Kitchen Sync Sound Transformer

Kitchen Sync is a creative audio effect that hard syncs input audio to an oscillator whose dynamics are shaped by an envelope follower on the input signal. Kitchen Sync is typically added as an insert effect, though it can also be used in-line or directly on its own mix track. Kitchen Sync sounds most interesting when you modulate parameters with its own internal LFO or envelope follower, or add CV control from external sources (ie Subtractor or Pulsar).

The Gate Section

Parameter	Description
Threshold	Controls the triggering threshold of the effect by the audio input. If the Signal light stays on, raise this a bit until the light goes off.
Attack	Controls the slope of the envelope follower attack, in milliseconds. Can be used to create a bowing effect when set above 10 ms. Settings above 5 ms will smooth input pops and crackles. Typically set to 0 - 2 ms.
Release	Sets the sensitivity of the envelope follower to releasing the signal. For most purposes this should be at the top of it's range: 200 ms.

The Oscillator Section

Parameter	Description
Freq	Sets the frequency in Hertz of the oscillator. This must be higher than the frequency of the input, or it will cut out. For example, for an input A440, the frequency must be above 440 Hz.
Shape	Controls the waveform shape of the oscillator, from triangle wave to sawtooth to square to pulse wave.

The Filter Section

Parameter	Description
LPF on	Turns on the low pass filter (LPF). The LPF can be used to filter out noise, or unwanted high-end frequencies.
Cutoff	This is the cutoff frequency for the low pass filter, from 25 to 20 kHz.

The LFO Section

Parameter	Description
Rate	The Rate knob controls the LFO's frequency. Turn clockwise for a faster modulation rate.

Parameter	Description
Amount	This parameter determines to what degree the selected parameter destination will be affected by the LFO. Raising this knob's value creates more drastic results.
Dest	The available LFO destinations are as follows: Freq, Shape, LPF, Volume, and Wet/Dry.
Wave	Allows you to select different waveforms for modulating parameters. These are: sine, triangle, square, sawtooth up, and sawtooth down.
LFO	Turns the LFO on and off.
Sync	By clicking this button you activate/deactivate LFO sync. The frequency of the LFO will then be synchronized to the song tempo, in one of 16 possible time divisions.

The Output Section

Parameter	Description
Volume	Output gain in db.
Dry/Wet	Controls the mix of input to output signal.

Other Parameters

Parameter	Description
Env to Freq	Enabling this sets the envelope follower to control the Freq parameter. This means that when the volume of the input audio is higher, Freq will be higher, and if the input volume is lower, Freq is lower.
Env to Shape	Sets the envelope follower to control the Shape parameter. This means that when the volume of the input audio is higher, Shape will be higher, and if the input volume is lower, Shape is lower.
Full/Half Wave	Resets the oscillator at either half of each input wave cycle (on and lit), or on a full input wave cycle (off and unlit).

Input Audio

Kitchen Sync works best with monophonic input (single notes) or 5th chords. For guitar input, you'll find that switching to the neck-position pickup and turning down tone knobs will give the best results. Compressed audio is also recommended, for example by inserting a COMP-01 into the signal chain before Kitchen Sync. The envelope follower works best when the input audio is as high as can be (without clipping, of course.)

For synth input, single notes or 5th chords should be used. Patches with quicker attack sound better through Kitchen Sync, though you are free to try other kinds of synth patches.

For drum input, don't send every piece of the kit through a single Kitchen Sync unit. Put your hi-hats and snares through a single unit, but do not add toms, bass drum, or other lower-frequency pieces of the kit. Put those through their own separate Kitchen Sync units.

Audio Routing

For instruments like guitar and bass, only the left channel is typically used. For stereo signals, the input audio is processed separately for the left and right channels, although the envelope is detected only in the left channel. In other words, there are two independent oscillators for the left and right channel, but the volume dynamics are controlled by the left channel envelope.

CV inputs

There are CV inputs for Freq, Shape, Volume, Wet/Dry and LPF. These can be either unipolar (0 - 1) or bipolar (-1 to +1), Kitchen Sync automatically detects the type of CV signal. Each input has a trim knob which limits its effect.

Note: the baseline for CV control is set by the front panel knobs. For example, if freq is set at 250 Hz, the signal in the freq CV input will have it's minimum at 250 Hz, and it's maximum at 1600 Hz, which is the maximum of the freq knob. **Therefore, if you want your CV input to control the full range of a parameter, you must set that knob to zero.**

A typical use of CV control would be sweeping through the freq parameter to create a sweeping effect.

CV outputs

There are four CV outputs: one for a trigger gate signal, two for the envelope follower, and one for the LFO. The trigger signal can be used as a trigger for other Reason units.

The two envelope follower CV outputs are the same, and can be used to control parameters on the Kitchen Sync unit, or on other units. One typical application would be to hook an envelope CV output to the freq or shape input, to create an auto-wah type effect.

Patches

The included patches are starting points for exploring the capabilities of Kitchen Sync. Please note that the Wet/Dry parameter is not saved in patches, and many of the patches are meant to be mixed with some of the input signal. If the Dest knob in the LFO section is pointing to Wet, turn down the Wet/Dry knob to hear the proper patch effect. Otherwise, adjust Wet/Dry to a proper mix for your ears.

Examples

Using LFO to sweep freq on a guitar channel

1. **Create audio track and set its input to your guitar.**
2. **With the audio track selected in the rack, create a Kitchen Sync Sound Transformer.**

This should auto-route the signal through the compressor to the Kitchen Sync.

3. **Enable the LFO.**
   Click the LFO on button. Set Wave to triangle, amount to 127, and the rate in the middle, around 5. Set Dest to Frq, and set Freq to approximately 207. Play some single notes on your instrument. You should hear a sweeping effect. Adjust the shape knob to your taste.

Creating auto-wah with envelope follower

1. **Create audio track and set its input to your guitar.**
2. **With the audio track selected in the rack, create a Kitchen Sync Sound Transformer.**
3. **Enable envelope follower by clicking on Env to Freq.**
   Set freq to approximately 400 Hz. Set volume to 0 db. Set shape to taste.

De-digitize and add dirtiness to a mix

1. **Open up a song that you want to de-digitize.**
2. **With the Hardware Interface selected in the rack, create a Kitchen Sync Sound Transformer.**
3. **Set up Kitchen Sync parameters.**
   Set freq to approximately 600 Hz to start with. Set volume to 0 db. Set shape to approximately 42. Set Dry/Wet to 0 to start with. Keep attack at 0 ms.
4. **Start playing the song.**
   Gradually raise Dry/Wet until you hear an effect. Change shape and freq to control the sound.

Getting Support

If you have problems or questions, go to http://www.reasonsync.com/support.html