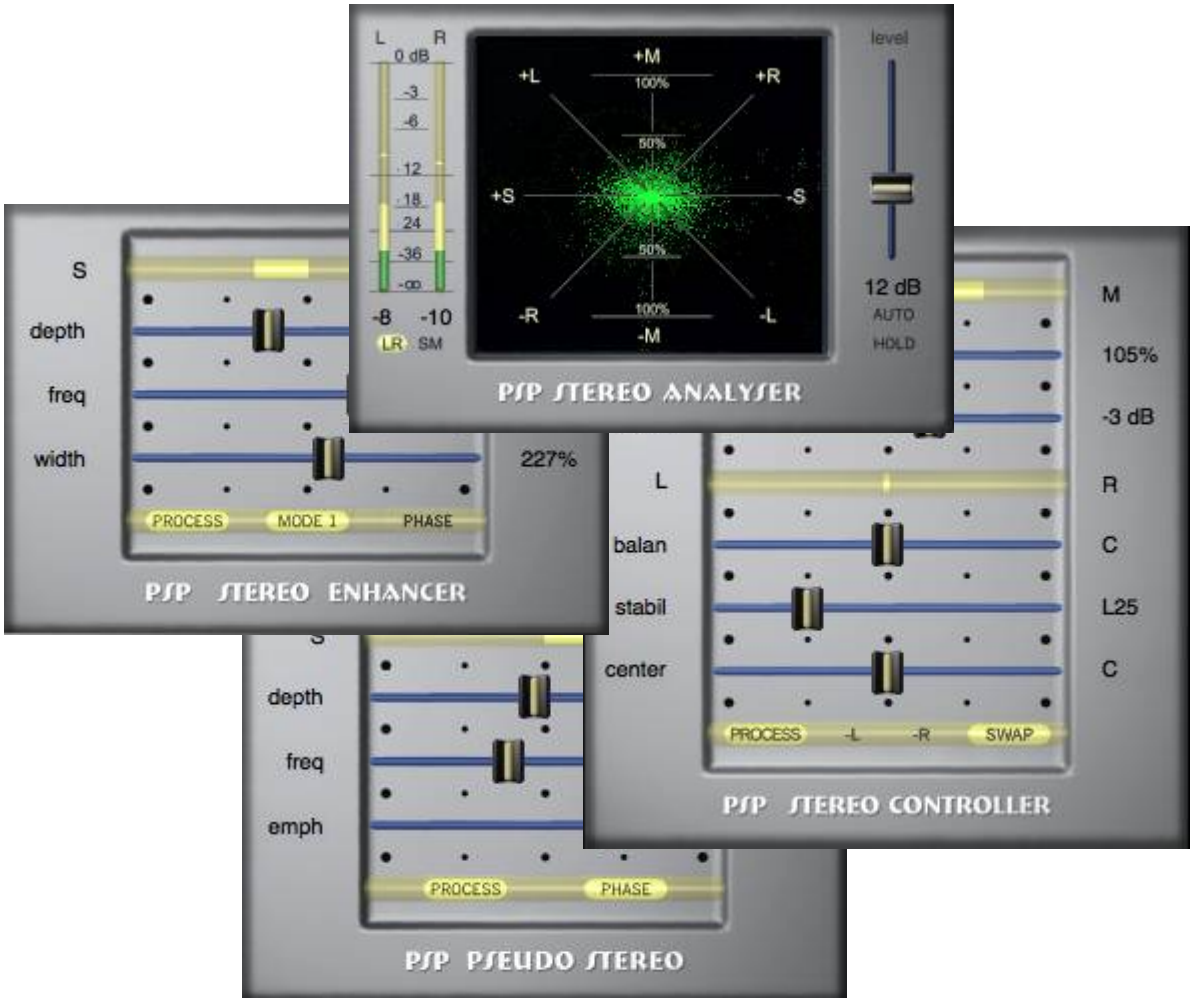
PSP StereoPack



Operation Manual

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PSP StereoPack

General information

PSP StereoPack is a collection of 4 plug-ins for MAC and PC, designed for the creation and processing of stereo audio signals. The collection consists of: **PSP PseudoStereo**, **PSP StereoEnhancer**, **PSP StereoController** and **PSP StereoAnalyser**. These four plug-ins can be used to create, expand, enhance, control and analyze stereo signals in single tracks or complete mixes.

Compatibility

PSP StereoPack is compatible with applications that can host standard VST, RTAS and Audio Unit plug-ins.

PSP StereoPack plug-ins should work properly in most applications that can support listed formats hoever some fetures may be limited by those hosts. We would appreciate it if you could provide us with information about your configuration so that we can test it ourselves (support@PSPaudioware.com).

Windows

- Intel or AMD processor (i386 architecture compatible high performance CPU recommended)
- Windows XP, Vista or se7en 32 and 64 bits
- RTAS, or VST 2.4 compatible audio application
- VST for x64 applications

Macintosh

- G5 or Intel processor
- Mac OS X 10.5 or later
- AU, RTAS, or VST 2.4 compatible audio application

PSP PseudoStereo

Overview

PSP PseudoStereo enables the conversion of mono tracks to stereo using an efficient and optimized audio-manipulation algorithm. This algorithm uses a comb filter to separate the mono input signal into left and right channel components. Operation of the processor gives the mono input signal features resembling a recording made using a stereo pair of microphones. This processor is of particular value when mixing MIDI material. For example, it's excellent for adding depth and a natural spatial effect to mono percussion samples--it can really add some "kick" to a kick! The plug-in can also be used for re-mastering and restoring old mono recordings.
Apart from a set of controls and sliders for setting the processing algorithm's parameters, PSP PseudoStereo contains a correlation meter for observing the depth of the applied effect.

Applications: pseudo-stereo encoding during recording, mixing and re-mastering of mono tracks.

Features: wide range of possible sounds, stereo correlation meter, boosting of the treble frequency component, library of 24 presets.

Controls

[S M] Correlation Meter
The correlation meter is used for measuring the correlation between the signals of the left and right channels. In other words, it shows the relationship between the *mean and differential components* of the output signal.

When the PROCESS control is off, the meter indicator moves to the far right because the input signal is now monophonic. When the PROCESS control is on, the processor converts the input signal to a pseudostereo signal, and the meter indications change in accordance with the settings of the various controls. The best stereo effects are achieved when the meter deflects slightly to the right of center. A deflection to the left of center indicates the dominance of the differential signal over the mono signal, which can result in phase abnormalities and unnatural spatial effects.

Although the meter does not have a logarithmic scale, its indications remain within the range + /- 12 dB. The central position indicates that the levels of the S and M signals are relative to 0dB. If the indicator is near the dot between the center and the right side of the meter, the mono signal dominates the differential signal by 6 dB.

[depth] Effect Depth Slider
The effect depth slider is used for setting the amount of processed signal present in the plug-in's output. Setting the slider to the extreme right position allows only the input signal to be heard. When the slider is in the extreme left position the maximum composite signal appears in the plug-in's output. In most cases setting the slider to the central position is a good starting point for experimentation.

[freq] Base Frequency Slider
The comb filter base-frequency slider is used for setting the resonant frequency of the comb filter. The comb filter resonates at all frequencies which are multiples of the base frequency. The slider has a minimum setting of 20Hz (the extreme right position). When placed in this position, a delay of 50ms is produced which causes the stereo output to be heard as two distinctly separate sounds. Applying a low base frequency leads to resonance in the whole audio band, which in turn, widens the stereo image. Setting the slider to the extreme left position causes a reduction in the width of the stereo image. The best effects are achieved by placing the slider at its central position.

[emph] Treble Emphasis Slider
The treble emphasis slider is used for controlling the amount of emphasis applied to treble frequencies within the processed signal. At the extreme right position, the whole frequency band is transformed in a uniform manner. In this position the mono input signal is the same as the mono output signal (that is, it is mono compatible). However, some unnatural effects occur when processing low frequencies. Other settings of this slider allow softening of the undesirable side-effects at the cost of mono compatibility.

[PROCESS] Processing Switch
The PROCESS control is used for switching the plug-in on and off. When the background behind the PROCESS control is illuminated it indicates that the processor is active.

[PHASE] Phase Reversal Switch
The PHASE control is used for reversing the phase of the output signal. When the background behind the PHASE control is illuminated it indicates that the phase of the output signal is reversed.

Settings

PSP PseudoStereo comes with a library of 24 presets. To make things easier, the presets have been divided into eight groups:

Group	Application
mix	monophonic mixes
room	acoustic instruments
techno space	any effects
piano	Pianos
guitar	acoustic and electric guitars
bas	bass instruments
kick, toms	Drums
over heads	Percussion

PSP StereoEnhancer

Overview

PSP StereoEnhancer is used for improving the spaciousness of stereo signals. The plug-in does this through the use of comb filtering to increase the differential signal content. The audio-manipulation algorithm used in PSP StereoEnhancer is similar to the one used in PSP PseudoStereo. However, in the case of PSP StereoEnhancer it has been optimized to make it suitable for stereo enhancement.

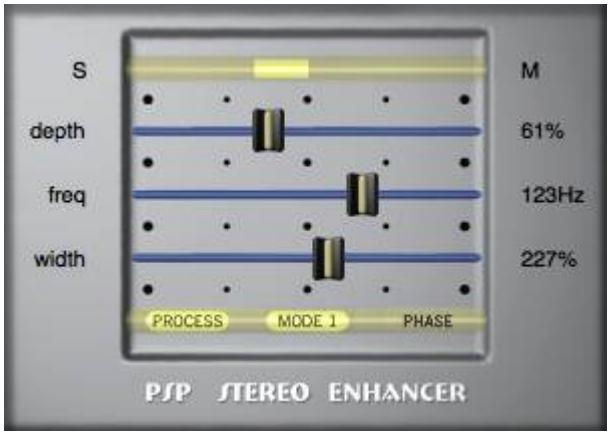
PSP StereoEnhancer has three operating modes making it suitable for use with a range of audio material--from stereo signals that require only minor adjustments to those that need a major overhaul. With the use of PSP StereoEnhancer, the stereo sound of acoustic instruments as well as poor quality archival material can be improved. This plug-in can also be used for mastering new musical material.

Apart from a set of controls and sliders for setting the processing algorithm's parameters, PSP StereoEnhancer contains a stereo correlation meter for observing the relationship between the mean and side signal components.

Applications: enhancing stereophonic space while recording, mixing, mastering and re-mastering stereo tracks.

Features: wide range of possible sounds (from subtle to extreme), stereo correlation meter, library of 29 presets.

Controls



[S M] Correlation Meter
The correlation meter is used for measuring the correlation between the signals of the left and right channels. In other words, it shows the relationship between the *mean and differential components* of the output signal.

When the PROCESS control is off, the meter displays the value of the unprocessed signal. When the PROCESS control is on, processing is applied to the input signal, and the meter indications change in accordance with the settings of the various controls. The best stereo effects are achieved when the meter deflects slightly to the right of center. A deflection to the left of center indicates the dominance of the differential signal over the mono signal, which can result in phase abnormalities and unnatural spatial effects.

Although the meter does not have a logarithmic scale, its indications remain within the range + /- 12 dB. The central position indicates that the levels of the S and M signals are relative to 0dB. If the indicator is near the dot between the center and the left side of the meter, the differential signal dominates the mono signal by 6 dB.

[depth] Effect Depth Slider
The effect depth slider is used for setting the amount of processed signal present in the plug-in's output. Setting the slider to the extreme right position allows no processed signal to be heard. When the slider is in the extreme left position maximum processing is applied. In most cases setting the slider to the central position is a good starting point for further experimentation.

[freq] Base Frequency Slider
The comb-filter base-frequency slider is used for setting the resonant frequency of the comb filter. The comb filter resonates at all frequencies which are multiples of the base frequency. The slider has a minimum setting at 20Hz (the extreme right position). When placed in this position, a delay of 50ms is produced which causes the stereo output to be heard as two distinctly separate sounds. Applying a low base frequency leads to resonance in the whole audio band, which in turn, widens the stereo image. Setting the slider to the extreme left position causes a reduction in the spaciousness of the sound. The best effects are achieved by placing the slider at its central position.

[width/emph] Differential Contents/Treble Emphasis Slider
When the MODE control is set to MODE 1, the bottom slider is used for adjusting the content of the base differential (S) in the input signal. In this way the stereophonic base of the input signal can be broadened before the signal is processed by the space-generating algorithm. Setting the slider to the extreme right position means that there is no change to the input signal, hence it is described as 100%. If the slider is moved to the extreme left, the percentage content of the S signal will be increased by up to 400% (+12 dB).

When the MODE control is set to MODE 2 or MODE 3, the bottom slider is used for controlling the amount of emphasis applied to the treble frequencies within the processed signal. At the extreme right position, the whole frequency band is transformed in a uniform manner. If the central positioning of low frequencies needs to be maintained, the slider must be set at a higher value by moving it to the left.

[PROCESS] Processing Switch
The PROCESS control is used for switching the plug-in on and off. When the background behind the PROCESS control is illuminated it indicates that the processor is active.

[MODE] Mode Switch
The MODE control is responsible for the setting of the processing mode. MODE 1 is a special mode used for the final processing of a good stereo signal which requires only slight spatializing and expansion of the stereo base. MODE 2 and MODE 3 are used for improving poorer quality stereo signals. MODE 2 operates on the basis of the monophonic signal. If the input signal contains insufficient spatial information, the use of MODE 2 is recommended. In MODE 3, the signal's spatial quality can be improved on the basis of the differential signal.

[PHASE] Phase Reversal Switch
The PHASE control is used for reversing the phase of the output signal. When the background behind the PHASE control is illuminated it indicates that the phase of the output signal is reversed.

Settings

The PSP StereoEnhancer comes with a library of 29 presets. To make things easier, the presets have been divided into ten groups:

Group	Application
enhanced mix	typical mixes
enhanced space	expanding the space
room space	sound of a room
tight	sound of a small room
delayed	addition of audible delay
piano	pianos
guitar	acoustic and electric guitars
bas	bass instruments
kick, toms	drums
over heads	percussion

PSP StereoController

Overview

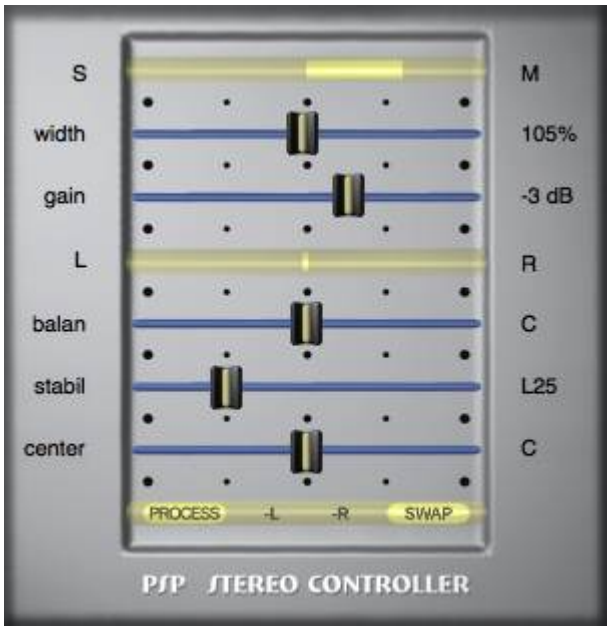
PSP StereoController is used for correcting stereophonic imperfections and errors. This plug-in enables the correction of phase reversed signals and the swapping of stereo channels. It can also be used for introducing subtle changes to the stereo image. The PSP StereoController is particularly useful for mastering tracks made under poor monitoring conditions.

PSP StereoController contains a set of sliders and controls for operating the plug-in, as well as correlation and channel balance meters.

Applications: correcting stereo errors while mastering and re-mastering stereo tracks, changing the stability of the the left and right channels without changing the mean signal, adjusting the positioning of the centre signals without changing the spatial balance, reversing phases and swapping of channels.

Features: independent control of the differential signal content, traditional channel balance control, correlation and channel balance meters. This processor does not distort the tonal balance nor alter mono compatibility.

Controls



[S M] Correlation Meter
The correlation meter is used for measuring the correlation between the signals of the left and right channels. In other words, it shows the relationship between the *mean and differential components* of the output signal.

When the PROCESS control is off, the meter displays the value of the unprocessed signal. When the PROCESS control is on, processing is applied to the input signal, and the meter indications change in accordance with the settings of the various controls. The best stereo effects are achieved when the meter deflects slightly to the right of center. A deflection to the left of center indicates the dominance of the differential signal over the mono signal, which can result in phase abnormalities and unnatural spatial effects.

Although the meter does not have a logarithmic scale, its indications remain within the range + /- 12 dB. The central position indicates that the levels of the S and M signals are relative to 0dB. If the indicator is near the dot between the center and the left side of the meter, the differential signal dominates the mono signal by 6 dB.

[width] Differential Signal Slider
The differential signal slider is used for correcting the content of signals responsible for the spatiality of the recording. When placed at the extreme right position (0%) the input signal becomes mono. Setting the slider to the central position (100%) allows the signal to pass through the plug-in unaffected. When placed to the left of the central position the content of the differential signal is increased by up to 400% (an amplification of 12 dB).

[gain] Volume Slider
The volume slider is used for changing the signal level within a +/ - 12 dB range. When placed in the central position the gain of the processor is 0 dB.

[L R] Channel Balance Meter
The channel balance meter displays the relationship between the left and right channel signals. If the PROCESS control is off, the meter indicates the value of the unprocessed input signal. When the PROCESS control is on, the meter indications change in accordance with the settings of the sliders.
The meter does not have a logarithmic scale, but its indications are within the + / - 12 dB range. Typical indications of a good stereo signal oscillate around the center of the meter. The central position indicates a balance between the L and R signals.

[balan] Channel Balance Slider
The channel balance slider is used for correcting differences in level between the left and right channels. When placed in the central position no change is made to the levels of the left and right channels. When the slider is placed in the extreme left position there is a complete suppression of the right channel and a 6 dB amplification of the left channel. When the slider is placed in the extreme right position the effect is reversed.

[stabil] Differential Signal Balance Slider
The differential signal balance slider is used for changing the positioning of the side signal in the stereo field. Using this slider, it is possible to change the proportions of the L and R channels without changing their position within the central signal panorama. When the slider is placed in the central position no change is made to the position of the side signal. When the slider is placed in the extreme left position the side signal is transferred completely to the left side. When the slider is placed in the extreme right position the side signal is transferred completely to the right side.

[center] Central Signal Panorama Slider
The central signal panorama adjustment slider is used to change the position of the mean signal within the stereo panorama without changing the proportions of the maximum left and maximum right signal components. Its function is completely contrary to the functioning of the differential signal balance slider (see above).

[PROCESS] Process Switch
The PROCESS control is used to switching the plug-in on and off. When the background behind the plug-in's name is illuminated it indicates that the processor is active. If the control is off both meters remain active and indicate the values of the unprocessed input signal.

[-L -R] L & R Phase Reversing Switches
The -L and -R controls are used for reversing the phases of the left and right channels at the processor's input.

[SWAP] Channel Swap Switch
The SWAP control is used for exchanging the L and R channels at the plug-in's input.

PSP StereoAnalyser

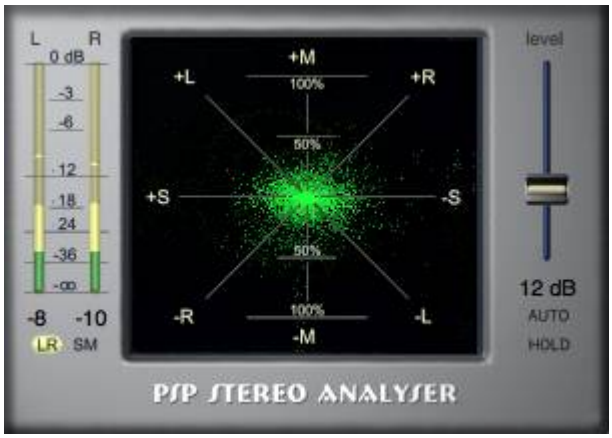
Overview

PSP StereoAnalyser is used for observing various parameters of stereo signals. Its key feature is a centrally-placed stereo oscilloscope which presents a highly accurate image of the input audio signal.

On the right of PSP StereoAnalyser are the oscilloscope parameter controls, together with a slider that is used to adjust the size of the waveform image displayed. On the left is a multi-function meter that enables the L (left), R (right) or S (side) and M (mean) signal levels to be observed.

Applications: measurement of the stereo signal properties while recording, mixing, mastering and re-mastering stereo tracks.

Features: stereo goniometer with hold option and manually or automatically adjusted operating level, L R or S M level meters with mean/peak/peak-hold features, peak-hold level numeric output.



Controls

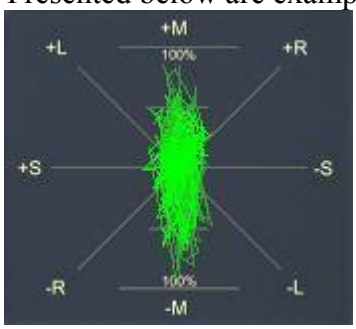
Stereo Oscilloscope

The stereo oscilloscope is designed to enable the user to visually analyse the stereo input signal.

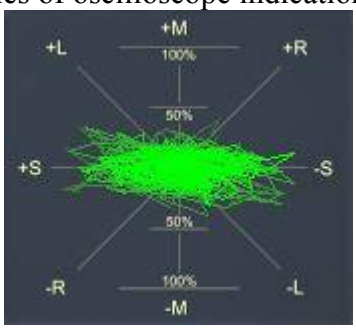
The vertical axis shows the amplitude of the mean signal component (indicated by M). The horizontal axis shows the amplitude of the side component (indicated by S). The diagonals show the content of the left (L) and the right (R) channel signals.

When the oscilloscope signal level slider is at the default setting, a mono signal of -6 dB amplitude appears as a vertical line between the lines labeled '100%'. When there is a signal of -6dB amplitude in only one channel (right or left) this appears as a diagonal line reaching a level of '50%'. This occurs because the sum of both signals (left and right) at 50% (-6 dB amplitude) is equal to 100% (0 dB).

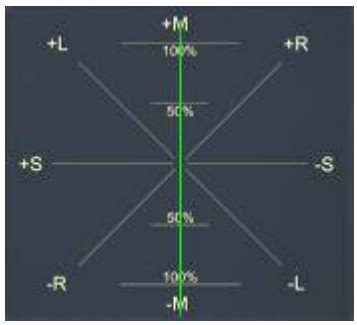
Presented below are examples of oscilloscope indications:



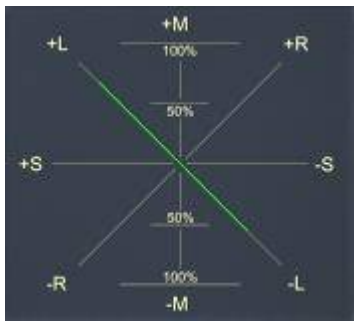
correct stereo signal



stereo signal with one



mono signal



one channel signal

channel out of phase

[level] Oscilloscope Signal Level Slider
The oscilloscope signal level slider is used to manually optimize the size of the waveform displayed on the oscilloscope. This slider only operates when the AUTO control (see below) is off. Below the slider is a text display of the amount of amplification applied to the display signal. Note that this slider only effects the oscilloscope display; it does not change the output signal in any way. The default setting is unity gain which is marked as '0 dB'.

[AUTO] Automatic Signal Level Switch
The automatic signal level switch allows the size of the waveform displayed on the oscilloscope to be automatically optimized. The amount of amplification can be read on the display below the oscilloscope signal level slider.

[HOLD] Trace Hold Switch
The trace hold switch allows the electron trace to be frozen on the oscilloscope display. This enables a closer examination of the electron trace. In order to clear the contents of the oscilloscope display, click on the oscilloscope display or turn off the HOLD control.

Signal Level Meter
The signal level meter allows a precise linear and numeric reading of the input signal level. This meter can be used for reading the level of both the mono and differential signal, as well as the left and right signal. The meter's vertical lines are scaled in dB and facilitate the reading of the peak, peak-hold and mean signal level.

The numeric values displayed below the meter represent the peak-hold level. If the value of the peak level exceeds 0 dB, the meter symbols (L, R or S, M) above the meter turn red. If the LR SM control is in the SM position, the meter readings decrease by 6 dB in order to avoid meter overload. Note that typical stereo signals give readings of the M signal a few dB higher than the S signal.

[LR SM] Meter Function Switch
This control enables the meter to be switched between the L, R and S, M signals.

Using presets

PSP PseudoStereo and PSP StereoEnhancer are provided with factory sets of presets. The PSP StereoController is equipped with a preset bar to help the user to set and compare various settings for a given task.

The main aim of PSP PseudoStereo and PSP StereoEnhancer presets is to show customers the features of those plug-ins and help to learn the controls usage. In addition, the presets can be used as a starting point for further adjustments or as quick fix presets.

The PSP StereoPack presets can be accessed from the PSPaudioware standard PRESET bar at the bottom of the plug-in interface. Here you can select from among the factory presets, and load and save individual, as well as banks of presets. There are three sections to this bar, the PRESET section, the Preset window, and the BANK section.

BANK SECTION
Click the green arrow icon to load a bank from a disk.
Click the red arrow icon to save a bank.
Double click the BANK label to permanently store the default preset bank.
Press Command (Mac) or Control (PC) and double click to restore the factory default bank.

PRESET SECTION
Click the green arrow icon to load a preset.
Click the red arrow icon to save a preset.
Double click the PRESET lavel to permanently store the default preset.
Press Command (Mac) or Control (PC) and double click to restore the factory default preset.

PRESET EDIT BOX
Click the menu button to the right of the preset edit box to see and the popup menu of all the presets in the currently loaded preset bank and to choose a preset from the list.
Click the name of the preset to rename it.

PRESET SELECTION
Click on the bright left arrow to switch to a previous preset on the list.
Click on the bright right arrow to switch to a next preset on the list..

MEMO A and B
Both A and B are permanently stored on your disk. This allows you to compare alternative settings or share a preset between various instances of the plug-in in the same project or even between various projects.
Click the green arrow icon to load a preset from memo A or B.
Click the red arrow icon to save a preset to memo A or B.

Support

If you have any questions about the principles or operation of our plug-ins, please visit our website www.pspaudioware.com where you can find the latest product information, free software updates and answers to the most frequently asked questions.

You can also contact us by e-mail: support@PSPaudioware.com. We will gladly answer all of your questions. As a rule we respond within 24 hours.

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