

DELOS_{DSP}

TECHNICAL REFERENCE & USER MANUAL

DELOS DEQ

An eight-band equalizer where any band can be told to move only when the signal actually needs it, with selectable HP/LP slopes, optional oversampling and a live pre/post spectrum display built in.

VERSION

0.9.0

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WEB

delosdsp.com

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1. OVERVIEW

DELOS DEQ is an eight-band equalizer — high-pass, low shelf, four fully parametric bells, high shelf, and low-pass — with independent dynamic behavior available on every single band. Any band can react only when its own signal crosses a threshold, easing in and back out with its own attack and release, rather than sitting at a fixed, static setting all the time.

High-pass and low-pass slope is independently selectable from 6 to 48 dB/octave, optional 2x/4x oversampling reduces filter warping near Nyquist, and every band value can be typed in exactly or scrubbed directly on its numeric readout. A high-resolution real-time analyzer sits directly behind the eight draggable band nodes, switchable between the signal before and after the EQ, so tonal decisions are made by ear and by eye at the same time.

KEY FEATURES

- Eight bands: high-pass, low shelf, four parametric bells, high shelf, low-pass
- Independent dynamic (level-triggered) behavior on all eight bands
- Selectable HP/LP slope: 6, 12, 18, 24, 36 or 48 dB/octave, independently per band
- Optional 2x/4x oversampling with automatic host latency reporting
- Inline numeric entry and click-and-drag scrub on every band's Freq/Gain/Q readout
- 4096-point real-time spectrum analyzer with a Pre/Post EQ toggle
- Draggable band nodes directly on the curve, with scroll-to-adjust Q
- Live-animating dynamic engagement indicator per band
- A/B state comparison
- 50 factory presets across five categories

AU

VST3

Standalone

Unity

macOS & Windows

2. GETTING STARTED

SUPPORTED FORMATS

DELOS DEQ is built as an Audio Unit, VST3, standalone application, and a native Unity plugin. The main bus supports mono or stereo — no wider channel counts are negotiated by this plugin.

INSTALLATION

Run the platform installer and restart your DAW (or rescan its plugin folders). DELOS DEQ opens a short welcome screen on first launch and begins a 7-day evaluation automatically, with every feature available and no account required.

MACOS SECURITY NOTICE

macOS will likely warn that DELOS DEQ can't be opened because it is from an unidentified developer while notarization for this build is in progress. This does not indicate a problem with the installer. To open it: go to **System Settings** → **Privacy & Security**, scroll to the Security section, select **Open Anyway** next to the notice about DELOS DEQ, then confirm **Open**.

TRIAL & ACTIVATION

All features are available during the evaluation period. Once the trial ends, the plugin still loads in your sessions but stops processing audio until registered again or activated with a license.

3. INTERFACE OVERVIEW

The main window is a single large EQ display: eight draggable band nodes sit on a curve drawn over a live spectrum analyzer, with a level meter along the right edge, a Pre/Post EQ toggle in the top-left corner, and an oversampling selector in the header.

- **Preset bar** — previous/next, click-to-browse, Save, and an overflow menu.
- **EQ curve & analyzer** — the combined display described in Section 4.
- **Per-band dynamics mini-panel** — opens near a band's node when its dynamics badge is clicked, exposing Threshold, Attack and Release for that band.
- **Slope readout** — a dedicated sub-cell in the HP and LP info rows; clicking it opens a menu of the six available slopes.
- **Oversampling selector** — a header combo box: OS Off / OS 2x / OS 4x.
- **Level meter** — a vertical peak meter with color-coded zones and peak-hold.

4. THE EIGHT BANDS

Band type and position in the signal chain are fixed and are not reassignable; each band processes in order, band 1 through band 8. The six shelf/bell bands are each a single second-order (12 dB/octave) filter stage; HP and LP are built from a cascade of up to four stages, sized to whichever slope is currently selected — see **Section 6**.

#	BAND	TYPE	DEFAULT FREQUENCY
1	HP	High-pass, selectable slope	30 Hz
2	Low Shelf	Shelf	120 Hz
3	Low Mid	Parametric bell	350 Hz
4	Mid	Parametric bell	1000 Hz
5	Hi Mid	Parametric bell	3000 Hz
6	Hi	Parametric bell	7000 Hz
7	High Shelf	Shelf	12000 Hz
8	LP	Low-pass, selectable slope	18000 Hz

The HP and LP bands each have their own on/off toggle and default to **off** — disabling them removes the filter stage entirely rather than parking it at an inaudible frequency. The six shelf/bell bands are always active and have no bypass of their own; the plugin's overall Bypass control affects all eight bands together.

5. DYNAMIC EQ

Every one of the eight bands can be switched into a dynamic mode, where a mono sidechain bandpass filter — tuned to that band's own frequency and Q — drives a dedicated envelope follower. When the detected level rises above the band's Threshold, the band moves toward its Range setting and eases back once the level falls again, following that band's own Attack and Release times.

WHAT ACTUALLY MOVES

Despite the name, engaging dynamics does not change a band's Q. On the six gain-capable bands (Low Shelf, the four bells, High Shelf) dynamics move **gain**; on the two filter bands (HP, LP), which have no gain control, dynamics move **cutoff frequency** instead, expressed in octaves. Full engagement is reached a fixed 12 dB above the band's threshold, regardless of how large the Range setting itself is.

VISUAL FEEDBACK

A dynamic-enabled band shows a faint "ghost" marker at its fully-engaged position, joined to the static node by a dashed line. As the signal triggers the band, a live marker genuinely slides between the static and ghost positions in real time, and the region between the resting curve and the currently-engaged curve is shaded — so the dynamic movement is visible on the curve as it happens, not just indicated by a light.

6. SLOPE, OVERSAMPLING & PRECISION ENTRY

HP/LP SLOPE

High-pass and low-pass each offer six slope options — **6, 12, 18, 24, 36 and 48 dB/octave** — selected independently per band from a menu opened by clicking that band's slope readout. The default on both is 12 dB/octave, matching earlier versions exactly. Internally each slope is built from up to four cascaded filter stages: 6 dB/octave uses a single one-pole stage with no resonance (Q has no effect at that slope); 12 dB/octave is a single Q-adjustable stage, bit-identical to the plugin's original single-stage HP/LP behavior; 18 dB/octave and above are built as high-order Butterworth cascades (2 stages at 18–24 dB/oct, 3 at 36, 4 at 48), where Q likewise has no effect.

OVERSAMPLING

An OS selector in the header offers **Off, 2x and 4x** oversampling, applied to the entire eight-band signal path — not just the dynamic detectors. At 2x or 4x, the whole block is upsampled, all eight bands (including whichever HP/LP slope is active) process at the higher rate, and the result is filtered back down before leaving the plugin. This reduces the frequency warping that high-shelf and high-frequency bell filters can otherwise show near Nyquist, at the cost of added latency and CPU. The added latency is reported to the host automatically whenever the oversampling setting changes, so compatible DAWs apply delay compensation.

INLINE NUMERIC ENTRY

Double-clicking a band's Freq, Gain or Q readout — or double-clicking its point directly on the curve, which works even for HP/LP — opens a small text field over that exact spot where an exact value can be typed. Press Enter to commit or Escape to cancel; values are clamped to the same range as the underlying parameter.

SCRUB

Clicking and dragging vertically on a Freq, Gain or Q readout — not the curve point itself — adjusts that one value only, without disturbing the others the way dragging the curve node can. Frequency scrubs on a log scale (consistent percentage movement whether starting near 100 Hz or 10 kHz); Gain and Q scrub linearly. This is a separate gesture from dragging the band's point on the curve.

7. FULL PARAMETER REFERENCE

PER-BAND STATIC PARAMETERS (ALL EIGHT BANDS)

PARAMETER	RANGE	DEFAULT	NOTES
Frequency	20 Hz–20 kHz	per band, see Section 4	Type or scrub — see Section 6
Gain	–15 to +15 dB	0 dB	Not used by HP/LP
Q	0.1–10.0	0.7	Adjustable by mouse wheel, Alt+drag, or scrub
Enabled (HP/LP only)	On / Off	Off	True bypass of that filter stage when off
Slope (HP/LP only)	6 / 12 / 18 / 24 / 36 / 48 dB/oct	12 dB/oct	Independent for HP and LP

PER-BAND DYNAMICS PARAMETERS (ALL EIGHT BANDS)

PARAMETER	RANGE	DEFAULT
Dynamics enabled	On / Off	Off
Threshold	–60 to 0 dB	–20 dB
Range (HP/LP)	–2.0 to +2.0 octaves	–1.0 octave
Range (other six bands)	–24 to +24 dB	–6 dB
Attack	0.5–200 ms	15 ms
Release	10–1000 ms	120 ms

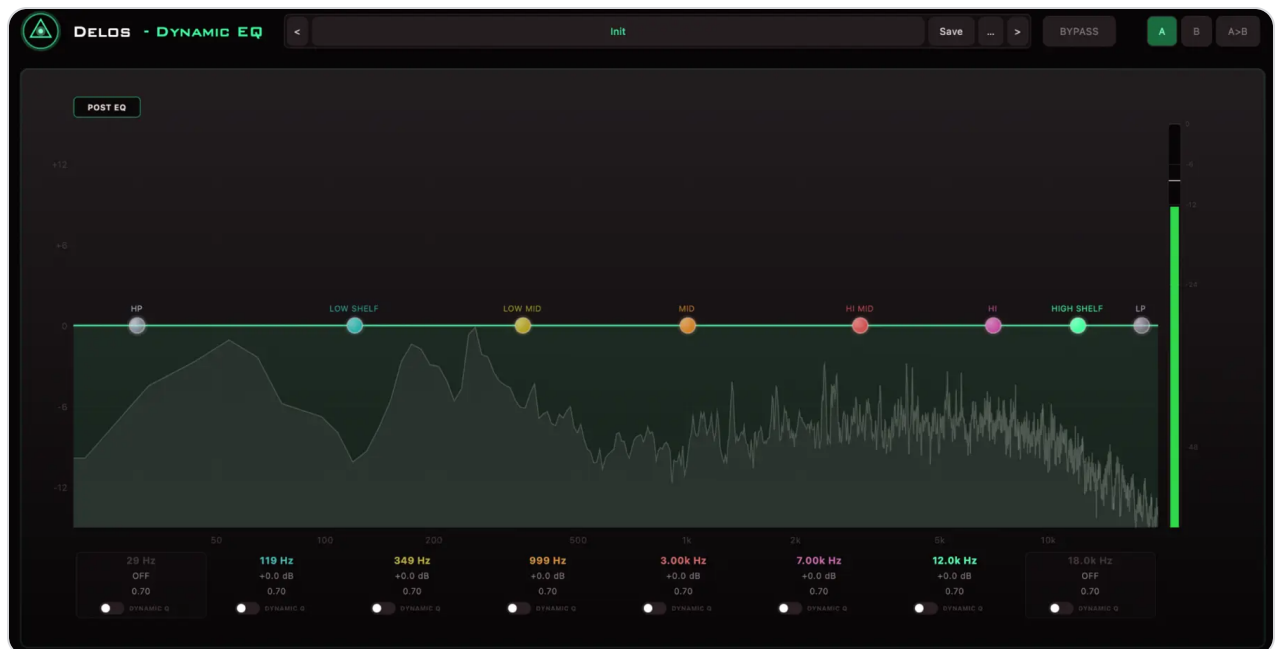
GLOBAL PARAMETERS

PARAMETER	RANGE	DEFAULT
Analyzer source	Post EQ / Pre EQ	Post EQ
Oversampling	Off / 2x / 4x	Off
Bypass	On / Off	Off

8. METERING & VISUALIZATION

SPECTRUM ANALYZER

A 4096-point FFT with Hann windowing is captured continuously on both the pre- and post-EQ signal, smoothed for readability and tilted slightly so that a flat, pink-ish mix reads as visually level. A Pre/Post EQ toggle in the top-left corner of the display switches which capture is shown — Post EQ is the default view.



All eight band nodes on the curve, shown against the live spectrum analyzer.

ADJUSTING BANDS DIRECTLY ON THE CURVE

Drag a node horizontally to change frequency and vertically to change gain (HP/LP are frequency-only; their node stays on the 0 dB line). Scroll the mouse wheel over a node to change its Q — the primary Q control — or hold Alt while dragging horizontally as an alternate way to reach the same adjustment. For exact values or single-parameter adjustment, use inline entry or scrub on the readout instead — see Section 6.

DYNAMIC ENGAGEMENT VIEW

See Section 5 for how the ghost marker and shaded region behave while a band's dynamics are actively engaging.



A band with dynamics engaged, showing the live engagement marker and shaded curve region.

LEVEL METER

A vertical peak meter at the display's edge reads 0 to -60 dB in three color zones, with a peak-hold line that decays gradually rather than dropping instantly.

9. FACTORY PRESETS

DELOS DEQ ships with 50 factory presets across five categories, ten presets each. Each factory preset sets the HP on/off state and frequency, the six gain-band levels, and the LP on/off state and frequency; band center frequencies, Q, slope, oversampling and all Dynamic EQ parameters are left at their defaults, so dynamics are never pre-engaged by a factory preset.

DRUMS

- Kick
- Snare
- Hi Tom
- Mid Tom
- Low Tom
- Floor Tom
- Hi-Hat
- Overheads
- Drum Room
- Drum Bus

BASS

- DI Clarity
- Sub Boost
- Slap Snap
- Fingerstyle Warm
- Pick Bright
- Synth Bass Cut
- Upright Woody

GUITARS

- Clean Rhythm
- Acoustic
- Lead Cut
- Muddy Fix
- Bright Rhythm
- Distorted Scoop
- Slide Clarity
- Fingerstyle Air
- Power Chord Tighten
- Ambient Wash

SYNTHS

- Pad Air
- Pluck Clarity
- Lead Presence
- Bass Synth Tighten
- Arp Sparkle
- Poly Wide
- FM Bell Clean

- Bass Bus
- Deep Sub
- Mud Removal
- Sidechain Space
- Analog Warm
- Harsh Tame

MASTERING

- Gentle Tilt
- Bass Tighten
- Presence Lift
- Air Sheen
- Mud Removal (Master)
- Broadcast Balance
- Vinyl Warm
- Streaming Loud
- Classical Natural
- Vocal Clarity

User presets are saved uncategorized alongside the factory library. Presets are stored as .lilitheqpreset files under Delos DSP/Delos DEQ/Presets in the platform's application data folder.

10. A/B COMPARISON

DELOS DEQ keeps two complete, independent parameter snapshots (A and B), switchable from the header. A single copy button (labelled A>B or B>A) copies the active slot straight into the other slot with no separate paste step. Both slots and the active selection are saved as part of the plugin's session state.

11. TECHNICAL NOTES & KNOWN BEHAVIORS

"DYNAMIC Q" DOESN'T MOVE Q

Despite the feature name, engaging dynamics on a band never modulates its Q. It modulates gain on the six gain-capable bands, and cutoff frequency (in octaves) on HP/LP.

ENGAGEMENT KNEE IS FIXED

Every dynamic band reaches full engagement exactly 12 dB above its own threshold, regardless of how large the Range setting is — a wider Range simply makes that same 12 dB window produce a bigger movement.

Q HAS NO EFFECT AT 6 OR 12 DB/OCTAVE

At the 6 dB/octave slope (a single one-pole stage) and, by definition, the fixed-Q original 12 dB/octave stage, the Q control on HP/LP does not shape the response the way it does at 18 dB/octave and above.

OVERSAMPLING CHANGES REPORTED LATENCY

Switching between Off/2x/4x updates the plugin's reported latency to the host, which can momentarily reset delay-compensated tracks in some hosts — expected behavior, not a bug.

SCRUB VS. CURVE DRAG

Scrubbing a Freq/Gain/Q readout only changes that one value. Dragging the band's point on the curve changes frequency and gain together (or Q via Alt-drag) — use whichever matches the adjustment you actually want.

COEFFICIENT UPDATE RATE

Filter coefficients are recalculated once per audio block rather than per sample; the per-sample envelope follower inside the dynamics engine is the only part of the signal path that updates every sample.

CHANNEL SUPPORT

The main bus accepts mono or stereo only; there is no wider multichannel or surround bus support on this plugin.

12. TROUBLESHOOTING

PLUGIN DOESN'T APPEAR IN MY DAW

Rescan your plugin folders from your DAW's preferences and confirm the installer placed the Audio Unit / VST3 component in the standard system plugin directory for your platform.

MACOS BLOCKS THE INSTALLER

See the notarization notice in Section 2 — use System Settings → Privacy & Security → Open Anyway.

NO AUDIO IS PASSING THROUGH THE PLUGIN

Check that Bypass is off and that the trial or license is still active.

A DYNAMIC BAND DOESN'T SEEM TO AFFECT Q

This is expected — see Section 11. Dynamics move gain or frequency, never Q.

CHANGING THE HP/LP SLOPE DOESN'T SEEM TO CHANGE THE SOUND AT 6 OR 12 DB/OCT

Q has no audible effect at those two slopes by design — see Section 11. Try 18 dB/octave or steeper to hear Q's resonance shaping.

13. VERSION & CREDITS

Product	DELOS DEQ
Version	0.9.0
Publisher	Delos DSP
Formats	AU, VST3, Standalone, Unity
Platforms	macOS (Apple Silicon & Intel), Windows
Web	delosdsp.com
Support	delosdsp.com/contact

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