



# Operation manual

# ***ISL***

**Inter-sample True-Peak Limiter**

***v1.2***

**NUGEN Audio**



<b>Contents</b>	<b>Page</b>
Introduction	3
Interface	4
General Layout	4
Input metering and adjustment	5
Gain reduction and processing options	6
Output metering & listen mode	8
Set-up options	9
Utility controls	11
Reporting a Problem	12
Version History	13



## Introduction

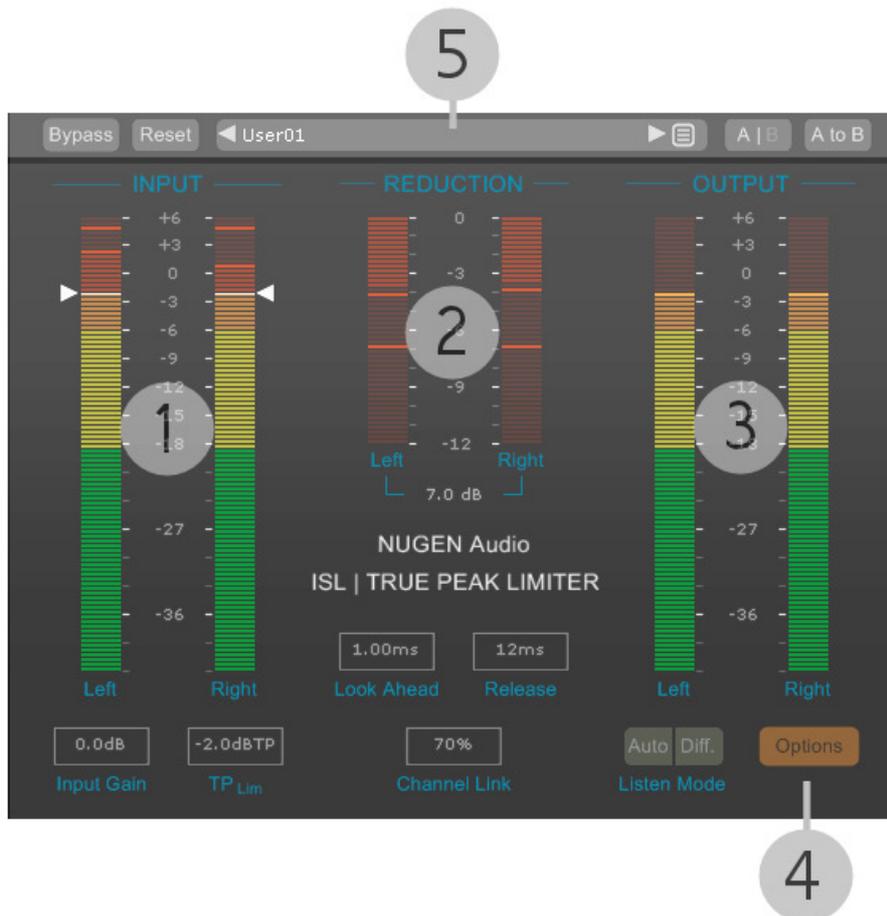
The NUGEN Audio ISL inter-sample True-Peak limiter is designed for the control of peak levels in audio signals from mono through to 7.1. Unlike traditional approaches to limiting, ISL offers a true brick-wall solution, measuring inter-sample peaks and allowing the user to define the True-Peak Limit of the audio output (rather than the more traditional threshold control at which limiting begins to take effect).

ISL uses the standardised True-Peak algorithms of ITU-R B.S. 1170 and related standards and is suitable for the control of audio for Post Production and Broadcast applications. True-Peak limiting can also be used to ensure that down-stream Codecs (mp3, AAC etc.) do not introduce distortion into the signal.

Whilst ISL has been designed for the transparent limiting of relatively dynamic high-quality audio, it can also be used to hard limit and reduce dynamic range considerably if this is required.

## Interface – General Layout

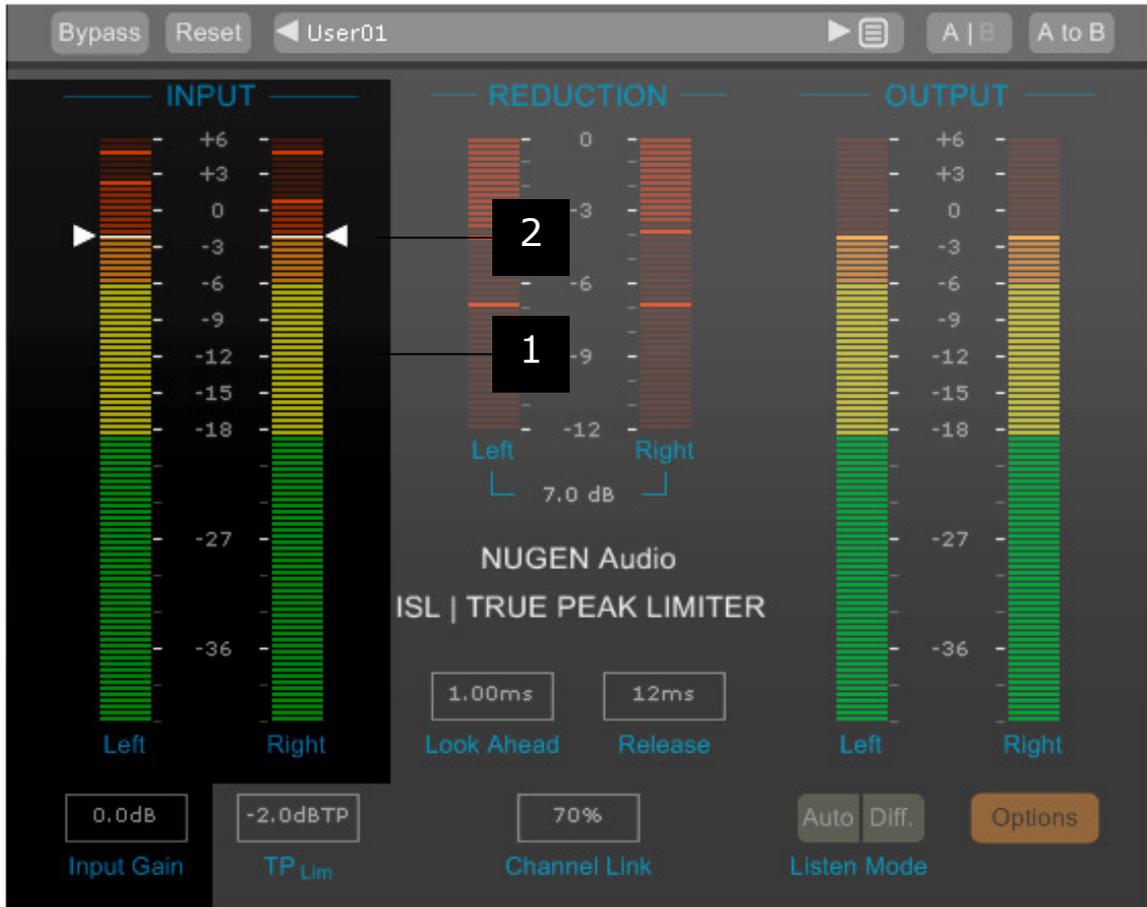
The interface is designed to facilitate intuitive operation by following a logical flow from left to right, grouping similar aspects of operation into distinct zones as shown below.



- 1 Input metering and adjustment
- 2 Gain reduction and processing options
- 3 Output metering and listen mode control
- 4 Detailed set-up options
- 5 Utility control zone

## 1. Input metering and adjustment

This section provides a view of the True-Peak input levels (dBTP). Depending upon the version chosen and the audio track this will be shown in a stereo, 5.1 or 7.1 configuration.

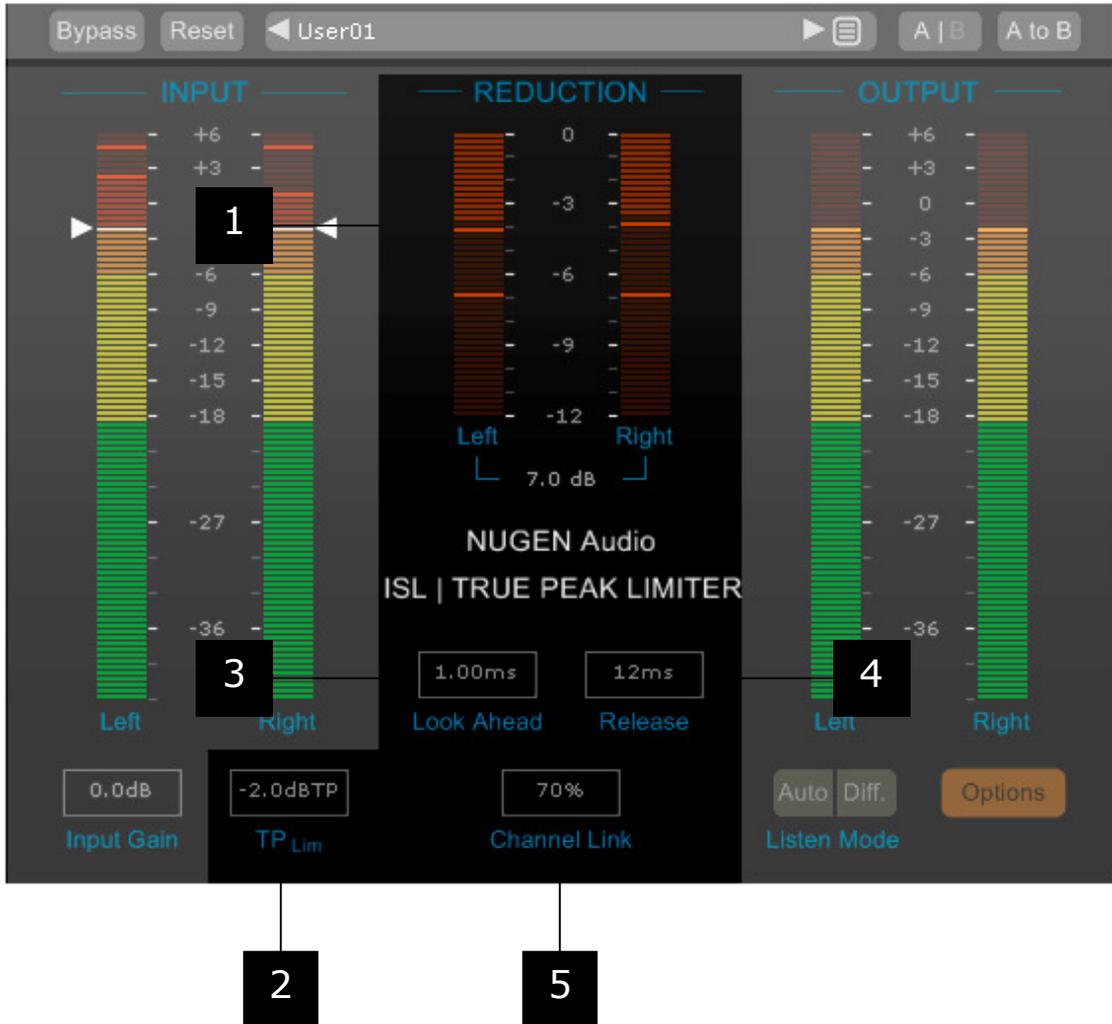


2

- 1 **Input Level meters.** Depending upon the configuration, ISL will show stereo input, 5.1 or 7.1 metering. The level is shown in dBTP (True-Peak decibels) and can be used to give a standard compliant reading of the incoming audio signal. It is possible to configure the colour and peak hold settings in the options panel. If the input level exceeds the range of the meter, the peak-hold marker will flash until re-set. Click the meter to reset levels.
- 2 **Input Gain adjustment.** This parameter can be used to increase or reduce the input level of the incoming audio signal. Click and drag the mouse up or down to adjust the value. It is also possible to double click and enter a target value directly. Alternatively, the arrows on the level meter may be dragged up/down to set the value visually.

## 2. Gain reduction and processing options

This section provides a view of the True-Peak input levels (dBTP). Depending upon the version chosen and the audio track this will be shown in a stereo , 5.1 or 7.1 configuration.



- 1 **Gain reduction meters.** Depending upon the configuration, ISL will show stereo input , 5.1 or 7.1 metering. The level is shown in dBTP. If the gain reduction level exceeds the range of the meter, the peak-hold marker will flash until re-set. Click the meter to reset levels.

Below the meter the maximum gain reduction applied is shown in dBTP, which is also reset if the meter is clicked.

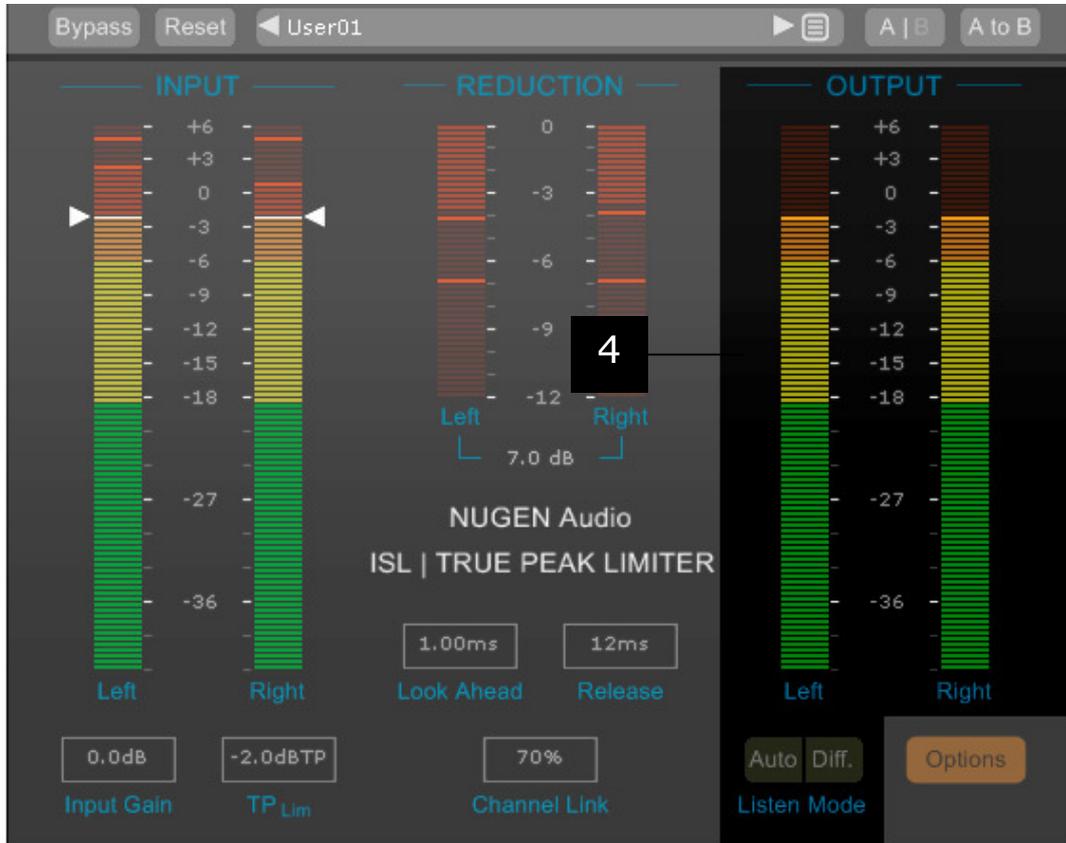
- 2 **TP<sub>Lim</sub>.** This parameter sets the True-Peak limit (in dBTP) for the audio signal. Click and drag the mouse up or down to adjust the value. It is also possible to double click and enter a target value directly. This parameter alone will ensure compliance with the TP requirements of current loudness standards.



- 3 **Look Ahead.** The look ahead parameter is used to allow ISL to look at the incoming audio in advance of applying processing which allows it to calculate the amount of gain reduction that will be required to meet the  $TP_{Lim}$  criteria. Lower values tend to preserve transients better, but very low values can increase the risk of audible side-effects as the time available to respond to the incoming signal is reduced.
- 4 **Release.** The release value determines how rapidly the limiter returns to zero gain reduction after the need for reduction is no longer present. The need for gain reduction is determined by the current level and influenced by the levels foreseen by the look-ahead section of the limiter.
- 5 **Channel Link.** ISL uses a series of fully independent limiters, one for each audio channel. The Channel Link control can be used to control how independently these can behave. 0% allows each audio channel to be operated on in isolation. A value of 100% will cause all channels to receive the gain reduction of the channel with the highest input level. Values in-between can be used to vary the degree of dependence.

### 3. Output metering and listen mode

This section provides a view of the True-Peak input levels (dBTP). Depending upon the version chosen and the audio track this will be shown in a stereo, 5.1 or 7.1 configuration.



1 **Output Level meters.** Depending upon the configuration, ISL will show stereo output, 5.1 or 7.1 metering. The level is shown in dBTP (True-Peak decibels) and can be used to give a standard compliant reading of the outgoing audio signal. It is possible to configure the colour and peak hold settings in the options panel. If the output level exceeds the range of the meter, the peak-hold marker will flash until re-set. Click the meter to reset levels.

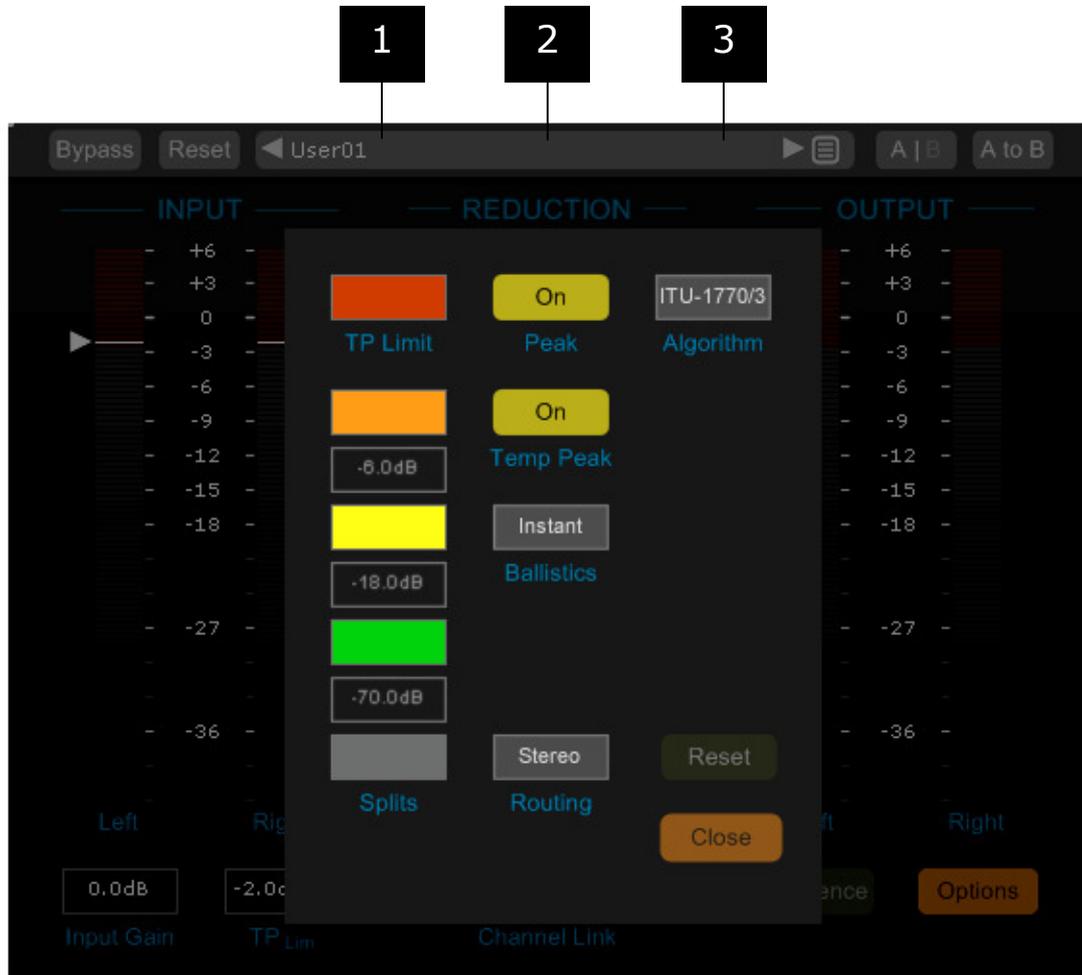
2 **Listen Mode\*.** **Auto** automatically adjusts the output for the input gain applied in the input section. This allows the user to bypass the plug-in and compare the 'effect' of the limiter without the gain section apparent at the output.

The **Diff** (Difference) parameter can be used to switch the output into 'difference' mode. In difference mode ISL allows the user to listen to the difference between the input and the output ie. The gain reduction applied. This can be extremely useful for highlighting changes when fine tuning parameters (eg. The limiter release time) and for checking the processing when a particularly transparent solution is required.

*\*Note: both listen modes affect the output and are designed to aid user adjustment and should not be active during mixdown.*

## 4. Set-up Options

This section provides access to a number of parameters affecting the look, feel and underlying algorithm of ISL. The options panel is opened by clicking the Options button on the main interface.



- 1 **Splits.** This section allows the level meters to be split into colour banding to facilitate the rapid assessment of whether readings are falling within desired ranges or not. The split values determine the position of the colour boundaries. Click-drag up and down to change the value or double click to enter a value directly. To change the colours of the sections, click the swatch to open up the colour picker window.
- 2 **Peak.** The peak control toggles the peak-hold feature on/off.  
**Temp peak.** The temp peak control toggles the temporary peak-hold feature on/off.  
**Ballistics.** Sets meter ballistics to recognised standards. The update rate and time window is as defined in EBU R128, this parameter determines the decay time only.



**Routing.** The routing control displays the channel routing within ISL. This will either show 'stereo' for mono or stereo operation or give a 5.1 routing configuration for audio channel routing beyond stereo. Click the box to select from the different options where available.

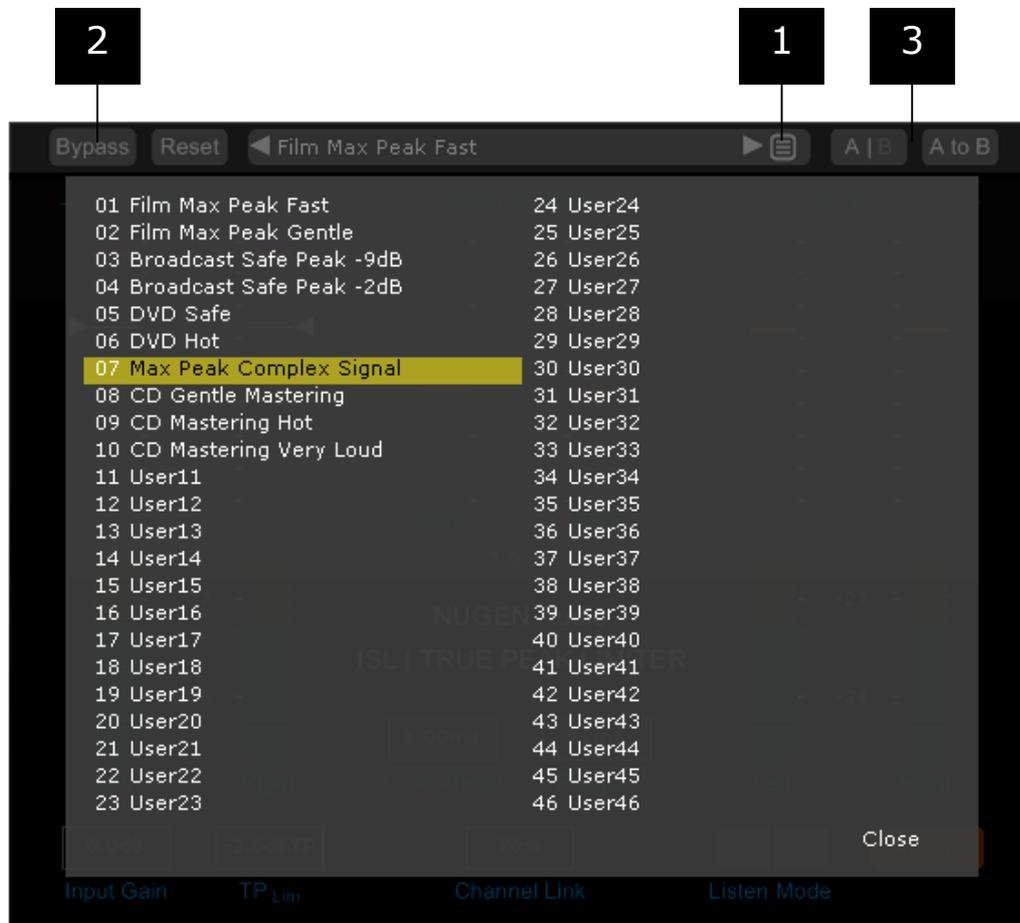
- 3 Algorithm.** Choose from the ITU-R B.S. 1770 true-peak algorithm or the afclip algorithm used in the Apple Mastered for iTunes™\* assessment.

**Reset.** Resets the meter to it's initial configuration.

**Close.** Closes the options panel.

## 5. Utility controls

ISL 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.



- 1 **Preset Browser.** Click to open preset browser window to select presets from list. Use arrows to move through presets in order.
- 2 **Bypass.** In-place bypass mode, preserving PDC to avoid re-lock issues.
- 3 **A|B.** Switch between temporary session A and B memories to compare two sets of settings.  
  
**A to B** (or B to A) transfers current settings in the direction indicated, overwriting those currently in the destination memory.

## General Functions

- Holding down control (Ctrl) and clicking a control will return the control to the default position (Win) or double click a control (OSX).
- Holding down shift whilst moving a control will allow fine adjustment to be made.



## Reporting a problem.

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

Please email NUGEN Audio at **support@nugenaudio.com** giving a clear explanation of the problem. Please state how frequently you've experienced the problem. If there are any particular steps you need to go through to see the problem, please detail these.

Please also state your operating system, and the rough specs for your machine (e.g.- CPU speed, RAM) - in Windows XP you can get this information by right-clicking "My Computer" and selecting properties.

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 endeavour to correct them as quickly as possible.



## Version History.

### **1.0 Initial release**

### **1.1 AAX Release**

Ilok licensing option introduced

### **1.2 7.1 version added**

Apple afclip algorithm added

Additional meter ballistics added

Nordic

PPM I

PPM II