

VINTAGE COMPRESSORS

VC160



Manual



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1 Welcome to VC 160

The VC 160 brings one of the most renowned compressor units of music history into your studio by way of the FX Framework. The VC 160 perfectly re-creates the bold and dirty sound of its ancestor. This compressor notably achieves outstanding results on drums, adding a definitive “thwack” or “knock” to even the duller kick and snare. It can as well rescue your bass sound by giving it an additional attack and a dirty, underground edge.

1.1 What Is a Compressor?

Technically speaking, a compressor is an audio processing unit that reduces the dynamic range of an incoming signal, i.e. reduces the level difference between the signal's quiet and loud sections. This way, it can help to increase the perceived loudness of a signal and attract the listener's attention.

For many studio and live music applications, the usage of compressors is inevitable: they let you “glue” the individual instruments of an instrument group together and make them “sit” in the mix more naturally, which is particularly helpful when mixing drum recordings. Compression can also stretch the decay phase of instruments, mostly drums, and add sustain to the tone of electric guitars.

However, compression can be used for a wide range of applications. Here are a just few examples:

- **Electric guitars and basses:** Compression is applied to picked string instruments in order to smooth the varying intensity of the individual strokes, thus increasing the perceived overall level. At extreme settings, you can get a “wall-of-sound” effect!
- **Drums:** Adding compression to a bass drum or snare track will add punch and help define its sound in your mix.
- **Vocals:** Adding compression to vocals can make them sound more balanced by leveling the soft and loud sounds in the voice.
- **Mixing/pre-mastering:** A slight compression applied to the overall mix (or some specific subgroups) can add cohesion between the various instruments.

- **Using compression is a fine art:** You can easily destroy your sound if you don't carefully set the compression parameters! For each purpose, specific settings are required. A good understanding of each parameter's effect, together with the experience gained by using the compressor, will allow you to achieve great results!

In addition to the above listed common applications there is room for your own experiments, so feel free to use your compressor in a way not listed here.

1.1.1 Main Compression Parameters

Compression can be controlled by several parameters. The most important parameters are the following:

- A **threshold** defines the audio level above which compression takes place. Below this threshold level, the incoming signal is left untouched; above this threshold level, the gain of the incoming signal is attenuated.
- You can choose how much attenuation is applied to the signal by defining an input/output **ratio**. For example, when you select a ratio of 2:1, an input level that is 2 dB above the threshold will create an output level that is only 1 dB above the threshold.



By setting an extreme compression ratio, you can practically prevent the signal from exceeding the threshold level. The compressor then acts as a limiter.

- Since the compression attenuates the higher levels of your input signal, most compressors allow you to add a fixed **make-up gain** to the output in order to counterbalance the loss of level.

1.1.2 Other Compression Parameters and Features

The compression process can be further tuned by using additional parameters and features.

Attack and Release

The **attack time** can define how long it takes for the compressor to come into full effect when the threshold level is reached. For example, a longer attack time can be useful to retain the attack transients on a percussive or plucked string instrument in order to only compress the instrument sound coming after the transients. For this, you could also make use of parallel compression (see below).

Similarly, the **release time** can define how long it takes for the active compressor to return to its standby state after the signal level has fallen below the threshold level.

The right settings for attack and release time strongly depend on both the current purpose of the compression and the kind of instrument that you are working on!

Side-Chain Input

Every compressor uses a detector to decide when to kick in. This detector listens to a control signal and activates the compressor when needed.

Usually, the detector listens to the input signal itself and activates the compressor whenever the level of the input signal exceeds the selected threshold.

A **side-chain input**, on the contrary, allows you to feed the detector with another signal (e.g. another track in your mix). In this setup, compression is applied according to the level of the other signal. This greatly widens the versatility of your compressor.



Typically the side-chain input is fed by the bass drum track as a control signal to trigger the compressor on the bass guitar track. Another example is the “auto talk over” feature found on several mixers, which automatically attenuates the level of the music as soon as you talk in the microphone.

Parallel Compression

Sometimes you may want to keep the original signal and blend it with the compressed signal. Setting up a signal path for **parallel compression** can help retain some of the sonic characteristics of your original instrument (mainly the transients) when a signal is heavily compressed and in need of some top-end sparkle.

1.2 The VC 160

The VC 160 is inspired by one of the most popular compressors ever made. Originally produced in the mid-1970s, this compressor is still being used in numerous recording studios worldwide. Its circuit design includes some unique features at the time of its introduction. Firstly, the true RMS level detection provided a much closer behavior to the human ear than

the usual peak detection found in other compressors. Secondly, the feed-forward gain reduction allowed both extreme ratio settings (virtually up to infinite compression!) and input signal tracking in order to determine the adequate attack and release times.

The VC 160 faithfully reproduces the characteristics and features of its highly prestigious hardware ancestor. Notably, it provides you with the same simple interface, which mainly relies on three knobs. You won't find any Attack nor Release control here, since these were automatically determined by the feed-forward gain reduction stage.

Nevertheless, bringing vintage hardware into the software world allowed us to add a few great features. For example, unlike its ancestor, the VC 160 does offer both a side-chain input and parallel compression. And, of course, as with any effect available through FX Framework, you can save and recall presets for your favorite settings.

2 Using the VC 160

This section describes how to use the VC 160.

2.1 The Menu Bar

At the very top of the VC 160 interface, you will see the Menu bar. This is primarily used for saving and loading presets, but also has a few other functions.



The Menu bar is located at the top of the interface.

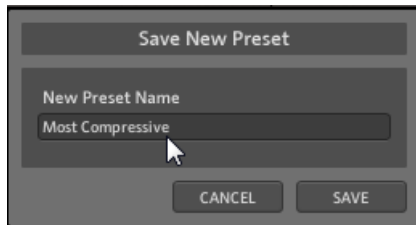
Saving and Deleting Presets

To save a preset:

1. Click the drop-down arrow to the very left of the Menu bar to open the File menu.
2. Select *Save as...* from the File menu:



- Enter the name of your preset in the area under the label **New Preset Name**:



- Click the **SAVE** button to finish the process and close the dialog box.



If you wish to remove a preset you no longer want, you can delete it by selecting *Delete* from the File menu. Please note: you are not able to delete factory content.

Loading Presets

In the center part of the Menu bar, you will see the Preset menu. To navigate through presets, either:

- Click the left and right arrows to cycle through and load the presets one at a time, or
- Click the drop-down menu to view a list of all available presets.

When using the second option, a preset is loaded when you click its name.

The Preset Menu

When you save a preset, the Preset menu is automatically split in two submenus, one containing factory presets and one containing user presets. By selecting a preset from the *User* submenu, the list of presets you have saved is brought to the front of the Preset menu and displayed below the *Factory* and *User* options.



- By loading one of the presets from the *Factory* submenu, the factory presets are brought back to the front.

A/B Comparisons

VC 160 offers an A/B comparison system to help you fine tune your settings.

Basically, this feature gives you two slots into which you can enter different parameter settings. You can then quickly switch between the two slots to quickly compare the settings and use whichever sounds better.

By default, you edit the parameters of slot A. To **switch to slot B**:

- ▶ Click the **A/B** switch located beside the Preset menu.
- You will now be editing and listening to the parameters of slot B, until you click the switch again.

To **copy the settings of slot A to slot B**:

- ▶ Go to the File menu on the left side of the Menu bar and select *Copy A to B* from the list. You can also copy from B to A when editing the parameters of slot B.

Other functions

The File menu also offers the following options:

- *Show User preset folder*: opens a system window in the location of where your presets are saved. Here you can rename your presets by changing the file names.
- *Open Manual*: opens this PDF document for reference.
- *Visit VC 160 on the web*: opens your default web browser and takes you to the VC 160 page on the Native Instruments website.

2.2 The Main Interface

This section describes the VC 160's interface and controls in detail.



The VC 160 user interface

The VC 160 is very easy to use: most of the time, you will only need to tweak the **THRESHOLD**, **COMPRESSION** and **OUTPUT** knobs.

(1) **SC Gain button**: Enables/disables the side-chain input. The side-chain circuitry allows you to feed the compressor's detector with another control signal instead of the input signal itself (see [↑1.1.2, Other Compression Parameters and Features](#) for more info on this).

(2) **SC Gain knob**: Controls the input gain of the side-chain signal — a signal that can be used as an alternative control source for the compressor.

(3) **Detector HP knob**: Applies a high-pass filter to the control signal that is sent to the compressor's detector. When this knob is set fully counter-clockwise (**off**), no filtering is applied. Turning the knob clockwise progressively excludes low frequencies from the control signal sent to the detector.



The **Detector HP** knob in no way affects the amount of compression applied. Instead, it allows you to select a narrower frequency band in the control signal that will be used by the detector, be it the input signal itself (**SC Gain** off) or another control signal (**SC Gain** on).

(4) **THRESHOLD knob**: Adjusts the threshold level above which compression is applied.

(5) **Threshold Overrun indicator**: These two LEDs indicate whether the current level of the control signal is below (**below** lit) or above (**above** lit) the defined threshold, thus helping you adjust the **THRESHOLD** value.



Usually the control signal is the input signal itself. But if you are using the side-chain input, it can be any other signal (see 1.1.2 for more on this).

(6) **COMPRESSION knob**: Adjusts the compression ratio. This directly affects how much gain reduction is applied to the input signal. When this knob is turned fully clockwise, the compressor acts as a limiter by applying a virtually infinite compression ratio.

(7) **OUTPUT knob**: Adjusts the make-up gain. This allows you to offset the overall output level once you have set the desired compression via the **THRESHOLD** and **COMPRESSION** knobs.



See [↑1.1.1, Main Compression Parameters](#) for more general information on the make-up gain, compression ratio, and threshold level parameters.

(8) **Dry knob**: Blends the original signal with the compressed signal. This is called parallel compression (see 1.1.2 for more info on this). When this knob is set fully counter-clockwise, only the compressed signal is output. Turning the knob clockwise progressively blends in the original signal into the compressor output.



After adjusting the **Dry** level, you might have to adjust the **OUTPUT** knob again to ensure that the overall output remains at the optimum level!

(9) **VU meter**: Allows you to visually monitor the compression in real-time. This VU meter has three operation modes, which you can select using the Display mode selector (see below).

(10) **Display mode selector**: Allows you to switch the VU meter between various operation modes by clicking the corresponding buttons:

- **In**: The VU meter displays the level of the input signal. Use this mode to ensure that the input signal is at the optimum level.
- **GR (Gain Reduction)**: The VU meter displays the current amount of compression applied to the input signal. By tweaking the **COMPRESSION** knob, you can see on the VU meter how much gain reduction is being applied.
- **Out**: The VU meter displays the level of the output signal. You can use this display mode while adjusting the output level via the **OUTPUT** knob to ensure that the output signal does not overdrive.

3 Credits

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