

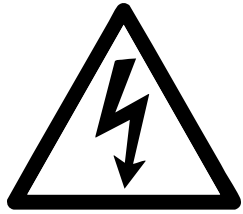
BLACK BOX

ANALOG DESIGN



HG-Q User Manual

Rev 1.0



WARNING

RISK OF ELECTRIC SHOCK

This unit contains **hazardous voltages up to 250 V**.
Contact with these voltages may cause **serious injury or death**.

- **Do not open the chassis.**
- **Disconnect mains power before servicing.**
- **Allow capacitors to discharge for at least 5 minutes** before touching internal circuits.
- Service must be carried out by qualified technicians only.
- Ensure the chassis is properly grounded before use.

INTRODUCTION	4
CONCEPT & KEY FEATURES	5
HARDWARE OVERVIEW	6
QUICKSTART CONTROL REFERENCE	8
THE BANDS	9
BOOST (ENCODER)	10
CUT / BYPASS (ENCODER)	10
SERIES / PARALLEL (BUTTON)	10
Q AND FILTER MODE (ENCODER)	11
FREQUENCY SELECTION (ENCODER)	12
SATURATION (BUTTON)	13
DYNAMIC GAIN COMPENSATION	14
CENTER SECTION	15
BYPASS (BUTTON)	15
SOLO (BUTTON)	15
M/S (BUTTON)	15
LINK (BUTTON)	15
2X (BUTTON)	15
HPF (ENCODER)	15
ATT / ATTENUATION (ENCODER)	16
ADDITIONAL FEATURES & SOFT CONTROLS	17
LED BRIGHTNESS	17
RESET TO DEFAULT	17
TIPS & TRICKS (GETTING THE MOST OUT OF THE HG-Q)	18
TOPOLOGY	20
MACRO SIGNAL FLOW (SATURATION NOT SHOWN)	20
EXPANDED SINGLE BAND SIGNAL FLOW	21
EQ CURVES	22
TECH SPECS	24
CONTROL PLUGIN	25
CONCEPT AND OVERVIEW	25
INSTALLATION AND SYSTEM REQUIREMENTS	26
PHYSICAL CONNECTION	26
INSTALLATION AND AUTHORIZATION	26
MAIN WINDOW	27
CONNECTION WINDOW	28
SETUP / CONNECTION	29
TOP TOOLBAR	30
EXPANDED VIEW	31
EQ CURVE DISPLAY	32
AUTOMATION	33
TIPS FOR USING AUTOMATION	33

Introduction

The HG-Q is far more than a traditional EQ; it's a creative powerhouse that reshapes and enhances sound in unique ways. Featuring a six-band per channel structure with three fully independent bands each for boost and cut, the HG-Q offers deep control over the contour of a mix. Each band includes a tube saturation circuit which adds rich harmonic content and density without muddying transients or mix clarity. Unlike conventional saturation, the HG-Q's circuit brings out lower-level details while leaving the mix intact.

"When we set out to design and build the HG-Q, our goal was to create an EQ with features, flexibility and character that didn't exist. 7 years later, what we ended up with is something that looks like an EQ but is an entirely new kind of tool. It will be familiar to anyone who has used a mix bus / mastering EQ but its ability to enhance, reshape, contour and dig into a mix is so unlike anything else that they won't find themselves reaching for it to replace other EQs. It really feels like an entirely different way of interacting with a mix."



Another aspect of the HG-Q that we spent a great deal of time on is the way you interact with it. The HG-Q has some incredibly complex things going on under the hood and the features and possibilities are deep. For that reason, we developed the control system from the ground up, giving the user control of features in intuitive ways with carefully thought out visual feedback. On the surface it looks very much like a standard mixing / mastering EQ but the HG-Q then allows you to go deeper and deeper, digging into a mix like nothing else, but only if you want to and only as deep as you want or need to go. It quickly feels intuitive, forgiving and is hard to make sound bad!

Concept & Key Features



Unlike the HG-2, the HG-Q is designed to be incredibly transparent when simply running audio through it. A ruler flat response, high headroom, extremely low noise operation and a lack of input or output transformers means that the HG-Q doesn't leave a sonic footprint until you want it to.

SIX-BAND STRUCTURE: Features **three independent bands for boost** and **three for cut**, offering refined control over every element of a mix and the ability to create complex and musical curves.

SIMULTANEOUS FREQUENCY SCULPTING: Allows users to remove unwanted frequencies while enhancing key tonal characteristics through musical phase interactions or compensating for boosts with reciprocal cuts.

TUBE SATURATION IN BOOST BANDS: Each boost band incorporates a parallel tube saturation stage with drive control, adding density and harmonic richness to the signal while maintaining the integrity of the transients and details of the mix.

SERIES AND PARALLEL: Each band can be configured with the cut and boost in series or in parallel, opening up entirely new curves and combinations.

DIGITALLY CONTROLLED ANALOG: The fully analog signal path is entirely digitally controlled, allowing for perfect recall and the convenience of plugin control.

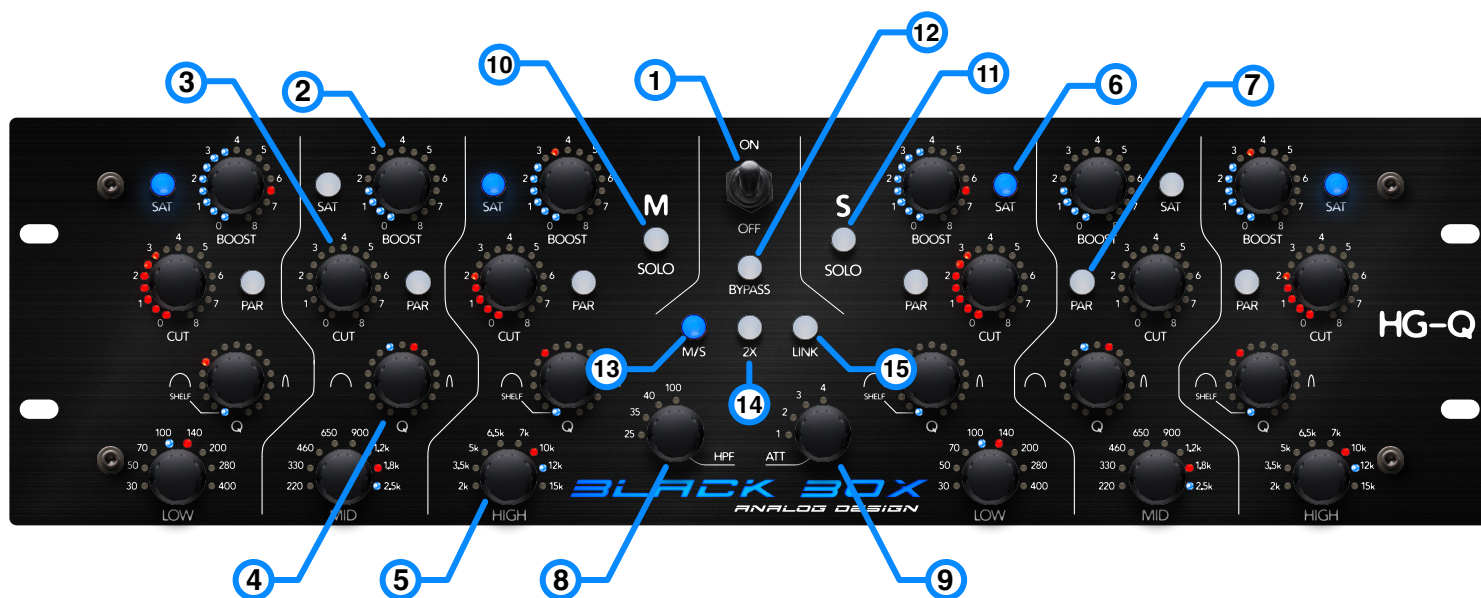
PLUGIN INTEGRATION: In addition to recall, the companion plugin allows for automation of the hardware, adds an expanded control mode and an extended display that shows the resulting frequency curves of the hardware settings.

STEREO, M/S, DUAL MONO AND MONO PROCESSING: Flexible operating modes with the ability to link and unlink channels as well as solo functions for mid and side.



Hardware overview

Each feature and control is explored in depth in later sections



1. **POWER SWITCH** On / Off
2. **BOOST CONTROL** EQ boost gain and saturation level control
3. **CUT EQ** CUT gain control and band bypass (button push)
4. **Q CONTROL** Adjusts Q as well as selects shelf or bell mode for cut and boost
5. **FREQUENCY** Selects center frequency for cuts and boosts
6. **SAT ON / OFF** Engages or disengages the tube saturation stage
7. **PARALLEL MODE** When activated, the cut and boost circuits of the band are reconfigured from series (with the cut coming before the boost) to parallel, where both the cut and boost are fed from the same full spectrum input.
8. **HPF** Select cutoff frequency of the 12 dB / octave high pass filters.
9. **OUTPUT ATTENUATION** Output attenuation of up to -4dB in 1dB increments.
10. **MID SOLO** Isolates the mid (sum) signal being processed.
11. **SIDE SOLO** Isolates the side (difference) signal being processed.
12. **BYPASS** True hardware bypass
13. **M/S MODE** Engages mid / side processing mode
14. **2X MODE** Doubles gain range for boost and cut
15. **LINK** Switches linking of parameters between the channels on or off. When LINK is activated, all parameters from the left channel are immediately mirrored on the right channel. In LINK mode, both channel controls move together, regardless of which channel is being adjusted.



1. **INPUT XLRs** Balanced line level inputs
2. **OUTPUT XLRs** Balanced line level outputs
3. **GROUND LIFT** Lifts pin 1 on XLR inputs to defeat ground loops and noise
4. **USB HOST CONNECTION** USB connection to computer (for plugin control and firmware updates)
5. **POWER INPUT**
6. **VOLTAGE SELECTOR**

Quickstart control reference

All of the features and controls will be explained in depth in following sections. This page is designed as a quick reference for the encoder controls.

BOOST ENCODER

TURN	Adjusts BOOST gain and Sat Drive (when sat active)
PUSH	Switches between BOOST gain and Sat Drive on the encoder (when sat active)
DISPLAY	Shows boost amount in BLUE and Sat Drive in RED

CUT ENCODER

TURN	Adjusts CUT gain
PUSH	Band bypass (all LED's go dark)
DISPLAY	Shows cut amount in RED

Q ENCODER

TURN	Adjusts bandwidth of cut and boost. Selects shelf on high and low bands.
PUSH	Switches between boost and cut bandwidth control
DISPLAY	Shows boost frequency in BLUE and cut frequency in RED

FREQUENCY ENCODER

TURN	Adjusts boost gain and Sat Drive
PUSH	Switches between boost and cut frequency selections
DISPLAY	Shows boost frequency in BLUE and cut frequency in RED

The Bands

The following section will look at the individual band controls in depth.



Good to keep in mind: As each band of the HG-Q is actually two individual EQs, it's helpful to think of the boost and cut as entirely separate EQs.



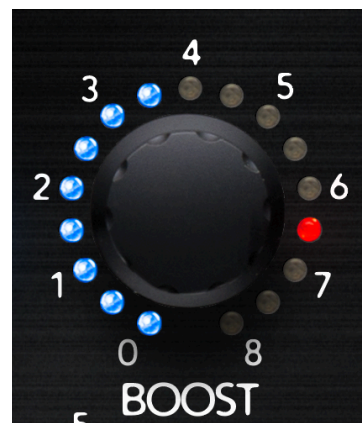
BOOST (ENCODER)

ENCODER OPERATION: Turning the boost knob clockwise increases gain of the EQ boost. By default, each step of the control increases the boost by 0.5 dB for a total of 8 dB of gain (or 1 dB per step for a total of 16 dB of gain in 2X mode).

DISPLAY: Gain is shown in 0.5 dB steps by illuminating corresponding LEDs in **BLUE** to show position of control.

SAT DRIVE DISPLAY: When 'sat' mode is active the sat drive level will be shown in a single **RED** LED (see 'saturation' section).

ENCODER BUTTON PUSH: Pushing the BOOST encoder toggles between control of boost and sat drive. Corresponding LEDs flash to indicate which is being controlled.



CUT / BYPASS (ENCODER)



ENCODER OPERATION: Turning the cut knob clockwise increases the amount of EQ cut. By default, each step of the control increases the cut by 0.5 dB for a total of 8 dB of cut (or 1 dB per step for a total of 16 dB of attenuation in 2X mode).

DISPLAY: Attenuation is shown in 0.5dB steps by illuminating corresponding LEDs in **RED** to show position of control

ENCODER BUTTON PUSH: Pushing the CUT encoder disables the band, taking the band entirely out of the signal path. When the band is deactivated all LEDs on the band are switched off. The band retains its settings and can be reactivated at any time by pushing the CUT encoder again.

SERIES / PARALLEL (BUTTON)

THE "PAR" BUTTON SWITCHES THE CONFIGURATION OF THE BOOST AND CUT

SERIES: By default, the boost and cut EQs are configured in series, with the CUT coming BEFORE the BOOST. This configuration is common to many workflows where a transparent EQ is used to make cuts to the material, removing unwanted frequencies and energy before following with a colorful EQ for boosts to enhance the material

PARALLEL: When the "par" button is engaged, the boost and cut EQs are reconfigured so that they are both fed from the same input and mixed together at their outputs. This parallel operation allows for useful and musical phase interactions between the EQs. It also allows the user to drive the boost and saturation section harder as it receives the full input.

Be careful when switching to parallel as you will get significantly more gain from the boosts when cutting and boosting together.

Q AND FILTER MODE (ENCODER)



Since the HG-Q cuts and boosts are entirely independent EQs, Q and filter modes (shelf vs bell) can be controlled individually or together in “ganged” mode.

ENCODER OPERATION: Turning the Q knob clockwise narrows the Q of the filter with 17 possible positions for the mid band and 16 positions (plus shelf) for the low and high bands.

SHELF MODE: The fully CCW position engages the shelf mode on the low and high bands.

GANGED MODE: By default, the HG-Q starts with the Q controls for both the cut and boost in “ganged” mode. This means that as you turn the Q control knob, you are changing the Q for both cut and boost together.

INDIVIDUAL Q CONTROL FOR CUT AND BOOST:

- 1 To control Q for cut and boost separately, simply **push the Q encoder button** to continuously cycle between 3 control modes (see chart below).
- 2 With each push, the **LED ring of the corresponding cut or boost encoder** flashes with its current settings to indicate which is being controlled.
- 3 The **corresponding setting indicator LED on the Q encoder ring** flashes **simultaneously** in the same color to confirm what you are currently controlling.

DISPLAY: Q setting is shown by illuminating a single **BLUE** LED on the Q encoder ring to show the position of boost Q and single **RED** LED to show the position of the cut Q. When boost and cut Q's are set the same, they are shown with a single **PURPLE** LED



If the boost and cut are set to different Q settings, adjusting the Q control in “ganged” mode will move both Q's together, while maintaining their proportional relationship.

Q ENCODER BUTTON CONTROL MODE CYCLE

PUSH 1	BOOST LED ring briefly flashes current setting in BLUE indicating that the Q selector is controlling the boost Q.
PUSH 2	CUT LED ring briefly flashes current setting in RED indicating that the Q selector is controlling the cut Q.
PUSH 3	BOTH the BOOST and CUT LED rings briefly flash their current settings indicating that the Q selector is controlling the boost and cut Q's together.

(Cycle starts again at top after push 3)

FREQUENCY SELECTION (ENCODER)



Since the HG-Q cuts and boosts are entirely independent EQs, the frequency can be selected individually or together in "ganged" mode.

ENCODER OPERATION: The frequency control allows the user to select from 8 frequencies per band.

GANGED MODE: By default, the HG-Q starts with the frequency controls for both the cut and boost in "ganged" mode. This means that as you turn the frequency control knob, you are changing the frequency for both cut and boost together.

INDIVIDUAL FREQUENCY SELECTION FOR CUT AND BOOST:

- ① To select frequency for cut and boost separately, simply **push the frequency encoder button** to continuously cycle between 3 control modes (see chart below).
- ② With each push, the **LED ring of the corresponding cut or boost encoder** flashes with its current settings to indicate which is being controlled.
- ③ The **corresponding setting indicator LED on the frequency encoder ring** flashes **simultaneously** in the same color to confirm what you are currently controlling.

DISPLAY: Frequency setting is shown by illuminating a single **BLUE** LED on the frequency encoder ring to show the position of boost frequency and single **RED** LED to show the position of the cut frequency. When boost and cut frequencies are set the same, they are shown with a single **PURPLE** LED



FREQUENCY ENCODER BUTTON CONTROL MODE CYCLE

PUSH 1	BOOST LED ring briefly flashes current setting in BLUE indicating that the frequency selector is controlling the boost frequency .
PUSH 2	CUT LED ring briefly flashes current setting in RED indicating that the frequency selector is controlling the cut frequency .
PUSH 3	BOTH the BOOST and CUT LED rings briefly flash their current settings indicating that the frequency selector is controlling the boost and cut frequencies .

(Cycle starts again at top after push 3)



Split the controls: When operating in 'linked' mode, both channel settings will stay in sync, regardless of which channel you change, however the control mode (see above) does not!

For example, you can set the Q encoder on channel 1 to control the boost and the Q encoder on channel 2 to control the cut, giving you simultaneous control of both!

SATURATION (BUTTON)



Each band of the HG-Q includes a parallel tube saturation stage that can be mixed into the EQ boost signal using the 'sat drive' control.

DESCRIPTION: The parallel tube stage in each band is essentially the parallel saturation circuit from the HG-2. It makes use of a 12AT7 vacuum tube, configured to saturate and clip asymmetrically. The circuit is designed in such a way that the tube clips consistently through a wide range of input levels. This gives the user the ability to control exactly how much saturation they want with the "drive" control rather than having the signal become too distorted on loud passages or peaks because the saturation is dependent on the input level.

PURPOSE: The saturation stage in the HG-Q is not designed to create obvious fuzz or distortion. In fact it is designed to allow the user to add a surprising amount of saturation before audible distortion. Because the signal is clipped (in a pleasing way that only tubes manage) and the saturation is added to the boost signal in parallel, the saturation control allows the user to add targeted density and energy and to bring up lower level material without compromising the integrity of the mix. It feels like being able to reach back into the mix and pull up detail and character, giving you control to dramatically sculpt and reshape your mix while leaving your transients and articulation alone. It also does this without the intermodulation associated with most saturation devices.

OPERATION: Engaging the "sat" button activates the parallel saturation circuit.

DRIVE CONTROL: The "drive" control of the saturation circuit allows you to control how much of the saturated signal is mixed **into the boost** signal.

- **TO ACCESS DRIVE CONTROL**, simply **push the BOOST ENCODER BUTTON** when saturation is active. The **RED** / **PURPLE** saturation 'drive' LED will flash, indicating that the boost encoder is now controlling the drive.
- **TO SWITCH BACK TO CONTROLLING THE BOOST AMOUNT**, simply **push the boost encoder again** and the **BLUE** boost LEDs will flash, indicating that the boost encoder is now controlling the boost amount. You can cycle back and forth freely.

DISPLAY: When the parallel saturation circuit is engaged, its "drive" position will be shown by a single **RED** LED displayed on the BOOST ENCODER (fig. a).

As with the other encoders, if the **RED** LED overlaps with the **BLUE** LEDs of the boost LED ring, it will be shown in **PURPLE** (fig. b).



Fig. a

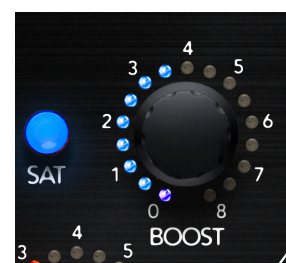


Fig. b



Since the parallel saturation circuit is part of the boost circuit, you will not get any saturation if your boost is set to zero. **You must be boosting to add saturation.**

DYNAMIC GAIN COMPENSATION

When you engage the saturation stage, the tube signal is mixed into the boost circuit.

Without compensation, this would cause your overall boost to skyrocket as you raise the **Drive**, making even the smallest boost steps too loud and hard to control.

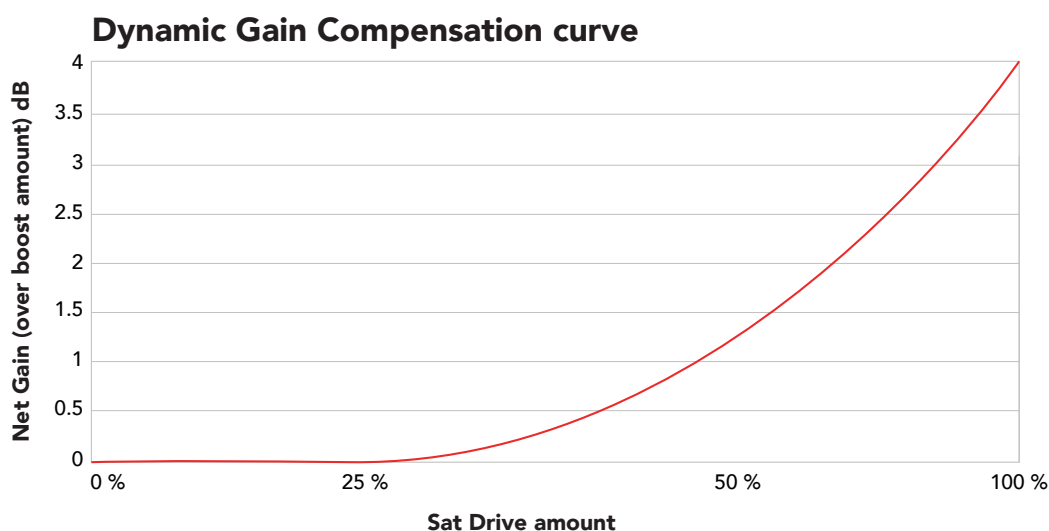
Dynamic Gain Compensation solves this by automatically adjusting the overall boost level as saturation increases, keeping the gain in a usable range.

How It Works

- **Without DGC:** A 4 dB boost (for example) can jump to 12–15 dB or more as you raise the saturation drive.
- **With DGC:** The HG-Q smoothly reduces boost gain as the drive increases, keeping the levels in check. This happens internally, with no change to your settings.
- **Adaptive Curve:** Compensation is strongest at low drive levels and gradually relaxes at higher drive, giving you a bit of extra “push” at extreme settings.

Why it matters

- Maintains consistent loudness at lower saturation settings
- Lets you freely explore saturation without constant level trimming
- Preserves resolution of the boost control, even with aggressive drive



SAT DRIVE	Boost Level Change (above set boost value)
0-25%	No increase (1:1 compensation)
25-100%	Smooth rise, up to +4 dB

Center Section

The following section will look at the center section controls in depth

BYPASS (BUTTON)

True bypass, shorts input XLR's to output XLR's. Processing is bypassed when the bypass button is illuminated. Relays default to bypass (pass signal) when powered off or with power loss.

SOLO (BUTTON)

Active in M/S mode, the "solo" functions isolate the Mid (sum) or Side (difference) signal.

M/S (BUTTON)

Engages Mid / Side processing mode. In this mode, the left channel becomes Mid and the right channel becomes Side. The controls can be operated in linked mode or individually.

LINK (BUTTON)

Links control of both channels (can be engaged in M/S and stereo mode). When engaged, the right channel settings snap to the left channel settings (if different). The pre-link right channel settings are lost. In LINK mode, both channel controls move together, regardless of which channel is being adjusted.

2X (BUTTON)

Engaging 2X mode doubles the gain range for boost and cut from 8db in .5db steps to 16db in 1db steps. This also increases the parallel saturation circuits, allowing for more aggressive results.

HPF (ENCODER)

Operation: By default, the HPF control is inactive, in the fully CCW position. Turning the knob clockwise engages the circuit and selects between 4 frequency selections of the 12 dB per octave filters. Frequency selections are 25 Hz, 35 Hz, 40 Hz and 100 Hz.

Display: Frequency selection is shown in by illuminating corresponding LEDs. When the HPF's are inactive (fully CCW position) no LED's are illuminated.

Note: HPFs can be operated independently in unlinked (stereo or M/S) mode. As with the Q and Frequency controls, unlinking control of the channels is as simple as pushing the HPF encoder. When pushed once, channel 1 will flash, indicating that you are controlling the HPF for that channel. When pushed again, channel 2 will flash, indicating that you are controlling the HPF for that channel. You can cycle through these controls modes as needed.

ATT / ATTENUATION (ENCODER)

Description: The 'ATT' (output trim) control allows the user to attenuate the output signal of the HG-Q. A total of 4 dB of attenuation in 1 dB steps is available.

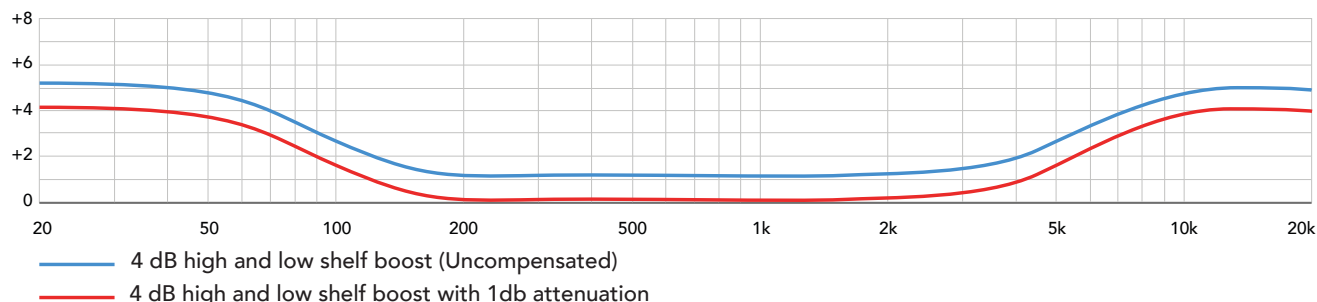


Purpose: The choice for attenuation settings and range may seem odd at first but **the purpose of the attenuation control is not to compensate for EQ boosts or for overall gain staging.**

The HG-Q uses a topology where all of the bands interact and overlap and where a boost in the low band (for example) affects the material in the mid and high bands. **The result is that as you boost, the overall signal can be increased slightly (see image below).**

For example, if the user is using a high and low shelf boost for sweetening, the material between the boosts can also be boosted slightly. In this case, the goal is a boost on the top and bottom so we don't want to "compensate" for those but we didn't intend for an increase in the mid range. **The attenuation control on the HG-Q is designed to compensate for this very scenario.** Bringing the overall level down by a small amount allows the user to bring the material outside the boost range back to where it was, maintaining the integrity of their mix and only boosting where they intend. In most cases, only a small amount of attenuation (if any) is needed (see graphic below).

Attenuation for overall compensation



Just as boosts increase the overall level slightly, cuts decrease the overall level slightly. This makes it easy to compensate for boosts with cuts, often without needing the "ATT."

Encoder operation: By default, the attenuation control is inactive, in the fully CCW position. Turning the knob clockwise engages the circuit and selects between the 4 steps.

Display: Attenuation setting is shown by illuminating corresponding LEDs. When the attenuation is inactive (fully CCW position) no LED's are illuminated.

Note: Although the attenuation for the channels can be set individually in unlinked stereo mode, attenuation for the channels cannot be controlled independently in M/S mode.

Additional features & soft controls



Several of the HG-Q's encoders can be used to access 'hidden' features

LED BRIGHTNESS

The brightness of the **RED** and **BLUE** LED encoder rings can be globally adjusted independently of one another.

OPERATION:

1. **Push and hold** the **CHANNEL 1 MID** band **CUT** encoder for **3 seconds**. All the LEDs on the HG-Q will go dark with the exception of the CHANNEL 1 MID band CUT and BOOST encoders. The Black Box logo will also change from **BLUE** to **RED**, confirming that you are in an alternate mode.
2. The **CUT** and **BOOST** encoders will be fully illuminated with the exception of one LED. This un-illuminated LED indicates the position of the brightness control for each color. As you turn the CUT encoder, you will increase the brightness of the **RED** LEDs in the encoder ring. This represents the brightness of **RED** LEDs globally. Turning the BOOST encoder operates the same way, adjusting the global brightness of the **BLUE** LEDs.
3. **To confirm and save** your new brightness settings, simply **push the CHANNEL 1 MID band CUT** encoder again. The HG-Q will snap back to its previous state and settings and the Black Box logo will switch back to **BLUE** with the new brightness settings.
4. **To cancel** any brightness changes, simply **push any BOOST or CUT encoder other than the CHANNEL 1 MID band CUT** encoder. The HG-Q will snap back to its previous state and settings and the Black Box logo will switch back to **BLUE** without saving any brightness changes.

RESET TO DEFAULT

This function resets all buttons and control states to their default position.

OPERATION:

1. **Push and hold** the **CHANNEL 1 LOW** band **CUT** encoder for **3 seconds**. The Black Box logo will change from **BLUE** to **RED**, confirming that you are in an alternate mode.
2. **To confirm** the reset, simply **push the CHANNEL 1 LOW band CUT** encoder again. The HG-Q will snap to its default settings and the Black Box logo will switch back to **BLUE**.
3. **To cancel** changes, simply **push any BOOST or CUT encoder other than the CHANNEL 1 LOW band CUT** encoder. The Black Box logo will switch back to **BLUE** without resetting.

Tips & Tricks (getting the most out of the HG-Q)

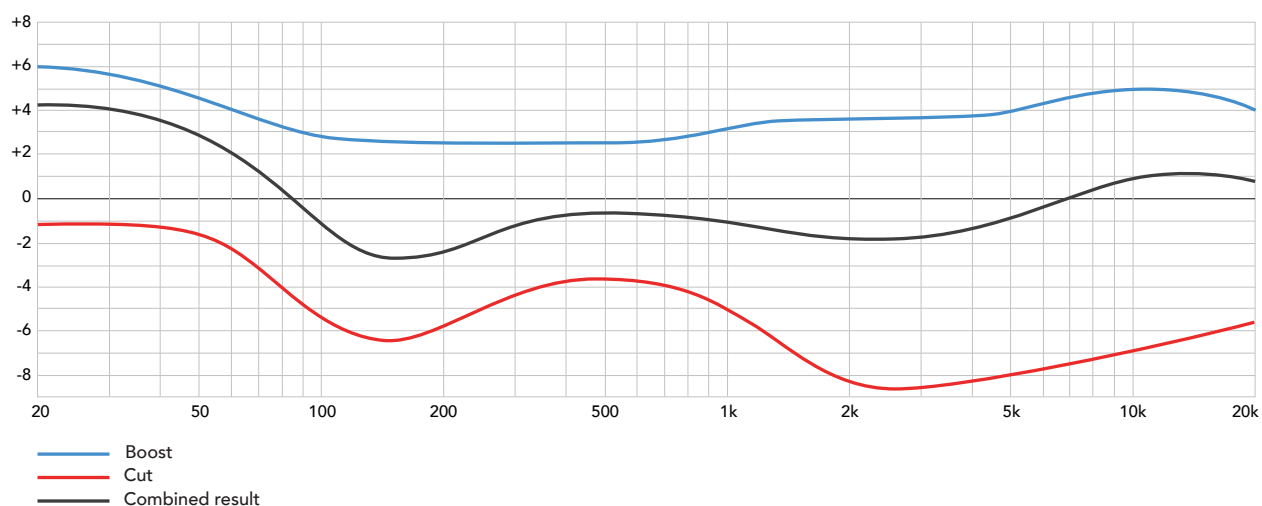
Don't think of the HG-Q as an EQ: While it can of course be used as an EQ, the strength of the Black Box Analog Design HG-Q lies in its ability to dramatically contour and reshape the material in unique and extremely musical ways. Think of it more as an enhancement device rather than a surgical tool or even EQ in the traditional sense.

Saturation for enhancement: The goal of the saturation circuit in the HG-Q is not to give you fuzzy or obvious distortion that sounds like an effect. The real magic of the saturation circuit is the ability to bring up lower level material to add density and enhance character while adding harmonics. It does this while leaving the detail of the transients, articulation and "front" of the mix alone. It feels as if you are able to manipulate and enhance the lower level material while leaving the mix intact, even at surprisingly aggressive settings.

3 band EQ? Nope! 6 band EQ! On the surface, the HG-Q appears to be a 3 band per channel EQ but each band gives you entirely independent control over the boost and cut, including frequency selection, Q and shelf mode for each. That means that rather than a 3 band EQ, the HG-Q is actually a 6 band EQ with 3 bands of boost and 3 bands of cut per channel!

Boost and Cut together: The cuts can be used to remove problematic frequencies and energy like a traditional EQ but they can also be used to compensate for the boosts, giving you saturation and color without massive level increases. Compensate directly by using the same settings for boost and cut or combine boost and cut with different frequency and Q settings to create complex curves.

Simultaneous Boost and Cut



Leverage phase interactions between boosts and cuts: Although you can boost and cut the same frequency and with the same Q to compensate for level, try changing the Q of the cut to be slightly narrower and then switch between series (default) and parallel modes. Also try changing the cut or boost frequency so you are cutting and boosting slightly different frequencies. This will give you musical and useful phase interactions that can bring out and enhance mix elements.

Everything affects everything else: The heart of the Black Box Analog Design HG-Q is a topology where the bands interact with each other in complex ways. Using the built in analyzer on the plugin you will see that boosting or cutting on one band affects frequencies far outside its range. As you start boosting, cutting, adding saturation and switching between series and parallel, you will see that you can achieve wildly complex interactions and curves.

2X: Engaging '2X' mode changes the gain ranges of the boost and cut controls from 8 dB in 0.5 dB steps to 16 dB in 1dB steps. 2X is great for when you really want to push things to be more aggressive but it's helpful to think of it as a whole range of slightly different possibilities.

A note from Robert...

The HG-Q was designed with one purpose: to get out of your way and let the music take center stage. Every circuit, every switch, every curve was chosen because it feels right when you use it — fast, intuitive, and musical. It's the kind of tool you can lean on whether you're polishing a mix or pushing something to the edge of chaos.

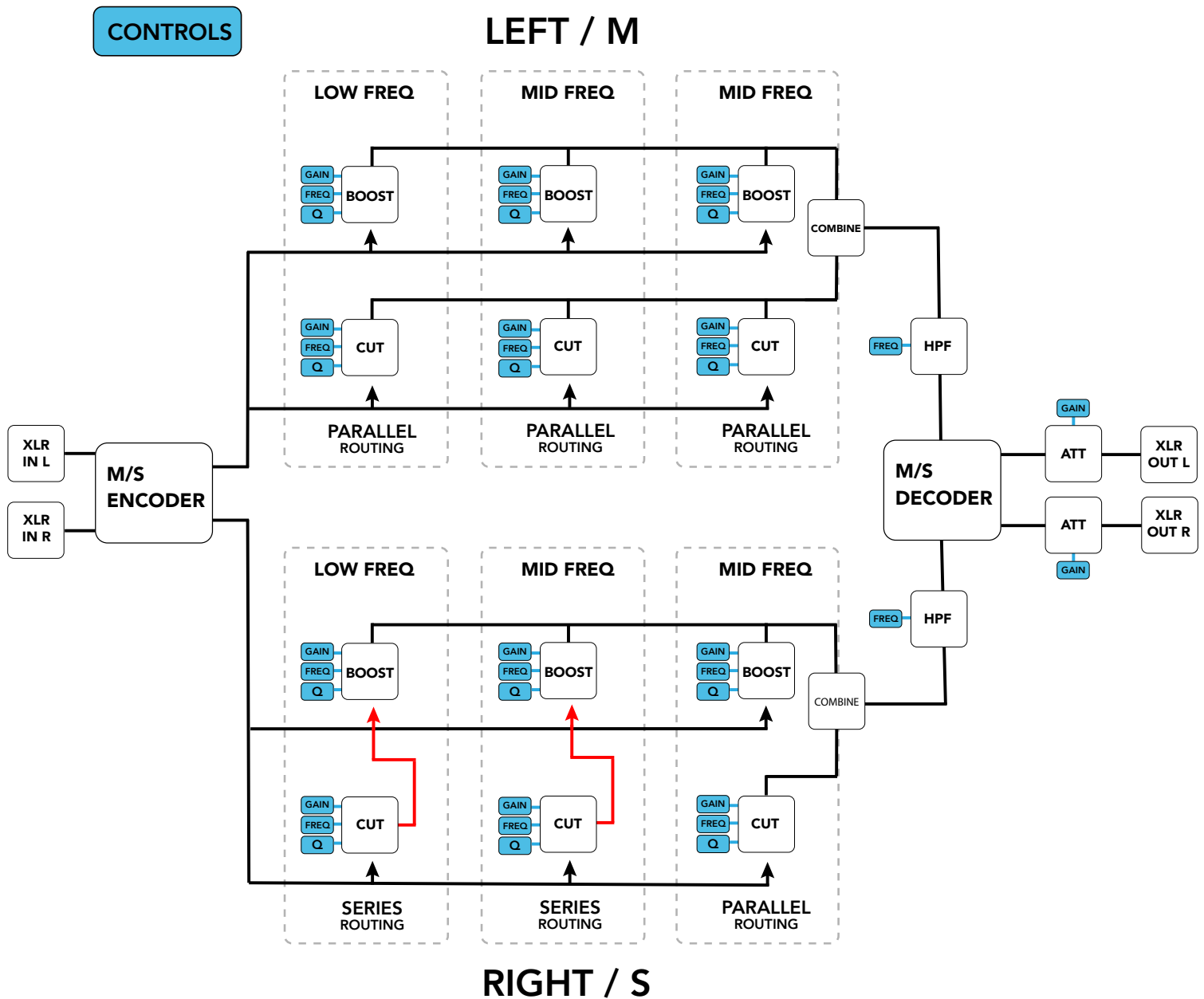
And here's the part you won't find in most manuals: don't be polite with it. Turn the knobs like you mean it. Try the "wrong" settings. Push it until you think you've gone too far, then see if that isn't exactly where you needed to be. This box was built from stubbornness, obsession, and a refusal to settle for boring — now it's yours. Have fun with it.

- Robert Wainscott



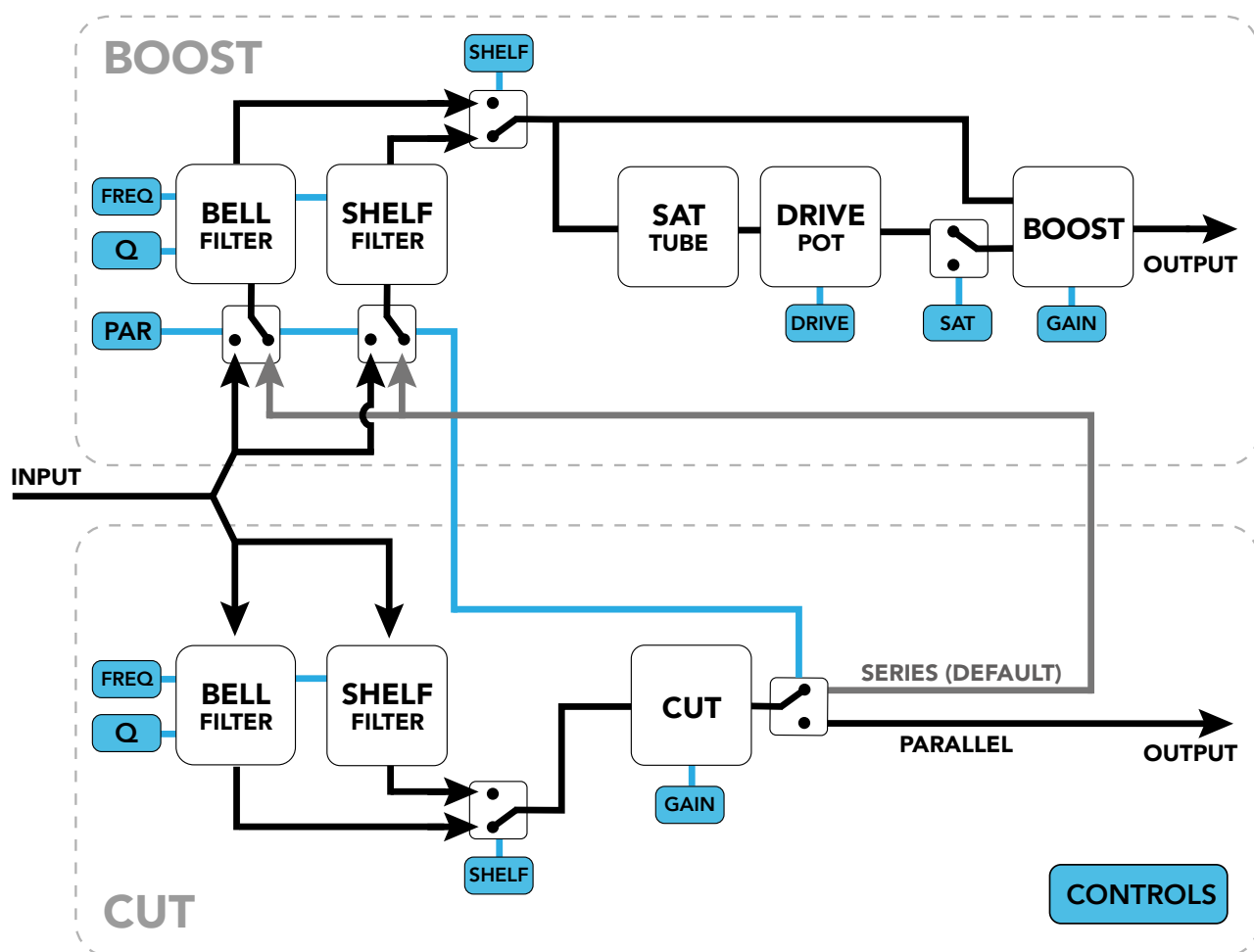
Topology

Macro signal flow (saturation not shown)



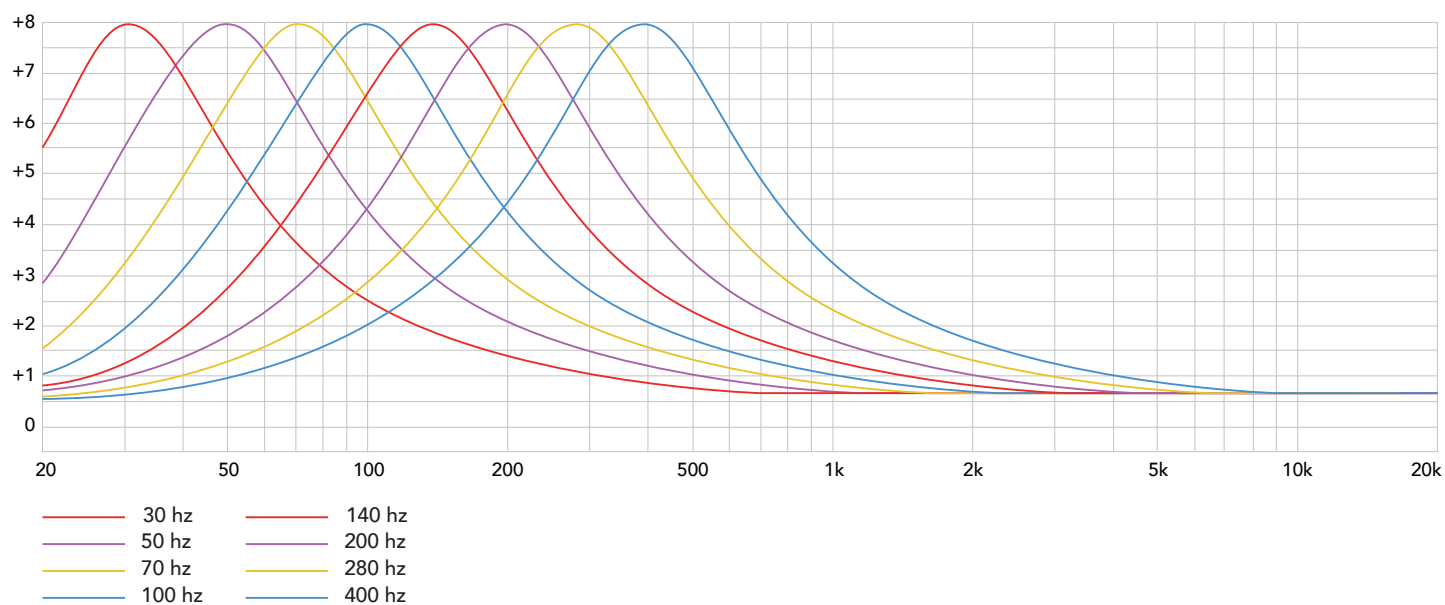
Topology

Expanded single band signal flow

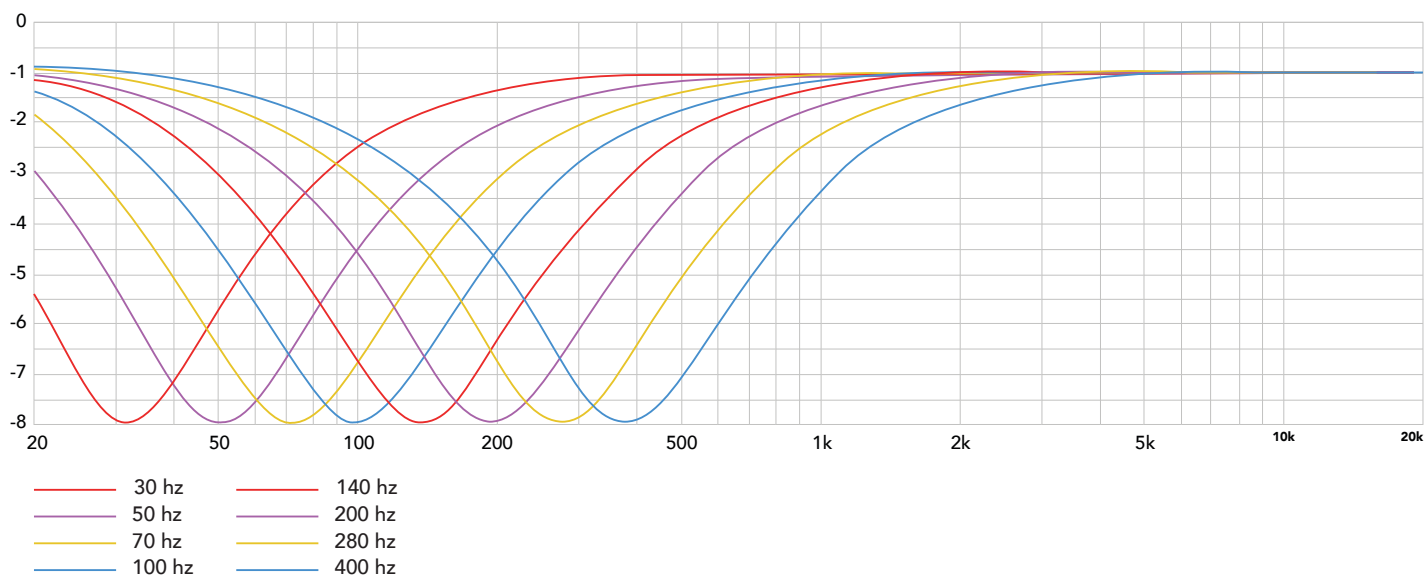


EQ Curves

Low Frequency Boost (Bell)

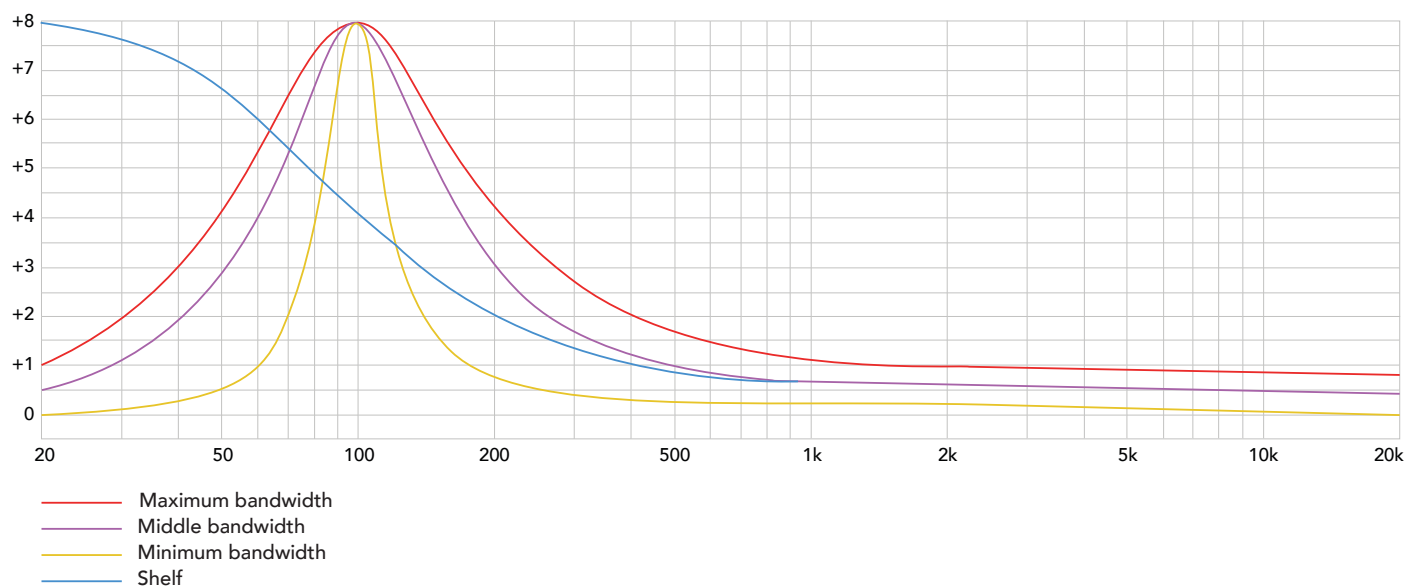


Low Frequency Cut (Bell)

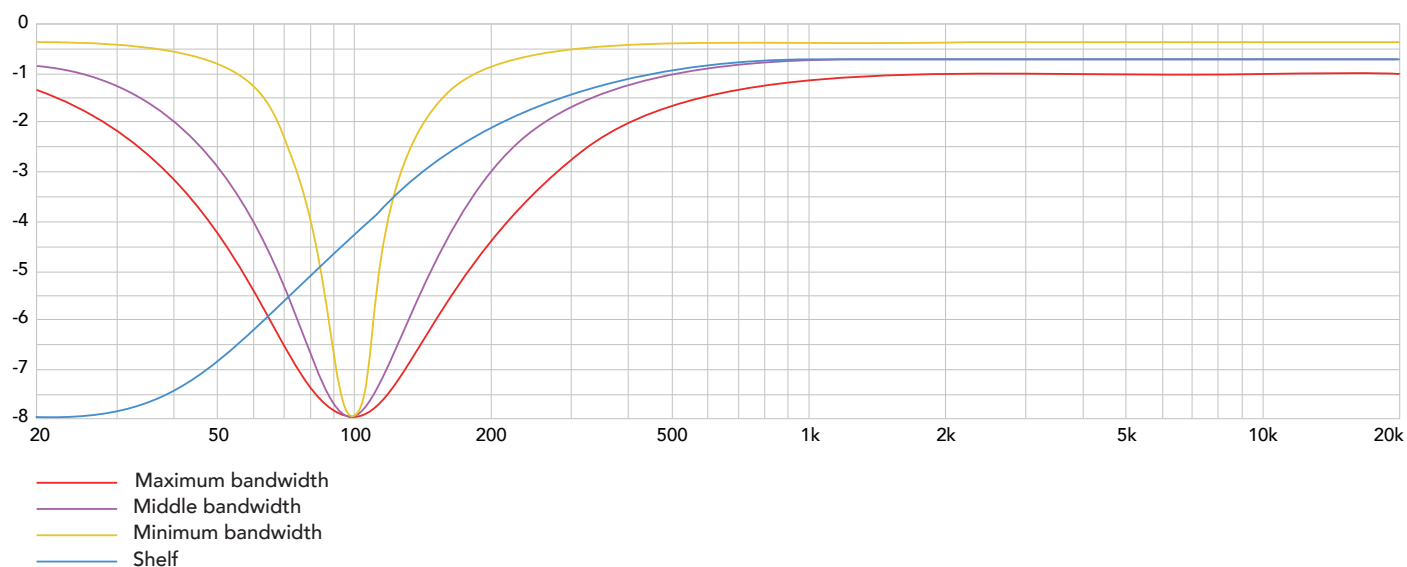


EQ Curves

Low Frequency Bandwidth / Shelf Boost



Low Frequency Bandwidth / Shelf Cut



Tech specs

Inputs: Balanced XLR (line level)
Outputs: Balanced XLR (line level)
Maximum Input level: +28 dBu (EQ flat), +21 dBu (max boost 1X)
Bypass: True bypass, shorts input XLRs to output XLRs
Frequency response: 20Hz - 20kHz +/- 0.4 dB, 10Hz - 35kHz +/- 1 dB
Noise floor: -81 dBu (all bands enabled), -91 dBu (bands disabled)
Input impedance: 38 kOhms (balanced)
Output impedance: 50 Ohms (balanced)
Tubes: EH 12AT7 (X 3)
Power consumption: 50W
Mains voltage: 120v / 230v
Fuses: 0.5A, slow blow, 250VAC, 5x20mm

Control plugin



Concept and overview

Powered by Brainworx, the HG-Q control plugin allows you to control your hardware from the plugin, inside your DAW. This gives you the ability to **save, store** and **load presets** as well as **automate parameters** of your hardware.

The HG-Q Control Plugin also gives you an **expanded control view** where each control has its own knob and a **plugin-only display** that shows you the **boost, cut** and **combined EQ curves** of the current setting.

Once connected, the plugin and hardware stay in sync, updating each other in real time, regardless of whether you are controlling the settings from the hardware or the plugin.



The HG-Q Control Plugin and HG-Q emulation are two separate plugins:

The control plugin connects to your hardware and allows you to control it from your DAW but does not process audio.

The emulation plugin is a model of the hardware and processes audio inside your DAW. It does not connect to your hardware.



BRAINWORX

BLACK BOX
ANALOG DESIGN

INSTALLATION AND SYSTEM REQUIREMENTS

Supported Plugin Formats

AAX DSP, AAX Native, AU, VST2, VST3

Supported Operating Systems

macOS 15 down to macOS 12

Windows 11 down to Windows 10

Mac

Intel, or Apple Silicon

PC

x64-compatible CPU



[Scan or click to be directed to the HG-Q resources page to download installer](#)

PHYSICAL CONNECTION

The HG-Q hardware connects to your computer via a USB 2.0 A to B cable (included)

Note: USB 2.0 cables have a maximum length of approximately 5 meters (16.4 feet).

- As USB hubs can be notoriously unreliable, we highly recommend a direct connection between your HG-Q hardware and your computer.
- If you do need to extend the length of cable between the HG-Q and your computer, we recommend using an active USB extender cable while maintaining a direct connection.

INSTALLATION AND AUTHORIZATION

After downloading, **run the installer package** and follow the directions.

On first launch, the plugin will ask you for authorization. Simply **enter your Plugin Alliance account information** and the plugin will be permanently authorized.

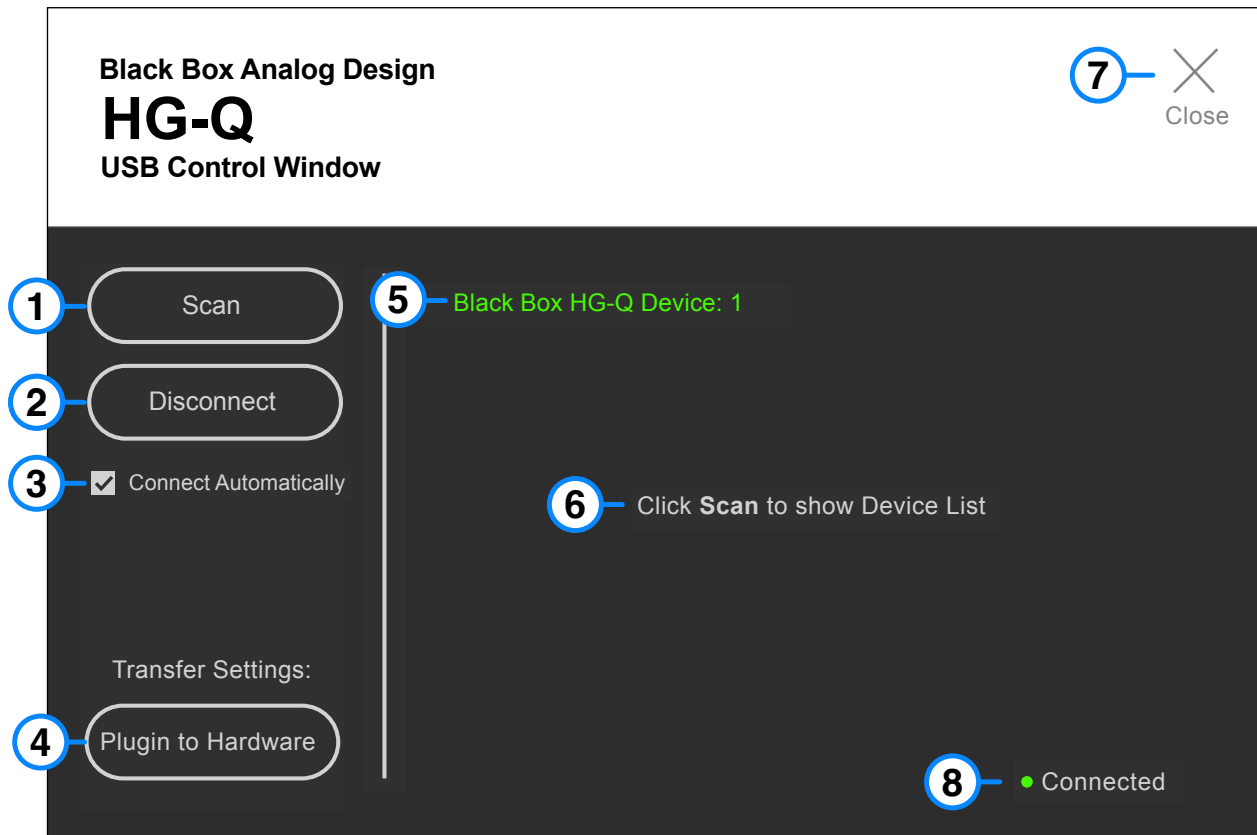
MAIN WINDOW



The main window of the HG-Q Control Plugin looks just like the hardware, with the exception of an expanded control view and EQ curve display at the bottom. In addition to these extended views, it also allows the user to open and close the connection window.

- 1 CONNECTION WINDOW TOGGLE:** Opens the connection window. Displays "click to connect" when unconnected to HG-Q hardware and "click to disconnect" when connected.
- 2 CONNECTION STATUS:** Shows "Connected" in blue when connected to HG-Q hardware and "Disconnected" in red when not connected to hardware. You can also click. This area to open and close the connection window.

CONNECTION WINDOW



- 1 SCAN:** When first connecting, scan checks for connected units and populates the device list
- 2 CONNECT / DISCONNECT:** Connects or disconnects the selected HG-Q
- 3 CONNECT AUTOMATICALLY:** When selected, the HG-Q plugin will automatically scan and connect to the previously connected hardware device, when available. This allows sessions saved with the HG-Q control plugin to automatically load the saved settings on the hardware when opening the session. It will also automatically connect if the hardware is powered on after the session is open. **This setting is saved globally for all instances of the plugin.**
- 4 TRANSFER / SYNC SETTINGS:** Selects whether the hardware adopts the current plugin settings or whether the plugin adopts the current hardware settings when connecting. **This setting is saved globally for all instances of the plugin.**
- 5 DEVICE LIST:** This list shows all connected HG-Qs
- 6 SCAN PROMPT:** Prompts the user to manually scan on initial connection
- 7 CLOSE WINDOW:** Closes the connection window and returns to the main plugin window
- 8 CONNECTION STATUS:** Connection status. Also shown on the main plugin window.

SETUP / CONNECTION



A NOTE TO PRO TOOLS USERS: 'Dynamic Plugin Processing' MUST BE OFF

1. **INSERT THE PLUGIN:** With your **HG-Q physically connected** and **powered on** and DAW open, **insert the HG-Q Control Plugin on any stereo channel**. It does not need to be the same channel that your hardware is inserted on or returning to.
2. **OPEN THE CONNECTION WINDOW:** Click the **"Click to connect"** button on the right side of the top toolbar to open the connection window.
3. **SCAN:** When you first open the connection window of the Control Plugin, you will see "click scan to show device list." Click the SCAN button on the left of the window and the connected HG-Qs will appear to the right.
4. **CHOOSE SYNC TYPE (TRANSFER SETTINGS):** When connecting an HG-Q hardware unit to the Control Plugin, you have the option to have the plugin adopt the current settings of the hardware or have the hardware adopt the settings of the plugin. Choose the appropriate sync type. **This setting is saved globally for all instances of the plugin.**
 - **Plugin to Hardware:** In most cases it makes sense to have the hardware adopt the Control Plugin settings that were saved with the session. This allows the user to open a session and have their hardware recall the last settings used in that session.
 - **Hardware to Plugin:** In some scenarios it may be useful to have the plugin adopt the hardware settings. For example, if the hardware was used and set without being synced to the plugin and you want to save the settings. In this case you would open a new instance of the plugin and connect in Hardware to Plugin mode to transfer the hardware settings to the plugin. You can then save the settings in the plugin.
5. **CONNECT:** Hover the mouse over the device(s) and a button will appear. Click **"Connect."**
6. **CLOSE THE CONNECTION WINDOW:** Click the **"X / close"** button on the top right side of the connection window.
7. **HARDWARE AND PLUGIN AND ARE SYNCED:** Once the hardware and plugin are connected and synced, they will stay in sync whether you are adjusting the settings from the plugin or the hardware. Save and recall presets on the plugin as you would with any other plugin!



Connect Automatically: Selecting this option allows the HG-Q Control Plugin to automatically connect to a previously connected HG-Q, when present. The hardware and plugin will automatically connect and sync as soon as a session with the plugin is opened or when the hardware is powered on while a session with the plugin is open.

THIS IS A GLOBAL OPTION THAT AFFECTS ANY HG-Q CONTROL PLUGIN, IN ANY SESSION OR WHEN A NEW INSTANCE IS OPENED.

TOP TOOLBAR



- ① **POWER:** Bypasses the plugin when disengaged
- ② **UI SIZE:** Sets the size of the plugin's user interface
- ③ **UNDO / REDO:** Undo and redo changes made to controls, up to 32 steps
- ④ **BANK A B C D:** Each preset allows you to switch between four banks (A,B,C,D) of settings
- ⑤ **COPY:** Copy the active settings to memory
- ⑥ **PASTE:** Paste the copied settings to the active bank
- ⑦ **RESET:** Resets the current bank
- ⑧ **CLICK TO CONNECT:** Opens and closes the USB connection window
- ⑨ **TIPS:** Toggles mouse over tips off/on. The mouse over tips will also inform about the upcoming layer to be activated before clicking a multi-layer knob.
- ⑩ **EQ CURVE DISPLAY:** Show / hide EQ curve display
- ⑪ **EXPANDED EQ:** Expands the EQ controls

EXPANDED VIEW

In the expanded view, all parameters are fully exposed, allowing users direct access to every control for easy adjustments. The standard view perfectly matches the controls of the hardware with many encoders sharing multiple functions. The expanded view gives each function a dedicated control which makes it easier to adjust as a plugin and gives you another way to see all of your settings at once.

Now, instead of cut and boost sharing controls for frequency and bandwidth, boost and cut have their own dedicated sections along with a dedicated saturation drive control.

1 Boost / Saturation controls

2 Cut controls

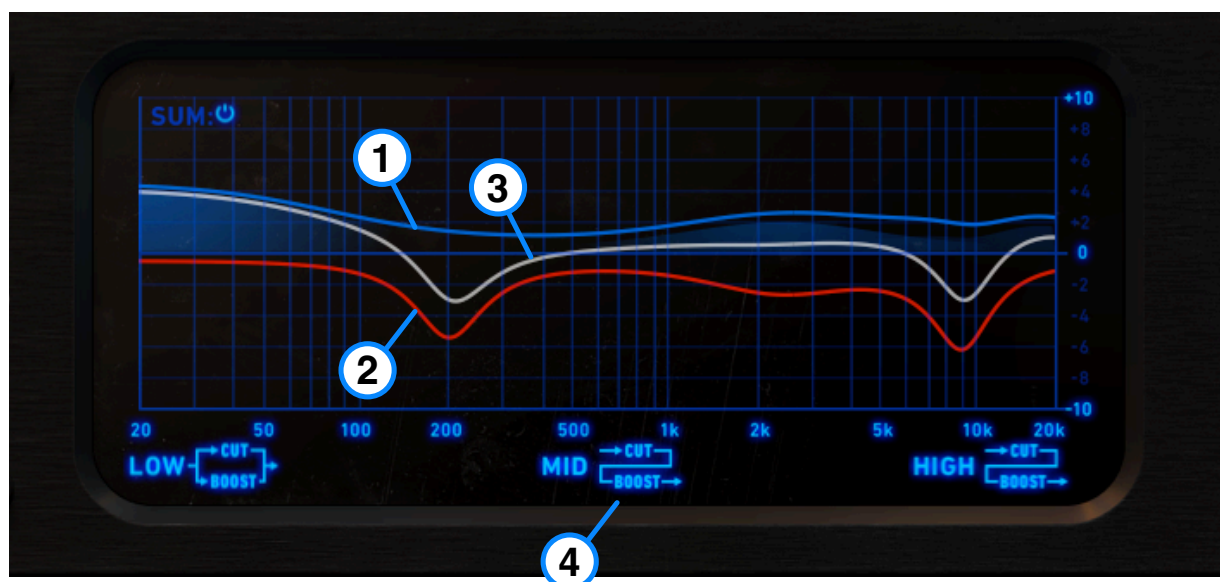
TO ACCESS EXPANDED VIEW: Simply toggle the icon  in the top right hand corner.



EQ CURVE DISPLAY

The heart of the Black Box Analog Design HG-Q is a topology where the bands interact with each other in complex ways. Using the built in analyzer on the plugin you will see that boosting or cutting on one band affects frequencies far outside its range. As you start boosting, cutting, adding saturation and switching between series and parallel, you will see that you can achieve wildly complex interactions and curves. This display shows you exactly what your boosts and cuts are doing and most importantly, the combined result.

TO ACCESS THE EQ CURVE DISPLAY: Simply toggle the  icon in the top right corner.



- ① **BOOST CURVE:** Shown in **BLUE**, the boost curve shows the curve of the current boost settings
- ② **CUT CURVE:** Shown in **RED**, the cut curve shows the curve of the current cut settings
- ③ **SUMMED CURVE:** Shown in **WHITE**, the sum curve shows the curve of the combined boost and cut settings. Saturation is shown in transparent blue.
- ④ **BAND CONFIGURATION:** Displays whether the band is in series or parallel configuration

AUTOMATION

The HG-Q system is a platform that allows for evolution and new features both from the software and hardware side. As such, not all possible features are fully implemented in the initial release. Automation is one of those features. You can already automate your hardware from the plugin but there are some limitations (explained below).

SUPPORTED

- **DAW AUTOMATION:** The current version of the Control Plugin allows you to write or record automation in your DAW for any of the parameters and the hardware responds as expected.

NOT SUPPORTED

- **RECORDING AUTOMATION FROM HARDWARE:** The current version of the Control Plugin does not allow for automation to be recorded from the hardware. It may work in some DAWs but it is not officially supported and may show unexpected behavior.
- **QUICK SELECTION OF AUTOMATION PARAMETERS:** In some DAWs the automation parameters will be incorrectly mapped when attempting to quick select them using keyboard shortcuts and the mouse.

TIPS FOR USING AUTOMATION

Since the HG-Q controls are stepped, it is unlikely that most users would want to create gradual automation curves and much more likely that they would want to change settings between sections or on the downbeat of a new section. While it is possible to automate each parameter individually, the large number of parameters and automation lanes required make it time consuming. **Luckily there is a solution! Banks!**

CREATING SCENES with BANKS: The HG-Q plugin gives you 4 banks for each preset. You can copy settings from one to another or have completely different settings and the ability to switch between them freely. This makes it very easy to compare settings but also makes it easy to create “scenes” with different settings. It is also incredibly easy to automate switching between banks with a single automation parameter.

EXAMPLE: You have a mix bus setting you love but want to give the chorus a bit more lift.

1. Use the “**copy**” button on the top toolbar to copy your settings
2. Click “**B**” in the banks section of the top tool bar.
3. Use the “**paste**” button to paste your settings from bank **A** to bank **B**.
4. **Adjust the settings of bank B** to where you want them for the chorus.
5. **Automate the bank changes** between A and B.

You can of course use all 4 banks and switch between them freely.