

Analog Sound Digital Recall



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ngTubeComp

User manual

EN

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Thank You for the purchase of **ngTubeComp**

Next Generation Tube Compressor with digital recall

With kind regards

Radoslaw Wesolowski and Michal Weglicki

Next Generation Tube Compressor with Digital Recall

For decades, vari-mu compressors have been revered for their smooth, musical compression and ability to add warmth and character to any recording. Our ngTubeComp builds on this iconic legacy, delivering an exquisite analog compression experience with the precision and convenience of modern digital recall. Whether you're working in dual mono, stereo, or mid-side mode, the ngTubeComp provides unparalleled versatility and control.

Embrace the perfect balance of timeless tonal richness and cutting-edge functionality, making the ngTubeComp an essential tool for shaping your sound with authenticity and ease. Experience analog craftsmanship, redefined for the digital age, with ngTubeComp.



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1 Main Features

- **Authentic Vari-Mu Tube Compression:** Delivers smooth, musical compression using a true analog vari-mu design, ideal for vocals, instruments, bus, and mastering applications.
- **Purely Analog Signal Path:** Features a fully analog audio path with high-quality components, preserving the integrity and character of your sound.
- **Six-Tube Architecture:** Equipped with six hand-selected tubes, the ngTubeComp brings unmistakable tube warmth, saturation, and depth to any source material.
- **Four Transformers:** features four Carnhill transformers—two in the input path for subtle analog coloration, and two in the output stage. Output transformers are active only in **RED mode**, adding rich tonal character. In **GREEN mode**, they are bypassed for a cleaner signal. This setup offers flexible control over the unit's sonic character.
- **Three Operating Modes:** Supports Dual Mono for independent channel control, Stereo for cohesive compression, and Mid-Side for advanced spatial shaping.
- **Dual Output Stages:** Offers both a tube-driven output stage (**RED Mode**) with a Carnhill transformer (including an IRON PAD for level matching) and an electronically balanced output (**GREEN Mode**) for clean, modern delivery.
- **Integrated Tube Saturation Circuit:** Includes a dedicated tube saturation stage within the compression path for adding harmonic richness and coloration.
- **Adjustable THD Control:** A continuously variable Total Harmonic Distortion (THD) control allows users to blend in subtle harmonic content or heavy saturation for creative tone shaping.
- **Multiple Compression Modes:** Select from classic Feedbackward mode, precise Feed-Forward mode, or Limit mode for enhanced dynamic control.
- **Advanced Sidechain Section:** Equipped with a high-pass filter and high-bell boost to fine-tune the compressor's response. Sidechain Listen mode lets users monitor the sidechain EQ path in real time.
- **Variable Attack and Release:** Fully adjustable attack and release times allow for precise tailoring of compression behavior across different material and applications.
- **+26dBu of Headroom:** Handles high-level signals with ease, preserving dynamic range and preventing unwanted distortion or clipping.
- **Integrated LCD Parameter Display:** A compact LCD screen that visualizes metering and parameter changes upon knob interaction.
- **Comprehensive Metering:** Integrated LCD and plugin metering for detailed input and output monitoring.
- **Hardware A/B/C Memory Settings:** Easily switch between three analog preset settings using simple buttons, even when using the ngTubeComp as a pure analog processor.
- **USB and Ethernet Connectivity:** Supports direct USB connection or network integration via Ethernet for versatile setup options.
- **Analog Automation Capability:** Draw automation lines in your DAW to control the analog device settings dynamically, with touch-sensitive encoders for recording automation back to your DAW.

2 Hardware

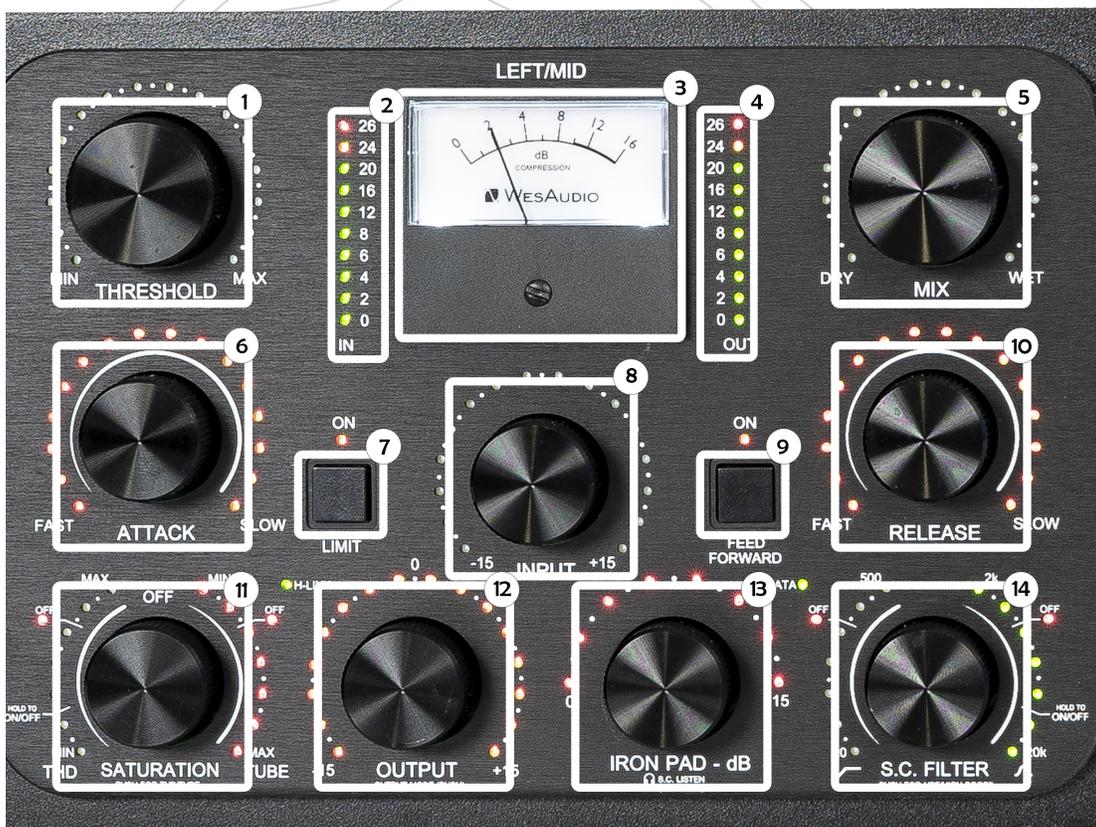
This chapter will go through all analog features and explain all hardware aspects of ngTubeComp.

2.1 Specification

THD + N (1kHz, 0dBu)	at 0dBu < 0.01%
Frequency Response	12Hz – 150kHz (-3dB)
Input Impedance	> 10kohm
Output Impedance	100ohm
Output Impedance (Iron)	150ohm
Noise	-90dBu (A-weight)
Crosstalk	100dB (1kHz)
Max Input Level	+26dBu
Max Output Level	+26dBu
Dynamic Range	>112dB
Attack	0.5 – 100 (ms)
Release	0.1 – 3 (s)
Sidechain Filter HPF	20 – 500Hz
Sidechain Filter H-Bell Boost	2 – 20kHz
THD	0% to 8%
Power Consumption (MAX)	45W
Unit Dimensions	135x483x252mm
Box Dimensions	274x550x382mm
Unit Weight	8,2 kgs
Box Weight	9.8 kgs
Warranty	2 years

2.2 Front Panel and Main Functions

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1. **Threshold:** Determines the level at which compression begins. It is continuously adjustable and sets the point where the input signal triggers gain reduction, providing precise control over the compressor's response. When the Threshold is set to max, compression is effectively bypassed, and the signal passes through uncompressed.
2. **In LED Metering (0 – 26dBu):** This meter provides a visual indication of the input signal level, ranging from 0 to 26dBu. It helps you monitor the strength of the signal entering the compressor, ensuring that it is neither too low nor too high, which is crucial for achieving optimal compression and avoiding distortion.
3. **GR (Gain Reduction) Analog Meter (0 – 16dB):** The gain reduction meter shows the amount of compression applied to the signal, measured in decibels (dB). With a range of 0 to 16 dB, it provides real-time feedback on how much the signal's dynamic range is being reduced, allowing you to fine-tune the compression settings for the desired effect, whether for subtle dynamic control or more aggressive limiting.
4. **Out LED Metering (0 – 26dBu):** The output meter displays the level of the signal after it has been processed by the compressor. With a range of 0 to 26dBu, this meter allows you to see how much the signal level has been adjusted, helping to ensure that the output maintains the desired level for further processing or playback.
5. **Mix:** Controls the blend between the compressed (wet) and uncompressed (dry) signals. This enables parallel compression techniques, allowing you to retain transients and natural dynamics while adding body and control.
6. **Attack:** Sets how quickly the compressor responds after the input signal exceeds the threshold. Adjustable from 0.5 ms to 50 ms, it allows fine-tuning for everything from fast transient control to slow, smooth compression curves.
7. **Limit:** Engages a limiting mode that tightens the dynamic range, offering more assertive and controlled gain reduction. Can be used in conjunction with either compression mode (Feed-Forward or Feedbackward).
8. **Input:** Adjusts the signal level feeding into the compressor circuit. Useful for driving the tubes and transformers harder for coloration, or for optimizing the signal level before compression is applied. Pushing and holding the Input knob for a moment will reset it to its default setting, allowing for quick restoration during setup or experimentation.
9. **Compression Modes:** This section defines the overall character of dynamic processing, allowing users to tailor the compressor's response for either smooth musicality or tighter, more controlled dynamics.
 - **Feed-Forward:** A modern compression style where the detector analyzes the input signal before compression, providing more accurate and responsive gain control.
 - **Feedbackward:** A classic vari-mu approach where the detector monitors the output signal, delivering smoother, more musical compression with a vintage character.
10. **Release:** Determines how quickly the compressor returns to unity gain after the signal falls below the threshold. Ranges from 0.1 s to 3 s, offering flexible control for tight or relaxed compression behavior.

- 11. Saturation:** Adds tonal coloration and harmonic depth to the signal, enhancing warmth, richness, and analog character depending on the selected saturation path.
- **THD (Total Harmonic Distortion):** The knob adjusts saturation levels from 0% to 100%. At 0% position (fully left), the THD circuit is bypassed.
 - **Tube:** Reconfigures the gain staging between the vari-mu compression tube and the output stage. The higher the parameter value, the stronger the signal hitting the compression tube — while maintaining the same compression level thanks to dynamic circuit adaptation.
- 12. OUTPUT Control:** Adjust OUTPUT level from – 15dB to +15dB in 0.25dB steps, with distinct parameters for RED and GREEN modes. Pushing the knob switches between RED and GREEN modes. For more information about OUTPUT parameter please refer to [OUTPUT Modes](#) chapter.
- 13. IRON PAD:** Engages a passive attenuation circuit, active only in RED mode, for gain attenuation between 0dB and 15dB.
- 14. Sidechain:** Shapes how the compressor reacts to incoming audio by modifying the detection signal, offering creative and technical control over compression behavior.
- **HPF (High Pass Filter):** Filters low-frequency content in the sidechain path to prevent over-compression from bass-heavy signals like kicks or sub-bass.
 - **High-Bell Boost:** Accentuates high frequencies in the sidechain path, increasing the compressor’s sensitivity to transients and brightness.
 - **Listen Mode:** Routes the sidechain signal to the output for monitoring, allowing precise tuning of sidechain filters and their influence on compression behavior. This function is activated when the **IRON PAD** button is pushed, enabling quick access for detailed sidechain analysis.

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The unit facilitates manipulation of internal presets stored in its memory through the middle panel. For comprehensive details on managing these presets, including saving, loading, and editing, please consult the [Internal Presets](#) chapter. This section provides in-depth guidance on maximizing the use of preset capabilities to enhance workflow efficiency and creative flexibility.

- 1) **Parameter Link:** Activating this button synchronizes adjustments across channels, ideal for stereo use. Adjustments are mirrored precisely across channels. To temporarily deactivate this linking, press and hold touch-sensitive encoders on both channels simultaneously. This functionality is exclusive to DUAL and MS modes and is inoperative in STEREO mode, where the Parameter Link button is automatically disabled. Pressing and holding this button for 2 seconds opens the PRESET MENU on the main display. For additional information, see the [Internal Presets](#).
- 2) **Mode Selection (DUAL/STEREO/MS):** This feature allows the selection of the unit's operational modes. For an in-depth explanation of each mode, please consult the [Modes Of Operation - Dual / Stereo / Mid-Side](#). In addition to mode selection, the DUAL and M/S buttons serve a dual purpose by facilitating the copying of settings between channels in DUAL and M/S modes. This function streamlines workflow by allowing quick duplication of settings from one channel to another, enhancing consistency and efficiency in processing. To activate this feature:
 - a. **Copy Channel Settings:** In DUAL or M/S mode, press and hold the DUAL button for two seconds until it begins to blink. This indicates that the unit is ready to copy the settings from one channel.
 - b. **Execute Copy:** While the DUAL button is blinking, pressing the M/S button will copy the settings from the current channel to the other, ensuring both channels match in their processing settings.

This method provides a quick and intuitive way to ensure consistency between channels, particularly useful in scenarios where starting points for adjustments need to be uniform before making further individual tweaks.

- 3) **Bypass Control:** Each channel is equipped with a true bypass. To toggle MUTE for a specific channel, press and hold this button for 2 seconds.
- 4) **The LCD display** enhances user interaction with real-time feedback and essential information:
 - a. **Parameter Visualization:** Immediately upon touching any encoder, the LCD screen displays the current value of the adjusted parameter. This instant feedback ensures precise control over the unit's settings.
 - b. **Event Notifications:** The screen also serves as an alert system for key events on the front panel, such as the connection of a plug-in, enhancing the user's awareness of the unit's status.
 - c. **Idle Mode Metering:** When not actively adjusting parameters, the LCD transitions to a metering mode, showcasing:
 - i. **IN Metering:** Displays input levels for each channel, ranging from 0 to 26dBu, allowing for real-time monitoring of signal input strength. Peak hold indicators are included to capture and display the highest recent input levels, aiding in precise gain staging.

- ii. **OUT Metering:** Shows output levels for each channel within the same 0 to 26dBu range, providing immediate feedback on the signal levels being sent from the unit. Peak hold indicators are included to capture and display the highest recent input levels, aiding in precise gain staging.
 - iii. **Gain Reduction:** Presents a clear, real-time view of how much compression is being applied to the signal on each channel. This dynamic metering allows users to accurately gauge the compressor's activity and fine-tune threshold and ratio settings for optimal dynamic control.
- 5) **Preset Memory Buttons (A/B/C):** Utilize these internal buttons to store and compare three distinct compressor settings, enabling straightforward comparison between setups. To copy any preset – please hold corresponding button unless it starts blinking, then just press preset button that you would like to overwrite.
- 6) **Power Toggle (POWER):** This switch toggles power to the unit.

2.3 Rear panel

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1. **AC Power Socket:** This is the designated point on the unit where the power cable is connected, linking the device to the main electrical supply. It's through this connection that the device draws alternating current (AC) power, essential for its operation. The socket is designed to accommodate the specific type of power cord that corresponds with the electrical standards of the region, ensuring the unit is powered safely and efficiently.
2. **Voltage Selector:** This feature provides the option to switch the unit's operating voltage between 115V (60Hz) and 230V (50Hz), catering to different regional electrical standards. It's crucial to use the correct fuses for the voltage setting you select to prevent damage. **Always replace the fuses with the appropriate ones before changing the voltage selector to match the mains electricity supply of your location. This ensures the unit operates within its safety and performance specifications.**

Failure to use the correct fuse may result in internal damage, blown components, or pose a safety risk. The correct fuse values and types for each voltage configuration are listed in the "[Voltage Selector and Fuses](#)" section of this manual. If you're unsure about the proper settings, consult a qualified technician or contact WesAudio support before powering the unit.

Digital Management Connections: The ngTubeComp facilitates digital management through two connection options:

3. **USB:** Features a USB2+ compatible port for GCon management.
4. **Ethernet:** Offers an Ethernet port for GCon management using the UDP protocol (LAN within a single subnet).

Please be aware that only one type of connection can be active at any given time. To use the Ethernet connection, ensure the USB cable is disconnected from the unit's rear.

5. **SIGNAL CONNECTORS** - each channel contains following signal connectors:
 1. **XLR IN** – Input signal via XLR cable,
 2. **XLR OUT** – Output signal via XLR cable,
6. **Serial Number.**

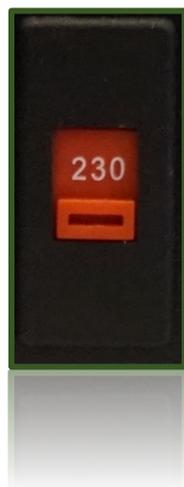
2.4 Audio Signal Connectivity

The ngTubeComp is a state-of-the-art device that marries the warmth and richness of analog signal processing with the precision and flexibility of digital control. This means that while your audio signal paths are purely analog, passing through the device via XLR connections on the back panel for pristine quality, the extensive range of the unit's functions and parameters can be meticulously adjusted through a digital management protocol. Each channel's input and output are facilitated through these XLR sockets, ensuring high-quality, interference-free audio transmission.

2.5 Voltage Selector and Fuses

2.5.1 Voltage Selector

The ngTubeComp can be configured to operate at either 230V or 115V. Please note that your unit is pre-configured for the specific sales region, including the appropriate fuse setup for either 230V or 115V. **If you need to change the voltage configuration using the power selector, make sure to also use the correct fuse for the new voltage setting.**

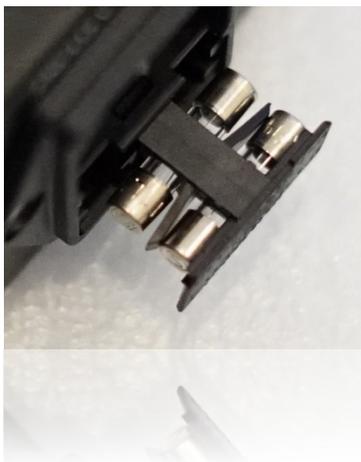


For proper operation, you can change the voltage and ensure the correct fuse is installed based on your voltage setting. Use:

- **630mA fuse (ZKT-0.63A) for 115V**
- **315mA fuse (ZKT-0.315A) for 230V**

Important: Incorrectly setting the voltage selector can cause severe damage to the unit and result in the fuse blowing. For example, if the voltage selector is set to 115V (60Hz) while connected to a 230V (50Hz) supply, the unit may experience overloading, leading to a blown fuse and potential harm to the device. Always double-check the voltage selector before powering on the device.

2.5.2 Spare Fuses



A spare fuse is included in the power supply, allowing you to quickly swap it with the primary fuse when needed.

2.5.3 Replacing the Fuse

In the event of a blown fuse, follow the instructions below to safely access and replace it.

Important: Ensure that the unit is powered off and the power cord is disconnected from the power source before proceeding.

2.5.3.1 Opening Fuse Holder

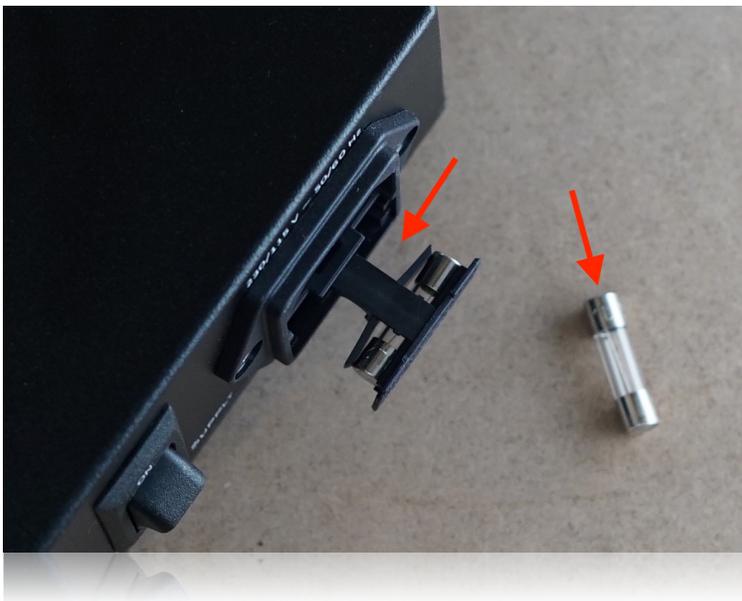
To open the fuse holder, use a small flat-head screwdriver.

1. Insert the screwdriver into the slot of the fuse holder.
2. Gently pull the fuse holder open, as illustrated in the image below.



2.5.3.2 Changing the Fuse

Once the fuse holder is open, proceed with the following steps:
Remove the blown fuse (marked with indicators) by gently pressing on it until it disengages and drops out of the holder, as shown in the picture below.



Take the spare fuse located in the adjacent slot and insert it into the position of the removed fuse.



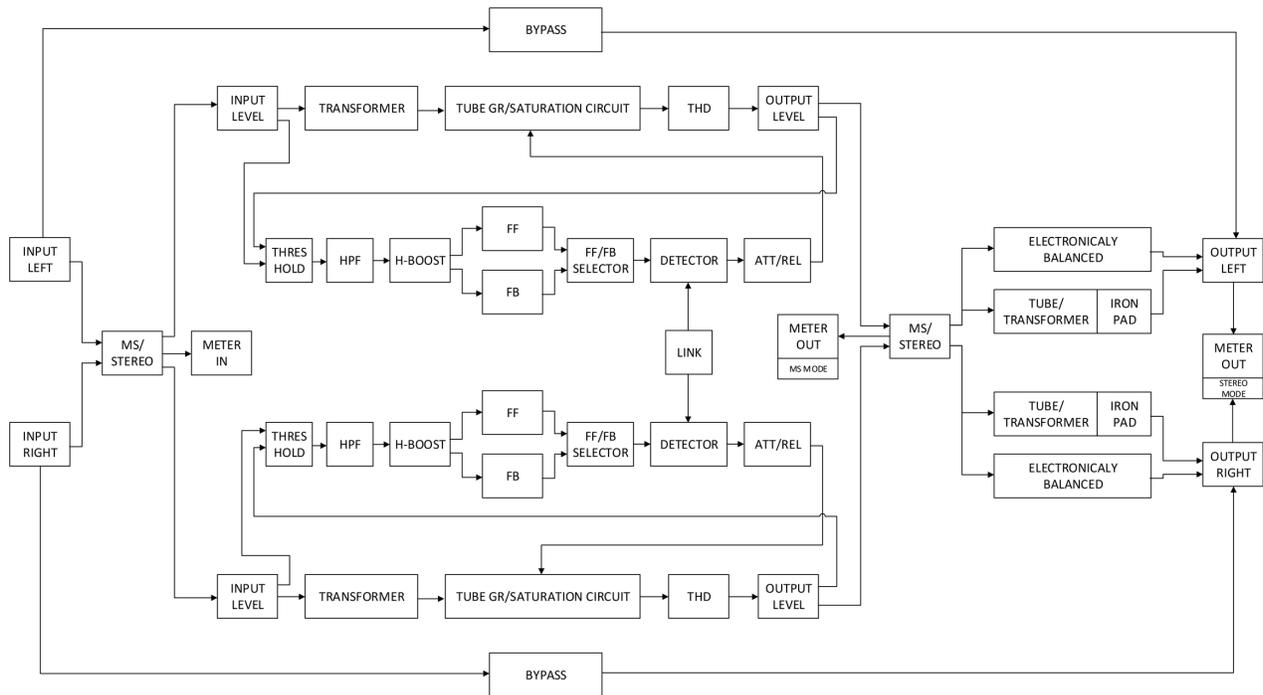
Close the fuse holder securely.

Your device is now ready for use.

3 Analog Processing

This chapter in depth describes the analog nature of ngTubeComp.

3.1 Analog Signal Flow



RELEVANT NOTES

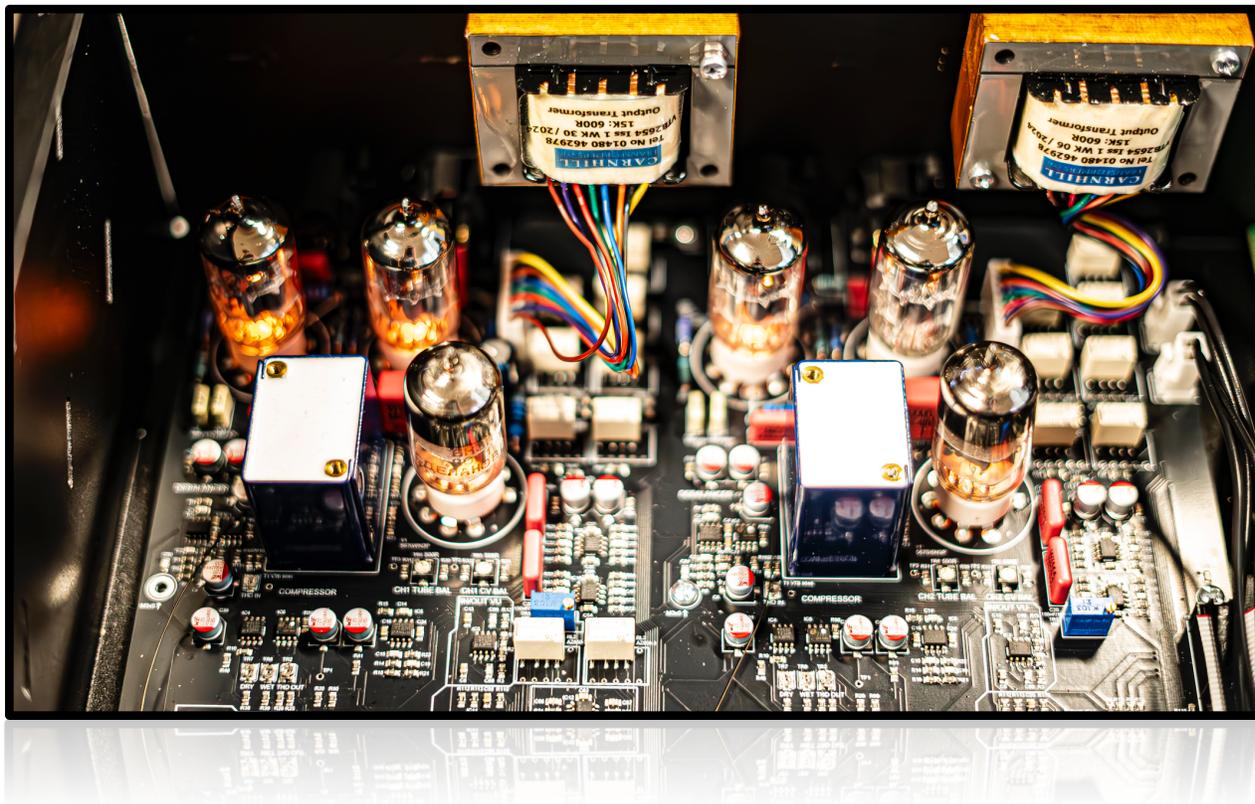
The ngTubeComp remains a fully analog device, where certain features can influence one another due to its integrated design. While further details are provided in subsequent chapters, the following summary highlights key considerations regarding how specific functionalities interact within the unit:

- Bypass Functionality:** Activating bypass directly connects the INPUT to the OUTPUT, rendering other features in the signal chain inoperative. For instance, the MUTE function will not work when bypass is enabled. If signal transmission occurs only in BYPASS mode, it's likely due to the INPUT from the interface being incorrectly connected to the INPUT of the device, instead of the opposite.
- IRON Mode in Mid-Side (M/S) Processing:** In Mid Side mode, the IRON mode's value is uniformly applied to both channels. Since the output transformer (symmetrization) operates in Left/Right mode, it is external to the Mid/Side processing domain.
- Metering in Mid-Side Mode:** Metering functions remain within the Mid/Side domain and are not influenced by the IRON PAD setting.
- IRON PAD Function:** Positioned as the last analog circuit before the output XLR connector, the IRON PAD allows for passive signal attenuation right before it exits the unit. This feature offers additional

control over transformer saturation depending on the incoming signal level. However, it's important to note that the IRON PAD setting does not affect internal clipping. For example, distortion from the Tube Amplification stage caused by excessively high levels will not be mitigated by adjusting the IRON PAD value.

3.2 Analog Processing Blocks

The ngTubeComp is equipped with a series of analog processing blocks, each meticulously designed to contribute distinct tonal characteristics and functionalities to the audio signal. These blocks represent the core of the ngTubeComp's capability to shape and enhance audio with precision, warmth, and flexibility. This chapter delves into the purpose and functionality of each analog processing block, offering insights into how they individually and collectively contribute to the ngTubeComp's revered sound.



3.2.1 Modes of Operation - Dual / Stereo / Mid-Side

The ngTubeComp is designed with versatility in mind, offering three distinct modes of operation: Dual, Stereo, and Mid-Side (M/S). Each mode tailors the unit's processing to different mixing and mastering needs, from individual channel adjustments to cohesive stereo or spatial manipulation.

1) DUAL Mode

DUAL mode is most commonly used for **dual-mono compression of a stereo source**, where both left and right channels are processed with identical settings but maintain **independent sidechain detection**. This provides natural stereo compression behavior with no stereo linking artifacts, making it ideal for mastering or material where stereo image integrity is critical.

In this configuration, **Parameter LINK** can be enabled to synchronize control changes across both channels—so adjusting one parameter applies the same change to the other—while still preserving the independent signal paths and detector circuits.

DUAL mode can also be used for **true independent processing** of two separate sources, such as individual mono signals. Each channel has its own compression, saturation, and output settings, offering maximum flexibility for creative or corrective applications.

2) STEREO Mode

STEREO mode enables **fully linked stereo compression**, where both channels are processed with identical parameters **and** share the same sidechain signal. While **Parameter LINK** remains active, all controls are equally applied to both channels in unison.

This mode ensures symmetrical dynamics and tonal balance, making it the preferred option for cohesive stereo bus processing or mastering where a unified dynamic response is needed.

3) M/S (Mid-Side) Mode

M/S mode transforms the stereo signal into **mid (center)** and **side (stereo difference)** components, allowing you to process them independently. This opens up powerful tools for spatial shaping, such as tightening the center while expanding or softening the stereo width.

In this mode, **Parameter LINK** can be used to adjust both components simultaneously (e.g., level or THD), while still allowing for independent dynamic behavior. M/S mode is especially effective for mastering, stereo field enhancement, and advanced tone shaping.

The first part of the circuit engages mid-side encoding if the unit is set to M/S mode; otherwise, the signal is routed directly to each channel as is. These operational modes greatly expand the ngTubeComp's utility in a mix, from detailed, channel-specific corrections in DUAL mode to broad, stereo-wide adjustments in STEREO mode, and nuanced spatial processing in M/S mode.

3.2.2 Vari Mu Compression

Vari-mu compression is a classic dynamic range control technique that uses the natural behavior of vacuum tubes to reduce signal level in a smooth and musical way. The term "vari-mu" (short for *variable mu*, or variable gain) refers to how the amplification factor (μ) of the tube changes in response to the input signal level.

How It Works

Unlike modern compression circuits that use precise voltage control or optical elements, vari-mu compressors leverage the nonlinear behavior of tubes. As the input signal increases, the tube's ability to amplify decreases—**automatically reducing gain in a gentle, program-dependent manner**. This creates a **very smooth and organic compression curve** that's highly musical and forgiving, especially on complex or transient-heavy sources.

What It Does to the Signal

Vari-mu compression subtly shapes transients and balances dynamics without sounding overly aggressive or clinical. It adds a **natural glue** to mixes and tracks, introducing a bit of tube saturation and harmonic richness along the way. This makes it a favorite tool in **mastering, vocals, drums, and bus processing**, where transparency and musicality are key.

The compression curve is typically soft-knee, and the time constants (attack and release) are often program-dependent—**reacting dynamically to the input signal** for highly adaptive control.

Why It's Important in ngTubeComp

In the **ngTubeComp**, the vari-mu tube isn't just part of the compression circuit—it's an integral part of the unit's sound. The **compression tube is always in the signal path**, even when no gain reduction is occurring. This ensures that the warm, rich character of tube coloration is always present, providing subtle harmonics and analog tone regardless of compression depth.

This design allows ngTubeComp to be used both as a compressor and as a **tube coloration/saturation unit**, giving engineers greater flexibility and sonic character in any mode—DUAL, STEREO, or MID-SIDE.

The **Tube** control on the front panel further enhances this by adjusting the **gain staging into the compression tube**, allowing you to shape how hard the signal hits the tube, without affecting the amount of compression thanks to an adaptive internal circuit.

In Summary

Vari-mu compression in ngTubeComp delivers the time-tested elegance of tube-based dynamic control with the flexibility and precision of modern hybrid design. It's not just about leveling peaks — It's about bringing **depth, color, and musical cohesion** to your signal.

3.2.2.1 Feedback Mode - The Classic Vari-Mu Approach

In traditional vari-mu designs, compression is implemented using a **feedback topology**—and this is also the **default mode in ngTubeComp**.

In a feedback compressor, the gain reduction control signal is derived from the output of the compression stage. This means the compressor reacts to what has already happened to the signal, allowing for smoother, more musical, and program-dependent behavior. The reaction is inherently adaptive, softening transients and leveling dynamics in a way that feels natural and unobtrusive.

This approach is ideal for musical material that benefits from transparent dynamic control, such as vocals, acoustic instruments, or full mixes, where the compression should follow the music, not lead it.

Because feedback mode is the foundation of vari-mu design, it maintains the **non-linear compression curve and soft-knee characteristics** that define the classic tube compressor sound.

3.2.2.2 Feedforward Mode – A Modern Twist on Vari-Mu Compression

While feedforward compression is more commonly found in VCA or digital compressors, **ngTubeComp introduces a unique feedforward mode** specifically adapted for vari-mu topology—a **rarity in analog designs**.

In a feedforward compressor, the control signal is derived before the gain reduction stage—meaning the compressor reacts to the input signal rather than the output. This generally results in a faster, more precise, and assertive response. However, in classic vari-mu designs, a simple feedforward implementation often leads to undesirable behavior, such as artifacts, instability, or even "**negative compression**" (where louder signals are unintentionally boosted).

To overcome these challenges, we developed a **custom logarithmic compression curve** that compensates for the natural non-linearity of the vari-mu tube. This innovative approach **eliminates artifacts** and delivers a **cleaner, more controlled compression character**, all while preserving the tube warmth and musicality expected from the ngTubeComp.

Feedforward mode is ideal when more **precise or modern dynamic control** is desired—such as for **drums**, percussive sources, or aggressive vocal compression—without sacrificing the analog depth and character.

3.2.3 How to Disable Compression

To effectively bypass compression on the ngTubeComp, set the **Threshold** control to **0**. At this setting, the compressor does not apply gain reduction, allowing the input signal to pass through unaltered. This is useful when you want to utilize the unit's other features, such as tube saturation or tonal coloration, without engaging compression.

3.2.4 Saturation Stages

The ngTubeComp features two analog saturation stages designed to enrich the audio signal with harmonic content and analog warmth. These stages—THD (Total Harmonic Distortion) and Tube (Gain Staging)—work independently within the signal path, allowing engineers to shape tonal character with precision and musicality.

These stages are always active in the signal path, regardless of compression activity, offering flexible ways to introduce subtle harmonic coloration or more pronounced analog saturation as needed.

3.2.4.1 THD – Total Harmonic Distortion

The Total Harmonic Distortion (THD) feature represents a pivotal first analog block within the signal chain of the ngTubeComp, renowned for delivering rich, controllable saturation through a proprietary circuit by WesAudio, a design highly esteemed within the audio industry.

Key Characteristics of THD:

- **Fully Variable Control:** The THD knob allows for seamless adjustments from 0% to 100%, offering a wide range of saturation effects.
- **Harmonic Content Enrichment:** As the THD setting is increased, it incrementally adds more harmonic content to the signal. This capacity for enrichment helps in giving tracks a noticeable presence boost, a quality frequently sought after by engineers for making elements stand out in a mix.
- **Compensation for Unity Gain:** Despite the significant volume boost provided by the THD, the ngTubeComp intelligently compensates for this increase through output volume adjustments. This automatic compensation ensures that the unity gain is maintained, allowing for the saturation effect to be enjoyed without altering the overall level of the track.

The THD feature in the ngTubeComp thus stands out as a versatile tool for engineers looking to imbue their tracks with warmth, character, and presence. With its fully variable control and sophisticated design, it provides a level of saturation that can significantly enhance the sonic quality of music productions, backed by the reassurance of maintaining unity gain throughout the process.

3.2.4.2 Tube - Vari-Mu Drive Control

The Tube parameter controls gain staging between the input signal and the vari-mu compression tube, affecting how hard the signal hits the tube stage. Unlike THD, this stage is directly tied to the compression section, but it remains active in the signal path regardless of whether gain reduction is taking place.

Key Characteristics:

- **Signal Drive Control** – Increasing the Tube value raises the level sent into the compression tube, resulting in more tube saturation and coloration—even if compression settings remain unchanged.
- **Adaptive Circuit Design** – The ngTubeComp includes an internal dynamic compensation circuit, which maintains a consistent compression level even as drive is increased. This allows users to dial in saturation without altering the gain reduction behavior.
- **Always in the Path** – The vari-mu tube stage is always active in the audio path, ensuring that the sonic character of the tube is present at all times, contributing natural warmth and subtle harmonic enhancement.

This control is especially useful for shaping tone in a mastering context or for bringing out musical color in individual tracks or buses without necessarily increasing compression depth.

Together, the THD and Tube stages form a powerful analog saturation toolkit—offering creative and technical control over harmonic content, saturation behavior, and tonal color, while preserving transparent gain structure and musical dynamics.

3.2.5 Input, Output, and Tube - Shaping the Signal Flow

The **ngTubeComp** offers detailed control over the signal path through three essential parameters: **Input**, **Tube**, and **Output**. Together, these controls allow for a wide range of tonal shaping, from subtle dynamic sweetening to rich, saturated compression.

- **Input** adjusts the level of the signal entering the compressor.
- **Tube** manages the drive level into the vari-mu compression stage.
- **Output** sets the final level after compression and saturation.

Both the **Input** and **Output** knobs offer a range of **±15 dB**, providing ample flexibility for gain staging in various production or mastering contexts.

What sets the **ngTubeComp** apart is the addition of the **Tube** control, which also provides **±15 dB** of dynamic gain staging **into the compression tube**. This parameter is governed by an **adaptive compensation circuit**, which ensures that increasing the drive into the tube does not affect the overall amount of compression being applied. This allows users to shape the tonal character and saturation without altering the compression depth.

When used together, **Input**, **Tube**, and **Output** provide up to **+30 dB of gain staging flexibility**, allowing for highly creative and musical manipulation of dynamics and tone. Whether you're gently warming a vocal or pushing a drum bus into lush tube saturation, these controls give you the tools to dial in exactly the sound you want.

All three parameters are also **fully automatable**, enabling precise and expressive dynamic changes throughout your mix or master.

3.2.6 Sidechain Filters

The ngTubeComp features an advanced and highly flexible sidechain section, giving engineers precise control over how the compressor reacts to incoming signals. This section is crucial for shaping compression behavior, allowing nuanced dynamic processing that adapts to a wide range of material—from vocals and drums to full stereo mixes.



High-Pass Filter (HPF)

A continuously variable high-pass filter is built into the sidechain path to manage low-frequency energy. By attenuating the sub-bass region from 20Hz to 500Hz in the detector circuit, the HPF prevents the compressor from overreacting to powerful low-end sources such as kick drums or bass guitars. This helps maintain mix clarity and avoids unwanted "pumping" effects, especially in stereo or bus compression scenarios.

High-Bell Boost

The High-Bell Boost adds emphasis to the high-frequency content in the sidechain signal, operating across the 2kHz to 20kHz range. Increasing sensitivity to higher frequencies allows the ngTubeComp to respond more actively to transient-rich elements such as vocals, cymbals, or sibilance. This is especially useful when subtle dynamic control is needed in the top end, enhancing presence and articulation without sacrificing warmth.

Together, these features provide powerful tone-shaping capabilities within the compression circuit. Whether you're going for transparent control or creative coloration, the ngTubeComp's sidechain section gives you the tools to shape the dynamic response with confidence and finesse.

3.2.7 Sidechain Listen Mode

To fine-tune the sidechain settings with precision, the ngTubeComp includes a dedicated Sidechain Listen Mode. When engaged, this function temporarily routes the sidechain path – including any applied High Pass Filter (HPF) or High-Bell Boost to the output, letting you hear exactly what the compressor is “listening to.”



This real time monitoring makes it easy to adjust the sidechain EQ by ear, ensuring the compressor responds precisely to the most relevant frequency content. Once you've set the sidechain to your liking, simply disable Listen Mode to return to normal audio monitoring.

Listen Mode can be activated in two ways:

- On the hardware unit, press the **IRON PAD** to toggle Listen Mode on or off.
- In the plugin interface, simply click the **headphones icon** to toggle Listen Mode on or off.

3.2.8 OUTPUT Modes

The ngTubeComp is designed with two distinct output stages, each offering a unique character and signal path to suit different audio engineering needs and preferences. These stages are color-coded for ease of reference and operation: GREEN for an electronically balanced output and RED for a tube amplification stage followed by transformer symmetrization and a passive attenuation circuit. Here's a more detailed look at each:

1) GREEN Output Stage: Electronically Balanced

The GREEN output stage provides an electronically balanced signal path. This stage is characterized by its clean, transparent sound. It maintains the integrity of the audio signal with minimal coloration, ensuring a pure, unaltered output. This setting is ideal for applications requiring pristine sound quality and accuracy, making it suitable for critical listening environments and scenarios where the natural sound of the source material needs to be preserved.

2) RED Output Stage: Tube Amplification with Transformer Symmetrization and IRON PAD

The RED output stage introduces a more complex and character-rich signal path:

- **Tube Amplification Stage:** This initial stage of the RED path adds the harmonic richness and warmth often associated with tube circuits. The tube amplification can introduce subtle to noticeable saturation effects, depending on how hard the stage is driven, adding depth and character to the audio signal.
- **Transformer Symmetrization:** Following the tube stage, the signal passes through a transformer symmetrization circuit. Transformers are known for their ability to add weight and warmth to the signal, further enhancing the output's sonic character. This stage also contributes to the overall tonal balance and can induce subtle nonlinearities that enrich the sound.
- **Passive Attenuation Circuit (IRON PAD):** The final stage in the RED output path involves a passive attenuation circuit, known as the IRON PAD. This circuit consists of a set of resistors controlled via a relay cascade, allowing for attenuation ranging from 0 to 15dB. The IRON PAD enables the user to aggressively drive the tube and transformer stages for increased saturation and character while still having the ability to dial back the output level. This ensures that the subsequent stages in the signal chain are not overloaded, providing control over the signal's dynamic range without compromising on the desired tonal character.

Together, these stages offer the ngTubeComp user a flexible and creative toolkit for shaping audio signals, whether the aim is to maintain the utmost fidelity to the source or to imbue the signal with the distinctive warmth and richness that only tubes and transformers can provide.

3.2.9 Thump - What?

In traditional vari-mu compressors, "**thump**" or "**thumping**" is a known phenomenon caused by a small amount of side-chain control voltage leaking into the audio path. This typically results in subtle low-end modulation or "pulsing," particularly noticeable on bass-heavy or sustained low-frequency material.

This effect is often the result of **slight mismatches between tube characteristics**, and while it can be musically pleasing in some contexts—adding a bit of low-end movement or saturation—it may be considered undesirable in more delicate or transparent applications like solo acoustic instruments or soft vocals.

In the case of **ngTubeComp**, we've made significant improvements to reduce this effect to **almost imperceptible levels**. Through refined tube matching, tighter internal tolerances, and optimized circuit design, **thumping is no longer a typical concern** during regular use.

That said, in some rare cases—depending on the source material, compressor settings (especially long release times), and monitoring environment—a **subtle thump may still be audible**. If so, it's not a fault, but rather a characteristic of vari-mu behavior at extreme settings.

To minimize this further:

- Try **raising the input level** slightly.
- **Adjust attack and release times** to reduce low-frequency modulation.
- Consider using DUAL mode for independent channel behavior if stereo-linked control enhances the effect.

Overall, **ngTubeComp's architecture makes thumping a non-issue for most use cases**, but we include this section simply to raise awareness for engineers who value complete sonic transparency.

3.2.10 Interdependencies of Analog Features

The ngTubeComp is a fully analog device where certain features can interact with one another due to its integrated design. While additional details are covered in subsequent sections, the following summary outlines key considerations regarding how specific functionalities within the unit interact:

- **Bypass Functionality:** Activating bypass directly connects the INPUT to the OUTPUT, making other features in the signal chain inoperative. For example, the MUTE function will not be effective when bypass is engaged. If the unit only transmits a signal in BYPASS mode, this may indicate that the INPUT from the interface has been incorrectly connected to the INPUT of the device, rather than to the OUTPUT.
- **IRON Mode in Mid-Side (M/S) Processing:** In Mid-Side mode, the IRON mode applies the same value to both channels. Since the output transformer (used for symmetrization) operates in Left/Right mode, it functions outside the Mid/Side processing domain.

- **Metering in Mid-Side Mode:** Metering remains within the Mid/Side domain and is not influenced by the IRON PAD setting.
- **IRON PAD Function:** The IRON PAD is the final analog circuit before the output XLR connector, allowing for passive signal attenuation just before it exits the unit. This feature provides additional control over transformer saturation based on the signal level. However, it is important to note that the IRON PAD setting does not prevent internal clipping. For instance, distortion from the transformer saturation caused by excessively high input levels will not be alleviated by adjusting the IRON PAD value.

3.3 Analog Features

3.3.1 Mute

The Mute function allows for the complete silencing of one or both channels. When the Link parameter is enabled, muting applies to both channels simultaneously. In M/S mode, the Mute function can be used to mute either the Mid or Side channel independently, allowing to hear only the Side or Mid channel for more focused processing and creative control over the stereo field.

3.3.2 Iron Link

Another innovative feature of the ngTubeComp is the ability to link the IRON PAD with the OUTPUT control when in IRON mode. This can be done:

- through a dedicated GUI control.
- by touching both the OUTPUT and IRON PAD encoders simultaneously.

This functionality enhances sound sculpting capabilities by allowing precise management of gain staging, enabling creative saturation and distortion effects while maintaining unity gain.

How the Link Feature Works

When engaged, the link ensures that adjustments to the OUTPUT level are mirrored by corresponding changes in the IRON PAD attenuation. This allows users to drive the transformer stage more aggressively for increased saturation or harmonic enhancement, without altering the overall output level. Essentially, you can achieve a more saturated, character-rich signal from the transformer stage without increasing the output volume, preserving the balance of the mix.

Creative Applications

This feature is especially useful for engineers looking to enhance the character and texture of a track or mix without altering its overall mix level. By driving the signal harder into the transformer stage, users can achieve added warmth, richness, and subtle harmonic coloration, all while maintaining a consistent output level. This allows for increased saturation and tonal enhancement without affecting the track's placement in the mix.

3.4 IRON PAD Mix Compensation

The **ngTubeComp** includes an **IRON PAD** attenuation stage at the very end of the signal path, after the signal has been fully processed and balanced. As this attenuation occurs *after* the MIX circuit, it is not affected by the MIX knob in its default configuration.

Why This Matters:

When using ngTubeComp in parallel compression workflows, the MIX control adjusts the balance between the compressed signal and the dry path. However, since the IRON PAD is outside of this path, it continues to attenuate the full processed signal—**regardless of the MIX setting**. For example, if you're compressing a signal, raising the output to match the loss from compression, and then attenuating the result using IRON PAD by -8 dB, the overall signal may appear **unity gain** when toggling bypass. But once you dial the MIX to 50%, only *half* the output is reaching the listener—so the perceived level drops by ~4 dB, as IRON PAD remains fixed at -8 dB.

3.4.1 Using IRON PAD Mix Compensation

The GConManager CONFIG app offers an **IRON PAD Mix Compensation** option to ensure consistent output levels when using the MIX control.

When enabled:

- The IRON PAD attenuation dynamically follows the MIX value.
- For example, if IRON PAD is set to -8 dB and MIX is at 50%, IRON PAD will be automatically set to -4 dB.
- This ensures **consistent perceived level** when adjusting the MIX control, making parallel processing more intuitive and gain-consistent.

Important Notes:

- **Automation Warning:**
If the MIX knob is automated while IRON PAD Mix Compensation is active, **relay switching** may introduce **clicks or minor audio artifacts**. For automated workflows, it is recommended to **disable** this feature.
- **Clicking Behavior:**
Changing the MIX knob while IRON PAD Mix Compensation is active may result in **audible relay clicks**, which are normal but may be confusing.
- **IRON PAD Step Resolution:**
When the MIX is set to lower values (e.g., 50%), not all IRON PAD steps will be reachable. This is due to the proportional scaling of the attenuation range.

WesAudio GCon System v15.0.4508 - Connection Type: service

_TITAN 200
_S1_PROMETHEUS 9407
_S3_PANDORA 10069
_S6_MIMAS 1000
_S7_PHOEBE 10694
_S8_PHOEBE 10693
_S9_RHEA 6425
_TITAN 7113
_S3_MIMAS 10700
_S4_MIMAS 10196
_S5_HYPERION 72
_S7_DIONE 7
_S9_CALYPSO 400

ngTubeComp 9879
ngTubeEQ 10849



ngTubeComp
ID: 9879

WESAUDIO

Firmware v15.0.4508 | ACTIVE UP TO DATE
HW VERSION: 1 CONNECTION: USB UPTIME: 0:12

REBOOT UPGRADE WITH UPGRADE

ID 9879
DHCP ON
IP 0.0.0.0
MAC 80:34:28:42:48:e4
UDP PORT 9020
LEDs TOUCH Mode HIGH Power / HIGH Resolution
Meter Light MODE MED
IRON PAD MIX Compensation OFF
 ON

BACK CANCEL APPLY

4 Software Setup

The WesAudio software package is accessible for download to all purchasers of the corresponding hardware unit at <https://www.wesaudio.com/download>.

<https://www.wesaudio.com/download>



For information on supported plugin types and platforms, please refer to the provided link.

4.1 Installation Process

To initiate the installation of the WesAudio software package, navigate to <http://www.wesaudio.com/download> and download the latest version of the software.

4.1.1 For Windows Users

- **Initial Installation:** Before beginning the installation, ensure that all WesAudio devices are disconnected from your computer.
- **USB Driver Installation:** Upon installing the USB driver, a notification will prompt you to connect all WesAudio devices. Please connect the devices as instructed.
- **Computer Restart Request:** Installation of the USB driver may necessitate restarting your computer. Although restarting is generally inconvenient, it is a crucial step to ensure successful installation of the USB driver.
- **Post-Restart:** After restarting, the installer should automatically resume. If the installer does not restart on its own, please manually reopen the same installer to continue the process.

4.1.2 For OSX Users

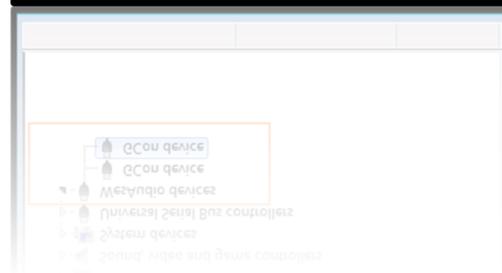
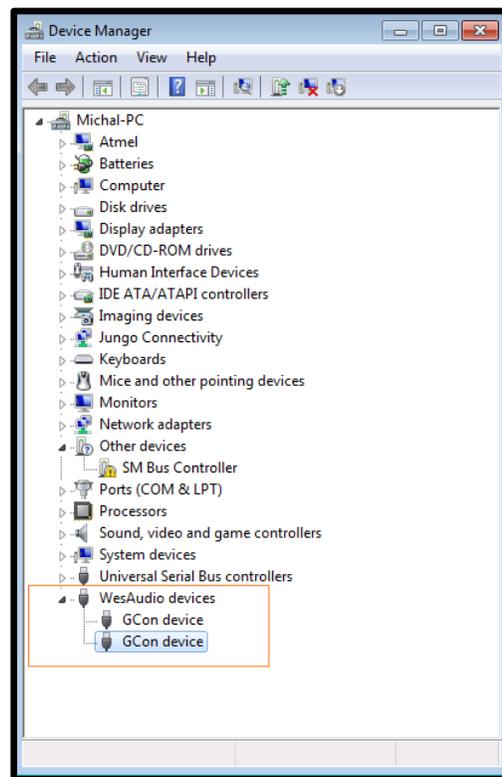
Due to the simpler nature of OSX architecture and its handling of USB devices, the primary consideration is to ensure all devices are connected before beginning the installation process. Once you initiate the installer application, you might encounter system warnings regarding the installer. In such cases, please disregard these warnings*. If necessary, you can bypass these warnings by accessing the context menu through an 'Option' click (or right mouse click) and initiating the installation process again.

4.1.3 Troubleshooting

If you encounter any issues during the installation process, please reach out to our support team at support@wesaudio.com, and we will respond promptly to assist you.

Below is a common issue along with suggestions that might help in diagnosing the problem:

- Issue: "Can't find my device in the plugin dropdown menu"
 - This problem can stem from multiple causes. On Windows, a critical step is to verify that the USB device is successfully recognized at the system level. You can check this in the "Control Panel -> System -> Device Manager."
 - **Important for Windows Users:** Installing the USB driver is essential for the hardware units to communicate with the software. This step is mandatory only during the initial installation. The driver installation option will be automatically disabled for any subsequent software updates.



4.2 GCon Manager

The GConManager is a versatile application designed for configuration management across compatible devices. It is located within the Application folder data:

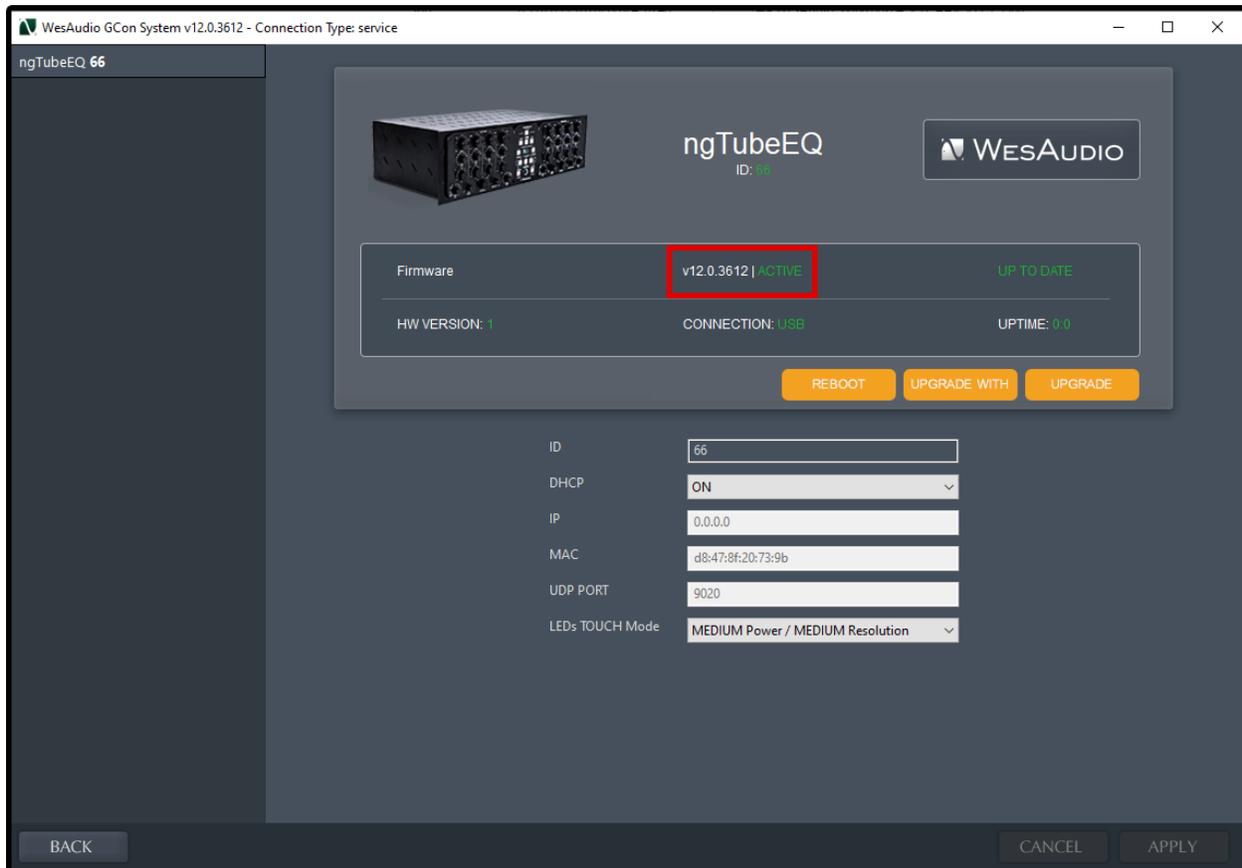
- **For OSX:** Access it at “/Applications/WesAudio/GConManager.”
- **For WINDOWS:** Find it in the folder chosen during the installation phase, typically “c:/Program Files x86/WesAudio/GConManager.exe” by default.

Main Features:

- **Firmware Updates:** Easily upgrade your device's firmware to the latest version.
- **Configuration Settings:** Modify unit settings, such as IP address configuration, to suit your needs.
- **Diagnostics:** Run diagnostic tests to ensure your unit is functioning correctly.
- **External Controller Setup:** Configure external controllers, for instance, for the ngLeveler.
- **Standalone Operation:** Control units directly without the need for a DAW (Digital Audio Workstation).

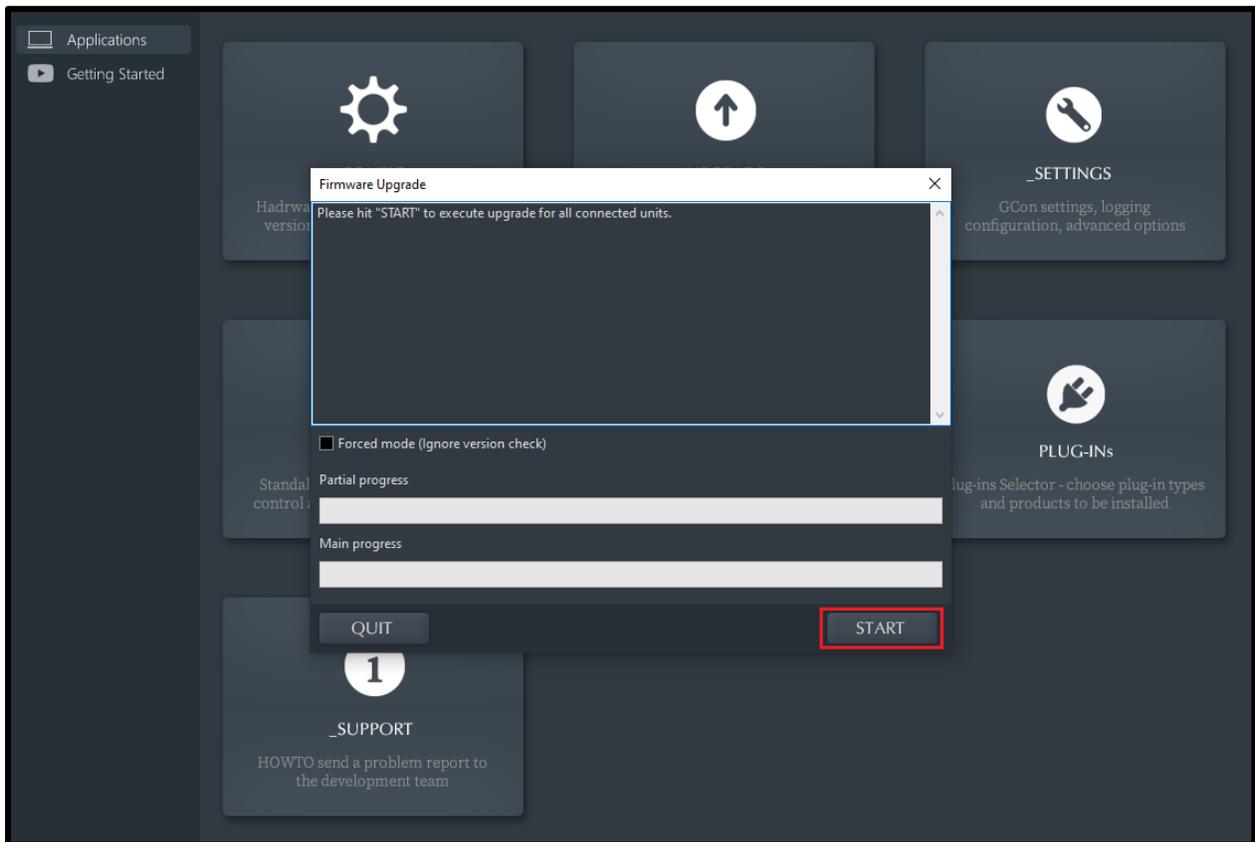
4.3 How to check Firmware version

Each device communicates its firmware version to your workstation, establishing compatibility between your host application and the connected device. To verify or perform a firmware upgrade, please use the GConManager_CONFIG application. Additionally, the firmware version is displayed on the device's LCD screen immediately upon startup.



4.4 How to perform firmware upgrade

To update the firmware, navigate to the GConManager UPGRADE section and press the “Start” button. This initiates the update process for any modules that are not currently aligned with the latest version of your host software.



4.5 Set up GCon Connection

This chapter outlines potential setup configurations and details the primary steps for configuration.

It's important to recognize that audio signals should be transmitted through XLR connectors. The USB and Ethernet ports are designed solely for managing unit configurations using the GCon Protocol.

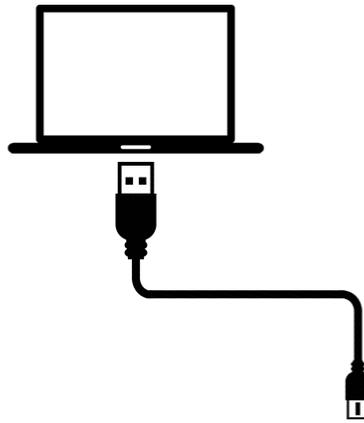
Broadly speaking, the ngTubeComp supports two types of connections:

- **USB 2.0** or higher.
- **Ethernet 10/100**, utilizing the UDP protocol for LAN within a single subnet.



4.5.1 USB

To directly link your ngTubeComp unit to your workstation, simply use a USB cable to connect it to any available USB 2.0+ port on your computer.

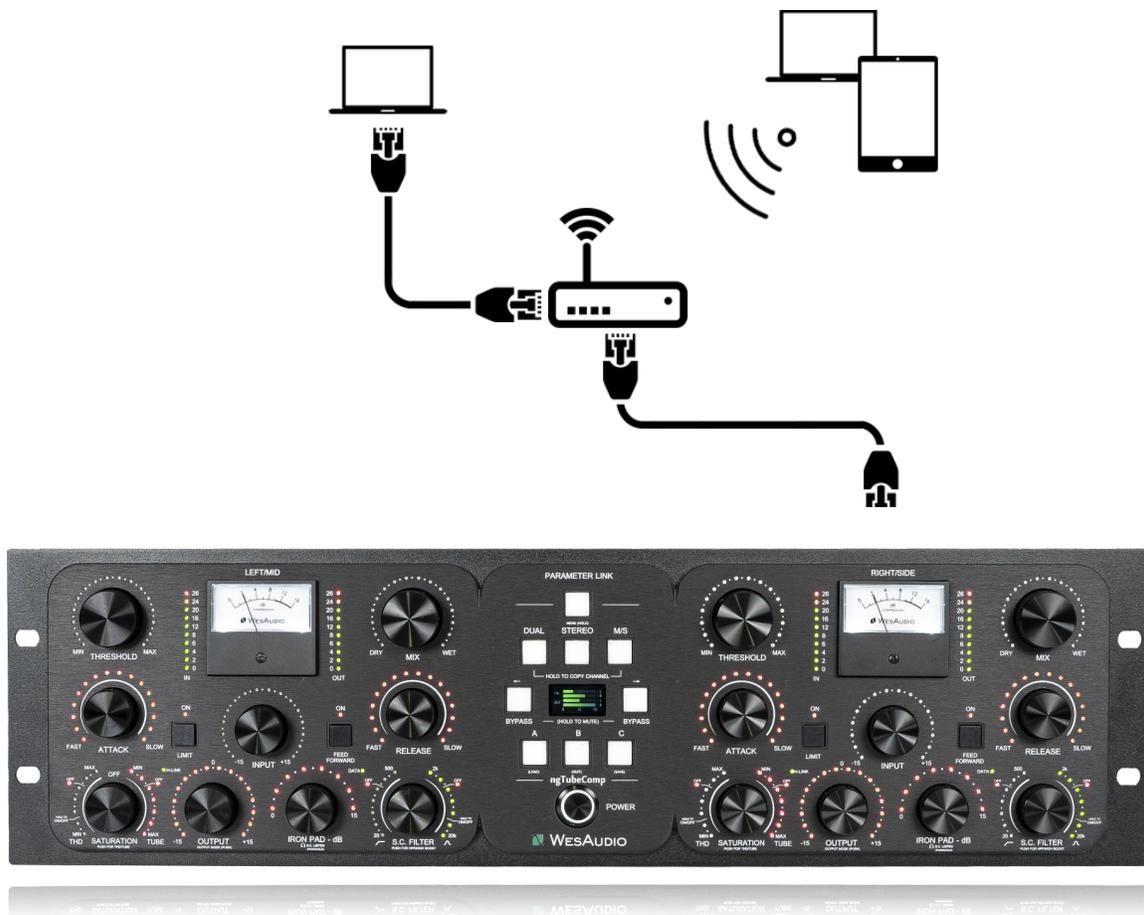


4.5.2 Ethernet

The ngTubeComp, like any network-enabled device, offers flexibility in connectivity to your workstation through the following methods:

- **Local Area Network (LAN) Connection:** By integrating the ngTubeComp into your LAN, it becomes accessible from various devices within the network, allowing for versatile placement and usage within your studio environment.
- **Direct Workstation Connection:** For a straightforward setup, the ngTubeComp can be directly connected to your workstation. This method is ideal for simple, one-to-one configurations without the complexity of a network.

In certain scenarios, it might be necessary to manually assign IP addresses to both your workstation and the ngTubeComp to ensure proper communication and functionality. The following illustrates a typical setup within a local area network, showcasing how different devices can interact with and utilize the ngTubeComp's features:



(* In case you would like ngTubeComp to join already existing network, most probably your workstation has IP address already set up through static configuration entry, or through DHCP (by your router).

4.5.3 Default network configuration via DHCP

Each ngTubeComp unit is set to utilize **DHCP by default**, making it straightforward to connect your ngTubeComp to your router—simply plug it in, and you're good to go! If you're interested in altering this setup, the following next chapters will guide you through changing the configuration. To establish static IP addresses for your devices, you must undertake two key steps:

Disable DHCP: This ensures that your device does not automatically obtain an IP address from the network, allowing for manual configuration of a static IP address.

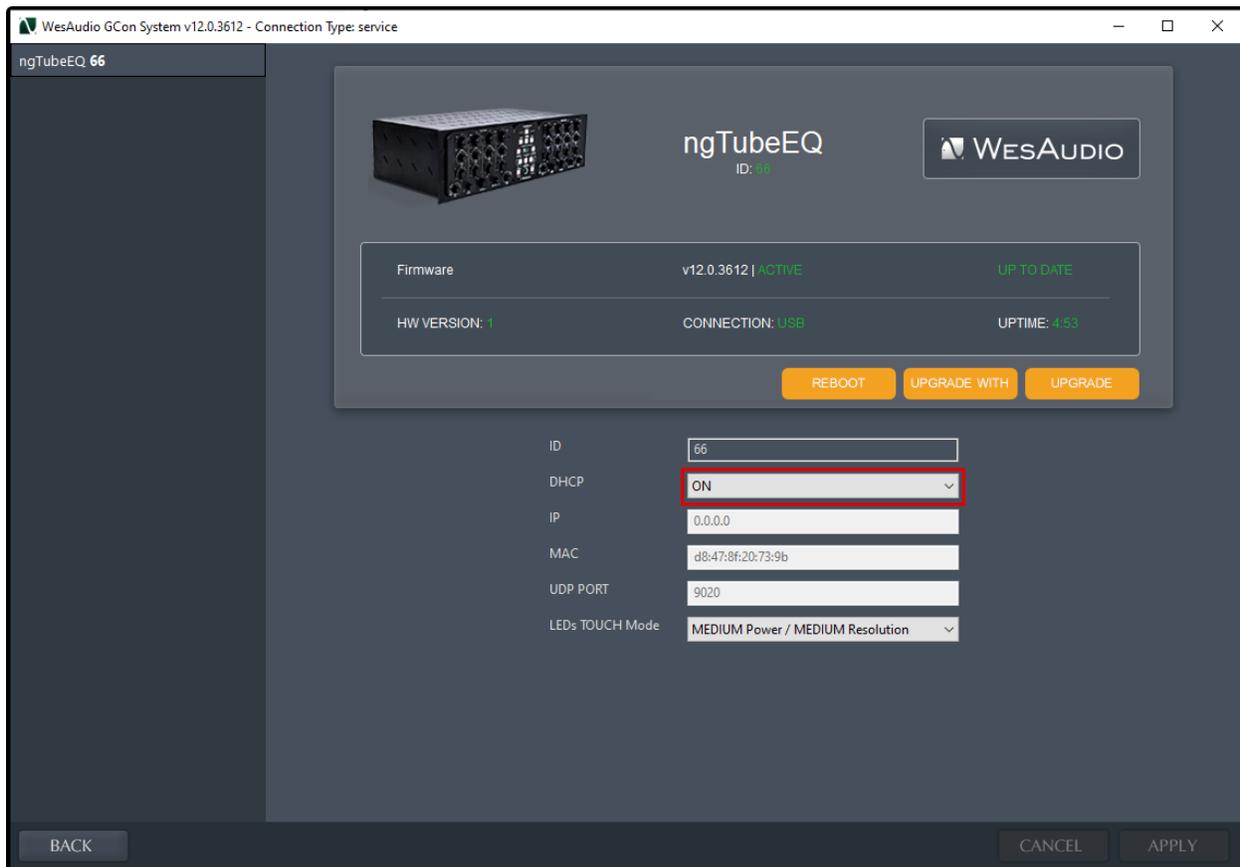
Configure a Static IP Address: Once DHCP is disabled, you can assign a specific, unchanging IP address to your device.

Detailed instructions for both procedures are provided in the subsequent chapters.

4.5.4 Enable/Disable DHCP

To toggle the DHCP setting on your ngTubeComp unit to either enabled or disabled, follow these steps:

- **USB Connection:** Begin by connecting your ngTubeComp directly to your workstation using a USB cable. This step is crucial because altering network configurations might result in a loss of connectivity with your device. A direct USB connection will remain as a fallback for reconfiguration.
- **Launch GConManager:** Open the GConManager software and proceed to the _CONFIG application.
- **Select Your Device:** Within GConManager, find and select your ngTubeComp from the list displayed in the elements tree on the left side.
- **Adjust DHCP Setting:** Modify the DHCP option to match your requirements—either turning it "ON" for automatic IP address assignment or "OFF" for static IP configuration. Following this adjustment, the unit will undergo a restart, after which your connection to the ngTubeComp should automatically re-establish.



Before transitioning from a USB connection to Ethernet, it's crucial to configure the appropriate IP address on your ngTubeComp. This setup ensures seamless communication between the device and your network. The subsequent chapter will guide you through the process of establishing the correct IP settings.

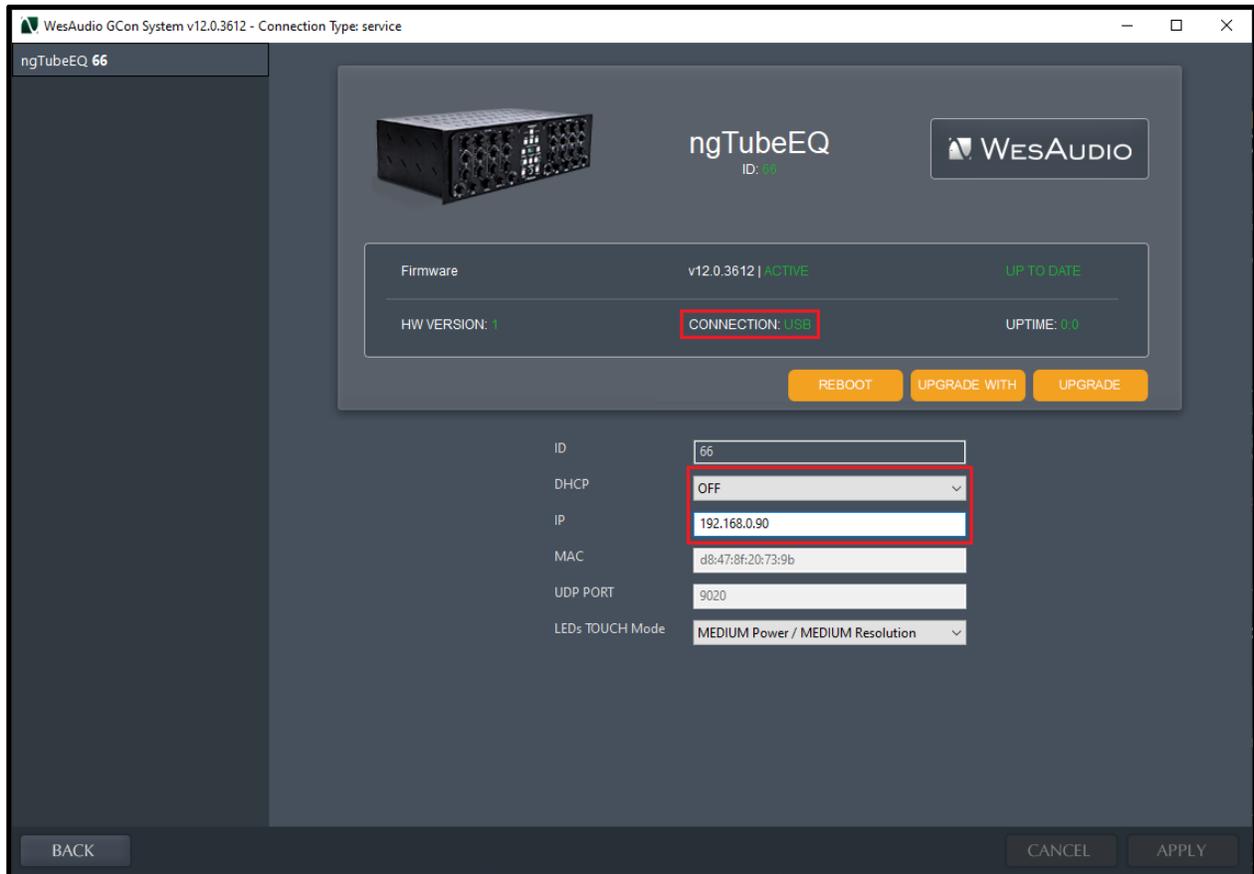
4.5.5 Set Up Static IP Address

There are a few situations where manually configuring the IP address for your ngTubeComp might be necessary:

- **Non-DHCP Router:** If your router does not support DHCP, you will need to manually set the IP address to ensure the ngTubeComp can connect to the network.
- **Manually Configured LAN:** For networks set up with manual configurations, such as through a hardware switch, your ngTubeComp will require a manual IP setup to match the network's settings.
- **Direct Workstation Connection:** If you prefer to connect your ngTubeComp directly to the Ethernet port on your workstation, a manual IP configuration is needed for the device to communicate effectively with your computer.

To configure the IP address for your ngTubeComp, the process is similar to setting up other devices, with slight adjustments for device-specific steps. Here's how you do it:

- **USB Connection:** Initially, connect your ngTubeComp directly to your workstation using a USB cable. (If you've already established a connection to the ngTubeComp via an Ethernet cable and can access its settings, this step might not be necessary).
- **Launch GConManager:** Open the GConManager software on your computer and proceed to the "_CONFIG" application.
- **Select Your Device:** From the device list on the left side of the screen, select your ngTubeComp unit.
- **Adjust DHCP Settings:** If the DHCP option is enabled ("ON"), change it to "OFF." This will necessitate a restart of the unit, after which the connection should automatically be re-established.
- **Set the IP Address:** Input the IP address you wish to assign to your ngTubeComp in the provided field and press the 'Apply' button. The unit will undergo a restart to apply the new network settings. Once it powers back up, the connection with your ngTubeComp will be re-established under the new IP configuration.
- After successfully configuring the IP address, you can now disconnect the USB cable from your ngTubeComp and connect it to your network using an Ethernet cable. This will enable network-based communication and control according to the new settings you've applied.



4.5.6 Direct connection – setting IP address on PC/MAC

Connecting your ngTubeComp directly to a Mac or PC via Ethernet requires a few steps to ensure seamless communication. Here's a concise tutorial to guide you through the process:

For Both Mac and PC

Step 1: Prepare Your Equipment

- Ensure you have a standard Ethernet cable available.
- Your ngTubeComp should be powered off before making any connections.

Step 2: Connect the Ethernet Cable

- Plug one end of the Ethernet cable into the Ethernet port on your ngTubeComp.
- Connect the other end of the Ethernet cable to the Ethernet port on your Mac or PC.

For Mac

Step 3: Configure Network Settings

- Go to **System Preferences > Network**.
- Select the Ethernet connection from the list on the left. If it's not already configured, it may appear as a new connection with a green dot and say "Connected".
- Click on the "Advanced" button, then go to the TCP/IP tab.
- Configure the IPv4 setting to "Manually" or "Using DHCP with manual address", depending on your needs.
 - If selecting "Manually", enter the IP address that matches the network settings of your ngTubeComp.
- Click "OK", then "Apply" to save your settings.

For PC (Windows 10/11)

Step 4: Configure Network Settings

- Go to **Settings > Network & Internet > Ethernet**.
- Click on your Ethernet connection.
- Scroll down and select **Edit** under IP assignment.
- In the Edit IP settings drop-down, choose "Manual".
- Enable "IPv4" by toggling it On, then fill in the IP address, Subnet mask, and Gateway based on your ngTubeComp network settings.
- Click "Save" when done.

Final Step for both Mac and PC

- Power on your ngTubeComp.
- Ensure any necessary software or drivers for ngTubeComp operation over Ethernet are installed on your computer.
- If required, adjust the ngTubeComp's network settings to ensure they are compatible with your computer's network configuration. This might include setting a static IP address on the ngTubeComp that is in the same subnet as your computer but outside your DHCP range to avoid IP conflicts.

You should now be able to communicate directly between your ngTubeComp and computer via Ethernet, allowing for device management and control without a router or network switch.

5 Digital Control / Recall

This chapter delves into the comprehensive options available for managing ngTubeComp and automating its settings. The cornerstone of ngTubeComp's automation capabilities is its integration with Digital Audio Workstations (DAW) through a plugin, which is available in all common formats. This seamless convergence between hardware and digital software opens a wide array of creative possibilities and enhances workflow efficiency.

DAW Plugin Control:

DAW plugin control bridges the analog-digital divide, enabling users to manipulate hardware settings directly from their DAW. This fusion of the tactile and the virtual is not merely convenient but transformative, changing how producers and engineers interact with their gear.

Benefits of DAW Plugin Control:

- **Precision and Recall:** The ability to precisely recall settings for sessions is invaluable, ensuring mixes can be revisited or altered without the need to manually reconfigure the hardware. This feature is crucial for those working on multiple projects or needing to maintain consistency across sessions.
- **Automation Capabilities:** Integration with the DAW allows for the automation of every ngTubeComp parameter within the digital environment. This feature provides dynamic changes in settings over time, infusing tracks with movement and vitality without manual intervention.
- **Workflow Efficiency:** Manually adjusting settings on hardware units can be cumbersome, particularly in complex setups. DAW plugin control simplifies this process, facilitating quick changes and A/B comparisons without physical interaction with the unit, thereby streamlining the production process.
- **Enhanced Creative Potential:** Merging the analog warmth with digital control flexibility broadens the creative spectrum, enabling real-time experimentation and the achievement of effects that might be challenging or impractical to accomplish on the hardware alone.
- **Accessibility:** DAW plugin control ensures full accessibility and adjustability of ngTubeComp features from the workstation, a boon for those with spatial constraints or other limitations preventing direct access to their hardware.

In essence, ngTubeComp's DAW plugin integration marries the rich, analog sound quality with the precision and versatility of digital control. This not only amplifies the functionality of ngTubeComp but also elevates the music production process, offering unprecedented control and flexibility in a traditionally analog setup.

5.1 DAW Plug-in

The ngTubeComp plug-in extends comprehensive control over all parameters of the unit, ensuring seamless integration into any digital audio workstation (DAW) environment. Designed to be versatile and accessible, it supports all common plug-in standards, including VST2, VST3, AU (Audio Units), and AAX, making it compatible with a wide range of software platforms.

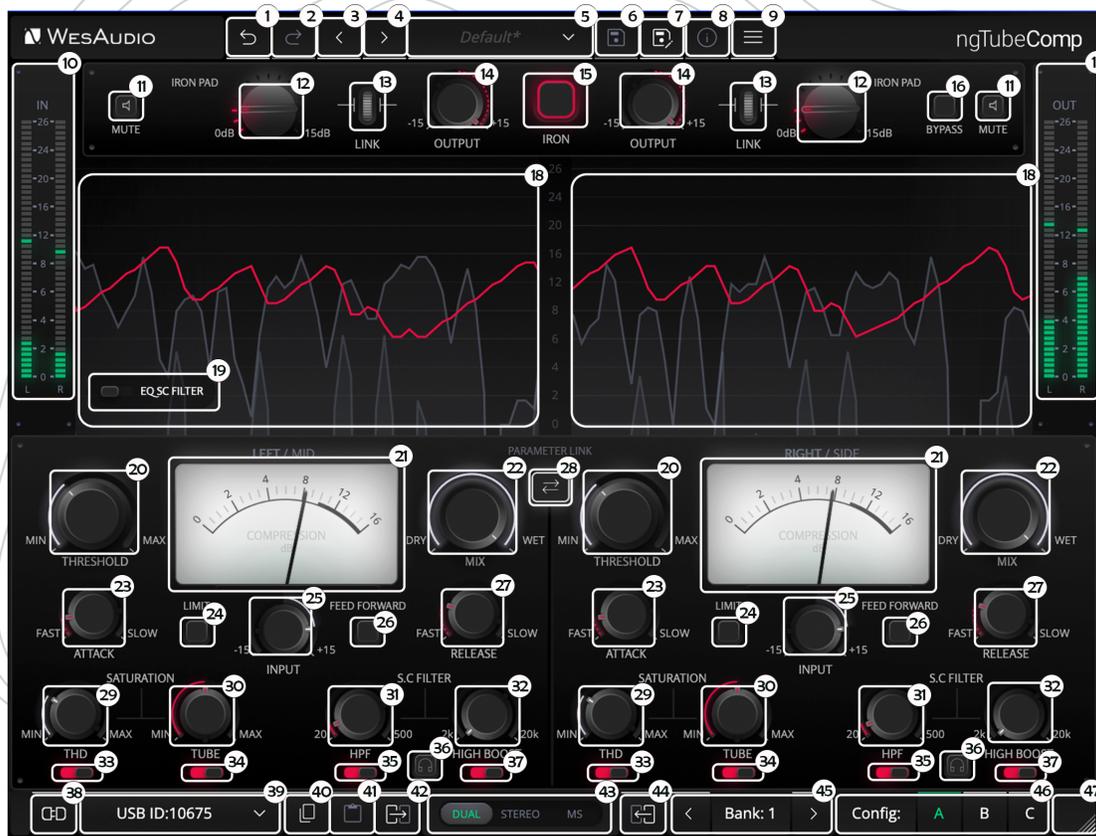


The ngTubeComp offers versatility through two types of plug-ins to accommodate various production needs:

- **Stereo Plug-in:** This variant provides comprehensive control over both channels of the hardware unit, enabling a wide range of operational modes including dual mono, stereo, and mid-side processing. It's ideal for cohesive processing of stereo tracks or linked dual mono operations, allowing for intricate spatial and tonal adjustments.
- **Mono Plug-in:** Designed for singular channel use, the mono plug-in connects to only one channel of the hardware unit, though two instances of the plug-in can be used concurrently with a single ngTubeComp for true dual mono operation. This setup is perfect for treating separate mono sources independently - such as processing a kick drum on one channel and a snare drum on the other. In this configuration, each channel of the hardware operates as an independent mono unit, providing flexibility for targeted processing on individual tracks.

5.1.1 Stereo Plug-in – Dual and MS Mode

**Analog Sound
Digital Recall**



For detailed explanations of each control and its functionality, users are encouraged to consult the chapter titled "[Front Panel and Main Functions](#)." This section provides comprehensive insights into how to interact with the ngTubeComp, whether you're adjusting parameters on the physical unit or via the plug-in. Please note that in this modes (dual / MS) side chain detectors are fully unlinked.

1. **Undo:** The Undo feature in the ngTubeComp plug-in allows users to revert to the previous state before the most recent adjustment was made. This function is essential for quickly correcting mistakes or reassessing changes without permanent consequences to the settings.
2. **Redo:** Following an Undo action, the Redo function permits users to reapply the last change that was undone. This feature ensures that no adjustment is final until the user is satisfied, providing an additional layer of flexibility in tweaking the settings.
3. **Previous Preset:** Loads the previous preset from preset database.
4. **Next Preset:** Loads the next preset from preset database.
5. **Preset Selector:** Allows for the selection, viewing, and deletion of presets.
6. **Preset Save:** Saves currently selected presets.
7. **Preset Save As:** Facilitates saving current settings as a preset providing name and preset details.
8. **Preset Info:** Displays details of the currently loaded preset.
9. **Menu:**
 - **Resize:** Adjusts the GUI size (75%/100%/125%/150%/175%/200%), catering to different screen sizes and user preferences.
 - **Reset Parameters to Default:** Resets all plugin parameters to their default states.
 - **Save GUI Preferences:** Allows to save current GUI settings, ensuring each new plugin instance opens with the same size and scaling settings.
 - **Clear GUI Preferences:** Clears the information about plugin size, FFT, and draw plot from the file. Please note that this function does not reset the plugin GUI to its default settings, it just clears saved configuration used by new plug-in instances.
 - Shows currently installed plug-in version.
10. **Input Meter:** The Input Meter visually represents the input levels for both hardware channels, utilizing an analog scale that ranges from 0dBu to 26dBu. This feature provides users with an intuitive and accurate way to monitor signal strength entering the ngTubeComp, ensuring levels are kept within an optimal range for the best possible sound quality.
11. **Mute:** The Mute function in the ngTubeComp plug-in allows users to enable or disable the mute feature for individual channels. This control provides a straightforward way to temporarily silence a channel without altering any of its settings, facilitating quick comparisons or isolations in the mix.
12. **Iron Pad:** Engages a passive attenuation circuit, reducing the signal from 0dB to 15dB. This allows driving the input harder without overloading, ideal for working with hotter signals.
13. **Iron Link:** Link between Output and Iron Pad in RED mode
14. **Output:** Adjusts output gain to compensate for level reduction caused by compression, ensuring consistent loudness.
15. **Iron:** Engages a custom transformer stage, adding warmth, subtle saturation, and vintage analog character to the signal.
16. **Bypass:** Allows to engage/disable bypass on the hardware unit.
17. **Output Meter:** The Output Meter visually represents the output levels for both hardware channels, utilizing an analog scale that ranges from 0dBu to 26dBu. This feature provides users with an intuitive and accurate way to monitor signal strength leaving the ngTubeComp, ensuring levels are kept within an optimal range for the best possible sound quality.

18. **Gain Reduction Graph:** Displays the real-time gain reduction applied to the signal, helping users monitor and adjust compression settings for precise dynamic control.
19. **EQ SCFilter Switch:** Changes the window view from gain reduction to the sidechain EQ.
20. **Threshold:** Sets the level at which the compression or limiting effect kicks in, allowing fine control over dynamic range management.
21. **Meter:** Displays the real-time level of the processed signal, providing visual feedback on the signal's amplitude.
22. **Mix:** Balances between the wet (processed) and dry (unprocessed) signal, allowing for parallel compression or blending effects.
23. **Attack:** Defines how quickly the compressor or limiter responds to signals exceeding the threshold, affecting how tightly the effect grabs transients.
24. **Limit Button:** Engages tight dynamics control, ensuring that the output signal is capped at a specified level to prevent distortion and maintain a clean, controlled sound.
25. **Input:** Adjusts the input gain, allowing users to control the level of the incoming signal before it undergoes processing, ensuring optimal signal strength for compression.
26. **Feed-Forward Button:** Switches between Feed-Forward mode and Feedbackward mode.
27. **Release:** Controls how fast the processor releases gain reduction once the input signal falls below the threshold, affecting the smoothness or punchiness of the compression.
28. **Parameter Link:** Links parameters between channels for stereo or mid-side operation. When enabled, adjustments made to one channel affect the other, maintaining consistent relative settings across both channels.
29. **THD:** Provides adjustable control over the introduction of harmonic distortion, ranging from 0% to 100%. This feature allows for the precise addition of analog warmth and character, enhancing the harmonic complexity of the signal with subtle to pronounced saturation effects.
30. **Tube:** Controls the amount of saturation introduced by the internal tubes, allowing users to adjust the level of analog warmth and harmonic distortion for a more vibrant and dynamic sound.
31. **HPF (High Pass Filter):** The high-pass filter removes low-frequency content from the signal path, preventing the compressor from reacting to sub-bass frequencies, allowing for tighter control over mid and high-range elements.
32. **High-Bell Boost:** The High-Bell Boost control enhances the higher frequencies, adding brightness and presence to the signal, making it more articulate and prominent in the mix.
33. **THD Switch:** Allows to engage/disable THD saturation on the hardware unit.
34. **Tube Switch:** Allows to engage/disable Tube saturation on the hardware unit.
35. **HPF (High Pass Filter) Switch:** Allows to engage/disable HPF on the hardware unit.
36. **S.C. Listen Mode:** Enables S.C. listen mode – where side chain signal is redirected to main output.
37. **High-Bell Boost Switch:** Allows to engage/disable High-Bell Boost on the hardware unit.
38. **Toggle Connection Button:** This button toggles the connection status ON/OFF. It functions only when a connection ID has been selected using the "Select Connection Button."
39. **The Select Connection Button** within the ngTubeComp plug-in serves as a gateway to establishing and managing connections with devices that support the GCon protocol. This feature simplifies the process of identifying and selecting the hardware unit to be controlled, providing a user-friendly interface for seamless integration between the plug-in and physical devices.

Upon Initiating Connection, It Visualizes the Connection State as Follows:

- **USB:** This label signifies a connection established through USB, offering a direct link between the hardware unit and the workstation.

- **ETH:** This label indicates an Ethernet connection, showcasing the ability to connect over a network for potentially more flexible setup options.
 - **Connection ID:** The unique identifier for the connected hardware unit is displayed, allowing for easy recognition and management of multiple devices. Accompanying this ID, the connection status is visually indicated to inform the user of the current state:
 1. **ON:** A solid white font denotes a successful connection, indicating that communication between the plug-in and the hardware unit is active.
 2. **OFF:** A solid gray font signifies that the connection is not established, alerting the user to a disconnect or other issue preventing communication.
 3. **Connecting:** A gray italic font is used to represent the process of establishing a connection. If this state persists for an extended period (more than 5 seconds) without successful connection, it suggests a potential issue requiring troubleshooting or support consultation
40. **Copy:** Enables users to copy the current parameter state.
41. **Paste:** Enables users to paste the current parameter state, facilitating quick duplication of settings.
42. **Copy Left/Mid to Right/Side:** This feature enables quick duplication of settings from the left/mid channel to the right/side channel, simplifying the alignment of parameters between the two.
43. **Mode:** Sets units mode to be either DUAL, STEREO or Mid/Side.
44. **Copy Right/Side to Left/Mid:** This feature enables quick duplication of settings from the right/side channel to the left/mid channel, simplifying the alignment of parameters between the two.
45. **Config Bank:** Selects between configuration banks, each containing three configurations. This feature supports automation for changing unit settings within a session or a song.
46. **Fast Preset Change (A/B/C):** Quickly toggles between configs A/B/C without affecting connection-related parameters like the Connection ID.
47. **Resize:** Adjusts the display size or layout of the interface.

5.1.2 Stereo Plug-in - Stereo Mode

In Stereo mode, the Stereo plug-in shares the same controls as in Dual and MS modes. The key difference is that Stereo mode consolidates the interface to display metering for summed signal (True stereo compression). Please note that in this mode side chain detectors are fully linked for stereo operation.



5.1.3 Mono Plug-in

Mono plugins offer the flexibility to connect and control each channel of the ngTubeComp independently, making them ideal for processing separate mono sources, such as a kick drum and snare. This capability allows for comprehensive control over the analog circuit, including the ability to switch between internal presets (A/B/C), tailored for individual channel enhancements.



The layout of the mono plugin closely mirrors that of the hardware, maintaining the intuitive interface and design of the 2-channel stereo plugin version. However, there's a notable difference: the unit mode buttons (DUAL / STEREO / MS) are absent in this configuration. This is because, in mono plugin mode, the ngTubeComp automatically operates in DUAL unlinked mode, optimizing it for independent channel processing.

Key Features of True Dual-Mono Operation with the Mono Plugin:

- **IRON Mode Flexibility:** Each channel's IRON mode setting can be adjusted independently, providing tailored harmonic texture and saturation for each mono source.
- **Selective A/B/C Preset Control:** To switch between the A/B/C presets from the hardware's front panel, you must hold the touch encoder specific to the channel you wish to adjust. This feature ensures precise control over the sound shaping and character of each channel, reflecting the nuanced differences between mono sources.

This design philosophy emphasizes the ngTubeComp's versatility and adaptability, allowing audio engineers to achieve detailed and characterful processing on individual mono tracks, leveraging the analog warmth and digital precision that the ngTubeComp is known for.

5.1.4 Automation When Parameter Link Is Enabled

It's important to understand that when using the PARAMETER LINK function to synchronize channels, automating just one channel is sufficient, as the linked channel will mirror the adjustments automatically. Should both channels be automated simultaneously, each will attempt to update the other, inevitably causing unpredictable and undesired outcomes. This feature is designed to streamline workflow and ensure cohesive sound processing across channels, but it requires careful management of automation to avoid conflicts.

6 Other Functions

In addition to its core features, ngTubeComp includes several other functions that enhance its versatility and user experience. These functions, while not as prominently featured as the main controls, play a crucial role in the unit's overall functionality and ease of use. Understanding these additional features will enable users to fully exploit the capabilities of the ngTubeComp, optimizing their workflow and achieving the best possible sound quality.

6.1 Operation modes

ngTubeComp can operate in following modes:

- Standalone – without any digital connection to a workstation.
- Stereo Plug-in – one plug-in manages both channels.
- Mono Plug-in – Two plug-ins can independently connect to each channel.

There are some slight differences in those tree modes when it comes to some global unit's functions:

	Bypass	A/B/C buttons on front panel	IRON mode in Mid-Side	Available Modes
<i>Standalone</i>	Bypass available for each channel, can be linked via "Parameter link" button.	Changing A/B/C preset will always update parameters on both channels	IRON mode is permanently linked for both channels– it is not possible to engage iron mode for only one channel.	Dual mono, Stereo, Mid-Side
<i>Stereo plug-in</i>	Bypass is permanently linked – One bypass for whole unit will affect both channels.	Changing A/B/C preset will always update parameters on both channels.	IRON mode is permanently linked for both channels– it is not possible to engage iron mode for only one channel.	Dual mono, Stereo, Mid-Side
<i>Mono plug-in</i>	Bypass available for each channel.	A/B/C LED is disabled upon connection to a plugin, presets can be changed: <ul style="list-style-type: none"> • From a plug-in level, • Holding touch sensitive encoder activates A/B/C LED for particular channel, which can be changed by pressing corresponding preset button. 	N/A -Connection to mono plugin permanently sets dual mono mode.	Dual mono

6.2 Internal Memory Management

The ngTubeComp is designed with robust internal memory management to ensure users can store and recall their preferred settings efficiently, catering to various operational scenarios and user needs.

Sources of Parameter Persistency:

- **A/B/C Presets:** Directly stored in the ngTubeComp's internal memory, these presets offer quick access to three distinct settings configurations, readily available even after a power cycle.
- **Unlimited DAW Plugin Presets:** Users can save an unlimited number of presets within the DAW plugin, providing vast flexibility for project-specific settings.

6.2.1 Fast Presets A/B/C

Fast presets are designed for quick retrieval, serving as three memory banks for easy comparison of the unit's settings. These presets are synchronized with the connected plugin, ensuring consistency across hardware and software environments.

6.2.2 Internal Presets

For scenarios where plugin use is impractical or impossible, the ngTubeComp offers 100 memory slots for user-defined presets, which load into the currently active Fast Preset (A, B, or C).

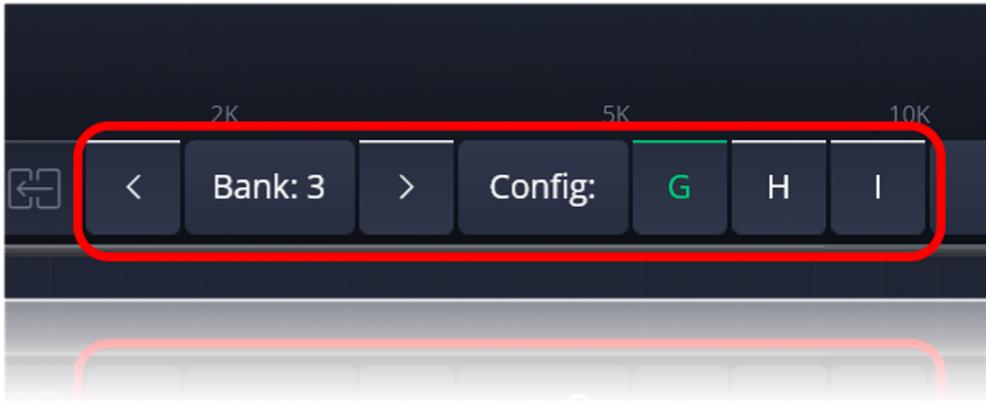
Navigating and Managing Internal Presets:

- **Accessing Preset Menu:** Press and hold the PARAMETER LINK (MENU) button for 2 seconds to enter the PRESET MENU. Use the bypass buttons to navigate through presets 1 to 100.
- **Navigating Presets:** Use the left bypass button to move to the previous preset and the right bypass to advance.
- **Loading Presets:** Press button A (LOAD) to load the selected preset into the active Fast Preset slot.
- **Exiting Menu:** Press button B (QUIT) or the PARAMETER LINK (MENU) button to exit the preset menu.
- **Saving Presets:** Select the desired preset number and press button C (SAVE) to store the current settings of both channels under that preset number.

This internal memory management system enhances the ngTubeComp's versatility, providing users with multiple layers of preset storage options, from immediate access to detailed preset navigation and management, all aimed at optimizing the mixing and mastering process.

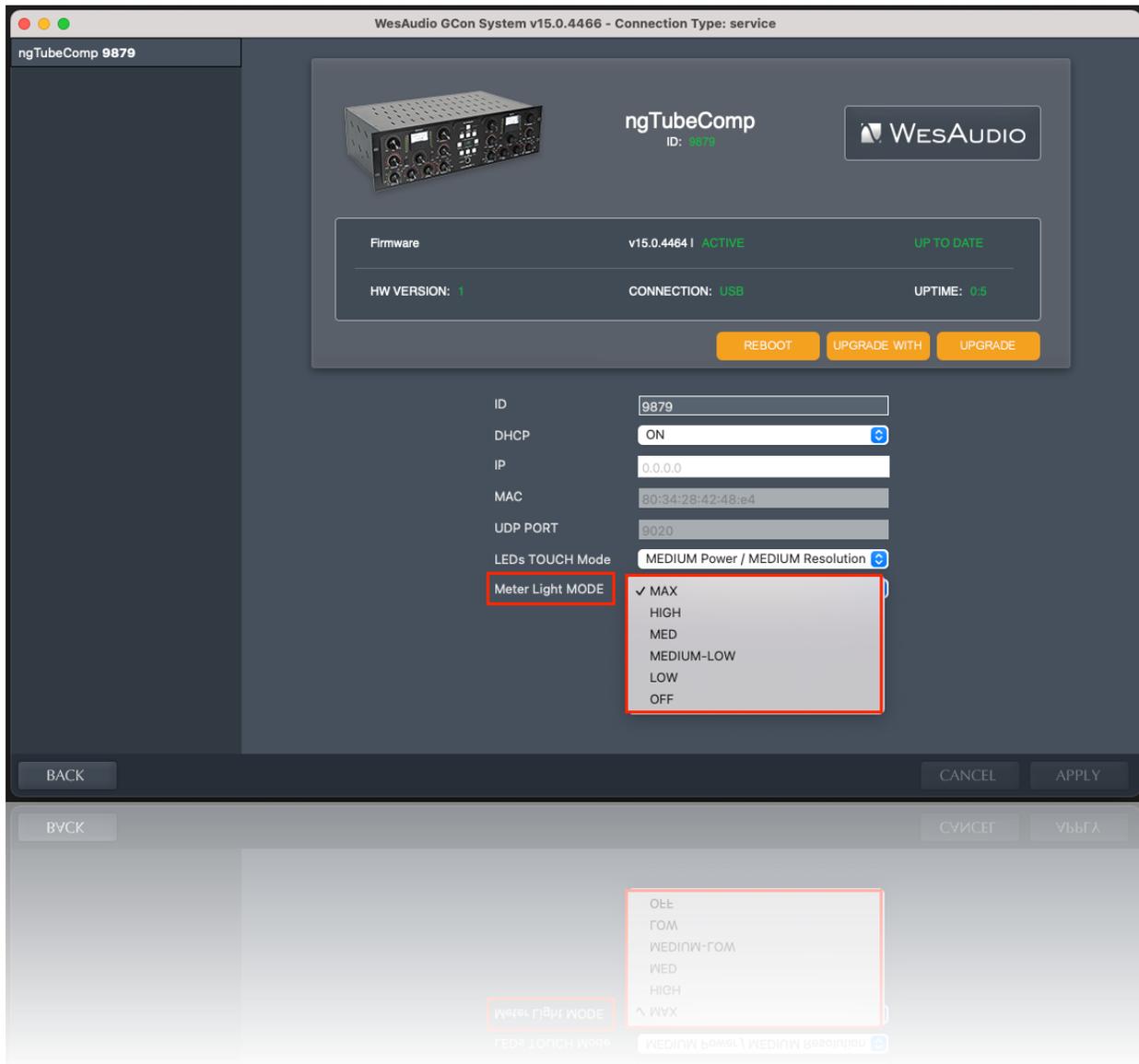
6.2.3 Preset Banks Feature

The Preset Bank feature allows you to configure different parameter states and enables additional parameter configurations (A/B/C) for flexible use. Having multiple memory banks can be particularly beneficial when mixing multiple songs within the same session. The Memory Bank parameter can be automated in the DAW, helping to maintain different settings across various sections of a session or between different songs within a single session. This feature is especially useful during the mastering phase, where multiple songs are often processed in one session.



6.3 Meter Light Mode

The ngTubeComp features a backlit analog Gain Reduction (GR) meter to improve visibility under various lighting conditions. The intensity of the meter's backlight can be adjusted via the **GCon Manager** application.



6.3.1 Functionality

The GR meter light supports multiple brightness levels, allowing the user to fine-tune illumination based on their environment or personal preference. The following modes are available:

- **MAX** – Maximum brightness for high-visibility conditions.
- **HIGH** – Slightly reduced brightness from MAX.
- **MED** – Medium brightness.
- **MEDIUM-LOW** – Reduced brightness for more subtle lighting.
- **LOW** – Minimal illumination.
- **OFF** – Disables the backlight completely.

These settings affect only the backlight intensity and do not influence the meter's functionality or signal path.

6.3.2 Configuration

To adjust the GR meter light:

1. Launch the **GCon Manager** application and connect to the ngTubeComp.
2. Open the unit's settings panel.
3. Locate the **GR Meter Light** option.
4. Select the preferred brightness level from the available list.

The chosen setting is stored in the unit's internal memory and will be retained after power cycles.

7 Troubleshooting

If you encounter any of the following issues:

- No Sound Output or Signal Loss
- Unexpected Distortion
- Thumping or Low-End Artifacts
- Inconsistent Compression
- No Response to DAW Automation
- Excessive Heat

Please visit the WesAudio FAQ site <https://wesaudio.com/faq/> for detailed troubleshooting steps and solutions.

8 Abbreviations and terms

GCon is a high-speed communication protocol developed to enable complete management and recall of analog devices. It's important to note that GCon is solely focused on device control and management; it does not facilitate the transfer of audio signals. This protocol is instrumental in bridging the gap between analog warmth and digital convenience, allowing users to enjoy the best of both worlds without compromising on sound quality or control flexibility.

9 Warranty

WesAudio is committed to delivering products of the highest quality, designed for durable and reliable performance over many years, assuming proper care, usage, transport, and storage. Our products come with a two-year warranty covering defects in parts and workmanship from the original date of purchase. This warranty is extendable to any future owner within the warranty period, ensuring continued protection.

Warranty Coverage:

- The warranty is valid for two years from the date of the original purchase.
- It is transferable to any subsequent owner within this period.

Exclusions:

- The warranty does not cover normal wear and tear.
- It excludes damages due to misuse, negligence by the customer, accidental impacts, unauthorized modifications or repairs, cosmetic issues, and damages from shipping.

Warranty Service:

- Should a product exhibit defect in parts or workmanship during the warranty period, WesAudio will, at its discretion, repair or replace the defective components at no charge, assuming the customer provides valid proof of purchase.
- The product must retain its original factory serial number to be eligible.
- Customers are responsible for shipping costs to WesAudio for warranty service. WesAudio will cover the return ground shipping costs.

This comprehensive warranty underscores our dedication to quality and customer satisfaction, ensuring your WesAudio products perform flawlessly for years to come.