MACKIE.®

Final Mix™ VST

For Tracktion

Plug-in for Software Audio Recording Applications
By Acuma Labs

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

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Contents

Introduction

Thank you for choosing Mackie software products for your computer-based audio recording system. This version of Mackie's Final Mix stereo mastering plug-in comes with the PC version of Tracktion, our easy-to-use music production software application. When you install Tracktion on your PC, Final Mix is automatically installed in Tracktion's plug-ins folder.

Note: This version of Final Mix only works with Tracktion, and will not work with any other VST host applications you may have on your computer. You can visit our website (www.mackie.com) and purchase the universal version of Final Mix that works with any PC application that supports VST 2.0 (Virtual Studio Technology).

Final Mix is a professional stereo mastering plug-in 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 providess easy setup of your compressor parameters and allows you to create 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 projects to new heights.

About Final Mix

Mastering is often the element that separates a good production from a great one. Mackie's Final Mix enables you to master your session within your computer's software application and print directly to hard disk. All this without having to rely on expensive mastering houses or outboard gear. Best of all, settings can be saved as part of your DAW session! Final Mix features a six-band parametric (pre-dynamics) equalizer, a multi-band dynamics processor, and a six-band parametric (post-dynamics) equalizer—12 bands of stereo EQ and three bands of dynamics processing in all. All settings are easily edited 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 create an expander curve. Each dynamics band features its own key filter and operating bandwidth. This allows you to customize the frequency band triggering each compressor. The Soft-Clip feature adds a smooth, analog-style clip response when your signal gets close to overload. These features and others, 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 PC version of Tracktion
- 6-band pre-dynamics parametric equalizer
- 3-band dynamics processor
- 6-band post-dynamics parametric equalizer
- Soft-Clip feature to provide peak overload protection
- DC removal filter
- Noise gate
- Integrated on-screen help (click on the question mark button)
- Dynamics auto make-up gain
- Individual key selector for each dynamics band
- Graphical user-definable dynamics band contours
- Linking of dynamics band edits
- Full stereo operation
- Fully automatable
- Global enable button
- On/Off for the dynamics section and each EQ
- Solo for each key filter to assist with dynamics setup
- Mute for each dynamics band to assist with crossover setup
- Separate dynamics and EQ reset buttons
- Integrated factory presets and user presets
- Memories A and B for quick comparisons
- Input, output, and gain reduction metering
- Full Mackie Control Universal parameter support

Using Final Mix

Front Panel Overview

You can think of Final Mix as being broken into three basic blocks: EQ, Dynamics, and Global. The dynamics and equalizer blocks have alternate pop-up screens that can be accessed for detailed editing.

Pre/Post Parametric Equalizers (Six Band)

Dynamics Crossover/Key   Global Controls
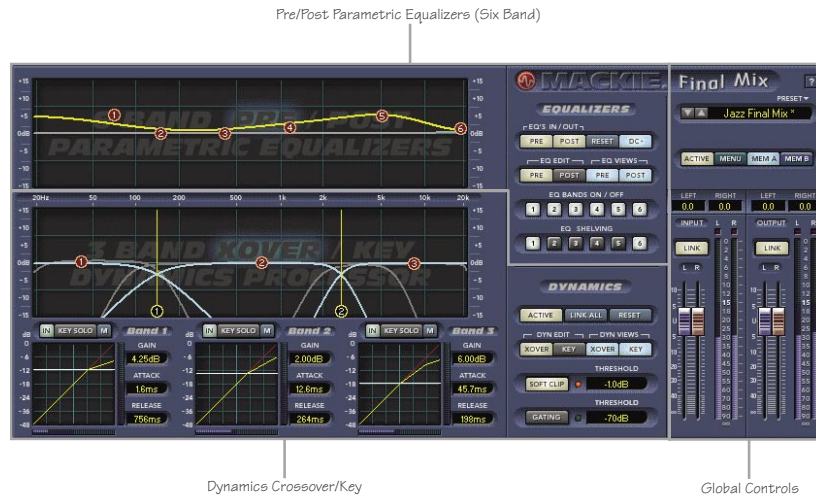
Pre/Post Parametric Equalizers Block (see page 9)

The parametric 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 curve 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 node to its default value. Right-clicking and dragging allows editing of the Q rather than the gain and frequency. Double-clicking on the EQ screen background brings up the EQ Values Panel. This allows you to view and adjust the numeric values of each band independently.

Dynamics Crossover/Key Graph Block (see page 11)

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 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. 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. For more information see the "Dynamics Processing" section, later in this manual.

Global Controls Block (see page 19)

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, 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 Parametric Equalizers
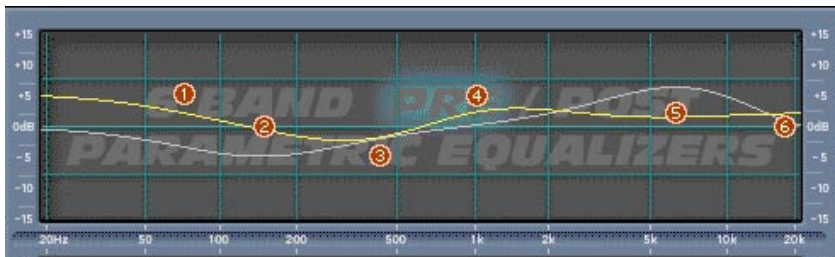
Pre and Post Parametric Equalizer graphs

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 relative to the dynamics processing. 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 in the EQ section that allow you to select what EQ you view and what EQ 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. To toggle between which EQ curve you are editing, use the EQ EDIT PRE and POST selector buttons. You can only edit one of the Pre or Post EQs at a time, although you can view both depending on which EQ views are active. Turn the views on and off with the EQ VIEWS buttons.

The EQ screen defaults to EQ EDIT PRE ON when Final Mix is initially activated. EQ EDIT PRE ON is also indicated by the letters (PRE) that are highlighted on the background screen.

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 background brings up the EQ Values Screen (see below). This shows the gain, frequency and Q corresponding to either the Pre or Post EQ. What 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 readout and adjust the numeric values up or down.

Fine adjustment is accomplished by clicking in the text boxes. A single right-click in the box increments the value, and single left-click in the box decrements the value.

EQ Values panel

Achieving the right amount of compression can change the 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 the EQ PRE or POST VIEW button 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.

If you have deactivated the dynamics section of Final Mix, the Pre and Post EQs essentially cascade together to give you a 12-band parametric EQ.

DC–

DC– stands for Direct Current offset. This is a high-pass filter with a sharp slope 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 click the button to disengage.

DC offset is noise that may be present within your signal but typically is not audible by it-self. Why would you want to remove it? It can damage speakers by offsetting the "resting" position of the cone. It can also require extra energy to reproduce, robbing an amplifier of power that could be used to reproduce the music.

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 SHELVING 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 SHELVING 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 SHELVING button off means that the band becomes fully parametric.

Dynamics – Crossover/Key Graph

Crossover and Key graph

Overview of Operation

The dynamics graph illustrates the crossover and key filter settings. As with the Pre and Post EQ graph, 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 VIEWS XOVER and KEY. DYN VIEWS enables or disables viewing. DYN EDIT selects which feature is being ed-ited. 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 frequency bands (Low, Mid, and High). Each of these bands feeds into its own dynamics processor.

VERY IMPORTANT **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 can give you great flexibility while mastering. 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 dynamics processor has its own key filter. This can be used to emphasize or de-emphasize the key (or control) signal within a band. The key signal is used to trigger the associated dynamics processor. Having separate control of the key filter is one of the most unique features of Final Mix. This allows you to control the dynamics of one frequency band by keying off another. This can be useful, for example, if you would like the low frequencies not to overpower your lead vocals.

The crossover points are represented by the black nodes (balls) with vertical yellow lines. These can be adjusted by dragging the two black nodes 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 nodes 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.
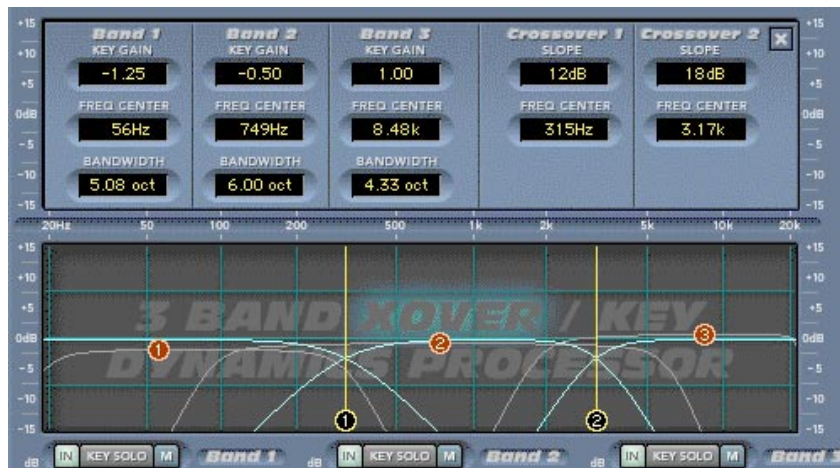
Crossover/Key Values panel

All the values from this screen can be adjusted by clicking on the digits and dragging up or down with your mouse. For fine adjustments, right-click in the text box to increment the value, and left-click in the box to decrement the value.

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 signal that is sent to the key level detector. This is used in conjunction with the key bandwidth to determine when the dynamics processor acts on the signal. 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 key off of a more moderate level. The compressor input signal is indicated by the horizontal meter below the contour graph.

Note: The compressor input signal level is not the key level.

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 cause the compressor to engage more than the drums.

Dynamics Processing
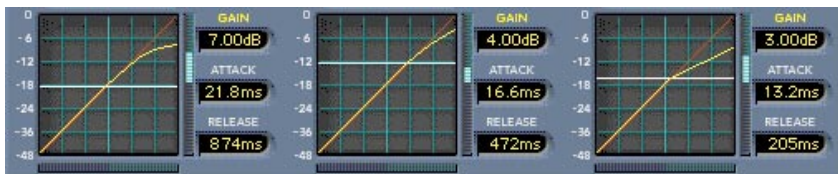
Dynamics overview

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.

Left-click and drag to adjust the Threshold node. Right-click and drag to adjust the End node.

Double-clicking on any of the smaller contour screens brings up the larger Contour Edit 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
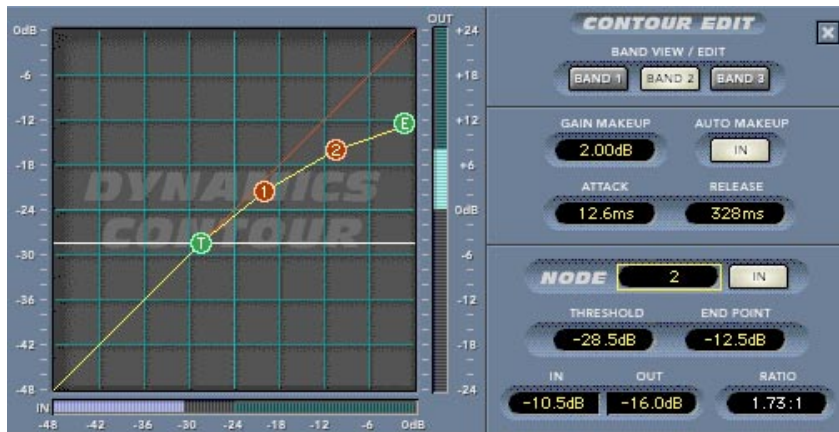
Contour Edit screen

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 occurs when the amplitude of the output increases faster than the amplitude of the input. Compression, on the other hand, occurs when the amplitude of the output increases slower than the amplitude of the input. Final Mix allows expansion or compression above the threshold. Expansion can be used to increase the volume of quiet passages and bring a little bit more "life" into a performance. Note that each individual segment can be set as either a compressor, an expander, or both. 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 below. 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 "Node Editing" section on page 16 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 (or expansion).

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, especially with low-frequency signals. 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 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.
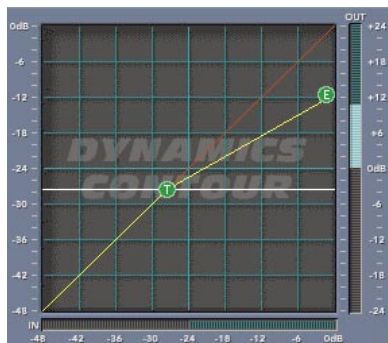
Hard Knee curve   *Soft Knee curve*
Examples of Hard Knee and Soft Knee curves

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 Node Enable IN button.

Right-click to add a node

Node Selector

Node Enable

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 click and drag 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 mainly for special effects or repair work. 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.

The graph above could be used on a snare track to drastically lower the volume of a few snare hit by an over-excited drummer while leaving most of the snare track unaffected.

Other Controls in the Dynamics Section

Active

This engages or disengages all of the compressors.

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

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, and MEM A/B buttons. The global controls also include INPUT and OUTPUT faders and meters, and fader LINK buttons.

Main Global Controls screen

Help Screen (?)

Pressing the help (?) 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. Click the "X" to close the help screen.
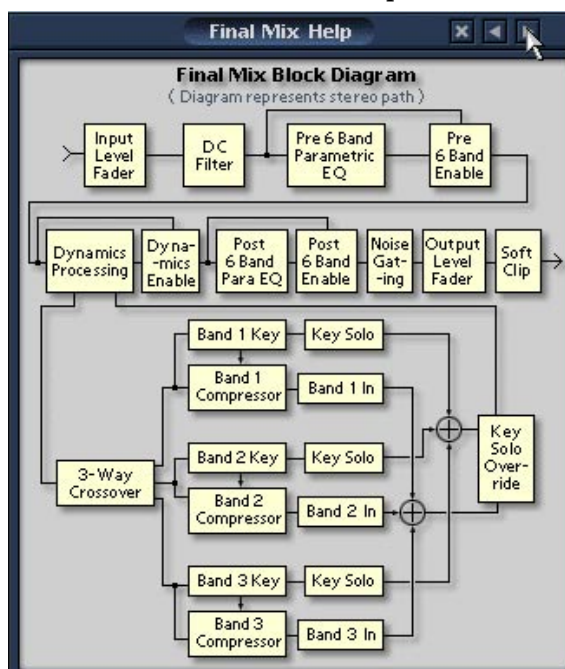
Preset Toggle Buttons

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:

About Final Mix: Opens a window that shows the version number and copyright information.
Undo: Undo the previous action.
Redo: Redo the previous undo.
Load Final Mix: Loads a previously saved preset file.
Save User Preset As...: Saves a Preset to the hard drive with a new file name.
Save User Preset: Saves changes to the current preset to the hard drive.
Reset Final Mix: Resets all the settings in Final Mix to the current preset values.
Cut Final Mix: Copies all the settings to the clipboard and resets them to their default values.
Copy: Copies all the settings to the clipboard, leaving the settings as they are.
Paste Final Mix: Copies the settings from the clipboard to the current Final Mix window.

Note: Cut/Copy/Past are useful for changing MEM A and B to identical settings.

L/R Input and Output Clip LEDs

The two small boxes at the top of the input and output meters are the clip LEDs. The clip LEDs light if the signal goes above 0 dB. Avoid lighting the OUTPUT clip LEDs. When rendering to disk at either 24-bit or 16-bit, any clips will be written to the file.

You can generally get rid of clipping by backing off the input or output faders slightly, or by engaging the SOFT CLIP button (see page 18). Actually, because Final Mix uses 32-bit floating point internal processing, the signal does not clip internally within the plug-in. However, to maintain a reasonable gain structure and avoid clipping elsewhere in the signal chain, avoid running the signal up above 0 dB.

Link

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

Specifications

6 band Parametric EQ

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

Dynamics

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

Compressor Contours

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

Input/ Output Meters

–90 dBfs to 0 dB FS

Routing

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

Soft-Clip

Threshold	0.0 dB to –20.0 dB

Input/ Output Faders

+ 10 dB to off

Noise Gate Threshold

0 dB FS to –125 dB FS

Crossover Frequencies

20 Hz to 20 kHz

Crossover Slopes

6 dB/octave to 36 dB/octave

Key Filters

Frequency	Limited to crossover band
Slope	4th order low pass 4th order high pass

DC Filter

On/Off, frequency = 3.3 Hz

Need Help?

Contact our Technical Support staff at **1-800-898-3211**, Monday to Friday, from 7 am to 5 pm PST. After hours, please visit www.mackie.com and look under **Support**, or email us at techmail@mackie.com.

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.mackie.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)

Final Mix Preset	Preset Description	Preset Type
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

Final Mix Preset	Preset Description	Preset Type
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)

Final Mix Preset	Preset Description	Preset Type
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
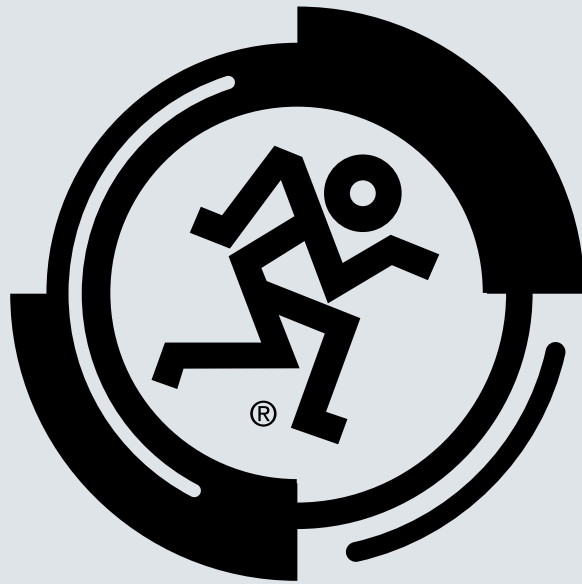
LOUD Technologies Inc.

16220 Wood-Red Road NE • Woodinville, WA 98072 • USA

US and Canada: 800.898.3211

Europe, Asia, Central and South America: 425.487.4333

Middle East and Africa: 31.20.654.4000

Fax: 425.487.4337 • www.mackie.com

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