Parametric EQ

User Manual

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RANE SERIES

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Introduction

Thank you for purchasing the Rane Series Parametric EQ. The Parametric EQ is one of the plug-ins that make up Serato's Rane Series, which also includes a graphic EQ, a compressor, and a gate. The Rane Series plug-ins are based on Rane's award-winning live sound hardware. They have been designed to provide both unique functionality and fantastic sound, we hope you enjoy them.

We trust you will find this manual useful in setting up and getting the best from your Serato product. If you require any assistance beyond the scope of this manual, including up-to-date information on troubleshooting, frequently asked questions, and tips & tricks for the Rane Series Parametric EQ, please visit our website at **serato.com**.

Many thanks - the team at Serato Audio Research.

What's Inside?

Your Rane Series Parametric EQ box should contain the following items. If anything is missing please contact your dealer immediately.

1x Serato plug-ins Installation CD
1x Parametric EQ User Manual
1x Installation Guide + Serial Number

System Requirements

The following are the minimum system requirements for all of the Rane Series plug-ins.

Digidesign Pro Tools HD or Digidesign VENUE
Mac OSX or Windows 2000 or better
iLok key required for authorization

What is the Rane Series Parametric EQ?

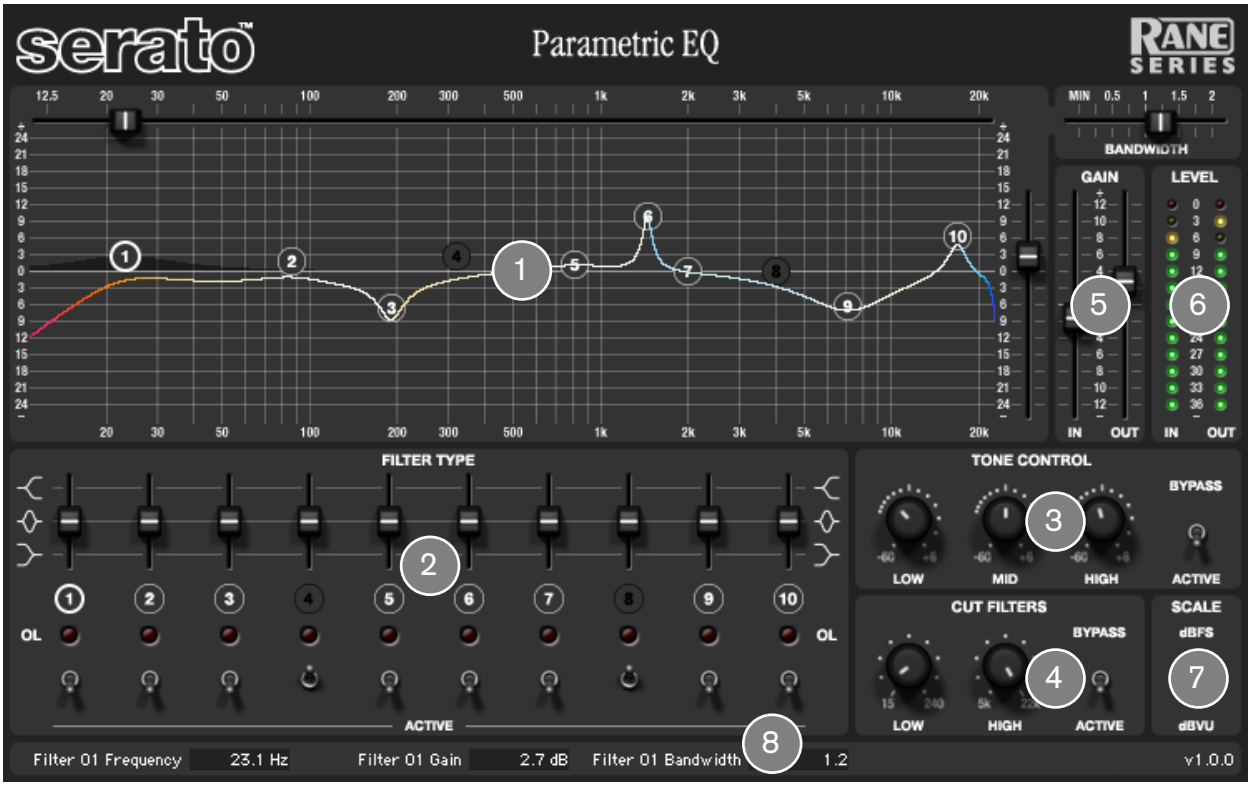
The Rane Series Parametric EQ is a TDM plug-in for the Digidesign Pro Tools HD or VENUE platforms. It combines the pristine sound quality and excellent features of Rane's top-of-the-line hardware, the PEQ 55, with the ease of a functional graphical user interface.

The Parametric EQ features 10 fully adjustable band filters that can be individually bypassed and set to bell filter, low- or high-shelf filtering. It also has 3 simple overall tone controls and a low- and high-cut filter pair to help shape your sound without sacrificing a filter band. The overall gain and phase change are graphically displayed on a color coded curve so you can see at a glance the overall effect your settings are having on the audio.

The Parametric EQ can be used in mono, stereo, and multi-mono modes.

The installer also includes presets to get you started in many common situations. By creating your own presets for commonly used microphones, instruments and other sound sources you will achieve a level of efficiency that is not possible with hardware systems.

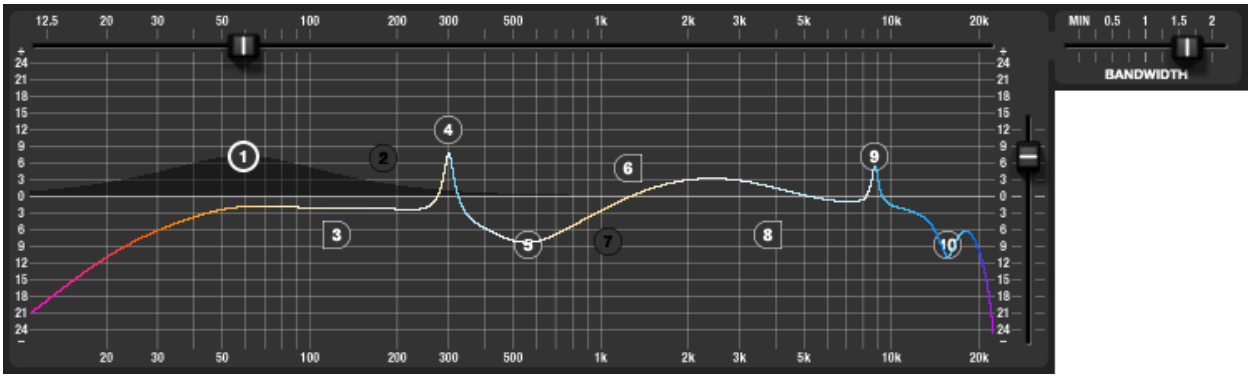
The Parametric EQ Interface



1	**Band Filters**	Displays a gain vs. frequency grid containing numbered icons representing the 10 parametric EQ filters and a response curve representing the overall effect the plug-in is having on the audio. The band filter panel also contains the frequency, gain, and bandwidth controls that can be used to adjust any one of the 10 filter bands.
2	**Band Filter Options**	Allow you to alter the type of band filter as well as activate and de-activate the individual bands. This panel also has an overload indicator for each frequency band.
3	**Tone Controls**	Offer a 3 band EQ for on-the-fly tuning of the overall sound.
4	**Cut Filters**	Remove unwanted high or low frequencies from your mix with easy sweepable filters.
5	**I/O Gains**	Allow you to adjust the levels of the signals going in to and coming out of the plug-in.
6	**I/O Levels**	Display the peak and RMS levels going in to and coming out of the plug-in.
7	**Scale**	Switches the I/O Level scale between dBFS and dBVU.
8	**Control Value Editors**	Allow you to read and edit the value of any control.

The Parametric EQ Interface

Band Filters



The **Band Filters'** panel contains a gain vs. frequency grid. Inside the grid are the **Band Filter Icons**, numbered 1-10, each located at the intersection of the filter's frequency and gain. Moving a filter icon inside the grid adjusts its frequency and gain.

> *Note: Holding the shift key when clicking on a filter will limit movements of the filter to either vertical movements only (gain changes) or horizontal movements only (frequency changes).*

> *Note: Holding the shift and command keys (shift and control keys in Windows), clicking on a filter and moving the mouse horizontally will adjust its bandwidth.*

The filter icons display information about the state of the filters. A filter's enable state is shown by its color. White filters are enabled (1, 3-6, and 8-10 in the screenshot above), and black filters are disabled (2 and 7 above).

> *Note: Holding the option key (alt in Windows) when clicking on a filter icon in the band filters' panel will toggle the filter's enable state.*

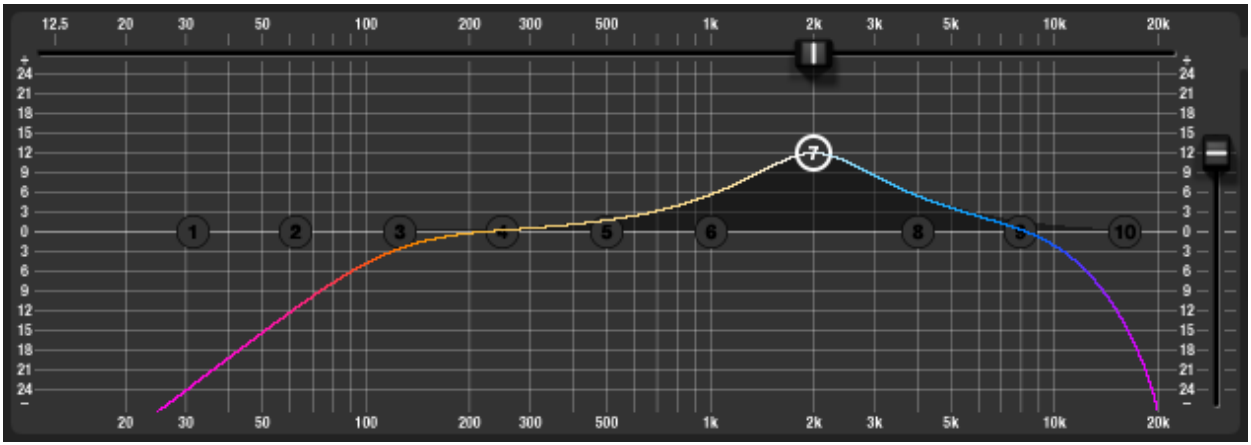
A filter's type is represented by its shape. Circles are bell filters (1, 2, 4, 5, 7, 9, and 10 above), low-shelves have a flat edge on the left (3 above), and high-shelves have a flat edge on the right (6 and 8 above).

The band filters' panel also contains the filters' frequency, gain, and bandwidth controls. At the top of this panel is the **Frequency** slider, to the right is the **Gain** slider, and to the top right is the **Bandwidth** slider. These sliders control the current EQ band, the icon of this filter being indicated by a bold circle (1 above).

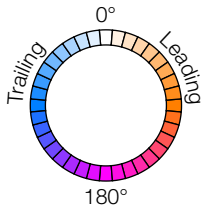
The bandwidth control is adjustable from a maximum of 2 octaves to a minimum that is close to 0 octaves.

> *Note: The bandwidth control has no effect when the current filter is set to high- or low-shelf mode.*

The Parametric EQ Interface



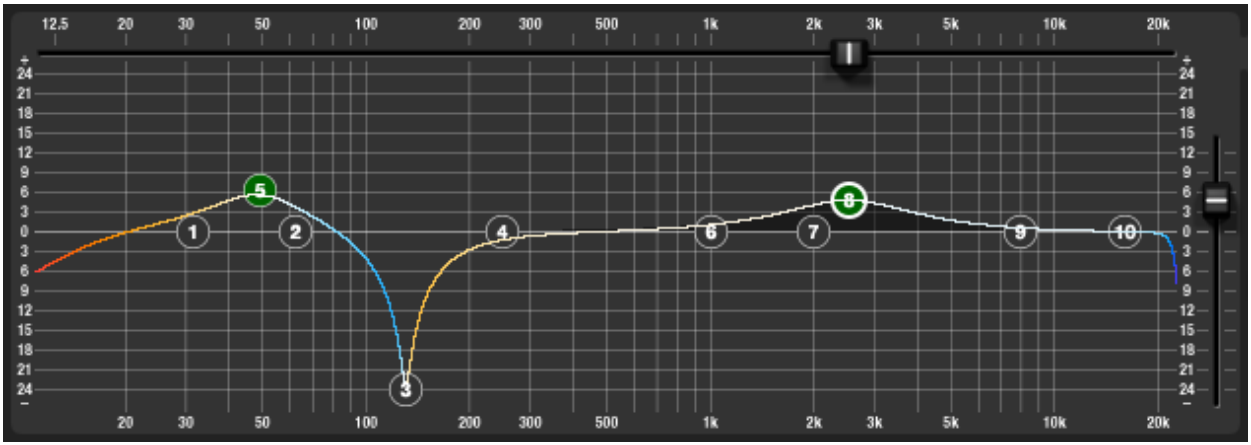
The **Response Curve** in the gain vs. frequency grid shows the effect of the 10 band filters, the tone controls and cut filters. It displays both the gain and phase change at all frequencies; the gain is represented by the height of the graph, and the phase is displayed as the color of the curve. The color gradually changes from white (no phase change) to red (the output leads the input by 90°) to purple (a 180° phase shift) to blue (the output lags behind by 90°) and back to white.



In the example above the output phase leads the input at low frequencies, steadily changing to no phase shift at 2 kHz where filter 7 is located. As the frequency increases beyond this filter, the output phase steadily lags more and more behind the input. This example also clearly shows the effect of the tone controls and the cut filters on the response curve. For this example only band filter 7 is enabled, the high-cut is set to around 10 kHz and the low-cut to around 12 Hz.

The gain vs. frequency grid also displays a shaded curve which represents the soloed gain change your selected filter is causing. This may not necessarily line up with the graphical curve, especially if the point is sitting over another point or is working against another adjustment. For an example of this see the screenshot on the previous page.

The Parametric EQ Interface



Using Filter Selections

The Parametric EQ allows you to alter the characteristics of several filters at once by using a selection of filter bands. Filters in the selection are displayed with green filled icons (filters 5 and 8 are part of the selection in the screenshot above).

A filter can be added to a selection by command-clicking (control-clicking in Windows) its icon in the band filters' panel. Only enabled filters can be added to the selection. This shortcut can also be used to remove a filter from the selection.

> *Note: Holding the command key (control in Windows) and dragging a box in the band filters' panel toggles the selection membership of the enclosed enabled filters.*

If you move one of the filter bands in the selection, all of the bands in the selection will move. Filter selection operations only apply to movements of the filter icons. Adjustments of the frequency, gain or bandwidth slider will only affect the current filter, regardless of whether it is a member of the filter selection or not.

Filter selections are really useful for situations where you may have several musical boosts in an EQ, but a couple of deep dips or other surgical type cuts that you don't want to move. The example above is from a session where the kick drum had an annoying resonance at around 130 Hz but needed reinforcing down around 50 Hz and up around 3 kHz. By making a deep cut with very low bandwidth at 130 Hz we are able to remove the resonance. The boosts are less surgical and more for musical effect; they have a broader bandwidth for a softer effect on the sound. By linking these 2 musical boosts we can then sweep them around to best fit them 'in tune' with the rest of the track, without changing the other filters.

> *Note: Holding the shift key when clicking on a filter in the selection will limit movements of the filters in the selection to either vertical movements only (gain changes) or horizontal movements only (frequency changes).*

> *Note: Holding the shift and command keys (shift and control keys in Windows) when clicking on a filter in the selection and moving the mouse horizontally will adjust the bandwidth of all filters in the selection.*

The Parametric EQ Interface

Band Filter Options

The band filter options let you enable or disable, and change the type of each of the 10 bands. Each band also has a corresponding overload LED, and an icon representing the filter type, similar to the ones in the band filters' panel.

A filter's **Type** is selected by the short slider at the top of the panel. The type can be set to high-shelf (with the slider at the top), bell filter (slider in the middle), or low-shelf (with the slider at the bottom). When changing the type, the Parametric EQ produces a smooth transition from one type of filter to another so that there is no sudden change in the audio.

Below the type sliders are the 10 **Filter Icons**, these mirror the icons in the band filters' panel. Enabled filters are white and disabled filters are black (2 and 7 in the screenshot above). Bell filters are circles, low-shelves have a flat edge on the left (filter 3 in the example above), and high-shelves have a flat edge on the right (6 and 8 above). The current filter has a bold circle (filter 1 above).

Below the icons are the filter **Overload** LEDs, these indicate when a filter is causing internal clipping. This allows you to see at a glance what filter is causing the clipping, and from there you can decide if you need to reduce the filter's gain or the overall plug-in gain structure using the I/O gains.

At the bottom of the panel are the **Enable** switches which allow you to individually turn each band on and off. This is great for checking an EQ adjustment against the original signal, or for being able to switch between a couple of options for a boost setting. Used in conjunction with plug-in automation these switches allow you to do things like have an additional boost in the kick drum in a section with no bass line, or cut the low end from a guitar sound for a special effect in just one part of the song.

The Parametric EQ Interface

Tone Controls

Those who like simplicity when tuning your sound will appreciate having all the power of a 10 band Parametric EQ at your disposal combined with the option of dealing with a handy 3 knob interface.

The **Tone Controls** are great for on-the-fly changes after you've made all your accurate band filter adjustments. If you have set the EQ bands for your mix and feel like the vocals need more shine, then rather than having to deal with moving a few of your filter bands you can just push the high-tone control up a little. Likewise, if a guitar sound is too muddy you can just remove a bit of low end by using the low-tone control.

The gain for each band goes from a +6 dB boost to a -60 dB cut, with the low / mid crossover point at 300 Hz and the mid / high crossover point at 4 kHz.

The **Bypass** switch enables and disables the tone controls. Remember that any changes made using the tone controls will be reflected in the response curve displayed behind the band filters.

Cut Filters

The **Cut Filters** allow you to remove unwanted portions of a sound very cleanly with minimal impact on sounds above or below the specified range. The cut filters offer a very sharp cutoff, with the low-cut filter having a range of 15 Hz to 240 Hz, and the high-cut filter having a range of 5 kHz to 22 kHz.

The cut filters are useful in many situations, an obvious example would be for a vocal microphone in a live situation where you want to remove any frequencies below about 60 Hz to remove unnecessary rumble from the sound. If the tone controls can be thought of as a quick musical interface to the sound, the cut filters are a quick and easy way to be more scientific and surgical with your mix.

The **Bypass** switch enables and disables the cut filters. Remember that any changes made with the cut filters will be reflected in the response curve displayed behind the band filters.

The Parametric EQ Interface

I/O Gains

The **I/O Gains** are used to adjust the level of your input signal level pre-EQ, and the level of the output produced by the plug-in.

The **Input Gain** can be used to boost a weak signal, or attenuate a hot one.

The **Output Gain** can be adjusted to compensate for any signal gain or loss due to your EQ, or tone control settings.

> *Note: When holding down the shift key and moving one of the gain sliders the plug-in will automatically adjust the other slider. This allows you to adjust the gain structure while keeping the overall gain constant.*

I/O Levels

The **I/O Levels** display the peak and RMS levels of the signals going in to and out of the plug-in. They are displayed in either dBFS or dBVU, depending on the setting of the scale switch.

The I/O levels are useful for ensuring that there is no unintended gain or loss being caused by your settings. Ideally the levels should be close to full on both the input and output meters but not clipping on either. It is best to keep your levels as close to this 'normal' level all the way through your signal chain as possible; it makes global adjustments easier and it means you don't have to add unnecessary gain at any one point.

> *Note: The Parametric EQ also includes the standard internal clipping meter for Pro Tools and VENUE. This displays whether any of the EQ bands or tone controls are causing internal clipping.*

The Parametric EQ Interface

Scale

The **Scale** switch changes the I/O Levels from displaying dBFS (full scale), traditionally used in Pro Tools, to dBVU, which is used on the VENUE system. The dBVU scale is an approximation of scale used on traditional VU meters, designed to be more familiar to live sound engineers, where 0 dBVU is the same as –20 dBFS.

This switch is a global preference for all of the Rane Series plug-ins. As soon as you set it, any new Rane Series plug-in that you instantiate will use your new scale setting.

Control Value Editors

The **Control Value Editors** are used to read and edit the value of any control. They are useful for when you know the exact value you want for your control, you can type that value directly into the control value editor, rather than having to accurately adjust the control's slider or knob.

Control values are displayed as 'pages' of up to 3 controls, for example the screenshot here shows a page consisting of filter 1's frequency, gain, and bandwidth controls.

To edit a control, first select it by clicking on its value. You can type in the new value for the control and hit enter or return to send this new value through to the plug-in.

Pressing tab selects the next control value editor in the current page, and pressing shift-tab selects the previous editor.

When none of the control value editors are selected you can cycle through the pages by using the tab key, or shift-tab to cycle through the pages in reverse. The editors also change to display the page containing the last control you have touched.

Appendix A - Shortcuts

Mac Shortcut	Windows Shortcut (if different)	Action
Option-clicking a filter icon in the band filters' panel	Alt-clicking a filter icon in the band filters' panel	Toggles the filter's enable state.
Option-dragging a box in the band filters' panel	Alt-dragging a box in the band filters' panel	Toggles the enable state of all enclosed filters.
Command-clicking a filter icon in the band filters' panel	Control-clicking a filter icon in the band filters' panel	Toggles the selection membership of an enabled filter.
Command-dragging a box in the band filters' panel	Control-dragging a box in the band filters' panel	Toggles the selection membership of all enclosed enabled filters.
Shift-Command-dragging a filter icon in the band filters' panel	Shift-Control-dragging a filter icon in the band filters' panel	Horizontal mouse movements will adjust a filter's bandwidth. If the filter is a member of the selection then the bandwidth adjustments will be applied to all filters in the selection.
Shift-dragging a filter icon in the band filters' panel		Limits movements of a filter to either vertical movements only (gain changes) or horizontal movements only (frequency changes). If the filter is a member of the selection then the adjustments will be applied to all filters in the selection.
Shift-dragging the input or output gain		Adjusts both gains simultaneously, allowing you to adjust the gain structure (for example to avoid internal clipping) while keeping the same overall gain.
Option-clicking a slider or knob	Alt-clicking a slider or knob	Resets the control to its default value.
Command-dragging a slider or knob	Control-dragging a slider or knob	Moves the control in 'fine' increments.
Pressing tab or shift-tab		When no control value editor is selected, tab cycles to the next 'page' of control values, and shift-tab cycles to the previous page. When a control value editor is selected, tab will advance from one text entry field to the next, and shift tab moves backwards through the text fields. If the contents of the field have been altered the new value will be accepted by the plug-in.
Pressing return in a control value editor		Enters the new value into the plug-in and deselects the editor.
Pressing enter in a control value editor		Enters the new value into the plug-in and leaves the editor active to allow continued editing from the keyboard.