



### JELSTUDIO's "AL V12" (Auto Loudness)

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AL - Automatic Loudness.

AL will automatically turn the volume up and down, so the audio you play through it (Or render/export to a file) will constantly have the same overall loudness.

AL12 is more transparent than AL1, but has a latency of half a second.

In order to achieve better overall sound-quality AL is NOT fully compliant with the loudness-specs defined by ITU (Including ATSC and EBU), but is generally close to those defined targets.

## **Quick-use:**

## **User interaction:**

Buttons are controlled by left-clicking on them with the mouse and are lit brighter when ON.

## **Blue button column:**

LOCK = Maintain stereo-image of input-audio

In this mode loudness will be based on the loudest channel and not the sum of both channels. This means that loudness will appear to be too low on compliant loudness-meters if there is audio in one channel only.

OPEN = Dual Mono mode. Treat the 2 channels as separate independent streams.

If the signal is a normal stereo-signal with the stereo-image being off-center, then this mode will center the stereo-image.

It can also be useful if you have the interviewer in one channel and the interviewed in the other channel.

## **Yellow button row:**

LIMIT = Soft 'rubber' limiter (Not brick-wall)

Will attempt to keep peaks below  $\sim$ -3 dB FS, although very sharp transitions may go higher.

TIME = TIME LOCK.

This mode will maintain more of the source-audio's dynamic-range, by slowing down the gain-increase.

In some cases audio may appear more quiet (Below target-level) in this mode.

LOCK = GAIN LOCK.

This mode allows negative gain (Lowering the volume) only.

This can be useful if quiet parts of the audio has its volume raised too much.

## **Information display:**

The 'needle-meter' at the top shows whether AL is amplifying or reducing audio-gain.

When the needle is in the:

Center: output-gain is similar to input-gain.

Below center (left side): output-gain is below input-gain (AL is reducing the volume)

Above center (right side): output-gain is above input-gain (AL is amplifying the volume)

The meter shows\* from -20 LUFS/LKFS (Fully left) to +20 LUFS/LKFS (Fully right)

(Internally the gain can exceed these levels, so do not worry if the meter goes off-scale)

The bottom 'spot-light display' has 2 functions:

Two yellow lights from the bottom, lighting upwards, mean the input-audio is below the gate-level (When audio is below the gate-level, the gain will slowly reset to center)

If you get frequent flashing yellow lights during play, your input-audio must have its volume raised before entering AL.

Two green lights from the top, lighting downwards, mean the soft-limiter has been triggered (The lights will come ON for a few seconds and then turn OFF again)

This is normally not a cause for concern, but just to make you aware that the output-peaks may be close to the 'legal' limits (In this case louder than -4 dB FS)

The JELSTUDIO logo is 'breathing' (oscillating in brightness) to give visual indication the plugin is still running correctly and has not 'crashed'/malfunctioned.

### Some of AL's key-points:

- Audio-chain sample-peak overload protection (Max output is 0 dB FS unweighted)
- Half a second latency (Plugin has delay compensation, so can be used in multi-track environments)
- Inspired by "Recommendation ITU-R BS.1864-0" (See technical description for more info)
- Inspired by "Recommendation ITU-R BS.1770-4" (See technical description for more info)
- Has 1 loudness-algorithm (JELSTUDIO's own based on the "Advanced Television Systems Committee standard A/85")
- Can handle incoming audio-signals that has 'overs' without clipping (Internally the plugin can operate with sample-peak values up to about +10 dB FS)
- Works on mono and stereo signals.
- GUI layout is optimized for 'peripheral vision overview' (when looking at the center of the GUI; all important displays can be read at a glance with peripheral vision) based on aviation-safety studies.

## Technical description:

AL is designed to be rigidly time-stable (fully free of mathematical errors accumulating over time) and should be safe to use on long-term audio-streams running 24/7/360 (for example; automated broadcasts that run unsupervised)

(Technically 'set & forget')

AL is inspired by "Recommendation ITU-R BS.1864-0" and "Recommendation ITU-R BS.1770-4" but uses proprietary filtering and algorithms (The differences are noticeable, but AL gives more weight to the vocal frequency-spectrum. Compared to K-weight, this means AL allows more bass and treble. In a mixed dialogue/music program, such as television-comedy, this allows music to sit 'better' in the overall mix with dialogue).

Because of this difference, AL can not be said to be targeting a specific LUFS/LKFS value. However, generally speaking AL tends to output a material-dependent loudness of around -26 to -22 LUFS/LKFS, with true-peaks soft-limited (Only when limiter is ON) to about -3 LUFS/LKFS.

\*'Legal' within the specs specified for ATSC A/85 LIVE-material, although in most cases the output will also be legal for offline-material (The integrated loudness may not hit exactly -24 dB FS, but should in most cases be quite close)

Dolby DialNorm is NOT implemented.

It is recommended to spend some time getting acquainted with how AL 'sounds' with various audio-material, to get familiarized with the impact it has on the sound.

As with all automation; it is not 100% perfect and there is no guarantee it will produce a 'broadcast-legal' stream even though it should with most 'normal' material (Most music and speech should give expected results, but test-tones will often not. This is considered normal)

**END OF TEXT**

Website: [https://jelstudio.dk/VSTplugin\\_AutoLoudness/](https://jelstudio.dk/VSTplugin_AutoLoudness/)

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General DSP programming: Jacob Larsen

Loudness-mode algorithm-programming: Jacob Larsen

GUI programming: Jacob Larsen

VST compiler: Derek John Evans

BETA-tester and sound-quality inspector: Sébastien Wittebolle.

\*If you receive 'weird' nonsense/spam email from this account, it is NOT sent by JELSTUDIO!

Feel free to use Twitter/Facebook instead.

(When using Facebook do NOT accept game-invitations or other 'crap' like that!)