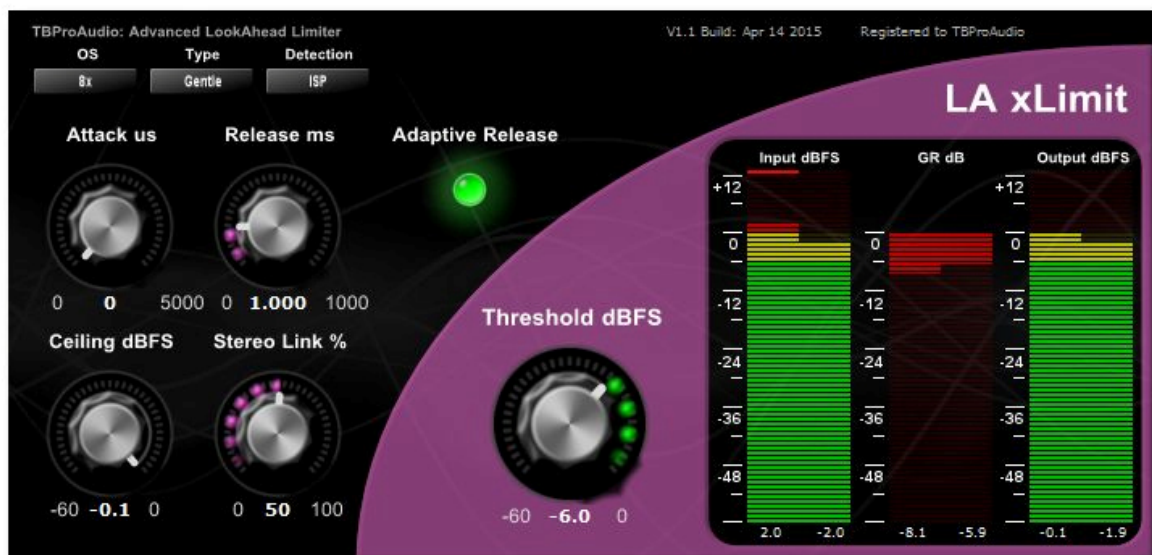


# LA xLimit

## Manual



by tb-software 2015

# 1 Introduction

Welcome to LA xLimit, a look ahead, wideband linked-stereo limiter including ISP (inter sample peak) detection and oversampling. 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*. All LA xLimit parameters are easy to read and control.

## 2 Features

LA xLimit offers following features:

- click-free 64-bit internal processing
- state of the art low aliasing look ahead limiter design
- "real" oversampling, up to 8x
- 4 limiter modes: hard to smooth
- 2 level detection modes: peak and ISP based on ITU 1770
- very short/long attack/release times
- adaptive release
- link/unlink stereo channels
  
- easy to use GUI
- large and accurate live meters

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

### 3 Design

LA xLimit 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 xLimiter 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 xLimiter offers True-Peak limiting (ISP) based on ITU-1770 specification and on top of it up to 8x "real" oversampling. Combined with True-Peak limiting reaches even highest production standards. LA xLimit 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 setting limiters threshold the maximum peak level of the signal (ceiling) can be set.

Once set, limiting and re-leveling becomes a very easy process.

LA xLimit is designed to be used last 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
- All sample rates

### 5 How to use

La xLimit is designed to reset all internal measurements if significant parameter changes are made. This keeps all displays updated.

La xLimit uses various graphical elements to control the parameters of the plugin:

#### Value knob:



Mouse click and drag up/down changes value of the parameter.

Mouse double click on knob resets value.

Mouse double click on value opens value input box.

#### Button:



Mouse click enables/disables function, small red LED means "on/enabled"

## **Popup menu button:**



Mouse click opens popup menu.

## **6 Plugin Controls**

### **6.1 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. -60dB - 0dB in 0.1dB steps, Default: 0.0dB

### **6.2 Ceiling**

Calibrated in dBFS. Ceiling sets the maximum level output signal can reach. If ISP is selected this is the maximum True-Peak level. -60dB - 0dB in 0.1dB steps, Default: 0.0dB

### **6.3 Attack**

Attack time controls how fast the limiter starts to reduce the gain after a peak is detected. Depending on application different attack times can be used. For brick-wall limiting typically a value of 0 $\mu$ s is used. Significant values of attack could clip the signal. 0 - 5000 $\mu$ s in 1 $\mu$ s steps, default 0 $\mu$ s.

### **6.4 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 150ms. For mastering applications typically 0 - 5ms are used. 0 - 1000ms in 0.001ms steps, default 1.0ms.

### **6.5 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.

### **6.6 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% in 1% steps, default 100%

### **6.7 Oversampling**

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

## 6.8 Type

Hard: Hard hitting limiter with significant amount of aliasing

Normal: Fits best for most applications, acceptable amount of aliasing

Gentle: low amount of aliasing

Smooth: very low amount of aliasing

Default: Normal

## 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](http://en.wikipedia.org/wiki/Audio_normalization)). ISP detection is based on the ITU-1770 specification and adapted for other sample rates than 48.000 Hz and internal oversampling.

## 6.10 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 stops working after 90 secs. By clicking on one of the meters it continues for next 90 secs.

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 :-)