
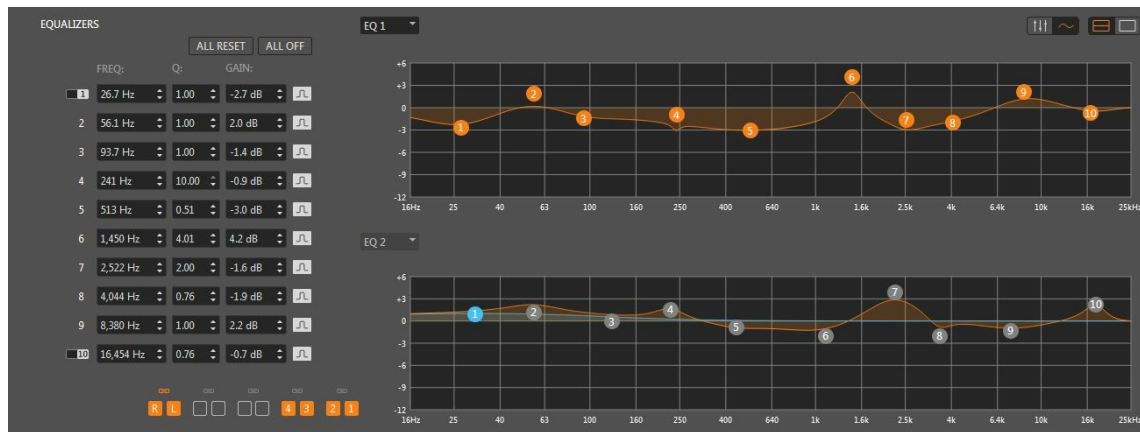


VXi: Parametric Equalization

 jlaudio.zendesk.com/hc/en-us/articles/360000622028-VXi-Parametric-Equalization

JL AUDIO | Help Center



In the past, many found parametric EQ's confusing, because it was difficult to visualize the response curve being created. The digital parametric EQ in VXi amplifiers eliminates this problem by displaying precise response curves, showing you the exact effect of your parametric EQ adjustments. Thanks to the power and speed of the DSP, you can also hear the result of EQ changes, in real time, as you move the EQ handles with your mouse/trackpad or keyboard commands. You can even select multiple bands together and make changes to all of them at once.

Unlike Graphic Equalizers, which only allow boost or cut at a pre-defined frequency and filter "Q", parametric equalizers are multi-band variable equalizers that allow users to control all three EQ parameters:

FREQUENCY: The center frequency of the EQ band. These values are fixed in Graphic EQ mode, but fully variable in Parametric EQ mode, meaning that you can freely choose the center frequency of any of the 10 available EQ bands.

"Q": The shape of the EQ filter response. Lower "Q" values result in wider bandwidth EQ filter response. Higher "Q" values result in narrower bandwidth EQ filter response. This value is fixed in Graphic EQ mode and variable in Parametric EQ mode from 0.26 to 10. Default value is 1.41. The ability to adjust this parameter is where the power of a parametric EQ is realized. For example, you can manipulate a wide bandwidth with a single filter, instead of having to use multiple overlapping filters in a graphic EQ. You can also choose a high Q, affecting a very narrow frequency range with surgical precision, which may not be possible with a graphic EQ.

GAIN: The amount of amplitude boost or cut applied through the selected filter, expressed in decibels and adjustable from +6 dB to -12 dB. Default value is 0 dB. This control is available in Graphic and Parametric EQ modes.

In **Figure 1**, you can clearly see the effect of adjusting only the "Center Frequency" of a filter. Both graphs show a single filter with a "Q" of 1.41, and a Gain cut of -9dB. The only difference is the "Center Frequency" value. The top graph indicates a Center Frequency of 1000 Hz for EQ Band #6. The bottom graph shows the effect of changing the Center Frequency downward, to 700 Hz. TuN™ allows you to select, for each EQ band, any "Center Frequency" value between 20 and 20,000 Hz.

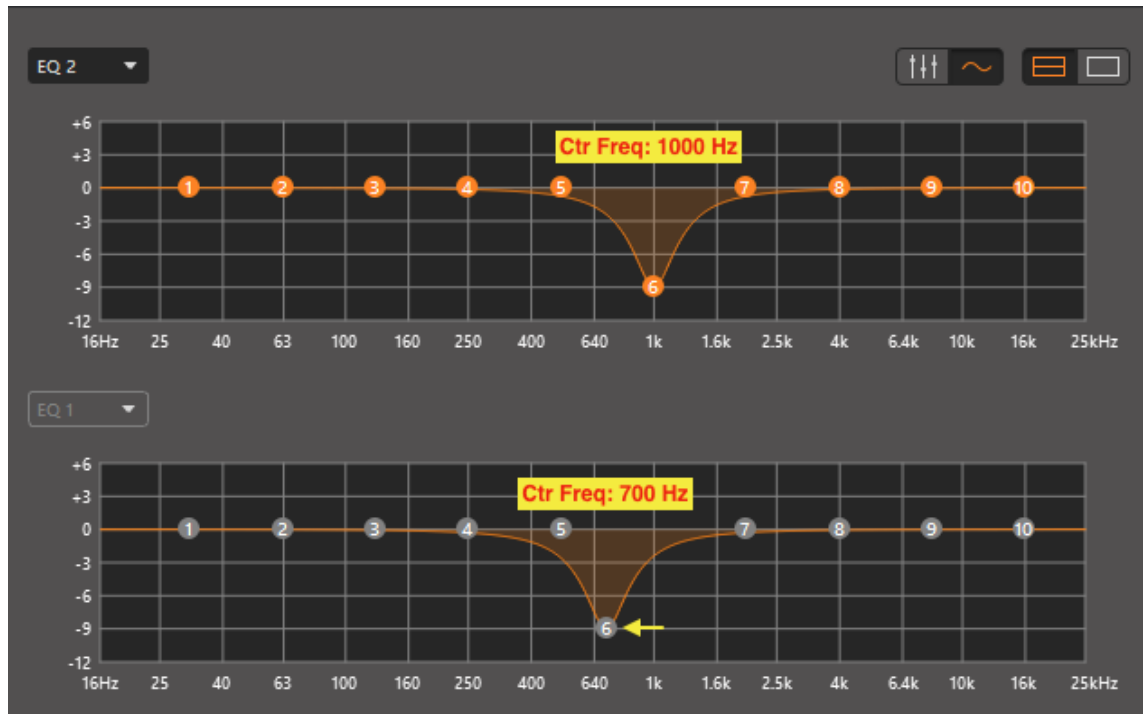


Figure 1

In **Figure 2**, you can clearly see the effect of adjusting only the "Q" of a filter. Both graphs show a single filter with a Center Frequency of 1000 Hz and a Gain cut of -9dB. The only difference is the "Q" value. The top graph shows the widest possible "Q": 0.26. The bottom graph shows the narrowest possible "Q": 10.0. TuN™ allows you to select any "Q" value between these extremes, giving you immense control over EQ correction.

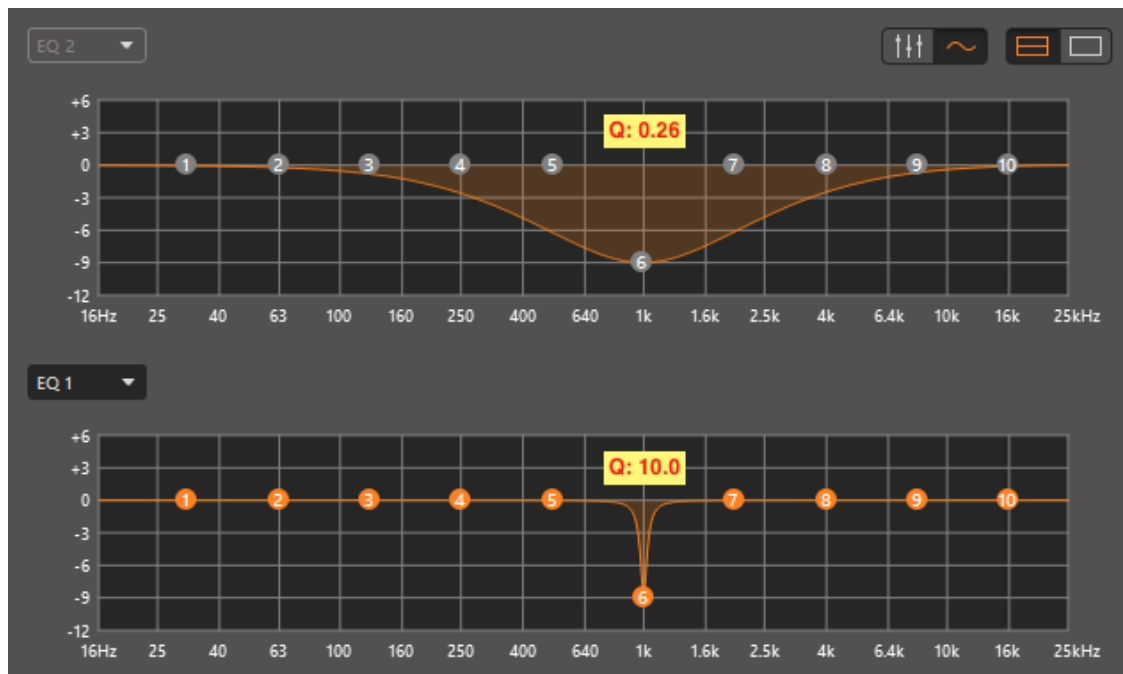


Figure 2

With a parametric EQ, it is possible to achieve highly complex frequency response curves using fewer filters than you would use with a graphic EQ. In practice, 10-bands of parametric equalization are just as powerful, if not more powerful, than 30 bands of graphic equalization. Here are two examples of complex curves, using multiple bands of parametric EQ.

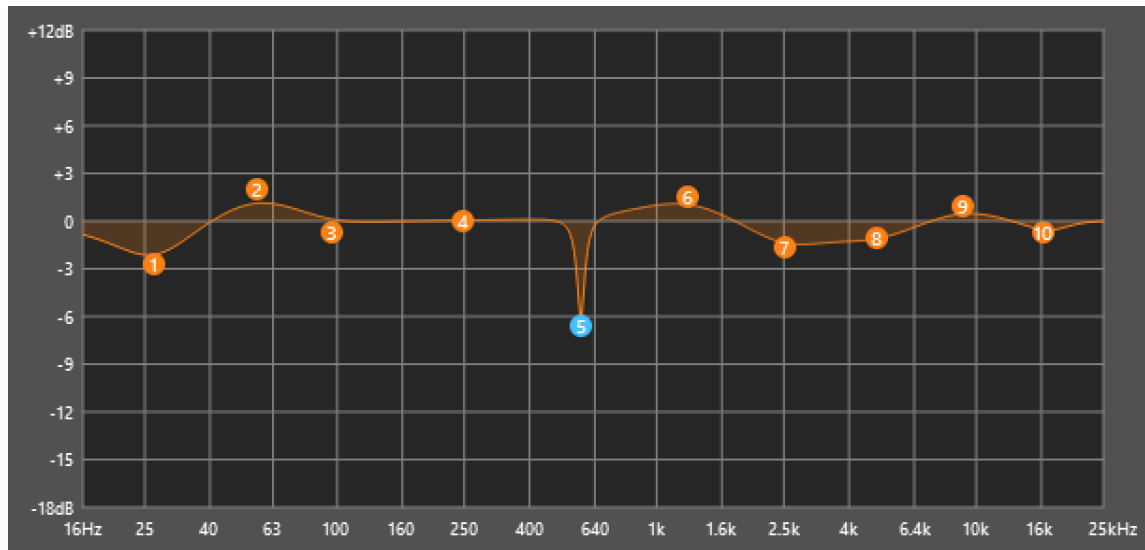


Figure 3

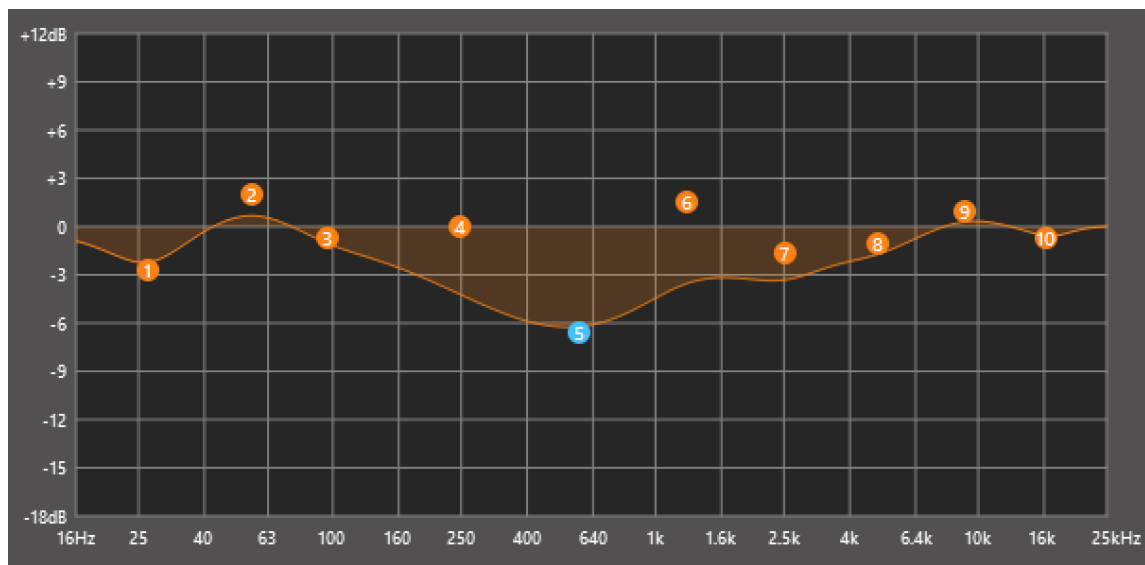


Figure 4

Manual EQ adjustment on the display graph : In Parametric EQ mode, the numbered, round EQ Band labels on the display graph can be directly selected and moved using the mouse/touchpad. The graph will display the resulting effect on frequency response in real time. The resulting value changes will also be reflected in the EQ numerical entry fields.

Manual commands:

- Left Click and Hold, then Drag Up/Down for Boost/Cut
- Left Click and Hold, then Drag Left/Right to change Center Frequency (Parametric EQ only)
- Right Click and Hold, then Drag Up/Down or Left/Right to change “Q” (Parametric EQ only)
- Control+Left Click to select multiple EQ bands. These can then be adjusted together.

EQ adjustment with Arrow Keys : You can also select EQ Band Label(s) with your mouse/trackpad, and then make adjustments using the arrow keys on your keyboard. Finer adjustments steps can be achieved by using the SHIFT key, in conjunction with the arrow keys.

Keyboard commands:

- Up/Down Arrows: Boost/Cut
- Left/Right Arrows: Center Frequency down/up (Parametric EQ only)

- CONTROL + Up/Down Arrows: "Q" Up/Down (Parametric EQ only)
- Control+Left Click to select and adjust multiple EQ bands.



Individual Band Defeat: Individual EQ bands can be defeated (turned off), by clicking the icon located to the right of the numerical entry fields. To re-engage them, click the icon again.



Dual or Single EQ Views: These icons allow you to choose whether to display one or two EQ display graphs on the screen. This way you can work on two EQ banks at once, or just focus on one with better resolution. Linked EQs are always displayed together, on one display graph.



Graphic or Parametric EQ Modes: These icons allow you to switch between Graphic and Parametric EQ modes.

IMPORTANT: Switching from Parametric to Graphic mode RESETS the preset's EQ banks to default (flat) settings.

All Reset: Resets all EQ bands to their default values

All Off/On: Temporarily defeats/turns on all EQ bands

EQ Select: Select an EQ to adjust from the pull-down menu (Linked EQ's are shown as pairs).



EQ Link: Allows Left and Right EQ Banks to be linked and adjusted together, with identical settings.