SONALKSIS

SV-315 Compressor

Operation Guide

Contents

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Sonalksis SV-315 Compressor

Introduction

This guide describes the features, operation and applications of the SV-315 Compressor. For detailed installation instructions, please refer to the Sonalksis *Plug-in Manager* User Guide. You can read more about general features common to all Sonalksis plug-ins in the *Universal Plug-in User Guide*.

The Sonalksis SV-315 Compressor

The Sonalksis SV-315 Compressor is an analogue-modelled dual compressor/limiter. In keeping with the other plug-ins in the Sonalksis *SV* series, it employs unique design methods to provide a compressor/limiter with true analogue characteristics, while offering a flexibility that can only be obtained from a digital processor, all using Sonalksis' proprietary zero-latency *State-Space Analog* modelling technology.

Due to its flexibility, with access to a range of normally internal parameters, this compressor is capable of performance ranging from extremely subtle and transparent through to warm and characterful, or even to blunt assault. This makes the SV-315 suitable both for tracking and mastering environments, and the perfect choice as a *go to* compressor that will work well in most situations. The unique 'anti-breathe' feature is particularly useful when compressing vocal performances. This allows you to compress heavily but avoid sudden sharp 'clicky' attacks after pauses.

Several independently selectable level-detection, side-chain-filter and transient-characteristic circuits are provided within the compressor model. Using the available combinations of circuit models and compression styles, some unique characteristics can be achieved in addition to the more traditional permutations.

The analogue modelled limiter section is very different to the ubiquitous brick-wall digital limiter, and can be used when you want to tame the extremes of already compressed material, but without resorting to other inserts or a 'dynamic-destroying' digital style limiter. Alternatively the analogue limiter can be used to make your audio really 'pump' in a way that is not usually possible with digital limiters.

Installation

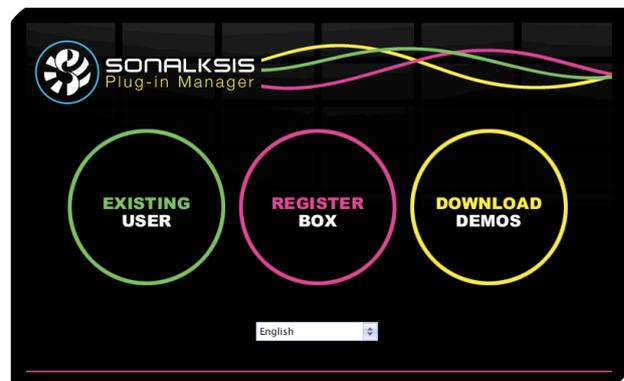## ...with the *Plug-in Manager*

All Sonaksis plug-ins are installed using the *Plug-in Manager*. The Plug-in Manager simplifies the task of managing multiple Sonalksis plug-ins, and takes care of downloading, installing, authorising and updating your Sonalksis plug-ins.

Detailed instructions can be found in the *Plug-in Manger User Guide*.

If your audio computer is not internet enabled, you must go to the 'Product Activation' section on the Sonalksis website in order to obtain an authorisation file. You will need the 'Activation Code' that is displayed when you run the Plug-in Manager on your offline system. You can then download your authorisation file which you simply need to drag-and-drop onto the Plug-In Manager window.
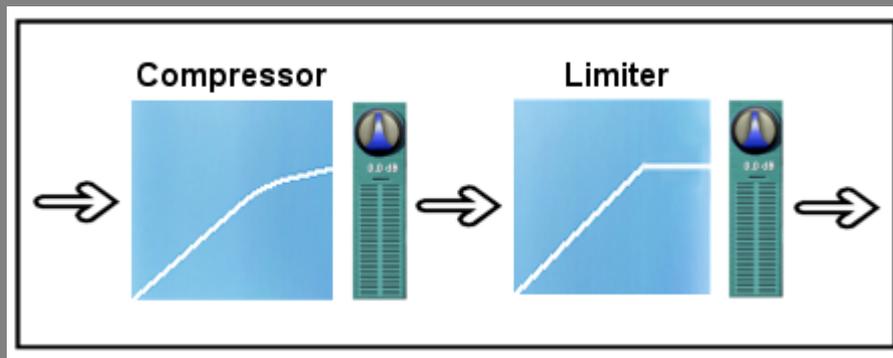
Authorisation

If your computer is internet enabled, all license authorisation takes place automatically. When you install Sonalksis plug-ins, any plug-ins for which you have licenses will be authorised by the Plug-in Manager.

Unlicensed Sonalksis plug-ins will function for 14 days after installation without authorisation, after which the plug-ins will no longer process audio. After this period, you can still reactivate a plug-in by obtaining a valid license.

Operation

This section describes the functions of the SV-315 Compressor. You can read more about general features common to all Sonalksis plug-ins in the *Universal Plug-in User Guide*.

The SV-315 actually consists of 2 individual (serially chained) dynamics processor models: A compressor and a limiter. The compressor output is followed by a 'make-up gain' stage prior to the limiter section, which is itself followed by the 'output gain' stage.

This is an important distinction to understand, as it is very different to a simpler 'all in one' compressor/limiter. By implementing the limiter as a separate process, independent control is maintained over all attack/release times, and the compressor may affect the signal even when the limiter threshold is lower than the compressor threshold.

The Input Section

The *Signal* indicator indicates when there is an input to the plug-in: this is irrespective of the side-chain input, so for example when the processor is being used with an external side-chain, the side-chain input signal will be displayed on the graphical display, and the main audio input will illuminate the 'Signal' indicator. Separate indications for main audio and side-chain levels are helpful in checking that the signals are routed correctly to the plug-in.

The SV-315 also features an *Input* gain control. While this is not strictly necessary (the internal 64-bit resolution of the plug-in can more than cope with any overloading) it is included primarily to help in situations where prior channel inserts may for example have boosted the signal to levels approaching (or exceeding) 0dBFS. Since the threshold of the SV-315 stops at 0dBFS, it could be difficult in these circumstances to obtain effective control over the signal without reducing it first.

The Compression Controls

The compression controls are divided into two sections: parameters that affect the gain characteristic (such as Threshold and Ratio), and parameters that affect the level-detection circuit (such as Attack and Release).

•**Threshold** - *sets the level above which compression is applied*

•**Ratio** - *controls the severity of compression applied above the threshold*

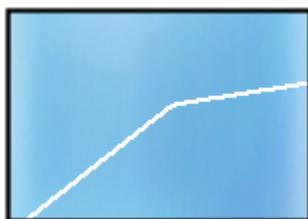•**Knee** - *sets the 'sharpness' of compression onset*

•**Crush** - *defines the gain reduction saturation point*

•**Auto Gain** - *activates gain compensation circuitry*

• **Attack** - *sets the compressor attack time*

• **Release** - *sets the compressor release time*

• **Auto** - *switches 'auto-release' on/off*

• **Hold** - *holds the attack filter in place*

• **I II** - *switches between different detection circuits*

Many compressors have a fixed 'knee', or a simple switch to choose between hard/soft knee settings. The SV-315 has a *knee* control that is continuously variable between 0dB (very 'hard' knee) and 30dB (very 'soft' knee). For example, if the *knee* is set to 10dB, the ratio will gradually increase from 1:1 to its set value, over a 10dB interval around the threshold level.

Hard Knee response   *Soft Knee response*
[identical ratio and threshold]

6

Gain-reduction applied by the compressor can be compensated with 'make-up gain', either applied manually via a handle on the graphical display, or set to an automatically determined level via the *Auto-Gain* switch.

> Activating the *Auto-Gain* feature can greatly help in level matching; the make-up-gain is calculated to ensure that a steady-state 0dB input signal will have a 0dB output level, regardless of the compression threshold or ratio.
>
> It should be noted that this feature can produce output signals that exceed 0dBFS, particularly with slower attack time settings, as fast transients may escape compression, but will still have compensatory gain applied. When dealing with high-level signals, it is therefore prudent to ensure that the limiter is activated when the auto-gain feature is used.

When the *Auto* switch is activated, the compressor 'Release' control becomes ineffectual, as the compressor release-time becomes automatic, varying according to the dynamics of the programme material. It should be noted that the release is not completely independent of the attack setting, as the compressor must compensate its release mechanism in different ways for fast and slow attack times. Thus the dynamics of the automatic release will differ according to the attack setting.

Several unusual 'stylistic' parameters are included in the SV-315, in order to give the 'character' of the compressor extended flexibility by allowing subtle alterations to several circuit model parameters, as well as enabling physical switching of some of the sub-circuits in the compressor.

The level-detection circuits in any compressor are substantially responsible for the character of the compressor, more so than the gain-characteristic.

There are two attack/release circuits to choose from. Type I provides a classic character more prone to signal-dependent distortions, while Type II offers a more pure (modern) detection, with less dependency on signal level and dynamics.
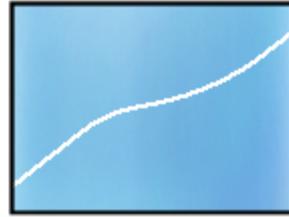
The *Crush* and *Hold* parameters alter saturation and distortion characteristics, thus affecting the response of the compressor to transients.

Crush acts directly on the compressor gain element, essentially determining the level at which the gain reduction saturates [this is the maximum gain reduction level that can be applied by the gain element]. Reducing the Crush control reduces the level at which the gain element saturates, and thus reduces the 'crush' of compression on transients.

High crush setting:
transients will be crushed

Lower crush setting:
potential maximum gain reduction is lessened

If the *Crush* saturation did not automatically adjust to large *Knee* settings, a very abrupt [and unappealing] gain saturation could occur. Hence the *Crush* is always relative to the *Knee* parameter; this enables simple and independent alteration of the compression knee, without having to increase the saturation to compensate.

- *When Crush's set to '100%', the gain reduction will never saturate, thus all transients will effectively be compressed [crushed] as fully as less transient signals.*
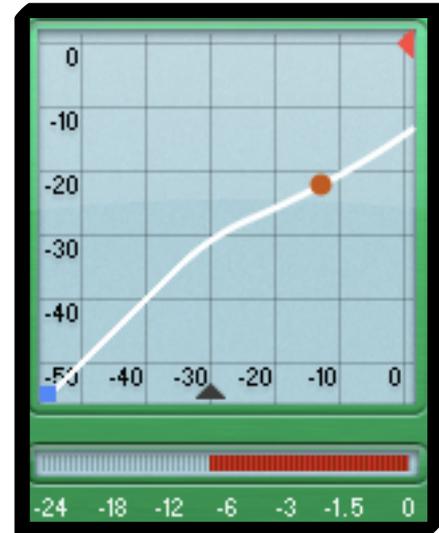
The *Hold* parameter alters transient characteristics in the level-detection circuits, enabling the attack filters to be 'held' depending on the nature of the transient. Higher *Hold* settings can create a more open sonic attribute in the compression characteristic, especially in conjunction with slower attack times.

The **Hold** parameter is only adjustable when the Auto-Release mode is activated. This is because the **Hold** mode introduces a certain amount of de-coupling between the audio and the compression response with fast transients, creating inconsistencies that may sound unnatural with a manual release. However, these issues can easily be dealt with by the automated release mechanism.

The Display / Monitor Section

The main purpose of the graphical display is to provide a clear indication of the processor gain-characteristic. The compressor input level is superimposed on the gain-characteristic graph, greatly aiding in determination of the appropriate compressor/limiter threshold settings. The input level is monitored post side-chain-filter, and is thus an accurate indication of the signal level applied to the compressor gain element

The graphical display is not only used for monitoring - some compressor/limiter parameters may be adjusted via 'handles' on the display. A total of three handles appear on the display:

- **Black** handle – drag this left or right to adjust the compressor threshold

- **Blue** handle – drag this up or down to adjust the compressor make-up gain

- **Red** handle – drag this up or down to adjust the limiter threshold

⚠️ *Note that the limiter threshold handle is only available when the limiter is activated, and the make-up gain handle is not available when the 'auto-gain' is activated.*
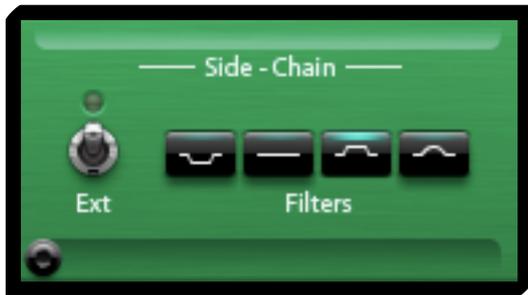
The meter below the graphical display monitors the total amount of gain reduction applied by the compressor and limiter together. The meter indicates the reduction applied by the gain reduction elements, and not simply the differential between input and output signals - in other words, the meter may display a gain reduction even when no input signal is applied.

During periods of pause in the input signal, the displayed gain reduction may release much more slowly than the indicated compressor 'release-time'; This is the compressor 'Anti-Breathe' mechanism being induced:

> Heavy compression followed by a pause in the input signal will induce the 'anti-breathe' feature, meaning the gain-reduction is 'held' for a time in anticipation of signal reintroduction. This allows for heavy compression settings without the sudden sharp 'clicky' attacks that would otherwise occur after a pause.

The Side-Chain Section

Some of the most respected 'classic' compressors actually filter the side-chain [the signal used to drive the gain element], in order to weight the compression in such a way as to be triggered by a particular frequency range. The weighting of the side-chain filter will affect the character of the compressor, although the saturation and transient characteristics of this filter are an important factor too.

The SV-315 offers a choice of four filter circuits, each modelled directly from a classic analogue weighted side-chain filter. While the 'icons' on the filter buttons depict the general shape of the frequency response, it should be noted that each filter is an independent model, with unique characteristics.
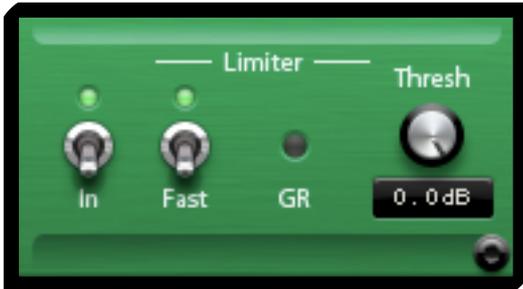
The 'Ext' switch enables external audio signals to be routed to the compressor side-chain, thus the compression of one audio track may be controlled by an independent audio track – this can be used for creative effect.

In order to route audio signals from one audio channel into the external side-chain input of the SV-315, you should refer to your audio-host documentation.

The Limiter Section

The limiter section enables control over an independent limiting processor, situated between the compressor and output-gain stages of the signal chain. Unlike the compressor section, the limiter is fixed to one circuit model, thus the 'Style' section does not affect any limiter characteristics.

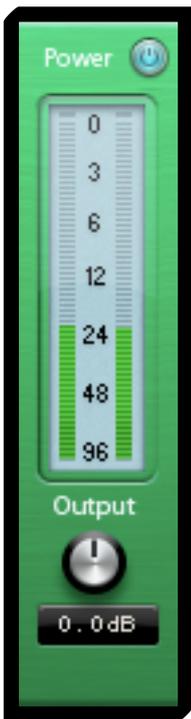There are three controls in the limiter section:

• *The Limit control switches the limiter in/out.*

• *The Fast switch alters the release characteristic [Fast or Slow]*

• *The Threshold sets the level above which the limiter is active.*

The LED above the *GR* indicator will illuminate gradually according to the amount of gain reduction applied by the limiter. If this LED is not illuminated, the limiter is not affecting the signal.

When the limiter is switched on, a limiter threshold [red] handle will appear on the graphical display. Dragging this handle up or down will alter the limiter-threshold respectively. This handle will not be displayed if the limiter is switched off.

> The gain-reduction meter (below the graphical display) will indicate the total gain reduction applied by compressor and limiter together, and the compression-curve display will represent the superposition of both compression and limiting characteristics. It is important to note that if a low limit-threshold is set, the compressor section is still active, even though the compression-curve display may appear only as a limiting characteristic.

The Output Section

The Output Section consists of a master *Power* (on/off) switch, a meter that monitors the signal level at the output of the processor, and a control to change the gain of this output level.

The Output Meter monitors the signal post-compression, post-limiting and post-Output-Gain. The meter defaults to a PPM ballistic, with a range from –96dBFS to 0dBFS. An 'Over' indicator LED illuminates when the output signal reaches 0dBFS. The output signal should not exceed this level, hence the *Output* control should be used to attenuate the signal if this occurs. Conversely the *Output* may be used to increase the signal level to compensate for significant gain-reduction from compression/limiting.

The master *Power* button is an effective 'bypass' control that may be used for simple 'In/Out' comparisons. When the compressor is switched off, the numerical parameter displays will disappear and the meters and graphical display will darken, giving a clear visual indication of the bypassed status of the plug-in. Using the bypass on the SV-315 can provide superior results to the bypass of your audio host, as it guarantees a glitch-free on/off transition.

It is important to note the difference between the *Output Gain* (applied through the control above the Output Meter) and the Compressor *Make-up Gain* (applied either through the **Auto Gain** button or the Make-up Gain handle on the graphical display):

The Make-up Gain is applied post-compressor but pre-limiter. The Output Gain is applied post-limiter. When the limiter is not active there is little difference in compensating for gain reduction using either method. However if the limiter is in use, the Make-up Gain will 'drive' the signal into the limiter. In this circumstance, further gain may be required after limiting the signal, and this would be achieved using the Output Gain control.
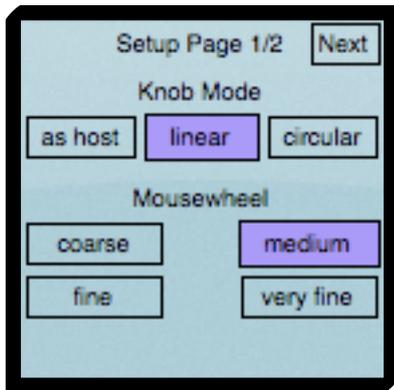
The Global Programme Controls

The *A/B, A->B* and *Reset* buttons relate to the plug-in parameters as a whole. The collection of all parameter settings is known as a 'programme'. The SV-315 is equipped with two programme buffers ['A' and 'B'] that can store an entire set of control parameter values at the touch of a button. The active parameter buffer is highlighted on the *A/B* button and can be copied to or swapped with the inactive one using the *A->B* button. This can be useful for auditioning comparisons of different compression setups, or automating a complete switch of parameter changes.

Clicking the *Reset* button will set all compressor and limiter parameters to their default values. Setup preferences will remain unaffected however.

Preferences

There are a number of setup options and preferences for the SV-315 that are user-definable.

The preferences are accessed with the *Setup* button below the graphical display. Click the button first to access the preferences, and again to exit the setup screen once the preferences are set.

- **Velocity Sensitive Mode** – Selecting this preference enables the size of any knob/slider control adjustments to be relative to the speed of mouse movement. Thus when enabled, a very slow mouse movement will induce a very small change in the respective parameter value, while a fast movement will induce a large change.

- **Knob Mode** - sets the default knob mode. When 'as host' is selected, the knob mode is requested from the host software (assuming the host supports this feature). Otherwise the knob mode defaults to the selected setting.

- **Mousewheel Sense** - controls the sensitivity of the mouse wheel. When set to 'very fine', a large move of the mouse wheel will introduce a very small change in the respective parameter. When set to 'coarse', a small movement will introduce a relatively large change in the parameter.

- **Meter Type** - allows the user to set the ballistic of the output meter. The PPM meter type gives a fairly accurate indication of peaks while preserving a visual signal dynamic that reasonably resembles the audible dynamic. The 'True Peak' setting will ensure that the meter displays an entirely accurate depiction of the signal peaks, however this meter type may appear visually less coupled with the audio.

- **Clip Led** - When set to 'instant', the clip LED will illuminate only when the output signal exceeds 0dBFS, switching off the instant the signal falls below this level. When set to '5 Sec', the clip LED will stay illuminated for a minimum of 5 seconds, regardless of how briefly the signal exceeds 0dB. When set to 'clicked', the clip LED will remain illuminated once the signal exceeds 0dBFS, and will only switch off when the user clicks on it.

Support

You can visit the Sonalksis website to find the latest product information. If you are a registered user you will automatically receive relevant information about new releases and updates, unless you unsubscribe from this service.

All Sonalksis plug-ins are installed, authorised and updated using the 'Plug-in Manager' application. You can download this application from the Sonalksis website.

If you encounter any difficulties when installing or using our products, please ensure that you have read all appropriate documentation, including the relevant user guides and FAQ on our website before contacting us.

If you are unable to resolve your issue after reading all appropriate documentation, you can log in to your Sonalksis user account on our website, and access the 'Support' section where you can request direct assistance.

www.sonalksis.com/support

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Appendix: Technical Specifications

SV-315 Supported Sample Rates:

- 44.1 kHz
- 48 kHz
- 88.2 kHz
- 96 kHz
- 176.4 kHz
- 192 kHz

SV-315 Control Ranges:

Control type	Min Value	Max Value
Compress Threshold	-48dBFS	0dBFS
Ratio	1.5:1	10:1
Knee	0dB	30dB
Crush	0%	100%
Compress Attack Time	0.5ms	50ms
Compress Release Time	50ms	2.5s
Compress Hold Time	0%	100%
Compress Make-up Gain	0dB	24dB
Limit Threshold	-24dBFS	0dBFS
Output Gain	-24dB	24dB

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