H-DELAY

Hybrid Delay
User Guide

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Chapter 1 – Introduction

1.1 Welcome

Thank you for choosing Waves! In order to get the most out of your Waves processor, please take the time to read through this manual.

In conjunction, we also suggest that you become familiar with www.wavesupport.net. There you will find an extensive **Answer Base**, the latest **Tech Specs**, detailed **Installation** guides, new **Software Updates**, and current information on **Authorization** and **Registration**.

By signing up at www.wavesupport.net, you will receive personalized information on your registered products, reminders when updates are available, and information on your authorization status.

1.2 Product Overview

First, Waves took everything we learned when we modeled classic hardware for our award-winning SSL 4000 Collection, V-Series, and The API Collection. Then, we imagined a series of plug-ins that would blend the best of yesterday's sound with today's technology. Finally, we brought these elements together, and created the plug-ins that would realize our vision. The result is the new Waves Hybrid Line.

From slap-back echo, ping-pong delay, and tempo-sync with modulation, to filtering, flanging, phasing, and more, H-Delay delivers real old school effects, controlled by a super intuitive interface.

1.3 Concepts and Terminology

Tape Delay Effect – Certain vintage tape delays offered an option to change the delay time by changing the tape's motor speed. This produced a pitch change, as the already recorded part was now played at a different speed. The pitch returns to normal when the recorded piece in the new speed reached the playback head. We have emulated this behavior in the Delay time control.

Delay Modulation – Using a Low Frequency Oscillator (LFO) and triangle waveform to control the delay time, Delay Modulation produces effects ranging from flanging and chorus to frequency modulation. Oscillation time can be set using either an Hz value or a BPM multiple, a note value, e.g. 1/4 note, 1/8 note, 1/16 note, etc.

Ping Pong Delay – A stereo effect that sounds like the input signal is bouncing between the left and right output channels, Ping Pong Delay is achieved by using two delay lines that feed one another, rather than feeding themselves as in normal stereo delay mode. This effect requires a Feedback value greater than 1.

LoFi – In early digital delay devices, the sample rate was often reduced to allow greater delay values using the same memory chip, causing reduced frequency range. In LoFi mode, H-Delay emulates this behavior, while the delay time range remains the same.

Analog – Choose between 4 Analog Modes which correspond to sound qualities which are usually associated with and perceived as analog sound.

MIDI Control – H-Delay includes a MIDI node which opens upon instantiation of the plug-in. To enable MIDI control of H-Delay, assign a MIDI track to the node. All H-Delay controls (excluding Output Meter) support standard MIDI Learn procedures. (Apple Logic and Ableton Live each have their own MIDI functionality which is supported by H-Delay.)

1.4 Components

WaveShell technology enables us to split Waves processors into smaller plug-ins, which we call **components**. Having a choice of components for a particular processor gives you the flexibility to choose a configuration suitable for your material.

H- Delay is available in 3 channel configurations:

- H-Delay Mono (mono-to-mono)
- H-Delay Stereo (stereo-to-stereo)
- H-Delay M>S (mono-to-stereo)

Chapter 2 – Quickstart Guide

- When H-Delay is placed on an auxiliary track and fed using track sends, set the Mix control to 100, and balance your wet/dry mix is done using the host mixer.

- When H-Delay is used as an insert effect, use H-Delay's Mix control to set the wet/dry mix.

- First roughly set the delay time wanted, using the big Delay knob, time display, or the Tap Pad. In MS Sync mode, Delay Time is set manually (in milliseconds); in Host and BPM modes, Delay Time corresponds to BPM note values.

- When using the Tap Pad, Delay Time is set as the interval between the last two clicks on the pad. In Host and BPM Sync modes, the Delay Time will be quantized to the nearest note value.

- In Host mode, H-Delay displays your host application's current BPM. To manually change the tempo, switch to BPM mode.

- For a "bouncing" stereo effect, press the Ping Pong button.

- At settings of 1 to 100, Feedback controls the amount of delay repetition decay; at settings of 100 to 200, it controls the delay repetition build-up. Depending on the delay setting, it can get very loud, very quickly.

- For more of a vintage, low fidelity sound, press the LoFi button.

- Set the HP and LP Filters as needed. Use the link control to move both filters simultaneously, like a band-pass filter.

- Experiment with different modulation speed and depth settings until you achieve the desired effect. For example, a short delay setting with slow modulation can create a great flanging effect.

- Use the Analog control to alter the sonic character of the H-Delay effect.

- Use the Output and Mix controls to set proper output levels.

Chapter 3 – Interface and Controls

3.1 H-Delay Interface

3.2 H-Delay Controls

In addition to support of all Digidesign control surfaces, H-Delay includes a MIDI node which opens upon instantiation of the plug-in. To enable MIDI control of H-Delay, assign a MIDI track to the node. All H-Delay controls (excluding Output Meter) support standard MIDI Learn procedures. (Apple Logic has its own MIDI functionality which is supported by H-Delay.)

Delay controls the delay time.

Range: 1 to 3500 ms or BPM multiple (e.g. 1/4 note, 1/8 note, 1/16 note, etc.)
Default: 1/8D note (Host sync)

Time and BPM Display shows the delay time value, in MS Sync mode, displayed in milliseconds; in Host and BPM Sync modes, displayed in note units. Values are set using the mouse as well as the Delay control. When switching from MS mode to BPM mode (or vice versa), the display will show the nearest approximate value.

Range**:** 1 to 3500 ms or BPM multiple (e.g. 1/4 note, 1/8 note, 1/16 note, etc.)

Sync determines whether delay time is set according to host tempo or manually.
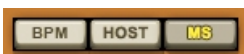
Range:
- Host (syncs to the host application BPM setting)
- BPM (syncs to a manual user setting)
- MS (allows manual setting, in milliseconds)

Default: Host

Depth controls the amount of delay modulation applied.

Range: 0 to 100
Default: 0

Rate sets the modulation LFO cycle rate. In BPM or Host Sync mode, the rate value is set according to a multiplier of the BPM; in MS Sync mode, the rate value is expressed in Hz.

Range: 0.1 to 6000 Hz or BPM multiples (note values)
Default: 0.1

Ping Pong activates/de-activates the ping pong delay effect. (Stereo, Mono-to-Stereo components only).

Range: On/Off
Default: Off

Please note: Using Phase Reverse on one channel in Ping Pong mode may cause some audio cancellation when using mono input sources.

Feedback controls the amount of delay feedback. At settings of 1 to 100, Feedback controls the amount of delay repetition decay; at settings of 100 to 200, it controls the delay repetition build-up (which can be used as an "endless" loop.) Depending on the delay setting, it can get very loud, very quickly.

Range: 0 to 200%
Default: 60%

Phase Reverse L/R sets the phase of each delay line. (Stereo, Mono-to-Stereo components only).

Range: On/Off
Default: Off

Please note: Phase Reverse controls are linked in Mono-to-Stereo mode.

LP Filter controls the frequency range of the low pass filter.

Range: 20 Hz to 20 kHz, Off
Default: Off

HP Filter controls the frequency range of the high pass filter.

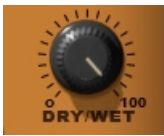Range: Off, 20 Hz to 20 kHz
Default: Off

Filter Link moves both HP and LP Filters by the same value, causing them to act as Band Pass Filter.

Range: 20 Hz to 20 kHz

Please note: Automation for Link movement requires Write Automation-enabling both the HP and LP filters.

Dry/Wet Mix controls the amount of dry (unprocessed) vs. wet (processed) signal.
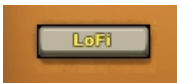

Range: 0 to 100
Default: 100

Analog toggles between analog character modes.

Range: Off, Modes 1 to 4
Default: Mode 2

LoFi activates/de-activates the LoFi effect.

Range: On/Off
Default: Off

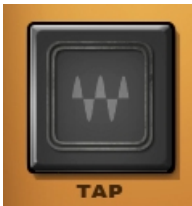**Output** controls the output level.

Range: +/-18 dB
Default: 0

Output Meter displays the output level.

Range: 0 to -48 dBFS

Tap Pad controls the delay time by clicking. Delay Time is set as the interval between the last two clicks on the pad. In Host and BPM Sync modes, the Delay Time will be quantized to the nearest note value.

Chapter 4 – The WaveSystem

4.1 The WaveSystem Toolbar

All Waves processors feature the WaveSystem toolbar which takes care of most administrative functions you will encounter while working with your Waves software. The features of the WaveSystem toolbar are the same on practically all Waves processors, so familiarity with its features will be helpful whichever processor you are using.

Toolbar Functions

Undo	Undoes the last 32 actions. H-Delay supports multiple undo levels.
Redo	Redoes the last 32 undone actions.
Setup A/B	Toggles between two presets. This is useful for close comparison of different parameter settings
Copy A->B	Copies the current settings to the second preset register
Load	Recalls presets from file
Save	Saves presets in the Waves file formats
?	Opens the manual for the processor you are using

4.2 Preset Handling

Preset Types

Factory Presets are permanent presets in the Load menu. Factory presets cannot be over-written or deleted. When applicable, different component plug-ins may have different factory presets.

User Presets are your favorite settings of the plug-in saved as a preset in the Load menu, under 'User Presets'. User Presets can be over-written and deleted.

Setup Files may contain more than one preset. For example, a single file can contain all the presets for a session. When you open a Setup File, all its setups become part of your Load pop-up menu for fast access. This can be particularly useful with multiple instances of a plug-in in a single session. By saving all the settings you create into a single Setup File, they can all be quickly available for every instance of that plug-in.

Loading Presets and Setups

[Load]

Click-and-hold on the Load button to see the Load pop-up menu. The menu is divided into four sections. If a section is not currently available it will not appear in the Load pop-up menu.

Open Preset File…	Select to open any setup or preset file, whether from the Library or your own creations.
'Filename.xps':	Displays any currently loaded Setup File and its presets.
Factory Presets:	Displays the default Factory Presets.
User Presets:	Displays any loaded User Presets.

Saving Presets and Setups

[Save]

Click-and-hold on the Save button to see the Save pop-up menu. Four options are available. If an option is not currently available it will be grayed out and inaccessible.

Save to New File…	Select this to start a new Setup file. There are two prompts - first for the setup filename, then for the preset name. You must provide a name for both the setup file and the preset. Click OK (ENTER) to complete the save. It is a good idea to create a

folder in which to save several setup files for a project.

Save 'File Name' – "Preset Name" Overwrites the settings of the loaded preset (whether a User Preset or a preset from a Setup File) with the current settings. If a Setup File is currently loaded, the name of the Setup File is displayed followed by the name of the preset itself. If a User Preset is loaded, its name is displayed.

Save to 'File Name' As… Saves the current settings as a new preset into the Setup file that is open (if one is not open, the option is grayed out). You will be prompted to give the preset a name.

Put into Preset Menu As… Save the current settings into a User Preset that will always be in your Load menu (until deleted). You will be prompted to give this preset a name. User Presets are stored in the plug-in's preference file.

Deleting Presets

You may delete User Presets and presets within a Setup File. Factory Presets and Setup Library files cannot be deleted or overwritten.

1. Hold the Command (Mac)/Control (PC) key down.
2. Click-and-hold the Load button to see the pop-up menu.
3. While still holding the Command/Control key, select the preset or setup to delete.
4. A confirmation box will appear, allowing you to cancel or 'OK' the deletion.

A/B Comparison and Copying

The Setup A/Setup B button may be clicked to compare two settings. If you load a preset in the Setup B position, this will not affect the preset loaded into the Setup A position, and vice-versa.

If you want to slightly modify the settings in Setup A, you can copy them to Setup B by clicking on the Copy to B button, then alter Setup A and compare with the original Setup B.

The name of the current setup will be shown in the title bar (on platforms which support it), and will switch as you change from Setup A to Setup B.

Note: an asterisk will be added to the preset name when a change is made to the preset.

4.3 Interface Controls

Controls can be in one of three states:

- **Not Selected** where the control is not the target of any user entry
- **Selected** where the control is the target of mouse control entry only
- **Selected and Active** where the control is the target for both mouse and keyboard entry

Toggle Buttons

Toggle buttons display the state of a control, and allow switching between two or more states. **Single-click** to change the control's state. Some toggle buttons have a text

display which updates with the current setting, and others (bypass, solo, or monitoring toggles) illuminate when the control is active.

Some processors have **link buttons** between a pair of toggle buttons, allowing click-and-drag adjustment while retaining the offset between the controls.

Value Window Buttons

Value windows display the value of a control and allow **click-and-drag** adjustment, or **direct control via the keyboard**.

- **Using the mouse**, click-and-drag on the value window to adjust. Some value windows support left/right, some up/down (as you hover over a button, arrows will appear to let you know which direction of movement that button supports).
- **Using the arrow keys**, click once with mouse to select the button, and then use up/down – left/right (depending on the direction supported by that button) to move in the smallest incremental steps across the button's range (holding down the arrow keys will move faster through the range).
- **Using key entry**, double click on the button to open the value window, and directly enter the value from your keyboard. If you enter an out of range number, the button stays selected but remains at the current setting (system beeps? If system sounds are on?)

Some processors have **link buttons** between a pair of value windows, allowing click-and-drag adjustment while retaining the offset between the controls.

Sliders

Click on the slider itself or anywhere within the sliders track. The numerical value of the slider settings is displayed in a hover window above the slider path.

Hover Box

Hovering boxes will appear and display the control value when hovering with the mouse over the control.

TAB Functions

TAB moves the 'selected' status to the next control, with shift-TAB moving in the reverse direction.

Additionally, the Mac has an option-TAB function for 'down' movement and shift-option-TAB for 'up' movement where applicable.

If you have several Value Window Buttons selected, TAB functions will take you through the selected controls only.