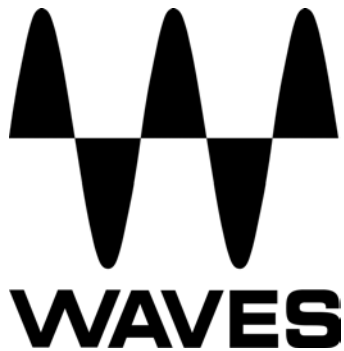


# MV360°

## User Manual



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# Chapter 1 – Introduction

## 1.1 Welcome

Thank you for choosing Waves! In order to get the most out of your Waves processor, please take the time to read through this manual.

In conjunction, we also suggest that you become familiar with [www.wavesupport.net](http://www.wavesupport.net). There you will find an extensive **Answer Base**, the latest **Tech Specs**, detailed **Installation** guides, new **Software Updates**, and current information on **Authorization** and **Registration**.

By signing up at [www.wavesupport.net](http://www.wavesupport.net), you will receive personalized information on your registered products, reminders when updates are available, and information on your authorization status.

## 1.2 Product Overview

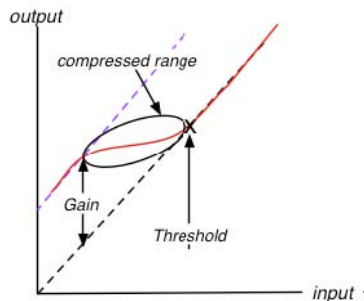
MV360 is a dual function dynamics processor for 5.0 and 5.1 Surround sound applications. It provides six discrete channels of low level and high level compression.

## 1.3 Concepts and Terminology

### Low Level Compressor

Low Level Compression can be explained in simple terms as the opposite of standard or high level compression. In a standard compression setting, any signal above the set threshold gets compressed and attenuated.

With the MV360° Low Level Compression function, any signal below the set threshold gets compressed upward, resulting in increased gain. The dynamic range is thus compressed, pushing low levels up while leaving high levels as they were.



## High Level Compressor

The MV360° High Level Compression function is comprised of compression with automatic makeup gain and output level control.

The Compressor function is similar to that of Waves Renaissance Vox. The compressor is controlled by the Threshold fader, which sets the amount of desired dynamic range compression. An automatic gain makeup function compensates for gain reduction resulting from the applied compression.

## Link Modes

MV360° offers 9 convenient Link Modes which let you use up to 3 separate sidechain groups that address the most commonly used sound stage disciplines.

### 5.1 Link Modes

- ❖ **All Linked**  
In this mode, all channels are linked, maintaining the balance between the 5 main channels and the LFE channel.
- ❖ **5 Linked | LFE**  
This mode fully preserves the surround image, but does not attenuate/boost the directional channels in conjunction with peaks in the LFE channel.
- ❖ **Front | Rear | LFE**  
This mode is useful in situations when rear channel ambience and effects don't require attenuation/boost in conjunction with front channel music or dialog.
- ❖ **Center | Quad | LFE**  
This mode offers independent dynamic control over dialog, overall surround image, and LFE channel.
- ❖ **Center | Front | Rear (LFE Is Bypassed)**  
This mode offers the most control over the surround image, and its functionality is similar to that of three independent dynamics processors.

## 5.0 Link Modes

### ❖ **All Linked**

In this mode, all channels are linked, maintaining the balance between the 5 main channels.

### ❖ **Front | Rear**

This mode is useful in situations when rear channel ambience and effects don't require attenuation/boost in conjunction with front channel music or dialog.

### ❖ **Center | Quad**

This mode offers independent dynamic control over dialog and overall surround image.

### ❖ **Center | Front | Rear**

This mode offers the most control over the surround image, and its functionality is similar to that of three independent dynamics processors.

## Dither

MV360° automatically applies dither, which compensates for digital quantization errors.

## 1.4 Components

WaveShell technology enables us to split Waves processors into smaller plug-ins, which we call **components**. Having a choice of components for a particular processor gives you the flexibility to choose the configuration best suited to your material.

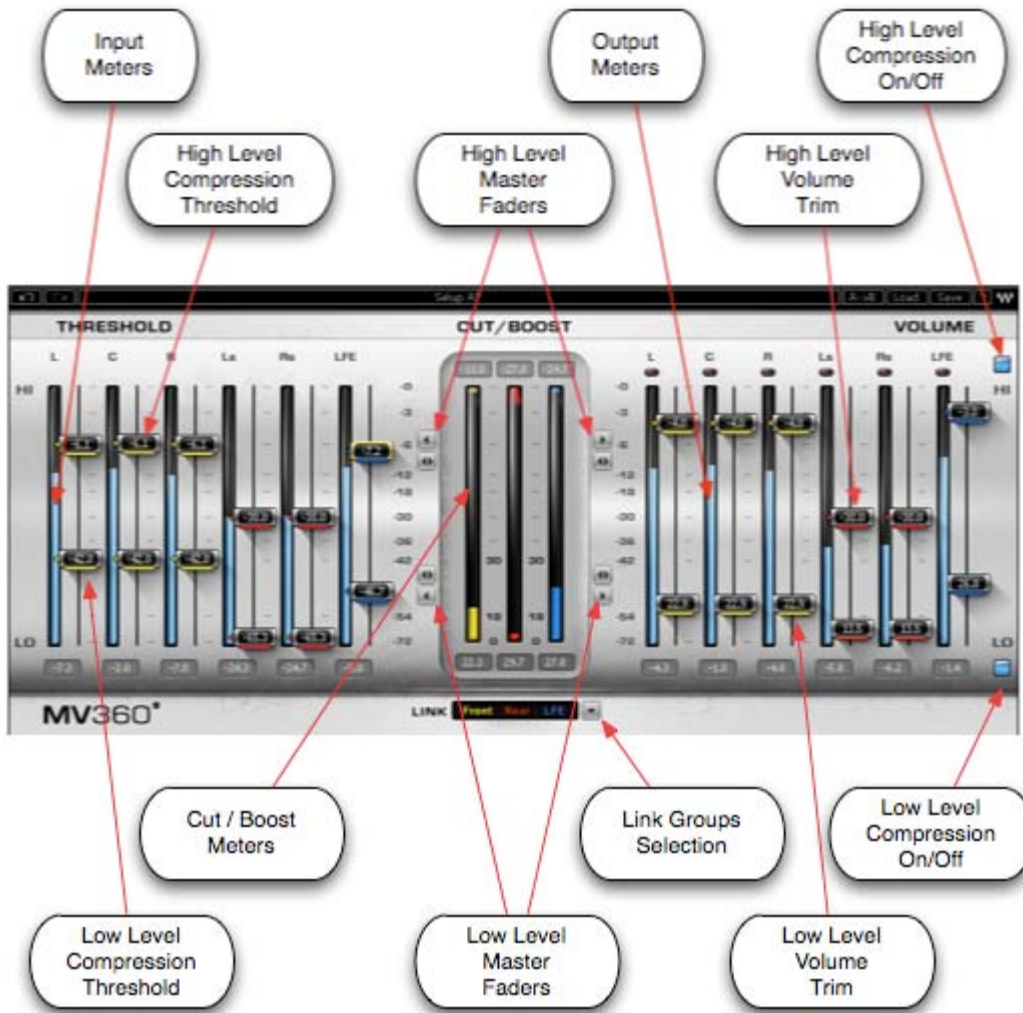
- MV360 5.0 to 5.0
- MV360 5.1 to 5.1

## Chapter 2 – Quickstart Guide

- Set link to Front/Rear/LFE
- Start on the Left side (Threshold):
  - Use the bottom (single arrow) Low Level Master Fader to set the global Low Level Threshold
  - Use top (single arrow) High Level Master Fader to set the global High Level Threshold
  - Use the middle cut/boost meters to monitor the amount of gain cut and boost applied per link group
- On the Right side (Volume)
  - Use the top volume faders per link color to trim the High Level Compression makeup gain
  - Use bottom volume faders per link color to trim the Low Level Compression makeup gain

# Chapter 3 – Interface and Controls

## 3.1 Interface





## 3.2 Controls

### Low Threshold

Sets the low level compression threshold. Compression is applied to signals below this threshold.

**Range:**

-36 to -72 dBFS

### High Threshold

Sets the high level compression threshold. Compression is applied to signals above this threshold.

**Range:**

0 to -30 dBFS

### Low Volume

Controls the amount of makeup gain applied to the compressed low level signal.

**Range:**

0 to +30 dB

### High Volume

Trims the amount of automatic gain compensation applied to the compressed high level signal.

**Range:**

0 to -30 dBFS

### High Level Compression On/Off

### Low Level Compression On/Off

## Master Fader Controls



### High Level Compression Masters

Move all High Level faders (Threshold and Volume) by the same value, relative to each of their current positions.



### High Level Threshold Master

Moves all High Level Threshold faders by the same value, relative to each of their current positions.



### High Level Volume Master

Moves all High Level Volume faders by the same value, relative to each of their current positions.



### Low Level Compression Masters

Move all Low Level faders (Threshold and Volume) by the same value, relative to each of their current positions.



### Low Level Threshold Master

Moves all Low Level Threshold faders by the same value, relative to each of their current positions.



### Low Level Volume Master

Moves all Low Level Volume faders by the same value, relative to each of their current positions.

## Link Mode Selector

The Link Mode Selector allows the selection of one of five link modes. Each Link Mode determines which channels are linked, both in the interface controls and with regard to the dynamic detector sidechain and compression.

Link Mode selection affects the colors of both low and high level compression threshold and gain controls, which provides per channel indication of link status.

### 5.1 Link Modes

- ❖ All Linked
- ❖ 5 Linked | LFE
- ❖ Front | Rear | LFE
- ❖ Center | Quad | LFE
- ❖ Center | Front LR | Rear (LFE Is Bypassed)

### 5.0 Link Modes

- ❖ All Linked
- ❖ Front | Rear
- ❖ Center | Quad
- ❖ Center | Front LR | Rear

## Cut (Attenuation) / Boost Meters

Display the amount of gain cut and/or boost for each of the 3 possible Link groups.

- Attenuation is displayed from the top down.
- Boost is displayed from the bottom up.

Each of the 3 meters (yellow, red, blue) corresponds to a Link Group, which are indicated in the text box located below the meters.

Numeric indicators which display the maximum attenuation are located above the meters; maximum gain is displayed below the meters. Reset these values by clicking anywhere on the meter.

The meters display up to -30dB of attenuation, and +30 dB of gain boost.

## Chapter 4 – The WaveSystem

### 4.1 The WaveSystem Toolbar

All Waves processors feature the WaveSystem toolbar which takes care of most administrative functions you will encounter while working with your Waves software. The features of the WaveSystem toolbar are the same on practically all Waves processors, so familiarity with its features will be helpful whichever processor you are using.

#### Toolbar Functions

<b>Undo</b>	Undoes the last 32 actions.
<b>Redo</b>	Redoes the last 32 undone actions.
<b>Setup A/B</b>	Toggles between two presets for comparison of different parameter settings.
<b>Copy A-&gt;B</b>	Copies the current settings to the second preset register.
<b>Load</b>	Recalls presets from file.
<b>Save</b>	Saves presets in the Waves file formats.
<b>?</b>	Opens the manual for the processor you are using.

### 4.2 Preset Handling

#### Preset Types

**Factory Presets** are permanent presets in the Load menu. Factory presets cannot be over-written or deleted. When applicable, different component plug-ins may have different factory presets.

**User Presets** are your favorite settings of the plug-in saved as a preset in the Load menu, under 'User Presets'. User Presets can be over-written and deleted.

**Setup Files** may contain more than one preset. For example, a single file can contain all the presets for a session. When you open a Setup File, all its setups become part of your Load pop-up menu for fast access. This can be particularly useful with multiple instances of a plug-in in a single session. By saving all the settings you create into a single Setup File, they can all be quickly available for every instance of that plug-in.

## Loading Presets and Setups



**Click-and-hold** on the Load button to see the Load pop-up menu. The menu is divided into four sections. If a section is not currently available it will not appear in the Load pop-up menu.

- Open Preset File...** Select to open any setup or preset file, whether from the Library or your own creations.
- 'Filename.xps':** Displays any currently loaded Setup File and its presets.
- Factory Presets:** Displays the default Factory Presets.
- User Presets:** Displays any loaded User Presets.

## Saving Presets and Setups



Click-and-hold on the Save button to see the Save pop-up menu. Four options are available. If an option is not currently available it will be grayed out and inaccessible.

- Save to New File...** Select this to start a new Setup file. There are two prompts - first for the setup filename, then for the preset name. You must provide a name for both the setup file and the preset. Click OK (ENTER) to complete the save. It is a good idea to create a folder in which to save several setup files for a project.
- Save 'File Name' – "Preset Name"** Overwrites the settings of the loaded preset (whether a User Preset or a preset from a Setup File) with the current settings. If a Setup File is currently loaded, the name of the Setup File is displayed followed by the name of the preset itself. If a User Preset is loaded, its name is displayed.
- Save to 'File Name' As...** Saves the current settings as a new preset into the Setup file that is open (if one is not open, the option is grayed out). You will be prompted to give the preset a name.
- Put into Preset Menu As...** Save the current settings into a User Preset that will always be in your Load menu (until deleted). You will be prompted to give this preset a name. User Presets are stored in the plug-in's preference file.

## Deleting Presets

You may delete User Presets and presets within a Setup File. Factory Presets and Setup Library files cannot be deleted or overwritten.

1. Hold the Command (Mac)/Control (PC) key down.
2. Click-and-hold the Load button to see the pop-up menu.
3. While still holding the Command/Control key, select the preset or setup to delete.
4. A confirmation box will appear, allowing you to cancel or 'OK' the deletion.

## A/B Comparison and Copying



The Setup A/Setup B button may be clicked to compare two settings. If you load a preset in the Setup B position, this will not affect the preset loaded into the Setup A position, and vice-versa.

If you want to slightly modify the settings in Setup A, you can copy them to Setup B by clicking on the Copy to B button, then alter Setup A and compare with the original Setup B.

The name of the current setup will be shown in the title bar (on platforms which support it), and will switch as you change from Setup A to Setup B.

Note: an asterisk will be added to the preset name when a change is made to the preset.

## 4.3 Interface Controls

**Controls can be in one of three states:**

- **Not Selected** where the control is not the target of any user entry
- **Selected** where the control is the target of mouse control entry only
- **Selected and Active** where the control is the target for both mouse and keyboard entry

## Toggle Buttons

Toggle buttons display the state of a control, and allow switching between two or more states. **Single-click** to change the control's state. Some toggle buttons have a text display which updates with the current setting, and others (bypass, solo, or monitoring toggles) illuminate when the control is active.

Some processors have **link buttons** between a pair of toggle buttons, allowing click-and-drag adjustment while retaining the offset between the controls.

## Value Window Buttons

Value windows display the value of a control and allow **click-and-drag** adjustment, or **direct control via the keyboard**.

- **Using the mouse**, click-and-drag on the value window to adjust. Some value windows support left/right, some up/down (as you hover over a button, arrows will appear to let you know which direction of movement that button supports).
- **Using the arrow keys**, click once with mouse to select the button, and then use up/down – left/right (depending on the direction supported by that button) to move in the smallest incremental steps across the button's range (holding down the arrow keys will move faster through the range).
- **Using key entry**, double click on the button to open the value window, and directly enter the value from your keyboard. If you enter an out of range number, the button stays selected but remains at the current setting (system beeps? If system sounds are on?)

Some processors have **link buttons** between a pair of value windows, allowing click-and-drag adjustment while retaining the offset between the controls.

## Multiple Selection of Controls

One of the most powerful features of the WaveSystem is the ability to select and adjust many controls at the same time. Using the mouse, simply drag-select the desired group of button or graphic controls by clicking and holding at a point outside the controls and forming a rectangle to include the controls you wish to adjust. Alternatively, you can hold down Shift while clicking the mouse on any control you wish to link. This second method is useful when you want to select two (or more) controls that are separated on the GUI by other controls you do not wish to select.

## TAB Functions

TAB moves the 'selected' status to the next control, with shift-TAB moving in the reverse direction.

Additionally, the Mac has an option-TAB function for 'down' movement and shift-option-TAB for 'up' movement where applicable.

If you have several Value Window Buttons selected, TAB functions will take you through the selected controls only.

## Appendix A –Link Modes

When applying dynamics to a stereo mix, stereo imaging is preserved by applying identical gain attenuation/boost to both the left and right channels. This is known as linked dynamics processing. The dynamics detector works on an L+R linked sidechain, applying the same gain attenuation/boost to both left and right channels, preserving their relative levels and intended stereo image.

In Surround, there are different schools of thought with regard to sound stage imaging. MV360° offers 9 Link Modes which let you use up to 3 separate sidechain groups that address the most commonly used sound stage disciplines.

### 5.1 Link Modes

#### All Linked

In this mode, all channels are linked. Uniform attenuation/boost is applied, preserving the complete surround image, and maintaining the balance between the 5 main channels and the LFE channel.

#### 5 Linked | LFE

In this mode, a separate sidechain is dedicated to the LFE (Subwoofer) channel. The sound stage is divided into the directional (main) 5-channel sound field, and the non-directional LFE channel.

This mode fully preserves the surround image, but does not attenuate/boost the directional channels in conjunction with peaks in the LFE channel.

#### Front | Rear | LFE

This mode uses 3 separate sidechains:

- ❖ The first sidechain links Left, Center and Right channels.
- ❖ The second sidechain links Rear Left and Rear Right channels.
- ❖ The third sidechain is dedicated to the LFE channel.

This mode is useful in situations when rear channel ambience and effects don't require attenuation/boost in conjunction with front channel music or dialog.



## **Center | Quad | LFE**

This mode uses 3 separate sidechains:

- ❖ The first sidechain is dedicated to the Center (dialog) channel.
- ❖ The second chain links Left, Right, Left Surround, and Right Surround
- ❖ The third sidechain is dedicated to the LFE channel.

This mode offers independent dynamic control over dialog, overall surround image, and LFE channel.

## **Center | Front | Rear (LFE Is Bypassed)**

This mode uses 3 separate sidechains:

- ❖ The first sidechain is dedicated to the Center channel.
- ❖ The second sidechain links the Front Left & Right channels.
- ❖ The third sidechain links the Rear Left & Right channels.
- ❖ The LFE channel is left unprocessed.

This mode offers the most control over the surround image, and its functionality is similar to that of three independent dynamics processors.

## **5.0 Link Modes**

### **All Linked**

In this mode, all channels are linked. Uniform attenuation/boost is applied, preserving the complete surround image, and maintaining the balance between the 5 main channels and the LFE channel.

### **Front | Rear**

This mode uses 3 separate sidechains:

- ❖ The first sidechain links Left, Center and Right channels.
- ❖ The second sidechain links Rear Left and Rear Right channels.

This mode is useful in situations when rear channel ambience and effects don't require attenuation/boost in conjunction with front channel music or dialog.

## **Center | Quad**

This mode uses 3 separate sidechains:

- ❖ The first sidechain is dedicated to the Center (dialog) channel.
- ❖ The second chain links Left, Right, Left Surround, and Right Surround

This mode offers independent dynamic control over dialog and overall surround image.

## **Center | Front | Rear**

This mode uses 3 separate sidechains:

- ❖ The first sidechain is dedicated to the Center channel.
- ❖ The second sidechain links the Front Left & Right channels.
- ❖ The third sidechain links the Rear Left & Right channels.

This mode offers the most control over the surround image, and its functionality is similar to that of three independent dynamics processors.