BACKWARD PRODUCTION

BW FOUR

TILT EQ

VERSION 2.0.0



User manual · VST3 · Windows 64-bit

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1. Introduction

BW Four Tilt Eq is a tilt equaliser with a variable pivot, three gentle tone bands, and an optional transformer and drive stage. It is inspired by the classic Gyraf G23-S tilt equaliser. One knob, **Tilt**, makes the whole sound darker or brighter around a pivot frequency, like tipping a seesaw. It is made for broad, musical corrections on a mix, a bus or a single track, not for surgical work.

This manual describes **version 2.0.0**. Compared with version 1.0, version 2.0.0 adds the variable pivot (200 Hz to 2 kHz), a new interface with a real-time analyser and stereo meters, simplified presets, and OpenGL window rendering that lets many plugin windows stay open at once without slowing the host.

2. Installation

Run **BW_Four_Tilt_EQ_v2.0.0_Setup.exe**. Administrator rights are required. The installer lets you choose **VST3**, **AAX (Pro Tools)**, or both. The VST3 is installed in:

`C:\Program Files\Common Files\VST3\BackWard\BW Four Tilt Eq.vst3`

The AAX is installed in `C:\Program Files\Common Files\Avid\Audio\Plug-Ins\BW Four Tilt Eq.aaxplugin`. The AAX is not signed and has not been tested in Pro Tools; release versions of Pro Tools may require a signature.

Then rescan the plugins in your host. In Nuendo: Plug-in Manager, then *Update*. Click the BackWard logo in the plugin: the About card must show **Version 2.0.0**.

> **Replacing an older BW Four.** The older BW Four and BW Tilt EQ share the same VST3 identity as this version: the installer replaces them. Do not keep an older copy anywhere inside the VST3 folders, because some hosts scan every `.vst3` file they find, including inside renamed folders, and may load the wrong one.

To uninstall, use Windows *Apps and features*. System requirements: Windows 10 or 11 (64-bit), a VST3 host, a graphics driver with OpenGL support (recommended, see chapter 14).

3. Quick start

1. Insert BW Four Tilt Eq on a track or bus.
2. Turn **Tilt** to the right for brighter, to the left for darker. The curve and colours in the analyser show what the EQ adds (green) and removes (red).
3. Move the **Pivot** (knob, or drag the orange dot on the analyser) to choose the centre of the seesaw.
4. Add **Tone** if you need a little more low, mid or high, and pick the frequency position with the I, II, III selector.
5. Use **Gain Match** to compare with and without the EQ at the same loudness.

4. The interface at a glance



Top rail	Bypass (round button, top left) and the Settings gear (top right).
Analyser	Large real-time display in the middle top: Input, Output, EQ curve, pivot dot.
Meters	Stereo IN meters on the left, stereo OUT meters on the right.
TONE zone	Low, Mid, High knobs with their frequency selectors.
TILT zone	The big Tilt knob, DARK on the left, BRIGHT on the right, value in dB.
OUTPUT zone	Pivot, Drive Max, Trim, Transfo IN | S, Drive Law LIN | CURVE.
Footer	Preset display with arrows and Save, A/B, Gain Match, L/R | M | S, and the BackWard logo with the plugin name.

The window can be resized from the bottom-right corner. The layout scales with the window.

5. Tilt and Pivot

Tilt

The big knob. It rotates the spectrum around the pivot: turning right raises the highs and lowers the lows by the same amount, turning left does the opposite. The slope goes up to **1 dB per octave**, which is about **±4 dB** at 40 Hz and 10 kHz, and 0 dB at the pivot. Beyond those frequencies the curve flattens gently (about ±4.5 dB at 20 Hz and 20 kHz). The filter is minimum phase: no pre-ringing and almost constant phase between 100 Hz and 5 kHz. The knob shows the value in dB; DARK and BRIGHT remind the direction. Ctrl+click resets it to 0.

Pivot

The frequency where the tilt does not change the level. It goes from **200 Hz to 2 kHz**, with **630 Hz** by default. You can set it in two ways: turn the Pivot knob in the Output zone, or drag the orange dot on the analyser (a label shows the frequency). Double-click the dot to reset it. Moving the pivot glides smoothly, it does not click.

Try different pivot positions by ear while the music plays: the pivot decides which part of the spectrum is raised and which part is lowered.

6. Tone: Low, Mid, High

Three gentle bands in the spirit of a Baxandall tone control. They show no numbers on purpose: tone is set by ear. Each band has a gain knob and a three-position frequency selector (I, II, III, default II).

Band	Type	Range	I	II	III
Low	Shelf	±6.5 dB	35 Hz	90 Hz	200 Hz
Mid	Wide bell (Q 0.5)	±2 dB	350 Hz	900 Hz	2.5 kHz
High	Shelf	±6 dB	3 kHz	6 kHz	12 kHz

The Mid band is deliberately small: it is a gentle nudge for body or presence, not a surgical bell.

7. Transformer and Drive

Transfo: IN | S

IN: the signal goes through the modelled transformer, then the Drive, then the EQ. **S**: Tilt and Tone only, clean, with no transformer and no drive.

Drive Max

Sets the maximum amount of saturation (0 to 100 %, default 60 %). The Drive is not a separate knob: it follows the Tilt. There is none at the centre (Tilt 0), and it increases towards the ends, up to the Drive Max value.

Drive Law: LIN | CURVE

LIN: the Drive grows in proportion to the Tilt. **CURVE** (default): it grows slowly at first, then faster near the ends, so small tilts stay clean and large tilts get colour.

8. Output: Trim

Trim sets the output level from -12 to +12 dB (default 0). There is no automatic compensation, unless Gain Match is on.

9. Stereo modes: L/R and M/S

L/R: one EQ setting applied to both channels. **M** and **S**: Mid/Side mode, with one setting for the Mid (centre) and one for the Side (width). Click **M** or **S** in the footer to choose which setting the knobs show and edit; the other keeps its values. The analyser follows the setting being edited. The plugin works on mono and stereo tracks.

10. Presets and A/B

Presets

The preset display in the footer shows the current name. Click it to open the list. The arrows < > step through the presets. **Save** writes over your own preset; on a factory preset it asks for a name first. **Rename** and **Delete** are at the bottom of the list. An asterisk after the name means the settings were changed since the preset was loaded.

Factory presets

Mix Bus Open	Slightly brighter bus, a touch of high shelf.
Mix Bus Weight	Slightly darker bus with more low end.
Master Air	Airy top for mastering, low drive.
Master Warm	Warmer and softer top for mastering.
Studer Top	Tape-style top lift.
Dark Vintage	Dark tilt with saturation.
Bright Drive	Bright tilt with strong drive.
Vocal Presence	Lighter low end, more presence and air.
Drum Bus Body	Darker tilt with weight and punch.
Bass Round	Rounder, darker bass.
Acoustic Sparkle	Open top for acoustic instruments.
Clean Tilt Bright	Tilt only, no transformer, brighter.
Clean Tilt Dark	Tilt only, no transformer, darker.

A / B

A and B hold two complete settings. Click A or B to switch between them and compare. Edit one, switch, edit the other.

11. Gain Match and Bypass

Gain Match keeps the output as loud as the input, so you judge the tone and not the level. It applies a level correction that follows the EQ and Drive. **Bypass** (round button, top left) switches the effect off with a smooth crossfade: the dry signal is delayed by the plugin latency so the comparison stays in time.

12. The analyser and the meters

Analyser

Input in grey, **Output** in violet. The orange curve is the EQ response, **green** shows what the EQ adds and **red** what it removes. The spectrum is smooth, computed on a separate thread, with a 1/14-octave smoothing. The left scale is in dBFS, the right scale in dB of EQ. **PRE / POST / PRE+POST** (top right of the display) chooses what is shown.

Meters

Stereo meters: **IN** on the left, **OUT** on the right, left and right channel each. The top number is the current level in dBFS, the bottom number is the **peak hold**. Click a meter to reset the holds.

13. Settings, Help and About

Click the gear (top right) to open the movable Settings window, with two tabs.

Analyser top	Level at the top of the spectrum: -6, -12 or -18 dBFS.
Analyser floor	Level at the bottom: -48, -60 or -72 dBFS.
EQ scale	Right-hand scale of the EQ curve: Auto, ±1, ±2.5 or ±6 dB.
Analyser view	PRE, POST or PRE+POST.
Rendering	OpenGL (default) or Normal. See chapter 14.
Restore defaults	Resets these display settings.

These settings only change what you see, never the sound. The **Help** tab holds a short guide. The **BackWard logo** (bottom right) opens the **About** card: version number, sample rate, and an **Export error log** button that saves a diagnostic file you can send to support.

14. Rendering and performance (OpenGL)

A plugin window that updates a live analyser can slow the host when many windows are open. BW Four 2.0.0 is designed so that a project can keep many editors open at once:

- The analysis runs on a separate thread, never on the interface thread, and only for windows that are visible.
- The refresh rate is shared between all visible windows of the host: a single window runs at full speed, many windows share the budget.
- **OpenGL rendering** (default): the graphics card draws the window. This is what keeps the host smooth with many windows. At most three windows use OpenGL at the same moment; the others use normal rendering and take over an OpenGL slot when you hover them.
- **Automatic safety:** if the host crashes while OpenGL starts, the plugin switches back to normal rendering by itself at the next start. You can switch OpenGL back on in Settings.

It was tested in Nuendo with up to 8 plugin windows open at the same time. You can choose **Normal** in Settings, Rendering, if your graphics driver gives any problem.

15. Tips and shortcuts

Ctrl+click	Resets any control to its default (Cmd+click on Mac).
Drag the orange dot	Changes the pivot on the analyser.
Double-click the dot	Resets the pivot to 630 Hz.
Click a meter	Resets the peak holds.
Click M or S	Chooses the Mid or Side setting to edit in M/S mode.
Bottom-right corner	Resizes the window.
Click the logo	Opens the About card.

16. Technical specifications

Format	VST3, Windows 64-bit
Channels	Mono or stereo (input and output must match)
Tilt	-4 to +4 dB at 40 Hz and 10 kHz (±1 dB/octave), minimum phase, 5 first-order shelf cells
Pivot	200 Hz to 2 kHz, default 630 Hz
Tone	Low ±6.5 dB shelf, Mid ±2 dB bell, High ±6 dB shelf, 3 positions each
Transformer / Drive	Oversampled saturation, driven by the Tilt, Drive Max 0 to 100 %
Oversampling and latency	The plugin runs oversampled and reports a small fixed latency to the host, identical in IN and S modes
Trim	-12 to +12 dB
Analyser	8192-point FFT, 400 display points, 1/14-octave smoothing

17. Parameter list (automation)

Name	Range	Default
Tilt	-4 to +4 dB	0
Pivot	200 to 2000 Hz	630 Hz
Mode	IN, S	IN
Low Gain / Mid Gain / High Gain	±6.5 / ±2 / ±6 dB	0
Low Freq / Mid Freq / High Freq	I, II, III	II
Drive Max	0 to 100 %	60 %
Trim	-12 to +12 dB	0 dB
Drive Shape	Linear, Curve	Curve
Bypass	Off, On	Off
Stereo Mode	L/R, M/S	L/R
Gain Match	Off, On	Off
Side Tilt, Side Low/Mid/High Gain, Side Low/Mid/High Freq	Same ranges as the Mid / L-R ones	0 / II

18. Troubleshooting

The host shows the old interface or version	Another copy of BW Four or BW Tilt EQ is still in a VST3 folder (even inside a renamed folder). Remove it, then rescan the plugins and restart the host.
The window is slow or the display looks wrong	Open Settings, Rendering, and choose Normal. Update your graphics driver.
OpenGL switched itself off	The plugin detected a crash at the previous start. Switch it on again in Settings if you want to retry.
The sound is different with the plugin in the chain	In IN mode the transformer and Drive colour the sound. Switch Transfo to S for a clean tilt, and use Gain Match to compare at the same level.

Presets do not appear	Your own presets are stored in your user folder (`Documents\BackWard\BW Tilt EQ`). Factory presets are always in the list.
Something else	Open the About card, click Export error log and send the file to BackWard Production with a short description.

19. Version history

2.0.0	Complete redesign: variable pivot (200 Hz to 2 kHz), new interface with real-time analyser and stereo meters, simplified presets, Settings and Help window, About card, OpenGL rendering by default with automatic fallback, multi-instance performance work.
1.0.0	First release: Tilt, Tone, Transformer and Drive.

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