

gEQ12

Manual



TBProAudio 2023

1 Introduction

Welcome to gEQ12, a 12 band stereo/MS graphic equalizer with accurate spectrum analyzer and minimum/linear phase modes.

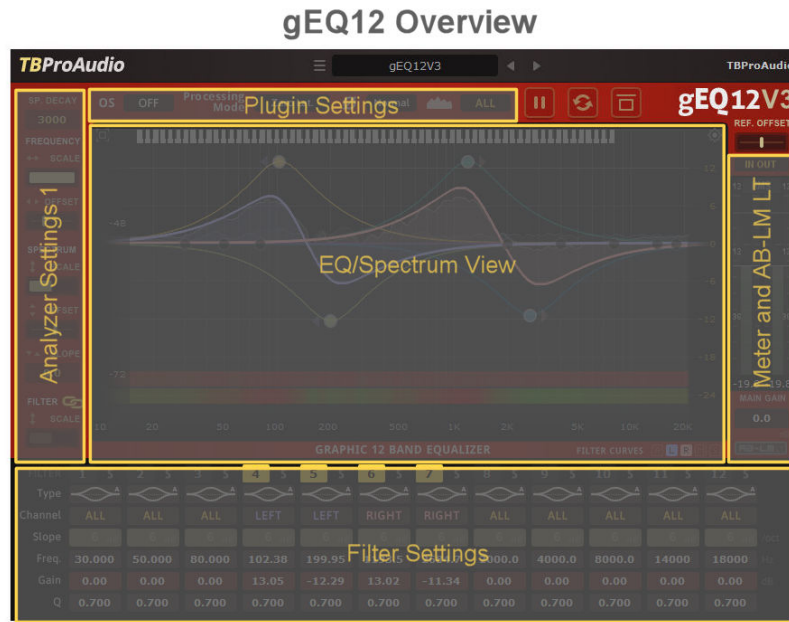
Today's mixing and mastering processes require a full featured and flexible, but easy to use equalizer which can accurately shape the tone of a track, bus or master track. gEQ12 provides all necessary tools including perceptual loudness matching in one package paired with some unique features.

2 Features

gEQ12 offers following features:

- 12 independent filter bands, extended frequency range 10Hz - 48kHz
- 16 filter types, analogue/digital design, zero delay IIR
- filter slope from 6 to 96dB
- filter solo
- independent stereo/left/right/mid/side processing per band
- 7 processing modes: zero latency, minimum/linear phase
- sample rates min. up to 192 kHz
- "real" over sampling, up to 4x
- hi-res spectrum analyzer with 32k FFT
- pre/post-EQ spectrum, max/average/live spectrum, stereo/left/right/mid/side
- smoothed, ISO R40 smoothed, raw data spectrum and bar spectrum
- reference spectrum
- EQ cheat sheets
- spectrogram large/small
- extended input/output meter, Peak/RMS/EBU/VU
- perceptual loudness matching (powered by AB-LM Lite) and gain "freezing"
- narrow-band sweeping mode
- spectrum freeze mode
- sample exact A/B toggle for all processing modes
- precise parameter input
- undo/redo
- large and easy to use GUI
- GUI resizing and scaling
- interactive EQ display
- preset management
- full DAW automation support, smooth filter frequency change
- 64-bit internal processing
- very efficient CPU usage design

3 Overview



In the middle, you find the main EQ/spectrum display which lets you monitor the incoming and outgoing spectrum and adjust the filter response curve.

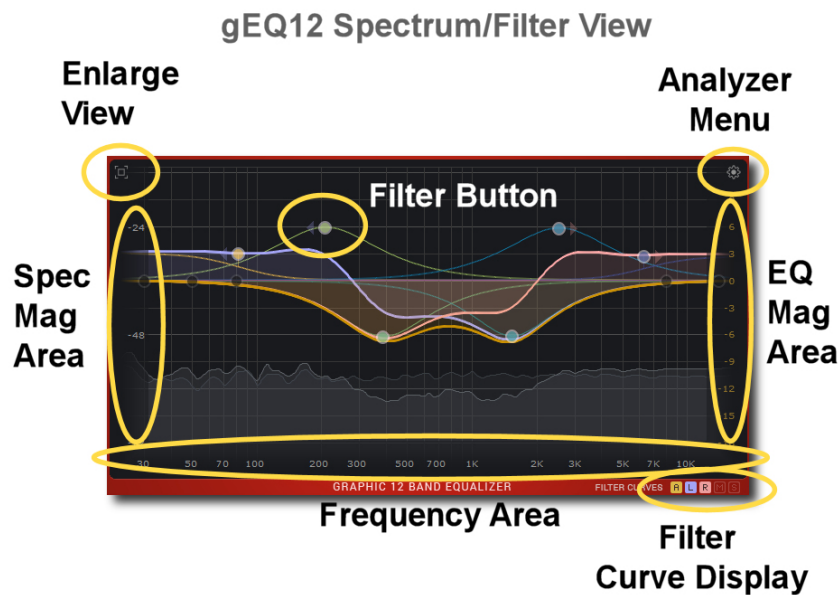
On the bottom, you find all control of the 12 filter (e.g. type, slope and gain).

On the left side the controls for the spectrum and EQ view are placed.

Meters and AB-LM for perceptual loudness matching are on the right side.

The top area offers plugin settings like over sampling, processing mode, phase mode and main analyzer display mode.

Interactive spectrum/filter curve display



The spectrum/filter curve view can be enlarged with the top left icon.

The filter button activates the filter and can be dragged by mouse. Right mouse click open the filter popup menu.

The analyzer popup menu hosts various settings of the spectrum analyzer and the reference spectrum management.

The 5 bottom left icons control the display of the various filter response curves.

The EQ magnitude area scales the EQ range (mouse wheel).

The frequency area scales and offsets the frequency view (mouse wheel, mouse click drag).

The spectrum magnitude area scales and offsets the spectrum view (mouse wheel, mouse click drag).

4 Minimum System Requirements

- Windows 7, OpenGL 2 GFX card
- Mac OS X 10.11, Metal GFX card
- SSE2 CPU
- Win: 32/64 Bit VST, 32/64 Bit VST3, 32/64 Bit AAX
- OS X: 64 Bit VST, 64 Bit VST3, 64 Bit AU, 64 Bit AAX
- Tested with: Cockos Reaper, Steinberg Cubase/Nuendo/Wavelab 6+, FL Studio 12+, PT2018+, Reason 9.5+, Studio One, Ableton Live
- For latest information please visit www.tbproaudio.de

5 Plugin Controls

Mouse usage:

Click and drag horizontally changes parameter value

Shift click and drag slows down parameter change

Ctrl click rests to default value

Double click opens value edit box, finish with enter.

5.1 Preset Menu



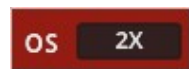
Preset menu loads and saves user presets. Presets stored under %localappdata%/gEQ12 (Windows) /Users/xxx/Library/Application Support/ gEQ12 (Mac OSX) are imported as user presets. Previous next button step through all presets.

“Reset to default” sets the current plugins settings the default settings.

“Save as Default” sets the current settings as start-up/default settings.

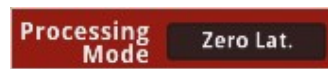
gEQ12 comes with several factory presets demonstrating the capabilities of the plugin.

5.2 Over-sampling



Incoming signal could be oversampled up to 4 times. Over-sampling reduces magnitude/phase distortions near Nyquist frequency and let the filter sound much more "analogue".

5.3 Processing Mode



Zero Latency: This is gEQ12's most efficient processing mode without introducing any latency and sufficient for most applications

Minimum Phase: Working with a lot of filter bands combined with high filter slopes could consume some CPU resources. Minimum phase modes process the windowed impulse response of all filter bands by convolution. Minimum phase modes introduce significant latency, depending on impulse length and quality.

Eco: 4096 samples

High: 8192 samples

Max: 32786 samples

Please to note that longer impulse length gives better response in the low frequencies.

Linear Phase: Traditional digital and analogue filter do not only change the magnitude of the signal's spectrum but also introduce phase changes as well. There are many applications where the phase changes should be as low as possible e.g. working with very steep (high slope) filter settings. Linear phase modes introduce significant latency, depending on impulse length and quality.

Eco: 6144 samples

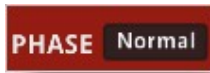
High: 12288 samples

Max: 49152 samples

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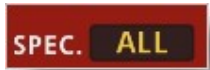
Please to note that a longer impulse length gives better response in the low frequencies.

5.4 Phase



This control inverts the phase of the outgoing stereo signal.

5.5 Spectrum



This control selects the main analyzer mode:

All: shows the summed left/right spectrum.

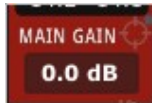
Left: left spectrum.

Right: right spectrum.

Mid: M/S mid spectrum.

Side: M/S side spectrum.

5.6 Main Gain and AB-LM Lite gain freeze

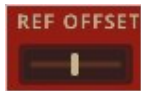


Adjust the output-gain of gEQ12, in dB.

Freezes AB-LM Lite gain and switches AB-LM Lite to off. Small white LED indicates if freeze gain is active. Please refer to chapter 7.

5.7 Analyzer Settings

5.7.1 Ref. Offset



Offsets the reference spectrum.

5.7.2 Freeze



Freeze current spectrum measurement.

5.7.3 Reset



Resets spectrum display.

5.7.4 Bypass



Passes the incoming signal directly to the output.

5.7.5 Spectrum view controls

5.7.5.1 Analyzer Speed

Adjusts the update speed of the spectrum analyzer

5.7.5.2 Frequency Scale

Scales the frequency range of the spectrum display

5.7.5.3 Frequency Offset

Offsets the frequency range of the spectrum/filter curve display

5.7.5.4 Spectrum Magnitude Scale

Scales the magnitude of the spectrum analyzer

5.7.5.5 Spectrum Magnitude Offset

Offsets the spectrum curve

5.7.5.6 Spectrum Magnitude Slope

Slope tilts the graph of the frequency spectrum around 1kHz with the given slope in dB. Values from 3dB to 4.5dB give a more "natural" balance between low and high frequencies.

5.7.5.7 Link filter to spectrum

Links the scaling of spectrum and filter magnitude range.

5.7.5.8 Filter Magnitude Scale

Scales the magnitude of the filter curve display.



5.7.6 GUI resize/scale



The small triangle at the bottom left corner resizes and scales (ctrl key) the GUI.

Double click on it resets size and scale (ctrl key).

5.8 Main Meter

A small LED On top lids up if level goes over 0.0 dBFS.

Numbers below the meters display the maximum values. Reset by mouse click.

5.8.1 Channel Mode

In/out, In Left/Right, Out Left/Right, In Mid/Side, Out Mid/Side and off.

5.8.2 Meter Mode

Peak (dBFS), RMS (AES 17, dBFS), EBU ML (LUFS), EBU SL (LUFS) and VU (dBVU).



5.9 Filter Parameter

5.9.1 On/Off

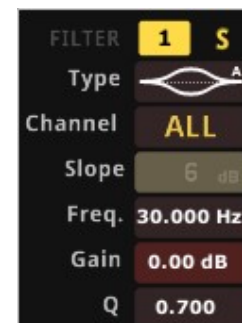
Enables/disables the filter.

5.9.2 Solo

Solos the filter.

5.9.3 Type

Selects the filter type:



Peak: peak filter

Low Cut: high pass filter

High Cut: low pass filter

High Shelf: shelf filter boosting high frequencies

Low Shelf: shelf filter boosting low frequencies

Tilt Shelf: combination of low shelf/high shelf in one filter

Flat Tilt: flat tilt filter

Band Pass: passes certain frequencies of the spectrum

Notch: cuts certain frequencies out of the spectrum

The "A" filter types approximate magnitude and phase response of their analogue filter equivalents. The "D" filter types follow pure digital filter design

5.9.4 Channel

Controls which part of the signal (all/left/right/mid/side) is affected by the filter

5.9.5 Slope

Sets the steepness of the filter (if applicable), 6dB to 96dB/octave.

5.9.6 Frequency

Sets the frequency of the filter band, 10Hz to 48kHz

5.9.7 Gain

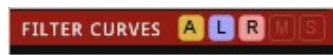
Sets the filter gain (if applicable), -48dB to 48dB.

5.9.8 Q-Factor

Set the bandwidth of the filter band (if applicable), widening or narrowing the filter response.

5.10 Filter Curves Display

The small icons "A", "L", "R", "M" and "S" toggle display of the respective filter curves.



5.11 Interactive spectrum/filter curve display

The interactive display combines filter curve and frequency spectrum in one display. The view and all filters can be fully controlled with the mouse.

5.11.1 Enlarge view

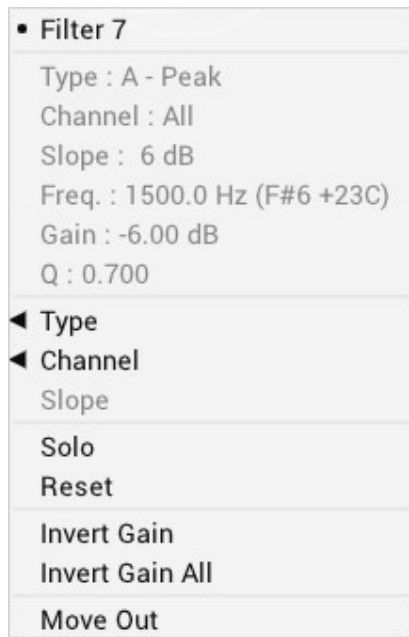


Toggles size of spectrum/filter curve view.

5.11.2 Filter button



Click and drag the filter button to set frequency, gain or Q of the filter. Additional shift key slows down the mouse movement. Double click on the button activates/de-activates the filter. Additional ctrl key resets filter settings. Right mouse click (or shift + ctrl key + left mouse click) opens the filter popup menu:



Title: activates/de-activates the filter

Type: selects current filter type

Channel: selects current stereo placement

Slope: selects filter steepness

Solo: solos filter

Reset: resets filter to default values

Invert Gain: inverts filter gain (where applicable)

Invert All Gain: inverts the gain of all active filters (where applicable)

Move Out: resets and de-activates the filter and sets the filter frequency to highest value (moves the filter out of the view)

Mouse drag: changes filter **frequency** and **gain**

Shift key + mouse drag: slows down mouse movement

Mouse wheel: changes filter **Q** (where applicable)

Shift key + mouse wheel: slows down change of **Q** (where applicable)

5.11.3 Spectrum and filter curve view

The frequency range can be changed by placing the mouse over the frequency area and using the mouse wheel (or shift key + mouse). The frequency offset is changed by dragging the mouse. Ctrl key + mouse click resets view settings.

The range of the spectrum magnitude can be changed by placing the mouse over the spectrum magnitude area and using the mouse wheel (or shift key + mouse). The spectrum offset is changed by dragging the mouse.

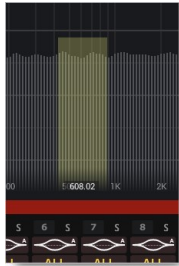
The range of the filter magnitude can be changed by placing the mouse over the filter magnitude area and using the mouse wheel (or shift key + mouse). Ctrl key + mouse click resets view settings.

5.11.4 Analyzer popup menu



This popup menu hosts many options to adjust the spectrum analyzer and the curve display.

5.11.5 Narrow-band Sweeping Mode



Place the mouse of the spectrum display. This monitor mode is then enabled by holding the alt + mouse click. Please note that also the gain of the narrow-band is affected by the cursor position. The narrow-band filter gain is determined by the scale of the filter magnitude.

5.11.6 Plugin menu



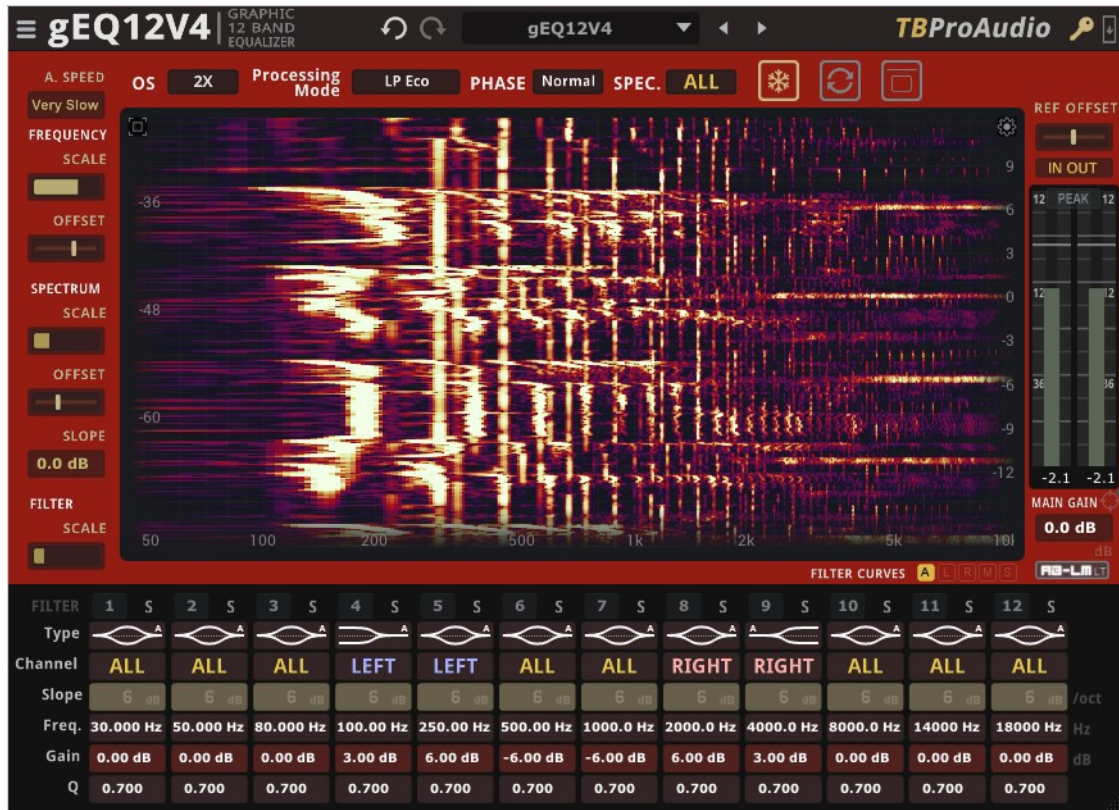
Click on the menu icon to get info about the plugin, online version check, open the online manual and change-log and change GUI size/scale.

5.11.7 Undo/redo

Undos and redos parameter changes.

6 Spectrogram

The spectrogram provides a different visual representation of the audio spectrum compared to classical spectrum curve. X and y axis represent time and frequency of the signal, the different colours the signal strength.



gEQ12 provides following features to get more value from the spectrogram representation:

- frequency slope and amplitude offset
- various coloration schemes

The frequency range can be changed with the control “frequency scale”. The frequency range can be repositioned with the control “frequency offset”. The control “spectrum offset” controls the amplitude of the spectrogram and therefore the coloration.

7 AB-LM Lite

AB-LM Lite is a **perceptual A/B loudness matching** algorithm to help you avoid the pitfall of 'louder is better', so you can evaluate the impact of the plugin on your incoming and outgoing audio signal at equal loudness.

When you engage AB-LM Lite, the algorithm analyzes the incoming signal and compares it to the outgoing signal via its RMS values and applies an automatic gain adjustment so you can focus on the plugin settings and what they are actually doing to your audio, without being distracted by loudness differences.

Please to note that AB-LM Lite limits the gain adjustment to +/- 12dB to avoid gain overshoots.

AB-LM Lite lets you automatically minimize the loudness either quickly (mode fast) or gently (mode slow).

The “target” symbol top right of the fader sections freezes the last AB-LM Lite gain and switches AB-LM Lite off. This function prints the last AB-LM Lite gain settings to the gain structure of CS-5501.

The small white LED indicates if AB-LM Lite freeze gain is active. Click on the “target” symbol sets freeze gain to 0.0 dB.



AB-LM Lite is an automatic, simplified algorithm to help your workflow, based on our more advanced dedicated AB-LM plugin, which allows perceptual loudness matching of third party plugins and even complete plugin chains. AB-LM also offers more advanced options, including advanced measurement modes and snapshots.

For the more advanced features of AB-LM, please see www.tbproaudio.de.

8 Demo mode versus Registered Mode

In demo mode (without activation) the plug-in mutes audio every 90 seconds for a short period. This could be circumvented by clicking on the "TBProAudio" logo within 90 seconds.

9 Plugin activation

The plugins needs to be registered/activated to remove demo restrictions. Please go to



www.tb-proaudio.de to purchase the activation key. After purchase you will receive an email from TBProAudio with either the (zipped) activation key file or the activation key in text form. Go to the plugin menu->Activate plugin. Please follow the steps described here: <https://www.tbproaudio.de/support/productactivation>. After successful activation the key symbol shown in the GUI appears in golden colour.

10 Conclusion

So finally if you have any questions or suggestions just let us know. And have fun with our tools.

Your team from TBProAudio :-)