SPL Analog Code® Plug-in
Manual

Vitalizer® MK2-T

Manual

Vitalizer® MK2-T Analog Code Plug-in
Model Number 1030
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Content

Installation

Plugin Alliance Activation

Your Analog Code plug-in must be activated in your Plugin Alliance account. You can set it up and log into your account anytime at **http://www.plugin-alliance.com**

For details about the activation process, read the Plugin Alliance Activation Manual. The PDF file is stored in the same folder of your computer like this product manual file.

Alternatively, the following web page provides the same information: **http://www.plugin-alliance.com/activation**

System Requirements and Compatibility

For details about system requirements and supported platforms or formats visit **http://www.plugin-alliance.com/compatibility**

MAC and Windows Installation

1. Check for the latest plug-in software version before installation:
   http://software.spl.info/download
2. Execute the installer file and follow the instructions.

Glossary

Loudness = perceived volume
Unmasking = here: enhancement of overlapping sounds
Audiometry = procedure to measure hearing ability
Psychoacoustics = relation between sound and its perception
Host Program = program on which the plug-in is running

SPL Analog Code® Plug-ins

While SPL hardware products have been fascinating audio professionals from home studio owners to mastering engineers in the world's most renowned facilities for years, the need for this technology in the form of plug-ins has also been an ever-growing demand. With the Analog Code® plug-ins we have finally accomplished our much desired goal: to transfer to the digital domain the high quality we have striven to achieve with our analog processors throughout several decades.

The first time we ever heard a software that fulfilled our expectations, one of our hardware developers said to the programmers: "you have cracked the Analog Code" — thus was coined the name of our digital products.

The Vitalizer®

The Vitalizer applies psychoacoustic and audiometric principles to achieve a verifiable improvement while enhancing the sound. The Vitalizer processes only the original signal and generates no artifacts. Patented filtering techniques highlight the richness of the audio signal in all its detail, while the interactive parameters make it possible to alter the sound in a musical and effective way. This unique combination of precise filtering and intuitive usability enable you to instantly make any music production more stimulating and natural. Music and speech are made clearly distinguishable and comprehensible, loudness more intense, and the whole soundscape becomes wider.

Introduction

Music emphasizing technique

One of the Vitalizer's main features is the unmasking of overlapping sounds. The way it works is, in principle, opposite to the way compression formats (MP3, etc.) do: instead of deleting allegedly unnecessary information, it enhances it. In order to do that, the Vitalizer takes into account the perception of a frequency in relation to its volume. By shifting louder frequencies slightly in time, softer and formerly overlapping sounds are "unmasked" and made audible. The audible effect of unmasking could be described in general terms as more clarity and depth in a mix. Lows sound more powerful and better defined, mids more focused and differentiated and highs more vivid and brilliant. It can be used on individual channels to emphasize the sound character of instruments or vocals. The clarity and definition achieved guarantee an adequately perceptible presence in the mix.

Another characteristic of the Vitalizer's sound optimization process is the adaptation of the sound spectrum to the non-linear sensitivity of human hearing. This phenomenon was audiometrically proved in the 1930's thanks to the equal loudness contours, also known as the Fletcher-Munson curves after their discoverers. According to these curves, the human ear is most sensitive to mid frequencies, i.e. to the frequency range of speech. As a result, frequencies below 200 Hz and above 6000 Hz need reinforcement in order to achieve a well-balanced auditory impression – frequencies between 6 kHz and approximately 11 kHz are perceived as being 5 dB softer, for example. The Vitalizer uses the equal-loudness contours to balance the frequency spectrum according to human hearing, which in turn improves loudness. As a result, individual elements of a mix can sound more present without an actual increase in level. At the same time, the sum signal also benefits from the Vitalizer processing since it can achieve the same loudness with less sound pressure level.

Special Features

- Patented technology for automatic sound correction and optimization
- Simple control of complex processes
- Processing of mid and high frequencies plus harmonics
- Unmasking of overlapping sounds for more detail and clarity
- Reinforcement of less audible frequency ranges to achieve more loudness
- Adjustable soft or contoured low frequency sounds
- Independent processing of high frequencies and harmonics
- Ideal sound structures for electronic sounds and music genres
- Mono, stereo or multi-channel operation

Applications

- Suitable for all sound production stages (recording, mixdown, mastering or playback)
- Enhance individual signals, subgroups or sum signals
- Give clarity and presence to a mix
- Emphasize the sound character of instruments and vocals
- Create impressive sounding lows
- Separate several low signals effortlessly
- Restore old recordings
- Give intensity to sound effects (samples)
- Improve spatial impression

Mouse wheel control for all rotary knobs

All SPL Analog Code plug-ins support mouse wheel control for rotary controls and faders. Place the mouse cursor over a rotary control and move the scroll wheel of your mouse to adjust the setting. Hold the CTRL (Windows) or COMMAND (Apple) key while moving the scroll wheel to make fine adjustments; the resolution of the mouse wheel is increased, making fine-tuning easier.

Keyboard Shortcuts

All SPL Analog Code plug-ins support format and OS specific functions for value reset, fine adjustment and mouse control. For more detailed information please refer to the host program's documentation.

Mono, stereo or multi-channel operation

The Vitalizer plug-in can be used either for mono or stereo operation. In stereo operation each control element governs both channels simultaneously. The Stereo Expander function is active for stereo applications, whereas it is grayed out for mono applications due to the fact that you cannot control stereo elements in mono mode. This can help you identify immediately if you are using the Vitalizer in stereo or mono mode. You can also use the Vitalizer as a „Multi-Mono" or multi-channel plug-in, as long as your host program supports this function.

Basics

The frequency spectrum is usually divided into three frequency bands: highs, mids and lows, all of which are provided in the Vitalizer, even though, as opposed to conventional usage, low and mid filter settings are interrelated. The high frequency control allows processing of high frequencies and harmonics. You can adjust each of the three frequency bands separately and control the intensity of the process independently.

The low and mid filters share the same intensity control (PROCESS). The fact that you can set the filters and the intensity independently allows for many sound possibilities with only two controls: when processing low signals you can choose between a deep, soft or dry sound. In conjunction with the PROCESS control, strong amplification of low frequencies with a low intensity setting results in a totally different sound than if you were to have low amplification with high intensity. The connection to the mid filter is always given by the PROCESS control. This means that you can optimize low and mid frequencies jointly for the sake of psychoacoustic and audiometric relevance. For example, the mid frequency band, to which the human hearing is specially sensitive, can be automatically damped when you choose a SOFT setting.

Operation

Default Settings

The following are the default settings of the plug-in and they have
no impact on the audio signal:

- DRIVE at "0" (center position)
- BASS at "0" (center position)
- COMPRESSION at OFF (hard left)
- MID-HI TUNE at 3 kHz (center position)
- PROCESS at OFF (hard left)
- LC-EQ at LOW (hard left)
- INTENSITY at OFF (hard left)
- STEREO EXPANDER at OFF (hard left)
- OUTPUT at "0" (center position)

First Steps

The instructions provided here are based on the default settings
and are meant to help you get to know the Vitalizer.

1. Slowly turn up the PROCESS control. The intensity of all fre-
   quencies above 3 kHz will increase (since MID-HI TUNE is set to
   3 kHz). Set PROCESS to 10.
2. Turn the BASS control to the right: the lows sound tight and dry.
   Turn it to the left and the lows sound soft and round. Choose
   a sound character and level for the low end. You can compen-
   sate any level fluctuations in the lows with the COMPRESSION
   control.
3. Start varying the MID-HI TUNE control. Turn it to the right and
   the program material sounds brighter and with more mids (from
   about 1.5 kHz onwards). Turn the control to the left to shift the
   cut-off frequency upwards; the sound turns duller.
4. Turn the LC-EQ control hard left (to LOW) and set INTENSITY to 10
   to emphasize high frequencies moderately.
5. As its name implies, STEREO EXPANDER expands the stereo
   image – common settings are between 7 and 12.
6. Use the ACTIVE control to make A/B comparisons between pro-
   cessed and unprocessed signals. Now you can start making your
   own settings.

Active

Use the ACTIVE function to turn the Vitalizer on and off. The Vitalizer is on when the ACTIVE switch is on. The POWER switch is always on and has no effect on the plug-in. When you open the plug-in, the ACTIVE switch blinks for a couple of seconds before remaining permanently on. This is meant to indicate the tube warming phase which takes place on the original hardware. The main purpose of the ACTIVE function is to allow A/B comparisons between processed and unprocessed signals. We recommend to make such comparisons regularly. The risk of overprocessing is higher in comparison to common processors given that the Vitalizer sounds very pleasant. A/B comparisons are therefore indispensable to avoid exaggerations. Furthermore, we also recommend the use of reference recordings.

ACTIVE

Tubes warm up when flashing

Drive

The DRIVE control enables you to set the level at which the Vitalizer filters operate. You can adjust fluctuating input levels to 0 dB or work with lower/higher levels depending on the sound effect you want to achieve. The level can be set between -20 dB and +6 dB. When set to 0 dB (center position) the output level is equal to the input level. With higher DRIVE settings you can achieve extreme effects. If you work with a too low DRIVE level you will not be able to achieve an adequate processing intensity, even with the PROCESS control set to its maximum - in which case you will need to increase the DRIVE setting.

DRIVE
-2 0 1.5
-5   3
-8   4
-13   5
-20   +6
dB

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Control Elements

Bass

With the BASS control you can emphasize two different sound colors in the low end. When set to the center position the signal is not processed. If you turn the BASS control to the left you will achieve a warmer and softer sound; referred to as SOFT. This roundness is symbolized on the left side of the control by circles that increase in size as you turn further left. If you turn the BASS control to the right you will achieve a drier and more percussive sound; referred to as TIGHT. This tightness is symbolized on the right side of the control by squares that increase in size as you turn further right. The BASS control is directly related to the PROCESS control. The latter determines the amount of processed BASS signal mixed with the original signal. As a consequence, you can obtain plenty of completely distinct sounds: a high BASS setting with a low PROCESS setting results in a totally different sound than a low BASS setting with a high PROCESS setting. You need only two controls to enjoy a vast array of sound possibilities; all of which can be listened to and set in no time.

Compression

The Vitalizer features a compressor that affects the low frequency path of the processed signal exclusively. Neither the low end of the original signal nor the mids or highs are affected. Thus, the COMPRESSION control allows you to compensate level fluctuations caused by the processing of low frequency signals. The compressor is therefore a very important component in the optimization of the processing level. The GR (Gain Reduction) LED indicates that the compressor is active. The compressor is a so-called "soft knee" compressor with a smooth curve to achieve almost unnoticeable sound results. As you increase the COMPRESSION setting, the compression ratio is increased while the attack threshold is lowered. In order to ease operation, additional parameters have been preset so you only have to deal with one single knob.

Mid-Hi Tune

Use the MID-HI TUNE control to set the cut-off frequency. Frequencies above this frequency are amplified whereas frequencies below are attenuated. The intensity is set with the PROCESS control. The frequencies affected range from 1.1 kHz (hard right) to 22 kHz (hard left). Consequently, the sound becomes brighter the more you turn the control to the right. From 1.5 kHz upwards, mid frequencies become more emphasized. The MID-HI TUNE control allows you to tone down excessively bright sounding material by setting it to somewhere around 10 kHz and combining it with a very high PROCESS setting.

The MID-HI TUNE filter is not a static filter, unlike common EQ filters, and therefore it cannot be operated like one. It is integrated within a filter network and affects frequency and phase response over a very broad frequency range. The setting never affects the selected value exclusively. It focuses on a given point but spreads throughout the whole frequency spectrum. Setting the MID-HI TUNE requires more attention than setting a simple graphic EQ: you have to always listen to the sound as a whole. The advantage is that, together with the BASS and PROCESS controls, you can process signals to a significant extent. As we mentioned before, the Vitalizer is based on psychoacoustic and audiometric principles so all processing is aimed at optimizing your sound – faster than with any other technique – to make it sound better.

Control Elements

Process

Both BASS and MID-HI TUNE work with two different signal paths: the original signal and the processed signal, both of which are mixed together at the output. The PROCESS control determines the amount of processed signal used, i.e. the intensity of the effect generated by the BASS and MID-HI TUNE filters. Furthermore, the PROCESS control also determines the damping intensity of dominant mid frequencies (see the previous section). Dominant mid frequencies are reduced with higher PROCESS settings. All frequencies below the cut-off frequency selected with the MID-HI TUNE control are affected.
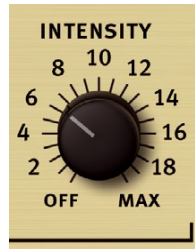
LC-EQ

The high frequency filter is a broad band filter too and can actually affect mid frequencies to add presence and sharpness, specially to vocals. The frequencies affected range from 2 kHz (hard left) to 20 kHz (hard right). The INTENSITY control determines the intensity of the LC-EQ (see the next section). The LC-EQ gets its name from the hardware version's high frequency filter, which is based on a passive coil filter. Coil filters are inductive filters and the symbol for inductance is "L". The abbreviation for coil filter is "LC" (where C stands for capacitor). This type of filters are well known for their pleasant, soft sound. Coil filters were standard components up to the 1960's, when they were quickly replaced with the advent of cheaper resistor-capacitor (RC) filters. The sound of classic "vintage" gear has a lot to do with the use of these components. When programming the Vitalizer plug-in we payed special attention to faithfully emulating the sound character of the original LC-EQ. The LC-EQ can improve the brilliance of individual or sum signals without making them sound too sharp. No signal artifacts are created in the process, as opposed to other high frequency enhancement systems, like the so-called exciters, in order to avoid ear fatigue. The Vitalizer simply improves the sound structure of the original signal.

Intensity

The LC-EQ works with two different signal paths: the original signal and the processed signal, both of which are mixed together at the output. Use the INTENSITY knob to adjust the amount of LC-EQ effect mixed with the original signal, i.e. the intensity of the effect. Due to their design and broad frequency range, you can use the MID-HI TUNE and LC-EQ filters as perfectly complementary tools. For example, if you use the MID-HI TUNE filter to generate a notch in the mid frequencies and amplify the high frequencies from 5-8 kHz, vocals could lose presence, in which case you could use the LC-EQ filter for the vocal frequency range and enhance it with the INTENSITY control.

Control Elements

Stereo Expander

The STEREO EXPANDER function is meant to create the impression of a wider stereo image. The space image is improved by doubling signals originally placed left or right in the stereo image, inverting their phase and summing them with the opposite channel. This results in a better perception of the original signals while the stereo image seems to reach out of the speakers' plane. Mono signals placed in the center of the stereo image are diminished during the process. We recommend settings between 6 and 14. For high settings, and depending on the nature of the source signal, you should always check the mono compatibility of the signal with the help of a goniometer.
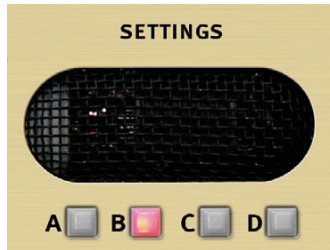
Output

The OUTPUT knob reduces or increases the output level. The control ranges from -20 dB to +6 dB. The 0 dB mark is set at the center position. Generally speaking, you will need to reduce the level, considering that the Vitalizer processing tends to increase it. If you set the input level to 0 dB with the DRIVE control – which ought to be a good starting point for filtering – there will undoubtedly be an increase in level after the processing occurs.

IMPORTANT: Use the OUTPUT control to exploit the dynamic range available, but try to avoid distortion. The OVL (Overload) LED next to the OUTPUT control can be very useful at that. The OVL LED indicates overloading is occurring at the plug-in's output, which can result in distortion. You should always avoid the OVL LED from turning on. If it does, use the OUTPUT control to reduce the output level until it turns off.

Settings

The four SETTINGS buttons allow you to save all your settings with a simple mouse click. The Vitalizer saves the current settings permanently. As soon as you click on another SETTINGS button, the current settings are saved under the previously active preset. For example: In the image shown here, all parameters would be saved under preset "B" if you were to click on another button.

Any previously saved preset can be recalled with a simple mouse click on the corresponding button; you can then use or edit the settings. If the host program allows it, the presets can also be automated so you can use different settings at different points. As long as you work in a specific session of the host program and the plug-in is installed, the settings are saved and can be recalled afterwards. When opened, the plug-in loads the active preset settings instead of the default settings. If you remove the plug-in from the host program all presets are lost. To erase all presets at once you can remove the plug-in from the host program and then reinstall it.

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