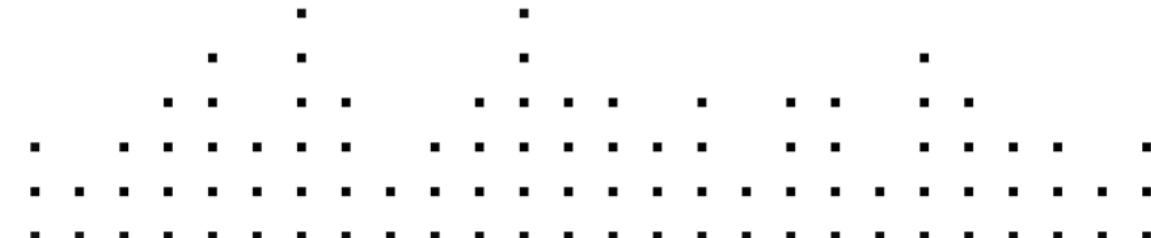




VINTAGE COMPRESSORS

Manual



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1 Introduction

VINTAGE COMPRESSORS brings three of the most renowned compressor units from the history of music into the Rack of GUITAR RIG 4. The VC 76, VC 2A and VC 160 perfectly recreate the sonic character of their ancestors. Each has its own unmistakable sound and excels in particular fields:

- With its bright and punchy sound, the VC 76 is especially great on vocals and drums, with a clear and powerful presence that lets them cut through your mix.
- With its smooth and warm sound, the VC 2A achieves outstanding results on guitars, bass, and vocals, whose quieter parts can be softly pushed in a very natural way.
- With its bold and dirty sound, the VC 160 is perfectly suited for drums, adding a definitive “thwack” or “knock” to even the dullest 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 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:

- The **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 into 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 76, VC 2A, and VC 160

The VINTAGE COMPRESSORS are inspired by three of the most sought-after compression units ever made. Each of them faithfully reproduces the characteristics and features of its highly prestigious hardware ancestor.

VC 76

Initially released in the mid-1960s, the VC 76's forerunner was the first peak limiter with all solid-state circuitry. In particular, the gain reduction was controlled by a field-effect transistor used as a variable resistor. The unit's extremely short attack and release times, coupled with its signature sound, made it the choice compressor in countless situations—some would describe it as THE definitive compressor!

The VC 76 notably provides you with the distinctive “All-Button” mode producing a very unusual compression, as well as the “No-Button” mode giving your sound the unit's coloring without applying any compression.

VC 2A

Originally produced in the early 1960s, the VC 2A's forerunner is a tube-based compressor still being used in the best recording studios worldwide. Its revolutionary design, making use of an electro-luminescent optical gain reduction system, played an important role in its transparent compression characteristics. This, along with the analog circuitry, helped coin the unit's trademark character whose soft coloring is still treasured among musicians and sound engineers.

The VC 2A provides you with the same incredibly simple interface, which mainly relies on two knobs. You won't find any Attack nor Release control here, since these were determined by the analog hardware components used in the unit.

VC 160

Originally produced in the mid-1970s, the VC 160's forerunner is still being used in numerous recording studios worldwide. Its circuit design includes some features quite unique 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 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.

Additional Features

Bringing vintage hardware into the software world allowed us to add a few great features, which are now available in the expert panel of the VINTAGE COMPRESSORS. For example, unlike their ancestors, the VINTAGE COMPRESSORS offer both a side chain input and parallel compression. And, of course, as with any Component in GUITAR RIG 4, you can save and recall presets for your favorite settings.

2 Using the VINTAGE COMPRESSORS

This section describes how to use the VINTAGE COMPRESSORS.

2.1 Loading the VINTAGE COMPRESSORS

Once installed, the VINTAGE COMPRESSORS are found in the Component Pool in the SideKick.

To load any of the VINTAGE COMPRESSORS:

1. Click the [Components](#) button at the top of the SideKick (the left column in GUITAR RIG's window) to display the Component Pool.
2. Find the desired compressor ([VC 76](#), [VC 2A](#) or [VC 160](#)) in the Pool, whether under the [DYNAMICS](#) category (if components are currently listed by categories) or under its own product name (if components are currently listed by products).
3. Double-click the desired component or drag and drop it onto the Rack to load it.

Sound Settings

Here are a few things you should be aware of when using VC 2A in Guitar Rig.

- Please beware by default the input routing of Guitar Rig is set to mono. To activate stereo input switch on the right channel by clicking on [R](#) in the Guitar Rig Global Header.
- By default the Guitar Rig gate is set to on. To deactivate the gate click the Guitar Rig [Gate](#) button in the Global Header.
- Due to the internal processing of the VC 2A, the [HI](#) (High Quality Mode) button does not affect the overall output. To reserve CPU power we recommend you deactivate High Quality Mode.



The Guitar Rig Global Header

2.2 VINTAGE COMPRESSORS Interfaces and Controls

This section describes all control elements found in the user interfaces of the VINTAGE COMPRESSORS.

2.2.1 VC 76 Interface and Controls

This section describes the VC 76's interface and controls in detail.



The VC 76 user interface

- (1) **INPUT knob:** Adjusts both the input level and the threshold simultaneously. Turning this knob clockwise will result in more compression.
- (2) **OUTPUT knob:** Adjusts the make-up gain. This allows you to offset the overall output level once you have set the desired compression.
- (3) **ATTACK knob:** Adjusts the attack time of the compressor, i.e. the time it takes for the compressor to come into full effect once the threshold level has been reached.
- (4) **RELEASE knob:** Adjusts the release time of the compressor, i.e. the time it takes for the compressor to get back to its standby state after the signal level has fallen below the threshold level.
- (5) **RATIO slider:** Selects the compression ratio. This directly affects how much gain reduction is applied to the input signal. Following ratios are available: 1:1 (1), 4:1 (4), 8:1 (8), 12:1 (12), and 20:1 (20):
 - The ratio 4:1 (4) generates a moderate compression.
 - The ratio 8:1 (8) generates a severe compression.
 - With the ratios 12:1 (12) and especially 20:1 (20) the compressor tends to behave like a limiter.

- The position **ALL**, at the top of the selector, was not available as such in VC 76's ancestor. It originates in the so-called "All-Button" mode used by many engineers. Indeed, on the hardware unit the ratios were selected via a set of buttons. By pressing all buttons simultaneously, you could get an extreme (and variable!) form of overdriven compression, which notably became a distinguishing feature of the "British sound" from the 1960s and 1970s. This behaviour is made available here via this **ALL** position.
- On the other hand, with the ratio 1:1 (**1**) no compression is applied. Nevertheless, the input signal still passes through the unit, thus getting its circuitry's signature sound. This is sometimes referred as "No-Button" mode (see the "All-Button" mode above for the explanation).



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

(6) 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).

(7) Display Mode Selector: Allows you to switch the VU meter between various operation modes by clicking the corresponding buttons:

- **INPUT:** 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 **RATIO** slider, you can see on the VU meter how much gain reduction is being applied.
- **OUTPUT:** 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.

VC 76's Expert Controls

The controls found in the expert panel of the VC 76 were not available in its legendary ancestor. They allow you to adjust the compressor in more detail if required. This will greatly extend the scope of use of your compressor.



To display the controls of the expert panel, click on the small arrow on the right side of the Component.

(8) Component Preset display and menu: Like in all GUITAR RIG Components, this shows the name of the current Component Preset and allows you to manage the Presets for this Component.



For more info on the Component Presets, please refer to the GUITAR RIG 4 Application Reference.

(9) SIDE CHAIN switch: 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). Section [1.2.3, Using the Side Chain Input](#) explains how to use the side chain in GUITAR RIG 4.

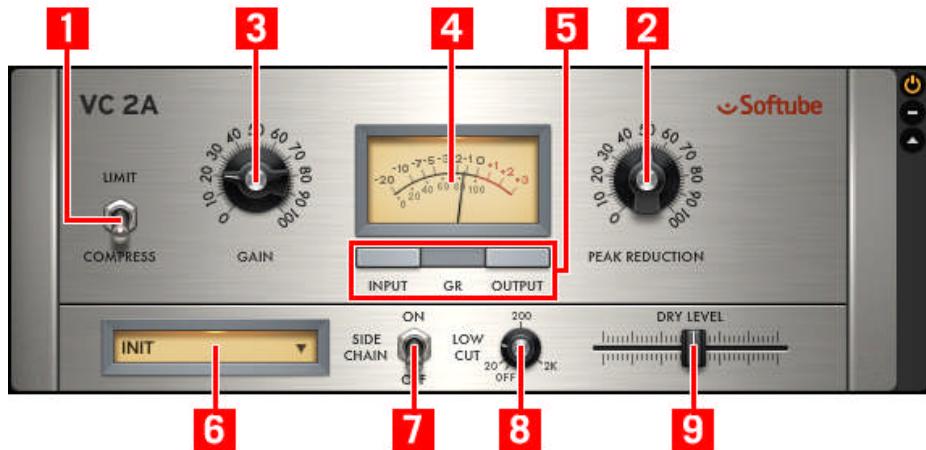
(10) DRY LEVEL slider: Blends the original signal with the compressed signal. This is called parallel compression (see [1.1.2, Other Compression Parameters and Features](#) for more info on this). When this slider is set to its left end stop, only the compressed signal is output. Dragging the slider to the right progressively blends in the original signal into the compressor output.



After changing the **DRY LEVEL** slider position, you might have to adjust the **OUTPUT** knob again to ensure that the overall output remains at the optimum level!

2.2.2 VC 2A Interface and Controls

This section describes the VC 2A's interface and controls in detail.



The VC 2A user interface

Like its renowned hardware equivalent, the VC 2A is very easy to use, as most of the time, you will only need to tweak the big **GAIN** and **PEAK REDUCTION** knobs. Use the additional knobs and switches to adjust the sound in greater detail. The full set of controls is as follows:

(1) Mode switch: Switches between two operation modes. When set to **COMPRESS**, the curve of the gain reduction is softer and the compression ratio is lower. When set to **LIMIT**, the compression ratio is higher and the VC 2A tends to operate more like a limiter.

(2) PEAK REDUCTION knob: Adjusts the amount of compression applied to the input signal. This knob affects both the compression ratio and the threshold level simultaneously.

(3) GAIN knob: Adjusts the make-up gain. This allows you to offset the overall output level once you have set the desired compression via the **PEAK REDUCTION** knob.



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

(4) 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).

(5) Display Mode Selector: Allows you to switch the VU meter between various operation modes by clicking the corresponding buttons:

- **INPUT:** 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 **PEAK REDUCTION** knob, you can see on the VU meter how much gain reduction is being applied.
- **OUTPUT**: The VU meter displays the level of the output signal. You can use this display mode while adjusting the output level via the **GAIN** knob to ensure that the output signal does not overdrive.

VC 2A's Expert Controls

The controls found in the expert panel of the VC 2A were not available in its legendary ancestor. They allow you to adjust the compressor in more detail if required. This will greatly extend the scope of use for your compressor.



To display the controls of the expert panel, click on the small arrow on the right side of the Component.

(6) Component Preset display and menu: Like in all GUITAR RIG Components, this shows the name of the current Component Preset and allows you to manage the Presets for this Component.



For more info on the Component Presets, please refer to the GUITAR RIG 4 Application Reference.

(7) SIDE CHAIN switch: 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). Section [12.3, Using the Side Chain Input](#) explains how to use the side chain in GUITAR RIG 4.

(8) LOW CUT knob: Applies a low cut filtering 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 **LOW CUT** 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 (**SIDE CHAIN** set to **OFF**) or another control signal (**SIDE CHAIN** set to **ON**).

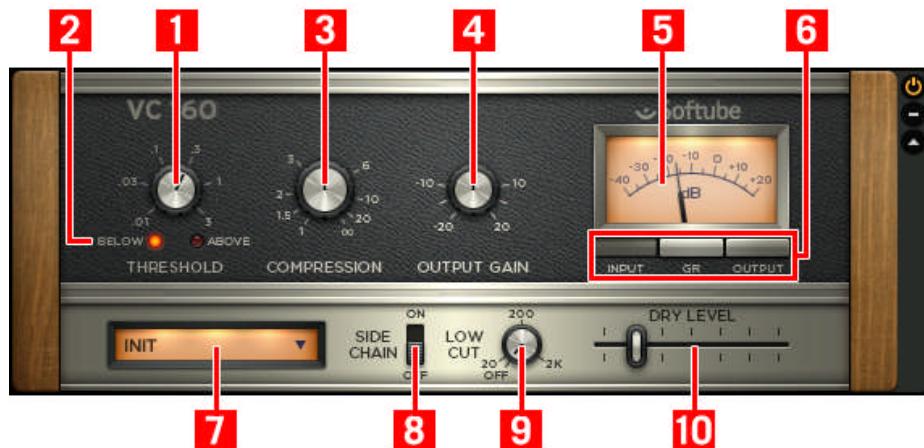
(9) DRY LEVEL slider: Blends the original signal with the compressed signal. This is called parallel compression (see [1.1.1, Main Compression Parameters](#) for more info on this). When this slider is set to its left end stop, only the compressed signal is output. Dragging the slider to the right progressively blends in the original signal into the compressor output.



After changing the **DRY LEVEL** slider position, you might have to adjust the **GAIN** knob again to ensure that the overall output remains at the optimum level!

2.2.3 VC 160 Interface and Controls

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 GAIN** knobs.

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

(2) Threshold Overrun indicator: These two LEDs indicate whether the current level of the control signal is below (**B BELOW** lit) or above (**A 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, Other Compression Parameters and Features](#) for more on this).

(3) 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.

(4) OUTPUT GAIN 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** knob.



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

(5) 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).

(6) Display Mode Selector: Allows you to switch the VU meter between various operation modes by clicking the corresponding buttons:

- **INPUT:** 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.
- **OUTPUT:** The VU meter displays the level of the output signal. You can use this display mode while adjusting the output level via the **OUTPUT GAIN** knob to ensure that the output signal does not overdrive.

VC 160's Expert Controls

The controls found in the expert panel of the VC 160 were not available in its legendary ancestor. They allow you to adjust the compressor in more detail if required. This will greatly extend the scope of use of your compressor.



To display the controls of the expert panel, click on the small arrow on the right side of the Component.

(7) Component Preset display and menu: Like in all GUITAR RIG Components, this shows the name of the current Component Preset and allows you to manage the Presets for this Component.



For more info on the Component Presets, please refer to the GUITAR RIG 4 Application Reference.

(8) SIDE CHAIN switch: 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). Section [2.3, Using the Side Chain Input](#) explains how to use the side chain in GUITAR RIG 4.

(9) LOW CUT knob: Applies a low cut filtering 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 **LOW CUT** 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 (**SIDE CHAIN** set to **OFF**) or another control signal (**SIDE CHAIN** set to **ON**).

(10) DRY LEVEL slider: Blends the original signal with the compressed signal. This is called parallel compression (see [1.1.2, Other Compression Parameters and Features](#) for more info on this). When this slider is set to its left end stop, only the compressed signal is output. Dragging the slider to the right progressively blends in the original signal into the compressor output.



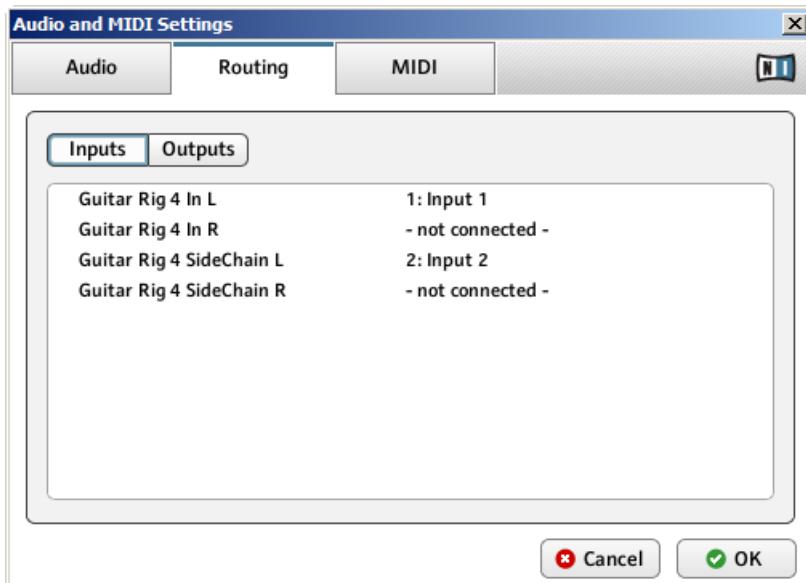
After changing the **DRY LEVEL** slider position, you might have to adjust the **OUTPUT GAIN** knob again to ensure that the overall output remains at the optimum level!

2.3 Using the Side Chain Input

As mentioned above, by activating the **SIDE CHAIN** switch in the expert panel of any of the VINTAGE COMPRESSORS, you can use a distinct signal for detecting when the compressor has to kick in (see [1.1.2, Other Compression Parameters and Features](#) for more info on the side chain feature).

2.3.1 GUITAR RIG as Stand-Alone Application

When using GUITAR RIG 4 in stand-alone mode, VINTAGE COMPRESSORS utilizes two of the four audio inputs available in GUITAR RIG 4. In the Audio and MIDI Settings window, these inputs can be found in the Inputs view of the Routing page. They are labeled [Guitar Rig 4 SideChain L](#) and [Guitar Rig SideChain R](#):



The two additional side chain inputs in the Routing page of the Audio and MIDI Settings window (Windows depicted).

These additional inputs allow you to route any audio signal to the side chain circuit of your compressor in order to feed its detector.

In Inputs view, you can select the physical input(s) of your audio interface for use as side chain input(s), as you would for your usual inputs.

For example, in the picture above, we assigned:

- the INPUT 1 socket of the RIG KONTROL 3 to the main instrument input [Guitar Rig 4 In L](#) (where our guitar is connected),
- the INPUT 2 socket of the RIG KONTROL 3 to the side chain input [Guitar Rig 4 SideChain L](#) (where we can feed the desired audio source that will act as a control signal into the compressor).

2.3.2 GUITAR RIG as Plug-In

When using GUITAR RIG 4 as plug-in within your favorite host software, all audio routing is handled by the host. VINTAGE COMPRESSORS adds two virtual audio inputs to the GUITAR RIG 4 plug-in. These additional inputs allow you to route any audio signal to the side chain circuit of your compressor in order to feed its detector.

The way audio routing is handled differs in each host software. For more info on how to route the desired signals to the virtual audio inputs of the GUITAR RIG 4 plug-in, please refer to the documentation of your host software.

3 Credits

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Modeling VC2A: Arvid Rosén, Oscar Öberg, Niklas Odelholm

Modeling VC76: Oscar Öberg

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