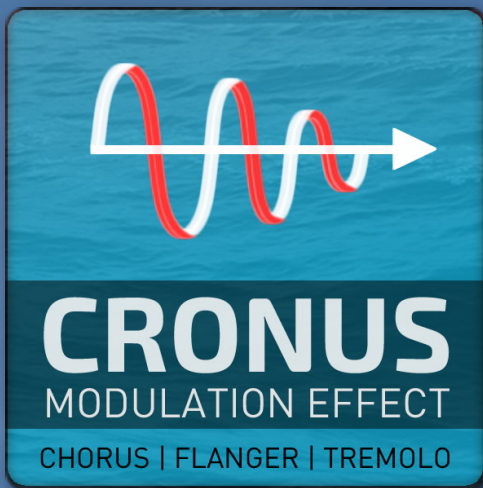


CRONUS Time/Amp Modulation FX [RACK EXTENSION] v. 1.0

MANUAL

2018

FX device by Turn2on Software



Introducing **CRONUS**, a new time-modulation effect that includes 3 effect types in one: Chorus, Flanger and Tremolo. All of these effects are time-modulated delay effects.

When guitarists talk about modulation effects, they are referring to effects such as Chorus, Flanger, Tremolo, Vibrato and other delay based effects. For example, Tremolo produces effects that are described as "lush, warm, and roundly pulsing."

We have combined these in one box to save you from having to use them individually. CRONUS is a very easy and useful effect for your Reason rack.

All of the main parameters are accessible on the front panel of the device, and it supports patch saving.

Try it today to find out what it can do for you.



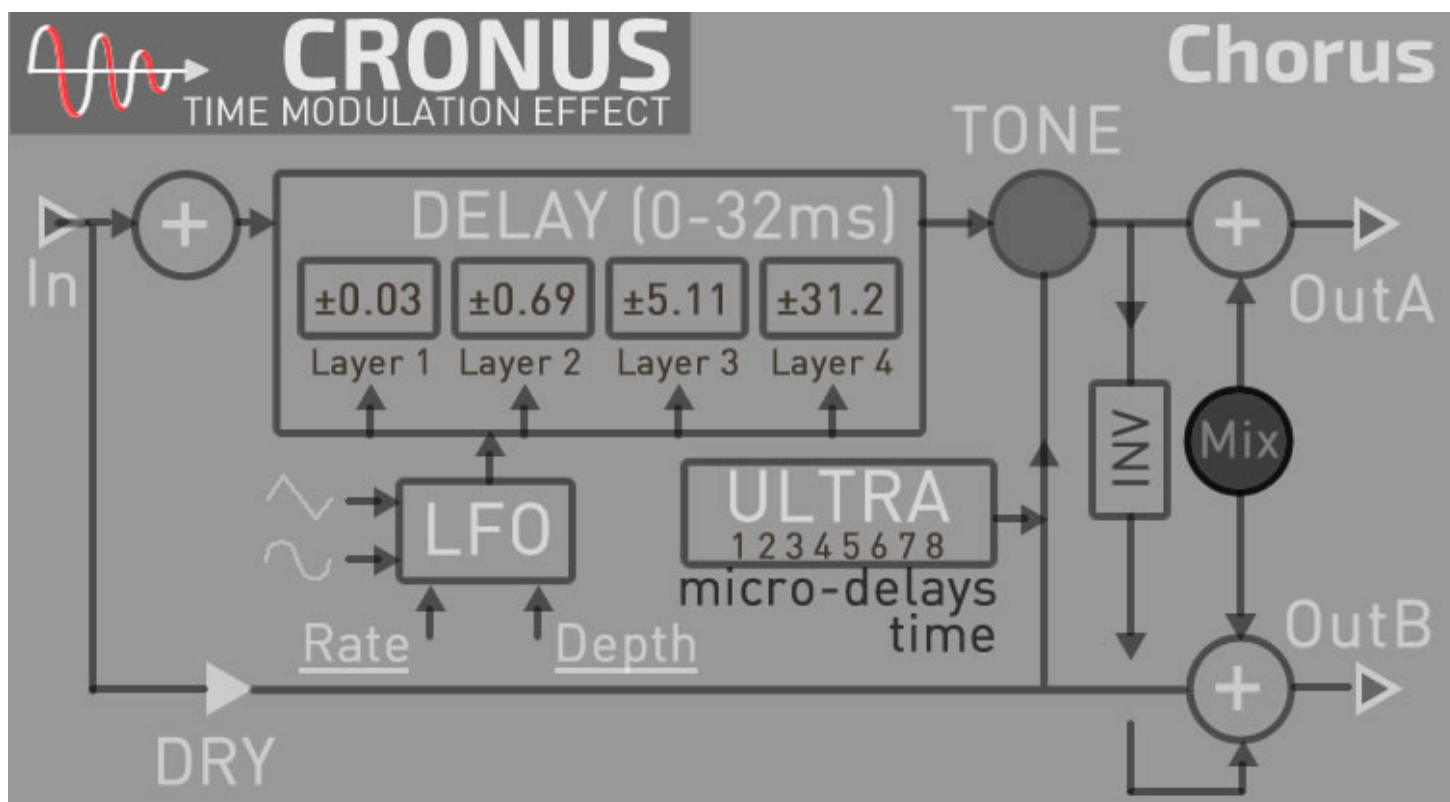
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Phasing, flanging, and chorus use much of the same technology as echo and delay units. All of them are based on delay effects with a relatively small range of delay. We decided to enhance these delay-based effects with LFO modulation for the Delay effects to create special sounding effects.

THEORY OF CHORUS

The chorus effect modulates the original sound using a low-frequency oscillator (LFO).

The LFO has **RATE** and **DEPTH** settings. The output produces a sound in which several sources play the same sound, but with some changes, which eventually sounds like chorus. When mixed together with the main audio signal, it creates an effect which sounds like multiple instruments are being played at the same time.



The Effect takes the audio signal and mixes it with one or more delayed copies of itself (**LAYERS**).

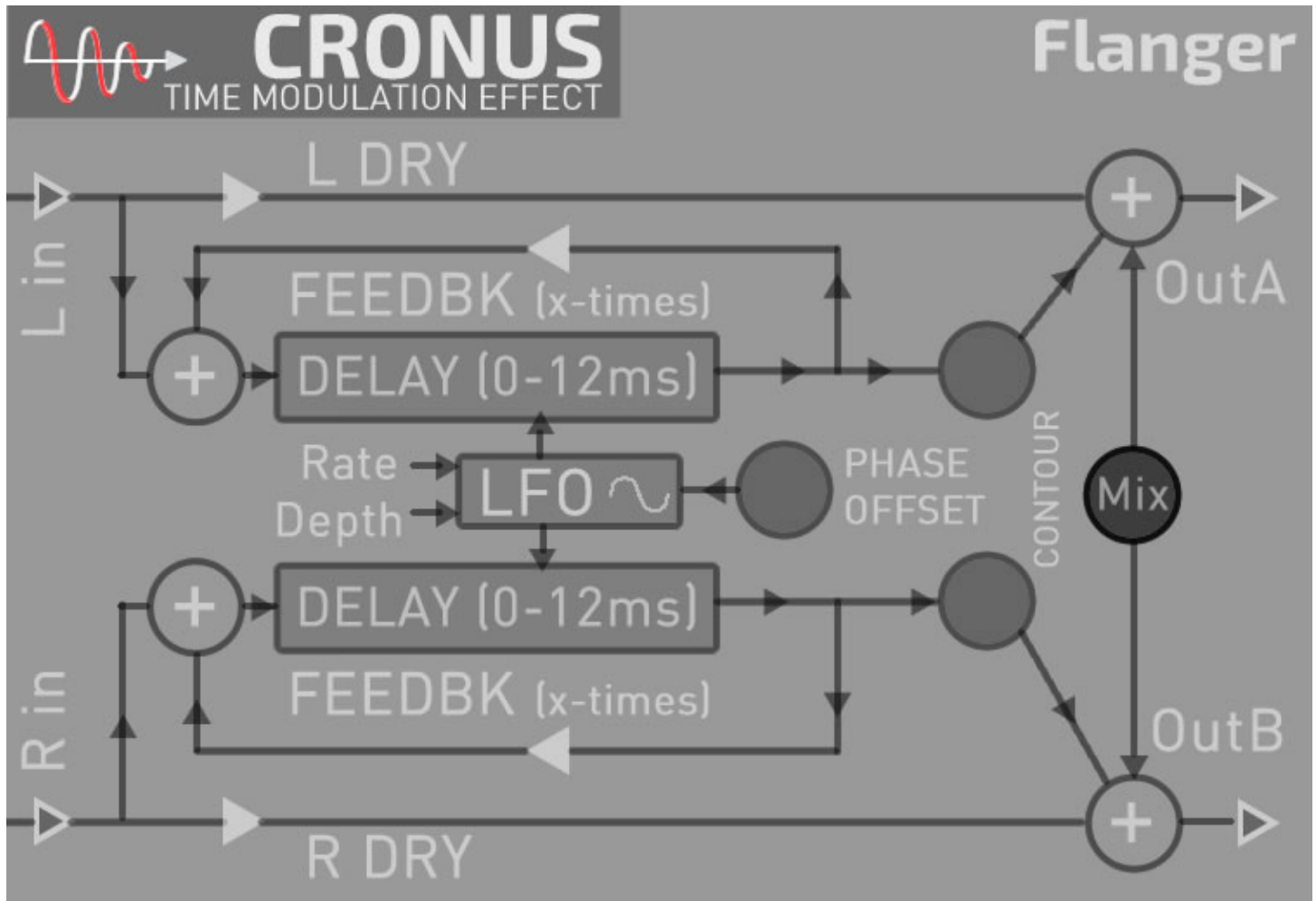
Delays of the added voices is typically modulated by LFO.

While guitar pedal effects are usually mono, a stereo chorus applies the effect to left and right stereo inputs, or to a duplicated mono input, using two independent chains.

The two chains are modulated by one LFO and delay with detunes. Then the Left and Right channels go through **TONE** and **ULTRA**. Additional Micro-delays (ULTRA) create a wider and more intensive parallel delay line. After this, the sum of the signals from one channel and dry input is **inverted** and is sent to the second channel, where the sum of channels (**MIX**) can be adjusted.

THEORY OF FLANGER

The **Flanger** effect is based on a modulated delay line. A flanger sounds similar to a phase shifter, but can have a much bigger effect on your tone.



Like a phaser, the signal is split into two copies, then one of them is delayed in time very slightly; no more than 12 ms. The **DELAY** time changes at a constant rate, which can be manipulated.

The Delay is modulated by an LFO (sine waveform) with settings for **RATE** and **DEPTH**.

A delay processor sends the input signal to the output at a later time which is set with the **DELAY** time. The delayed signal is combined with the original signal with the **MIX** parameter.

The number of delay repeats is determined by a **FEEDBACK** control (more feedback = more repeats).

The Flanger as a stereo-effect has a **Phase Offset**, which is an offset between the left and right modulation. The Flanger effect originated by using 2 tape machines in sync mode. When the sound became unsynced, it created delays and sound engineers discovered a new time-modulation effect - the Flanger. Usually a flanger is referred to as a jet-plane effect.

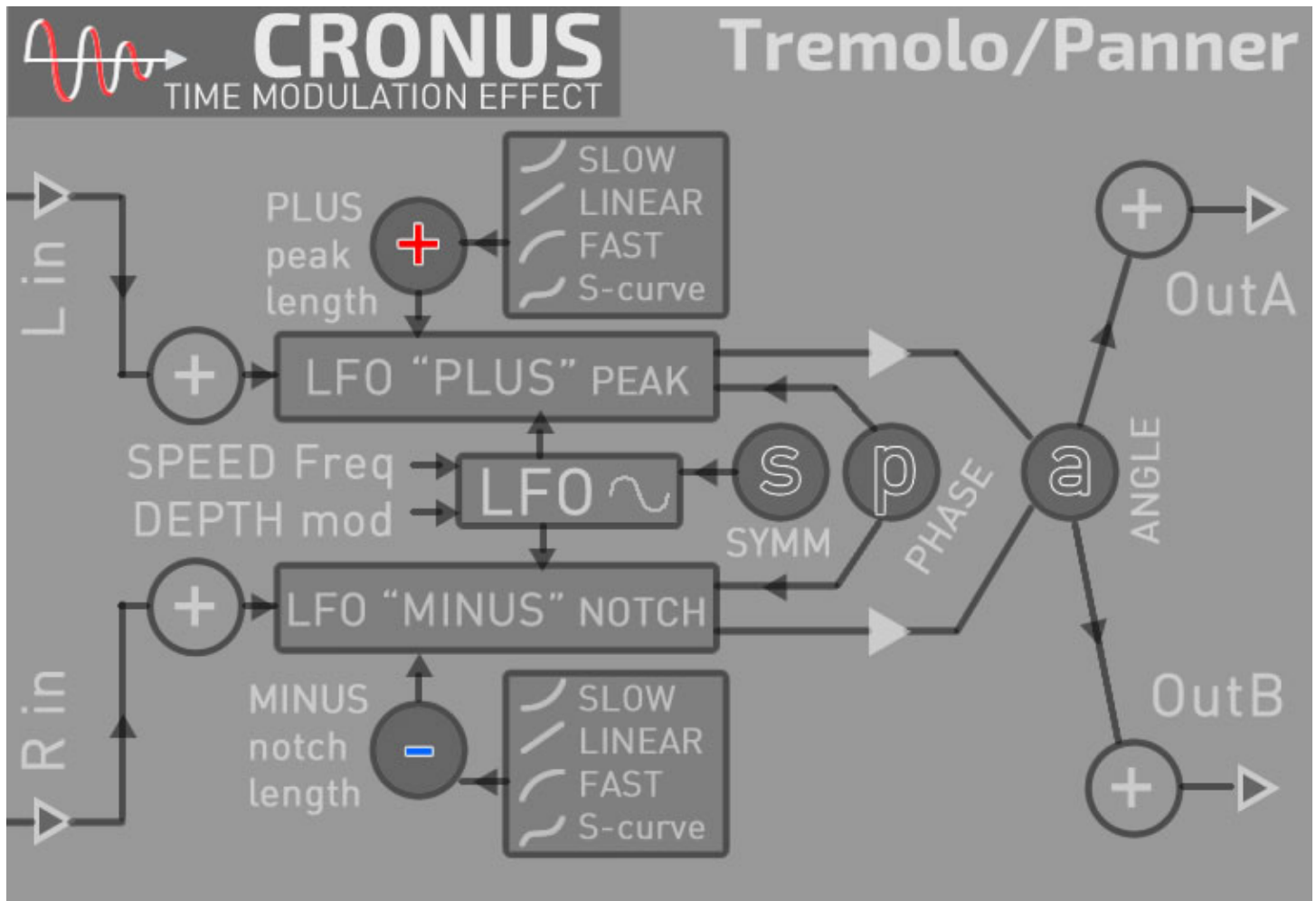
Classic Phaser effects do not have a delay section, but two phasers with unsynced delays is a standard flanger effect.

You can modify the sound further, creating a comb-filter like effect, by manipulating the speed (**RATE**) in addition to the phase.

THEORY OF TREMOLO

Tremolo is a modulation effect that rhythmically changes the volume of your signal.

An LFO (low frequency oscillator) is used to create a waveform that turns the signal volume up and down ("plus" and "minus"). Using sine-waves produces a lush, strong tremolo. It is similar Vibrato effect which modulates pitch, while Tremolo modulates the amplitude. Tremolo is more useful for creating percussive shuddering or stuttering, as well as intense pulsating effects.



The Tremolo effect can also be used as a **Panner-effect**. A panner moves the sound left/right in the stereo field while a tremolo varies the volume. Tremolo can be used to get that classic "surf" sound especially when used with some spring reverb.

SPEED adjusts the frequency of the LFO and can be synced to the tempo of your song.

DEPTH sets the limit of volume/pan of the effect, varying from subtle to completely deadening of the signal.

SYMMETRY controls the shape of the LFO waveform. At 50% the waveform is perfectly symmetrical. At 0% the waveform shifts to the "PLUS" zone, while at 100% it shifts to the "MINUS" zone.

The **PLUS** knob controls the attack-length of the PLUS-zone, while the **MINUS** knob controls the attack-length of the MINUS-zone.

PHASE adjusts the initial phase modulation difference between the left and right LFO waveforms.

ANGLE adjusts the phase of the right channel relative to the left, to add stereo width and create an Auto-PAN effect.



Creative ways to use chorus:

1. Acoustic guitar – If you want to add a slightly richer and deeper sound, inserting a slow and subtle chorus effect will make the part sound like it's being played by multiple different guitarists, creating a wall of 12 string chord strumming.
2. To add shimmer to an electric piano - If you are working with an electric piano sound that sounds dull and lifeless, then adding a touch of chorus can brighten it up and make it shimmer.

CHORUS

MAIN PARAMETERS

RATE	Frequency modulation rate / Speed of LFO
DEPTH	Depth of delay (pitch) modulation
DELAY	Delay for each LAYER
LFO WAVE	LFO waveform: TRIANGLE / SINE
TONE	Attenuate high frequencies
LAYERS	Number of LAYERS (1-4 layers) for each note
MIX	Mix of unprocessed input and processed signals
BYAPSS	Soft true bypass, Disable / Enable chorus effect

3. Doubling Vocals – Chorus can be used to double vocals fairly effectively, and can even add some sparse doubling to select phrases.
4. Snare drum – forcing the sound into mono can be a good way to get a cool snare chorus without phasing issues.
5. For a slow oscillating bass – a touch of chorus to the bass can add a new dimension to the sound.
6. On the guitar bus – If you have a few different guitars grouped and sent to one bus you can spread them out even more with some chorus.
7. On backing vocals – This is standard, and it still works wonders to the sound.

FLANGER



A "drainpipe", "swoosh" or "jet plane" sweeping effect, produces the signature whooshing sound.

MAIN PARAMETERS

RATE	Frequency modulation rate / Speed of LFO
DEPTH	Delay modulation depth
DELAY	Delay time
FEEDBACK	Add resonant peaks / number of delay repeats (more feedback = more repeats).
PHASE	Phase offset between left and right modulation.
CONTOUR	EQ contour
MIX	Mix of unprocessed input and processed signals
BYPASS	Soft true bypass, Disable / Enable flanger effect



TREMOLO / Panner

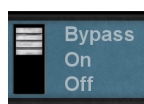
Tremolo is a modulation effect that rhythmically changes the volume of your signal.

The Sine waveform of the LFO provides a lush, strong tremolo effect.

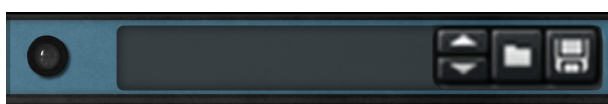
It's not only a Tremolo effect, it's also an Auto-Pan effect.

MAIN PARAMETERS

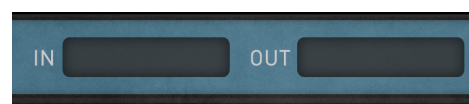
SPEED	Frequency modulation rate / Speed of LFO
DEPTH	Amplitude modulation depth
SYMMETRY	Controls the shape of the waveform. At 50% the waveform is perfectly symmetrical. At 0% waveform shifts to "PLUS" zone, while at 100% it shifts to the "MINUS" zone.
PLUS	Control attack / peak length of PLUS-zone
PLUS CURVE	Attack / Peak curve form: Slow / Linear / Fast / S-Curve
MINUS	Control release / notch length of MINUS-zone
MINUS CURVE	Release / Notch curve form: Slow / Linear / Fast / S-Curve
PHASE OFFSET	Adjust the initial phase modulation difference between the left and right LFO waveform
ANGLE	Adjust the phase of the right channel relative to the left, to add stereo width and create an Auto-PAN effect
BYPASS	Soft true bypass, Disable / Enable Tremolo effect



BYPASS - disable effect
ON - enable effect
OFF - mute incoming signal



Lamp - indicator of effect activity
Patch Browser - load patches, save your own CRONUS patches



IN - level of incoming signal (before effect chain)
OUTPUT - level of processed signal

BACK SIDE PANEL



AUDIO INPUT/OUTPUT

Mono or Stereo connections for audio signals.

CV INPUTS

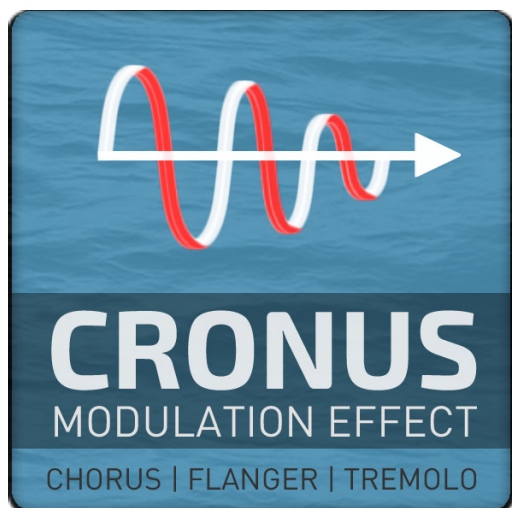
Use these CV inputs to control the main parameters with external CV source curves.



WHY WE NAMED IT CRONUS?

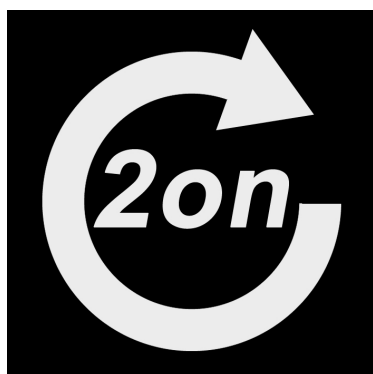
CRONUS is a God of Time. Our CRONUS effect - is a Time / Amp Modulation Effect (3 fx in one box)

Special thanks to all beta-testers



CRONUS

Time / Amp Modulation Effect



Turn2on

Rack Extension Developer

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