TUPE WOW

Manual for version **3.15**

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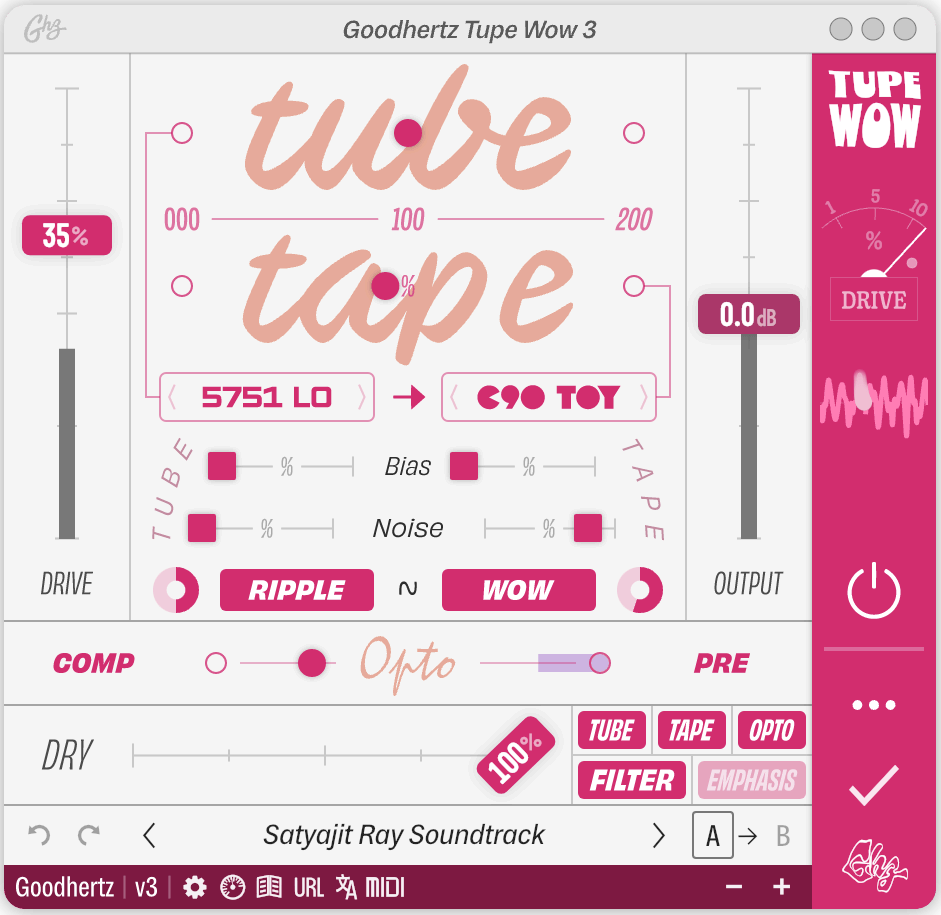
Contact Support

Tupe Wow

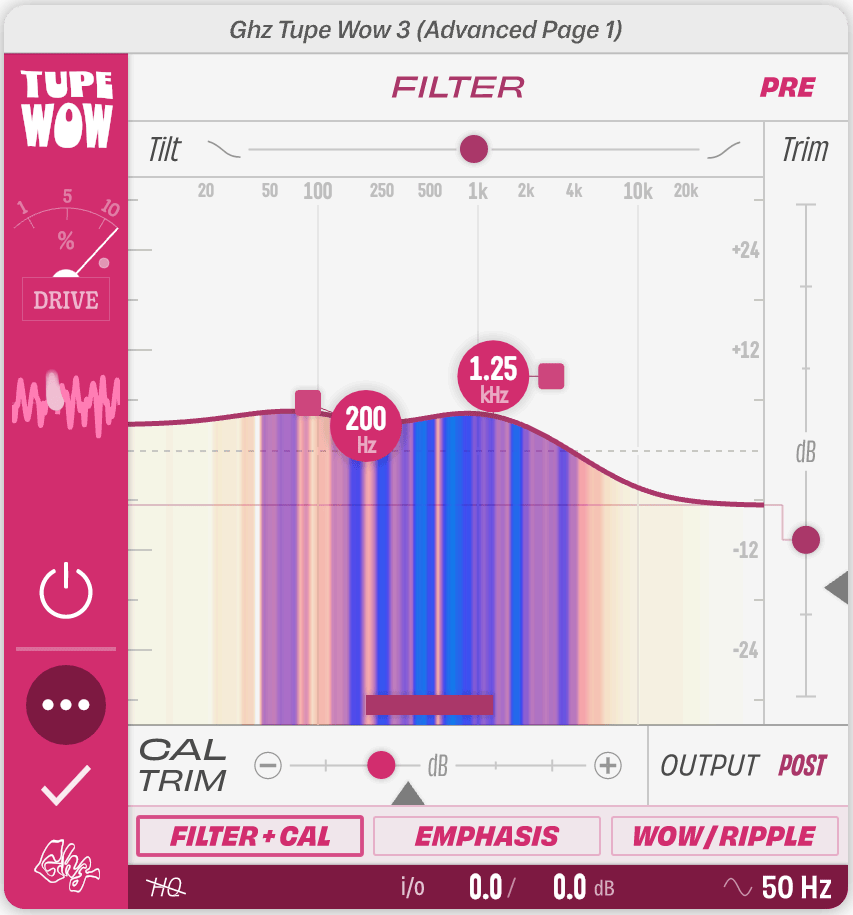
Tube + Tape + Wow = Tupe Wow

Interface Preview

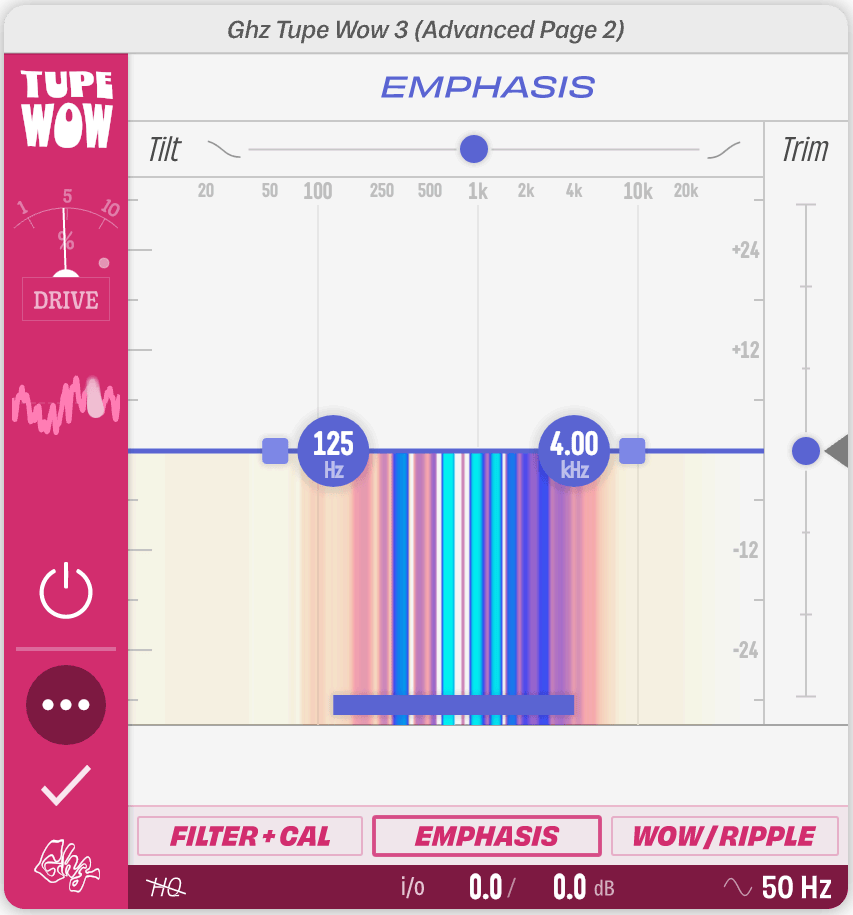
Here's a screenshot of Tupe Wow in action. Click anywhere on the interface to jump to a control's definition below.



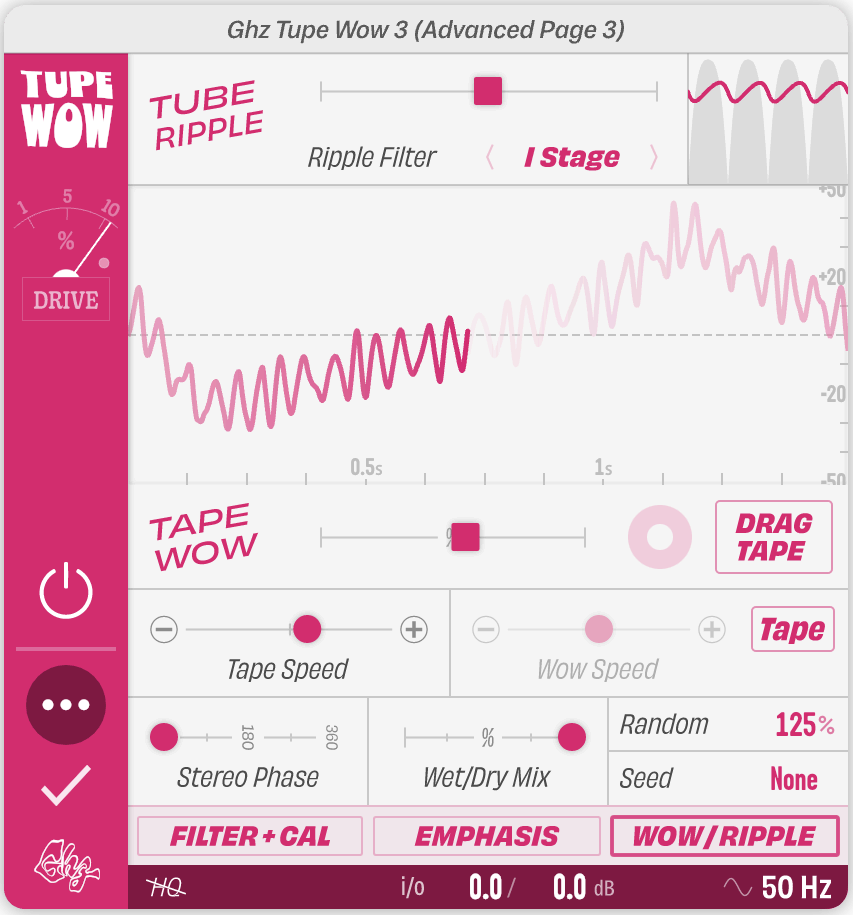
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Controls

Primary Controls

Drive

Default 0%

Controls the input drive *before* it hits the rest of **Tupe Wow**'s processing.

Drive includes a level meter embedded in the slider. This meter shows the peak level of the input signal before **Tupe Wow**'s processing.

If the signal peak exceeds or equals `0.0dB` the meter color turns red.

Tube

The Tube section allows you to select the type of tube coloration from a variety of analog vacuum tube circuits. Some of the Tube Modes are fairly simple preamps or single-tube circuits, while others are entire amplifier stages (with multiple tubes and transformers). Additionally, some of the tube modes are modded tube circuits that were created in the Goodhertz lab and are not commercially available.

What do tubes sound like?

Broadly speaking, tubes sound warm while also sounding fairly articulate.

Tubes generally exhibit higher **2nd-order** (even) harmonic distortion than, say, analog tape does, which contributes to their big, warm sound. The articulate sound of tubes comes, in part, from their dynamic compression characteristics: tubes are nonlinear devices, and they really respond to playing dynamics in a wonderful & musical way.

All of these tube characteristics *(and more!)* have been captured in Tupe.

Tube Amount

Default 100%

Controls the amount of tube coloration.

- 0% is totally clean: no harmonic distortion, tonal coloration, or noise.
- 200% is the exact opposite.
- 100% is the true-to-life setting, most closely mimicking what you might get with analog hardware.

Tube Mode

Default 5751 Lo

Selects the analog tube model used in the Tube section.

Option	*About*	*Discussion*
5751 Lo	5751 Line Amp	Gentle crunch to very gritty tube crunch. Fairly neutral tonality. Strong 2nd-order (even) harmonics.
5751 Med	5751 Line Amp	Similar to **5751 Lo** but with stronger 2nd-order (even) harmonics.
5751 Hi	5751 Line Amp	Quick transition to gritty tube crunch. Brighter tonality with lots of air. Strong 2nd-order (even) harmonics.
6L6 Lo	6L6 Power Amp	Strong tube compression. Big low end. More balanced 2nd-order (even) and 3rd-order (odd) harmonics.
6L6 Med	6L6 Power Amp	Similar to **6L6 Lo** but with more saturation, especially in the low end.
6L6 Hi	6L6 Power Amp	Similar to **6L6 Med** but with *even* more saturation.

Option	*About*	*Discussion*
EL34 Lo	EL34 Power Amp	Earlier onset of harmonics, generally more distorted but also more consistent. Very crispy when pushed hard.
EL34 Hi	EL34 Power Amp	Similar to **EL34 Lo** but even crispier. Great as a harmonic exciter.
12AX7	12AX7 Preamp	Strongest 3rd-order harmonics. Fairly smooth breakup, very flat frequency response until pushed hard.

Tube Bias

Default 0%

Controls the tube circuit's bias.

> Use the tube bias control to shape the character and onset of harmonic distortion. 0% is generally the most neutral sounding, whereas 100% can produce some fuzzy tones with strange dynamic characteristics.

What *is* tube bias?
A full discussion of tube bias is definitely beyond the scope of this manual, but in practical terms, you can think of the bias as setting the "center point" of the circuit.

Generally, the bias set in such a way that the gain curve remains fairly linear, and the tube life is prolonged. However, if the bias is shifted, funky things can happen: quiet signals can suddenly end up a highly nonlinear area of the gain curve, the harmonics & dynamics change, etc. Since you don't have to worry about frying any tubes in Tupe, feel free to experiment with the bias control, listening especially to how it affects the onset and harmonic overtones of the saturation.

Tube Noise

Default 0%

Controls the gain of the analog tube noise.

Tube Ripple On/Off

Default On

Turns On or Off **Tupe Wow**'s Ripple section.

Options: Off, On

Tube/Tape Order

Default Tube -> Tape

Controls the processing order for the Tube/Tape

Option	*Symbol*
Tube -> Tape	→
Tape -> Tube	←

Tape

The Tape section allows you to select the type of tape coloration from a variety of analog tape machines.

What does tape sound like?

The sound of a particular tape machine depends a lot on the size, speed, and magnetic characteristics of the actual tape being used. In general, the faster and wider the tape, the higher fidelity. For example, cassette tape decks — which use fairly thin tape running at slow speeds — have more frequency coloration and noise than a large reel-to-reel machine would have.

Tape machines generally exhibit less 2nd-order (even) harmonic distortion than analog tubes do, which often gives tape a more grainy, crunchy saturation sound. Tape usually has more obvious high frequency roll-off & noise and can dull or smooth out transients when pushed.

All of these tape characteristics *(and more!)* have been captured in Tupe.

Tape Amount

Default 100%

Controls the amount of tape saturation.

- 0% is totally clean: no harmonic distortion, tonal coloration, or noise.
- 200% is the exact opposite.
- 100% is the true-to-life setting, most closely mimicking what you might get with a well-tuned analog tape machine.

Tape Mode

Default 2 Track Hi

Selects the analog tape model used in the Tape section.

Option	*About*	*Discussion*
2 Track Hi	15 IPS	Reel-to-reel machine running at 15 inches per second (ips). The most "hi-fi" **Tape Mode** in **Tupe Wow**. Strong 3rd-order harmonics and a beefy low end.
2 Track Lo	7.5 IPS	Reel-to-reel machine running at 7.5 inches per second (ips). Strong 3rd and 2nd-order harmonics and a rounder sound.
C90 Hi	3.75 IPS	4-track cassette machine running at 3¾ inches per second (ips). Significant saturation with strong 3rd-order harmonics, particularly in the low end.
C90 Lo	1.875 IPS	4-track cassette machine running at 1⅞ inches per second (ips). Lots of high frequency roll-off.
FE90 Hi	3.75 IPS	4-track cassette machine running cheap, ferrous (Fe) tape at 3¾ inches per second (ips).
FE90 Lo	1.875 IPS	4-track cassette machine running cheap, ferrous (Fe) tape at 1⅞ inches per second (ips).

Option	*About*	*Discussion*
C90 Toy	1.875 IPS	A toy cassette tape recordering aged for ~30 years. Extremely filtered.
8 Track Hi	15 IPS	8-track reel-to-reel machine running at 15 inches per second (ips). Pronounced top end boost for a more hi-fi sound.
8 Track Med	7.5 IPS	8-track reel-to-reel machine running at 7.5 inches per second (ips). Most balanced of the three 8-track modes.
8 Track Lo	7.5 IPS	8-track reel-to-reel machine running at 7.5 inches per second (ips). Warmer sound with a slight mid/bass tilt.
Wow Only	No Tape	Bypasses the tape model entirely, leaving only the wow & flutter.

⚠ At their default settings, each **Tape Mode** does NOT produce analog noise. To achieve more realistic tape sounds, use the advanced Tape Noise control to turn up the noise.

Tape Model Specifications

Type	*Freq. Response*	*SNR*
15 Inches-Per-Second	18Hz – 16kHz (±3dB)	**-67 dB**
7.5 Inches-Per-Second	14Hz – 13kHz (±3dB)	**-66 dB**
3.75 Cassette	23Hz – 13kHz (±3dB)	**-60 dB**
1.875 Cassette	30Hz – 10kHz (±3dB)	**-58 dB**

Tape Bias

Default 0%

Controls the bias of the tape machine.

See Tube Bias for more information on how bias works and what to listen for.

Tape Noise

Default 0%

Controls the gain of the analog tape noise.

Tape Wow's tape noise isn't merely a tape hiss sample layered over your signal. Instead, it changes dynamically with the incoming signal, providing gentle fuzz and even some stereo separation.

50% is a good starting point where you should register more depth & color than actual tape hiss. 70% is a true-to-life level of tape hiss / noise.

Tape Wow On/Off

Default On

Turns On or Off **Tape Wow**'s Wow section.

Options: Off, On

Output Gain

Default 0.0dB

Controls the output gain *after* **Tape Wow**'s processing.

To change how Master Mix interacts with the **Output Gain**, use Output Gain Position.

Output Gain includes a level meter embedded in the slider. This meter shows the peak level of the output signal after **Tape Wow**'s processing.

If the signal peak exceeds or equals 0.0dB the meter color turns red, indicating that clipping *could* occur. **Tape Wow** will never clip internally, due to its double-precision

> floating-point processing, but the signal might be clipped at a later stage (by the host/DAW or DAC).

Opto

Tupe Wow's Opto section is our take on a 1960's-inspired optical compressor/limiter, drawing from some our favorite compressors of all-time, both old and new.

We've sped things up a bit, especially in the limiter mode, so that the movement is a bit snappier and more reactive than a typical opto compressor would be, which can sound awesome mixed in parallel (with either the Opto Amount or Master Mix controls).

What does an opto compressor sound like?

Generally, opto compressors have a very natural, musical sound, and amazingly, they can be both pillowy and punchy at the same time. This is due, in part, to the program-dependent attack/release that opto's usually have: the attack and release times depend greatly on what exactly the audio coming into the compressor is doing.

Some opto compressors (like **Tupe Wow**!) also have a bit more fuzz and harmonic coloration than their solid state counterparts, adding to their warm, woolly characteristics.

Opto Mode

Default COMP

Selects the compression type used for the Opto section.

Option	*About*	*Discussion*
		A fairly quick & punchy opto-style compressor (though much slower & more forgiving than **Tupe Wow**'s Opto Limiter).
COMP	Opto Compressor	Use it to add punch, smooth out level swings, and provide a little extra presence & pressure. Due to the nature of the compressor sidechain circuit, gain reduction tops out around 12-15 dB
LIMIT	Opto Limiter	An extremely fast opto-style peak limiter.

Option	About	Discussion
		When pushed beyond 10 dB of gain reduction it will begin exhibit obvious distortion, crunch, and pumping.

Opto Amount

Default 0%

Controls the amount of compression.

- 0% is no compression.
- 50% is a 50/50 mix of the compressed signal and the dry signal.
- 100% is 100% compression with no additional gain.
- Above 100% is 100% compression with increased input gain (though still level matched).
- **Opto Amount** includes a gain reduction meter embedded in the slider. The halfway point corresponds to approximately 10 dB of gain reduction.

Opto Position

Default POST

Changes the processing order of the opto compressor/limiter.

Options: PRE, BTW, POST, SAT

- The BTW (between) mode places the compressor/limiter *between* the tube/tape.
- The SAT (saturation) mode applies compression to the pre-saturation signal only, leaving the final output signal uncompressed. This can be extremely useful with wide dynamic range sounds where you want to preserve the

> dynamics while also maintaining a consistent level of analog saturation.

Master Mix

Default 100%

Controls **Tape Wow**'s overall wet/dry mix.

> To change how **Master Mix** interacts with the Output Gain, use Output Gain Position.

Bypass

Tube On/Off

Default On

Turns On or Off **Tape Wow**'s Tube section.

Options: Off, On

Tape On/Off

Default On

Turns On or Off **Tape Wow**'s Tape section.

Options: Off, On

Opto On/Off

Default On

Turns On or Off **Tape Wow**'s Opto section.

Options: Off, On

Filter On/Off

Default On

Turns On or Off **Tape Wow**'s Filter section.

Options: Off, On

Emphasis On/Off

Default On

Turns On or Off **Tape Wow**'s Emphasis section.

Options: Off, On

VU Meter Mode

Default DRIVE

VU Meter Mode switches **Tape Wow**'s VU meter display mode between drive level, gain reduction, and output level.

Option	*About*
DRIVE	Drive Meter
GR	Gain Reduction
OUT	Output Meter

- Use the DRIVE mode to meter the approximate Total Harmonic Distortion (THD) in **Tape Wow**.

- Use the GR (gain reduction) mode to meter the total gain reduction in **Tape Wow**. This includes any natural gain reduction caused by the tube or tape sections.

Master On/Off

Default On

Bypasses **Tape Wow**'s processing.

- We recommend using the **Master On/Off** instead of your DAW's plugin bypass to avoid digital artifacts.

Advanced Controls

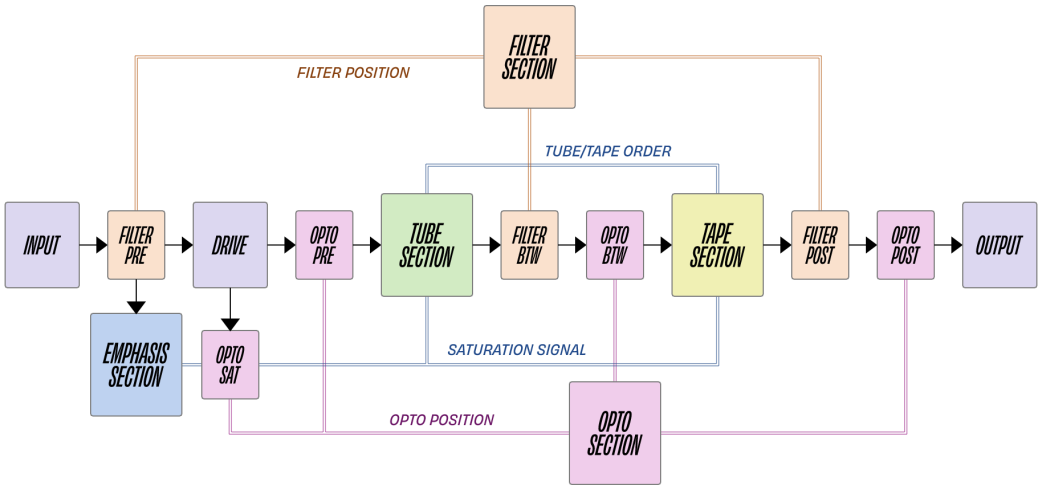
The Advanced section offers more precise control and fine adjustment options.

To access **Tupe Wow**'s advanced controls, click the ••• icon in the sidebar.

Signal Flow

Tupe's processing is highly configurable, and many of the the processing blocks can be reordered to create specific sounds or effects. Before we get into the Advanced Controls, it's helpful to understand the signal flow in Tupe and how each section interacts.

Here's a simplified block diagram that shows all of the different routing options:



Tupe Signal Flow

Ladder Filter

Tupe Wow's Filter section provides highly flexible filtering & tone shaping with a wonderfully musical sound.

Based on 1960's ladder filter chains, **Tupe Wow** uses a new analog-modeled filter design for us at Goodhertz. Unlike a typical ladder filter, we've developed a way to fully separate the ladder's slope and resonance — allowing them to function independently. Additionally, both the slope and resonance can be positive *or* negative, opening up new shapes and curves that would be impossible (or very difficult) to achieve with a standard parametric EQ.

As always in Goodhertz plugins, the Filter section is fully automatable and provides smooth, sample-accurate sweeping from one setting to the next.

Filter Position

Default PRE

Changes the processing order of the filter section.

Options: PRE, BTW, POST

> ℹ The BTW (between) mode places the filter *between* the tube/tape. If **Filter Position** *and* Opto Position are both set to BTW, the filter is processed first.

Filter Tilt

Default 0.0dB

Varies the amount of spectral tilt in the Filter section.

ℹ Negative values tilt the sonic spectrum toward the bass.

ℹ Positive values tilt toward the treble.

Filter Freq Low

Default 125Hz

Controls the corner frequency of the low filter.

Filter Resonance Low

Default 0.0dB

Controls the amount of filter resonance at the Filter Freq Low frequency.

⚠ Boosts above 18 dB will begin to self-oscillate and can be used for interesting sweeping / feedback effects.

Filter Slope Low

Default 0%

Continuously varies the slope of the low filter.

ℹ Positive values create a low shelf boost. Negative values begin as a low shelf cut and eventually morph into a pure low cut.

Filter Freq High

Default 4.00kHz

Controls the corner frequency of the high filter.

Filter Resonance High

Default 0.0dB

Controls the amount of filter resonance at the Filter Freq High frequency.

⚠ Boosts above 18 dB will begin to self-oscillate and can be used for interesting sweeping / feedback effects.

Filter Slope High

Default 0%

Continuously varies the slope of the high filter.

ℹ Positive values create a high shelf boost. Negative values begin as a high shelf cut and eventually morph into a pure high cut.

Filter Scale

Default +-30 dB

Changes the display scaling of the Filter section.

Filter Trim

Default 0.0dB

Adjusts the gain trim of the Filter section.

- This can be useful to level match the signal before it hits the tube and tape sections.

- **Filter Trim** also has a triangular indicator ◀ floating to the right side of the slider indicating **Tape Wow**'s best guess of the optimal setting for level matching.

Calibration Trim

Default -6.0dB

Calibration Trim controls the calibration level as seen by the **Tape Wow** input.

- Set this control correctly, and **Tape Wow** should take care of all the level matching / compensation for you.

- For louder sources, calibration levels closer to -18.0dB may be most appropriate. For individual instruments, pushing the **Calibration Trim** towards +18.0dB may be more desirable.

- It can be very useful to **lock** this control while switching presets. Just right-click anywhere on the **Calibration Trim** and choose "Lock **Calibration Trim** When Switching Presets."

- The **Calibration Trim** control has some handy metering with a triangle (▲) indicator that points to **Tape Wow**'s best guess of the optimal calibration level for the current input signal level.

Output Gain Position

Default POST

Changes how Output Gain interacts with the Master Mix.

Option	*About*	*Discussion*
POST	Post-Mix	Output Gain is applied to **Tupe Wow**'s final output at its full value, whatever the Master Mix is set to.
PRE	Pre-Mix	Output Gain is scaled (in dB) by the Master Mix, so it fades out along with the rest of **Tupe Wow**'s processing.

> ℹ In PRE, an Output Gain of -6.0dB becomes -3.0dB at 50% mix, and has no effect at all at 0% mix (where Output Gain is dimmed).

> ℹ PRE is handy when Output Gain is making up for a level change caused by **Tupe Wow**'s processing: set it at 100% mix, and it will stay close as you turn the Master Mix down.

> ℹ For the most accurate level matching across the whole Master Mix range, start with the Calibration Trim.

Emphasis Filter

The Emphasis section uses the same overall design as the Filter section, but instead of filtering the audio signal directly, it only affects the tube/tape saturation signals.

This is useful for *emphasizing* or *deemphasizing* the saturation in certain areas: the frequency curve of the Emphasis section affects the signal being driven into the tube/tape and is automatically compensated by **Tupe Wow** to maintain a flat overall frequency response.

This section is fairly advanced (which is why we've put it in a new advanced page), so if you're already feeling overwhelmed by Tupe's control-set, don't feel like you need to use the Emphasis pane just yet. The presets can also be useful for learning more about what the Emphasis section can do.

Here's an example:

Want less distortion in the bass frequencies?
Pull down the bass in the Emphasis.

Want a more crushed/distorted low end?
Push up the bass in the Emphasis.

Emphasis Tilt

Default 0.0dB

Varies the amount of spectral tilt in the Emphasis section.

- Negative values tilt the sonic spectrum toward the bass.
- Positive values tilt toward the treble.

Emphasis Freq Low

Default 125Hz

Controls the corner frequency of the low emphasis filter.

Emphasis Resonance Low

Default 0.0dB

Controls the amount of resonance at the Emphasis Freq Low frequency.

Emphasis Slope Low

Default 0%

Continuously varies the slope of the low emphasis filter.

- Unlike Filter Slope Low, **Emphasis Slope Low** produces a shelf for all positive & negative values.

Emphasis Freq High

Default 4.00kHz

Controls the corner frequency of the high emphasis filter.

Emphasis Resonance High

Default 0.0dB

Controls the amount of resonance at the Emphasis Freq High frequency.

Emphasis Slope High

Default 0%

Continuously varies the slope of the high emphasis filter.

Unlike Filter Slope High, **Emphasis Slope High** produces a shelf for all positive & negative values.

Emphasis Scale

Default +-30 dB

Changes the display scaling of the Emphasis section.

Emphasis Trim

Default 0.0dB

Adjusts the gain trim of the Emphasis section.

This can be useful to level match the signal before it hits the tube and tape sections.

Emphasis Trim also has a triangular indicator ◀ floating to the right side of the slider indicating **Tupe Wow**'s best guess of the optimal setting for level matching.

Tube Ripple

What is Tube Ripple?

Tube amps run on high-voltage DC that's made from the AC power coming out of the wall. This AC/DC conversion requires filtering that is imperfect, and a small leftover wobble called

ripple remains on the power supply voltage. This ripple subtly (or not subtly) modulates audio passing through the tube amp.

What does ripple sound like?

Tube ripple adds low buzz and grit that rides along with your audio. It's part of the texture and density of a vintage tube amp. Unlike ground hum, tube ripple is generally only audible *while* audio is passing through the circuit (i.e. silence is still silent).

Tube Ripple Amount sets how much ripple gets through, and Tube Ripple Filter selects the power supply filtering it passes through, which changes its tone. The ripple scales with Tube Amount, and its base frequency follows AC Power Frequency, so you can match the power of a specific region (e.g. 50 Hz for gear from the UK, Europe, or India).

Tube Ripple Amount

Default 0%

Adjusts the depth (and tone) of the tube power supply ripple.

- 0% is no ripple.
- 100% is maximum ripple.

Tube Ripple Filter

Default I Stage

Changes the tube amp's power supply filtering.

Options: I Stage, II Stage

- I Stage sounds brighter and buzzier. It models a screen supply fed through a dropping resistor (a CRC π-filter), as found in many choke-less amps.
- II Stage sounds smoother and cleaner. It models a choke-fed screen supply (a CLC π-filter), the classic guitar amp arrangement.

Tape Wow

The Tape Wow section provides additional controls to tweak the wow & flutter modulations introduced by magnetic tape.

Tape Wow Amount

Default 0%

Adjusts the depth of the *wow & flutter* modulation.

- 0% is no modulation.
- 100% is maximum modulation.

Tape Wow Drag

Default Off

Applies a tape dragging effect while **Tape Wow Drag** is held down.

Options: Off, On

> ⚠ The effect can only be applied for a maximum of 10 seconds, after which the tape “runs out”.

Tape Speed

Default 1.00x

Scales the tape’s running speed relative to the selected Tape Mode’s native speed. For example, 0.5x on a 15 IPS mode behaves like 7.5 IPS. Like changing a real machine’s speed for both recording and playback, **Tape Speed** changes the tape’s tone and wow & flutter, not the pitch.

- Faster speed imparts a brighter sound.
- Slower speed imparts a darker sound.

Tape Wow Speed

Default 4.00Hz

Controls the *wow & flutter* speed in hertz (Hz).

Tape Wow Speed is active when Tape Wow Speed Mode is set to Hz, or when Tape Mode is set to Wow Only. **Tape Wow Speed** can be set via tap tempo: use the `T` key when the control is highlighted to tap in your desired speed.

Tape Wow Speed can also be typed in as a note value relative to the current tempo, e.g. 1/4 for a quarter note, 1/8T for an eighth-note triplet, or 1/4D for a dotted quarter note. The value is set once at the current tempo, so it won't follow later tempo changes.

Tape Wow Speed Mode

Default Tape

Selects how the *wow & flutter* speed is set. At Tape, it follows the selected Tape Mode and Tape Speed. At Hz, it is set directly with Tape Wow Speed.

Options: Tape, Hz

When Tape Mode is set to Wow Only, **Tape Wow Speed Mode** has no effect, and the wow speed is set with Tape Wow Speed.

Tape Wow Stereo Phase

Default 0°

In stereo instances of **Tape Wow**, this control alters the stereo phase of the *wow & flutter* modulation.

In mono instances of **Tape Wow**, it offsets the *phase* of the *wow & flutter* instead.

At 0°, each channel's modulation is exactly the same.

At 180°, the modulation is completely out of phase. This produces a wider stereo image and interesting doubling effects.

Using **Tupe Wow** on multiple mono tracks? Try setting **Tape Wow Stereo Phase** differently on each one so their *wow & flutter* doesn't move in lockstep. This can be used to create a denser, more decorrelated sound.

Tape Wow Wet/Dry

Default 100%

Controls the blend of the *wow & flutter* signal with the dry, uneffected signal.

- 0% is all dry signal.
- 100% is all *wow & flutter* signal.
- 50% is an equal blend of the dry and the *wow & flutter* signals that produces interesting phasing and comb-filtering effects.

Tape Wow Randomization

Default 0%

Controls the amount of randomness and variation in the analog tape's transport mechanism.

- Lower amounts, like 25%, replicate the natural fluctuations of a typical tape machine (especially cassette decks and lower speed machines). Amounts above 50% bring more obvious wobbles and transport errors, caused by older tape that can stick, drag, or stretch.
- The randomization engine is also affected by Tape Wow Stereo Phase. At 0°, the randomness is applied equally to all channels. At 180°, the randomness is completely unlinked, as if running totally independent tape machines for each channel.
- **Tape Wow Randomization** is *not* affected by Tape Wow Amount, so you can turn Tape Wow Amount down to 0%

> and use **Tape Wow Randomization** on its own for subtle, random transport drift without any periodic *wow & flutter*.

Tape Wow Randomization Seed

Default 0

Controls the “seed” of the randomization engine. If set to 0 (aka “None”), there is no seed.

> ℹ This control won’t really change the *sound* of **Tape Wow**; instead, it’ll change the pattern used for randomization. If you’re looking to get the same randomization pattern every time, set this control to any non-zero value. This makes it possible to synchronize multiple instances of **Tape Wow** and get the same results each time you bounce/export a project.

> ⚠ For repeatable bounce/export results, you must bounce from the same location in the timeline.

Adv Page

Default
WOW/RIPPLE

Selects which Advanced Page is displayed.

Options: FILTER+CAL, EMPHASIS, WOW/RIPPLE

> ⚠ This control affects the display only (not the sound).

HQ Mode

Default Off

HQ Mode is our no-holds-barred processing mode where super high quality audio is given priority over CPU usage.

When **HQ Mode** is turned On, **Tape Wow** uses a higher precision algorithm, providing better spectral resolution at the expense of some

added latency (~50 ms) and higher CPU usage.

Option	*Symbol*
Off	~~HQ~~
On	**HQ!**

ℹ We recommend using **HQ Mode** when you need the highest possible quality and don't mind 2-4x higher CPU usage. An important lead instrument, vocal, or a mastering session is a great place for **HQ Mode**.

ℹ **HQ Mode** cannot be MIDI mapped since automating it is not recommended.

⚠ **HQ Mode** will require more CPU resources and result in a slightly higher processing delay (latency). To ensure proper delay compensation in your host/DAW, automating **HQ Mode** is not recommended.

Preprocess Input Gain

Default 0.0

Controls the input gain *before* it hits **Tape Wow**'s processing.

Postprocess Output Gain

Default 0.0

Controls the output gain *after* **Tape Wow**'s processing.

AC Power Frequency

Default Auto

Sets the frequency of the AC power that **Tape Wow**'s circuits are plugged into, which sets the base frequency of both the tube ripple and the tape hum. At `Auto`, it follows the selected Tape Mode, since each was recorded on a machine plugged into its own local power: `60 Hz` in North America, `50 Hz` in much of the rest of the world.

Options: Auto, 60 Hz, 50 Hz

> ℹ At Auto, the tube ripple follows the selected Tape Mode even when the tape is turned off.

> ⚠ **AC Power Frequency** has no audible effect when the tube ripple is off and Tape Noise is off

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Specs

Supported Channel Configurations

Input Channel #	*Output Channel #*
Mono	Mono
Mono	Stereo
Stereo	Stereo

Presets

The presets are a great way to get to know each plugin. The preset drawer can be accessed at the bottom of each plugin by clicking the current preset name.

- ### General
  - *Default*
- ### Reel to Reel Tape
  - *Hifi Tape (8-Track)* *Gentle top-end boost*
  - *Retro Hifi (2-Track)* *Round top end*
  - *Larger Than Life (8-Track)* *In your face. Great on vox*

- *Warm Tape (8-Track)* Huge bottom end
- *Warmer Tape (2-Track)* Gooey, crunchy, low-mid focused
- *Almost Lofi (2-Track)* Extra tape comp & sat
- *Pretty Lofi (2-Track)* Softly saturated
- *All Around Master (8-Track)* Gentle tape compression
- *Warm Master (8-Track)* Warm & round
- *Warmer Master (8-Track)* Fat bass, soft highs

Cassette Tape

- *Hifi 4-Track Cassette* Oversped Type II tape
- *Hot Hifi 4-Track Cassette* Crunched w/ imperfect transport
- *Classic 4-Track Cassette* The quintessential 4-track
- *Vibey 4-Track Cassette* Grimy & overdriven
- *FE90 Cassette Deck* Oversped Type I tape
- *Overdriven FE90 Cassette* Very crunched
- *Cleanish Lofi Cassette* Midrange forward, dull highs
- *Dirty Lofi Cassette* Lost & found cassette
- *Cleanish Toy Cassette* Obviously filtered + noise redux'd
- *Dirty Toy Cassette* In the attic since 1990

Historical

- *Down the Dirt Road Blues* Charley Patton (1929)
- *In the Mood* Glenn Miller (1939)
- *Django's Tiger* Django Reinhardt (1946)
- *Mr. Sandman* The Chordettes (1954)
- *Maybellene* Chuck Berry (1955)
- *Blue Moon* Billie Holiday (1956)
- *上を向いて歩こう (Sukiyaki)* Kyu Sakamoto (1961)
- *Green Onions* Booker T & the MG's (1962)
- *Satyajit Ray Soundtrack* Charulata (1964)
- *Times They Are A-Changin'* Bob Dylan (1964)
- *My Generation* The Who (1965)
- *My Girl* The Temptations (1965)

- *Papa's Got A Brand New Bag* James Brown (1965)
- *Good Vibrations* The Beach Boys (1966)
- *Ain't No Mountain* Marvin Gaye & Tammi Terrell (1967)
- *I Never Loved a Man* Aretha Franklin (1967)
- *Soul Man* Sam & Dave (1967)
- *America* Simon & Garfunkel (1968)
- *Since You've Been Gone* Aretha Franklin (1968)
- *Voodoo Child* Jimi Hendrix (1968)
- *Abbey Road* The Beatles (1969)
- *Dazed and Confused* Led Zeppelin (1969)
- *Don't Let Me Down* The Beatles (January 30, 1969)
- *Hey Jude* Wilson Pickett (1969)
- *Suite: Judy Blue Eyes* Crosby, Stills & Nash (1969)
- *Tezeta* Mulatu Astatke (1969)
- *The Meters* The Meters (1969)
- *Whole Lotta Love* Led Zeppelin (1969)
- *My Sweet Lord* George Harrison (1970)
- *Primavera (Vai Chuva)* Tim Maia (1970)
- *Family Affair* Sly & The Family Stone (1971)
- *Bless the Telephone* Labi Siffre (Sounding Out, 1972)
- *Let's Stay Together* Al Green (1972)
- *Pink Moon* Nick Drake (1972)
- *Pusherman* Curtis Mayfield (1972)
- *Haenim* Kim Jung Mi (1973)
- *Water No Get Enemy* Fela Kuti (1975)
- *Dancing Queen* ABBA (1976)
- *Tubby* King Tubby & Riley All Stars (1976)
- *Dreams* Fleetwood Mac (1977)
- *Music for Airports* Brian Eno (1978)
- *September* Earth, Wind & Fire (1978)
- *Good Times* CHIC (1979)
- *Bam Bam* Sister Nancy (1982)
- *John Williams 35mm Mag* e.g. E.T. The Extra Terrestrial (1982)

- Nebraska *Bruce Springsteen (1982)*
- 我只在乎你 (I Only Care About You) *Teresa Teng (1987)*
- Colorado '88 *Phish (1988)*
- Black Sunday *Cypress Hill (1993)*
- Heart-Shaped Box *Nirvana (1993)*
- C.R.E.A.M. *Wu-Tang Clan (1994)*
- Needle in the Hay *Elliott Smith (1995)*
- Holland, 1945 *Neutral Milk Hotel (1998)*
- Reptilia *The Strokes (2003)*
- Seven Nation Army *The White Stripes (2003)*
- Thickfreakness *The Black Keys (2003)*
- How Long Do I Have to Wait for You? *Sharon Jones & The Dap-Kings (2005)*
- Electric Feel *MGMT (2007)*
- The Park *Feist (2007)*
- A Falling Through *Ray LaMontagne (2008)*
- Wilco (The Preset) *Wilco (The Album) (2009)*
- 1612 *Vulfpeck (2014)*

Historical, Individual Instruments

- Bass: Pino's Voodoo DI *Pino Palladino (2000)*
- Bass: The National Anthem *Radiohead (2000)*
- Bass: Westminster 18" *Bernard Odum (1965)*
- Guitar: Miserlou *Dick Dale (1962)*
- Guitar: Miserlou (DI) *Dick Dale (1962)*
- Guitar: Pipeline *The Ventures (1963)*
- Guitar: Pipeline (DI) *The Ventures (1963)*
- Guitar: Rebel Rebel *David Bowie (1974)*
- Guitar: You Really Got Me *The Kinks (1964)*
- Kick Drum: Questo *The Roots, D'Angelo, etc.*
- Synth: Boards of Canada *Roygbiv (1998)*

Mixing Starters

- Motown Starter *(1965 - 1967)*

- *1972 Starter*
- *Yacht Rock Starter* *Christopher Cross (1979)*
- *1980 Starter*
- *City Pop Starter* *Mariya Takeuchi (1985)*
- *Lofi Beat Starter* *Aruarian Dance (2004)*
- *Lofi Beat Starter: Stereo* *Aruarian Dance (2004)*
- *Dilla Beat Starter* *Donuts (2006)*
- *Tycho Starter* *Awake (2014)*

Guitar & Bass Amps

- *Gentle Overdrive*
- *UK Overdrive*
- *Cranked Champ*
- *Bright Fuzz*
- *Severely Overdriven Guitar Cab*
- *The Joe Dart*
- *Overdriven Bass Cab*
- *Severely Overdriven Bass Cab*

Busted / Sound Design

- *Craigslist Free Section*
- *Thinly-Sliced Fullerton*
- *Snakmaster Cn613*
- *Club Bathroom*
- *Restored Victrola*
- *Dirty Victrola*
- *Radio Breakup*
- *Poorly Calibrated 8-Track*
- *Busted Toy*
- *Failing Tube Amp*

Wow Only

- *Random Stereoizer*

- *Automatic Double Tracker*
- *Wobble Bobber*

Acknowledgements

Alex Volmer / *Annlie Huang* / *Chris Conover* / *Diana Zheng* / *Hunjiya* / *James Edmondson* / *Joe Dart* / *Ross Jenkins* / *Sean Costello* / *TaeHo Park* / *Theo Katzman* / *Tyler Duncan*

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About Goodhertz Plugins

User Interface

Goodhertz plugins are made to be workhorse tools that sound amazing. We've put a lot of thought and care into the audio quality and plugin usability, and for that reason, we've opted for simple and direct controls & interfaces that don't rely on photorealistic knobs or ornamental screw heads to communicate their meaning.

We've also decided to only include meters and graphs when we feel they will directly lead to a better sonic result. Meters/graphs can consume significant CPU resources,

and we firmly believe that **if it sounds good, it is good**.

Our meters can be reset at any time using the “Reset Meters” button (in certain plugins) and manually enabled or disabled via the “Enable Metering” User Preference.

Preset Bar

Button	*Action*
↺	Undo the last parameter change.
↻	Redo the last parameter change.
〈	Switch to the previous preset.
“Preset Name”	Opens the preset drawer (Option/Alt + Click to reset all plugin settings to preset).
〉	Switch to the next preset.
A	Selects the A settings state.
→ ←	This copies the current settings to the opposite A/B state; i.e. if you’re on the A state, clicking the arrow will copy those settings to the B state.
B	Selects the B settings state.

Toolbar

Introduced in version 3.10, the toolbar at the bottom of the plugin holds a handful of shortcut buttons.

Icon	*Action*
⚙	Opens preferences menu

Icon	*Action*
	Shows diagnostic information
	Opens plugin manual in your default web browser
URL	Opens a URL representation of the current plugin control state (Command/Ctrl + Click to copy the URL to the clipboard)
	Opens language-selection menu
	Opens MIDI Learn menu
	Toggles HQ mode (only in certain plugins)
	Resets all meters (only in certain plugins)
−	Shrink interface
+	Enlarge interface

Keyboard Shortcuts

Action	*Keyboard Shortcut*
Enter New Parameter Value	Once you've clicked or double-clicked a control, type in a value, then hit `ENTER`, `RETURN`, *or* `TAB`. Depending on the control type, we support a variety of input values, such as fractions (e.g. 1/4 for 0.25), the kilo suffix (e.g. 4k for 4000), note values for time- and rate-based controls (e.g. 1/8T for an eighth note triplet or 1/4D for a dotted quarter note, relative to the current DAW or plugin BPM), and musical notes for frequency controls (e.g. A#5 for 923.33 Hz or Eb2 for 77.78 Hz).
Increment Parameter Value	`↑` *or* `→` arrow keys
Decrement Parameter Value	`↓` *or* `←` arrow keys

Action	*Keyboard Shortcut*
Jump to Next Parameter	`TAB`
Jump to Previous Parameter	`SHIFT` + `TAB` *or* `` ` `` (backtick)
Escape Parameter Focus / Close any Open Drawers	`ESC`
Tap Tempo	`T` *or* Click (N.B. For this to work, you must have a BPM, milliseconds, or rate (Hz) control selected.)
Save Preset	`N` (N.B. For this to work, the preset panel must be open.)
Set Preset as Favorite	`F` (N.B. For this to work, the preset panel must be open.)
Edit Preset	`E` (N.B. For this to work, the preset panel must be open.)
Update Preset	`U` (N.B. For this to work, the preset panel must be open.)
Delete Preset	`DELETE` (N.B. For this to work, the preset panel must be open.)

Right-Click Actions

Action	*Instruction*
Read about Control in manual	Right-Click & select “Show in Plugin Manual”
Reset Control to Default	Right-Click & select “Reset to Factory Default Value”
Lock Control when switching presets	Right-Click & select “Lock When Switching Presets”
Copy current plugin settings to clipboard	Right-Click & select “Copy as URL to Clipboard”
Paste all plugin settings from clipboard	Right-Click & select “Paste From Clipboard”

Action	*Instruction*
Reset all plugin settings to Defaults	Right-Click & select “Reset All to Defaults”
Reset all plugin metering	Right-Click & select “Reset Meters” (only available in certain plugins)
Reset all plugin settings to Preset	Right-Click & select “Reset to [preset] Preset”
Update Preset with current plugin settings	Right-Click & select “Update [preset] Preset”
Create new Preset with current plugin settings	Right-Click & select “Create New Preset”
Go to the plugin’s manual page	Right-Click & select “Read [plugin name] Manual”

Right-Click Preferences

Action	*Explanation*
Language	Switch the display language of text elements in Goodhertz plugins. We currently support the following languages: English, Spanish, Portuguese, French, Italian, Japanese, Korean, Chinese (Simplified), Chinese (Traditional), and Arabic.
Advanced Pane	By default, this is *Closed in New Instances* — i.e. when you add a new instance of a plugin, it does not show you the advanced controls available by hitting the ••• button in the sidebar. If you’d like new instances to start with the advanced controls showing, choose *Open in New Instances*. Either way, each instance remembers whether its advanced pane was open, including when you reopen a saved session.
Control Granularity	By default, all Goodhertz controls move in small increments when dragged. If you prefer controls to operate with larger increments by default, change this option to *Coarse*. N.B. This will swap the behavior of the Shift mouse modifier - i.e. Shift-dragging will move a control with standard granularity when set to *Coarse*.

Action	*Explanation*
Dark Mode	Allows you to choose the color palette used for displaying the interface. If you prefer the look of dark colors (or work in a darker environment) enable this option. The *Auto* option will automatically adjust the color scheme depending on the system preferences of your machine (Mac only).
Enable Hover Markers	By default, this is *On* — i.e. all controls will show markers on hover. If you find this behavior unnecessary, deselect this option and no markers will be shown.
Enable Metering	By default, this is *On* — i.e. in normal operation, all audio meters and visualizations available in Goodhertz plugins are enabled and running. If you'd like to turn them off and disable all metering and visualization, deselect this option. And to turn them back on, simply reselect it. N.B. If you're struggling to use a large number of Goodhertz plugins on an older processor with an integrated GPU, sometimes disabling metering can help.
Enable Scroll Input	By default, all Goodhertz sliders can be *scrolled* in addition to dragged. If you find this behavior unnecessary, deselect this option and no scrolling events will be used to control Goodhertz sliders.
Enable Tooltips	By default, this is *On* — i.e. all controls will show a tooltip on hover. If you find this behavior unnecessary, deselect this option and no tooltips will be shown.
GPU Acceleration	By default, this is *Enabled* — i.e. the GPU will be prioritized whenever possible to improve graphics performance. If your graphics card does not support GPU acceleration, this preference will be automatically set to *Reduced*. N.B. If you experience graphics issues, disabling this preference may help.
Keyboard Focus	By default, you can get keyboard focus on any Goodhertz control with a single click. Change this option to ensure keyboard focus only occurs on double clicks.
Window Size	Enlarge or shrink the Goodhertz plugin window by selecting an option here. This will save your preference for all instances of this plugin.

Action	*Explanation*
Diagnostics	Displays general information about the plugin and the configuration of your system for diagnostic purposes. If you experience any issues with the plugin, it can be helpful to include this information when contacting us. N.B. Clicking this window will copy the contents to the clipboard.
MIDI Learn	Configure the mapping used to control parameters via MIDI messages. To assign a MIDI number to a control, enable *MIDI Learn* and send a MIDI message while a control is focused. To remove an assigned mapping, click on a mapping entry in the list or select *Clear All* to reset the entire mapping. N.B. You can assign different types of MIDI messages including Pitch Bend, Note, and CC messages.

Mouse Modifiers

Action	*Combination (Mac)*	*Combination (Windows)*
Reset Parameter to Default Value	`OPTION` + Click	`ALT` + Click
Move Control with Coarse Precision	`SHIFT` + Drag	`SHIFT` + Drag
Move Control with Fine Precision	`COMMAND` + Drag	`CTRL` + Drag
Move Control with Normal Precision	Drag	Drag

Automation

Unintentional digital clicks and pops are the worst. They happen for lots of reasons and often end up wasting your time with needless revisions or mastering surgery. When they go unnoticed, they can make their way onto commercial albums and releases.

Plugin automation is a common cause of clicks and pops. Sweeping an EQ band, changing a delay setting, and even automating a plugin bypass can cause digital artifacts if poorly handled.

This is not true for Goodhertz plugins. Any parameter in a Goodhertz plugin, even on/off switches, can be automated freely and smoothly without clicks, pops, or zipper noises (unless otherwise noted). You can push them, pull them, LFO them — whatever you do, they'll handle it gracefully.

Since our Master On/Off controls won't create artifacts, we recommend that you use them rather than your DAW-supplied plugin bypass if you want to disable plugin processing.

Plugin Settings

Goodhertz plugin settings can be copied and pasted as text urls, which look like this: https://goodhertz.com/vulf-comp/3.0.9?cm=0&wf=0&lf=100&lfc=50

To copy and paste, right click anywhere on the plugin interface and select either the copy or the paste option.

E.g. If you paste "https://goodhertz.com/vulf-comp/3.0.9?cm=0&wf=0&lf=100&lfc=50" into Vulf Compressor it will recall the settings associated with that url. This way you can easily send an *exact* plugin setting to someone — in an email or a text — without any guesswork or screenshots.

System Requirements

Mac OS X ≥ 10.13
Audio Unit 64-Bit, VST 64-Bit, VST3 64-Bit, **or** AAX 64-Bit host

Windows ≥ 10
VST 64-Bit, VST3 64-Bit, **or** AAX 64-Bit host

Contact Support

To send plugin feedback, please e-mail us at feedback@goodhertz.com.

If you're having trouble, experiencing a technical issue, or you think you've found a bug, please email support@goodhertz.com.

Find all our contact info & bug-reporting protocol on the contact page.