

LA xLimit III

Manual



TBProAudio 2020

1 Introduction

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

LA xLimit III is the successor of LA xLimit II, 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 III 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
- NEW: RMS, EBU R128 and DIAL (Dialog loudness measurement)
- "real" oversampling, up to 8x
- stereo link
- built-in clipper
- NEW: drive mode
- NEW: unity gain and delta monitor modes
- preset management
- Mid/Side processing mode
- 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 III 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 III 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 III 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 III 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 III is designed to be used as last plugin in the processing chain (brick-wall limiting).

LA xLimit III provides synced measurement of RMS, EBU R128 and DIAL (loudness gating according Dolby Labs reference code, <https://www.dolby.com/us/en/technologies/speech-gating-reference-code.aspx>). This measurement modes support today's mastering task like delivering according specifications like Alexa, Netflix or AES Streaming.

4 Minimum System Requirements

- Windows XP SP3 or newer
- Mac OS X 10.9 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 6/7/8/9/10, FL Studio 12.x/20.x, PT10/12/2018, Reason 9.5/10, Studio One, Ableton Live

5 Plugin Controls

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

Mouse usage:

Click and drag horizontally changes parameter value
Ctrl click and drag changes parameter value faster
Shift click and drag changes parameter value slower
Alt click rests to default value
Double click or right click open value edit box, finish with enter.

6.1 Plugin info

Click on the LA xLimit logo to open the info menu: more information about the plugin, access to the online manual, the change log and toggling tool tips.

6.2 Presets

Preset menu loads and saves user presets. Presets stored to %localappdata%/LAXLimit3 for Windows or /Users/xxx/Library/Application Support/ LAXLimit3 for Mac OSX are imported as user presets. Prev and next button step through all presets.

6.3 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 %.

6.4 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 %.

6.5 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.

6.6 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".

6.7 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.

6.8 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 %

6.9 Drive mode

If drive mode is “off”, LA xLimit III uses threshold and ceiling as before (normal L2 mode). In drive mode “on” drive feeds additional gain into the limiter and limits the signal at the ceiling level. Drive mode simplifies the loudness adjustment by unlinking ceiling (max Peak/TP) and gain increase.

6.10 Threshold/Drive

Calibrated in dBFS.

In drive mode “off” threshold sets the minimum level where the limiter starts to act. If signal is below no limiting is done. Using Alt-key with mouse changes threshold as well.

-60 - 0 dB, default 0.0 dB

In drive mode “on” drive increases the gain fed into the limiter.

0 - 36 dB, default 0.0 dB

Limiter activity can be monitored by gain reduction (GR) meter.

6.11 Ceiling

Calibrated in dBFS. Ceiling sets the maximum level output signal can reach. If ISP is selected this is the maximum True-Peak level.

6.12 Link Threshold/Ceiling

Toggle link of threshold and ceiling, if drive mode is off.

6.13 True Peak mode

True peak mode enable ISP (inter sample peak) detection.

ISP please look here for further information:

http://en.wikipedia.org/wiki/Audio_normalization).

ISP detection of LA xLimit III is based on the ITU BS.1770-4 specification and adapted for other sample rates than 48.000 Hz and internal oversampling.

6.14 Oversampling

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

6.15 Monitor Mode

Off, unity gain (removes threshold and ceiling from output signal) and delta (input minus output signal)

6.16 Mid/Side Mode

Toggle mid/side processing mode

6.17 Clip Mode

Toggle hard/soft clip mode

6.18 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 (dBTP) are displayed otherwise peak values (dBFS).

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

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

The values just below the meters show the maximum value.

If signal reaches 0 dBFS/dBTP the top LED lights red.

Mouse click on one of the meters resets max. values.

6.19 Measurement Mode

OFF, RMS, EBU ML, EBU SL, EBU IL and DIAL (gated integrated loudness).
DIAL measurement 44100/48000Hz sample rate only.

6.20 Sync

Toggle measurement-sync with DAW (start/stop). If “on”, measurement is reset before DAW starts. And ends as soon DAW stops.

6.21 Reset

Resets loudness measurement.

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 "TBProAudio" logo within 90 seconds.

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

8 Registration/Activation

This plugin must be registered and activated in order to be fully functional. You can purchase the license key here: <http://www.tb-software.com/tbproaudio>.

After purchase, you will receive the license key packed in a zip file by email. Unzip the license file to a suitable location on your PC (e.g. desktop). The license file is called "product name.license". Add the plug-in to any track in your DAW, click on the text "Demo: Click here to activate it" and select the license file. Remove the plug-in in your DAW and add it again. The GUI now says "Registered to your name".

9 Conclusion

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

Your team from TBProAudio :-)