BLACK ROOSTER AUDIO

KOEN HELDENS
SIGNATURE

KH-EQ1 | PRODUCT OVERVIEW & MANUAL

SEMI-PARAMETRIC EQ

KH-EQ1 | KOEN HELDENS SIGNATURE EQ

The KH-EQ1 is a semi-parametric 5-band EQ like no other. It features rich-sounding frequency band controls that enable you to add color to each band while encouraging creative sound shaping with its highly musical functionality.

The KH-EQ1 is a professional studio EQ with a twist, featuring harmonic per-band saturation and our innovative, stepless Mid<->Stereo<->Side router.

It's the perfect addition to your arsenal and the KH-COMP1 if you're looking to add more richness and creativity to your productions!

The History of the EQ

The equalizer, or EQ, is one of the most used yet most misunderstood audio processes out there. It is a vital tool that any producer should have in their toolkit. Simply put, it is used to adjust the response of one or more frequencies in an audio signal, which can help shape or make any element of your mix less or more prominent.

The EQ was initially used for telecommunication purposes and dates back to acoustic telegraphy. It was later used in radio and broadcast and continued to evolve until it became a staple in every studio.

Daniel N. Flickinger designed the first parametric equalizer in 1971. His invention achieved filtering circuits that were previously impossible, and his patent introduced circuit topology that continues to be relevant today. These legendary hardware EQs turned into digital EQ plug-ins with countless customization options and styles as time went on.

While some EQs work more accurately than others, this essential tool allows users to surgically remove or boost any frequency they desire, without compromising the timbre of each element, or by changing it completely. While advanced equalization can take years to perfect, it is a total game-changer when performed correctly - with enough practice, it allows for complete control over any sound. In addition to working on individual elements, it can also be used in mastering when used on the master track of a final mix.

ABOUT

THE KOEN HELDENS SIGNATURE SERIES

The KH-EQ1 was developed in partnership with multi-platinum-award-winning mix engineer, producer, and audio enthusiast, Koen Heldens. Following in the footsteps of the KH-COMP1 signature compressor, this second addition to his signature line also boasts highly customizable features.

Koen is the expert when it comes to producing some of the best and most-streamed albums in the hip-hop genre - and while his experience and understanding of music production allow him to create and shape the emotional foundation of a song, he also has a deep understanding of the technical aspects and limitations of each plug-in he holds in his arsenal.

The collaboration between Black Rooster Audio and Koen Heldens began with a genuine artist endorsement and has evolved into a fruitful, creative partnership. Koen is one of the most knowledgeable and hard-working engineers in the business, having produced music for world-renowned artists and shaping their sound in his very unique style at every opportunity. We are proud to have Koen use our plug-ins extensively in every mix and to have co-created this Signature Series with him.

FEATURE OVERVIEW

SEMI-PARAMETRIC 5-BAND EQ

The KH-EQ1 features five fully controlled symmetrical frequency bands between 20Hz and 33kHz, with individual gain controls between -18dB and +18dB.

Each band moves independently, allowing for maximum customization. The Frequency Range Guide on the following page can be used as a guide on how to use each band.

PER-BAND SATURATION

Add richness to your sound by adding harmonic distortion to each individual frequency band using the saturation dials. This allows for complete control over the distortion without compromising all other frequency bands - perfect for adding that authentic-sounding analog vibe to your productions!

AUTO-LISTEN FOR FREQUENCY-SELECTION

With the Auto Listen function, the gain control automatically solos the changes applied to each band. This makes it much easier to stay in control during your EQing process.

INNOVATIVE MID<>STEREO<>SIDE ROUTER

This function allows for M/S cascades or surgical stereo equalization. The stereo input signal is decoded to the middle and side with the possibility of blending them with the original stereo input via the stepless control. Use this function for:

• Adding stereo width.

• Creating a fuller sound.

• Mixing bass and achieving a tighter low end.

• Mixing vocals that sit perfectly in the mix.

• Mixing drums to create a tighter and more balanced sound.

• Mastering a final mix to industry standards.

SSE2 OPTIMIZED CODE

DSP operations are pipelined using the SSE2 instruction set. This ensures a high-performance operation despite its very complex computations.

HIGHDPI/RETINA SUPPORT

The user interfaces support high pixel density on both Windows and Mac OS systems, giving you the most enjoyable user experience on high DPI displays. Please refer to your DAW manual to learn whether it is HighDPI compatible if you're working on Windows.

FREQUENCY RANGE GUIDE

Achieving the perfect EQ balance is a crucial part of every successful production, and for best results, the frequency spectrum needs to be thoroughly understood.

The KH-EQ1 features 5 fully customizable EQ bands, each with its own frequency and amplitude controls.

Name	Frequency Range
Low End	20 Hz - 250 Hz
Low Mids	100 Hz - 2.5 kHz
Mids	250 Hz - 5 kHz
High Mids	1 kHz - 15 kHz
High End	5 kHz - 33 kHz

Low End (20 Hz - 250 Hz)

All audible frequencies below 60 Hz are in the sub-bass category, which means that they can only be heard with a subwoofer or full-spectrum headphones. Frequencies in this range will barely be present on monitors and will be inaudible on phone or laptop speakers.

The bass category ranges from 60 Hz to 250 Hz, and generally includes bass guitar, drums, and low-end vocals.

Low Mids (100 Hz - 2.5 kHz)

The low mids range from 100 Hz to 2.5 kHz and is generally heavy in guitars, vocals, and bass guitar. Keep an eye on this area if your mix is sounding muddy.

Mids (250 Hz - 5 kHz)

This frequency range is crucial as it automatically takes center stage, being the main focus to us humans. This is because vocals dominate this range, as well as any instruments in a similar frequency range, such as the piano or guitar.

Make sure to spend enough time on this band to avoid harshness, as it can quickly disrupt the balance of your mix.

High Mids (1 kHz - 15 kHz)

Work on this area if you are dealing with harshness in your mix, as the range between 1 and 15 kHz is where it usually sits. It is also an important range to work on for vocal clarity and presence (5 kHz), and where you can remove sibilance (5 - 10 kHz).

High End (5 kHz - 33 kHz)

Lastly, we've got the highs, which include everything above 5 kHz. This is where you find the treble, but also where you can add or remove air from your mix. It is also where that high-end sheen sits for your instruments, but be careful with overdoing it. The High End band might seem like it encompasses a large range, but human hearing only ranges until about 20 kHz at its best, so it's an important area to control to keep your mix in check.

Keep this frequency range on hand as a guide for your EQing sessions.

» INPUT & OUTPUT

These controls allow you to manage the input and output gain before and after EQing. Use this gain-staging feature for driving the EQ "hot" and correct the amplitude afterwards.

» MID<>STEREOE<>SIDE ROUTER

This control steplessly changes the stereo input mode from mid to stereo to side. This allows for a precise EQing in a variety of stereo configurations - you can even cascade two KH-EQ1s (full mid, full side) in order to have a full blown M/S-EQ.

» 5-BAND EQ

Utilize the freq knobs to dial in the exact mid-frequency for the symmetric EQ - the gain knobs will allow you to attenuate or boost per selected band. Turn on/off the band by clicking on the LED above each band for A/B listening.
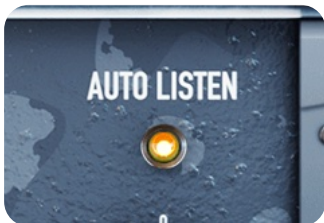
» AUTO LISTEN

The auto listen function will help you to more precisely tune the frequency settings of each band, by isolating the signal. Turn auto listen on and adjust the frequency per band as per your requirement.

» PER-BAND SATRUATION

The per-band saturation will add harmonic distortion (even & odd) to each band, based on its isolated signal - this feature will allow you to add presence/harshness to the separate spectral aspects of your signal.

» DRY/WET

Blends the original input signal (dry) with the processed, post-EQ signal (wet).

ADDITIONAL PLUG-IN PREFERENCES
(GEAR ICON MENU AT THE BOTTOM)

GUI SIZE

In the GUI size menu, you can select your preferred GUI ranging from a list of four settings, if you're looking to change the default sizing. Please note that the GUI size setting is a global preference that affects all Black Rooster Audio plug-ins installed on your system.

KNOB BEHAVIOUR & KEYBOARD SHORTCUTS

Use the plug-in settings menu to select your preferred knob mode globally. Please note that all of our plug-ins share the same settings across all DAW applications. Choose between "Host Setting", "Circular", "Relative Circular" and "Linear".

• By default, the knob mode is set to "Host Setting", which means that the knob mode is dictated by the DAW application. Some VST hosts allow you to change the knob mode setting in their preference menu. Our plug-ins will respect the host knob mode in that setting.
• In "Circular" or "Relative Circular" mode, all knobs will react to circular mouse gestures and you have to drag your mouse in a clockwise or counter-clockwise direction to change its value.
• In the "Linear" mode you have to drag your mouse up or down when selecting a knob to change its value. Use the knob sensitivity menu and adjust it to your liking. Please note that this function is only available in linear mode.

ALL OF OUR PLUGINS SUPPORT THE FOLLOWING KEYBOARD SHORTCUTS

AU Hosts on Mac OS
Alt + Click - Reset control to its default value Shift + Drag - Fine control
Shift + Mousewheel - Fine control

VST Hosts on Mac OS
CMD + Click - Reset control to its default value
Shift + Drag - Fine control (only a applicable in linear knob mode) Shift + Mousewheel - Fine control

VST Hosts on Windows
Ctrl + Click - Reset control to its default value
Shift + Drag - Fine control (only a applicable in linear knob mode) Shift + Mousewheel - Fine control