

MACKIE®

Stereo Comp (track 2) lock hide

STEREO COMPRESSOR program: 3to1OneNodeComp * preset: menu mem a mem b active

REDUCTION

AUTO MAKEUP OUT IN Gain Makeup 0.00dB

Atk. 4.9ms Rel 237ms

Thresh -28.0dB

End Pt -10.5dB

Input

Output

Ratio: 3.25:1 SOFT CLIP OUT IN

SoftClip -1.0dB

NODE EDIT SELECT

Node 2 Node 3
Node 1 Node 4
Thresh End

OUT IN Active Node

MACKIE. PLUGINS

(Click on any button or area for more information)

Stereo and Mono Compressor plug-ins for Tracktion 2



Lock

If this is pressed, the compressor's interface will not disappear when you select other items or areas in Tracktion.

Hide

This hides the compressor interface from view, and is useful if you have previously selected "Lock."

Preset Toggle Buttons

The preset up/down arrow buttons on either side of the Preset window, enable you to scroll up or down through the factory or user presets.

The compressor comes with a few useful factory presets. If these are recalled, the compressor takes on these settings. You can also save your own favorite settings as presets for later recall.

Preset Title Window

This window displays the currently selected preset. Click on it to access the pull-down menu where you can choose from among the factory presets, and any user presets you might have saved.

If you load a preset, and then adjust any controls, an asterisk will appear next to the preset name. This is a reminder that things have changed from the original preset.

Menu

Pressing the MENU button opens a pull-down menu that performs some familiar functions:

About Stereo Comp: Opens a window that shows the version number and copyright information.

Undo: Undo the previous action.

Redo: Redo the previous undo.

Load Comp: Loads a previously saved preset file.

Save User Preset As...: Saves a Preset to the hard drive with a new file name. (for example, use this after making slight changes to a preset, and saving it as a variation)

Save User Preset: Saves changes to the current preset to the hard drive.

Reset Comp: Resets all the settings to the current preset values.

Cut Comp: 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 Comp: Copies the settings from the clipboard to the current window.

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

Memory A/Memory B

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

Active

Use this to engage or disengage the compressor from the signal path. If the red LED is on, the compressor is active, and any audio passing through is affected by its settings. If the red light is out, then the compressor is bypassed, and it has no effect on the audio.

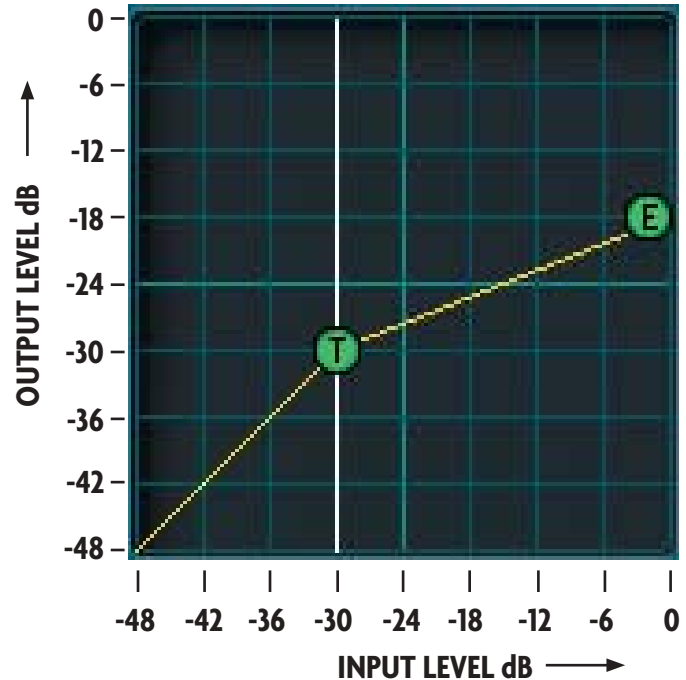
The Contour Edit Screen

This interactive graph does not show the actual input or output signals dancing across the screen. It shows the contour we can apply to the compressor to make it work as we want it to.

The input signal level in dB is the horizontal axis, and the output level is the vertical axis, with 0 dBfs at the top, and -48 dBfs at the bottom.

If the compressor did nothing to your signal, then the contour curve would just be a straight diagonal line, going from bottom-left to top-right (input=output).

The example here shows a simple set up, with just the Threshold (T) and the End Point (E) in place. Further nodes can be added between the threshold and end point, to really make things fly.



Threshold

The input level at which the compressor starts working is called the Threshold. The compressor will reduce the level of signals above the threshold volume level, and will not affect lower-level signals.

You can adjust the threshold by grabbing the T node on the graph, or by adjusting the threshold slider.

The threshold has been set here to -28 dB, so any input levels below this are not affected by the compressor. For example, an input signal of -42 dB has an output of -42 dB, (assuming no makeup gain has been added).

End Point

You can adjust the End Point by grabbing the E node on the graph, or by adjusting the slider.

The End Point shown here, is set to an output level of -10.5 dB.

Any input signals higher than the threshold will be attenuated by an amount determined by the slope of the graph. For example, if the input level is -12 dB, follow the -12 dB line vertically until it hits the line joining the T and E nodes. From there, follow horizontally to the left, and read the output level.

Compression Ratio

The compression ratio is the change in input level compared to the change in output level, for a selected node. This is the slope of the line segment to the left of the selected node.

For example, if we select a node and the ratio is 2.50:1, this means that for signals above the threshold, a 2.5 dB change in input level will yield 1 dB change in the output level.

If there is no compression, then the ratio is 1:1, this means that for signals above the threshold, a change in input level will yield the same change in the output level.

Negative compression ratios can also be shown. 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, so its line segment is going downwards. For negative compression, the ratio is negative, for example, $-2.5:1$.

When a line segment represents expansion, the ratio is displayed as 1:2.5, for example. This means that for signals above the threshold, a 1 dB change in input level will yield a 2.5 dB change in the output level.

Gain Makeup and Auto Makeup

Gain Makeup is used to make up for volume that has been decreased due to compression. The Gain Makeup level ranges from -15 dB of attenuation, to $+15$ dB of gain, and can be adjusted by moving the slider to the left or right .

When AUTO MAKEUP is IN, the compressor automatically chooses an appropriate makeup gain for you. This 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 set the AUTO MAKEUP to IN, the compressor adjusts your makeup gain parameter so that the volume does not suddenly jump up. This is hearing (and speaker) protection!

Attack

Attack specifies how quickly gain reduction (or expansion) occurs at the attack, or beginning, of a signal crossing the threshold.

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 will compress everything over the threshold, allowing no transients through unprocessed. The amount of compression depends on the ratio.

Release

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).

Generally, lower frequencies require longer release times than higher frequencies. For high- or mid-frequencies, if the release time is too long, you may hear the compressor ‘breathing’.

Soft Clip On and Threshold

The Soft Clip switch activates a soft-clip limiter circuit. There is also a threshold slider. When the output level goes above this threshold, the soft-clip circuit kicks in. This circuit starts adding analog-style distortion, which rounds off transient peaks, and 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 LED (next to the threshold slider) activates when the signal is above the soft-clip threshold, so keep an eye on it.

The soft-clip circuit is the last thing in the signal processing chain.

Node Editing

One of the very powerful features of the compressor, is it 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.

Nodes can be used to draw a knee for the compressor curve, and give a nice smooth transition from applying minimal compression at low input levels, to much higher compression at higher levels.

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.

The four numbered nodes always appear in order from left to right. You can't add a node between, for example, nodes 1 and 2, even if they are the only 2 nodes active.

Node Selector Knob and Active Node Switch

You can also add or remove nodes using the Node Edit Selector knob and toggling the Active Node switch. Click on the knob and move the mouse either vertical or horizontal to rotate it and select a node. Use the Active Node switch to turn a node on or off.

Input and Output Sliders

The position of nodes 1 to 4 can also be adjusted by using the Input and Output level sliders. These sliders do not appear for the Threshold and End Point nodes, just nodes 1 to 4.

Reduction Meter

This meter shows the overall reduction in output level due to the compressor operation. If you are using expansion, then there will be an increase in output level. This meter will help you add or adjust the makeup gain.

The meter reads 0 dB whenever the input is below the threshold, and moves downwards as the input level goes above threshold and gain reduction starts.

Input and Output Meters

These meters show the input levels of the signals going into the compressor, and the left and right output levels.

The stereo compressor takes its input from a mixed sample of the left and right, so there is only one input meter. Its compressor action then works equally on the left and right of your stereo track.

It is interesting to see the position of the threshold with respect to the input level meter, and to see the output meters.

Input and Output OL (overload) LEDs

The small boxes at the right of the input and output meters are the overload LEDs. They light if the signal goes above 0 dB, and this should be avoided. Most little red lights which come on, should be avoided, like that one in the car which says "Oil."

You can generally get rid of clipping by backing off the makeup gain slider slightly, or by engaging the Soft Clip switch.