UNIVERSAL AUDIO

VS-1176LN and VS-LA2A
User's Guide

VS-1176LN™

VS-LA2A™

analog ears | digital minds

Universal Audio VS-1176LN and VS-LA2A User Guide

Overview

The LA-2A and 1176LN compressor/limiters long ago achieved classic status. They're a given in almost any studio in the world - relied upon daily by engineers whose styles range from rock to rap, classical to country and everything in between. With so many newer products on the market to choose from, it's worth looking at the reasons why these classics remain a necessary part of any professional studio's outboard equipment collection.

The basic concept of a compressor/limiter is relatively simple. It's a device in which the gain of a circuit is automatically adjusted using a predetermined ratio that acts in response to the input signal level. A compressor/limiter "rides gain" like a recording engineer does by hand with the fader of a console: it keeps the volume up during softer sections and brings it down when the signal gets louder.

The dynamic processing that occurs at ratios below 10:1 or 12:1 is generally referred to as compression - above that, it's known as limiting. Modern day compressors offer a great degree of programmability and flexibility; older devices such as the 1176LN and the LA-2A are more straightforward in their design. Perhaps it is this fact that has partly contributed to their appealing sound and the longevity of their popularity.

VS-1176LN Solid-State Limiting Amplifier

Many agree that the 1176LN is the most well-known and widely used compressor in recording history. Originally designed and built in the 60's, the 1176LN was the first product to use a FET (field-effect transistor) as a voltage controlled variable resistor, which is the key to the 1176's unique compression characteristics. Universal Audio went to extreme lengths to capture every sonic nuance of the original for our plug-in version, even capturing the 1176's famous "all-button mode" with shocking accuracy. No other compressor plug-in can create program-dependent compression the way the Universal Audio 1176LN can.

The 1176LN is known for bringing out the presence and color of audio signals, adding brightness and clarity to vocals, and "bite" to drums and guitar. Use the 1176 in extreme settings (such as all-button mode) to get over the top compression characteristics, and to bring the recording room to life.

1176LN Controls

Input
Adjusts the amount of gain reduction as well as the relative threshold. An Input value of ∞ (turned fully counterclockwise) yields no compression (and no signal level). Rotate this control clockwise to increase the amount of compression.

Output
Adjusts the output level (by up to 45 dB). Make sure to adjust the Output control *after* the desired amount of compression is achieved with the Input and Attack controls. To monitor the Output level, set the VU Meter to +8 or +4. The Output control does not affect the amount of compression.

Attack
Sets the amount of time (from 20–800 microseconds) that must elapse once the input signal reaches the Threshold level before compression is applied. Faster attack times are achieved by rotating the Attack control clockwise. The faster the Attack, the more rapidly compression is applied to signals above the threshold.

Release
Sets the amount of time (from 50–1100 milliseconds.) it takes for compression to cease once the input signal drops below the threshold level. Faster release times are achieved by rotating the Release control clockwise. Slower release times can smooth the transition that occurs when the signal dips below the threshold, especially useful for material with frequent peaks.

Ratio
These four pushbutton switches (to the left of the VU Meter) determine the compression ratio. Ratios of 20:1, 12:1, 8:1, and 4:1 are provided. The 20:1 and 12:1 settings are typically used when peak limiting is desired, while the 4:1 and 8:1 settings are used for general dynamic range compression.

All Buttons mode
Just like the hardware version of the 1176LN, it is possible to depress all the Ratio buttons simultaneously; a well-known studio trick.
In this mode, the ratio is around 12:1, and the release happens faster, and the shape of the release curve changes. With lower amounts of compression, the attack is delayed slightly, as there is a slight lag before the attack attenuates the signal. That attack value remains at whatever the value is on the Attack control.

You can put the 1176LN into "All Button Mode" by going to the EFFECT VIEW screen (SHIFT + F3), choosing the effects bus that the 1176 is on, and pushing the EDIT (F4) button. Then press the ALL (F4) button to put the 1176 in "All Button Mode".

Meter
These four pushbutton switches (to the right of the VU Meter) determine the mode of the VU Meter, and whether the plug-in is enabled. When set to GR, the VU Meter indicates the Gain Reduction level in dB. When set to +8 or +4, the VU Meter indicates the output level in dB; when set to +4, a meter reading of 0 corresponds to an output level of +4 dB.

In gain reduction mode with all buttons depressed, the VU meter will appear to behave strangely. This is normal behavior in the hardware 1176LN, and is faithfully recreated in the plug-in.

When the Meter Off switch is selected, the 1176LN plug-in is bypassed.

Stereo Operation
Phase-coherent stereo imaging is maintained when the 1176LN plug-in is used on a stereo signal.

When to use the 1176LN

Since the 1176LN has variable attack and release controls, it is useful on just about any instrument. The attack and release times can be set extremely fast, and this adds a certain sound to some instruments. For example, drums are usually pretty loud, and they reverberate in the room they are recorded in. If you have the attack and release set at very fast values (very far to the right), and a lot of compression, you will be able to hear the room ambience of the drums, and it can make the drums seem a lot louder than they are. Try the presets "Stereo Drums Mix Squash" and "Hairy Drums" on a drum kit to hear what this sounds like.

Grit Mode
On melodic instruments, turning up the attack and release to their fastest values has the audible effect of adding distortion to the audio source, and is especially pronounced in all-buttons mode. What happens here is the attack and release are happening so fast that minute level fluctuations sound like distortion. It can add a very useful, gritty compression effect.

This effect is useful on bass, where you might need compression and distortion at the same time, and the 1176LN can provide both in a unique way. This trick also sounds great on screaming lead vocals. And yes, the hardware does this too!

Master Bus

The 1176LN is also useful on the master fader of a given project, to add volume to your mix, but limit the peaks so they don't overload the output. Typically you set the ratio to 20, and the attack and release to about 3/4 of the way up. Find the loudest part of the song, and turn the input up so that the loudest peak is compressed by only 2-3 dB. Then turn up the 1176 output to the point just when the output of the mixer starts to clip, then back it off a little. Of course these are just guidelines, as every song will react differently to the 1176LN.

If you're not going for a special effect, adjusting the attack and release does take some experimentation to master. Here are many sources in books and online about using attack and release controls to their full potential, including Universal Audio's website at http://www.uaudio.com.

If you're looking for a compressor that is easy to set up and sounds great on crucial tracks like vocal, bass, and acoustic guitar, then you really should consider the LA-2A. The LA-2A is the perfect companion to the 1176, and between the two, there is no compression chores they can't handle!

Teletronix LA-2A Leveling Amplifier

Audio professionals passionate about their compressors revere the LA-2A. The original was immediately acknowledged for its natural compression characteristics. A unique electro-optical attenuator system allows instantaneous gain reduction with no increase in harmonic distortion – an accomplishment at the time, still appreciated today.

With the LA-2A plug-in, Universal Audio modeled not only the static compression, but how each and every single component behaved and interacted in response to a wide variety of program material, including the original electro-optical attenuation circuit that is the defining element of this legendary piece. The VS version of the LA-2A will give you all the same smooth, silky and transparent dynamic control that the hardware unit offers.

The LA-2A is characteristically slow in attack (around 10ms), and highly program dependent in the release (up to several seconds). The LA-2A may respond different depending on source material: gain, frequency, instrument and decay. The LA-2A is known as the ultimate vocal compressor, due to its transparency. Large amounts of gain reduction can be achieved with little or no audible sonic fingerprint, and even wildly fluctuating dynamics can be reined in with ease. The LA-2A is ideal for any source with slower transients, such as bass instruments.

The LA-2A often sounds great on sources with fast transients, however sources requiring compression of those transients may benefit from the faster 1176LN. The LA-2A also sounds great at extreme settings (large amounts of gain reduction and make-up gain), where compression characteristics are more audible.

LA-2A Controls

Limit/Compress
Changes the characteristics of the compressor I/O curve. When set to Compress, the curve is more gentle, and presents a low compression ratio. When set to Limit, a higher compression ratio is used. The sonic difference can be quite subtle with the LA-2A when used at low amounts of gain reduction, however the effect is more pronounced at higher amounts of gain reduction.

Peak Reduction

Adjusts the amount of gain reduction, as well as the relative threshold. A Peak Reduction value of 0 yields no compression. Rotate this control clockwise until the desired amount of compression is achieved (to monitor the Peak Reduction, set the VU Meter to Gain Reduction). The Peak Reduction should be adjusted independently of the Gain control.

Gain
Adjusts the output level (by up to 40 dB). Make sure to adjust the Gain control *after* the desired amount of compression is achieved with the Peak Reduction control. The Gain control does not affect the amount of compression.

Meter
This knob (in the upper right) sets the mode of the VU Meter. When set to Gain Reduction, the VU Meter indicates the Gain Reduction level in dB. When set to +10 or +4, the VU Meter indicates the output level in dB.

On/Power Switch
Determines whether the LA-2A plug-in is active. When the Power switch is in the Off position, the plug-in is bypassed.

Stereo Operation
Phase-coherent stereo imaging is maintained when the LA-2A plug-in is used on a stereo signal.

When to use the LA-2A

As mentioned above, the LA-2A has a fairly slow attack and program-dependant release, so it is perfect for some sources, and very easy to dial in. For example, vocals and bass typically do not need fast attack and release times. Acoustic Guitar also benefits from slow attack because the attack of the picking can get through, but the rest of the signal is compressed. Best of all, there are only two controls, so getting the right sound is easy and quick.

The LA-2A is also great on the Master bus, when just a little compression is applied. Set the Peak Reduction control so the Gain Reduction on the meter is about 2-3dB.

Since the LA-2A does not have adjustable attack and release or compression ratio, it is not the perfect compressor for every chore. Compressing drums typically requires a faster attack and release time, and hard limiting of stereo program material typically requires fast attack and release and a compression ratio of 20:1. That is where the 1176LN comes in.

Instances and Sample Rates

The Universal Audio plug-ins support multiple sample rates, dependent on the individual plugin in the Roland VS-series machines. The1176LN supports 32-88.2kHz and uses one whole VS8F-3 card, and therefore you can't use any other effects on that card at the same time. The LA-2A supports 32-96kHz, and uses only 1/2 of the card at lower sample rates (32-48khz).

Instance Counts (mono or stereo)

- VS-1176LN: One instance
- VS-LA-2A at up to 48 kHz: Two instances
- VS-LA-2A at 64 kHz through 96kHz: One instance

Further information can be found on the Universal Audio website at http://www.uaudio.com/.

Assigning the Effect to a Processor

To use the Universal Audio plug-ins on the Roland, you must first assign the plug-ins to an effects processor. The steps to do this are as follows:

1.) Go to the EFFECT VIEW screen by pressing SHIFT + EFFECT (F3). This will show you the available effects processors. Select the first processor that indicates that no plug-in is selected by pressing the corresponding hotkey. You are now at the PLUG-IN INFORMATION screen.

2.) Select the plug-in by pressing the plug-in hotkey (F1), scroll down to the Universal Audio plug-in you would like to use (either the 1176LN or the LA-2A), and press the SELECT (F5) button.

3.) Select a patch for the plug-in by pressing the PATCH (F3) hotkey, and scrolling to one of the patches that you would like to start with, and finally pressing the SELECT (F5) button to select the patch.

4.) You can edit the patch by pressing EDIT (F4).

Inserting the Plug-Ins on an Input or Track

Now that you have assigned the plug-in to an effects card, you can now insert it into a track or input channel. Here's how:

1.) Select the group of channels that contains the desired input or track channel by pressing its FADER button.

2.) Press the desired channel's CH EDIT button.

3.) Select the FX INS parameter-the ENTER/YES button begins to flash.

4.) Press ENTER/YES, or alternately press PAGE and then FX INS (F1), to display the EFFECT INSERT screen.

5.) Move the cursor to the effect bus that you inserted the Universal Audio effect into, and insert the effect into the track by turning the FX busses' status from 'Off' to 'On'.

6.) Your Universal Audio plug-in is now inserted into the track, you can access the plug-ins information by pressing the blinking ENTER button.

Check the manual that came with your VS recorder or the VS8F-3 card for more information on how to assign an effect to two stereo tracks as well as other possible effect configurations.

Support

For all technical support issues, please visit http://www.rolandus.com/support/.
This lists all of the contact phone numbers for the US and also has links
to Roland international sites where users can find more local support options.

For more info on the 1176LN and LA-2A including tips, tricks, history and
information, please visit the Universal Audio website at http://www.uaudio.com/.
Many useful articles are available including those found in UA's online Webzine.
Look under the feature "Compression Obsession".

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