



 **NUGEN** Audio

OPERATION MANUAL

# SigMod

Custom Signal Architecture Made Easy



# Contents

Introduction	2
General Operation	4
Interactive signal-flow	5
Settings	6
Utility Controls	7
Modules	8-14
<b>Reporting a Problem</b>	<b>15</b>
<b>Version History</b>	<b>16</b>

# Introduction

NUGEN Audio SigMod is a flexible, modular, signal modification utility. SigMod is designed for applying simple processes to adapt and adjust an audio signal, allowing the user to quickly correct, tweak or convert an audio signal for a wide variety of purposes.

SigMod has many applications including adding missing master and channel strip features to a DAW, signal monitoring & routing, mid/side conversion and output level protection.

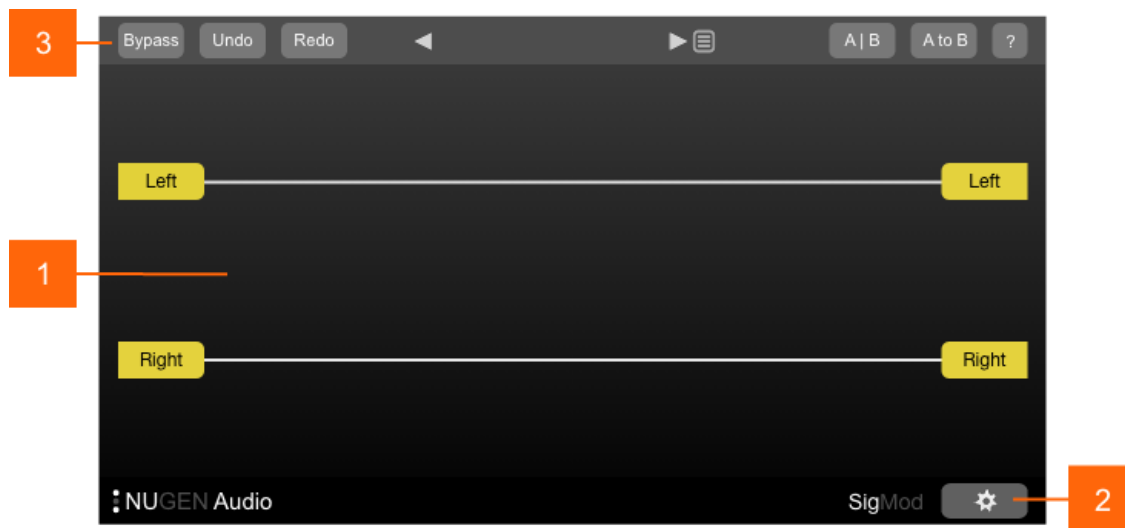
Each process is available as a single module and multiple modules may be combined in any order to design the precise effect required.

The resizing interface adapts automatically to the current configuration and numerous example presets are supplied to illustrate typical practical applications.

SigMod is suitable for many quick-fix tasks, enhancing or overcoming DAW limitations. Multiple modules may be combined to create complex experimental signal-flows and routings.

# General Operation

The SigMod interface provides an intuitive, self-adapting control surface showing a logical signal-flow from left to right. While the interface can be configured to show many different options, the fundamental principles of operation remain

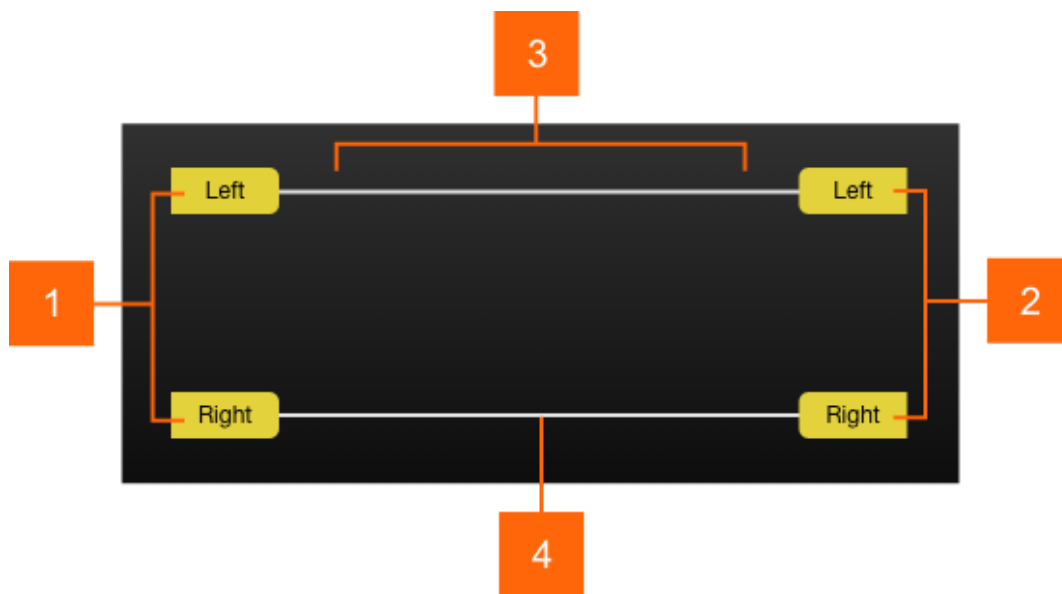


generally the same.

- 1 Interactive signal-flow.** This shows the current available modules chosen in the settings, and their controls. Buttons are highlighted when active, and numeric boxes can be updated by either double-clicking to directly enter a new value, or by click-dragging up/down to increase/decrease the value. The signal diagram shown will change and resize automatically depending upon the modules chosen via the settings panel.
- 2 Settings.** Click this button to open the settings panel to add, remove, re-order or change the function of modules in order to design a different signal-flow.
- 3 Utility controls.** SigMod supports a number of standard utility controls. These may be duplicated in some instances within the host DAW, however the controls within the plug-in will operate 'in place' to provide seamless audio performance.

## Interactive signal-flow

This area shows the functionality of the current patch, as an interactive signal diagram. The Input and Output modules are fixed, however a number of different modules may be inserted in between, and the interface will reconfigure automatically, showing the available options in the signal-flow.



- 1 Input.** This is a fixed module, configurable for mono, stereo LR or mid/side input. Click to activate/deactivate individual inputs.
- 2 Output.** Fixed output module. The output automatically indicates the selected signal encoding. Click to activate/deactivate individual outputs.
- 3 Modular signal-flow zone.** This area is reconfigurable and reflects the options available for the modules chosen in the settings panel. Although the various modules are different in application, operation is analogous.
- 4 Signal path.** The active signal path is shown highlighted bold, and adapts to reflect the state of available controls. Alternative (inactive) routing is shown in grey.

## Settings

The settings panel is used to reconfigure the signal-flow for the desired operational control. Modules may be added, removed, configured and re-ordered. The SigMod interface will automatically resize to accommodate the modules selected.



- 1 **Settings.** Click to open/close settings panel.
- 2 **Module name.** In and Out modules are fixed. Other modules may be added/deleted or moved up to a maximum of ten additional modules.
- 3 **Module parameter.** Some modules have additional parameters which can be used to change modes, units of measurement etc.
- 4 **Add new module.** Click to insert an additional module at this point. Clicking the '+' control will open a menu where a new module can be selected.
- 5 **Remove module.** Click the 'x' button to delete the associated module.
- 6 **Move module.** Click-drag left/right the '=' control to change the position of the selected module in the signal-flow.

When the desired signal-flow has been created, return to the main view by clicking the Settings button.

## Utility Controls



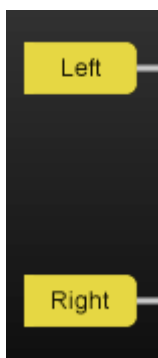
- 1 **Undo | Redo.** Unlimited session undo and redo commands allowing the user to step back and forward through processing modifications.
- 2 **Preset browser.** Use the arrow buttons to step sequentially through the presets or click the end control to open the preset menu to select from a list. Double click the name to rename session presets.

### Preset management.

- The 'Installed' folder contains the factory presets. These cannot be overwritten.
  - User presets can be saved in the 'User folder'. An '\*' symbol will be shown against the preset name if the settings have been changed from the saved version.
  - Additional folders can be created using the '+' button
  - Presets and folders can be organised by clicking the '...' symbol which is highlighted when the mouse pointer is placed over the folder/preset name. Folders can be deleted, renamed and browsed using the standard OS interface. Presets can additionally be moved and copied.
- 3 **A | B and A to B (B to A).** These controls switch data between the 'A' and 'B' memories for direct comparisons between two different sets of parameters. The A|B control toggles between the A and B memories (current active memory highlighted). The A to B (B to A) button transfers current settings to the memory indicated, ie. From A to B or vice versa.
  - 4 **? Opens the 'About' page, with access to licensing options, credits, and the product manual (if installed).**

# Modules

## Input

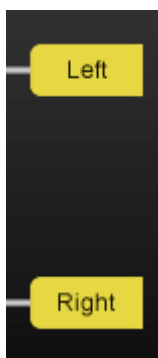


The Input module is a permanent module, fixed at the beginning of the signal-flow. Left/Right (or optionally Mid/Side inputs, selectable in the settings panel) are shown.

When SigMod is inserted on a mono track, the module is simply labeled 'Input'.

Inputs may be activated/disabled by clicking the appropriate button.

## Output



The Output module is a permanent module, fixed at the end of the signal-flow. Left/Right or Mid/Side outputs are automatically deduced from the signal path settings.

When SigMod is inserted on a mono track, the module is simply labeled 'Output'.

Outputs may be activated/disabled by clicking the appropriate button.

## Mid-Side

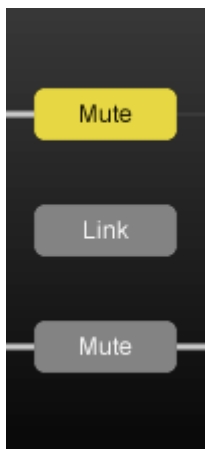


The Mid-Side module can be used to encode a Left/Right input to Mid/Side, or decode a Mid/Side signal to Left/Right. This is useful for Mid/Side signal monitoring, accessing the Mid/Side signal components independently, or using Mid/Side recordings in a traditional Left/Right stereo context.

Tip: Using two instances of SigMod either side of a 3rd party stereo Left/Right plug-in with independent control over each channel allows the 3rd party plug-in to be used in Mid/Side mode. (Use the 'Switch LR to MS' preset on the first instance of SigMod, and the 'Switch MS to LR' preset on the second).



## Mute/Solo



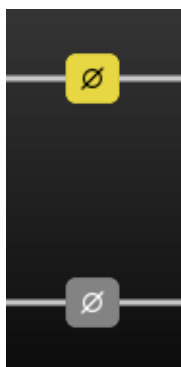
The Mute/Solo module introduces Mute or Solo controls into the signal path.

Mute or Solo functionality is determined using the drop down option in the settings panel.

The Link control links both functions together in the case of the Mute control. Link is not available when the Solo function is active.

The Mute/Solo control can be useful for quickly auditioning either side of a stereo signal, or in conjunction with the Mid/Side module, to monitor the Mid and Side signals independently.

## Phase



The Phase module introduces phase inversion switches (polarity) into the signal path.

This can be useful for checking the polarity of dual microphone setups, fixing phase inverted channels.

Tip: To hear what changes a plug-in is doing to a signal, take a processed and unprocessed version of the signal, switch the polarity of the original signal and mix back in with the processed version to hear only the difference the plug-in makes.

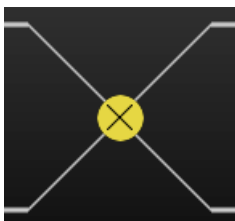
## Mono



The Mono module inserts a mono switch into the signal path. Activating the mono button adds the two channels together.

This is useful for checking mono compatibility of a mix, FX plug-in or synth and phase coherence within dual mic set-ups.

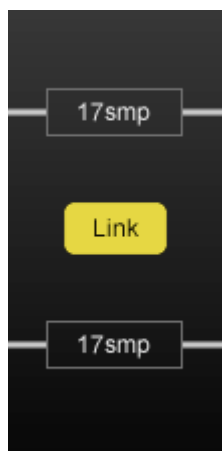
## Switch



The Switch module adds the ability to switch channel components over (L/R to R/L and M/S to S/M).

Channel outputs automatically reflect the changes made.

## Delay



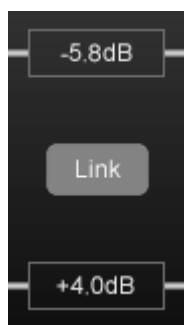
The Delay module adds the ability to add delay to each channel independently. The Link control links the value of both components together.

Double click to enter a value directly, or click drag up/down to increase/decrease the value.

Units of ms, samples or BPM-locked ratios can be selected from the settings panel.

This module can be useful for minimising phase issues & plug-in delay compensation errors and adding tempo based offsets.

## Trim



Trim module adds a gain offset to each channel. The Link control links the value of both channels together.

Double click to enter a value directly, or click drag up/down to increase/decrease the value.

This module can be used to correct minor imaging errors or modify the stereo image by adjusting the ratio of Mid to Side components.

## Protect

The Protect module monitors the audio signal level (in dBTP) and automatically mutes the output level if the selected level is exceeded.

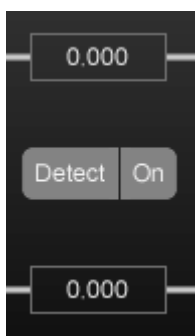
Several reset modes are available via the settings screen:



- Manual. (the signal path will need to be restored by clicking the signal path in the plug-in GUI).
- Auto (1, 2, 3, 5 secs). The plug-in automatically resets after the chosen time period.
- Popup. A system popup window is triggered. This can be useful if the plug-in is installed as a matter of routine protection and its operation is forgotten. The pop up saves hunting around for the reason behind the sudden signal drop-out.

Placed on the master bus, the Protect unit can help protect both equipment and hearing from sudden noise bursts caused by feedback or incorrectly functioning equipment/software.

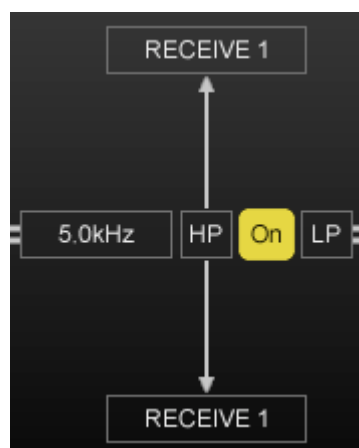
## DC Offset



The DC Offset unit detects or manually offsets incoming audio, removing bias in the audio recording.

To automatically detect the offset, play affected audio and click the 'Detect' button. This will then listen to the incoming audio for a few moments before calculating an appropriate value.

## Crossover



The Crossover module allows the signal to be split at a specified frequency, with the signal above or below the crossover point (depending upon the filter chosen) passing through for further processing.

The HPF (High Pass Filter) can be very useful in removing unwanted low frequencies from microphone recordings, and removing excessive sub-bass to increase digital headroom.

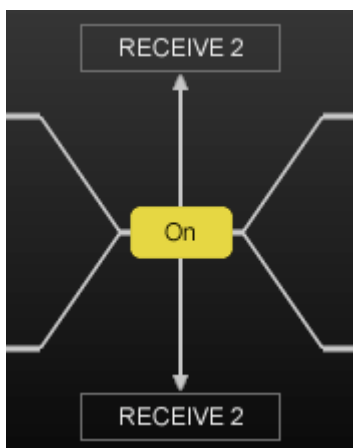
The NUGEN Audio Receive plug-in (included with SigMod installation) can be attached to allow the removed signal to be sent to another track for incorporation into the mix. This is useful for parallel processing, adding effects to only part of the frequency spectrum or adding different effects above and below the crossover frequency.

To use Receive:

- Insert Receive on an empty track, separate to the track containing SigMod.
- Ensure that the Crossover module is connected to Receive.
- With the Crossover module switched on, the filtered audio will be sent to the track containing Receive.

If no audio is playing from the Receive track, or the audio is glitchy, ensure that your DAW is set up to allow plug-in processing even when there is no audio present on the timeline. This differs from DAW to DAW, but in most cases enabling input monitoring on the Receive track will fix the issue.

## Tap



The Tap unit is designed to allow audio to be easily duplicated to a second track for parallel processing or monitor routing.

Multiple Tap units may be used to quickly set up complex routing and overcome limited DAW sidechain or send bus capabilities.

The Tap unit works in conjunction with the NUGEN Audio Receive plug-in.

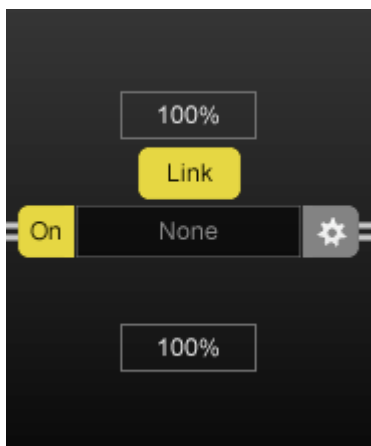
To use Receive:

- Insert Receive on an empty track, separate to the track containing SigMod.
- Ensure that the Tap unit is connected to Receive.
- With the Tap unit switched on, audio will be sent to the track containing Receive.

If no audio is playing from the Receive track, or the audio is glitchy, ensure that your DAW is set up to allow plug-in processing even when there is no audio present on the timeline. This differs from DAW to DAW, but in most cases enabling input monitoring on the Receive track will fix the issue.

## Insert

The Insert module allows the insertion of VST2, VST3 or AU (Mac) plug-ins anywhere within the SigMod signal flow. The addition of a 'Dual Mono' option in the settings screen allows for complex parallel processing within SigMod, without the need to duplicate tracks or employ multiple buses.



The Wet/Dry controls will be shown when a plug-in slot is on. They can be used to blend the incoming signal with the output signal processed by the Insert effect. 0% is completely dry and 100% is completely wet. The Link control is only available in stereo mode and links the value of the Wet/Dry mix for each side.

To manage the plug-ins available within the module, click the 'Gear' icon to open the available plug-ins menu.

Click 'Scan' to populate the plug-in list. You can also manually load a plug-in by selecting 'browse', and browsing to your plug-in file. SigMod will always scan the plug-in for compatibility before loading it. Loading a plug-in manually will also add it to the plug-in list.

Click any of the top icons - active, inactive, VST2, VST3, AU - to filter the plug-ins shown in the list below. If the button is highlighted then that type of plug-in will be shown. SigMod also filters plug-ins by channel count, so only Stereo plug-ins will be available in Stereo, and Mono plug-ins when in 'Dual Mono' mode. This option can be disabled by clicking the 'Gear' icon and deselecting 'Filter plug-in list by Channel Count'.

Clicking 'Hide' for a highlighted plug-in will send the plugin to the blacklist. Clicking 'Show' for a highlighted plug-in will rescan and send the plug-in to the active list.

To set the plug-in scan location, select the 'Gear' icon in the available plugins menu, select the directory currently listed and browse to the new location.

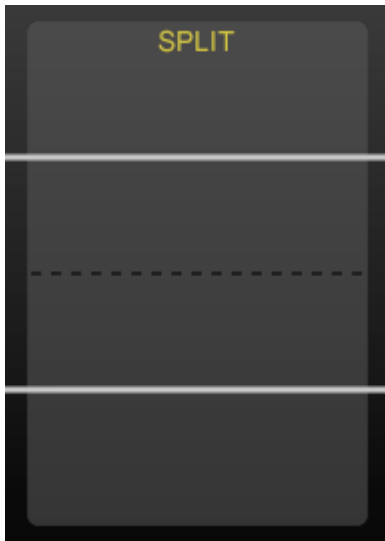
Once a plug-in has been inserted, clicking the plug-in name on the main interface can be used to open the usual plug-in graphical interface to adjust parameters.

Note: The Insert module only allows the insertion of VST2, VST3 and AU (Mac) format effect plugins. Virtual instrument (VSTi) plug-ins are not supported.

## Split

The Split module allows the signal to be split into two mono channels which can then be processed independently of each other.

The module is made up of two sections, with the upper section representing the left channel, and the lower section representing the right channel. Other modules can then be inserted into each section to independently process the corresponding channel.



Placing a Mid-Side module before a Split module allows the mid and side signals to be processed separately, with the upper section representing the mid channel, and the lower section representing the side channel.

## Reporting a Problem

If you encounter a problem with any of NUGEN Audio's products, please let us know, to help us improve them.

You can email the NUGEN Audio support team at [support@nugenaudio.com](mailto:support@nugenaudio.com).

To make it easier for use to resolve the issue you are seeing:

- Please give a clear explanation of the problem, including any steps required to reproduce it if appropriate.
- Please state how frequently you've experienced the problem.
- Please supply details of the system you are using, in particular:
  - The operating system (Windows/Mac OS) and version.
  - Host application and version.
  - CPU speed and RAM available.

Please be patient with any problems you may experience, particularly with products at a beta stage of release. At NUGEN Audio we take problems with our software seriously, and will endeavor to correct them as quickly as possible.

# Version History

- 1.0 Initial release
- 1.1 New module 'Insert VST3' added  
Delay Module BPM Tempo lock options added  
Delay Module maximum delay time extended  
Parameter value readout added
- 1.2 Hosting for VST2 and AU plugins added  
Multiple Insert module instances enabled  
Added Wet/Dry and Link controls for Insert module  
Fix for delay bug  
Updated text boxes
- 1.3 New module 'Split' added  
Mono version of the plug-in added  
Updated the GUI look  
New presets
- 1.3.1 Improved latency handling  
Bug fixes for the Insert module and Plugin Browser  
Improved mix range for the Insert module (option in the menu)  
Cubase projects now restore properly with Receive connections  
DC Offset corrections have been fixed for the right-side channel  
Minor visual updates



 **NUGEN** Audio