Plug-in for Digidesign® Pro Tools®

User Guide

Eventide®

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Table of Contents

Introduction

Welcome, and thank you for your purchase of the Eventide H3000 Factory™ plug-in for Pro Tools TDM. We've painstakingly recreated the classic patch factory mod factory | one and mod factory | two algorithms that helped make the H3000 a legendary studio tool and combined them into this incredibly powerful plug-in.

Like the original, H3000 Factory is a modular algorithm allowing you to create completely custom effects that can be manipulated in real time and even synchronized to the session. Combine up to 18 effects blocks together in unique ways to get a virtually limitless array of sounds. It offers pairs of audio effects blocks including sweeping delays, pitch shifters, amplitude modulators, filters plus a noise generator. An assortment of modulation sources include two low frequency oscillators, envelope generators, mixers and more.

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. As with all Eventide plug-ins, the convenient 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 H3000 Factory features:

- 18 effects blocks can be wired "anything to anything" for limitless creations.
- Delays utilize our intuitive Beat Grid, letting you easily place delays in perfect time with the music.
- Fully adjustable filters offer Band Pass, High Pass, Low Pass and Shelving types with Q factors up to 100.
- Over 200 parameters make this an incredibly versatile sound design tool.
- Drag and drop re-ordering of effects blocks.
- Full MIDI implementation offers loading of preset Snapshots and MIDI controller support for Parameter Modulation.
- Parameter Modulation with a host of Function Generator abilities for incredibly dynamic sound shaping.
- Master "Global" controls affect all similar parameters.
- Soft Keys let you customize the preset parameters.
- Familiar interface is easy to use.

About This Manual

We're confident you'll be able to use your new plug-in without reading this manual, but we urge you to have a quick look. There are several unique features and interesting options presented in H3000 Factory and a cursory glance will help streamline your efficiency. We'll try to keep it all relevant and highlight any tips or cool tricks for you.

We also won't cover much at all about the operation of Pro Tools or the Macintosh environments, as their owner's manuals or online help should provide you with the answers you need. We've made every attempt to integrate the controls and features that you're familiar with as a Pro Tools user into our H3000 Factory plug-in so that you don't have to learn anything new.

If you find the need to get more information from us than this manual can provide, please visit our support forum available via our website (www.eventide.com).

Don't Forget to Register

Before you go any further, please take a moment to register your product. You can either mail in the enclosed card or click on the Register Now link provided on this CD and register online. This helps us keep you informed of any important software updates, and any special offers that may only be available to registered users.

Chapter 1 – Installation

Read Me

Please be sure to have a look at the Read Me document on the installation CD for any important last minute updates from us.

Installation

Eventide H3000 Factory comes in one tidy installer that contains all the necessary files for use under Mac OS 9 or OS X. Boot into the Mac OS that you want to install under before beginning the installation. If you use Pro Tools 5.x, then you'll need to boot into OS 9. Pro Tools 6.x users will want to be running Mac OS X before beginning the installation. Then run the Eventide H3000 Factory Installer directly from the Application CD that came with the product. Follow the instructions on-screen to complete the installation.

Please refer to www.eventide.com for the latest on supported operating systems and Pro Tools platforms.

Allocating Memory

If you are running OS9, plug-ins with extensive graphics, such as H3000 Factory, may require increasing your DAE memory allocation to run optimally.

Authorizing with the iLok USB Smart Key

Because Eventide H3000 Factory utilizes the Pace Interlock copy protection system, you'll need to have your iLok smart key handy. After you've completed the installation, pop the little rectangular piece out of the license card provided in the product carton. Insert it as shown below into the key. Connect the key to any free USB port on the Pro Tools system where you installed H3000 Factory. Launch Pro Tools and follow the authorization window's instructions.

Removing an Authorization

Should you have to remove the authorization from your iLok key, be sure to put it back onto the original license card. To do this, start Pro Tools. Hold Option+Space Bar while inserting H3000 Factory into a channel. Then, follow the instructions on-screen.

Chapter 2 - Using Eventide H3000 Factory

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 new and unique part of the product and may take a little getting used to in order to utilize them fully.

I/O Formats

Eventide H3000 Factory is available for use on mono and stereo sources. When processing a mono audio source, the channel will be converted to a stereo output channel and may provide you with a stereo effect. In this case, both Left and Right inputs to the plug-in will receive the same audio. Otherwise, the plug-ins Left and Right input blocks will receive the stereo audio from the channel in which it is inserted.

The plug-in also takes advantage of the side chain path that is available from a Pro Tools audio or aux input, offering a dedicated input block for this purpose.

Using the Controls

The control set offered by H3000 Factory consists mainly of faders and number boxes, however the delay's Beat Grid offers a simple graphical interface for setting delay times. These controls have been designed to work in the most intuitive way, allowing you to quickly and easily adjust parameters or type in values.

To adjust a parameter, simply click on its fader and drag the mouse left and right. You can also click directly in the number box associated with every parameter and drag the mouse up or down to increase or decrease the parameter's value.

Most parameters let you drag the mouse a convenient distance to cover the parameter's full value range. However, you can hold the Command key on the computer keyboard while setting values to get fine resolution control over that parameter's values.

Every number box allows you to type values directly in to immediately set the parameter value. Simply click once in the number box and release the mouse button without moving it. The box will become highlighted and ready for typing. Try to type in values that correspond to the parameter; i.e. 8 kHz would be typed as 8000.

Patch Cords

To create effects in H3000 Factory, you connect the effects blocks together using virtual patch cords. Simply click on the desired block's Output jack and drag the resulting cord over to any block's Input jack. The connection is made when you release the mouse button. You may also start with an effects block's Input jack and drag to an Output jack as well. Audio and Mod signals can be interconnected unleashing incredibly dynamic effects.

Patch cords are also color-coded for your convenience:

- Green = Left audio channel
- Red = Right audio channel
- Blue = Mod signal
- Orange = This will identify a side chain audio signal or a mix of audio and Mod signals.

Re-ordering Effects Blocks

Effects blocks may be re-ordered in standard drag and drop fashion. Click and hold the effects block's name (IE: Pitch Shift 1) then drag it into another effect block location on screen. The block will swap place with the one you are dropping it onto. This provides a handy way to stay organized as you build complex effects.

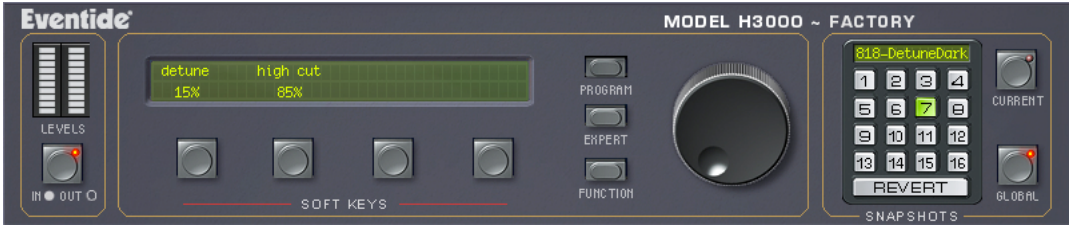
Chapter 3 – Plug-in Panel Overview

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

- H3000 Front Panel – this is the top portion of the plug-in panel that resembles the original product's front panel.
- Preset Parameters – this is the center section that contains level, mix and tempo settings for the current preset.
- Program, Expert and Function Parameters – this is the lower tabbed section of the plug-in. Click on one of the Program, Expert or Function tabs to bring those parameters to the forefront.

H3000 Front Panel Details

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.

Soft Keys

The H3000's Soft Keys were originally designed for creating custom parameters that may not have been available in the chosen algorithm. This feature is incorporated into the H3000 Factory 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–and easier–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 Program 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.

Snapshots

Eventide H3000 Factory incorporates our unique Snapshots feature that allows you to quickly and easily load, save and even automate up to 32 of your favorite H3000 Factory "scenes." Snapshots are very much like presets, but you can load them directly from the plug-in panel and even via MIDI Program Change. This means that you get the live performance functionality offered in our high-end hardware processors within the Pro Tools environment.

Snapshot Loading

To load a Snapshot, simply click on any of the numbered buttons at any time to light it. The entire H3000 Factory plug-in panel will change to reflect the settings stored in the chosen Snapshot. You'll also notice that the name of the currently loaded Snapshot is displayed in the text box above the number pad. And, so you know what you're loading before you click, move the mouse over any of the 16 numbered buttons to reveal its name in a little pop-up window. You can choose from either the bank of 16 Current or the 16 Global Snapshots by clicking on the Current or Global buttons to light their LED. These are described in the sections below.

Snapshot Saving

To Save your work and overwrite one of the Snapshots, simply command-click on any of the numbered Snapshot buttons and it's instantly stored. There's no undo, but you can restore any of the defaults at any time by reloading it from the preset menu, then saving it in the appropriate location. Read ahead about the differences between Current and Global to insure your work is repeatable.

Renaming a Snapshot

You can rename any of the preset Snapshots at any time. Click once on the name in the name box, and it will be selected for editing. Now, type up to 16 characters, hit return and the Snapshot has a new name. No need to save it just to rename it.

Revert

Revert is a special button that gives you the freedom to return to the effect settings you were working on before you loaded one or more Snapshots. It's very much like compare, except that you can load millions of Snapshots and still get back the same parameter values that you had edited prior to loading Snapshots.

You'll notice that as soon as you click on a Snapshot button, 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, and they are grouped in banks of 16 Snapshots. During installation, the Global bank is created as a preference file 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 H3000 Factory plug-in, on every Pro Tools session on the hard drive. Use these like your favorite 16 H3000 Factory effects. You can even copy this file and move it to other systems that have H3000 Factory installed so you can take your favorites with you.

Now, the Current bank is a little different. When the plug-in is first inserted on a channel, the Global bank is copied into the Current bank. At this point, they're the same. The only difference is that the Current Snapshots are saved with the current instance of the H3000 Factory plug-in. If you save changes to one of the Current

Snapshots, you won't be able to load that Snapshot into another instance of H3000 Factory. This is because the Current bank is unique to the current plug-in instance.

Why are there Global banks and Current banks? The main reason to have two is because you can automate the loading of Snapshots via MIDI Program Change. This is a very powerful feature, however if you only had Global Snapshots, and they had been changed since you last loaded the session, the Snapshot that gets loaded is likely to sound different. Therefore, we offer you two kinds.

Proper Snapshot Hygiene

Snapshots can be very powerful in use, and knowing how they work will help ensure that your Eventide H3000 Factory Snapshots load and sound right every time. So, if you want to load a Snapshot using Program Change, 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 from the Current tab first, then command-click on the desired Snapshot button from the Global tab.

Restoring Global Defaults

The Global bank contains the same presets that can be found in the Default Snapshots folder up in the Pro Tools preset load menu. Load one and store it back into its numbered location on the Global tab to restore it to its "factory settings."

Automating Snapshots with Program Change

As mentioned earlier, you can use MIDI Program Change to select and load any of the 32 Snapshots. This can occur as part of a MIDI track where Program Change events are used to automate the loading of Snapshots. Be sure to read the sections above on using Snapshots for predictable loading every time.

Simply create a MIDI track and assign the desired MIDI Device and Channel to the channel in which H3000 Factory is inserted. Sending the appropriate MIDI Program Change number will load the desired Snapshot.

Program Change number…	Loads…
000	Revert
001 thru 016	Current Snapshots 1 thru 16
017 thru 032	Global Snapshots 1 thru 16

Preset Parameter Details

The original H3000 included a set of master parameters that would come up instantly after loading a preset. We've grouped them in the Preset Parameter section for easy access any time you're working with the plug-in. Like many of the parameters in the product, these sliders can be automated and many of them can 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.

Tempo Based

Enabling this button will cause the delay times to be calculated based on the Tempo parameter and the current Meter. 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 be ignored.

Session Tempo

When this is enabled, H3000 Factory's Tempo parameter will use and follow the Tempo changes that occur in the Pro Tools session. When disabled, changes to the session Tempo will be ignored. Note that the Tempo and Meter parameters may still be automated if this parameter is set to off. (Not available in Pro Tools version 5.)

Tempo

This data box provides a way to set a Tempo, in beats per minutes (BPM), when Tempo Based is disabled.

Meter

These two data boxes provide a way to set the songs meter, defining the number of beats in each measure and the integral beat division. When Tempo Based is enabled, these values will be derived from the Pro Tools session.

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 signal level into this plug-in. Up to 12 dB of gain is provided.

Program Page Details

The Program page, accessible via the lower portion of the plug-in panel, offers two working areas to help you manage the large number of parameters and their settings. The left half of the panel displays the 18 effects block, Inputs, and Outputs. Click on any of the effects blocks and you'll bring up the Effect Block Details on the right half of the Program page. Although many of these parameters are available via the Expert and Function pages, they are also displayed here to make your workflow more efficient and enjoyable.

To view this page at any time, simply click on the PROGRAM tab. This page may also be selected by clicking on the Program button to the left of the Knob. We'll start by detailing the Inputs, the Effects Blocks and lastly, the Outputs in the following section.

Left and Right Inputs

Drag a patch cord from either of these inputs to send audio into another effects block. When inserted on a mono track, these two inputs will receive identical audio.

Noise Input

This white noise generator is useful for modulating parameters and creating a variety of random-sounding effects. Watch your audio levels when connecting this block—it provides a full scale signal output.

Full Scale Input

This block can be used in conjunction with other control signals to help maintain a steady signal or modify the output of others.

Side Chain Input

This block allows you to utilize the audio from the Pro Tools channel strip's side chain input.

Mod Knob Input

The Mod Knob was a key contributor to the wild effects that could be made using the original H3000 and the mod factory algorithms. A preset could be created that manually controls a flanger, or ride the pitch of an out of tune vocal, by patching this parameter to a Soft Key and turning the wheel.

Function Generator

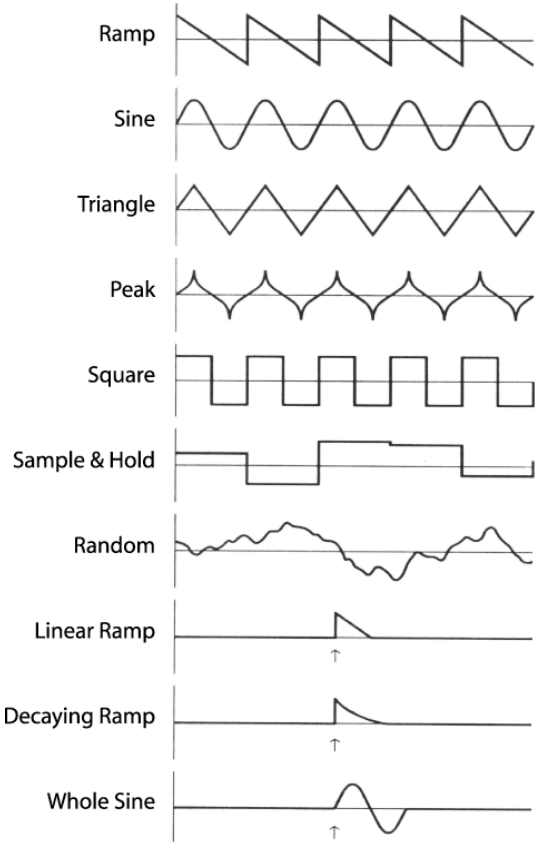
The Function Generator (FG) is an LFO (Low Frequency Oscillator) which is adopted from the H3000. It offers a wide variety of wave shapes that you can use to control many of the Preset Parameters described earlier. You can even assign the FG's Amplitude, Rate and Trigger button as targets for Parameter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

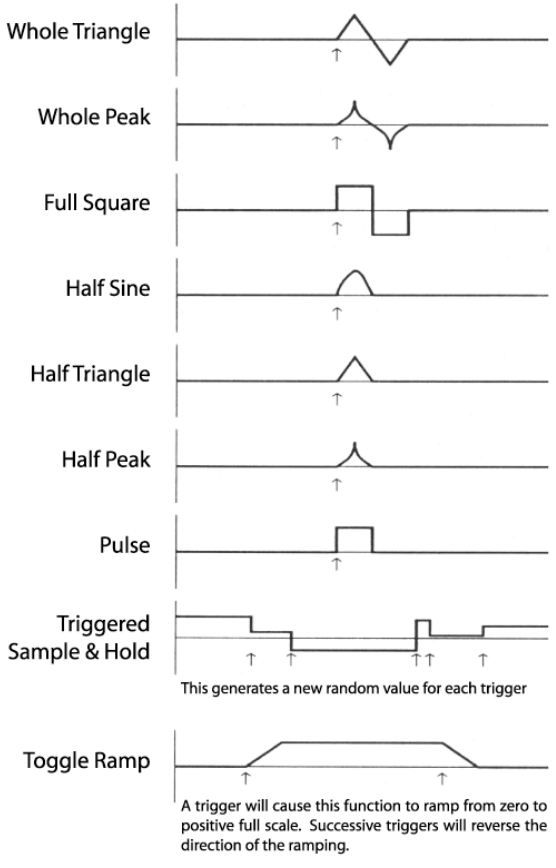
The Function Generator consists of five parameters, plus an LED that lights to help you see its effective output. These parameters are described below.

- FG Type – this drop down menu is where you select among the various types of wave shapes. See the next page for the complete list.
- Rate – this sets the oscillator's free-running rate (or speed). This also represents the time that the one-shot wave-shapes take to complete one cycle.
- Amplitude – this sets the overall output level of the oscillator.
- Tempo Based – click this button to cause the Function Generator to calculate rates based on the current tempo. When enabled, its LED will light.
- Trigger – use this button to start the triggered wave shapes. A single press will cause the FG to run through one cycle of the selected wave shape.

FG Types

The H3000 Factory plug-in offers the same 19 wave shapes as the original H3000. Below is a list of the FG Types and a visual representation of each.


Ramp
Sine
Triangle
Peak
Square
Sample & Hold
Random
Linear Ramp
Decaying Ramp
Whole Sine


Whole Triangle
Whole Peak
Full Square
Half Sine
Half Triangle
Half Peak
Pulse
Triggered Sample & Hold
This generates a new random value for each trigger
Toggle Ramp
A trigger will cause this function to ramp from zero to positive full scale. Successive triggers will reverse the direction of the ramping.

Soft Keys

The Soft Keys are always available at the top of the plug-in when a preset loads. They were originally intended in the H3000 to let you create custom controls with different names. They are implemented here and are just as useful today as they were decades ago. 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. The four custom controls and their settings are specific to each preset allowing virtually every preset to be unique.

Soft Key Setup

Setting up a Soft Key is very simple and requires two steps. They are ready to edit by clicking on the Function Generator block.

- Name – Click on the name field and type in up to eight characters, then hit Return or click on the plug-in panel. The name is instantly changed in the name field and in the H3000 LCD display area.

- 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. Click on the drop down menu below the name field to select the range of each Soft Key.

That's all there is to it. Now, to use the Soft Key, select it as a Modulation Source for one or more of the available Preset Parameters. Click on the button and turn the big Knob or simply click and drag on the Soft Key value in the H3000 LCD to adjust it.

Here's a cool feature – if you select a Soft Key as a source for FG Trigger and the FG Type is one of the ramp (one-shot) wave shapes, clicking the Soft Key under the LCD will execute the ramp.

Effects Block Mod Input and Patching Section

All of the Effects Blocks will have one or two audio inputs that can be "patched" to another block's output. Most effects blocks will also have one or two independent Mod Source inputs that you can use to modify one or more predetermined parameters in that block. Much of the power of H3000 Factory revolves around this feature, allowing audio and modulation sources to be connected to this input and dynamically alter the main effect attributes.

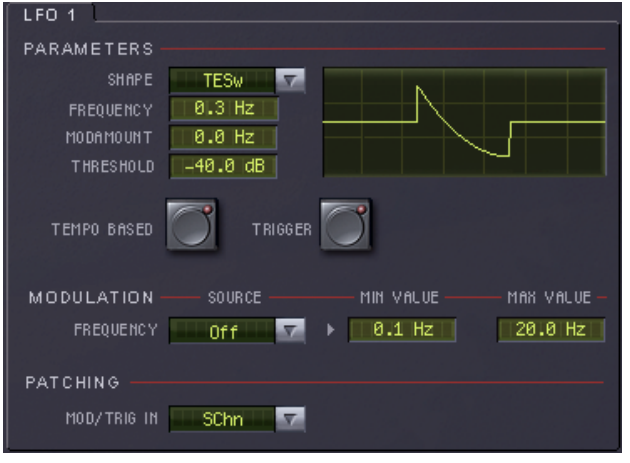
In the PATCHING area at the bottom of each block you will see a drop down menu box for each of the inputs and a label for the parameters that are able to receive an input. These correspond to the "jacks" on each block's graphical representation. To select an input source, click on the drop down list and select from the available inputs. When the source has been selected, you will see that a patch cord has visually connected the two points on the right half of the panel.

Block's will have either one, two , or three of these inputs. Audio inputs will have "IN" above them while Mod source inputs are indicated by the word "MOD" above the jack(s). The mixer blocks, for instance, have two "IN" jacks; the left one is the A audio input and the right is the B audio input. The delay blocks have a single audio input and two Mod source inputs.

There are two ways to connect to an audio or Mod source input:

- Drag a patch cord from another block's output a MOD input.
- Select an input source from the drop down list in the block's PATCHING section at the bottom of the Effect Block Detail.

In this example, the Side Chain output is connected to LFO 1. When the audio level at this input exceeds –40dB below full scale, it will trigger the Triggered Exponential Sawtooth wave to begin its cycle. Notice that the Patching section's MOD/TRIG IN is set to Side Chain.



Effect Block Modulation and Expert Parameters

Nearly every block, aside from the Ampmod, Envelope and the audio input blocks, feature the modulation sources that are global to the plug-in and allow for more predictable patching. This means that up to 28 different parameters can receive mod signals from the Function Generator, the four Soft Keys, and ten different MIDI sources.

Beyond that, each of these parameters allow you to set a minimum and maximum value for when the source is at its minimum or maximum output. By offering this extensive modulation control, effects can be controlled with very good precision, even via a MIDI keyboard.

Adopted from the original H3000 architecture, the Expert page is where you can view all of these parameters at one time. This was part of the many magic modules that made the H3000 such a dynamic studio processor. For added convenience, we've duplicated the Expert parameters specific to each block in the Effect Block Detail—the MODULATION section. These parameters are described with each of the effects bock parameters in the following sections.

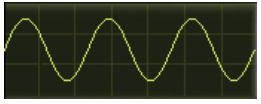
To create a modulation "patch," select a source from the Source list and choose low/high settings using the Min Value and Max value parameters. When using Soft Keys as a source, be sure to give them a name. (See Soft Key Setup in the Function Generator Effect Block Detail.)

In this example, a keyboard's mod wheel will toggle the delay loop while the pitch wheel will adjust delay time.

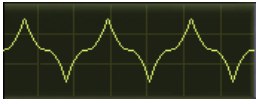
LFO Wave Shapes

The LFO blocks can output 13 different and unique waveforms.

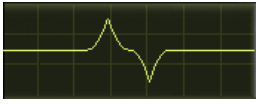
Sine



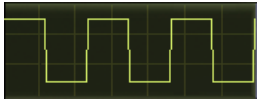
Exponential Triangle



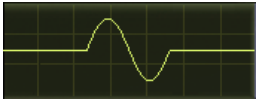
Triggered Exponential Triangle



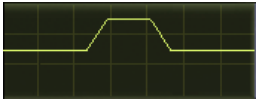
Square



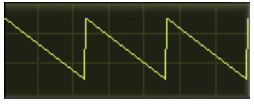
Triggered Sine



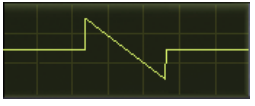
Triggered Linear



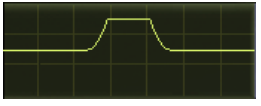
Sawtooth



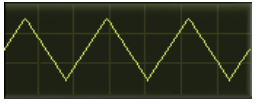
Triggered Sawtooth



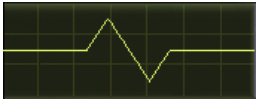
Triggered Exponential



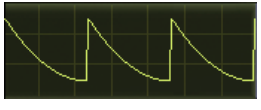
Triangle



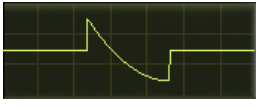
Triggered Triangle



Exponential Sawtooth



Triggered Exponential Sawtooth



Delay 1 and 2 Effect Block Parameters

The H3000 Factory plug-in features two independent, sweepable delay lines that can be tempo-synced or modulated using any of the available sources. This section details the various parameters available within the Delay 1 and 2 blocks.

- Beat Grid – The Beat Grid was made popular through the Eventide Octavox plug-in and is now available here in a simple, one line display. The Beat Grid allows you to set delays rhythmically by simply dragging the marker (**X**) vertically, automatically snapping, or quantizing, the delay to musical beat divisions. Bars, beats and the subdivisions are displayed as vertical lines. The number of Bars and Beats displayed will be largely dependent upon the Tempo and the chosen 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). Holding the Command key while dragging this marker will not auto-quantize and allow you to freely move the marker.
- Delay Amount – The delay time can also be set in a more traditional method using this parameter. 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 range. If you want to utilize quantized tempo control, use the Beat Grid above and enable the Tempo Based feature.
- Delay Mod Amount – This controls how much the mod source will affect the Delay Amount, or time. Short delay amounts set here will result in flanging effects while longer ones may cause more dramatic sweeping effects.
- Delay Feedback – This control determines how much of the delay's output will be fed back into its input. This causes the audio to repeat itself as the feedback amount is increased.
- Loop On/Off – Setting this parameter to On will cause the audio to repeat infinitely, or loop, until it is set to Off again. The loop length is determined by the Delay Amount parameter.

- Delay Highcut – This sets the cutoff frequency of a sweepable low-pass filter at the output of the delay line.
- Highcut Mod Amount – This parameter controls the affect a mod source will have on the Delay Highcut filter's setting.

Pitch Shift 1 and 2 Effect Block Parameters

This section details the various parameters available within the Pitch Shift 1 and 2 blocks. The pitch shifter can operate in either a detune or pitch mode. In general, use the detune mode for small pitch shift effects and the pitch shift mode for larger shift amounts.

- Pitch Shift / Detune Button – As mentioned earlier, the H3000 Factory's pitch 1 and 2 blocks can operate in two modes, depending on the setting of this button. When the button is lit, the block is running in straight shifting mode. This allows you to set fixed pitch shift amounts, but also to dynamically modulate them with a Mod source and the Mod parameters below. When the button is "out," (off) the pitch block operates as a detune effect, focusing on small pitch amounts to build lush pitch effects.
- Beat Grid – The Pitch Shift block also feature the Beat Grid, which works the same as the delay blocks. Refer above for a detailed description.
- Shift Amount – This determines the amount of pitch shift or detuning that is applied to the audio. Setting it to very small amounts can result in a very rich sound.
- Shift Mod Amount – This controls how much the mod source will affect the overall amount of pitch shift.
- Delay Amount – Like the Beat Grid, this control determines the total delay time before the shifted or detuned audio is heard.

Detune mode-specific parameters

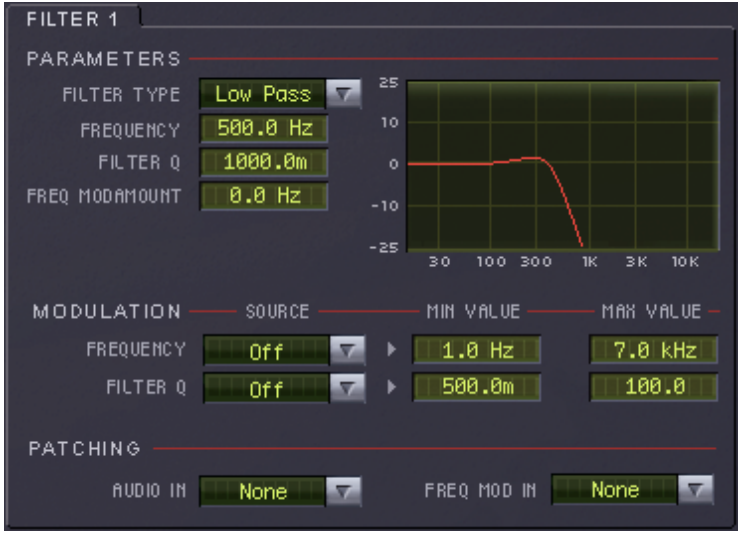
- Splice Length – This parameter sets the length of audio segments that are spliced together. The longer the setting, the less artifacts will be heard at the sacrifice of latency. Shorter settings will cause more glitches in the audio, however the delay through the pitch shifter will be decreased.
- Xfade Length – This parameter determines the length of the audio crossfade that is used to splice the audio segments together. Longer crossfade settings will generally produce a smoother sound to the shifter.

Pitch Shift mode-specific parameters

- Low Note – Low note determines the lowest frequency, in standard note units, that the pitch detector will recognize.
- High Note – High note determines the highest frequency, in standard note units, that the pitch detector will recognize.
- Source – This parameter determines how the pitch shifter will handle the source audio.

Filter 1 and 2 Effect Block Parameters

H3000 Factory features two effects blocks dedicated to sweeping filters. They can be set for sound shaping or swept using the Mod parameters described here.



- Filter Type – The filter effects have selectable filter types, including lowpass, bandpass, or highpass. Use this drop down box to choose a filter type.
- Frequency – This control adjusts the filter's center frequency. It will affect the filters in different ways; by attenuating frequencies above the center frequency using a lowpass filter; attenuating frequencies below the center frequency using a highpass filter; attenuating frequencies on either side of the center frequency in the case of a bandpass type.
- Filter Q – The Q factor, or bandwidth, of a filter determines the resonance of the filter and how much it affects the attenuated frequencies. A high setting will result in a more resonant, narrow band effect on the audio. As Q is increased, so is the gain in the filter. Use caution with high settings as clipping may occur.
- Freq Mod Amount – This determines how much the connected Mod source will affect the center frequency.

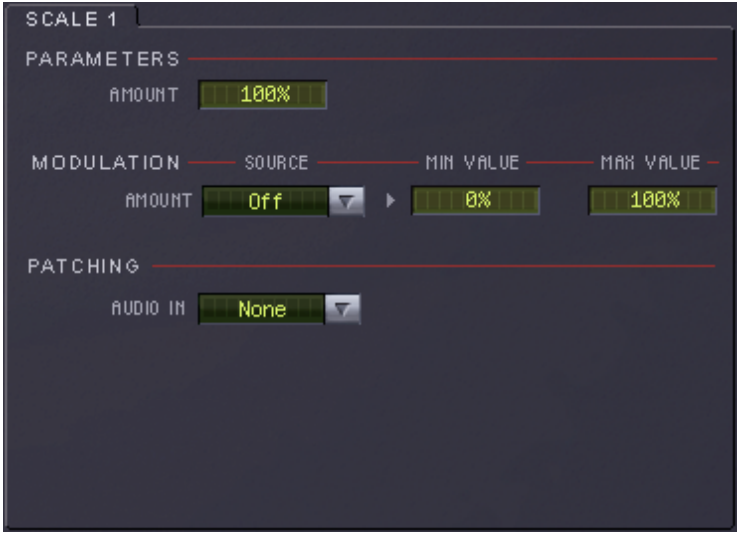
Ampmod 1 and 2 Effect Block Parameters

Use the Ampmod blocks to smoothly modulate audio signal levels creating autopanner, ducking and other dynamic effects.

- Amount – This parameter determines how much the modulation input affects the gain of the audio signal.
- Offset – The value here sets the minimum amount of gain change on the audio signal when the Mod source is at zero.

Scale 1 and 2 Effect Block Parameters

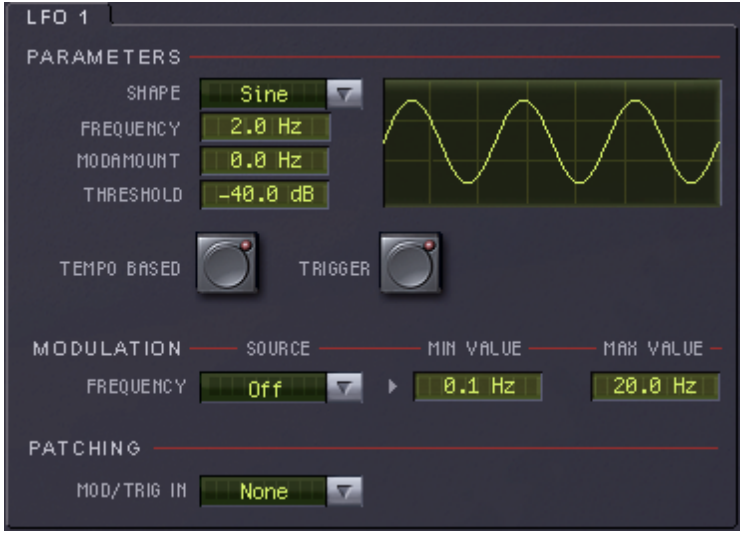
The two Scale blocks are available for controlling the gain of mod or audio signals. By connecting it to an audio signal, a Mod source (such as a Soft Key) can be used to adjust the amplitude (volume) of the audio signal.



- Amount – This value sets how much attenuation is applied to the mod source.

LFO 1 and 2 Effect Block Parameters

The H3000 Factory includes two independent low frequency oscillator (LFO) blocks. They provide exceptionally smooth modulation signals in thirteen wave shapes, including many one-shot types that can be triggered using any available Mod source. These LFOs may also be synchronized to the Pro Tools session to create self-running effects that perfectly locked to the music.



- Shape – Use this pull down menu to select from the 13 available wave shapes.
- Frequency – This parameter sets the speed at which the LFO will run. When the Tempo Based button is lit, this rate is expressed in Beats Per Minute (BPM), otherwise the range is expressed in Hertz (Hz).
- Modamount – When a Mod source is connected to the LFO block's Mod input, Modamount determines the overall frequency parameter's variation, in Hertz. This can be useful when adding a vibrato effect to a slow running sweep effect.
- Threshold – When any of the triggered wave shapes are selected, this parameter sets the level at which the Mod source will start the LFO running.
- Tempo Based – Enabling this parameter will effectively lock the LFO to the Pro Tools session tempo. The Frequency parameter will be displayed in BPM.
- Trigger – Use this button to manually start a triggered wave shape.

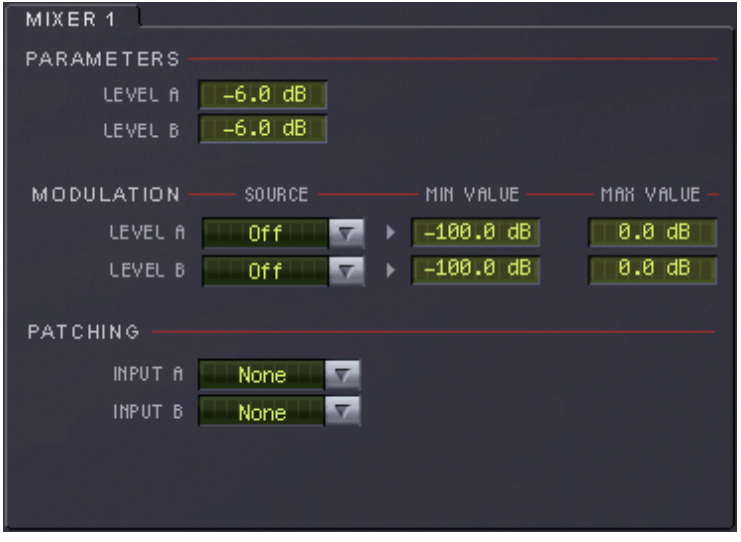
Envelope 1 and 2 Effect Block Parameters

Two independent envelope generators are offered which create output in response to changes in the input signal. The blocks can be used to control the attack and decay characteristics of an audio signal. Two outputs are generated; an envelope follower output (left output jack) and a ducker output (right output jack). These block's outputs can be used to modulate other mod inputs as well.

- Attack – The attack time controls the speed at which the envelope follower tracks increases in the input signal.
- Decay – The decay time controls the speed at which the envelope followers tracks decreases in the input signal.
- Ducker Threshold – This sets the level at which the ducker begins to attenuate levels.
- Ducker Ratio – Using common in:out ratios, this control determines the overall amount of ducking that occurs for each dB of input signal that passes through the Threshold level.

Mixer 1 – 4 Effect Block Parameters

Four two-input mixer blocks are available for combining two inputs. They can be controlled remotely as well using the Modulation Source and Patching parameters. For example, assigning a single Soft Key to both Level A and B parameters can control the balance of two inputs. Just assign the Source as Soft Key 1 and set Level A's Min and Max Values to be inverse of Level B's. The Soft Key now acts like a cross-fade control.



- Level A – This sets the input level for the A input (left input jack).
- Level B – This sets the input level for the B input (right input jack).

Expert Page Details

The Expert page offers an at-a-glance look at the myriad effects block's parameters. To alleviate the redundancy of explanation, this chapter will reference the individual parameters to their Program page counterparts as described in earlier sections.

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.

Delay 1 and 2 Effect Blocks

- Amount – this is the same as the Delay Amount parameter.
- Mod Amount – this is the same as the Delay Mod Amount parameter.
- Feedback Amount – this is the same as the Delay Feedback parameter.
- Loop On/Off – this is the Loop On/Off parameter.
- Highcut Freq – this is the same as the Delay Highcut parameter.
- Mod Amount – this is the same as the Highcut Mod Amount parameter.

Pitch Shift 1 and 2 Effect Blocks

- The Pitch Shift 1 and 2 parameters named on this page are identical to those available via the Effect Block Detail.

Filter 1 and 2 Effect Blocks

The Filter 1 and 2 parameters named on this page are identical to those available via the Effect Block Detail.

LFO 1 and 2 Effect Blocks

The LFO 1 and 2 parameters named on this page are identical to those available via the Effect Block Detail.

Ampmod 1 and 2 Effect Blocks

The Ampmod 1 and 2 parameters named on this page are identical to those available via the Effect Block Detail.

Envelope 1 and 2 Effect Blocks

The Envelope 1 and 2 parameters named on this page are identical to those available via the Effect Block Detail.

Scale 1 and 2 Effect Blocks

The Scale 1 and 2 parameters named on this page are identical to those available via the Effect Block Detail.

Mixer 1 thru 4 Effect Blocks

The Mixer 1 thru 4 parameters named on this page are identical to those available via the Effect Block Detail.

Function Page Details

The Function page is where you create incredibly dynamic effects by assigning Mod Sources to the patchable parameters from nearly all of the input and effects blocks. MIDI sources, Soft Keys and the Function Generator's output is available via drop down lists.

To view this page at any time, simply 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. H3000 Factory incorporates this exact modulation system allowing you to create your own amazing treats.

So how does it work, you ask? You start by "patching" a modulation source, such as MIDI Pitch Bend, to a target parameter. Select a modulation source via the drop down menu (the complete list is below) under the Modulation Source column. The target parameters are pre-defined for you under the column labeled "Preset Parameter." Now, when you move the source (pitch wheel in this example) from min to max, the Preset Parameter is also adjusted from its lowest (min) value to its highest (max) value.

Of course, you may not always want the target parameter to move through its full range. For example, you might want to modulate the Frequency within only a few semitones. To do this, you simply select values for Min Value and Max Value to affect only a portion of the range. (Shift Amounts of Min = -200 and Max = 200, for example, would cause the pitch wheel to adjust a center frequency of +/- one whole step.)

Also, you may not want to use the pitch wheel all the time. The built-in Function Generator, or FG for short, offers a host of wave shapes that can 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.

Preset Parameter

Many of the Preset Parameters and three of the Function Generator parameters are available as targets in the Parameter Modulation section. They are detailed in the Preset Parameter section (see above).

Modulation Source

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

- Soft Keys 1 – 4
- Function Generator output
- MIDI Pitch Bend
- MIDI Mod Wheel (Controller # 001)
- MIDI Volume (Controller # 007)
- MIDI Balance (Controller # 008)
- MIDI Pan(Controller # 010)
- MIDI Expression(Controller # 011)
- MIDI Gen Purpose 1 thru 4(Controller # 016 thru # 019)

Min Value

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

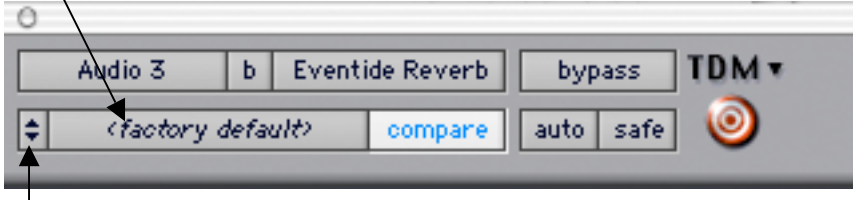
Max Value

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

Saving and Recalling Presets

H3000 Factory utilizes the standard Pro Tools Save and Recall interface for presets. Available via the Global Plug-in Header, presets are organized into familiar groups of folders. Simply click on the preset select menu and select a preset. It will load instantly.

Click here to select a preset



Click here to access the store features