SONALKSIS

MaxLimit

Operation Guide

Contents

Sonalksis MaxLimit

Introduction

This guide describes the features, operation and applications of the Sonalksis MaxLimit. 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*.

Brick-wall limiting is a ubiquitous process in the age of digital audio. Initially developed purely for practical purposes - to prevent digital overload – it has in recent years been used prevalently for volume maximising purposes. Most digital limiters intended for brick-wall limiting are designed either with transparency or with power maximisation in mind, as it is naturally difficult to achieve both at the same time. MaxLimit however is different…

MaxLimit is a digital style limiter that allows program material to be pushed a little harder, without distorting frequency content. It introduces a unique ‘smoothing’ feature, which allows direct control over the balance between limiting transparency and volume maximisation. This makes the MaxLimit an extremely flexible tool, with broader applications than typical digital limiters, and with subtle control over the ‘pressure’ that it exerts on the audio.

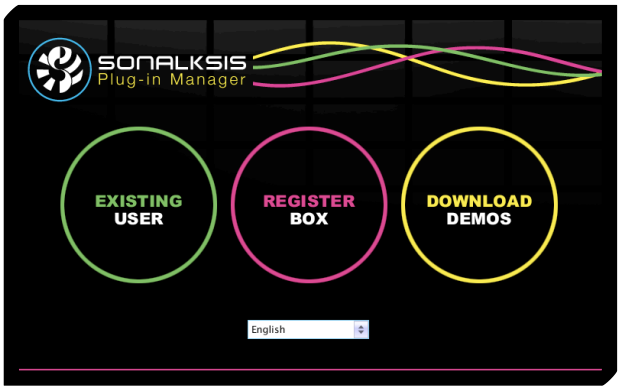
Alhough MaxLimit is primarily intended for mastering purposes, it can be used for a much broader range of applications. The 'smoothing' feature, coupled with the inclusion of an analogue modelled 'Clip' option, makes it conceivably very useful for general tracking situations too, not just to tame the extremities of highly dynamic audio, but also to add character to a track.

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*.



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.

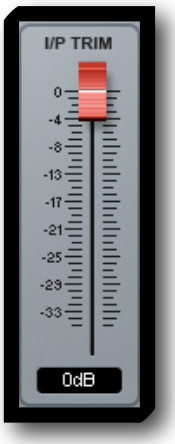
If your audio computer is not internet enabled, you must go to the 'Product Activation' section on the Sonalksis website in order to obtain an authorisation file. You will need the 'Activation Code' that is displayed when you run the Plug-in Manager on your offline system. You can then download your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

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 MaxLimit brickwall limiter. You can read more about general features common to all Sonalksis plug-ins in the *Universal Plug-in User Guide*.

Input Section



The *I/P TRIM* fader is used to trim the audio signal entering the plug-in. Under normal circumstances it may not be necessary to use this fader, however some users run their session levels very 'hot', and as this processor may be inserted on a master buss, it is feasible that the input signal will greatly exceed 0dB. If this is the case, it will be useful to reduce the input level to obtain better control within the limiting section.

Threshold Section

The *THRESHOLD* section contains a meter to monitor the input signal, and a fader that selects the limiting threshold. The meter and threshold fader line-up together so by lowering the fader to the point at which the meter display is peaking, the limiter will begin to limit. Lowering the fader further will excite the limiter more, as larger amounts of the signal are processed. The amount of limiting that takes place is displayed on the LIMIT meter to the right of the threshold fader.

Limit Parameters

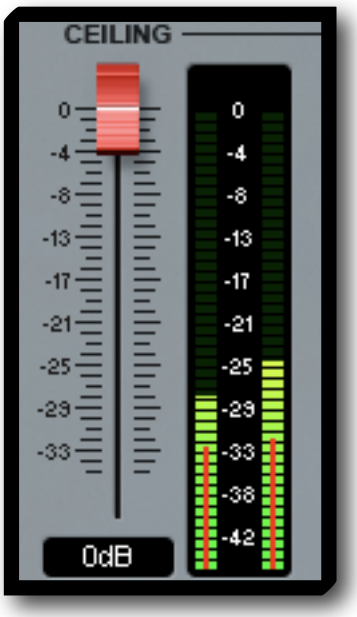
There are three parameters that affect the character of the limiter:

Firstly the *RELEASE* time. This will perhaps have the greatest impact on the resulting limiting, as it allows anything from transitory 1ms release times up a full 1 second. Very short release times (<50ms) are only recommended when taming short transient peaks or when applying minimal limiting, and are not ideally suited to general program maximisation, even though they technically increase the power quotient to higher levels than longer release times. It is almost impossible to transparently achieve large amounts of limiting with very short release times, and a certain 'graininess' may be heard when pushing the limiter hard with a very short release setting. When the 'Auto' button is activated, the release time becomes program- dependent, and will vary automatically in accordance with the characteristics of the audio signal.

Secondly the *SMOOTH* parameter. This unique parameter balances the internal processing either towards volume maximisation (lower settings, approaching 0%), or towards greater transparency (higher settings, approaching 100%). The smooth parameter is very useful when attempting to limit with faster release times, as increasing the smooth setting can allow a greater amount of limiting to take place before the process loses transparency.

Thirdly the *CLIP* parameter. Audiophile philosophies (and screams!) aside, it is recognised that some users occasionally apply a minimal amount of digital clipping under certain circumstances, either for effect or to obtain a theoretically maximal limit on some material. The MaxLimit allows you to achieve this very simply, if you so wish. Furthermore, given the conceivable broader uses of this plug-in as explained previously, we have included a true-analogue mode for the clip parameter, selectable via a preference, which may be useful when using the limiter for tracking or effect purposes. When not in digital mode, the clip uses Sonalksis' analogue modelling technology to replicate the performance of a true analogue clipper.

Ceiling Section



The *CEILING* fader sets the maximum possible output level of the limiter. The meter next to this fader displays the output audio signal.

When the *LINK* button is activated, the threshold and ceiling faders will be linked IN ONE DIRECTION ONLY – when the threshold fader is moved, the ceiling fader will move by a corresponding amount. This feature is useful when attempting to set up the amount of limiting, as it prevents the overall level from increasing as the limiting increases. In this way, the ear is more able to hear any changes taking place in the character of the audio, which allows for a more precise determination of how much limiting to apply using the threshold fader. Once this is done, the ceiling fader may be raised again up to the required level.

Quantize Section

If the MaxLimit is used as a final stage mastering tool, the output can be quantized for the end medium by activating this button and setting the bit-depth accordingly (the depth can be set by clicking on the text display box below the *QUANTIZE* button and then selecting an appropriate option).

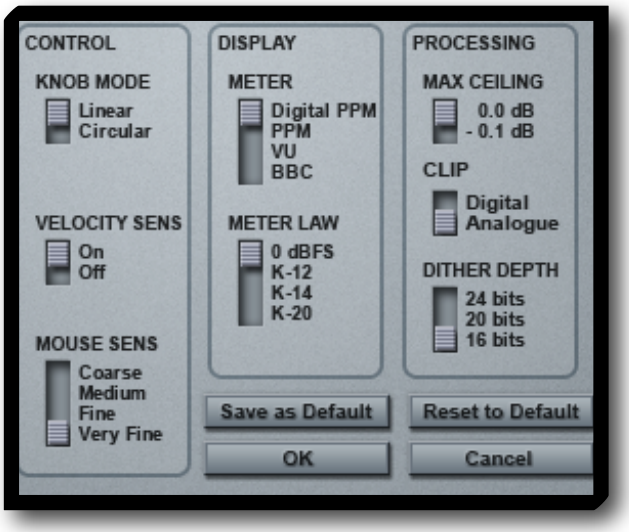
If the quantization is activated, a proprietary Sonalksis dither and noise shaping process is applied internally to ensure the end signal retains the ultimate possible resolution. If more control is required over the quantization, the Sonalksis Ultimate-D advanced resolution enhancement plug-in can be used instead.

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 MaxLimit 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 plug-in setups, or automating a complete change of parameters.

Clicking the *Reset* button will set all plug-in parameters to their default values. Setup preferences will remain unaffected however.

Preferences



A number of setup options for the MaxLimit are user-definable. These preferences are set via a number of switches on the 'backplate', which is accessed by selecting the *Setup* button in the top left corner of the interface. Once you have accessed the preferences, you can exit the backplate either by selecting *OK*, which saves any changes you have made, or *Cancel* which ignores any changes you have made.

Note that unless you select *Save as Default* after making changes, the alterations you make will not overwrite the general default setup, which will be used again when you open a new instance of the plug-in.

Most preferences are global, in that they affect every instance of the plug-in. Global preferences, such as the 'Control' settings, are stored and recalled according to the user logged in to the host system. However settings that affect the audio processing are 'instance specific', and will be stored with each session just like standard plug-in parameters.

Control Preferences

- **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.

- **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.

- **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.

Metering Preferences

- **Meter** - 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.

- **Meter Law** – sets the meter scale according to either a standard digital 0dBFS scale or one of three 'K-meter law' scales. For users unfamiliar with K-system metering, this is an emerging standard originally proposed by mastering engineer Bob Katz. When practised in conjunction with monitor calibration this system encourages better dynamics and standardised loudness levels in mastering production. More information on this subject is widely (and freely) available on the internet.

Processing Preferences

- **Max Ceiling** – sets the default maximum ceiling level for the limiters either to standard 0dBFS or -0.1dBFS. A output ceiling of slightly lower than the 0dBFS can be useful to prevent overload if external dither post-processing will be used.

- **Clip** – selects the clipping algorithm of this limiter feature, either to Digital or Analogue. Digital clipping will introduce aliasing and should be used either for effect or else very sparingly (for example only on short transients, where psychoacoustically the artefacts will not be perceptible). The Analogue clipper uses Sonalksis true analogue modelling technology and introduces only analogue harmonic distortion artefacts.

- **Dither Depth** – selects the default quantisation resolution of the plug-in.

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

MaxLimit Supported Sample Rates:

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

MaxLimit latency (audio throughput delay): 512 samples

NOTICE

The information contained in this document is subject to change without notice.

Sonalksis makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

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Acknowledgements