ZenTube

Tube Harmonic Exciter — User Manual

Version 1.1.0 · VST3 · Windows 10 / 11 64-bit · DSP.Erience 2026

ZenTube is a **tube harmonic exciter**. Each channel runs through a wave-digital model of a **5670 dual triode** at **4× oversampling**, so the harmonics are the ones the circuit produces, not a waveshaper's idea of them. Around the tube there is what you need to place it in a mix: input and output trims, a pad, an AIR shelf, a low cut, a dry/wet blend, and an analysis drawer that shows you exactly what the stage is doing to your signal.

1 · Interface map



Each marker (A–S) matches one row of the table on the next page.

At a glance

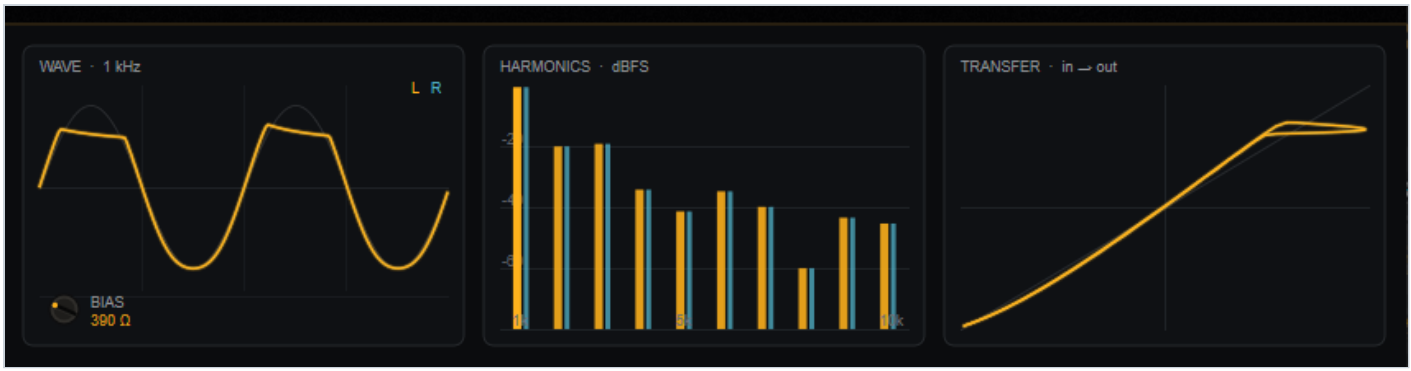
- **DRIVE** is how hard you push the tube. Turning it up makes the fundamental *quieter*, on purpose — see section 4.
- The **DRIVE meter** reads push, not distortion: the mark near the top is where the second harmonic starts to show.
- **LINK** makes channel 1 lead; channel 2 dims and follows.
- The **analysis drawer** shows the waveform, the harmonic spectrum and the transfer curve, live.

2 · Control reference

A	BYPASS	Bypasses the plug-in: the dry signal passes straight through. Bypass overrides the MIX, so what you hear is dry, not a blend.
B	LINK	Channel 1 leads: DRIVE, PAD, AIR and LOW CUT of channel 2 follow it and lock (they dim to show it). Unlinking keeps the mirrored value, with no jump.
C	ON	Master power. Off means cold tubes: no signal and no analysis. It overrides everything, bypass included.
D	PRESET BAR	Preset name with arrows to step through your folder, SAVE, and the A / B slots to compare two settings.
E	INPUT METERS (L / R)	Level going into the tube stage, after the input trim.
F	INPUT TRIM	Stereo input fader, −60 to +12 dB. The bottom of the travel is a real mute, and the centre of the throw sits at −12 dB.
G	DRIVE (channel 1)	How hard the triode is pushed, −10 to +30 dB. This is the main control of the plug-in: it sets how much harmonic content the stage generates.
H	PAD	−20 dB in front of the stage, for sources that arrive too hot.
I	AIR	High shelf, +4 dB at 10 kHz. Opens the top end after the tube.
J	LOW CUT	80 Hz Butterworth high-pass. Keeps the bottom end out of the tube, which is usually where the mud comes from.
K	TUBES	The pair of 5670 triodes. The glow follows what the stage is doing; the window is a display, not a control.
L	CHANNEL 2	The same controls as channel 1, for the right channel. With LINK on it follows channel 1.
M	OUTPUT TRIM	Stereo output fader, −60 to +12 dB. Where you give back the level the drive took away.
N	OUTPUT METERS (L / R)	Level leaving the plug-in.
O	DRIVE METER	How hard you are pushing the tube — push, not distortion. The mark near the top is the saturation threshold: from there on the second harmonic starts to show above the noise.
P	ANALYSIS	Opens and closes the analysis drawer (section 3).
Q	IN LEVEL	Level of the dry side of the MIX only, ±12 dB. The wet level is set by the trims; bypass is not affected.
R	MIX	Dry / wet crossfade. The dry path is time-aligned with the wet, so blending the two does not thin the signal out.
S	ABOUT	Opens the credits panel.

3 · The analysis drawer

ANALYSIS (P) drops a drawer under the panel with three live views of what the tube is doing. It follows the same rules as the audio: with the unit off there is nothing to show, and bypass freezes it.



The analysis drawer: waveform, harmonic spectrum and transfer curve.

- **WAVE** — the waveform of both channels. With drive up you can watch the peaks round off before you can hear it.
- **HARMONICS** — the harmonic spectrum in dBFS, per channel. This is the honest picture of what the tube is adding: which harmonics, and how far down.
- **TRANSFER** — the in → out curve of the stage. A straight line is a clean gain; the bend at the ends is the tube.
- **BIAS** — the cathode bias trimmer, 250 to 800 Ω (390 Ω by default). It moves the operating point of the triode, which changes the balance between even and odd harmonics. It is in the drawer and not on the panel because it is a setup control, not a performance one.

4 · Working with it

Why the level drops when you turn DRIVE up

Because the stage is gain compensated, and that is deliberate. Driving a triode harder compresses the peaks and moves energy from the fundamental into the harmonics — so the fundamental gets *quieter*, exactly as it does on a real unit. What you are buying with DRIVE is harmonic content, not loudness. Give the level back with OUTPUT TRIM, and compare with BYPASS at matched level, never by ear at different volumes.

Reading the DRIVE meter

It shows how hard you are pushing the tube, not how much distortion is coming out. The mark near the top of the scale is the saturation threshold: below it the stage is essentially clean, and from there on the second harmonic starts to come up out of the noise. Use it to know where you are, and the HARMONICS view to know what that is doing.

Low cut first, AIR last

LOW CUT sits before the tube: taking the bottom out before the stage keeps the low end from using up all the headroom and muddying everything above it. AIR is a shelf after it, for when the tube has warmed the top end more than you wanted.

Parallel

MIX crossfades dry and wet, and IN LEVEL sets the level of that dry side on its own. Keeping some dry is the usual way to add harmonics to a bus without softening the transients.

> **What wins over what.** Power (C) beats everything: off means cold tubes, no signal and no analysis. Bypass (A) beats the MIX: it hands you the dry signal straight, with no blend and no delay.

5 · Getting started

Installing

Unzip the whole package into any folder and run `Install ZenTube.cmd`. The wizard copies the complete bundle, clears out older copies and, when it is done, checks that the plug-in really loads on your machine. Close your DAW first, and let it rescan its VST3 folder afterwards. The build ships with the Microsoft runtime inside, so there is nothing else to install.

Activating your licence

Paste your licence code (it starts with `DSP-`) when the wizard asks, and this computer is activated for you; a serial you already have (`ZTB-`) works too. You can also leave it blank and activate later from the plug-in's own activation screen. Your code covers up to three computers, and reinstalling on the same one does not use up an activation.

Where everything lives

- Plug-in — `C:\Program Files\Common Files\VST3\ZenTube.vst3`
- Presets — `Documents\DSPerience\ZenTube Presets` (`.ztp` files)
- Licence — `Documents\DSPerience\ZenTube.license`
- Install log — `Documents\DSPerience\ZenTube_Install.log`

6 · What's new in 1.1.0

- Fixed the preset browser arrows: they were drawn pointing the wrong way, so the left one looked like “next” and the right one like “previous”.
- New ABOUT panel with the credits, on the bottom strip of the panel.
- Version packaging fixed: plug-in, installer and wizard all report 1.1.0.
- The installer no longer leaves a report on your Desktop; the last screen lets you copy it, open it or save it wherever you like.

7 · Specifications

- Format: VST3, 64-bit — Windows 10 / 11
- 5670 dual triode modelled with wave digital filters, 4× oversampling per channel
- Drive −10 to +30 dB, gain compensated · PAD −20 dB
- AIR: high shelf +4 dB @ 10 kHz · LOW CUT: 80 Hz Butterworth
- Input / output trim −60 to +12 dB · IN LEVEL ±12 dB
- Cathode bias 250–800 Ω (default 390 Ω)
- Live analysis: waveform, harmonic spectrum and transfer curve
- No external runtime required

8 · If something goes wrong

If your DAW does not see the plug-in, force a rescan from its preferences — most hosts keep a cached list. If the installation itself failed, the wizard's last screen has three buttons: **Copy report** puts the report on your clipboard, **Open report** shows it, and **Save report as…** saves it wherever you want. Send us that report and we will know exactly what happened.

9 · Support

Write to **info@dsperience.com** or visit **www.dsperience.com**.

> ZenTube — finest valvular circuit design and emulation for harmonic tube colour.

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