The Vertigo Sound VSC-2

Quad Discrete Compressor

Manual

Thank you for using the Vertigo VSC-2 plugin, modeled faithfully after the VSC-2 hardware by VERTIGO SOUND.

The VSC-2 plugin is Vertigo's first plugin release, made in close cooperation with Brainworx, and based upon Vertigo's *Big Impact Design*.

It sets a new standard for Tracking, Mix Bus and Mastering applications.

Four discrete VCAs

Unlike other compressors on the market the VSC-2 is equipped with four discrete VCAs and lots of matchless detailed features.

This unique set-up gives you the real analog sound from 1979 plus a bunch of versatile extras available in today´s studio environment.

The basic and concept of the VSC-2 hardware

The Vertigo Sound VSC-2 incorporates four discrete 1979 VCAs for two channels. Each channel is equiped with one VCA in the Audio Path and another one inside the audio sidechain.

In stereo mode both sidechains are active (they are not summed together), and the higher signal peak of either of the 2 channels determines the compression for both channels (Stereo SC in Stereo Mode).

Therefore the VSC-2 is able to react even on *out of phase* signals ("peaks") – and without image shift!

Variable harmonics (2nd & 3rd order) depending on Gain Reduction and Make Up Gain make this compressor one of the cleanest yet "colouring devices" out there.

Precision

Its precision makes the VSC-2 a *first choice* for mastering applications and the stereo mix bus.

Tracking

Although the VSC-2 was developed as a Stereo Bus Compressor each channel provides a complete set of controls which also makes the VSC-2 a dual mono "Must Have" in recording and mix situations.

Plugin

The VSC-2 plugin offers the same flexibility and precision in the stereo version, and to emulate the dual mono approach of the hardware we have developed a true mono version of the plugin as well.

The mono version greys out the stereo controls and also supports multi-mono formats, such as 5.1, 7.1, etc.

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Quad Discrete Compressor

Manual

The VSC-2 plugin - getting started!

Formats:

The VSC-2 plugin supports MAC and PC systems, and will will work in any major DAW host supporting VST, RTAS, AU or AAX formats.

General Tip:

Start using the plugin on a stereo mix bus or a stereo mix file to get a feel for what this extraordinary compressor can add to your music.

Presets:

We have added a number of useful presets you should browse through as a starting point. Please make sure to adjust the Threshold according to your signals if needed.

The controls

Let's take a closer look at the controls from left to right.

Threshold

Sets the level above which signal peaks will cause compression. Rotating the control clockwise raises the threshold.

The Threshold is adjustable within a range of approx. 48 dB.

We incorporated a "Zoom In" to give you a more sensitive control and resolution in the most commonly used "Level Area".

Tip:
Set the Threshold fully clockwise-then turn the control slowly anticlockwise until the right amount of compression is processed.

Re-adjust setting if other parameters are changed.

Ratio

Sets the compression slope, which determines how the output signal will change in relation to the input signal once the input signal exceeds the threshold.

The higher the ratio, the stronger the compression, and the more "squeezed" the sound.

Example: With a setting of 2:1, a 2 dB input change for signals above the threshold results in a 1 dB output change.

Soft Mode: *This is not the commonly known soft knee characteristic.* Soft is better described with *TipToe* - a Ratio which increases with input level – a Threshold related Ratio from 1:1 up to 8:1!

The compressor "tiptoes" into compression with very low ratios, then automatically increasing with higher input signal, providing an inaudible start of com-pression.

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Quad Discrete Compressor

Manual

The VSC-2 plugin - Attack, Release, etc.

Ratio (continued)

Soft Mode Tip: Use the Soft-Mode (aka “TipToe Mode”) for all applications where a harsh start of gain reduction or audible compression is unwanted.

Please feel free to experiment. Try the TipToe Mode on a single Snare track for example.

This characteristic comes close to the sound of some classic Opto-Compressors.

Medium to Hard Knee Characteristics:

(2:1 - 4:1 - 8:1 - 10:1) – it’s a numbers game...

“Hard knee” or “soft knee” response. Each type of response results in a different musical behavior of the compressor. The soft knee response sounds more “musical but limp” while the hard knee response is generally considered more “severe but punchy”.

Brick

Brick Mode = Limiting

In Brick Mode the VSC-2 will serve as an analogue Limiter, effectively cutting off Signal Peaks. Please notice though that the VSC-2 is not a “Brickwall Limiter Plugin” preventing audio from sample peaks.

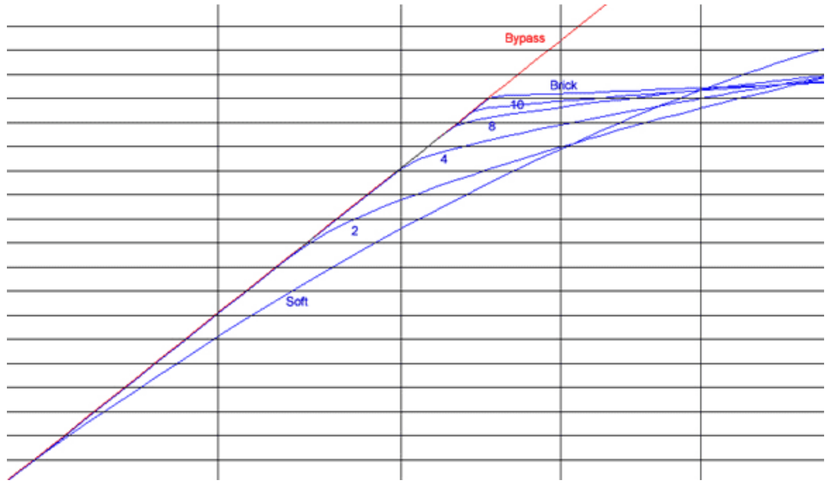
An additional Limiter plugin (like the Brainworx bx_XL for example) is still required to deliver final masters leveled as close as possible to 0dB.

A special tip from VERTIGO:

Use two VSC-2 compressor channels for one Signal to create “customized compression”: Set plugin #1 to Soft Mode and plugin #2 to 8:1.

Now use Attack and Theshold of plugin #2 to create your own compression curves.

Compression Curves:



The VSC-2 compression curves offer an “equal loudness impression“.

Soft Mode gives you the unique “TipToe” curve for an inaudible start of compression with automated higher Ratio settings at louder input levels.

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Quad Discrete Compressor

Manual

Attack settings: (0.1 ms · 0.3 ms · 1 ms · 3 ms · 10 ms · 30 ms)

“Attack” determines how fast the compressor’s internal circuitry reacts to changes of the monitored input level.

Slower Attack times make the VSC-2 responds more to average signal level – now the VSC-2 acts more like common RMS Detectors. This produces a smoother sound that tends to retain dynamic character, but the trade-off is that the VSC-2 cannot react as rapidly to sudden level shifts.

Faster Attack times give you more precise control over the peaks and let you raise the average volume of a signal. If Attack and Release are set too fast the speedy changes in volume can result in pumping and even distortion on punchy and rhythmic material.

Setting the Attack times right is about finding the “sweet spot” where the signal can be controlled well without distorting it.

A VERTIGO tip for getting a proper setting easy:

Dial in a big amount of Compression (10 dB gain reduction) with the Threshold of the VSC-2, then change the Attack settings and check which setting sounds best with your signal. Now reduce the amount of gain reduction to a sensible amount (2-4 dB) with the threshold knob. Try this strategy with the Release times as well.

This approach is close to using an EQ, where unwanted signals are spotted with a high boost when switching and sweeping through the frequency band.

Attack settings on a bass (Example):

Setting a longer Attack time with a bass guitar allows more of the picking attack to come through.

The Attack times of the VSC-2 could be set fast enough to use the VSC-2 as an “overload protector” but in order to receive a more musical result we recommend to rather use a bit slower Attack times like 3 ms or 10 ms.

This leave transients unprocessed and offers a quite “musical squeezing”.

General proposal for Attack times:

Start with a 3 ms setting, then adjust and listen.

Even shorter Attack times may be musical in Soft Mode though - just experiment and you will find “your” sound!

One of four discrete 1979 VCAs from within the VSC-2 hardware.

Release times: (0.1 s · 0.3 s · 0.6 s · 0.9 s · 1.2 s · Auto Mode)

This control determines how long it takes for the VSC-2 to return to unity gain after going into compression.

Short Release times let the compressor track every little change in level, producing a potentially “nervous” but “fresh” effect. This can decrease the dynamic range and increase the average output level seriously.

Longer release times tend to "squash" the signal more, producing less overall output level but retaining more of the original dynamics of the signal.

One (of two) VSC-2 boards hosting 2 of the 1979 VCAs each.

This represents one channel of the VSC-2.

Excessive release times...

... can be used as an effect!

In the 60s the use of lots of limiting with a long release time e.g. on drums was a popular recording technique. (for example the typical Fairchild 670 Sound).

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Quad Discrete Compressor

Manual

Make Up Gain

The process of reducing dynamics with a compressor lowers the signal's overall level. Use the Make Up Gain to compensate by raising the output gain after the compression stage.

The 1979 VCAs offer + 22 dBu of Make Up Gain.

The hardware knobs offer a “Zoom In” between 0 dB and + 6 dB to give you a more sensitive control and resolution between this commonly used “Level Area”.

The VSC-2 plugin precisely models this behavior.

A/B comparison using Make Up Gain:

Adjust the output volume to match the bypassed signal and you can perfectly compare the processed and the unprocessed signal.

Sidechain Filters (SC Filters) - 60 Hz – 90 Hz

If the VSC-2 should react too much to kickdrum, bass or other bass signals in a mix – often resulting in a pumping effect – you can activate the SC Filter. Cutting low end in the sidechain makes the VSC-2 “ignore” these bass boosts internally and will result uin less audible compression.

Both SC Filter curves were set very gently, smoothly and musically to avoid a complete cut off which would leave some bass parts in the audio material unprocessed. This way the low end of your mix will still be processed – but with *less* compression.

The use of SC Filters accentuates the low end of your audio material. You can choose between two different settings . These frequencies were chosen to provide larger flexibility and a maximum musical treatment and balance of the complete mix.

Stereo Mode Switch

In stereo mode both sidechains are active (they are not summed together), and the higher signal peak of either of the 2 channels determines the compression for both channels (Stereo SC in Stereo Mode).

Therefore the VSC-2 is able to even react to *out of phase* signals ("peaks") – without stereo image shift!

Unlinked Stereo Mode

The VSC-2 detectors work very precise. Stereo signals can be compressed unlinked. To do so simply adjust the parameters in Stereo Mode until you are happy with your sound. Then switch the plugin mode switch to “Mono”. This stragety can widen your stereo image. This procedure might be a cure and enhancement to your mix. If the stereo image gets too “shaky” just switch back to the conventional “Stereo” mode.

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The Vertigo Sound VSC-2

Quad Discrete Compressor

Manual

Gain Reduction Metering

This metering shows the amount of gain reduction being applied to the input signal. The metering is equipped with a non-linear scale and corresponding electronics to visualize the common area up to 6 db gain reduction with utmost precision. It shows quickly and exactly what is done to your material.

VERTIGO users

As a new VSC-2 user you´re in great company.

Please check **www.vertigosound.com/** for more info about Vertigo Hardware and countless VIP users.

Coloration, Distortion & Sound

Coloration is one of the hidden secrets in mixing and mastering. It is the basis for a unique sound and a first step in creating a classic of tomorrow.

In fact the Vertigo 1979 VCA produces mainly second harmonics depending on Gainreduction & Make Up. The cocktail of clean precise sound and the right mix of second and third harmonics dynamically and frequency dependent is what makes the uniue sound of the 1979 VCA.

Coloration without compression

If you want to use the VSC-2 adding some coloration without Gain Reduction then turn the threshold pots fully clockwise to the right and use the Make Up Gain to control the amount of harmonics added to the signal.

In many large format older consoles like SSL, MCI, Quad Eight the discrete VCA stayed in the signal path of the output section also when deactivating the compressor.

The signal Path: Less components - more clarity

The hardware which we modeled contains Jensen Transformers and THAT 1646 Output Stages, plus high quality components throughout.

Jack Douglas (Aerosmith, Miles Davis, The Who, Alice Cooper)

Cover Story in Germany

The Scorpions and VSC-2 rock

Great reviews all the time.

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