



# Pulsar W495 User Manual



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# Introduction

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This manual describes the features and operation of the Pulsar W495 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

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## 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](http://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*

# Pulsar W495

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## History

Pulsar W495 takes its inspiration directly from the Neumann W495b equalizer, which was built in the "Danner Cassette" format (an ancestor of the 500 Series rack!). This EQ was used in Neumann broadcast consoles as well as in Neumann VMS mastering consoles and vinyl presses. It's said that 90% of vinyl records produced between the 1970s and 1990s were mastered with these Neumann modules!

Renowned for its three extremely transparent and musical bass, midrange, and high bands, which allow easy adjustment of a master's frequency balance, the W495 EQ is still widely used in mastering studios today (and sometimes modified to reduce filter gain ranges to +/- 2.5 dB).

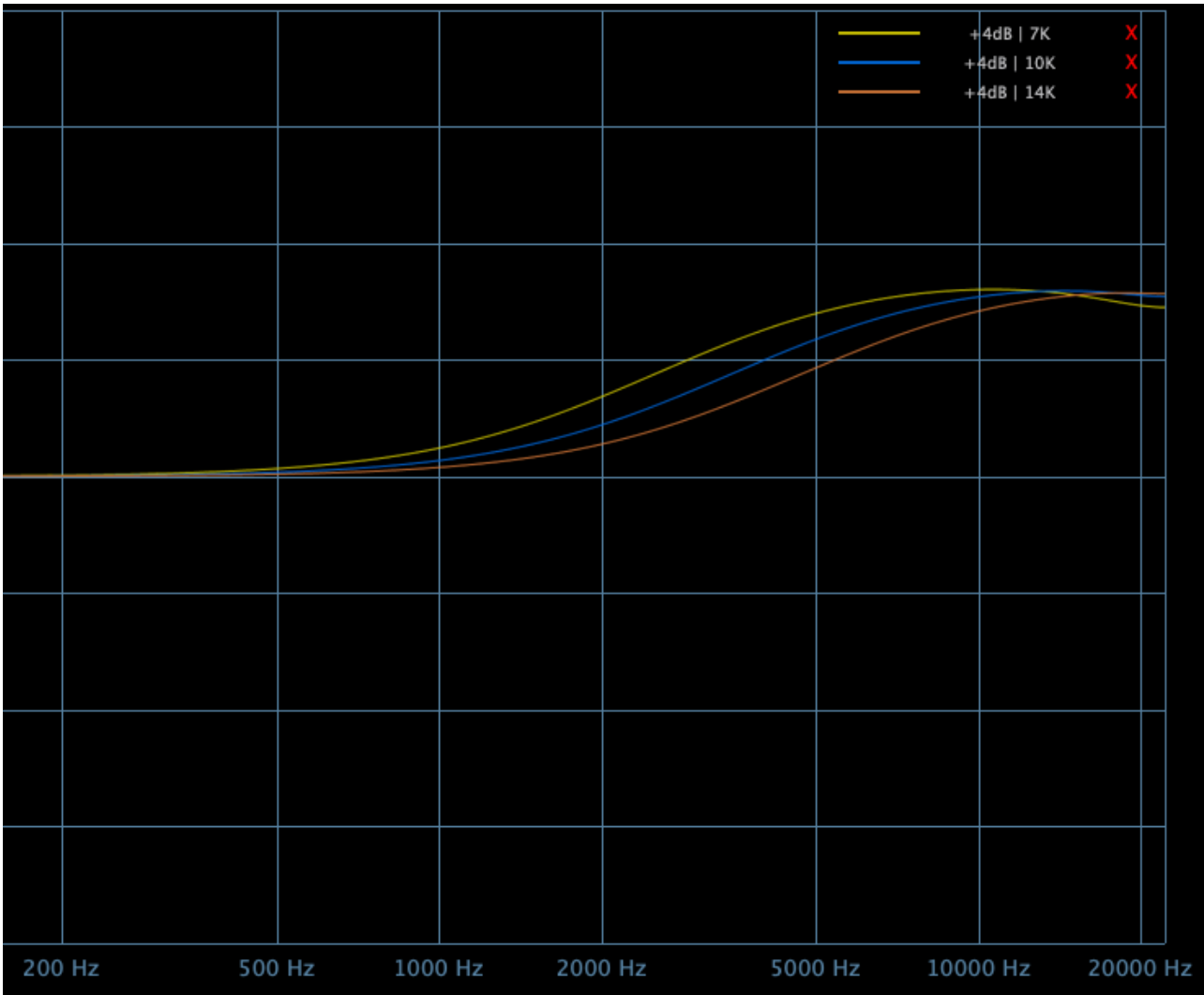
The Pulsar W495 will offer you:

- The sound of a mythical machine, present in studios all over the world
- Transparent and musical equalization for both instrument and bus tracks
- The discreet low-spectrum color of the Haufe RK 756 transformer
- Editing on the EQ curve for fast workflow
- A convenient Auto-gain feature
- The advantages of analogue sound combined with the advantages of digital workflow (presets, parameter automation, etc.)

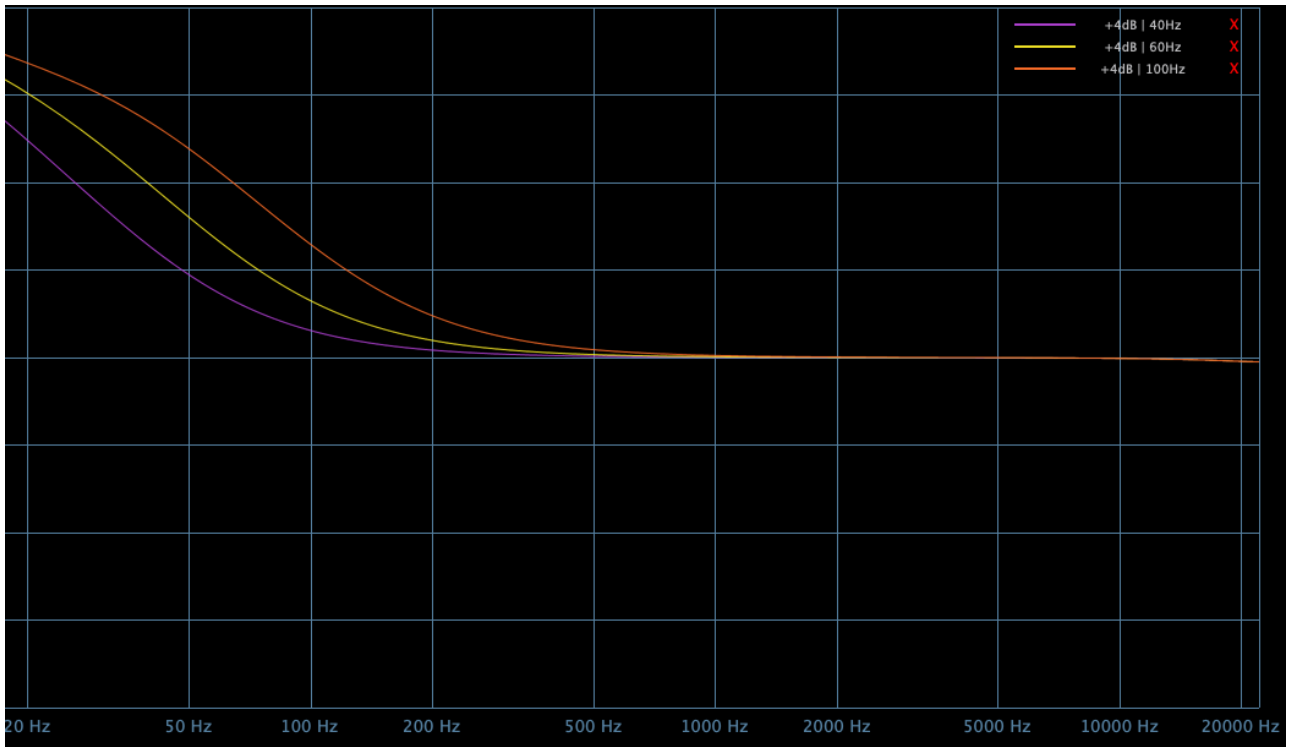
# Filter shapes of the Pulsar W495

## Shelf filters

Pulsar W495's high-shelf and low-shelf filters are similar to the classic shelf filters found in today's equalizers. They offer a continuous range of corner frequencies from 7kHz to 14kHz for the high-shelf filter, and from 40Hz to 100Hz for the low-shelf filter.



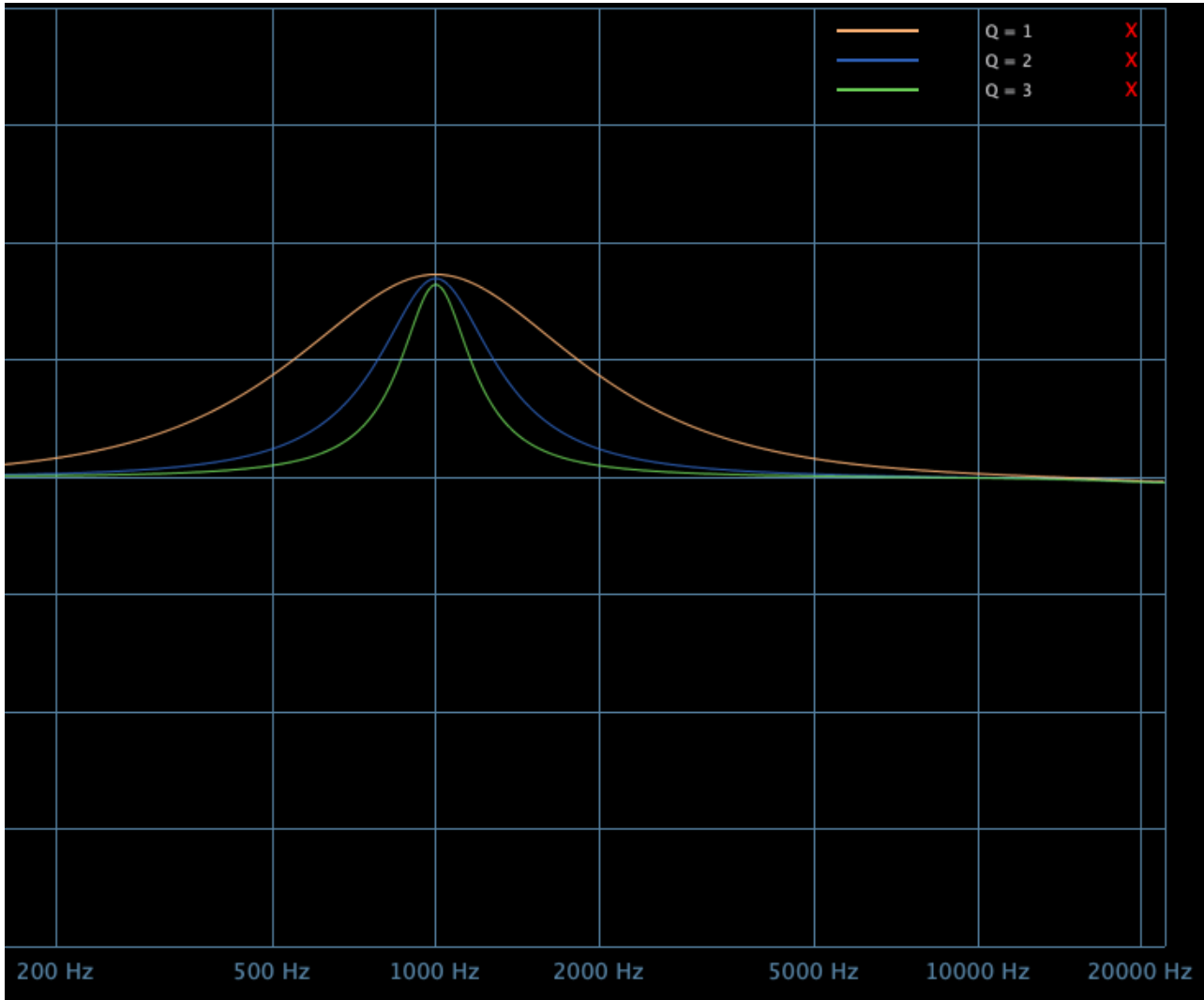
*+4dB high-shelf filter with different frequency values (7k / 10k / 14k)*



*+4dB low-shelf filter with different frequency values (40Hz / 60Hz / 100Hz)*

## Bell filter

The Pulsar W495's bell filter is quite similar to a classic variable-Q bell filter (in today's equalizers, these are usually constant-Q filters). It offers a continuous range from 175Hz to 5.6kHz, and a more or less narrow bandwidth, for greater versatility. (It can be used for both positive-gain coloring with a wide Q, and negative-gain notching with a narrow Q).



*Fixed-gain bell filter (+4dB) at 1kHz with different Bandwidth values (from 0.4 to 4)*



# Quick start

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## Installation

Pulsar W495 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](http://www.ilok.com) .

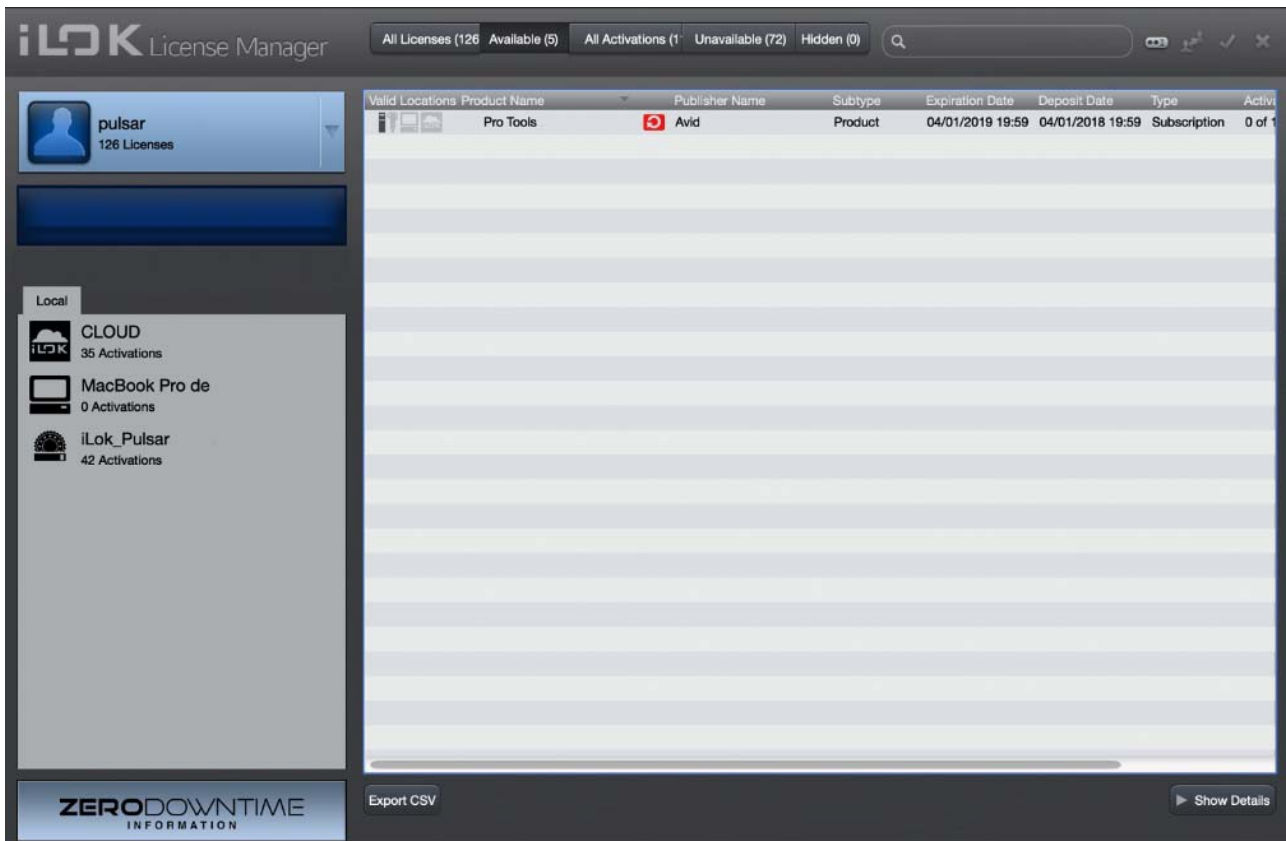
You can choose between three activation methods:

- 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](http://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:

- Either 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)
- Or 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's "available" license tab*

## First steps

Load Pulsar W495 onto a track of your choice in your DAW. A good starting point is to load a basic preset that matches the type of channel (vocals, guitar, bass, drums...).

From there:

- Adjust the gain, frequency, and bandwidth of the different bands according to the desired result.
- Start playback and compare with and without using the bypass (power button). You can activate the Auto-Gain mode, to be able to compare changes to the frequency spectrum at equivalent volume

This allows you to browse through the many factory presets available, so you can find inspiration quickly, without getting into technical considerations!

# The user interface

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*The user interface*

The user interface consists of two distinct panels:

- The toolbar, common to all Pulsar Audio plugins (top)
- The control panel, specific to the plugin. This panel is made up of two racks: the EQ control rack on the bottom, and the curve display and metering rack on the top

You can find a resizing control in the bottom right corner of the plugin interface. This is common to all Pulsar Audio plugins, and scales the interface to the exact size you want, from 67% to 200%, in increments of 1%.

## 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

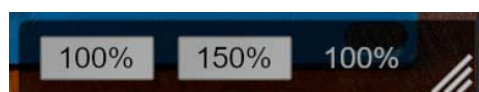
Located at the bottom right of the interface of all Pulsar Audio plugins, this control allows you to resize the plugin's interface to your liking. It comes in the form of three lines, like a classic resizing handle:



*Resizing handle*

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

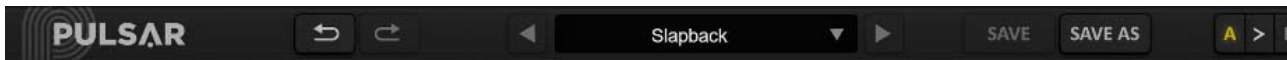
It is also possible, by clicking in the corner, to open a small popup window with buttons offering a choice of fixed size resizing (100% - 150%):



*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 two 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.

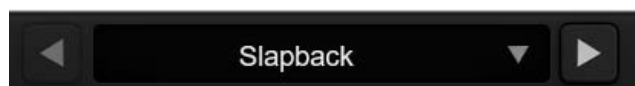


*Undo / redo buttons*

## 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.



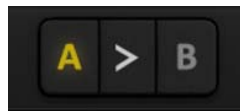
*Save and Save As buttons*

## 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*

## Rack visibility button

This button allows you to hide some parts of the plugin interface. Using the rack visibility button, you can toggle between displaying both sections of the interface, displaying only the bottom rack (without curve editing and visualization), and displaying only the top rack.



*The rack visibility button*

## Menu Button

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



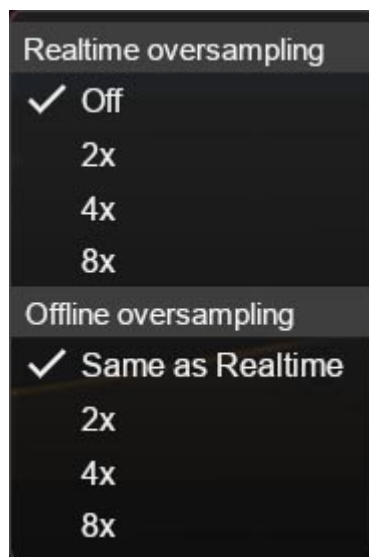
*The Menu button*

## 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.

The maximum available oversampling rate is not the same in all Pulsar Audio plug-ins and depends on a trade-off between the need for oversampling and the CPU consumption induced by oversampling in this plug-in.

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.

## Stepped Gains/Freqs/Width

By default in Pulsar W495, controls are changed continuously, allowing you to select any frequency, gain or width value on a continuum. You can enable discrete steps and choose their resolution, making those controls move in increments for a more 'old-school' workflow.

Gain knobs offer the choice between the following options:

- **No (default)** : the gain knobs move continuously in 0.1dB steps
- **Stepped** : the gain knobs are stepped and move to the same values of the original unit (mostly 2dB increments)
- **Half Steps** : the gain knobs are stepped and move by half steps between the values of the original unit.

Frequency knobs (not including the LP/HP knobs) offer the following options:



- **No (default)** : the frequency knobs are continuous and all intermediate frequencies can be accessed
- **Stepped** : the frequency knobs are stepped and move to the same values of the original unit
- **Half Steps** : the frequency knobs are stepped and move by half steps between the values of the original unit

For the Q control, the plugin offers the following options:

- **No (default)** : the Q knob is continuous and all intermediate values can be accessed
- **Stepped** : the Q knob is stepped and snaps to the same three values of the original unit
- **Half Steps** : the Q knob is stepped and moves by half steps between the three values of the original unit

Note: when controls are stepped, it is still possible to access intermediate values by using the fine editing mode when using the control. Just hold down the Ctrl key while dragging, or use the right mouse button to drag.

## 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 W495 control panel*

Pulsar W495's control panel is directly inspired by the Neumann W495b with a few liberties taken to expand the sound palette and offer plugin users better ergonomics.

This panel consists of two racks:

- The EQ control rack
- The curve display rack

## The control rack

This rack contains the main controls useful for setting up the equalizer.

It is organized into three main sections, corresponding to the three EQ bands (low-shelf filter, parametric bell filter and high-shelf filter), as well as an output section on the far right with gain and auto-gain controls.



*The control rack*

## Shelf filters

The low-shelf and high-shelf filters have similar controls:

- Frequency (Freq): adjusts the filter frequency from 40 Hz to 100 Hz for the low-shelf filter and from 7 kHz to 14 kHz for the high-shelf filter
- Gain: adjusts filter gain between -15 and +15 dB
- M/S selector: applies the filter either to only the Mid channel (M), to both Mid and Side channels (M/S), or to only the Side channel (S)



*Low-shelf filter knobs*



*High-shelf filter knobs*

## Bell filter

The bell filter has the same controls as the shelf filters with an additional bandwidth (Q) control:

- Bandwidth (Q): adjusts bandwidth between wide and narrow
- Frequency (Freq): adjusts the filter frequency from 175 Hz to 5.6 kHz
- Gain: adjusts filter gain between -10 and +10 dB
- M/S selector: applies the filter either to only the Mid channel (M), to both Mid and Side channels (M/S), or to only the Side channel (S)



*Bell Filter Knobs*

## Power

The switch on the left of the interface allows the effect to be switched on and off (ie, bypassed).



*Power button*

## Out Gain

This potentiometer, absent from the original machine, is used to adjust output gain, and thus manually compensate for gain lost or added during the EQ stage.



*Out gain knob*

## Auto-gain

When Auto-gain is on, this mode applies a compensatory gain derived from the settings of the different bands, and will help you to keep the sound power constant while adjusting the EQ controls.

**Note:** the algorithm used does not perform real-time sound power measurements but estimates based on the EQ settings only. This means it will work on a larger range of musical sources. Depending on the source, you may need to make small adjustments with the output gain knob.



*Auto-Gain button*

## The curve display rack



*Curve display rack*

This curve display rack allows you to:

- View and edit the frequency response of the equalizer on both channels
- Visualize the spectrum of the output signal on multiple time scales
- Analyze the input and output levels, as well as the level difference between input and output

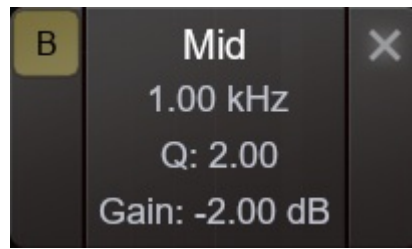
## Equalization using the curve display

Here you can see the frequency response curve of the Mid channel (in yellow) or the Side channel (in blue, if a band applied only to the Side channel is being edited), as well as the individual frequency responses of each band.

The selector at the top left of the screen, which by default displays "auto", lets you choose the range of the gain axis for displaying the EQ curve. The default behavior is to switch automatically between a range of +/- 12 dB and a range of +/- 24 dB, depending on the EQ settings, but the selector allows you to choose a more precise display range if required.

Different actions can be performed with the mouse:

- In the same way as for all other controls, hold down the **Ctrl / Cmd** key or use the **right mouse button** to make fine adjustments
- A right button click or a click with the **Ctrl** key pressed on a band allows to activate or deactivate the band
- Hold down the **Shift** key on your keyboard while moving a band to activate the Band Solo function, which allows you to audition the effect of only that band on the input signal
- Use the mousewheel when hovering your cursor over the bell band to change its Q



*Parameter window of an EQ band*

The band parameters window appears when a band is hovered over with the mouse cursor.

- The button at top left switches the band between Mid (M), Mid/Side (B) and Side (S)
- The cross at the top right resets the band parameters to their default values
- You can click on the frequency, Q and Gain values to enter values manually

## **Spectrum visualization**

The spectral content of the signal processed by the EQ is displayed behind the frequency response curve. There are a few options to customize what is displayed:

- Fast and Slow modes determine the analysis window size, leading to faster or slower visual feedback
- Infinite Spectrum allows the user to view the integrated spectrum from the beginning of playback. This will appear as grey-shaded information behind the real-time white lines. If this mode is activated, you can click on the screen to reset the infinite spectrum display

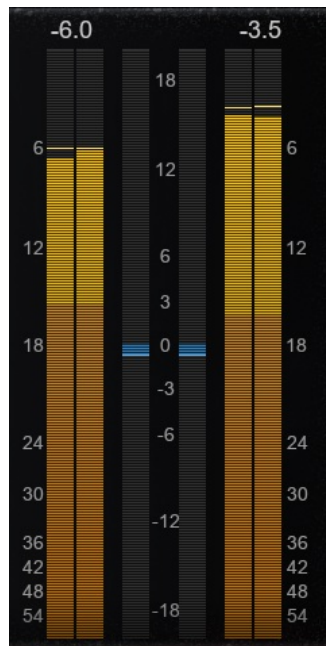
While in Infinite Spectrum mode, changes made in the EQ can be seen immediately, despite the long time window of analysis. This is thanks to FFT measurements for the visualization being taken before the EQ, and the EQ curve being applied to that measurement.

## Level visualization

The vertical meters on the right of the interface are used to measure the input and output levels of each channel (left/right, or mid/side in M/S mode). There is a peak level reading (yellow); an RMS average level reading (white), a "Peak Hold" bar that holds the highest peak level for a few seconds (thin yellow bars), and a reading of the "Peak Hold" level in dBFS above each meter.

In addition, a red light comes on when the peak level exceeds 0dBFS, and remains on until it is manually turned off by clicking on the indicators.

The top central indicator (blue) displays the difference in RMS level between the input and output of the equalizer, to provide assistance in adjusting the output level. It should be noted that the human ear does not have a uniform sensitivity curve, so even with a level close to 0 dB displayed, there may be a slight difference in perceived volume.



*Level visualization section*

# Minimum Configuration

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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)
- VST 3 (Windows: 32/64-bit, Mac: 64-bit)
- AAX (Windows: 64-bit, Mac: 64-bit)
- Audio Unit (Mac: 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
- Screen resolution: minimum 1024×768 / recommended 1280×1024 or 1600×1024

## MacOS

- CPU: Intel Core i3 / i5 / i7 / Xeon / Apple Silicon (M1, M2, etc.)
- Memory: 4 GB RAM / 1 GB free disk space
- Operating system: 10.9 and higher
- Screen resolution: minimum 1024×768 / recommended 1280×1024 or 1600×1024



# License agreement

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This license agreement concerns and describes your rights and the conditions under which you may use your Pulsar Audio software. We recommend that you read the entire agreement. By accepting the present agreement or by using Pulsar Audio software, you accept all these conditions.

This license agreement applies to all Pulsar Audio software, plugins and programs that you may use during the evaluation period and/or thereafter subject to the acquisition of a license, for any version, update, or supplement.

## License

The software is not sold to you: you are granted a license to use it. You are allowed to install and use the software on as many machines as you wish. You may not rent, lend, or license this software. You may not alter, decompile, disassemble, or reverse engineer this software.

## Updates

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

VST is a registered trademark of Steinberg Media Technologies GmbH. AAX is a registered trademark of Avid Technology, Inc. Audio Units is a registered trademark of Apple Computer, Inc.

## Disclaimer

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