PSP stereoAligner^2

The phase and time correction tool for dual channel stereophonic signals

Operation manual

PSPaudioware.com

Acknowledgements

Main plug-in development and algorithms: Mateusz Woźniak
Development assistant: Piotr Dmuchowski
Project Development: Mateusz Woźniak
Additional Development: Piotr Dmuchowski
Plug-in Design and Graphics: Mateusz Woźniak
Platform: Piotr Dmuchowski, Jacek Kuśmierczyk, Adam Taborowski
Installer: Piotr Dmuchowski
Product Manager: Antoni Ożyński
Documentation: Mateusz Woźniak

Alpha and Beta testing:

- PSP Team.

Presets designed by:

- PSP Team.

Special thanks to all PSP users who has been with us since the release of the original PSP StereoPack.

Thanks to all our users around the world for ideas and help in the development of new plug-ins!

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PSPaudioware.com s.c.
Bugaj 12;
05-806 Komorów,
Poland.

OVERVIEW

PSP stereoAligner2 is designed to fix, control and adjust time, phase, polarity, and balance issues within a stereo track. The primary use of the plug-in is to deal with issues of improperly recorded dual microphone stereo tracks, however, PSP stereoAligner2 may be a vital tool to deal with other issues within mix's components whenever time, phase, polarity or balance adjustments are required.

Applications

- Precise control of the phase between the left and right channel to fix inter-channel phase issues or to obtain a proper mono output out of a stereo recording.
- Precise control of the inter-channel delay to fix inter-channel latency issues due to asymmetric distances between sound source and microphones.
- Control of the stereo balance whenever a stereo track has improperly adjusted levels between channels.
- Individual left or right and common left and right polarity flip to fix issues with polarity settings like with a kick/snare front and back microphones or due to a construction of a microphone.
- Channel swap to deal with swapped channels, routing issues on recording or just to choose the best track's stereo layout in the mix.
- Goniometer (X-Y scope) to control the stereophonic properties of the output signal.
- Peak level meter to control the overall output digital peak level.

Features

- Parameter filtering for smooth and click-free parameter adjustment.
- Support for sample rates up to 384 kHz.
- Precise control of the phase, delay, balance, width and gain.
- Independent controls for the phase of low, middle and high frequency ranges.
- Individual left or right and common left and right polarity flip.
- Channel swap.
- Goniometer (X-Y scope).
- Peak level meter.

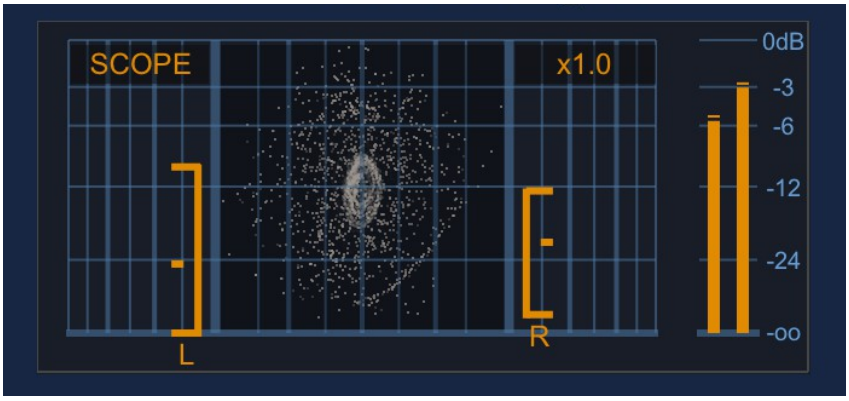
USER INTERFACE

All processing controls are located on the front panel of the plug-in. We strongly recommend reading this manual to take a full understanding and utilize a full potential out of PSP stereoAligner.

PSP stereoAligner2 consists of two main parts: The Display are and individual parameters' controls.

Display area

The display area contains several controls and meters.



SCOPE – the goniometer oscilloscope is engaged when this label is orange. Click SCOPE to engage or disengage the goniometer.

The oscilloscope uses the display's center square area to display a stereo picture of the input signal. The shape and direction of the displayed 'cloud' gives information about the input signal's stereo content.

- A vertical line indicates a pure mono signal.
- A horizontal line indicates a mono signal with inverted polarity on one channel.
- A line from top left to bottom right indicates the signal is only in the left channel.
- A line from bottom left to top right indicates the signal is only in the right channel.
- A typical stereo signal gives a vertical 'cloud' shape like the one in the picture above; the 'cloud' grows wider if the signal contains uncorrelated Left/Right information.

x1.0 – click and drag or scroll over this number to change the goniometer's zoom amount.

METERS – indicate the digital peak level of the signal. They include peak hold lines, and red lines to indicate an overload above 0dB.

Left and Right markers – The two vertical orange lines indicate the position and time delay of the Left and Right output signals. They also control most of the plug-in's major parameters. Here's how they work:
The Left and Right markers have vertical and horizontal lines.

- Click and drag the vertical lines horizontally to change the Width.
- Click and drag the bottom horizontal lines vertically to change the Delay.
- Click and drag the top horizontal lines vertically to adjust the Balance.
- Click and drag the middle horizontal lines vertically to adjust the Phase.

The function of the line is shown in orange at the top of the display area whenever the mouse cursor is over the line.

Controls

SWAP – Swaps the Left and Right channels before any further processing.

L– and R– – Inverts the polarity of the corresponding channel. When the diamond between the buttons is clicked, both the Left and Right channel polarities are inverted.

MONO – Sets the output of the plug-in to mono.

BYPASS – Turns the entire plug-in's processing off. When it's lit, all controls dim, the signal will pass through unprocessed, and the goniometer scope and meters indicate the state of the unprocessed signal.

DELAY – controls the time delay between Left and Right. With a nominal delay of 2ms, this can correct the time alignment between two microphones whose distances to the sound source are mismatched by up to ~68cm / 2ft (the distance sound can travel in 2ms).
The center setting indicates no delay between channels; double-click the knob to return to this.
Turn the knob to the left to delay the Right channel vs the Left, which stays at 0 delay.
Turn the knob to the right to delay the Left channel vs the Right, which stays at 0 delay.

Delay range x10 – turns the delay into the high range allowing dealing with inter-channel delays of up to 20ms which refers to ~6.8m / 20ft.

PHASE – controls the inter-channel phase difference displayed in degrees. In the middle position the inter-channel phase is unchanged. When setting CW or CCW the one channel's phase is increased across the entire audio spectrum by half of the indicated phase value, the other channel's phase is decreased by half of the indicated phase value, thus the overall phase difference between channels refers to the indicated phase value. Setting the value to +180 or -180 degrees equals to polarity flip on a single channel.

NOTE: Please don't misinterpret the variable Phase adjustment with time (Delay) adjustment. Inter-channel delay helps to adjust proper source-microphone distance issues across the entire band width while Phase control allows to adjust frequency-dependent time shift.

HINT: The ~90 degrees inter-channel phase shift can be used to get a properly spectrally balanced mono signal out of a stereo recording. This is due to the fact that the correlation between stereo channels usually decrease towards high frequencies. Setting the phase to around 90 deg results in a slight decorrelation for low and middle frequencies thus the sum of such processed channels gets better mono conversion than a usual left + right operation.

LOW PHASE: controls the inter-channel phase difference for the low frequency band up to 400 Hz.

MID PHASE: controls the inter-channel phase difference for the middle frequency band in the range of 400 Hz to 1600Hz.

HIGH PHASE: controls the inter-channel phase difference for the high frequency band above 1600 Hz.

HINT: In some stereo tracks a phase problem may be frequency dependent. For instance in some synthetic tracks or even in some mixes the bass range can be mono compatible while the middle is highly decorrelated - close to inverted polarity and needs dedicated adjustments only for mids. Heavy phase issues may also occur on acoustic stereo tracks using spaced microphones, for instance an improperly set up grand piano recording which may require careful phase adjustments on each of bands individually.

BALANCE – is a classic Left/Right balance control. Turning the knob CW increase the right level and decrease the left channel using a 3dB pan law. Fully CW position gains the right channel by 3dB and attenuates the left to -oodB. CCW works in an opposite manner.

WIDTH – controls the stereo width of the signal by adjusting of the Side component of the stereo signal. The range is from 0% (mono) to 400%. Setting up extremely high settings only makes sense if the goniometer shows a very narrow signal. A boost of the Width value may require cutting the signal level with the Gain knob.

NOTE: Very high Width settings are good for special effects, but should be avoided otherwise. When the Width is set above 100, the indicated value inside the knob will turn ORANGE. Please observe the Scope and Correlation meter to assure that the stereo image is within reasonable bounds – usually Correlation values to the left of center on the meter are potentially dangerous.

GAIN – controls the output gain vs. the input, with a range of ±12dB.

Back panel

Clicking on the front panel's PSP stereoAligner label opens the rear panel About box, on the Plugin Settings tab. Click on the link to open the PSPaudioware.com website. Click on any label other than the web site link to close the rear panel and return to the front panel.

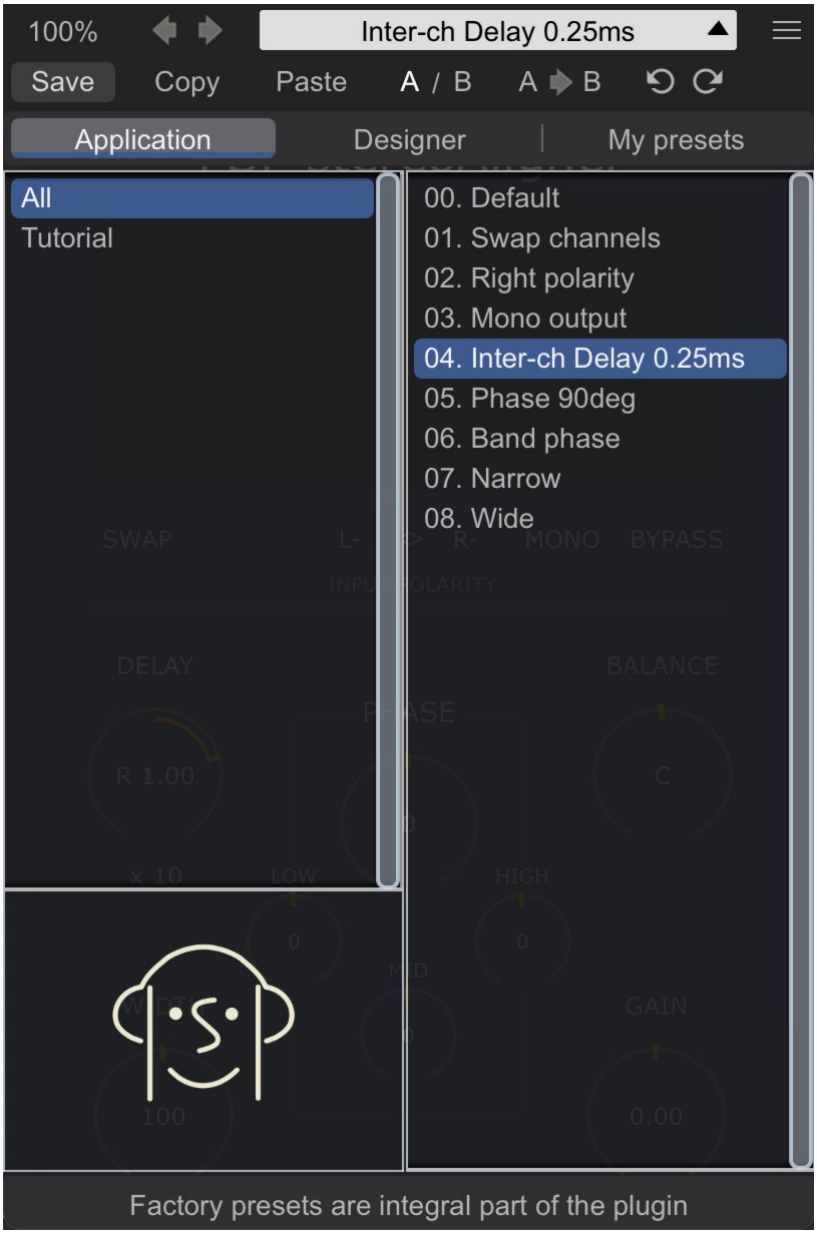
The Global Settings tab lets you access this manual or set whether Hints (floating information boxes that appear when hovering over a control) are visible or not. It also shows the installed version of the software, for help with troubleshooting.

The latency of the plug-in is displayed at the bottom of the back panel. It is indicated both: in mili seconds and in samples.

PRESET HANDLING AND VIEW OPTIONS

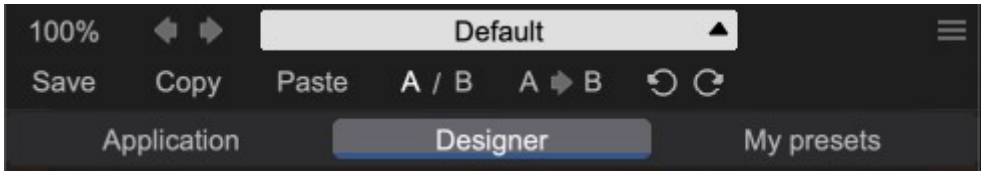
Every PSP plug-in comes with a large library of factory presets. You can use them as a starting point for experimenting with your own sounds, examine them to understand how the various features work, or keep them handy for when a track or mix needs a quick and high-quality way to create an effect or fix a problem.

To access the preset library, just click on the Preset Bar along the top of the plug-in window. If you're familiar with other PSPaudioware plug-ins, you'll find that this one works exactly the same way.



Preset Browser

PSP stereoAligner2 features a comprehensive preset management and browser system. To access the preset browser, simply click on the preset name window at the top of the plug-in (which displays 'Default' when the plug-in loads).



The new preset manager has three main categories which can be accessed via the tabs at the top of the preset browser: **Application**, **Designer**, and **My presets**.

Application – shows all factory presets, sorted by application or type of effect. These can be selected from a list on the left side of the preset browser.

Designer – shows all factory presets, sorted by designer. A photo of the designer is displayed for each of their presets. Click on the photo to open the designer's website.

My presets – shows only the presets you have created and saved, or downloaded and added to your custom presets for PSP stereoAligner2.

NOTE: The Factory presets are built into PSP stereoAligner2. While you can't edit them directly, you can make adjustments to them, and then save the result as a user preset.

To add categories to the preset list, you can create new subfolders in the preset directory.

For Windows users, this is located at:

C:\Users\Username\Documents\PSPaudioware.com\User Presets\PSP stereoAligner2

For Mac users, this is located at:

~/Documents/PSPaudioware.com/User Presets/PSP stereoAligner2

NOTE: You can find the exact file location by clicking on the **Show File in Finder** button at the bottom of the preset browser window.

To select a preset, simply click a preset name in the right window. On the first click, the preset will be temporarily loaded so that you can audition it while still in the preset browser. To confirm the preset choice and get back to the main user interface, double-click the preset name again.

Copy / Paste

The **Copy/Paste** feature is useful for when you're running two or more instances of Lexicon PSP42 and you want them to have identical settings.

Of course, you can always open a new instance and load the same preset as your first instance has, but this only works if your first instance hasn't been tweaked at all since the preset was loaded. To share your tweaks between instances, use **Copy** and **Paste**.

To use this feature, simply click the **Copy** button, open a new instance of PSP stereoAligner2 where it's needed, and click the Paste button to load the first instance's settings.

This feature can be particularly useful for processing similar instruments or sounds, when only a few minor tweaks are needed for each instance.

A/B System

The **A/B system** lets you quickly audition changes to your settings. You can compare how different tweaks work in a track or mix, or even audition two different presets on the fly.

The **A/B Button** allows you to quickly switch between the current plug-in settings (**A**) and a previous group of settings that you've previously stored (**B**).

The **A>B Button** copies the **A** settings over to the **B** slot. This lets you temporarily 'bookmark' your current settings, make more tweaks, and then compare the new tweaks with your 'bookmarked' settings using the **A/B Button**.

Undo / Redo

The **Undo/Redo** feature can be extremely important when designing presets! We all know the frustration when we make one too many edits and ruin a previously great sound. With the **Undo** and **Redo** buttons (the counterclockwise and clockwise arrows as shown above), you can step backward and forward through your edit actions until you're back where you wanted to be.

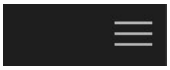
These buttons will let you undo a preset selection, returning you to your previous preset with all settings as they were when you stopped editing it.

GUI resizing

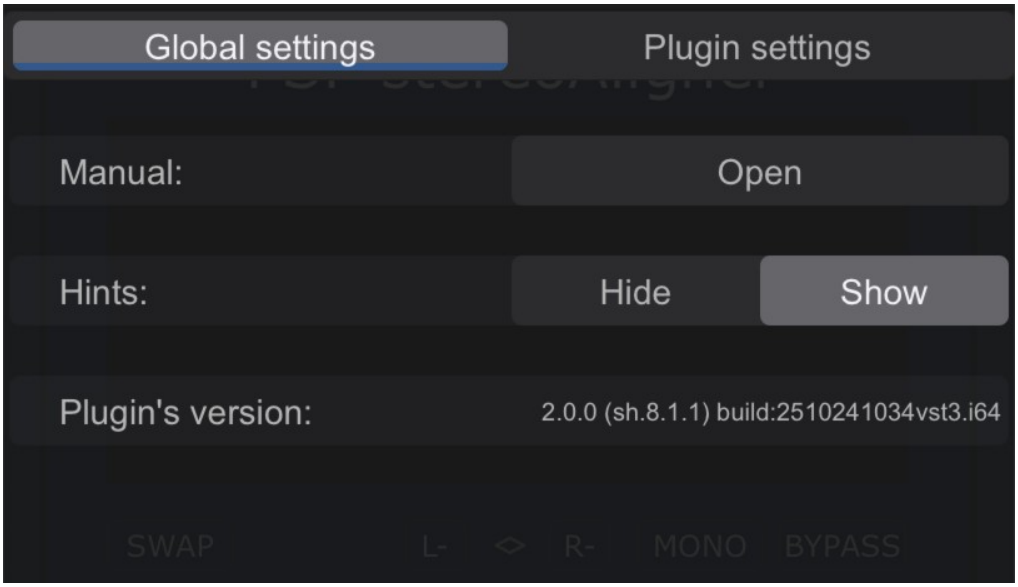
The percentage at the top left shows the current user interface size. Click on it to reveal a dropdown menu of size choices, or hover your mouse on it and scroll up and down to change the size quickly. Double-click to reset it to the default size (100%).

You can also resize the plug-in interface by click- dragging the right bottom corner of the plug-in to any size you like.

Config section



Click the icon with three parallel lines in the top right corner to open the **CONFIG** menu. You will find controls to open the manual, hide or show mouse-hover tool tips (Hints), and check your current plug-in version with build number.



These functions are also available in the **Global Settings tab** on PSP stereoAligner's back panel, which is accessed by clicking the PSP stereoAligner's name on the front panel.

Clicking the Plug-in Information and Settings tab returns you to the main view.

Minimum System Requirements

In order to run PSP BinAmp you need to install the free iLok License Manager application but you don't need any hardware dongle. By default we provide 3 licenses which can be activated in 3 separate locations, each of which can be either a computer or an iLok dongle (2nd generation or above). You can move these licenses at any time using PACE's iLok License Manager software.

Windows

VST
- Windows 7 – Windows 11
- 64-bit VST3 compatible application

VST3
- Windows 7 – Windows 11
- 64-bit VST3 compatible application

AAX
- Windows 7 – Windows 11
- 64-bit Pro Tools

All DAWs
- Up to date iLok License Manager application installed

macOS Intel or macOS AppleSilicon

AudioUnit
- macOS 10.14 – macOS 26 Tahoe
- 64-bit AudioUnit compatible host application

VST
- macOS 10.14 – macOS 26 Tahoe
- 64-bit VST3 compatible application

VST3
- macOS 10.14 – macOS 26 Tahoe
- 64-bit VST3 compatible host application

AAX
- macOS 10.14 – macOS 26 Tahoe
- 64-bit Pro Tools

All DAWs
- Up to date iLok License Manager application installed

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Processing

- All internal processing done with 64-bit double precision floats.
- PSP stereoAligner2 supports 32-bit and 64-bit floating point audio streams.
- PSP stereoAligner2 supports sample rates up to 384 kHz.

Limitations of the demo version

We offer a 30-day evaluation period without any audio interruptions or control limitations. To get access to the plug-in and your unique authorization details, simply login to your account at our user area.

Enjoy !

PSP team

Support

If you have any questions about any of our plug-ins, please visit our website:

www.PSPaudioware.com

Where you can find the latest product information, free software updates, online support forum and answers to the most frequently asked questions.

Problems with the installation, activation or authorization?
Please watch our troubleshooting video tutorials on our YouTube channel.

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.

PSPaudioware.com s.c.
Bugaj 12
05-806 Komorów
Poland.
ph. +48 601 96 31 73
www.PSPaudioware.com
contact@PSPaudioware.com