s e l i g audio   &   pitchblende

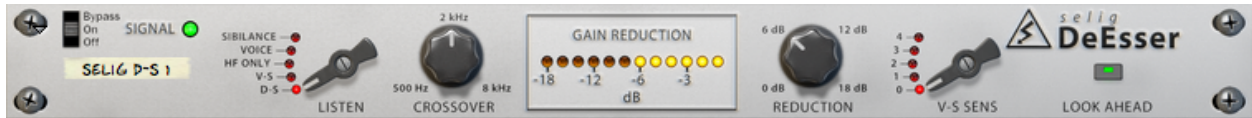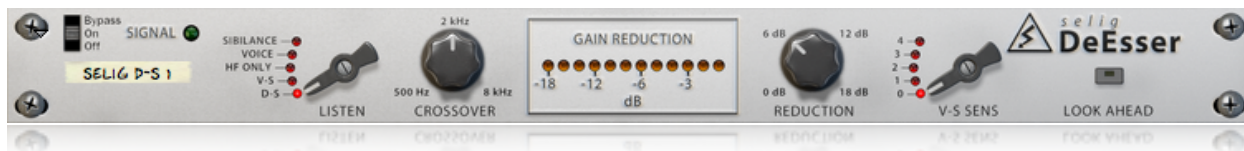# Selig DeEsser

User Guide

Version 1.0

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Selig DeEsser

Thank you for your purchase of the Selig DeEsser! This de-esser represents a unique yet extremely simple and effective way of dealing with excessive vocal sibilance. We all at Selig Audio and Pitchblende hope it brings you many years of sibilance control satisfaction!

Quick Start

For those of you who just need to get straight to work, here are the quick start instructions: **Insert the Selig DeEsser in your vocal channel. If you need more or less sibilance reduction, adjust the reduction knob to taste.**

That's it, the only knob you will typically need to adjust is the Reduction knob. Seriously, that's it, there's nothing more to do to get accurate and reliable sibilance control - there has never been a de-esser this simple and this effective!

Overview

The Selig DeEsser is an advanced vocal de-esser that not only allows you to accurately detect and reduce sibilance found at any level in a vocal track, but also to extract all sibilance to its own mixer channel in real time. Despite this sophistication, using the Selig DeEsser couldn't be easier, and many users will find instant success with the default settings! There are no thresholds to set, no EQs to fine-tune, and no filters of any sort in the audio path. This provides you with the cleanest signal and simplest setup possible in a de-esser.

But don't let that fool you.

While the Selig DeEsser excels at simple and accurate sibilance reduction, its ability to perform unique sibilance extraction (V-S mode) is what sets it apart from the rest of the pack.

V-S mode allows you to route all sibilance to its own channel in real time, allowing you to process the Voice and Sibilance channels separately in any way you see fit. This opens up many possibilities like adding brilliance to your Voice channel without worrying about increasing sibilance, or adding reverb on just the Voice channel to avoid having the sibilance 'splat' in the reverb.

The Selig DeEsser gives you all the power you need to precisely control your vocal's sibilants in ways you may have never imagined. With its simple 'no threshold' interface and uncanny ability to accurately detect sibilance (using its fine-tuned Intelligent Sibilance Detection algorithm), the Selig DeEsser is the perfect tool for all your vocal de-essing needs.

The Details

The technology used in the Selig DeEsser is based around an advanced Intelligent Sibilance Detection algorithm (ISD), fine-tuned to produce precise and accurate results. Most notably, this approach doesn't employ a traditional threshold control which greatly simplifies the setup process. It also ensures that sibilance will be accurately detected from the softest to the loudest word in your vocal track.

Once sibilance is detected the Selig DeEsser employs a hybrid approach to sibilance control, allowing you to choose from one of two modes of operation: the more traditional D-S mode or the Selig Audio exclusive V-S mode. It should be noted that neither mode uses any filters or EQs in the audio path whatsoever, making this as pure a de-esser as you can get.

D-S Mode

90% of the time most users will be quite happy with the standard D-S mode, with its 'set it and forget it' interface. Simply choose how much sibilance reduction you desire and in most cases that's all you will need to do! You can also tweak the crossover point, though it's not as critical a setting as it is in other devices. In most cases the default setting of 2 kHz is perfect for male and female voices alike.

V-S Mode

For those who would like to explore another level of control entirely, there's the advanced V-S mode. V-S mode allows the Selig DeEsser to perform its custom *sibilance extraction* on vocals. In this mode, the sibilance is surgically extracted from the vocal and sent down its own signal path, allowing you to accurately reduce the level of the sibilance while leaving the voice elements totally alone.

The Voice and Sibilance signals are also available on their own outputs on the back panel, allowing you to take things one step further. By using the Voice and Sibilance outputs, you can extract and process the voice and sibilance signals separately on their own mixer channels.

Cutting out the sibilance by hand takes time to do accurately. The Selig DeEsser can do this automatically and in real time, which represents a huge step forward in advanced sibilance control. Why would you want to split the sibilance into its own track in the first place? Let me count the ways.

1. **Basic sibilance reduction:** by lowering the sibilance channel's fader you reduce the sibilance by a precise amount, and can easily be automated if need be.
2. **EQ/compress just the vocal, not the sibilance:** when adding brightness or compression to a vocal you typically bring out the sibilance. But if you first extract the sibilance from the vocal track, you can EQ/compress the remaining voice signal however you like without worrying about affecting the sibilance.
3. **Add reverb/delay to the voice, not the sibilance:** when adding reverb to a sibilant vocal track, you can get 'splatty' reverbs that may need to be darkened. By adding reverb to a vocal with its sibilance removed, you can use a brighter reverb and avoid the splats. If you like, you can add a little sibilance to the reverb by adjusting the reverb send on the Sibilance channel, which may sound more natural in some cases.
4. **Apply EQ or Dynamics to just the sibilance:** compress the sibilance to get a consistent amount of sibilance throughout a dynamic performance. EQ the sibilance to soften it or even brighten it while still being able to fully control it and totally avoid affecting the main vocal.

The Front Panel
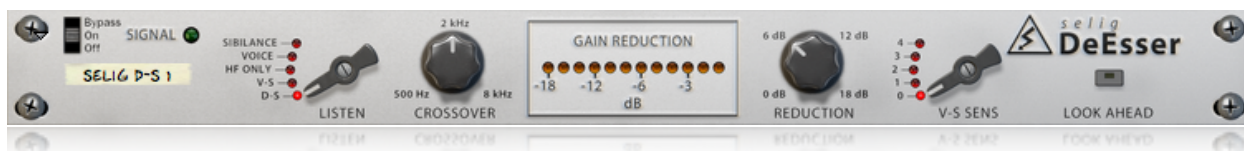
The controls are laid out in the following order:

Signal Indicator
Shows signal presence for quick indication of proper routing.

Listen
Selects which signal is routed to the main outputs. In addition to choosing between D-S and V-S listen modes, you can select between monitoring the crossover's high frequency band ("HF Only"), the "Voice" signal path (the vocal minus the sibilance), or the "Sibilance" path (the extracted sibilance on its own). You can select the mode by dragging up or down on the tip of the knob, or by direct clicking on the mode name/LED.

Crossover Frequency

Sets the crossover frequency of the detector. It should be noted that this crossover never appears in the audio path, and only affects the sibilance detector algorithm's response.

Gain Reduction Meter

Displays the amount of gain reduction being applied in decibels. Between 0 dB and 6 dB, each LED represents one decibel of gain reduction. Above 6 dB, each LED represents 2 dBs of gain reduction.

Reduction

Controls the amount of gain reduction in decibels that is applied to the audio signal. In D-S mode, this the maximum amount of gain reduction. In V-S mode this is the static negative gain applied to the Sibilance channel internally before being mixed back in with the Voice channel.

V-S Sens

This control allows increasing the sensitivity for the Intelligent Sibilance Detection algorithm. Increasing sensitivity can help capture more subtle breaths or other delicate sounds, but you may need to dial it back if any voice signals are allowed into the sibilance channel. You can select the sensitivity amount by dragging up or down on the tip of the knob, or by direct clicking on the mode name/LED.

Look Ahead

Inserts a 14 ms lookahead delay into the audio path to allow even more accurate sibilance detection and reduction, but at the cost of additional latency. While it may not always be needed, it proves most useful when using V-S mode to separate the voice and sibilant components onto their own mixer channels.

The Back Panel

Here you will find the input and outputs for the DeEsser. Separate Voice and Sibilance outputs are provided in addition to the main output. CV outputs for Reduction and V-S control are also provided for anyone wishing to explore more complex routing options.

Main Input

All signals enter the Selig DeEsser on these jacks. While there are two inputs, the Selig DeEsser is a mono device and will sum the left and right signals before processing.

Main Output

You will use these output jacks most of the time, as they provide the simplest way to use both the D-S and V-S modes. While there are two outputs, this is not a stereo device. The signal on both output jacks will always be the same, so consider these jacks as "dual mono" outputs.

CV Outs

These are provided for potential advanced CV routing applications. The Reduction CV provides the current gain reduction level as a unipolar CV signal. The full range is 0 dB to 18 dB. The V-S output is a unipolar output that is at its maximum value when sibilance is detected, and at zero when not.

Operation

Intelligent Sibilance Detection (ISD)

The Selig DeEsser is based on an Intelligent Sibilance Detection (ISD) algorithm. This algorithm expects to "see" a single vocal track as its input. It is therefore recommended that for best results you use this device only on mono vocal tracks. While there are two inputs and outputs on the Selig DeEsser, all internal routing is mono. This means any stereo tracks will be made mono when routed through this device. If you need to process a stereo vocal track you should use two Selig DeEsser devices, one for each channel. The results you get will depend entirely on the source material, as each DeEsser ideally can only "listen" to one vocal at a time. There are two Combinators included for stereo operation (see "Included Combinators" later in this guide).

Main Modes of Operation

There are two modes of operation in the Selig DeEsser, D-S mode and V-S mode. Each mode uses the same advanced ISD algorithm, but acts differently on the audio signal.

D-S Mode
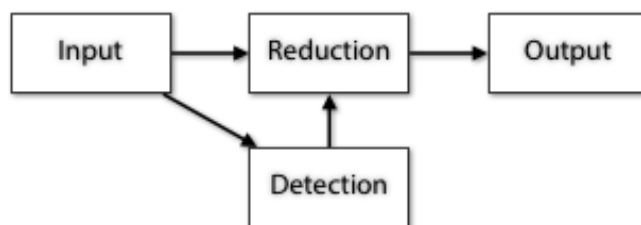
The D-S algorithm is the more traditional algorithm. The Range control sets the maximum amount of sibilance reduction you will see, but lower amounts of reduction are also possible. This makes this algorithm somewhat dynamic in its response to the incoming audio signal.
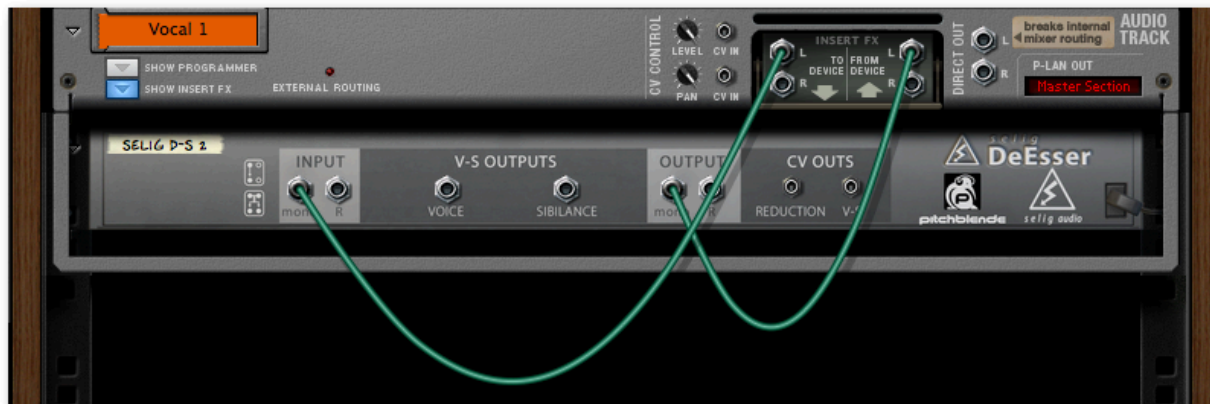
V-S Mode
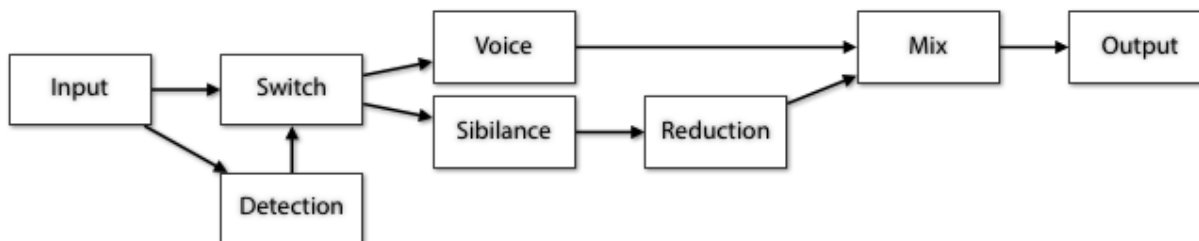
The V-S algorithm is more binary, either detecting sibilance or not detecting sibilance. When sibilance is detected, the audio is switched to a secondary signal path called the Sibilance channel. The Reduction knob controls the overall level of this path, which is then mixed back in with the rest of the signal, therefore controlling the amount of sibilance reduction. When you use the separate Voice and Sibilance outputs, this knob has no effect on the Sibilance level.
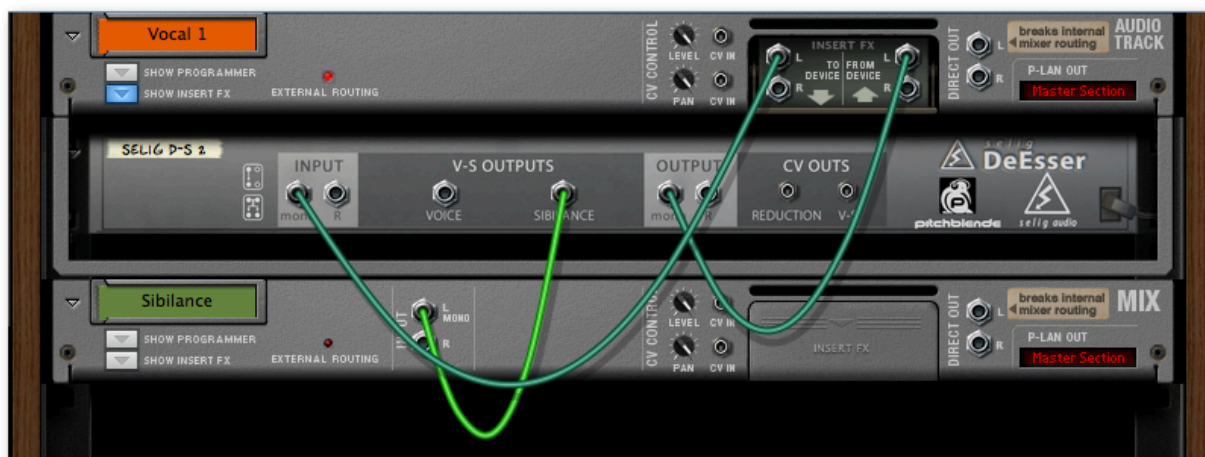
Routing

For most applications, simply routing via the main input and output will give the best results. For advanced sibilance extraction, some additional manual routing is required, but it's quite simple.

For normal operation in D-S mode and mono vocal tracks, auto-routing will take care of the routing for you and it will look like this:

For V-S mode operation, the quickest way to get up and running is to start with the Selig DeEsser inserted in an audio channel as above. Then create a new Mix Channel. Flip the rack around (Tab) and patch the Selig DeEsser "Sibilance Output" into the new Mix channel Mono Input, like this:

You will now need to return to the front panel and set the Listen mode to "Voice" mode and set the vocal channel's insert routing to "INSERT PRE" to complete the setup process:
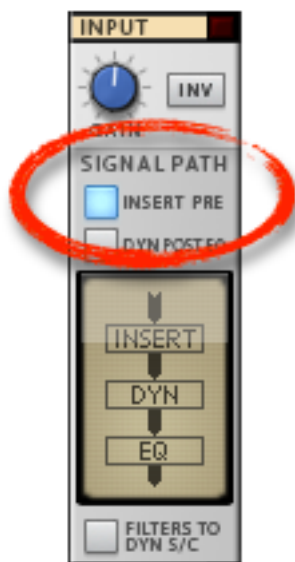
Choosing INSERT PRE insures any EQ you add to the voice channel does not get passed along to the sibilance channel, which would defeat the purpose of this routing. All the voice signals now appear on the original channel while all the sibilance appears on the Sibilance channel, saving you from the painstaking work of cutting them out by hand.

Settings

D-S Mode
This is the mode you will use for most of your de-essing work. Simply insert the Selig DeEsser on your vocal channel, and in many cases the default settings will work fine right out of the gate.

V-S Mode
Working with V-S mode is just a little trickier than with D-S mode, and to help there's an additional control called "V-S Sens" (sensitivity) which can come in handy when fine-tuning sibilance extraction . This control can help ensure that no sibilance is sent out of the voice output and vice-versa.

You may find that increasing the V-S sensitivity allows you to get better separation and even pick up all of the breaths in the sibilance channel. However, if you set it too high you may get an occasional "voice" signal in the sibilance channel. In the rare cases where the occasional vocal is erroneously sent to the sibilance channel, you can easily automate this control, lowering it on the troublesome words to get the best of both worlds. In practice this won't be a common occurrence, but you should be aware of this issue when increasing the V-S Sens

above a setting of 2 or so. When using higher V-S Sens settings be sure to listen once all the way through your track to be sure all is well.

Also note that adjusting the Crossover Frequency to a higher or lower value may make sibilance extraction more accurate if you are having problems. In any case where you are not getting 'clean' sibilance extraction, loop the line(s) in question and try increasing the Crossover Frequency as well as the V-S Sens to improve the detection process.

Finally, switching on the Look Ahead feature can be helpful in V-S mode as this modifies several additional internal parameters when engaged. Look Ahead provides 14 ms of look ahead time to work with, so the sibilance can be even more cleanly extracted from the voice signal. While this gives you better sibilance detection, it is suggested you listen and see if it is affecting the timing of your vocal track. Moving the audio clips on the vocal channel earlier by 14 ms is the most effective way of dealing with this issue. Alternatively, you can record the voice and sibilance to their own tracks so that all tweaking is done from the separate tracks. This is the quickest way to cut the sibilance out of a vocal and have it on its own track. Once the voice and sibilance are on their own tracks you can move them back by 14 ms and everything is back where it should be.

You now have total control over the sibilance and voice signals, as if you had painstakingly cut out each instance of sibilance to its own track but without the hassle!

Included Combinators

Stereo DeEsser

The Stereo DeEsser Combinator is provided for those needing to de-ess a stereo vocal sample or stem. The Selig DeEsser prefers to see a mono signal, so we need to use two DeEsser devices to create a stereo version. Because of the way the Selig DeEsser's ISD (Intelligent Sibilance Detection) algorithm works, your results may vary with this setup.

Mid Side DeEsser

The Mid-Side DeEsser Combinator is provided for those rare situations where the Stereo DeEsser (above) isn't able to do its work. Start by de-essing the mid signal (the default setting), as this is most likely to be the most effective approach. As with the Stereo Combinator, your results may vary with this setup.

Credits

Selig DeEsser
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Crafted by:
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Giles Reaves, for Selig Audio, LLC.

Many thanks to all the dedicated beta testers, including:
Josh Mobley, Navi Retlav, TONAL AXiS, Despondo, Adam McClure, Wendy Dunham, LC123, Nicholi Fernandez, Ostermilk,Linus Wileryd, Juan Pablo Arceo, EnochLight, EnochLight, Bernardo A. Cubelos, Brian Findlay, djfresha, and Lealand Green…

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