



## USER'S GUIDE

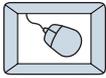


# Final Mix™

Plug-in for Mackie Digital Mixers

**MACKIE**®  
*Digital Systems*™

## Iconography



This icon identifies a description of how to perform an action with the mouse.



This icon identifies a description of how to perform an action from the console.



This icon will lead you to some further explanations of features and practical tips.



This icon marks information that is very important, so please make sure you have a read.



This icon does not appear in this guide.



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**Note:** Any future revisions of this guide will be available for viewing and downloading from our website: [www.mackie.com](http://www.mackie.com).

Further plug-in details and preset downloads can be obtained from [www.acumalabs.com](http://www.acumalabs.com).

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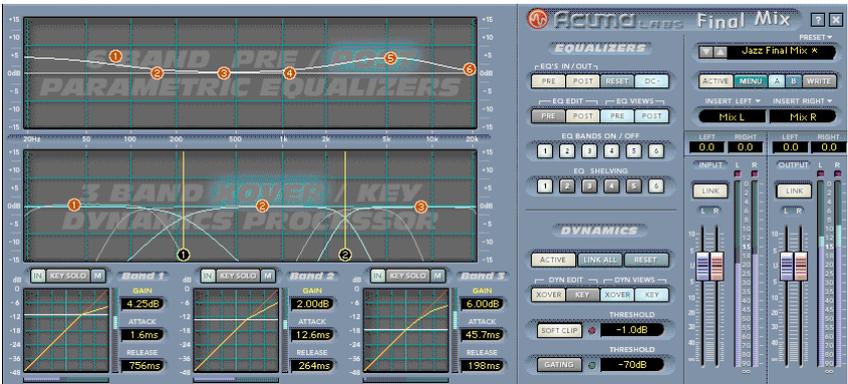
# Introduction

Thank you for purchasing Acuma Labs' Final Mix stereo mastering plug-in, one of the exciting members of the new family of 24-bit plug-ins for the D8B. Final Mix has been specifically designed for the new Mackie Universal Effects (UFX) card.

Final Mix is a professional stereo mastering plug-in for the Mackie D8B that offers multi-band dynamics processing and equalization. It has three individual dynamics processors, each with its own set of controls and selectable crossover points. It also has two separate six-band parametric eqs, one located before the dynamics section, and the other after. Each dynamics band is typically used as a compressor, but expansion is also possible. An intuitive dynamics contour edit screen provides easy setup of your compressor parameters and allows you to draw in the perfect soft knee curve. Final Mix also offers a simple to use noise gate and a soft-clip limiter. With intuitive screens and controls, Final Mix promises to be one of your most invaluable tools. It can take your D8B projects to new heights.

## About Acuma Labs ([www.acumalabs.com](http://www.acumalabs.com))

Acuma Labs develops real-time embedded systems for professional audio applications to create high-quality products for the music and pro-audio industries. Acuma specializes in digital audio effects using DSP, real-time operating systems, graphical user interfaces, and digital hardware design.



## About the D8B UFX Card

The Mackie UFX card provides robust processing power for computation-heavy plug-ins. The UFX card is a 4-in/4-out architecture, which means it can support four mono, two mono and one stereo, or two stereo sends simultaneously. Up to four UFX cards can be installed in the D8B, allowing up to sixteen simultaneous single-channel effects, eight stereo plug-ins, or combinations thereof.



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**Note:** Earlier D8Bs were fitted with 16 MB of memory. It is recommended that you increase this to 32 MB (as fitted in newer D8Bs) if you install more than one UFX card. Memory upgrade instructions are supplied with each UFX card.

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## About Final Mix

Mastering is often the element that separates a good production from a great one. Acuma Labs' Final Mix enables you to master your session within the D8B and print directly to hard disk or DAT. All this without having to rely on expensive mastering houses or outboard gear. Settings can be saved as part of your session! Final Mix features six-band parametric (pre-dynamics) equalizer, multi-band compression, and a six-band parametric (post-dynamics) equalizer—12 bands of stereo EQ in all. All settings are easily edited using drag and drop to create perfect EQ curves and compression settings. All three dynamics bands feature individual threshold, attack, and release times. A graphical contour edit screen for each dynamics band allows you to easily set a desired ratio. Then you can create your own hard knee or soft knee, or even draw in an expander curve. Each dynamics band features its own key filter. This allows you to emphasize or de-emphasize a portion of the signal within the band. The Soft-Clip feature adds a smooth, analog-style clip response when your signal gets close to overload. Other features such as Noise Gate and Band Linking ensure that Final Mix will be an integral part of your mixes from here out.

## Main Features

- Stereo mastering plug-in solution for the D8B
- 6-band pre-dynamics parametric equalizer
- 3-band dynamics processor
- 6-band post-dynamics parametric equalizer
- Noise gate
- Soft-Clip feature to provide peak overload protection
- DC removal filter
- On-screen help (via the question mark (?) button)
- Dynamics auto make-up gain
- Individual key selector for each dynamics band
- Graphical, user definable dynamics band contours
- Adjustable crossover points and slopes for multi-band dynamics
- Linking of dynamics band edits
- All controls full stereo with the exception of input and output levels
- Fully automated
- Global enable button
- On/Off for the dynamics section and each EQ
- On/Off for each EQ and dynamics band
- Mute for each dynamics band to assist with crossover setup
- Separate dynamics and EQ reset buttons
- Plug-in patch load and save
- Memories A and B for quick comparisons
- Input, output, and gain reduction metering

# Let's Get Started

## Requirements

- One or more Mackie UFX cards
- Mackie Real Time OS 3.0 Software
- Plug-in Software

We will assume you have successfully installed a Mackie UFX card and Mackie Real Time OS 3.0 software upgrade. If you have encountered problems with the installation of hardware or software, please see their associated user guides or contact Mackie support ([www.mackie.com](http://www.mackie.com)).

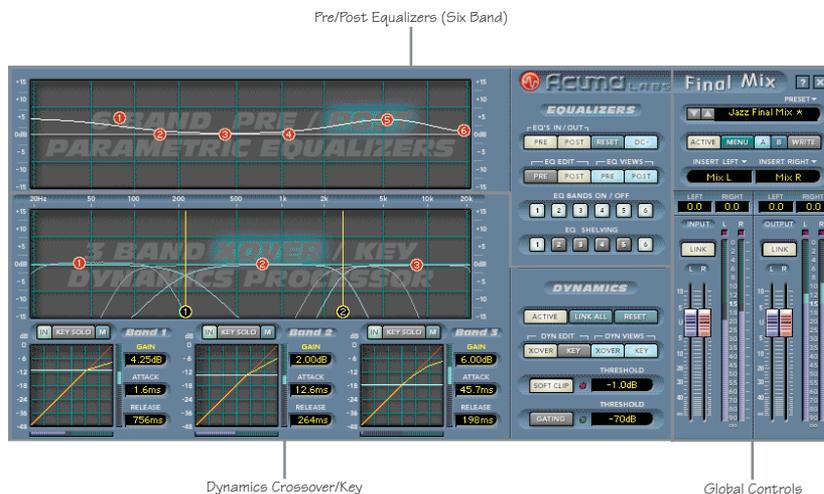
Please see the Licensing section of the Digital 8•Bus version 3.0 owner's manual for information on both authorizing the plug-in, and the unlock procedure.

Please see Appendix C of the Digital 8•Bus version 3.0 owner's manual for information on configuring the plug-in.

# Using Final Mix

## Front Panel Overview

You can think of Final Mix as being broken into three basic blocks. The dynamics and equalizer blocks have alternate pop-up screens that can be accessed for a closer look and detailed editing.



### Pre/Post Equalizers (Six-band) Block (see page 10)

The equalizer block is comprised of two separate six-band parametric equalizers. One is pre-dynamics processing and the other is post dynamics. Each offers a visual representation of your EQ curves that can be viewed together or separately on one convenient screen. Each of the six EQ bands is represented by a colored node (or ball). Each node has independent gain, frequency, Q, and filter type (shelf or bandpass) controls. Control-click sets a selected node to its default value. Right-clicking allows editing of the Q rather than the frequency. Double-clicking on the EQ screen brings up the parameter window. This allows you to view and adjust the numeric values of each band independently.

### **Dynamics Crossover/Key Block (see page 13)**

This screen allows you to view and edit the crossovers and key filters. The crossover is used to split the signal into three individual bands, each of which is then sent to its own dynamics processor. In Final Mix each of the three dynamics bands has its own adjustable key filter. This can be used to emphasize or de-emphasize the compression within each band. From the crossover/key setup screen you can drag and drop nodes to adjust crossover points and key parameters. Each band has an individual IN/OUT button to enable or disable dynamics processing for the band. Each band also has a mute button, which is useful for allowing you to listen to exactly what the crossover is doing. By muting all but one band at a time you can solo the band. Similarly, each key filter has its own KEY SOLO button that lets you solo the key signals. Double-clicking anywhere on the crossover screen opens another editing window. This window displays numeric values of the crossover frequencies, slopes, key gains, frequency centers, and bandwidths.

At the bottom of the dynamics block, there are three small windows. These show an overview of the dynamics contours, as well as the attacks, releases, and gains, of the three dynamics bands. Double-clicking on any of the smaller contour screens brings up the corresponding larger screen for detailed editing of the contour. The contour allows you to control the threshold and ratio, as well as a desired knee. It is a view of the overall 'shape' or contour of exactly what the compressor is going to do your signal. You can even draw in regions of expansion. For more information see the Dynamics Processing section, later in this manual. From this screen you can also enable or disable the band's auto make-up gain. Band View displays the edit screen of a selected band along with numeric windows that display makeup gain, attack, and release values.

### **Global Controls Block (see page 24)**

The global block contains all of Final Mix's global assignments. These assignments include Preset Toggle Control, Preset Title Window, ACTIVE, MENU, Mem A/B, WRITE, LEFT/RIGHT INSERTS, and Fader LINK. There are also Input and Output faders, and Meters. Note that there is also a help button, marked with a question mark (?), in the top right corner of this section.

## Pre/Post Equalizers (Six-band)



*Pre and Post Equalizer graphs*

The main EQ graph allows you to display and edit both the Pre and Post EQ. Note that Pre and Post refer to where the EQs occur in the signal processing path. You can see a block diagram of this path by clicking on the question mark (?) on the top right corner of the Final Mix main screen.

There are four buttons that allow you to select what you view and what you edit. These are the PRE and POST EQ EDIT, and PRE and POST EQ VIEW buttons. They are located just to the right of the main graph display. The EQ screen defaults to PRE EQ-ON when Final Mix is initially activated. PRE EQ-ON is also indicated by the letters (PRE) that are highlighted on the background screen. To toggle between which EQ curve you are editing, use the EQ EDIT PRE and POST selector buttons. You can only edit either the Pre or Post EQ at one time, although you can view both depending on which EQ views are active. Turn the views on and off with the EQ VIEWS buttons.

### **EQ Editing**

Six nodes (balls) are displayed for each of the Pre and Post EQ curves. Each node on a selected curve offers independent gain, frequency and Q control. To adjust EQ curves, simply drag individual bands (nodes) by grabbing a ball with your left mouse button. Move it up and down to adjust the gain or to the left and right to adjust frequency. The Q of each band can be adjusted by right-clicking on a node and moving it to the left and right. Control-click sets a selected node to its default value.

## EQ Values Panel

Double-clicking anywhere on the EQ screen brings up the EQ Values Screen (see below). This shows the gain, frequency and Q corresponding to either the Pre or Post EQ. Which is shown depends on which of these is selected for editing (by the EQ EDIT PRE/POST buttons). EQ bands can also be adjusted from this screen using the mouse to click on a window and scroll the numeric values up or down. You can also use the up and down arrows on your keyboard to nudge the parameter a small amount.



*EQ Values screen*



Achieving the right amount of compression can change an EQ of a signal. For this reason, it's handy to have post compression EQ. The changes that are made in the Post EQ can be used to rebalance the overall EQ of your mix.

If you find that the display is too hard to see, try turning off either PRE or POST buttons so that only one is lit. These are labeled as EQ VIEWS in the Equalizer status screen. This allows you to view one curve at a time.

Try changing the curve by using your mouse to drag individual nodes, or by adjusting values from the EQ Values Screen.

If you are not using the dynamics section of Final Mix, the Pre and Post EQs cascade together to give you a 12-band parametric EQ.

## DC

DC stands for DC offset. This is a filter that automatically removes DC offset noise that is unwanted when you are at the mastering stage. The default state is on when you activate Final Mix. If you don't have a need for this filter simply push the button to disengage.



DC offset is noise that may be present within your signal but is not generally audible by itself. Typically, DC offset problems are associated with analog tape decks. Why would you want to remove it? Let's say you have encountered clicks or pops when splicing together two separate chunks from separately recorded takes. This is a typical indication of DC offset. The two chunks had different DC offsets, so pasting from one to the other produces a discontinuity. Final Mix removes the DC so that you won't have this problem.

## EQ Bands On/Off

The six EQ BANDS ON/OFF buttons correspond to the six red nodes (balls) found on both the Pre and Post EQ screens. You can enable or disable each of the bands with either EQ EDIT PRE or POST selected by simply switching them on or off with your mouse.

## EQ Shelving

The six select buttons in the EQ SHELIVING section correspond to the six red nodes found on both the Pre and Post EQ screens. These buttons allow you to switch the band filter type from bandpass to high or low shelving. Bands 1, 2, and 3 are low shelving filters; and bands 4, 5, and 6 are high shelving filters. The EQ SHELIVING buttons work in either the Pre or Post EQ edit screen depending on which EQ is active. Final Mix defaults to one low-pass shelf on (number 1), and one high-pass shelf on (number 6). Switching the EQ SHELIVING button off means that the band becomes a bandpass.

## Dynamics - Crossovers/Keying Graph



Crossover and Key graph

### Overview of Operation

This graph is used to set up these two interrelated functions. As with Pre and Post EQ, parameters and views of this screen are controlled using four buttons to the right of the graph. These are: DYN EDIT XOVER and KEY, and DYN VIEW XOVER and KEY. DYN VIEW enables or disables viewing. DYN EDIT selects which feature is being edited. To facilitate viewing this information, the function which is not being edited is dimmed.

The purpose of the crossover is to split your incoming signal into three different bands (Low, Mid, and High). Each of these bands feeds into its own dynamics processor.



**Note:** You can see a block diagram of the processing path by clicking on the question mark (?) on the top right corner of the Final Mix main screen.

Typically, the dynamics processor is used as a compressor. However, depending on the settings it can act as a compressor, limiter, or expander, or even a combination of all three. Having three dynamic processors acting separately on each band is a large sonic improvement over a single compressor. For instance, you don't have to worry about your bass causing your lead vocal to get compressed. All bands can be compressed individually, resulting in a tighter, punchier overall sound.

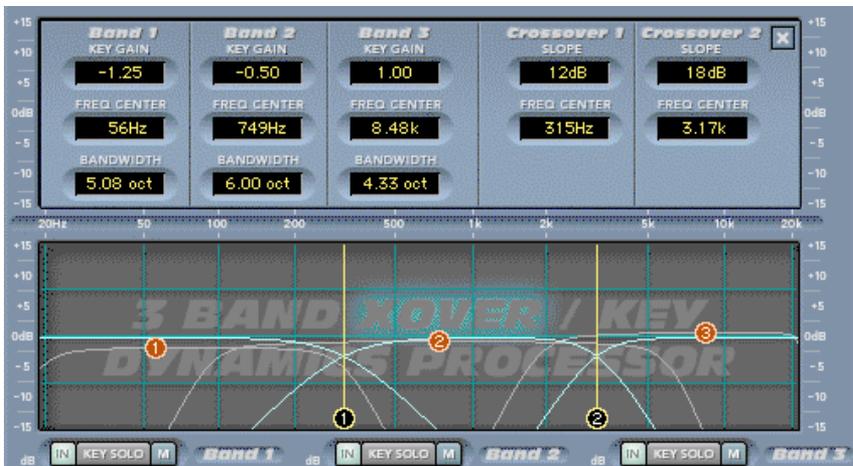
Each crossover band has its own key filter. This can be used to emphasize or de-emphasize the key (or control) signal within a band.

The crossover points are represented by the black balls with vertical yellow lines. These can be adjusted by dragging and dropping the two black nodes (balls), found at the bottom of the screen. The slope of the crossovers determines how sharply the adjacent bands are separated. The slope can be adjusted by right-clicking on these crossover balls and moving the mouse.

Below the graph, there are three sets of three buttons labeled IN, KEY SOLO, and M (for mute). These are very handy for helping you to set up your crossover and key filters. Mute will mute the crossover band. By muting all but one band at a time, you can listen to exactly what part of your mix is going into each band. Similarly, KEY SOLO acts as an override, allowing you to listen to just the key signal. The IN button switches dynamics processing on and off for the band. This allows you to hear exactly what is going on in each band.

### Control Panel

Double-clicking on the graph brings up a screen which displays all of the parameters for the crossover and key filters.



*Crossover/Key Values panel*

All the values from this screen can be adjusted by clicking on the digits and spinning them up or down with your mouse. You can also use the up and down arrows on your keyboard to nudge the parameter a small amount.

## **Key Gain**

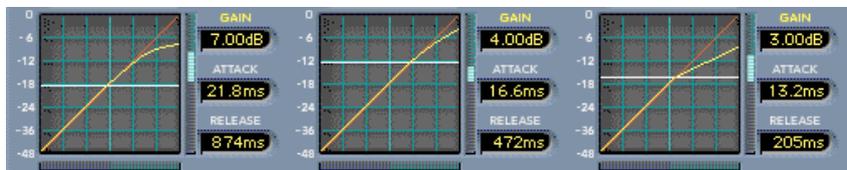
The Key Gain Control ranges from  $-15$  dB to  $+15$  dB. This gain control is not the same as the compressor make-up gain, which is found in the contour screen (and beside the three small contour graphs). Instead, this control adjusts the gain of the key signal that is sent to the compressor. You can use this, for instance, to drive the control signal to the compressor a little harder. This results in the signal becoming more compressed. It is also useful if you notice that the compressor input signal is very low, and you want to boost it up to a more moderate level. The compressor input signal is indicated by the horizontal meter below the contour graph.

## **Frequency Center/Bandwidth**

Each key has its own adjustable frequency center and bandwidth controls. These controls can be used together to zero in on a specific portion of the signal. Bandwidth, the inverse of  $Q$ , is measured in octaves and ranges from  $0.0$  to  $10.0$  octaves. You can use the KEY SOLO button, located directly below the Crossover/Key graph, to listen to the key signal.

These controls give you further choices concerning what the compressor does with the band. For instance, let's say you've set up the low band (Band 1) of your compressor so it contains mostly the bass and kick drum. If you want to compress more of the bass than the kick drum, you can use the low band's key filter to hone in on the bass. Then more of the bass is sent to the compressor key than the drum. The result is that the bass tends to compress more than the drums.

## Dynamics Processing



*Dynamics overview*

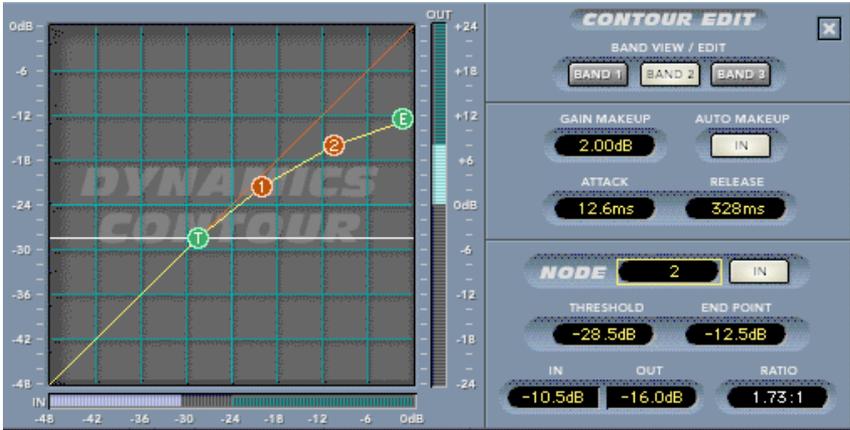
### Overview

Final Mix's crossover splits the signal into three bands, each of which is fed into its own independent dynamics processor. Typically, the dynamics processor is used as a compressor. However, depending on the settings it can act as a compressor, limiter, or expander, or even a combination of all three.

The three windows at the bottom of the screen offer an overview of the dynamics settings for each of Final Mix's three bands. The graph shows the dynamics contour. It is a graph showing the band input level (on the horizontal) vs. what the output level will be (on the vertical) after passing through the dynamics processor. The white horizontal line is the threshold. Below this value, the signal is unaffected. Beside the graph are readouts and controls for the band make-up gain, attack time, and release time.

Double-clicking on any of the smaller contour screens brings up a larger editing screen for detailed editing. Once the larger screen has been accessed, contour values for a selected band are edited by dragging and dropping nodes.

## Contour Edit Screen



*Contour Edit screen*



**Note:** The Dynamics Contour Edit screen is accessed by double-clicking on any of the three bands found at the bottom of the main Final Mix screen.

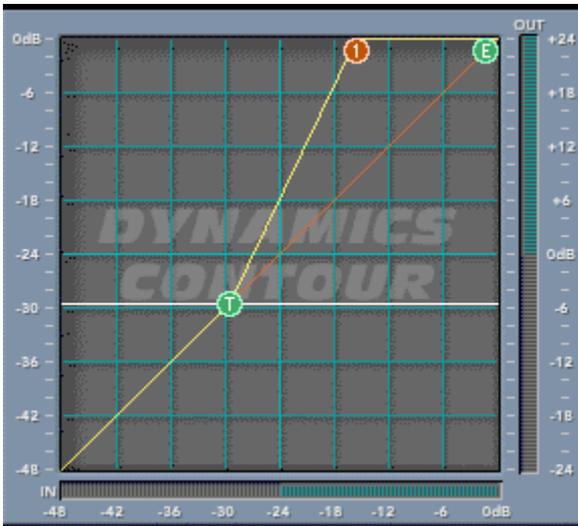
### Overview

The Contour Edit Screen allows you to have very powerful control over the heart of Final Mix. Double-clicking on any of the three dynamics overview screens brings up this more detailed screen. The overview screens are found at the bottom of the main screen. The graph you see when first accessing this screen represents the dynamics contour for the currently selected band. This graph shows the band input level (on the horizontal) vs. what the output level will be (on the vertical) after passing through the dynamics processor.

The threshold is shown as the white line with the “T” node attached. The graph also shows the contour’s moveable end point (designated by the green node, labeled “E”). The end point represents a selected band’s maximum output level. The traditional Compression Ratio is affected by both of these parameters. One of the very powerful features of Final Mix is that you can set up your contour to have different compression ratios for different input levels. This is achieved by using multiple nodes. The figure above shows 2 extra nodes – the red balls labeled 1 and 2. These nodes are being used, in this case,

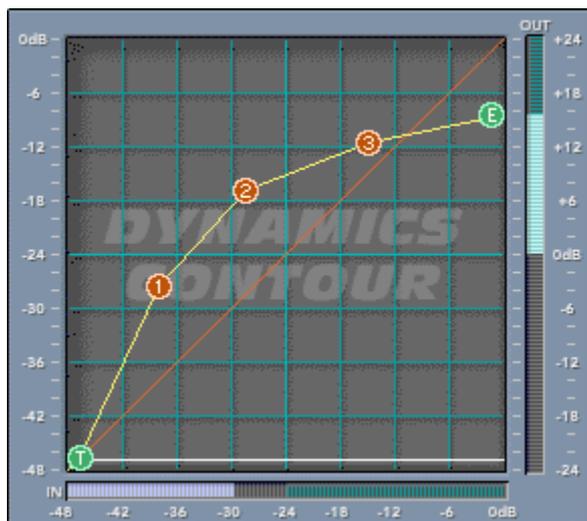
to essentially draw a knee for the compressor curve. This gives a nice smooth transition from applying minimal compression at low input levels, to much higher compression at higher levels.

The red line that crosses the graph diagonally represents unity gain (i.e., the signal is unaffected by the dynamics processor). Contours which are steeper than this, as illustrated below by the segment between T and 1, represent expansion.



*Expansion section*

Expansion can be used to bring a little bit more dynamics or 'life' into a performance. Note that each individual segment can be set as either a compressor or an expander. Having expansion for low input signals and compression for higher signals is a good way to level out a signal's dynamics. Quiet signals become louder and louder signals become quieter. We see an example of this on the next page. For input signals below node 2 in amplitude (approximately  $-28$  dB), the dynamics processor acts as an expander. For signals above node 2, the processor is a compressor. See the section marked 'Node editing' on page 21 to find out more about how to set up these kinds of contours.



*Expansion and compression together to “level” a signal*

### Band View/ Edit

One dynamics band can be edited at a time from the contour screen. However, individual bands can be quickly accessed by choosing a band from the BAND VIEW/EDIT radio buttons found at the top of the contour edit section.



**Note:** If you press the ‘LINK ALL’ button, located just to the right of the dynamics graph, all three bands are affected at once.

### Gain Makeup and Auto Makeup

Gain Makeup is used to make up for volume that has been decreased due to compression. The Gain Makeup window ranges from  $-15$  dB to  $+15$  dB and can be adjusted with a mouse to scroll the values up or down. This control can also be accessed from the window labeled as GAIN found in the Dynamics overview. You can also apply attenuation using this control. This is represented by a negative value (i.e.,  $-3.0$  dB).

When the AUTO MAKEUP button is in, Final Mix automatically chooses an appropriate makeup gain for you. This makeup gain is based on your dynamics contour. You can still use the ‘manual’ gain makeup control in this case. It merely adds to the makeup

gain automatically applied. When you first push the AUTO MAKEUP button in, Final Mix adjusts your makeup gain parameter so that the volume does not suddenly jump up. This is hearing (and speaker) protection!

### **Attack and Release**

The attack parameter specifies how quickly gain reduction (or expansion) occurs at the attack, or beginning, of a signal. Release controls how quickly gain reduction backs off when the signal drops back down. The time is measured in milliseconds and corresponds to the length of time it takes to achieve a fixed amount of compression.

In general, the attack time should be much faster than the release time to get pleasing results. If the attack time is set too quickly, you hear something resembling clipping on attacks. Leaving the attack a little bit longer also allows more of the ‘snap’ of the attacks to pass through the compressor. Setting a release time too fast can result in ‘buzzing’, especially on low notes. This occurs because the compressor gain is actually following individual cycles of the incoming waveform.

If you set the attack time to 0 ms, the dynamics section actually behaves as a limiter. It won't permit the signal to go over the end point value.

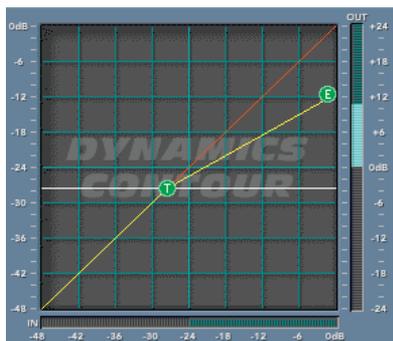
As a general rule of thumb, lower frequencies require longer release times than higher frequencies. If a high- or mid-frequency band has a release time that is too long, you hear the compressor ‘breathing’.

### **Threshold**

Threshold sets the point at which compression (or expansion) starts to occur. Final Mix's threshold is displayed as the white line in the middle of the graph with the green “T” node attached. You can adjust the threshold using your mouse to drag the line up or down. The threshold level ranges from  $-48$  dBfs (dB referenced to full scale within the D8B) to  $0.0$  dBfs. The Threshold can also be adjusted in the Threshold window—use your mouse to scroll the values up or down.

## Node Editing

Final Mix's Node Editing is a unique and powerful feature that goes far beyond the usual concept of assigning a dynamics band's ratio. The Contour Edit screen allows you to draw your own curve between the threshold and the end point. Up to four nodes can be added to the curve. This depth of editing is helpful in defining detailed nuances in your curve such as hard knee, soft knee, and expansion. In the previous example we saw expansion combined with compression to implement a leveling of the signal. This is where the quiet sections become louder and louder sections become quieter. Below we see hard and soft knees drawn in.



*Hard Knee curve*



*Soft Knee curve*

*Examples of Hard Knee and Soft Knee curves*

### About Hard Knee and Soft Knee Compression

The terms hard and soft do not refer to sound but rather the way that the compressor reacts to incoming signal. The difference is somewhat subtle to hear but is more apparent at higher compression ratios. A hard knee setting is well suited to lower ratios. When using higher compression ratios, you may find it a little better sounding to draw in a smoother knee curve. Look at the graphs above. A hard knee curve is represented as a straight line that connects a point on the threshold to the end point or maximum output on the graph. A soft knee curve has a smoother curve that connects the two points. This creates a more gradual transition between non-compressed and compressed signals.

Nodes can be added to the contour graph by right-clicking the mouse on the contour graph. Right-clicking on the graph where there is no node adds a node, up to a maximum of 4. Right-clicking on a node removes it. You can also add or remove nodes by scrolling through the NODE selector window and toggling the IN button. The NODE selector window is located in the panel immediately to the right of the contour graph in the Contour Edit Screen. The IN button is seen just to the right of the node selector window.



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**Note: The four numbered nodes must always appear in order from left to right. A consequence of this is that you can't add a node between, for instance, nodes 1 and 2, even if they are the only 2 nodes active.**

---

Nodes on the graph can be adjusted by the standard drag and drop method. You can also edit the node's In and Out levels in the small windows at the bottom right of the contour edit screen. Beside these two windows, you will see a RATIO display. The ratio is automatically calculated when the node is moved and can't be directly edited. The RATIO display corresponds to the dynamics ratio applied in the segment immediately to the left of the selected node.

The RATIO window displays both compression and expansion. When a segment represents expansion, the ratio is displayed as, for instance, 1:2.5. However, a compression ratio shows as 2.5:1.

Final Mix also implements negative compression ratios. This is useful only for special effects. In this case a node appears lower in the graph than the one to its immediate left. For negative compression, the ratio window displays, for instance, -2.5:1.

## Other Controls in the Dynamics Section

### Active

This engages or disengages all of the compressors.



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**Note: The dynamics processor for each band can be individually enabled or disabled using the IN button immediately below the key/crossover graph.**

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## **Reset**

RESET DYNAMICS will reset the Dynamics section to its factory default settings.

## **Link All**

When engaged, this button allows you to edit all three bands of dynamics at once. Changes don't take place until you move a parameter within the dynamics section.

## **Soft-Clip On and Threshold**

The SOFT CLIP button activates a soft-clip limiter circuit. There is also a THRESHOLD adjustment. These controls are located just to the right of the three small contour screens. When the output of the dynamics section goes above this threshold, the soft-clip circuit kicks in. This circuit starts adding analog-style distortion. This avoids the harsher sound of a straight digital clip. The lower the threshold, the more analog-style distortion is added. If the threshold is set too low, you hear this as a very crunchy distortion sound. It is best to keep the threshold between  $-3$  dB and  $-1$  dB unless you are going for a special sound effect.

The soft-clip circuit has an indicator light, located between the SOFT CLIP button and the THRESHOLD adjustment. This activates when the signal is above the soft-clip threshold.

The soft-clip circuit is the last thing in the signal processing chain. If you notice it become active and wish to avoid any kind of distortion being added, you can merely back off the output faders.

## **Noise Gate and Threshold**

Final Mix also has a simple noise gate with a threshold adjustment. These controls are located just to the right of the three small contour screens (GATING and THRESHOLD). The noise gate threshold can go from 0 dBfs to  $-125$  dBfs. The attack rate (when the gate opens) is very fast. The release rate is very slow. This can be used as an effect to generate a very slow, smooth fade out of a song. To do this, set the threshold at 0 dB with the noise gate disabled. When you want to start the fade out, enable the noise gate and the fade out starts. The fade out lasts about 5 seconds.

The noise gate is located post-dynamics but pre-output fader. That is, adjustments made in the output fader do not affect the performance of the noise gate.

## Global Controls Block

The Global Controls Block is shown below. This includes the minimize and preset up/down buttons, the preset title window, the ACTIVE MENU, Mem A/B, and the WRITE buttons. The global controls also include INPUT and OUTPUT faders and meters, and fader LINK buttons.

The INSERT LEFT/RIGHT windows allow you to insert Final Mix into any channel within the D8B. LEFT/RIGHT numeric readouts display values of the main left and right input and output faders. The LINK buttons found above the input and output faders link the left and right channels together.



*Main Global Controls screen*

## **Help Screen (?)**

Pressing the help screen (?) button brings up a handy quick reference screen to assist you in using Final Mix. It offers a signal path block diagram, definitions, and editing tips. Toggle the arrows to change screens.

## **Minimize Button (X)**

The minimize button (X) in the top-right corner hides the screen. However, the screen is still active until it is disabled in the D8B Plug-ins window.

## **Preset Toggle Buttons**

The preset up/down arrow buttons enable you to scroll up or down through either the factory or user presets. These toggle buttons are located just to the left of the Preset window.

## **Preset Title Window**

The Preset Title window displays the currently selected preset. This window is located at the top of the control bar. Click on it to access the pull-down menu where you can choose between factory or user presets.

## **Memory A/Memory B**

The Mem A and Mem B buttons temporarily store Final Mix settings to allow comparative referencing. You can also copy and paste settings from one memory location to another using commands found on the menu.

## **Menu**

Pressing the MENU button opens a pull-down menu that performs familiar functions. Some of these functions are load, save as, cut, copy, paste, and show the plug-in's build and version numbers.

## **Write**

WRITE enables the D8B's automation so all changes you make in the Final Mix plug-in are recorded as part of a D8B session. This works like a channel's write button. To record automation for a plug-in, automation must be out of Bypass. "ALL" must also be turned on in the automation section of the D8B. When the D8B is recording, plug-in parameter edits are recorded only if the plug-in's write button is on, or if Auto Touch (in the automation section) is turned on. When you hit stop, the plug-in's write button turns off.

## Insert Left/Right

Typically you will use Final Mix for mastering your project to CD, DAT or hard disk. Selecting Mix L and Mix R inserts Final Mix on your main outputs.



**Tip:** You will typically use Final Mix to master your D8B sessions. However, it also works well for equalizing and compressing incoming stereo tracks recorded to tape or hard disk.

## L/R Input Clip LEDs

The two small boxes at the top of the input meters are the input clip LEDs. The clips blink if the signal goes above 0 dB. Here's what to try if the output LEDs are clipping but the inputs are not. You can generally get rid of clipping by backing off the output faders slightly.

## Link

The LINK button links the Left and Right input faders so they can be moved simultaneously. If the faders have an offset when link is engaged, they maintain that offset.

Please see Appendix C of the Digital 8•Bus version 3.0 owner's manual for information on:

- Saving, loading and resetting a preset
- Automation and snapshot control
- Dynamic real time and dynamic off-line
- FX routing

# Specifications

## 6 band parametric EQ

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Gain	± 15.0 dB
Frequency	20Hz to 20kHz
Q range	0.1 to 16
Filter type	High/Low shelf or bandpass

## Dynamics

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Gain Makeup	± 15 dB
Attack	0 to 100 ms
Release	30ms to 3000 ms
Threshold	-48 dBfs to 0 dBfs

## Compressor Contours

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Four nodes per dynamics band, each allowing for any possible compression or expansion ratio from 1:inf to inf:1

## Input/ Output Meters

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-90 dBfs to 0 dBfs

## Routing

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Pre or post insert, auxiliary, master L/R.

## Soft-Clip

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Threshold	0.0 dB to -20.0 dB
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## Input/ Output Faders

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+ 10 dB to off

## Noise Gate Threshold

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0 dBfs to -125 dBfs

## Crossover Frequencies

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20 Hz to 20kHz

## Crossover slopes

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6 dB/octave to 36 dB/octave

## Key Filters

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Frequency	Limited to crossover band
Slope	4 <sup>th</sup> order low pass 4 <sup>th</sup> order high pass

## DC filter

---

On/off, frequency = 3.3Hz

## Final Mix Factory Presets

The following table is a simple guide to help you understand some of Final Mix's factory presets. A brief description and intended use is given. Final Mix presets can be used effectively as they are, or as a starting point that lets you do the fine tuning mix. Final Mix also lets you create your own user presets with custom parameters that meet your specific needs. So get creative and have fun! Please visit [www.acumalabs.com](http://www.acumalabs.com) periodically to download new audio examples and additional free presets.



**Note: Certain preset names shown here have the prefix ( H\_ ). This indicates that the preset is associated and explained in Final Mix's help screen. The help screen is accessed by selecting the (?) found at the top right hand corner of the screen.**

Final Mix Preset	Preset Description	Preset Type
Acuma CD Mastering	A great full range compression preset for all-around mastering.	Any style mastering
Acuma Dance Mix	Optimized dance mix guaranteed to keep the beat pumping.	Dance production mix
Acuma Final Mix	Finely detailed midrange. Great for any style.	All around mastering
Acuma Gentle Comp	Soft and gentle compression levels for a light but definitive mix.	Easy mix
Acuma Punch	Medium compression emphasizing low and high end compression.	Funky, punchy mix
Acuma Rock + EQ	Great all-around rock compression with a boost in the low, mid and hi EQ.	Rock and roll mix
Acuma Techno	EQ with the perfect fat bottom mix and a sizzling, crisp top end. Perfect for techo, house and groove.	Techno, trance, house, groove mix
Acuma The Leveler	Maximizes your output level with a very warm analog sound.	Hot output mix
Country + EQ	Just the right compression and EQ creates a lively modern country mix.	Country mix
Country Female	Especially designed for today's top country music female singing sound.	Female- country mix
Country Mix	All around country music with just right crossovers and compression.	Male country mix
Drums	The ultimate drum compression. Good for all styles of drumming.	Drum mix (any style)

Drums with Exp	Add some snap and punch to drum tracks with a mix of expansion and compression.	Drum mix (any style)
Female Broadcast	Optimized Female compression settings for radio or TV broadcast. Uses an EQ lift between 100 and 300Hz with a 75Hz roll off. This simulates Electro Voice RE-20 microphone response.	Radio and television broadcast (female)
Female Vox Comp	Good all around compression and EQ. Good for most female singing voices.	Good over all female vocal mix
Final Mix Vocal	Medium compression set to optimal vocal crossover points 500Hz to 2.5K.	Use with any vocal style
General CD Mastering	General purpose, all around mastering.	General all around mastering
H_+6 dB Gain	A 6 dB lift created by a +3 dB input gain and a +3 dB output gain. Linked contour bands are set to 1:1 so they don't introduce any compression.	+6 dB boost
H_12 Band EQ	Shows off overlapping the 6 bands of pre and post EQ's to form a 12-band parametric EQ.	Demonstrates how the pre and post EQs can be combined to create a 12-band EQ
H_Bass Comp-Treble Exp	Pre EQ, high shelf; post EQ, low shelf. The contours are set to add compression to the lows, and expansion to the highs.	Compress bass, expand treble
H_Jazz Mix	Uses 3-band pre EQ w/three bands of compression that are set as tighter bass, mids, and highs.	Contemporary jazz mastering
H_Leveler With EQ	Three bands of pre EQ with a shelf set on the highs. A pronounced key in the lows, and 6 dB of gain makeup. Comp bands are linked.	Hot output + EQ mix
H_Loudness & Mild Comp	Mild loudness EQ curve set by post EQ peak in the lows, and a shelf in the highs. Linked comp bands with medium attack and slow release used for over-all compression.	Hot output with mid boost
H_Loudness EQ	Smiley-face EQ to compensate for quiet levels.	Hot output + EQ mix
H_Mid Lift	Simple wide Pre EQ midrange lift.	Boosts midrange compression

H_Mild Expansion	Three contour bands are set to act as midrange expanders to add a bit more dynamics and liven up a performance.	Expands midrange
H_Notch EQ	One pre EQ band set extremely low. Used to remove a problem frequency.	Use to eliminate bad frequencies
H_One Comp Band	Uses the middle contour band as a single broadband compressor. The Xover has its borders at 20Hz and 20kHz with 36 dB slopes. The band two key is set to match the Xover.	Used as one over all compressor
H_Punchy Kick	Knock you through the wall kick sound. Soft low band compression with 100Hz pre EQ lift.	Rock steady bass drum mix
H_Smooth Highs	Heavy high end compression with a Post EQ high shelf lift.	Emphasize high end
H_Telephone Comp	Special effect that simulates telephone reception. Shows off the concept of shutting bands off as effects.	Telephone effect
H_The Leveler #2	Linked comp bands @ 1.79:1 ratios. A small post EQ high lift is added. Use the Thresh or Input Gain faders to add or remove compression. The Output faders are used to trim over all.	Good overall master output control
Heavy Vox + 10K Boost	Heavily compressed vocal setting and 10k boost with linking bands.	Heavy vocal compression with 10k lift
Instrumental	Perfectly tweaked compression for any instrumental mix.	All-around instrumental mix
Jazz Final Mix	The perfect mastering compliment to well recorded live jazz.	All-around jazz mix
Light + EQ	Just a touch of compression with EQ for subtle mastering.	Easy comp mastering +EQ
Light Vox Comp + EQ	Just a touch of light compression with optimized vocal cross overs.	Light vocal compression with EQ
Long Distance	Hello out there, does anyone hear me? Spacey EQ and compression effect.	Far away effect
Loudness	Gives you hotter output.	Hot output mastering
Male Broadcast	Optimized Male compression settings for radio or TV broadcast. Uses an EQ lift between 100 and 300Hz. Has a 75Hz roll off to simulate Electro Voice RE-20 microphone response.	Radio and television broadcast (male)

Male Vox Comp	Good all around compression and EQ. Good for most male singing voices.	Good over all male vocal mix
Moderate + Hi Low EQ	Moderate compression with high and low EQ boost.	High and low EQ boost
Moderate + Mid EQ	Moderate compression with a bit of EQ boost for mid frequencies.	Mid EQ boost
Orchestral	Finely tuned light compression for full orchestra.	All-around orchestra mix
Pop	Medium, non-intrusive compression.	All-around pop mix
Pump DA Bass	Pumps up the low end for an ultra phatt sound.	Fat bottom end
Punch	Medium compression emphasizing low and high end compression.	Punchy R&B mix
Radio Punch Mix	Gives your mix added punch for radio or television. Designed for FM frequencies.	Add punch for radio and television
Sell It!	In your face sound that can't be denied.	Up front and noticeable
Smoothed Out 1	Top and bottom compression just offset from key centers.	Lifts and tightens a lifeless mix, mild compression boosts bottom and top end
Smoothed Out 2	Variation of Smoothed out 1.	
Smoothed Out 3	Variation of Smoothed out 1.	
Squash It 1	Extreme compression. Reminiscent of the main mix compressor on an SSL when it's pushed hard into a Pultec EQ.	Heavy compression
Squash It 2	Variation (extreme compression). Reminiscent of the main mix compressor on an SSL when it's pushed hard into a Pultec EQ.	Heavy compression
Squawk Squash	Designed to crush heavy midrange (2-5k).	Mid killer
The Brass Balls	Medium to heavy compression with bass boost EQ.	In your face, to the wall compression with bass boost
Vocal	General purpose vocal mastering; less compression in the middle to preserve a singer's dynamics.	Good on vocals



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