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# Voxengo Crunchessor User Guide



Version 2.20

<https://www.voxengo.com/product/crunchessor/>

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## Introduction

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Crunchessor is a track compressor for professional sound and music production applications. One of its main advantages is the ease of tuning, which at the same time instantly delivers an excellent sonic performance. Another remarkable feature of Crunchessor is its analog tube-like processing, which is applied in parallel to compression. This makes Crunchessor an ideal choice for musicians and producers who are fond of analog compression sound and its warmth.

Beside this, Crunchessor offers you a selection of compression coloration styles, by itself a pretty unique feature for a compressor. By choosing an appropriate style, you can add the coloration most suitable for the sound material you are working with. As an option, you can disable both coloration and tube processing to get a neutral and clean compression sound.

Being a multi-purpose compressor, Crunchessor can be used for any kind of sound material: drums, vocals, bass, guitars, synth sounds, etc. Crunchessor can be suitable both for single track and whole mix processing. Crunchessor also accepts external side-chain source signals and allows you to filter the key signal before it is used for compression.

## Features

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- Easy compression tuning
- Valve warmth
- Coloration styles
- External side-chaining
- Key signal filtering
- 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
- Zero processing latency

## Compatibility

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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

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**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”.

### Dynamics

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The “Drive” parameter controls the amount of compression being applied to the incoming signal. It is a kind of input gain control that increases the compression, similar to guitar amp drive. The compression ratio is gradually increased together with this parameter.

The “Attack” and “Release” parameters control the timing characteristic of the compressor. Higher attack times allow transients (signal's attack phases) to pass through compression untouched while lower attack times compress transients better.

### Mode

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The “Mode” switch allows you to choose between several analog tube-alike and clean processing modes. The “Valve” processing modes apply a great deal of warmth during compression, and doing so they can adjust the original tone of the sound.

The “Clean” mode gives a more neutral sound, which can be particularly useful for mastering applications.

The “Crisp” modes offer a brighter sound in comparison to the “Valve” modes. “Crisp” modes also feature a distinctive attack and release dynamic response.

Both “Valve” and “Crisp” modes come in varying “strength”. The “F” and “S” postfixes denote “fast” and “slow” attack modes, respectively. While both “Crisp” and “Valve” modes produce a saturation of transients, the “Crisp” modes are much lighter sounding than the “Valve” modes are.

All modes except “Crisp S” modes additionally feature a slight program-dependent attack behavior.

### Style

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The “Style” selector gives you an opportunity to select an appropriate sonic character (coloration) of the compressor. The selected “character” is most evident on the transient moments of the sound, i.e. when the compressor actually starts to work (reduces gain). Note that generally this coloration sounds subtle, so if in doubt you may simply leave it at “Neutral”. Here is a list of all “Style” options and what kind of filtering they apply:

- Neutral: no additional filtering.
- Clear: up to -3 dB of gain at 1 kHz, up to 3 dB of gain at 64 Hz.
- Bright: up to 3 dB of gain at 10 kHz.
- Dark: up to -3 dB of gain at 8 kHz, up to -3 dB of gain at 9 kHz.

- Lo-Pump: up to 6 dB of gain at 64 Hz.
- Punch: up to 3 dB of gain at 5 kHz, up to 3 dB of gain at 64 Hz.
- Smooth: up to 3 dB of gain at 1 kHz, up to -6 dB of gain at 10 kHz.
- Snappy: up to 6 dB of gain at 2.2 kHz, up to 6 dB of gain at 6 kHz.
- Warm: up to 4 dB of gain at 1 kHz.

## Key Signal Filter

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The “Key Filter” switch enables the key signal filtering. When this switch is enabled, the key signal (be it external side-chain or not) used for compression characteristic calculation will be internally processed by a filter. Filter options are:

- Off: no filtering.
- BDrum: low-pass filter which filters everything out above 128 Hz.
- HiFreq: filter which increases power of higher frequencies a lot.
- HiHat: high-pass filter which filters everything out below 6 kHz.
- LoFreq: filter which increases power of lower frequencies a lot.
- MidFreq: a wide parametric filter centered around 1 kHz, having 6 dB of gain. Such emphasis applied on the center of the audible frequency spectrum can be beneficial when you would like to reduce various warbling effects caused by the extremely powerful transients at the higher frequencies. During such moments the higher frequencies start to “duck” the lower frequencies causing an unstable “warbling” sound in the lower frequencies. Enabling the Filter is most useful for wide-band signals like complete mixes.
- Snare: band-pass filter with center around 1.5 kHz.

By using the “Mon” switch you may enable monitoring of the filtered key signal. The “Gear” button opens the “Key Filter Editor” window where you can precisely adjust the filtering parameters, and store key filter presets if necessary. The “Key Gain” parameter contained in the editor adjusts the overall loudness of the key signal. This parameter can be adjusted if the side-chain signal routed to the compressor is overly loud or quiet.

The key filter adjusts the strength of compression of frequencies relative to each other: e.g. if the higher frequencies were boosted by means of key filter, these frequencies will be compressed stronger than the lower frequencies.

The “Int/Ext” switch selects key signal source: Input or External side-chain signal. The use of the External side-chain signal requires an appropriate Routing setting.

## Out

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The “Dry Mix” parameter specifies amount of original unprocessed signal being routed to the output before the final output gain is applied. By increasing this parameter you may reduce the overall distortion: hence one of the tactics when using this plug-in can be getting a high distortion amount at first and then adjusting the “Dry Mix” parameter to achieve a required proportion between the clean and processed signals. In other terms, this parameter engages “parallel compression”.

The “Out Gain” parameter changes the overall output signal level of the plug-in. This parameter also affects the level of the key signal when it is being monitored.

## Level Meters

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Crunchessor features three RMS level meters, with scales shown in deciBel. Peak level indication is present on all meters. The “Key In” meter estimates the level of the key signal used for compression characteristic calculation. The “Rel-GR” is a gain reduction meter showing gain reduction changes relative to the 2-second average gain reduction. Look at the “out/in” indicator to see the average gain change taking place. The “Out” meter shows plug-in’s master output level.

## Credits

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

Graphics user interface code by Vladimir Stolytko. Graphics elements by Vladimir Stolytko 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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### Beta-Testers

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## Questions and Answers

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**Q. If I wanted to do some low level compression with Crunchessor, for example, I want a 1.5:1 ratio at -30 dB. It seems impossible with this plugin as the more drive I add the more ratio I get. I was wondering if it would be possible to add threshold and compression ratio controls in one of the future versions?**

**A.** Crunchessor uses a kind of logarithmic scale for compression – it is hardly possible to define the 1.5:1 ratio precisely. Crunchessor was designed to be as simple at operation as possible, so any special threshold and ratio controls are not planned for implementation.

**Q. How much version 2 of Crunchessor is different from version 1, sound-wise?**

**A.** Version 2 of Crunchessor fully implements compression algorithm of version 1. However, version 2 features a lot of “fine-tuning” applied to this algorithm, so in some cases version 2 algorithm may perform differently and usually better than version 1. Note that preset format of version 2 is incompatible with version 1 presets, but both version 1 and version 2 plug-ins can be used in the same project without conflicting each other, allowing for a smooth transition from version 1 to version 2.

**Q. Unless I missed it somewhere, I don't see any documentation coming with Crunchessor 2.0 explaining how to setup the side-chaining routing.**

**A.** Please read the “Voxengo Primary User Guide” for more information on how to setup side-chaining in Voxengo plug-ins. All you basically need to do is to load routing preset called “Stereo Side-Chain”, enable the “Ext” switch, and then route the required side-chain track to the plug-in in your audio application.

**Q. What would you suggest for a setting on orchestration mixes (for the final post-processing – can I use Crunchessor effectively?) Because it is an orchestral mix it needs to be transparent.**

**A.** Yes, of course, in many cases you may use Crunchessor for final post-processing. You may use Crunchessor's “Clean” mode coupled with the “Neutral” coloration style as a starting point. You may get a pretty transparent sound if you use a long attack (above 25 milliseconds) and a long release (above 250 milliseconds) times.

However, compression may not be the best process to apply on orchestrations as it shrinks music material's dynamic range which is important for orchestral music.

**Happy Mixing!**