CLA MixHub

User Guide

Contents

Introduction

CLA MixHub from Waves is an innovative mixing tool that helps you to better visualize, understand, control, and mix your tracks. It's the first plugin that lets you arrange your tracks side by side in one window and work with them together. This workflow comes naturally on analog mixing consoles, since channel strip modules are usually mounted in the console frame in sections of eight or more channels. These groups of adjacent channel strips came to be known as "buckets," and organizing tracks by buckets was a natural way to control tracks that should be mixed at the same time.

This is what MixHub provides. One plugin can control eight buckets of eight tracks—up to 64 DAW tracks—so you can see, compare, and mix many tracks from one plugin instance. This lets you interact with your tracks in the same way you do on a mixing console.

MixHub was developed in close collaboration with multiple Grammy® winner Chris Lord-Alge, who has mixed a steady flow of rock masterpieces. To make his mixes more productive and focused, Chris developed a workflow that groups together the tracks he needs to concentrate on simultaneously, so he can mix them in context. In other words, he mixes with buckets. This helps him understand and control how his mix elements work together.

Organization alone does not make for a good mix. You need great tools to make a great mix. With that in mind, Waves precisely modeled Chris's mixing console to provide a plugin that helps you find his signature sound and use it as part of your own. When Chris began working with Waves to bring his mixing technique to a plugin, he decided to add a few more features to his tried-and-true console:

- The Gate/Expander section was improved to have a continuous attack time and a hold control, as well as a ducker mode for full control over the envelope of the gate/expander process.
- There are two compressor types: Desk and Bluey. These modes have different dynamic behaviors and distinct sonic signatures. These processing modes make up much of the character of CLA MixHub's dynamics processing.
- There is a dedicated sideband EQ section that does not hijack channel EQ.

You can use the MixHub processors in buckets or as a channel strip with all of one track's processors in one view. When you adjust a MixHub track, you're actually controlling a high-quality channel strip plugin. You can think of a bucket as a virtual controller of the eight separate plugins. All processing takes place on the individual plugin inserts, not in the buckets themselves. Every move you make in MixHub can be automated on the plugin and saved with the session.

Any track with the CLA MixHub plugin is available for assignment to a bucket and is displayed in the Bucket Assignment menu. Once tracks are assigned, the Input, EQ, Dynamics, and Output sections of all members of the bucket are shown together and organized by processor type.

Components

- CLA MixHub mono
- CLA MixHub Stereo

   Mono and stereo instances can be assigned within the same bucket.

Views

There are three views:

- **Channel View** shows all sections of a selected CLA MixHub track insert.
- **Bucket View** shows the Input, Dynamics, EQ, and Output sections of all the tracks that make up a bucket.
- **Expanded View** is a focused view of a processor. On stereo tracks, the Expanded Mode shows L/R (or M/S) on separate panels. With dynamics processors, side chain EQ processing and dynamics are on separate panels.

Channel View

The Channel View displays one channel strip from Chris Lord-Alge's analog mixing console. Signal flow in the console is from left to right. Drag an EQ, dynamics, or insert module to change its place in the signal flow. Input and Output modules cannot be repositioned.

Input

Insert Slot

EQ

Dynamics

The Channel View (above)—Shows all of the processors in a typical analog console channel strip.

The Bucket View (far right) shows four layers of processors, with up to eight tracks per bucket.

Output (Buckets)   Output (Channel)

Bucket View

In this example, eight tracks in the host DAW are assigned to one CLA MixHub bucket. Note the corresponding track names. With supported hosts, track names will automatically copy to the MixHub assignment menu. If not, rename the tracks from within MixHub. To the right is the Track Assign list used to add tracks to the bucket. Track assignment does not need to be sequential. Tracks in a bucket can be mono or stereo and these can be mixed together in one bucket.

Click on a bucket tab to move between buckets. Double-click on a bucket name box to rename the bucket.

Quick Start

This quick start shows you the basics of setting up mixing buckets with CLA MixHub. The MixHub interface is a controller. It's not processing sound, but rather it's controlling the parameters of the plugins that are assigned to each bucket.

1. Prepare your DAW session. We recommend that you use track names that contain six characters or less. MixHub must abbreviate longer track names, so start out with something short that makes sense to you. If this is not possible, you can rename the tracks from within the plugin.

2. Insert a CLA MixHub plugin on every DAW track that you will assign to buckets. You can mix mono and stereo tracks. MixHub can control up to 64 host tracks. You can also insert MixHub on other DAW tracks, just to use its channel strip. If this is first time you've opened this instance, MixHub will open with the **Channel View** of that track—you will see that track's complete channel strip. The name of the current track is shown in the Input module; the processing modules are identified at the top. Signal flow of the Channel View is from left to right. Drag an EQ, dynamics, or insert module to change its position in the signal flow. Feel free to use the Channel View as you would any channel strip.

3. Adjust the input level. Use the **Analog** and **Noise** controls to add THD to the signal. These are important elements of the console's character, so we advise that you use them unless you are seeking a very clean sound.

4. Experiment with the two compressor types (**Desk** and **Bluey**) and the **Gate/Expander/Ducker** types.

5. Click **Bucket View** and select one of the **Modes** (i.e., Input, EQ, Dynamics, Output). If this is a new session, all buckets will be empty.

6. Name each bucket by double-clicking on a bucket name. This helps you organize your tracks.

7. Click the **Assign** button to open a list of all the tracks in the session that you can assign to buckets.

8. Assign the tracks to the open bucket. If you're just getting started, this will be Bucket 1. Assigned tracks are color-coded to match their bucket's color.

9. Repeat this for as many buckets as you need. Click again on the Assign button to exit the Assign Mode.

10. Choose a processing mode using the four **Bucket View** buttons. This displays the same processing mode for all tracks in the selected bucket. Use the **Bucket Selec**t buttons to move between buckets.

11. If you like, click the Channel View button to adjust the entire processing chain for one channel. To make sure that you're controlling the correct channel, note the **Track Name** box in the Input Section.

12. To see a module's **Expanded View**, click the small expand icon at the top of any processor. This is a focused view of the track's processing. Stereo tracks are shown L/R (or M/S) and side chain processing is revealed in the Dynamics mode.

Interface

Channel View Layout

(Stereo component shown)

1. **Stereo Mode Select**—Sets input format: L/R, Duo, M/S.

2. **Input**—Controls input level and filters.

3. **EQ**—Four-band EQ section

4. **Dynamics**—Compressor, gate/expander/ducker, and SC EQ

5. **Plugin Insert**—Insert an additional Waves Plugin.

6. **Output**—Select meters: in, out, or gain reduction; control pan and stereo width; output matrix.

7. **Control Panel**—Move between Bucket and Channel views, select bucket, and add current track to a bucket.

Bucket View Layout

(Bucket 1/Dynamics Mode shown in this example)

1 One Bucket of eight tracks

2 **Bucket Select Buttons**—Select which bucket to view and control.

3 **Processing Modules**— (Input, Dyn, EQ, Output). All tracks in a bucket show the same processing mode.

4 **Control Panel**—
Select processing mode
Access Assignment page
Identify track and mode
Lock bucket
Go to Channel View

> **!** Variable controls in the Channel View are graduated—values are shown around the controls.
> To keep the view clean, controls in the Buckets View are not graduated.

Using Channel View

The four processing sections make up the complete channel strip. For details about the processors, refer to the Controls chapter later in this user guide.

The Channel View is also used to navigate to buckets and to assign the current DAW track to a bucket.

1. **Track Assignment Menu—**Use this drop-down menu to assign the current track to a selected bucket.

2. **Bucket Name—**Displays the bucket that the current track is assigned to.

3. Go to **Bucket View**

4. The DAW track of this MixHub insert is displayed at the top of the Input module.

ASSIGNING TRACKS TO BUCKETS IN THE CHANNEL VIEW

You can use the Channel View to assign the current track to a bucket. This involves first selecting a DAW track and then assigning it to a bucket, as opposed to the Buckets view, where you first select a bucket and then assign tracks to it.

1. Select a DAW track to focus on.
2. Go to Channel View. If you like rearrange module order by dragging.
3. Open the Assign to Bucket menu and select the bucket you want to send the track to. If the track is already assigned, it will move from its previous location.
4. The bucket to which the track is assigned appears in the box below. Double-click to rename it.

Using Buckets View

The Buckets Panel

The Buckets Panel is used to select processing views, and to assign tracks to buckets.
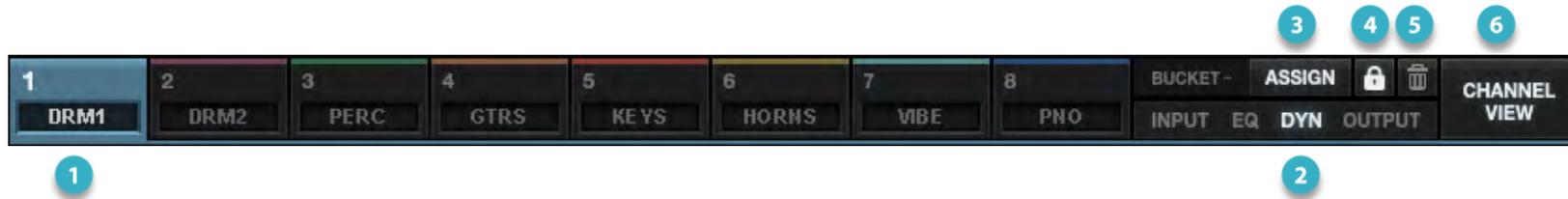
1. The **Bucket** selector buttons are used to choose which bucket to view and control. Buckets are color-coded.

2. The **Mode** selector is used to select which processing mode will be displayed.

3. The **Assign** button opens the Assignment page, where tracks are assigned to buckets. Click again on the Assign button to return to the full Bucket View.

4. **Lock** prevents tracks from moving within the bucket.

5. **Clear** removes all assignments from the selected bucket. Only the selected bucket is affected. You can undo this action using the WaveSystem Toolbar.

6. The **Channel View** button takes you to the Channel View to see the entire channel strip of the track whose MixHub insert is selected. Click again to return to the Bucket Mode.

Assigning DAW Tracks to a Bucket

1. Make sure you're in the Bucket Mode. If you have not already named the buckets, do so now.

2. Select the bucket you wish to populate.

3. Click the Assign button to open the track assignment page. This is a list of all tracks in the session that have an instance of CLA MixHub. You can sort the list by Track Name, Bucket Name, or None.

4. Select the tracks to be assigned (up to eight). If you try to assign more than eight tracks to a bucket, you will be prompted to unassign some current assignments or assign to a different bucket. Assigned tracks are color-coded to match the bucket they've been assigned to.

5. If desired, select another bucket to fill.

6. When finished, click Assign to close the assign window to return to the Bucket View.

Track Menu

Right-click on a track slot to open the Track drop-down menu. This menu serves two purposes. It allows you to:
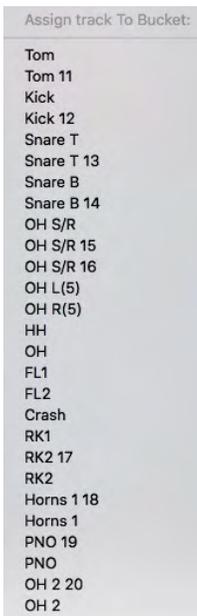
- assign a track to the current track slot (no track assigned)
- copy and paste presets between tracks (track is already assigned)

All tracks in the host session that have a MixHub instance are listed in the menu. Select a track and it will be assigned to that slot in the current bucket

When there is already a track in the slot, you can use the Track menu to copy and paste presets from one track to another.

Copy Preset: copies the preset of the current track to the clipboard.

Paste Preset: pastes preset from the clipboard to the current track.

Paste Preset to All: pastes the copied preset to all tracks in the bucket. This" affects only the current processing mode (i.e., Input, EQ, Dyn, or Output modules) in the current bucket.

Remove Track from Bucket removes the track from the current bucket and frees up a slot.

The WaveSystem Toolbar: Manage Plugin Presets

Most Waves plugins provide a toolbar at the top of the interface. This, the WaveSystem Toolbar, has multiple uses. In Bucket View and Channel, view use the Toolbar to:

- indicate the name of the current preset
- redo or undo up to 32 actions using the drop-down menu to select the specific step you wish to recall.
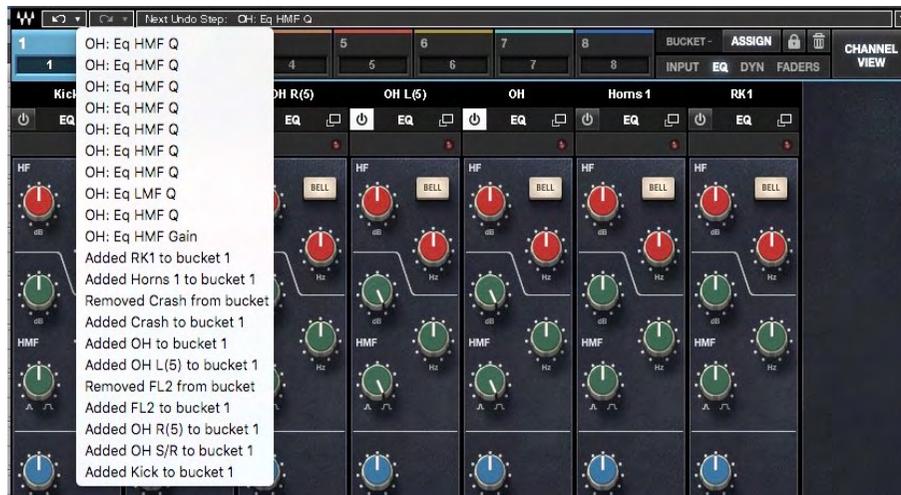
 ← WaveSystem Toolbar as seen in Bucket View

In addition, the Chanel View Toolbar provides preset management features. This enables you to:

- save and load presets
- A/B compare two presets.
- cycle through available presets
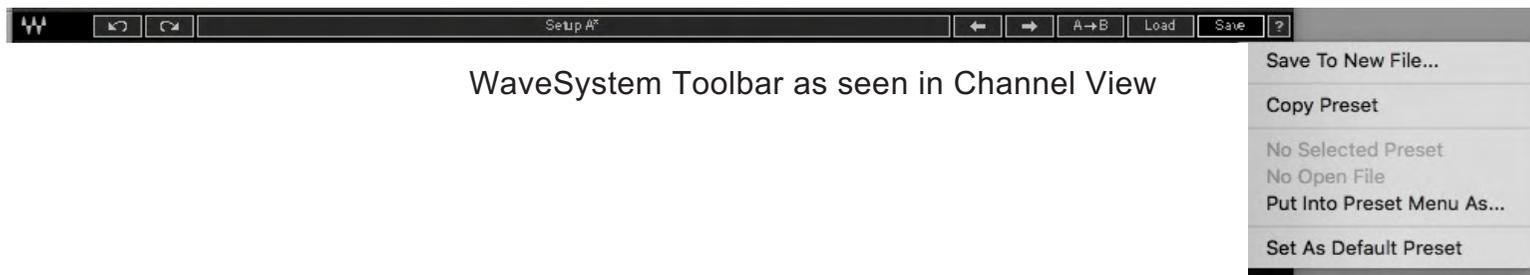
WaveSystem Toolbar as seen in Channel View

To learn more, refer to the WaveSystem Toolbar User Guide on the Waves download page.

CLA PRESETS

CLA MixHub comes with a collection of Chris Lord-Alge's mixing presets. There are presets for most types of mix elements and settings for a broad variety of effects. Use a preset as a starting point as you build a sound, or use it *as is* for quick mixing setup.

When you load a preset, its name will appear in the central section of the Top Bar.

Controls

Processing Modules

Processing module controls are the same in the Channel and Bucket Views. However, certain switches and displays differ in appearance between the two. In the Channel View, the Input, Dynamics, and EQ modes, parameter values are shown on the controls. In the Bucket View, parameter values are not shown.

Top Section (Common to Input, EQ, and Dynamics Modules)

There are six controls at the top of each Track strip in the Input, EQ, and Dynamics modules.

Mono Module   Stereo Module

1. **Module On/Off** turns off the module and removes it from the DSP. Audio continues to pass to the next module when processing is turned off.

2. **Track Name** is copied from the DAW track assigned to this bucket.

3. **Module Type** display—In the Buckets mode, all tracks display the same processing module type.

4. Open **Expanded View.**

5. **A level indicator LED** shows module input level (Bucket View) or Module clipping (Channel View). Refer to "Module Level Indicators" for more information.

6. **Stereo Mode** selector sets the format of audio in the module (L/R stereo, DUO—split for dynamics processing, M/S)

OPEN EXPANDED VIEW

The Expanded view provides a focused look at a module's controls. Its function varies depending on the selected processor mode:

| Module	Format	Condensed View vs. Expanded View
Input	Mono	Same
Input	Stereo	Left/Right or Mid/Side can be controlled separately.
EQ	Mono	Same
EQ	Stereo	Left/Right or Mid/Side can be controlled separately.
Dynamics	Mono	Mono side chain EQ and routing controls are available. SC and track EQ are controlled separately.
Dynamics	Stereo	Stereo side chain EQ and routing controls are available. SC and track EQ are controlled separately.
Output	Mono/Stereo	No expanded view

Dynamics module, mono, collapsed (left)
        (note compressor Bluey mode)
Dynamics module, stereo, collapsed (center)
Dynamics module, stereo, expanded (right)

Expanded stereo modules have a Link feature that enables both sides of a track to be adjusted together. When the Link button is off, controls for the two channels (left and right or mid and sides) move independent of each other. When Link is on, corresponding controls move together. Continuous controls (e.g., attack, Q, line) maintain offsets when linked, so you can set up left and right separately and then control them together. This is especially important in M/S imaging.

Stereo Mode

How the two channels of a stereo track relate to each other during dynamics processing plays a significant role in the sound.
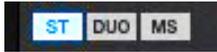
The Stereo Mode selector sets whether the stereo input signal will be processed as L/R stereo (Stereo or Duo modes) or will be converted to M/S for separate control of the mid and side (M/S mode).

In the Input, EQ, and Dynamics modules, the Stereo Mode switch setting determines whether the stereo input signal will be processed as L/R stereo (Stereo or Duo modes), or will be converted to M/S for separate control of the mid and side channels.

Additionally, in the dynamics modules, the Stereo Mode selection determines how the two channels interact during processing:

Stereo	Left and right channels are summed in the side chain. The side chain values are the same for left and right, so dynamic processing will apply equally to both channels.
Duo	Left and right channels of the side chain are processed separately, so dynamic processing may not be the same for the left and right channels.
M/S	Mid and side channels of the side chain are processed separately, so dynamic processing may not be the same for the mid and side channels.

Regardless of a module's stereo mode, its output is always stereo. If needed, it will be converted to M/S at the input of the next module in the chain. This allows re-ordering of the modules on the fly with no impact on the stereo processing.

Please note that Pro Tools supports only one side chain channel.

Input Module

1   **Track Name** displays the name of the track assigned to this bucket slot.

2   **Line** controls the input level to the plugin. As gain increases, so will harmonic distortion.

3   **Mic**, in addition to line, controls input level. Mic can add as much as 50 dB of input gain, which can result in internal distortion. Such high input gains will increase THD, but will probably not cause output distortion.

> **!**   If analog control is not on, the line and mic controls will act as pure gain.
> No THD will be added.

4   **Analog** turns the added harmonic distortion off or on.

Analog processing gear adds harmonic distortion, so it's a key element in recreating the sound of an analog mixing console.

> **!**   CLA MixHub adds THD in the input stage as well as the output stage, the same behavior as in mixing desk. Turning Analog off removes all THD from both input and output. It also removes these from the CPU for better performance and greater track count.

If you prefer a cleaner, more modern sound, turn off Analog processing. Default = on

5   **Noise** turns the added modeled noise off or on.

A small amount of noise contributes to the character of an analog mixing console. For this reason, we modeled the noise of the Chris's desk. There may be times when you'll want to work without it: for those times, you can switch it off. Noise and Analog modeling contribute to the specific sound of Chris's mixes, so we recommend that you begin experimenting with these two modes engaged.

6   **Phase** flips the input phase by 180 degrees.   **8**   **LP** controls the cutoff point of the LP filter.

7   **-20 dB Pad** reduces the input level by 20 dB.   **9**   **HP** controls the cutoff point of the HP filter.

Each filter has a green LED that indicates that the filter is active. Click an LED to turn the filter on or off.

The collapsed and expanded views of the Input module provide the same controls.

EQ Module

The EQ module has four sections: HF filter, HMF and LMF equalizers, and LF filters.

1. **HF Gain**—Controls the HF band gain.
2. **HF Frequency**—Controls the cutoff frequency of the HF band.
3. **HF Bell On/Off**—Switches the HF band from shelf to bell filter.
4. **HMF Gain**—Controls the HMF band gain.
5. **HMF Frequency**—Controls the HMF band cutoff frequency
6. **HMF Q**—Controls the HMF bandwidth (Q).
7. **LMF Gain**—Controls the LMF band gain.
8. **LMF Frequency**—Controls the LMF band cutoff frequency.
9. **LMF Q**—Controls the LMF bandwidth (Q).
10. **LF Frequency**—Controls the cutoff frequency of the LF band
11. **LF Gain**—Controls the LF band gain
12. **LF Bell On/Off**—Switches the LF band from shelf to bell filter.

The Collapsed and Expanded views of the EQ module provide the same controls.

EQ Module Solo (Channel View only)

The Channel View EQ module features an HMF/LMF solo button. This creates a bandpass around the cutoff frequency of the side band signal; it helps to accurately isolate and adjust Q and frequency by sweeping. Select the EQ solo button and drag the cursor over an HMF or LMF control to solo that band.

Dynamics Module

The dynamics module consists of a soft-knee/hard-knee compressor/limiter and an expander/gate/ducker. There are two compression modes: Desk and Bluey.

Compressor Section

1. Comp Type—Toggles between Desk and Bluey modes. **Desk** is a feed-forward VCA compressor. It can be very fast and punchy. **Bluey** is a CLA-76 Compressor: it can get gritty when needed. In a stereo track, Comp Type is linked between both channels.

2. Comp Ratio—Adjusts the amount of compression or expansion that will occur once the threshold is approached.

3. Comp Threshold—The input level above which the soft-knee compression or expansion starts acting to a significant degree.

4. Release—The time it takes for the signal to return from the compressed state back to its original state.

5. Attack—A toggle between Slow and Fast attack modes of the compressor.

Gate/Expand/Duck Section

6. Gate Threshold—Controls the threshold above/below which processing takes place.

7. Gate Range—Defines the maximum amount of attenuation that can take place in the Gate/Exp/Ducker section.

8. Processor Type Select—Used to choose between three gate mechanisms:

Gate attenuates the signal that registers below the threshold in a hard ratio (opposite of a limiter).
Expander attenuates the signal that registers below the threshold in a low ratio (opposite of a compressor).
Ducker attenuates the signal once a secondary signal exceeds the threshold.

9. GR Meter—A 5-LED meter measuring gain reduction. Left: gate/exp/ducker GR; Right: compressor GR

10. Gate Attack—Provides continuous control of the attack time.

11 **Gate Hold**—Defines the amount of time the Gate/Exp/Ducker will wait before going into release, after the signal drops below the threshold.

12 **Gate Release**—Controls the release time of the Ducker.

13 **Comp Mix**—Controls the balance between the uncompressed and compressed signal in the compressor.

14 **EXT SC**—Enables an external side chain if an active side chain signal is patched. Pro Tools supports only one side chain channel.

15 **SC EQ**—Turns the SC filter and EQ sections on an off. These are adjusted in the Dynamics expanded section. Click the Expand button at the top of the Dynamics module to open the view.

> **!** The SC EQ button is inactive until any variable control in the Side Chain EQ section has been set to a value other than zero. Once a variable control has been adjusted, you can use the SC EQ button turn side chain EQ processing on or off.

Using the Side Chain

EQ can be applied to the side chain signal independent of the main EQ module. This is controlled from the Expanded Dynamics View. Side chain modules appear beside the main processing module.

Mono Dynamics Module, Expanded View

Stereo Dynamics Module, Expanded View

1 EXT SC—Enables an external side chain if an active side chain signal is patched. This is the same function as the button as on the main Dynamics module.

2 SC EQ On/Off—Turns the SC filter and EQ sections on an off. This has the same function as the button as on the main Dynamics module. When you first open an instance of CLA MixHub, the SC EQ is inactive until you adjust any EQ frequency value on the SC EQ section.

3 SC EQ—The same type of four-band EQ used in the main EQ modules.

4 Dynamics Module as seen in the main views.

5   **SC Listen Mode Select** (separate L and R on stereo tracks) G = gate listen; C = compressor listen

6   **SC Route**—Sets the signal path from the side chain EQ and the dynamics processors.

    FLTR to—Sets whether the filter signal is sent to the Gate/Exp/Duck side chain OR to the compressor side chain (not both).

    EQ to—Sets whether the EQ signal is sent to the Gate/Exp/Duck side chain OR to the compressor side chain (not both).

    FLTR+EQ to DYN—Assigns side chain EQ and filters to the entire dynamic section.

7   **Link**—Couples the left and right channel controls of a stereo track (stereo modules only).

Module Level Indicators

The output levels of the Input, EQ, and Dynamics modules are indicated by LEDs at the top of the channel strips. The LEDs change color to indicate level.

In the Bucket View module, input peak level is indicated as follows:

Green: -60 dBFS to -15 dBFS
Yellow: -15 dBFS to -3 dBFS
Red: -3 dBFS to 0 dbFS

In the Channel View, the clip light LED turns red when the module is between -3 dBFS and 0 dBFS from clipping internally.
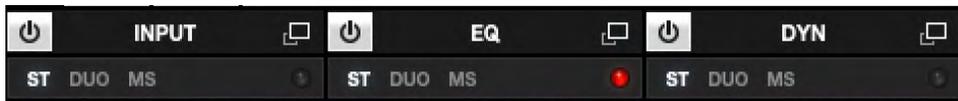
Channel View Output Section

This section controls the output of the current plugin instance. There are four section: VU metering, output PPM meters and output path, fader, and stereo imaging (stereo component).

1. **VU Meters—**0 VU = +4 dBU. Use the calibration screws to adjust reference level.

2. **VU Meters Selector**—Determines which buss will be displayed on the VU meters: plugin input, gain reduction of the compressor section, or plugin output.

3. **Link** (stereo component only)—Links the faders. When Link is Off, two faders are shown; they can be controlled interdependently. When Link is On, one fader controls both channels. If an offset between the faders has been established when unlinked, the offset will be preserved when Link is On. The Link button will turn red to indicate that there is an offset.

4. **Faders**—Control the plugin output level. They do not affect input or GR levels.

5. **Output Selector** sets the format of the plugin output signal: stereo, mono, left, right, mid, and side.

6. **Output Meters** PPM ballistics with red clip indicators. Clip indication at 0 dBFS. Click on the meter to clear indicator.

7. **Peak Level Indicator—**Click on the meter to clear.

8. **Stereo Width**—Shapes the track's image from normal full stereo (Standard) to mono to reversed full stereo (Reverse).

9 **Extra Wide**— A width enhancer that lets you spread the sound image wider than the loudspeakers. It's an aggressive effect that alters the signal's phase structure and reduces mid-signal content, so it's important to use it carefully. The amount of the Extra Wide effect is influenced by the Width control. Extra Wide is best suited for parallel processing, and it also works well in conjunction with FX, reverb, doubler, and chorus effects.

10 **Filter**—A low-frequency shelf at approximately 200 Hz, before width adjustment, that helps to maintain the integrity of the center during extreme width processing.

11 **Pan**— Changes the position of the sound within the stereo image. The Pan control is effective only when Stereo Width is set somewhere between Standard and Reverse. The narrower the width, the more panning is possible.