

USER'S GUIDE



Auburn Sounds Psypan 2

Version 2.0.0

World of Stereo



FOREWORD

GFM PSYPAN, released in 2011, is still used to this day to give width and a binaural effect to tracks.

PSYPAN 2 (2026) is intended to take it further as a proven binaural panner, but also to extend it into an **exploratory toolbox for all sorts of stereo algorithms**.

The main idea is to choose among numerous *pan modes* to find exactly what the track needs.

And no less than **17 pan modes** are provided:

- **5 Binaural modes:** Psy-1, Psy-2, P1, P2, and 2-band.
- **3 Volume modes:** Balance, Dual Pan, and Dual Rotation.
- **9 FX and spatial modes:** Doubler, Peak Panner, Haas effect, Directional EQ, Chorus, Widener, plus 3 M/S versions.

Having all these tools at your disposal creates opportunities for creative mixing decisions.

INSTALLATION

First, unzip the content of the AUBURN SOUNDS PSYPAN 2 FREE (or FULL) archive.

For macOS users

Double-click on the **.pkg** installer in the **Mac/** directory.

- You may need to reboot your Mac computer to see the new Audio Unit in hosts.
- Logic may need a manual scan in its Plug-in Manager.

For Windows users

Double-click on the **.exe** installer in the **Windows/** directory.

- When using the VST 2.4 format, you may have to enter the right VST 2.4 directory in order for your DAW to find the plug-in.

For Linux users

Open the **Linux/** directory.

- **LV2:** Copy the LV2 plug-in (**.lv2** directory) in your LV2 directory.
- **CLAP:** Copy the CLAP plug-in (**.clap** file) in your CLAP directory.
- **VST3:** Copy the VST3 plug-in (**.vst3** directory) in your VST3 directory.

UPDATES

Upgrade to FULL

Purchasing a FULL upgrade on the Auburn Sounds website, or its resellers, always leads to the <https://itch.io> website.

After purchasing or registering an external purchase here, you need to download a new ZIP and **install it on top of the existing FREE plug-in.**

Your existing FREE sessions will keep working with the FULL product.

Getting newer versions

If you can't find links to your purchase, there are two possibilities:

- **Either you linked your purchase to an itch.io account.**
Go to this page and login: <https://itch.io/my-purchases>
- **Or you did *not* link your purchase to an itch.io account.**
Go to this page which can send you download links again:
<https://itch.io/docs/buying/already-bought>

Should I fear broken sessions?

Session compatibility is broken with each **major** version change.

eg: Graillon 1.2 to Graillon 2.0

Session compatibility is preserved with each **minor** version change.

eg: Graillon 2.3 to 2.4

Because your host will see each major version as different plug-ins, you can't loose sessions by upgrading.

COMPATIBILITY

AUBURN SOUNDS PSYPAN 2 is available in various plug-in formats:

- CLAP
- VST3
- VST2
- Audio Unit v2
- AAX
- LV2
- FLP

For the following Operating Systems (OS):

- Windows 7 or newer,
- macOS 10.15 or newer,
- Ubuntu 22.04 or newer

Our plug-ins have been tested with a wide variety of Digital Audio Workstations hosts (DAW). However if you find out your DAW isn't well supported, please report a bug at contact@auburnsounds.com .

Supported sampling rates range from 22050 Hz to 192 kHz.

CHANGELOG

Version 1.0

- Initial release.

MODES

The **Pan** parameter is the main control to set a direction for the sound. What it does depends on the specific mode of operation, and it is sometimes split into two parameters.

Psy-1

Psy-1 is linear-phase; it uses a 32-bit floating-point signal path and 64 samples of sinc interpolation. This mode misreports latency (less than 1 ms). This mode changes volume by -0.65 dB.

- **Width** is a stereo width control (0 to 200%).
- **ITD** changes Interaural Time Difference from 0% to 200%.

Psy-2 (Default)

Psy-2 is nearly linear-phase; it uses a 64-bit floating-point signal path and 128 samples of sinc interpolation.

Psy-2 keeps the "bugs" from **Psy-1** and exaggerates them. This mode misreports latency on purpose (1.3 ms, less at higher sampling rates), and also changes volume by -0.77 dB.

- **Width** is a stereo width control (0 to 200%).
- **Spectral** changes the amount of angular spectral effect from 0% to 200%.
- **ITD** scales the Interaural Time Difference from 0% to 200%.

Psy-2 is twice as expensive as **Psy-1** in terms of CPU usage.

P1 (Full Edition)

P1 is the binaural panner in Panagement 1 (2016), characterized by a high-shelf for a basic frequency-dependent interaural level difference (ILD). It uses a 32-bit floating-point signal path like the original. **P1** rarely sounds better than either **P2** or **Psy-2**. On speakers, **P1** and **Psy-1** may have an edge with their larger ILD.

- **ILD** scales the Interaural Level Difference from 0% to 200%.
- **Spectral** scales the frequency-dependent part of the Interaural Level Difference from 0% to 200%.
- **ITD** scales the Interaural Time Difference from 0% to 200%.

P2 (Full Edition)

P2 is the binaural panner in Panagement 2 (2019). It uses a 32-bit floating-point signal path like the original. It sounds a bit better on headphones than **P1** thanks to a lower interaural difference. It is usually a better choice than **P1**. **P2** and **P1** are both more CPU-conscious than **Psy-2**.

- **ILD** scales the Interaural Level Difference from 0% to 200%.
- **Spectral** scales the frequency-dependent part of the Interaural Level Difference from 0% to 200%.
- **ITD** scales the Interaural Time Difference from 0% to 200%.

Balance

The default panpot configuration in most DAWs is a balance control.

Balance mode is just like your regular DAW pan, and features 3 pan laws:

- Compensated -3 dB center (most DAWs)
- Compensated -4.5 dB center (Logic, SSL...)
- Compensated -6 dB center (rare)
- **Width** is a stereo width control (0 to 200%).

Dual Pan

Dual Pan is like **Balance** except the left and right channels are panned separately, with a -3 dB center compensated pan law.

This makes **Dual Pan** more likely to retain an existing stereo image from the source.

- **Width** is a stereo width control (0 to 200%). Indeed, without that control the Dual Pan would only be able to *reduce* stereo width.

μ-Shift and M/S μ-Shift (Full Edition)

Inspired by a well-known process, **μ-Shift** works by pitch-shifting the left and right channels by a few cents while delaying the wet signal.

This is a vintage effect typically used to give density. You can reach for **μ-Shift** when you need something chorus-like.

In this mode, **Pan** controls the interaural delay, with the center position being "no left vs right difference".

The **μ-Shift M/S** can be more suitable when the source already has a stereo image. Try it on reverb to get a feel for it.

- **Width** is a stereo width control (0 to 200%).
- **HP** is a -12 dB / oct filter on the wet signal.
- **Wet** mixes dry input with wet processed signal.

Haas Delay and Haas M/S (Full Edition)

Haas Delay gives you dramatic width at the cost of anti-phase.

A larger interaural delay can completely decorrelate the left and right signals, to the point where the perceived width is maximal, much like with doubled guitar takes hard-panned left and right.

In this mode, **Pan** controls the large interaural delay, with the center position being 0 milliseconds.

The **Haas M/S** version can be more suitable when the source already has a stereo image. Try it on reverb to get a feel for it.

- **HP** is a -12 dB / oct filter on the wet signal.
- **Wet** mixes dry input with wet processed signal.

Chorus Panner

Chorus is a mode where the chorus' wet signal is itself panned with a balance control. It is helpful to densify in an asymmetric way.

- **Speed** is the speed of delay-line modulation.
- **Depth** is the amount of base delay and delay-line modulation.
- **Amount** mixes dry input with wet processed signal.

Doubler (Full Edition)

Doubler creates the illusion of a duo.

It can be helpful when you want a chorus-like effect that doesn't sit at the center.

- **Width** is a stereo width control (0 to 200%).

Peak Panner and Peak M/S (Full Edition)

Peak Panner applies a peak EQ directionally, either towards the left or right channel.

Peak M/S version does the same, either towards the center or sides channel. This can be useful on a full mix.

- **Hz** is the center frequency of the peak.
- **Q** is the peak resonance.
- **Gain** is the peak gain in decibels.

Stereo Rotate

Stereo Rotate is a dual pan mode that does stereo rotation individually on left and right channels.

It can be useful to isolate Mid or Side, but is generally more practical for re-imaging **existing stereo content**. It's not useful if the input has no side energy in the first place.

- **Width** is a stereo width control (0 to 200%), applied before rotation.

Try it on overheads or a reverb bus.

2-band Binaural (*Full Edition*)

2-band Binaural splits the signal into low and high frequencies and applies two **Psy-2** algorithms in a multiband fashion.

The high and low bands can then be panned binaurally and individually.

- **Low ITD** is the Interaural Time Difference factor applied to the low band (0 to 200%). Default is 0% for the sake of mono-compatibility.
- **Width** is a stereo width control (0 to 200%), **applied only to the high band**.
- **High ITD** is the Interaural Time Difference factor applied to the high band (0 to 200%).

Widener (*Full Edition*)

Widener generates fake stereo content by using allpass series in phase opposition in the left and right channels.

This creates stereo width out of nothing at the cost of a "comb" sound.

- **Width** is a stereo width control (0 to 200%), so that you can compare generated stereo with the existing input stereo content, if any.

CREDITS

Development, UI/UX, DSP

- Guillaume PIOLAT

Design, UI, Graphics

- Margot RINDONE

Thanks

Thanks to our fellow musicians, friends, and family, whose invaluable support makes the creation of our beloved audio tools possible.

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QOI (Quite OK Image format)

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