ALLEN&HEATH

dLive

Firmware Reference Guide

V2.0

ⓘ This Guide refers to dLive firmware V2.0. Before starting please check www.allen-heath.com for the latest dLive firmware and documentation.

IMPORTANT - Read before starting

System operating firmware

The function of dLive is determined by the firmware (operating software) that runs it. Firmware is updated regularly as new features are added and improvements made.

ⓘ Check www.allen-heath.com for the latest version of dLive firmware.

Software licence agreement

By using dLive you agree to be bound by the terms of the relevant **End User Licence Agreement** (EULA), a copy of which can be found at www.allen-heath.com/legal. You agree to be bound by the terms of the EULA by installing, copying, or using the software.

Further information

Please refer to the **Allen & Heath website** for further information, knowledgebase and technical support. For more information on dLive hardware, system setup and connections please refer to the MixRack and Surface Getting Started Guides available for download at www.allen-heath.com.

You can also join our Allen & Heath Digital Community to share knowledge and information with other dLive users.

dLive Firmware Reference Guide

Copyright © 2024 Allen & Heath. All rights reserved.

V2.0 Issue 3

ALLEN&HEATH

Allen & Heath Limited, Kernick Industrial Estate, Penryn, Cornwall, TR10 9LU, UK

http://www.allen-heath.com

Contents

IMPORTANT - Read before starting 2
System operating firmware 2
Software licence agreement 2
Further information 2
Contents 3
1. Processing screen 6
1.1 Harmony UI 6
1.2 Copy/Paste/Reset, Setup, Listen and Lib keys 9
1.3 Bank view 10
1.4 Overview 12
1.5 Preamp 14
1.6 Ext In 17
1.7 Filter 18
1.8 Gate (Ducker / Expander) 19
1.9 Inserts and Dyn8 22
1.10 PEQ 24
1.11 NEQ 25
1.12 Compressor 27
1.13 Delay 28
2. System screen 29
2.1 Harmony UI 29
2.2 Home 30
2.3 User login 31
3. Meters 32
3.1 RTA 33
4. FX 35
4.1 RackExtra FX 35
4.2 RackUltra FX 37
5. I/O 40
5.1 Inputs 40
5.2 Outputs 41
5.3 Tie Lines 42
5.4 Virtual SoundCheck 43
6. Routing 44
7. Scenes 48
7.1 Scene Manager 48
7.2 Recall Filters 51
7.3 Embedded Recall 52
7.4 Update 53
7.5 Cue List Editor 55
7.6 Scene Import 57
7.7 Global Scene Safes 58
7.8 Role Filters 59
8. Ganging 60
9. MixRack Setup 61
9.1 Config / Mixer Config 61

9.2 Config / IP Stereo Config 62
9.3 Config / Name & Colour 63
9.4 Config / Network 64
9.5 Config / User Profiles 65
9.6 Config / RF Devices 67
9.7 Audio / I/O Port 68
9.8 Audio / Audio Sync 69
9.9 Audio / Source Select 70
9.10 Audio / AMM 71
9.11 Talkback 75
9.12 Mute Groups 77
9.13 SigGen 78
9.14 Controllers / Device Manager 78
9.15 Controllers / Quick Setup 80
9.16 Controllers / Advanced 81
9.17 Controllers / Simulator 82
10. Surface Setup 83
10.1 Control / Strip Assign 83
10.2 MIDI Strips 84
10.3 Control / Actions 85
10.4 Control / SoftKeys 86
10.5 Control / Surface Preferences 87
10.6 Control / Dimmer 88
10.7 Control / DCA/MCA Options 89
10.8 Audio / PAFL 90
10.9 Audio / SIP 92
10.10 Audio / USB Audio 92
10.11 Audio / I/O Port 93
10.12 Audio / Audio Sync 94
10.13 Audio / Metering Ballistics 95
10.14 Config / Network 96
10.15 Config / Target MixRack 97
10.16 External Screen 97
10.17 Controllers 97
11. Shows / Utility 98
11.1 Memory / Show Manager 98
11.2 Memory / Library Manager 99
11.3 Utility / History 100
11.4 Utility / Date/Time 101
11.5 Utility / Calibration 101
11.6 Utility / Diagnostic 101
11.7 Utility / Firmware 101
11.8 Control 103
12. Appendix A – DEEP Processing, RackExtra FX and RackUltra FX 105
12.1 DEEP Processing Preamp models 105
12.2 DEEP Processing Compressor models 106
12.3 DEEP Processing GEQ models 110
12.4 DEEP Processing AMM 111
12.5 RackExtra FX models 113
12.6 RackUltra FX models 130

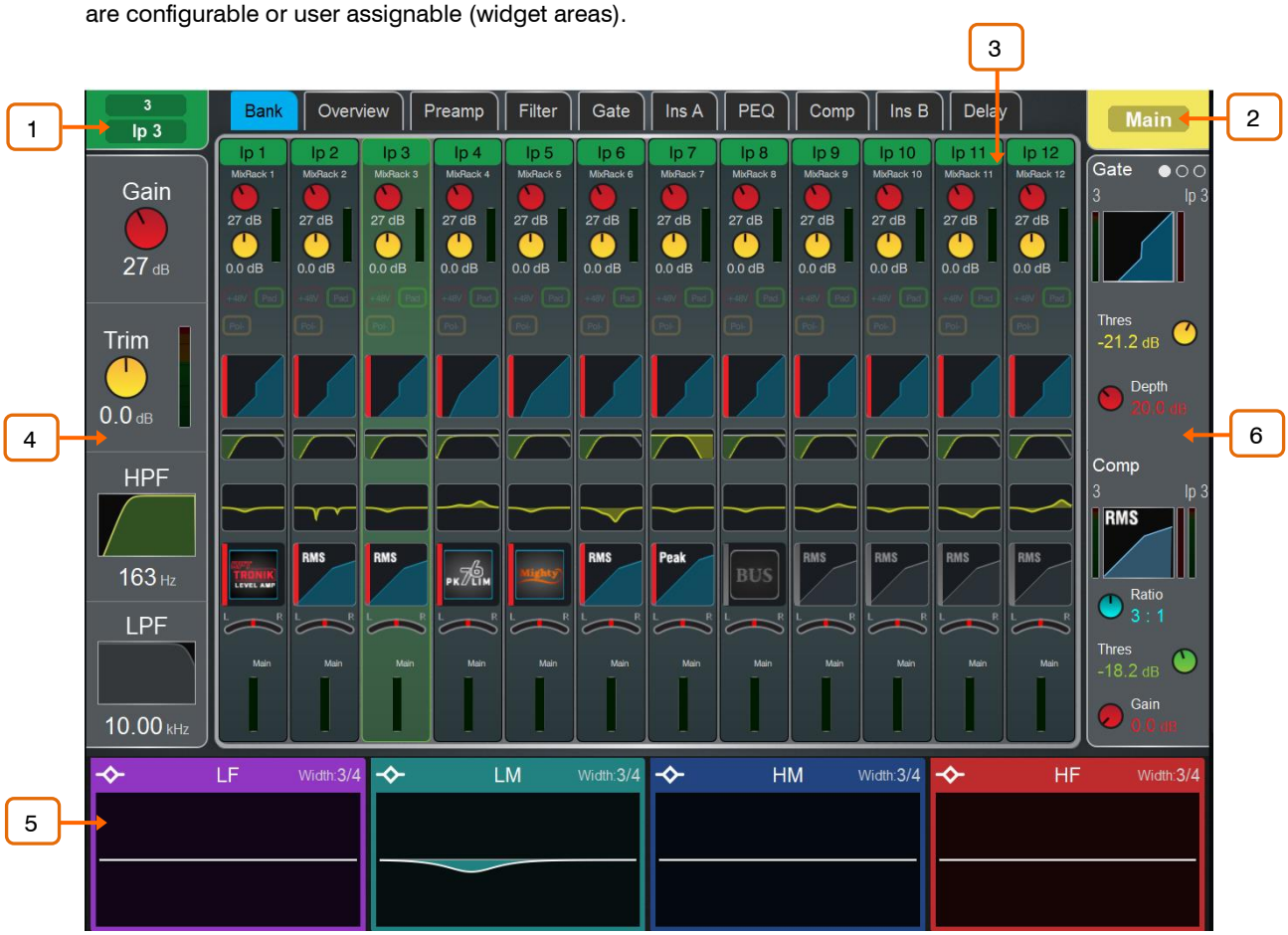
13. Appendix B – Scene and Show memory content 142
13.1 Scene memories 142
13.2 Show memories 143
13.3 Settings not stored in Shows 143
14. Appendix C – Template Shows 144
14.1 FoH 144
14.2 Mon 144
14.3 Surround 144
14.4 FoH LCR+ 145
14.5 Multi-Surface FOH/MON 145
15. Appendix D – I/O Port Options 146
15.1 ACE 146
15.2 AES XLR 146
15.3 DX Link 147
15.4 gigaACE / fibreACE 148
15.5 MADI 149
15.6 superMADI 150
16. Appendix E – Multi-Surface 152
16.1 Overview 152
16.2 Example Applications 152
16.3 Network Configuration 152
16.4 Connection 152
16.5 gigaACE I/O Module Configuration 153
16.6 fibreACE I/O Module Configuration 153
16.7 PAFL 153
16.8 Surface I/O 153
16.9 Shows 153
16.10 Scenes 154
16.11 Surface Roles 154
16.12 Firmware Update 154
16.13 Patching between Surfaces 154
16.14 gigaACE I/O Module Channel Mapping 155
17. Appendix F – MCAs 156
17.1 Overview 156
17.2 Adding MCA Members 156
17.3 Enabling MCA Mode 156
17.4 Working in MCA Mode 156
18. Block diagram 157
19. Processing specs 158

1. Processing screen

The left screen on the S5000, S7000 and C3500 is dedicated to channel processing. The S3000, C1500, CTi1500 and C2500 incorporate processing into the System screen.

1.1 Harmony UI

dLive integrates the touchscreen with a set of 'wrap-around' controls colour-coded for intuitive and quick operation. Dedicated areas of the screen display values and status of the corresponding controls; some are configurable or user assignable (widget areas).



1 **Selected channel** – Displays the name, colour, type and number of the currently selected channel. Tap to edit channel name and colour. 7 colours and off are available.

A name can have up to 8 characters, however only the first 6 characters will be displayed in the fader strip LCD. To store a name for instant access later on, touch a 'quick name' box and touch Store.

2 **Active Mix** – Displays the name, colour, type and number of the currently active **Mix**. If a DCA Spill is active on the Surface, the Mix name is surrounded by a red square.

ⓘ Be aware of which mix is currently active. It is good practice to turn off the **Mix** key to return to the main mix once you have finished adjusting a mix.

3 **Main screen area** – Touch any of the tabs at the top of the screen to open a specific processing block or page. Alternatively, tap on any of the widget areas described below to open any associated processing page in the main screen area.

4 **Preamp and Filters** – Displays the preamp meter and values for the Input Channel Gain, Trim, HPF and LPF controls. The HPF and LPF graphs are greyed out when the associated filter is off. The controls are hidden where not available, for example when a Mix channel or DCA is selected.

You can tap on this area to select the preamp or filters when using the **Copy**/**Paste**/**Reset** or **Listen** keys.

5 **South Area** – User assignable area, typically used for displaying the PEQ parameters and/or response curve. Press the **View** key to toggle between the configured views.

To configure, hold down the **Setup** key and touch this area, drag the required views from the left to the right of the screen, touch these to set any option or preference, then touch Apply to confirm.

The South Area configuration is stored in Shows, not in Scene memories.

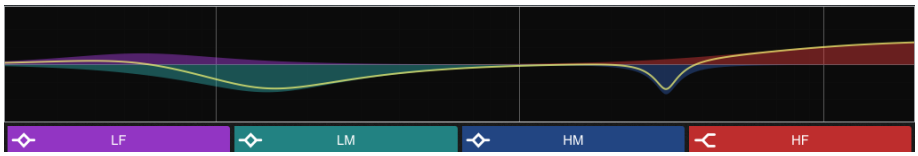
You can tap on this area to select the PEQ when using the **Copy**/**Paste**/**Reset** or **Listen** keys.

The following views are available in this version of firmware:

Individual PEQ Bands – Displays the response of each PEQ band. Frequency and gain values are temporarily shown when a setting is adjusted.



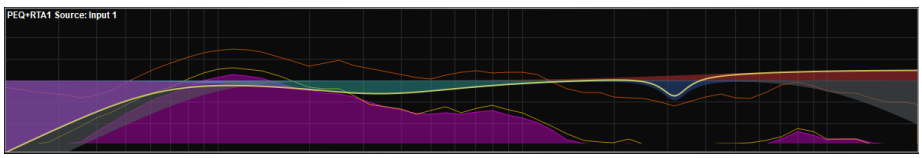
Multiband PEQ Graph – Full range PEQ view. The individual effect of each band is shown as fill colours, while the overall response curve is shown as a yellow line. Frequency and gain values are temporarily shown when a setting is adjusted.



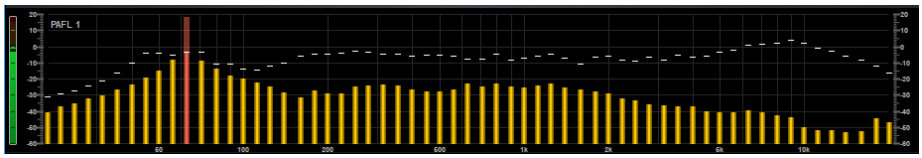
PEQ Values Only – Displays value bars for Gain, Width and Frequency.



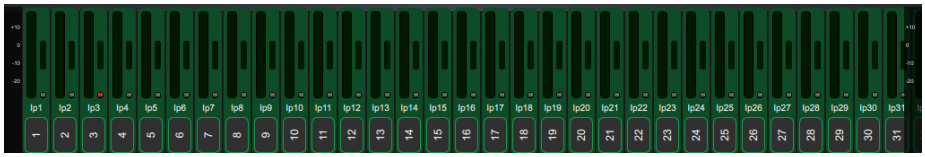
PEQ with RTA – Displays the PEQ as in the Multiband PEQ view, with an overlayed RTA. .



RTA – Configurable RTA view, can use RTA 1 or 2 and provide any of the RTA views (Bar, Line or Sonogram), or follow the setting of the main RTA selected.



Meters – Scrollable meter-bridge widget showing signal level, gain reduction, gate activity, channel names and colours. Can be set to display Inputs, FX Returns, Mixes, AMM or any of the 4 User Meter views. The tap-off point for the meters can be chosen for Input, Mixes and User views. The channel name background is red when the channel is muted via the channel mute, DCA mute or mute group.



General Information – Displays a number of different configurable console parameters including the Last Recalled, Next and Selected Scene information, clock, current user and current firmware.



Automation and Clock – Fixed format version of General Information, showing Last Show, Last, Selected and Next Scene along with a large real time clock.



6 **Soft Rotaries** – Displays the parameters for the assigned controls and meters or thumbnail graphs where applicable. Press the keys on top of the rotaries, or swipe within the widget area to toggle between the 3 available layers.

Soft Rotaries can be set to follow channel selection, active Mix or to be locked to a specific channel. Their assignments and settings are stored in Scene memories.

To configure, hold down the **Setup** key and touch this area, drag the required widgets from the left to the right of the screen, check for any option or preference, then touch Apply to confirm.

The following widgets are available in this version of firmware:



Gate and Comp

Gate with signal meter, graph, gain reduction meter, Threshold and Depth control;

Compressor with signal meter (pre and post), graph, gain reduction meter, Ratio, Threshold and Gain control.



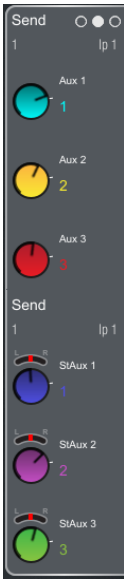
Gate

Signal meter, graph, gain reduction meter, sidechain graph, histogram, Threshold, Depth, Hold, Attack and Release control.



Comp

Signal meter, (pre and post), graph, gain reduction meter, sidechain graph, histogram, Ratio, Threshold, Gain, Attack and Release control.



Send levels

Configurable widget with up to 6 sends, typically for monitor use or FX sends.



FX

Controls of 6 key parameters for a chosen FX unit.



Scenes

Scrollable scene list. Touch a Scene to select.

The selected Scene is highlighted in yellow.

The Next or 'Go' Scene is highlighted in green.

1.2 Copy/Paste/Reset, Setup, Listen and Lib keys

The following keys can be used in conjunction with the touchscreen:

Copy – Hold down and touch any highlighted area of the screen to copy the settings of a specific processing block. A temporary message will appear at the bottom of the screen to confirm the operation.

Paste - Hold down and touch any highlighted area of the screen to paste copied settings. A temporary message will appear at the bottom of the screen to confirm the operation.

Reset - Hold down and touch any highlighted area of the touchscreen to reset the associated parameters to factory default. A temporary message will appear at the bottom of the screen to confirm the operation.

Setup – Hold down and touch any highlighted area of the screen to configure it. For example, touch a widget area to set up functions, views or controls. Touch on the main screen area to access options further to those displayed.

Listen – Hold down and touch any highlighted area of the screen to listen to the selected channel at that point in the signal path. The signal temporarily overwrites the PAFL bus and associated meters. Press the PAFL Clear key or touch the screen popup to cancel.

Lib – Press to access the Library window for the current page. Libraries let you store and recall presets for individual processing blocks such as EQ and Compressor, and also for the whole Input or Mix channel. Input and Mix channel processing Libraries are accessed from their Overview page.

The Library window shows 3 types of Library: Factory, User (stored in the mixer) and USB (stored in the USB key). Touch to select a Library item and use the buttons to **Recall**, **Overwrite** or **Delete**. Touch **Store New** to store a new item and use the keypad to apply a name. Use the **Shows/Util / Memory / Library Manager** to organize or transfer your Libraries.

Help – Press to display a contextual help for the current screen.

1.3 Bank view

The Bank view provides an at-a-glance overview of all channels assigned to the active fader Bank and Layer. It follows both channel selection and Layer selection, so that it always displays the channels you are working on.

The Bank view can be used with the **Copy**/**Paste**/**Reset** and **Listen** keys, for example for copying a single processing block to one or multiple channels. See the paragraph above for details on using these keys.



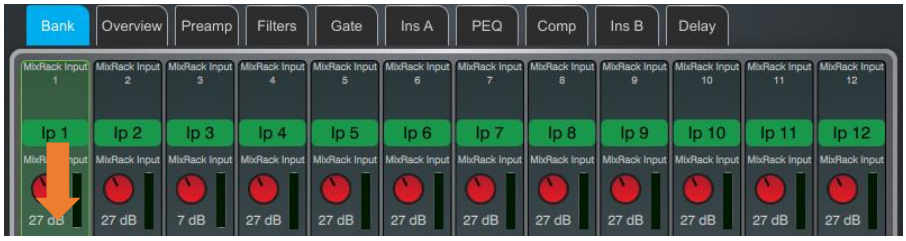
Input channels – Displays name and colour, source type, preamp meter, gain, +48V and polarity, gate graph, filters, PEQ graph, compressor graph, Pan and channel meter. The channel name is framed in orange when Virtual Soundcheck is active.

1 Tap on a channel to select. The selected channel is highlighted in green.

2 Tap on a processing block within a selected channel to open the associated page.

3 Gang membership of channels is shown next to the Gain control.

4 Pull down the name of a selected Input channel, or swipe down with two fingers anywhere in the Bank view to display details of the sources such as socket numbers. Pull / swipe down again to restore the normal view. Use the **I/O** or **Processing** / **Preamp** screen to patch sources.





DCAs – Displays name, colour, members (assigned channels) and whether the 'Fader to Zero dB' and 'MCA' options are enabled. Use the **Routing** screen or the Surface **Assign** keys to assign channels.

1 List of members. Scroll the list up or down if the members are too numerous to fit in the strip.

2 Tap to enable **MCA** mode on a DCA. MCA mode can be set globally on all DCAs in **Surface** / **Control** / **DCA/MCA Spills**.

ⓘ See Appendix F in this guide for more details on MCA functionality.

3 Tap to enable the **DCA Fader to Zero dB** mode on a DCA. This forces the DCA fader to 0dB.

Mix channels – Displays name and colour, Ext Input, meter (pre-processing), polarity, PEQ graph, compressor graph, and channel meter (post-processing).

4 Pull down the name of a selected Mix channel to display details of the Ext Input source such as socket number. Pull down the name again to restore the normal view. Use the **I/O** or **Processing** / **Ext In** screen to patch sources.

1.4 Overview

The Overview page provides an at-a-glance view of all processing for the selected Input or Mix channel. Touch a section to open the related page.

Press the **Lib** key while on the Overview page to access the channel Library.



Input channels

1 **Preamp** – Displays the Preamp source, Gain and Digital Trim. Icons show 48V phantom power and polarity setting.

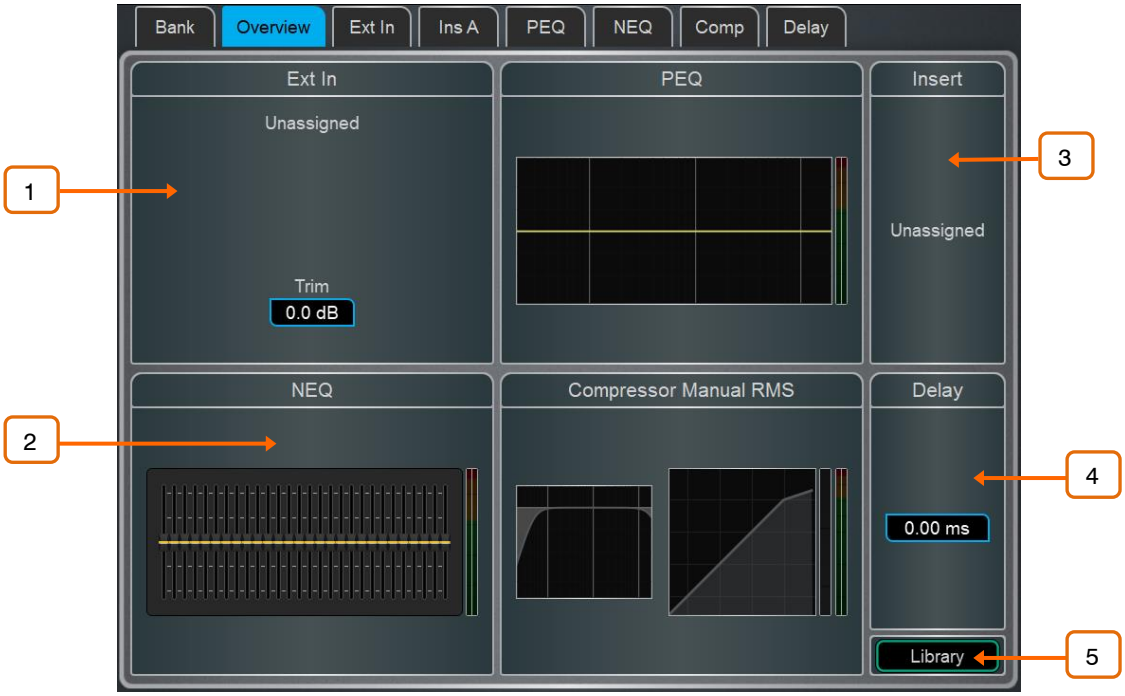
2 **Processing** – Thumbnail graphs of Filters, PEQ, Gate and Compressor complete with sidechain. EQ and filter curves display yellow when switched In and grey when switched Out. Dynamics display blue when switched In and grey when switched Out.

3 **Insert** – Assignment and bypass status are shown for the two Insert points.

4 **Delay** – Shows the setting for the selected channel.

5 **Library** – Opens the Input Channel Library. Input channel Libraries store Preamp settings, Stereo Width, Preamp Model, Filters, Gate, PEQ, Compressor, Delay, Name & Colour, Direct Out Level, and Routing (sends and assignments to mixes). **Recall Options** let you choose which of these settings to recall.

ⓘ Channel Libraries created prior to V2.0 will not include Name & Colour or Routing.



Mix channels

1 **Ext In** – Displays the External Input source, Gain and Digital Trim. Icons show 48V phantom power and polarity setting.

2 **Processing** – Thumbnail graphs of PEQ, NEQ and Compressor complete with sidechain. The PEQ curve and GEQ sliders display yellow when switched In and grey when switched Out. The compressor graph displays blue when switched In and grey when switched Out.

3 **Insert** – Assignment and bypass status are shown.

4 **Delay** – Shows the setting for the selected channel.

5 **Library** – Opens the Mix Channel Library. Mix channel Libraries store Ext In Preamp settings, PEQ, NEQ, Compressor, Delay, Name & Colour, Aux Source Point, and Routing (sends and assignments to the selected Mix channel). **Recall Options** let you choose which of these settings to recall.

ⓘ Channel Libraries created prior to V2.0 will not include Name & Colour or Routing.

1.5 Preamp

The Preamp page provides access to the Input Channel source patching and other Input settings.



1 **Source Select** – Open the drop-down menu to choose which source to patch to the channel, touch the **Socket** box then turn the screen Rotary to select the required socket or number, then touch **Apply**.

Sources that can be patched include MixRack sockets, Surface sockets, DX Expander inputs, Mix Busses, PAFL busses, USB stereo playback, I/O Port inputs, the output of built-in effects (Rack FX), and the Signal Generator.

ⓘ When patching from a DT168 or DT164-W expander, preamp controls will appear when a valid patch is made from a DT socket, via a Dante card, to the input channel. Ensure the correct patch is made in both Dante Controller and the dLive's I/O page.

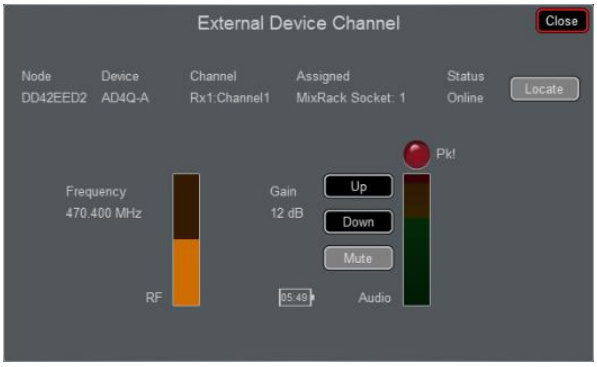
To provide a simple starting point, the Template Show default is one-to-one mapping of sockets to channels.

2 **Socket Preamp** – If the patched source is a Mic/Line XLR input then its Preamp controls are shown. These provide remote control of the input preamp circuit located at the socket. **Pad** switches in a 20dB input attenuator, and the combined Gain + Pad value is shown in the Gain box. Touch and hold the **48V** button for 1 second to enable or disable phantom power.

Enable the Scene Recall **Safe** option to make the Preamp Gain, Pad and 48V settings safe from Scene Recall. This can be useful when splitting the same mic preamp to two or more channels.

ⓘ Making a channel Safe using the Surface **Safe** key automatically makes the associated Preamp safe. Turning off Safe using the surface key unsafes the Preamp.

3 **RF Info** – If the patched source is associated with an RF Device Channel then the RF Info box is shown. Channel name, mute status, battery level, RF signal strength and receiver audio level/peak information is displayed. Touch anywhere in the RF Info box to open the **External Device Channel** window.



In addition to the information shown in the RF Info box, channel RF frequency is displayed as well as several options:

Locate - When enabled, Locate flashes the front panel lights of the selected channel's RF receiver until the Locate button is turned off.

Up - Turns up the RF receiver gain on the selected channel in +1dB increments.

Down - Turns down the RF receiver gain on the selected channel in -1dB increments.

Mute - Toggles the selected channel's RF receiver Mute status.

Close – Close the External Device Channel window and return to the Preamp page.

4 **Stereo Image** – If the channel is configured as stereo then the Stereo Image settings are shown. **Mode** selects normal stereo input (L/R), reversed stereo input (R/L), stereo with inverted Left polarity (L –Pol/R), reversed stereo with inverted Right polarity (R –Pol/L), mono sum (Mono), Left as mono source to both sides (L/L), Right as mono source to both sides (R/R), Middle/Side decode to stereo (M/S) with the first input of the pair acting as the MID signal and the second signal of the pair acting as the SIDE signal. **Width** adjusts the Stereo Image from 0% (mono) to 100% (stereo).

5 **Preamp On Surface** – Lets you choose whether the fader strip rotaries control the Preamp Gain or channel Trim when in Gain mode. Turn on **Enable Preamp on Surface** for normal, single console operation. Turn it off to prevent accidental Gain changes in situations where the same preamp is shared between FoH and Monitor consoles. When off, the dedicated Preamp rotary control is disabled and a warning pop-up appears any time the Gain setting is adjusted on screen.

Hold down **Setup** and touch anywhere in the Preamp screen to access a global setting for disabling Preamp on Surface. This affects all channels.

6 **Enable ABCD** – Turn on **Enable ABCD** to activate ABCD inputs on the selected channel.



Select **A**, **B**, **C** or **D** to enable that source to the selected input channel.

Select **ABCD Source Setup** to access patching for each of the A,B,C & D inputs on the selected channel.

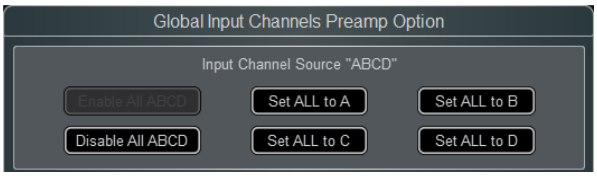


Select **A**, **B**, **C** or **D** to enable that source to the selected input channel.

ⓘ Patching to ABCD inputs can also be performed via the I/O screen.

Select **Disable ABCD** to deactivate ABCD inputs on the selected channel.

⊙ Hold down **Setup** and touch anywhere in the Preamp screen to access global settings for enabling and disabling ABCD on Input Channels. This affects all channels.



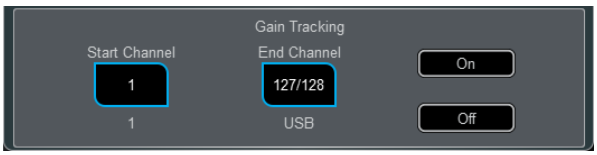
7 **Trim** – Trim provides +/- 24dB control in addition to the Preamp Gain or when the source does not have a preamp (for example inputs from an I/O Port). Trim is part of the channel, not the preamp, and is therefore useful in situations where the preamp is shared between FoH and Monitor consoles.

When **Gain Tracking** is activated, Trim automatically changes to compensate for preamp gain changes.

Gain Tracking may be used:

- In Multi-Surface mode, with up to 4 Surfaces.
- Between MixRacks connected via gigaACE cards with **Gain Sharing** turned on in the I/O Port settings.
- Between dLive and Avantis consoles, when sharing DT168 and DT164W preamps.

⊙ Hold down **Setup** and touch anywhere in the Preamp screen to define a Gain Tracking channel range. This allows the operator to quickly enable or disable Gain Tracking across a range of channels.



A post-Trim signal meter is shown. **Polarity** toggles normal and reverse.

8 **Preamp Model** – Displays the DEEP Processing model and controls, if one is loaded. Press the **Lib** key to access the preamp Library and load a preamp model such as a Dual Stage Valve.

1.6 Ext In

You can assign an external input to any Mix channel, for example for bus summing, combining console outputs, or external communications. In addition to sockets, Mix and PAFL buses can also be selected as external inputs. The Ext Input sums with the Mix channel pre-insert and is affected by the Mix processing and fader.



1 **Source Select** – Open the drop-down menu to choose which source to patch to the channel, touch the **Socket** box then turn the screen Rotary to select the required socket or number, then touch **Apply**. Socket Preamp and Trim controls are shown when an Ext In is assigned.

2 **Talkback** – Touch to toggle Talkback ON/OFF to the selected Mix channel.

3 **SigGen** – Touch to toggle SigGen ON/OFF.

The SigGen can be sent to one or both sides of a stereo Mix channel by touching the left and/or right side of the button.



1.7 Filter

The Filter page provides access to the HPF and LPF filters.



1 **Graph** – Touch and drag the HPF (green) or LPF (yellow) dots to adjust the filter cut-off frequency.

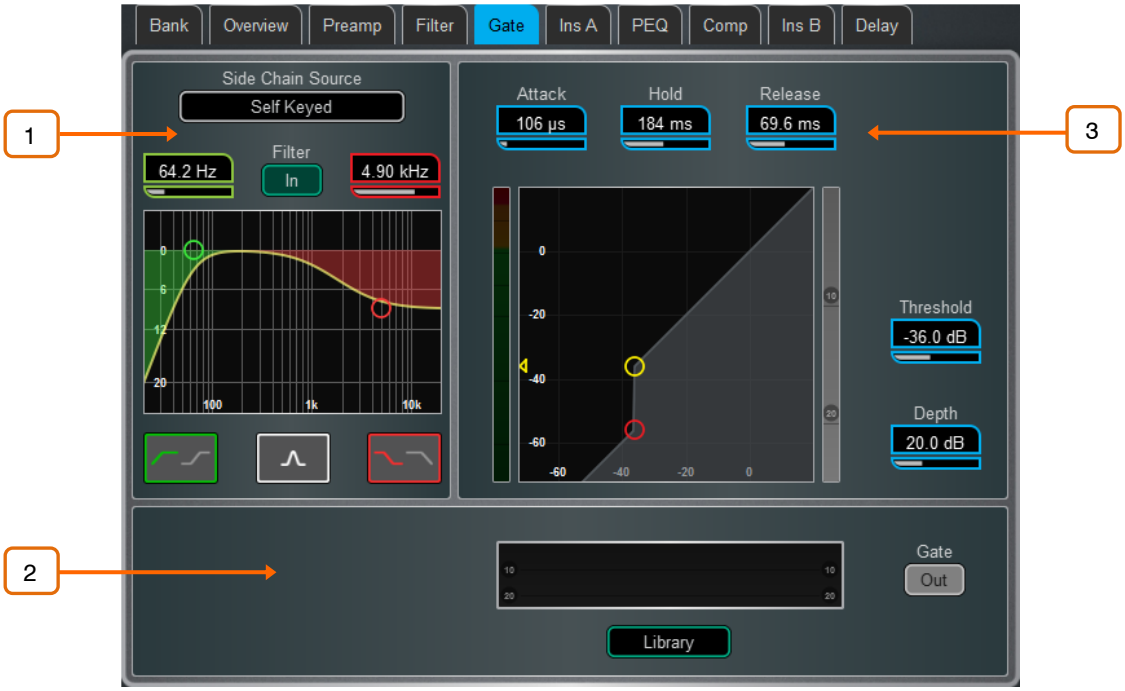
2 **HPF** – The frequency for the High Pass Filter is adjustable from 20Hz to 2kHz, and the **Slope** can be selected from 12dB/octave to 24dB/octave. Two filter types are available: Butterworth (optimized frequency response) and Bessel (optimized phase response).

3 **LPF** – The frequency for the Low Pass Filter is adjustable from 20Hz to 20kHz. The slope is fixed 12dB/octave.

1.8 Gate (Ducker / Expander)

This page provides access to the Input channel Gate settings and sidechain filter.

Press the **Lib** key to access the Gate Library. This is also where you can recall a ducker or expander to replace the gate.



1 **Side Chain** – Touch the **Side Chain Source** box to open a window for selecting the Key (trigger) input to the Gate. An adjustable BPF, HPF and LPF filter or shelf can be switched in to limit the frequency range of the Key signal. The curve turns yellow when the filter is switched in.

2 **Histogram** – Shows Gate activity over time.

3 **Gate Settings** – Touch and drag in the graph or touch a parameter box and use the screen rotary do adjust.

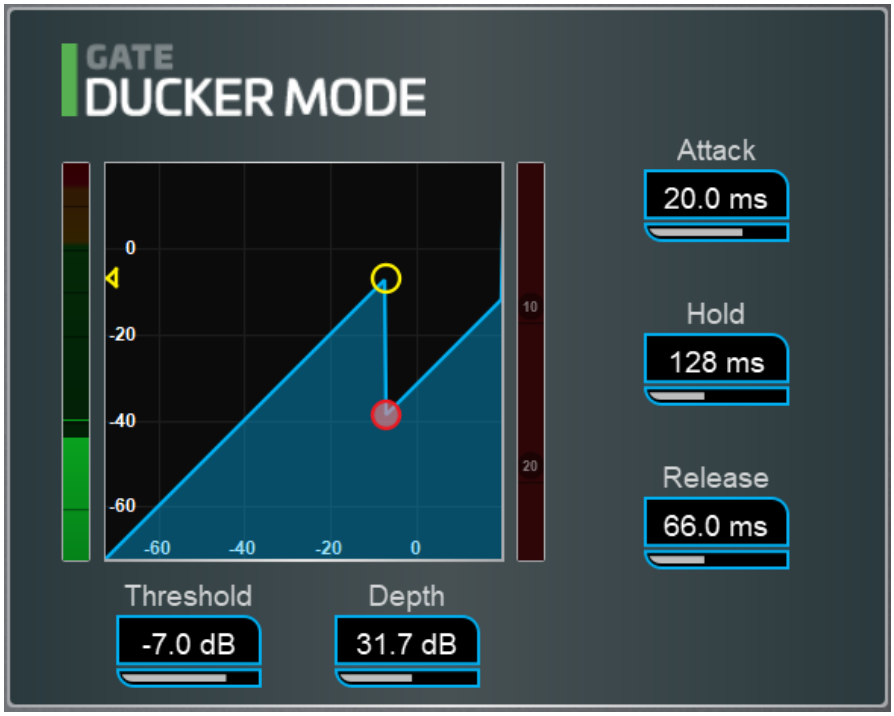
Threshold sets the level at which the gate opens to let the signal through. The meter on the left lines up with the graph and shows the signal at the input to the gate. The gain reduction meter on the right shows when the gate is closed. **Depth** sets how much the signal is attenuated when the gate closes. **Attack, Hold, Release** set how fast the gate opens when the signal rises above the threshold, how long it is held open after the signal falls below the threshold, and how long it takes to attenuate after it closes.



Dual Threshold Expander Settings - Touch and drag in the graph or touch a parameter box and use the screen rotary to adjust. **Upper Threshold** sets the level at which the expander begins to fully open. **Lower Threshold** sets the level at which the expander begins to reduce the gain to the full **Depth** as specified on the right. The expander can be made more aggressive by putting the two thresholds close together, or less aggressive by having them further apart. The **Attack** and **Release** parameters allow you to choose how quickly the expander begins to respond after the signal passes the thresholds and how quickly the expander gain reduction changes after it responds. The **EXP** button selects either a **Linear** or **Logarithmic** response to the signal passing the threshold.



Source Expander Settings - Touch a parameter box and use the screen rotary do adjust. Choose the **Threshold** at which you would like the expander to operate along with the depth (amount) of gain reduction and the speed (**Slow, Medium or Fast**) of its response rate.



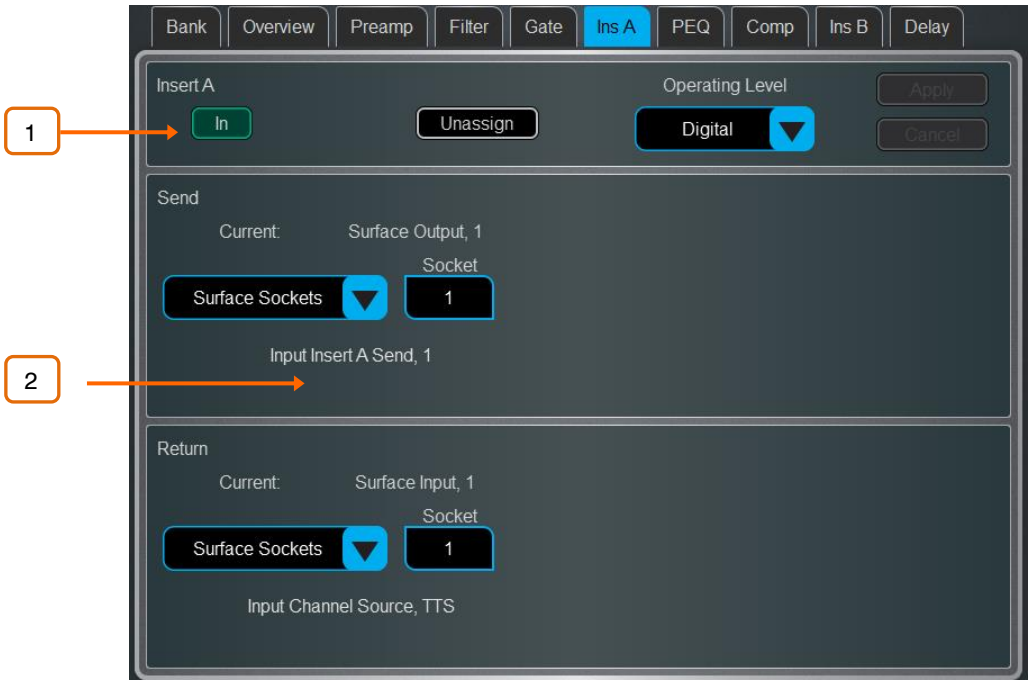
Ducker settings - Touch and drag in the graph or touch a parameter box and use the screen rotary do adjust.

Threshold sets the level at which the Ducker starts to attenuate the signal. The meter on the left lines up with the graph and shows the signal at the input to the Ducker. The gain reduction meter on the right shows when the Ducker is active. **Depth** sets how much the signal is attenuated when the Ducker is active. **Attack, Hold, Release** set how fast the Ducker operates when the signal rises above the threshold, how long it is held after the signal falls below the threshold, and how long it takes to attenuate.

It is typical for a Ducker to be keyed from an external Side Chain Source, for example a background music channel set to duck when a presenter microphone exceeds a given threshold.

1.9 Inserts and Dyn8

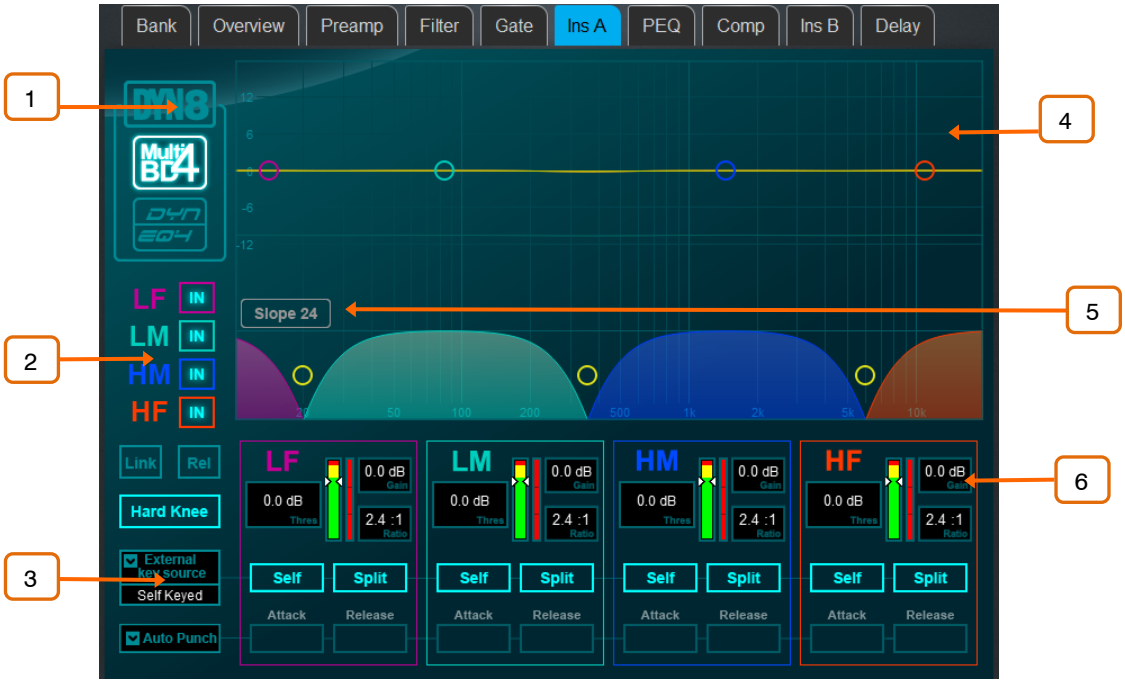
You can insert external equipment, external plugins, one of 64 internal Dyn8 engines, one of 16 internal RackExtra or 8 RackUltra FX units into a channel. Input channels provide two Insert points (post Gate and post PEQ/Comp).



1 **Insert Settings** – Press **In** to switch the inserted device in circuit. Choose the **Operating Level** of the insert point: Digital sends the signal at 0dB for use with external digital equipment via AES3 or I/O Ports; Analogue compensates for the +4dBu nominal level on the XLR outputs, so that the overall gain of the insert circuit is 0dB; -10dBV is a standard for consumer equipment. Press **Unassign** to clear the current Insert assignment.

2 **Insert Patch** – Use the drop-down menus to assign the **Send** and **Return** to physical sockets, I/O Ports, Dyn8 engines or FX units. Touch the boxes and use the screen rotary to select socket or number. When assigning Dyn8 engines, the system automatically selects the next available (unassigned) engine. Touch **Apply** to confirm.

If an internal RackExtra or RackUltra FX is assigned, the controls for the device are displayed in the Insert screen for convenience, together with a button to access the FX Library and a Dry/Wet control to adjust the balance of direct and effect signal.



Dyn8

Each engine offers 4 bands of multiband compression and 4 bands of dynamic EQ.

1 Select view mode: multiband controls, dynamic EQ controls, or a graphic overview of both.

2 Per-band bypass controls.

The multiband view has also controls of compression **Knee** (Hard or Soft), an option to **Link** all parameters across bands for quick setup, and a **Rel** option to link all parameters whilst keeping the relative offset.

The dynamic EQ view has an option to select the function of the screen rotary (**Freq** or **Gain**) when a band is selected in the graph.

3 Select the **External Key Source**. Each band can be set to operate with the selected key source or **Self** keyed. The key signal frequency range is selectable per band with **Split** (key signal frequency range defined by band crossover/width settings) and **Wide** (full 20Hz-20kHz bandwidth) options.

Set the desired ballistics mode. There are two manual (Peak, RMS) and four automatic modes (Punch, Opto, Slow, Fast) for the multiband compressor, with the manual modes providing per-band **Attack** and **Release** time. The dynamic EQ offers two per-band ballistic modes: **Std 9** (standard, smooth frequency conscious release) or **Fast 9** (fast release).

4 The multiband graph displays the resulting crossover frequency response. Shaded fills show dynamic gain reduction. The yellow curve shows makeup gain for each band, and the blue curve shows maximum potential gain reduction.

The dynamic EQ graph displays the 4-band frequency response, with the shaded fills showing dynamic activity and the solid outline showing maximum cut/boost for each band.

Touch and drag the points to adjust frequency values. To avoid accidental changes, the Gain can only be controlled in Director or by using the screen rotary.

5 Choose the crossover **Slope**: - 6, 18, or 24 dB/oct. Slope 6 has minimal phase summing distortion and is typically used for programme mastering. Slope 18 and 24 provide more band isolation and work well for vocal and instrument control.

6 Per-band controls of threshold, gain (multiband), ratio (multiband), width (dynamic EQ).

The dynamic EQ Gain set in the graph is the maximum amount of compression (cut) or expansion (boost) for the band when the sidechain signal level is **Above** or **Below** the threshold setting, depending on settings.

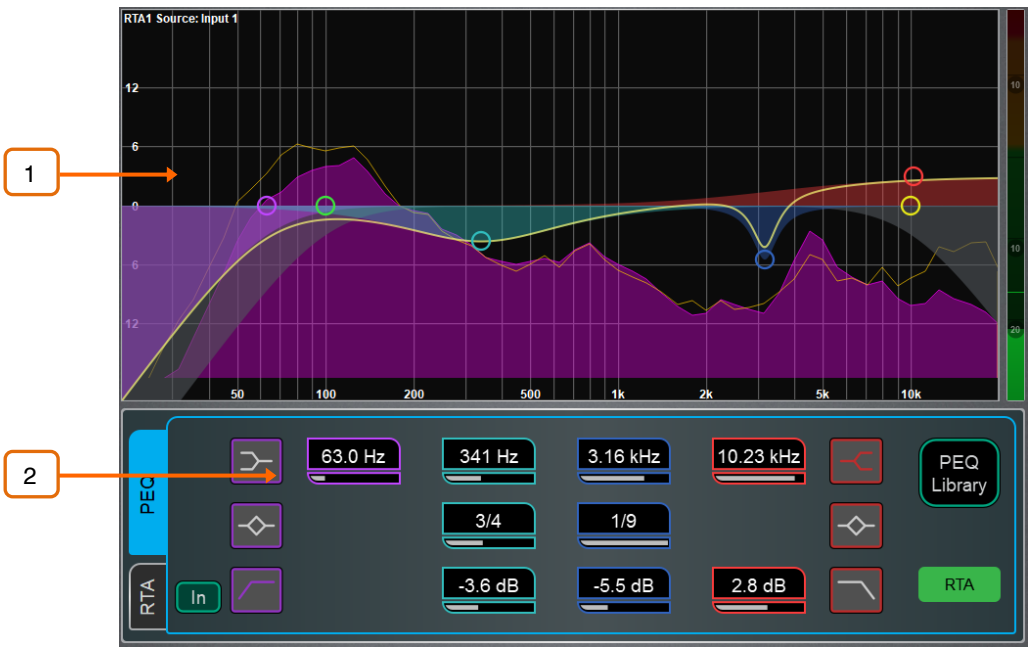
1.10 PEQ

The Parametric Equaliser provides 4 fully adjustable bands of equalisation. It can be adjusted using dedicated rotary controls on the surface or using the touchscreen.

⚙ Hold down **Setup** and touch the navigation tabs area to access channel options including the processing order of PEQ and Compressor. The default order is PEQ first, Compressor next. You can invert the order on a per channel basis or globally.

ⓘ The PEQ/Comp order for each channel is stored in Show files. It is not stored in Scene memories.

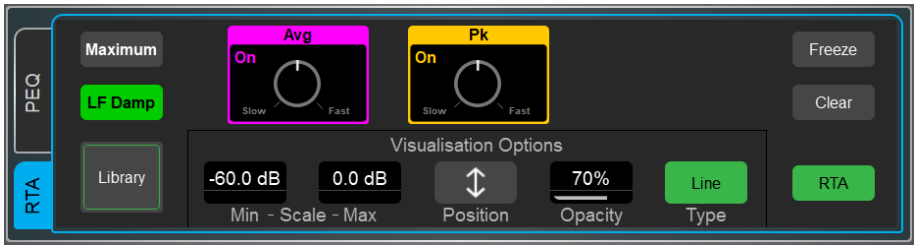
⚙ Hold down **Setup** and touch anywhere in the PEQ screen to access the Global Input Channels PEQ Options. **Enable Width Latch** (C Class Surfaces only) changes the behaviour of the physical Width button on the Surface from momentary to latching. **Fill Curves** displays the individual response of the 4 PEQ bands and HPF / LFP filters with shaded colours. The frequency range for the 4 bands may be set globally for all Input or Mixes to be limited or **Full Range**.



1 **Graph** – Touch and drag the 4 band dots to adjust their centre frequencies. Touch and drag the HPF / LPF dots to adjust their cut-off frequencies. The overall frequency response curve turns yellow when the PEQ is switched in and grey when switched out. The RTA1 can be overlayed in the graph.

ⓘ Note that the RTA Source is displayed in the top left corner of the graph and may not be the currently selected channel, depending on the RTA1 settings.

2 **PEQ Settings** – **Frequency** sweeps the shelving, centre or cut-off frequency for each band. **Width** adjusts the width in octaves of the bell shaped EQ band. **Gain** allows up to +/-15dB boost or cut for each band. The LF and HF EQ bands can be set as shelving, bell shaped or low/high cut 12dB/octave filters.



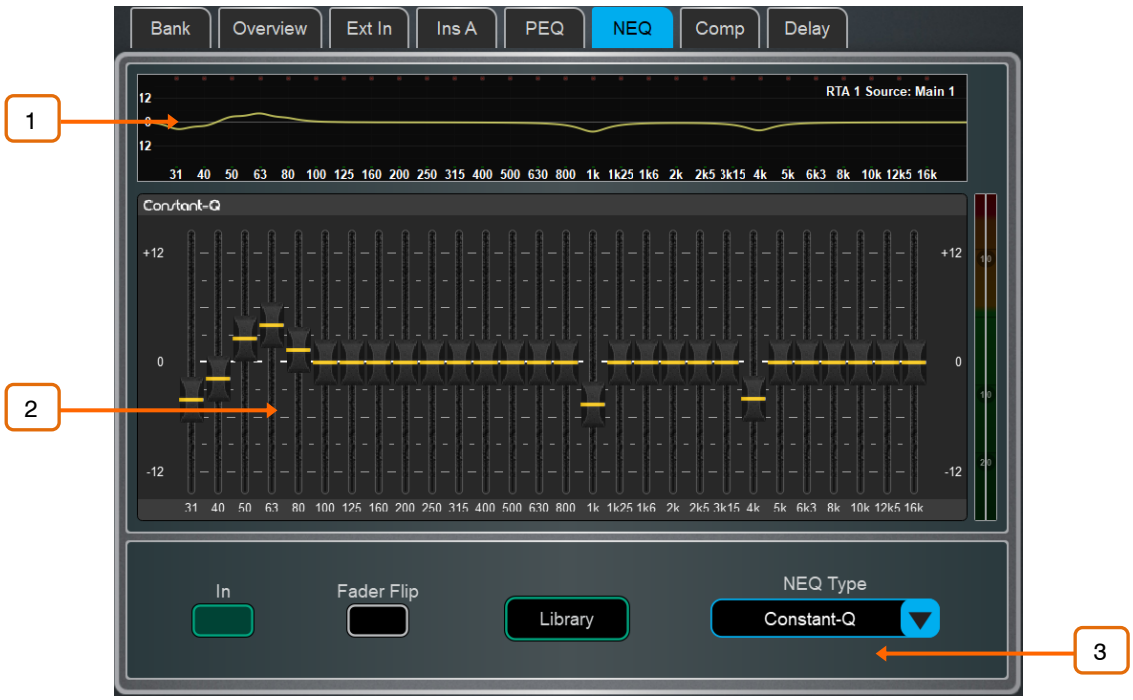
RTA Settings – Touch **RTA** to enable or disable the RTA overlay.

Set the **Min** and **Max Scale** to adjust for sensitivity or signal level. Touch **Position** and drag the RTA area on the graph to locate and resize the overlay. You can also control the **Opacity** of the overlay. Select the view **Type** (Bar, Line or Sonogram) - this is independent from the Type selected in the main RTA1 screen.

For a detailed description of the RTA graph and other settings, please refer to the Meters chapter later in this guide.

1.11 NEQ

A choice of 28-band 1/3 octave Graphic Equaliser or 12-band PEQ is provided on each of the Mix outputs. It can be adjusted using the touchscreen or the Surface faders.



1 **GEQ Graph** – The top part of the screen shows the combined frequency response curve of the GEQ. The curve turns yellow when the GEQ is switched in and grey when switched out. The RTA1 is overlayed on this graph, with peak band indication.

ⓘ Note that the RTA Source is displayed in the top right corner of the graph and may not be the currently selected channel, depending on the RTA1 settings.

2 **GEQ Sliders** – Touch a frequency slider to select and drag it up / down or use the screen rotary to adjust the gain.

3 **GEQ Settings** – Press **Fader Flip** to control the GEQ with the Surface faders. The fader strips and their LCD displays show the settings of the GEQ frequency bands, while the right hand fader becomes the master for the selected Mix and the channel meters display the RTA for the currently selected RTA1 source. Press **Fader Flip** again to toggle between frequency banks and back to normal mixing. Select **Library** to open the NEQ Libraries or **NEQ Type** to select a different DEEP Processing GEQ model or 12-band PEQ.

ⓘ See Appendix A in this guide for more details on GEQ models.



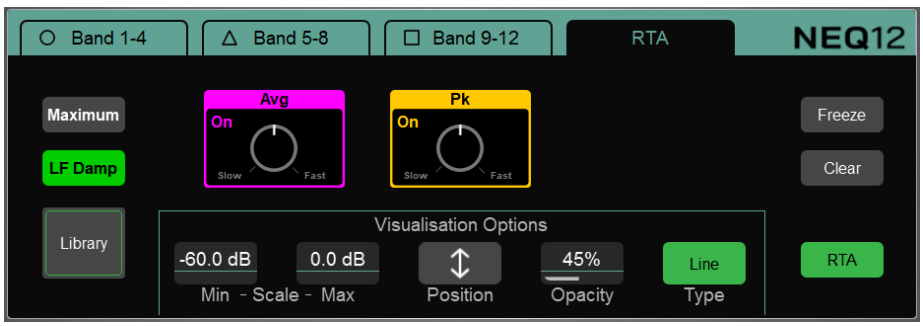
4 **NEQ12 Graph** – Touch and drag the 12 band symbols to adjust their centre frequencies. The overall frequency response curve turns yellow when the PEQ is switched in and grey when switched out. The RTA1 can be overlayed in the graph.

ⓘ Note that the RTA Source is displayed in the top left corner of the graph and may not be the currently selected channel, depending on the RTA1 settings.

5 **NEQ12 Settings** – Use the tabs to navigate through the controls for the 12 available bands. Each tab uses a different symbol for the frequency bands, and colours for easy identification.

Frequency sweeps the shelving, centre or cut-off frequency for each band. **Width** adjusts the width in octaves of the bell shaped EQ band. **Gain** allows up to +/-15dB boost or cut for each band. The LF and HF EQ bands can be set as shelving, bell shaped or low/high cut with selectable 12/24/48dB /octave filters.

Select **NEQ Library** to open the NEQ Libraries or **NEQ Type** to switch to a GEQ model.



RTA Settings – Touch **RTA** to enable or disable the RTA overlay.

Set the **Min** and **Max Scale** to adjust for sensitivity or signal level. Touch **Position** and drag the RTA area on the graph to locate and resize the overlay. You can also control the **Opacity** of the overlay. Select the view **Type** (Bar, Line or Sonogram) - this is independent from the Type selected in the main RTA1 screen.

For a detailed description of the RTA graph and other settings, please refer to the Meters chapter later in this guide.

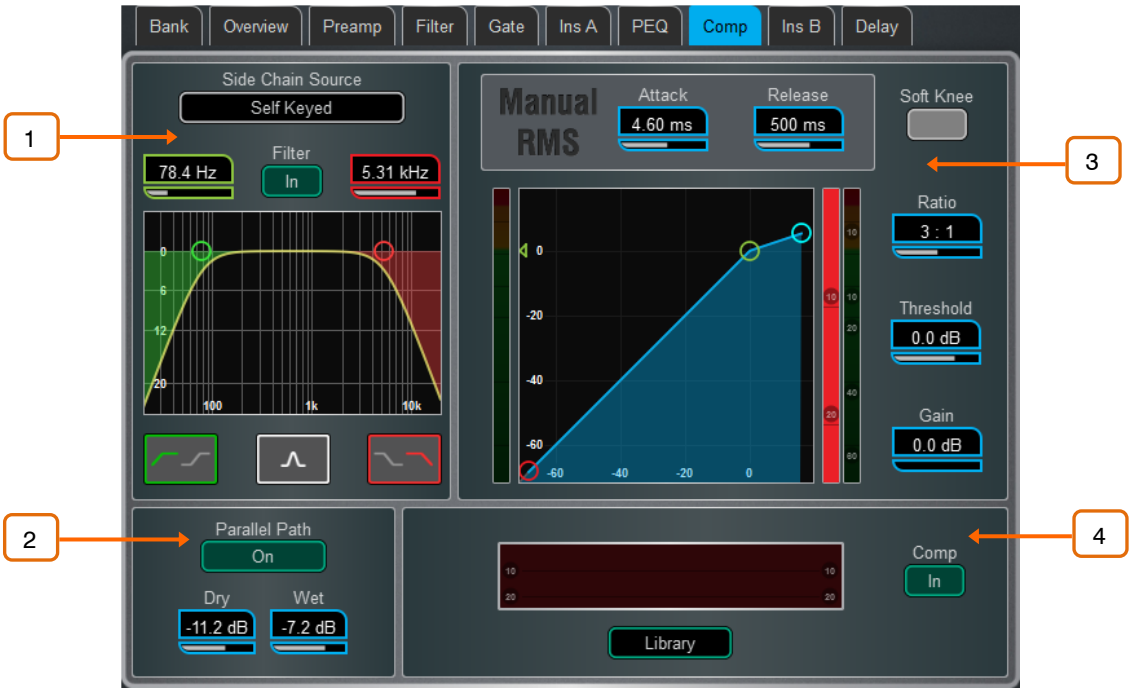
1.12 Compressor

This page provides access to the channel Compressor settings and sidechain filter.

> ⚙ Hold down **Setup** and touch the navigation tabs area to access channel options including the processing order of PEQ and Compressor. The default order is PEQ first, Compressor next. You can invert the order on a per channel basis or globally.
>
> ⓘ The PEQ/Comp order for each channel is stored in Show files. It is not stored in Scene memories.

Several DEEP compressor models are available including emulations of classic industry standards. These can be recalled via Library presets and include the option of a channel Ducker to replace the Compressor. Touch the **Library** button or press the Surface **Lib** key to access the available Libraries.

> ⓘ See Appendix A in this guide for more details on Compressor models. See the Gate section earlier in this guid for more details on the Ducker.



1 **Side Chain** – Touch the **Side Chain Source** box to open a window for selecting the Key (trigger) input to the Gate. An adjustable BPF, HPF and LPF filter or shelf can be switched in to limit the frequency range of the Key signal. The curve turns yellow when the filter is switched in.

2 **Parallel Path** – Lets you balance the dry 'uncompressed' signal with the compressed output. When turned off, only the compressed signal is routed to the output.

3 **Compressor Settings** – Touch and drag in the graph or touch a parameter box and use the screen rotary do adjust.

Threshold sets the level at which the compression starts. The meter on the left lines up with the graph and shows the signal at the input to the compressor. The gain reduction meter on the right shows how much the signal is being compressed. **Ratio** sets the amount of compression when the signal exceeds the threshold. A ratio of 1:1 means no compression. Set Ratio to 'Infinity' to use the compressor as a limiter. **Gain** is the make-up gain to compensate for the drop in overall volume after compression. **Soft Knee** adds compression gradually with gentler ratio as it approaches the threshold. **Attack** and **Release** control how fast the compressor pulls back the signal when it exceeds the threshold and how long it takes to let go when the signal drops below the threshold.

4 **Compressor Histogram** – Shows Compressor activity over time.

1.13 Delay

The delay settings for all the channels or mixes are shown on this page, with the currently selected channel highlighted. Use the screen rotary to change its value, or touch another parameter box to adjust the delay for a different channel. Touch the **In** buttons to toggle the delay in or out. Input delays can be adjusted up to 340ms, Mix delays up to 680ms.



Hold down **Setup** and touch anywhere in the Delay page to access the unit and temperature preferences for the Delay. The default unit is ms but can be changed to metres, feet, or samples. This can be changed globally for the Input channels and for the Mix channels. Enter the ambient temperature if using distances so that dLive can compensate for the effect on delay.

2. System screen

The right screen on the S5000, S7000 and C3500 gives access to system settings, FX, meters, routing and I/O. The S3000, C1500 and C2500 incorporate the Processing screen into this screen.

2.1 Harmony UI



1 **Selected / Last Recalled Scene** – Displays the currently Selected Scene in yellow, or Last Recalled Scene in blue (refer to the Scenes chapter in this guide for details). The Selected Scene is highlighted in yellow in the Scene list.

2 **Next Scene** – Displays the Scene next to be recalled when pressing **Go**.

3 **Main screen area** – Press the Screen mode keys to select pages and menus displayed in this area.

4 **Scenes widget** – Scrollable scene list. Touch a Scene to select. The selected Scene is highlighted in yellow. The Next or 'Go' Scene is highlighted in green.

5 **South Area** – User assignable area. Press the **View** key to toggle between the configured views.

To configure, hold down the **Setup** key and touch this area, drag the required views from the left to the right of the screen, touch these to check for any option or preference, then touch Apply to confirm.

Available views are listed in paragraph 1.1.

6 **Soft Rotaries** – Displays the parameters for the assigned controls and meters or thumbnail graphs where applicable. Press the keys on top of the rotaries, or swipe within the widget area to toggle between the 3 available layers.

Soft Rotaries can be set to follow channel selection, active Mix or to be locked to a specific channel.

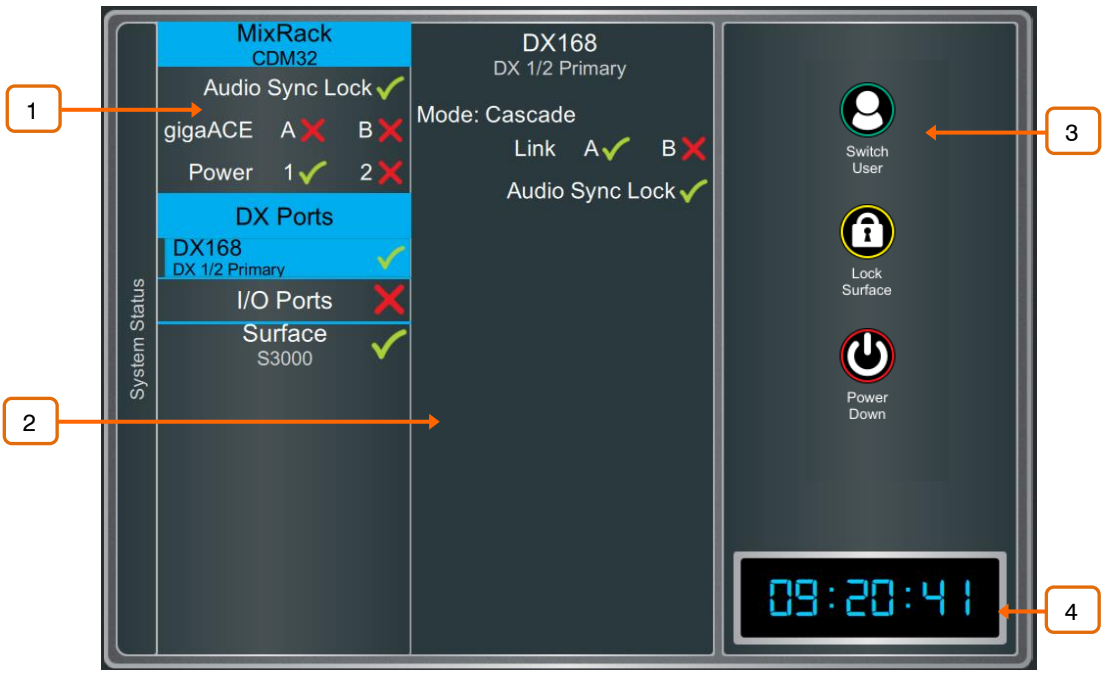
⚙ To configure, hold down the **Setup** key and touch this area, drag the required widgets from the left to the right of the screen, check for any option or preference, then touch Apply to confirm.

Available widgets are detailed in paragraph 1.1.

2.2 Home

When no screen mode is selected, the System screen displays a Home page with a System Status dashboard, real time clock and access to User login.

ⓘ Press the Surface **Home** key to come back to this page and present a familiar state of the Surface controls. Pressing this key will exit from any screen mode or menu, unselect the currently selected channel, make the Main LR the active **Mix**, and Layer A active across all fader banks.



1 **System Status** – Displays a list of system components. A green tick indicates the component is running correctly. A red cross indicates that an error is detected. A blue icon appears when a non-critical event is logged. Touch the component to display further information.

2 **System Info** – Displays firmware version, current User, and the last Scene and Show recalled.

When a system component is selected in the left column, further information on that component is displayed here, for example status of PSU, cable redundancy, Audio Sync Lock and the type of I/O modules fitted in a DX32 Expander.

If an error is detected, touch **Dismiss** to clear the error from this screen, or open the **Utility** / **Utility** / **History** page to investigate the logs. Contact Support for assistance.

3 Press **Switch User** to access the User login page.

Press **Lock Surface** and confirm to lock all Surface controls and touchscreen. Parameters will not be changed if the Surface controls are moved while locked, for example when left unattended. Touch the screen again to unlock the Surface.

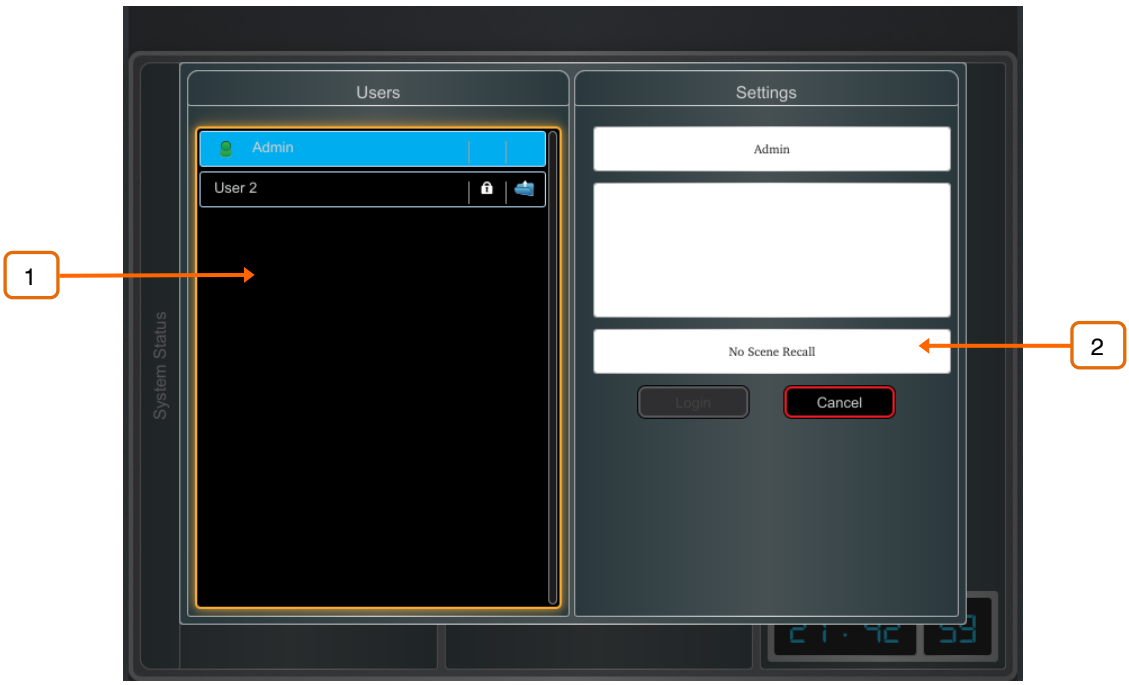
ⓘ If a password is set for the current User, then this must be entered when the User locks or unlocks the Surface.

Press **Power Down** and confirm to safely power down the system before you switch power off. Failures to power down correctly may result in recent parameter changes being lost or under rare circumstances, possible data corruption.

4 **Clock** – Shows the time in hours, minutes, seconds. Set using the **Utility** / **Utility** / **Date/Time** screen.

2.3 User login

The system Administrator can set up to 9 User Profiles to protect settings and restrict access to certain functions. Touch **Switch User** on the Home page to log in as a different User.



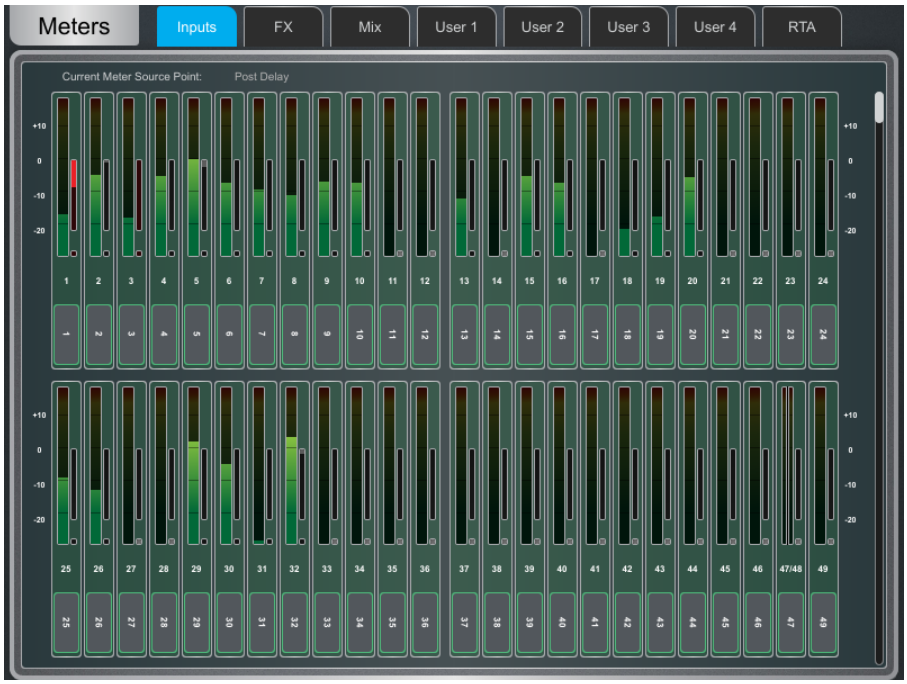
1 **Users list** - Shows available Users. These can be configured and enabled in the **MixRack** / **Config** / **User Profiles** screen. The Admin User is always displayed. Icons indicate if the User has a password or User Scene set. Touch a User to select then touch **Login** to change User.

If a password is set, it needs to be entered using the screen keypad when the User logs in using this screen, when the system is powered up, or when the User locks or unlocks the Surface.

2 **User Scene** – If one is set, it is recalled automatically on login when the User is changed. It is not recalled when the Surface is unlocked, or when the system is powered down and up again while the same User is current.

3. Meters

Different tabs give access to meters for all Input channels, all FX Sends and Returns, all Mixes, and up to 4 configurable User views, as well as two Real Time Analysers.



Meters tabs – Channel name and colour are shown below each meter. The channel name background is red when the channel is muted via the channel mute, DCA mute or mute group.

A gain reduction meter and gate active indicator are also displayed, these show activity in red when switched In, and in grey when switched out.

The meter source point can be globally set for all Inputs and all Mixes independently. This does not affect the fader strip meter on the Surface or any other screen metering.

Hold down **Setup** and touch anywhere in the Inputs or Mix meter tab to set the associated source point. This will affect the Surface LED meters too. Options available for Inputs are Post Preamp, Post Gate/PEQ, Post Compressor, Post Delay. Options available for Mixes are Post Preamp, Post Insert Return, Post PEQ, Post NEQ, Post Compressor, Post Fader.

Hold down **Setup** and touch anywhere in a User tab to configure the User view. Touch a channel to configure, add spacers or rows as required, and press Apply to confirm.

3.1 RTA

Two Real Time Analysers are available and can be locked to a specific channel or set to follow channel selection and PAFL.



1 **RTA Graph** – A 61 band Real Time Analyser or Sonogram is displayed here. Select the view mode in the upper right corner.

In **Line** mode, the Average (RMS) curve in purple and the Peak curve in yellow show current energy in dB for each frequency. The Maximum curve in orange shows all-time peak energy since the RTA was last cleared or its source changed.

In **Bar** mode, 61 bars display peak energy in dB for each frequency, with a red highlight on the highest peak to aid feedback detection.

2 **Library** – Opens the RTA Libraries for storing and recalling RTA settings.

3 **RTA Controls** – Touch the **Avg** or **Pk** box to enable/disable the respective curve in the graph. Adjust the response of each from Slow to Fast with the rotary control. Touch **Maximum** to enable/disable maximum peak levels. Enable **LF Damp** to slow down the response of the RTA across the lower frequencies.

In the **Source** tab, select the **RTA Source**. This can be locked to a specific channel, set to **External Control** (for selection by another Surface, dLive Director or MixPad app), or set to follow current channel selection. Enable **PAFL Overrides Sel** and select the PAFL bus to have the RTA follow the PAFL source whenever PAFL is active.

The **SigGen** tab gives quick access to the Signal Generator Type, Level and Mute.

4 **Dual View** displays the RTA1 and RTA2 on the same screen, so that two signals can be compared, for example a Mix channel and a measurement microphone.

Freeze holds a snapshot of the current measurement in place.

Clear clears maximum peaks.



1 **Sonogram** – A 61 band Real Time Analyser or Sonogram is displayed here. Select the view mode in the upper right corner.

In **Sonogram** mode, energy content over frequency is plotted over time and the dB level colour coded. A 25s real time window is displayed as well as a 5min, 15min and 60min average. Sonogram is a useful tool to spot trouble frequencies, room resonance or mix imbalance.

2 **Library** – Opens the RTA Libraries for storing and recalling RTA settings.

3 **Sonogram Controls** – Touch **Subtract** to display the difference between RTA1 and RTA2. This can be useful when comparing two signals over time. Touch **Range** and adjust the dB scale to the right of the graph to limit the area of focus of the Sonogram.

In the **Source** tab, select the **RTA Source**. This can be locked to a specific channel, set to **External Control** (for selection by another Surface, dLive Director or MixPad app), or set to follow current channel selection. Enable **PAFL Overrides Sel** and select the PAFL bus to have the RTA follow the PAFL source whenever PAFL is active.

The **SigGen** tab gives quick access to the Signal Generator Type, Level and Mute.

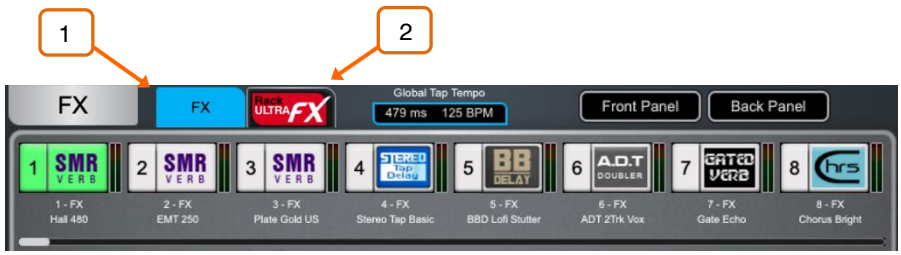
4 **Dual View** displays the RTA1 and RTA2 on the same screen, so that two signals can be compared, for example a Mix channel and a measurement microphone.

Freeze holds a snapshot of the current measurement in place.

Clear clears the Sonogram.

4. FX

All dLives come with 16 RackExtra FX as standard. dLive MixRacks fitted with the RackUltra FX card add an additional 8 stereo FX engines. The FX rack can be selected from the FX page.



1 **RackExtra FX** – Access the 16 standard RackExtra FX slots.

2 **RackUltra FX** – Access the 8 RackUltra FX slots.

4.1 RackExtra FX

The RackExtra FX screen gives access to the 16 RackExtra FX engines.



1 **FX bar** – The 16 slots are shown across the top of the screen either empty or with FX devices loaded. The FX name, current Library preset and metering are shown next to each icon. Swipe left to right to view all the FX slots. Touch a device or empty slot to select.

2 **Library** – Press the **Library** button or **Lib** key on the Surface to access the FX Library. The Libraries are grouped by FX type. You can choose to load one of many Factory presets, or to recall a previously stored User preset from the Show or directly from your USB key. Touch to select a preset and touch **Recall** to load. Touch **Store New** to store the current FX settings as a User preset. Touch **Overwrite** to update an existing preset with current settings.

ⓘ See Appendix A in this guide for more details on FX models.

3 Switch between the **Front Panel** and **Back Panel** view.

Tap on the **Global Tap Tempo** box or touch and use the screen rotary to set the global rate for any delay FX locked to Global Tap Tempo. The current rate is shown. The Tap Tempo can be assigned to a SoftKey using the **Surface** / **Control** / **SoftKeys** screen.

4 **Front Panel** – All FX controls and parameters are presented here. Switch to the **Back Panel** to access routing settings.

5 Meters at the input and output of the currently selected FX are shown. Touch the **PEQ** button to open the PEQ window. Touch the **Width** box and use the screen rotary to control the Stereo Width.

If the FX is inserted on a channel, the **In** switch and **Dry**/**Wet** level controls are shown. If the FX is configured as a Mix->Return, then PAFL, Mute, and fader level are displayed for both the send and return. Touch the **Send Level** control and use the screen rotary to control the FX Return send to the active Mix.

ⓘ The FX Front Panel, Library button and PEQ can also be accessed by the Processing Screen when an FX Send or Return is selected, or by the Processing Insert page when a channel with inserted FX is selected.



Back Panel – Use this view to edit the routing for the selected FX. Use the drop-down box to choose between Unassigned, Insert or Mix->Return.

Insert breaks a channel signal path at its Insert point to route it to the FX and back into the channel. Select the channel and press **Apply** to confirm. Some FX devices allow a **Dual Mono** mode to insert the FX into two separate mono channels.

Mix->Return patches the FX device as a system effect with a Send bus and a stereo Return channel. Select the bus you want the FX to use and press **Apply** to confirm. The source patch defaults to the corresponding FX Send bus if available in the current

bus configuration. The output patch defaults to the dedicated stereo FX Return channel.

4.2 RackUltra FX

The RackUltra FX screen gives access to the 8 RackUltra FX engines.



1 **FX bar** – The 8 slots are shown across the top of the screen either empty or with FX devices loaded. The FX name and metering are shown next to each icon. Touch a device or empty slot to select.

2 Tap on the **Global Tap Tempo** box or touch and use the screen rotary to set the global rate for any delay FX locked to Global Tap Tempo. The current rate is shown. The Tap Tempo can be assigned to a SoftKey using the **Surface** / **Control** / **SoftKeys** screen.

3 Tap on the **Global Key** box to show the Global Key menu and set the Global Key for any FX locked to Global Key. The Global Key can also be controlled by MIDI over TCP.



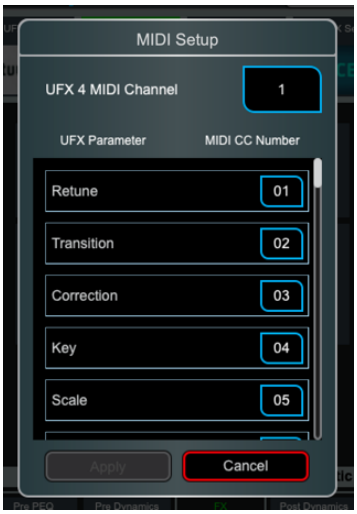
4 **Show Routing** – Configure patching, side chain source and where applicable MIDI control for the selected FX unit.



Insert breaks a channel signal path at its Insert point to route it to the FX and back into the channel. Select the channel and press **Apply** to confirm.

Mix->Return patches the FX device as a system effect with a stereo Send bus and a stereo Return channel. **Apply** to confirm. The source patch defaults to the corresponding UFX Send. The output patch defaults to the dedicated stereo UFX Return channel.

An **External Side Chain Source** can be selected for the FX Pre and Post Dynamics.



Touch **MIDI Setup** to configure the MIDI Channel and CC messages to control FX parameters. A red cross by the MIDI Channel indicated the MIDI Channel is already in use by the dLive MIDI protocol. You can configure the base dLive MIDI Channels in **Utility** / **Control** / **MIDI**.

ⓘ Not all FX types support MIDI control.

5 **Front Panel** – All FX controls and parameters are presented here.

6 **Library** – Press the **Library** button or **Lib** key on the Surface to access the FX Library. The Libraries are grouped by FX type. You can choose to load one of many Factory presets, or to recall a previously stored User preset from the Show or directly from your USB key. Touch to select a preset and touch **Recall** to load. Touch **Store New** to store the current FX settings as a User preset. Touch **Overwrite** to update an existing preset with current settings.

Recall Filters let you choose what settings and parameters to recall. Select **FX Unit** for the FX parameters, and/or **Processing** for the Pre / Post FX channel processing.

Enable **Recall on Select** to audition the Library presets live without recalling.

ⓘ See Appendix A in this guide for more details on FX models.

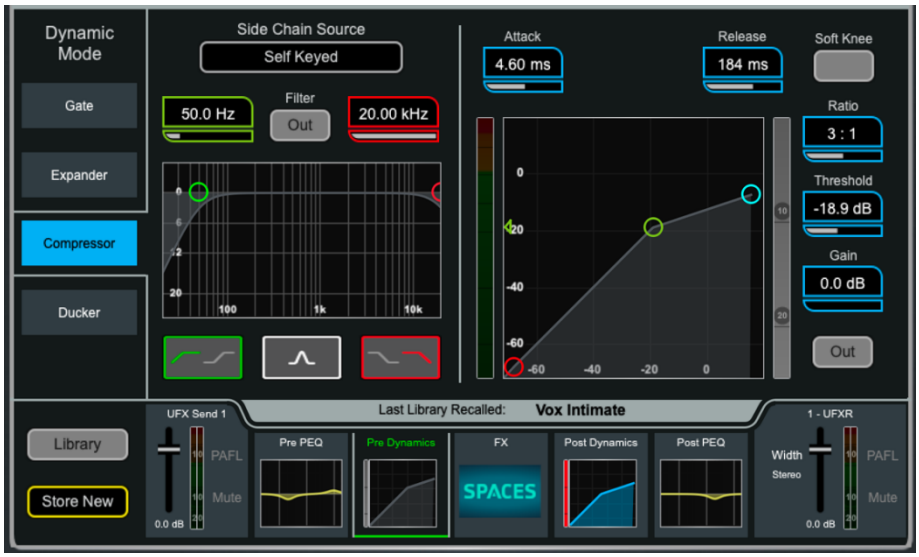
7 Meters at the input and output of the currently selected FX are shown.

If the FX is inserted on a channel, the **In** state and **Dry**/**Wet** levels are shown. If the FX is configured as a Mix->Return, then PAFL, Mute, and fader levels are displayed for both the send and return.

ⓘ The FX Front Panel, Library button and processing can also be accessed by the Processing Screen when a UFX Send or Return is selected, or by the Processing Insert page when a channel with inserted FX is selected.

Touch a tab to access: FX send level, PAFL and Mute or Insert **In** button; Pre / Post PEQ with Param (numerical) or Graphical view; Pre / Post Dynamics; Stereo Width, FX return level, PAFL and Mute and send level to active Mix, or Dry/Wet controls. Touch the FX unit to return to the FX front screen.

Pre / Post Dynamics can be configured as follows:



Choose between 4 types of **Dynamic Modes** (Gate, Expander, Compressor or Ducker).

Set the **Side Chain Source** for each Dynamic processor as either Self Keyed, a patchable External Source or the FX input or output signal. For example, you might key the *Post* Dynamic processor from the *UFX Send* on a reverb to 'duck' the reverb return when a vocalist is singing.

ⓘ Each RackUltra FX channel can have a single External Source.

5. I/O

Use this screen to patch inputs and outputs from / to analogue sockets, I/O Ports, DX and DT Expanders, USB, or to the ME monitor port. The patch is presented as a matrix view with solid cross-points indicating an active connection. Striped cross-points indicate an invalid connection, for example when the output is not available in the current system configuration.

⚙ Hold down **Setup** and touch anywhere in the I/O screen to access the following preferences:

Confirm when reassigning opens a confirmation pop-up whenever a patch is being changed.

Only patch when the Patch button is pressed requires a two fingers operation to prevent accidental changes to the patch. Hold down the screen **Patch** button (Shift key in Director) and touch a cross-point to patch when this option is enabled. Hold down and draw a line on the matrix to quickly patch sources to destinations 1:1.

Use full screen takes advantage of the full touchscreen size when operating the I/O screen.

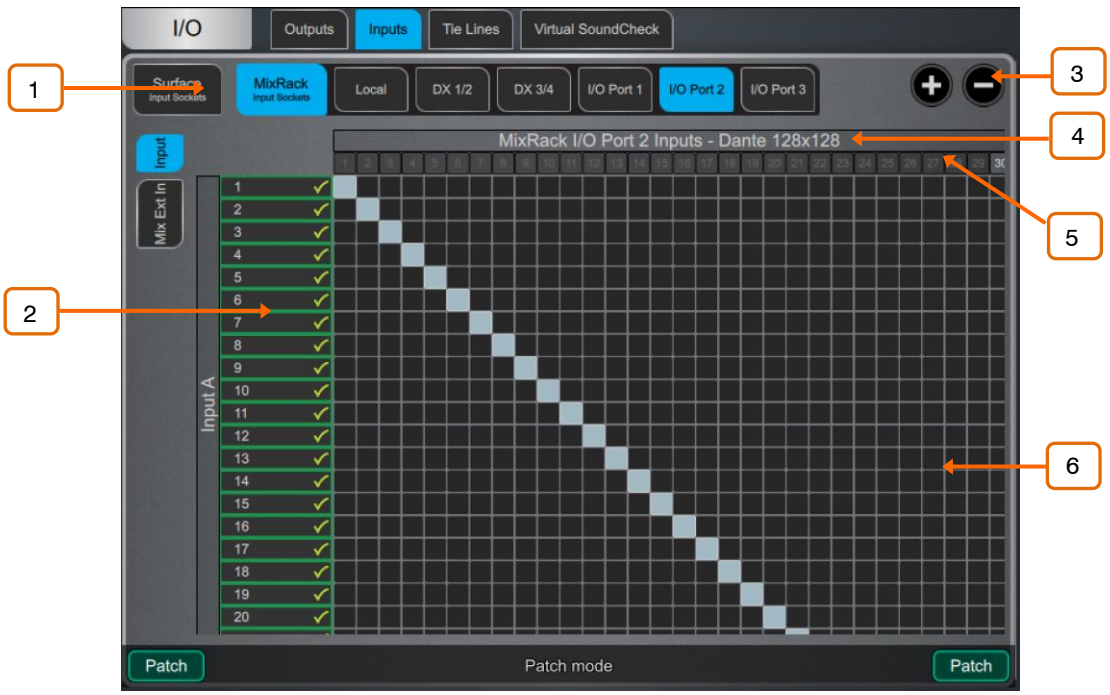
Allow multiple tabs displays multiple items at the same time in the matrix view.

Library opens a Library of I/O patches with the option to recall Input, Insert and Output Patchbay separately.

Custom Names renames I/O Port and DX tabs to a user specified name. Custom names can also be toggled On or Off from this menu to display the original I/O Port or DX socket number.

5.1 Inputs

Patch sources (displayed on top) to Input channels or to the Ext In of Mix channels (displayed on the left).



1 **Navigation tabs** – Touch on an item to present its associated sources or channels to the matrix view.

2 **Destinations** – Input and Mix channel names and colours are displayed. A green tick appears when any source is assigned to the channel. Touch a channel name or number to edit its name and colour.

3 **Zoom** – Use the two buttons provided or a two-fingers pinch in the screen area to zoom in and out. Low levels of zoom provide a good overview of the I/O patch but disable cross-point operation to prevent accidental changes.

4 **I/O Card Names** – When viewing an IO card tab, the IO card type is listed here. The I/O card name can be swapped out for a custom name, from the **Setup** menu.

5 **Sources** – The source number is greyed out if already patched, highlighted in red if +48V is detected at the socket, or striped when the input is not available in the current system configuration.

Touch on a socket number to open a window with a list of current assignments and available controls for the socket, for example gain, +48V and Pad for a preamp, or SRC options for a digital input.

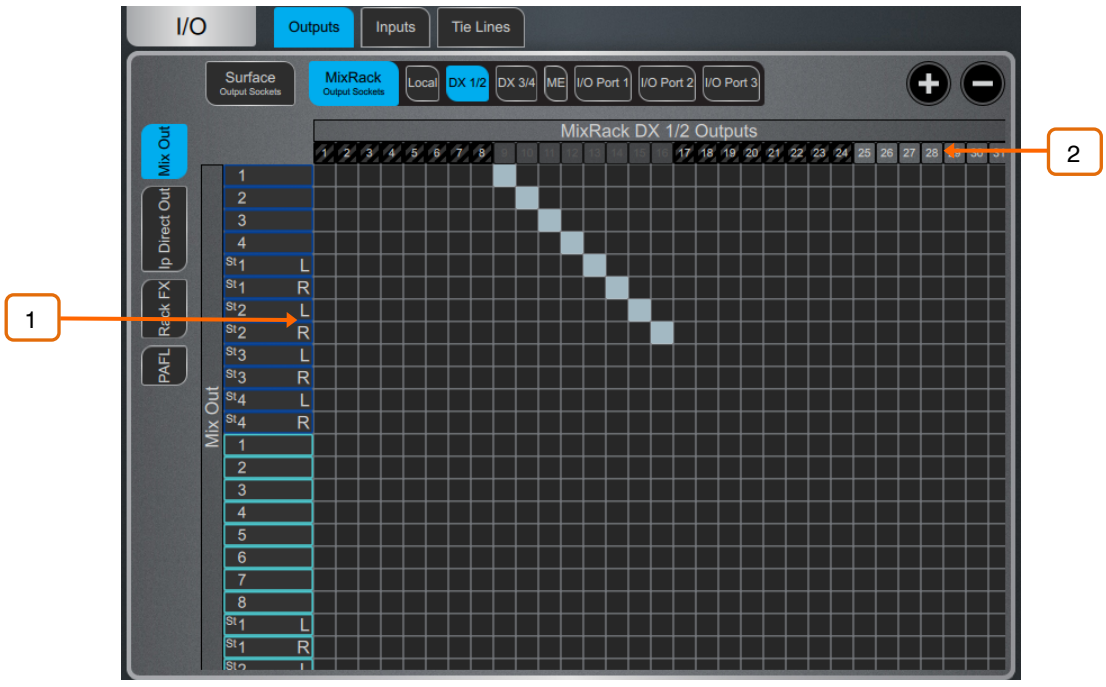
ⓘ When patching from a DT168 or DT164-W expander, preamp controls will appear when a valid patch is made from a DT socket, via a Dante card, to the input channel. Ensure the correct patch is made in both Dante Controller and the dLive's I/O page.

ⓘ Sample Rate Conversion can be bypassed for any stereo digital Input on a dLive Surface or DX32.

5 **Matrix view** – With low levels of zoom, touch on an area of the matrix to zoom in. With higher levels of zoom, touch on a cross-point to patch a source (**Patch button** disabled). A confirmation popup will appear if the **Confirm when reassigning** option is enabled. Touch on an active cross-point to unassign.

5.2 Outputs

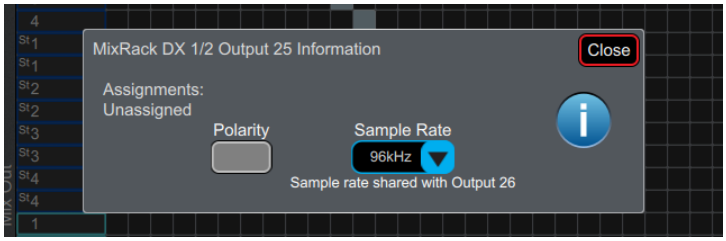
Patch Mixes, Direct Outs, RackExtra FX, RackUltra FX or PAFL (displayed on the left) to outputs (displayed on top).



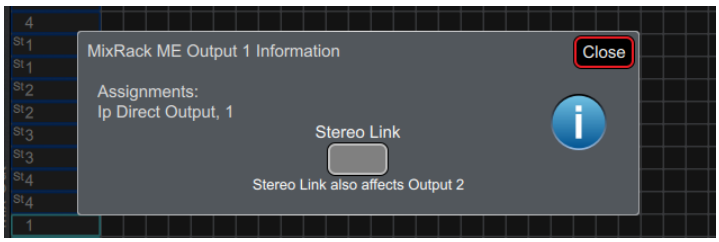
1 **Sources** – Channel names and colours are displayed. Touch a channel name or number to edit its name and colour.

2 **Destinations** – The output number is greyed out if already in use, or striped when the output is not available in the current system configuration.

Touch on a socket number to open a window with a list of current assignments and available controls for the socket.



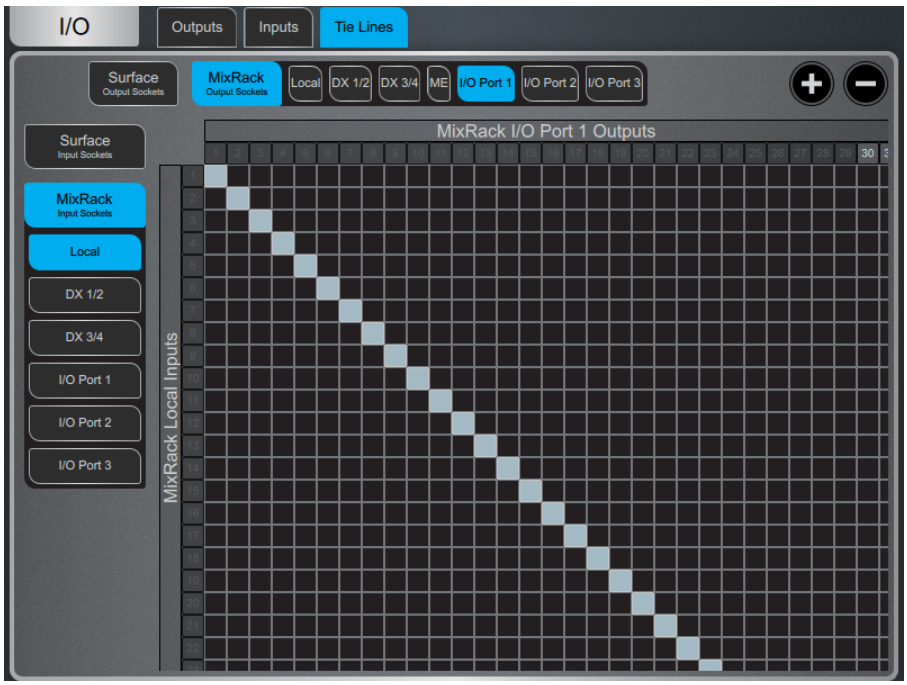
For example, touch on a DX32 digital output to access its Polarity and Sample Rate settings.



Touch on a ME output to access the Stereo Link option. When Stereo Linked, outputs to the Allen & Heath Personal Monitoring System will be recognised as a stereo pair and assigned to a single key on the ME-1 mixer.

5.3 Tie Lines

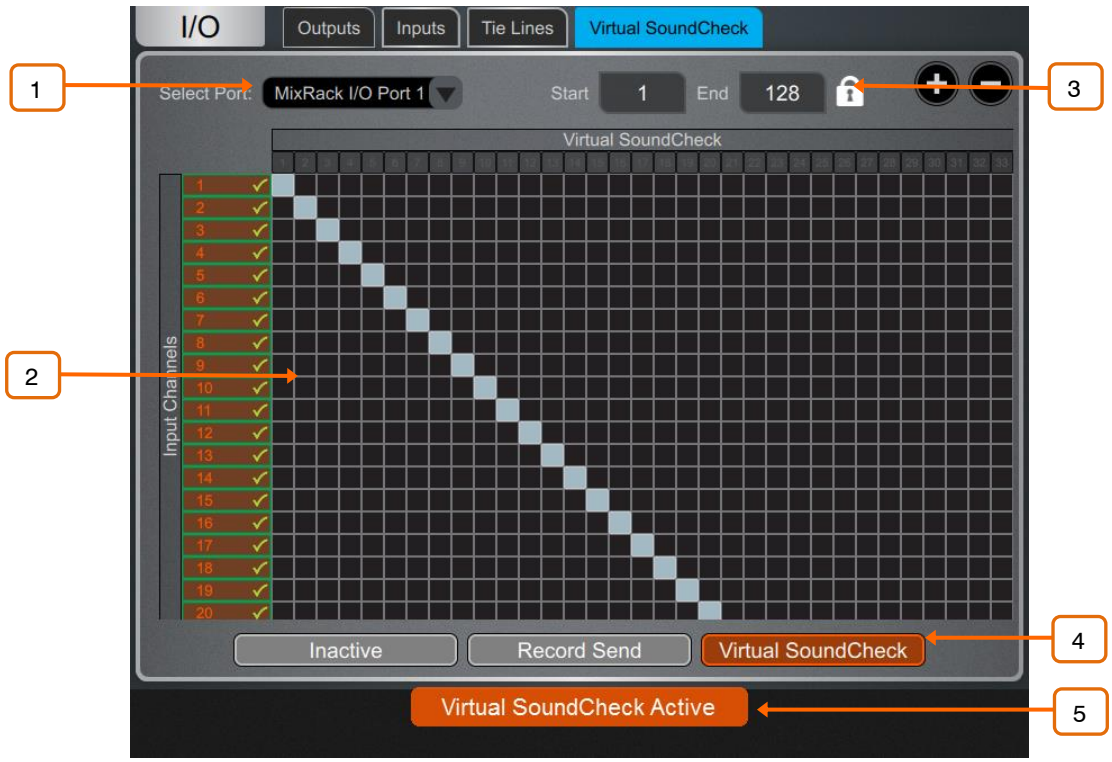
Use this page to patch any source (displayed on the left) directly to one or multiple destinations (displayed on top), without impacting on mix resources or bus configuration.



Digital Split using Tie Lines – In a digital split system (for example FoH and Monitors), it is typical to use the Tie Lines to send the Local inputs from a MixRack to an I/O Port and over to a second system, as pictured above. This method (as opposed to using channel Direct Outs) splits the signals straight after the preamp so they are unaffected by Digital Trim or Direct Out Source on the Master system.

5.4 Virtual SoundCheck

Use this page to configure and enable Virtual SoundCheck. The Record Send and Virtual SoundCheck modes are independent of Scene memories. This means you can patch analogue I/O, inserts and FX whilst in Virtual SoundCheck, with the peace of mind that these changes will stay in place when you exit Virtual SoundCheck. It also means that you can recall and store Scenes whilst in Virtual SoundCheck without the need to use Safes or Recall Filters.



1 **I/O Port** – Select the I/O Port to use with Virtual SoundCheck.

2 **Matrix View** – Patch the channels to the I/O Port. It is typical to leave this patch to 1:1 so that Inputs are straight from/to the same numbered I/O Port channel.

3 **Range** – You can limit the range of I/O Port channels dedicated to Virtual SoundCheck. This can be useful if the same I/O Port is used for other applications at the same time, for example for plugin processing or audio distribution. The range selection is locked when in Record Send or Virtual SoundCheck mode.

4 **Inactive** disables Virtual SoundCheck. The normal I/O patch is in use.

Record Send sends the pre-trim audio from the Input Channels to the I/O Port for multitrack recording purposes. This will temporarily override the normal output patch to the selected I/O Port, if different.

ⓘ The source point is always pre-trim (it doesn't follow the Input Direct Out source setting). For multitrack recording applications other than Virtual SoundCheck, where the recording of the processed channel is required, go to **I/O** / **Outputs** and patch Input Direct Outs instead.

Virtual SoundCheck sends audio from the I/O Port to the Input Channels in place of the live inputs, temporarily overriding the normal input patch.

5 **Virtual SoundCheck Active** – A message is displayed on screen to remind the user that Virtual SoundCheck is active. Touch the orange box in any other screen to go back to this screen.

A **Virtual SoundCheck** button will also appear in the **Processing** / **Preamp** screen. This allows you to disable Virtual SoundCheck on individual channels, for example to run a live mic alongside the recorded tracks.

6. Routing

The Routing screen lets you view and adjust sends, routing and assignments for the currently selected channel. It offers an alternative to using the dLive fader strips, **Mix** keys and **Assign** / **Pre** keys.

ⓘ For more information on using the fader strips on the Surface please refer to the dLive Surface Getting Started Guide available for download at www.allen-heath.com.



Input channels – Displays routing, assignments and Direct Out controls.

1 Sends are shown as a purple bar if post-fade, as a green bar if pre-fade. The bar is filled in if the channel is assigned to the Mix, the outline only is shown otherwise. **Group** assignments are shown as a purple dot.

2 Touch the drop-down menu to select the **Global Direct Output Source.** This setting affects all channel Direct Outputs and can be set to Post Preamp, Post LPF, Post Gate, Post Insert A Return, Post PEQ, Post Compressor, Post Insert B Return, Post Delay.

☼ Hold down **Setup** and touch anywhere in the Routing screen to access further options for the Direct Out including **Follow Fader**, **Follow Mute** and **Follow All (DCA/Mutes, Ch Fader/Mute)**

3 Scroll in this area or scroll / touch anywhere in the overview area to navigate the controls. Touch **On**/**Off** to toggle the channel assignment to the Main Mix, FX send, Aux, or Group. Touch **Pre**/**Post** to switch the FX or Aux send pre-fade or post-fade. Touch on a rotary control and use the screen rotary to adjust the send level or channel level to the Main mix. Touch on a Pan control and use the screen rotary to adjust the send Pan (stereo sends and Main mix only).

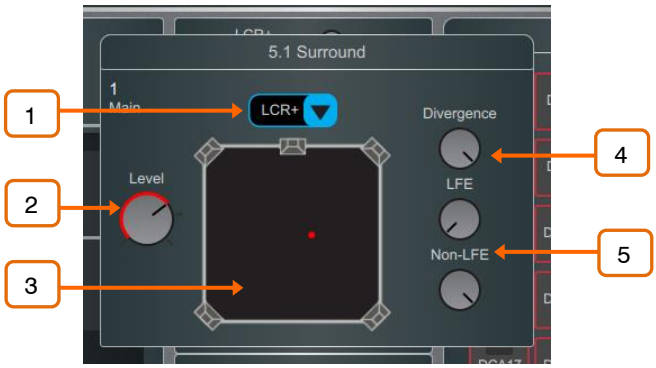
In 5.1 Main mode, a surround panning icon is displayed instead of the Pan control. Touch this icon to access surround panning and LFE level (see below).

In LCR+ Main mode, touch the Pan control to access LCR+ settings.

4 **DCA & Mute Group assignments** – Touch the **On**/**Off** buttons to toggle the channel assignment to the associated DCA or Mute Group.

5 **Direct Out** – Touch the control and use the screen rotary to adjust the Direct Out level. The current source point for the Direct Out is displayed in addition to whether the Direct Out is configured to follow DCA or Channel Faders and Mutes.

Touch the text area to open the Direct Out options including **Follow Fader**, **Follow Mute** and **Follow All (DCA/Mutes, Ch Fader/Mute)**



Surround panning – Access to 5.1 image, options and LFE level.

1 **Panning mode** – Touch the drop-down menu to select the panning mode for the selected channel with regards to the front triplet.

LR – The Pan control will affect the stereo image to L and R. No signal will be sent to C.

LCR – Each channel can be panned from left, through centre to right. At mid pan, full signal is fed to C and none to L and R. Stereo Inputs and FX Returns will be hard panned to LR.

LCR+ – The Pan control will affect the stereo image while the **Divergence** control will determine the amount of signal to C vs LR.

2 **Level** – This is the Main channel level.

3 **5.0 Panning** – Drag the red pointer to position the channel at any point in the 5.0 image.

4 **Divergence** – When the **Panning Mode** is set to LCR+, this control determines the amount of signal to C vs LR, given a fixed stereo image. For example, at mid pan and with the control fully clockwise (full Divergence), no signal is fed to C and the stereo image relies on LR only (the so called 'phantom centre'). At mid pan and with the control fully anti-clockwise (no Divergence), the signal is sent to C only.

5 **LFE** and **Non-LFE levels** – Use the **LFE** level to control the amount of signal sent to the Main LFE channel. Use the **Non-LFE** level to control the amount of signal sent to the Main 5.0 mix. This is always open by default but can be attenuated up to –inf for example for use with special LFE-only effects.



Surround panning – Access to 5.1 image, options and LFE level.

1 **Panning mode** – Touch the drop-down menu to select the panning mode for the selected channel. See above in the Surround Panning paragraph.

2 **Level and Pan** – This is the Main channel level.

3 **5.0 Panning** – Drag the red pointer to position the channel at any point in the 5.0 image.

4 **Divergence** – When the **Panning Mode** is set to LCR+, this control determines the amount of signal to C vs LR, given a fixed stereo image. For example, at mid pan and with the control fully clockwise (full Divergence), no signal is fed to C and the stereo image relies on LR only (the so called 'phantom centre'). At mid pan and with the control fully anti-clockwise (no Divergence), the signal is sent to C only.



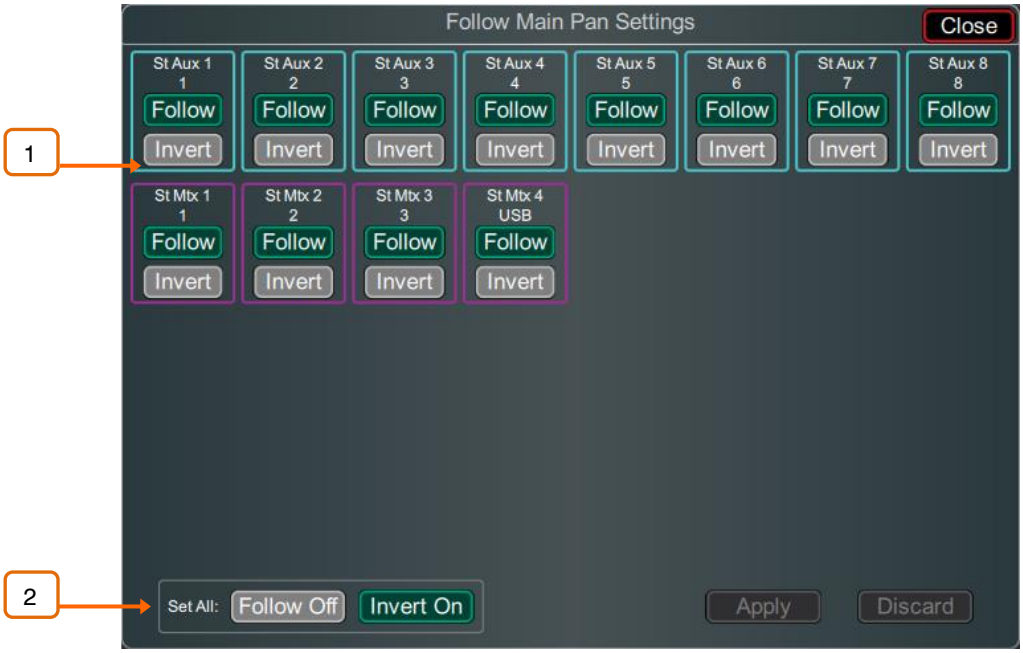
Aux, Main, Matrix and FX sends – Displays routing and assignments of Input channels, FX Returns and Groups to the selected Mix, as well as DCA and Mute Group assignments for the selected Mix.

1 **Mix Source** – The point within the channel signal path that feeds the selected Mix is set globally for each Mix using this drop-down menu. It can be set to Post Preamp, Post Insert A Return, Post PEQ, or Post Delay.

2 **Sends overview** – Sends from Inputs, FX Returns and Groups are shown as a purple bar if post-fade, as a green bar if pre-fade. The bar is filled in if the channel is assigned to the Mix, the outline only is shown otherwise. Use the tabs on top to display **Inputs**, **FX Returns** or **Groups**.

3 **Routing controls** – Scroll in this area or touch in the overview area to navigate the controls. Touch **On**/**Off** to toggle the channel assignment to the Mix. Touch **Pre**/**Post** to switch the channel send pre-fade or post-fade. Touch on a rotary control and use the screen rotary to adjust the channel send level. Touch on a Pan control and use the screen rotary to adjust the channel send Pan (stereo sends only).

4 **Follow Main Pan** – Touch this button to open the Follow Main Pan Settings.



1 **Follow / Invert** – Each stereo mix can have its own settings. When **Follow** is enabled, any changes to channel pans to the Mains (i.e. LR) will be followed by the send pans. When **Invert** is enabled, channel Main pans will be inverted to the stereo mix. If **Follow** and **Invert** are both enabled then channel Main pan settings will be followed and inverted to the stereo mix. Touch **Apply** to confirm changes or **Discard** to cancel changes.

2 **Set All** – Quickly enable or disable **Follow** and/or **Invert** on all stereo mixes. Touch **Apply** to confirm changes or **Discard** to cancel changes.



DCA and Groups – Displays channel assignments to the DCA or Group. Touch **On**/**Off** to toggle the channel assignment to the DCA or Group. Use the tabs on top to display different channel types.

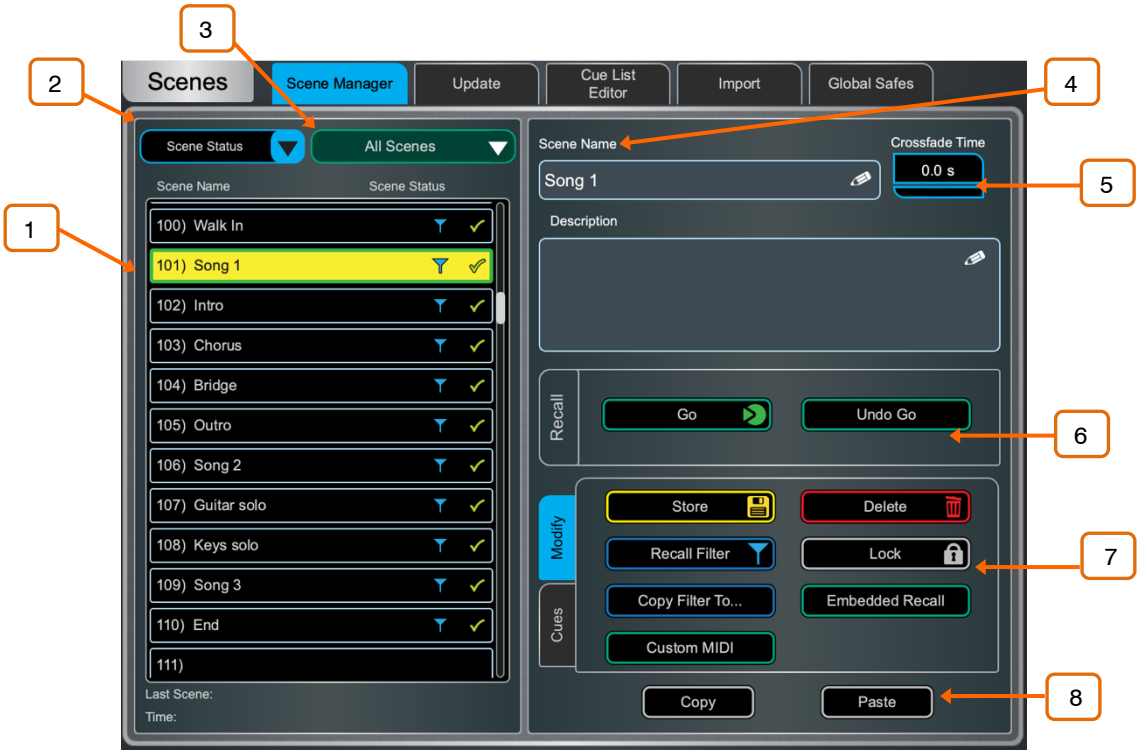
Hold down **Setup** and touch anywhere in the Routing screen to access the **DCA fader to 0dB** option. This forces the DCA level at 0dB.

7. Scenes

Use this screen to work with the dLive Scene memories. Up to 500 Scenes may be stored, and one or more Cue Lists can be created from the Scenes. Global Scene Safes and per Scene Recall Filters can be set to block certain parameters from recall.

7.1 Scene Manager

Gives access to the Scene list for editing or recalling.



1 **Scene list** – Displays the list of all 500 Scenes or the **Current Cue List**. The Scene highlighted in yellow is the currently selected Scene, and is displayed in the top left corner of the System screen. The Scene highlighted in green is the Next or 'Go' Scene, and is displayed in the top right corner of the System screen.

Swipe up/down or use the screen rotary to scroll, and touch in the list to select a Scene. Both the yellow and green indicators will move to confirm the selection. Note that the Next (green) Scene pointer can be moved independently from the currently selected Scene using the Surface **Prev** and **Next** keys.

Icons in the Scene list indicate the following:

A Scene is stored in this memory location.

This is the Last Recalled Scene, and is also displayed in the Home screen and under the Scene list.

Embedded Recall is set for this Scene.

A Crossfade Time is set for this Scene.

Recall Filters are set for this Scene.

The Scene is locked.

This scene is set to Skip Go and cannot be recalled by pressing Go.

ⓘ When more than one Surface or Director instance is connected to the system and Surface Roles are in use, the yellow scene selector and last recalled scene icon are Surface/Director specific.

2 The view dropdown can be used to display the Scene Status with the icon information above, or the MIDI strings used to recall a Scene via the MixRack or Surface.

3 Select the active Cue List, create a new Cue List or no Cue List (**All Scenes** list).

4 Touch the **Name** box to open the keypad and type in a name up to 14 characters long for the currently selected Scene. Touch the **Description** box to enter a note about the Scene.

5 Touch the **Crossfade Time** and use the screen rotary to set a crossfade time up to 20 seconds for the currently selected Scene. This time sets how long it takes for levels and pan to change from their current settings to the settings of the Scene being recalled. Crossfades affect Input faders and Pan, Mix faders, DCA faders, send levels and Pan.

When a scene with a Crossfade Time is recalled, the scene name will show a progress bar for the duration of the crossfade.



ⓘ Crossfades affect the audio levels, however the faders on the Surface will move instantly to their new position. Manually moving a fader during a crossfade will overwrite the crossfade for the associated channel.

6 **Recall** – Touch **Go** or press the Surface **Go** key to recall the Next (green) Scene. This overwrites current settings with those stored in the Scene being recalled. Touch **Undo Go** or hold down the **Reset** key and press the **Go** key on the Surface to restore the settings prior to a Scene recall.

ⓘ In a Multi-Surface system, **Undo Go** is Surface specific.

7 Modify / Cues tab

All these functions affect the currently selected (yellow) Scene or Cue.

Within the **Modify** tab:

Touch **Store** or press the Surface **Store** key to store current settings to the Scene.

To undo a Store Scene, hold down the Surface **Reset** key and press the Surface or TouchScreen **Store** button.

ⓘ Store Undo will undo the last store on the Surface or Director session it is triggered from. It will not undo a Store Scene made by another Surface/Director session.

ⓘ Press the Surface **New** key to store current parameters to the next available (empty) memory location.

Touch **Delete** to clear the name, content and Recall Filter of the Scene.

Touch **Recall Filter** to view and edit the Recall Filter settings for the Scene (see below).

Touch the **Lock** button to lock the Scene from any edit or accidental changes.

Touch **Copy Filter To…** to copy the current Recall Filter settings to either a single scene, a range of scenes or all scenes.

You can automate the recall of one or more other Scenes from the same or a different unit when you recall a Scene. Touch **Embedded Recall** to open the Embedded Recall settings for the Scene (see below).

Custom MIDI strings can be broadcast over TCP/IP when recalling Scenes. Touch **Custom MIDI** to enter the MIDI string in hexadecimal format. The string is sent on

recall in addition to the standard MIDI string as defined in the dLive MIDI TCP/IP Protocol.

When working in a Cue List, additional options become available within the **Cues** tab:



Touch **Store** or press the Surface **Store** key to store current settings to the Scene.

Remove will take the currently selected Cue out of the current Cue List but will not delete the underlying Scene. The Scene will still be available in the "All Scenes" list and in other Cue Lists.

Add New stores current settings in an empty Scene memory and inserts the Scene to the current position in the Cue List.

Add Spacer inserts a space in the Cue List below the currently selected Cue.

Skip Go protects the currently selected Scene from being recalled by pressing Go (it can still be recalled via Softkey or MIDI).

Indent moves the currently selected Scene to a single or double indent.

Auto Number numbers all Cues in the Cue list starting at 1. Indented Cues will have a decimal point per level of indentation. It does not affect the underlying Scene number in the All Scenes list.

Auto Indent adjusts indents according to the number of decimal points in the Cue number, and respects the indent of the previous Cue when adding a new Scene.



Scenes view with additional Cue Options in use.

8 Touch **Copy** to copy the content and Recall Filter of the currently selected (yellow) Scene. Touch the Scene you wish to copy to and touch the **Paste** button to paste. Scene names and descriptions are not copied.

Hold down **Setup** and touch anywhere in the Scene Manager screen to access several Scene management preferences:

Scene Overwrite Confirmation displays a confirmation pop-up on Scene Store and when using the Scene Manager page. A confirmation pop-up is always displayed on Scene Delete.

Scene Recall Confirmation displays a confirmation pop-up on Scene Recall. A confirmation pop-up is always displayed on Scene Delete.

Display Last Recalled displays the Last Recalled Scene in blue in the top left corner of the screen, instead of the currently Selected Scene.

Disable Surface Controls locks the Scene area of controls on the dLive Surface, to prevent accidental operation.

Auto Store automatically stores current settings to the Last Recalled Scene whenever a Scene is recalled. It is typically used during soundcheck or rehearsals to automatically save all changes to a Scene before recalling a different one.

ⓘ Auto Store affects the Last Recalled Scene as displayed in the Home screen, this is not necessarily the currently selected (yellow) Scene.

ⓘ In a Multi-Surface system, Auto Store is Surface specific.

Track Embedded moves the Current (yellow) pointer to the Last Recalled Scene when Embedded Recalls are set.

Auto Increment moves the Next (green) pointer to the next available Scene in the list whenever a Scene is recalled, so that the Next Scene is always the Current Scene + 1. It allows recalling multiple sequential Scenes quickly with a single button press.

Go on Touch lets you recall a Scene simply by touching its location in the Scene list and Scene widget. The currently selected Scene is highlighted in orange in this mode.

ⓘ No confirmation pop-up is displayed when Go on Touch is active. Use this option with care!

Full Screen Safes & Filters displays the Recall, Global & Role Safes across the entire screen when enabled.

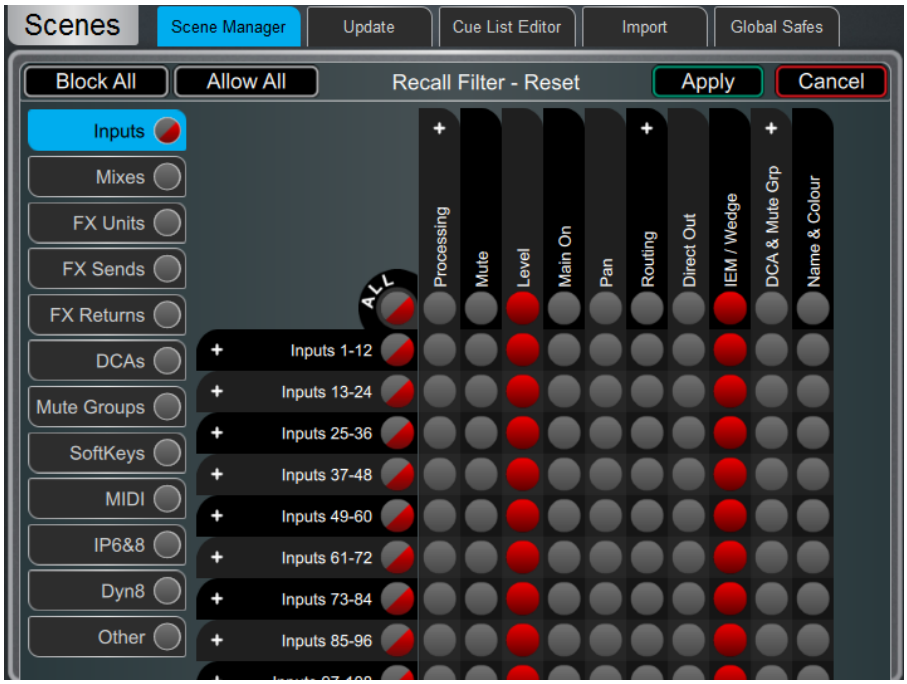
Surface Selected Scene Follows External Recalls will cause Scenes recalled via MIDI to update the Scene / Cue list pointers as if those Scenes were recalled on the Surface.

Display MIDI Recall String As Hex will show the MIDI recall string as hexadecimal instead of decimal when “Surface MIDI” or “MixRack MIDI” are selected in the view dropdown menu.

MixRack Startup Scene lets you specify a Scene which will be recalled every time the MixRack boots up, for example for automatic reset in a fixed installation setting.

7.2 Recall Filters

A Recall Filter prevents certain channels or parameters being overwritten by the Scene recall. It only affects the Scene it is associated with.



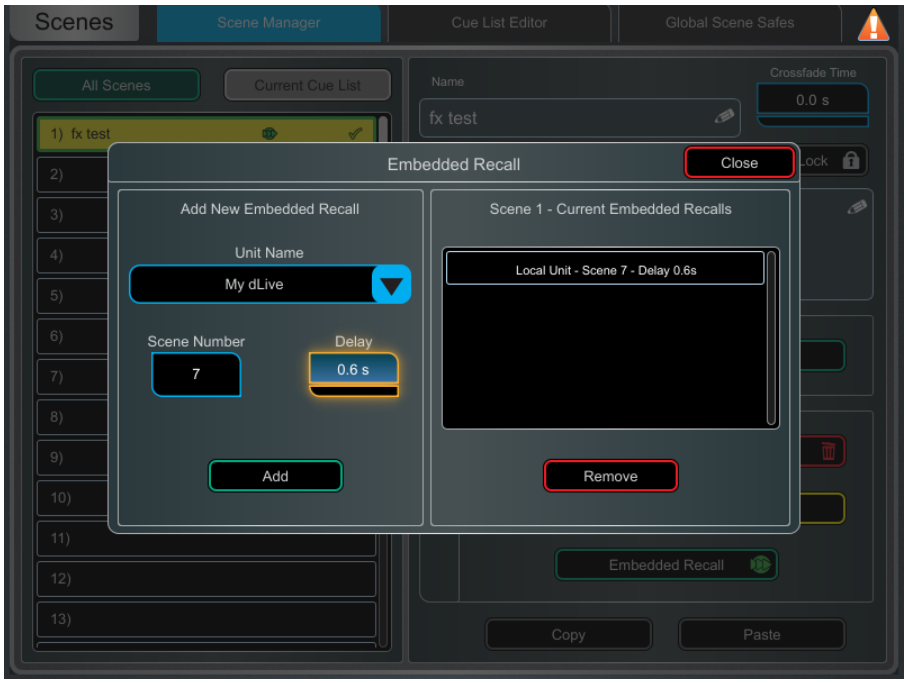
Use the tabs on the left to view the different parameter groups. Pinch/unpinch to zoom in and out of the matrix view. Swipe up/down or left/right to navigate through the matrix. Touch an item to toggle. Allowed items will be recalled, Blocked items will not.

Touch a parameter label on top of the table to toggle one parameter for all channels. Touch a channel label on left to toggle all parameters for one channel. Touch **All** to toggle all items in the current tab, or touch **Block All** or **Allow All** to affect all items in all tabs.

ⓘ Scene recall filters can be copied and pasted from the Scene Manager window – see Section 7.1 for details.

7.3 Embedded Recall

You can automate the recall of one or more other Scenes from the same or a different unit when you recall a Scene. A delay time can be set for each embedded Scene within the host Scene.



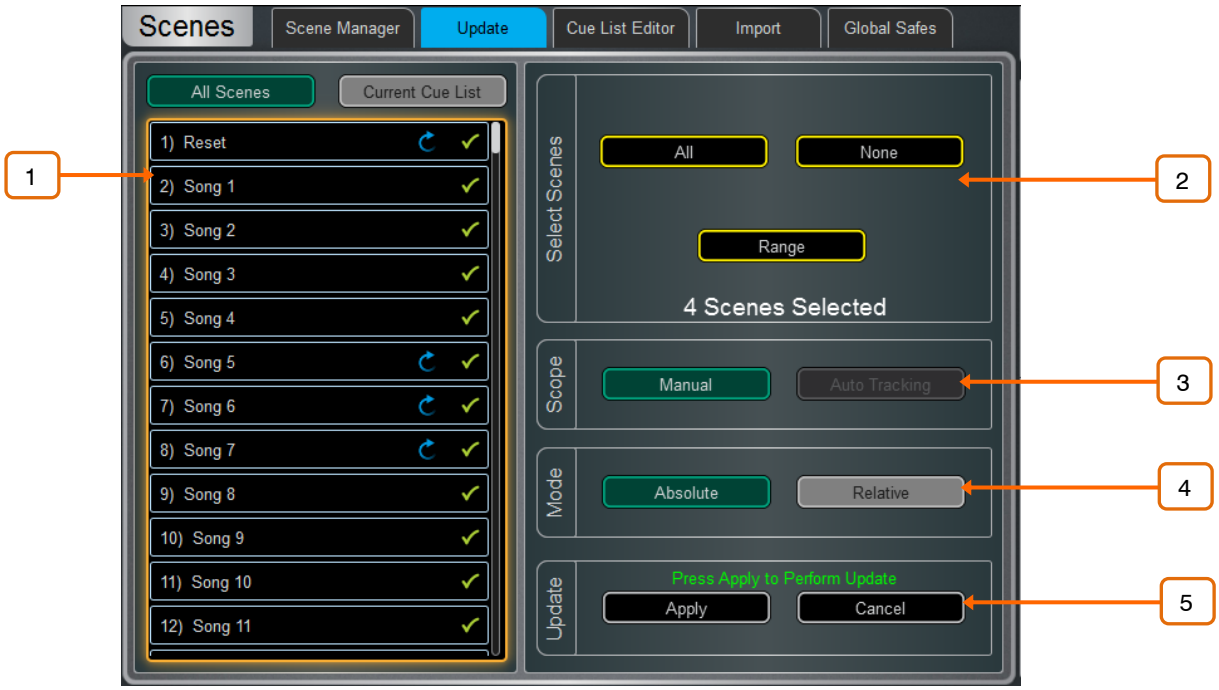
Select the target unit or system from the **Unit Name** drop-down. All compatible Allen & Heath units found on the dLive network are listed here. Select 'My dLive' to automate Scenes on the local system.

Set the **Scene Number** to select the Scene you wish to embed. Its name is displayed below the box. Set the **Delay** time for the embedded Scene recall. This is the time the system waits before recalling the Scene after you have recalled the host Scene. Time can be set from 0 sec (instant) to 4 minutes. Touch **Add** to add the Scene to the list on the right.

The list shows the embedded Scenes together with associated units and delay times. Select one and touch **Remove** to remove from the list.

7.4 Update

Update parameters in one or multiple scenes.



1 **Scene List** – Touch to select the Scene(s) to be included in the update. Any number and combination of Scenes can be selected from this list.

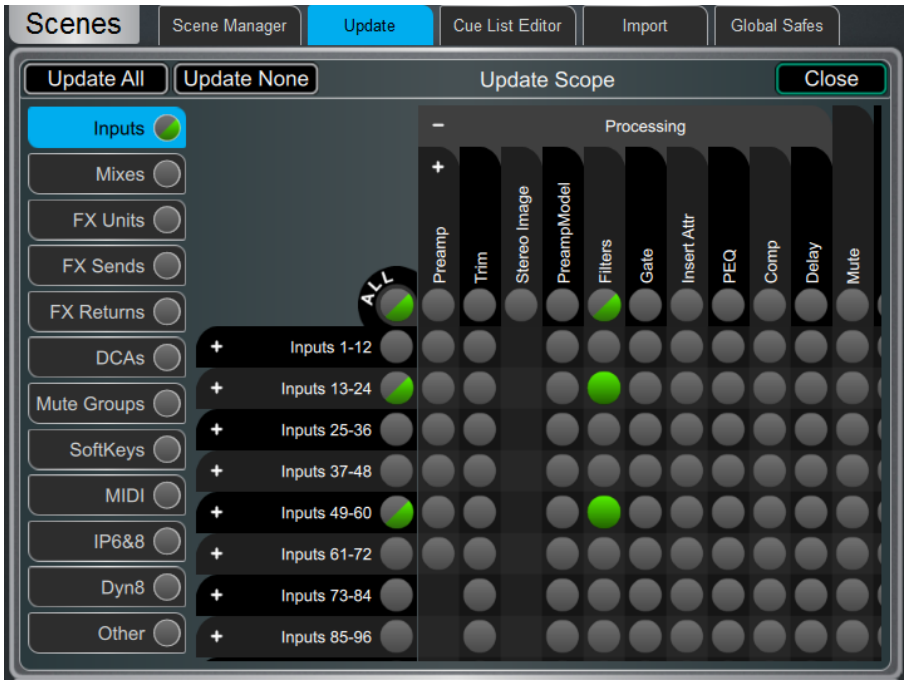
A Scene is stored in this memory location.

This scene will be included in the update – touch to toggle.

2 **Select Scenes** – Quick options to select **All**, **None** or a **Range** of scenes.

3 **Scope** – Select one of the following options:

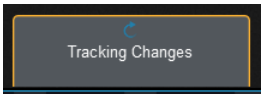
Manual – Touch to open the **Update Scope** matrix and manually select which parameters to include in the update.



Use the tabs on the left to view the different parameter groups. Pinch/unpinch to zoom in and out of the matrix view. Swipe up/down or left/right to navigate through the matrix. Touch an item to toggle. Items highlighted in green will be updated, all other items will be ignored. Touch the + and – symbols to show and hide nested parameters.

Touch a parameter label on top of the table to toggle one parameter for all channels. Touch a channel label on left to toggle all parameters for one channel. Touch **Update All** to select all items, or touch **Update None** to deselect all items.

Auto Tracking – This option tracks all parameter changes made by the user. After making the desired changes to parameters you can Apply these changes to the selected scene(s).



This pop-up indicates the system is in Auto Tracking mode and parameter changes are being recorded. Touch the pop-up at any time to return to the Update page and **Apply** or **Cancel** the changes

4 **Mode** – Select the update mode:

Absolute - Overwrites the target parameters in the selected scene(s) with the current values.

Use Absolute mode to change a parameter in multiple scenes ***to*** a fixed value *Example*: Change IP1 fader level to 0dB in all scenes.

Relative - Changes to level parameters (Gain/Fader/Send/Master) are applied relatively to the selected parameters in the target scene(s).

Use Relative mode to change a parameter in multiple scenes ***by*** a fixed value *Example*: Increase IP1 fader level by +3dB in all scenes.

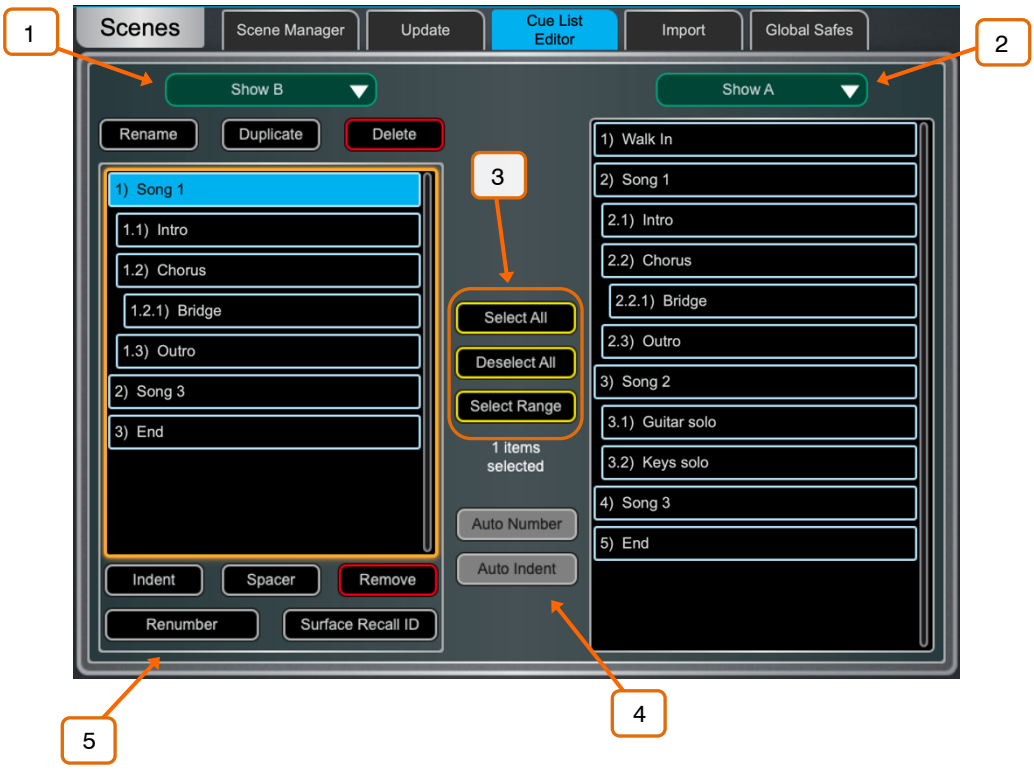
ⓘ Non-level parameter changes in Relative mode will be applied Absolutely to the target scene(s).

ⓘ When performing a Manual-Relative update, only parameters that have changed since the last scene recall will be applied to the target scene(s).

5 **Update** – Select **Apply** to update the selected parameter(s) in the target Scene(s). Press **Cancel** to discard the update.

7.5 Cue List Editor

A Cue List is a custom list of Scenes selected from the list of available Scenes. Cue Lists are stored in the Show file.



1 By default, the left-hand side will show the active Cue List. Use the dropdown to choose a different Cue List or create a new Cue List. This will *not* change the active Cue List in the Scene Manager.

Options to **Rename, Duplicate** and **Delete** the Cue List can be found here.

2 Use the dropdown to choose a different Cue List for the right-hand side or see the All Scenes list.

3 The selection controls can be used to select one or many Cues at once. **Select All** and **Deselect All** will affect the Cue List that is in focus. At any one time, either the left-hand or right-hand Cue List will be in focus as indicated by an orange glow.

To select a range of Cues touch **Select Range** followed by the first Cue in the range you like to select, followed by the last Cue.

With one or many Cues selected, you can drag to reposition those Cues within their Cue list, or drag between the two visible Cue Lists, or remove in bulk.

ⓘ Scenes in the All Scenes list can be bulk selected and used in Cue Lists but not repositioned within the Scenes List.

4 **Auto Number** numbers all Cues in the Cue List starting at 1. Indented cues will have a decimal point per level of indentation. **Auto Indent** creates indents according to the number of decimal points in the Cue number and respects indentation of the source Cue List.

5 **Renumber** can be used to update numbering of a range of Cues, withoptions for starting at any number and respecting the existing Indents of the cues**. Surface Recall ID** opens a window for custom configuration of MIDI Program Change messages to recall each Cue in the Cue List.

ⓘ Surface Recall IDs messages must be sent to the dLive Surface, not MixRack. Download the latest version of the A&H MIDI Control driver from www.allen-heath.com.



Touch the grey **Recall ID** box to manually set a Recall ID for a specific Cue, or **Quick Number** to set all Recall IDs in numerical order starting at 0.

Renumber Range updates Recall IDs in bulk. Touch the first Cue in the range you like to update followed by the final Cue in the range, select a start Recall ID and increment number, and press **Apply** or **Cancel**.

ⓘ For further information please refer to the **dLive MIDI over TCP/IP Protocol** document at www.allen-heath.com.

.

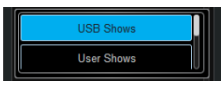
7.6 Scene Import

Scene Import allows the user to import one or more Scenes from an existing Show into the current Show. This might be useful for example in festival situations where Scenes from a guest engineer's Show are imported into the current Show - without any audio interruption - and then filtered as required.



1 **Local Scenes** – A list of scenes in the currently loaded Show. Swipe to scroll through the list.

2 **Select Show** – Touch to select the Show that contains the scene(s) you wish to import.

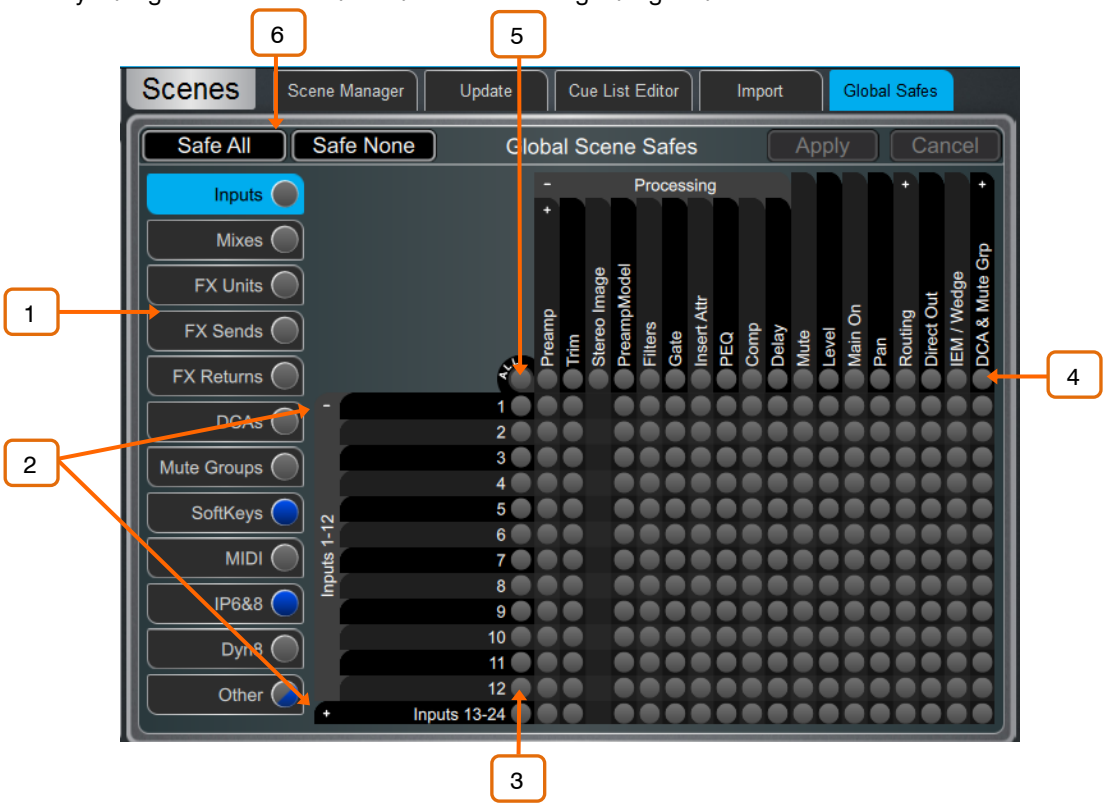


Click on the dropdown menu to toggle between Show locations – USB or User.

3 **Selected Show** – A list of scenes in the show you wish to import from. Drag and drop scenes from this column into the Local Scenes column to import them into your show.

7.7 Global Scene Safes

Scene Safes prevent certain channels or parameters being overwritten by a Scene recall. Contrary to the Recall Filters, this setting is global, affecting ANY Scene recall. It is typical for certain settings such as SoftKeys assignments to be made Safe so their settings are global within the Show.



Pinch/unpinch to zoom in and out of the matrix view. Swipe up/down or left/right to navigate through the table. Touch an item to toggle its state.

Safe items (highlighted in blue) will not be recalled.

1 Use the tabs on the left to view the different parameter groups.

2 Touch the + and – symbols to show and hide nested parameters.

3 Touch a channel label on left to toggle all parameters for one channel.

4 Touch a parameter label on top of the table to toggle one parameter for all channels.

5 Touch **All** to toggle all items in the current tab,

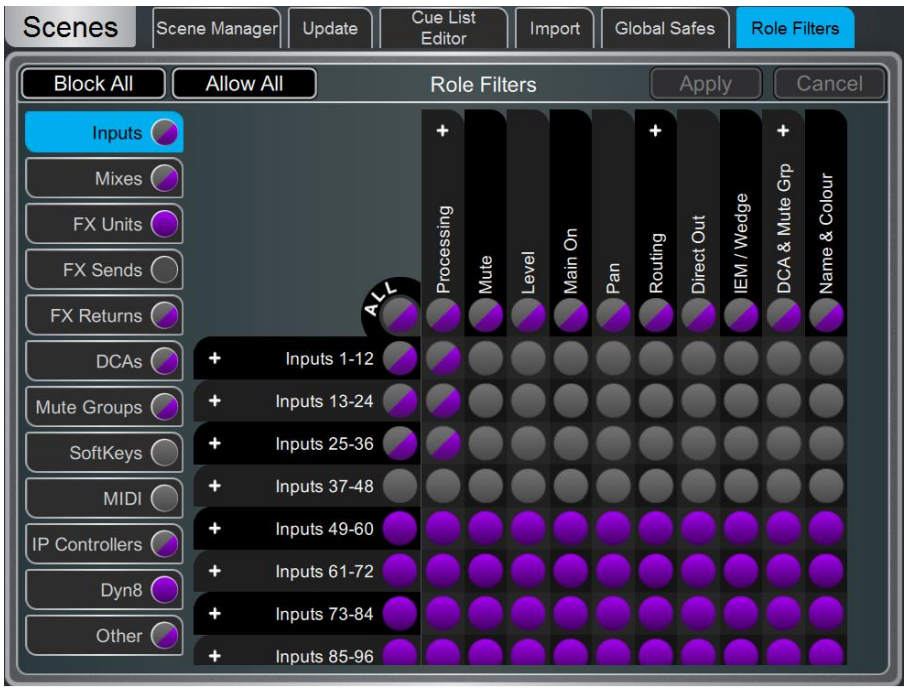
6 **Safe All** or **Safe None** to affect all items in all tabs.

A blue dot lights in a screen tab when one or more items have been safed in that tab.

7.8 Role Filters

A Role Filter prevents certain channels or parameters being overwritten by any Scene recall. It only affects the Role it is associated with, so that channels, mixes, FX and other settings used by another engineer are not affected by Scene recall on the local Surface. It is typical to set opposite Role Filters on two Surfaces in Multi-Surface mode. For example, if Inputs 1-64 are used at FoH, they would be blocked on the Role Filters for the Monitor Surface, and Inputs 65-128 would be blocked by the Role Filters on the FoH Surface. The same would apply to all other settings. See the Multi-Surface FOH/MON template show for an example of this configuration.

ⓘ See the section on Surface Preferences for information on creating Roles



Use the tabs on the left to view the different parameter groups. Pinch/unpinch to zoom in and out of the matrix view. Swipe up/down or left/right to navigate through the matrix. Touch an item to toggle. Allowed items will be recalled, Blocked items will not.

Touch a parameter label on top of the table to toggle one parameter for all channels. Touch a channel label on left to toggle all parameters for one channel. Touch **All** to toggle all items in the current tab, or touch **Block All** or **Allow All** to affect all items in all tabs.

ⓘ Note that multiple Surfaces and Director instances on the same MixRack will always share the MixRack settings, including processing and mixing. In a Multi-Surface setup, make sure the Role Filters are set such that settings are split between the Surfaces. This avoids accidental recall of settings affecting channels or mixes operated by the remote Surface(s).

8. Ganging

Use this screen to create and edit up to 16 Gang groups. A Gang links all or a selection of processing and routing parameters for two or more channels or mixes of the same type. The channels or mixes in a Gang are known as 'Members'. The parameters are known as 'Attributes'.

Ganging provides absolute, not relative control.

ⓘ Gang settings follow Scene automation. You can 'safe' Gang settings from being overwritten using the **Scenes / Global Scene Safes** page.



1 Touch one of the 16 Gang tabs at the top of the screen to create or edit a Gang group. A Gang with channels already assigned highlights yellow.

2 **Members** – Select either the Input (Ip) or Mix tab. Touch the channels you wish to gang or ungang. A channel or Mix can only belong to one Gang.

3 **Attributes** – Touch the parameters you wish to link. Adding the Routing attribute links the sends and assignments from the ganged channels. Touch **Apply** to confirm the changes.

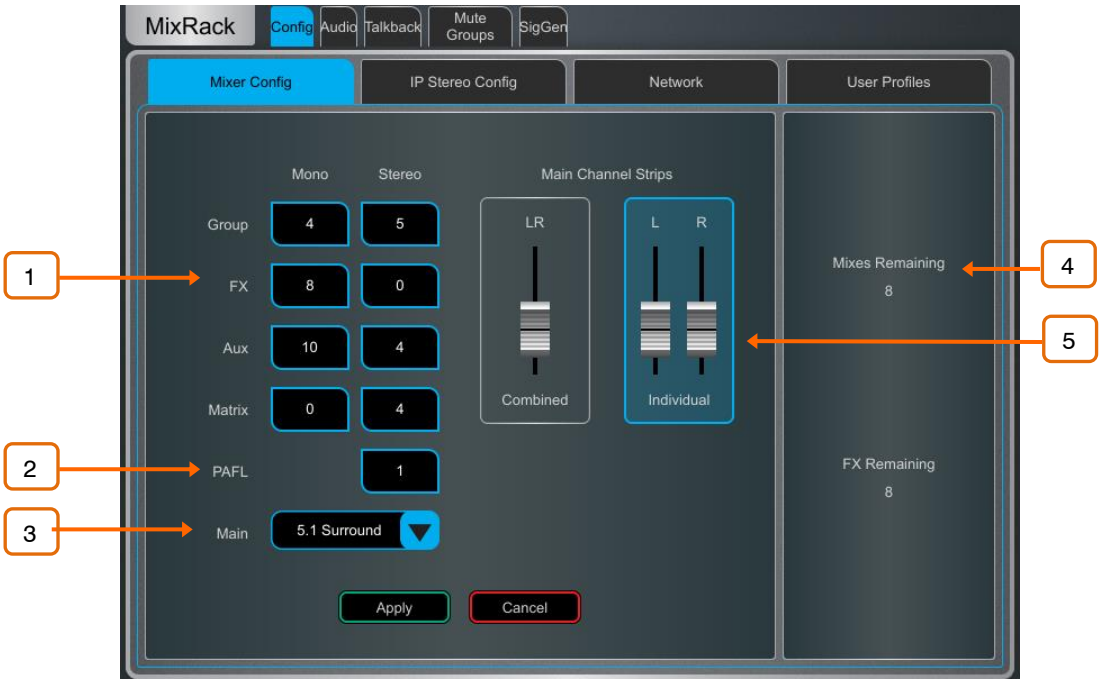
ⓘ Preamp Gain cannot be ganged. You can set Gain controls to a nominal level, then gang the Trim controls and use to make input level adjustments while mixing. Alternatively, configure a Stereo Input in **MixRack / Config / IP Stereo Config** to permanently link two Input channels and their preamps within the current Show.

9. MixRack Setup

These pages give access to the mixer bus configuration, Input stereo configuration, network settings, audio settings and User Profiles.

9.1 Config / Mixer Config

Use this page to reconfigure the architecture of the 64 Mix busses available.



1 **Bus configuration** – Touch a box and use the screen rotary to set the number of mono / stereo Groups, RackExtra FX sends, Aux sends and Matrix outputs. You can choose any combination, but mono busses can only be added / removed in pairs.

ⓘ The 8 Stereo RackUltra FX send busses are always available, in addition to the 64 configurable busses, on dLive systems fitted with the RackUltra FX card. They do not require adding in the Mixer Config.

2 **PAFL** – Touch and use the screen rotary to set the number of stereo PAFL busses. Set to 1 for a typical standalone system. Extra PAFL busses can be useful when multiple operators are sharing the same dLive system. For example, an engineer mixing FoH on the Surface, and a second engineer mixing Monitors on a laptop or additional Surface.

3 **Main** – Select one of 5 modes of Main mix:

None - No Main mix, for example dedicated monitor mixing with a large number of Aux mixes.

LR - Standard stereo Main mix.

LR+Msum - A stereo Main mix with additional output which is the mono sum of the pre-fade, pre-processed LR mix. For example to feed a mono delay speaker or zone.

LR+M - A 3-way main mix with independent stereo LR and mono M busses. Channels can be separately assigned to any combination of LR and M. Typical application for M is main centre speaker, mono PA or bus-fed sub bass.

LCR – A 3-way main mix with LCR panning. Each channel can be panned from left, through centre to right. At mid pan, full signal is fed to M and none to L and R. Stereo channels feed the LR mix only.

LCR+ - A 3-way LCR main mix with two controls to position the sound. Pan balances between L and R, and Divergence blends the signal between C and LR.

5.1 Surround – Multichannel 5.1 output. Each channel can be set to LR, LCR or LCR+ panning with regards to the front triplet. When in this mode, an on-screen surround panning widget is displayed in the **Routing** screen.

4 Displays the number of busses and RackExtra FX sends remaining and warns if you exceed the maximum.

5 **Main Fader Strips** – The Main LR mix can be presented on the Surface as a single, **Combined** fader strip or as two **Individual** fader strips. When ganged, all processing for LR including delays is linked. A Balance control is provided to adjust the relative Left and Right level. The option will also affect the Main surround channels sL and sR.

Press **Apply** to confirm the changes. All current settings other than the bus configuration will stay in place.

ⓘ Mix Config reassigns the bus architecture and resets mix parameters. These changes if needed should be done before, not during a show.

9.2 Config / IP Stereo Config

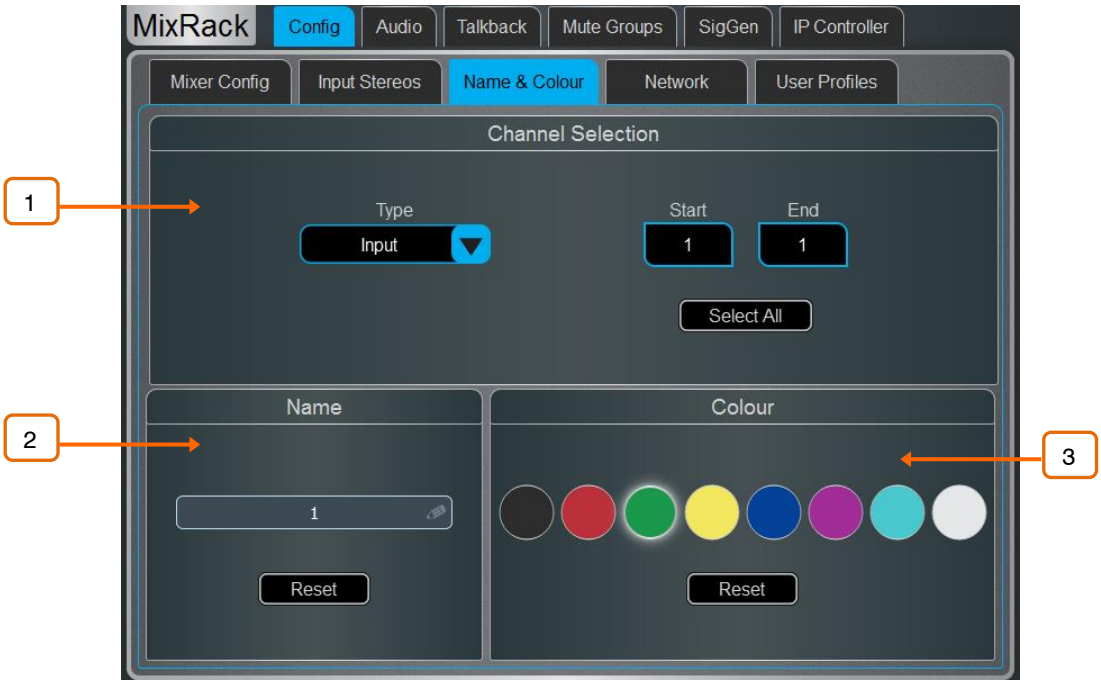
Displays the current mono/stereo configuration of the 128 Input channels. Stereo channels are highlighted in green. Touch the buttons to change the configuration and press **Apply** to confirm. Stereo channels use a single fader strip and all their processing controls are linked.



ⓘ This is intended for permanently configuring channels as stereo inputs, for example music players. Use the **Ganging** screen for on-the-fly linking of stereo sources while mixing live.

9.3 Config / Name & Colour

Use this page to change or reset the name and colour of a range of channels. Name and colour for individual channels can be edited from the Processing Screen.



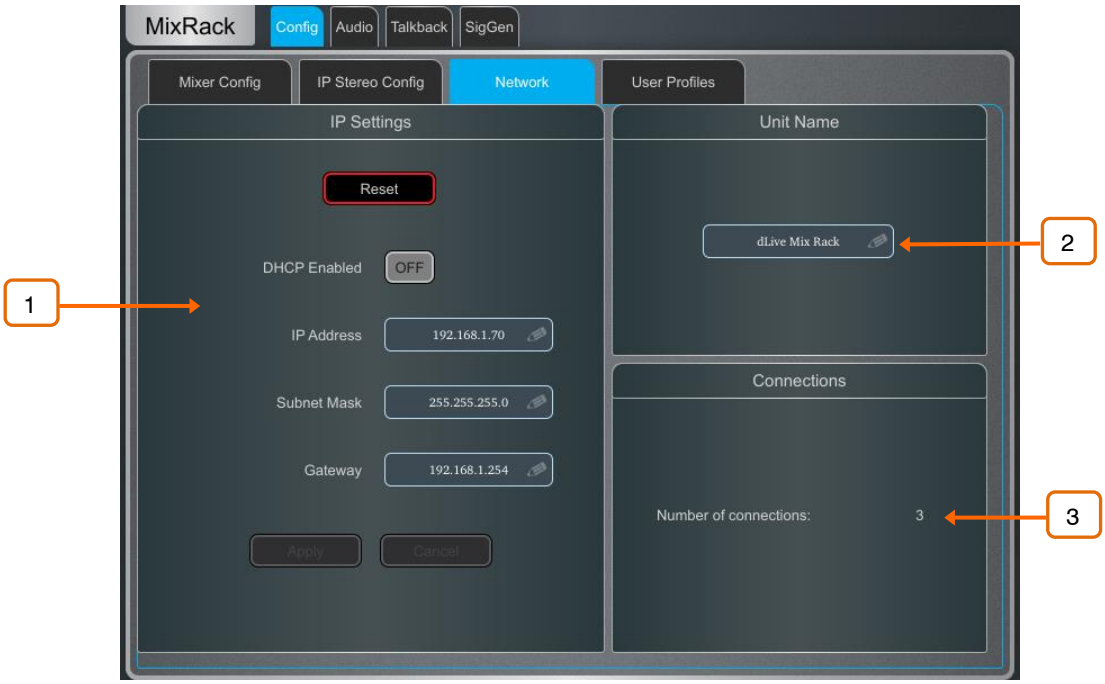
1 **Channel Selection** - Set the channel **Type** from the drop-down menu. Touch **Select All** or set the **Start** and **End** to select a range of channels.

2 **Name** – Press **Reset** to restore the default channel names to the selected range. Touch the name box to edit the name when a single channel is selected.

3 **Colour** – Touch a colour to change or press **Reset** to restore the default channel colours to the selected range.

9.4 Config / Network

Use this page to configure the IP Address and Unit Name to identify the MixRack on the network.



1 **IP Settings** – To set a static IP Address, touch the **IP Address** box and type in the address. Make sure the Subnet Mask and Gateway are valid, and all devices on the network including Wi-Fi routers, access points or laptops have unique but compatible addresses.

The default MixRack IP Address is 192.168.1.70 with Subnet Mask 255.255.255.0 and Gateway 192.168.1.254. You can restore these defaults by touching the **Reset** button.

Enable **DHCP** to allocate an IP Address to the MixRack by a network DHCP server, for example a Wi-Fi router.

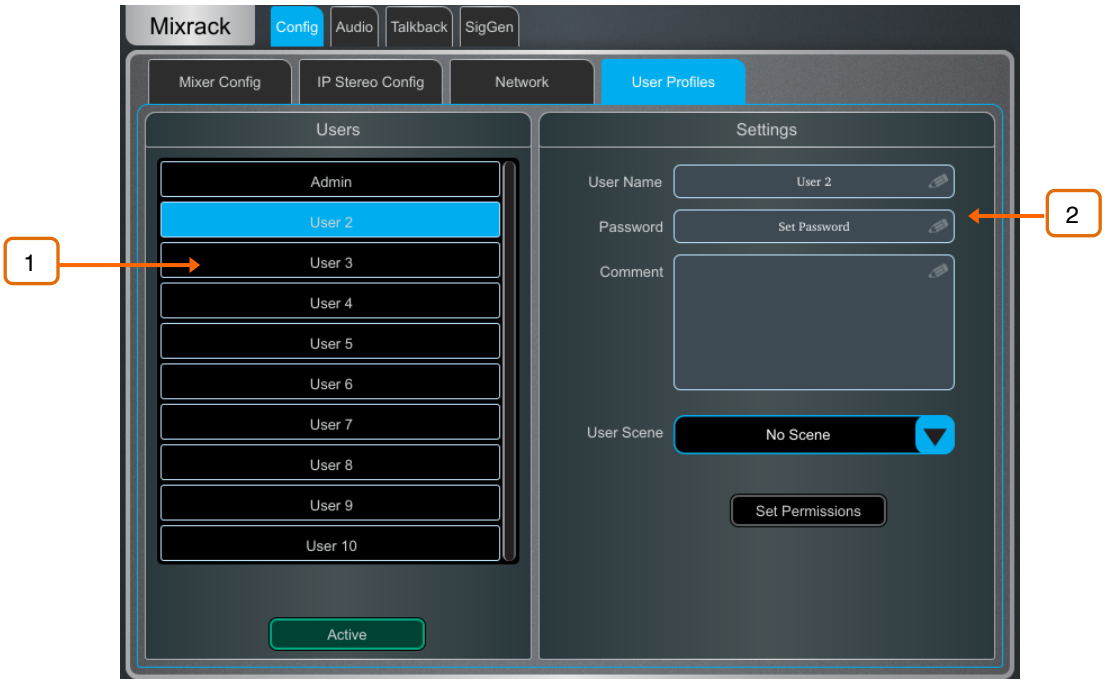
ⓘ Only use DHCP when a DHCP server is connected to the MixRack. If DHCP is enabled and the MixRack is powered up while no server is present, it can take longer than usual for the system to boot.

2 **Unit Name** – A name with up to 16 characters can be set to identify the MixRack on the network. The default is 'dLive Mix Rack'.

3 **Connections** – Displays the number of active network connections to the MixRack. The Surface and touchscreens count as one connection each.

9.5 Config / User Profiles

Up to 10 User Profiles including an Administrator can be set to restrict operator access and protect selected functions.



1 **Users** – The Admin user has access to all functions and can set permissions and allocate passwords if required for the other users. The password, if one is set, is required when the User logs in, changes User or locks / unlocks the dLive Surface. Icons in the list indicate if a password is set and if the User is active.

Touch a User to edit its profile. Touch **Active** to enable this User in the **Home** / **User Login** screen.

2 **Settings** – Touch the **User Name** box to enter a name up to 16 characters. Touch the **Password** box to set or change a password up to 16 characters. Touch the **Comment** box to enter an additional note.

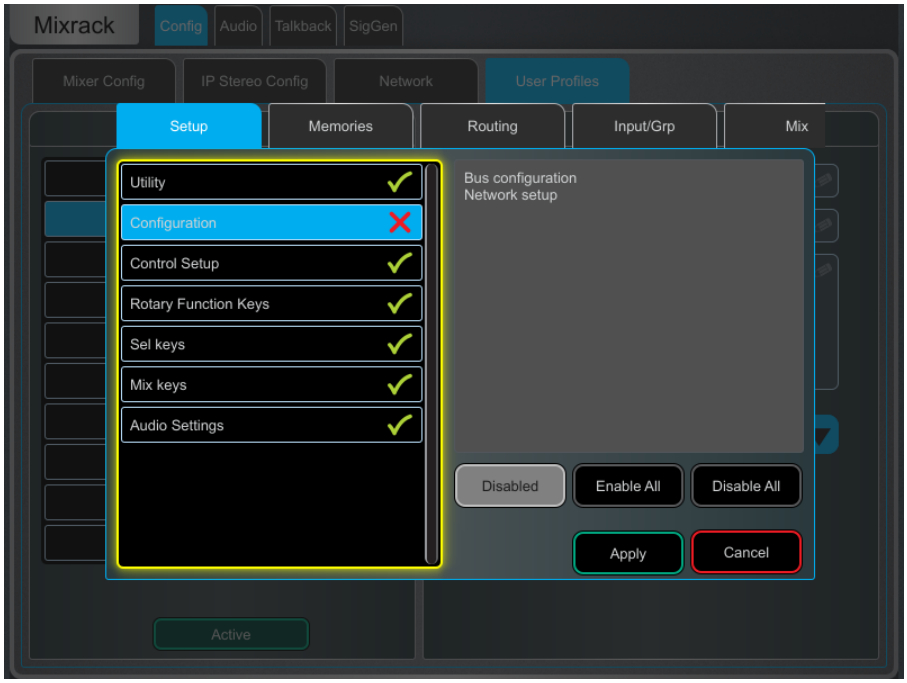
Touch the **User Scene** drop-down to select a Scene to recall automatically when the User logs in. This will overwrite current settings. A User Scene can ensure that the mixer is restored to a known starting point for the User.

ⓘ The User Scene only recalls when the User is changed. It does not recall when the same User logs in or the system is powered up without changing User.

Press **Set Permissions** to open the Permissions window (see below).

ⓘ User Profiles are stored in the dLive MixRack. They are not stored in Show memories.

ⓘ dLive MixPad sessions will follow the User Permissions of the User logged in on the iPad.



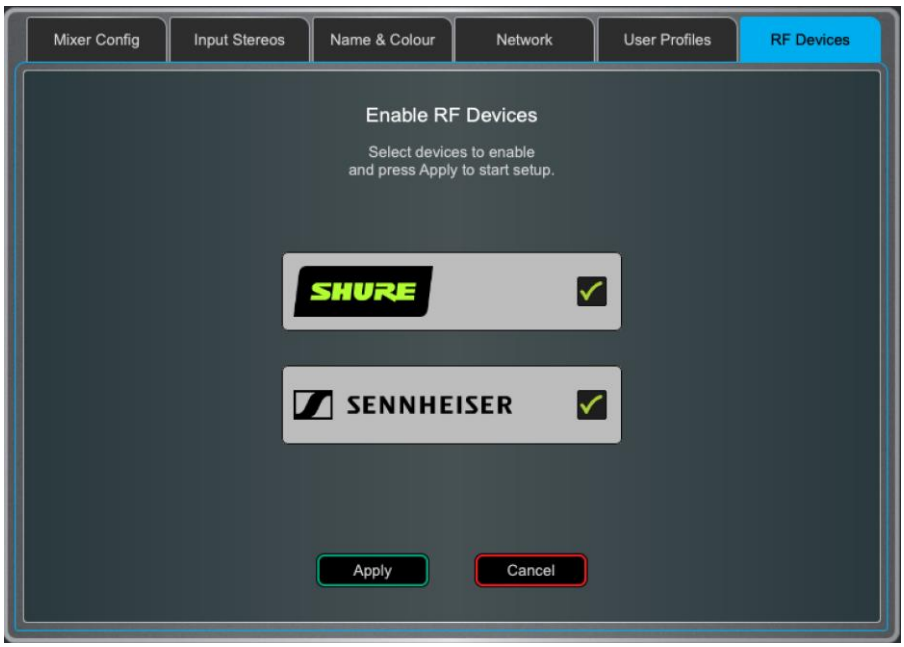
User permissions – Each User can have their own set of Permissions applied. Use the tabs across the top of the window to view and set different groups of permissions. Select an item in the list and toggle the **Enabled**/**Disabled** button as required. The window on the right provides a description of the functions included in the currently selected item. Use the **Enable All** / **Disable All** buttons to quickly toggle all items in the currently open tab. Touch **Apply** to accept the changes.

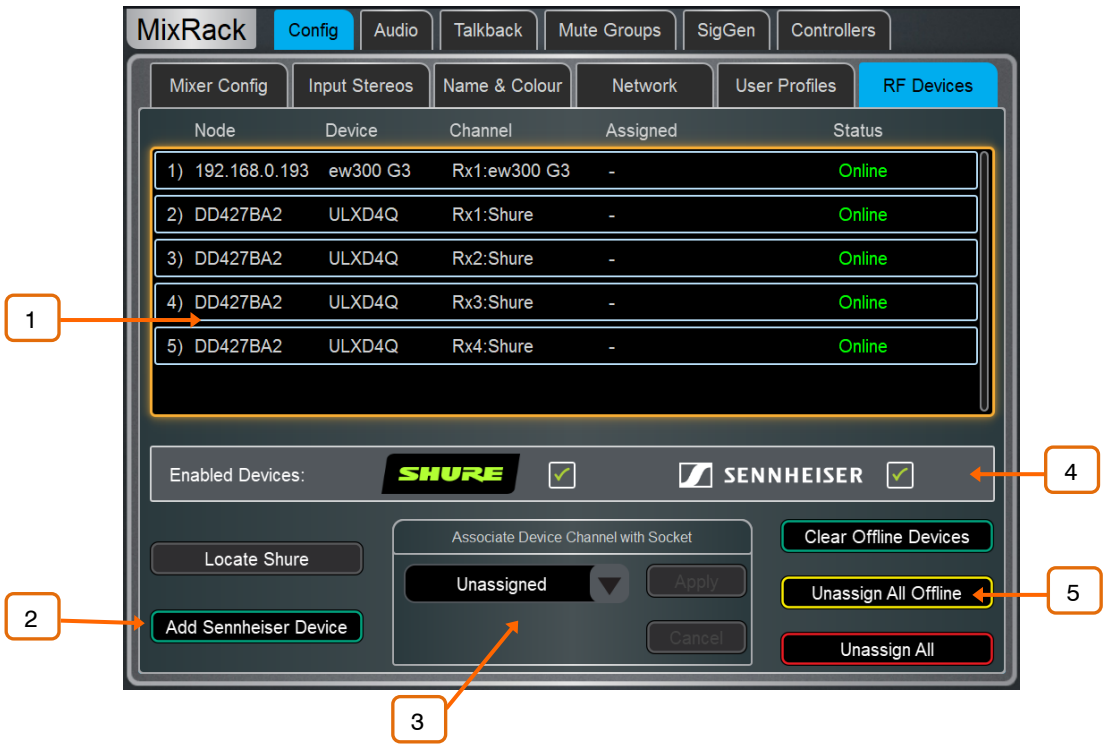
9.6 Config / RF Devices

Use this screen to monitor and configure up to 45 connected receivers.

ⓘ Firmware 1.70 and higher support Shure ULX-D, QLX-D and Axient Digital devices.

ⓘ Firmware 1.90 and higher support Sennheiser 2000, 2050 and 300, 500 (G3/G4) devices.





1 **External RF Device Channels** – Information on node and device name, receiver channel, socket association and Online/Offline status. Touch to select a device.

2 **Add Sennheiser Device** – Press to add a Sennheiser receiver to the RF devices list, and type the IP address of the receiver.

3 **Associate with Socket** – Associate the selected RF device channel with a MixRack, Surface, DX, DT or I/O Port socket. This step is required for RF Info to appear in the Preamp section of Input channels.

4 **Enable / Disable Detection** – When no devices are connected it is recommended to **Disable Detection** to minimise network traffic. This can be done for **Shure** and **Sennheiser** independently.

ⓘ A MixRack power-cycle is required when disabling Shure detection.

5 **Clear Offline Devices** removes offline RF receivers from the RF Devices list. **Unassign All Offline** removes all socket associations for offline RF Devices. **Unassign All** removes all socket associations for both online and offline RF Devices.

9.7 Audio / I/O Port

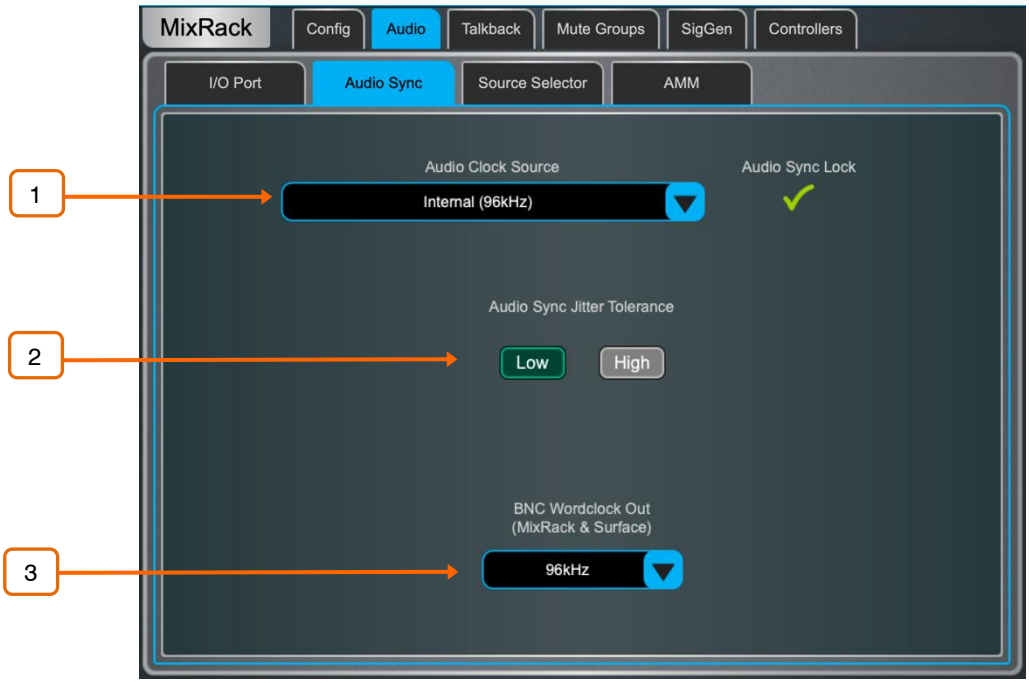
These tabs display information on the fitted card in I/O Port 1, 2 and 3, and give access to any relevant option.

See Appendix D for module specific information.

ⓘ Note that clock, redundancy and other options for the Dante, Waves and EtherSound cards are accessed by the Audinate, Waves Audio or Auvitran software respectively. Access to these settings is not provided by the dLive interface.

9.8 Audio / Audio Sync

Use the Audio Sync page to set the audio clock options for the system.



1 **Audio Clock Source** – Select the clock source for the dLive system. Set to **Internal (96kHz)** to use the internal audio clock, this is the default setting. Set to an **I/O Port** to sync from an audio networking card, or **MixRack** / **Surface BNC Wordclock In** to sync from a 96kHz Wordclock provided at the BNC input of the MixRack or Surface.

ⓘ When linking two or multiple systems together using audio networking cards, the 'Sync Source' system (typically the one that has control over the preamps) is set to Internal and all other systems are set to sync from the relevant I/O Port.

ⓘ Only sync from 96kHz sources or, if an M-DL-ADAPT 'letter-box' adapter is fitted, from a 48kHz audio networking card fitted in the adapter.

ⓘ When using a dLive C Class MixRack, an option is displayed in this page to set the BNC connector as either a Wordclock input or output.

2 **Audio Sync Jitter Tolerance** – gigaACE is designed as a point to point protocol. Enabling **High** jitter tolerance allows use of gigaACE in a VLAN or trunk with specific switch manufacturers / models and switch configurations.

ⓘ Please note this might introduce jitter and negatively affect audio performance. Refer to our online Knowledgebase for more information.

3 **BNC Wordclock Out** – Select the sample rate for the Wordclock output provided at the Surface and MixRack. This can be set to **Off**, **44.1kHz**, **48kHz** or **96kHz (internal)**.

9.9 Audio / Source Select

The Source Select page allows the configuration of up to 20 Source Selectors, each with up to 20 sources, that can be controlled via IP Remote Controllers.

Sources configured in a Source Selector are mutually exclusive on the output Mix. This can be used for example for selection of background music in a room, with automatic crossfades when switching sources.

ⓘ Note that any Input or Group routed to the selected output Mix but not selected as a member will not be affected by the Source Selector. This allows for a priority mic, paging, announcement or alarm system to be always routed to the output Mix regardless of the active source in the Source Selector.



1 **Sources: Inputs / Mixes** – Use the vertical tabs to switch between inputs and mix busses (Grp, Aux. Mains) Drag and drop inputs and/or groups into the lower pane to add them to a Source Select group.

2 **Source selector members** – This area shows the members of the currently selected Source Select group along with the current level. Each group can contain up to 20 sources which can be any combination of inputs and groups.

Once a source has been added to the group, touch the source to specify the name, colour and on-level for the source. The name and colour specified for a source here is independent from the name and colour used for the source elsewhere in the system so you can give “friendly” labels to the sources for the operators.

3 **Source Selector** – Touch to select a Source Select group. Up to 20 Source Select groups can configured.

4 **Output** – Touch to select a stereo or mono Aux or Matrix that is used as the output for the source select group.

5 **Fade In/Out Time** – Set Fade In and Fade Out times between sources of up to 10s.

9.10 Audio / AMM

The Automatic Mic Mixer (AMM) provides automatic level control of multiple microphones for spoken word applications such as conferences and discussion panels involving several participants each with their own mic around a table. This improves intelligibility and can reduce the risk of feedback by reducing the levels of mics which are not being spoken into. Once set, the AMM needs little or no change at all whilst still allowing the engineer to maintain absolute control of the mix.

ⓘ The AMM is intended for speech applications, not music.

Main Screen - NOM Mode



ON - When switched to 'ON' the AMM takes automatic control using its own gain element just after each fader.

Chair - You can set a channel as 'Chair' to give it higher priority over the other channels, for example to let a chairman override another speaker. The Chair mic sensitivity and the amount that other channels are automatically ducked when the Chair is open can be set.

Best Mic - This option ensures a single participant activates the one microphone receiving the strongest signal. This can prevent crosstalk, phasing and ambience issues caused by multiple microphones triggering for the same voice. The Chair mic is not part of the Best Mic On calculation.

ⓘ We recommend you only select Best Mic On if all microphones involved are the same type and have similar positioning and gain.

Solo - Each input has a solo option which opens the selected channel and turns all others down. This is not additive. Only one channel can be soloed at a time.

Main Screen - D-Classic Mode



Unlike NOM mode which uses gating and fixed gain attenuation, D-Classic uses a 'constant gain sharing' algorithm to dynamically adjust the gain for each mic proportional to its input level. Louder signals will receive more gain in the mix.

Priority Level - For each channel you can set a priority 'level' which will offset the amount of gain going into the mix calculation and therefore give a higher or lower artificial gain to that channel. This is a variable slider with a range from -15dB (low priority) through 0dB (no offset) in the middle to +15dB (high priority) at the top.

ON - When switched to 'ON' the AMM takes automatic control using its own gain element just after each fader.

ⓘ D-Classic does not provide Best Mic On, Solo, Chair or other setup functions.

Input Assign



The Input Assign window is used to specify the number of AMMs and the members of each AMM.

1 **Inputs** – Drag and drop inputs from this area into the desired AMM. All 128 inputs can be accessed, in blocks of 32, via the tabs above the input strips. Turn on **Block Select** and touch the first and last item you wish to assign to drag a range of channels into the lower window.

2 **AMM(s)** – Here you can view the members of each active AMM. To remove an input from an AMM, drag and drop the item to the upper pane. A **Clear** button is provided to quickly remove all inputs from an AMM.

3 **Number of AMMs** – Choose between 1, 2 and 4 AMM zones:

1 AMM = Maximum 64 members
2 AMM = Maximum 32 members per AMM
4 AMM = Maximum 16 members per AMM

When working with multiple AMMs in NOM mode, each AMM has its own **Chair**, **Best Mic** and **Solo** options.

Settings in the **Setup** screen, including AMM mode, are applied to all active AMM zones.

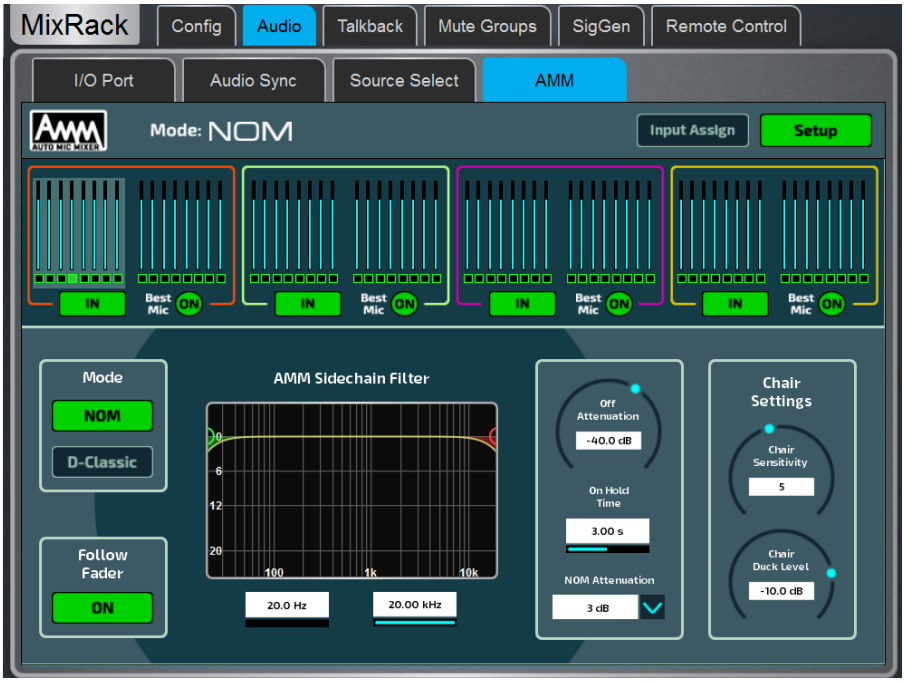
4 **AMM Input metering-point select** – Select the metering point for Inputs assigned to the AMM:

Post Preamp
Post Gate/PEQ
Post Compressor (Pre AMM)
Post Delay (Post AMM)

5 **AMM Input to PAFL source select** – Select the PAFL source point for Inputs assigned to the AMM:

Post Preamp
Post Ins A Ret
Post PEQ (Pre AMM)
Post Delay (Post AMM)

Setup: NOM



Side Chain Filter - Set High Pass and Low Pass filters to cut off frequencies below and above the normal speech range that may cause false triggering of the mics.

Off Attenuation - Set the amount of shutoff for closed mics (from -10dB to -90dB).

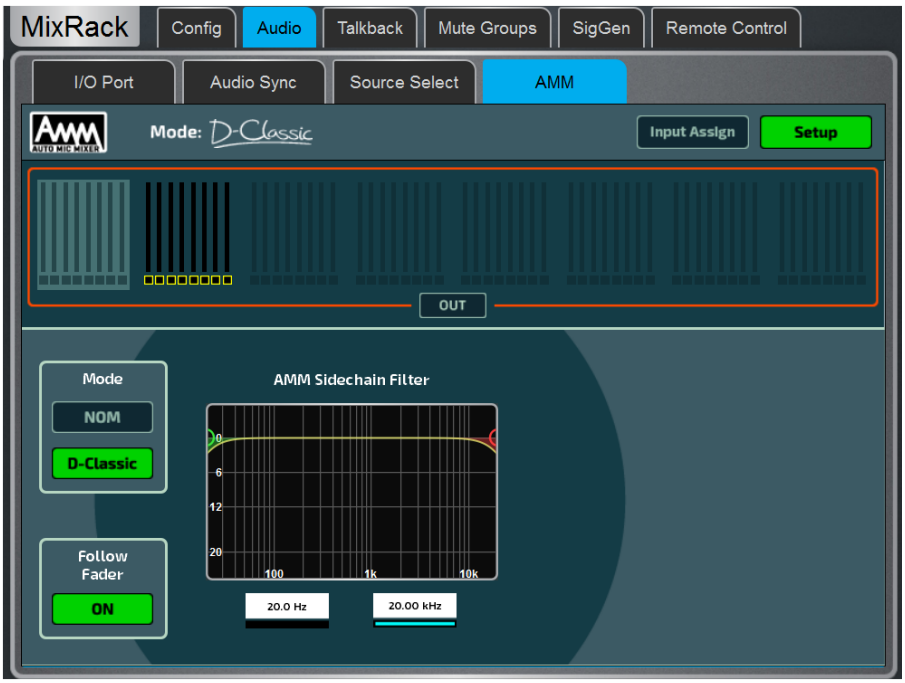
On Hold Time - Set the amount of time an open mic is held open once the trigger is removed (from 1 to 5 seconds). The Chair mic is not affected by Hold Time.

NOM Attenuation - Set the amount of attenuation applied per doubling of open mics (from 3 to 6dB).

Chair Sensitivity - Set the sensitivity of signal required to trigger a Chair mic open and therefore duck the other mics (from 1 to 10 = least to most sensitive).

Chair Duck Level - Set the amount of attenuation applied to other mics when a Chair mic is open (from -3 to -40dB).

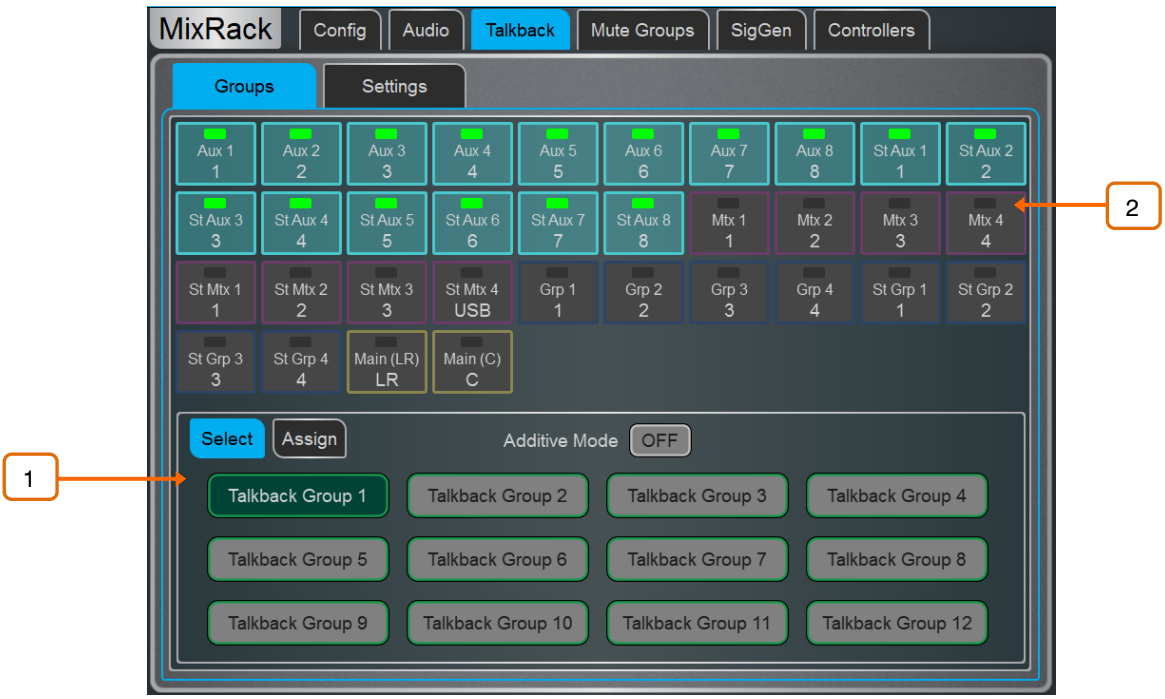
Setup: D-Classic



Side Chain Filter - Set High Pass and Low Pass filters to cut off frequencies below and above the normal speech range that may cause false triggering of the mics.

9.11 Talkback

Use this screen to assign and configure Talkback.



Groups – Use this page to choose Talkback destinations and assign them to the twelve Talkback Groups.

1 Use the **Select** tab to activate Talkback Groups. Enable **Additive Mode** to allow multiple Talkback Groups to be activated at one time.

Use the **Assign** tab to select a Talkback Group, assign destinations and edit the Talkback Group name and colour. Available destinations include Aux, Mtx, Grp and

Main mixes. A destination can be selected in more than one Talkback Group and multiple destinations can be selected within a Talkback Group.

SoftKeys on the Surface, Director and IP Controllers can configured to select a Talkback Group with either momentary or latching action.

Pressing the physical Talkback Assign button on the Surface, or the virtual Talkback Assign button in Director, will also open this screen.

2 **Mixes** – Whilst in the Assign tab, with a Talkback Group selected, touch a Mix button to assign Talkback to that destination.



Settings – Use this page to choose the Talkback source and set its options.

1 **General** – The default Talk switch operation is momentary (press and hold while talking). Turn on **Enable Latching** for latching operation (press to turn on, press again to turn off).

Enable Dim PAFL on Talkback attenuates the PAFL signal while talking to prevent feedback from the engineer's monitor into the Talkback microphone.

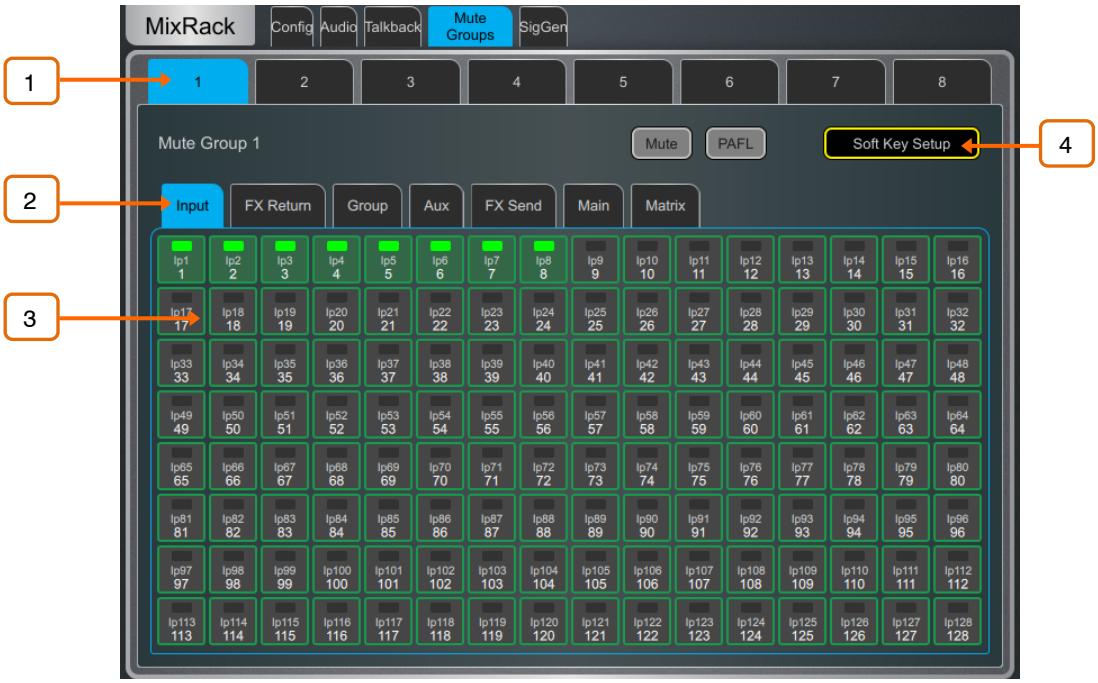
2 **Talkback Source Select** – Use the drop-down menu and **Socket** box to select the Talkback source from any system input. Press **Apply** to confirm.

3 **Talkback Source Preamp** – Set the source Gain, Trim, Pad and phantom power. You can also make the source **Safe** from Scene recall.

4 **HPF** – High Pass Filter frequency and In/Out switch.

9.12 Mute Groups

dLive provides 8 Mute Groups in addition to the 24 DCA Groups. This page lets you assign channels and mixes to Mute Groups and control Mute masters. You can assign one or more SoftKeys to control the Mute Groups using the **Surface** / **Control** / **SoftKeys** menu.



1 Select the Mute Group using the tabs at the top of the page.

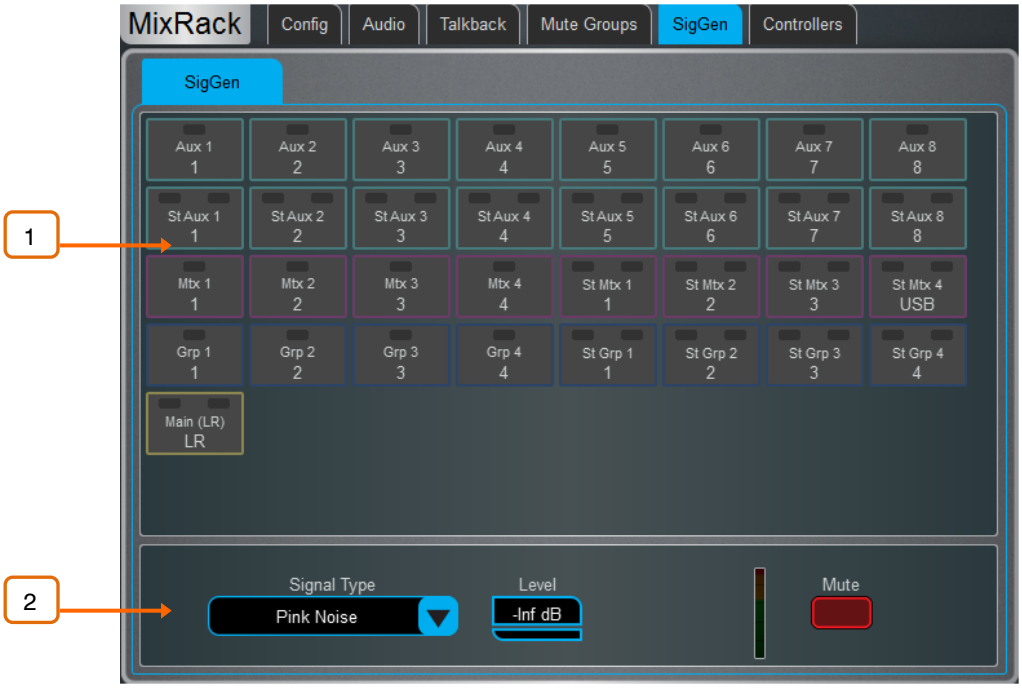
2 These tabs let you navigate all available Input channels, FX Returns and Mixes.

3 Touch the on/off buttons to toggle the channel assignments to the Mute Group.

4 Touch **Mute** to mute the Mute Group. Touch **PAFL** to listen to the contribution of the channels assigned to the Mute Group in the Monitor system. Touch **SoftKey Setup** to open the **Surface** / **Control** / **SoftKeys** menu should you wish to assign the Mute Group to a SoftKey.

9.13 SigGen

The Signal Generator provides a test signal to help you align and test components of a sound system.



1 **Assign** – Touch a Mix button to assign the SigGen to that destination. Multiple destinations can be assigned simultaneously.



Signal can be routed to one or both sides of a stereo Mix by touching the left or right side of the stereo Mix button.

The signal routes through the Mix processing, therefore will be affected by the Mix EQ and compressor.

ⓘ The SigGen is disabled while Talkback is active.

2 **Settings** – The SigGen **Level** can be set from fully off to full scale +18dB. Touch the **Mute** button to turn off.

There are 4 types of signal available:

Sine - A pure tone. Set the frequency using the **Frequency** box. This can be swept across the full audio spectrum from 20Hz to 20kHz.

White Noise - A signal containing all audio frequencies with equal energy per Hz.

Pink Noise - A signal containing all audio frequencies with equal energy per octave, a logarithmic curve and typically used for testing speakers and room response.

Band Pass Noise - Band filtered pink noise centred around the frequency set using the **Frequency** control.

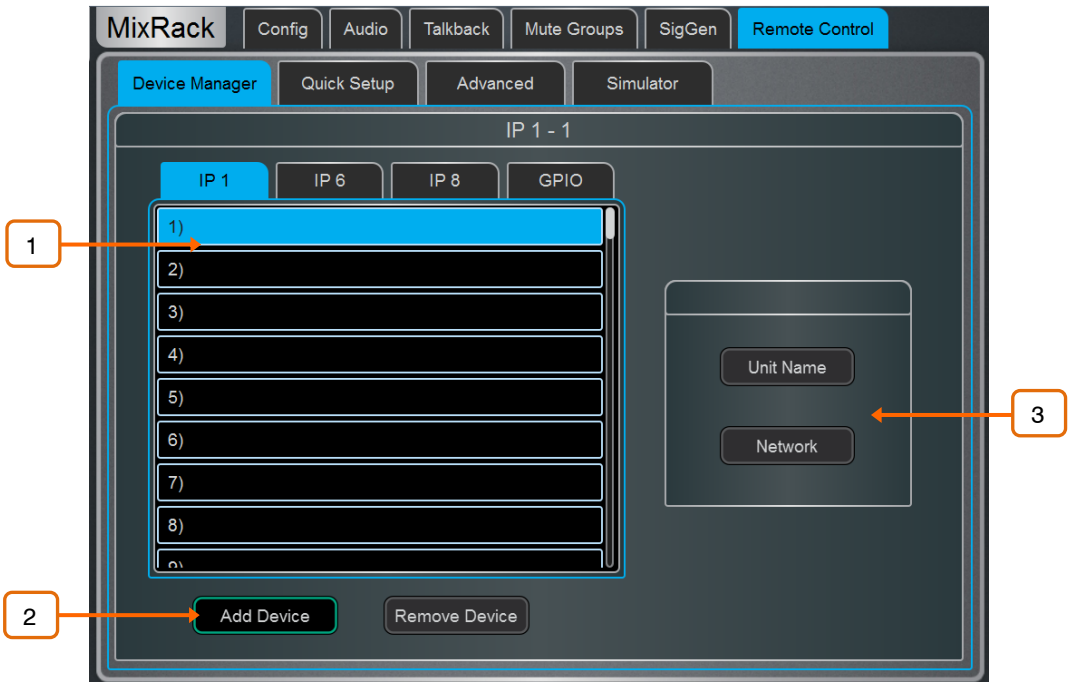
9.14 Controllers / Device Manager

Up to 8 GPIO modules and 16 IP remote controllers per device type are configurable, each with its own assignments and functions.

ⓘ Refer to the Remote Controller Getting Started Guide for information on the device hardware and connection.

Adding Remote Controllers to the **MixRack / Controllers / Device Manager** configures an independent set of controls that can be used with or without Surface connection, for applications such as personal monitoring, room control etc.

Add a device to the **Surface** / **Controllers** / **Device Manager** instead to assign **Sel** and **Mix** keys to the IP device and use the remote controller as an extension of the dLive Surface i.e. the channel and Mix selection is shared across the Surface and IP device.



1 Select the device tab using the tabs on top, and select one of the 16 locations in the list. The list shows the unit name of assigned devices.

The link icon will display green when the physical device is connected to the network and synchronised. It will display red when the device is not present or synchronising after being added.

ⓘ The key and fader / rotary assignments for each device are stored in the dLive Scenes. They are not stored on the physical device. These settings belong to the device location in the list, for example you can assign functions and parameters to a location prior to adding a device, or you can remove a device without affecting the functions and parameters of its location.

2 **Add Device** – touch to assign a physical IP controller to the selected location in the list.

Remove Device – touch to unassign an IP controller from the selected location.

3 **Unit Name** – touch to edit the name of the selected device.

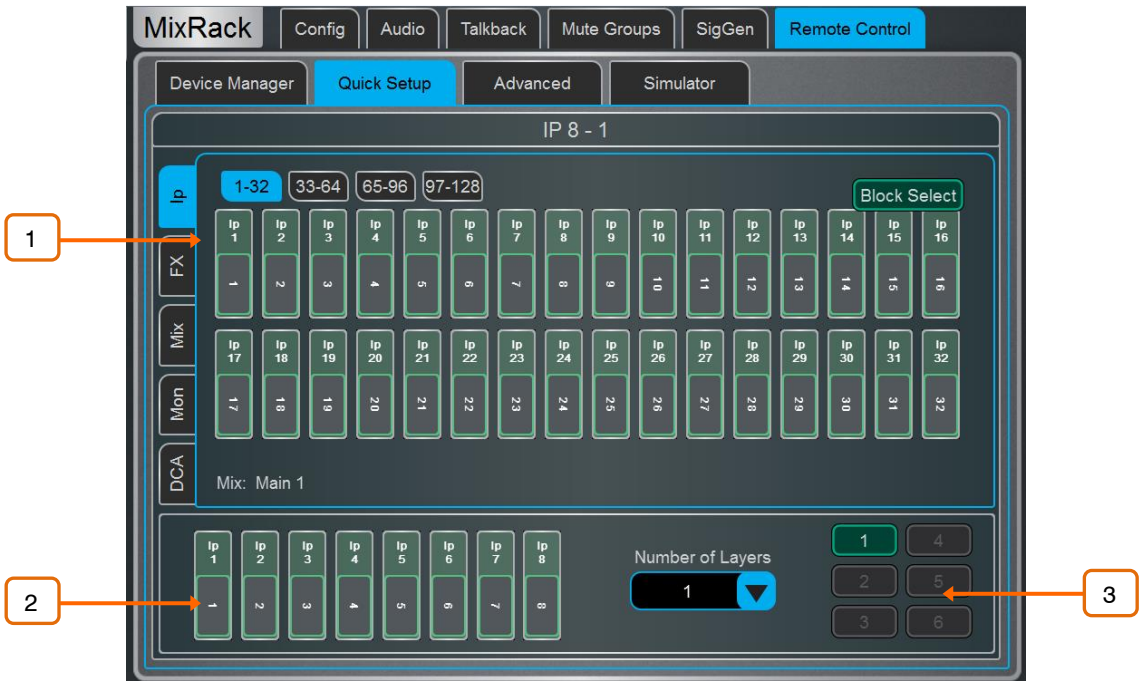
Network – touch to edit the IP address, subnet, and DHCP setting for the selected device. The default settings are:

IP6 IP 192.168.1.72 Subnet Mask 255.255.255.0 Gateway 192.168.1.254 DHCP off
IP8 IP 192.168.1.73 Subnet Mask 255.255.255.0 Gateway 192.168.1.254 DHCP off

ⓘ To avoid network conflicts, make sure all connected IP controllers are assigned a unique name and IP address.

9.15 Controllers / Quick Setup

Quick Setup lets you quickly assign one or multiple channels to the IP controller strips, automatically mapping the keys and faders / rotaries to a set of default functions and parameters.



Before you start, hold down **Setup** and touch anywhere in this screen to edit the default settings for Quick Setup. These settings determine the function of the strips at the moment of assigning to the IP device. They don't affect strips which are already assigned.

1 Drag and drop channels into the desired position in the lower window. Use the tabs on the left to view different types of channels available, and the tabs on top to navigate to higher / lower number channels.

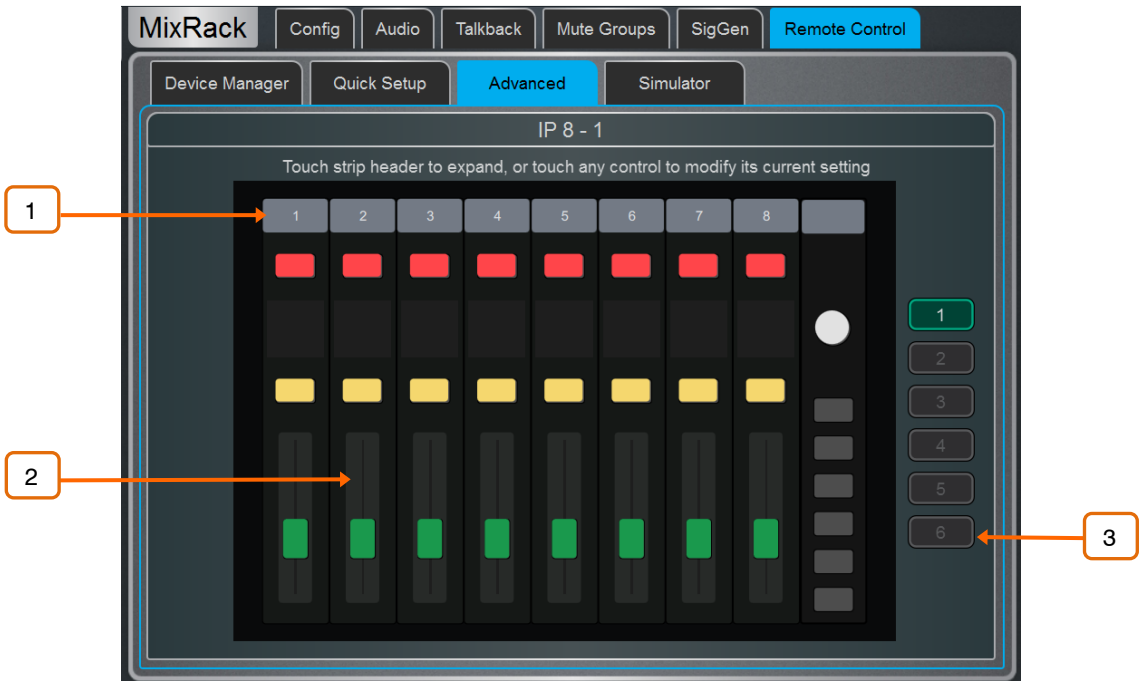
Turn on **Block Select** and touch the first and last item you wish to assign to drag a range of channels.

2 Drag channels out of the box to unassign.

3 Set the active **Number of Layers** from the dropdown menu and select the Layer you want to assign channels to. Up to 6 SoftKeys on the IP Controller will be automatically assigned to the Layer selection.

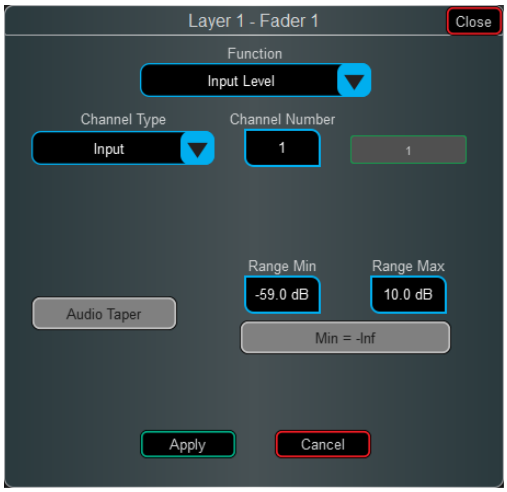
9.16 Controllers / Advanced

Advanced allows one-by-one assignment of keys and faders / rotaries.



1 Touch a strip header to expand the view and display the assigned functions or parameters for the strip.

2 Touch a control to assign a function or parameter. Note that the screen will display two rows of rotary controls for the IP6. The lower row is the main function, the upper row is the secondary (push 'n turn) function. When assigning a level control to a fader or rotary there is the choice of **Audio Taper** or user definable range.



When **Audio Taper** is enabled, the fader/encoder will use the same audio curve as the Surface faders. If **Audio Taper** is disabled, a level range can be specified using the **Range Min** and **Range Max** boxes. If the **Min = -inf** option is enabled then the minimum level of the fader/encoder will be off (-inf) regardless of the range settings.

3 Select the Layer you want to edit.

9.17 Controllers / Simulator

Use this screen to simulate the operation of the selected device.



Touch a key on the screen to control the assigned function. Touch a fader / rotary control and use the Surface screen rotary encoder to control the assigned parameter.

10. Surface Setup

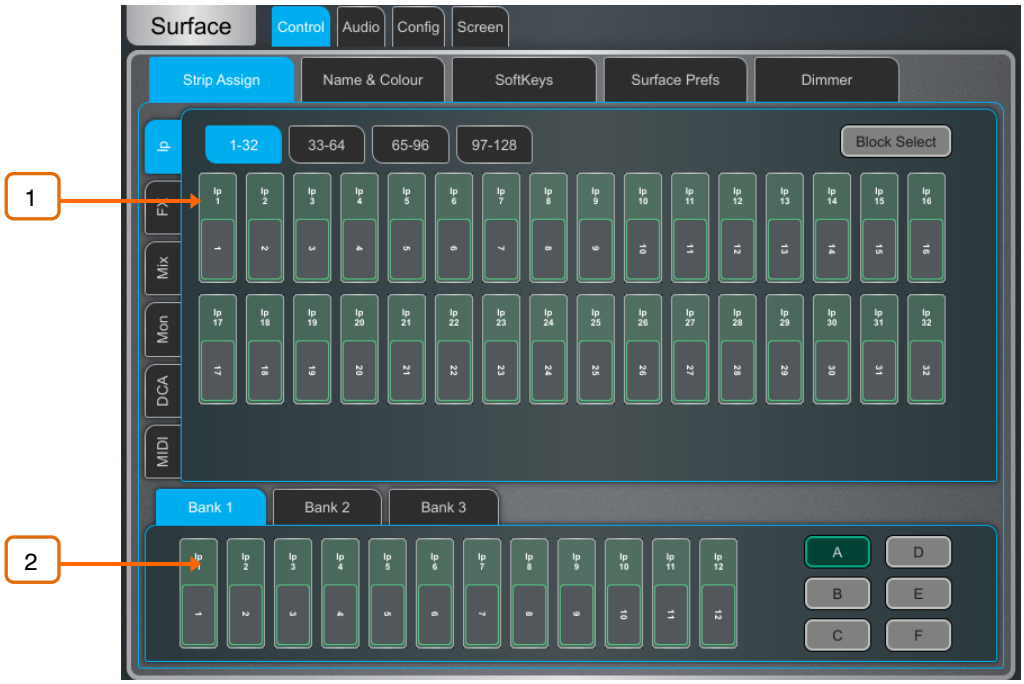
These pages let you configure the Surface preferences, illumination, strip layout, audio and network settings.

10.1 Control / Strip Assign

Any combination of Input channels, FX, Mix masters, DCAs and MIDI strips can be assigned to the 6 layers of faders. This lets you customize the mixer layout to suit the application. The layout is stored within Scenes and can be made Safe from Scene recall.

The factory Template Shows provide a classic layout with Input channels on the left and Mix masters on the right to give you a starting point.

Current assignments are shown in the lower window arranged in Banks and Layers.



1 Drag and drop channels into the desired position in the lower window. Use the tabs on the left to view different types of channels available, and the tabs on top to navigate to higher / lower number channels.

Turn on **Block Select** and touch the first and last item you wish to assign to drag a range of channels into the lower window. If you drop more channels than there are strips available then they will wrap into the next Layer overwriting channels currently assigned there.

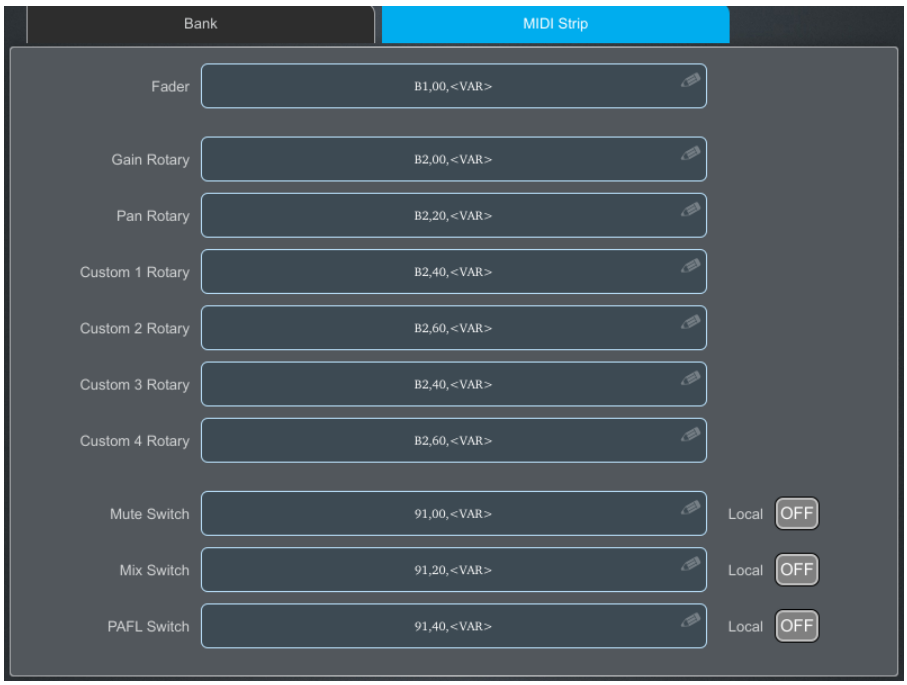
2 Drag channels out of the window to unassign.

Hold down **Setup** and touch anywhere in the Strip Assign page to access the assign preferences. Turn on **Sync Selected Layer with Surface** to make the screen follow the active Layer on the Surface for the selected Bank.

10.2 MIDI Strips

Fader strips can be assigned as MIDI Strips. There are 32 MIDI Strips available. Each can be assigned to transmit a custom MIDI message. This is ideal for controlling audio within a Digital Audio Workstation (DAW, or parameters on external equipment such as effects devices. MIDI Strips can be named and coloured. They are stored within Scenes and can be made Safe from Scene recall.

Custom MIDI messages can be assigned to faders, all six rotary functions (Gain, Pan and Custom 1-4), Mute, Mix and PAFL keys. To configure the messages press the MIDI Strip **Sel** key.



MIDI Strip – Touch the top left box to set name and colour for the MIDI Strip. Touch a control box to type in a custom MIDI message where <VAR> represents a variable value.

Turn **Local** on if you want the key LED indicator to follow local presses. Turn this off if you want the indicator to follow remote messages (MIDI tally).

The following default CC and Note on/off messages are assigned within the factory Template Shows for MIDI Strips 1-32 (hex values shown):

- Fader = B1, 00, <VAR> to B1, 1F, <VAR>
- Rotary Gain = B2, 00, <VAR> to B2, 1F, <VAR>
- Rotary Pan = B2, 20, <VAR> to B2, 3F, <VAR>
- Rotary Custom 1 = B2, 40, <VAR> to B2, 5F, <VAR>
- Rotary Custom 2 = B2, 60, <VAR> to B2, 7F, <VAR>
- Mute key = 91, 00, <VAR> to 91, 1F, <VAR>
- Mix key = 91, 20, <VAR> to 91, 3F, <VAR>
- PAFL key = 91, 40, <VAR> to 91, 5F, <VAR>

ⓘ You can restore the factory default MIDI messages by recalling the 'Reset MIDI' Scene in the Template Shows. This resets the messages for all 32 MIDI strips.

ⓘ Download the MIDI Control Driver from www.allen-heath.com to convert the default MIDI messages to popular HUI or Mackie Control protocols for DAW use. Levels and On/Off commands can also be sent and received in CC format using MIDI Control Driver as a translator. A MIDI Thru option is available for a straight throughput of the MIDI messages with no translation of A&H MIDI messages. The MIDI Control driver is available for Windows and MacOS.

10.3 Control / Actions

Actions perform several Functions at once. Actions can be recalled from the Action Manager or via a Softkey. Two softkey modes are provided, a **Recall** mode which recalls a single action and a **Toggle** mode which toggles between recalling two Actions alternatively on each press.



1 List of created Actions. Touching an **Action** will show the list of contained **Functions** on the right-hand side. Actions can be **Deleted**, **Duplicated**, **Renamed** and **Recalled** from this menu.

2 **Functions** contained within the selected Action. These will all run on recalling the Action. Some functions can run in multiple Modes:

> **Set On** will 'activate' your function parameter e.g. Mutes "Set On" will mute selected channels.
>
> **Set Off** will 'deactivate' your function parameter e.g. Mutes "Set Off" will unmute selected channels.
>
> **Toggle** will invert the current state, e.g. Mutes "Toggle" will mute currently unmuted channels and unmute currently muted channels.
>
> **No Action** will not make a change when the Action is recalled.

Available functions are as follows:

Mutes – Mute control for any Channel, DCA, WDG/PAFL or Mute Group.

Assign – Assign control for any Channel, DCA, WDG/PAFL or Mute Group.

Strip Assign – Recall saved Strip Assign Library with Bank recall filter.

Main Level – Main Level control for any Channel, DCA, WDG/PAFL or Mute Group.

Send Level – Send Level control for any Channel to any compatible bus.

Processing – In/Out config control for any processing block assigned to any channel.

ABCD Ip – Set active ABCD input for any Input Channel.

Talkback Add – Set talkback Additive mode On or Off.

Talkback Grp – Set Active Talkback Groups.

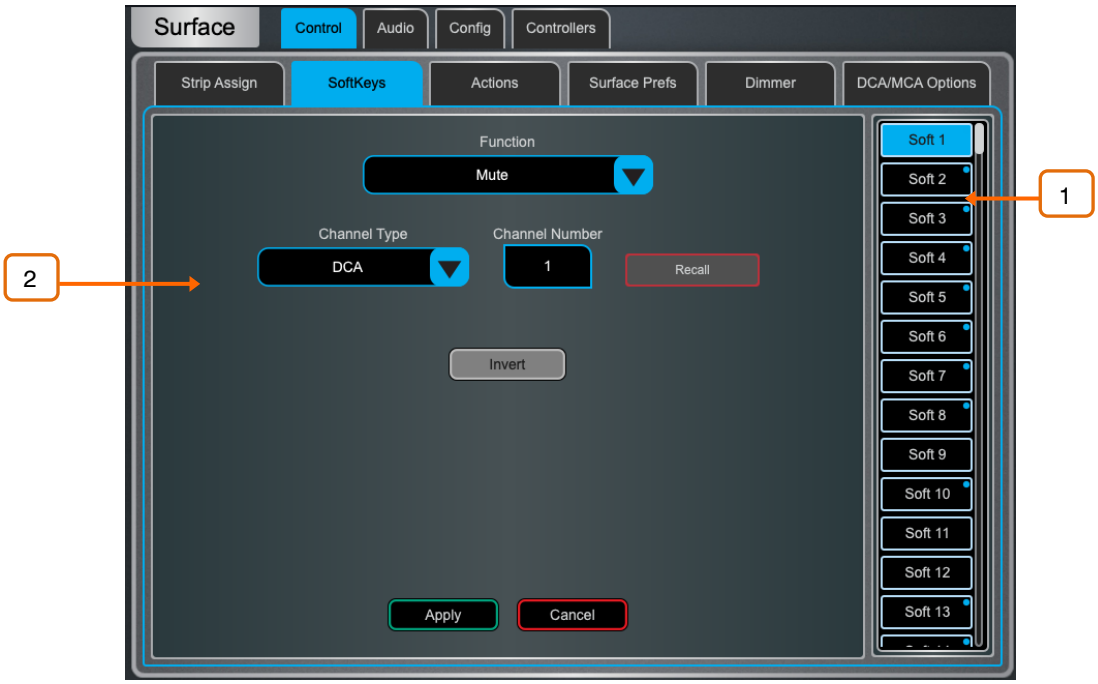
Custom MIDI – Send out Custom MIDI string.

Ext Ip to PAFL – Configure PAFL External Input settings.

Set Bypass UFX – Bypass RackUltra FX Units that support Bypass mode.

10.4 Control / SoftKeys

dLive Surfaces provide up to 26 assignable keys on the right of the Surface, depending on model.



1 Touch one of the SoftKeys buttons on the right of the screen to select it. Swipe up / down to scroll.

2 Open the **Function** drop-down menu and select the function to assign. Set the **Channel Type** and **Channel Number** to select the required channel (only applies to certain functions). Turn on **Invert LED** if you want the SoftKey LED to be lit when the function is off. Press **Apply** to confirm the changes.

ⓘ SoftKey assignments are store within Scenes. To prevent SoftKey assignments to be overwritten on Scene recall, you can make one, a selection or all Safe using the **Scenes / Global Scene** Safes screen.

Available SoftKey functions are as follows:

- **Unused**
- **ABCD Set All** – Sets all Input Channels to the selected ABCD Source.
- **ABCD Set Channel** – Sets specific Input Channel to the selected ABCD Source.
- **ABCD Set Range** – Sets range of Input Channels to the selected ABCD Source.
- **ABCD Set For DCA** – Sets all DCA member channels to the selected ABCD Source.
- **Action Recall** – Recall single Action in Recall mode or toggle between two Actions in Toggle mode.
- **AMM Control** – Turns on/off an AMM zone or an individual channel in an AMM.
- **Assign ON/OFF** – Toggles the send assign for an Input/FX Return to a Mix, Mute Group, DCA or engineer's IEM/Wedge bus.
- **Assign Range** – Sets send assign for an Input/FX Return to a Mix, Mute Group, DCA or engineer's IEM/Wedge bus; On, Off or Toggles.
- **Bookmark** – Navigate directly to a selected screen or tab.
- **Channel Processing** – Insert or Bypass a specific channel processing block on a single channel.
- **Channel Processing Range** – Insert or Bypass a specific channel processing block on a range of channels.
- **Custom MIDI** - Transmit a custom MIDI message string.
- **DCA/MCA Spill Active** – Turns DCA/MCA Spill mode on/off.
- **Fader On-Off** – Illuminates when the selected channel fader is at a value higher than -inf.
- **Fader Start** – Momentarily illuminates when the selected channel fader moves from –inf.

- **Level Down** – Tap to decrease a fader level.
- **Level Up** – Tap to increase a fader level.
- **MCA On/Off Selected DCAs** – Toggles MCA mode for DCAs selected in Bank view.
- **MCA On/Off Specific DCA** – Toggles MCA mode on a specific DCA.
- **MCA On/Off All DCAs** – Toggles MCA mode on all DCAs.
- **Mix** – Quick access to a specific Mix.
- **Mute** – Mute control for any input channel, bus or DCA.
- **Mute Group** – Mutes/unmutes the specified Mute Group.
- **PAFL** – Enables PAFL on a selected channel and PAFL bus.
- **PAFL Clear** – Turns off all currently active PAFL selections.
- **PAFL Surface Number** – Sets the Surface PAFL to the PAFL bus selected.
- **Peak Hold Reset** – Clear all current Peak Hold indicators.
- **Scene Controls** – Quick access to scene controls (Recall, Store etc.).
- **Sel** – Selects a specific channel.
- **Sel Mix PAFL Scene** – Combination on single key, for example to recall a specific per-Mix strip layout when mixing monitors.
- **Send Level Down** – Tap to decrease level for Aux/FX/Matrix sends with the option to set a Max/Min gain range.
- **Send Level Up** – Tap to increase level for AuxFX/Matrix sends with the option to set a Max/Min gain range.
- **SIP** – Press and hold for 1 second to activate Solo In Place (SIP).
- **Strip Assign Recall** – Recall saved Strip Assign Library to enabled banks.
- **Talkback Additive Groups** – Toggle Talkback Additive mode.
- **Talkback Assign** – Talkback to different outputs.
- **Talkback Group** – Turn on Talkback to a specified Talkback Group with selectable latching or momentary switch behaviour.
- **Tap Tempo** - Assign to any of the 16 FX L or R tap or as a Global Tempo.
- **USB Play/Record** – Control USB transport from the current Surface.
- **Virtual Sound Check** – Set Virtual Sound Check mode.

10.5 Control / Surface Preferences



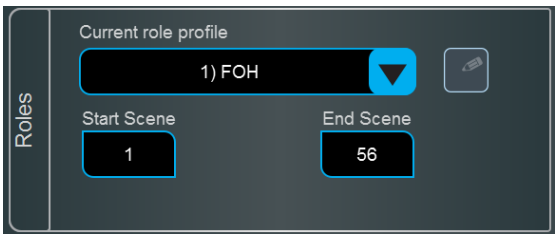
1 **Custom Rotary Functions** – Use the drop-down menus to select the required **Function** for each Custom strip rotary control. Available functions are Direct Out, Send Level (Aux or FX sends), HPF/LPF Frequency, Compressor/Gate Threshold, Gate Depth, Channel Level, AMM Priority Level, LCR+ Divergence, Front/Rear Pan, Stereo Width. Touch **Apply** to confirm the change.

2 **Display Parameter Values on LCD** will display the fader position in dB value or value of the rotary function every time the fader or rotary are moved.

No Sends On Faders inhibits sends on faders when pressing any **Mix** key. The channel faders will always control the Input main levels or Mix masters when this option is enabled. You can still control the send levels by using the strip rotary **Sends** function, Soft Rotaries Sends widget, or touchscreen **Routing** screen.

3 **Layer Link** – Touch the buttons to link or unlink the Layers across the fader banks. Selecting a Layer on a linked bank will select the same Layer across all linked banks.

4 **Roles -** Allows you to configure up to 4 Surface roles, each with a separate scene range and role filter.



ⓘ See section on Role Filters in this guide for more details on Role Filters.

Clicking on the edit icon lets you name each role, for example FOH, MON, REC, BROADCAST.

Each role can be assigned a range of Scenes using the **Start Scene** and **End Scene** boxes. Scenes outside of the specified range will not be accessible from this Surface role. This is useful for multi-surface setups where the engineers require independent scene ranges.

10.6 Control / Dimmer

Use this page to separately adjust the brightness of the touchscreen, LEDs, switch backlights, fader strip LCD displays, and intensity and colour tone of the integrated LED strip illumination. These settings are stored in Scene memories.

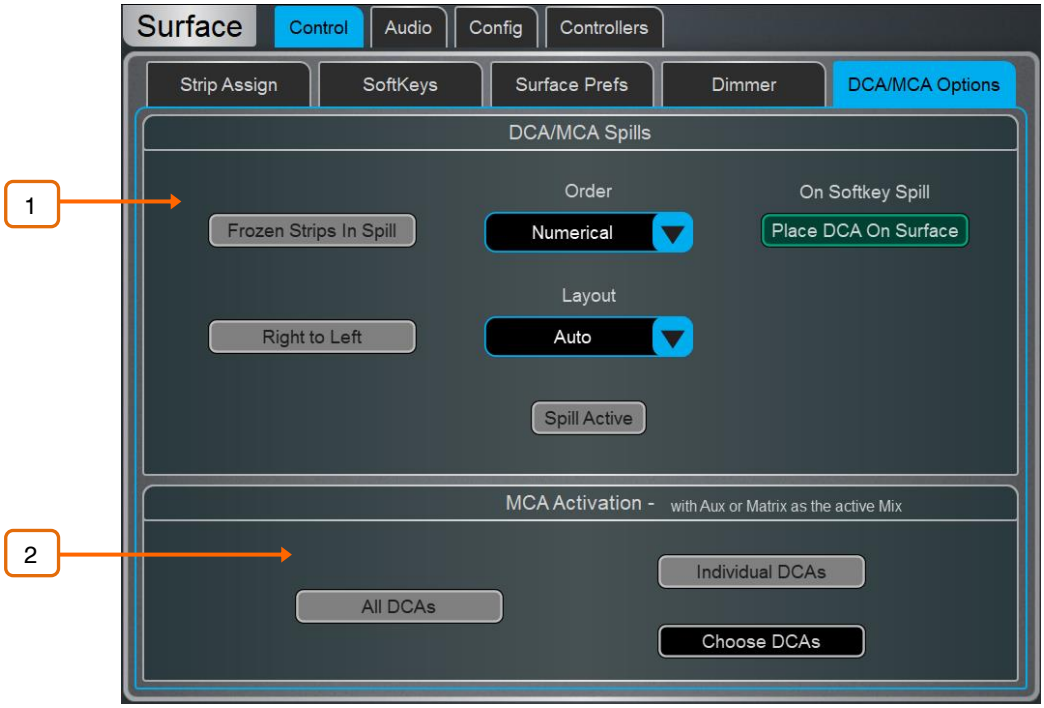


10.7 Control / DCA/MCA Options

DCA/MCA Spills populate the Surface with only the channels assigned to a DCA/MCA, temporarily overriding the current strip layout, whenever a DCA/MCA Mix button is pressed.

The DCA/MCA Mix function can be assigned to SoftKeys, which allows spills to be used when DCA/MCA strips are not in the active Layer, or even dedicate some DCAs as pure 'population groups' without a fader. Go to **Surface** / **Control** / **SoftKeys** to assign.

ⓘ See Appendix F in this guide for more details on MCA functionality.



1 DCA/MCA Spills

Select the **Order** in which the channels are displayed on the Surface. Set to **Numerical** to follow the channel number, or **Strip** to follow the order of the strip layout at the moment of the spill.

Enable **Frozen Strips in Spill** to keep frozen fader strips in view during a spill.

Enable **Place DCA On Surface** to keep the DCA master in view during a spill. This is useful if all fader banks are used for the spill, for example on a C1500 Surface.

Set the **Layout** to **Auto** to automatically spill to the fader banks not used by the DCA/MCA, or **Manual** to manually select the fader banks for the spill. Enable **Right to Left** to populate banks in reverse, starting from the right-hand side.

Touch **Spill Active** to enable or disable the DCA/MCA Spills function globally. This switch can be assigned to a SoftKey and used as a quick way to restore the normal strip layout whichever spill might be active.

4 MCA Activation

Enable **All DCAs** to have all DCAs operate in MCA mode when an Aux or Matrix is the active Mix, or enable **Individual DCAs** and press **Choose DCAs** to select. Individual DCAs can be also set to MCA mode in **Processing** / **Bank View**.

10.8 Audio / PAFL

Set your preferences for the PAFL monitoring system.

The strip PAFL key operates in the following way:

- Mix PAFL overrides Mains in the monitor
- Input PAFL overrides Mix PAFL
- Releasing Input PAFL restores previous Mix PAFL
- Pressing Mix PAFL clears any Input PAFL



1 **PAFL Number** – Set the PAFL bus that the Surface will use for the monitoring system. This affects the function of the PAFL keys, Listen key, and audio to the Surface headphones.

When more than 1 PAFL bus is configured in the **Mixer / Config / Mixer Config** screen, multiple operators can share the same dLive system whilst using different PAFL busses.

ⓘ The MixRack headphones output is fixed to PAFL bus 1

ⓘ The **RTA** function is fixed to PAFL bus 1

ⓘ **Wedge** and **IEM** strips are fixed to PAFL bus 1

ⓘ **PFL Trim** is not present on PAFL bus 9 and 10.

ⓘ When using SIP (Solo In Place), the PAFL Number should match PAFL Used For SIP number

2 **Mix Follows Mix PAFL** automatically makes a **Mix** key active when a Mix PAFL key is pressed.

Mix Follows Input PAFL automatically makes a **Mix** key active when an Input PAFL key is pressed.

Sel Follows PAFL automatically selects a channel when its PAFL key is pressed.

Additive Mode sums PAFL selections when turned on. Selections auto-cancel when turned off.

Select either **PFL** (pre-fade listen) or **AFL** (after-fade listen) for Input channels and Mix (Output) masters when the strip PAFL keys are pressed.

3 **Ext Input to PAFL Source** – Use the drop-down menu to select and assign an external signal, Group, Aux, Matrix or Main to the PAFL monitor, for example an I/O Port input for 'shout' communication between FoH and Monitor engineers.

The PAFL Ext Input can be selectively routed to the IEM / Wedge Monitor outputs either Pre or Post the Level fader. This can also be configured as an Action.

ⓘ Either the Left or Right channel must be selected when assigning stereo Groups, Aux, Matrix or Main busses to Ext Ip Talk To PAFL.

When assigned, controls for the preamp Gain, Trim, PAD and phantom power will appear in the window to the right.

4 A **Delay** up to 680ms can be set to align the PAFL signal with the acoustic sound from the stage.

PFL Trim attenuates the PFL signal by up to 24dB relative to the AFL signal. This avoids loud PFL levels in situations where the Mix output levels are low.

ⓘ PAFL Delay settings are reset to 0ms if a bus configuration change is made in **Mixer** / **Config** / **Mixer Config**

5 **Mix to PAFL** – Set how much of the selected mix goes to the monitor system when no PAFL is active. Touch the **Set Mix** button to select a mix (Mains, Group, Aux or Matrix)

It is typical, for example, to have Main Left and Right feed the PAFL Left and Right busses in a FOH application, or a specific performers IEM mix in a MON application.

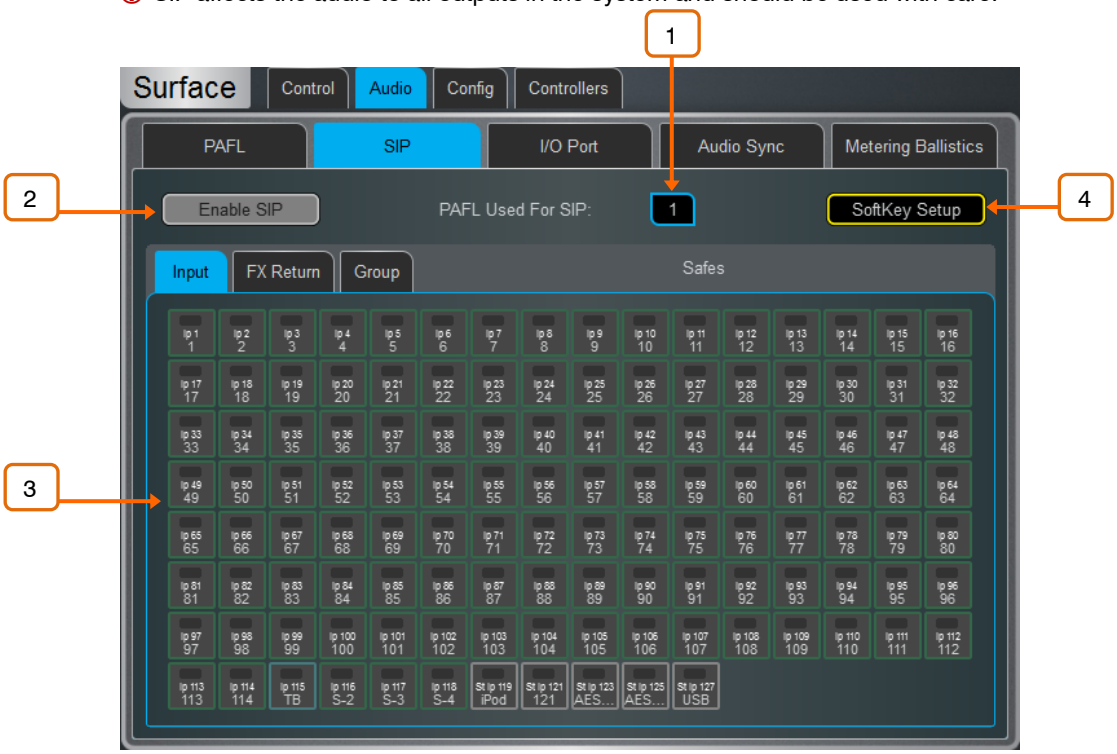
10.9 Audio / SIP

Configure and enable/disable SIP (Solo In Place).

When SIP is enabled, channel PAFL buttons on connected Surface(s), Director and IP Controllers will function as a SIP button.

SIP can be used to listen to one or more channels (Inputs, Groups and FX Returns) in isolation through the main outputs of a system. When SIP is active on one or more channels, all other channels are muted unless they have been made Solo Safe.

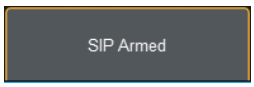
ⓘ SIP affects the audio to all outputs in the system and should be used with care.



1 **PAFL Used For SIP** – Select the correct PAFL number to use for SIP control.

ⓘ This should be the same number as the Surface PAFL Number. If the numbers do not match, the channel PAFL buttons will not activate SIP.

2 **Enable/Disable SIP** – Touch to enable or disable SIP.



When enabled, a "SIP Armed" notification will appear near the bottom of the screen. Touch this notification to return to the SIP screen at any point.

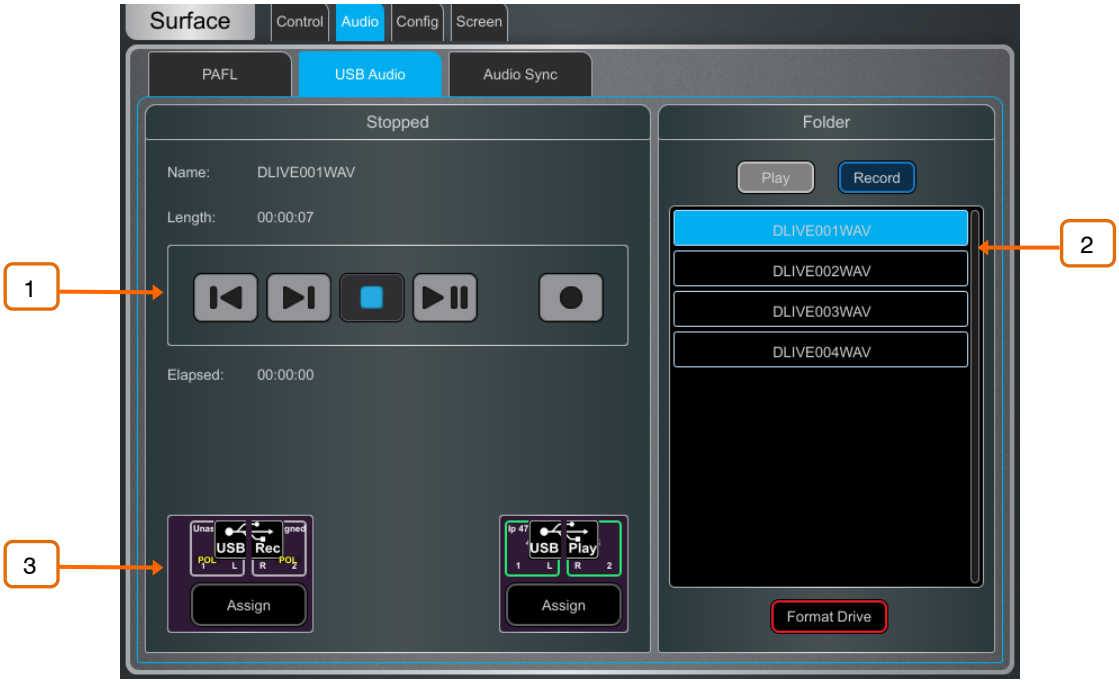
3 **Solo Safe** – Select Input, Group and FX Return channels to be made Solo Safe. Channels which are made Solo Safe will not be muted when SIP is active.

4 **SoftKey Setup** – Touch to access the SoftKeys screen where SIP Enable/Disable can be assigned to a Surface, Director or IP Controller SoftKey.

10.10 Audio / USB Audio

Set up and manage stereo recording and playback to a USB key. dLive can play mono or stereo WAV files, 16bit or 24bit, with sample rate of 44.1, 48 or 96kHz. USB recording is fixed stereo WAV 24bit 96kHz (approximately 34MB per minute or 2GB per hour).

ⓘ The USB key must be formatted FAT32 with 32k cluster size. We recommend you format the key using this page prior to use.



1 Use the transport buttons to Play, Pause, Stop, Record and select previous or next track. To record, press Record to arm the recording, then press Play.

2 **Folder** – Choose to display audio files present in the USB key **Play** or **Record** folder. The two folders are named AHDLIVE/USBPLAY and AHDLIVE/USBREC respectively and are automatically created when a USB key is plugged into the Record/Playback USB port.

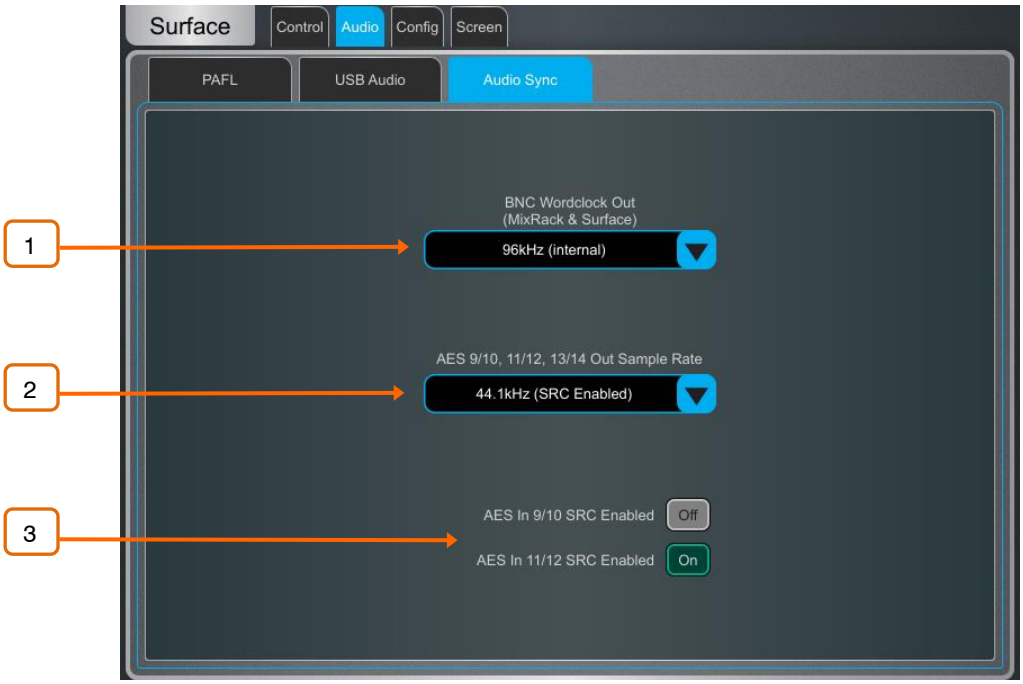
Scroll through the list and touch a track to select. The name and length will be displayed in the left window.

3 The current source for USB recording and USB Playback patch is displayed. Touch the **Assign** button to open the I/O screen and assign source or destination.

10.11 Audio / I/O Port

These tabs display information on the fitted I/O Port card/s, and give access to any relevant option. See Appendix D in this guide for details.

10.12 Audio / Audio Sync



1 **BNC Wordclock Out** – Select the sample rate for the Wordclock output provided at the Surface and MixRack. This can be set to **Off**, **44.1kHz**, **48kHz** or **96kHz (internal)**.

ⓘ When using a dLive C Class Surface, an option is displayed in this page to set the BNC connector as either a Wordclock input or output.

2 **AES Out Sample Rate** – Select the sample rate for the Surface AES3 outputs. This can be set to **44.1kHz**, **48kHz** or **96kHz**. Sample Rate Conversion will be bypassed when set to 96kHz.

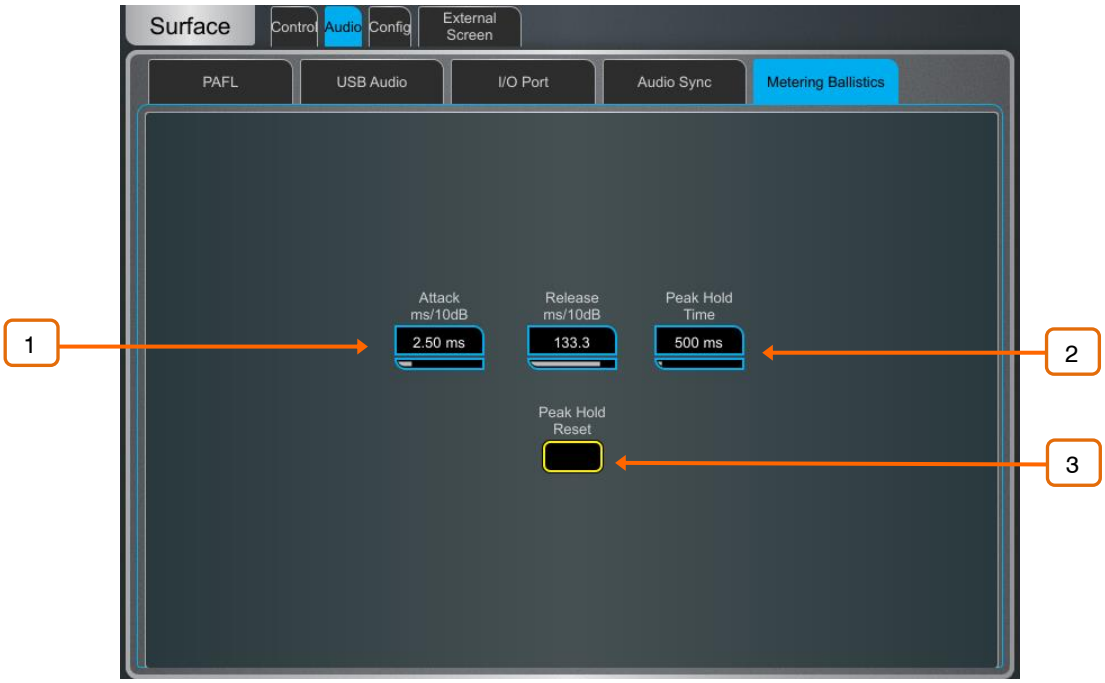
3 You can turn the Sample Rate Conversion on or off for each stereo AES3 input as required.

ⓘ Only turn off SRC if the AES sources are syncing from a 96kHz clock provided by the dLive.

10.13 Audio / Metering Ballistics

The response of dLive meters on screen and Surface can be tweaked to suit the engineer's preference.

ⓘ To set the global meter source point for Input channels and Mix masters, hold down Setup and touch the main screen area in the **Meters / Inputs** or **Meters / Mix** screen.



1 Use fast **Attack** and **Release** for fast response, digital absolute peak meters. This ensures you keep control and avoid digital clipping of signals including those with very fast dynamics, but note that the meters may read hotter than those on other consoles you are used to.

Use slower **Attack** and **Release** to 'dampen' the response if required.

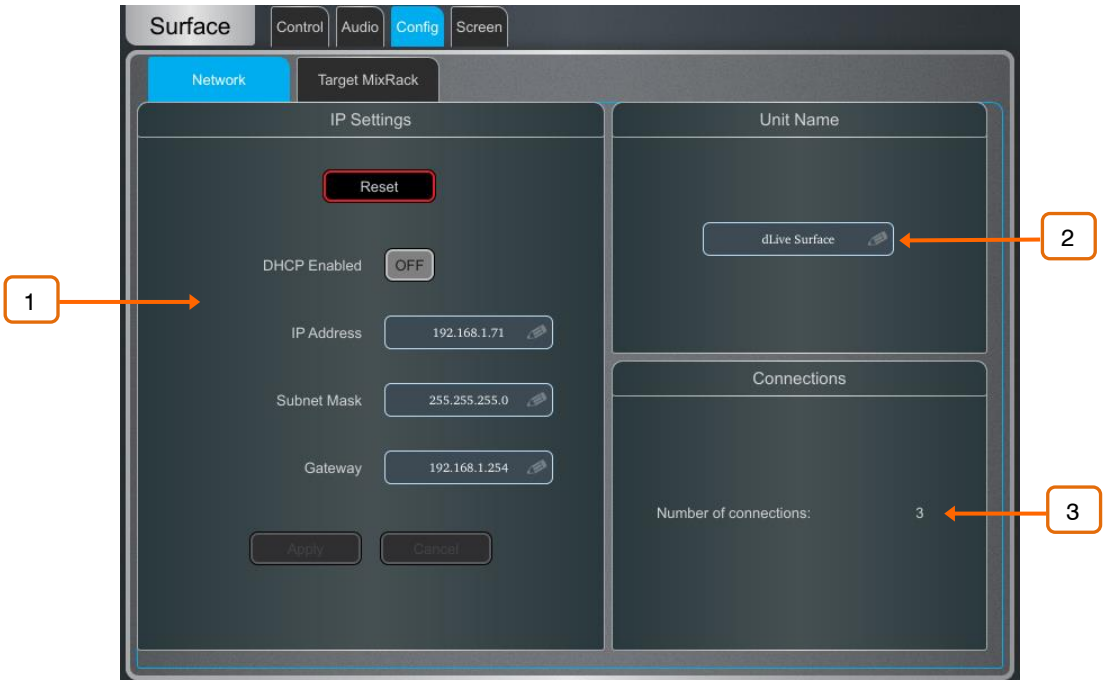
2 The **Peak Hold Time** can be set from 40ms to 10s or to infinite. This is the amount of time the highest segment of the meter will stay lit and indicates the highest signal level within such time. It also affects the red Peak indicator.

ⓘ The red peak indicator lights to warn that the signal is within 5dB of clipping. It is multi-point sensing which means it detects peak activity at several points in the signal path.

3 Touch **Peak Hold Reset** to clear all current Peak Hold indicators.

10.14 Config / Network

Use this page to configure the IP Address and Unit Name to identify the Surface on the network.



1 **IP Settings** – To set a static IP Address, touch the **IP Address** box and type in the address. Make sure the Subnet Mask and Gateway are valid, and all devices on the network including Wi-Fi routers, access points or laptops have unique but compatible addresses.

The default Surface IP Address is 192.168.1.71 with Subnet Mask 255.255.255.0 and Gateway 192.168.1.254. You can restore these defaults by touching the **Reset** button.

Enable **DHCP** to allocate an IP Address to the Surface by a network DHCP server, for example a Wi-Fi router.

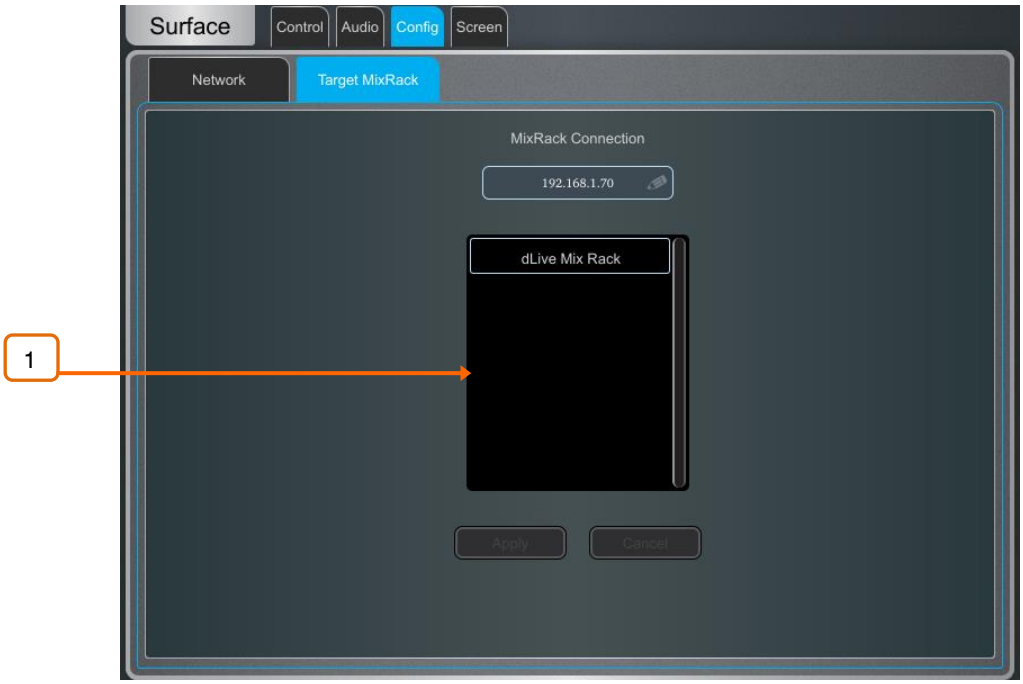
ⓘ Only use DHCP when a DHCP server is connected to the Surface. If DHCP is enabled and the Surface is powered up while no server is present, it can take longer than usual for the system to boot.

2 **Unit Name** – A name with up to 16 characters can be set to identify the Surface on the network. The default is 'dLive Surface'.

3 **Connections** – Displays the number of active network connections to the MixRack. The Surface and touchscreens count as one connection each.

10.15 Config / Target MixRack

On this page a MixRack can be selected for connection to the Surface.



1 **Target MixRack** – The Surface remembers the last MixRack it connected to and attempts to connect to it at power up. If you want to connect the Surface to a different MixRack on the network, select the MixRack from the list or type in its IP Address and press **Apply**.

10.16 External Screen

Use this page to select the output of the external VGA connector. The VGA output can mirror either screen of the dLive Surface, or set to display a third, independent view.

You can connect a mouse and/or keyboard to the Surface USB port/s for use with the external screen.

ⓘ The external screen must support a resolution of 1024x768.

ⓘ External touchscreen devices can be used if they support a resolution of 1024x768 and are class compliant on Linux. dLive does not support third party driver installation.

10.17 Controllers

Up to 8 GPIO modules and 16 IP remote controllers per device type are configurable, each with its own assignments and functions.

ⓘ Refer to the Remote Controller Getting Started Guide for information on the device hardware and connection.

ⓘ Please refer to earlier sections in this Guide for instructions on setting up and assigning IP remote controllers.

Adding a device to the **Surface** / **Controllers** / **Device Manager** adds the option to assign **Sel** and **Mix** keys to the IP device. In this mode the remote controller becomes an extension of the dLive Surface i.e. the channel and Mix selection is shared across the Surface and IP device.

Add controllers to the **MixRack** / **Controllers** / **Device Manager** instead for applications where the Surface is not present or an independent set of controls is required.

11. Shows / Utility

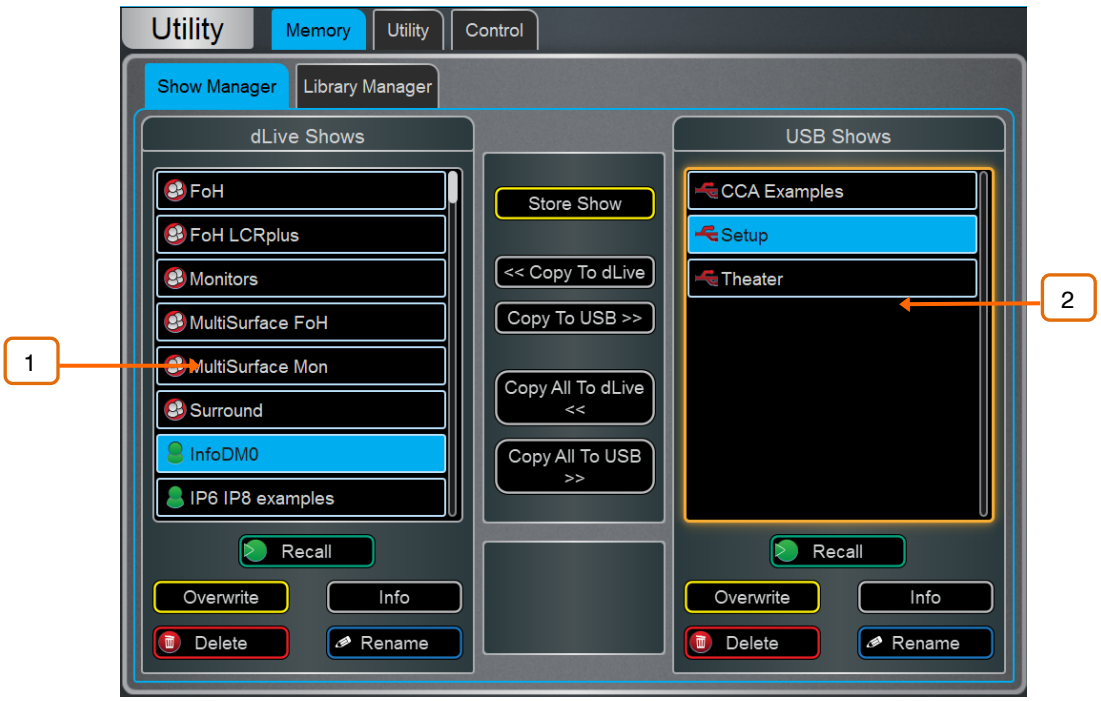
11.1 Memory / Show Manager

A Show file stores the complete dLive setup. This includes the mixer bus configuration, system preferences, all Scene memories, Cue Lists, Actions and Libraries. User Profiles are not stored in Show files. Shows are stored in the dLive Surface and can be transferred between dLive systems or archived via USB key.

ⓘ See Appendix B in this guide for details on Scene and Show memory content.

User Shows can be overwritten, renamed or deleted. Factory **Template Shows** provide a quick starting point by giving you a familiar layout and classic mix architecture for typical FoH and Monitor applications. Template Shows cannot be edited or deleted. They contain a number of default Scenes to reset the mixer settings, patch and Surface layout to the starting point.

ⓘ See Appendix C in this guide for an overview of available Template Shows.



1 **dLive Shows** – Lists Template and User Shows stored in the dLive Surface or Director. Touch **Store Show** and type in a name to store a new User Show.

Touch a Show to select it and press **Overwrite** to update it with current settings. You can **Rename** and **Delete** existing Shows. Touch **Info** to display the file size of the Show and the date it was last modified. Touch **Recall** and confirm to recall a Show.

When loading a show created in earlier firmware, a message will appear warning you that new features will not be reset. If you select **Yes** to load the show you should then check the parameters of any new features before proceeding, to ensure they are set appropriately.

ⓘ Recalling a Show overwrites all system settings, bus configuration, Scenes and Libraries. If you want to keep your current settings for later use, archive them first as a User Show.

ⓘ Recalling a Show will briefly interrupt the audio. It is not intended for instant recall of band settings or theatre cues. Use Scenes for such applications instead.

ⓘ dLive Shows stored on systems running more recent firmware will not load on systems running earlier versions. However, earlier versions of Shows are compatible with dLive systems running later firmware.

2 **USB Shows** – Lists User Shows stored in the USB drive. The files are stored in the USB AllenHeath-dLive/Shows folder. Touch a Show to select it and press **Overwrite** to update it with current settings. You can **Rename** and **Delete** existing

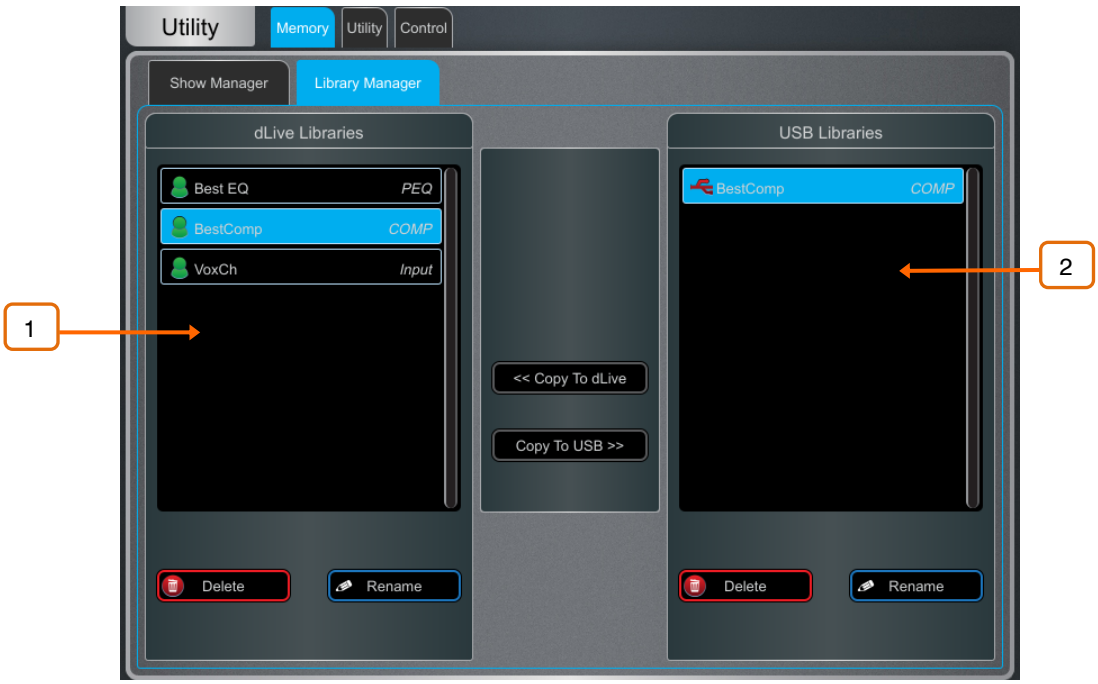
Shows. Touch **Info** to display the file size of the Show and the date it was last modified. Touch **Recall** and confirm to recall a Show.

Select a USB Show and touch **Copy to dLive** to copy the file to the dLive memory. Select a dLive Show and touch **Copy to USB** to copy the file to the USB drive. Touch **Copy All to…** to transfer all Show files.

⊙ Hold down **Setup** and touch anywhere in this screen to access **Show Manager Options**. Enable **Allow Surface Only Recall** to only recall the surface data from a show. MixRack data will not be affected by a show recall when this option is enabled. This option would typically be used when in Multi-Surface mode so that current settings and audio on the MixRack and Primary Surface wouldn't be disrupted when a Show is recalled on the Secondary Surface. See Appendix E for more information.

11.2 Memory / Library Manager

Use this page to edit and transfer Library presets. Library memories include Channel Processing, Mix Processing, PEQ, GEQ, Gate, Compressor, FX parameters.



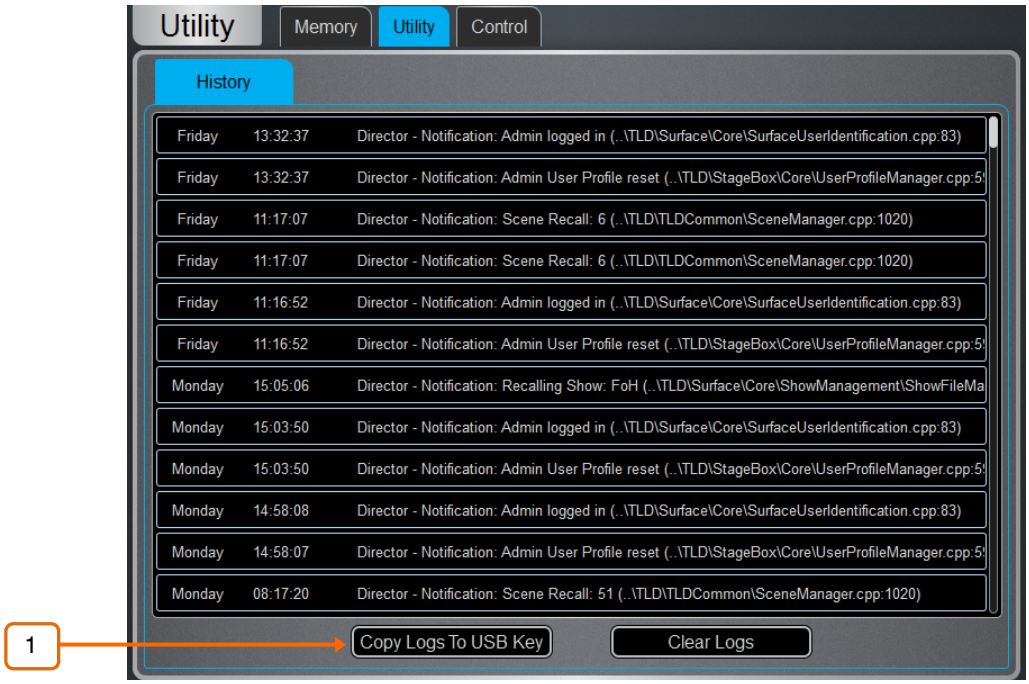
1 **dLive Libraries** – Lists Libraries stored in the current Show. Touch a Library to select it. You can **Rename** and **Delete** existing Libraries. Touch **Copy to USB** to copy the Library to the USB drive.

2 **USB Libraries** – Lists Libraries stored in the USB drive. The files are stored in the USB AllenHeath-dLive/Libraries folder. Touch a Library to select it. Touch **Copy to dLive** to copy the Library to the dLive memory.

ⓘ dLive Libraries are stored within a Show file. If you want to use one or more Library in a different Show, archive them first to USB, recall the Show, and transfer the Libraries back to the dLive.

11.3 Utility / History

This page keeps a timed register of events such as system boot up or shut down, when Scenes are recalled, and any error recognized by the system.



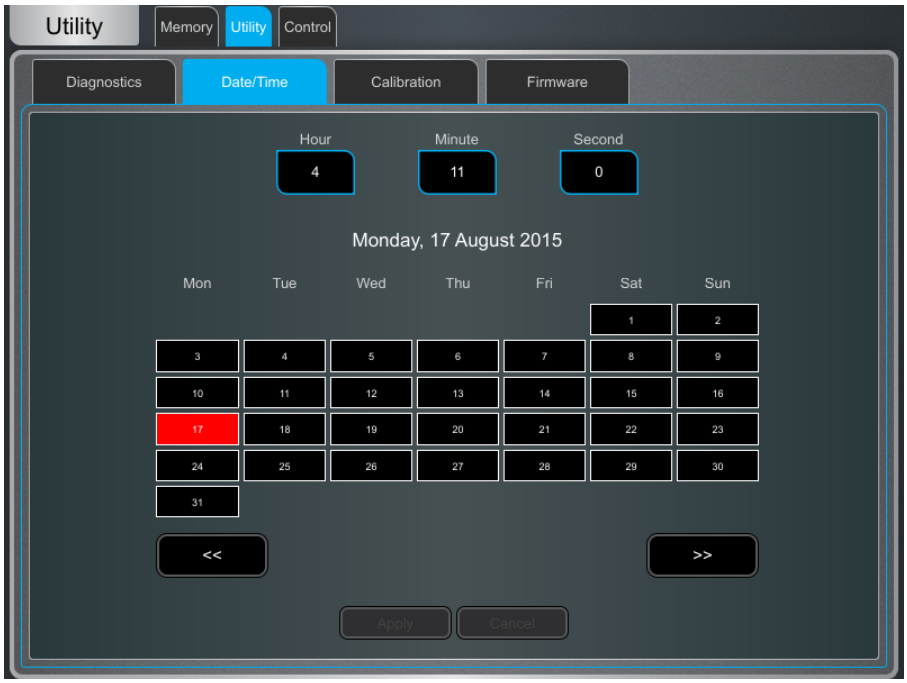
1 If you suspect a problem with the dLive system you can **Copy the logs to USB Key** and send them to Allen & Heath Product Support for diagnostic purposes.

ⓘ Any time an error is logged a warning message will appear in the **Home** screen and a yellow triangle is displayed in the top right corner of the screen. Touch the triangle to navigate to the **Home** screen and investigate the error.

⚙ Hold down **Setup** and touch anywhere in this screen to access an option to **Show detailed Event Logs**.

11.4 Utility / Date/Time

Use this page to set the current date and time. The time is displayed in the **Home** screen and used in the History and Event Logs.



11.5 Utility / Calibration

This page lets you recalibrate the accuracy of the motor faders and touchscreens.

To calibrate the faders, touch the **Calibrate** button and follow the on-screen instructions, moving the faders to the positions instructed at each step.

> ⓘ It may be necessary to re-calibrate the motor faders after you update the firmware or perform a full system reset.

To calibrate the touchscreen, touch the **Calibrate** button and wait for the automated procedure to complete.

11.6 Utility / Diagnostic

This page lets you diagnose any hardware faults with your dLive Surface screens, meters, LEDs and controls.

In **Automatic** mode, the Surface will sequence through different fader positions and different colours and levels of brightness for LEDs, touchscreens and LCD displays.

In **Manual** mode, you can check for correct operation of keys and rotaries. Press any illuminated key to turn off their illumination. Press any non-illuminated key to remove it from the list on screen. Turn rotaries one full revolution to turn their illumination.

11.7 Utility / Firmware

Use this page to view or update the current firmware. Firmware is updated via a USB drive or Director.

> ⓘ Keep your dLive system updated with the latest version of firmware. Check www.allen-heath.com for the latest version and information.

> ⓘ Updating dLive firmware resets its parameters and preferences. If you want to keep your current settings save these as a User Show first. Updating firmware does not affect User Shows or User Profiles.

ⓘ dLive Shows stored on systems running more recent firmware will not load on systems running earlier versions. However, earlier versions of Shows are compatible with dLive systems running later firmware.

ⓘ In a Multi-Surface configuration, Surfaces should be updated individually – either connected as a Primary Surface or with no MixRack present and via the Connection Failed screen. Updating the firmware with Secondary Surfaces connected via gigaACE I/O modules is not supported.

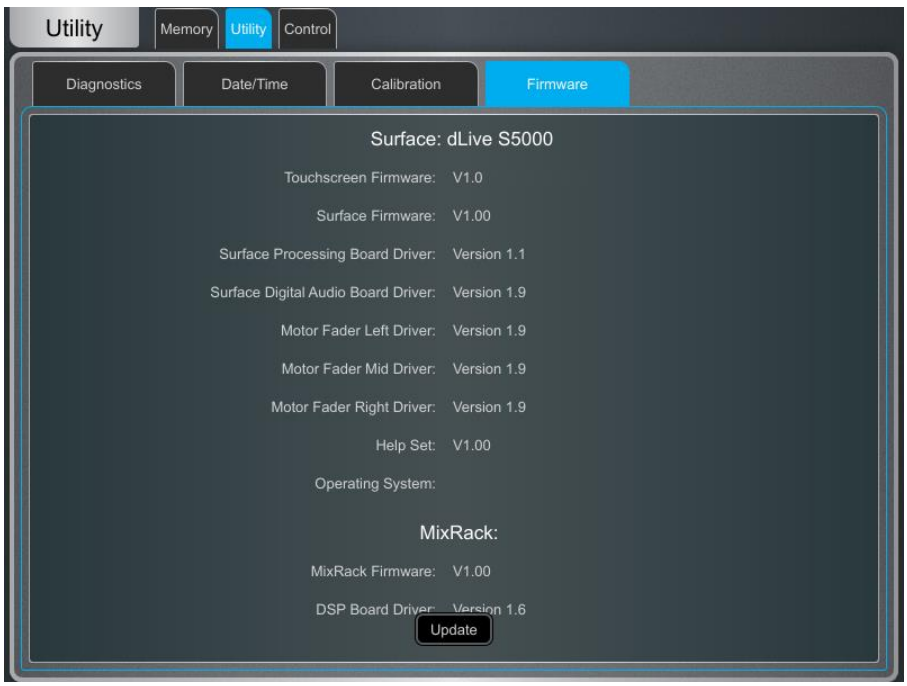
ⓘ When downgrading from v1.90 or higher to any pre-1.90 version of the firmware, it may be required to set Jumper 3 into the On position in the MixRack. For jumper location please see “dLive. MixRack hard reset” in the Allen & Heath knowledgebase.

To update the firmware via USB:

1. Download the latest firmware from www.allen-heath.com and save the .zip file.
2. Remove any previous dLive firmware from your USB drive. To do this, look into the USB AllenHeath-dLive folder and delete the existing Firmware folder and also the Firmware.md5 file. Do not delete other files or folders.
3. Open and extract the .zip file to the root directory of your USB drive.

   ⓘ Do not change the folder name or browse inside the Firmware folder as doing this may cause firmware corruption. Attempting to navigate or open files within this directory may cause your Operating System to leave behind small temporary system files which can invalidate your firmware.
4. Safely remove the USB drive from your computer.
5. Plug the USB drive into the dLive USB port, and touch **Update** in the Firmware page. The dLive will reboot to a ‘bootloader’ screen and if valid firmware is found on the USB drive then details of the current versions and versions found on the drive will be displayed.
6. Touch the **Update** button.

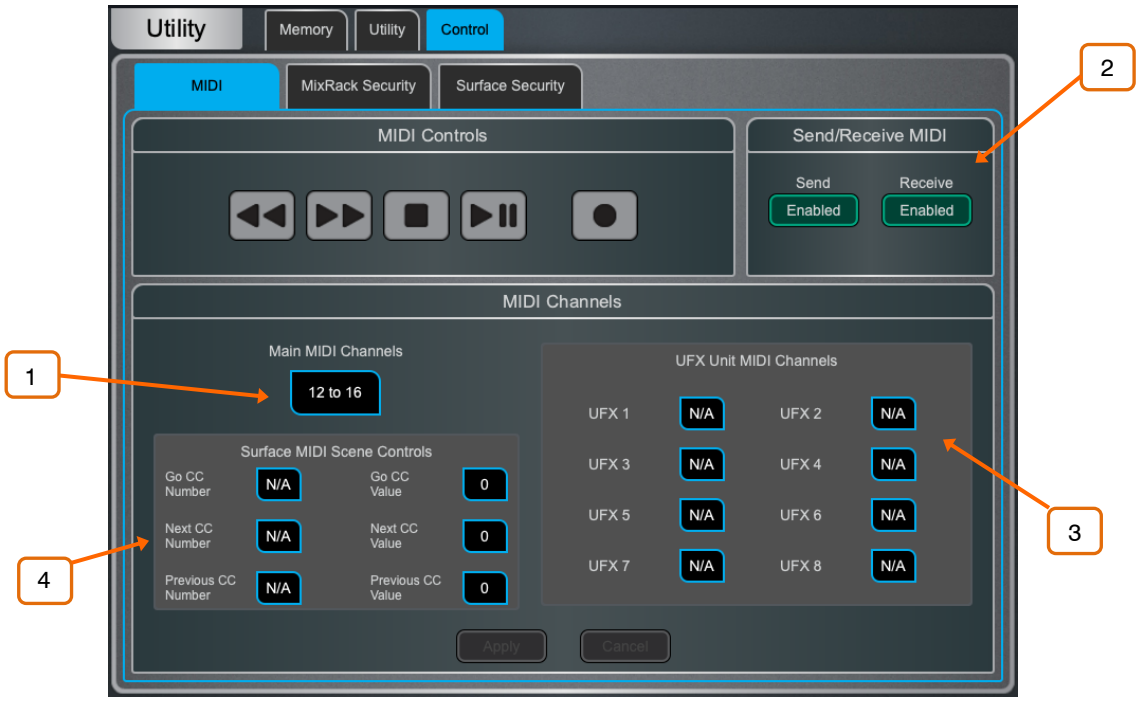
   ⓘ Do not interrupt this process. Failure to complete the transfer may result in firmware corruption. Make sure the mains power and connecting cables are reliable and that the system will not be disturbed or switched off during the update.
7. When the firmware has been successfully installed, the system will automatically reboot.
8. Once the system is fully booted, recall a Template Show or User Show to restore your settings.



11.8 Control

MIDI messages are sent/received over TCP and are available via any Network port on the dLive Surface or MixRack.

ⓘ For further information please refer to the **dLive MIDI Over TCP/IP Protocol** document at www.allen-heath.com.



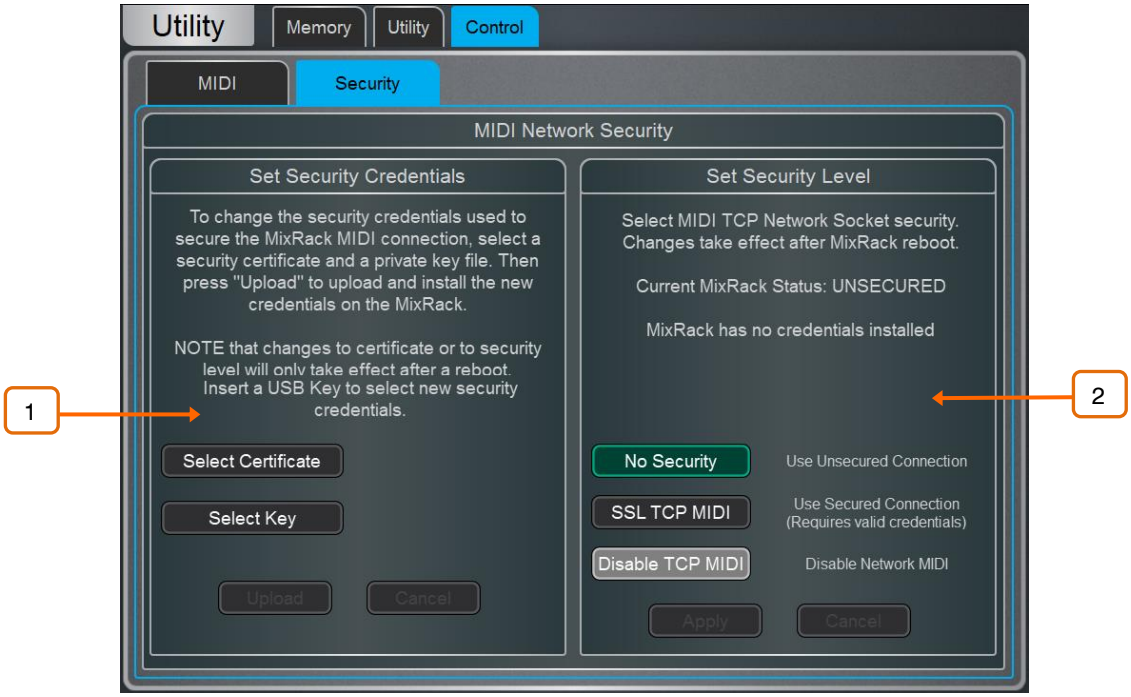
MIDI – Use this page to assign the MIDI channels and operate MIDI Transport Controls (MTC).

1 Select the range of **MIDI Channels** dLive messages will use and respond to. Multiple channels are used to address all Input and Mix channels.

2 **Send/Receive MIDI** – Enable or Disable incoming or outgoing MIDI independently.

3 **UFX Unit MIDI Channels** – Choose the MIDI channel for parameter control of each Rack Ultra FX unit.

4 **Surface MIDI Scene Controls** – Choose the CC Number and Value to trigger scene controls. MIDI Control **must** target the Surface for these controls.



MixRack / Surface Security – Use this page to configure Security options for MIDI Control. Clients can be configured to use an SSL connection.

1 Select a **Certificate** and private **Key** file from a USB storage device and press **Upload** to install the new credentials.

2 Select the Security Level. Choose **No Security** for an unsecured connection, **SSL TCP MIDI** for a secure SSL connection, or **Disable TCP MIDI** to disable all MIDI control to/from the dLive.

ⓘ Changes to Security settings will only take effect after a MixRack / Surface reboot.

12. Appendix A – DEEP Processing, RackExtra FX and RackUltra FX

DEEP processing embeds class-leading compressors and processing emulations directly within the Input and Mix channels. An array of bespoke algorithms can be inserted on the fly without burning FX slots and without the setup, latency and licence hassles associated with external plug-ins.

The RackExtra FX and RackUltra FX portfolio combine the quality and wide choice offered by FX plugins with the convenience and low latency of onboard processing.

12.1 DEEP Processing Preamp models



Dual-Stage Valve – Inspired by a known studio preamplifier, this model recreates the distortion characteristics of valve circuits, from very subtle coloration to full overdrive. It can be fully bypassed with the **On**/**Off** switch.

Stage-1 adds subtle tonal harmonic distortion and offers two modes which mirror the typical valve topologies of analogue preamplifiers: **Triode** is richer in even order distortion resulting in a musical, warm response; **Pentode** is stronger in odd order distortion (predominantly 3rd), resulting in crisper, sharper sound.

Stage-2 provides overdriven valve emulation. It can be switched off circuit or to either **Triode** or **Pentode** mode. **Bias** controls the level of overdrive. With **HiDrive** Off, it produces pronounced 'break up' distortion and compression at high levels. **HiDrive** changes the gain structure to produce a continuous overdrive effect.

The **HF** control adjusts the HF content to compensate for mid-range tonal lift and high frequency compression.

The **Output** level is effectively a make-up gain to compensate for the level loss.



Tube Stage – Derived from our Dual-Stage Valve DEEP processor, this model recreates the distortion characteristics of valve circuits, from very subtle coloration to full overdrive, with a simplified control set. It can be fully bypassed with the **On**/**Off** switch.

A number of modes are available via the rotary selector switch offering different distortion characteristics – see the Dual-Stage Valve section for more information.

The **Drive** control adjusts the amount of distortion applied to the signal.

The **Level** control is effectively a make-up gain to compensate for the level loss.

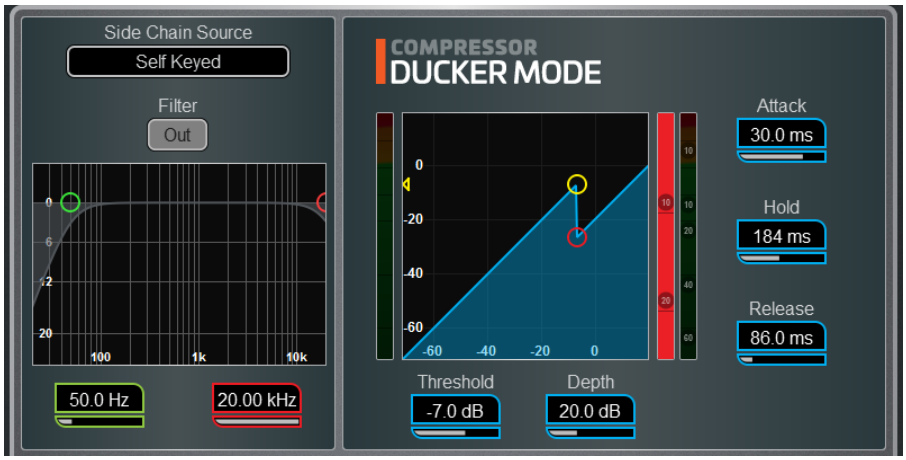
12.2 DEEP Processing Compressor models



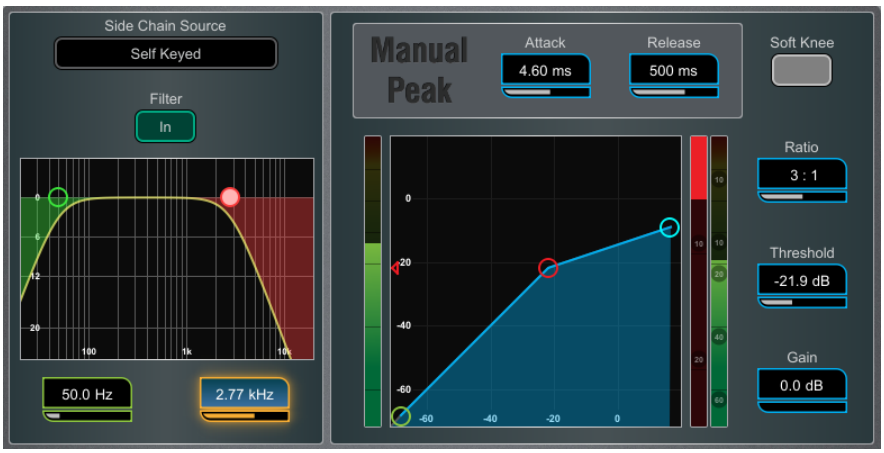
16T - Inspired by an industry classic VCA based RMS compressor this model produces a tight, punchy compression particularly useful with live bass and percussion and also vocals, and with a very easy to use three rotary control interface.



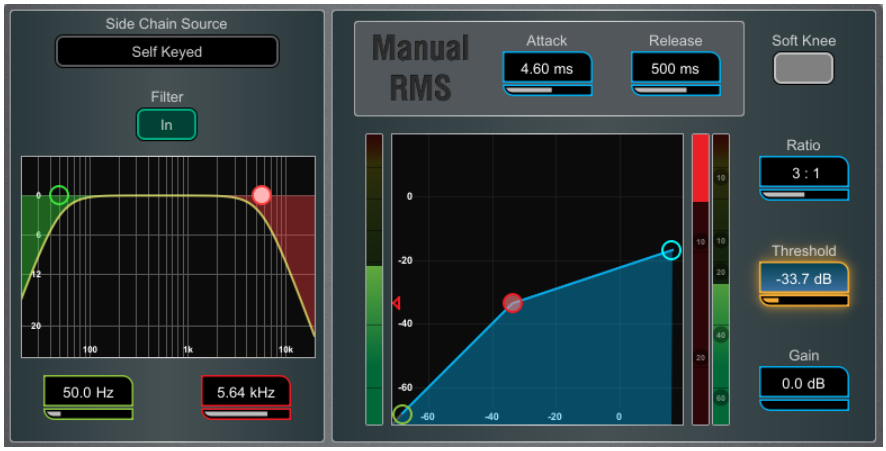
16VU - Based on an original vintage VCA based RMS compressor with VU needle meter, with pleasant characteristic sound due to its non-linearity and distortion artefacts, and also with a simple three rotary control interface.



Ducker - The Library for the Gate and Compressor processing blocks includes a channel Ducker with key source selection and LPF/HPF filters, plus controls of Threshold, Depth, Attack, Hold and Release.



Manual Peak - Offers the response of a peak based threshold detector with various smoothing, auto hold/recovery schemes to minimise distortion. The algorithm is capable of ultra fast attack time with minimal lag before onset.



Manual RMS - Offers the response of a fairly fast pre-threshold RMS detector with added ability to manually modify the post threshold ballistics for classic sounding RMS compression with additional attack or release smoothing.



Mighty Compressor – Inspired by a classic transistor array VCA dynamics processor, Mighty is an aggressive sounding compressor with a very fast attack. The Detector switch offers two distinct voices with easy control over Threshold and Release values in addition to an Output control to restore any volume lost.

The characteristics of Mighty make it particularly useful on kick, snare, bass and parallel compression duties.



Opto - Offers the response of a filament optical compressor. The release has non-linear exponential recovery, fast at the start and smooth for final recovery stage. This creates a smooth and musical sounding compressor.



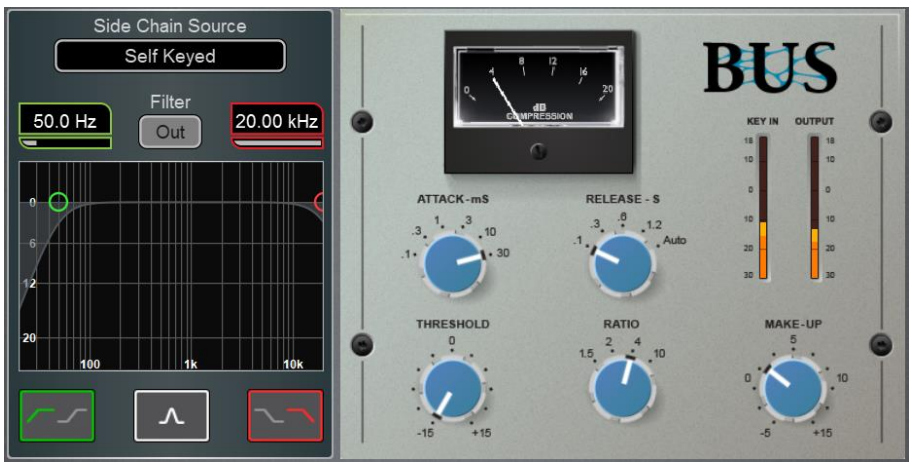
OptTronik – Based on a legendary tube-driven, electro-optical compressor, OptTronik offers smooth, musical compression with easy-to-use controls. The Limit/Compress switch is used to set the compression ratio and amount of compression is determined by the Peak Reduction control. The Gain control can be used to restore any volume lost to compression. The Emphasis control is used to set the frequency response of the sidechain and offers variable or fixed preset settings.

Unit A and B offer two flavours based on two hardware units modelled.



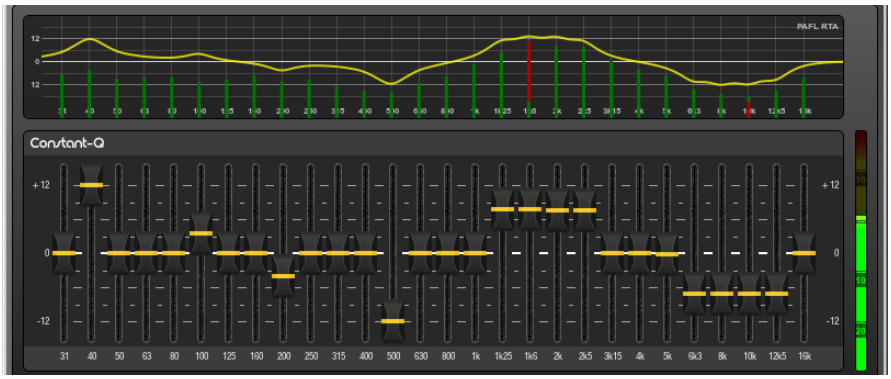
Peak Limiter 76 - A faithful emulation of the legendary FET limiting amplifier from the late 60s, complete with its nonlinear distortion characteristics, program-dependent Attack, Release and Ratio settings, and trademark 'All buttons' mode.

The Unit switch selects one of two units which have been modelled: the modern silver and the black vintage.

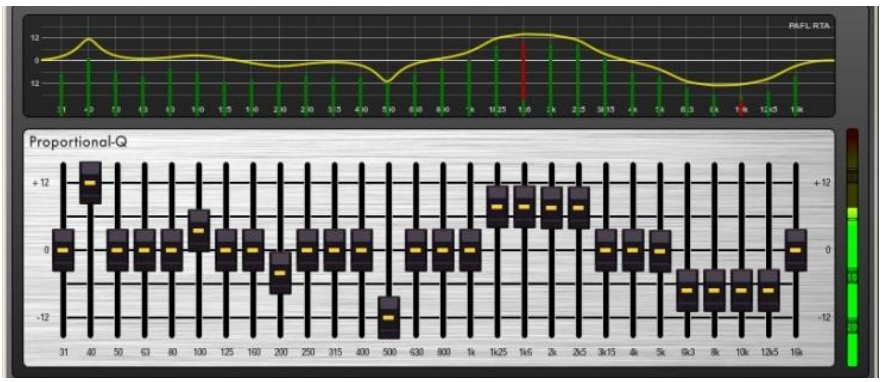


Bus - Inspired by a legendary VCA bus compressor, it delivers unrivalled sonic cohesion on LR and sub-mixes, with minimal pumping.

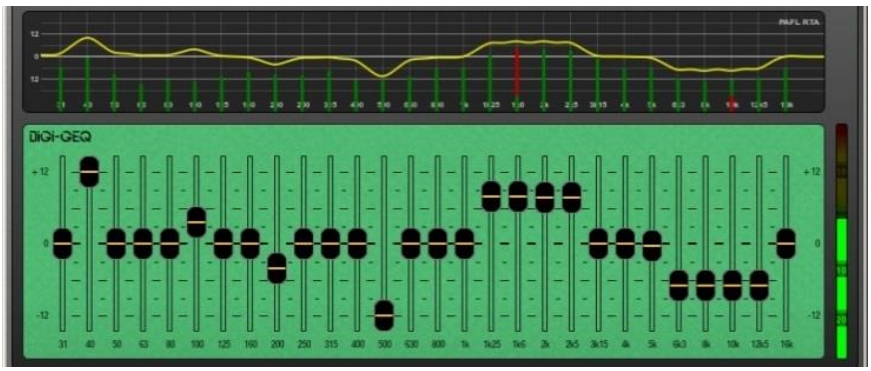
12.3 DEEP Processing GEQ models



Constant-Q - Symmetrical cut/boost where the width (Q) of the filter is a constant 1/3rd octave for any amount of cut or boost.



Proportional-Q - Provides smooth wide Q for low cut/boost, which progressively tightens beyond 1/3rd octave for max boost/cut.



Digi-Q - Gain and width are optimised to minimise band interaction and to provide a frequency response as close to the slider positions as possible.



Hybrid - Allen & Heath have developed the best of both worlds. The boost is proportional-Q for smooth and warm small boost settings. The cut is Constant-Q providing clinical 1/3rd Octave attenuation with minimal band interaction.

12.4 DEEP Processing AMM

Operating Principles

The AMM works by automatically reducing the mix level proportional to the microphone activity at any time. It adds an automatic gain element and derives a trigger source within each assigned channel.

The AMM takes control by using its own post-fade gain element to make its automatic adjustments. It is typical to leave the faders at '0', but they can be adjusted if the engineer wishes to make additional post AMM level changes manually to adjust the relative balance between mics in the mix.

The AMM affects all channel post-fade sends but not pre-fade sends such as monitors.

The AMM determines when microphones are open (detects a level or speech) by analysing the channel signals at their pre-Insert point. The PEQ, Comp and fader do not affect AMM signal detection.

The AMM uses a complex algorithm to automatically optimise the overall gain by adjusting the microphone levels sent to the mix according to how many mics are open.

If just one mic is open then its level is passed through at 0dB and the others are attenuated. If several mics are open the overall gain is automatically reduced.

Additional features allow ambience to be maintained, crosstalk and false triggers to be eliminated, and microphones to be selected as 'Chair' to take priority over others by ducking their levels.

NOM Mode

NOM (Number of Open Mics) mode evolved from the AMM developed for the Allen & Heath IDR8 installed sound processor, NOM mode acts as a gate, turning an input on when a threshold is passed. The level adjustment for each open input is equal and depends on the number of microphones open and the NOM attenuation parameter which sets the amount of attenuation applied for every doubling of open microphones.

Adaptive Threshold - You do not need to set the open mic threshold. NOM mode senses the background ambient noise level and automatically adjusts the open threshold level to ensure consistent triggering regardless of background noise.

Ambience Maintenance - Keeps the last open microphone locked on until another channel is opened to ensure consistent ambient noise is maintained, especially important in a broadcast environment. If just one microphone is active in the AMM then it is held open to maintain ambience.

Scenes and the AMM

AMM settings are stored in dLive Scenes. However, these can be made globally safe from Scene recall using the Scenes / Global Safes screen in the Scenes menu. They can also be filtered out of individual Scene recall by highlighting a Scene in the list, touching its Recall Filter button to access its filter 'Others' tab and blocking the AMM item.

User Permissions and the AMM

AMM settings can be protected from selected users by disabling 'AMM' parameters in the **MixRack** / **User Profiles** / **Set Permissions** screen under the AMM tab.

Using the AMM

Set up and position the microphones. It is best to use the same type of microphone and position them so that the participants are not too close or too far from each. To avoid false triggering and phasing the distance from each voice to its mic should be closer than the distance between the mics. The distances from each mic to voice should be similar for consistent operation.

Set up an Audio or DCA Group for master control. Decide which mic channels to use for the AMM. Before assigning to the AMM we recommend you either route these via an audio Group to the LR mix (remember to also unassign these channels from the LR mix), or assign a DCA Group to them. This gives you a master fader and mute for quick overall control.

Set the mic gain and processing. It is best to start with the Group master fader down to avoid unexpected high levels in the PA while setting the gains. Use PAFL to check audio level and quality. Set gain for the loudest speech expected. Use the HPF and PEQ to tailor the sound for speech.

Set up the AMM. Use the Setup / Audio / AMM screen. This displays the current mode and assignments as well as blue bars showing the automatic gain settings. Touch the Setup button to choose NOM or D-Classic mode and adjust the available settings.

Assign the channels to the AMM. When you turn an assignment ON its fader will automatically move to its '0' position. The AMM takes over and keeps the mic closed until it picks up enough signal to trigger it.

Bring up the AMM in the mix. Turn one mic on by having someone talk into it. Raise the Group fader to set the required volume in the room.

12.5 RackExtra FX models



SMR Reverb - SMR Live is a Spatial Modelling Reverberator featuring 4 fully configurable complex spatial models Classic, Hall, Room and EMT. Each of these models use different reflection and decay algorithms to provide natural sound spaces ideal for Live sound.

Classic Emulates high quality plates. Shape tailors the reflection pattern. Min position for fast attack, mid position for rounded early reflections, and max position for separated early and late reflection patterns. Adjusting shape/size/predelay with decay can result in some great Hall reverbs. Small size settings not very useful in live sound applications.

Hall Emulates a real Hall reflection model. No shape control, reflections are controlled with Size, Source diffusion and Ref detail with rich deep decay spectrum.

Room Accurately emulates a characteristic complex room reflection pattern.

EMT Classic plate emulation. A great plate with good tonal balance for live use. Decay setting around 2 seconds is typical.

The SMR primary controls essential for live mixing are always visible:

LF Cut - 0 to 400Hz, 24dB/octave high pass filter to cut low frequencies of the input signal to the reverb.

HF Cut - 2kHz to 20kHz, 24dB/octave low pass filter to cut high frequencies of the input signal to the reverb.

Predelay - The time it takes before the reverb reflections and decay are heard.

Decay Time - Broad spectrum decay control. The time it takes for the reflections to decay to 60dB below the level of the direct sound is known as the RT60, an important measurement of reverb in a room.

HF Decay - Frequency at which the high frequency decay attenuation starts.

HF Slope - The attenuation slope of the high frequency decay. HF Decay and Slope are both essential for high frequency decay spectrum adjustment in a live space. Setting HF Decay and Slope low creates a natural sounding decay. Setting HF Decay and Slope high creates a dramatic decay.

In addition there are 5 pages of scrollable 'Expert' pages for the Reverb which allow precision control:

Page 1 - Reflections - Source Diffusion, Size, Shape, Ref Detail.

Dedicated to reflection control. Keep source diffusion and detail low to help intelligibility. Small sizes are not typical for live applications. 'Shape' is only available in the Plate model.

Page 2 - Echoes - Echo1, Echo1 level, Echo2, Echo2 level.

Dedicated page for user defined echo reflections. You can insert main reflections to create Echo reverb sounds. Echo1 goes to left Echo 2 goes right. Echoes may be layered over the reverb.

Page 3 - Decay Texture - Body Diffusion, Tail diffusion, Mod depth, Mod speed.

Separate body and tail diffusion controls can help prevent metallic decay through too much diffusion. Modulation depth and speed increase reverb density and add chorusing, effective on percussive program but not as useful on piano and vocal.

Page 4 - Decay Spectrum - LF decay, LF XOver, Colour, Colour Freq.

Separate LF decay control with crossover frequency and decay time, useful for live work. Colour is a tuneable element in the decay. High Freq colour settings can enhance ambience, although it can sound metallic with some programme.

Page 5 - Reflection/decay level - Reflection level, decay level.

These controls are dedicated to balancing reflection and decay to improve intelligibility.

Preset Name is displayed in the simulated LCD window. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



Stereo Tap Delay - Provides a clean digital delay with a maximum delay time of 2.7 seconds. One of the key features of the stereo tap delay is the ability to synchronise the delay times to note intervals based on the effects beats per minute value. The delay has two modes of operation:

BPM mode -Delay time is determined by the selected beats per minute and corresponding note value. Standard, dotted and triplet intervals are selectable via the interval selection wheel from whole to 16th intervals.

MS mode - Delay time is set directly in milliseconds. The unit offers control over input and feedback filters, delay width and switchable Scatter/Ping-Pong modes.

Note The Stereo Tap Delay can also be locked to the global tap tempo. Global rate can be manually entered or tapped in using the screen of any delay FX locked to global tap tempo, or by tapping a SoftKey assigned as Global Tap Tempo.

Input filter HP frequency – Sets the frequency of the high pass filter on the input to the delay. This cuts low frequencies.

Input filter LP frequency – Sets the frequency of the low pass filter on the input to the delay. This cuts high frequencies.

BPM / **MS mode** –Switches between Beats Per Minute and Milliseconds mode. In BPM mode the BPM and note selection wheels are displayed allowing delay times to be set as an interval of a selected BPM.

Interval Selection Wheel – Determines the delay time to be set in synchronisation with the chosen BPM. The values range from whole dotted intervals to 16th triplet notes. When an interval is not available due to the BPM being too low, the interval will grey out and not be selectable.

MS time window (in MS mode) – Allows the delay time to be set directly in milliseconds.

Link – Links the left and right delay times.

Local / **Global Tap** – Locks the delay time to the global tap tempo allowing global synchronisation across the console or locally to this effect unit.

Fractional / **Notation display** – Choose to display either fractions or notation representation of the selected interval on the selection wheel.

Feedback filter frequency – Selects the frequency of the filter in the feedback path of the delay unit.

Feedback filter slope – Selects the slope of the feedback filter. A larger slope provides greater feedback attenuation.

Scatter mode – Modifies the delay pattern between Ping-Pong and scattered. Scatter off creates classic Ping-Pong delays. Scatter on reconfigures the regen path giving one delay on the shortest side and regen on the longest side replacing Ping-Pong

bounce with some interesting delay patterns. For example, an echo on one side and a regen echo pattern on the other.

Feedback – Controls the amount of the feedback in the delay. A larger amount increases the number of audible repeats.

Width – Controls the stereo imaging of the delay unit, from focussed mono sounding to panned wide stereo delays.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



Bucket Brigade Delay - This is an emulation of a vintage analogue delay unit that used a 'bucket brigade device' (BBD) chip for the delay. This was a discrete analogue time delay line where the stored analogue signal was moved along a series of capacitance sections one step at each clock cycle, similar to a line of people passing buckets of water.

Unlike the analogue equivalent, the Bucket Brigade benefits from long delay lines (up to 2.7 seconds) but maintains the signal degradation expected from such a device. The level of signal degradation is switchable via a 'DIST' (distortion) control which switches between different nonlinearities in the feedback path. Note that even in its cleanest mode the Bucket Brigade delay will degrade and band limit the signal.

The delay has two modes of operation:

BPM mode - The delay interval is determined by the selected beats per minute and corresponding note value. Standard, dotted and triplet intervals are selectable via the interval selection wheel from whole to 16th intervals.

MS mode - The delay interval is set directly in milliseconds. The stereo beat delay can also be locked to the global tap tempo. There are controls for both input and feedback filters, with the latter having individual slope parameters.

Note The Bucket Brigade Delay can also be locked to the global tap tempo. Global rate can be manually entered or tapped in using the screen of any delay FX locked to global tap tempo, or by tapping a SoftKey assigned as Global Tap Tempo.

Input filter HP frequency – Sets the frequency of the high-pass filter on the input to the delay. This cuts low frequencies.

Input filter LP frequency – Sets the frequency of the low pass filter on the input to the delay. This cuts high frequencies.

Width – Controls the stereo imaging of the delay unit, from focussed mono sounding to panned wide stereo delays.

BPM/MS mode – Switches between Beats Per Minute and Milliseconds mode. In BPM mode the BPM and note selection wheels are displayed allowing delay times to be set as an interval of a selected BPM.

BPM window (in BPM mode)– Touch and use the rotary to select the BPM that the note values are synchronised from.

Interval Selection Wheel – Determines the delay time to be set in synchronisation with the chosen BPM. The values range from whole dotted intervals to 16th triplet notes. When an interval is not available due to the BPM being too low, the interval will grey out and not be selectable.

MS time window (in MS mode) – Allows the delay time to be set directly in milliseconds.

Link – Links the left and right delay times.

Local / **Global Tap** – Locks the delay time to the global tap tempo allowing global synchronisation across the console or locally to this effect unit.

Fractional / **Notation display** – Choose to display either fractions or notation representation of the selected interval on the selection wheel.

Low Damp Filter frequency – Selects the frequency of the low damp filter in the feedback path of the delay unit.

High Damp Filter frequency – Selects the frequency of the high damp filter in the feedback path of the delay unit.

Feedback filter slope – Selects the slope of the feedback filter. To filter more or less of the feedback path.

Feedback – Controls the amount of the feedback in the delay. A larger amount increases the number of audible repeats.

Dist – Changes the distortion characteristic of the feedback path allowing for more or less signal degradation.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



2-Tap Delay - Separate left and right tap delay outputs from a mono'd input. Left and right delay can be dialled in using the screen Rotary, tapped on screen or tapped using a SoftKey. Individual tap indicators flash at the tap rate.

Note 2-Tap Delay is no longer available within the factory library from firmware V1.5 onwards as it is replaced by the newer Stereo Tap Delay.

The left and right delay taps can be ganged to mono using the **Link** button. There are adjustment controls below each delay tap for fine tuning the values.

The regen path (feedback) has a low pass damping filter. This filter has a frequency and a slope control for fine adjustment of loop delay HF attenuation. There is also a stereo output width control.

LF Cut - 20Hz to 8kHz HF Cut 400Hz to 20kHz These filters control the input spectrum. The 24dB/octave slope gives brick wall control on what signal spectrum gets delayed.

Delay range - 5ms to 1360ms Delay tap controls Left and Right are tappable, shown with flashing leds.

Fine delay Left and Right adjustment in 1ms steps.

Link sets Left and Right tap delays equal with one control.

Scatter modifies the delay pattern between Ping-Pong and scattered. Scatter off - creates classic Ping-Pong delays. Scatter in - reconfigures the regen path giving one delay on the shortest side and regen on the longest side replacing Ping-Pong bounce with some interesting delay patterns. For example, an echo on one side and a regen echo pattern on the other.

Feedback controls the regeneration of the delay, creating loop delays. Feedback filter controls HF attenuation in the regeneration path/loop delay. The frequency and slope controls give the engineer precise HF attenuation control in the delay loop. Slope set mid for typical settings. Slope minimum is a light HF attenuation setting, maximum position is a large HF attenuation setting.

Width controls the stereo width of the output. Min position = mono, max position = LR.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



Echo - This emulates the classic tape echo. It faithfully models the many non-linear attributes of the original hardware. These include frequency warping as the repeat rate is adjusted (essentially changing the tape speed), non-linearity and harmonic content at extreme intensity levels, and various other idiosyncrasies associated with motor speed inaccuracies, tape drift and wow. The Echo also emulates saturation and high frequency characteristics of the record head on tape, found on the original hardware. The Echo allows for 7 different 'modes', each of which activates certain read heads on the tape. There are 3 read heads in total which are a fixed distance apart; by changing the repeat rate it is possible to vary the delay time at each of the heads. The shortest delays can be found with mode 1 and the longest with mode 3. Modes 4-7 are a combination of read heads which can lead to complex repeat patterns and a greater risk of instability. The Echo will accept stereo input however it only has a mono output.

Input Gain - Can boost or cut up to 15dB of gain on the echo input.

Noise – Turns the analogue noise emulation on or off.

Mode Selector – Switches between the 'read heads' of the tape machine allowing for different lengths of echo. 1-3 selects a single read head; 4 – 7 selects a combination of multiple heads for a multi layered echo.

Note Be aware that when multiple heads are selected there is a greater chance for instability and self-oscillation which can result in large output levels. For normal use it is advised to use modes 1-3 to prevent excessive feedback.

Bass – Can cut or boost low frequency content in the feedback path of the echo. The centre position provides a bypassed response.

Treble – Can cut or boost high frequency content in the feedback path of the echo. The centre position provides a bypassed response.

Repeat Rate – Controls the echo time by adjusting the artificial motor speed of the tape. A quicker rate means a shorter echo. For the longest echo select mode 3 and set the repeat rate to the far left.

Intensity - Controls the intensity of the feedback path in the echo. More intensity results in more repeats. When intensity is set beyond 75% the unit is capable of self-oscillation and with external input will grow and evolve, however this can result in loud output levels which need to be monitored. When multiple read heads are selected (modes 4-7) added intensity causes even more instability and care should be taken to avoid clipping.

Echo Volume - Allows for a cut or boost of 15dB of gain on the echo output.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



Gated Verb - An accurate emulation of the classic 80's Gated Reverb plus two other variants called 'Panned' and 'Powerbox'. The user interface gives instant access to Lo-cut Hi-cut decay spectrum filters and the gate envelope controls - predelay, attack, hold and release.

We depart from the 80's and provide a visual representation of the gate time domain envelope helping the engineer 'see the time envelope of the gate'. Also included are mono, stereo and wide imaging options and decay diffusion control.

Lo cut Decay Filter - 20Hz – 6kHz, 24dB/octave Hi Pass Filter to control the decay spectrum.

Hi cut Decay Filter - 400Hz – 20kHz, 12dB/octave Low Pass Filter to control the decay spectrum.

Time domain Gate envelope controls:

Predelay - 0 - 170ms adjustable pre-delay of gate opening (prior to attack starting).

Attack - Time period for gate to open.

Hold - Time period that the gate remains fully open.

Release - Time period for gate closing.

Maximum gate open time (attack + hold + release) = 500ms.

Models:

Classic nonlinear - Emulates the faithful 80's classic gated reverb.

Panner - Rapid panning between L and R in the reverb. Short time movement FX.

Powerbox - Max power in gated energy. Not as de-correlated as classic non-linear.

Mono/**Stereo**/**Wide** - Option to switch between mono, stereo and wide stereo field output.

Diffusion - Minimum diffusion for 'clear' low diffusion in the reverb decay. Maximum diffusion for 'rich' highly diffused reverb.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



ADT Doubler - An Automatic Double Tracking module capable of creating short echo/chorusing, classic double tracking and 'slapback' tape delay loops.

The ADT is very effective in creating stereo double and quad tracked voices from a mono input. There is also a stereo width enhancer. The tracked voices can be auto panned in the stereo field. The ADT is perfect for creating classic doubling effects, thickening programme on stage or developing a stereo sound field without resorting to chorusing.

The module is stereo in, stereo out (with software normalised mono input if the source is mono). ADT will create a stereo field from a mono source.

Delay Separation - Min position for short delay separation producing Chorusing with Thickness set high. Mid position for classic doubling. ¾ position with thickness high for echo-chorusing. Max position with low thickness for tape loop and slapback Echo.

Thickness - Creates flutter modulation in delay voices. Very high settings can smear detail on some programme.

Double/**Quad Track** - Clear double tracking in the first position. Switch across for thicker quad tracking. With some programme Quad can get too thick and smear detail.

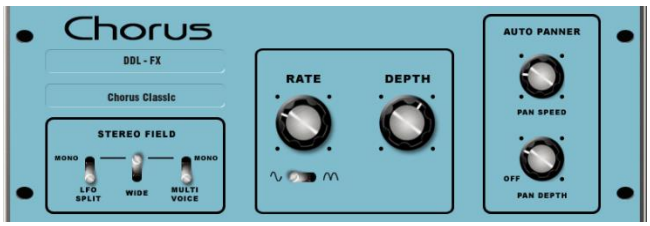
Wide - Extends the delay separation differences between Left and Right enhancing the stereo image.

Autopan - Automatically pans the chorus voices (wet signal only, not the dry signal). This is level modulation of the wet effect (not the dry signal) across the stereo field. It is not complete signal auto panning.

Depth - Determines the amount of movement across the stereo field. Use higher settings for a stronger effect.

Speed - Determines the speed of movement across the stereo field.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



Chorus - Chorus derives from the late 80's where different stereo field creation techniques influenced the sound of each chorusing unit.

Chorus recreates the classics using 3 stereo-field emulations. These emulations can be switched in any combination creating many different stereo fields. All switches up gives no stereo enhancement.

The traditional Rate and Depth controls cover the centre panel. The LFO driving the modulator can be switched to sine or rectified shape. The auto-panning section pans the chorus voices giving stereo level shimmer, another classic modulator effect.

The module is stereo in, stereo out (with software normalised mono input if the source is mono).

Stereo Field emulations - All switches up turns all stereo enhancement off. There are 3 stereo field emulations each active with switch down. These create stereo fields from a mono input. The 3 emulation switches can be used in conjunction with each other creating many different stereo field sounds, just like a number of classic chorus effects. Be careful as all 3 selected together can sound muffled rather than more 'stereo' with certain programme.

LFO Split uses two separate LFO's for left and right, creating a rich stereo image that varies with rate.

Wide pushes the left and right voices apart producing a very wide stereo image, but can sound phasey on some programme.

MultiVoice stereo field is created through multi-voice splits across left and right. It typically produces a thick stereo sound, but can sound muffled on some programme.

Rate - Min position for slow speed, best used with high depth settings for slow, deep chorus. Mid position for medium speed. Use with mid depth for classic chorus sounds. Max position for fast speed. Use with low depth settings for lively chorus.

Depth - Min position for small voice pitch variation. Useful with fast rates. Max position for large voice pitch variation. Can cause audible pitch change. Best with slow rate.

Sine/Rectified - modulator Switches between sine wave and rectified LFO modulator.

Autopan - Automatically pans the chorus voices (wet signal only, not the dry signal). This is level modulation of the wet effect (not the dry signal) across the stereo field. It is not complete signal auto panning.

Pan Depth - Determines the amount of movement across the stereo field. Use higher settings for a stronger effect.

Speed - Determines the speed of movement across the stereo field.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



Symphonic Chorus - A faithful emulation of the 80's classic chorus effect. Simple to use and frequently requested. The unit has just two controls, Frequency and Depth, controlling the rate and delay range of the stereo modulator. The unit produces a rich, lively and wide chorus sound with a suggestion of very mild phasing / flanging.

Live engineers commonly use this unit for thickening vocals and strings and creating a spatial sound from a mono source. This has led to two factory presets 'SymphonicVox' and 'SymphonyStrings'.

The module is stereo in, stereo out (with software normalised mono input if the source is mono).

Frequency - Adjusts the modulator speed. Minimum setting is a very slow modulation. Maximum is fast modulation. Like the original 80's unit, the maximum frequency setting is extreme and should be used with shorter depth settings to avoid space ship sound effects. Typical settings are just left of mid position.

Depth - Adjusts the modulator delay depth. Minimum position is short delay depth producing subtle modulation. Some programme may be more prone to phasing/flange type sounds. Mid position is a typical delay depth setting creating tonal depth with rich chorusing. High settings of depth can sound extreme if the frequency is also set too high. Mid position is a typical starting point.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



Flanger - Three classic flanger effect emulations – 'Ambient', 'Vintage' and 'Wild'. During research of classic pedal flangers we found numerous LFO modulators and stereo splitting techniques. We implemented them all.

For classic deep flange set Stereo Split and Stereo Spread off, pick triangular modulation, Vintage type and adjust Depth and Regeneration. The Manual switch overrides the LFO, for manual flange sweeps, only found on few historic flangers.

The module is stereo in, stereo out (with software normalised mono input if the source is mono).

Stereo Split Uses two separate LFO's for left and right, creating an enhanced stereo image with left and right flanging in different directions. Can sound very 'psychedelic'. Enhanced Stereo Split can reduce the intensity of the flange zone.

Stereo Spread Creates an enhanced stereo image by offsetting left and right flange voices with dynamic delay. Can sound super wide stereo or phasey depending on programme. Enhanced Stereo Spread can reduce the intensity of the flange zone. With both Stereo Split and Spread off the stereo image is preserved. For classic deep traditional flange effect turn both Stereo Split and Spread off.

LFO Type selector:

Manual Speed control becomes a manual sweep control (LED goes green). Sine, Rectified sine, Inverted rectified sine, Triangular Shape of auto oscillation. Speed Ranges from off to fast modulation. The LED goes red when in auto mode, green when in Manual mode.

Depth - Adjusts the flange zone depth. Min position operates in a tight flange zone. At max position the effect sweeps in and out of the flange zone creating a greater tonal change. High settings of Depth can sound extreme.

Regenerate - Produces feedback into the flanging delay line, making the flange more pronounced. Min position can result in no audible flange. Max position can sound too aggressive.

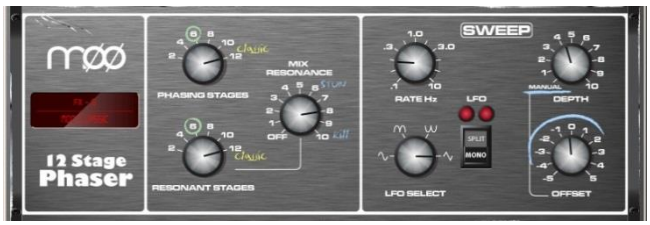
Emulation Types:

Ambient - HF rich, subtle flange, creating ambience. Great with overhead mics for a spatial sound.

Vintage - Creates a classic silky sound reminiscent of tape machine flanging. Regen control is well balanced LF and HF and the flanging does not get too aggressive.

Wild - An untameable, dramatic effect. The sound turns inside out.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



MOO 12 Stage Phaser - A classic 12 stage emulation producing rich textured phasing with plenty of control. The user has control of number of stages, feed forward and feed back, and 'zero' depth manual mode – to manually sweep the Phaser using the offset control.

The classic characteristic sound is produced by careful emulation of the phase chain and operating frequency range around the offset control. Equally important is the emulation of harmonic signatures produced by the companded analogue delay lines producing rich harmonics adding thickness to the sound. The split/mono LFO switch toggles between in-phase intense phasing and split-phase mode - creating spatial rotary effects.

There are many different possibilities through varying the number of stages in the phase chain output or the feedback resonance path. Setup depends on the instrument applied to the unit. Lower numbers produce clean thin sounds. A higher numbers of stages produce a richer phasing sound.

Phasing Stages - Selects which point in the phase chain is taken as output. 6 stages produce a clean phase. However the classic rich sound is 12 stages.

Resonant Stages - Select which point of the phase chain is taken into the feedback 'mix resonance' circuit. 12 Stages is classic.

Mix Resonance - Controls the amount of feedback into the phase chain input. Classic sound around 5 - 8. Full resonance at 10.

LFO Rate - Variable between 0.1 to 10Hz

LFO Select switch - Sine / Rectified / Inverse Rectified / Linear(Triangular) are selectable. Classic unit uses Linear(Triangular). Slow Phasing sounds great with Sine. Rectified variants can create notches or phase spikes which can sound cool. Rectified variants are twice the speed.

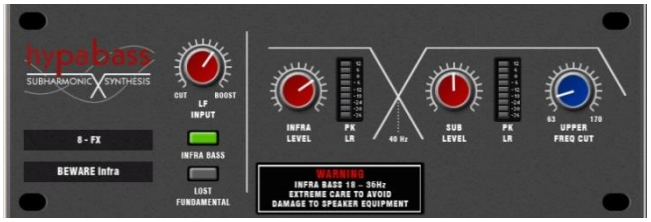
LFO split switch 'Mono' setting configures the Left and Right Phase Chains to modulate in phase, the strongest effect. 'Split Phase' runs Left and Right not in Phase, creating a stereo swirl for added spatial rotary effect.

Depth - Controls the amount or depth of LFO modulation in the phase chain. Extreme settings can sound unnatural. Setting this control to minimum turns the LFO modulator off and relies on manual sweeping of the phase chain using the 'offset' control.

Offset - Shifts the operating frequency range of the Phaser. Maximum settings force the Phaser to operate in higher frequencies. Lower Offset settings allow lower

frequency phase sweeps (more intense). In manual mode (Depth = 0) the user can adjust the phase sound with this control.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



Hypabass - A sub-harmonic synthesis unit used in the live sound environment to generate infra and sub bass spectrum from weaker bass programme. We initially emulated the American analog classic, but implementation in DSP gave us the ability to use more sophisticated techniques in the sub harmonic generator and filtering stages. The result is reduced distortion in the infra bass section and much better independent control of the infra and sub bass spectrum, essential for live PA use.

The module is stereo in stereo out (with software normalised mono input if source is mono). The stereo signal remains stereo throughout the signal path. There is no mono'ing to produce either the infra or sub bass path.

• **BEWARE** - Extreme care is needed. Driving high infra bass levels into insufficient speakers may lead to speaker equipment damage.

Operation

'Hypabass' is a sub harmonic synthesis module. An LF input de-emphasis/emphasis trim stage feeds the sub harmonic generator creating low distortion, low frequency spectrum below the source input spectrum. This sub harmonic spectrum is then band-split into Infra Bass (18-36Hz) and Sub Bass (36 Hz upwards). This allows Infra and Sub bass to have separate level controls, essential for controlling 'Infra Bass' and 'Sub Bass' preventing speaker equipment damage, and dealing with resonant acoustics or speaker resonance with exotic LF cabinet porting. Separate Infra Bass and Sub Bass meters are provided. Each are peak detected from both Left and Right signal paths and presented on one meter.

UPPER FREQ CUT - Controls the upper bandwidth of the sub bass harmonic spectrum. This setting depends greatly on the sub bass speaker equipment and the original bass content. Typically a low setting is common to prevent the generated sub bass upper harmonics clashing with the original bass content. Beyond mid position is only useful for Lost Fundamental mode.

LF INPUT BOOST - This filter stage provides emphasis on the input spectrum into the sub harmonic generator and can be used as a global 'more or less' control once everything else is setup.

INFRA BASS Mode - This is the default mode. Energy in the Infra and Sub bass spectral regions is synthesised from the input bass content. Using the independent level controls the engineer can balance Infra and Sub bass.

• Avoid infra bass damaging equipment or sub bass resonating. UPPER FREQ CUT needs to be kept low to prevent the generated sub bass upper harmonics clashing with the original bass content.

LOST FUNDAMENTAL Mode - These harmonics can be output to a mid-range driver to create apparent bass energy since these upper harmonics are musically related to the original bass content. Useful for increasing bass perception in music driving mid-range speaker systems. This turns the Infra bass section off and modifies the output spectrum to operate in the typical upper bass region. Using the Sub level and UPPER FREQ CUT the engineer can manipulate the output to contain harmonics that are above the input bass spectrum.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



De-Esser - Based on the flagship iLive FX engine, the De-Esser emulates the classic Auto-Threshold circuit commonly found on high end hardware units. This produces a constant sibilance reduction regardless of signal level, resulting in a more natural De-Essing process. In comparison, threshold based De-Essing produces inconsistent reduction activity which can result in unnatural vocals.

De-Esser features an adjustable frequency point and a Listen button to allow monitoring of the sibilant region. The response of the De-Esser and the amount of reduction applied are adjustable to suit vocal programme. Three filter types are available: the **Classic** industry standard most effective with sibilance in the 3k to 6k range, **Shelf** for reduction around and above the selected frequency, and **Band Pass**, most effective when sibilance is in the 5k to 8k range.

The two channels are independent but their controls can be linked thanks to a latch switch.

Listen - A momentary switch used to monitor the left or right channel to listen to the 'ess' band to which the gain reduction will be applied. The Listen button is independent of the "Link" configuration so that even when Link is set, the left Listen monitors the left channel and the right Listen monitors the right channel.

Frequency - Adjusts the lower boundary of the region thought to contain sibilance. This will typically be around the 6kHz range. Adjust the value to capture the "ess" heard on the channel. The frequency is adjustable from 3kHz to 8kHz. Like many advanced De-Essers this is not a simple notch filter. Typically you need to set the frequency slightly lower than the centre frequency of the 'ess'.

Reduction - Provides control over the amount of gain reduction applied to the selected frequency band. At "Min", the De-Esser will not attenuate the band. At "Max" the De-Esser will attenuate the band by up to 24dB.

Response - Adjusts the speed with which the De-esser responds to the presence of ess/sibilance. Medium setting corresponds to the speed found on the iLive platform. Fast setting is much faster, and Slow is roughly half the response time of iLive. To avoid slight artefacts in vocal programme try using the Slow or Medium settings.

Link - Forces the left and right De-esser channels to be matched. If the two channels have different, non-zero settings and the link control is activated, the right channel settings will be set to match those of the left channel. If the link control is then de-activated, the right channel will then reassume the settings it had before the link was initially activated.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



Rotator - The Rotator is a model of a traditional rotary speaker cabinet such as those used to create the familiar Leslie organ sound. It simulates the rotating horn (treble) and woofer (bass) along with their crossovers.

Rotors – Turns the treble/woofer motors on/off. When the motors are off, the speakers are both facing the front of the unit. When switched on, the motors will ramp up to the speed indicated by the Speed control. The woofer motor accelerates more slowly than the treble motor. When switched off, the motors will then decelerate to the minimum

speed, until stationary and facing the front of the unit. The On/Off switch controls only the rotor speed, not the whole effect.

Speed - Controls the speed of speaker rotation. Its lower setting is 0.1Hz (10 revolutions per second). The other two marked positions emulate those provided on classic rotary speakers: Chorale (indicated as “chor”) and Tremolo (indicated as “trem”). The big lamp flashes to show the treble speaker speed.

Width - Adjusts the stereo width of the two microphone outputs, and therefore the spatial “depth” of the effect. At the “Mono” setting both simulated microphone outputs are summed equally to the left and right outputs. At the L/R setting the simulated left/right microphone outputs are sent to the left / right output channels correspondingly.

Balance - Adjusts the relative weighting of the treble/woofer speakers. At the “LF” setting, only the output of the woofer is heard. At the “HF” setting, only the output of the treble horn is heard. You can balance between the two.

Deflectors - Simulates the attachment (On) or removal (Off) of the deflectors on the end of the treble horn.

Back Panel - Simulates the attachment (On) or removal (Off) of the cabinet back panel. This changes the simulated cabinet response as appropriate.

Mic Select - Allow for configuration of the two simulated microphone positions - Side-Side (microphones on opposite sides of the cabinet), Front-Back (mics at front/back of the cabinet), Front-Front (both microphones at the front of the rotary speaker). In Front-Front mode, the “Separation” rotary becomes available. This allows for the distance between the two front-positioned microphones to be adjusted.

Tube Drive - Controls the tube (valve) drive simulation. With the control at “On” the tube drive is active. With the control at “Off”, the tube drive is completely bypassed. The tube drive rotary control adjusts the depth of the distortion (1 = slightly warm, 11 = distorting).

Mains Hum Panel - Adjusts the level of simulated mains hum introduced.

50/**60** - Switches between mains frequencies typical to the UK (50Hz) or US (60Hz).



VS1 Vocal Shift - VocalShift VS1 is a stereo vocal pitch shifter squeezing two channels of high quality pitch shifting into a single effect. It has a very low latency (<6ms), covers the whole vocal frequency range, and minimises the phasing and flutter artefacts common with many pitch shifters.

VocalShift allows large shifts of up to +/- 1 octave, with a further switchable octave downshift. The wide range makes it ideal for theatrical or more extreme musical effects. The left and right channels are fully independent, allowing separate, high quality pitch shifting on each.

The two channels can be linked and reset to flat (zero shift) using single button presses.

Semitones - Sets the amount of pitch shift applied to each channel in semitones. The range is -12 (one octave downshift) to +12 (one octave upshift). The current value is displayed in the centre of the rotary. When ‘active’, the control glows yellow/orange. In Link mode, both corresponding rotaries on the left and right channels will be illuminated. A change to either will then be reflected in both.

Cents - Sets the amount of pitch shift in cents (100 cents = 1 semitone). This is added to the setting of the Semitones (and oct down switch) control to give the overall shift (+1 semitone and +50 cents = +150 cents pitch shift). The cents control is useful for providing very small pitch shifts, for example for phasing and doubling effects.

Oct Down Switch - Provides an additional 1 octave downshift to the current pitch shift settings (i.e. +12 semitones and -1 octave = no overall shift).

Flat - Sets all pitch shift controls to zero (Semitones, Cents and Oct Down are all set to zero).

Width - Controls the stereo width of the two pitch shifted voices, and therefore the weighting of each in the left/right output channels. At the “Mono” position, the left and right channels are mixed equally to both left and right channels resulting in a centre pan, mono effect. At the “L/R” position, the left voice is fed only to the left channel and the right voice to the right channel. Other positions graduate between the two.

Link - Forces the left and right voices to be matched. If the two channels have different, non-zero settings the right channel pitch shift settings will be set to match those of the left channel. If the link control is then turned off, the right channel will restore its settings from before the link was turned on. The Link control links the Semitones, Cents and Oct-Down control. Pressing either “Flat” switch when Linked results in both voices being set to zero.

Preset Name is displayed. Touch and scroll using the screen Rotary for live update. This is a way of live auditioning all library presets for this module (factory, user and USB). You can also select and recall a particular preset using the Library window.



Pitch Doubler - PitchDoubler is a stereo, pitch shifting doubler effect generating the effect of additional voices from its input. It is based on the same pitch shifting technology as VocalShift, with the associated low latency (<6ms), wide frequency range (down to around 80Hz) and minimal phasing / flutter artefacts. The effect squeezes two channels of high quality pitch shifting into a single effect slot, along with further features such as adjustable delay and modulation.

The PitchDoubler has completely independent left and right channels, which can be mixed to the left/right outputs of the effect by means of the stereo width control.

The doubling effect is achieved by provision of time delay, and modulated pitch shift. Sliders are provided on each channel for independent control of the delay (0 – 25ms) and the pitch shift (-100 -> +100). A pitch modulation LFO module, with adjustable rate and depth, provides a natural variation in the pitch shift.

Delay - Sets the amount of delay applied to each voice. It is adjustable from 0 to 25ms. A readout of the delay value is provided below the fader.

Pitch - Sets the amount of pitch shift provided, varying from -100 cents (= 1 semitone) at the lower position to +100 cents at the upper position. The centre position corresponds to zero pitch shift. A readout of the current pitch shift value is provided below the fader.

Width - Controls the stereo width of the two voices. At the “Mono” position, the left and right channels are mixed equally to both left and right channels resulting in a centre pan, mono effect. At the “L/R” position, the left voice is fed only to the left channel and the right voice to the right channel.

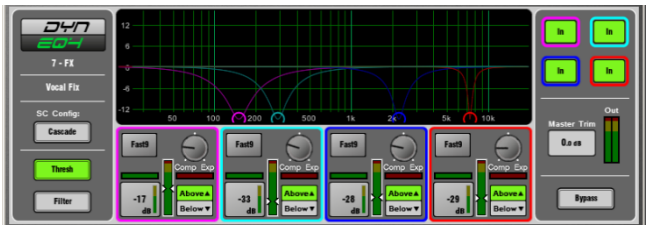
Level - Provides attenuation for each voice in the doubler. A level of 0dB will pass the voice without any attenuation. A level of -6dB will pass the voice at half volume, and -Inf will zero the output. A readout of the current gain value is provided to the bottom left of the rotary.

Pitch Mod Panel

Active - This panel presents controls for applying LFO (low frequency) modulation to the pitch shift setting. Make sure the “Active” switch is turned on.

Rate - Controls the rate (frequency) of the LFO applied to the pitch shift. The rate is adjustable from 0.1Hz to 10Hz.

Depth - Controls the depth of modulation applied to the pitch shift. Full depth (100) means that the pitch shift is modulated by the full amount of its current setting. If depth is 0, no pitch modulation is applied.



Dynamic EQ - DynEQ4 is a model of the industry standard stereo 4-band Dynamic Equaliser. It is an advanced processing tool providing four bands of equalisation that respond to the dynamics of the signal.

The Dynamic EQ can be loaded into one or more of the FX slots and then inserted into any of the input or mix channels.

Main Graph - Displays the 4 band frequency response, with the shaded fills showing dynamic activity and the solid outline showing maximum cut/boost for each band. Bands grey out if they are bypassed.

Thresh View - Primary control panel with main cut/boost and dynamics controls for each band. You can drag the points in the graph to adjust frequency in this mode.



Comp/**Exp** - Sets the maximum amount of compression (EQ cut) or expansion (EQ boost) for the band when the sidechain signal level is 'Above' or 'Below' the threshold setting. Centre position is zero dB flat.

Above/**Below** - Selects whether the EQ operates when the signal is above or below the threshold.

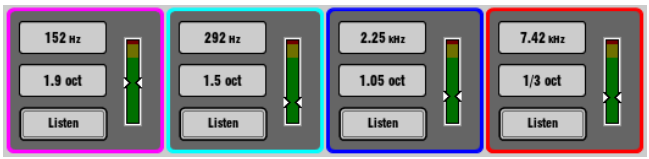
Threshold (-50dBu to 18dBu) - Sets the level at which the sidechain GR cut or boost occurs for that band. A threshold dependent 'zoom' meter is displayed.

Horizontal Gain meter - Shows Dynamic metering of Cut (green) and Boost (red).

Choose one of two **Attack**/**Release modes**:

- Std9 – standard, smooth frequency conscious release.
- Fast9 – has a fast release.

Filter View - For setting up the frequency response for each band.



Frequency control - All 4 bands are full range 40Hz - 18kHz.

Width control - LF and HF become shelving at the widest setting.

- Band1: LF Shelf, Bell 2.1–1/9 octave
- Band2: Bell 2.25–1/9 octave
- Band3: Bell 2.25–1/9 octave
- Band4: HF Shelf, Bell 2.1–1/9 octave

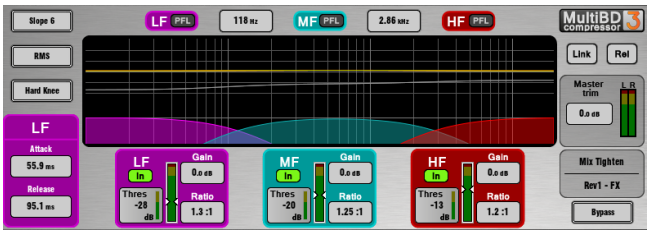
Listen - Touch to momentarily listen to the sidechain filter signal using the PAFL bus.

SC Config - Left and Right signals are summed to produce a mono sidechain for each band. Choose one of two modes:

- Cascade - The sidechain for each band is fed from the previous band. Each band is affected by the previous band activity.
- Parallel - All sidechains are fed from the input to the DynEQ. Avoids band interaction.

Bypass - Individual bands or the whole EQ can be switched in or out. The curve and controls grey out when the band is bypassed.

Master Trim and Meter - Lets you adjust the output +/-12dB to compensate for the effect of the EQ on overall level. The meter displays the stereo output signal.



Multiband Compressor - Two multiband compressor types provide independent compression control over different frequency bands. This is an advanced mixing tool for mastering and live sound control. It gives more precise control over the dynamics and less pumping effect than the more common single band compressor.

The Multiband Compressor can be loaded into one or more of the FX slots and then inserted into any of the input or mix channels.

Main Graph - A WYSIWYG graph displays the resulting crossover frequency response. Shaded red fills show dynamic gain reduction. The yellow curve shows makeup gain for each band, and the grey curve shows maximum potential gain reduction. Bands grey out if they are bypassed.

Slope - Choose the crossover slope - 6, 18, or 24 dB/octave. Slope 6 works well with the 3-band compressor. It has minimal phase summing distortion and sounds smooth. It is typically used for programme mastering. Slope 18 and 24 provide more band isolation and work well with the 4-band compressor for vocal and instrument control.

Attack/Release modes - There are two manual and 4 automatic dynamics modes:

- Peak Manual
- RMS Manual
- Auto Punch
- Auto Opto
- Slow AutoF
- Fast AutoF

Knee - Hard or Soft (easy knee model).

Link and Relative modes:

There are three operating modes with two buttons at the top right of the screen:

- Normal - Link and Rel buttons turned off. Independent control of each band.
- Link - All band parameters linked for quick setup.
- Relative - All band parameters linked for changes relative to settings made before the Rel button was turned on.

Per band controls:

Ratio - 1:1 (no compression) to 20:1 (maximum compression)

Gain - -6dB to +18dB

Threshold (-50dBu to 18dBu) - Sets the level at which the sidechain gain reduction occurs for that band. A threshold dependent 'zoom' meter is displayed.

In/Out - Individual band bypass. The curve and controls grey out for the band.

PFL - Momentary listen to the band solo'd to PAFL. Silences the other bands.

Sidechain Meter - Shows sidechain signal level and threshold point.

Bypass - Switches the whole compressor in or out. The curve and all band controls grey out when the compressor is bypassed.

Master Trim and Meter - Lets you adjust the output +/-12dB to compensate for the effect of the EQ on overall level. The meter displays the stereo output signal.



Transient Controller - This is an accurate model of the industry standard Transient Signal Processor.

Transient Signal Processors provide cut and boost of the attack and sustain envelopes of the input signal. This gives the sound engineer greater control over the transient behaviour of audio programme. The processor is auto-threshold which boosts or cuts specific parts of a signal envelope using auto attack and release times thus making control very simple. The unit has two independent linkable channels of processing, each with pre-gain and post-gain make-up and two optimised modes of operation.

Controls:

Attack – Sets the amount of gain applied to the attack portion of a transient. Allows up to 15dB boost or cut on the initial onset of a transient signal.

Sustain – Sets the amount of gain applied following a transient, boosting or cutting the sustain envelope of the signal. Allows up to 24dB of cut or boost. Changing the sustain gain on drums can help add or remove reverberation and can transform the tonal quality of the sound.

Pre Gain – Can boost or cut up to 15dB before processing.

Post Gain – Can boost or cut up to 15dB after processing.

In – switches the processor in and out. These are independent controls for each channel. The user interface greys out when the processor channel is out.

Metering – The unit provides signal and peak LED indicators for both input and output. The signal LED has three stages: Green for signal presence, yellow for nominal level above '0' and orange when approaching clipping.

Mode – The mode switch toggles between Transient and Continuous mode. If you hear unwanted artefacts then try changing the mode.

• Transient Mode - The default Transient Mode is designed to be used on percussive, transient material. Its automated attack and release reacts quickly meaning that even the sharpest of transients will be caught and processed with minimal distortion.

• Continuous Mode - Ideally suited for more steady state signals such as a bass or guitar. The unit responds much slower to transients and allows a smoother response.

Link – Links the two processing channels and changes the right channel parameters to match the left. When unlinked the right channel previous parameters are recalled. When linked, a common summed mono side chain is enabled for both channel 1 and 2.



Dimension Chorus – A model of a classic chorus device based on bucket-brigade technology. The 4 modes offer varying degrees of density from subtle spatial chorus to heavy modulation, with mode 'E' extending beyond the capabilities of the original outboard unit.

Controls:

Mode - Mode 1 is the subtlest, producing the most natural of voices and a small stereo spread. Mode 2 increases the width of the voices. Mode 3 increases both the modulation speed and depth of the chorus giving a thicker sound. Mode 4 is the most extreme and it expands the voices to be both louder, faster and wider. Expanding on the original device, we have included mode 'E' which follows the progression of more intense chorusing. This produces quite an aggressive chorusing mode but still utilises the unit's voice architecture.

Output – Set to **Wet Only** when using in a Send/Return configuration, or **Dry+Wet** when inserted on a channel, with the wet/dry control for that channel set to fully wet.

12.6 RackUltra FX models

The following FX models may be loaded into the 8 RackUltra FX engines on dLive MixRacks fitted with the RackUltra FX card.



Spaces Reverb Designer – Capable of accurately reproducing the reverberation patterns of several different types of real environments.

The FX model controls are split across multiple tabs, with the Primary Controls and Quick Setup options being found on the **Home Tab.** Choosing an option from any of the Quick Setup dropdown menus will automatically configure the settings on the corresponding tab.

The Quick Setup option will turn grey when the settings have been subsequently changed from the Quick Setup preset.

Output EQ controls are also duplicated on the **Home Tab**. These are the same controls which can be found under the Output section of the EQ Tab.

Pre Delay sets the Delay of the Dry signal entering the Reverb Engine (0-170ms).

Decay sets the total Decay time for the Reverb Engine (0.1s – 60s+)

The **Space Tab** is where controls for the Reflections engine can be found. The **Reflections model** loads different Space profiles into the early Reflections Engine.

Each Reflections Model aims to simulate the Reverberation pattern for a specific kind of space.

The **Size** controls configure the shape of the space the Late Reverb Engine is simulating. These controls can be used to tailor the build up and decay behaviour of the reverb.

The **Stereo Spread** controls the Stereo Spread of the early Reflections engine, for a subtle widening effect.

Direct Send allows for Dry audio to bypass the Early Reflections Engine to feed the Late Reverb Engine direction. Much like a Dry/Wet control, at 0% the Late Reverb engine is fed exclusively from the Early Reflections Model. At 100% the Late Reverb engine is fed exclusively from the Dry audio.

Early / **Late** / **Sub Level** controls allow for mixing the outputs of the Early and Late Engines, along with separate Sub Control. The **Sub** control is used to affect frequencies *below* 80hz.

The Echoes Tab has 6 individually configurable Echoes. 3 Left (Blue) and 3 Right (Green). Each can have a discreet Gain value (-40db - +10dB), position in time (0 – 200ms) and can be turned On or Off.

Additionally the entire Echo engine can be switched In or Out using the control in the top right of the Tab.

The **Texture Tab** contains the controls for the Diffusion of the Reverb. The **Impact** control configures the Initial diffusion of the Input, with 0% offering minimal scattering like a flat wall, or a high value offering maximum scattering, like a jagged surface.

The **Density** control selects how many early reflections enter the Late Reverb Engine, simulating the damping properties of the walls of the space, from 0% (highly damped) to 100% (very reflective).

Early / **Mid** / **Late** Diffusion controls select the Diffusion properties of the different stages of the Reverb.

Each control can be set from 0 (very low diffusion) to 8 (maximum diffusion).

Modulation can be applied to both the Early and Late Engine to provide chorusing and additional density.

The **Damping** controls allow for the simulation of absorption of frequencies throughout the late reverb.

Colour controls the EQ within the Decay Engine and can be used to shape the tone of the Reverb as reflections Decay.

The **Output** EQ offers a quick and easy way to control the output EQ of the Spaces engine. This is in addition to the PEQ offered within the RackUltra FX channel strip and is also shown on the **Home Tab.**

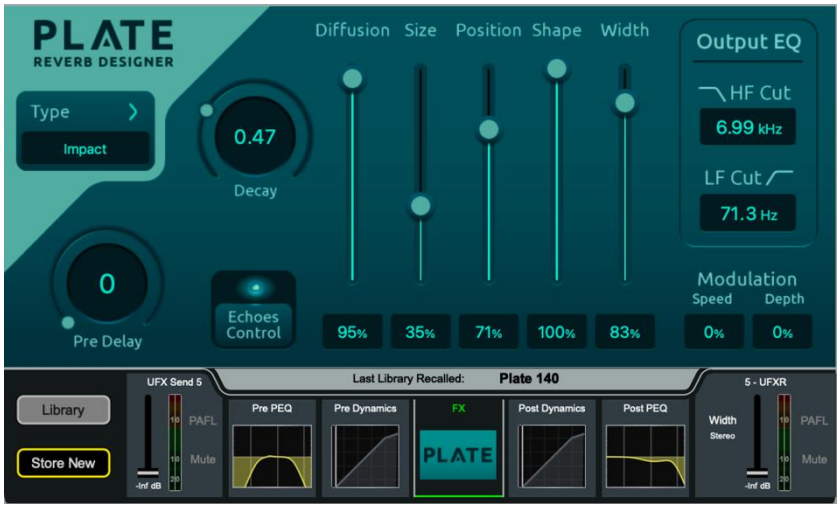


Plate Reverb Designer– Straightforward, high quality emulation of Plate style reverbs.

Type selects a model of Plate Reverb with different tonal character and transient response.

Plate types:

- **Chrome** - Vintage “chrome” plate, medium to large with brighter resonance.
- **Steel** - Vintage Steel plate, some dark resonances.
- **Bright** - Overly bright medium sized.
- **Dark** - Overly dark large sized plate with low mid resonances.
- **Dark Vox** - Large sized Dark plate optimised for vocal intelligibility.
- **XL plate** - Large ethereal plate with a strong initial attack.
- **Vocal Focus** - A gritty dense plate designed to cut through a mix.
- **Small Plate** - Short metallic plate.
- **Ambience** - Very small ambient plate designed to add air.
- **Classic** - Classic artificial plate model, medium sized.
- **Impact** - Strong early dense plate which can bring focus to instruments.

Pre Delay sets the Delay of the Dry signal entering the Reverb Engine (0-170ms).

Decay sets the total Decay time for the Reverb Engine (0.1s – 10s)

The **Output** EQ offers a quick and easy way to control the output EQ of the Reverb engine. This is in addition to the PEQ offered within the RackUltra FX channel strip.

Diffusion sets the Diffusion applied to the Input to the Reverb Engine. High Diffusion values will cause lush highly complex Reverb patterns, whilst Low Diffusion values will improve intelligibility.

Size allows for fine adjustment of the Plate Size as selected by the **Type**. As this is a fine adjustment, it should be noted that some Types set to “10” will be smaller than other Types set to “10”.

Position is a balance control between the Early and Late Reflection engines. A very low Position value will reduce the level of the Late Reflections and will sound very “immediate” in the mix, whilst a very high Position value will sound further away, with less focus on early reflections.

The **Shape** influences the build up of reflections within the Plate. With a lower Shape value reducing the density and improving intelligibility, or a larger Shape value increasing density for a “thicker” reverb tone.

Width allows for simple Stereo Width control ranging from 100% full stereo down to 0% Mono Summing of the Output signal.

Modulation can be applied to both the Early and Late Engine to provide chorusing and additional density.

Echoes Control opens a pop up window for control of 6 individually configurable Echoes. 3 Left (Blue) and 3 Right (Green). Each can have a discreet Gain value (-40db - +10dB), position in time (0 – 200ms) and can be turned On or Off.

Additionally the entire Echo engine can be switched In or Out using the control in the top right of the window.

Return to the main Plate Reverb Designer window by pressing the “X” in the top right hand corner of the Pop Up.



Vocal Shifter– Advanced Vocal Pitch Shifting with formant correction and modification.

Vocal Shifter uses voice detection to correct or manipulate the formant of the human voice across a range of shifted pitches. The RackUltra FX unit is split into controls for the Left and Right side of the Stereo FX send. Each side is otherwise identical and can be linked using the **link** control in the centre if desired.

Semitone shifts the pitch up or down by 12 semitones.

Formant changes the tone of the voice, a lower Formant setting ‘ages’ the voice as if coming from deeper within the throat, whilst a higher Formant setting “de-ages” the voice as if coming from higher in the throat. With the formant control set to 0, the Formant is corrected for the selected Pitch shift value. You can adjust the formant up or down from the corrected value to manipulate the Formant of the voice.

Delay adds up to 80ms of delay to the output from the unit.

Gain attenuates the output level from 0dB to -40dB.

Precision when enabled allows fine control of all parameters in 0.1 increment steps (otherwise 1.0 increment steps).



Vocal Tuner – Low latency Vocal Pitch correction with minimal audible artefacts.

Global Key when enabled, Vocal Tuner will follow the Global Key of the console rather than the Key and Scale settings for the unit.

Key & Scale will pre define which notes are available to tune to, based on either the Major, or Minor scale for the selected Key. When in Chromatic mode, Vocal Tuner will always tune to the nearest note, regardless of the key.

Bypass sets the correction value to 0%, configurable as a Softkey, Action or via MIDI control. To avoid tuning when not required.

Reference Pitch can be used to set the frequency in Hz of A_4. For use in styles of music with alternative Reference Pitch.

Correction limits the Tuner correction, when used in conjunction with the Retune and Transition speed, can be used to create a more (or less) natural sounding Pitch Correction.

Retune sets the speed at which Vocal Tuner should correct to the correct note.

After Vocal tuner detects a change in the note being sung, **Transition** controls how soon to begin correcting the note.

Very fast Retune and Transition speeds will sound “robotic” and “choppy” whilst slower speeds will sound more natural but may never finish correcting the pitch before the next note.

The **Keyboard** shows the “legal” and “illegal” notes for the current Key and Scale. These can be further customised by touching each note. There are five possible options for each note.

Blank – This note is valid and will be both corrected and corrected into.

– – This note is invalid, if detected any notes sung here will be corrected up or down to the nearest valid note.

← – This note is invalid, if detected any notes sung here will be corrected down to the nearest valid note.

→ – This note is invalid, if detected any notes sung here will be corrected up to the nearest valid note.

× – This note is valid, however any notes detected here will not be corrected.

MIDI can be used via MIDI control to remotely trigger this FX unit. Sending a Note On message will 'snap' Vocal Tuner to a specific note, as if all other notes on the keyboard were set to "Invalid". Sending a Note Off message will release this "snap".

Other parameters can be controlled via MIDI by choosing a CC message from the "Show Routing" menu followed by "MIDI Setup". These are:

- Retune
- Transition
- Correction
- Key
- Scale
- Bypass

ⓘ For further information please refer to the **dLive MIDI over TCP/IP Protocol** document at www.allen-heath.com.



Vocal Gridder – Vocal Tune with fast pitch detection for hard and fast correction.

Global Key when enabled, Vocal Gridder will follow the Global Key of the console rather than the Key and Scale settings for the unit.

Key & Scale will pre define which notes are available to tune to, based on either the Major, or Minor scale for the selected Key. When in Chromatic mode, Vocal Tuner will always tune to the nearest note, regardless of the key.

Bypass stops Gridder from applying Pitch Correction, configurable as a Softkey, Action or via MIDI control. To avoid tuning when not required.

Reference Pitch can be used to set the frequency in hz of A_4. For use in styles of music with alternative Reference Pitch.

Time Tolerance sets how long Vocal Gridder should tune to the current note before tuning to the next note.

Pitch Tolerance sets how far from the current note the Vocal should be allowed to drift before correcting to the next note.

After Vocal tuner detects a change in the note being sung, **Transition** controls how soon to begin correcting the note.

Very fast Retune and Transition speeds will sound “robotic” and “choppy” whilst slower speeds will sound more natural but may never finish correcting the pitch before the next note.

The **Keyboard** shows the “legal” and “illegal” notes for the current Key and Scale. These can be further customised by touching each note. There are five possible options for each note.

Blank – This note is valid and will be both corrected and corrected into.

– – This note is invalid, if detected any notes sung here will be corrected up or down to the nearest valid note.

← – This note is invalid, if detected any notes sung here will be corrected down to the nearest valid note.

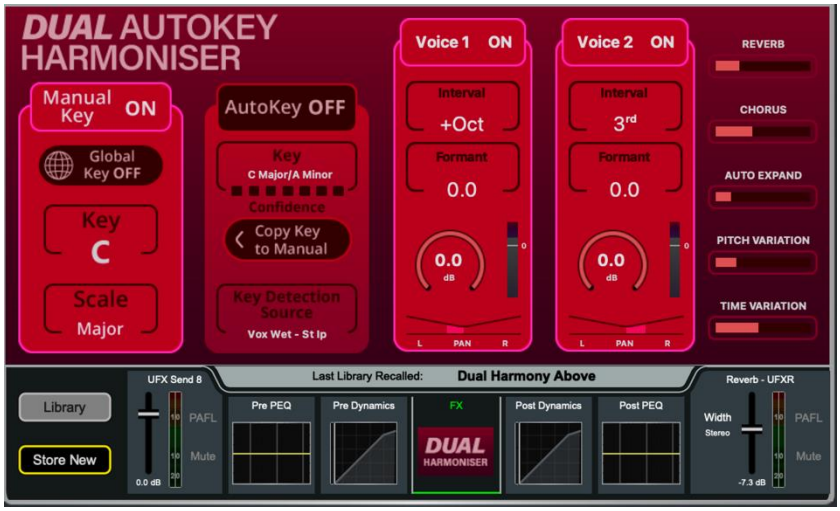
→ – This note is invalid, if detected any notes sung here will be corrected up to the nearest valid note.

× – This note is valid, however any notes detected here will not be corrected.

MIDI can be used via MIDI control to remotely trigger this FX unit. Parameters can be controlled via MIDI by choosing a CC message from the “Show Routing” menu followed by “MIDI Setup”. These are:

- Speed
- Time Tolerance
- Key
- Scale
- Bypass

ⓘ For further information please refer to the **dLive MIDI over TCP/IP Protocol** document at www.allen-heath.com.



Dual AutoKey Harmoniser – 2 voice vocal harmoniser with sidechain Auto Key detection.

With **Manual** key enabled a Key and Scale can be chosen by touching the “Key” or “Scale” display.

With **Global** key enabled the unit will follow the Global key and scale of the console.

With **AutoKey** enabled the unit will detect the Key from a polyphonic source such as a piano or guitar. The key detection Source is configured by touching “Show Routing” and setting the External Side Chain Source.

The confidence meter will increase over time as the unit becomes more certain of the key. Once the key has been determined this can then be copied to the Manual key if desired.

This can also be used to set the Global Key automatically, if the “Copy Key to Manual” button is touched whilst the Harmoniser is in “Global key”.

The two voices of harmony have identical controls and can be enabled and disabled individually.

Each voice has the following controls:

Interval sets the Internal from the source voice the Harmony should be placed. These can be set from -8 (or one Octave down) to +8 (or one Octave up).
Formant control can be used to either corrected (Formant 0) or from -12 to +12 to modify the formant of each voice.
Gain sets the amount of attenuation for the individual voice from 0dB to -40dB.
Pan sets the relative Left/Right position of the individual voice.

The additional controls effect the entire unit.

Reverb uses the included Plate, without using an additional RackUltra FX slot if not required.

Chorus provides a simple Chorusing affect to the Harmonised voices.

Pitch Variation shifts the harmonised voices up and down slightly to recreate the natural sounds of a group of people singing together. This can be used in conjunction with Time Variation to control how natural (or not) the Harmonies sound.

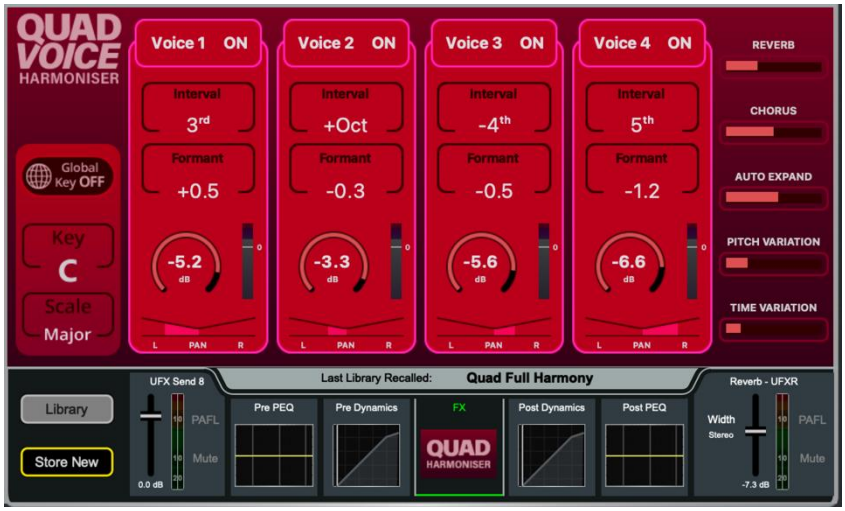
Time Variation randomises the start and end time of each voice, can be used in conjunction with Pitch Variation to control now natural (or not) the Harmonies sound.

Auto Expand controls the depth of the Voice Detection expander, useful for tuning the Harmoniser to work with varying amounts of stage bleed.

MIDI can be used via MIDI control to remotely trigger this FX unit. Parameters can be controlled via MIDI by choosing a CC message from the “Show Routing” menu followed by “MIDI Setup”. These are:

- Key
- Scale

ⓘ For further information please refer to the **dLive MIDI over TCP/IP Protocol** document at www.allen-heath.com.



Quad Voice Harmoniser – 4 voice vocal harmoniser.

Key/**Scale** selects a Key and Scale can be chosen by touching the “Key” or “Scale” display.

With **Global** key enabled Quad Voice Harmoniser will follow the Global key and scale of the console.

Each voice has the following controls;

Interval sets the Interval from the source voice the Harmony should be placed. These can be set from -8 (or one Octave down) to +8 (or one Octave up).

Formant control can be used to either corrected (Formant 0) or from -12 to +12 to modify the formant of each voice.

Gain sets the amount of attenuation for the individual voice from 0dB to -40dB.

Pan sets the relative Left/Right position of the individual voice.

The additional controls effect the entire unit.

Reverb uses the included Plate, without using an additional RackUltra FX slot if not required.

Chorus provides a simple Chorusing affect to the Harmonised voices.

Pitch Variation shifts the harmonised voices up and down slightly to recreate the natural sounds of a group of people singing together. This can be used in conjunction with Time Variation to control how natural (or not) the Harmonies sound.

Time Variation randomises the start and end time of each voice, can be used in conjunction with Pitch Variation to control now natural (or not) the Harmonies sound.

Auto Expand controls the depth of the Voice Detection expander, useful for tuning the Harmoniser to work with varying amounts of stage bleed.

MIDI can be used via MIDI control to remotely trigger this FX unit. Parameters can be controlled via MIDI by choosing a CC message from the “Show Routing” menu followed by “MIDI Setup”. These are:

- Key
- Scale

ⓘ For further information please refer to the **dLive MIDI over TCP/IP Protocol** document at www.allen-heath.com.



MIDI Harmoniser – 4 voices of MIDI controlled Harmony.

Monophonic Mode when enabled the unit accepts a single MIDI note.

> **Glide** sets the speed at which the Harmoniser will transition from one MIDI note to another.

Polyphonic Mode allows up to 4 voices to be played at the same time.

> **Width** controls the stereo spread of the 4 voices of harmony.

In all modes you have the following additional controls.

Reverb uses the included Plate, without using an additional RackUltra FX slot if not required.

Chorus provides a simple Chorusing affect to the Harmonised voices.

Pitch Variation shifts the harmonised voices up and down slightly to recreate the natural sounds of a group of people singing together.

Use Velocity can be used to follow the velocity value of the MIDI note. The higher the velocity value the louder the harmonised voice will be, a smaller velocity value will result in a quieter harmonised voice.



Amp+Cab Distortion– Amplifier modelling and cab simulation.

Amp Type loads the Amplifier Model into the unit. The Amplifier models available are:

Deluxe The classic Californian guitar amplifier powered by 6V6 valves and renowned for its mid-scooped clean and edge-of-breakup tones.

VX30 Legendary copper panelled EL84-powered British amp renowned for its chime and jangle, made famous by the British Invasion of the 1960s.

MPlex The iconic gold-panelled rock amplifier of the 70s, 80s and beyond, capable of smooth overdrive through to high-gain.

BDS1 The orange distortion pedal from 1978 that was pivotal in the harder sounds of rock during the 1980s and 1990s thanks to its hard attack and smooth sustain.

BassVT The definitive all-valve bass amplifier, capable of clean through to overdriven tones, relied on by touring and session musicians since 1969.

Cabinet Simulator loads the cabinet and driver model. The models available are:

FDR 1x12 1x12” open-back Californian combo with American speaker.

FV 2x10 2x10” open-back Californian combo with Italian speakers.

VX 2x12 2x12” copper-panel British combo with AlNiCo speakers.

Cel 1x12 1x12” AlNiCo driver in a closed-back cabinet.

MCel 4x12 4x12” closed-back cabinet with classic UK speakers.

VCel 2x12 2x12” open-back cabinet with vintage UK speaker.

Bass 8x10A First of two flavours of 8x10” US bass cabinets.

Bass 8x10B Second of two flavours of 8x10” US bass cabinets.

Bass 1x15 1x15” Classic closed-back US bass cabinet.

You can also choose to select “**None**” to run the unit without emulating the effect of the speaker driver and cabinet.

Gain drives signal level into the model.

Output drives signal level out of the model, a low output level can be used in conjunction with a very high gain level to create significant distortion at lower volume levels.

Thicken slightly alters distortion parameters on the Left and Right side of the unit to simulate a second cab. Additionally adds subtle chorus to widen the sound stage.

EQ controls are the same for all models for ease of use.



Saturator– Analog Saturation emulation with EQ controls.

Mode selects the model, there are 5 available.

> **Mode A** Triode Valve Preamp Model. Rich in second and third harmonics. This model is the cleanest available on Saturator with low harmonic distortion and a gentle roll-off on frequencies over 10kHz. (**Least aggressive**).
>
> **Mode B** Pentode Valve Preamp Model. Rich in second, third *and* higher order harmonics. Minimal high frequency roll off.
>
> **Mode C** Late 1960s germanium transistor based Preamp Model. With characteristic roll off on frequencies over 12kHz.
>
> **Mode D** Channel strip model with vintage bipolar transistor and small signal transistor. Wide high frequency lift at around 8kHz and for air and clarity.
>
> **Mode E** Tape Drive Preamp model. Accurate low and low-mid attenuation with extremely aggressive levels of distortion when Gain is turned up to maximum. **(Most aggressive).**

The **Bias** control simulates a DC offset on the input audio. This can be used to create distortion at low volumes.

The **PAD** control reduces the Input level to the unit by -30dB for a much more subtle effect. With PAD enabled, a 30dB boost is added at the output stage to maintain relative volume.

Tilt provides a combined LF and HF shelf control with continuous control from “Full Anticlockwise” 20dB high frequency reduction shelved from 3k5Hz, to “Full Clockwise” 20dB low frequency reduction shelved from 100hz.

LF Cut 12dB LPF. 20Hz to 1kHz

LF Punch Adds a low frequency boost around the LF Cut frequency.

HF Cut switchable slope 6/12dB HPF. 1kHz to 24kHz.

Level make-up output gain level -40dB to +10dB.

13. Appendix B – Scene and Show memory content

13.1 Scene memories

Scene memories store the following parameters and settings:

Input channels

- Preamp Gain, Pad, +48V
- Digital Trim, Polarity
- Stereo Image
- HPF and LPF Filters
- Insert In/Out and operating level
- PEQ
- Gate and Compressor
- Level (channel fader)
- Mute
- Pan
- Routing assignments, sends and Pan
- Delay
- Direct Out level
- DCA / Mute Group assignments
- Name & Colour

Mix channels

- Ext Input Gain, Pad, +48V
- Digital Trim, Polarity
- Insert In/Out and operating level
- PEQ
- GEQ
- Compressor
- Level (channel fader)
- Mute
- Pan
- Routing assignments, sends and Pan
- Delay
- DCA / Mute Group assignments
- Name & Colour
- Source point

FX Sends, FX Returns

- Level
- Mute
- Routing assignments, sends and Pan
- DCA / Mute Group assignments
- Name & Colour

FX

- FX parameters for each unit
- FX processing (PEQ and Dynamics)

DCA

- Assignments
- Level
- Mute
- Name & Colour

Mute Groups

- Assignments
- Mute

MIDI Strips

- MIDI messages
- Name & Colour

Others

- AMM Settings
- IP Controllers settings
- Source Select settings
- Dyn8 routing and parameters
- Softkeys settings
- GPIO settings
- Patchbay – Input source, Inserts, Outputs
- Virtual SoundCheck settings
- I/O Port – Option card settings
- Output Polarity
- Digital Out Sample Rate
- Source Selectors
- Ganging
- ME Stereo configuration for Monitor outs
- Global Direct Out source
- AMM settings
- Global Tap Tempo
- Global Key
- RTA Control
- PAFL strips Name & Colour
- Strip Assigns for each bank
- Surface illumination
- Soft Rotary controls
- Talkback HPF
- Talkback Groups

13.2 Show memories

Show memories store the following settings:

Current settings

- All settings listed above, stored at the time the Show was last saved

Scenes

- All Scenes (1-500) including names and descriptions
- Scene Recall Filters
- Global Scene Safes
- Role Profile and Role Safes
- Cue Lists and Recall IDs
- Current cue list
- Scene options (Editing Confirmation, Auto Store, Auto Increment, Track Embedded, Go on Touch)

Libraries

- All User Libraries

Actions

- All Actions

MixRack Setup

- Mixer Configuration
- Input Stereo Configuration
- Audio Clock source
- BNC Wordclock out option
- Talkback assignments, source assignment, HPF and Dim option
- SigGen assignments and settings

Surface Setup

- AES out sample rate options
- AES input SRC bypass
- Strip Assign 'Sync Selected Layer with Surface' option
- Custom Rotary functions
- Layer Link
- Surface preferences (Display parameter on LCD, No Sends on Faders)

PAFL

- PAFL preferences (Additive mode, IEM Mix to Headphones, Mix Follows PAFL, Sel Follows PAFL, AFL option)
- PAFL Delay and Trim
- Mains to PAFL levels
- External Input Talk to PAFL switch and Trim

Others

- PEQ / Comp order
- Custom meters
- Quick Names
- MIDI Channel number
- Input PEQ 20-20k option
- Mix PEQ 20-20k option
- Fill PEQ graphs option
- I/O Screen options
- RTA 'Show Peak Band' option
- 'Enable Preamp on Surface' option

13.3 Settings not stored in Shows

The following settings are not stored in Show memories. These settings are local to the MixRack or Surface.

- Network settings
- Event logs
- VGA Screen out mode
- User Profiles

14. Appendix C – Template Shows

Template Shows provide a quick starting point by giving you a familiar layout and classic mix architecture. They contain a number of default Scenes to reset the mixer settings, patch and Surface layout to the starting point.

FoH, MON and Surround Template Shows have:

- Input fader strips on left banks, Mix and DCA masters on right bank.
- Surface Inputs on Layer F of the left bank.
- All channels muted.
- Input channel 1-64 source from MixRack XLR sockets.
- Input channel 65-96 source from DX 1/2.
- Input channel 97-114 source from DX 3/4.
- Input channel 115-126 source from Surface inputs.
- Input channel 121/122 configured as Stereo and sourced from Surface 7/8 (XLR) for music playback.
- Input channel 123/124, 125/126 configured as Stereo and sourced from Surface 9/10 (AES) and 11/12 (AES) respectively.
- Input channel 127/128 configured as Stereo and sourced from the Surface USB stereo playback.
- Soft Rotaries (left screen) assigned to Gate+Comp, Gate, Comp.
- Soft Rotaries (right screen) assigned to Mono Aux Sends, Stereo Aux Sends, FX Sends (follow Sel).
- SoftKeys, IP Controllers, Virtual SoundCheck settings, Talkback HPF, FX Global Tap tempo and Soft Rotary Controls are Safe in the Global Safes.

14.1 FoH

This Template configures a traditional architecture and layout with stereo LR main mix for mixing FoH and monitors from FoH. This is the factory default Show loaded.

Bus architecture:

- 8 Groups (4 Mono, 4 Stereo)
- 8 Mono FX Sends
- 16 Aux (8 Mono, 8 Stereo)
- 8 Matrix (4 Mono, 4 Stereo)
- LR (single fader strip)

14.2 Mon

This Template configures the dLive as a dedicated monitor console with 28 monitor mixes. All Input faders are set to 0dB.

Bus architecture:

- 4 Groups (2 Mono, 2 Stereo)
- 8 Mono FX Sends
- 28 Aux (14 Mono, 14 Stereo)
- 4 Matrix (2 Mono, 2 Stereo)

14.3 Surround

This Template configures the dLive as a surround mixer with 5.1 discrete Main channels.

Bus architecture:

- 8 Groups (4 Mono, 4 Stereo)
- 8 Mono FX Sends
- 16 Aux (8 Mono, 8 Stereo)
- 8 Matrix (4 Mono, 4 Stereo)
- 5.1 Main Surround (individual fader strips)

14.4 FoH LCR+

This Template configures the dLive in LCR+ Main mode, with all channels set to LCR+ panning.

Bus architecture:

- 8 Groups (4 Mono, 4 Stereo)
- 8 Mono FX Sends
- 16 Aux (8 Mono, 8 Stereo)
- 8 Matrix (4 Mono, 4 Stereo)
- LCR+ Main (individual fader strips)

14.5 Multi-Surface FOH/MON

These Templates are for use in a Multi-Surface application where one Surface is dedicated to FOH and another Surface is dedicated to MON.

Both Show files have identical bus configurations, but with unique Surface scene ranges, role filters, strip layouts and PAFL settings optimised for each role.

The **Multi-Surface FOH** show should be loaded on the Surface responsible for the FOH mix.

The **Multi-Surface MON** show should be loaded on the Surface responsible for the MON mix.

The bus architecture is shared between FOH and MON:

- 6 Groups (2 Mono, 4 Stereo)
- 16 Mono FX Sends
- 12 Aux (8 Mono, 4 Stereo)
- 6 Matrix (4 Mono, 2 Stereo)
- LR (single fader strip)
- 2 PAFL

Visible on the FOH Surface:

- Scenes 1-249
- 64 Inputs (1-64)
- 12 DCA (1-12)
- 6 Groups (1-2 Mono, 1-4 Stereo)
- 8 Mono FX Sends (1-8)
- 6 Matrix (1-4 Mono, 1-2 Stereo)
- LR (single fader strip)
- PAFL 2 is assigned to the FOH Surface

Visible on the MON Surface:

- Scenes 250-500
- 64 Inputs (65-128)
- 12 DCA (13-24)
- 12 Aux (1-8 Mono, 1-4 Stereo)
- 8 Mono FX Sends (9-16)
- Wedge
- IEM
- PAFL 1 is assigned to the MON Surface

ⓘ The Multi-Surface FOH and Multi-Surface MON Show files are not suitable for applications where one Surface is responsible for both FOH and MON mixes.

ⓘ When making changes to the Mixer Config – for example, adding or removing an AUX, GRP or MTX – ensure that the Role Filters in each Surface Role are updated accordingly.

ⓘ The MixRack headphones output is fixed to PAFL 1 (MON)

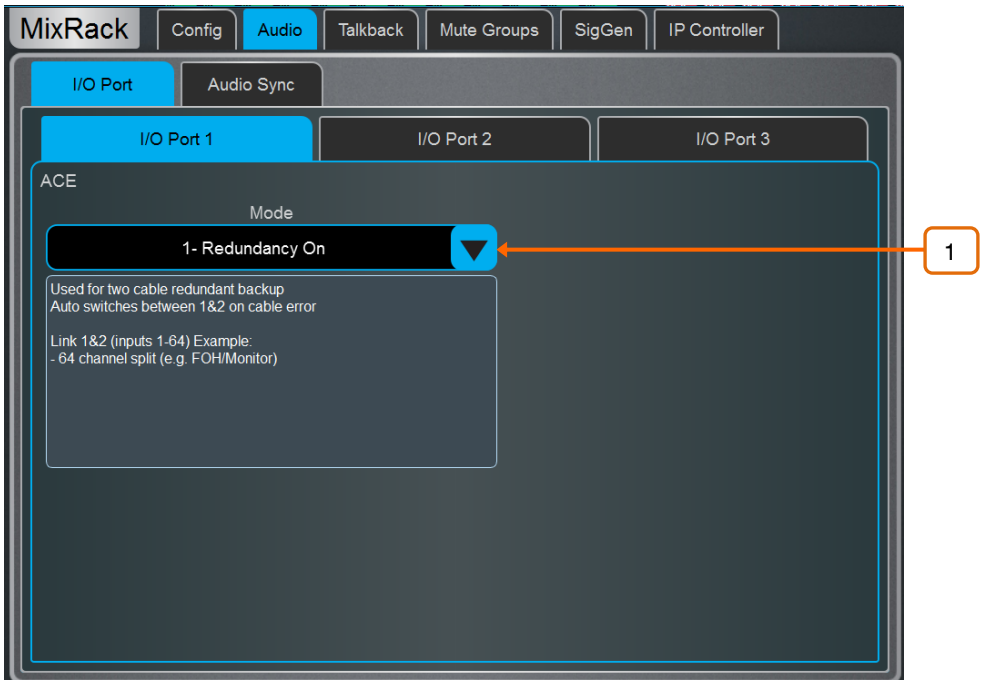
ⓘ The **RTA** function, **Wedge** and **IEM** strips are fixed to PAFL 1 (MON)

ⓘ **Delay**, **PFL Trim** and **Ext Input to PAFL Source** are available for FOH and MON

ⓘ See Appendix E – Multi-Surface for more information on Multi-Surface functionality.

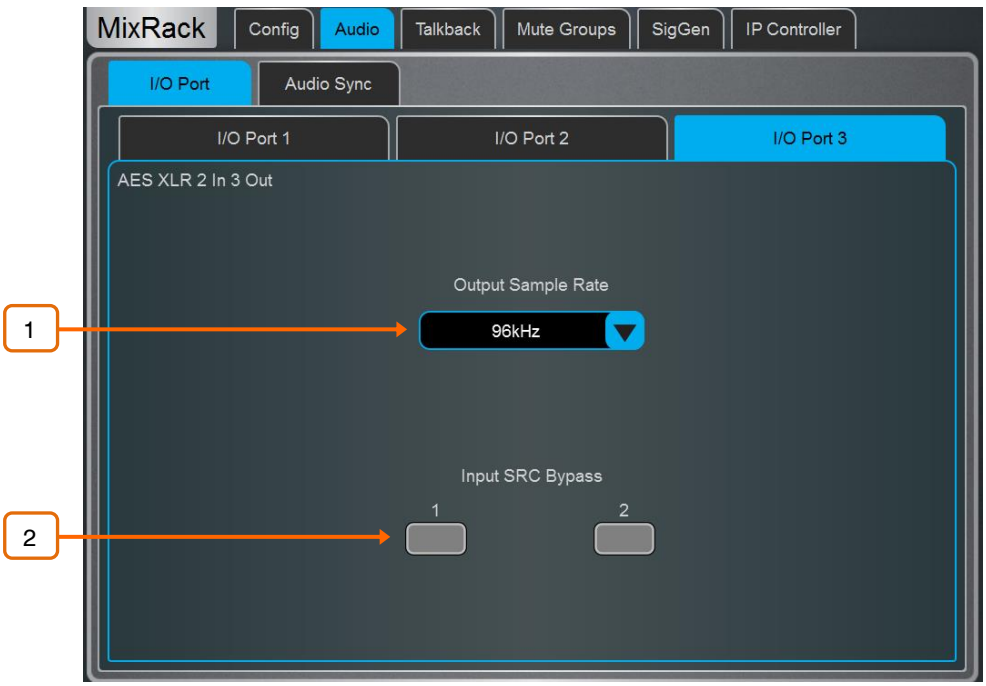
15. Appendix D – I/O Port Options

15.1 ACE



1 **Mode** – Set to **Redundancy On** for dual-cable redundant connection. Set to **Redundancy Off: In1-64 from Link1** to accept 64 inputs on Link 1(i.e. FOH/MON split) with both Links sharing the same 64 outputs. Set to **Redundancy Off: In1-32 Link1, 33-64 Link2** to accept 32 inputs from Link 1 and 32 inputs from Link 2 with both Links sharing the same 64 outputs.

15.2 AES XLR

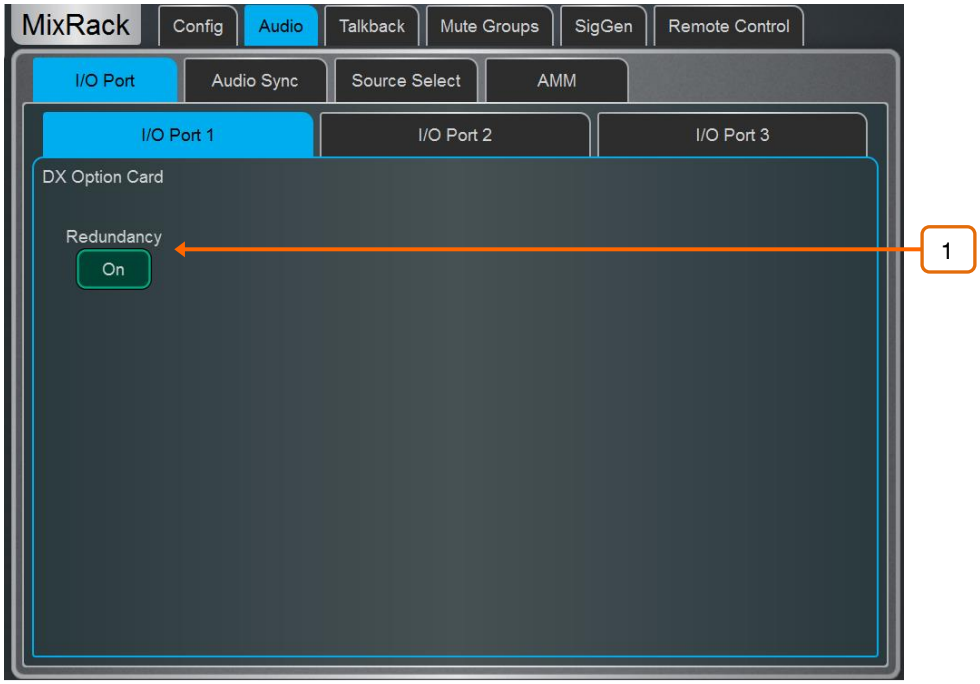


1 **Output Sample Rate** – Select the global output sample rate of the I/O module from a choice of 96kHz, 88.2kHz, 48kHz or 44.1kHz.

2 **Input SRC Bypass** – Enable this option to disable input sample rate conversion on a per input basis.

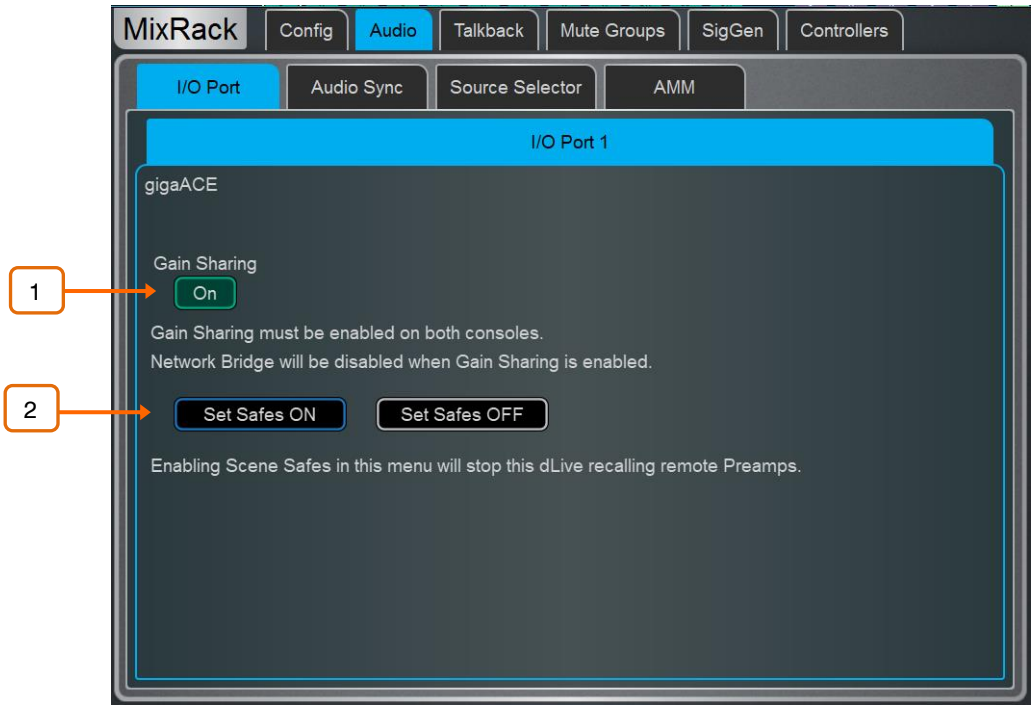
ⓘ Only turn off SRC if the AES sources are syncing from a 96kHz clock provided by or shared with the dLive.

15.3 DX Link



1 **Redundancy** – Set to **Redundancy On** for dual-cable redundant connections to DX Expanders. In redundant mode the DX Link sockets are in redundant pairs 1&2 and 3&4.

15.4 gigaACE / fibreACE

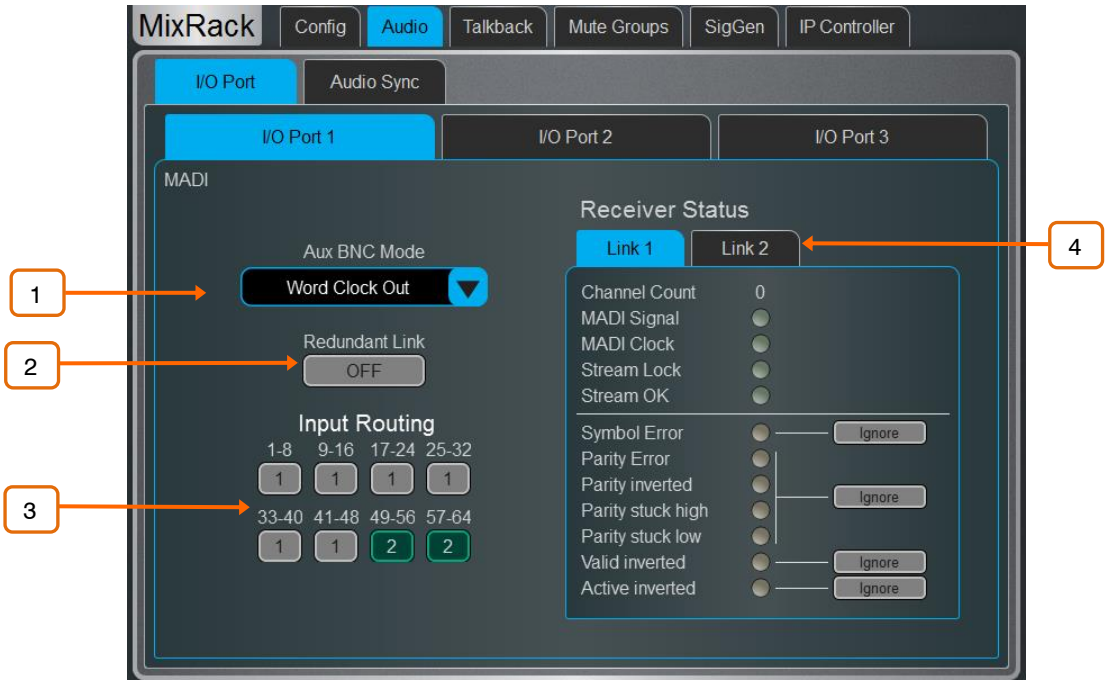


1 **Gain Sharing** – Enable on both the local and remote dLive system so that both systems can control the same preamp settings.

ⓘ When using Gain Sharing, it is common to enable **Gain Tracking** on both systems so that changes to the analogue gain by one system are compensated by Digital Trim on the other system. To enable Gain Tracking, use the **Processing** / **Preamp** screen.

2 **Set Safes ON** to stop Scenes on the local dLive system from recalling preamp settings and affecting the remote system.

15.5 MADI



1 **MADI Aux BNC Mode** – Set to **In 1 Thru** to replicate the incoming Link 1 stream to the Aux BNC. Set to **Out 1 Mirror** to split MADI outputs to the Aux BNC. Set to **Wordclock Out** to provide a Wordclock signal on the Aux BNC.

2 **MADI Redundant Link** – Enable this option to use Link 2 on the MADI card as a dual redundant connection.

3 **MADI Input Routing** – With Redundant Link disabled, you can choose if incoming MADI channels are sourced from Link 1 or Link 2, in blocks of 8 channels.

4 **Receiver Status** – Displays the status of the two Links. If any error is detected on the stream i.e. the stream is not fully compliant to the MADI standard, dLive will mute the incoming audio. However, an option to ignore these errors is given to allow wider compatibility with third party equipment.

ⓘ Only ignore stream errors when strictly required and check for integrity of the audio at low level. An error in the stream might cause full scale digital noise on the outputs!

15.6 superMADI



1 **Sample Rate** – Select the Sample Rate/Mode of each pair of MADI Links:

96kHz HiS	High Speed MADI - 128 channels @ 96kHz
96kHz SMux	SMUX MADI - 128 channels @ 96kHz
48kHz	MADI - 128 channels @ 48kHz

ⓘ Ensure that the Sample Rate/Mode is consistent across all connected MADI hardware to prevent audio artefacts and/or drop-outs.

2 **Redundancy** – Turn dual-cable Redundancy On or Off for each pair of links.

3 **Inputs** – Configure the Input routing of each pair of links in blocks of 32 channels.

4 **Outputs** – Configure the Output routing of each pair of links in blocks of 32 channels.

5 **Sync Source Link** – If the superMADI module is selected as the dLive Audio Clock Source, choose the Link that is used as the sync source.

ⓘ See section 9.7 - Audio / Audio Sync for more information on Audio Sync options.



The BNC Status and Opto Status screens are used to monitor the health of incoming MADI streams. Any problems with the incoming stream (i.e. the stream is not fully compliant to the MADI standard) are indicated by a red virtual LED. The dLive system will MUTE any MADI streams with corrupt information, but you can choose to Ignore errors in the stream – this can be useful for interfacing with 3rd party equipment with does not fully adhere to the MADI standard.

ⓘ Only ignore stream errors when strictly required and check for integrity of the audio at a low level. An error in the stream might cause full-scale digital noise on the outputs.

1 **Ignore Symbol Error** – Select to ignore 4B5B errors in the MADI stream

2 **Ignore Parity Errors** – Select to ignore AES3 parity errors in the MADI stream

3 **Ignore Valid Inverted** – Select to ignore AES3 Valid errors in the MADI stream.

4 **Ignore Active Inverted** – Select to ignore AES3 Active errors in the MADI stream.

16. Appendix E – Multi-Surface

16.1 Overview

Multi-Surface mode allows the connection of up to 4 Surfaces to a single DM MixRack or 2 Surfaces to a single CDM MixRack.

Any combination of C Class and S Class Surfaces can be used in a Multi-Surface system. Dual-cable redundancy is available on S Class Surfaces and can be added to C Class Surfaces via a fibreACE module.

16.2 Example Applications

FOH/MON - Two Surfaces can be configured to provide a FOH/MON split.

Surface Mirroring - Multi-Surface systems can be used to provide Surface mirroring which could be implemented in a number of scenarios such as additional Surface locations (i.e. for MON use with a B Stage) or for a backup Surface.

Multi-Room Install - Multiple Surfaces can be employed for install applications where a number of Surfaces – each with their own discrete channel range and outputs - are required to control multiple conference or meeting rooms.

Sub-Mixing - A Multi-Surface configuration can also be utilised in applications where it is desirable to have more than one engineer working on the same mix simultaneously; for instance, performances with a very high channel count where traditionally a dedicated sub-mixer would have been used.

16.3 Network Configuration

All connected Surfaces require a discrete IP address before connection, for example:

Surface 1: 192.168.1.81
Surface 2: 192.168.1.82
Surface 3: 192.168.1.83
Surface 4: 192.168.1.84

Surface IP addressing can be changed on the **Surface /Config / Network** page as detailed in Section 10.12

16.4 Connection

The Primary Surface connects to the internal gigaACE socket on the MixRack. This can be a dual-cable redundant connection with a DM MixRack and S Class Surface.

Secondary Surfaces connect to gigaACE or fibreACE I/O modules installed in the MixRack. Secondary Surfaces require a fibreACE I/O module if using an optical connection.

Each I/O module supports one Secondary Surface connection - this can be a dual-cable redundant connection if connecting to an S Class Surface, or to a C Class Surface fitted with a fibreACE module.



16.5 gigaACE I/O Module Configuration

All gigaACE I/O modules in the MixRack connected to Secondary Surfaces require the front panel **Control Network Bridge** switch to be in the **ON** position.

ⓘ gigaACE modules installed in a Surface cannot be used for connection to a MixRack.

16.6 fibreACE I/O Module Configuration

fibreACE modules in the MixRack require the front panel **Control Network Bridge** switch to be in the **ON** position, and the **Mode** switch to be set to **Copper Active** or **Optical Active** mode depending on the cable used.

fibreACE modules installed in Secondary Surfaces and used for the MixRack connection require the front panel switch to be set to **Convert**.

16.7 PAFL

Each Surface can have a dedicated PAFL bus which is assigned via **Surface** / **Audio** / **PAFL** as detailed in Section 10.7. PAFL busses can be added or removed via **MixRack** / **Config** / **Mixer Config** as described in Section 9.1.

ⓘ The **RTA** function is fixed to PAFL bus 1

ⓘ **Wedge** and **IEM** strips are fixed to PAFL bus 1

ⓘ The headphones socket on the MixRack is fixed to PAFL bus 1

ⓘ **Delay**, **PFL Trim** and **Ext Input to PAFL Source** are available for PAFL busses 1 and 2

16.8 Surface I/O



1 **I/O Modules** – I/O modules installed in the Primary Surface are accessible throughout the system. I/O modules in Secondary Surfaces are not accessible.

2 **Analogue & AES** – Analogue and AES I/O on Primary and Secondary Surfaces are accessible throughout the system.

3 **DX Expanders** – DX Expanders connected to Primary and Secondary Surfaces are accessible throughout the system.

16.9 Shows

In a typical Multi-Surface system, each Surface would store and recall its own Show independently of other Surfaces. Although the MixRack data would be the same in each Surface's Show file, the Surface data would be unique to the Surface that stored the Show.

When loading Multi-Surface shows, the last user to store the Show would recall the Show as normal. Additional operators would recall their Shows in **Surface Only Recall** mode to prevent making any changes to the MixRack configuration.

ⓘ If a Show stored on the FOH Surface is recalled on the MON Surface, it will recall the FOH Show memories and Scene memories including the FOH Surface configuration (i.e. strip layouts)

ⓘ Enable **Allow Surface Only Recall** by pressing **Setup** when on the **Utility** / **Memory** / **Show Manager** page – see Section 11.1 for more information on Show Manager.

16.10 Scenes

In a typical Multi-Surface system, each Surface would store and recall its own Scene(s) independently of other Surfaces.

The Surface Roles menu allows the user to define a Scene Range for each Surface Role and can be accessed by pressing **Setup** whilst on the **Surface** / **Control** / **Surface Prefs** page.

For example, in a FOH/MON Multi-Surface configuration, the FOH Surface Role could be assigned to Scenes 001-249 and the MON Surface Role could be assigned to Scenes 250-500.

As a Scene also contains MixRack settings it would be typical to configure Role Filters to block unwanted Surface and MixRack parameter changes when recalling a Scene.

ⓘ If a Scene stored on the FOH Surface is recalled on the MON Surface, it will recall the FOH Surface memories (i.e. FOH strip assignments etc.) in addition to all MixRack settings.

16.11 Surface Roles

Up to 4 Surface Roles can be configured, and each Surface Role contains a scene range and a Role Filter.

In a typical FOH/MON Multi-Surface configuration, the Role Filters would be configured on each Surface to allow relevant changes when a Scene recall is performed.

ⓘ Changes made to the Mixer Config – for instance adding or removing an AUX, GRP or MTX – would need to be reflected in the Role Filters for each Role.

16.12 Firmware Update

In a Multi-Surface system, Surfaces should be updated individually, either connected as a Primary Surface directly to the MixRack gigaACE socket or with no MixRack connected via the Connection Failed screen on startup.

ⓘ Performing a firmware update with Surface(s) connected to the MixRack via I/O module(s) is not supported.

16.13 Patching between Surfaces

There are several scenarios where patching inputs between Surfaces is desirable.

For example, signals may need to be patched between Surfaces via Tie-Lines. This can be useful for “shout” communications between engineers when it is not desirable to consume an input processing channel.

As Secondary Surfaces are connected to the MixRack via gigaACE or fibreACE I/O modules, patching between Surfaces is performed on the I/O screen via the MixRack I/O Port tabs.

To patch the signals use the Tie Lines tab in the I/O screen and refer to the gigaACE I/O module channel mapping for the relevant gigaACE I/O channel numbers.

ⓘ Primary Surface I/O can only be patched to Input Channels from the Primary Surface itself.

ⓘ All Surfaces have the ability to change the patching of I/O modules fitted to the rack. Care should be taken to prevent accidental changes to the patching of gigaACE I/O modules that are being used for connection to Secondary Surfaces.

16.14 gigaACE I/O Module Channel Mapping

All channel mapping is from the perspective of the MixRack I/O modules.

Patching is performed on the I/O page via the MixRack I/O Port tabs.

gigaACE Channel	Output
1	Surface Analogue Output 1
2	Surface Analogue Output 2
3	Surface Analogue Output 3
4	Surface Analogue Output 4
5	Surface Analogue Output 5
6	Surface Analogue Output 6
7	Surface Analogue Output 7
8	Surface Analogue Output 8
9	Surface Digital Output 9
10	Surface Digital Output 10
11	Surface Digital Output 11
12	Surface Digital Output 12
13	Surface Digital Output 13
14	Surface Digital Output 14
15	PAFL L
16	PAFL R
17	DX Outputs 1
18	DX Outputs 2
19	DX Outputs 3
20	DX Outputs 4
21	DX Outputs 5
22	DX Outputs 6
23	DX Outputs 7
24	DX Outputs 8
25	DX Outputs 9
26	DX Outputs 10
27	DX Outputs 11
28	DX Outputs 12
29	DX Outputs 13
30	DX Outputs 14
31	DX Outputs 15
32	DX Outputs 16
33	DX Outputs 17
34	DX Outputs 18
35	DX Outputs 19
36	DX Outputs 20
37	DX Outputs 21
38	DX Outputs 22
39	DX Outputs 23
40	DX Outputs 24
41	DX Outputs 25
42	DX Outputs 26
43	DX Outputs 27
44	DX Outputs 28
45	DX Outputs 29
46	DX Outputs 30
47	DX Outputs 31
48	DX Outputs 32

gigaACE Channel	Input
1	Surface Analogue Input 1
2	Surface Analogue Input 2
3	Surface Analogue Input 3
4	Surface Analogue Input 4
5	Surface Analogue Input 5
6	Surface Analogue Input 6
7	Surface Analogue Input 7
8	Surface Analogue Input 8
9	Surface Digital Input 9
10	Surface Digital Input 10
11	Surface Digital Input 11
12	Surface Digital Input 12
13	DX Input 1
14	DX Input 2
15	DX Input 3
16	DX Input 4
17	DX Input 5
18	DX Input 6
19	DX Input 7
20	DX Input 8
21	DX Input 9
22	DX Input 10
23	DX Input 11
24	DX Input 12
25	DX Input 13
26	DX Input 14
27	DX Input 15
28	DX Input 16
29	DX Input 17
30	DX Input 18
31	DX Input 19
32	DX Input 20
33	DX Input 21
34	DX Input 22
35	DX Input 23
36	DX Input 24
37	DX Input 25
38	DX Input 26
39	DX Input 27
40	DX Input 28
41	DX Input 29
42	DX Input 30
43	DX Input 31
44	DX Input 32

ⓘ All Surfaces have the ability to change the patching of I/O modules fitted to the rack. Care should be taken to prevent accidental changes to the patching of gigaACE I/O modules that are being used for connection to Secondary Surfaces.

17. Appendix F – MCAs

17.1 Overview

MCAs are used to relatively adjust the send levels of DCA members to an Aux or Matrix.

When MCA mode is enabled, and an Aux/Matrix is the active Mix, the DCA fader becomes an MCA fader, controlling the Aux/Matrix send levels of the member channels. The MCA fader will revert to a DCA fader when an Aux/Matrix is not the active Mix.

MCA faders default to the GEQ line allowing a +/- 12dB trim of the send levels.

For example, a DCA may contain 8 drum channels. In MCA mode with Aux 1 as the active Mix, the send levels to Aux 1 of all 8 drum channels can changed via the MCA fader with their relative levels remaining intact.

ⓘ MCA faders are not supported on IP controllers.

17.2 Adding MCA Members

An MCA contains the same members as the DCA.

To populate a DCA/MCA, use the Routing screen or the **Mix** and **Assign** buttons on the Surface.

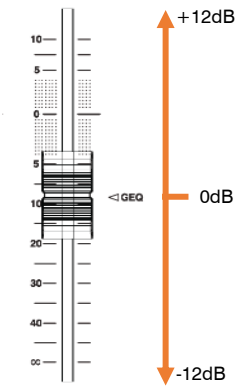
17.3 Enabling MCA Mode

MCA mode can be enabled on DCA channels individually or globally.

Enable MCA mode on specific DCAs in the Bank View screen by touching the **MCA Active** option on the DCA strips.

Enable MCA mode globally in the DCA/MCA Spills screen by enabling the **Force MCA on Mix** option.

17.4 Working in MCA Mode



With MCA mode enabled, press the **Mix** button on an Aux or Matrix to change the DCA fader to a MCA fader.

An MCA fader will move to the central GEQ position when activated, allowing +/-12dB of trim control over the sends of its members.

As with a DCA, the relative levels of the MCA members will remain intact when moving the MCA fader.

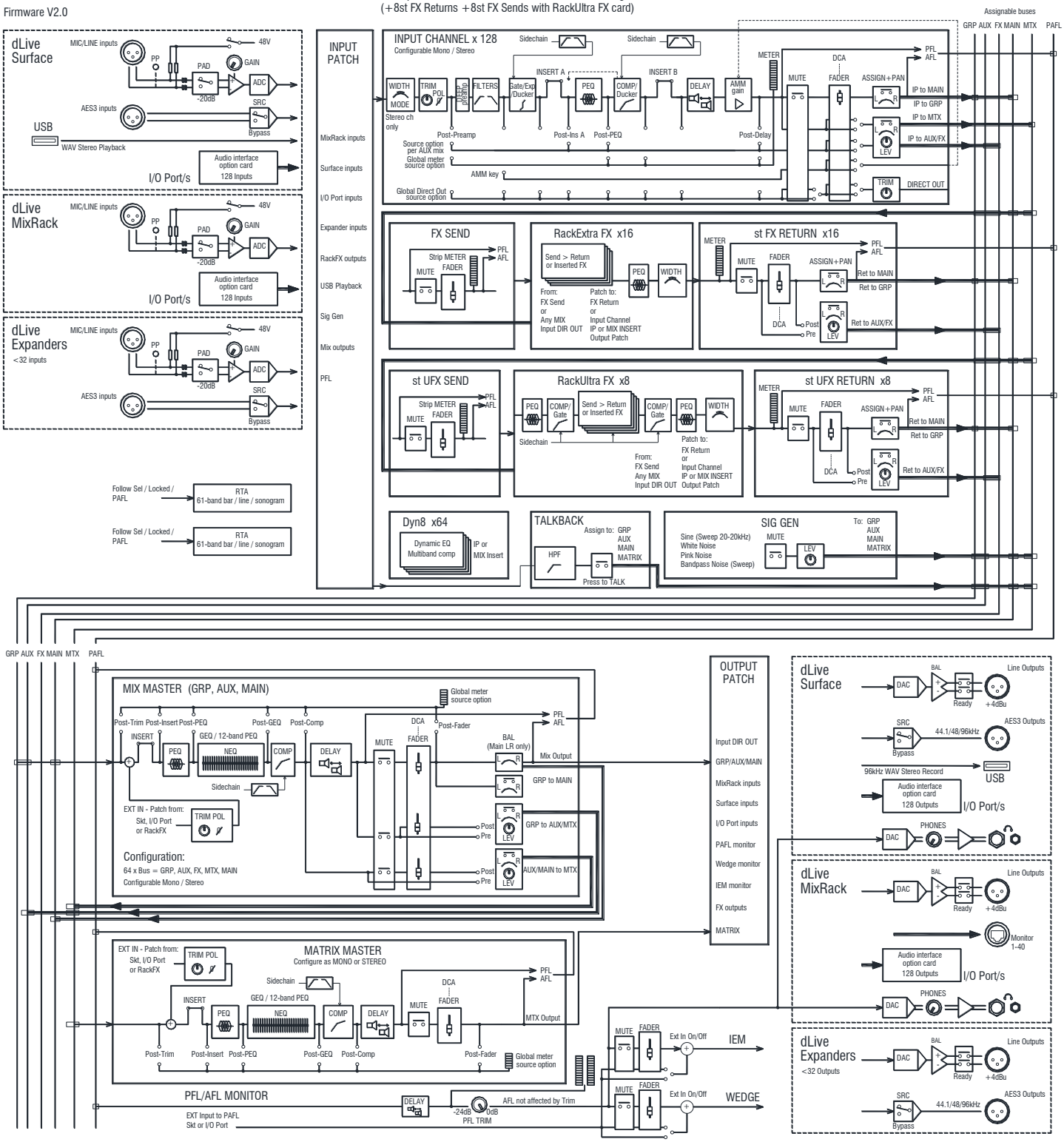
If DCA/MCA Spill is active, pressing the **Mix** button on an MCA will populate the Surface with the channels assigned to the DCA/MCA. Pressing the **Mix** button again will revert to the normal strip layout on the Surface.

18.Block diagram

dLive SYSTEM BLOCK DIAGRAM

Firmware V2.0

128 input channels +16st FX Returns x 64 bus Mix Engine
(+8st FX Returns +8st FX Sends with RackUltra FX card)



19. Processing specs

Input Processing

128 Input Processing Channels	Configurable mono or stereo
Trim	+/-24dB digital trim
Polarity	Normal/Reverse
Stereo Width Control	L/R, R/L, L -Pol/R, R -Pol/L, Mono, L/L, R,R, M/S
High Pass Filter	12dB/18/24dB octave 20Hz – 2kHz, switchable in/out
Low Pass Filter	12dB octave 50Hz – 20kHz, switchable in/out
Insert	Assign to any sockets, In/Out, +4dBu/-10dBV level
	2 insert points per channel: Post Gate, Pre-Delay
Delay	Up to 340ms, in/out control
Gate	
Sidechain	Self-key + any source selectable, In/Out, Sel 'listen'
Sidechain Lo-Cut Filter	12dB/octave, Freq 20Hz – 5kHz
Sidechain Hi-Cut Filter	12dB/octave, Freq 120Hz – 20kHz
Threshold	-72dBu to +12dBu
Depth	0 to 60 dB
Attack	50us to 300ms
Hold	10ms to 5s
Release	10ms to 1s
PEQ	
Type	4-band fully parametric, +/-15dB
Frequency Range	Global setting for Inputs = 20-20kHz or 'Analogue setup'
Analogue Range setup	20-200Hz, 35-1kHz, 500-15kHz, 2k-20kHz
Band 1	Selectable LF Shelving, Bell, Hi-Pass
Band 2	Bell
Band 3	Bell
Band 4	Selectable HF Shelving, Bell, Lo-Pass
Bell Width	Non-constant Q, variable, 1.5 to 1/9th octave
Shelving Type	Classic Baxandall
Hi-Pass, Lo-Pass Filter selectable	12dB/octave
Band in/out	per channel
Compressor	pre/post PEQ, on a per channel basis
Sidechain	Self key + any source selectable, In/Out, Sel 'listen'
Sidechain Lo-Cut Filter	12dB/octave, Freq 20Hz – 5kHz
Sidechain Hi-Cut Filter	12dB/octave, Freq 120Hz – 20kHz
Threshold	-46dBu to 18dBu
Compressor parameters	Thres, Ratio, Attack, Release, Knee - type dependant
Types/Models	Various peak and RMS based Compressor models
Parallel Compression	Wet/Dry control
Channel Direct Out	Individual Trim (per channel)
Options	Source, follow Fader, follow Mute (global for all)
	Source points globally selectable

Mix Processing

64 Mix Processing Channels	Configure as mono/stereo Groups, Aux, Main, Matrix
Main mix modes	None, LR, LCR, LR+MSum, LR+M
External Input to Mix	Assignable source
Trim	+/-24dB digital trim
Polarity	Normal/Reverse
Insert	Assign to any sockets, In/Out, +4dBu/-10dBV level
	1 insert point per channel: Pre-EQ
NEQ	28-band GEQ or 12-band PEQ
GEQ	28 bands 31Hz -16kHz, +/-12dB
Type	Constant-Q, Proportional-Q, digiGEQ, Hybrid
NEQ-12	12-band fully parametric, +/-15dB, with selectable shelving / bell / hi-pass 12/24/48dB per octave
PEQ	as input channel
Compressor	as input channel
Delay	Up to 680ms, in/out

RackExtra FX

FX Engines	16x RackFX engines
Mode	Send>Return, Inserted, direct to output
FX Processing	4-band PEQ, Stereo Width
FX Returns	
16 Stereo dedicated returns	Fader, Pan, Mute, Routing to Grp, Aux, FX, Main

RackUltra FX

(MixRacks fitted with RackUltra FX card only)

FX Engines	8x RackUltra FX engines
Mode	Send>Return, Inserted, direct to output
FX Processing	Pre / Post 4-band PEQ, Pre / Post Dynamics (Gate, Expander, Compressor or Ducker) with Sidechain, Stereo Width
FX Returns	
8 Stereo dedicated returns	Fader, Pan, Mute, Routing to Grp, Aux, FX, Main

Talkback	Assignable source
High Pass Filter	12dB/octave, 20Hz-400Hz
Routing	To Groups, Aux, Main, Matrix
Signal Generator	Sine, White Noise, Pink Noise, Bandpass Noise
Sine, Bandpass sweep	20-20kHz
Controls	Level, Mute
Routing	To Groups, Aux, Main, Matrix
RTA	2x 61-Band Line, Bar or Sonogram mode
Source	Channel locked, follow Sel, or external control