gEQ12

Manual

TBProAudio 2020

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
- post filter predictive spectrum
- smoothed, ISO R40 smoothed, raw data spectrum and bar spectrum
- reference spectrum, delta reference spectrum
- EQ cheat sheets
- spectrogram
- frequency tracker
- extended input/output meter, Peak/RMS/EBU/VU
- perceptual loudness matching (powered by AB-LM Lite)
- narrow-band sweeping mode
- spectrum freeze mode
- sample exact A/B toggle for all processing modes
- precise parameter input
- large and easy to use GUI
- GUI scale up 200%
- interactive EQ display
- preset management
- full DAW automation support, smooth filter frequency change
- 64-bit internal processing
- very efficient CPU usage design

3 Overview

gEQ12 Overview
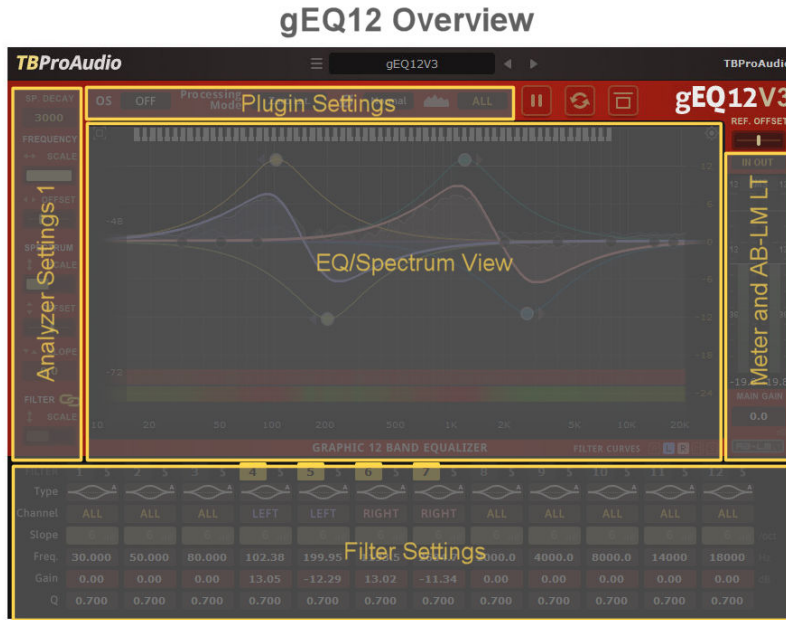
In the middle, you find the main EQ/spectrum display which lets you monitor the incoming and outgoing spectrum and adjust the filter response curve.
On the bottom, you find all control of the 12 filter (e.g. type, slope and gain).

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
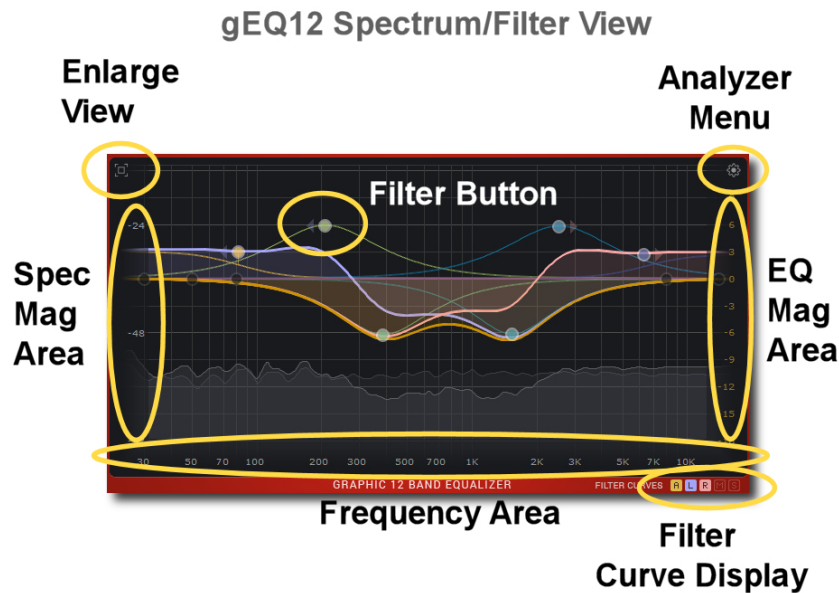
The spectrum/filter curve view can be enlarged with the top left icon.
The filter button activates the filter and can be dragged by mouse. Right mouse click open the filter popup menu.
The analyzer popup menu hosts various settings of the spectrum analyzer and the reference spectrum management.
The 5 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 ad offsets the spectrum view (mouse wheel, mouse click drag).

4 Minimum System Requirements

- Windows XP SP3 or newer
- Mac OS X 10.9 or newer
- Win: 32/64 Bit VST, 32/64 Bit VST3, 32 Bit RTAS, 32/64 Bit AAX
- OS X: 32/64 Bit VST, 32/64 Bit VST3, 32/64 Bit AU, 32 Bit RTAS, 32/64 Bit AAX
- Tested with: Cockos Reaper, Steinberg Cubase/Nuendo/Wavelab 6/7/8/9/10, FL Studio 12.x/20.x, PT10/12/2019, Reason 9.5/10, Studio One, Ableton Live, Logic Pro X, Cakewalk, Samplitude, Adobe Audition, Bitwig Studio

5 Plugin Controls

Mouse usage:

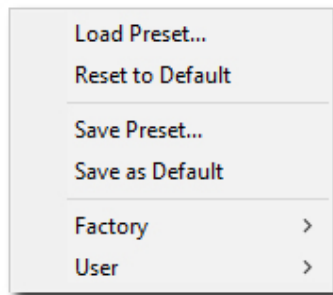Click and drag horizontally changes parameter value
Shift click and drag slows down parameter change
Ctrl click and drag accelerates down parameter change
Alt click rests to default value
Double click or right click open value edit box, finish with enter.

5.1 Preset Menu

Preset menu loads and saves user presets. Presets stored under %localappdata%/gEQ12 (Windows) or /Users/xxx/Library/Application Support/ gEQ12 (Mac OSX) are imported as user presets. Previous and next button step trough all presets.
"Reset to default" sets the current plugins settings to 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
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 Analyzer

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 Tool tips

Toggles display of tool tips for plug-in controls.

5.7 Main Gain

Adjust the output-gain of gEQ12, in dB.

5.8 Analyzer Settings

5.8.1 Spectrum Decay

Adjusts the decay of the spectrum analyzer. 1 to 9999ms, 9999ms enables average mode (AVG).

5.8.2 Ref. Offset

Offsets the reference spectrum.

5.8.3 Freeze

Freeze current spectrum measurement.

5.8.4 Reset

Resets spectrum display.

5.8.5 A/B

Passes the incoming signal directly to the output.

5.8.6 Frequency Scale

Scales the frequency range of the spectrum display

5.8.7 Frequency Offset

Offsets the frequency range of the spectrum/filter curve display

5.8.8 Spectrum Magnitude Scale

Scales the magnitude of the spectrum analyzer

5.8.9 Spectrum Magnitude Offset

Offsets the spectrum curve

5.8.10 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.

5.8.11 Link filter to spectrum

Links the scaling of spectrum and filter magnitude range.

5.8.12 Filter Magnitude Scale

Scales the magnitude of the filter curve display.

5.9 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.

5.9.1 Channel Mode

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

5.9.2 Meter Mode

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

5.10 Filter Parameter

5.10.1 On/Off

Enables/disables the filter.

5.10.2 Solo

Solos the filter.

5.10.3 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

5.10.4 Channel

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

5.10.5 Slope

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

5.10.6 Frequency

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

5.10.7 Gain

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

5.10.8 Q-Factor

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

5.11 Filter Curves Display

Controls which filter response curve is displayed (All/Left/Right/Mid/Side):
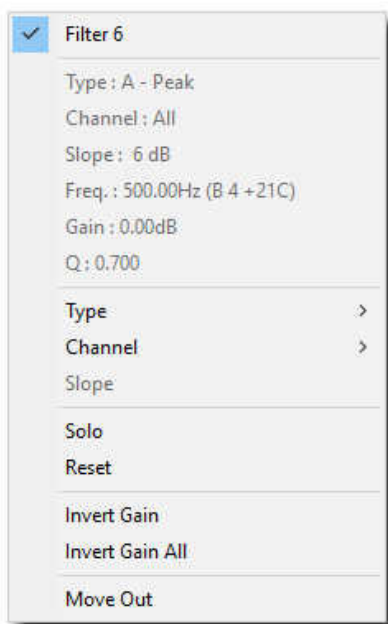
5.12 Interactive spectrum/filter curve display

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

5.12.1 Enlarge view

Toggles size of spectrum/filter curve view.

5.12.2   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-actives 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-actives 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
Ctrl key + mouse drag: changes filter **frequency** only
Ctrl + shift key + mouse drag: slows down mouse movement
Alt key + mouse drag: changes filter **gain** only
Alt + 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)
Control key + mouse wheel: changes filter **channel**
Control + shift key + mouse wheel: changes filter **type**
Alt key + mouse wheel: changes filter **slope** (where applicable)

5.12.3   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. Alt 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). Alt key + mouse click resets view settings.

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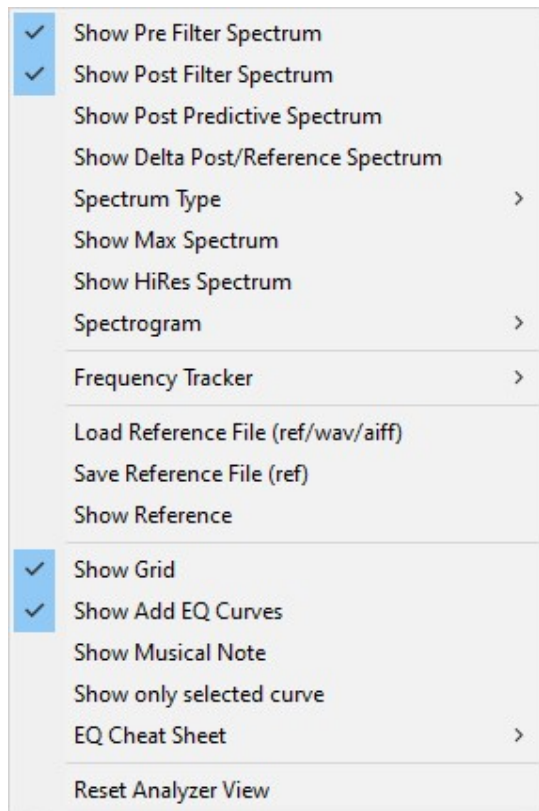
5.12.4   Analyzer popup menu

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

Pre Filter: toggles display of pre-filter-spectrum

Post Filter: toggles display of post-filter-spectrum

Post Predictive Spectrum: toggles display of pre filter spectrum plus filter curve

Show Delta Post/Spectrum: toggles display of delta spectrum (post – reference)

Spectrum Type: smoothed (moving averaged), ISO smoothed (frequencies according ISO R40), raw data and bar spectrum (1/6-1/48)

Max Spectrum: show additional maximum spectrum

HiRes Spectrum: activates high resolution FFT

Spectrogram: off, standard, heat map (normalized spectrogram)

Frequency tracker: shows frequency maximum

Load Reference: loads reference/ Wave/AIFF file from disk

Save Reference: stores current pre-filter ISO smoothed spectrum as reference to disk. Please to note that gEQ12 captures the spectrum only if the GUI is open.

Show Reference: toggles display of reference spectrum

Show Grid: toggles display of spectrum/magnitude grid

Show Add EQ Curves: toggles display of individual filter response curves
Show Musical Note: toggles display of piano key display
Show only selected curve: displays only the curve belonging to the active filter. Filter becomes active through a click on the filter button
EQ Cheat Sheet: toggles display of various cheat sheets.
Reset Analyzer: resets settings of the spectrum/filter curve view

5.12.5 Narrow-band Sweeping Mode

Place the mouse of the spectrum display. This monitor mode is then enabled by holding the ctrl key + 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.

5.12.6 Plugin info

Click on the "gEQ12" logo to get info about the plugin, open the online manual and change-log and change GUI scale.
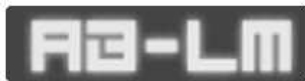
6 AB-LM Lite

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).

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 https://www.tb-software.com/TBProAudio/ab_lm.html.

7 Demo mode versus Registered mode

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

You can register at http://www.tb-software.com\tbproaudio.

8 Registration/Activation

This plugin must be registered and activated in order to be fully functional. You can purchase the license key here: http://www.tb-software.com\tbproaudio.
After purchase, you will receive the license key packed in a zip file by email. Unzip the license file to a suitable location on your PC (e.g. desktop). The license file is called "product name.license". Add the plug-in to any track in your DAW, click on the text "Demo: Click

here to activate it" and select the license file. Remove the plug-in in your DAW and add it again. The GUI now says "Registered to your name".

9 Conclusion

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

Your team from TBProAudio :-)