

HyperVerb Mk II

User Manual - Version 1.0.0

Arbor

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Modern stereo feedback-delay-network (FDN) reverb (VST3) with early reflections, input diffusion, per-line damping, Modulation and Warmth controls, an XY performance pad and 14 factory presets.

Overview

HyperVerb Mk II is a modern reverb built on the classic HyperVerb 16-line Feedback Delay Network (FDN). It keeps the recognizable HyperVerb structure and character while addressing the one weakness of the 1990s original: a metallic, resonant late tail.

What is new in Mk II

- Fractional, modulated delay lines - the FDN taps are now interpolated and gently modulated, breaking up the static comb resonances that made the original sound metallic.
- Two extra controls - Modulation and Warmth (see Parameters).
- Per-line damping with variation - each line gets a slightly different high-frequency damping so the tail decays smoothly instead of ringing.
- Two-band decay - a 250 Hz split lets Warmth scale the low-frequency decay independently from the highs.
- Reworked early reflections - the single-sample early tap is replaced by a 23-tap decaying, low-passed early field with left/right offsets.
- RT60 recomputed per block - decay time tracks the controls without the stale-feedback artifact of the original.

Key Features

- 16-line FDN with normalized Hadamard feedback matrix
- Early reflection system with spread control
- 6-stage input diffusion allpass network
- Per-line damping for frequency-dependent decay shaping
- Pre-delay up to 1000 ms
- 10 interpolated room sizes and 11 early-reflection spreads
- XY performance pad plus per-channel output trims with a link (Lock) option
- 14 factory presets

Signal Flow

1. Input - stereo input signal
2. Pre-delay - delays input before processing (0-1000 ms)
3. Early Reflections - 23-tap early reflection field with adjustable spread
4. Input Diffusion - 6-stage allpass network
5. FDN - 16 interpolated, modulated delay lines with two-band damping
6. Early/Late Balance - mix between early reflections and late tail
7. Dry/Wet Mix - MasterMix control
8. Output - per-channel level control (-18 to +18 dB)

Parameters

All parameters are accessible via automation, host parameter modulation, and the UI. Defaults are the plug-in default program values.

Time & Pre-Delay

PreDelay (0-1000 ms, default: 25.0 ms)

Controls the amount of time before the reverb onset. Increasing pre-delay creates a clearer, more distinct initial sound by separating the dry signal from the reverb tail.

Usage:

- Short (0-10 ms): natural, tight reverb
- Medium (10-50 ms): classic hall/room sound
- Long (50-200 ms): creates space, useful for vocals and leads
- Very long (200-1000 ms): special effects, slap delays with reverb

Diffusion & Character

Diffusion (0-100%, default: 75%)

Controls the density of the reverb tail through the input diffusion allpass stages. Higher values create a smoother, denser tail with fewer discrete echoes.

Usage:

- Low (0-30%): grainy, sparse, more echo-like
- Medium (30-70%): balanced, natural
- High (70-100%): very smooth, dense, lush

Brightness (20-20000 Hz, default: 10000 Hz)

Controls high-frequency damping in the reverb tail. Lower values give a warmer, darker tail; higher values give a brighter, airier tail.

Usage:

- Dark (2000-5000 Hz): warm, intimate, vintage character
- Natural (5000-10000 Hz): balanced, realistic
- Bright (10000-15000 Hz): airy, spacious, modern
- Very bright (15000+ Hz): shimmery, glassy

Note: logarithmic parameter for natural control across the range.

Warmth (0.1-1.5x, default: 1.0x) - new in Mk II

Scales the low-frequency (< 250 Hz) decay of the tail. At 1.0 the low end decays with the rest of the tail (neutral). Above 1.0 the bass blooms and sustains; below 1.0 the low end decays faster for a tighter, drier bottom.

Usage:

- 0.6-0.8x: tight, controlled low end - good on busy mixes
- 1.0x: neutral, matches the original HyperVerb balance
- 1.2-1.5x: big, sustaining low end - good for pads and cinematic spaces

Modulation (0-100%, default: 25%) - new in Mk II

Sets the depth of the slow delay-line modulation that de-correlates the FDN lines. A little modulation removes the metallic ringing of the original tail without audible pitch wobble.

Usage:

- 0%: static lines - legacy HyperVerb character (most metallic)
- 10-40%: smooth, natural, de-metallized tail (recommended)
- 60-100%: lush chorus-like motion - creative/ambient use

Size & Time

ReverbTime (0.1-20.0 s, default: 9.7 s)

Sets the decay time (T60) of the late tail - the time to decay by 60 dB.

Usage:

- Very short (0.1-0.5 s): ambience, small rooms
- Short (0.5-1.5 s): rooms, chambers
- Medium (1.5-3.0 s): halls
- Long (3.0-6.0 s): cathedrals, large spaces
- Very long (6.0-20.0 s): special effects, pads

Note: logarithmic scaling for precise control at shorter times.

Room Size (10 choices, default: 9.0 = Large Cathedral)

Selects the base delay-line lengths for the FDN, setting the overall spatial character and resonance. The implementation interpolates between small, mid and large room regimes for smooth transitions.

Options: Small Closet, Large Closet, Small Room, Medium Room, Large Room, Small Hall, Medium Hall, Large Hall, Small Cathedral, Large Cathedral.

Early Reflection Spread (11 choices, default: 1.0 = 40 ms)

Controls the spatial distribution of early reflections, affecting the perceived width and density of the early field.

Options: Auto, then 30-120 ms in 10 ms steps.

- Auto: uses the natural tap distribution
- Lower values (30-60 ms): focused, intimate early reflections
- Higher values (70-120 ms): wider, more spacious early field

Mix & Balance

Early/Late (0-100%, default: 40%)

Balances the early reflections against the late reverb tail.

Usage:

- 0%: emphasizes the late tail, more diffuse
- 50%: balanced (natural)
- 100%: emphasizes early reflections, clearer, more defined

MasterMix (0-100%, default: 60%)

Controls the dry/wet mix of the effect.

Usage:

- 0%: dry only (no reverb)
- 50%: equal dry/wet balance
- 100%: wet only (reverb only)

Output

Output Level L / R (-18 to +18 dB, default: 0.0 dB)

Per-channel output trim after mixing. The UI's Lock checkbox links the two channels so moving either fader moves both together.

Tip: use the output levels for precise level matching when inserting the reverb into a mix.

Factory Presets

HyperVerb Mk II includes 14 factory presets carried over from HyperVerb, each with Mk II's Modulation at 25% and Warmth at 1.0x unless noted.

#	Preset Name	Characteristics	Suggested Use
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1	[FP] Ambience 1	Short, natural ambience with moderate mix	Subtle space for drums, acoustic instruments
2	[FP] Ambience 2	Longer ambience, darker tail	Background ambience, field recordings
3	[FP] Bright Hall	Bright, spacious hall with wider spread	Orchestral, strings, pads
4	[FP] Warm Hall	Warm, rounded hall character	Piano, acoustic guitar, vocals
5	[FP] Chamber	Classic chamber reverb, intimate	Classical, jazz, dry recordings needing life
6	[FP] Drum Hall	Medium hall optimized for drums	Snare, toms, drum bus
7	[FP] Drum Room	Tight room sound	Rock drums, punchy mixes
8	[FP] Plate Wanna-Be	Smooth, bright, plate-like character	Vocals, percussion, lead instruments
9	[FP] Public Restroom	Small, reflective space with characteristic slap	Creative effects
10	[FP] Slap-Back	Very short decay with prominent early reflections	Vintage slap-back, 50s/60s style
11	[FP] State Capitol	Large, majestic space	Orchestral swells, cinematic
12	[FP] Voice Over 1	Tailored for voice with clarity	Narration, podcasts, broadcast
13	[FP] Voice Over 2	Alternative voice character	Dubbing, ADR
14	[FP] Wash	Lush, washy reverb	Pads, textures, ambient music

Loading Presets

Presets can be loaded via the host preset browser (VST3 program list) and the host's preset selector. On Windows the installer also places the factory .vstpreset files under the host's VST3 preset library so they appear in DAW preset menus:

```
<ProgramData>\VST3 Presets\Arbor\HyperVerb Mk II\
```

All factory presets are also stored in the plug-in's internal program list and are accessible as VST3 unit programs.

UI Reference

HyperVerb Mk II keeps the classic Hyperprism "blue window" look, enlarged and extended with the two new Mk II controls. The editor is 338 x 332 dialog units (rendered at 125%), with 11 pt text throughout.

Layout Overview

Header (top-left)

- ARBOR wordmark with HyperVerb Mk II beneath it, drawn as plain text in a slightly larger font than the rest of the UI (no bitmap logo).

Parameter Sliders (left/center column)

Eight horizontal sliders control the primary reverb parameters:

Slider | Parameter | Range | Units

--- | --- | --- | ---

1 | PreDelay | 0-1000 | ms

2 | Diffusion | 0-100 | %

3 | Brightness | 20-20000 | Hz

4 | ReverbTime | 0.1-20.0 | s

5 | Early/Late | 0-100 | %

6 | MasterMix | 0-100 | %

7 | Modulation | 0-100 | %

8 | Warmth | 0.1-1.5 | x

Each slider has an associated value display/edit box showing the current value with its units.

Room Configuration (top right)

- Room Size (combo box): 10 room types from Small Closet to Large Cathedral
- Early Reflection Spread (combo box): Auto plus 30-120 ms spreads

Output Section (bottom left)

- Output Level L / Output Level R (vertical faders): per-channel trim (-18 to +18 dB)
- Lock (checkbox): links the two faders so they move together

XY Pad Section (right side)

The XY pad controls two selected parameters at once. Click and drag to move the marker; horizontal is the X parameter, vertical is the Y parameter.

- X Axis (combo selector): chooses the horizontal parameter
- Y Axis (combo selector): chooses the vertical parameter
- Available axes: PreDelay, Diffusion, Brightness, ReverbTime, Early/Late, MasterMix

Default: X = MasterMix, Y = ReverbTime

Visual Elements

- XY grid: dark navy pad with a light marker showing the current X/Y position
- Wordmark: the ARBOR / HyperVerb Mk II text header described above
- Color theme: dark navy window (#10172E) with blue (#4c8be0) accents for slider fills, X/Y labels and value highlights

Tips & Techniques

Getting the Mk II sound

- Leave Modulation around 20-30% for a smooth, de-metallized tail. Lower it toward 0% if you want the original HyperVerb's static character.
- Leave Warmth at 1.0x for the neutral HyperVerb balance, then trim to taste (lower for tighter bass, higher for a blooming low end).

Mixing Applications

Vocals

- Moderate pre-delay (15-30 ms) keeps vocals upfront
- Plate Wanna-Be or Voice Over presets as starting points
- Early/Late around 40-60% for clarity; reverb time 1-2 s
- Lower Brightness (4000-7000 Hz) for warmth and to avoid sibilance

Drums

- Drum Room for tight and punchy, Drum Hall for bigger and open
- Short pre-delay (0-15 ms), reverb time 0.5-1.5 s
- MasterMix around 15-40% to protect transients

Acoustic Instruments

- Warm Hall works well for piano, guitar and strings
- Diffusion 70-90% for smoothness; Brightness tuned to the instrument

Synths & Pads

- Wash as a starting point; reverb time 3-8 s
- Diffusion 90-100%; Warmth up to 1.3-1.5x for a sustained low end
- Higher MasterMix for textural effects

Creative Techniques

Creating Depth

1. Increase PreDelay (30-80 ms) to separate source from reverb
2. Adjust Early/Late - more early for definition, more late for distance
3. Use the XY pad to morph two parameters in real time

Tight Spaces

- Small Room or Chamber; reverb time 0.3-1.0 s
- Lower spread (30-50 ms), higher Early/Late (> 60% early), Warmth < 1.0x

Huge Spaces

- Large Cathedral or Large Hall; reverb time 4-12 s

- Higher spread (80-120 ms); lower Early/Late (20-40%); Warmth > 1.0x for bloom

De-metallizing a bright tail

- Raise Modulation to 30-50% and pull Brightness down a little; the tail loses its ringing while staying lively.

Parameter Interactions

- Room Size + ReverbTime: larger rooms naturally support longer decay
- Brightness + ReverbTime: long decays sound muddy without enough brightness
- Modulation + Brightness: more modulation lets you keep the tail brighter without it sounding metallic
- Warmth + Early/Late: high Warmth suits a longer late tail; low Warmth keeps dense early material clean
- PreDelay + MasterMix: crucial for maintaining clarity at higher mix levels

Optimization Tips

- Very long reverb times with high diffusion are the most CPU-intensive
- MasterMix of 15-40% is a good default for most mix applications
- The XY pad is excellent for automation and performance control
- Use the output faders (with Lock) for gain staging

Disclaimer

HyperVerb Mk II is an independent, clean-room reimplementation of the Arboretum Hyperprism 2.5 HyperVerb effect. It contains no original code, binaries, or other assets from the original product.

It is not affiliated with, endorsed by, or supported by Arboretum Systems, its successors, or any rights holder of the original software. "Hyperprism" and "HyperVerb" are referenced only to describe the recreated effect, and all trademarks remain the property of their respective owners.

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Installation & Support

Run install_hyperverb_mkii.cmd from the installer package. It installs:

- Plugin: <ProgramFiles>\Common Files\VST3\Arbor\HyperVerb Mk II.vst3
- Presets (14 factory .vstpreset files):
 <ProgramData>\VST3 Presets\Arbor\HyperVerb Mk II\

The installer shows both paths before copying and lets you install the plugin only, the presets only, or both. After installing, restart your DAW and rescan VST3 plug-ins if HyperVerb Mk II does not appear immediately.

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