

Debaser

FX / Distortion Unit

Manual

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Introduction

Installing Debaser

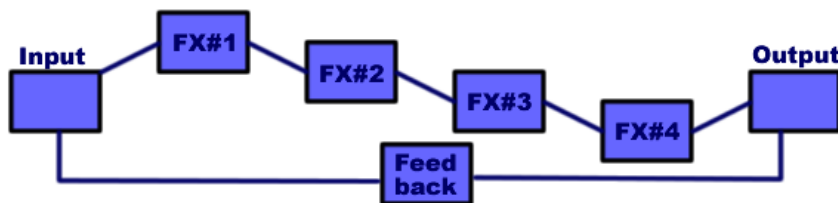
Copy "Debaser.dll" or "Debaserdemo.dll" into your VST plugin directory. The VST host software should then automatically detect it.

Overview

Debaser is a multi FX / Distortion plugin for Steinberg's VST platform. It uses 4 FX units with feedback. These units can be arranged in a variety of different ways with feedback from any of the input/output/FX units. Each of the FX units can use one of 32 different effects. By combining the different types of effects and the different routing of FX units & feedback a large variety of different effects can be created.

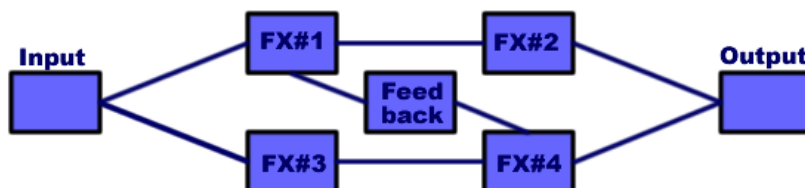
Signal Path

The default signal path is shown below



In this set-up the input signal passes through the 4 FX units in series before being output, with the output signal being feed back into the input.

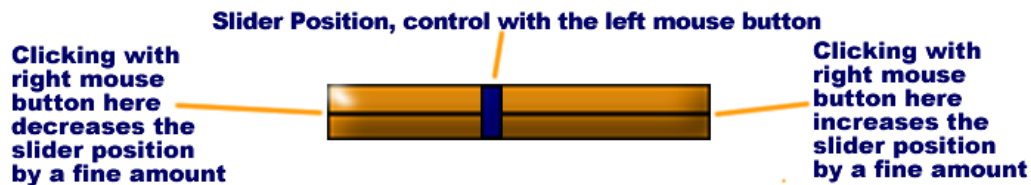
A more complicated example is shown below



In this set-up the input signal passes through the FX 1 & 2 and FX 3 & 4 units parallel before being output, with the signal from FX4 being feed back into the FX1.

Controls

For sliders, using the left mouse button sets the position of the slider, clicking with the right mouse button on the left hand side of a slider decreases the position of the slider by a small amount and clicking with the right mouse button on the right hand side of a slider increase the position of the slider by a small amount.



Path and Mixer

Path controls how the sound is routed through the four FX units



The available routes are

- | | |
|--------------------------|---|
| Serial | The signal goes through 1,2,3 & 4 in serial. |
| 1 > 1 > 2 | The signal goes through 1 & 2 in serial and then through 3 & 4 in parallel |
| 1 > 2 > 1 | The signal goes through 1 and then 2 & 3 in parallel and then through 4 |
| 1 > 3 | This signal goes through 1 and then 2, 3 & 4 in parallel |
| 2 > 2 | The signal goes through 1 & 2 in serial and 3 & 4 in serial and the output of these two FX paths are combined together |
| 3 > 1 | The signal goes through 1,2 & 3 in parallel and the output from these then goes through 4 |
| Parallel | The signal goes through 1,2,3,4 in parallel |
| 1 > 3 * | The signal goes through 1 and also through 2, 3 & 4 in serial and these two FX paths are combined together |
| 2 > 1 > 1 * | The signal goes through 1 & 2 in serial and also through 3. The output from these 2 FX paths both go through 4 |
| 1 > 2* > 1 | The signal goes through 1 then 2 and 3 in parallel and also goes through 4 The output from these two FX units are then combined |
| 1 > 2 > 1 * | The signal goes through 1 and then through 2 and then 3 and the signal from 1 also goes through 4. The output from these two FX units are then combined |

The mixer slider controls the volume of the sound coming out of each FX unit, the dry volume and the overall volume

Wet 1	Volume of FX Unit 1
Wet 2	Volume of FX Unit 2
Wet 3	Volume of FX Unit 3
Wet 4	Volume of FX Unit 4
Dry	Volume of original signal in final output
Main	Volume of final output

Feedback

Feedback controls how much of the effect signal is feed back into the effects. You can control where this signal comes from, where it is goes to, how long this signal is delayed, how it is filtered and how long it takes for the signal to die-out.

Feed From	Controls where the feedback starts
Feed To	Controls where the feedback finishes, so where feed in is Out and feed out is In then the feedback is from the output back into the input.
Delay	The length of the feedback delay
Volume	Volume of the feedback
Decay	Determines how long the feedback continues if there is no input signal, a larger value means the feedback continues longer
Type	Type of feedback filter
Res	Feedback filter resonance
Cutoff	Feedback filter cut-off frequency

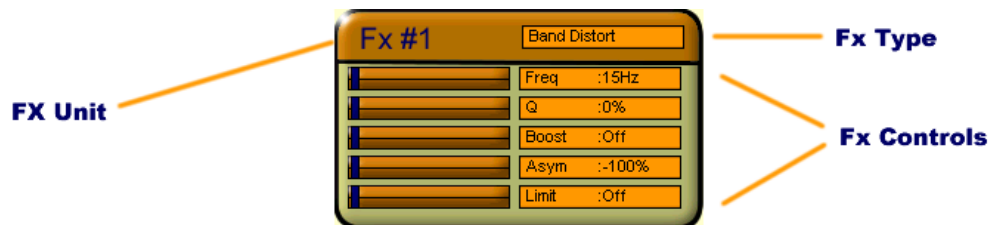
Miscellaneous Controls

Tempo	Tempo for tempo based effects, if the slider is set to Auto then the tempo is set to the tempo of the host
Loop Rst	Control whether tempo based effects return to its original settings if the sequence is running in cycle mode

Automatic tempo detection and cycle mode detection are not available for all hosts, so setting these to auto or loop rst being on may cause problems with your host.

FX Units 1 to 4

Clicking on the box at the top of each FX unit allows you to select which FX to use.



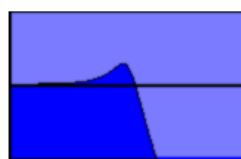
The 5 sliders below allow you to alter the values of the parameters for the current FX. The parameters depend on which FX type is selected and are described in the FX list part of the manual. Clicking on the FX number swaps the current FX with the next one, so clicking on FX #1 swaps it with FX #2.

General FX Functions

Filters

For functions which use filters there are 4 different filters available:

- | | |
|------------------|---|
| Low pass | This removes frequencies above the cut off frequency |
| High pass | This removes frequencies below the cut off frequency |
| Band pass (BP) | This removes frequencies which are far from the cut off frequency |
| Band reject (BR) | This removes frequencies which are near the cut off frequency |



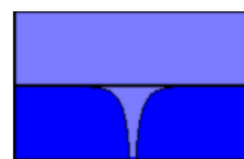
Low Pass Filter



High Pass Filter

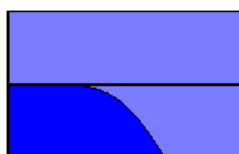


Band Pass Filter



Band Reject Filter

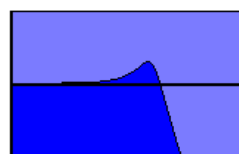
As well as the filter type a filter is defined by the cut-off frequency and by its resonance. The cut-off frequency controls where the filter comes into operation and the resonance controls the volume of frequencies around the cut-off frequency for the low / high pass filter and the size of the band for the band pass/reject filter.



0% Resonance



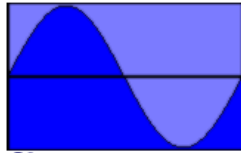
50% Resonance



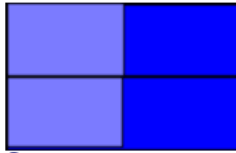
75% Resonance



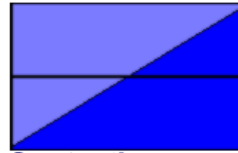
90% Resonance



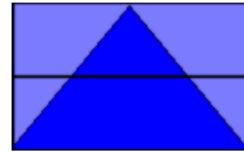
Sine



Square



Sawtooth



Triangle

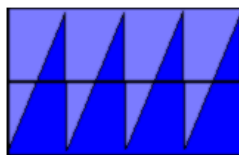
Waveform

For effects where you can change the modulation waveform there are 4 waveforms available

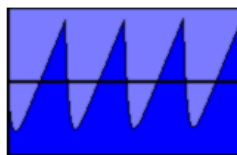
Sine	Sine waveform
Square	Square waveform
Saw	Saw tooth waveform
Triangle	Triangle waveform

Smoothing

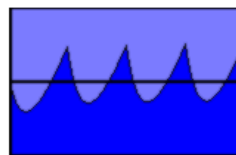
Smoothing smoothes the differences between the current signal and the previous signal, in effect low pass filtering the signal.



Low Smoothing



Mid Smoothing



High Smoothing

Tempo Based Effects

Tempo based effects are based on the length of 1/4 of a beat (qtr).

Volume

Volume is shown in decibels. A volume of 0 db means that there is no change to the signal, increasing the volume by 3dB means the volume is double and decreasing the volume by 3dB means the volume is halved

Wet/Dry

Wet / Dry allows you to alter control the mix between the effected signal and original signal. 100/0 % means that there is only the effect signal in the output, 0/100% means that there is only the original signal in the output and 100%/100% means that there are equal amounts of the effect and the original signal in the output.

FX List

Bypass

The bypass effect sends the signal through without changing it.

AutoPan

The autopan effect moves the signal around the stereo field

Initial L/R	Initial pan position, hard left (100/0%), centred (100/100%) & hard right (0/100%)
Final L/R	Final pan position
Speed	Rate at which the pan position oscillates between the initial & final pan positions
Wave	Waveform for pan modulation

AutoWah

The autowah effect filters the signal depending on the current volume of the signal

Low Freq	Low cut-off frequency, when the volume is at zero the signal is filtered at this frequency
High Freq	High cutoff frequency, when the volume is at a maximum the signal is filtered at this frequency
Res	Filter resonance
Boost	Boost determines how much the volume of the signal is amplified before the autowah filter frequency is determined. Low values of boost means the signal is filtered near the low frequency and high values means the signal is filtered near the high frequency
Type	Type of filter

Band Distort

The band distort simulates an amp, by first filtering the signal then boosting & limiting it and finally filtering it again

Cut-Off	Band pass filter cut-off frequency
Res	Resonance of band pass filter
Boost	Boost level
Asym	Asymmetry of signal, -100% means only negative values pass through and any other signal passes through as zero, 100% means only positive values pass through and 0% means the signal is pass through unaffected
Limit	Limiter threshold, any signal above this value are sent through as this value

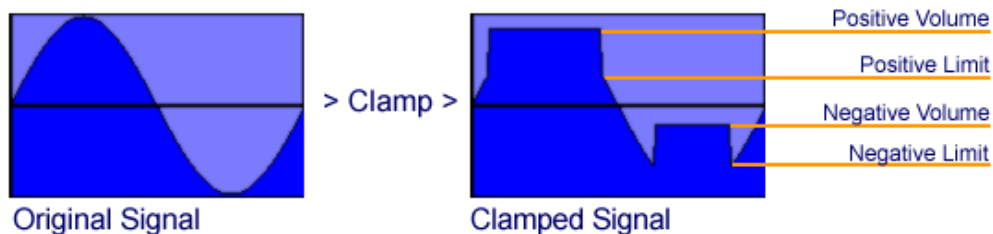
Chorus

The chorus effect uses a short modulated delay to produce the effect of playing multiple versions of the signal. For very small time delays a swirling flanging effect is created.

Length	Initial delay, 0 – 20 ms for flanging , 20 – 30 ms for chorus
Feedback	Amount of output which is feed back into the delay
Speed	Rate of which the delay length changes
Width	Determines the maximum and minimum delay, for 50% the delay varies between 50% of initial delay and 150% of initial delay.
Wet / Dry	Mix of wet signal and dry signal

Clamp

The clamp effect ensures that any signal above or below a limit is set to a selected value



Smooth	Amount of smoothing to output
+ Limit	Positive limit value
- Limit	Negative limit value
+ Vol	If the signal is above the positive limit then the signal is set to this value
- Vol	If the signal is below the negative limit then the signal is set to this value

Comb Filter

The comb filter effect consists of three comb filters in parallel, where a comb filter is a filter that resonates a selected frequency so to give a singing type effect

Decay	Decay time for the comb filters, a low decay time means the comb filter effect dies out quickly
Freq 1	Frequency of first comb filter
Freq 2	Frequency of second comb filter
Freq 3	Frequency of third comb filter
Wet / Dry	Mix of wet signal and dry signal

Compressor

The compressor effect reduces the volume range of the signal, so that any signal which is louder than the compressor limit is reduced in volume

Limit	Compressor limit
Ratio	Compression level, the value reflects how much compression is applied. A value of 1:1 is no compression, a value of 2:1 means that if the input volume is 2 decibels above the compressor limit then the output volume is 1 decibel above the compressor limit. The maximum value is limiter where the volume of the signal is limited to the compressor limit.
Attack	Time taken for compressor to responses to a signal above the compressor limit when the signal has been below the compressor limit
Release	Time taken for compressor to responses to a signal below the compressor limit when the signal has been above the compressor limit

Delay

The delay effect repeats the signal after a length of time, this delay is filtered by a low pass filter and the output is then feed back into then delay effect

Length	Length of delay
Feedback	Amount of output which is feed back into the delay
Cut-off	Low pass filter cut-off frequency
Wet	Volume of delayed signal
Dry	Volume of original signal

EQ

The EQ effect is 5 band equalization. This is used to increase of decrease the volume of certain frequency in the signal

60 Hz	Volume of signal of frequency centred around 60 Hz
200 Hz	Volume of signal of frequency centred around 200 Hz
600 Hz	Volume of signal of frequency centred around 600 Hz
2 KHz	Volume of signal of frequency centred around 2 KHz
6 KHz	Volume of signal of frequency centred around 6 KHz

Filter

The filter effect filters the signal

Type	Type of filter, either low pass, high pass, band pass or band reject
Cutoff	Cut-off frequency of filter
Res	Resonance of filter
Mode	Either 12db or 24db type filter. 12db reduces the sound above the cut-off frequency by 12 decibels and 24db reduces the sound above the cut-off frequency by 24 decibels.

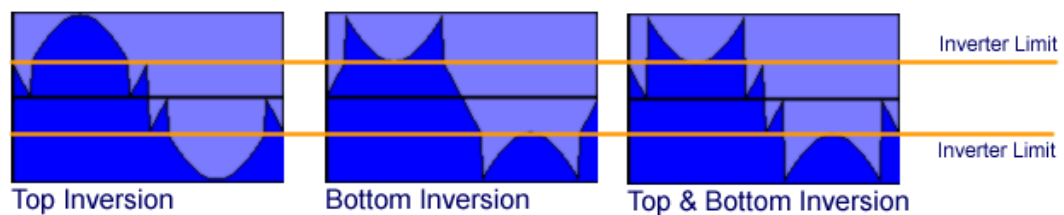
FM

The FM effect applies a FM type effect to signal

Shift	Shift applied to signal before FM modulation
Amount	Amount of the FM effect
Freq	Frequency of FM effect
Smooth	Amount of smoothing applied to output
Wet/Dry	Mix of wet signal and dry signal

Inverter

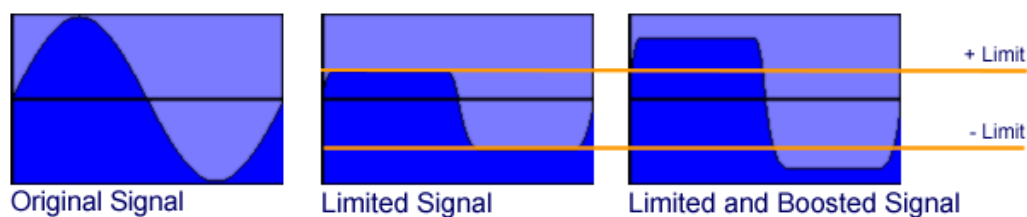
The inverter effects can partially or fully invert selected part of the signal



Boost	Amount signal is boosted before being inverted
Limit	Inverter limit
Bottom	Amount signal below the inverter limit is inverted, from 0% where the signal passes as normal to 100% where the signal is completely inverted.
Upper	Amount signal above the inverter limit is inverted, from 0% where the signal passes as normal to 100% where the signal is completely inverted.
Smooth	Amount of smoothing applied to output

Limiter

The limit effect applies a soft limiter to the signal.



+ Limit	Positive limit
- Limit	Negative limit
+ Boost	Boost applied to positive signal
- Boost	Boost applied to negative signal
Offset	Amount the positive signal is offset

Mono

The mono effect combines the left and right channels to create a mono signal

Type	Sum – sums signals, Diff – subtracts signals, Ring – multiplies signals
Left	Volume of left channel
Right	Volume of right channel
Left / Right	Pan position of mono signal

Noise

The noise effects adds noise and clicks to the signal

Noise Am	Volume of noise
Freq	Frequency of noise
Click Am	Volume of clicks
Freq	Frequency of clicks

Noise Gate

The noise gate effect reduces the volume range of the signal, so that any signal which is quieter than the noise gate limit is reduced in volume

Limit Noise gate limit

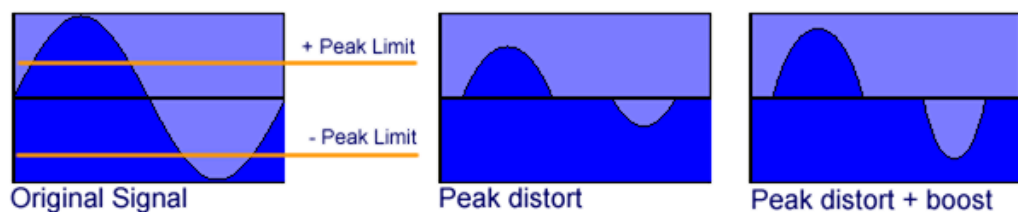
Ratio Noise gate level, the value reflects how much the volume is applied. A value of 1:1 means no change, a value of 2:1 means that if the input volume is 1 decibels below the noise gate limit then the output volume is 2 decibel below the noise gate limit. The maximum value is noise gate where the volume of the signal below then noise gate limit is zero.

Attack Time taken for noise gate to responses to a signal below the noise gate limit when the signal has been above the noise gate limit

Release Time taken for noise gate to responses to a signal above the noise gate limit when the signal has been below the noise gate limit

Peak Distortion

The peak distort effect moves the positive and negative signals down and sets all other values to zero



+ Limit Positive limit

- Limit Negative limit

+ Boost Boost applied to positive signal

- Boost Boost applied to negative signal

Smooth Amount of smoothing applied to output

Phaser

The phaser effects shift the phase of the signal by applying a six-stage phaser to create a signal that has selected frequency filtered out, with these frequencies changing over time.

Low Freq	Low frequency for phaser
Hi Freq	High frequency for phaser
Speed	Speed which the phaser modulates from the low frequency to the high frequency
Feedback	Feedback of output into the phaser
Wet / Dry	Mix of wet signal and dry signal

Pitch Shift

The pitch shift effect shifts the pitch of the signal without change it's length by combining small grains of sound

Shift	Amount the signal is pitch shifted in semi-tones
Fine	Amount the signal is pitch shifted in cents (1/100 of a semi-tone)
Wet	Volume of wet signal
Dry	Volume of dry signal

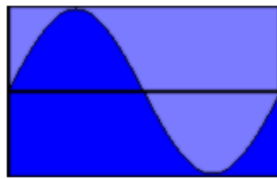
Quantization

The quantization effect first passes the signal through a low pass filters, then changes the sample rate / bit level of the signal and finally passes the signal through a low pass filters

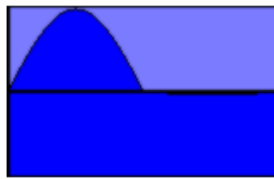
Pre Filter	Cut-off frequency of pre quantization low pass filter
Sample	Sample rate of output signal (44.1 KHz normal output). For a sample rate of 44.1KHz the sample period is 1 and for 4.41Hz the sample period is 10.
Bit Rate	Bit rate of output signal (16 bit's normal output)
Type	Hold –signal is duplicated across the sample period, Impulse – first sample is output in sample period and rest are zero, Interpolate - interpolates across the sample period
Post Filter	Cut-off frequency of post quantization low pass filter

Rectifier

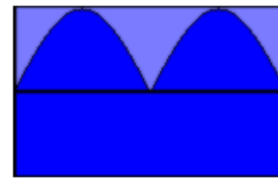
The rectified effects changes the negative value of the signal and then high pass filters the signal.



Original Signal (-100%)



Half Rectified (0%)



Fully Rectified (100%)

Rect	Amount of rectification from none (-100%) to full (100%)
+ Rate	High much any increase in the signal is smoothed
Speed	High much any decrease in the signal is smoothed
Cutoff	Cutoff frequency for high pass filter
Wet / Dry	Mix of wet signal and dry signal

Reverb

The reverb effect adds diffused echoes to a simulated reverberation in a room.

Pre-Delay	Time for the first echo's
Size	Size of room
Feedback	Amount of feedback for reverb, this controls how quickly the reverberation die away
Cut-off	Cut-off frequency for post reverb low pass filter
Wet / Dry	Mix of wet signal and dry signal

Reverse

The reverse effect reverses the signal

Size	Size of reverse buffer
Smooth	Amount of smoothing applied to output

Ring Mod

The ring mod effect multiplies the signal with a signal of a fixed frequency .

Freq	Frequency of ring modulation signal (low values create a tremolo effect)
Amount	Amount of ring modulation, from 0% - no effect to 100% - full ring modulation
Wave	Shape of ring modulation signal
Phase	Phase of ring modulation signal, from 0 to 360 degrees
Smooth	Amount of smoothing applied to output

Sign

The sign effect changes the volume of the negative/positive values of the signal.

+ Boost	Amount the positive signal is boosted
- Boost	Amount the negative signal is boosted
+ Rate	High much any increase in the signal is smoothed
- Rate	High much any decrease in the signal is smoothed
Offset	Offset applied to signal, -100% maximum negative offset, 0% - no offset & 100% - maximum positive offset

Slicer

The slicer effect alternatively changes the volume of the sound, so the sound is at the normal volume for the on period and at the floor volume for the off period

On	Period where the sound is at normal volume
Off	Period where the sound is at floor volume
Floor	Floor volume
Smooth	Smoothing applied to on/off cycle

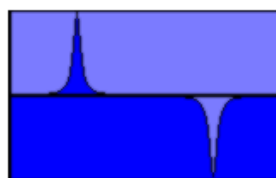
Speaker

The speaker effect simulates the effect of a rotating speaker

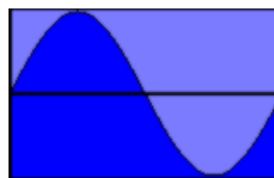
Length	Initial delay
Width	Determines the maximum and minimum delay, for 50% the delay varies between 50% of initial delay and 150% of initial delay.
Speed	Rate of which the length of delay changes
Spread	Amount the signal pans between left and right channels
Feedback	Amount of feedback applied to signal

Squarize

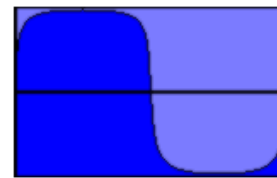
The squarize effects changes the shape of signal, with a square wave being the extreme value



-100% Squarized



Normal Signal



+100% Squarized

+ Shape	Amount the positive signal is changed
- Shape	Amount the negative signal is changed
+ Boost	Amount the positive signal is boosted
- Rate	Amount the negative signal is boosted
Smooth	Amount of smoothing applied to output

SubSynth

The subsynth effect generated a filtered square wave one and two octaves below the original signal

Orig Vol	Volume of original signal
-1 Vol	Volume of signal one octave below the original signal
-1 Filter	Cut-off frequency for the low pass filter applied to the one octave down signal
-2 Vol	Volume of signal two octaves below the original signal
-2 Filter	Cut-off frequency for low pass filter applied to the two octave down signal

Tempo Delay

The tempo delay effect repeats the signal after set number of beats

Length	Length of delay
Feedback	Amount of output feed back into the delay
Cut-off	Cut-off frequency for low pass filter.
Wet	Volume of delayed signal
Dry	Volume of original signal

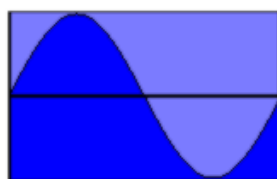
WahWah

The WahWah effects filters the signal where the frequency of the filter changes over time

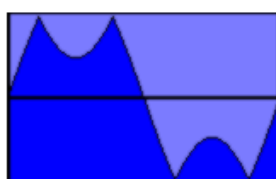
Low Freq	Low cut-off frequency
High Freq	High cut-off frequency
Speed	Speed of modulation
Res	Resonance of the filter
Wave	Shape of modulation

WaveWarper

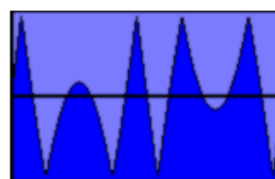
The wavewarper effect boosts the positive and negative signal. Any signal above the maximum allowed is 'folded' back below the maximum signal value



Original Signal



Low Wavewarping



High WaveWarping

+ Boost	Boost applied to positive volume
- Boost	Boost applied to negative volume
Boost	Boost applied after wavewarping
Smooth	Smoothing applied to output

MIDI Controls

The controls in Debasers can be controlled using Midi Control Change (CC) commands

Midi CC	Parameter
85	Feedback volume
86	FX Unit 1 - parameter 1
87	FX Unit 1 - parameter 2
88	FX Unit 1 - parameter 3
89	FX Unit 1 - parameter 4
90	FX Unit 1 - parameter 5
102	FX Unit 2 - parameter 1
103	FX Unit 2 - parameter 2
104	FX Unit 2 - parameter 3
105	FX Unit 2 - parameter 4
106	FX Unit 2 - parameter 5
107	FX Unit 3 - parameter 1
108	FX Unit 3 - parameter 2
109	FX Unit 3 - parameter 3
110	FX Unit 3 - parameter 4
111	FX Unit 3 - parameter 5
112	FX Unit 4 - parameter 1
113	FX Unit 4 - parameter 2
114	FX Unit 4 - parameter 3
115	FX Unit 4 - parameter 4
116	FX Unit 4 - parameter 5

