



Pulsar Echorec User Manual



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Introduction

This manual describes the features and operation of the Pulsar Echorec effect processor. To be sure you understand how to use your plugin and understand all its subtleties, please read it completely.

The information contained in this manual is believed to be correct at the time of publication. However, if an error has unfortunately crept into its contents, please let us know.

IMPORTANT: The prolonged use of amplified instruments, speakers or headphones may cause permanent hearing loss. Ensure you monitor your exposure level, and take regular breaks. In case of tinnitus or suspected hearing loss, please consult an ENT specialist.

Welcome

Our experience

Thank you for choosing Pulsar Audio quality!

With more than 15 years' experience in plugin development for the biggest names in the industry, we decided to create Pulsar Audio to push the quality requirements of our products even further.

For each product, our quest for excellence requires us never to rest on our technical achievements, and to expand our knowledge ever further.

Sound and science

With solid expertise in audio signal processing, but also in electronics, sound techniques and music practice, we take great care in modeling all the small details and imperfections of analog equipment that make the difference between a « mathematical » exact sounding algorithm and a rich, living and musical processing, and we produce this famous « 3rd dimension » sound so much sought after.

In addition, our close collaboration with music production professionals requires us to be rigorous in order to produce professional quality tools.

Our user interfaces

The user interface of a plugin is the link between the creative drive and the technical implementation; it must therefore be clear, intuitive, and as pleasant as possible to use. We take great care to create the most beautiful and fluid interfaces possible, with an emphasis on intuitiveness.

The search for the right equipment

Rarely do you find two analog machines that sound exactly the same. It is therefore important, when developing an emulation, to carefully choose the hardware units to be used as models. We only use units in perfect condition and measure them with the best recording equipment.

A final word

We hope you will enjoy this plugin as much as we enjoyed creating it. Be sure to visit our website www.pulsar.audio and find out about updates, new products, tips and other resources. There you will also be able to contact us to ask for help or simply to tell us about your experience!

The Pulsar Team

The Echorec

From the very beginning of music production, musicians and producers have sought to recreate artificial acoustic spaces, to virtually "transpose" their music out of the studio, and give it the living aspect of live music. The first spatialization effect used in the studio was the Echo, later called "delay".

The Echorec, by the Italian company Binson, is an analog delay processor, introduced in the late 1950s. Unlike other processors of the time, based on plastic magnetic tapes, the delay in the Echorec is produced using a metal magnetic drum, providing a larger bandwidth and greater temporal stability compared to most systems of the time.

Considered one of the best delay processors of the time, it has been used in the studio and sometimes on stage by many musicians and bands such as Pink Floyd (Syd Barrett & David Gilmour), Led Zeppelin (Jimmy Page), Hawkwind, and many others...

The Echorec will offer you:

- The sound of a legendary machine that has marked the history of music
- The unique ability to create rhythmic delays using its 4 read heads
- A delay of unequalled sound density, making it easier to place in the music
- The advantages of "organic" analog sound along with the convenience of digital world (presets, parameter automation, etc.)

Quick start

Installation

Pulsar Echorec is available as a plugin in VST2, VST3, AU and AAX formats for use with all major DAW software such as Live, Cubase, Logic, Pro Tools, etc.

Installation from the supplied installer is automatic. The installer takes care of copying the different plugins as well as presets, manual, etc. into the appropriate locations.

Note: If you are using the VST2 format in Windows, you will be asked by the installer to specify the installation folders for the 32-bit and 64-bit VST2 plugins respectively. The paths that seem most appropriate for your computer will be recommended by default, but we advise you to check them before completing the installation. If the plugin is not installed in the same folder as your other possible plugins, your DAW software may not detect it.

Activation

All our plugins are protected by PACE's iLok system. For correct operation, we recommend you ensure that you have the latest version of the « iLok License Manager » software, available for free download at www.ilok.com .

You can choose between three activation methods:

- Activation on a hardware USB dongle such as iLok 2 or iLok 3, which will enable you to use your plugin on several machines (you can order a dongle online at www.ilok.com or buy it from your music retailer)
- iLok Cloud activation which will enable you to use your plugin on several machines but requires a permanent internet connection
- Machine activation, which does not require a dongle or a permanent internet connection, but only activates your plugin on one machine

Important: If you choose the iLok Cloud system, you have to open a Cloud session on your computer by going to the « File > Open Cloud Session » menu of your iLok License Manager. If you choose an iLok 2 or 3 dongle, you have to connect it to your computer before any operation.

When you purchase your software, you will receive:

- A license deposited directly onto your iLok account. Just go to the « Available » tab and drag it to the destination of your choice (here CLOUD for a cloud license, or iLok_Pulsar for an iLok 2 or 3 dongle)
- An activation code. Simply paste it into the « Licenses > Redeem Activation Code » menu to receive the license on your account, and drop it off at the destination of your choice (CLOUD or iLok 2 or 3 dongle)

iLok License Manager All Licenses (126) Available (5) All Activations (1) Unavailable (72) Hidden (0)

pulsar
126 Licenses

Local

- CLOUD**
35 Activations
- MacBook Pro de**
0 Activations
- iLok_Pulsar**
42 Activations

Valid Locations	Product Name	Publisher Name	Subtype	Expiration Date	Deposit Date	Type	Activ
	Pro Tools	Avid	Product	04/01/2019 19:59	04/01/2018 19:59	Subscription	0 of 1

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iLok License Manager's "available" license tab

First Steps

Load the Echorec on a track of your choice in your DAW. The base preset is a good starting point. You can now:

- Adjust the delay time with the "Disk Speed" knob or the "Tap" button (the "sync" button allows you to enable/disable synchronization to the BPM)
- Adjust the amount of delayed sound with the "Mix" knob
- Increase the number of repetitions with the "Feedback" knob
- Increase the "thickness" of the repetition sound with the "Drive" knob

You can also review the available factory presets to find inspiration quickly, without getting into technical considerations.

The user interface



Echorec's user interface

The user interface consists of 2 separate panels:

- The toolbar, common to all Pulsar Audio plug-ins (top)
- The control panel, specific to the plug-in

Note that in all Pulsar Audio plug-ins, you will find a resizing control in the bottom right corner of the plugin interface.

Use of parameter controls

The parameter control knobs have several modes of use:

- The normal editing mode (use a classic mouse drag, or the mouse wheel)
- The fine editing mode (hold the Ctrl or Cmd key while dragging or while using the mouse wheel, or drag with the right mouse button)
- The « reset to default » action (double-click, or click while holding the Alt key)
- The « menu » action (right-click, or click while holding the Ctrl key)
- Only for some controls, the alternate edition mode (hold Shift while dragging), which can have various functions, for example to temporarily link two parameters

Parameter locking

It is possible to lock certain parameters, so that they are not changed when loading a preset. For example, one possible use of this feature is to set the input and output gains of a compressor to achieve the desired amount of gain reduction, lock these parameters, and then scroll through the list of factory presets to find the most appropriate tone.



Locking the Dual Input knob

To lock a control, right-click it with the mouse, or click while holding down the Ctrl key on the keyboard. If the control can be locked, a menu will appear offering to lock it. When a parameter is locked, a small padlock icon appears next to the control.

Using the GUI resize control

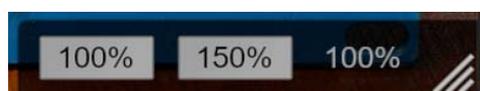
Located at the bottom right of the interface of all Pulsar Audio plugins, this control allows you to resize the plugin's interface to your liking. It comes in the form of three lines, like a classic resizing handle:



Resizing handle

Note that in some DAWs, this resizing can be problematic, depending on how the DAW developer has designed its windowing.

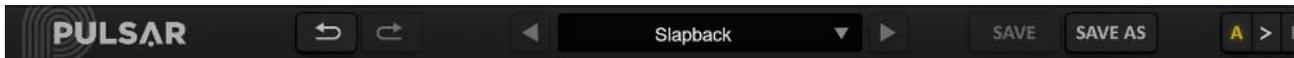
It is also possible, by clicking in the corner, to open a small popup window with buttons offering a choice of fixed size resizing (100% - 150%):



Resizing window

The Toolbar

Located at the top of the plugin interface, it contains all the functions relating to parameters, presets, communication with Pulsar Audio, etc.



The toolbar

Undo / Redo

The 2 arrow buttons on the left of the toolbar have the function Undo and Redo, i.e. respectively the cancellation and restoration of the last action. All parameter changes and more generally the state of the plugin are stored in a history. You can click on « Undo » at any time to return to the previous state (or to the nth previous state) and on « Redo » to return to the current state.

Note: a right-click on one of these buttons gives access to the list of stored operations.

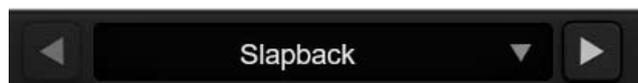


Undo / redo buttons

Preset Selection

The preset selection area, located in the center of the bar, allows you to:

- Read the name of the current preset. If an asterisk appears after the preset name, it means that the state of the plugin no longer matches the saved preset
- Select a preset from the list of available presets, arranged in sub-banks
- Delete the current preset (« Delete Preset » option)
- Rename or move a preset to another sub-bank (« Move / Rename Preset » option)
- Set the current preset as the one that will be loaded by default when creating a new instance of the plugin (« Set This Preset As Default » option)
- Open the presets directory. This can be handy for making backups of your preset files and restoring them. Note that renaming and reorganizing presets must be done from the plugin menu, not by using your system's file explorer.
- Restore factory presets. This will also overwrite any changes you have made to your factory presets
- Quickly navigate between the presets to find inspiration, using the left and right arrows



The preset selection area

Save / Save As

The Save button saves the current preset.

The Save As button saves the current state of the plugin under a new preset name.



Save and Save As buttons

A / B

This section allows you to compare 2 different states of the plugin, or 2 different presets. Slots A and B, accessible through these 2 buttons, represent 2 completely independent states.

For example, when state A is active, you can load a preset and/or make settings from the interface, then click on button B; then load another preset and/or make other settings; buttons A and B now allow you to quickly switch between the two states and easily compare the 2 presets or sets of settings.

It is also possible to copy the state A to B or vice versa using the > or < buttons located between A and B.



A, B and Copy buttons

Menu Button

The button located on the far right of the bar encompasses various options.



The Menu button

Oversampling settings

The first menu item is used to set the oversampling. Oversampling allows the sound to be processed at a higher sampling rate within the plugin, in return for higher latency and CPU consumption. Oversampling is disabled by default, as all Pulsar Audio products use advanced technologies that allow in most cases to process the sound without oversampling, with no compromise on quality. This makes oversampling useful mainly when you saturate a lot.

Please note that Pulsar Audio products use very high-quality linear phase upsampling and downsampling filters. This means that the x2 oversampling will generally be of higher quality than the x2 setting in a competitor's product, but will also be more CPU intensive.



Oversampling options

The "Offline oversampling" option allows you to choose an oversampling setting for final rendering (and other non-real-time processing) independent of the setting applied in real time. This enables to reduce the CPU consumption during the use of the plugin, while having the best quality during the final rendering.

Disable Static Noise option

All analog equipment introduces a hiss, mainly caused by thermal noise in the electronic components, the amplitude of which differs from one model to another.

In some Pulsar plugins, we assumed that modeling this noise was appropriate, although at a lower level than in real life (often around -90 dBFS), because it contributes slightly to the character of the original device.

In some cases (if the output of the plugin is strongly amplified), this noise can become audible and undesirable, so it is possible to deactivate it using the "Disable Static Noise" option.

Other options

Other functions accessible through this menu are:

- Enabling / disabling the help balloons
- Access to the website
- Access to social media
- Access to communication with technical support
- Link to this user manual

The control panel

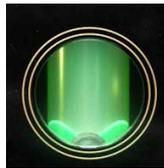


The Echorec's control panel

The Echorec's control panel is largely inspired by that of the original machine, with some additions to expand the sound palette.

The Magic Eye

The magic eye is the green light located in the center of the interface. It is a vacuum tube of type EM81, intended, like a VU-meter, to give an indication of the sound level. The more the tube ignites, the more the delayed signal is saturated and heated by the tube circuits.



The Magic Eye

Bypass

The central switch under the Magic Eye is a bypass, it allows you to activate and deactivate the effect.



Bypass switch

Mix

This knob is used to measure the amount of delayed signal and original signal. If the effect is placed on an auxiliary track, this setting should ideally be 100%; if it is directly inserted on an audio track, it should be adjusted to balance direct and faded sound.

Note: in the original Echorec, the undelayed signal passes through the machine's tube circuits, and is therefore modified. We have chosen to keep this signal identical to the input signal. However, you can still enjoy a sound that is not delayed but processed by tube circuits, by using the Off mode in the Delays parameter.



Mix knob

Feedback

In RIP and SWELL modes, the Feedback knob controls the amount of output signal fed back into the circuit input, i.e. the number of repetitions. Above a certain threshold, the sound is maintained indefinitely in self-oscillation.

Note: In ECHO mode, this knob has no effect.



Feedback knob

Delays

The Echorec consists of a writing head that writes on a magnetic disk, and 4 offset read heads that will read from the same disk. Each head is therefore responsible for a repetition, and can be activated / deactivated independently, using to the "Delays" rotary switch:

	Head #1	Head #2	Head #3	Head #4
Off				
1	↓			
2		↓		
3			↓	
4				↓
5	↓	↓		
6		↓	↓	
7			↓	↓
8	↓		↓	
9		↓		↓
10	↓	↓	↓	
11		↓	↓	↓
12	↓	↓	↓	↓

Delays table

To avoid referring to the table above, the active heads are briefly highlighted on the interface each time the Delays switch is moved.

It is thus possible to create rhythms using the combination of read heads.

Note: We have added an "Off" mode, absent on the original, which allows you to enjoy the color of the tube amplification circuits and the magnetic disc without any latency.



Delays knob

Drive

The Drive knob controls the gain with which the signal passes through the tube circuits. The higher it is, the thicker or even distorted the delayed signal will be.



Drive knob

Mode

The Echorec has 3 operating modes:

- ECHO: a standard slapback delay, only one repetition per writing head
- RIP: a classic "feedback" delay, the sound of each playback head is fed back into the input according to the value of the Delays knob. This mode is the one that was most used by Pink Floyd in the early 1970s
- SWELL: works like the RIP mode, where the output of each read head is fed back into the input according to the chosen Delays, except that the overall output is the sum of all 4 read heads independent from the Delays knob. Originally, this mode was used to recreate the sound space of a small room

Note: In ECHO mode, the Feedback knob has no effect.



Mode knob

Volume

This parameter is used to adjust the output volume of the effect.



Volume knob

Disk Speed

Originally, the delay time of the Binson Echorec was fixed. We have added a "Disk Speed" parameter to vary the speed of the disc, and thus the delay time, to adapt it to all tempos and musical styles.



Disk Speed knob

In Sync mode, the knob turns into a rotary switch, which allows you to choose between 5 different time divisions, relative to the delay time of read head #4.

Sync

The sync switch activates / deactivates the synchronization of the delay time with the tempo or BPM of the DAW.



Sync switch

Tap

The Tap button allows you to adjust the delay time by directly typing the tempo. The delay time will be equal to the interval between 2 clicks on the Tap.

Note: using the Tap button disables synchronization with the sequencer's BPM.



Tap button

Tone

The Tone knob is used to adjust the tonal balance of the delayed sound.



Tone knob

Condition

We took care to model the Echorec in 3 states of wear:

- MINT: Brand new condition, ex-factory
- GOOD: Good condition, slightly used
- USED: After long use, the vacuum tubes are worn out and the magnetic heads are misadjusted

All the characteristics of these 3 conditions have been modelled except the background noise, which has been deliberately reduced, especially in Mint mode, to make the plugin usable in a maximum range of different conditions of use / working levels.



Condition knob

Stereo drift

The Stereo Drift, available only on a stereo track, allows you to introduce a slight difference in delay time between the left and right channels, creating a "drift" to the right or left. Use this setting to widen a mono recording for example.



Stereo Drift knob

Disk braking

On the Binson Echorec, it is possible to brake the disc by pressing lightly with your finger to modulate its speed. This action is also possible on the plugin by clicking on the disc.

You can:

- Give small impulses, by clicking on the disc. The closer you click to the edge, the greater the modulation will be
- Hold the mouse down and move over the disc. Again, the closer the cursor is to the edge of the disc, the greater the modulation will be



Echorec's magnetic disk

Minimum Configuration

This plugin is compatible with all major sequencers on the market (Cubase, Nuendo, Pro Tools, Logic Pro, FL Studio, Ableton Live, Bitwig, Digital Performer, Studio One, Reaper, Adobe Audition...)

Available formats:

- VST 2.4 (Windows: 32/64-bit, Mac: 64-bit only)
- VST 3 (Windows: 32/64-bit, Mac: 64-bit only)
- AAX (Windows: 32/64-bit, Mac: 64-bit only)
- Audio Unit (64-bit).



Windows

- CPU: Intel Core i3 / i5 / i7 / Xeon
- Memory: 4 GB RAM / 1 GB free disk space
- Operating system: Windows 7 and higher
- GPU: OpenGL 2.0 compatible GPU with up-to-date drivers
- Screen resolution: minimum 1024×768 / recommended 1280×1024 or 1600×1024

MacOS

- CPU: Intel Core i3 / i5 / i7 / Xeon / Apple Silicon (M1)
- Memory: 4 GB RAM / 1 GB free disk space
- Operating system: 10.9 and higher
- GPU: OpenGL 2.0 compatible GPU with up-to-date drivers
- Screen resolution: minimum 1024×768 / recommended 1280×1024 or 1600×1024

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This license gives you the right to all minor updates (e. g. 1.1 to 1.2), but excludes major versions (e. g. 1.x to 2.x).

License transfer

You may transfer all your rights to use the Software to another person provided that you transfer this Agreement and the Software to that other person; and that the recipient accepts the terms and conditions of this Agreement and any other provisions pursuant to which you have acquired a valid license to use this Software.

Activation

Pulsar Audio will not be held responsible for any failure to activate PACE's iLok protection system / license.

Trial

Pulsar Audio offers a 14-day trial license, starting at the time of transfer of the license to an iLok key. After expiration, the plugin can no longer be used, and in the event that no permanent license is acquired, it must be deleted.

Third Party Software

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