

# GRAINSHIFT

## Grain Delay Pitch Shifter

### [RACK EXTENSION] v. 1.0

## MANUAL

2018

FX device by Turn2on Software



Introducing a powerful granular effect for real time processing of audio signals with pitch-shifter and delay. With **GRAINSHIFT** you can select the position and length of grains that you get from the incoming signal, as well as the playback direction of grains that can be pitch-shifted and mixed with the dry signal.

Grain size has a range from 0-800ms and the size of grains can be relative to tempo. Grains can also have random size variations. Density can be adjusted to vary the overlap between grains from 0 to 4X. Grains can be quantized to a beat grid. One of the unique features of this granular effect is that grains can be played back in Forward, Reverse and Random modes for each grain.

The pitch of grains can be shifted up to  $\pm 2$  octaves. Grains can be subtracted with an alternative pitch.

With PAN settings, grains can have pan for each grain which can also be randomized.

A major function of the device's architecture is the DELAY section. It adds a more flexible and complex solution to work with grains. The Delay has Time options (seconds or synced to beats), randomised grain position in the delayed signal and feedback from grain to the delay input.

The Granular effect stores the incoming audio in its internal buffer and splits it into short pieces (grains) which are then processed with delay, pan, pitch shifting and can be played in various ways.

**Try this real-time Granular Pitch-shifter effect in your Reason rack today!**



# GRAINSHIFT SPEC

Real-Time Granular Engine

Grain Sizes up to 800ms

Playback direction modes: Forward, Reverse, Forward/Reverse Alternative, Random

6 Grain Parameters (Size, Direction, Grid Snap, Temp Sync, Density, Random)

Pitch-shifter (Main pitch for  $\pm 2$  octaves, Alternative and Random pitches, De-Glitch)

Delay (Time, Sync [sec/beats], Feedback, Random)

Pan (Alternating and Random)

Limiter (Release and HP filter)

Crush (Bits, Rate)



This granular pitch-shifter effect can transform your sound into entirely new material. Besides standard panning and pitch shifting, GRAINSHIFT can also create delay transformations to build grain clouds.



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



# GRAIN

## GRAIN SECTION

<b>GRAIN SIZE</b>	Grain duration in milliseconds. Range of 0-800ms
<b>TEMPO</b>	Adjust grain size relative to the tempo
<b>RANDOM</b>	Random variation of grain size
<b>DENSITY</b>	Overlap between grains. Set below 1.0 for sparse blips, 2.0 or above for a thicker sound or if alternating between two pitches (this it uses more CPU).
<b>DIRECTION PLAYBACK</b>	Set the grain playback direction to forward, reverse, alternating forward/reverse, or random for each grain

# DELAY



## DELAY SECTION

<b>DELAY TIME</b>	Delay time before grains play (0-4.0 sec or synced to beats)
<b>SYNC</b>	Sets the delay time in seconds or quarternote beats
<b>RANDOM</b>	Randomize grain position in the delay line (100% = anywhere from zero to delay time)
<b>FEEDBACK</b>	Feedback from grain output back to delay input

# PITCH



## PITCH SHIFTER SECTION

<b>MAIN PITCH</b>	Playback speed for each grain, to vary the pitch $\pm 2$ octaves
<b>DE-GLITCH</b>	Phase-align grains for smoother pitch shifting * Disable if not needed to reduce CPU load
<b>ALT PITCH</b>	Even grains have this value added to their pitch, odd grains have it subtracted
<b>RANDOM PITCH</b>	Random pitch variation for each grain

# PAN



## PAN SECTION

### ALT PAN

Alternating pan for each grain. Use with Alt Pitch to tune one side up and the other side down

### RANDOM PAN

Random pan for each grain

# LIMIT



## LIMIT SECTION

### LOW CUT

HighPass filter before output and delay feedback.

### RELEASE

Release time of limiter before output and delay feedback  
\* Set to low values for saturation/distortion.

# CRASH



## CRASH SECTION

### BITS

Bit reduction (2.0 - 16.0 bits)

### RATE

Downsampling rate

# MAIN CONTROL



## Soft Bypass / Input Output Corrections

### ACT / SOFT BYP

Enable / Bypass GRAINSHIFT effect. Soft bypass variant

### INPUT

Amp gain correction of the dry input level (unprocessed input signal) before it goes to the BLEND (Dry/Wet) control

### OUTPUT

Amp gain correction of the output level of the processed signal after it leaves the BLEND (Dry/Wet) control

### LAMP

Activity of effect

### BROWSER

You can load patches included with the device or save your own patches

## BACK SIDE PANEL



### AUDIO INPUT/OUTPUT

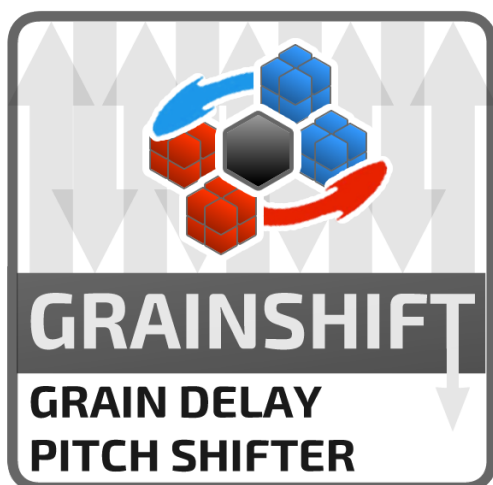
Mono or Stereo connections for audio signals.



### CV INPUTS

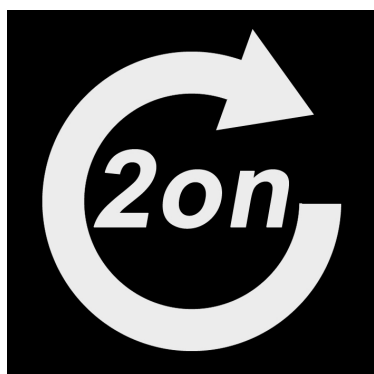
Use these CV inputs to control the main parameters with external CV source curves.





# GRAINSHIFT

## Grain Delay Pitch-Shifter



## Turn2on

Rack Extension Developer

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Special thanks to all beta-testers