



D.CAM Dynamics

OPERATION MANUAL

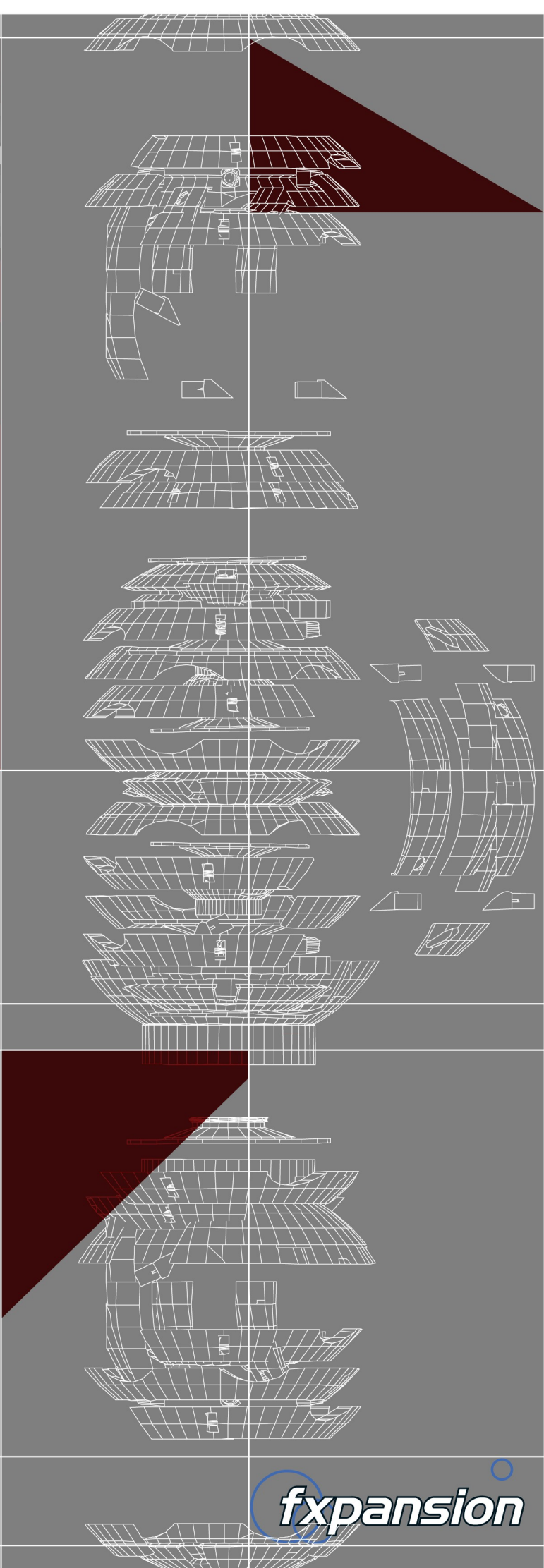


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1 Introduction

Welcome to FXpansion DCAM Dynamics, a powerful set of compression plugins. After the installation, 4 new plugins are added to your system:

DCAM BusComp

DCAM BusComp is based on a classic bus compressor design from the centre section of a well-known British large-format mixing console. It is usually intended to be inserted on subgroups like drum mixes or the entire master output to add 'glue' and power to a mix of tracks. However, it also works very well as a channel compressor in its own right, offering a different type of compression to that offered by the ChanComp.

DCAM ChanComp

DCAM ChanComp is based on a classic limiting amplifier design commonly used as a channel compressor. It features very fast attack response and is usually intended to be applied to individual tracks.

DCAM CrossComp

Frequency selective compression and shaping

DCAM CrossComp provides a simple but effective set of additions to a bus compressor core that allow you to quickly dial in frequency-dependent compression without the complicated overhead of a full multi-band device.

DCAM EnvShaper

DCAM EnvShaper takes a different approach to dynamics processing than a standard compressor. It allows you to adjust the attack and sustain portions of transients in order to change the dynamic shape of a signal.

Common features in DCAM Dynamics

The DCAM Dynamics plugins contain some common menus and preset controls: these are described at the start of [chapter 2](#).

All plugins also feature a built-in [MIDI Learn](#) system for mapping MIDI continuous controllers (MIDI CCs) to the plugins' controls.

2 DCAM Dynamics processors

Common controls in DCAM Dynamics

Preset picker

This drop-down menu displays all available presets of the relevant type, arranged in category sub-menus, as well as the following functions:

Save preset

This function prompts you for a filename in order to save the current settings to disk. It is recommended that you save presets to the default folder that is shown so that they can easily be reloaded using the preset picker menu.

Load preset

This function allows you to browse to and load a preset from any location.

Rescan presets

The Rescan presets function scans the preset location for new presets you may have copied there since you launched the plugin.

Reset to default

This function resets the plugin state to a pre-defined default state (saved using the **Save as default** function) or to the factory default state if no user-defined default exists.

Save as default

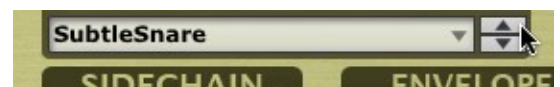
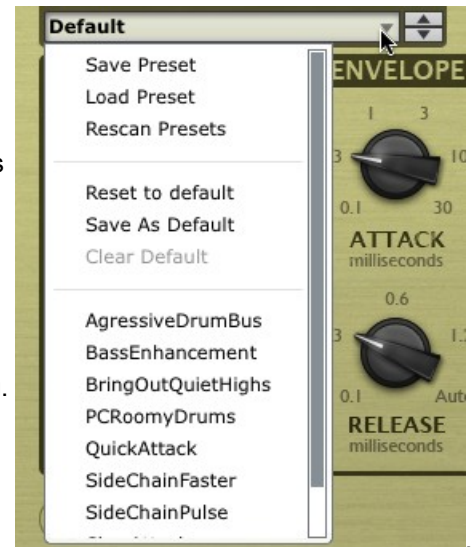
This function saves the current plugin state as the default state. The default state is recalled when initializing the plugin or when using the **Reset to default** function.

Clear default

This function clears the user-defined default settings, so that the factory default state is used when initializing the plugin or when using the **Reset to default** function. This function is unavailable if no user-defined default settings exist.

Prev/Next preset

These buttons sequentially step backward/forward through the available presets.



Options menu



About

This function displays the DCAM Dynamics version number and credits listing.

Open manual

This function opens the DCAM Dynamics online manual in your OS's default browser.

Check for updates

This function checks the FXpansion website for any available DCAM Dynamics software updates.

Open user forum, Open user FAQ, FXpansion support

These functions open the DCAM Dynamics online forum, FAQ and FXpansion support pages in your default browser.

GR is default VU mode

Activating this preference results in the plugin's metering being set to display gain reduction by default.

2.1 BusComp

DCAM BusComp is based on a classic bus compressor design from the centre section of a well-known British large-format mixing console. It is usually intended to be inserted on subgroups like drum mixes or the entire master output to add 'glue' and power to a mix of tracks. However, it also works very well as a channel compressor in its own right, offering a different type of compression to that offered by the ChanComp.



Detection section

HP Freq

The **HP Freq** control allows you to apply a variable high pass filter on the key signal that is used for the compressor's amplitude detection circuit. This control is useful when there is too much low-end in the signal fed into the peak detection circuit, which can result in the compressor reacting too heavily.

Listen

Activating the **Listen** button allows you to monitor the signal used for the compressor's detection circuit, according to the current settings of the **HP Freq** and **External** controls.

External (External sidechain)

Activate the **External** button in order to use the sidechain signal as the source for the peak detection circuit, allowing you to control the dynamics of the input signal with another signal entirely.

This function involves routing the desired external sidechain signal to inputs 3-4 of the plugin.

Envelope section

Attack

The **Attack** control adjusts the speed at which the program (input signal) gain is reduced when a peak is detected.

Six attack times are available: 0.1 ms, 0.3 ms, 1 ms, 3 ms, 10 ms, 30 ms.

Release

The **Release** control sets the speed at which the gain level returns to normal after a transient has passed.

The following Release settings are available: 0.1 ms, 0.3 ms, 0.6 ms, 1.2 ms and Auto.

Compressor section

Threshold

The **Threshold** represents the input level at which the compressor starts to react - any signals over the Threshold level engage the compressor circuit.

Makeup

The **Makeup** control increases the output gain after the compressor circuit has applied gain reduction to the input signal.

Ratio

The **Ratio** specifies the gain reduction applied by the compressor.

3 Ratio settings are available: 2:1, 4:1 and 10:1. The numbers represent the change in gain after compression.

For example, assuming that the threshold level has been breached, then a Ratio of 4:1 would mean that for every 4 dB of increased signal level coming into the compressor, the output level rises by 1dB.

Master section

In Gain

The **In Gain** control adjusts the level of the input signal, from -inf dB to +6 dB.

Out Gain

The **Out Gain** control adjusts the level of the final output signal, from -inf dB to +6 dB.

Mix

The **Mix** control allows you to blend the final output mix between the input signal (0%) and output signal (100%).

This is useful for quickly introducing parallel dynamics processing without having to perform extra routing in your DAW/host, allowing you to achieve the 'huge' compressed sound while keeping the transients of the original signal intact.

Saturate

Activating the **Saturate** button enables the BusComp's saturation circuit. The saturation behaviour is dependent on the level of the input signal. Note that this function is not a peak clipper - the signal can still exceed 0dB depending on the input level and compression settings.



Meter section

G.R.

By default, the meter displays the output level from the compressor. Activate the **G.R.** button to switch to metering the amount of gain reduction.

Hi Def

By default, all processing in the DCAM Dynamics plugins is performed at 2x oversampling.

With the **Hi Def** button activated, all processing in the plugin is performed at 4x oversampling. This achieves better sounding results but requires more CPU.



Bypass

With the **Bypass** button activated, the plugin is disabled and the input audio signal passes through unaffected.

Learn

Activating the **Learn** button initiates Learn mode which allows you to assign MIDI continuous controllers (MIDI CCs) to DCAM Dynamics' plugin parameters.

2.2 ChanComp

DCAM ChanComp is based on a classic limiting amplifier design commonly used as a channel compressor. It features very fast attack response and is usually intended to be applied to individual tracks.



In Gain

Increase the **In Gain** control to make the sound more compressed (higher signals engage the compression circuit more)

Out Gain

Adjust the **Out Gain** to reduce the final level as required.

Ratio section

The **Ratio** specifies the gain reduction applied by the compressor.

Five Ratio settings are available: 4, 8, 12, 20 and Nuke. The numbered settings correspond to ratios of 4:1, 8:1, 12:1 and 20:1. The numbers represent the change in gain after compression.

For example, assuming that the threshold level has been breached, then a Ratio of 4:1 would mean that for every 4 dB of increased signal level coming into the compressor, the output level rises by 1dB.

The Nuke setting is an emulation of the 'all buttons' ratio mode on a classic limiting amplifier design. It affects the compression characteristics in various ways, affecting the attack and causing limiting and distortion effects, resulting in rather brutal, heavy sounds.

Envelope section

Attack

The **Attack** control adjusts the speed at which the program (input signal) gain is reduced when a peak is detected.

The Chan Comp is designed for fast compression with Attack times from 0.02ms to 1.2ms.

Release

The **Release** control sets the speed at which the gain level returns to normal after a transient has passed.

The Release time ranges from 50ms to 1.2 seconds.

Master section

Bias

The **Bias** control continuously varies between different capacitor values which were used on various hardware revisions of the hardware on which the Chan Comp is based.

Settings between -25% and +25% result in subtle sonic variations in the compression characteristics. More extreme settings are useful for driving the compression circuit hard.

Mix

The **Mix** control allows you to blend the final output mix between the input signal (0%) and output signal (100%).

This is useful for quickly introducing parallel dynamics processing without having to perform extra routing in your DAW/host, allowing you to achieve the 'huge' compressed sound while keeping the transients of the original signal intact.

Meter section

G.R.

By default, the meter displays the output level from the compressor.

Activate the **G.R.** button to enable metering of the amount of gain reduction.



Master section

Hi Def

By default, all processing in the DCAM Dynamics plugins is performed at 2x oversampling.

With the **Hi Def** button activated, all processing in the plugin is performed at 4x oversampling. This achieves better sounding results but requires more CPU.

Bypass

With the **Bypass** button activated, the plugin is disabled and the input audio signal passes through unaffected.

Learn

Activating the **Learn** button initiates Learn mode which allows you to assign MIDI continuous controllers (MIDI CCs) to DCAM Dynamics' plugin parameters.



2.3 **CrossComp**

DCAM CrossComp provides a simple but effective set of additions to a bus compressor core that allow you to quickly dial in frequency-dependent compression without the complicated overhead of a full multi-band device.



Sidechain section

HP Freq

The **HP Freq** control allows you to define the cutoff frequency of the high-pass filter before the compressor's detection circuit. This HPF exists no matter which signal is used as the Key source.

Input

This switch allows you to select which signal is used for the compressor's peak detection circuit.

Self	The current input to the compressor, which is dependent on the above settings in the Pre-processing section, is used.
In	The entire input signal is used.
Ext	The external sidechain (inputs 3-4) is used.
Low	The frequency band below the Frequency setting is used.
High	The frequency band above the Frequency setting is used.

X-Over (Crossover) section

Frequency (Crossover Frequency)

The **Frequency** control defines the point between the Low and High frequency bands.

Pass-Thru

The **Pass-Thru** switch selects which signal is used as the Pass-thru signal. The final level of this signal is adjusted using the **Pass-thru** control in the Processor section.

Low	The frequency band below the Frequency setting is used.
Input	The entire input signal is used.
High	The frequency band above the Frequency setting is used.

Process

The **Process** switch allows you to select which signal to feed through the compressor. The final level of this signal after processing is adjusted using the **Process** control in the Processor section.

Low	The frequency band below the Frequency setting is used.
Input	The entire input signal is used.
High	The frequency band above the Frequency setting is used.

Envelope section

Attack

The **Attack** control adjusts the speed at which the program (input signal) gain is reduced when a peak is detected.

6 Attack time settings are available: 0.1 ms, 0.3 ms, 1 ms, 3 ms, 10 ms, 30 ms.

Release

The **Release** control sets the speed at which the gain level returns to normal after a transient has passed.

The following Release settings are available: 0.1 ms, 0.3 ms, 0.6 ms, 1.2 ms and Auto.

With the Auto setting active, the Release is automatically set according to the input signal characteristics.

Fast

Activating the **Fast** button scales down the range of the **Release** control, resulting in much faster release characteristics.



Processor section

Threshold

The **Threshold** represents the input level at which the compressor starts to react - any signals over the Threshold level engage the compressor circuit.

Knee

The **Knee** control sets the bandwidth of the compression circuit's knee. The minimum setting (1) results in a hard-knee setting. Increasing the Knee control makes the knee gradually softer.

Hard-knee compression reduces the gain of any signal above the Threshold level and does not affect any signals below it. Soft-knee compression begins to introduce gain reduction at levels just under the Threshold level and gradually increases the amount of gain reduction above it, leading to a more gentle, natural-sounding type of compression behaviour.



Reducing the Threshold control



Increasing the Knee control

Ratio

The **Ratio** specifies the gain reduction applied by the compressor.

The Ratio can be continuously varied between 1:1 and 60:1. The numbers represent the change in gain after compression.

For example, assuming that the threshold level has been breached, then a Ratio of 4:1 would mean that for every 4 dB of increased signal level coming into the compressor, the output level rises by 1dB.



Setting a low Ratio



Setting a high Ratio

Makeup

The **Makeup** control allows you to increase the output gain after the compressor circuit has applied gain reduction to the input signal.

Levels section

Pass-Thru

The **Pass-Thru** control adjusts the level of the Pass-Thru signal, as defined by the **Pass-Thru** switch in the X-Over section.

Process

The **Process** control adjusts the level of the Process signal, as defined by the **Process** switch in the X-Over section.

Phase invert

Activating the **Phase invert** button for the Pass-Thru or Process signals flips the phase of the signal.



Saturate

Both the Pass-Thru and Process signals feature individual saturation circuits, activated by the **Saturate** buttons.

The saturation behaviour is dependent on the level of the input signal. Note that this function is not a peak clipper - the signal can still exceed 0dB depending on the input level and compression settings.

Listen section

Listen switch

The **Listen** switch selects which signal is monitored from the plugin output. It is useful for confirming the state of each signal when setting up the CrossComp's parameters.

In	The input signal is monitored, prior to any processing.
Low	The Low band is monitored, prior to any additional processing.
High	The High band is monitored, prior to any additional processing.
Side	The signal used for the compressor's detection circuit is monitored.
Pass	The Pass-Thru signal is monitored, prior to any additional processing..
Proc	The Process signal is monitored, prior to any additional processing.
Out	The output signal after all processing blocks is monitored. This is the default setting.

Master section

In Gain

The **In Gain** control adjusts the level of the input signal, from -inf dB to +6 dB.

Out Gain & meter

The **Out Gain** control adjusts the level of the final output signal, from -inf dB to +6 dB. The meter to the right of this control displays the output level.

Saturate

The Master section's **Saturate** button activates a saturation circuit which is applied to the entire output signal. The saturation behaviour is dependent on the signal level. Note that this function is not a peak clipper - the signal can still exceed 0dB depending on the input level and compression settings.

Hi Def

By default, all processing in the DCAM Dynamics plugins is performed at 2x oversampling.

With the **Hi Def** button activated, all processing in the plugin is performed at 4x oversampling. This achieves better sounding results but requires more CPU.

Bypass

With the **Bypass** button activated, the plugin is disabled and the input audio signal passes through unaffected.

Learn

Activating the **Learn** button initiates Learn mode which allows you to assign MIDI continuous controllers (MIDI CCs) to DCAM Dynamics' plugin parameters.

2.4 EnvShaper

DCAM EnvShaper takes a different approach to dynamics processing than a standard compressor. It allows you to adjust the attack and sustain portions of transients in order to change the dynamic shape of a signal.



Detection Signal section

Input

The **Input** control allows you to switch between the left channel, right channel and both channels of an incoming stereo signal to use as the input to the EnvShaper's amplitude detection circuit. Using only one channel in a complex stereo signal can achieve better results.

HP Freq

The **HP Freq** control allows you to apply a variable high pass filter on the key signal that is used for the amplitude detection circuit. This control is useful when there is too much low-end in the signal fed into the peak detection circuit, which can result in the transient shaping reacting too heavily.

Listen

Activating the **Listen** button allows you to monitor the signal used for the EnvShaper's detection circuit.

Dynamics section

Attack

The **Attack** control adjusts the intensity of the attack phase of detected peaks in the audio signal. Increase the control to intensify attack transients, and decrease it to soften transients.

Sustain

The **Sustain** control adjusts the intensity of release portions of detected peaks in the audio signal, which increases or decreases the apparent sustain of sounds in the signal. Increase the control for more sustain, and decrease it for less sustain. This control is useful for adjusting the perceived level of ambience in a channel. Negative settings can produce damping effects for drum sounds.

Signal Bias

The **Signal Bias** control adjusts the sensitivity and release characteristics of the EnvShaper. At low settings (towards the Fast setting) it is more sensitive to short transients while at higher settings (towards the Slow setting) it is more sensitive to longer transients (towards the Slow setting).

Saturate

Activating the **Saturate** button enables the EnvShaper's saturation circuit. The saturation behaviour is dependent on the level of the input signal. Note that this function is not a peak clipper - the signal can still exceed 0dB depending on the input level and the Attack/Decay settings.

**Master section****In Gain**

The **In Gain** control adjusts the level of the input signal, from -inf dB to +6 dB.

Out Gain

The **Out Gain** control adjusts the level of the final output signal, from -inf dB to +6 dB.

Mix

The **Mix** control allows you to blend the final output mix between the input signal (0%) and output signal (100%).

This is useful for quickly introducing parallel dynamics processing without having to perform extra routing in your DAW/host, allowing you to achieve the 'huge' compressed sound while keeping the transients of the original signal intact.

Hi Def

By default, all processing in the DCAM Dynamics plugins is performed at 2x oversampling.

With the **Hi Def** button activated, all processing in the plugin is performed at 4x oversampling. This achieves better sounding results but requires more CPU.

Bypass

With the **Bypass** button activated, the plugin is disabled and the input audio signal passes through unaffected.

Learn

Activating the **Learn** button initiates Learn mode which allows you to assign MIDI continuous controllers (MIDI CCs) to DCAM Dynamics' plugin parameters.

3 MIDI Learn

The built-in MIDI Learn mode allows you to map MIDI CCs (continuous controllers) to parameters in the DCAM Dynamics plugins.

MIDI Learn CC setups are saved with the host project containing the plugin. They are not saved within individual plugin presets (saved using the Preset picker).

For the MIDI Learn system to function, it is necessary for your host/DAW to route MIDI to the plugin slot in which the DCAM Dynamics plugin is inserted. Please see your host's documentation for details on how to achieve this.

Mapping a MIDI CC to a control



1. Click the Learn button to enter MIDI Learn mode. Parameters in the DCAM Dynamics plugins which can be mapped to MIDI CCs are highlighted in green.



2. Click the parameter you want to map on the interface.



3. Move the physical MIDI CC knob, slider or other controller you want to use.



4. The parameter is now mapped. The MIDI channel and CC number are overlaid on the



5. Click the Learn button again to exit MIDI Learn mode.

control.

Removing a MIDI Learn assignment



1. While in MIDI Learn mode, click the 'X' button above each assigned control.



2. The assignment is now removed.

4 Credits

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