



**SOUND  
PARTICLES**



# **Brightness Panner** Reference Manual

April 2021  
v 1.0.0



## Welcome Note

Welcome to “Brightness Panner”

We are always thinking on new ways to explore sound and space. After the success of Energy Panner, which uses the intensity of the sound to control its panning, we decided to create other “dynamic” panners, tools to help professionals to add movement to their tracks in an easy way. With “Brightness Panner”, you have 3 different features that can control the sound: brightness, which uses the concept of spectral centroid; pitch, by using a simple monophonic pitch detector; and MIDI, which can be routed to audio plugins.

Enjoy! And if you have any question or suggestion, don't hesitate to contact us. We REALLY love to receive feedback from our users.

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CEO

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# Table of Contents

<b>Table of Contents</b>	<b>5</b>
<b>Brightness Panner</b>	<b>6</b>
Brightness Panner Signal Flow	7
Interface	8
Effect Modes	14
Output Options	17
<b>Additional Notes</b>	<b>22</b>
<b>EULA</b>	<b>23</b>

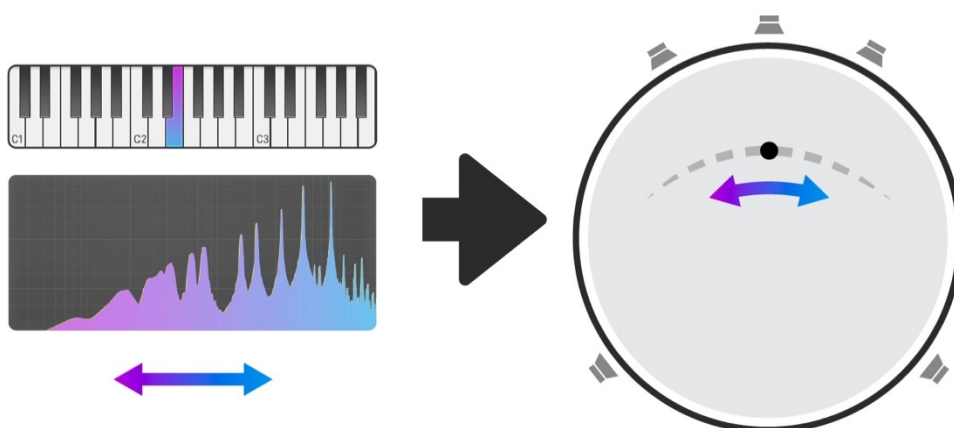
# Brightness Panner

Thank you very much for downloading the Brightness Panner audio plugin from Sound Particles.

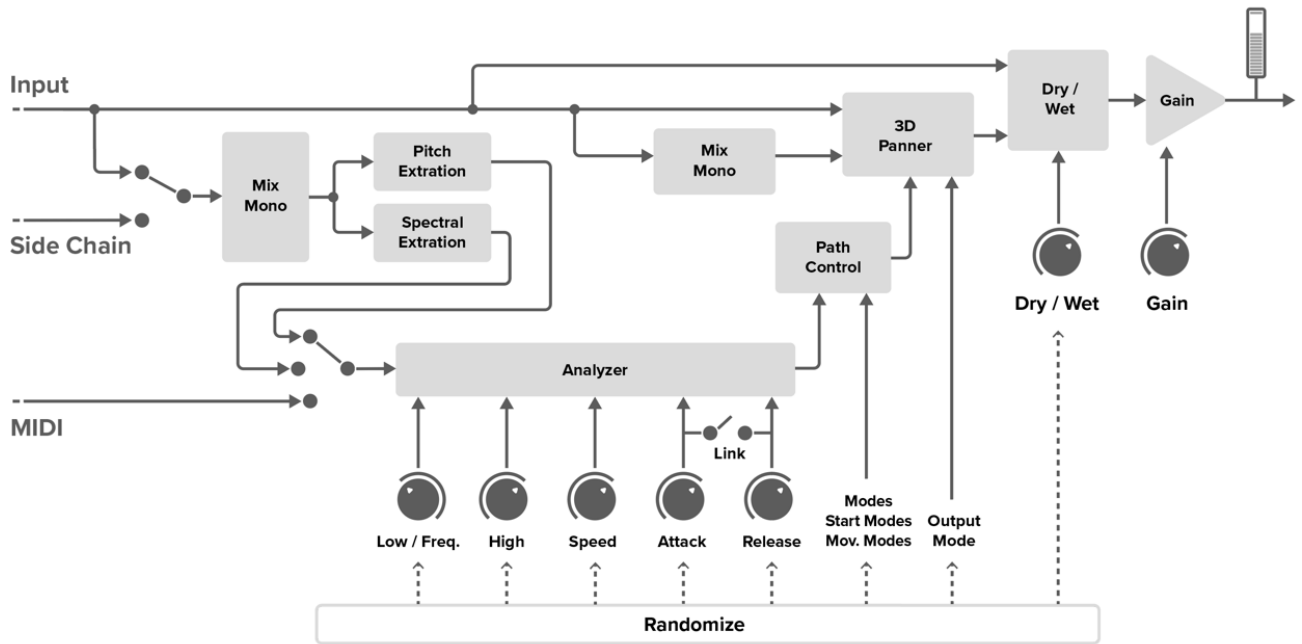
Brightness Panner is committed to change the way you use sound in space, enriching your mixes by spreading sound around you. This unique audio plugin makes panning easier than ever, by applying movement to your sounds using Brightness analysis. Designed to be simple and quick to use, Brightness Panner has two different modes of operation — Pan and Sliding — enabling sound designers and music producers to use this new approach to panning in several different ways. Whether to add motion to sound effects or to creatively mix instruments, this audio plugin will change the way you think about the sound around you.

Brightness Panner brings the most innovative panning solution to your DAW. Allows you to move your sound around dynamically in a variety of reproduction formats — from stereo to surround 5.1 and 7.1, to Dolby Atmos 7.1.2, Ambisonics up to 3rd order, and Binaural.

Go through this manual and get the best out of Brightness Panner!



## Brightness Panner Signal Flow



## Interface

The interface of Brightness Panner is designed to be easy-to-use and straightforward while providing all information and controls you need to attain the best out of the plugin.

Brightness Panner has a key element centered on the interface, the dome. Here, you will probably carry out the largest proportion of your actions, since it's here you can define the outstanding effects Brightness Panner applies to your sounds.

In addition to the dome, there are a whole set of parameters around it that will help you to hit the sound you want. Above the dome are the two modes of operation: Pan and Sliding. Switching between these two modes will completely change the way Brightness Panner works as well as changing the dominant colors on the interface.

Under the dome are the plugin's three modes of input signal analysis - Brightness, Pitch and MIDI. These heavily impact the overall result of the plugin considering they aim to analyze different features of the sound and MIDI information. From the left side, you define basic components related to your sound effect position and its behavior.

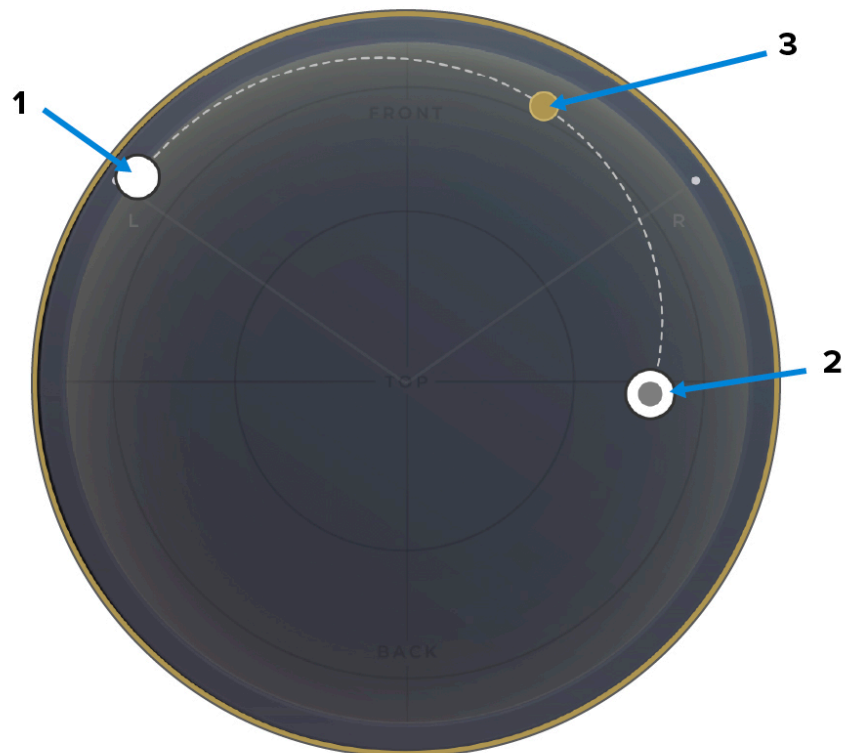


## Understanding the Dome

The dome is a key element on the interface and fundamental to get the best out of Brightness Panner. It is where users can define and view:

- 1) the Start handle** - start position of the audio source;
- 2) End/Movement handle** - sets the target position of the audio source;
- 3) the Position indicator** - displays the current position of the audio source (blue circular particle).

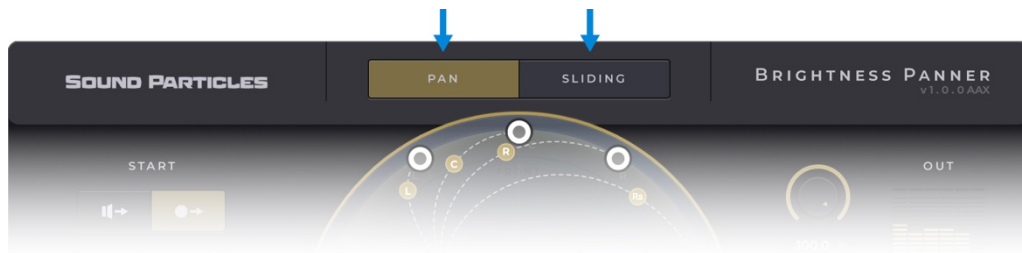
When moving these handles in the circle space you are outlining a panning trajectory of your sounds in a cupula-like space, being the output processed as if you were centered in this space. For example, a sound source initially positioned in the center of the dome will be perceived as being above us. If you define its trajectory to go back point, the final result will be a sound initially coming from above to behind us.



The dome is the main playground of Brightness Panner. Using our set of parameters, you can add complex movements and trajectories to sound sources that you simply cannot achieve with traditional automation.

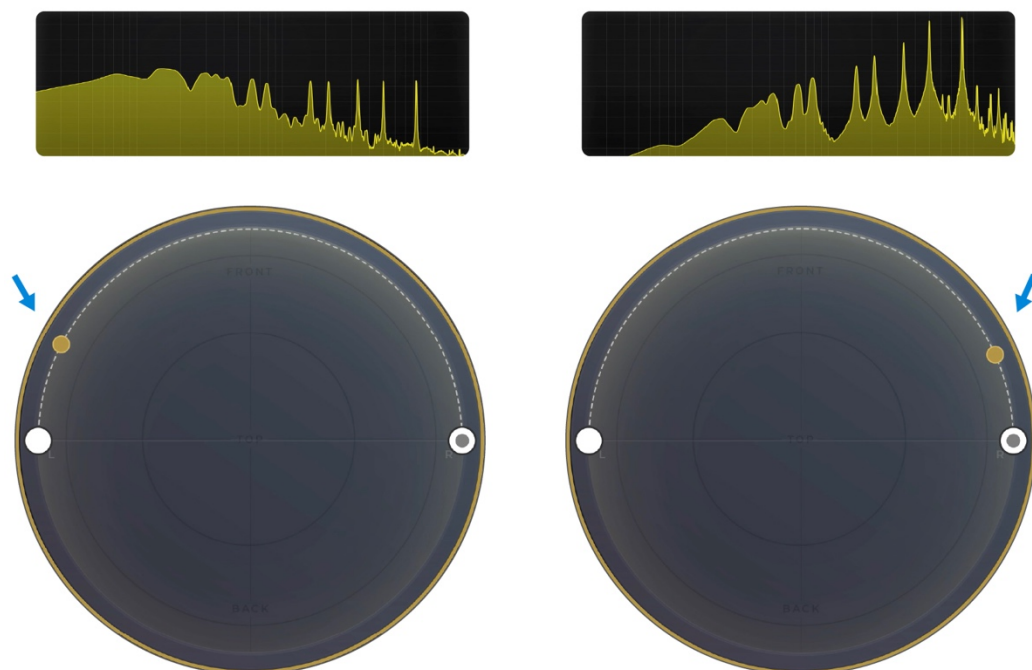
## Panning Modes

The Brightness Panner plugin has two panning modes — Pan and Sliding — that will help you in creating a greater variety of trajectories. These two modes will use the brightness of your sound source and will use it differently to distribute the sound around you.



### Pan

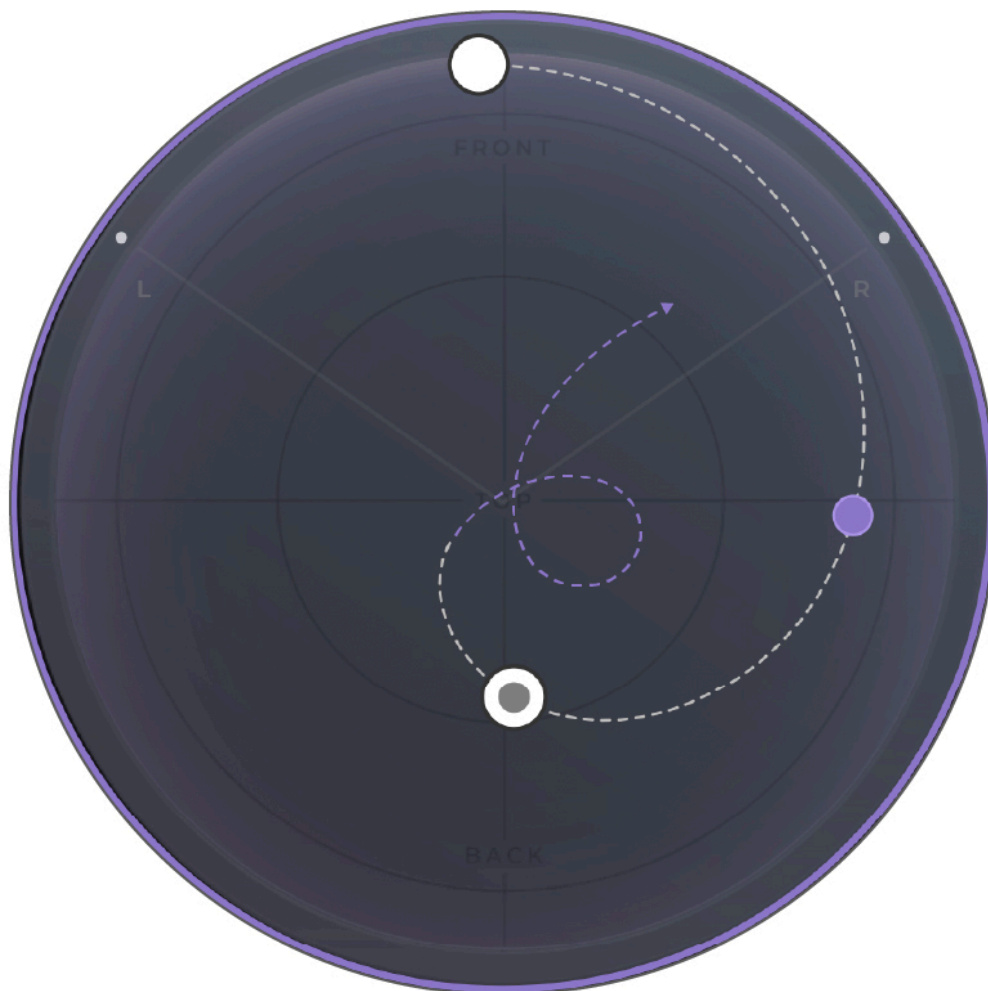
The Pan mode is essentially a normal end-to-end particle-based panning. This type of panning effect changes the position of the sound source between two points (start point -> end point) previously defined by you. Therefore, greater centroid shifts of the incoming signal, greater the shift from the starting point to the end point. The example below demonstrates how pan mode works on the Brightness Panner plugin.





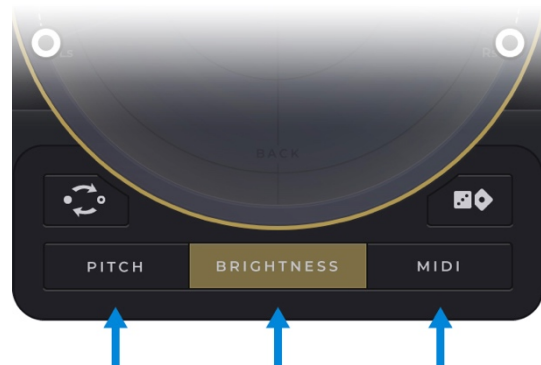
## Sliding Mode

The sliding mode works in its essence as continuous particle sliding/rotation-based panning. Whenever the frequency of the sound surpasses the defined start frequency, the sound source moves on a trajectory that you define. As opposed to pan mode, the sound source does not return to the starting point as soon as the sound frequency drops below the defined start frequency. The sound source will freeze in that position until the frequency of the sound surpasses the start frequency, leading to a new shift of the sound source in the dome space. It's almost as if we had a sound source "walking" around the dome.



## Analyzers

The Brightness Panner plugin has three analyzer modes — Brightness, Pitch and MIDI — that will assist you in creating a greater variety of trajectories. These three modes will use frequency-related analysis information of your sound and use it to distribute the sounds around you.



### Brightness

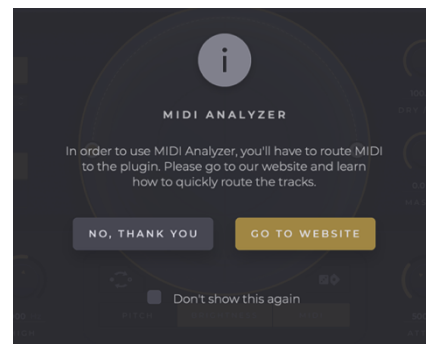
The brightness analysis mode is the main panning mode of the Brightness Panner. This mode takes the brightness (spectral centroid calculation) of a sound source and uses it for the panning effect. For example, in the Pan mode, the higher the centroid of a sound, the closer the sound source will be to the endpoint set on the dome.

### Pitch

This mode calculates the pitch of a sound source and uses it for the panning effect. For example, in the Pan mode, the higher the pitch of a sound, the closer the sound source will be to the endpoint set on the dome.

### MIDI

The first-time users choose to use this mode, a warning appears informing of the need for MIDI routing, specific to each host. Here, it is possible to choose to learn about this routing or simply ignore the message. Also, a “Don’t show this again” checkbox exists when the user already knows how to make this setup.



MIDI analysis mode uses MIDI note messages to pan the sound sources in the defined path. In this mode, the ruler at the bottom of the interface will display notes instead of frequencies, making it easier to read the incoming information and assist in defining the right settings.

As an example, in Pan mode, MIDI notes within the defined range (Low and High) will be equidistant across the path defined in the dome.

### Lowest vs Highest note

A switch button appears when the MIDI analysis mode is enabled, allowing you to choose between the states Lowest note and Highest Note. These states define which MIDI note value will be considered for panning, whether the lowest note or the highest note. For example, in a scenario where a chord is being played on a MIDI keyboard, having the switch set to Highest note will consider the highest note of the chord for the panning, and discard the lowest ones. The opposite happens if the switch is set to Lowest note.



Given the high workflow dependency that hosts themselves impose on the use of this mode, we created a page to support you setting up the MIDI analyzer on most DAWs. Access it at: [www.soundparticles.com/support/brightnesspanner/midi-mode](http://www.soundparticles.com/support/brightnesspanner/midi-mode)

# Effect Modes

## Start Location

The effect modes in the Brightness Panner refer to a set of factors able to modify the trajectory of the sound source, allowing to create a greater variety of sonic results. Basically, the Brightness Panner effects section defines the essence of the effect we want to create.

Initially, you start by defining the start point's form and location. We can define the starting point form by:

- 1) **Start in Speakers Mode** - Sets the panning effect to start in the original input channel(s) position(s).
- 2) **Start in Point Mode** - Sets the panning effect to start in a given point. In this mode, the plugin output starts as a mono downmixed signal.

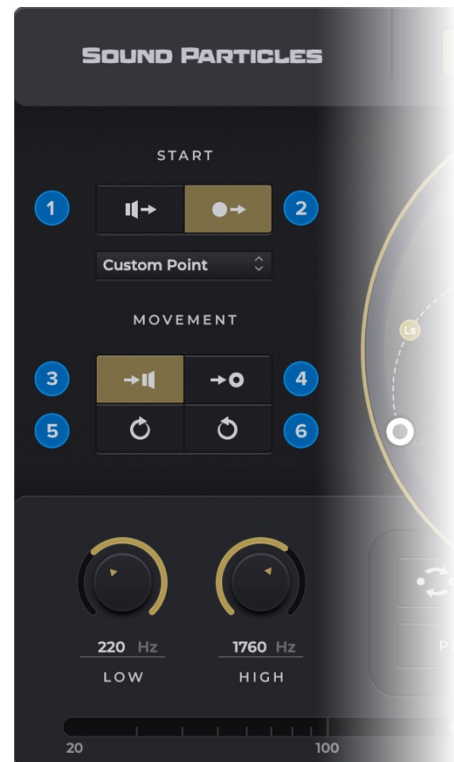
When the users select the start location in point mode, there is an option to choose from a list of selectable predefined positions for the start point.

## Movement Type

Once you have selected the mode and starting position, Brightness Panner lets you choose a type of movement for the sound source. The options are:

- 3) **To Speakers Movement** - Sets the panning effect to move towards the original input channel(s) position(s).
- 4) **To Point Movement** - Sets the panning effect to move towards a destination point.
- 5) **Clockwise Movement** - Sets the effect to rotate in a clockwise direction.
- 6) **Counter-clockwise Movement** - Sets the effect to rotate in a counter-clockwise direction.

Brightness Panner has an invert Pan button that lets you invert the current panning motion of the sound source.



## Main Parameters



### Low

The Low frequency (Hz) knob sets the minimum frequency needed for the panning effect to be activated. It always depends on your audio to find a good setting, and the centroid ruler under the knob will help you find the right balance.

### High

The High frequency (Hz) knob defines the upper limit that will be considered for the panning effect, the frequency set corresponds to the final position of the panning effect.

### Attack

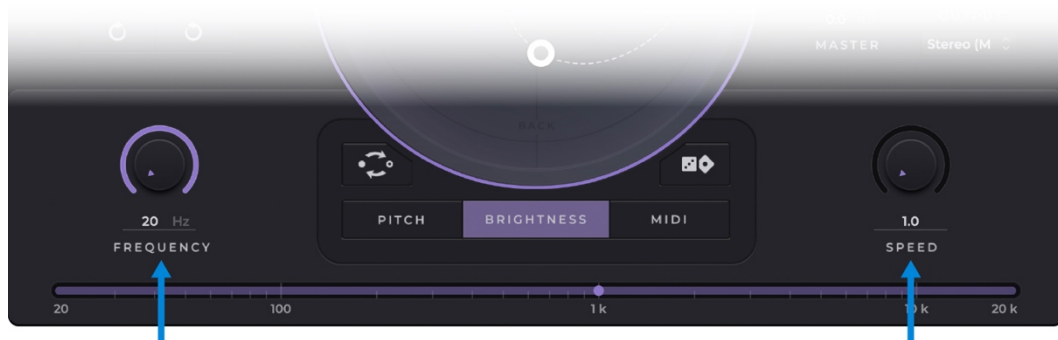
The Attack knob sets the speed at which the sound source moves when the signal level exceeds the low frequency value, ranging from 1ms (very fast) to 5000ms (very slow). This wider range of attack time makes Brightness Panner capable of dealing with a great variety of sound sources, from static chords to chimes sounds.

### Release

The Release knob sets the amount of time that takes for the decreasing panning effect to occur, ranging from 1ms (very fast) to 5000ms (very slow). Just like the attack parameter, the behavior is very dependent on the case scenario, heavily relying on the audio you are processing. Just like attack parameter, very low values of these parameters can add some distortion to your sound source.

## Link Option

The Brightness Panner has an option called Link that allows the attack and release parameters to be equal. This means that attack and release times can be controlled together or separately (link On/Off).



## Frequency

The frequency (Hz) parameter only appears when the plugin is operating in sliding mode and using Brightness analyser type. This parameter has a very similar operation to Low; it sets the start frequency needed for the panning effect to be activated. However, in the context of the sliding mode, the distance from the start frequency and the frequency of the incoming signal impacts the velocity of the panning effect, the higher the centroid the greater is the movement of the particle.

## Speed

The Speed parameter only appears when the plugin is operating in Sliding mode. This parameter essentially controls the speed of the panning effect. Although the speed of the sound source is also dependent on the start frequency / centroid distance, the speed value controls the amount of sliding of the sound.

## Output Options

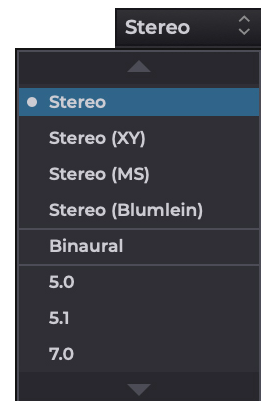
The Brightness Panner has an output section dedicated to the parameters that change the already processed audio. These parameters are the Dry/Wet, Gain, and the output popup for the render formats.

The Dry/Wet knob controls the amount of dry (without movement) input signal that is added to the output. This is essentially the ratio between the input and processed signal.

The Gain Knob controls the gain of the output signal. The current signal levels are visible in the VU meters available on the right-side of the interface. Users can access a popup menu by right clicking on the VU's. This essentially allow users to reset the VU's animation (e.g.: if they already clipped), as well as viewing the render format in use. When inserted into a multi-channel track, Brightness Panner lets you switch the VU's channel order between SMPTE and Film.

## Output Render Formats

- **Stereo** - A stereo render made of gains based in the channel particle position.
- **Stereo(XY)** - A stereo render made with a virtual XY microphone.
- **Stereo(MS)** - A stereo render made with a virtual MS microphone.
- **Stereo (Blumlein)** - A stereo render made with a virtual Blumlein microphone.
- **Binaural** - A binaural render based on the SADIE MINP KU100 dataset.
- **Ambisonics (ACN/SN3D)** - An ambisonics render up to 3<sup>rd</sup> order based on the ambisonics input.
- **5.0** - A 5.0 VBAP multichannel render
- **5.1** - A 5.1 VBAP multichannel render.
- **7.0** - A 7.0 VBAP multichannel render.
- **7.1** - A 7.1 VBAP multichannel render.
- **7.0.2** - A 7.0.2 VBAP multichannel render.
- **7.1.2** - A 7.1.2 VBAP multichannel render.



## Brightness Panner Toolbars



The Brightness Panner toolbar incorporates a set of features that assists you when using the plugin. The upper tab allows you to save and manage presets very quickly and intuitively. Also, the scaling, sidechain and smooth bypass feature streamline working with Brightness Panner.

- 1) **Smooth Bypass** — noiseless plug-in activation / deactivation. Using this feature the Brightness Panner is bypassed without any clipping, even if it's processing audio.
- 2) **GUI Zoom** — the Brightness Panner's GUI can be resized. The available popup on the upper-left part of the interface let users choose a scaling value, from 25% to 400%. This action affects only the currently selected Brightness Panner instance. New instances of the plugin will open with the default resize factor (100%). Also, users are allowed to use a custom scaling factor by dragging the cursor in the bottom-right of the plugin's interface. Performing this makes the zoom popup display the custom value of the scaling.

*\*Bear in mind that hosts may deal differently with plugins resize.*

- 3) **Sidechain** — The Brightness Panner offers the possibility of feeding the plugin with any external signal of your mix, triggering the panning effect with a different signal than the audio it is actually processing. Applying the sidechain technique to the plugin inputs may work slightly different across the DAWs.

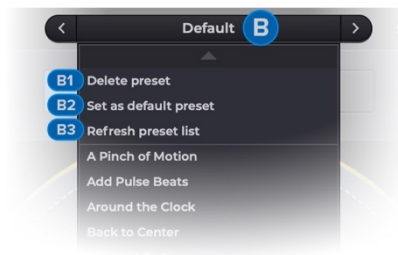


4) **Internal Preset Saving System** — The internal system for recording presets is a feature implemented since Energy Panner v1.1. It allows greater management of the presets, enabling users to: create snapshots, alter presets, and access all of them (factory and custom) across all your hosts. The plugin also supports a tree structure for better organisation of presets, allowing users to save presets within specific folders.

A. **Preset Navigator** — allow users to navigate to the previous and next preset using the arrows placed on the left and right of the Preset popup menu.

B. **Preset Popup Menu** — the preset popup displays the current preset in use. It initially appears with a preset called Default, used whenever the plugin is inserted into a track. Pressing on the name of the preset brings up a menu with the options: **Delete preset**, **Set as default preset**, and **Refresh preset list** — followed by the complete list of presets (factory and custom).

B1. **Set as default preset** — defines the current plugin settings as the default settings when the plugin is inserted into a new track. This action determines the default on all hosts and architectures.



B2. **Refresh preset list** — updates the presets list. If there is a new preset file in the presets folder, or a new preset has been created from a different Brightness Panner instance, this option updates the preset list.

B3. **Delete preset** — deletes the current preset. This action is permanent and deletes the preset on all hosts.

C. **Save** — Pressing “Save” label saves the current state of Brightness Panner as a preset. The operating system window will automatically appear in the required directory. Presets saved in different paths won't be recognised in the preset menu of the plugin.

5) **Update** — If the plug-in is running on a computer with internet access, it is able to detect if a newer update is available, informing the user of the existence of a new update, by showing a blinking phrase on the top of the display.

6) **Help** — link to the web version of this manual.

- 7) **Midi monitor** — This icon aims to inform the user whenever the Brightness Panner receives MIDI messages. The icon blinks every time the plugin receives information.

## Plugin Installation

The Brightness Panner Plugin installation copies the plugin into appropriate plugin folders, and the hosts will automatically recognize them. It also allows Brightness Panner users to choose a custom folder for the installation, in both operating systems — MacOS and WindowsOS.

On MacOS, the default paths for Brightness Panner plugin architectures are the following:

- /Library/Audio/Plug-Ins/VST3
- /Library/Audio/Plug-Ins/Components
- /Library/Application Support/Sound Particles/BrightnessPanner
- /Library/Application Support/Avid/Audio/Plug-Ins

On WindowsOS, the default paths for Brightness Panner plugin architectures are the following:

- C:\Program Files\Common Files\VST3
- C:\Program Files\Common Files\Avid\Audio\Plug-Ins

In the case of VSTs on WindowsOS, we set the paths in accordance with [Steinberg recommendation](#) regarding plugin locations.

## Presets locations

User presets should be stored in a .spp file in the following locations:

On MacOS, the path for Brightness Panner User presets is the following:

- /Users/USERNAME\*/Library/Application Support/Sound Particles/Brightness Panner/Presets

On WindowsOS, the path for Brightness Panner User presets is the following:

- C:\Users\USERNAME\*\*\AppData\Roaming\Sound Particles\Brightness Panner\Presets

\*USERNAME is your login name. Your user Library folder may be hidden, in which case you can select the “Go To Folder” option in the Go menu of the Finder, enter “~/Library”, and click OK.

\*\*USERNAME is your login name. AppData may be hidden; use the explorer view options to show system files.

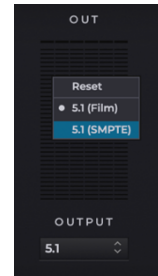
## Tips

### Knobs:

- Double click or Alt-click resets to the default value;
- Command, Ctrl or Shift while dragging enables fine-tune.

### VU meter:

- Click on one channel clears its clipping led;
- Double click and press reset clears all clipping LEDs;
- In multichannel scenarios it is possible to choose the VU's channel order (SMPTE/Film) with a mouse right-click inside the VU's area.



### Dome:

- Shift while dragging a handle to give it a negative elevation;
- Use Ctrl or Command while dragging a handle to give it rounded values (snaps to a 5° grid).

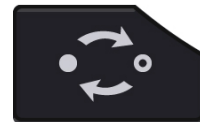
### Randomize:

- This button will set new random values to the parameters and the plugin effect mode buttons/popups.



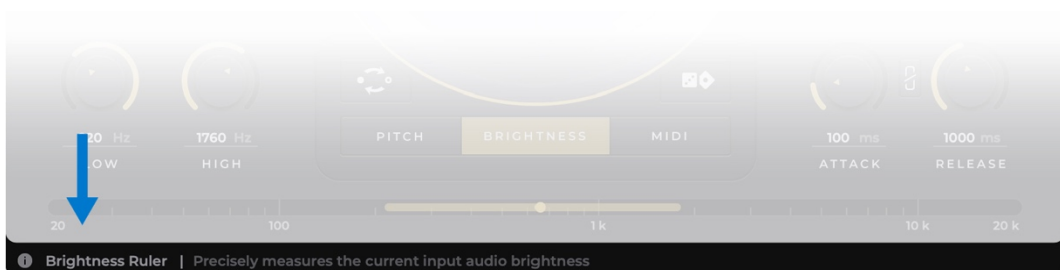
### Invert:

- The invert button reverses the direction of the effect.



### Tooltip's bar:

- This version of Brightness Panner has a bar at the bottom of the interface that shows short definitions for each element of the plugin.



# Additional Notes

## Avid S6 Support

Brightness Panner (AAX) can have its parameters controlled through various control surfaces, including AVID S6.

## Check for updates

If the plug-in is running on a computer with internet access, it is able to detect if a newer update is available, informing the user of the existence of a new update, by showing a blinking phrase on the top of the display.

To achieve that, Sound Particles Brightness Panner plugin tries to access a simple XML file located at <https://www.soundparticles.com>.

SOUND PARTICLES BRIGHTNESS PANNER DOES NOT SEND ANY INFORMATION FROM THE USER OVER THE INTERNET.

## Support

If you detect a bug, if you got a crash, if you believe something is not perfect, or even if you have ideas for future versions, don't hesitate, and email us at [support@soundparticles.com](mailto:support@soundparticles.com). We REALLY want to hear from you. Sometimes a bug lives on for too much time, simply because we haven't detected ourselves and we didn't receive any feedback from the affected users. Besides that, your feedback is very important for us.

"Help us help you"

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Portugal



**SOUND PARTICLES** PAN SLIDING **BRIGHTNESS PANNER**  
v1.0.0.AAX

START  
[Play/Pause] [Stop]

Custom Point [Dropdown]

MOVEMENT  
[Play/Pause] [Stop]

[Circular Panner Interface with L, C, R, H, B, Ls, Bs, and BACK labels]

OUT  
100.0 % DRY / WET  
0.0 dB MASTER  
OUTPUT 5.1

200 Hz LOW 2000 Hz HIGH  
PITCH BRIGHTNESS MIDI  
100 ms ATTACK 1000 ms RELEASE

20 100 1k 10k 20k



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