VS1000R is based on a two phase distortion oscillators. Phase distortion is a type of synthesis invented by casio used in their CZ range of synthesizers which works by distorting sine waves into many different waveforms. Each oscillator has two waves, a mainwaveform which must be selected and a secondary waveform which is modulated with the first waveform.

Powering Up

This is a VSTi plugin, copy “MST VS-1000R.dll” to your VSTPlugins folder then start your sequencer host. To run in standalone mode, you must download SAVIHost or similar software (rename SAVIhost.exe to MST VS-1000R.exe and make sure the dll is in the same folder)

Notice

There are only 40 presets which have been made during the development of this synthesizer. Warning! these sounds do not cover the broad range of sounds yet to be created with this synth, please explore and design your own sounds, this synth was designed specifically to have everything on one page with a modulation matrix, and should be not only a sound designers dream come true but any artist that wants to create their own sounds.

Waveforms

The oscillators are called X and Y respectively, and the modulation of each of these across the X and Y axis of the coloured vector by the white joystick. Moving the joystick creates tonal differences in the sound, also the Y oscillator can be either subtracted or added to the X oscillator (mid point is no sound at all) using the knob just underneath the vector.

Shapers

Each oscillator can be shaped to allow an even more diverse range of sounds, moving the points from the graph on each shaper changes the sound coming from the X and Y oscillators respectively. Minimal changes are needed to add subtle aliasing and distortion type sounds which add a flavor to the sound which becomes more apparent when modifying the vector.

Oscillators

Mono mode allows only one note at a time! Great for bass lines. Volume is the sound coming out of the synths, the audio is routed to the delay units before this. Pan controls the panning of the raw oscillators (also pan independently of the delays). Portomento controls a pitch sliding effect as each note is played, the next note is tuned slowly from the last one. Also, please note the polyphony of this synth is 8 notes.

LFOs

Each of the LFO's 1 to 4 are identical in operation.

Low frequency modulations should be created with the High knob at its lowest setting, for more bizzare sounds the high knob should be used to create high frequency modulations. Each of the waveforms on the LFO are self-explanitory with random producing random changes in level. Pulse width is only operative when the waveform is in pulse mode.

Each LFO is triggered by Envelope 1, Delay is the amount of time before the LFO is triggered in addition to Envelope 1.

BPM synchronization makes the sound synchronize with the current host BPM. High is not active when this mode is selected.

Envelopes

Envelope 1 controls the main amplifier circuit on output, Envelope 2 is just spare for you to use in your modulation routings. Volume on envelope 1 controls the overall volume of the synth.

Attack, Decay, Sustain And Release Controls the contour of the envelope, pretty self explanatory!

LP Filter

This is a modeled moog 24db low pass filter with cutoff and resonance.

LP/HP Filter

This is a modeled moog filter with selectable filter (low pass / high pass) and resonance types. Filter types are LP25 and Res, and HP (2) filter, the number denominates the number of poles that are in the filter. Zing uses the relationship between the cutoff / resonance and effects the sound of the filter accordingly.

Mode: Digital or Analog - the choice is yours, analog uses more CPU and sounds a bit more defined.

Effects: Delay

There are two delays which can be turned off or on by the switch on each, the volume controls the amount of sound going in, therefore out of the effect. The pan changes the stereo positioning of the effect, Time is either in seconds or synchronized to the host BPM by the button switch next to it. Feedback controls the amount of time the sound lingers around in the delay unit, the amount of sound that is fed back into the unit after producing one delay. Overdrive distorts the sound that is being delayed, be careful, above half way things get a bit loud. HP filter is a high pass filter on the input of the delay, remove some bass from your delays giving a more spacey feeling. LP filter removes high frequencies from the input of the delay, gives a warmer sounding delay.

The delay can also reverse the sounds that it delays, select the appropriate button for weird and wacky effects!

Effects: Reverb

Can be turned on by the "On" switch, Mix controls the amount of reverb that is audible, Size is the size / length of the reverb. Width is the stereo imaging of the effect, dampening takes out the high frequencies from the effect creating a duller sounding effect. Gate mode set to normal the sound is on all the time, when set to freeze, the effect generally will come after you have played a note depending on your Envelope 1 settings. Set to Gated, the effect will only be audible when you have sound playing.

Effects: Phaser

Mix controls the amount of sound that goes through the phaser filter, none to the left, all to the right. The opposite is true for theraw oscillators. Cutoff controls the frequency, resonance the amount of ringing at the current cutoff frequency, Depth changes the rangeof the effect, Spread changes the distance between the filter bands. Stages controls the amount of filters (from 132).

Modulation Matrix

Ok, now that you know about how all of the individual components work, now you want to put them together, otherwise how would that LFO control the pitch of Osc X?

The modulation matrix is a 2dimensional array of values (like a spreadsheet) along the top is the destinations, along the side is the sources. clicking in a 'cell' and dragging up or down changes the value, negative or positive numbers are possible. If you clicked in the top-left hand cell and started pushing the mouse upwards, a positive value from LFO 1's output would modulate the oscillator X's modulation setting (not to get confused, but its modulating the modulation!).

The Sources LFO 14, Env 1 and 2 are directly from the units involved. Vector X and Y are from the vector's X and Y position of the white joystick respectively. Kbd Velocity is how hard you strike a key, Aftertouch is by pressing the keys while the sound is being played (good for emotive changes, slight pitch variations or fitler can sound good) Wheel is the modulation wheel, Src 13 are the Mod Src knobs in the bottom-right hand corner.

The Destinations - Modulation, Volume and Pitch control the amount of change in these functions of the oscillators X and Y respectively. LP Filter Cutoff and Resonance are next, then the LFO Rate 14 (Low) can be modified by other sources, which allows interesting changes of the speed of the LFOs. LP/HP Cutoff is next, then 3 custom destinations are provided, values can be modulated from the custom modulation section to the bottom right hand side. Included is faster rates for the LFOs, 3 has Phaser frequency as the default which allows speeping sounds from the LFOs.

Of the values up to 127=100% of source, 127=100% of source!

Credits

VS1000R is a freeware product of MST produced for the KVR Developers Challenge 2006.

MST is an abbreviation of Metabin Sound Technologies and is a trading name of Metabin Ltd. a limited company registered in Scotland.

http://mst.metabin.com/

Produced using SynthEdit. Contains modules by David Haupt, Rick Jelliffe, KDL, EVM, Oli Larkin, Guido Scognamiglio and Bowery engineering associates.

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