Sound with a soul
Voxengo

# Voxengo Deft Compressor User Guide


Version 1.13

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

# Contents

# Introduction

Deft Compressor is an audio signal compressor plug-in for professional audio production applications. The characteristic feature of this compressor is its ability to produce “slim” and “slick” sounding compression, with intelligibility enhancement effect. Such result is achieved by compressor’s timing function that closely resembles the S-curve (sigmoid curve) on both attack and release stages. S-curve timing function also helps compressor to sound “warm” and “clean” at most settings.

While at high attack settings Deft Compressor can be used to emphasize audio transients, it can also be used to “smash” audio signal if you use attack settings as low as 0.01 millisecond. Even though the S-curve is the marked feature of Deft Compressor, you can smoothly change it to a steeper L-shape by adjusting the “Punch” parameter.

Deft Compressor also features a so called “vintage” compression mode which produces compression sound reminiscent of analog tube compressors: it produces a warm, gently saturated sound with the ability to overdrive the output signal. Beside that, you may switch between the “feed-forward” and “feedback” compression modes.

Deft Compressor is perfectly usable for compressing vocals, drums, guitars, and other instruments, both technically and creatively. Beside that, it can be used to compress mix groups and full mixes.

## Features

- Adjustable S-curve timing function
- “Vintage” compression mode
- Feedback compression mode
- Auto make-up gain
- External side-chaining
- Key signal filtering
- Stereo and multi-channel processing
- Internal channel routing
- Channel grouping
- 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

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".

## Dynamics

This set of parameters controls compressor's transfer and timing functions.

The "Threshold" parameter adjusts the knee point of the compressor (in decibel) – the position of the knee is reflected on the "In" level meter.

The "Ratio" parameter adjusts knee's steepness expressed as "input to output" ratio.

The "Attack" parameter specifies attack time of the compressor, in milliseconds.

The "Release" parameter specifies release time of the compressor, in milliseconds.

Note that for bus compression to be unnoticeable you may need to set both the "Threshold" and "Ratio" parameters to lower values (e.g. "-35" and "1.3:1", respectively, for input signal with RMS power equal to -24 dBFS). Otherwise the compression can sound too noticeable. This suggestion can be also used as a general suggestion for situations where you feel you can't get the compressor to sound unnoticeable on any sound material.

The "Punch" parameter allows you to dial in a desired amount of "transient emphasis" effect, expressed in percent. When set to "100" the effect is maximal and the compressor is using the S-curve timing function. At "0" the compressor will be using a much "quicker" L-curve timing function which however may produce an over-colored bright sound, and may require increase of both Attack and Release parameters.

The "Feedback" switch enables the "feedback" compression mode which usually sounds a little bit "punchier" than the "feed-forward" mode. The "feedback" mode in many cases tends to produce a more controlled, less fluctuating sound due to its inherent "prognostic" behavior.

## Key Filter

This section allows you to load key filter presets and to open the "Key Filter Mode Editor" window where you can define your own key filter shapes. The "Mon" switch enables monitoring of the filtered key signal. The "Int/Ext" switch selects key signal source: Internal (Input) or External side-chain signal. The use of the External side-chain signal requires an appropriate Routing setting.

When defining the key filter shape do not forget that the frequency regions which are louder will be compressed more than other frequency regions.

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.

To learn how to adjust the key filter, please refer to the "Voxengo Primary User Guide" and its topic called the "Standard Controls – Equalizer".

## Vintage Compression

When this mode is enabled, compressor (in all channel groups) changes its behavior a bit. While the overall compression sound remains the same, this mode also adds a gentle amount of saturation. Beside that, the "Out Gain" knob can be used to drive the plug-in into hard saturation that happens when the output signal reaches 0 dbFS point: this way you can achieve a classic "bus compressor" sound, when you can dial-in a "punchy" compressed sound and then "shave-off" the overshooting peaks. In this mode, the positive and negative half-waves of the signal are limited non-symmetrically, that is why this mode should not be used for the final output peak limiting.

Note that the "vintage" compression mode should be used with care when you are compressing melodic vocal parts, clean guitars or similar "pristine" sounding material, due to inevitable harmonic coloration this mode generates, especially when overdriven.

While the normal compression mode is best used for contemporary "club" music styles where an unnaturally excessive punch is desirable, the "vintage" compression mode can be used for all kinds of music with acoustical sound sources that sound best with a "rounder" punch.

## Out

The "Out Gain" parameter changes overall output signal level of the plug-in (in decibel).

The "Dry Mix" parameter specifies an amount of original unprocessed signal being routed to the output **after** the 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 processed and clean signals. In other terms, this parameter engages "parallel compression".

## Level Meters

Deft Compressor 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 input (key) signal. 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/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), “LZ4” compression library by Yann Collet, “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).



## Beta-Testers

Ben Williams

Chris Knapp

Dave Huizing

George Daly

gl.tter

Jay Key

Laurent Bergman

Matthew Fagg

Michael Anthony

Murray McDowall

Niklas Silen

Steffen Bluemm

# Questions and Answers

**Q. What "S-curve" timing function is exactly?**

**A.** The S-curve timing function means that the attack and release stages "look" like S-curve (sigmoid curve): this can be confirmed by compressing a DC signal of varying level. Such curve sonically adds a very warm coloration, without sharp edge. Beside that, S-curve on longer release times possesses a bit of "hold" time delay where it does not change. This allows the compressor to have clean, almost uncolored higher frequencies. S-curve by its nature is also similar to program-dependent release stage: sonically, it won't distort much when you compress at lower release time values, or when the sound has frequent loud transients.

**Q. Does Deft Compressor have a soft knee?**

**A.** The knee of the compressor can't be called soft, because soft knee is usually very wide – covering several dozen dB range. It's neither hard– it is in-between, but is closer to the hard knee.

**Q. I seem to get transient through even if I use attack time as low as 0.01 milliseconds. Why this happens?**

**A.** Such low attack time requires around 200 kHz sample rate for the compressor to react precisely. So, if you are trying to get such attack time at 44.1 kHz sample rate, you have to use "4x" oversampling, or even "8x". The S-curve attack stage is not instant and it contains a tiny bit of hold time before the compressor "kicks in" – this, in turn, does not allow the compressor to suppress sub-millisecond transients. Alternatively, you may use a lower "Punch" parameter values (below 70%) that offer a more instant attack stage.

**Happy Mixing!**