Voxengo Drumformer User Guide

Version 1.12

https://www.voxengo.com/product/drumformer/

Contents

Introduction

Drumformer is a multiband drum and master track dynamics processing plug-in for professional music and audio production applications. Drumformer was designed to be a comprehensive solution for the broadest range of sound processing tasks, allowing you to easily implement almost any dynamics processing idea you may have.

Drumformer can operate in broadband, 2-band and 3-band modes, with each band having compressor-expander and saturation modules. The sound of the compressor can be defined as "gluey with a ping", because it instantly creates a "tight and glued together" sound while masterfully emphasizing the transients. The saturation module offers you a choice between six saturation modes, each having a smooth sound and differing harmonic content.

Drumformer features a precise gate module with a round sound and multifaceted controls that is useful when you are processing a multi-tracked drum kit. The built-in parametric equalizer with its spectrum analyzer will also come in handy. The "Clipper" module which is a part of the plug-in allows you to get artistic master output clipping effects.

Drumformer will positively enhance your professional toolset and may help you produce even better recordings faster.

Features

- Broadband, 2- and 3-band operation
- 3-band compressor/expander
- 3-band saturation module with 6 modes
- Broadband gate module
- Parametric equalizer
- Output clipper module
- External side-chain capability
- Real-time FFT spectrum analyzer
- Stereo and multi-channel processing
- Internal channel routing
- Channel grouping
- Mid/side processing
- Up to 8x oversampling
- 64-bit floating point processing
- Preset manager
- Undo/redo history
- A/B comparisons
- Contextual hint messages
- All sample rates support
- 16 ms compensated processing latency

Compatibility

This audio plug-in can be loaded into any audio host application that conforms to the AAX, AudioUnit, VST, or VST3 plug-in specification.

This plug-in is compatible with Windows (32- and 64-bit Windows XP, Vista, 7, 8, 10 and later versions, if not announced otherwise) and macOS (10.11 and later versions, if not announced otherwise, 64-bit Intel and Apple Silicon processor-based) computers (2.5 GHz dual-core or faster processor with at least 4 GB of system RAM required). A separate binary distribution file is available for each target computer platform and audio plug-in specification.

User Interface Elements

Note: All Voxengo plug-ins feature a highly consistent user interface. Most interface elements (buttons, labels) located at the top of the user interface are the same in all Voxengo plug-ins. For an in-depth description of these and other standard features, and user interface elements, please refer to the "Voxengo Primary User Guide".

Processing Sequence

Drumformer features a set of audio processing modules chained together in the following sequence:

INPUT> Gate> EQ (Pre)> Crossover> Band Compressor > Band Saturator> Band Gain> Dry Mix> EQ (Post)> Out Gain> Clipper> OUTPUT.

Each module can be enabled via the corresponding enable switch. The "Solo" switch soloes a selected band.

Gate

When enabled, the "Gate" module allows you to perform signal gating suitable for noise reduction (including removal of unwanted quiet bleed sounds), and for creative purposes (e.g. "gated reverb" effect). The gate is applied to the input signal before it is split into bands: this is a broadband gate.

The "Int/Ext" switch selects gate's key signal source: Internal (Input) or External side-chain signal. The use of the External side-chain signal requires an appropriate Routing setting.

The "Threshold" parameter specifies gate threshold level in decibel. The signal that falls below this level is treated as unwanted. You may drag the "Key" level meter to adjust the threshold in a more "visual" manner.

The "Ratio" parameter specifies the strength of gating function. This parameter works similarly to compression ratio parameter. The higher the ratio the stronger the suppression of signals below the threshold level is. Lower ratios like 2:1 or 3:1 can be used to reduce resonant tails of the drums while higher ratios above 10:1 work better for usual gating.

It is suggested that gating of low to moderate strength is performed whenever possible, or otherwise the sound may become unnaturally hollow. It is usually enough to reduce a background noise in an individual track just a bit to improve the overall sound clarity of a mix.

The mode selector allows you to choose a variant of gate module's internal parameters. You may press the "Edit" button to fine-tune these parameters.

This editor window allows you to define and store gate's internal parameters. Note that these parameters should be considered "advanced" since they may require a lot of time and patience from you if you would like to get the best out of them.

The "Knee" parameter adjusts gating function's knee in decibel. The meaning of this parameter is similar to that of the compressor knee: it is the area in decibel where the gate opens gradually as the signal level decreases.

The "Op Threshold" specifies signal level (in decibel) above the gate's threshold level that should be reached for the gate to open after closing. Setting this parameter to values greater than 0 dB allows the gate to not open on minor signal level fluctuations after closing.

The "Smooth Time" parameter specifies input signal envelope smoothing time in milliseconds. Setting this parameter to lower values is not suggested as this may produce a rough, buzzy sound. Higher values reduce the number of gate's openings and closings thus producing a lot smoother sound.

The "Attack" parameter specifies time (in milliseconds) it takes for the gate to fully close. The attack parameter should be set to a higher value if it is important to preserve the sustain/release stage of the original sound, or otherwise it may become audibly shorter.

The "Release" parameter specifies time (in milliseconds) it takes for the gate to open. This value should be generally small or otherwise the gate will be smoothing out original signal's transients.

The "Lookahead" parameter specifies gate's look-ahead time (in milliseconds). This value should generally follow the "Release" parameter value. Setting the look-ahead time to values above 0 reduces transient damping effect.

Equalizer

For an in-depth description of the equalizer and spectrum analyzer and its settings please refer to the "Voxengo Primary User Guide".

The "Off/Pre/Post" switch changes the position of the equalizer in the chain of modules. The "Off" setting disables the equalizer completely.

Note that depending on the "Bands" selector, the equalizer may display 1 or 2 vertical handles that control the positions of crossover frequencies used for band splitting.

Band Compressor

The "Comp" switch enables the compressor for the band. The adjacent selector allows you to choose the key signal source used to drive the compressor. The "Main In" key source feeds compressor with the original input signal, not affected by the gate nor equalizer. The "Extern" option selects external side-chain as the key source; if it is unavailable, the "Main In" is assumed. The "Band In" option uses band's input signal (after gate and equalizer stages) as the key source for the compressor. The "Mon" switch allows you to monitor the key signal – when this switch is enabled, the band will be "soloed" and the key signal used for the band's compressor will be monitored.

The "Threshold" parameter adjusts compressor's operation threshold in decibel. When the key signal exceeds this threshold, the compressor starts its operation. You may drag the "Key" level meter to adjust the threshold in a more "visual" manner.

The "Ratio" parameter specifies compressor's "input to output" ratio – the strength of compression. Note that Drumformer also allows you to perform expanding with ratios up to 1:5.

The "Attack" parameter specifies compressor's attack time in milliseconds – the time it takes for compressor to go from "no compression" to "full compression" state. Higher attack values allow compressor to bypass transients untouched: this can be used to emphasize transients while compressing the sustain part of the sounds – a technique that works equally good for increasing the punch of percussive sounds and boosting presence and sheen of high-frequency transients.

The "Release" parameter specifies compressor's release time in milliseconds – the time it takes for compressor to go from the current level of compression to "no compression" state.

Band Saturator

When enabled, the saturator applies non-linear saturation (overdrive, distortion) processing over the band's signal. It's a good idea to enable oversampling when applying a strong saturation.

Note that applying saturation to a higher band above 4 kHz should be done with extreme care as that in most cases produces a "sandy" sound, but possibly with an increased stereo width impression (by further de-correlating the channels and raising the volume of reverb tails). For high-frequency exciter effects the saturation is more effective when applied to the middle 400-4kHz band. Saturation enabled for the lower band below 400 Hz allows you to achieve a denser and warmer sound overall, but may make sound undefined or "muffled" if overused.

Saturation modes in Drumformer were mainly designed for multi-band operation – they may produce an audible distortion fast when used in single-band mode. On the other hand, in single-band mode they usually work great for producing overdriven guitar and vocal sound. Some saturation modes also produce a quiet self-oscillation on some frequencies.

The "Drive" parameter controls the strength of the saturation effect.

Knob Linking

All knobs (e.g. compressor threshold, saturator drive) present on the band control panels can be adjusted simultaneously for all bands by using the right mouse button, or holding down the "Ctrl" ("Command" on Mac OS X) key before dragging the knob with the left mouse button.

Output

The "Bands" selector allows you to specify the number of active bands the input signal is split into. This selector also controls the number of vertical handles present in the equalizer. The additional "-6/-12/-24" switch allows you to specify crossover filter's steepness in decibel. The higher the steepness the higher the separation

between bands is. The higher separation gives you more freedom to adjust individual band's dynamics at the risk of sounding less natural and more detached from other bands. Note that this parameter does not affect the gate module since the gate is processed before band-splitting is performed. Drumformer uses minimum-phase crossover filters.

The "Dry Mix" parameter specifies amount (in percent) of the original unprocessed signal being routed to the output before the "post" equalization and final output gain are applied. One of the possible tactics when using this plug-in can be getting "over-processed" sound at first and then adjusting the "Dry Mix" parameter to achieve a required proportion between the clean and processed signals.

The "Out Gain" parameter controls the overall output signal gain (in decibel).

The "Clipper" switch enables the output clipper module, which is processed after the output signal gain was applied. This module keeps the output level of the plug-in below 0 dBFS by applying clipping (saturation with infinite ratio and hard knee). The module can be used both technically and artistically since it applies quite a characterful saturation. Note that since the "Clipper" module does not perform the "brick-wall" type of limiting, you can additionally boost the volume by 1 dB in the finalizing brick-wall limiter without causing additional distortion.

Level Meters

Drumformer features several RMS level meters, with scales shown in decibel. Peak level indication is present on all meters. The "Key" meters estimate the level of the key signal used for gate and compression characteristic calculation. The gate key signal level meter will be unavailable unless the gate is active. The thin single-bar level meters resemble gain reduction meters showing gain reduction changes relative to the 2-second average gain reduction. Look at the "out/in" indicator to see the average/constant gain change taking place. The "Out" meter shows plug-in's master output level.

Credits

DSP algorithms, internal signal routing code, user interface layout by Aleksey Vaneev.

Graphics user interface code by Vladimir Stolypko. Graphics elements by Vladimir Stolypko and Scott Kane.

This plug-in is implemented in multi-platform C++ code form and uses "zlib" compression library (written by Jean-loup Gailly and Mark Adler), "base64" code by Jouni Malinen, FFT algorithm by Takuya Ooura, filter design equations by Magnus Jonsson and Robert Bristow-Johnson, VST plug-in technology by Steinberg, AudioUnit plug-in SDK by Apple, Inc., AAX plug-in SDK by Avid Technology, Inc., Intel IPP and run-time library by Intel Corporation (used under the corresponding licenses granted by these parties).

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Happy Mixing and Mastering!