

LA xLimit II

Manual



by tb-software 2016

1 Introduction

Welcome to LA xLimit II, a look ahead, wideband linked-stereo limiter including ISP (inter sample peak) detection and oversampling.

LA xLimit II is the successor of LA xLimit, our very popular look ahead limiter. It offers more control over transients and adaptive release curves. It also adds a second limiter stage for better performance in ISP detection mode.

The goal of the design was to cover a broad range of limiting applications in today's mixing and mastering situations with strong focus on *low aliasing*.

2 Features

LA xLimit offers following features:

- state of the art low aliasing look ahead limiter design
- freely adjustable limiter character
- detailed transient control
- freely adjustable adaptive release curves
- level detection modes: peak and ISP based on ITU BS1770.4
- "real" oversampling, up to 8x
- stereo link
- 2 stage design for better performance in ISP mode
- built-in clipper

- easy to use GUI
- large and accurate live meters
- all sample rates
- free for registered LA xLimit users
- demo version available

Note: This plugin adds latency to the audio path, which is usually compensated by the DAW (PDC).

3 Design

LA xLimit II is specifically designed for mastering, digital editing, multimedia, and any application that requires limiting of the digital signal with top notch quality and lowest aliasing. LA xLimit II guarantees ultra fast and overshoot free response by using advanced look ahead algorithms.

In order to fulfill today's TV, broadcast and music production requirements LA xLimit II offers True-Peak limiting (ISP) based on ITU BS.1770-4 specification and on top of it up to 8x "real" oversampling. Combined with True-Peak limiting reaches even highest production standards.

LA xLimit II includes an advanced adaptive release control system which reduces massively artifacts caused by fixed release times. In order to increase limiting sensitivity both stereo channels can be freely linked/unlinked.

After adjusting limiters threshold the maximum peak level of the signal (ceiling) can be set. Once fixed, limiting and re-leveling becomes a very easy process.

LA xLimit II is designed to be used as last plugin in the processing chain (brick-wall limiting).

4 Minimum System Requirements

- Windows XP SP3 or newer
- Mac OS X 10.5 or newer
- Win: 32/64 Bit VST, 32/64 Bit VST3, 32 Bit RTAS, 32/64 Bit AAX
- OS X: 32/64 Bit VST, 32/64 Bit VST3, 32/64 Bit AU, 32 Bit RTAS, 32/64 Bit AAX
Tested with: Cockos Reaper, Steinberg Cubase/Nuendo/Wavelab 6/7/8, FL Studio 12.x, Studio One

5 Plugin Controls

LA xLimit II is designed to reset all internal measurements if significant parameter changes are made. This keeps all displays updated. LA xLimit II uses various graphical elements to control the parameters of the plugin:

Value knob:



Mouse click and drag up/down or mouse wheel changes value.
Mouse shift click resets value.
Mouse double click or mouse right click opens value input box.

LED-Button:



Mouse click enables/disables function,

Popup menu button:



Mouse click opens popup menu.

6 Plugin Controls

6.1 Character

"Character" controls the look ahead time of the limiter. Small values let the limiter use less samples to calculate gain reduction.

0 - 100 %, default 12 %.

6.2 Transients

"Transients" controls how much of the transients are passed to the internal clipping stage. Higher values make the signal more clip.

0 - 200 %, default 0 %.

6.3 Release

Release time controls how fast the limiter recovers to the constant gain after a peak is detected. Depending on application different release times can be used. For track/bus limiting typical values are 25 up to 150 ms. For mastering applications typically 0.5 - 5 ms are used.

0 - 1000 ms, default 1.0 ms.

6.4 Adaptive Release

Adaptive release calculates the best release time every sample for optimum level with minimum artifacts and aliasing effects. For nearly all limiting applications adaptive release will outperform a fixed release time. The adaptive release curve is controlled by parameter "Dynamics".

6.5 Dynamics

"Dynamics" controls the characteristics of the adaptive release curve. Higher values gives less curve elasticity.

0 - 100 %, default 0 %.

Note: Release time control sets the minimum release time in adaptive release mode.

6.6 Ceiling

Calibrated in dBFS. Ceiling sets the maximum level output signal can reach. If ISP is selected this is the maximum True-Peak level. Using Alt-key with mouse changes threshold as well.

-60 - 0 dB, default 0.0 dB

6.7 Stereo Link

Set to 100 % gain reduction is calculated from highest peak on both stereo channels, set to 0 % both channels are processed fully independent.

0 - 100 %, default 100 %

6.8 Threshold

Calibrated in dBFS. Threshold sets the minimum level where the limiter starts to act. If signal is below no limiting is done. Limiter activity can be monitored by gain reduction (GR) meter. Using Alt-key with mouse changes threshold as well.

-60 - 0 dB, default 0.0 dB

6.9 Detection

Peak: Normal peak level detection. The peak level is calculated from the maximum level of left and right stereo signal.

ISP: Inter sample peak detection (for ISP please look here for further information: http://en.wikipedia.org/wiki/Audio_normalization). ISP detection is based on the ITU BS.1770-4 specification and adapted for other sample rates than 48.000 Hz and internal oversampling.

6.10 Oversampling

Incoming signal could be oversampled up to 8 times. As LA xLimit II uses highest quality up/down-sampling algorithms for *low aliasing* operation significantly more CPU resources are used.

6.11 Meter



Meters for input signal (L/R Input), output signal (L/R Output) and gain reduction (L/R GR). In ISP mode True-Peak values are displayed.

LED signal meter range is from -60dBFS to +12dBFS, in 3dB steps.

LED gain reduction meter is from -60dB to 0dB, in 3dB steps.

Value below meters show maximum value.

If signal clips (above 0dBFS) top LED lights red. Mouse click on one of the meters resets max. values.

7 Demo mode versus Registered mode

In demo mode (without registering) the plugin mutes audio every 90 seconds for a short period. This could be circumvented by clicking on the "LA xLimit II" label within 90 seconds.

You can register at <http://www.tb-software.com\tbproaudio>.

8 Conclusion

So finally if you have any questions or suggestions just let us know. And have fun with our tools.

Your team from TBProAudio :-)