eq169

The Swiss Broadcast Channel EQ, Rebuilt

noizplay

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Overview



eq169 recreates the channel EQ of the Studer 169 console*. It is computed from the original circuit, component by component, and checked against the measurement curves published in the original service manual: the curves, the interaction of the controls and the phase response closely follow the hardware.

the eq is the original's: broad bass and treble shelves and a sweepable presence band. The curves are wide and forgiving — musical on single tracks, groups and the mix bus alike.

two strips run linked in stereo, or independently as dual mono or mid/side.

saturation adds the console around the eq: the input transformer and the output amplifier, calibrated to the original's published specifications.

eq169 is free. No license key, no activation, no registration, no demo.

*Studer is a registered trademark of its respective owner. eq169 is not affiliated with or endorsed by Studer; the name is used for reference only.

Signal Flow

phase → lo cut → bass/treble → presence → saturation → gain

As in the original, phase and lo cut sit ahead of the equalizer and are not part of it: switching the eq off leaves them working. Saturation wraps around the eq — the input transformer ahead of it, the output amplifier behind it.

In mid/side mode the strips work on the mid and the side signal; the input transformer sees left and right, ahead of the mid/side encoding.

Channel Modes

stereo	Strip A works on both channels. Strip B has no job: it is darkened and named *unused*.
dual mono	Strip A on the left channel, strip B on the right.
mid/side	Strip A on the mid signal, strip B on the side signal. The strips are named *mid* and *side*.

On a mono track there is only one strip, named *mono*, and no mode.

A mode change fades the output to the dry signal for a moment, switches, and fades back in — no clicks.

Strip Controls

eq on	The strip's title is its eq switch (*A eq on*, *mid eq on*, …). Off bypasses bass, presence and treble; phase and lo cut stay active, as in the original.
phase (Ø)	Reverses the polarity of the strip. Greyed out in mid/side, where it would only swap or mirror the channels.
lo cut	The original's bass cut filter: 12 dB/oct, −3 dB at about 80 Hz. Fixed frequency, on or off.
bass	Shelf, Baxandall type. Range: ±15 dB, the value is the gain at 20 Hz.
frequency	Centre of the presence band: 150 Hz … 7 kHz.
presence	Broad bell (Q ≈ 1) at *frequency*. Range: ±12 dB, the value is the gain at the centre frequency.
treble	Shelf, Baxandall type. Range: ±15 dB, the value is the gain at 20 kHz.
copy from …	Copies the other strip's settings into this one (*copy from B*, *copy from mid*, …).
A ↔ B	Exchanges the settings of the two strips (*mid* ↔ *side* in mid/side).

copy from and *A ↔ B* work in dual mono and mid/side; in stereo strip B has no job.

> **Knob values:** the original's panel is marked −4 … +4. eq169 shows dB instead: bass at 20 Hz, treble at 20 kHz, presence at its centre frequency. Behind the scenes each value becomes a pot position of the original circuit, so the curve shapes and the interaction of bass and treble behave like the hardware — both at full boost lift 1 kHz by about 1 dB, as on the console.

The Curve

Next to the treble knob each strip draws its response: lo cut and eq, from the same circuit model as the audio path. There is no scale — it is a picture of the setting, not a measuring instrument. The vertical range is fixed, so the same setting always looks the same; a lo cut and steep cuts run out at the bottom.

A small red phase symbol in the top left corner shows that phase is reversed.

Master Section

saturation	The header button switches the console around the eq on and off. Off, the signal passes untouched. The knob is the drive: it raises the level into the console and lowers it again behind it, so the loudness stays the same. Range: ±12 dB.
mode	stereo, dual mono, mid/side (see *Channel Modes*).
gain	Output level. Range: ±12 dB. Not stored in presets.
True Peak Meter	Level after gain. Peak-hold remains until you click the meter or restart the DAW. Values > 0 dB shown red.

Saturation

eq169 runs the console at unity gain, line level in and out, with 0 dBFS (sine peak) = +18 dBu. At that gain only two parts of the original reach their limits, and those are what saturation adds:

- **input transformer** — the low end gets denser as the level rises. The distortion grows steeply towards low frequencies and is practically absent above a few hundred Hz.
- **output amplifier** — a gentle, slightly asymmetric curvature, then the limit of the op-amps' supply.

Calibrated to the published specifications:

Specification	Original (published spec)	eq169
Distortion, +6 dBu, 1 kHz	≤ 0.03 %	0.026 %
Distortion, +6 dBu, 40 Hz … 15 kHz	≤ 0.2 %	≤ 0.03 %
k3 = 1 % at the line input, 40 Hz	+23 dBu	+23 dBu
Max. output level	+21 dBu	+21.3 dBu (1 %)

At normal levels saturation is subtle: it is the console's colour, not an effect. With drive you push the console harder.

> **Headroom:** the output amplifier clips at +21.8 dBu, about +4 dBFS after the eq. A hot signal with a big boost or a lot of drive clips there, as the console would. Turn drive down for more headroom, or switch saturation off — then eq169 is linear.

Operation

Sliders	Drag vertically, or click the value display for direct entry. Type plain numbers — units are optional (frequency also accepts “Hz”, “kHz” or “1.5k”, the others “dB”)
Greyed knobs	With the eq off, a click on a greyed knob switches it back on.
Undo / Redo	Cmd+Z / Cmd+Shift+Z (Ctrl on Windows)
a/b	Compare / copy two independent settings
Presets	Factory and user presets via the menu in the header.
Info Menu	About dialog, links to useful information and the update group: what’s new, “Check for update” or “New version available”, “Auto-check for updates”.
Update Icon	While the automatic check is on and a newer version is out, the info icon turns into an arrow down in the same circle, until you skip that version. A click opens the info menu as usual.
UI Size	via the icon in the top right corner

All switches and knobs are automatable. Knobs ramp in 50 ms and switches in 20 ms, so automation and fast changes stay free of clicks.

Presets

The factory presets are organized in seven groups:

vocals	Lead and backing vocals: presence, air, weight and warmth, plus fixes for boxy, muddy, thin or harsh takes; spoken word.
drums	Kick, snare, hi-hat, toms, overheads, room mics and the drum bus.
bass	DI and amp: weight, round, growl, pick, slap, scoop.
guitars & keys	Acoustic and electric guitars, piano and Rhodes.
horns	Trumpet, flugelhorn, trombone, sax, low brass, brass stabs and the horn section.
mix bus	Bus and master starting points: console tone, smile, tilts warm and bright, mud control, polish.
mid-side & dual	Presets that use both strips: mono bass focus, wider top, vocal centre, wide guitars and horns.

Default sits below the groups — the flat starting point.

A preset stores every control except gain, so your output level stays where you put it across preset changes. Preset changes and a/b switches crossfade without clicks.

Renaming a Preset

1. Save the preset under a new name
2. Preset menu / Options “Open preset folder”
3. Delete the old preset file
4. Preset menu / Options “Refresh preset menu”

Renaming the preset file directly does not work.

Notes

Why dB and not −4 … +4

The original's scale only says how far a knob is turned. In a DAW the gain is the more useful number, and it makes settings comparable across strips and presets. The behaviour over the knob's travel still follows the circuit.

lo cut and the eq switch

On the console, the bass cut sits in the preamp and the FILTER switch only bypasses the equalizer. eq169 keeps that split: *eq on* compares the eq with and without, while lo cut keeps the rumble out either way.

phase

On the console the phase switch reverses the microphone transformer only. eq169 reverses the strip whatever the source — useful in dual mono to fix a reversed microphone or to check two mics against each other.

mid/side

With strip A on the mid and strip B on the side, you can bring a vocal forward without touching the width, or open up the room and the reverb without touching the centre. *copy from* and *mid ↔ side* help to start both strips from the same setting.

Oversampling and latency

Below 88.2 kHz eq169 runs 2x oversampled, so the treble shelf keeps its shape up to 20 kHz and saturation does not alias. The latency is small, fixed and reported to the host; the About dialog shows it. At 88.2 kHz and above there is no oversampling and no latency.

Bypass

eq169 has no bypass control of its own. The DAW's bypass fades the plugin out and in click-free while its latency stays reported, so the host's delay compensation keeps the track in time.

Update Check

eq169 checks for a newer version when its window opens, at most once per day. The request goes to noizplay.com and carries the product, its version, the plug-in format, the operating system, the processor type and the host application — no account, no serial number, no hardware ID. As with any web request, your IP address is transmitted. Privacy policy: noizplay.com/privacy. Without a connection nothing happens. "Auto-check for updates" in the info menu switches the check off; the choice is kept in the settings file (see *Files & Folders*).

"Check for update" in the info menu asks at once, also while the automatic check is off, and shows the answer in a note. While the automatic check knows a newer version, the entry reads "New version available" and its note offers the download. After the download: quit your DAW, run the installer and start the DAW again. "Skip version" in the note turns the arrow back into the info icon; the entry stays, and the next version is announced again. If noizplay.com cannot be reached, the note says so.

Files & Folders

Where eq169 places its files. The installer lets you choose the plug-in formats — only the ones you tick are installed.

macOS

Plug-in (VST3) `/Library/Audio/Plug-Ins/VST3/eq169.vst3`
Plug-in (AU) `/Library/Audio/Plug-Ins/Components/eq169.component`
Plug-in (AAX, Pro Tools) `/Library/Application Support/Avid/Audio/Plug-Ins/eq169.aaxplugin`
User presets `~/Music/Audio Music Apps/noizplay/eq169/presets/`
Settings file `~/Music/Audio Music Apps/noizplay/eq169/.settings`
Legal documents `/Library/Application Support/noizplay/eq169/Documentation/`
(license agreement and third-party notices; each plugin also carries a copy inside its bundle, under `Contents/Resources/Documentation/`)
Preset file extension `.nppreset`

> ~ is your user home folder.
> /Library (without ~) is the system-wide library.
> Files starting with a dot are hidden in Finder — press Cmd+Shift+. to show them.
> `Audio Music Apps` is Apple's folder for audio-plugin data. It is the one place every host can reach, including sandboxed ones like GarageBand, so your presets are the same in all of them.

Windows

Plug-in (VST3) `C:\Program Files\Common Files\VST3\eq169.vst3`
Plug-in (AAX, Pro Tools) `C:\Program Files\Common Files\Avid\Audio\Plug-Ins\eq169.aaxplugin`
User presets `C:\Users\%USERNAME%\Documents\noizplay\eq169\presets`
Settings file `C:\Users\%USERNAME%\Documents\noizplay\eq169\.settings`
Legal documents `C:\ProgramData\noizplay\eq169\Documentation\`
(license agreement and third-party notices; each plugin also carries a copy inside its bundle, under `Contents\Resources\Documentation\`)
Preset file extension `.nppreset`

> %USERNAME% is your Windows account name.

OneDrive

Many Windows setups move the Documents folder into OneDrive ("PC folder backup"). eq169 follows this redirect, and the noizplay folder is then inside your OneDrive, e.g.
`C:\Users\%USERNAME%\OneDrive\Documents\noizplay\eq169\`
(the exact name varies, e.g. `OneDrive - <company>`, or a translated name for `Documents`).

With *Files On-Demand* turned on, OneDrive may keep only an online copy of a file. If that happens while you're offline, eq169 may not be able to read your presets and settings. To avoid this, right-click the `noizplay` folder and choose *Always keep on this device*.

Uninstall

macOS

Remove the plugin by deleting the items located in /Library:

- `/Library/Audio/Plug-Ins/VST3/eq169.vst3`
- `/Library/Audio/Plug-Ins/Components/eq169.component`
- `/Library/Application Support/Avid/Audio/Plug-Ins/eq169.aaxplugin`
- `/Library/Application Support/noizplay/eq169/`

These are system-wide and require administrator rights.

Windows

Uninstall eq169 via *Settings / Apps / Installed apps*. This removes the plugins and the legal documents:

- `C:\Program Files\Common Files\VST3\eq169.vst3`
- `C:\Program Files\Common Files\Avid\Audio\Plug-Ins\eq169.aaxplugin`
- `C:\ProgramData\noizplay\eq169\`

These are system-wide and require administrator rights.

Your presets are kept

Your user presets and the settings file (see *Files & Folders* above for the exact locations on each platform) are **not** touched by the steps above. Leave the noizplay folder in place if you might reinstall eq169 later.

More Info & Disclaimer

Find more info at noizplay.com

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