
H3000 BAND DELAYS

User Guide

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Welcome

PART 1



1.1 About This Product

The Eventide H3000 Band Delays Mk II plug-in is a powerful audio engineering tool derived from the original filtered delay algorithm found in the legendary H3000 digital multi-effects processor. Band Delays broadens the landscape with eight voices of tempo-based filtered delays working together in their original incarnation to offer you incredible sonic possibilities. All eight filters are fully parametric with configurable types and a bandwidth control that offers high resonance. The filter frequencies can even be played via MIDI notes with several useful modes. The delays offer full tempo support and feature an intuitive Beat Grid for creating incredible pulsing rhythms. Even the original Parameter Modulation features of the H3000 are included as well allowing you to create the uniquely dynamic programs that made the original so popular. Snapshots allow for instant program loading of up to 32 different presets within a single session. All of this, with the sought-after sound of the H3000, brings you a great-sounding plug-in that's as easy to use as the original that inspired it.

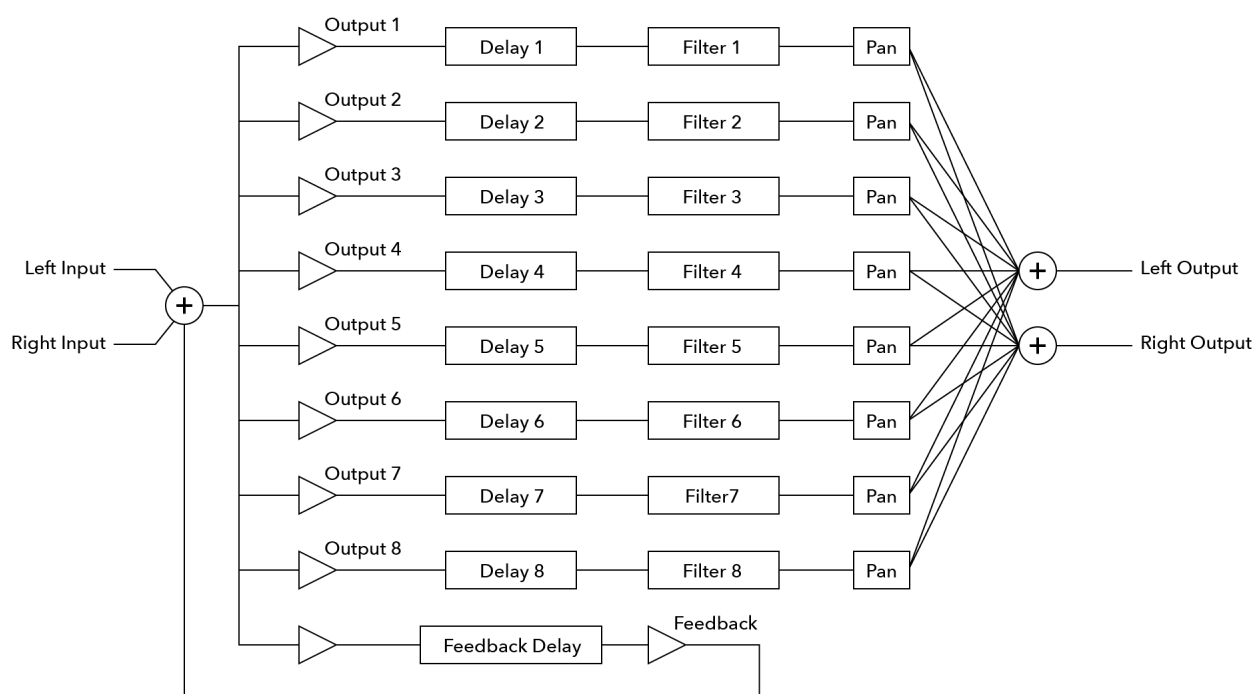
Eventide Band Delays features:

- Eight voices of tempo-based filtered delays up to 2.4 seconds each.
- Beat Grid lets you easily place delays in time with the music.
- Tempo features allow all eight delays to lock to the session tempo.
- Filter parameters include Band Pass, High Pass, Low Pass, All Pass and Shelving types with Q factors from 0.5-999.
- Filter frequencies can be “played” with a MIDI keyboard.
- Full MIDI implementation offers MIDI controller support for Parameter Modulation.
- Parameter Modulation with a host of Function Generator abilities for incredibly dynamic sound shaping.
- Global controls affect all similar parameters.
- Soft Keys let you customize the preset parameters.
- Intuitive graphical interface lets you see delay times, center frequencies, and bandwidth simultaneously.
- Integrated mixer section offers level, pan, and phase control for each voice.

This chapter details the overall operation of the plug-in as well as how each of the parameters function. Please take some time to familiarize yourself with what each parameter does and to read the section on Snapshots. Snapshots are a unique part of the product and may take a little getting used to in order to utilize them fully.

2.1 I/O Formats

Eventide Band Delays is available for use on both mono and stereo sources. When processing a mono audio source, the channel will be converted to a stereo output channel and provide you with a stereo effect. When processing a stereo audio source, the left and right channels will be summed to create a mono input, and a stereo output will be produced. Please refer to the following signal flow diagram for more details.



2.2 Plug-in Panel Overview

For the most part, Band Delays incorporates all of the original controls found in the H3000's Band Delays algorithm, plus some new ones. The panel is broken down into three main sections:

PRESET BAR	The area above the Front Panel where you can recall, save, and scroll through presets.
H3000 FRONT PANEL	The top portion of the plug-in panel that resembles the original product's front panel.
GLOBAL PARAMETERS	The center section that includes the Global parameters and tempo settings.
ADVANCED PARAMETERS	The lower tabbed section of Band Delays. Use the "EXPAND" button on the right side of the plugin to show and hide this section. Click on one of the Program, Expert or Function tabs to bring those parameters to the forefront.

2.3 H3000 Front Panel

The H3000 front panel controls section is always available at the top portion of the plug-in panel. This is where you load and save Snapshots, edit Soft Parameter values and view the input and output levels.



LEVELS	The audio metering can be set to view either input or output on the stereo meter stack. To view the input levels, click on the Levels button to light the LED. When the button's LED is off, the meters are displaying stereo output levels. Note that the input metering is mono only, displaying the same information on both meters.
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SOFT KEYS

The H3000's Soft Keys were originally designed to allow you to create custom parameters that may not have been available in the chosen algorithm. This feature is incorporated into the Band Delays plug-in as well. To adjust one of these parameters, simply click on the button below the Soft Parameter's name and then turn the big Knob to the right. It is also possible to simply click on the value field below the Soft Parameter's name and drag the mouse to adjust the value. Some Soft Keys may be made to initiate a modulation ramp when pressed. The specifics of creating custom parameters are detailed in the Function page later in this document.

PAGE SELECT BUTTONS

The page select buttons are found between the Knob and the Soft Keys. These buttons act like the ones on the original product by selecting the Program, Expert or Function page of parameters. As you click on one of these buttons, the bottom portion of the plug-in panel changes to show the appropriate set of parameters. It's also possible to access these pages by clicking on the tabs in this lower section.

KNOB

The Knob allows you to adjust one Soft Parameter at a time. To do this, click on the button below the soft name and then turn the Knob.

2.4 Snapshots

Eventide Band Delays Mk II incorporates our unique Snapshots feature that allows you to quickly and easily load, save and even automate up to 32 of your favorite Band Delays “scenes.” Snapshots are very much like presets, but you can load them directly from the plug-in panel and even automate them if desired. This means that you get the live performance functionality offered in our high-end hardware processors within the DAW’s environment.



Managing Snapshots

To load a Snapshot, click on any of the numbered buttons. To save your work and overwrite one of the Snapshots, command-click on any of the numbered buttons on Mac, or ctrl-click on Windows. There’s no undo, so be sure before you overwrite a Global Snapshot. To give a Snapshot a new name, click the name field to edit it.

Revert

Revert gives you the freedom to return to the effect settings you were working on before you loaded one or more Snapshots. It is similar to the compare button in the preset bar, except you can load a gajillion Snapshots, and still get back the same parameter values that you had edited prior to loading Snapshots.

As soon as you select a Snapshot, the Revert button pops out to indicate that you can press it. Click on some other Snapshots. It’s still out. If you click on Revert, it goes back in and you’re back to your original edits. You’ll also notice that the selected Snapshot button pops out and becomes unlit as soon as you change a parameter’s value. This is to indicate that you are no longer listening to a Snapshot.

Global vs. Current

There are two kinds of Snapshots, Global and Current, each grouped in banks of 16.

During installation, the Global bank is installed on your hard drive. You can overwrite each of these 16 defaults at any time and they will be available for every instance of the Band Delays plug-in, on every DAW session on the hard drive. Use these like your favorite 16 Band Delays effects. You can even copy this file and move it to other systems that have Eventide Band Delays installed so you can take your favorites with you.

The Current bank differs in that it is saved with each preset. Every time a particular preset is loaded, those snapshots saved to it will be loaded into the Current slots.

Proper Snapshot Hygiene

Snapshots can be very powerful in use, but knowing how they work will help ensure that your Eventide Band Delays Snapshots load and sound right every time. So, if you want to load or automate a Snapshot, load it from the Current bank. If you want to build yourself your favorite 16 and use them everywhere, use the Global Snapshots. If you want to copy a cool Current Snapshot into the Global bank, simply load it with the Current button selected first, then command-click on the desired Snapshot button after selecting the Global button.

Restoring Global Defaults

If you need to restore the factory Global Snapshots at any time, simply run the plug-in installer again, as it will place the default Global Snapshots back into the Snapshots folder.

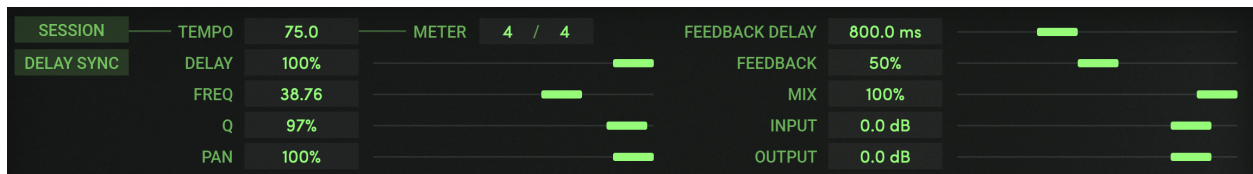
Automating Snapshots

You can use the automation lane to select and load any of the 32 Snapshots. If you want to be sure that your session's sound will be unaffected by changes to global snapshots, be sure to only automate current snapshots.

2.5 Global Parameters

Band Delays includes a set of parameters called Globals. These are the parameters that would come up instantly after loading a preset on the H3000. Like most parameters, these sliders can be automated, but most of them can also be manipulated using the Parameter Modulation section on the Function page. We'll describe how to set that up later, but for now let's take a look at the parameters on this panel.

Note that parameters that are being controlled by Parameter Modulation or locked to Session Tempo are greyed out and cannot be edited directly.



SESSION

When this is enabled, Band Delay's Tempo parameter will use and follow the Tempo changes that occur in your DAW. Otherwise, when set to off, changes to the DAW's Tempo will be ignored. Note that the Tempo and Meter parameters may still be automated if this parameter is off.

DELAY SYNC

Enabling this button will cause the delay times to be calculated based on the Tempo parameter and the current Meter. This applies to Feedback Delay as well as the eight individual voice delays. As the Tempo value changes, the delays will be scaled appropriately to maintain the rhythm that you set in the Beat Grid. When this parameter is off, Tempo and Meter changes will have no effect on delay times.

TEMPO

When Session Tempo is disabled, this sets the Tempo parameter in beats per minutes (BPM). When Session Tempo is enabled, the Tempo parameter value will be greyed out and you will be unable to change it. Only altering the tempo of your DAW's session will affect the Tempo parameter when Session Tempo is engaged.

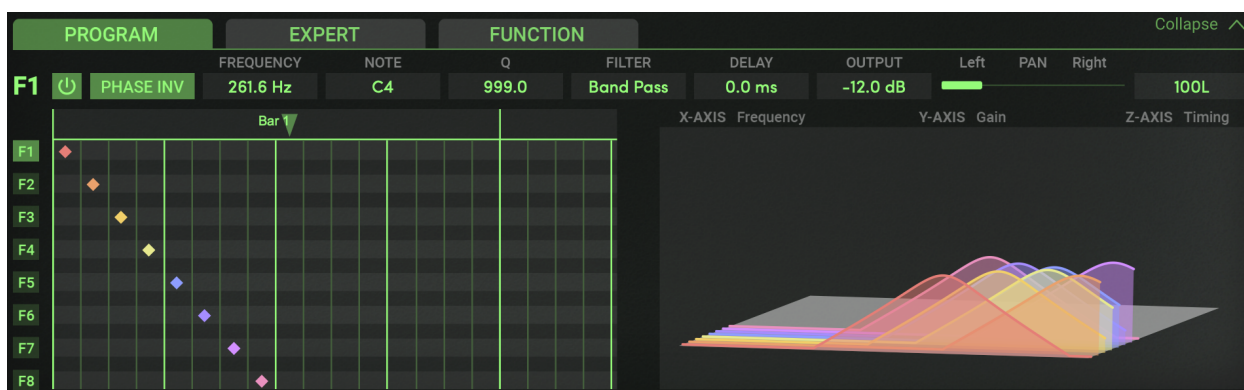
METER	These parameters provide a way to set the song's meter, defining the number of beats in each measure and the integral beat division. The meter will be reflected in the Beat Grid. When Tempo Based is enabled, these values will be greyed out and their value will be linked to your DAW's session meter.
DELAY TIME	This is the master delay control that scales the eight individual voice delays. Note that the individual delay times that appear on the Beat Grid and the Expert page do not show the effects of the master Delay Time control. However, the Band Delay graphic display does show the delay times after the scaling applied by the Delay Time parameter.
FREQUENCY	This is a master frequency control that affects all eight filter Frequency parameters. It behaves as an offset parameter meaning the frequency value here is added to the individual frequency values of each filter. This master offset parameter displays its values in semitones, allowing the musical pitch of the filters to be easily set over a 256 semitone range.
Q FACTOR	This control simultaneously scales the Q factor, or "resonance" of all eight filters.
PAN	This global Pan controls the width of the stereo field. At the maximum setting of 100%, the stereo image is normal. At 0%, the image is mono. At the minimum setting of -100%, the left and right channels are swapped allowing you to quickly invert the overall stereo image.
FEEDBACK DELAY	This parameter determines the length, or delay time of the feedback loop. This parameter can be set using its associated fader or the small pointer in the Beat Grid for quantized control. As you can see from the signal flow diagram presented earlier, this delay is independent of the eight filtered delays and is great for repeating sections of audio through the multi-tap delay line.

FEEDBACK	This controls the amount of feedback, or recirculation through the Feedback Delay.
Mix	This parameter sets the overall balance of wet (effected) signal to dry (original) signal.
INPUT LEVEL	This parameter allows you to adjust the signal level into this plug-in. Up to 12 dB of gain is provided to recover low-level signals.
OUTPUT LEVEL	This parameter allows you to adjust the plug-in's output level. Up to 12 dB of gain is provided.
Mix Lock	Located at the top next to the preset save/load buttons is a button called "Mix Lock". Pressing this will enable a global mix value that will be the same on every preset that is loaded. Meaning that, with Mix Lock on, setting a mix value of 50% will load every preset with a mix value at 50%.

2.6 Program Page

The Program page, accessible via the togglable lower portion of the plugin, offers two graphical displays that help you visualize the large number of parameters and their settings. The Band Display is a display-only representation of the filter settings while the Beat Grid lets you drag-and-drop the delay times onto a quantized grid. There is also a “channel strip” of controls for each voice, making it more convenient to set each voice’s parameters without having to switch to the Expert page. As you adjust each voice’s parameters, the changes will be reflected in the two displays.

To view this page, expand the lower view and click on the PROGRAM tab. This page may also be shown by clicking on the Program button to the left of the Knob.



Channel Strip

Across the top of the Program page is a “channel strip” containing one voice’s set of controls. This acts as a convenient way to adjust any parameters for one voice at a time without having to switch to the Expert page. To set the parameters for a given voice, first click on a voice select button labeled F1 through F8. It will highlight a ghoulish green to indicate the filtered delay that is selected. The “channel strip” will instantly update to reflect the current settings for that voice. Note that you can only edit one voice at a time. Refer to the Expert page for a detailed description of each voice’s controls.

Beat Grid

The main beat grid is a visual representation of the delays being applied to each of the eight filter bands. Its elements are as follows:

BARS AND BEATS

Bars, beats, and subdivisions are displayed as a large grid. The number of Bars and Beats displayed is dependent upon the chosen Tempo and Meter. The Bars are labeled across the top and are divided into beats (the heavy vertical lines) and sixteenth note subdivisions (the light vertical lines).

DELAY MARKERS

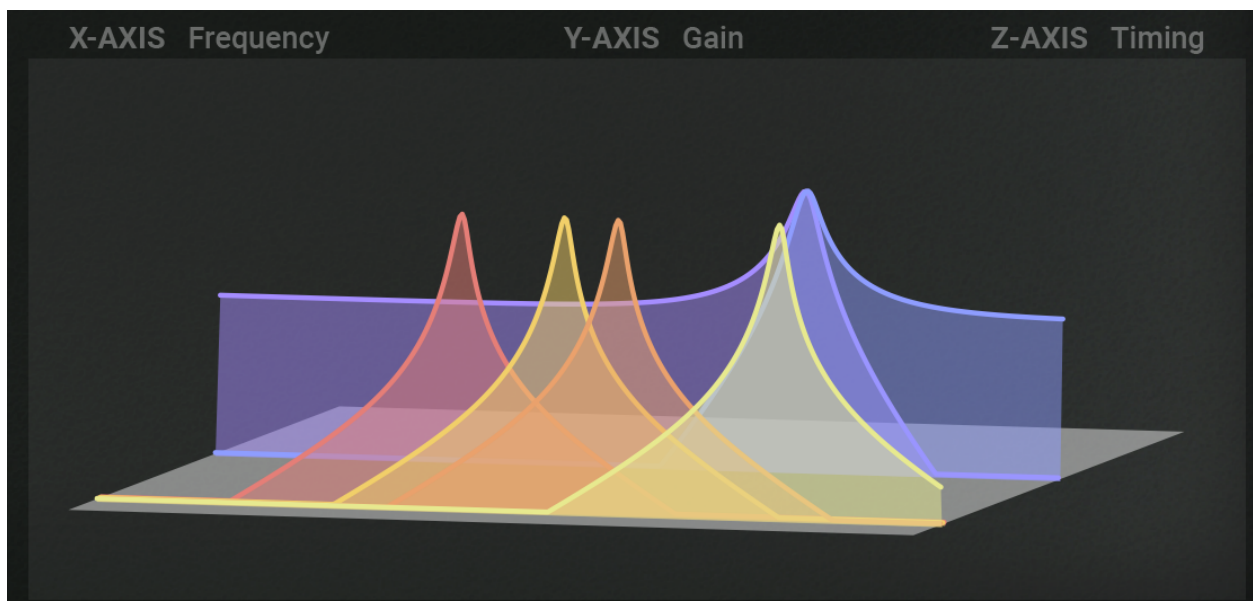
Each delay is represented as a color-coded X in the Beat Grid. They are organized into rows labeled F1 through F8 ("F" for Filter). Simply click and drag on each X to move it "in time" across the grid. Each delay will snap to any of the available sixteenth note divisions to force it perfectly in time. You'll also notice that you can adjust these delays via the Delay Time parameter on the Expert page, however they will not be quantized to subdivided beats.

FEEDBACK DELAY POINTER

The Feedback Delay is represented by a downward-pointing triangle at the top of the grid. Use the same methods for adjusting this control as you do with the Delay Markers.

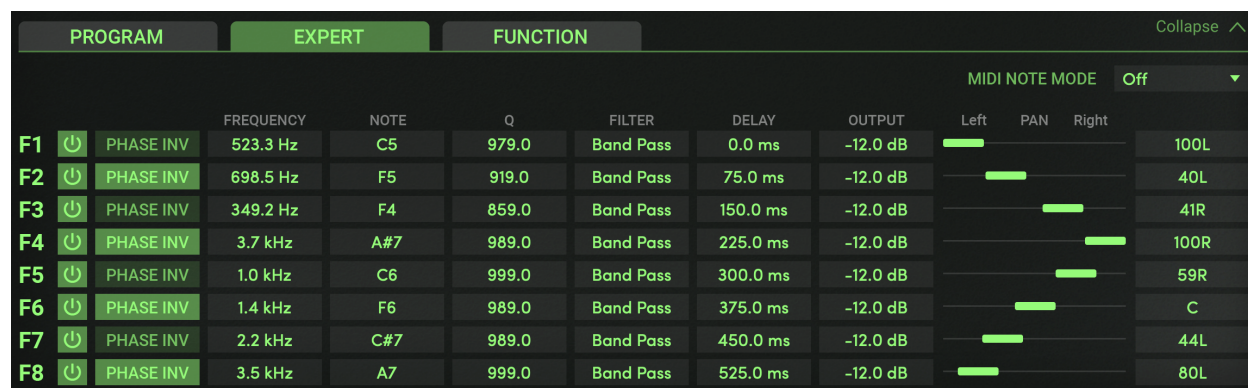
Band Display

The Band Display provides a visual representation of up to eight filtered delays. The colored lines reference a delay voice number as color-coded on the Beat Grid. Their timing is represented as shorter delay times in front with longer delay times being toward the back. The height of each curve represents the voice level. Although the graphic is not directly editable, it helps to understand the interaction between the individual voices. It also looks great when the filter parameters are modulated.



2.7 Expert Page

The Expert page is where you'll find the edit parameters specific to the eight filtered delay voices. These parameters are organized into rows labeled F1 through F8 and are described in this section. To view this page at any time, simply click on the EXPERT tab at the lower portion of the plug-in panel. This page may also be selected by clicking on the Expert button to the left of the Knob.



PROGRAM			EXPERT			FUNCTION			Collapse ^		
									MIDI NOTE MODE Off		
		FREQUENCY	NOTE	Q	FILTER	DELAY	OUTPUT	Left	PAN	Right	
F1		PHASE INV	523.3 Hz	C5	979.0	Band Pass	0.0 ms	-12.0 dB			100L
F2		PHASE INV	698.5 Hz	F5	919.0	Band Pass	75.0 ms	-12.0 dB			40L
F3		PHASE INV	349.2 Hz	F4	859.0	Band Pass	150.0 ms	-12.0 dB			41R
F4		PHASE INV	3.7 kHz	A#7	989.0	Band Pass	225.0 ms	-12.0 dB			100R
F5		PHASE INV	1.0 kHz	C6	999.0	Band Pass	300.0 ms	-12.0 dB			59R
F6		PHASE INV	1.4 kHz	F6	989.0	Band Pass	375.0 ms	-12.0 dB			C
F7		PHASE INV	2.2 kHz	C#7	989.0	Band Pass	450.0 ms	-12.0 dB			44L
F8		PHASE INV	3.5 kHz	A7	999.0	Band Pass	525.0 ms	-12.0 dB			80L

VOICE ON/OFF

The Voice On/Off buttons allow you to quickly mute a voice by turning it off. When the voice is on, the button glows green and will be unlit when turned off.

PHASE INV

The Phase Invert buttons are very useful for special effects, especially when several voices are phase inverted and panned hard left and right. To invert the phase of a voice, click the associated button to change its label from Off to Ø, thus lighting it green as a visual reference.

FREQUENCY

These eight parameters are the center frequencies for each of the filters. They are displayed in Hertz and Kilohertz and each has a range of 20 Hz to 20 kHz. This parameter is tied to the Note Name parameter so that you can see the musical note for any given frequency.

NOTE NAME

Like the Frequency parameter, Note Name adjusts the center frequency for each of the filters. In this case, the values are displayed as the actual note names allowing you to set the filter frequencies more musically. When MIDI note information is routed to this plug-in and a Note Mode is chosen, you'll see the actual MIDI notes displayed in this field. As above, this parameter is connected to the Frequency parameter, displaying the frequency for any given musical note.

Keep in mind that the Global Frequency parameter is an offset on the Frequency and Note parameters. This means that the Global Frequency parameter's value will add to the Frequency and Note Name values.

Q FACTOR

These parameters control the individual Q factor, or bandwidth, for each of the eight filters. Zero corresponds to a very wide frequency range while higher settings yield an increasingly narrow, more resonant filter. The highest setting will oscillate for a long time after the audio source is gone. These filters are constructed such that the higher the Q factor, the higher the gain through the filter. The perceived gain is about the same since a smaller band of audio is passed through. Be careful when setting these filters to very high settings as they can easily be set to distort signals.

FILTER TYPE

This selects one of four filter types used for each of the eight voices. While the original H3000 algorithm offered only a band pass filter, we've included four more filter types including high pass, low pass, all pass, and notch.

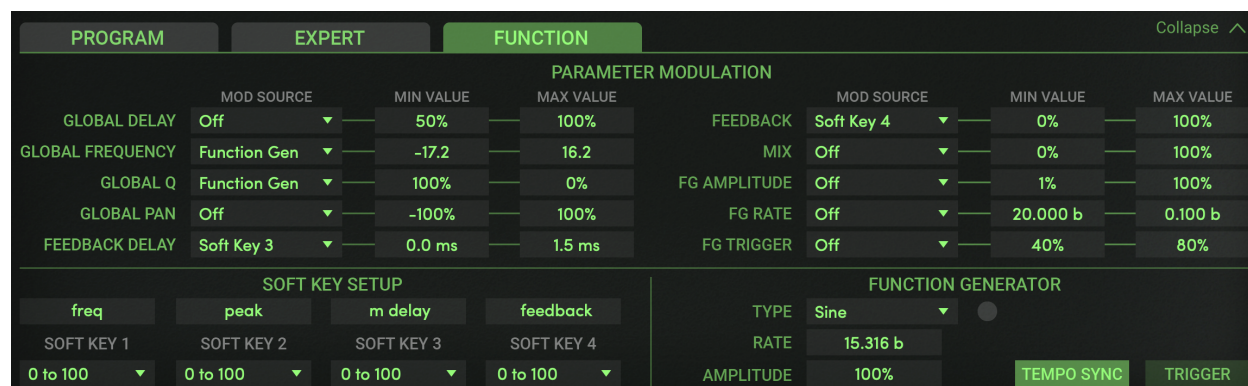
DELAY TIME

These parameters set the delay times for each of the eight filtered voices. When adjusting these values, you can dial in Milliseconds and Seconds. They are not quantized on this page which gives you control of the entire 2.4 Second range. If you want to utilize quantized tempo control, use the Beat Grid on the Program page.

OUTPUT LEVEL	Each filtered voice's output level is controlled by this parameter.
PAN	All eight filters can be placed anywhere in the stereo field using the Pan parameters. Note that the Global Pan control can modify the overall stereo image. The number box to the right indicates its actual pan value.
MIDI NOTE MODE	<p>This parameter determines how the individual filtered voices will respond to incoming MIDI notes. To help you understand how the modes differ, try out each one while playing single notes and chords on a connected MIDI keyboard.</p> <ul style="list-style-type: none"> • Off - incoming MIDI notes are ignored. • Routed - each time a new note is received, the filters are tuned to the currently pressed keys. The lowest note is routed to Filter 1, the next lowest to Filter 2, etc. If less than eight notes are pressed, the notes will be repeated until all the filters are tuned. For example, playing a single note will tune all eight filters. • Ordered - notes are sent to the filters in the order they are received. The first note played will be sent to Filter 1, the next note played is sent to Filter 2 and so on. When all keys are released, the mode is reset so that a new set of played notes will begin at Filter 1. • Circular - this mode is identical to Ordered, however the order in which they are received is never reset. The notes are continuously sent to each filter in a circular fashion. • Gated - probably the most useful mode, Gated behaves very much like Routed, however filters only pass audio when notes are pressed. Keep this in mind in the event you are hearing no audio output from Band Delays. Disable this mode first as it may be expecting to process MIDI note events and therefore no audio is allowed through.

2.8 Function Page

The Function page is where you create incredibly dynamic effects complete with up to four custom Soft Key parameters. A Function Generator is available with a unique list of wave shapes to create timed or free-running effects. To view this page at any time, click on the FUNCTION tab at the lower portion of the plug-in panel. This page may also be selected by clicking on the Function button to the left of the Knob.



Parameter Modulation

Parameter Modulation is the secret behind those wildly dynamic and expressive effects that the H3000 is so famous for. Band Delays incorporates this exact modulation system allowing you to create your own amazing treats.

You start by “patching” a modulation source, such as MIDI Pitch Bend, to a target parameter. Select a modulation source from the drop down menu under the Modulation Source column. Now, when you move the source (pitch wheel in this example) from min to max, the target parameter is also adjusted from its lowest (min) value to its highest (max) value.

You may not always want the target parameter to move through its full range. For example, you might only want to modulate the Frequency within only a few semitones. To do this, you can select values for Min Value and Max Value to affect only a portion of the range. (Min = -2.00 and Max = 2.00 in our example would cause the pitch wheel to adjust all center frequencies +/- one whole step.)

You can also use the built-in Function Generator (FG) to modulate a parameter. The FG offers a host of wave shapes that run continuously at a rate you choose or even in time with the session tempo. There are also several “one shot” wave shapes that are executed using the FG’s Trigger button. Refer to the FG Type descriptions for more information.

Note that any parameter that is being modulated cannot be directly edited. The modulation “takes control” of the parameter. To make this more obvious, any parameter that is being modulated has its text value greyed out.

MOD SOURCE

There are many sources available to dynamically modulate the parameters. These include:

- Function Generator output
- Soft Keys 1-4
- MIDI Mod Wheel
- MIDI Pitch Wheel
- MIDI Volume (#7), Balance (#8), Pan (#10), and Expression (#11) Continuous Controllers
- MIDI General Purpose Controllers 1 - 4 (#16 - #19)

MIN VALUE

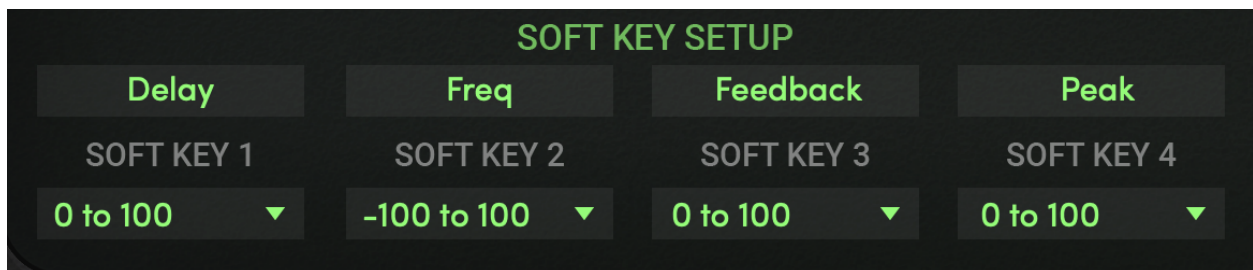
This is the value of the target parameter when the source is at its minimum.

MAX VALUE

This is the value of the destination parameter when the source is at its maximum.

Soft Key Setup

The four Soft Keys are useful when you want to create a custom parameter or just organize the most commonly-used parameters into an easy to access place. These settings are specific to each preset.



NAME

Click to change the name of the Soft Key. It can be up to eight characters long.

POLARITY

This sets the range of the chosen Soft Key and is useful when you want to change the knob’s behavior. For example, you might choose “-100 to +100” when a Soft Key is controlling Global Pan. Otherwise, a range of “0 to 100” is the norm.

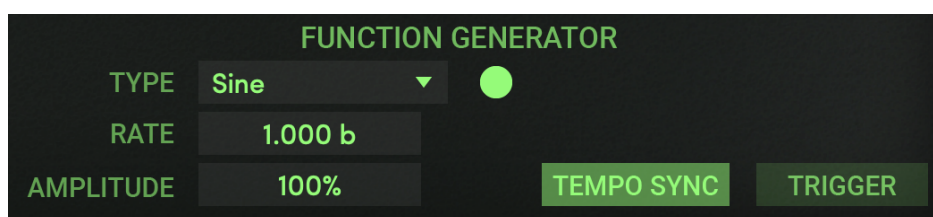
To use the Soft Key, select it as a Modulation Source for one or more of the available Modulation Parameters. Click on the Soft Key on the front panel and turn the Big Knob or just click and drag on the Soft Key value in the H3000 LCD to adjust it.



If you select a Soft Key as a source for FG Trigger and the FG Type is one of the one-shot wave shapes, turning the big knob will execute the one-shot.

Function Generator

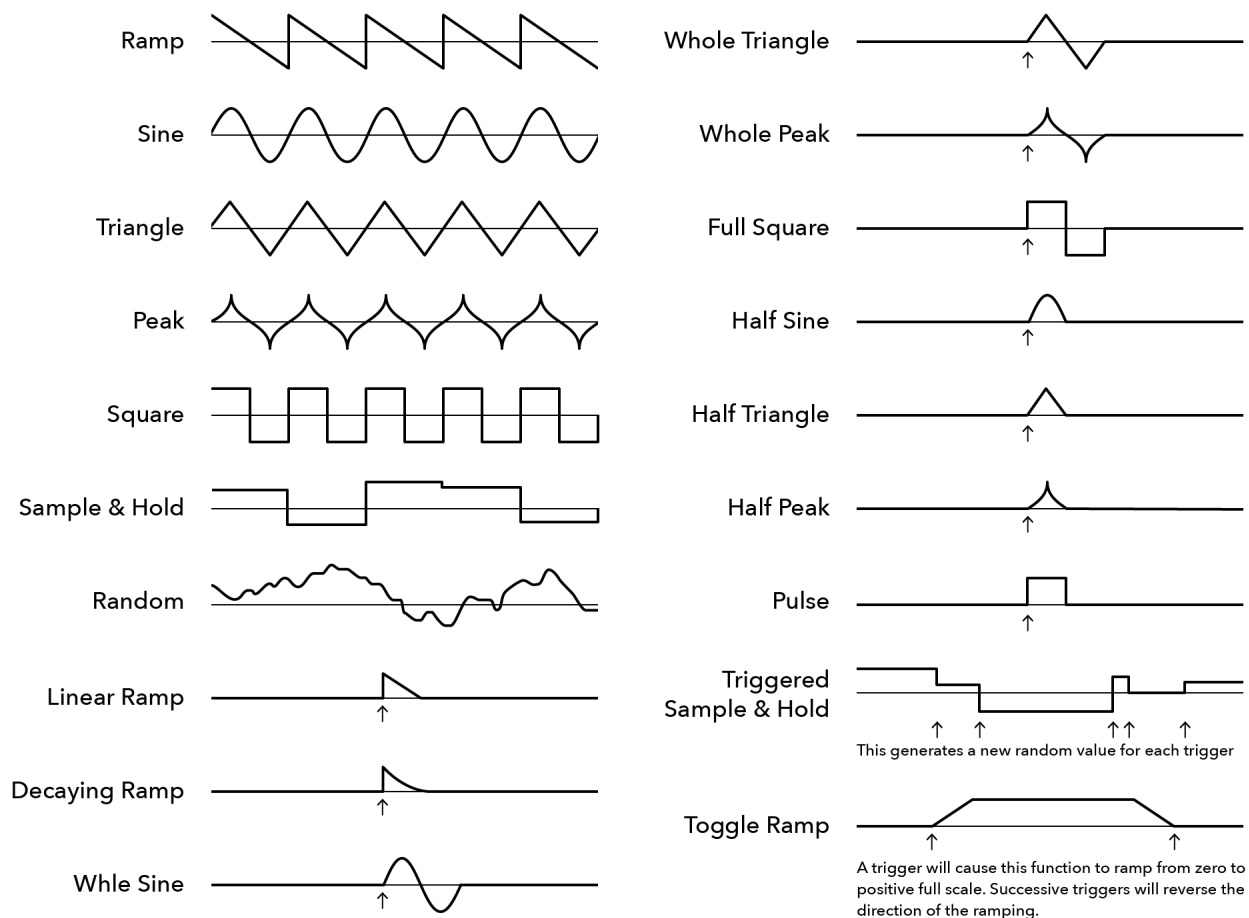
The Function Generator (FG) is an LFO adopted from the H3000. It offers a wide variety of wave shapes that you can use to control many of the Modulation Parameters described earlier. You can even assign the FG's Amplitude, Rate and Trigger button as targets for Parameter Modulation. Each FG Type, or wave shape, can be set to a specific speed and range. Many are available as triggered waveforms as well.



TYPE	Select the desired wave shape.
RATE	Sets the rate or speed at which this oscillator runs or the time that the one-shot wave-shapes take to complete their cycle. When Tempo Sync is enabled, the FG Rate is specified in beats. When the Tempo Based mode is disabled, the FG Rate is specified in Hertz.
AMPLITUDE	Sets the overall output level of the oscillator.
TEMPO SYNC	Sets the FG to calculate rates based on the current tempo.
TRIGGER	Retriggers the selected wave shape. A single press will cause the FG to run through the entire shape of the one-shot types and then stop.

FG Types

The H3000 Band Delays plug-in offers the same 19 waveshapes as the original H3000. Below is a list of the FG Types and a visual representation of each.



2.9 Preset Bar



Located at the top of the H3000 Band Delays Mk II Plug-In, the Preset Bar lets you load and save presets, along with several other features.

When H3000 Band Delays Mk II is installed, the factory preset library is placed in the following platform-specific location:

Mac <user>/Music/Eventide/H3000 Band Delays Mk II/Presets

Windows <user>/Documents/Eventide/H3000 Band Delays Mk II/Presets

Presets for H3000 Band Delays Mk II have a **.tide** extension and can be saved or loaded from the H3000 Band Delays Mk II preset bar in any supported DAW. You can also create sub-folders within the preset folder for organizing your presets if you wish.



Many DAWs offer an additional generic preset bar that saves DAW-specific presets to a separate location. We strongly recommend only saving your presets using the H3000 Band Delays Mk II preset bar to ensure that your presets will be accessible from any DAW.

LOAD/SAVE Use these buttons to load and save your presets in **.tide** format.

COMPARE Click to toggle between two different settings for the plug-in. This is useful for making A/B comparisons.

MIX LOCK Enables a global mix value that will be the same on every preset that is loaded.

INFO Click this button to open this manual.

SETTINGS Click the gear icon to open a drop-down menu with scaling settings for changing the overall size of the plugin.

We hope you enjoy the H3000 Band Delays Mk II plug-in and put it to good use in all of your mixes. Please be sure to check out Eventide's other native plug-in offerings for more unique and interesting effects.

For further questions or support, head over to the [user forums](#).