

# Black Box Analog Design HG-2 MS Plugin Manual



Plugin Developed by Brainworx Audio in partnership with  
Black Box Analog Design, distributed by Plugin Alliance.





# HG-2 MS

## Plugin Manual



### Intro - The original HG-2

There's good reason why celebrated mix engineers like Dave Pensado, and Bob Horn use the high-end Black Box Analog Design HG-2 tube processor on their mixes. The boutique stereo processor's multiple, diverse tube circuits not only make tracks sound richer and fuller, they also make them sound louder, bigger and punchier at the same peak level. Much more than a mere distortion box, the HG-2 can impart subtle harmonic coloration and sparkle without compromising fidelity, or add brilliant saturation that totally changes the character of a sound. And the best for last: The original HG-2 plugin comes free with HG-2 MS!

### Double the fun: The new HG-2 MS

With the HG-2 being one of the best selling color boxes on the market, we took it one step further and added a ton of new features that make the new HG-2 MS the perfect saturation unit for all your sonic needs. Whether mixing, mastering, or designing sounds, HG-2 MS's two independent channels, modelled using Brainworx's patent-registered "Tolerance Modeling Technology" (US Patent No. 10,725,727), give your

tracks an analog feeling you have to experience in order to believe. And with the advanced filter and saturation controls as well as M/S processing, the HG-2 MS helps you to control the affected frequencies and get the magic to happen exactly where you want it. And nowhere else.

Throw it on your master bus to add volume, air and character to your whole mix, use M/S processing and saturation to add some sparkle and texture to your overhead drums or just let your bass and guitar tracks roar: The HG-2 MS has you covered, everything while keeping your mix in balance using new features like 4 advanced Filter modes, Mono Maker, Stereo Width, Density Control, Calibration and much more!



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### Overview

A smorgasbord of assorted tube flavors, HG-2 MS emulates four different vacuum tube stages combined in series and parallel circuits to color your mix and individual tracks with a wide range of rich and varied harmonics. Separate gain controls for emulated 6U8A pentode and triode tubes are placed in series between buttery virtual transformers warming the plugin's input and output. Dial in the perfect blend of pentode and triode tube sweetness, then adjust the Density control to drive both tubes harder without changing their relative balance or the plugin's output level, adding more girth and mass. The Calibration menu emulates the effect of an internal trim adjustment in the original hardware unit, instantly modifying the HG-2 MS's high-frequency response to produce Dark, Normal or Bright coloration. An added Air knob lets you control how much high-frequency fairy dust you sprinkle on vocal tracks, string instruments, piano and full mixes. Turning down the Mix control adds back dry signal at the plugin's output, combining HG-2 MS's beautiful tube softness and luster with your mix's perfectly preserved detail and punch. With two independent channels, added M/S processing and advanced Filter controls you can dial in the exact point where you want the magic to happen.

### Version Differences

	HG-2	HG-2 MS	
Basic Features	Saturation	✓	✓
	Pentode	✓	✓
	Triode	✓	✓
	Air Lift	✓	✓
	Output	✓	✓
	Stereo Processing	✓	✓
	Bypass	✓	✓
Advanced Features	Individual Channel Control	○	✓
	M/S Processing	○	✓
	Solo Saturation	○	✓
	Saturation In/Out	✓	✓
	Advanced Filters	○	✓
	Alt Tube	✓	✓
	Advanced Metering	○	✓
	Output Link	○	✓
BX Module	Stereo Mode	○	✓
	TMT	○	✓
	Parameter Link	○	✓
	M/S	○	✓
	Density Control	✓	✓
	Calibration	✓	✓
	Mono Maker	○	✓
	Stereo Width	○	✓
	Parallel Mix	✓	✓
	Add. Output Control	○	✓





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### In Use

Two channels of two virtual 12AX7 tubes—each voiced differently—can be alternately driven in a parallel Saturation circuit to add tube sheen or blistering overdrive distortion to any frequency using the advanced variable Filter controls or across the entire frequency spectrum—great for shaping individual tracks, creative sound design and adding energy to full mixes. Using M/S processing you are even able to target the center or sides of a stereo signal, giving you perfect control over your mix.

The Saturation circuit's output feeds the pentode and triode tubes, giving you a massive combined effect that transforms thin, digital tracks into fat analog beasts. Drench just the bass and low-midrange frequencies in the Saturation circuit to grow a beard on a sterile bass track or add massive body and weight to a kick drum. Crank the pentode gain and dial in some crunchy AX7 tube saturation to make rock guitars sound bigger, louder, richer and in-your-face. Broaden a thin-sounding singer's low-midrange band with extra pentode gain, and push the triode tube and Air boost to make their track sparkle and shimmer.

Every type of tube colors sound differently. Every track and mix needs different coloration. HG-2 MS lets you create the perfect blend of tubes for the best-sounding mixes and individual tracks.

### Features

#### 1 Saturation In/Out

Brings the parallel saturation circuit in or out for each channel, Left and Right, M and S.

#### 2 Saturation

The two saturation pots adjust how much of the parallel saturation signal is fed into the main signal path for each channel, Left and Right, M and S.

#### 3 Solo Saturation

This button allows you to monitor only the saturated part of the signal. While switched on, the PENTODE, TRIODE, AIR, OUTPUT L/R M/S, MonoMaker and Stereo Width are turned off, because they would have no audible effect.





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### 1 Filter Type

#### — FLAT:

In the “FLAT” position, the full bandwidth is fed into the circuit, allowing for saturation of all frequencies. This essentially turns off the Filter.

#### ⤴ HIGH PASS:

Once activated, you are able to use a Highpass Filter to decide which frequency (Sat. Freq.) is processed by the saturation module. This is useful for only letting high frequencies be processed; useful for overhead drums or adding some airy texture to your track.

#### ⤵ LOW PASS:

Once activated, you are able to use a Lowpass Filter to decide which frequency (Sat. Freq.) is processed by the saturation module. This is useful for only letting low frequencies be processed; useful for bass tracks or giving your low ends a gnarly growl.

#### ⌒ BANDPASS:

Once activated, you are able to use a Bandpass Filter to decide which frequency (Sat. Freq.) is processed by the saturation module. This enables you to set a specific frequency band of processed frequencies.

#### ⌒ BANDSTOP

When this parameter is activated, you are able to use a Bandstop Filter to decide which frequency (Sat. Freq.) is processed by the saturation module. This enables you to set a specific frequency band of frequencies that stays unprocessed. This is useful if you want to, for example, keep your mids unaffected and clean while applying some gain to the low and high frequencies.





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### 2 Saturation Frequency (Sat. Freq.)

The “Sat. Freq.” knob is a simple yet powerful (double) feature that allows you to dial in frequencies that are processed by the parallel saturation circuit, for each channel separately.

This parameter goes hand in hand with the Filter Type (see above).

— in FLAT mode:

Since the Filter is inactive, no changes can be made and „OFF” is displayed.

↷ in HIGHPASS mode

The Sat. Freq. knob operates as a Cutoff Frequency for the Highpass Filter.

↵ in LOWPASS mode

The Sat. Freq. knob operates as a Cutoff Frequency for the Lowpass Filter.

∩ in BANDPASS mode:

The Sat. Freq. knob selects the frequency band for the Bandpass Filter.

∪ in BANDSTOP mode:

The Sat. Freq. knob selects the frequency band for the Bandstop Filter.

### 3 Q Factor / Slope Selector

This knob changes its function depending on the selected Filter Type.

If the Filter Type is FLAT, this option is turned off.

↷ in HIGHPASS mode:

The Slope Selector knob allows you to select different slopes of the filter.

These range between 6/12/18/24/30 dB/Octaves.

↵ in LOWPASS mode:

The Slope Selector knob allows you to select different slopes of the filter.

These range between 6/12/18/24/30 dB/Octaves.

∩ In BANDPASS mode:

The knob changes to represent the quality factor or ‘Q Factor’ of the Bandpass filter, and ranges from 0.1 to 1, allowing you to adjust the width of the band (0.1 being the widest value and 1 being the tightest).

∪ In BANDSTOP mode:

The knob changes to represent the quality factor or ‘Q Factor’ of the Bandpass filter, and ranges from 0.1 to 1, allowing you to adjust the width of the band (0.1 being the widest value and 1 being the tightest).





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### 1 Pentode

Pentode gain control for each channel, left or right. As pentode and triode are in series, the pentode gain also pushes the triode harder.

### 2 Triode

Triode gain control for each channel, left or right. As pentode and triode are in series, the sound of the triode also depends on the gain of the Pentode.

### 3 Alt Tube

The two “Alt tube” selectors switch between two sets of 12AX7 tubes in the parallel saturation circuit, for each channel separately. The “alt” tube is voiced slightly more aggressively, giving you a wider range of tones and saturation types. Note: This does NOT switch the Triode or Pentode, just the saturation tubes.

### 4 Air In

Enables or disables the high frequency “air” lift. This adds a bit of sparkle and emphasis on your high frequencies to ‘open up’ your mix.

### 5 Air Amount

The two rotary knobs select the amount of „air” applied for each channel.

### 6 Output

Since the HG-2 MS can be a beast, there is individual passive output attenuation for each channel, left or right.

Pro Tip: To help you cope with adjusting your output accordingly, we integrated the „Output Link” feature. Hold down the appropriate modifier key (see Modifier Keys on page 14) while adjusting the Pentode or Triode to automatically link your changes to the Output control. Try it!





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### Metering TMT

#### 1 Input

PPM / VU-36 dBFS -0dBFS

This meter shows the input signal. It is switchable between VU and PPM.

#### 1 Output

PPM / VU-36 dBFS -0dBFS

This meter shows the output of the processed signal. It is switchable between VU and PPM.





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### BX Module - Features not found in the hardware

#### 1 TMT Section

The HG-2 MS offers 20 different channels, made possible by TMT. TMT is Brainworx's patent-registered Tolerance Modelling Technology (TMT) (US Patent No. 10,725,727), originally found in the bx\_console line of plugins. It takes the real-world tolerances of audio components found in audio circuits into account, and offers various channels of analog audio which have realistic variances in frequency response, time constants in dynamic sections, etc. The result is digital audio that sounds as analog as possible, whereas even the L/R channels of a stereo instance will react slightly different. For more information please check [www.brainworx.audio](http://www.brainworx.audio)

#### 2 Stereo Mode

Toggles between using the same TMT channel for both units (Digital) and using two adjacent TMT channels (Analog).

This button is only available on Stereo instances, and is the heart of Brainworx's patent-registered Tolerance Modelling Technology (TMT) (US Patent No. 10,725,727). When ANALOG is activated, small inherent differences between the modeled componentry in each left and right channel will produce a pleasing, analog sound, as though one were working

between two adjacent channels on an actual console. With the button switched to DIGITAL, the two Stereo channels will be identical in circuitry, providing a theoretically perfect, digital Stereo sound.

#### 3 Channels

TMT, switches between 20 different channels. In a Stereo instance, two adjacent channel numbers will be displayed. Each channel has its own, different sonic character and can give your mixes an analog feeling!

#### 4 Random Channel

Whenever you instantiate a HG-2 MS plugin on a channel, it will start with the Default setup, which is Channel 1 in a flat setting. You can now randomize a channel by clicking the Random Channel button. Only the plugin instance you click on will switch to any unused channel number in that session randomly. The plugin will remember which channel numbers are already used in a session and activate an unused channel number, unless you engage more than 20 channels. At that point the plugin obviously would have to use a channel number that has already been used.



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### 1 Parameter Link

This enables or disables linking of parameters for Dual Mono and Stereo operations. When both parameters have different values and link is engaged, both parameter values remain unless one of them is touched and any control offsets between channels are lost. This is not to be confused with chain linking.

### 2 M/S

Engages Mid/Side processing. When this is set to On, the Left Channel processes the Mid (Sum) of both channels and the Right Channel processes the Side (difference) of both channels.

### 3 Density

Density adjusts input gain and compensates output gain to achieve a more dense signal while preserving loudness.

### 4 Calibration

The hardware is calibrated internally to a specific frequency response regarding the top end i.e. the amount of high frequencies is adjustable to some extent. The Calibration parameter reflects this behavior in three steps. This feature is very subtle and won't make any drastic changes to your sound.

### 5 Mono Maker

This tool is a critical component to several Brainworx processors, and it is an invaluable tool when mastering or tightening up a mix. Sweepable from 20 Hz to 2 kHz, this parameter folds the processed sound to mono at and below the frequency set. The most common setting is between 100-200 Hz, below which bass frequencies reside, where common practice deems that most sound should be mono. Other uses include folding an entire mix in order to check mono compatibility and avoid phase incoherency.

### 6 Stereo Width

Make your mix wider than it originally was by increasing the Stereo Width without losing the center of your recordings! You will not lose bass drum power or vocals by making your mix wider this way... and it will not sound different played back in mono at all. If you notice your Correlation Meter (e.g. bx\_meter) showing less than 90°, dial up the Mono Maker a bit to tighten up the low-end until acceptable levels are shown.





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### 1 Parallel Mix

Controls the amount of unprocessed signal being blended with the processed (compressed) signal, effectively providing the option of parallel compression.

100% = you'll only hear the processed signal.

0% = you'll only hear the unprocessed signal.

### 2 Output

Adjusts the total output of the stereo signal. Ranges from -12dB to +12dB.



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### Top Toolbar

#### 1 UI Scaling

Adapt the graphical user interface to the size and resolution of your screen. The plugin will check if the user interface will fit your screen before enlarging it. So if you accidentally chose a zoom factor which is too big for your current settings, the plugin will automatically stay at the maximum possible zoom factor.

#### 2 Settings (A/B/C/D)

The plugin offers four internal settings (A/B/C/D) which will be stored with every preset. So, one preset can contain up to four settings. You may use similar settings with more or less compression in one setup / preset. Now, the SETTINGS can be automated in your DAW! This way it's possible to use different sounds for your lead vocals or drums in various sections of the song. Automate the A/B/C/D settings, and you can still tweak knobs of the individual settings without overriding multiple parameters in your DAW, which would be time-consuming.

#### 3 Copy / Paste

To set up variations of similar sounds you don't have to dial in the settings several times. Let's say you like your setting A and want to use the same

sound, just with less compression, as setting B.

- Simply press Copy while you are in setting A.
- Switch to setting B by pressing 'B' in the settings section.
- Press PASTE, now setting B is identical to setting A.
- Reduce the compression on the B setting.

Now you can switch between A & B and decide which one sounds best or automate different settings for various sections of your session.

#### 4 Undo / Redo

You can undo and redo changes you made to the controls of the HG-2 MS plugin at any time. The Undo / Redo will work for as many as 32 steps.

#### 5 M/S Monitoring (for Stereo Channels only)

Solo M: Solos the Mid (Sum) signal being processed by the plugin.  
Solo S: Solos the Side (Difference) signal processed by the plugin.

#### 6 Input Gain

This serves as an additional input gain control.

#### 7 Icon

The icon closes and opens the bottom panel containing the Brainworx's plugin only features.



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### Bottom Toolbar

#### 1 PA Logo

Clicking the Plugin Alliance logo takes you to the Plugin Alliance website via your web browser, that's if your computer is online.

#### 2 License Type

The toolbar displays information about the type of license you're running: Trial licenses will be displayed along with the number of days until expiration; there is no note for full licenses as these are unlimited.

#### 3 \$ (Icon)

If you are using a demo / trial version of our products, you can always click this icon to open a browser that redirects you to the respective product page in the Plugin Alliance store. This is where you can easily purchase a product without having to look it up on our website.

#### 4 Key (Icon)

Clicking on the key icon brings up the activation dialog, allowing you to manually reauthorize a device in the event of a license upgrade or addition. You can also use this feature to activate additional computers or USB Flash Drives.

#### 5 ? (Icon)

Clicking the ? icon opens up a context menu that links to the product manual PDF, as well as other helpful links, e.g. to check for product updates online. You must have a PDF reader installed on your computer to be able to read the manual.



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### Modifier Keys

Tested with Logic Pro X, Protools, Cubase and  
Presonus Studio One Mac/Win.

#### AU

- Fine Control = Shift
- Jump between Default / Last Setting = Option
- Output Link = Command

#### VST / VST3

- Fine Control = Shift
- Jump between Default / Last Setting = Command (Mac), Ctrl (Win)
- Output Link = Option (Mac) / Alt (Win)

#### AAX

- Fine Control = Command (Mac), Ctrl (Win)
- Jump between Default / Last Setting = Option (Mac), Alt (Win)
- Output Link = Shift

### System Requirements & FAQ (Links)

#### For latest System Requirements & Supported Platforms

<https://www.plugin-alliance.com/en/systemrequirements.html>

#### Particular details for your product

<https://www.plugin-alliance.com/en/products.html>

#### Installation, Activation, Authorization and FAQ's

<https://www.plugin-alliance.com/en/support.html>



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### Artist Presets

The HG-2 MS includes artist presets from prominent Plugin Alliance users. The artist presets are accessed via the DAW application's preset menu.

Note: Switching through presets can occur sonic artifacts while the presets are loading.

#### **Eric Racy**

Eric Racy is a platinum selling mixer, producer, engineer and remixer with credits and clients that include Katy Perry, Pharrell, Tyga, Jonathan Davis, Akon, 2NE1, Ministry, Lil Wayne, Big Sean, Busta Rhymes, Photek and many more.

#### **Matt Weiss**

Matt Weiss is a Grammy-nominated, platinum recording and mixing engineer who's worked with artists like Akon, Swae Lee, Jeremih, Chris Brown, Sonny Digital, Nicky Minaj, Becky G, Anitta, Rick Ross, Farruko, and Ozuna.

#### **Michael Brauer:**

Michael Brauer (7 Grammy Awards) is easily among the world's most respected and influential mixing engineers. He has worked with a tremendous number of top-tier artists from Coldplay to Grizzly Bear, John Mayer to James Bay, Aretha Franklin to Luther Vandross, and so many more.

#### **Josh Gudwin:**

Josh Gudwin is a four-time Grammy-winning mix engineer, record producer, vocal producer, and musician who's worked with Justin Bieber, Rihanna, J Balvin, Dua Lipa, Juanes, Jennifer Lopez.







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