

avantis



Firmware Reference Guide

V1.3

- ⓘ This Guide refers to **Avantis** firmware V1.3.
Before starting please check www.allen-heath.com for the latest **Avantis** firmware and documentation.

Important

System operating firmware

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

① Check www.allen-heath.com for the latest version of **Avantis** firmware.

Software licence agreement

By using **Avantis** 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 Avantis hardware, system setup and connections please refer to the Avantis 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 Avantis users: community.allen-heath.com

Avantis Firmware Reference Guide

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Contents

Important	2
System operating firmware	2
Software licence agreement	2
Further information.....	2
Contents	3
1. Continuity UI	6
1.1. Overview	6
1.2. Copy/Paste/Reset, Pre/Post, Safes, Freeze	7
2. Bank View	8
2.1. Input Channels	8
2.2. DCA Channels	8
2.3. Mix Channels	8
3. Processing	9
3.1. Preamp	9
3.2. Ext In (Mix only).....	10
3.3. Filter (Input only)	11
3.4. Gate (Ducker)	11
3.5. Inserts	12
3.6. PEQ.....	13
3.7. NEQ (Mix only)	14
3.7.1. GEQ.....	14
3.8. Compressor	15
3.9. Delay	16
3.10. MIDI Strip (MIDI channels only)	16
4. Routing	18
4.1. Input channels	18
4.2. Aux and FX sends.....	19
4.3. Matrix sends.....	20
4.4. DCA and Groups	21
5. I/O	22
5.1. Inputs	22
5.2. Outputs	23
5.3. Tie Lines.....	24
5.4. Virtual SoundCheck	24
6. Ganging	26
7. Meters	27
7.1. RTA	28
8. FX	30
9. Scenes	32
9.1. Scene Manager.....	32
9.2. Recall Filters.....	34
9.3. Embedded Recall	34
9.4. Update	35

9.5.	Cue List Editor	36
9.6.	Global Scene Safes	37
10.	Setup	38
10.1.	Control / Strip Assign	38
10.2.	Control / SoftKeys	39
10.3.	Control / Surface Preferences.....	40
10.4.	Control / Dimmer.....	40
10.5.	Control / DCA Spills	41
10.6.	Control / Custom Rotary	42
10.7.	Audio / PAFL	43
10.8.	Audio / SIP	44
10.9.	Audio / I/O Port	44
10.10.	Audio / Audio Sync	45
10.11.	Audio / Metering.....	46
10.12.	Audio / Source Selector	47
10.13.	Audio / AMM	47
10.14.	Config / Mixer Config	49
10.15.	Config / Input Stereos	50
10.16.	Config / Name & Colour	50
10.17.	Config / Network	51
10.18.	Config / User Profiles	52
10.19.	Config / Add Ons	52
10.20.	Config / RF Devices	53
10.21.	Talkback.....	54
10.22.	Mute Groups	55
10.23.	SigGen	56
10.24.	Controllers / Device Manager	57
	Controllers / Quick Setup	58
	Controllers / Advanced.....	59
10.25.	Controllers / Simulator	59
11.	Utility.....	60
11.1.	Status / Home Screen.....	60
11.1.1.	User login	60
11.2.	Memory / Show Manager.....	61
11.3.	Memory / Library Manager.....	62
11.4.	Utilities / History	62
11.5.	Utilities / Date/Time	62
11.6.	Utilities / Calibration	62
11.7.	Utilities / Firmware.....	62
11.8.	MIDI / Control.....	63
11.9.	USB Audio / Manager	64
12.	Appendix A - AMM	65
13.	Appendix B – dPack.....	66
13.1.	Compressors	66

13.2.	Expanders (Gate Section).....	68
13.3.	Preamp	69
13.4.	NEQ12	70
13.5.	Dyn8.....	70
14.	Appendix C - RackExtra FX Models	72
15.	Appendix D – Scene and Show memory content	82
15.1.	Scene memories	82
15.2.	Show memories	83
15.3.	Settings not stored in Shows	83
16.	Appendix E – Template Shows	84
16.1.	FOH.....	84
16.2.	Monitors	84
16.3.	FOH LCRplus.....	84
17.	Appendix F – I/O Module Options.....	85
17.1.	ACE	85
17.2.	AES XLR.....	85
17.3.	DX Link.....	85
17.4.	MADI	85
17.5.	superMADI	85
18.	Block Diagram	86
19.	Processing specs.....	87

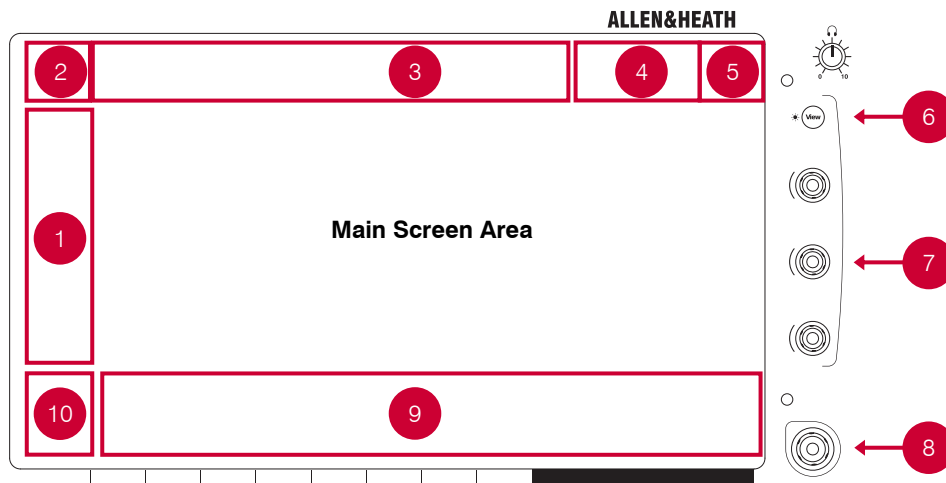
1. Continuity UI

1.1. Overview

Avantis touchscreens show channel processing, bank overview, system setup & status, memory management menus and more.

Each touchscreen integrates with three user-configurable soft rotaries in addition to a Touch & Turn rotary control for quick and easy parameter modification.

Avantis consoles with more than one touchscreen operate independently of each other so, for example, two discrete channel processing screens can be visible simultaneously, or processing can be visible on one screen with I/O patching visible on the other.



1. Screen Mode

Select the Screen Mode:

- **Bank** – Overview of all channels assigned to the fader Bank and Layer. Bank view can be used with the Copy, Paste, Reset, Safe, Freeze and Listen keys.
- **Processing** – Access channel processing for the currently selected channel. When active, the **Processing** screen mode will remain latched when no channel is selected. Touch **Bank** or close the Processing window via the X in the top right corner, to un-latch.
- **Routing** – Access routing and assignments for the selected channel. When active, the **Routing** screen mode will remain latched when no channel is selected. Touch **Bank** or close the Routing window via the X in the top right corner, to un-latch.
- **I/O** – Patch system inputs and outputs by tapping on crosspoints
- **Ganging** – Create up to 16 gang groups to link selected parameters across multiple channels
- **Meters** – Access to Input, FX and Mix meters, RTA spectrogram and 4 user-customisable meter views.
- **FX** – Configure the 12 RackFX units.
- **Scenes** – Access to the Scene Manager, Global Safes and other scene tools
- **Setup** – Access to mixer strip layout, mixer bus configuration, softkey configuration, stereo input configuration, network settings, audio settings, user profiles, mixer preferences, illumination and more.
- **Utility** – Access the Show Manager, Library Manager, firmware update, system diagnostics, fader, and screen calibration, and MIDI options.

2. Selected Channel

The currently selected channel.

- Touch this area to bring up the channel naming keyboard and Channel Library button.
- From the channel naming keyboard you may name and colour the channel.
- Touching the Channel library button allows you to recall or store a Channel Library. Enable the **Recall Preamp** option to include Preamp settings when recalling the Library. Channel Libraries do not store routing, levels or assignments.

3. Menu Tabs

Menu options for the selected Screen Mode.

4. Status Bar Icons are visible when certain modes of operation are active (Virtual Soundcheck, Scene Update Auto Tracking, etc) or if a system error is logged. Scene recalls and stores are shown here. Optionally this area can permanently display the Next and/or Last Scene Recall.

5. Active Mix The currently selected Mix.

6. View Press to show the configured soft rotaries and Scene List if enabled.

7. Soft Rotaries Three soft rotaries for the control of user-assignable parameters.

8. Touch & Turn Control Touch a parameter or setting in the main screen area and adjust its value with the rotary control. The currently selected parameter is highlighted in orange.

9. Name Block Displays name, colour, channel type, number, metering information, and other channel parameters.

Touch a channel Name Block to select a channel for use with the Processing and Routing screens. When selected, the channel strip will be shaded green.

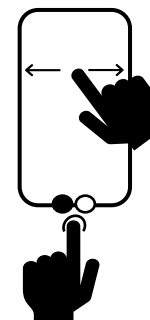
Each bank can have one channel selected. The currently selected channel is displayed in the top left corner of the screen.



10. Swipe Menu Multi-page menu showing either PAFL meters or additional contextual options. Swipe the menu, or touch the circular page indicators, to scroll between the pages.

Page 1

- **Listen** – Hold down Listen and touch any highlighted area of the screen to listen to that point in the signal path of the selected channel
- **Options** – Hold down Options and touch any highlighted area of the screen to configure it.
- **dB / IO / Name** – Tap to toggle between Name Block modes to display the user-defined channel Name, the fader position in dB, or the I/O socket identifier of the patched source/destination.
- **Help** – Touch to display contextual help for the active screen



Page 2

- **PAFL Meter** – A 22-segment meter

1.2. Copy/Paste/Reset, Pre/Post, Safes, Freeze

The following physical keys can be used in conjunction with the touchscreen(s):

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

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

Pre - Hold down **Pre** and touch a channel **Name Block** to toggle the sends to the active Mix between pre or post fade. Toggle all channels pre/post by holding down **Pre** and touching a master mix **Name Block**. Assignments and pre/post settings for the selected channel or Mix are also available in the **Routing** screen.

Safes - Hold down **Safes** and press a **Name Block** to make the channel safe from Scene recall. To make a processing block safe (e.g. PEQ), hold down **Safes** and touch the processing block. To make only a selection of parameters safe, use the **Scenes / Global Safes** screen.

Freeze - Hold down **Freeze** and press a **Name Block** to lock a channel in place across all layers.

2. 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**, **Pre/Post**, **Safes**, **Freeze** and **Listen** keys, for example for copying a single processing block to one or multiple channels. See 1.2 for details on using these keys.

2.1. 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 **Name Block** to select. The selected channel is highlighted in green.
2. Tap on a **Processing Block** (e.g. PEQ) within a selected channel to open the associated processing page and select the channel.

2.2. DCA Channels

Displays name, colour, members (assigned channels) and the 'Fader to Zero dB' option. Use the **Routing** screen or the **Assign** keys to assign channels.

2.3. Mix Channels

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

1. Scroll the list up or down if the members are too many to fit in the strip.
2. 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.

3. Processing

3.1. 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 Local sockets, SLink inputs, USB stereo playback, I/O Port inputs, the output of built-in effects, and the Signal Generator.

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 **Safes** key automatically makes the associated Preamp safe. Turning off Safe using the physical key unsafes the Preamp.

3. 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).

4. 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.

5. Preamp Option – Lets you choose whether the fader strip rotaries control the Preamp Gain or channel Trim when in Gain mode. Turn on **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.

Touch and hold **Options** and touch anywhere in the Preamp screen to access a global setting for disabling Preamp on Surface. This affects all channels.

When **Gain Tracking** is activated, Trim automatically changes to compensate for preamp gain changes. This can be useful in situations where a single preamp is accessible by two mixers – e.g. when using a DT168 or DT164-W with two Avantis mixers.

Touch and hold **Options** 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.

6. Preamp Model – Displays the DEEP Processing model and controls, if one is loaded. Touch **Library** to access the preamp Library and load a preamp model.

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 in Section 13 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.

3.2. Ext In (Mix only)

You can assign an external input to any Mix channel, for example for bus summing, combining console outputs, or external communications. The Ext Input sums with the Mix channel pre-insert and is affected by the Mix processing and fader.



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

3.3. Filter (Input only)

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.

3.4. Gate (Ducker)

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

Touch **Library** to access the Gate Library. This includes the option of a channel Ducker 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 HPF and LPF filter 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 to 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.

3.5. Inserts

You can insert external equipment, external plugins, one of 16 internal Dyn8 engines (requires **dPack**), or one of 12 internal RackExtra 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 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.

3.6. PEQ

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

Options Touch and hold **Options** 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.

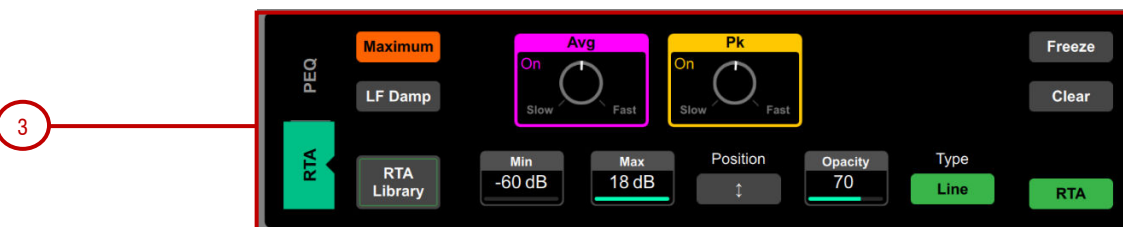
Info The PEQ/Comp order for each channel is stored in Show files. It is not stored in Scene memories.

Options Touch and hold **Options** and touch anywhere in the PEQ screen to access the Fill Curves and 20Hz-20kHz options. **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. Touching and holding the dot of a band whilst using a second finger to “pinch” the screen can be used to adjust the Q (width) of the band. The overall frequency response curve turns yellow when the PEQ is switched in and grey when switched out. The RTA can be overlaid in the graph.

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.



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

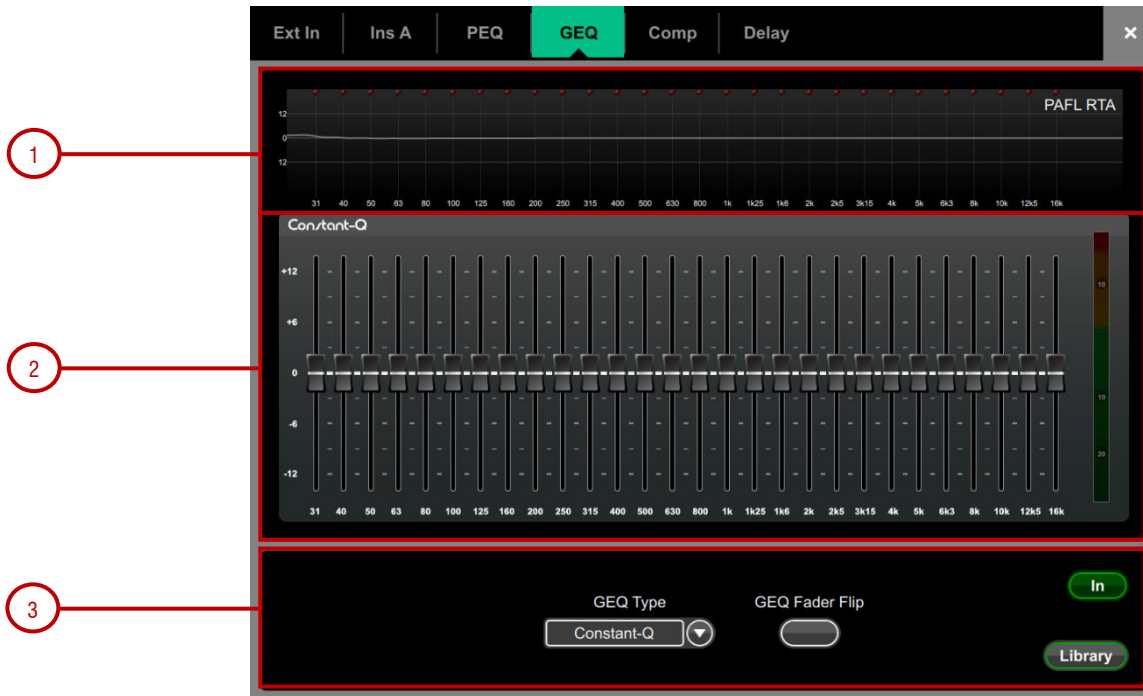
Set the **Min** and **Max Scale** to adjust for sensitivity or signal level. Touch **Position** and drag the RTA area on the graph to locate and resize the overlay. You can also control the **Opacity** of the overlay. Select the view **Type** (Bar or Line) - this is independent from the Type selected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

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

3.7. NEQ (Mix only)

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.

3.7.1. GEQ



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. An RTA of the PAFL signal with optional peak band indication is also superimposed on the graph.

① Make sure the PAFL source is related to the selected channel (typically the very same channel or a separate measurement microphone).

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 **GEQ Fader Flip** to control the GEQ with the mixer faders. The fader strips and their displays show the settings of the GEQ frequency bands, while the right-hand fader becomes the master for the selected Mix and the fader strip meters display the RTA for the currently selected PAFL. Press **GEQ Fader Flip** again to toggle between frequency ranges and back to normal mixing.

Use the **NEQ Type** drop-down menu to select one of four DEEP Processing GEQ models or a 12-band PEQ. These offer different types of cut/boost response:

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 Band Mix PEQ – (See [Appendix B – NEQ12](#))

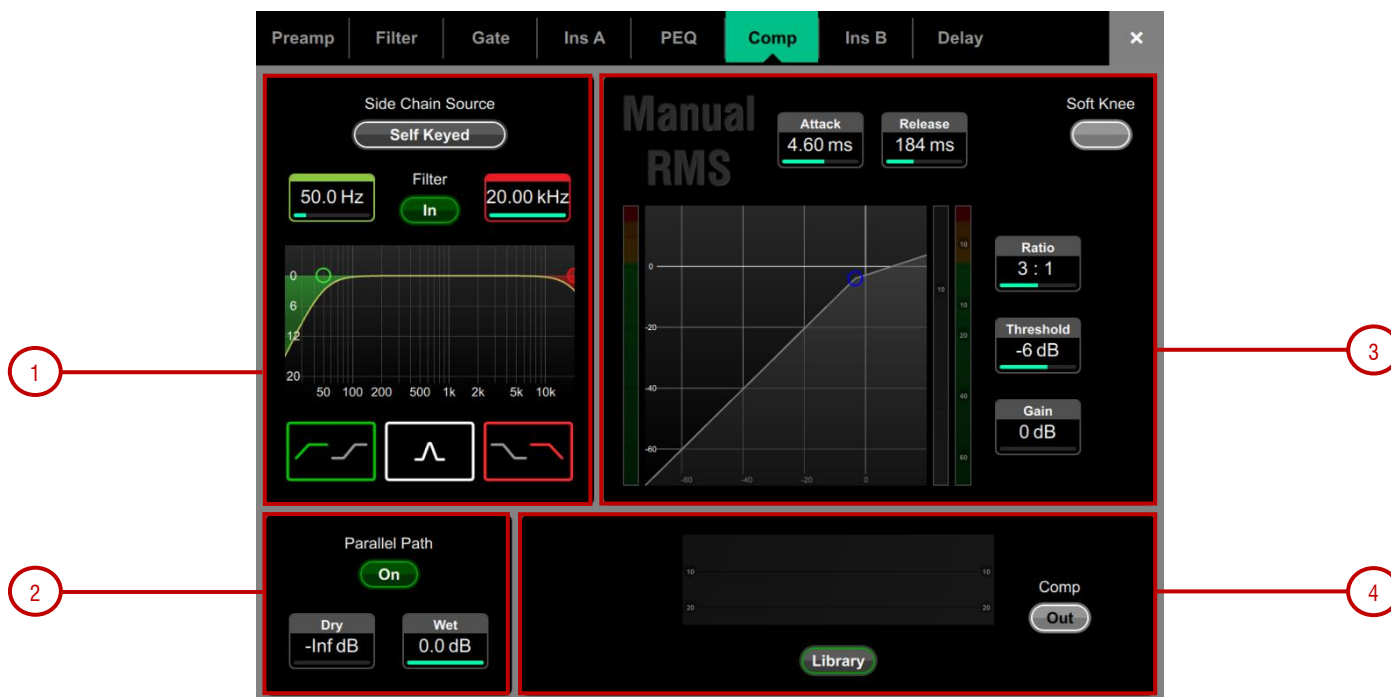
3.8. Compressor

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

Touch and hold **Options** 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.

See Appendix B in this guide for more details on Compressor models.



1. Side Chain – Touch the **Side Chain Source** box to open a window for selecting the Key (trigger) input to the Gate. An adjustable HPF and LPF filter 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 to 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.

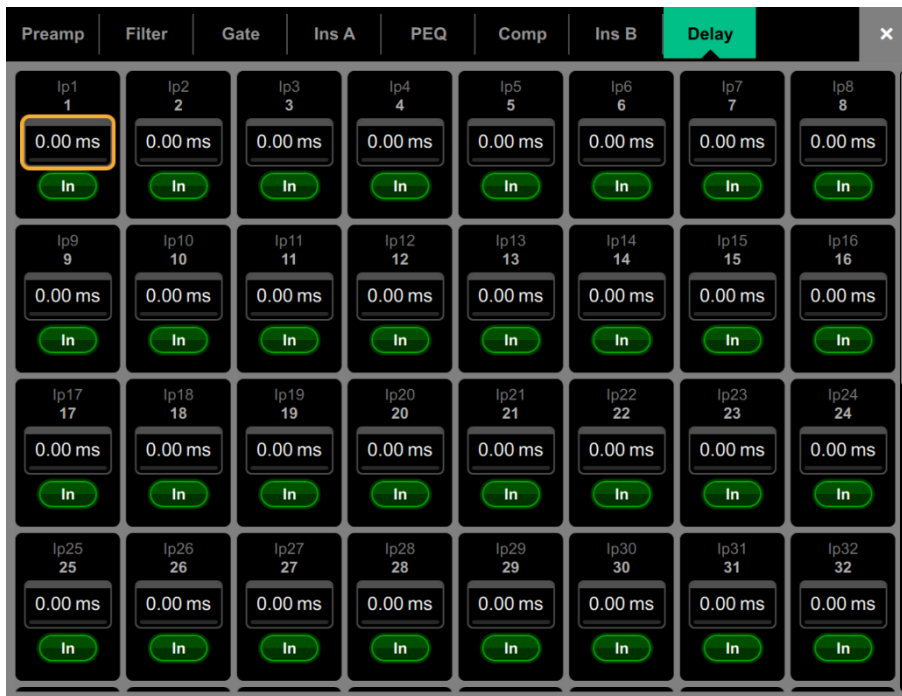
Manual RMS - Offers the response of a fairly fast pre-threshold RMS detector with added ability to manually modify the post threshold ballistics for classic sounding RMS compression with additional attack or release smoothing.


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.

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.

3.9. Delay

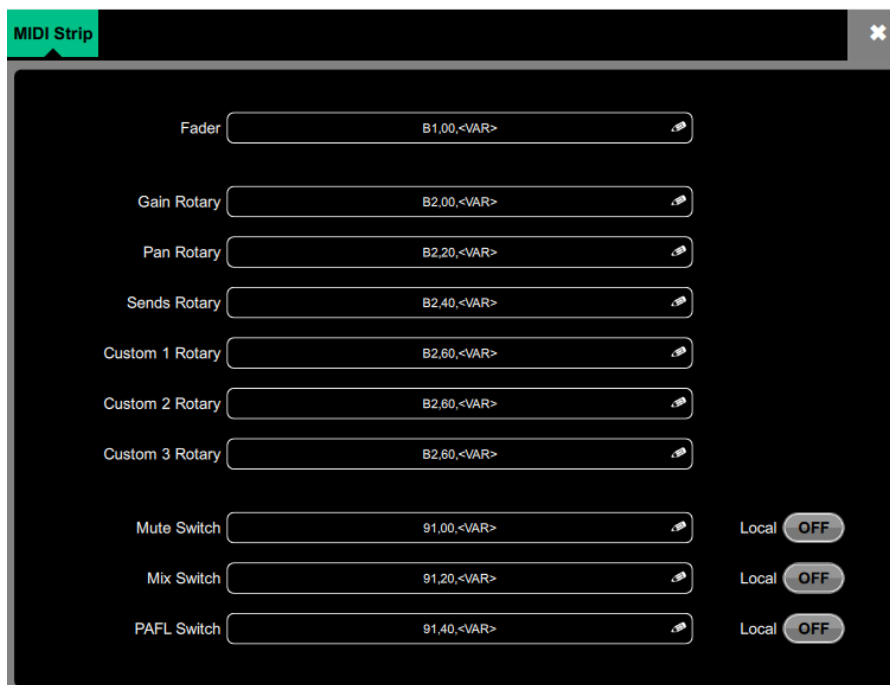
The delay settings for all the channels or mixes are shown on this page, with the currently selected channel highlighted. Use the screen rotary to change its value or touch another parameter box to adjust the delay for a different channel. Touch the **In** buttons to toggle the delay in or out. Input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



 Touch and hold **Options** 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 Avantis can compensate for the effect on delay.

3.10. MIDI Strip (MIDI channels only)

Custom MIDI messages can be assigned to faders, all six rotary functions (Gain, Pan, Send and Custom 1-3), Mute, Mix and PAFL keys.



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 messages are assigned within the factory Template Shows for MIDI Strips 1-32 (hex values shown):

Fader B1, 00, <VAR> to B1, 1F, <VAR> *DAW track Level*

Gain Rotary B2, 00, <VAR> to B2, 1F, <VAR>

Pan Rotary B2, 20, <VAR> to B2, 3F, <VAR>

Sends Rotary B2, 40, <VAR> to B2, 5F, <VAR>

Rotary Custom 1 B2, 60, <VAR> to B2, 7F, <VAR>

Rotary Custom 2 B2, 60, <VAR> to B2, 7F, <VAR>


Rotary Custom 3 B2, 60, <VAR> to B2, 7F, <VAR>

Mute switch = 91, 00, <VAR> to 91, 1F, <VAR> *DAW track Mute*

Mix switch = 91, 20, <VAR> to 91, 3F, <VAR> *DAW track Select*

PAFL switch = 91, 40, <VAR> to 91, 5F, <VAR> *DAW track Solo*

Where <VAR> is the value determined by the position of the control.

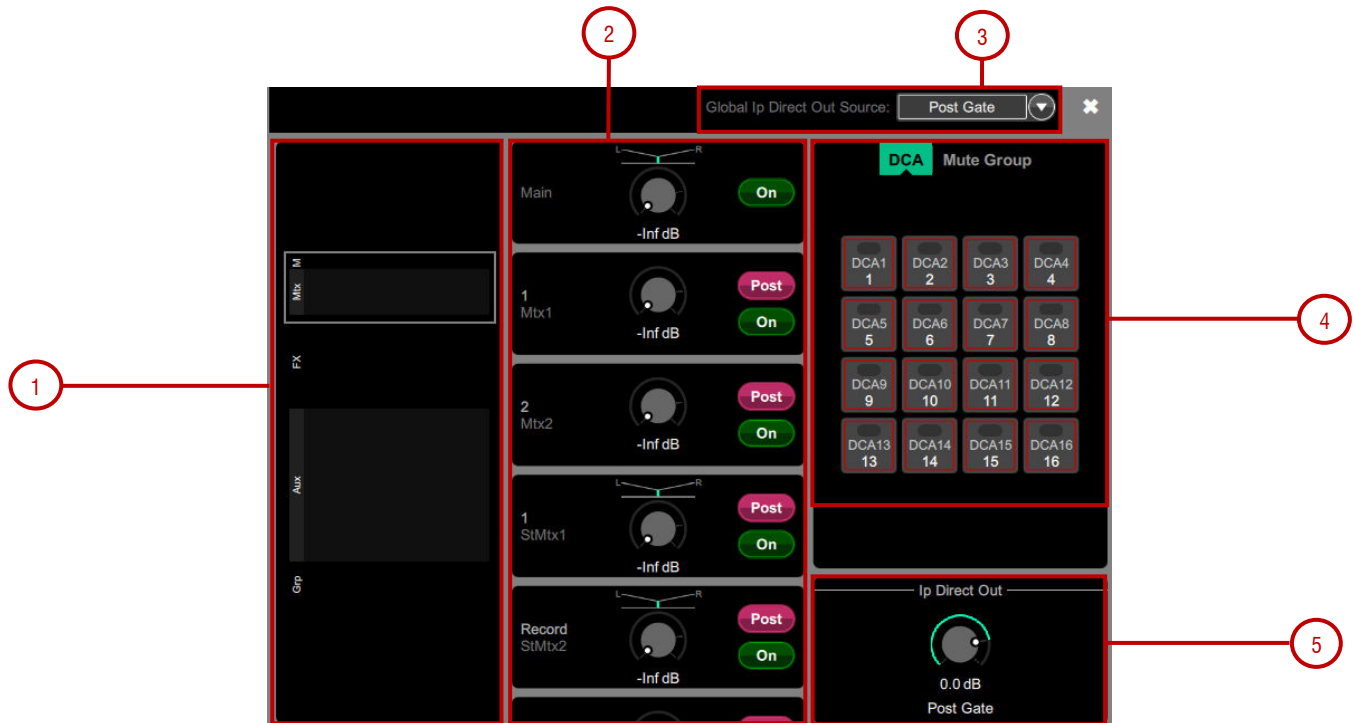
 Download the MIDI Control Driver from www.allen-heath.com to convert the default MIDI messages to popular HUI or Mackie Control protocols for DAW use. Levels and On/Off commands can also be sent and received in CC and Note On format using MIDI Control Driver as a translator. A MIDI Thru option is available 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.

4. 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 Avantis fader strips, **Mix** keys and **Assign / Pre** keys.

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

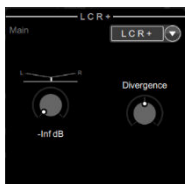
4.1. Input channels



Displays routing, assignments and Direct Out controls.

1. Aux 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. 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, Aux or Matrix 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).



With LCR or LCR+ mode enabled on the **Config / Mixer Config** page, touching the Pan indicator will show the LCR and LCR+ mode options. LCR+ mode provides two controls - Pan to balance between Left and Right, and Divergence to blend the signal between Centre (control fully off) and LR speakers (control fully on).

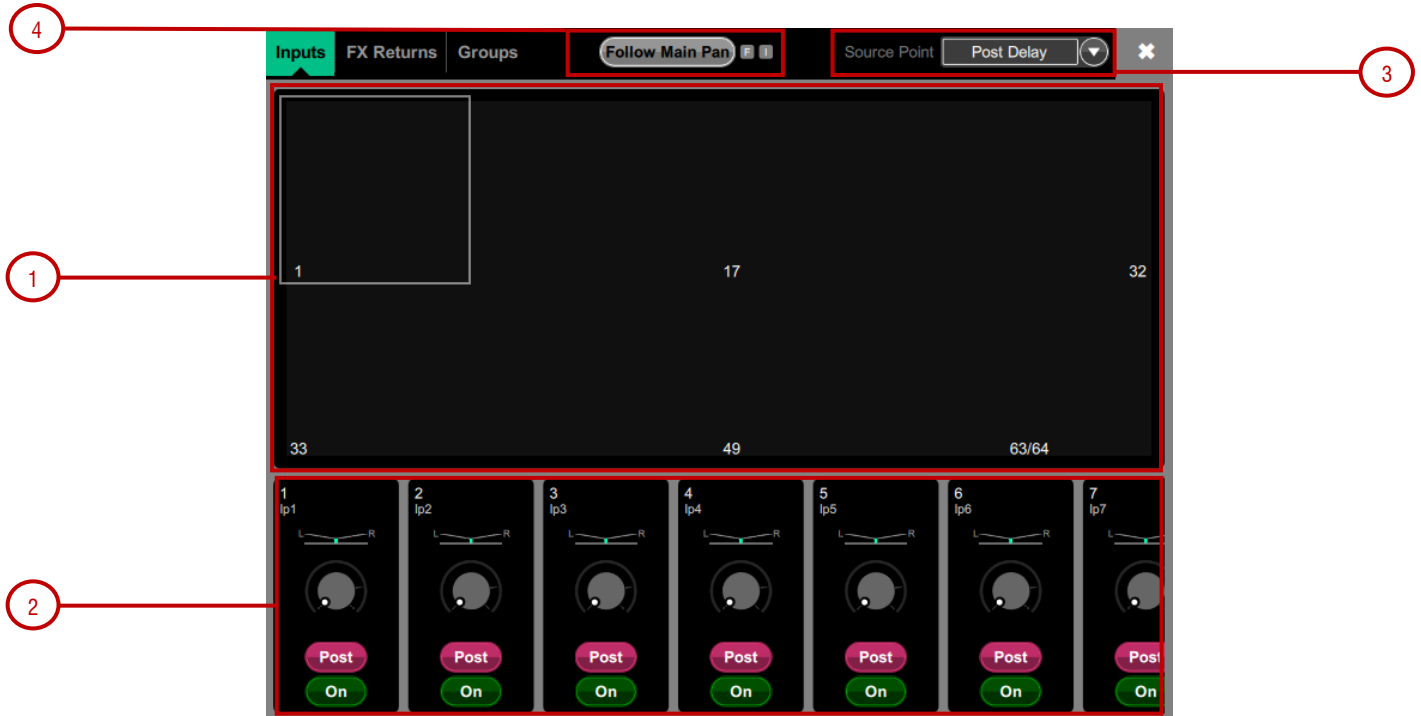
3. Touch the drop-down menu to select the **Global Direct Output Source**. This setting affects all channel Direct Outputs and can be set to Post Preamp, Post LPF, Post Gate, Post Insert A Return, Post PEQ, Post Compressor, Post Insert B Return, Post Delay.

⚙️ Touch and hold **Options** and touch anywhere in the Routing screen to access further options for the Direct Out including **Follow Fader**, **Follow Mute** and **Follow All**. Direct out sends will respect DCA level and Mute along with Channel Fader and Mute with **Follow All** enabled.

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. Further Direct Out settings can be found by touching and holding “Options” then Touching

4.2. Aux and FX sends



Displays routing and assignments of Input channels, FX Returns and Groups to the selected Mix.

1. 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**.

2. 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).

3. 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.

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



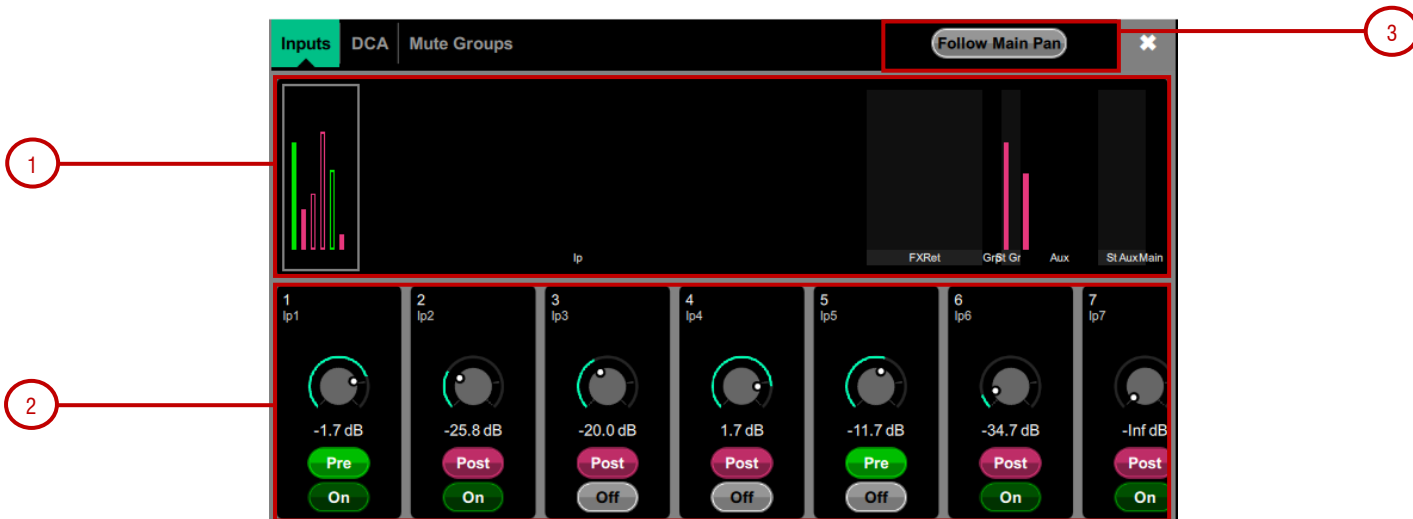
1. Follow / Invert – Each stereo mix can have its own settings. When Follow is enabled, any changes to channel pans to the Mains (i.e. LR) will be followed by the send pans. When Invert is enabled, channel Main pans will be inverted to the stereo mix. If Follow and Invert are both enabled then channel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

4.3. Matrix sends

Displays routing and assignments of Inputs, Groups, Aux and Main mixes to the selected Matrix.



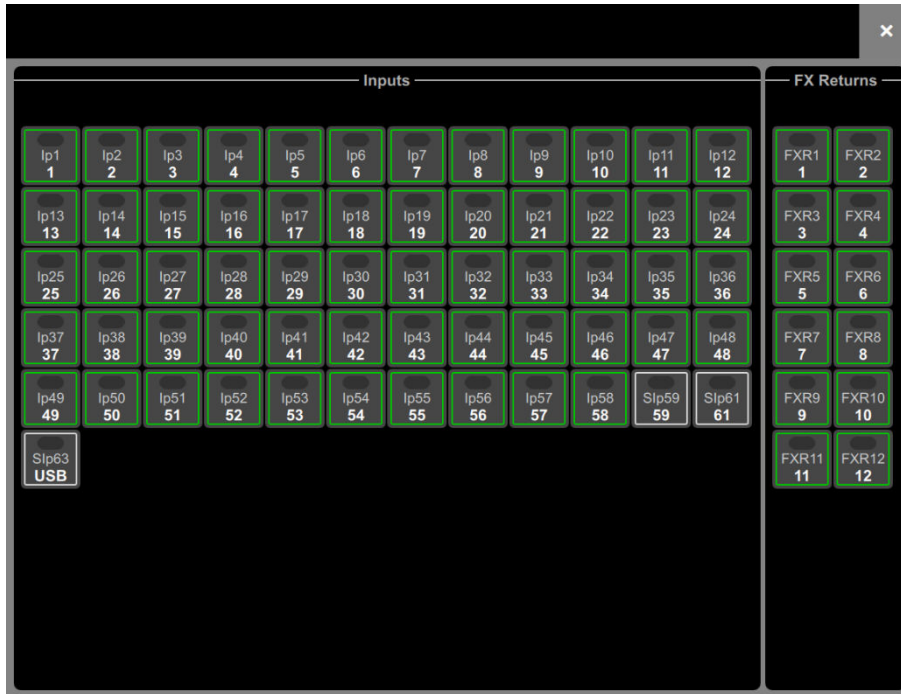
1. Sends overview – Sends are shown as a purple bar if post-fade, as a green bar if pre-fade. The bar is filled in if the Mix is assigned to the Matrix, the outline only is shown otherwise.

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

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

4.4. DCA and Groups

Displays channel assignments to the DCA or Group. Touch **On/Off** to toggle the channel assignment to the DCA or Group. For DCAs, use the tabs on top to display different channel types.



Touch and hold **Options** and touch anywhere in the Routing screen to access the **DCA fader to 0dB** option. This forces the DCA level at 0dB.

5. I/O

Use this screen to patch inputs and outputs from / to analogue sockets, I/O Ports, GX/DX/AB/AR Expanders, USB, or to a ME monitor system. 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.

Use 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.

⚙️ Touch and hold Options 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.

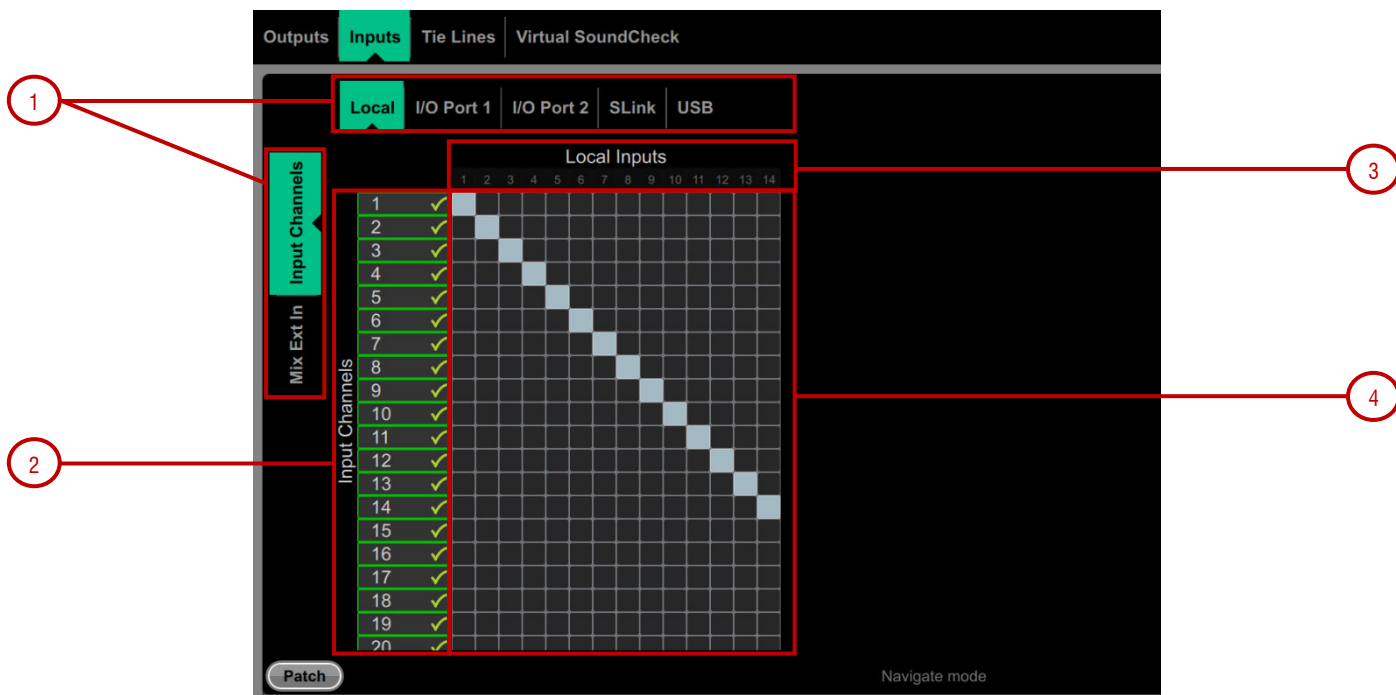
Only patch when the Patch button is pressed requires a two fingers operation to prevent accidental changes to the patch. Hold down the screen **Patch** button and touch a cross-point to patch when this option is enabled. Hold down and draw a line on the matrix to quickly patch sources to destinations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

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. 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.

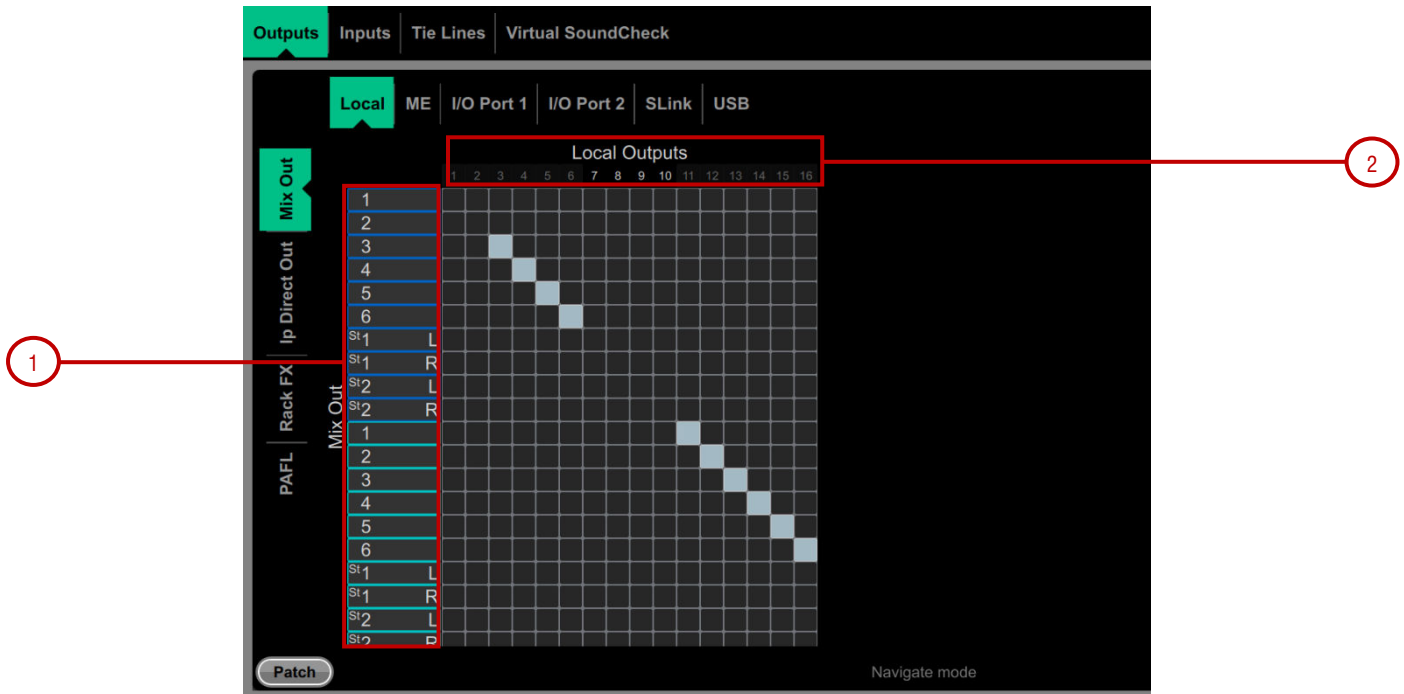
ⓘ Sample Rate Conversion can be bypassed for any stereo digital Input on an Avantis or DX32.

ⓘ For supported devices (AES I/O cards and DX32 expanders fitted with AES IN cards) AES Mode (Consumer / Professional) can be configured here.

4. 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 or PAFL (displayed on the left) to outputs (displayed on top).

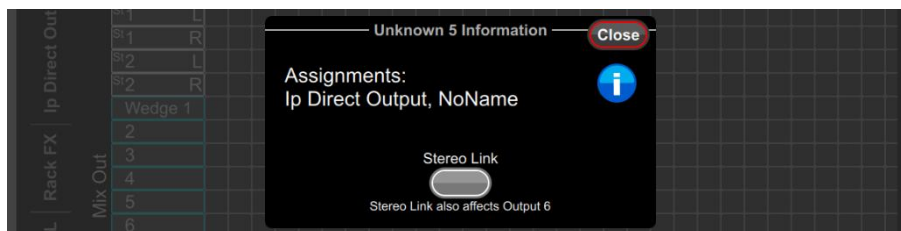


1. Sources – Channel names and colours are displayed. Touch a channel name or number to edit its name and colour.

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.

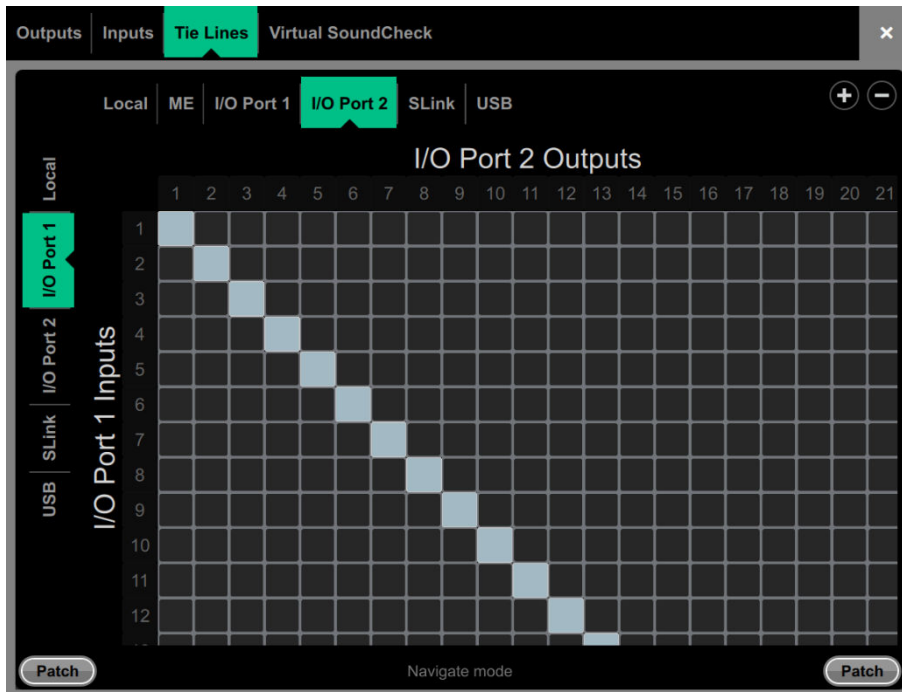
Touch on a socket number to open a window with a list of current assignments and available controls for the socket. For example, touch on a DX32 digital output to access its **Polarity**, **AES MODE** (Consumer / Professional) and **Sample Rate** settings.

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 the Avantis to an I/O Port and over to the Slave 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.



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. 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. Gangs - 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.

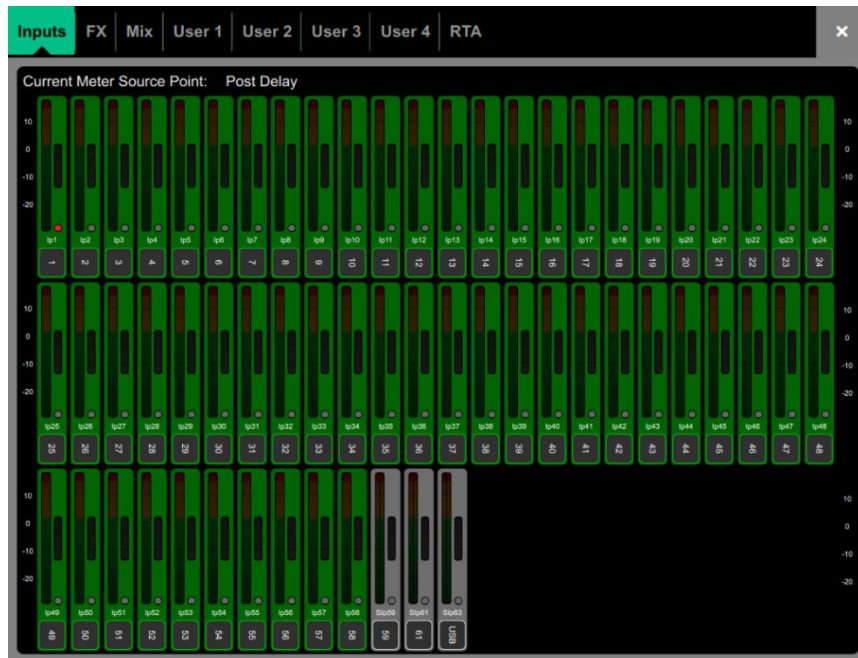
2. Members - Select either the Input (lp) or Mix tab. Touch the channels you wish to gang or ungang. A channel or Mix can only belong to one Gang.

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 **Setup / Config / Input Stereos** to permanently link two Input channels and their preamps within the current Show.

7. 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 a Real Time Analyser.



Meters tabs – Channel name and colour is shown below each meter. 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 on screen metering.

Touch and hold **Options** and touch anywhere in the Inputs or Mix meter tab to set the associated source point. Options available for Inputs are Post Trim, Post Gate/PEQ, Post Compressor, Post Delay. Options available for Mixes are Post Trim, Post Insert Return, Post PEQ, Post NEQ, Post Compressor, Post Fader.

Touch and hold **Options** and touch anywhere in a User tab to configure the User view. Touch a channel and drag it to the lower part of the screen to configure, add spacers or rows as required, and press Apply to confirm.

7.1. RTA



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.

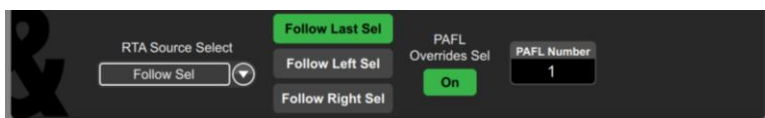
2. **Library** – Opens the RTA Libraries for storing and recalling RTA settings.

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.

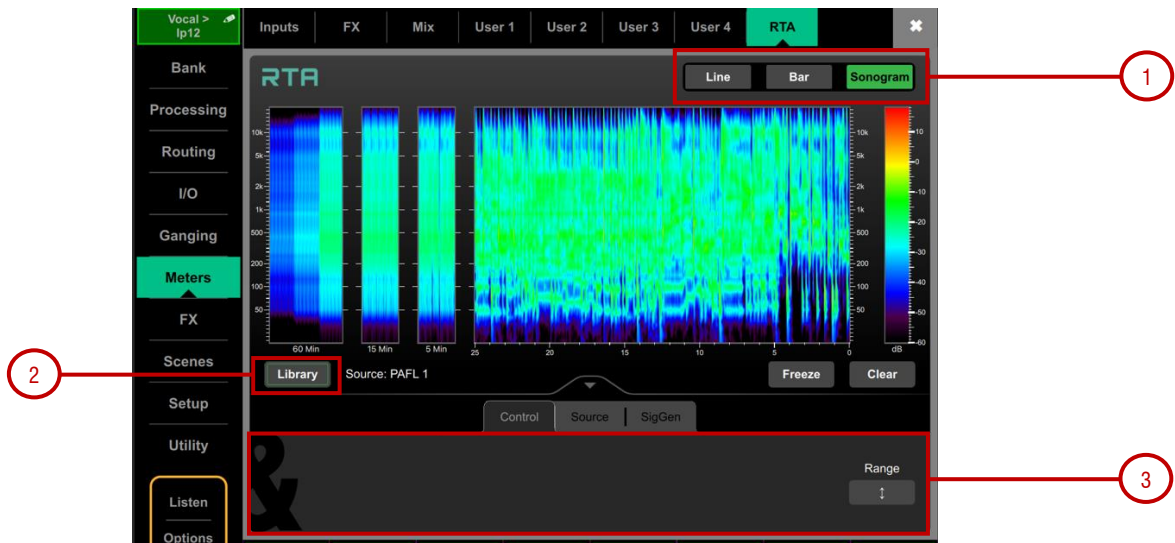
In the **Source** tab, select the **RTA Source**. This can be locked to a specific channel, set to **External Control** (for selection by Avantis Director or MixPad app), or set to follow current channel selection.

When '**Follow Sel**' is selected from the RTA Source Select dropdown, you may choose to have the RTA follow the **Last Sel**, **Follow Left Sel** or **Follow Right Sel**. Should you have the RTA sourced from a channel on the left hand screen, selecting a channel on the right hand screen will not change the RTA source point, if 'Follow Left Sel' is selected.

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.

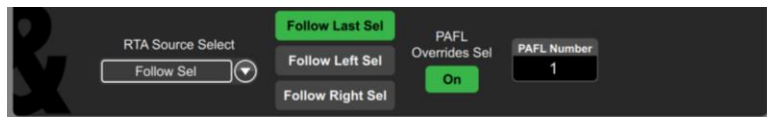


1. **Sonogram** – A 61 band Real Time Analyser or Sonogram is displayed here. Select the view mode in the upper right corner. In **Sonogram** mode, energy content over frequency is plotted over time and the dB level colour coded. A 25s real time window is displayed as well as a 5min, 15min and 60min 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 **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 Avantis Director or MixPad app), or set to follow current channel selection.

When 'Follow Sel' is selected from the RTA Source Select dropdown, you may choose to have the RTA follow the **Last Sel**, **Follow Left Sel** or **Follow Right Sel**. Should you have the RTA sourced from a channel on the left hand screen, selecting a channel on the right hand screen will not change the RTA source point, if 'Follow Left Sel' is selected.

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.

8. FX

The FX screen gives access to the 12 virtual RackExtra FX engines.



1. 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 **Setup / Control / SoftKeys** screen.

2. **FX bar** – The 12 slots are shown across the top of the screen either empty or with FX devices loaded. The FX name, current Library preset and metering is shown next to each icon. Scroll left to right to view all the FX slots. Touch a device or empty slot to select.

3. **Front Panel** – All key FX controls are presented here. Switch to the **Back Panel** to access routing settings.

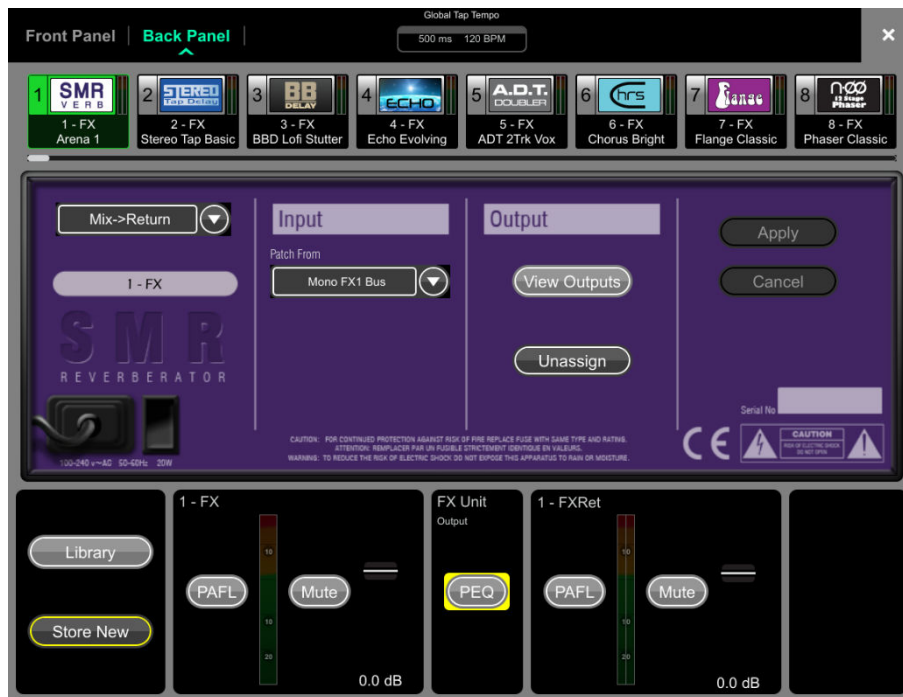
4. **Library** – Touch the onscreen **Library** button to access the FX Library. The Libraries are grouped by FX type. You can choose to load one of many Factory presets, or to recall a previously stored User preset from the Show or directly from your USB key. Touch to select a preset and touch **Recall** 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.

5. Meters at the input and output of the currently selected FX are shown. 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. Each FX Return has a 4-band parametric equaliser.

Touch the **PEQ** switch to open the PEQ window.

ⓘ 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 dedicated stereo FX 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. You can reassign an FX output to a different Input channel using the Processing / Preamp screen of such channel.

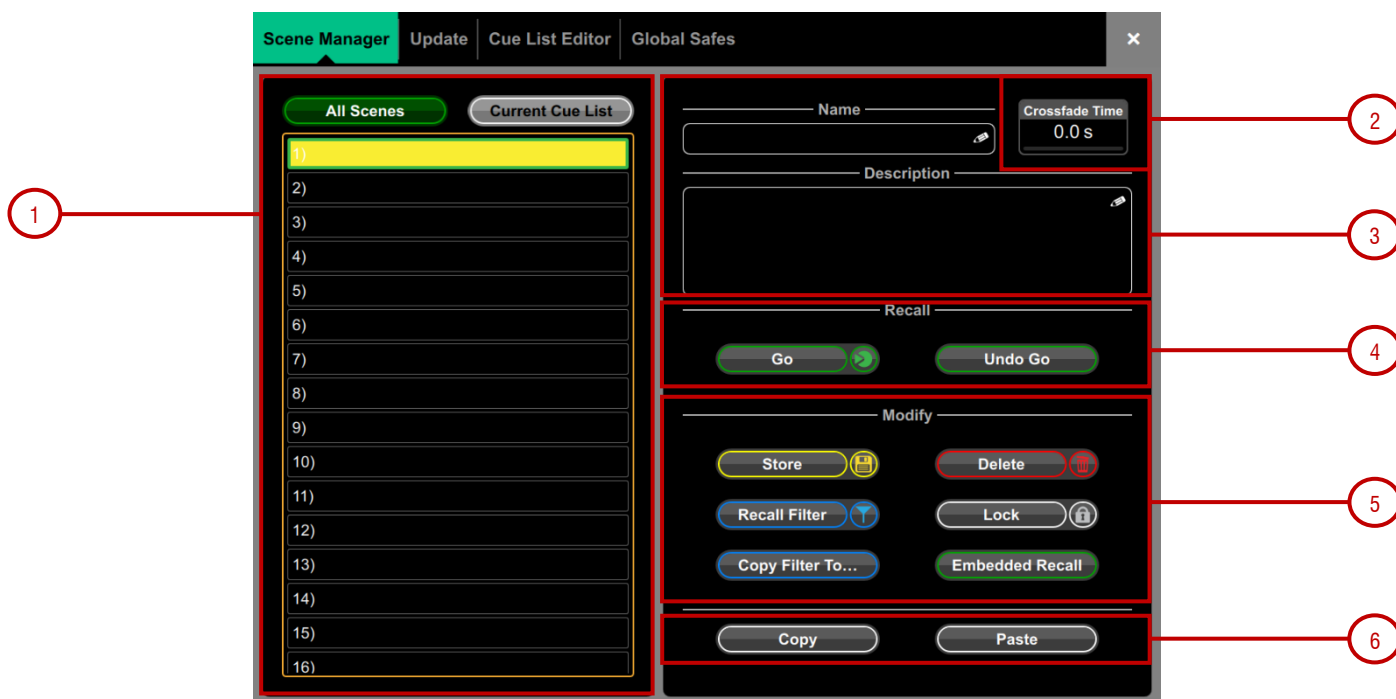
9. Scenes

Use this screen to work with the Avantis 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.

For information on the Pop Out Scene List, please refer to 10.6 Control / Custom Rotary.

9.1. Scene Manager

Gives access to the Scene list for editing or recalling.



1. Scene List – Choose to display the list of all 500 Scenes or the **Current Cue List**. The Scene highlighted in yellow is the currently selected Scene, and the Scene highlighted in green is the Next or 'Go' Scene.

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 can be selected independently from the Current Scene using the SoftKeys assigned to Scene Controls **Previous** and **Next**.

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.
- 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.

2. Crossfade Time – 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.

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

3. Name & Description– 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.

4. Recall – Touch **Go** or press a SoftKey assigned to **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 a SoftKey assigned to **Go** on the Surface to restore the settings prior to a Scene recall.

5. Modify – All these functions affect the currently selected (yellow) Scene.

Touch **Store** or press a SoftKey assigned to **Store** to store current parameters to the Scene. Press a SoftKey assigned to **New** to store current parameters to the next available (empty) memory location.

You can update only a selection of parameters to the current Scene or a range of Scenes. Touch **Update** to open the Update Scene Range window (see below).

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 thus preventing 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).

6. 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.

 Touch and hold **Options** 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 when using the Scene Manager page. 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 SoftKeys assigned to Scene controls on the Avantis, 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 to 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.

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.

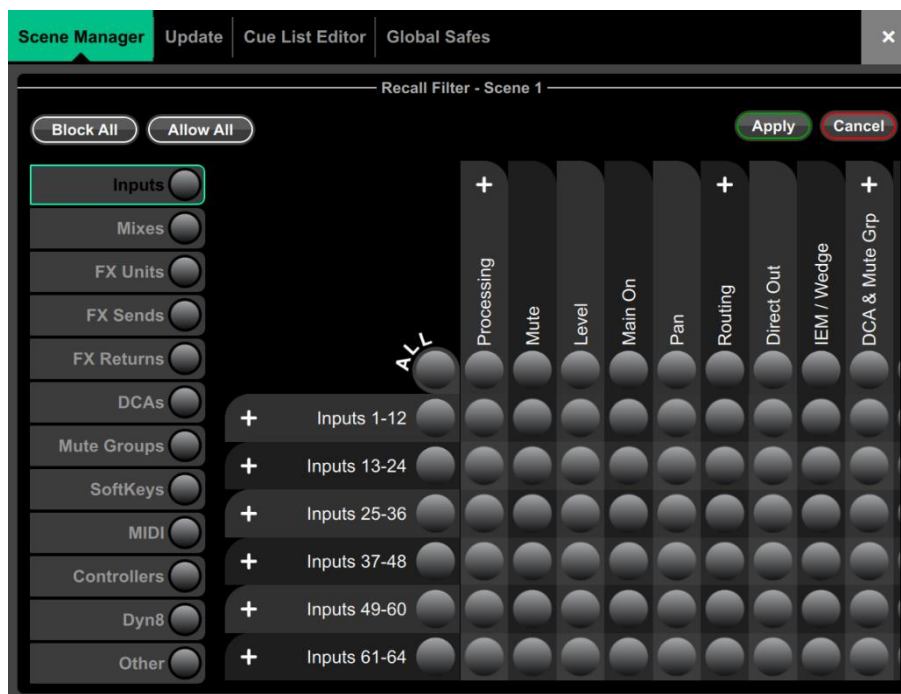
 No confirmation pop-up is displayed when Go on Touch is active. Only use this option if really required.

Always Show Last Recalled Scene When enabled the last Scene to be recalled will be shown in the info bar.

Always Show Next Scene When enabled the Scene which will be recalled next will be shown in the info bar.

9.2. 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.



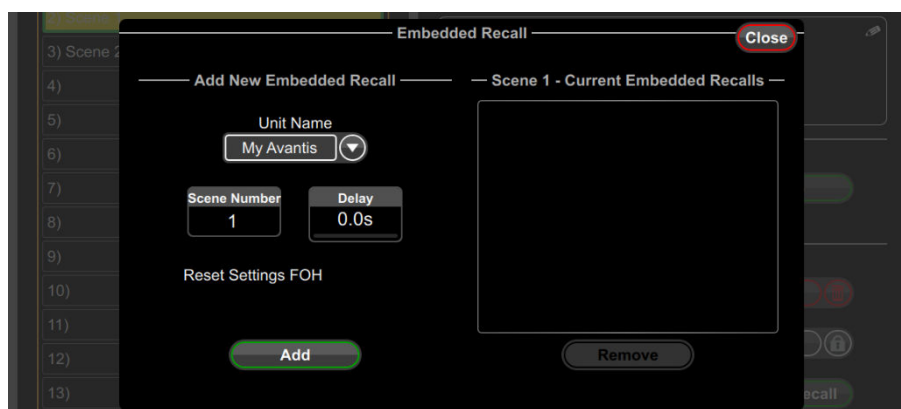
Use the tabs on the left to view the different parameter groups. Pinch/unpinch to zoom in and out of the matrix view. Swipe up/down or left/right to navigate through the matrix. Touch an item to toggle. Allowed items will be recalled, Blocked items will not.

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 9.1 for details

9.3. 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 Avantis network are listed here. Select 'My Avantis' 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.

9.4. 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.

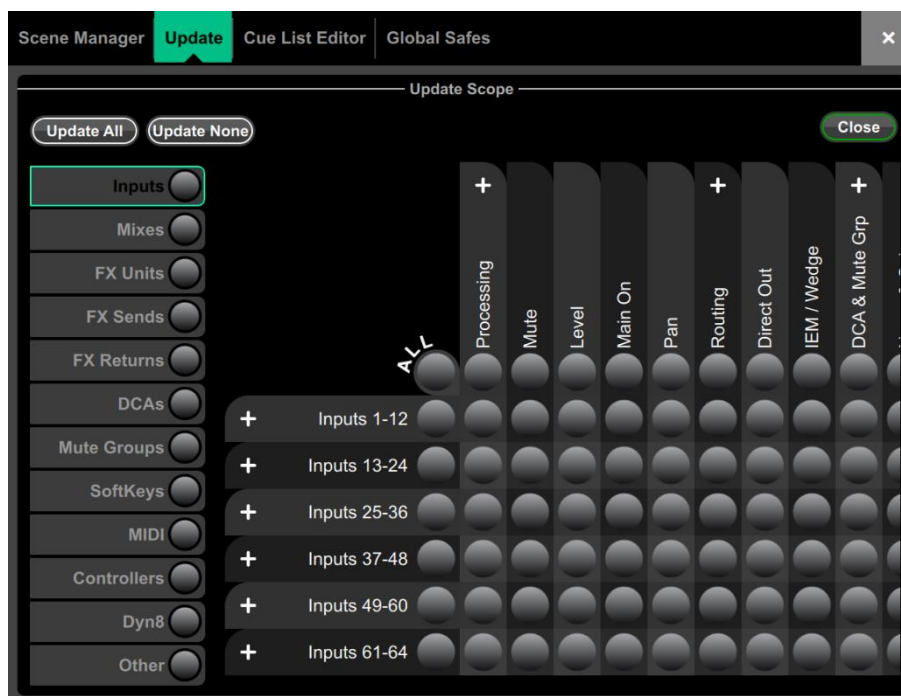
A Scene is stored in this memory location.

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 icon in the top bar 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.

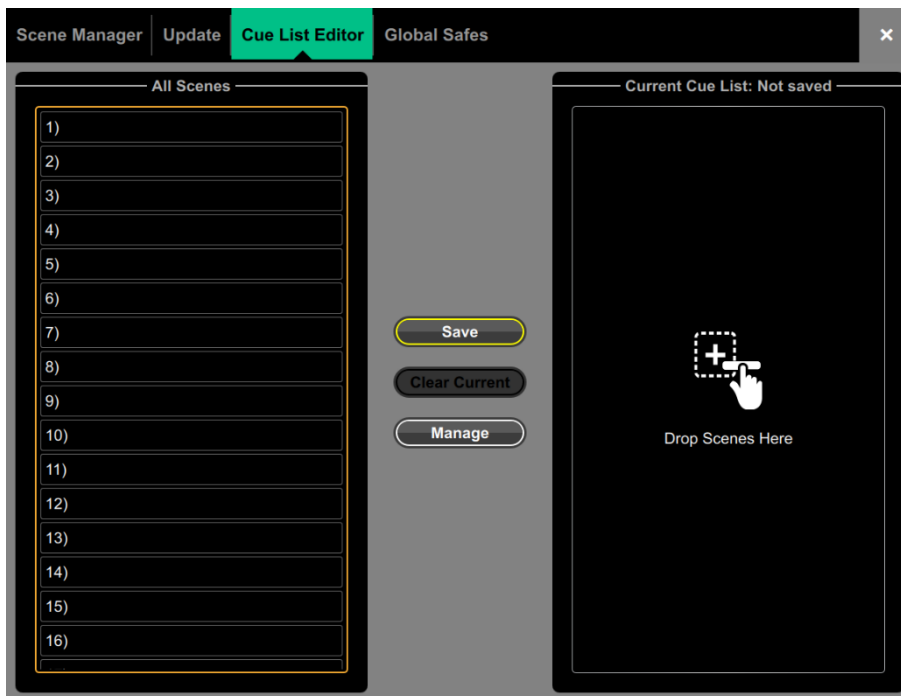
Non-level parameter changes in Relative mode will be applied Absolutely to the target scene(s).

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.

9.5. Cue List Editor

A Cue List is a custom list of Scenes selected from the list of available Scenes. Cue Lists can be named, saved, recalled and deleted.



1. Current Cue List – Drag and drop Scenes here to create a Cue List. Scenes can be placed in any order and repeated any number of times in the list. To remove a Scene from the Cue List, touch the trash can icon to the right of the Scene name.

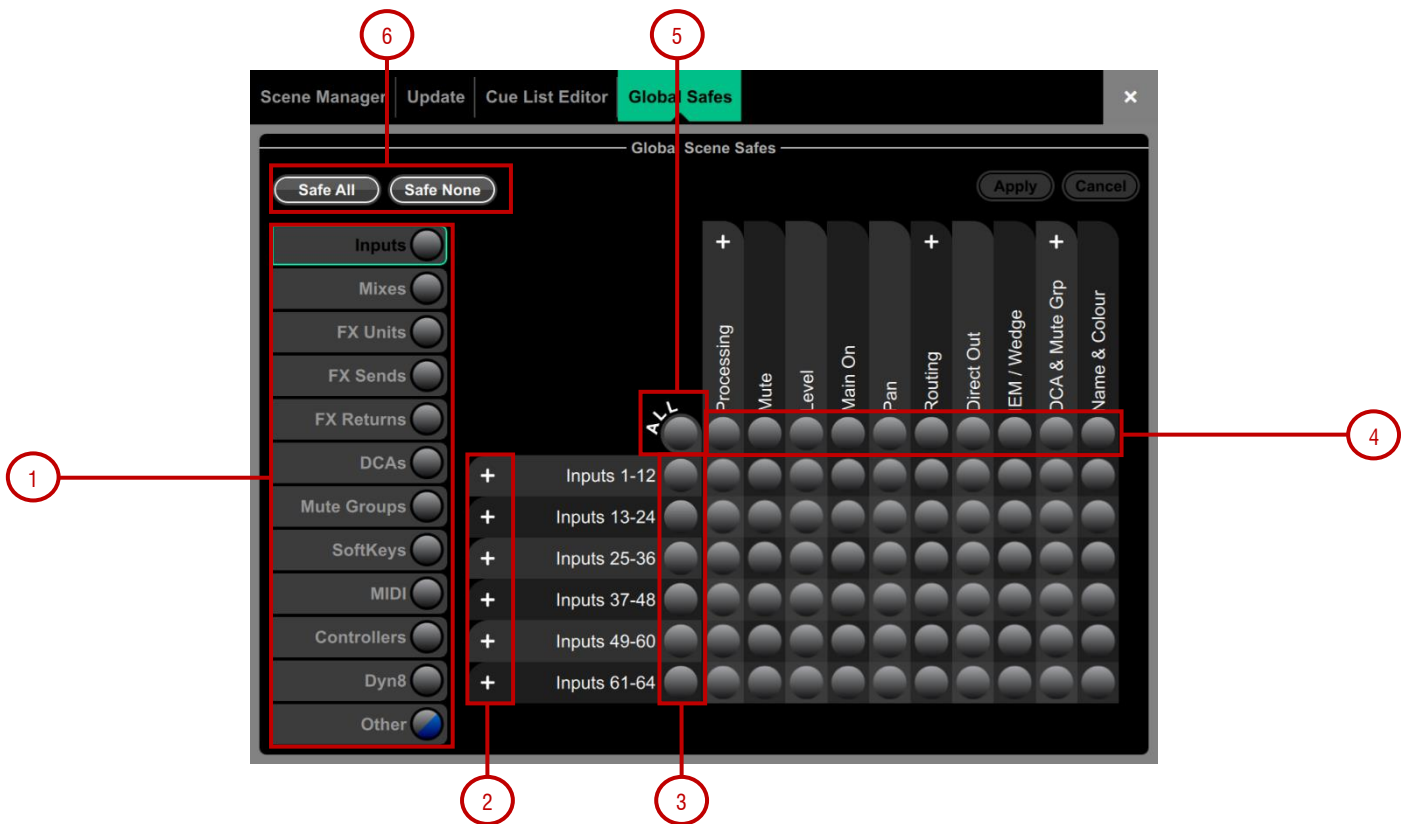
2. Touch **Save** to name and store the current Cue List. Touch **Load** to select and open a previously saved Cue List. Touch **Clear Current** and confirm to remove all Scenes from the current Cue List.

Touch **Move Up** or **Move Down** to move the selected Scene in the current Cue List.

Touch **Overwrite** and confirm to update a saved list with the current Cue List. Touch **Manage** to open a list of saved Cue Lists and delete one or more.

9.6. 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.

10. Setup

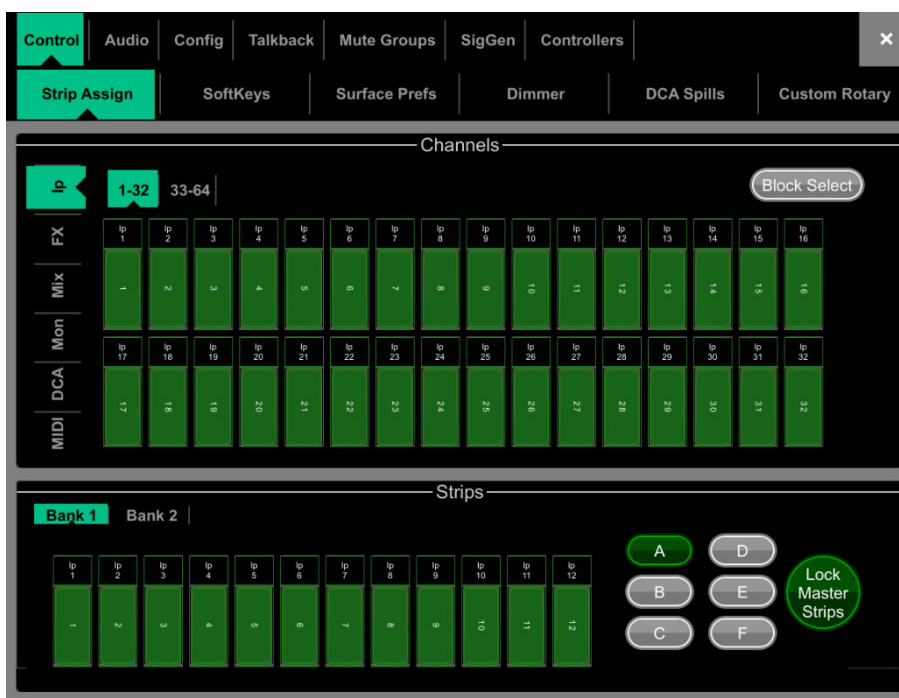
These pages give access to the mixer bus configuration, Input stereo configuration, network settings, audio settings and User Profiles.

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.




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 items 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.

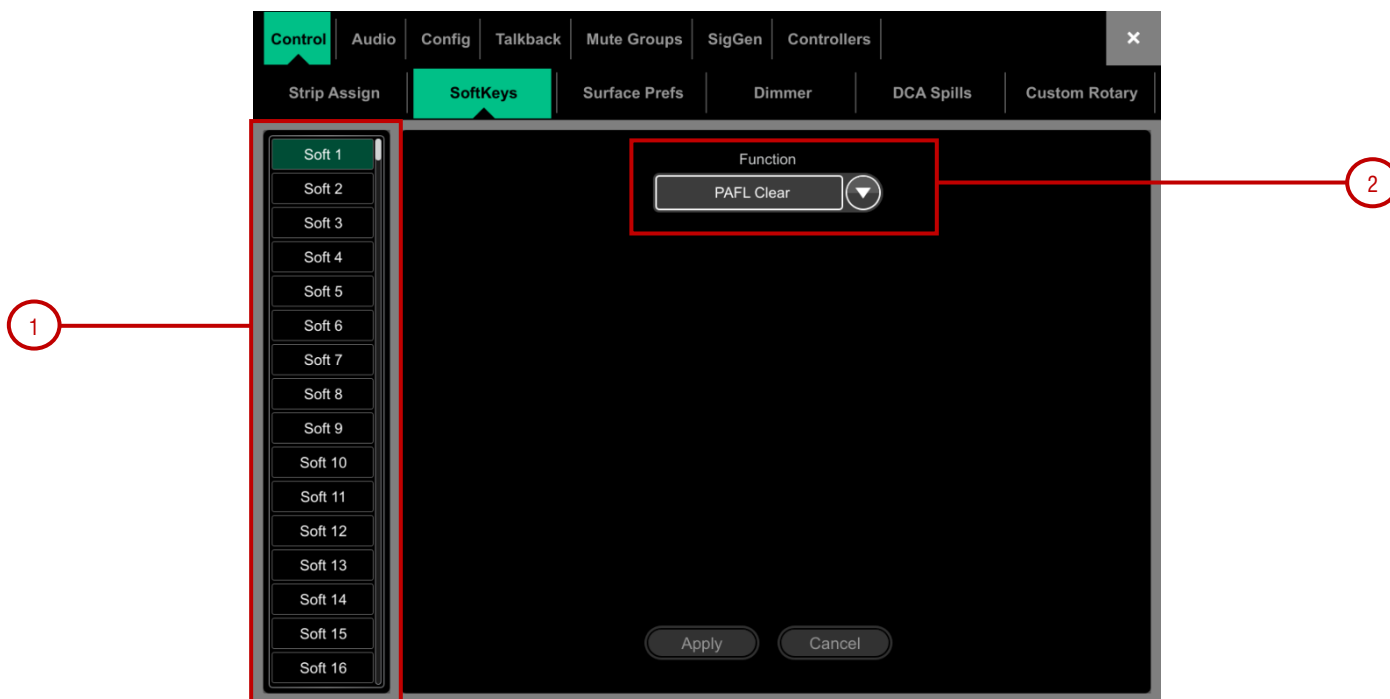
Drag channels out of the lower window to unassign.

Turn on **Lock Master Strips** to make the channels assigned to strips 9-12 on Layer A (right hand bank only on Avantis Dual Screen) visible on all layers. This can be used to ensure important channels (e.g. Mains) are always accessible. This functionality can also be assigned to a SoftKey.

 Touch and hold **Options** 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. Control / SoftKeys

Avantis provides 24 user-assignable SoftKeys (or 18 on Avantis Solo).



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

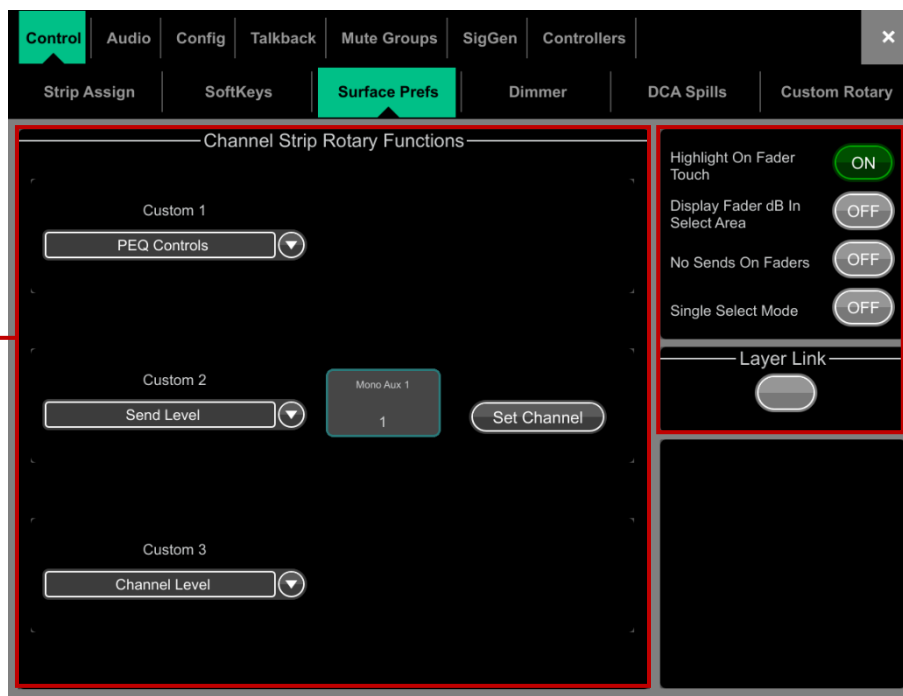
2. Open the **Function** drop-down menu and select the function to assign. Set the **Channel Type** and **Channel Number** to select the required channel (only applies to certain functions). Turn on **Invert LED** if you want the SoftKey LED to be lit when the function is off. Press **Apply** to confirm 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**
- **AMM Control** – Turns on/off an AMM zone or an individual channel in an AMM
- **Assign On/Off** – Turns on/off a channel assignment to a bus
- **Channel Processing** – Insert or Bypass a specific channel processing block
- **Custom MIDI** - Transmit a custom MIDI message string
- **DCA Spill Active** – Turns DCA Spill mode on/off
- **Fader On-Off** –Illuminates a SoftKey while the selected channel fader is above -inf
- **Fader Start** – Momentarily illuminates a SoftKey when the selected channel fader moves above -inf
- **Level Down** – Tap to decrease level for faders
- **Level Up** – Tap to increase level for faders
- **Lock Master Section** – Toggles the activation of Master Strips section
- **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** – Quick access to a selected PAFL
- **PAFL Mix Sel Scene** – Sets multiple parameters with one softkey
- **PAFL Clear** – Turns off all currently active PAFL keys
- **Peak Hold Reset** – Clear all current Peak Hold indicators
- **Scene Controls** – Quick access to scene controls (Recall, Store etc.)
- **Sel** – Quick access to processing for a channel
- **Send Level Down** – Tap to decrease level for Aux sends
- **Send Level Up** – Tap to increase level for Aux sends
- **SIP** – Press and hold for 1 second to activate Solo In Place (SIP)
- **Talkback Assign** - Talkback to different outputs
- **Talkback** – Enable Talkback (momentary or latching)
- **Tap Tempo** - Assign to any of the 12 FX L or R tap or as a Global Tempo
- **USB Play/Record** –Transport control for USB Play / Record system
- **Virtual Sound Check** – Set Virtual Sound Check mode

10.3. Control / Surface Preferences



1. Channel Strip Rotary Functions – Use the drop-down menus to select the required custom function for each channel strip rotary control. Available functions are Unused, HPF Frequency, Direct Out, Send Level (Aux or FX sends), Compressor Threshold, Channel Level, AMM Priority Level, PEQ Controls, and Gate & Compressor Controls, LCR+ Divergence. Touch **Apply** to confirm the change.

2. General surface preferences:

Highlight On Fader Touch illuminates the name block on channels when the faders are touched.

Display Fader dB in Select Area will display the fader position (dB value) in the name block every time the fader or rotary is moved.

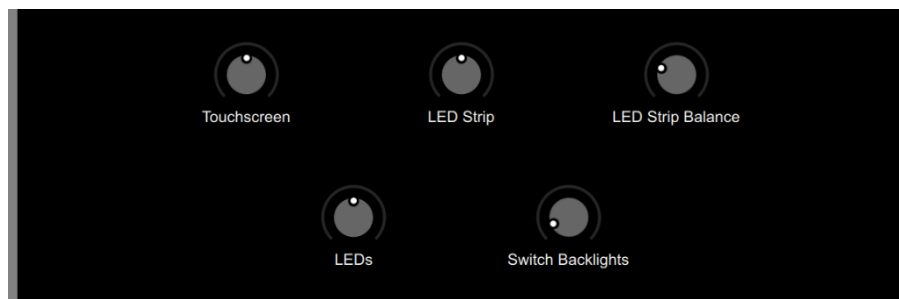
No Sends On Faders inhibits sends on faders when pressing any **Mix** key. The channel faders will always control the Input main levels or Mix masters when this option is enabled. You can still control the send levels by using the strip rotary **Sends** function, Soft Rotaries Sends widget, or touchscreen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

Single Select Mode limits the number of channels that can be selected simultaneously to one.

Layer Link – Touch the buttons to link or unlink the Layers across both fader banks. Selecting a Layer will select the same Layer across both banks.

10.4. Control / Dimmer

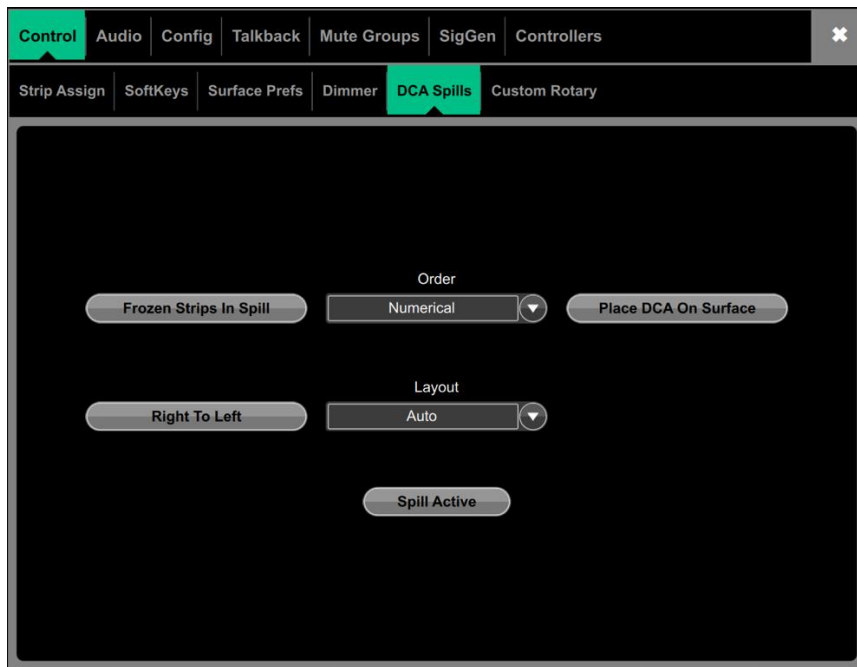
Use this page to separately adjust the brightness of the touchscreens, LEDs, switch backlights, fader strip LCD displays, and intensity and colour tone of the integrated armrest LED strip illumination. These settings are stored in Scene memories.



10.5. Control / DCA Spills

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

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



Order - 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.

Layout - Set to **Auto** to automatically spill to the fader banks not used by the DCA. Set to **Manual** to manually select the fader banks for the spill.

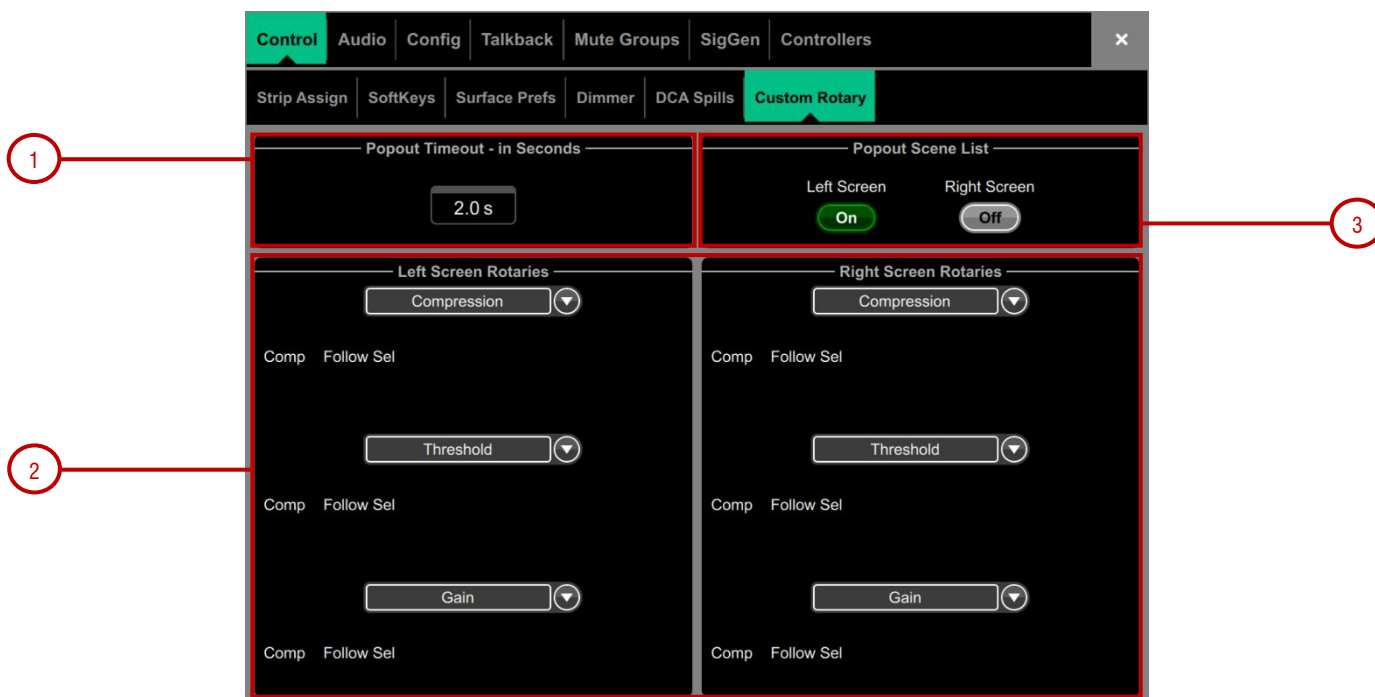
Spill Active - Touch to enable or disable the DCA Spills function globally. This switch can be assigned to a SoftKey and used as a quick way to restore the normal strip layout whichever spill might be active.

Frozen Strips in Spill – When enabled frozen strips will remain on surface when in DCA spill. ⓘ DCA Channel will always overlay on Frozen channel.

Place DCA on Surface - Keeps the DCA channel in view during a spill.

10.6. Control / Custom Rotary

Configure the functionality of the six screen rotaries and the *Fast Grab Tab*.



1. Using a Screen Rotary will automatically open the onscreen *Fast Grab Tab*. **Popout Timeout** sets the amount of time that the *Fast Grab Tab* will remain visible onscreen before automatically closing.

❗ If the *Fast Grab Tab* is opened using the **View** button above the Screen Rotaries, the Popout Timeout is ignored and the *Fast Grab Tab* will remain onscreen until the **View** button is pressed again.

2. Select the function for each of the Custom Rotaries, and whether the parameter is **Channel Locked**, or if it should **Follow Sel** or **Follow Mix**

Available Custom Rotary functions:

- **Unused**
- **Preamp** – Gain, Trim, Stereo Width
- **Filter** – HPF Frequency, LPF Frequency
- **Gate** – Threshold, Depth, Attack, Hold, Release
- **Compressor** – dependent on compressor model
- **Send Level**
- **AMM Priority**
- **Monitor IEM**
- **Monitor Wedge**
- **FX** – Dependant on the FX Engine.



3. With Popout Scene List enabled, on pressing the **View** button above the Custom Rotaries will enable a view of the Scenes List that remains on the screen until the **View** button is pressed again.

10.7. 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 Avantis will use for the monitoring system. This affects the function of the PAFL keys, Listen key, and audio to the headphones.

When two PAFL busses are configured in the Mixer / Config / Mixer Config screen, multiple operators can share the same Avantis system whilst using different PAFL busses – for instance, one engineer using the Avantis mixer on PAFL 1, and another engineer using an iPad with IEMs fed from PAFL 2.

- ⓘ The RTA function is fixed to PAFL bus 1
- ⓘ Wedge and IEM strips are fixed to PAFL bus 1

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.

2. 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.

3. Ext Input to PAFL Source – Use the drop-down menu to select and assign an external signal to the PAFL monitor, for example an I/O Port input for 'shout' communication between FoH and Monitor engineers. The signal will not be affected by the engineer's Wedge or IEM fader strip level.

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

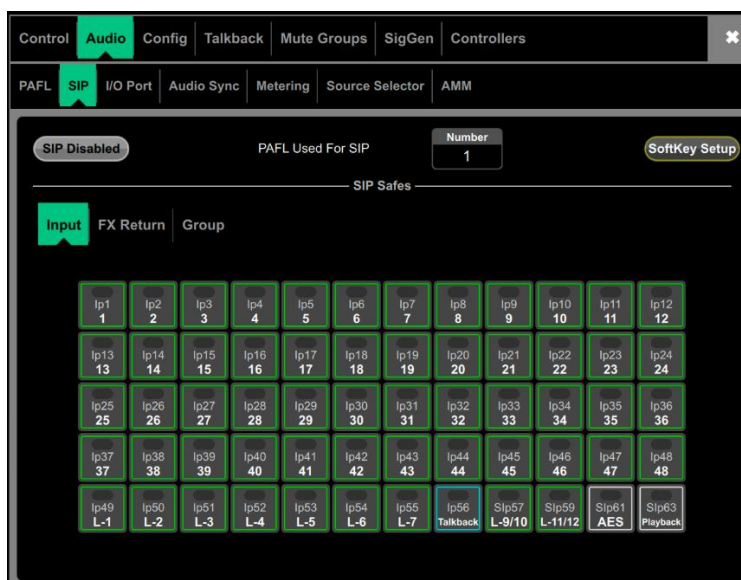
4. Mix to PAFL – Set how much of the selected mix goes to the monitor system when no PAFL is active. It is typical for example to have Main Left and Right feed the PAFL Left and Right busses. Touch **Set Mix** to select the mix used for this function.

10.8. Audio / SIP

When Solo-In-Place is enabled, channel PAFL buttons on the Console, Director and IP controllers will function as a SIP select 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. Typically this may include FX returns and Groups so soloed sources can be heard with their FX and group routing.

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



10.9. 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 and Waves cards are accessed by the Audinate or Waves Audio software respectively. Access to these settings is not provided by the Avantis interface.

10.10. 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 Avantis 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 **Ext BNC** to sync from a 96kHz Wordclock provided at the rear panel BNC socket.

ⓘ When linking two or multiple systems together using audio networking cards, the 'Master' 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.

2. AES – Select the sample rate for the AES outputs on the rear of the mixer. Choose between **44.1kHz**, **48kHz** or **96kHz**. Choose whether to bypass sample rate conversion (SRC) on the mixer's AES inputs.

3. Word Clock – Choose whether the rear panel BNC connector acts as an Input or Output. When operating as an output, select the sample rate from **44.1kHz**, **48kHz** or **96kHz**.

10.11. Audio / Metering

The response of Avantis meters can be tweaked to suit the engineer's preference.

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



1. Ballistics Config - 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.

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.

i The red peak indicator lights to warn that the signal is within 3dB of clipping. It is multi-point sensing which means it detects peak activity at several points in the signal path.

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

2. Chromatic Meter Config – Configure the colours for the chromatic meter used on the **Utility / USB Audio / Manager** page.

10.12. Audio / Source Selector

The Source Select page allows the configuration of up to 20 Source Selectors, each with up to 20 sources, that can be [controlled via GPIO or 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 / Groups – Use the vertical tabs to switch between inputs and groups. 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 be configured.

Output – Touch to select a stereo or mono AUX/MTX that is used as the output for the source select group.

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

10.13. 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.

i 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 sets the channel fader to '0' and then takes automatic control using its own gain element just after each fader.

i 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 64 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.

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).

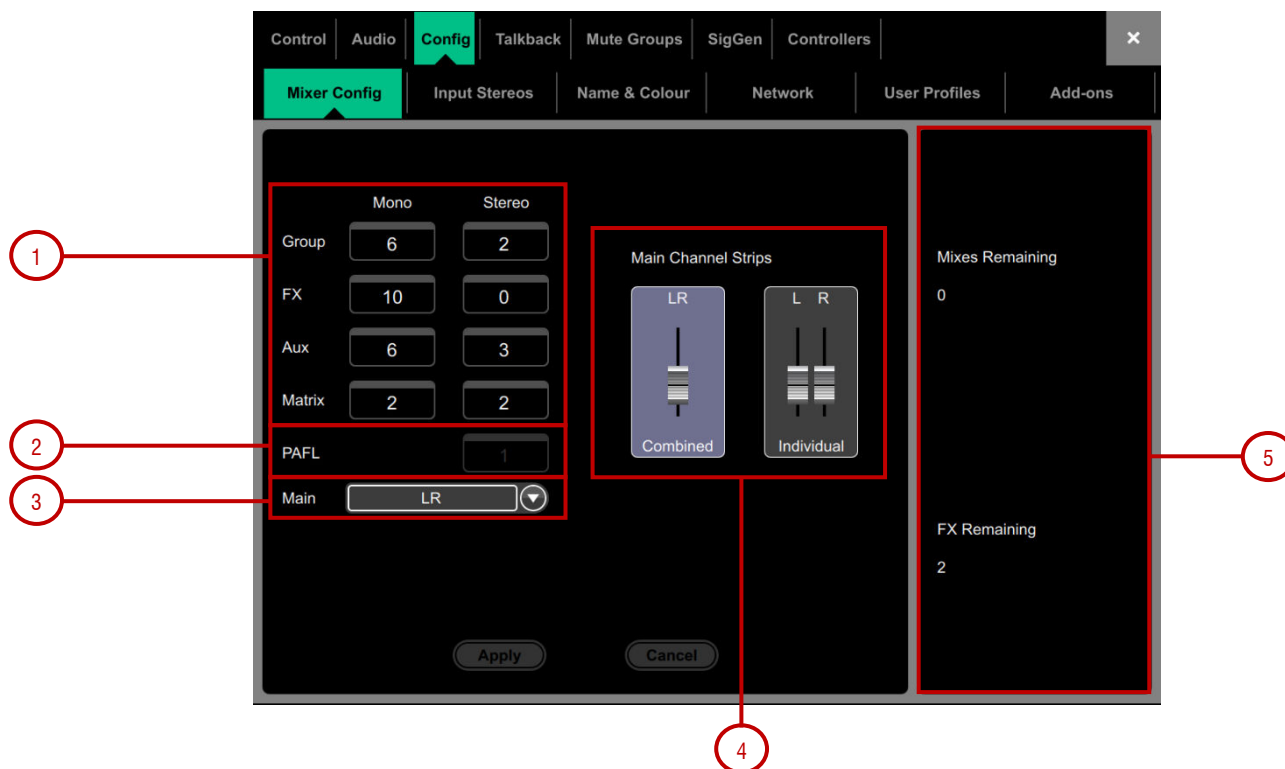
Chair Duck Level - Set the amount of attenuation applied to other mics when a Chair mic is open (from -3 to -40dB).

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.

10.14. Config / Mixer Config

Use this page to reconfigure the architecture of the 42 Mix busses available.



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

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

Firmware V1.02 or higher required for multi-PAFL operation

3. Main – Select one of 6 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.

4. Main Fader Strips – The Main LR mix can be presented as a single, **Combined** fader strip or as two **Individual** fader strips. When combined, all processing for LR including delays is linked. A Balance control is provided to adjust the relative Left and Right level.

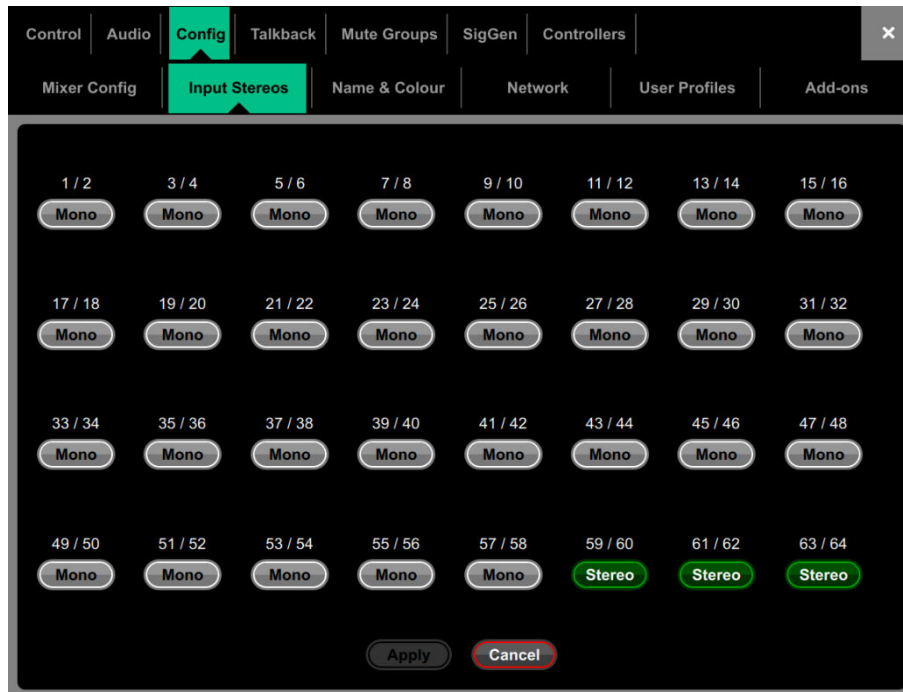
Press **Apply** to confirm the changes. All current settings other than the bus configuration will stay in place.

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

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

10.15. Config / Input Stereos

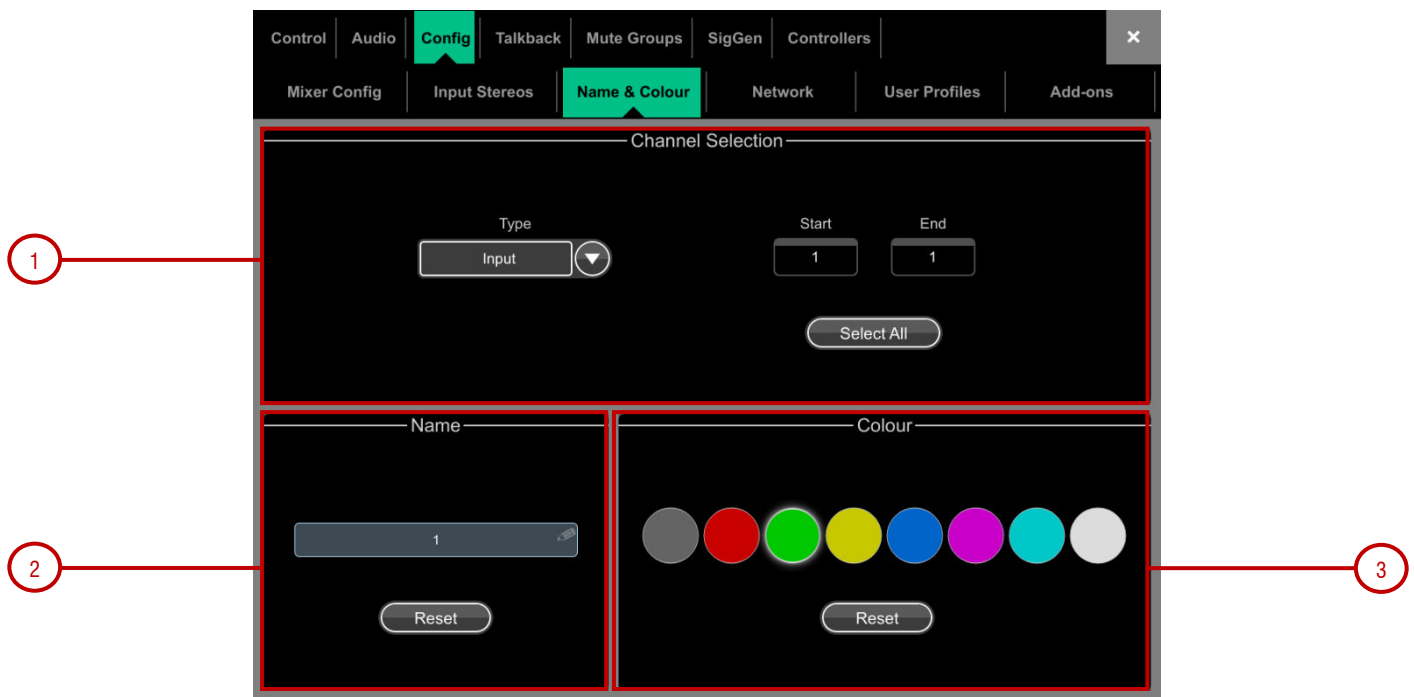
Displays the current mono/stereo configuration of the 64 Input channels. Stereo channels are highlighted in green. Touch the buttons to change the configuration and press **Apply** to confirm. Stereo channels use a single fader strip and all their processing controls are linked.



i 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.

10.16. 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.



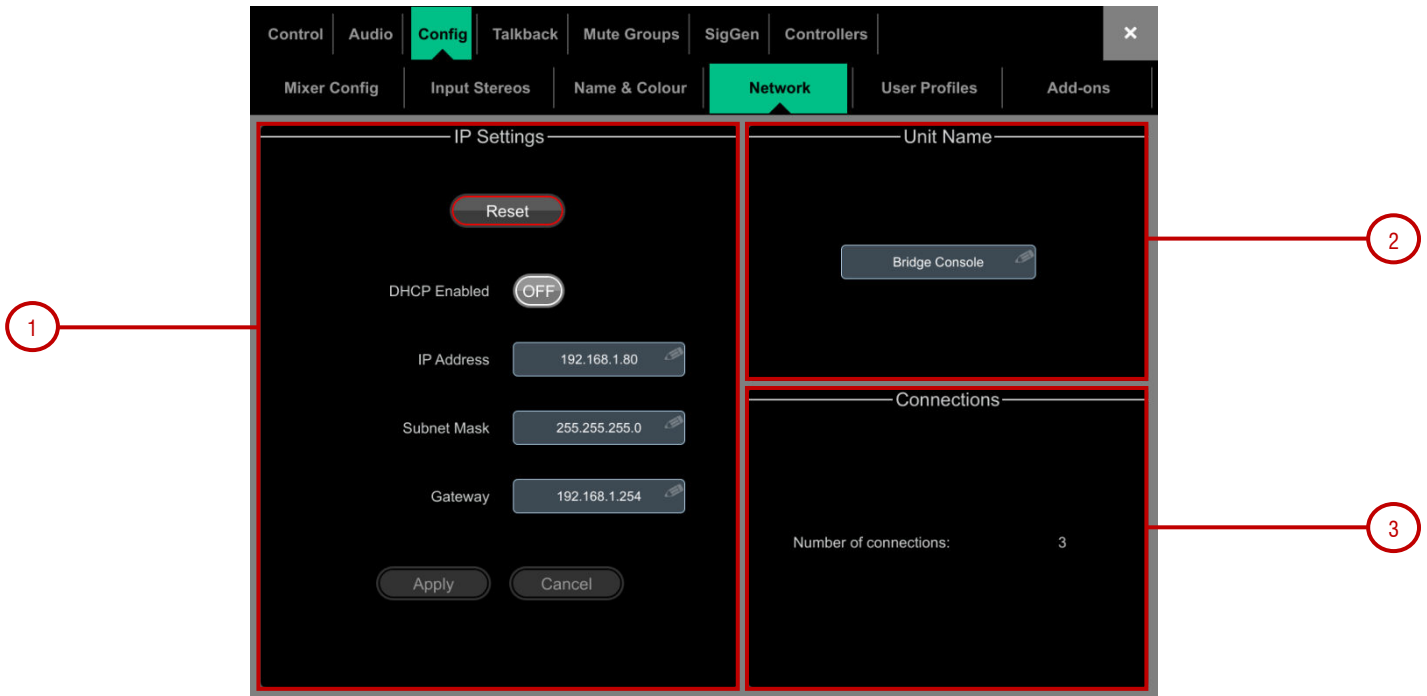
1. Channel Selection - Set the channel **Type** from the drop-down menu. Touch **Select All** or set the **Start** and **End** to select a range of channels.

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.

10.17. Config / Network

Use this page to configure the IP Address and Unit Name to identify the Avantis 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 Avantis IP Address is 192.168.1.80 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 Avantis by a network DHCP server, for example a Wi-Fi router.

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

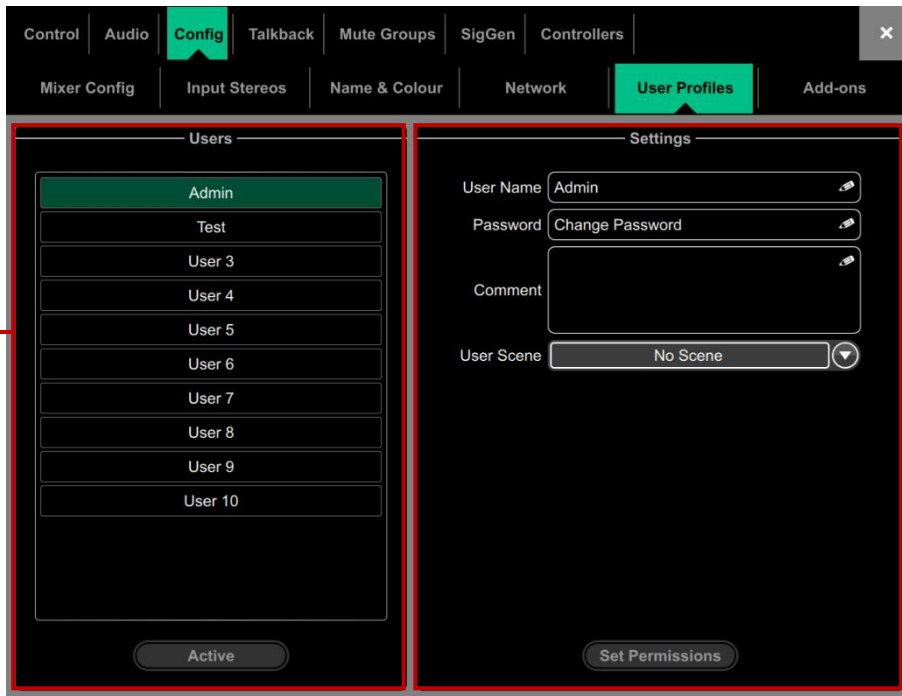
2. Unit Name – A name with up to 16 characters can be set to identify the Avantis on the network. The default is 'Avantis Console'

3. Connections – Displays the number of active network connections to the Avantis.

i In firmware V1.10 the default figure is 3 with no external connections present.

10.18. 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 Avantis. 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.

i 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).

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

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.

10.19. Config / Add Ons

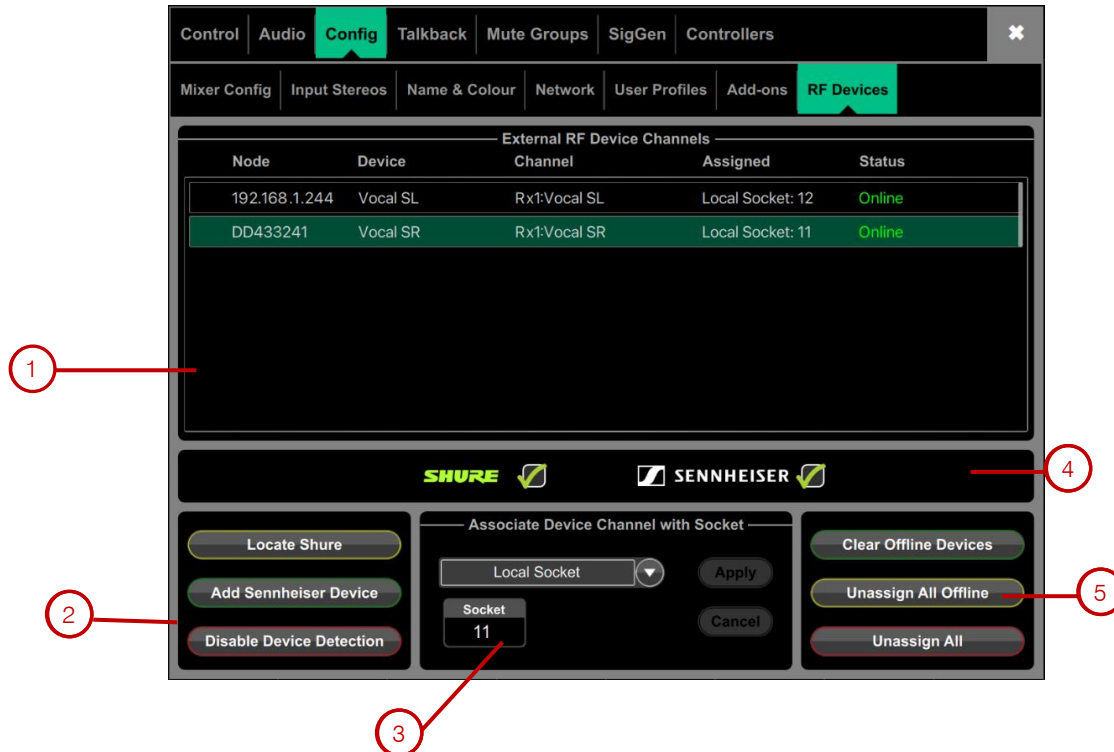
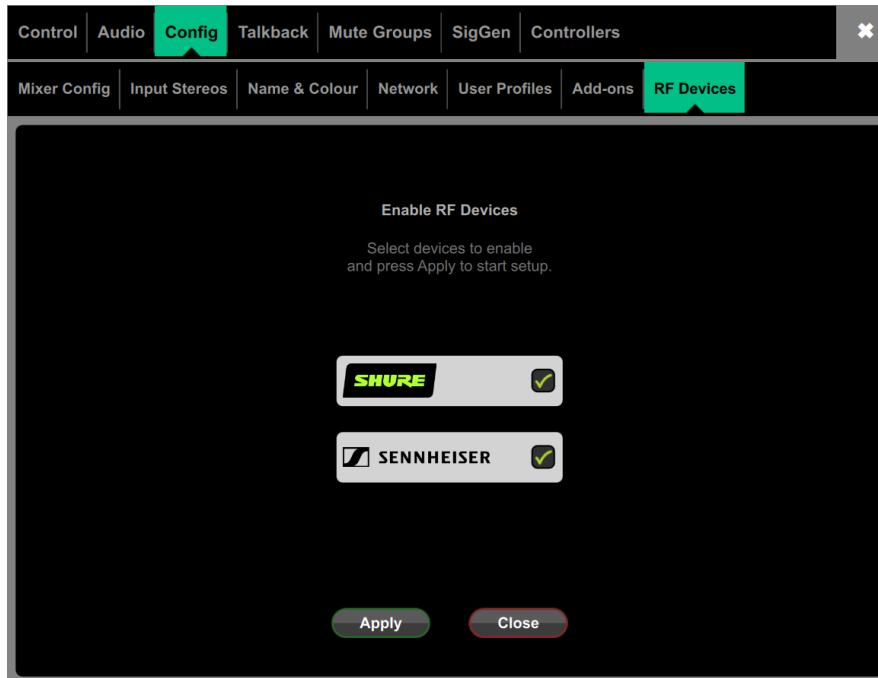
This screen is used to activate software add-ons such as dPack and the Free Registration Pack. The DNA code of the Avantis is also displayed here.

Touch the software add-on that you wish to activate under **Available Add-ons**, and then touch **Enter Add-on Key** to enter your key.

10.20. Config / RF Devices

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

- ❗ Firmware 1.13 and higher support Shure ULX-D, QLX-D and Axient Digital devices.
- ❗ Firmware 1.20 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 Local, DX, DT or I/O Port socket. This step is required for [RF Info](#) to appear in the Preamp section of Input channels.

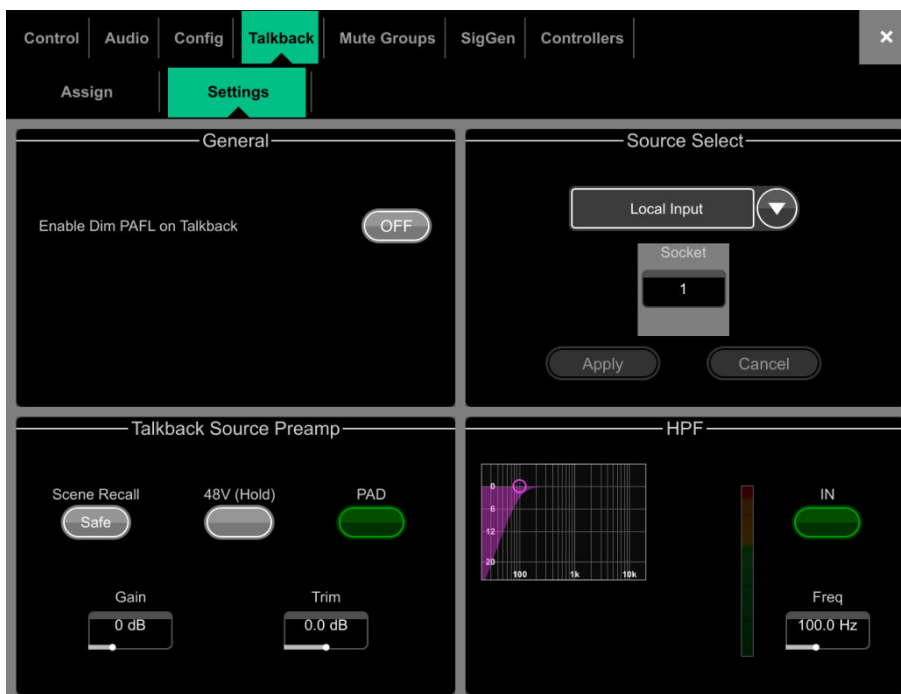
4. **Enable / Disable Detection** – When no devices are connected it is recommended to **Disable Detection** to minimise network traffic. This can be done for **Shure** and **Sennheiser** independently.
 - ① An Avantis power-cycle is required when disabling Shure detection.
5. **Clear Offline Devices** 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.

10.21. Talkback

Use this screen to assign and configure Talkback.



Assign – Touch a Mix button to assign Talkback.

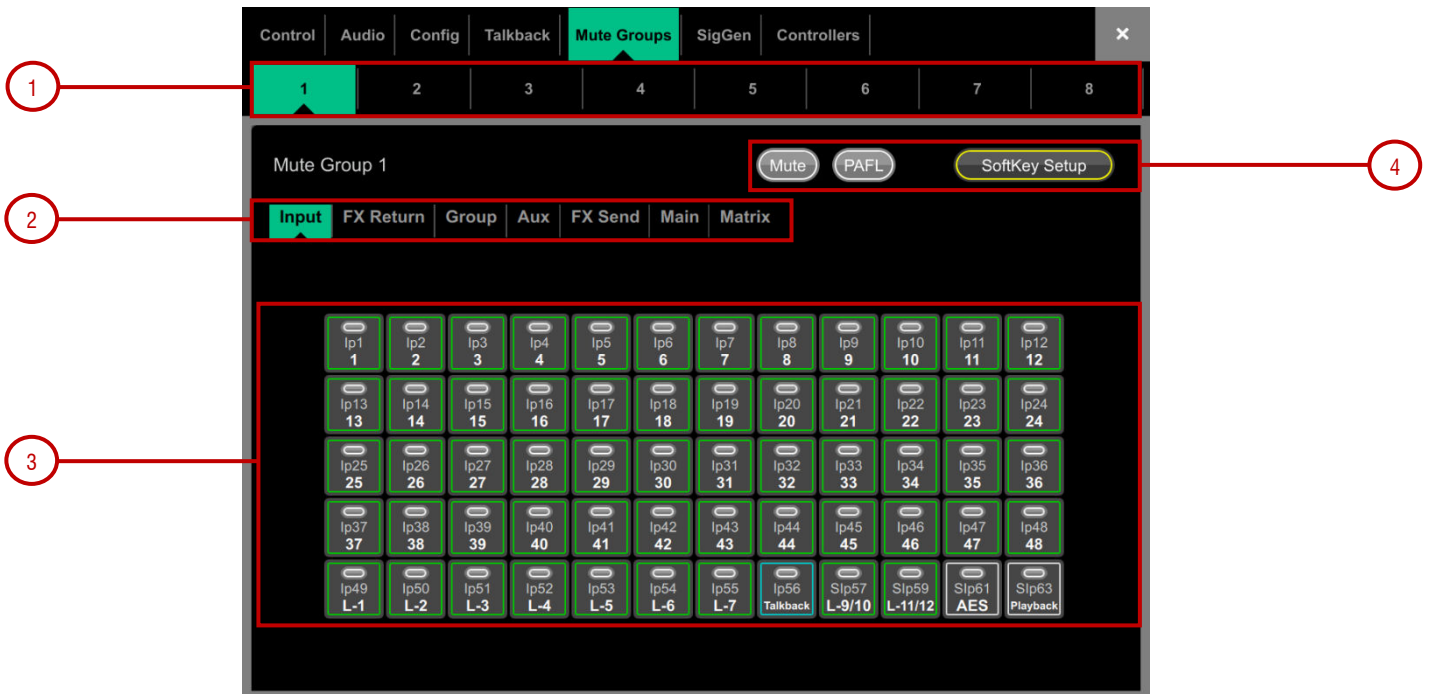


Settings – Use this page to choose the Talkback source and set its options.

- 1. 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.

10.22. Mute Groups

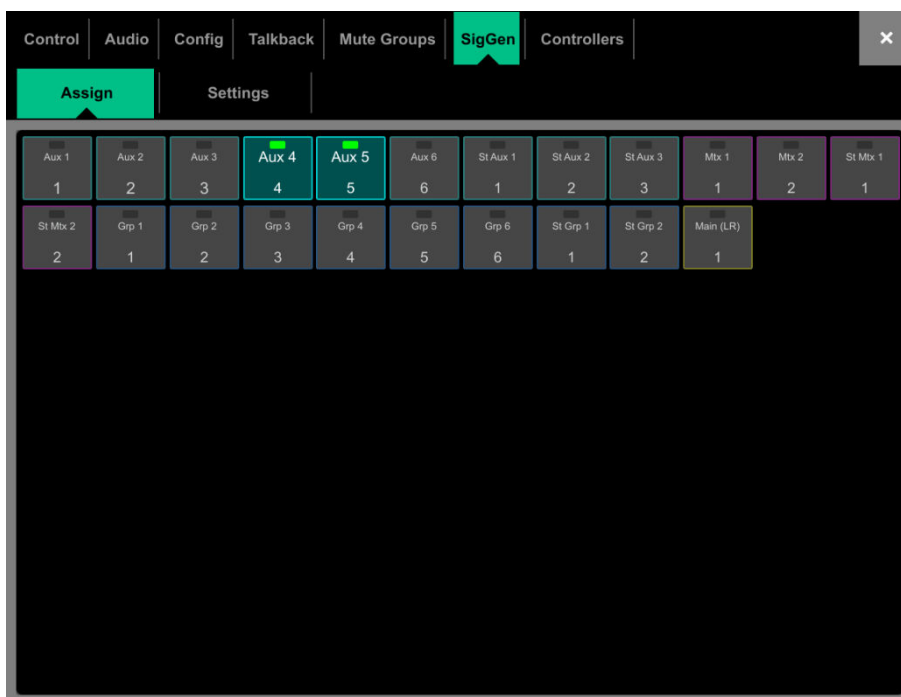
Avantis provides 8 Mute Groups in addition to the 24 DCA Groups. This page lets you assign channels and mixes to Mute Groups and control Mute masters. You can assign one or more SoftKeys to control the Mute Groups using the **Setup / Control / SoftKeys** menu.



- Select the Mute Group using the tabs at the top of the page.
- These tabs let you navigate all available Input channels, FX Returns and Mixes.
- Touch the on/off buttons to toggle the channel assignments to the Mute Group.
- 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 **Setup / Control / SoftKeys** menu should you wish to assign the Mute Group to a SoftKey.

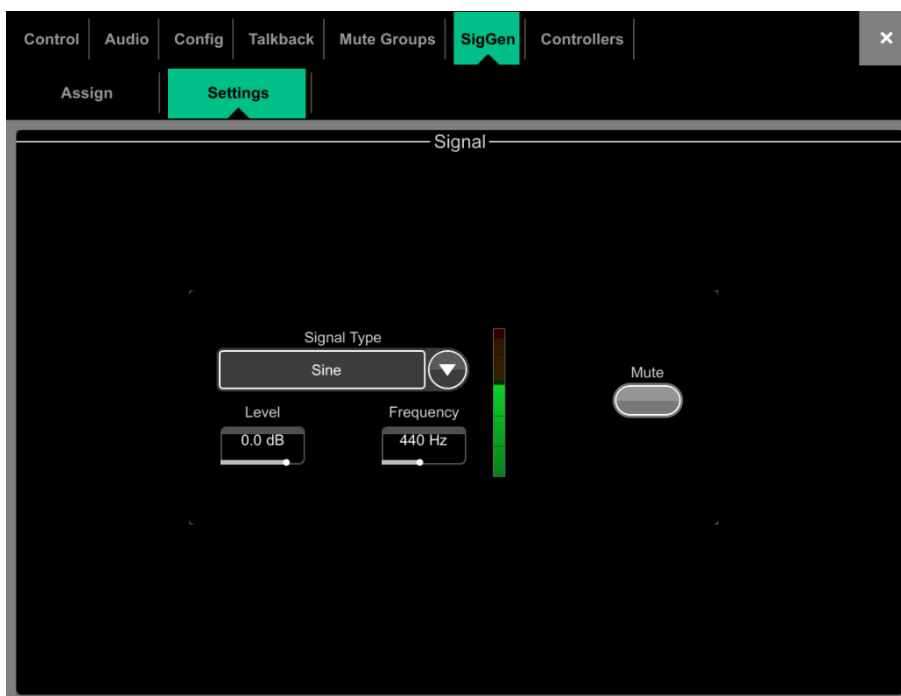
10.23. SigGen

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



Assign – Touch a Mix button to assign the SigGen. 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.



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.

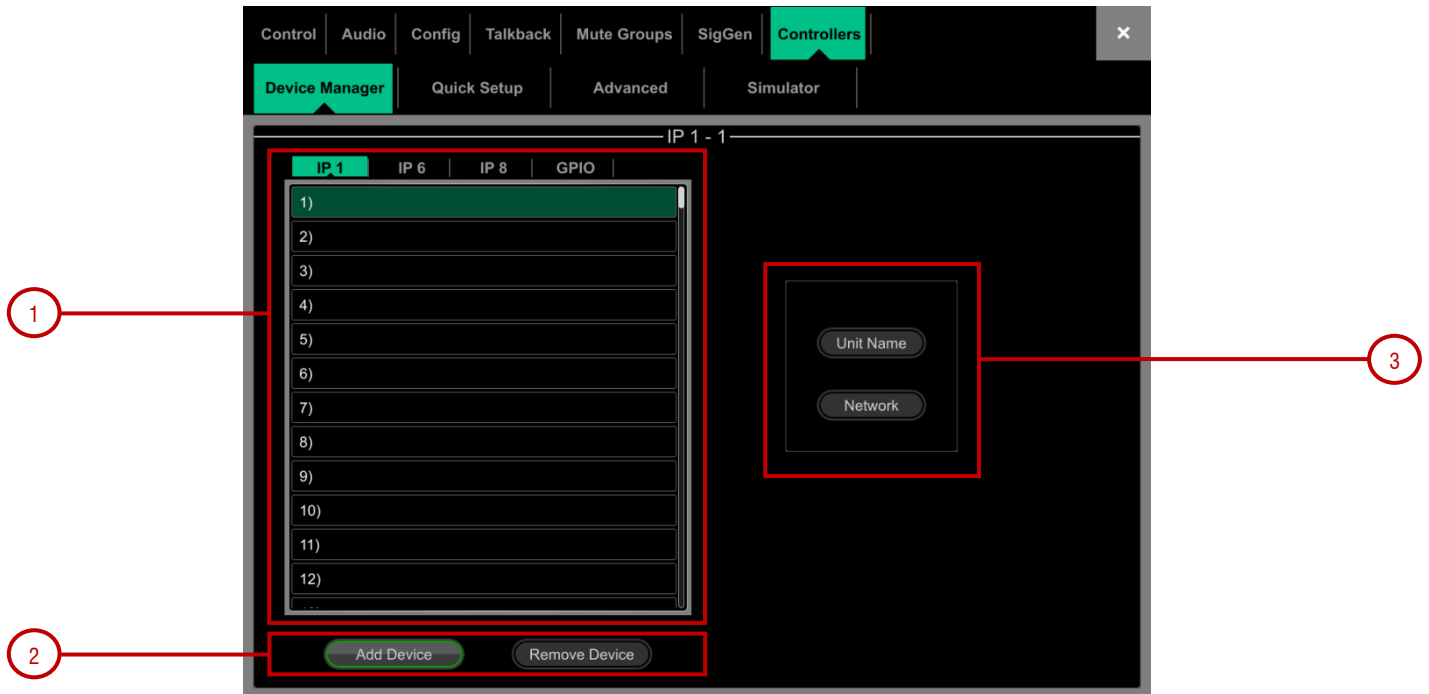
Pink Noise - A signal containing all audio frequencies with equal energy per octave, a logarithmic curve and typically used for testing speakers and room response.

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

10.24. 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.



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 Avantis 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, DHCP and HTTP enable setting for the selected device.

The default settings are:

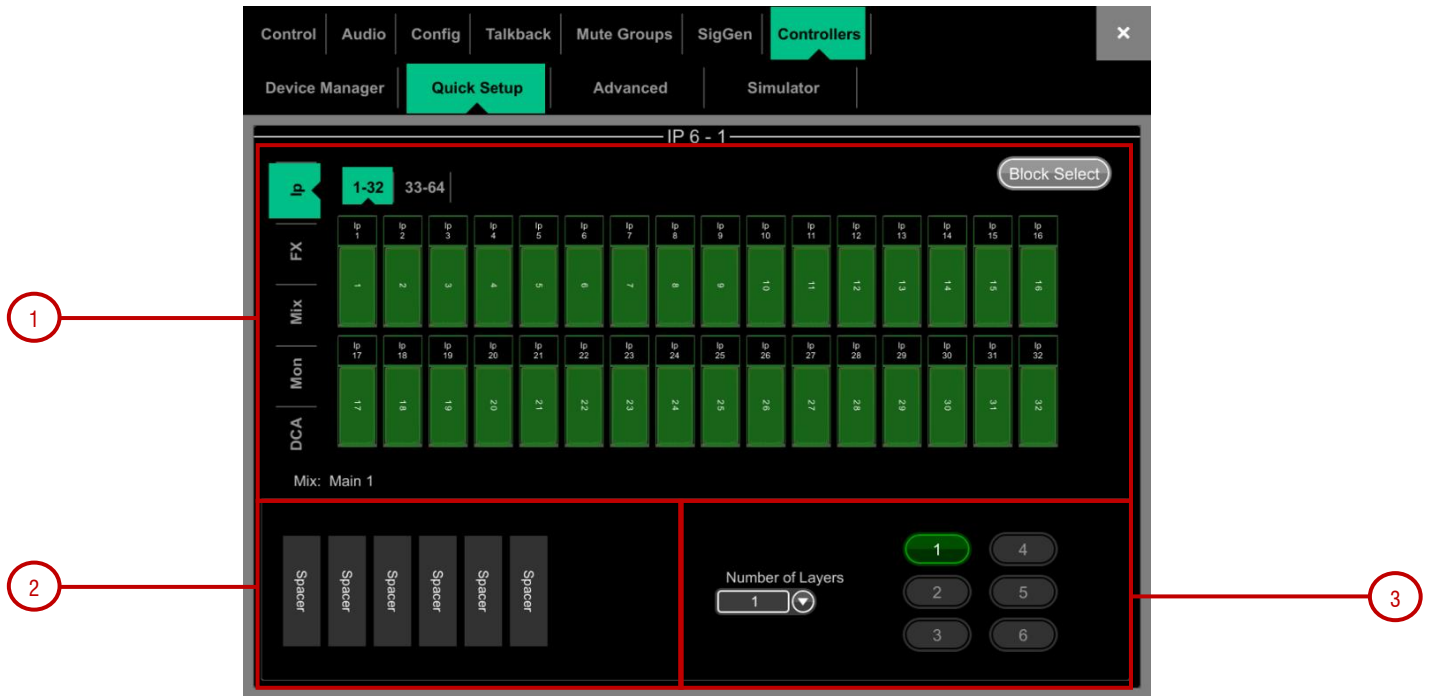
IP1	IP 192.168.1.74	Subnet Mask 255.255.255.0	Gateway 192.168.1.254	DHCP off
IP6	IP 192.168.1.72	Subnet Mask 255.255.255.0	Gateway 192.168.1.254	DHCP off
IP8	IP 192.168.1.73	Subnet Mask 255.255.255.0	Gateway 192.168.1.254	DHCP off
GPIO	IP 192.168.1.75	Subnet Mask 255.255.255.0	Gateway 192.168.1.254	DHCP off

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

HTTP Enable – By default controllers can have their network configuration changed by using a browser to navigate to the IP address of the controller. This can be disabled for security reasons if desired.

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, touch and hold **Options** 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.

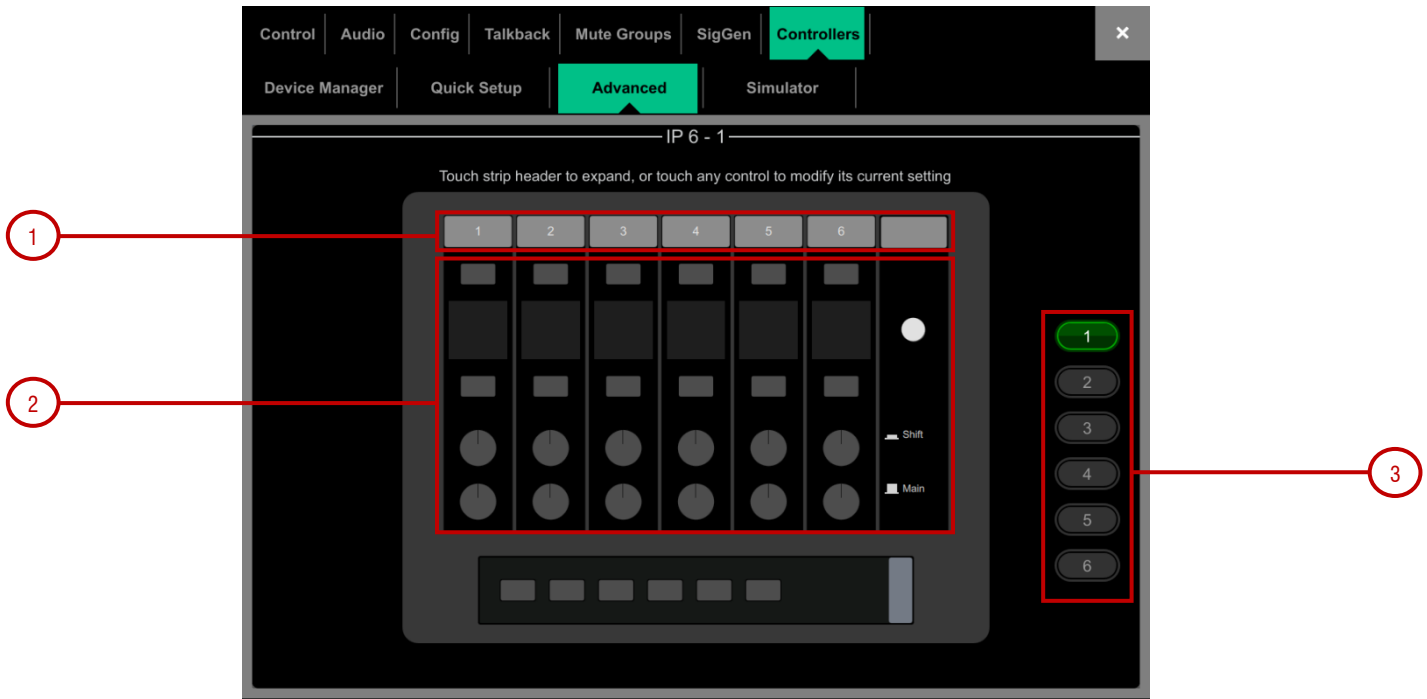
Turn on **Block Select** and touch the first and last item you wish to assign to drag a range of channels.

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.

Controllers / Advanced

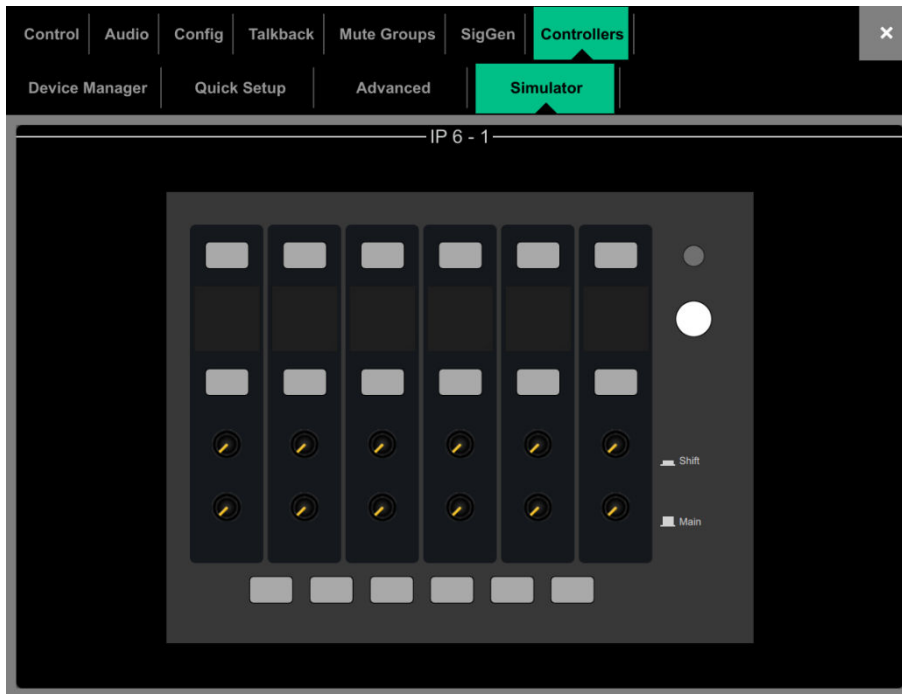
Advanced allows one-by-one assignment of keys and faders / rotaries.



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.
3. Select the Layer you want to edit.

10.25. Controllers / Simulator

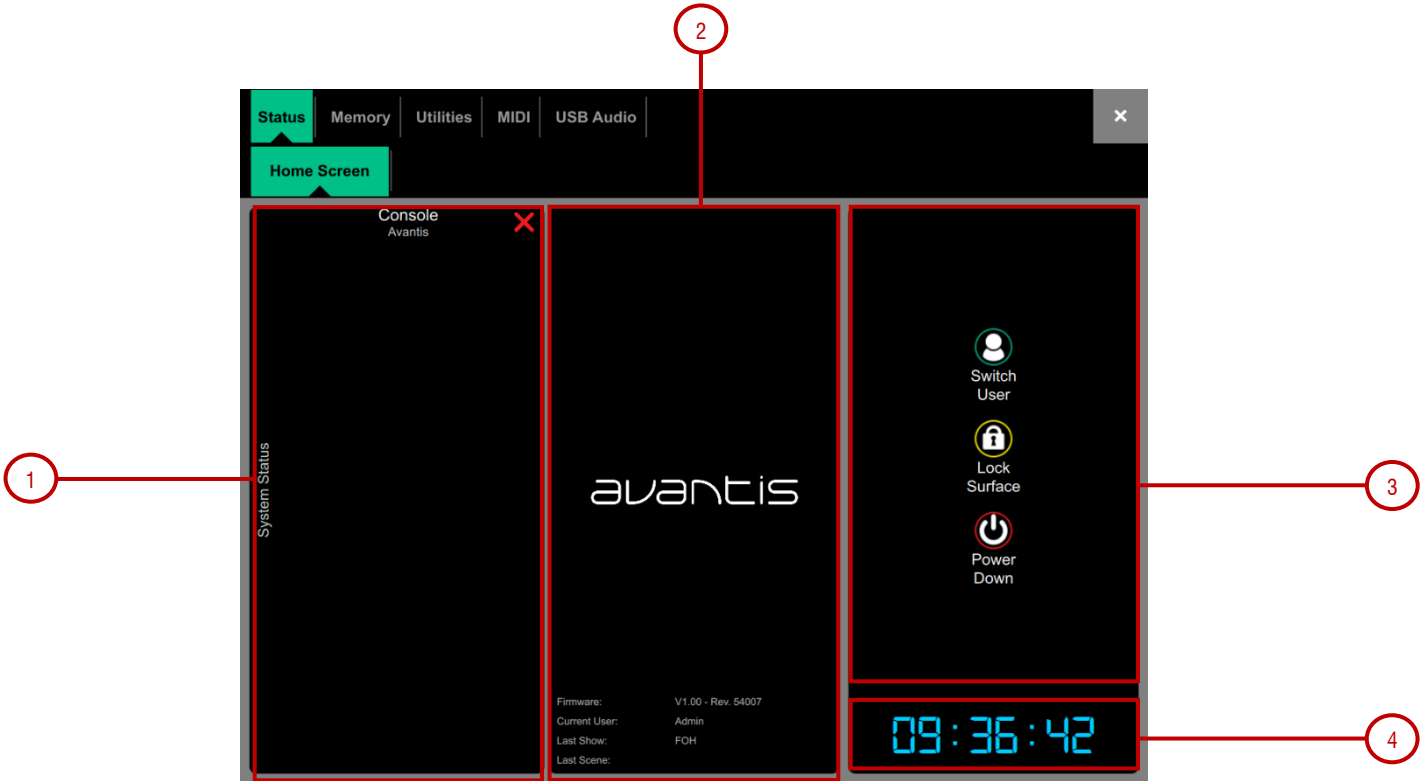
Use this screen to simulate the operation of the selected device.



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

11. Utility

11.1. Status / Home Screen



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, 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 on the 'An Error Occurred' message to open the **Utility / Utilities / History** page and display the logs. Contact Support for assistance.

3. Press **Switch User** to access the User login page. See section 11.1.1

Press **Lock Surface** and confirm to lock all Surface and touchscreen controls. 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.

i 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 / Utilities / Date/Time** screen.

11.1.1. 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 **Setup / 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.

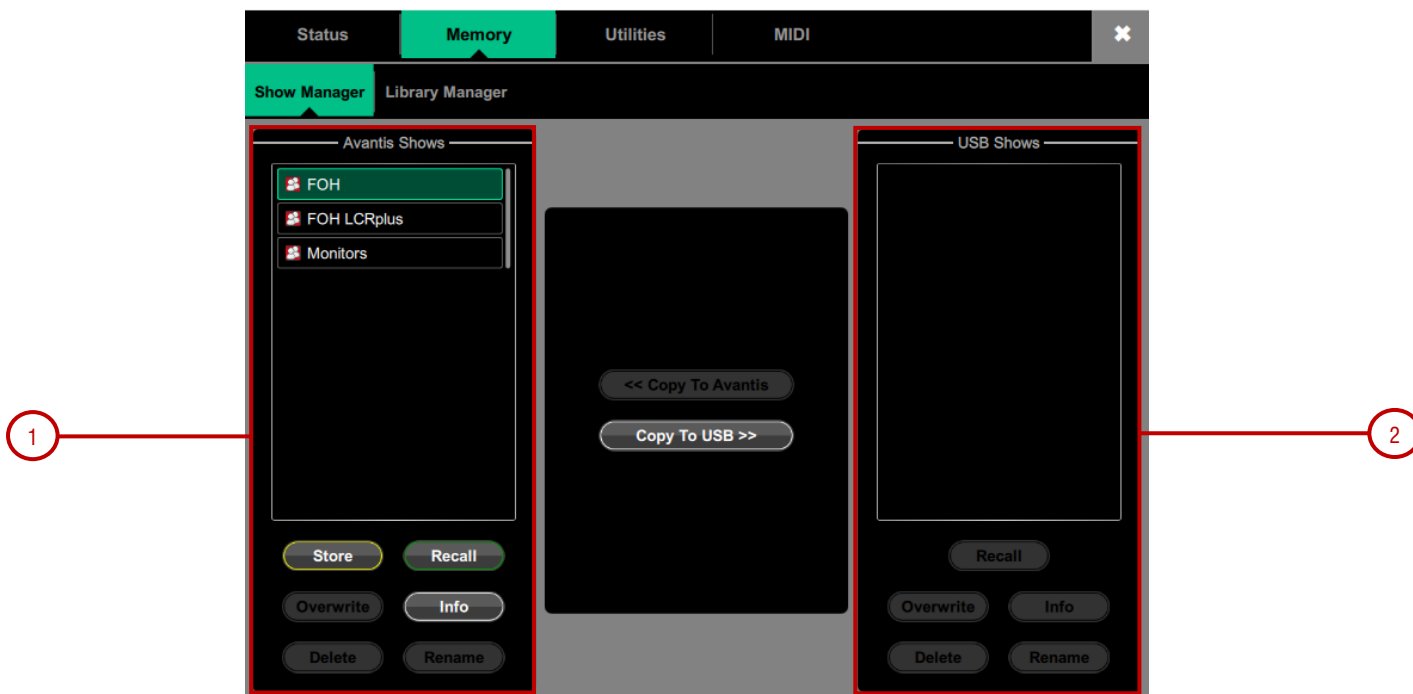
11.2. Memory / Show Manager

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

① See Appendix D 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 default Scene to reset the mixer settings, patch and strip layout to the starting point.

① See Appendix E in this guide for an overview of available Template Shows.



1. Avantis Shows – Lists Template and User Shows stored on the Avantis. 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.

① 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.

① 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.

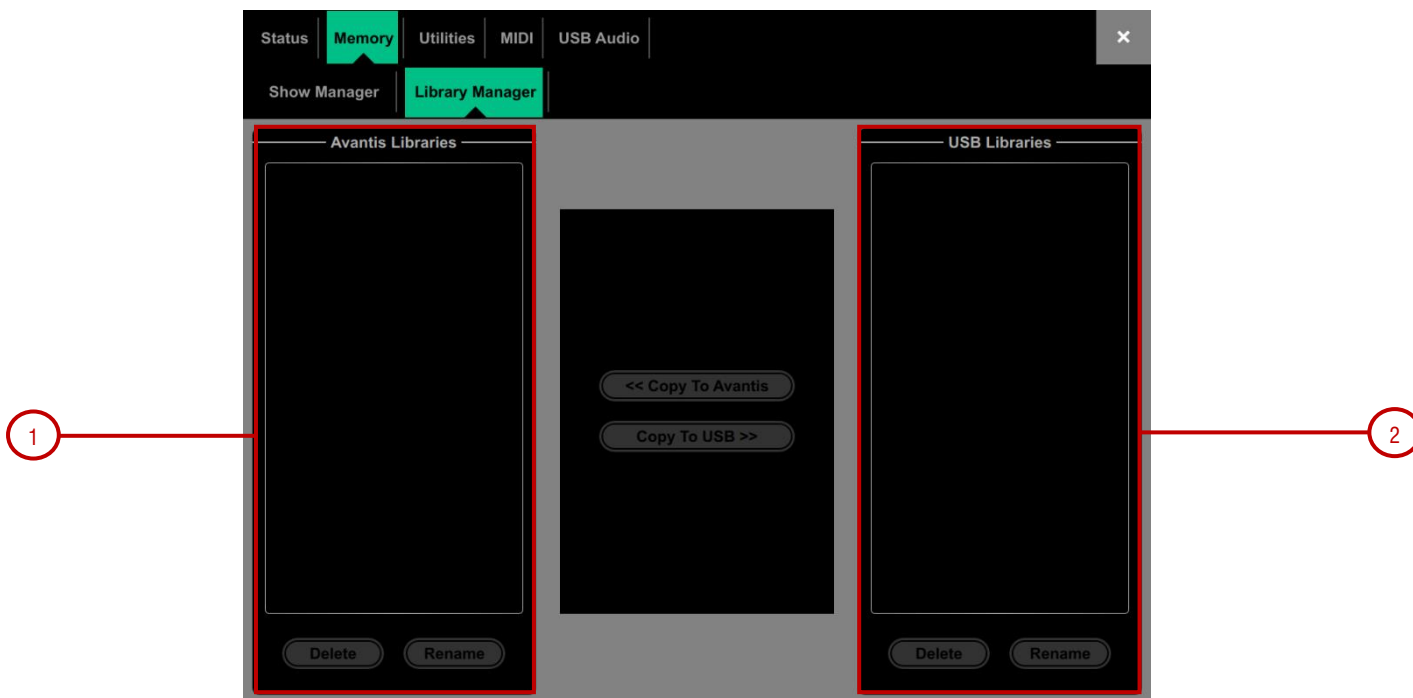
① Avantis Shows stored on systems running more recent firmware will not load on systems running earlier versions. However, earlier versions of Shows are compatible with Avantis systems running later firmware.

2. USB Shows – Lists User Shows stored in the USB drive. The files are stored in the USB AllenHeath-Avantis/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 Avantis** to copy the file to the Avantis memory. Select a Avantis Show and touch **Copy to USB** to copy the file to the USB drive.

11.3. Memory / Library Manager

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



1. Avantis 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-Avantis/Libraries folder. Touch a Library to select it. Touch **Copy to Avantis** to copy the Library to the Avantis memory.

ⓘ Avantis 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 Avantis.

11.4. Utilities / 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.

⚙ Touch and hold **Options** and touch anywhere in this screen to access an option to **Show detailed Event Logs**.

If you suspect a problem with the Avantis system you can **Copy 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.

11.5. Utilities / 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**.

11.6. Utilities / Calibration

This page lets you recalibrate fader alignment, fader touch sensitivity and fader motor performance.

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.

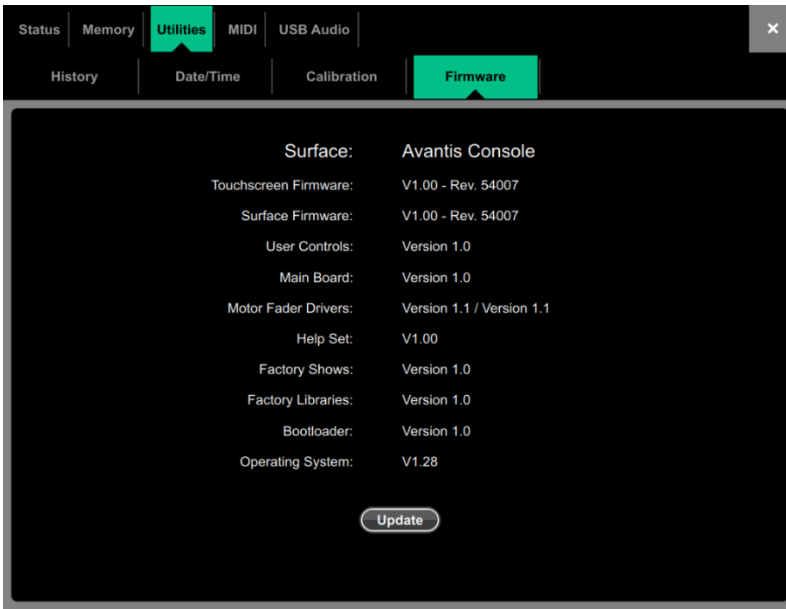
11.7. Utilities / Firmware

Use this page to view or update the current firmware, driver and OS versions. Firmware is updated via a USB drive.

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

ⓘ Updating Avantis 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.

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



To update the firmware:

1. Download the latest firmware from www.allen-heath.com and save the .zip file.
2. Remove any previous Avantis firmware from your USB drive. To do this, look into the USB AllenHeath-Avantis 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.

i 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 Avantis USB port, and touch **Update** in the Firmware page. The Avantis 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.
i 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. MIDI / Control

Use this page to assign the MIDI channel number and operate the MIDI Transport controls (MTC). These send out the related MTC messages over TCP/IP.



11.9. USB Audio / Manager

Set up and manage stereo recording to the local internal storage, and playback from USB or the internal storage.

Supported file types:

USB/Local Audio playback Mono/stereo .WAV files (16/24bit, 44.1/48/96kHz)
MP3 files
FLAC files

Local Audio recording Stereo .WAV files (24bit 96kHz)



1. Play – Touch **Assign** to select the input channels to be used for playback from USB/Internal Storage. Use the transport controls to **Play**, **Pause**, **Stop** or **Skip** between tracks. Touch the dropdown menu to select between **Play Single**, **Play All**, **Repeat Single** and **Repeat All**.

2. Record – Select the channels to be recorded by touching the **Assign** button. Touch the **Record** button to begin recording and touch the **Stop** button to stop recording. A pair of Chromatic Meters indicate the level of the recorded signal. To configure the Chromatic Meters, navigate to **Setup / Audio / Metering**.

3. Audio Directories – Playback files stored on the internal storage will be visible in the **Tracks** tab. Tracks recorded to the local internal storage are shown under the **Recordings** tab. Compatible playback tracks on a connected USB storage device are visible under the **USB** tab.

When in the Tracks or Recording tabs, touch **Copy to USB** to copy the selected file from the internal storage to a connected USB drive. When in the Tracks tab, touch **Copy to Internal** to copy the selected file to the internal storage. Touch **Delete** to delete the selected file.

Remaining storage space on the internal storage is displayed when in the Tracks or Recordings tabs, and remaining space on the connected USB storage device is shown when in the USB tab.

12. Appendix A - 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 Avantis 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 **Setup / Config / 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.

13. Appendix B – dPack

Right out of the box, Avantis is loaded with powerful processing tools that will easily meet the demands of most users and applications. Want more options? Upgrade your console with Avantis dPack to get additional dLive processing including Dyn8 (up to 16 instances), DEEP Compressors, and the Dual Stage Valve Preamp, plus more models as they're added.

13.1. Compressors



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.



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 high frequency response of the compressor.

From v1.20 'Unit B', modelled on different analog hardware can be selected with different attack and release characteristics.



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.

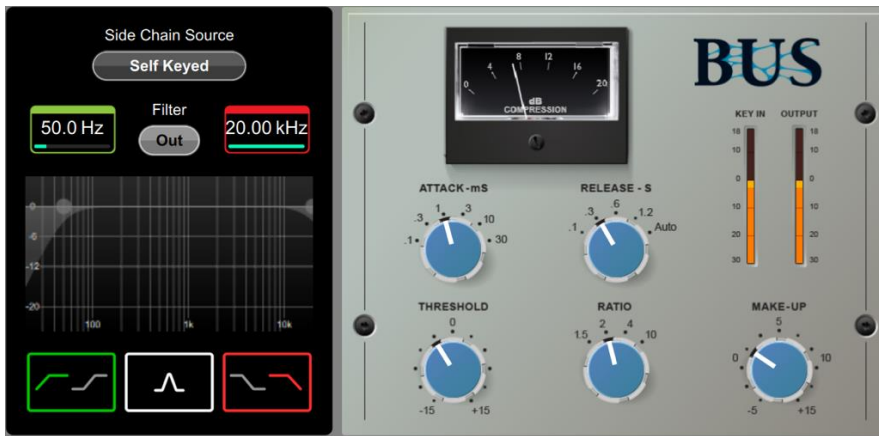


Mighty Compressor – Inspired by a classic transistor array VCA dynamics processor, Mighty is an aggressive sounding compressor with a very fast attack. The **Detector** switch offers two distinct voices with easy control over **Threshold** and **Release** values in addition to an **Output** control to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



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

13.2. Expanders (Gate Section)



Dual Threshold Expander-

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 -

Fast and effective expansion. Touch a parameter box and use the screen rotary to 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.

13.3. Preamp



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.

13.4. NEQ12



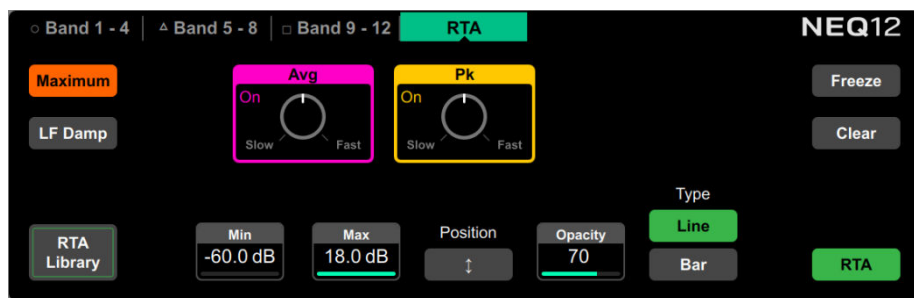
1. NEQ12 Graph – Touch and drag the 12 band symbols to adjust their centre frequencies. The overall frequency response curve turns yellow when the PEQ is switched in and grey when switched out. The RTA can be overlaid in the graph.

Note 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 RTA Meter settings.

2. 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.



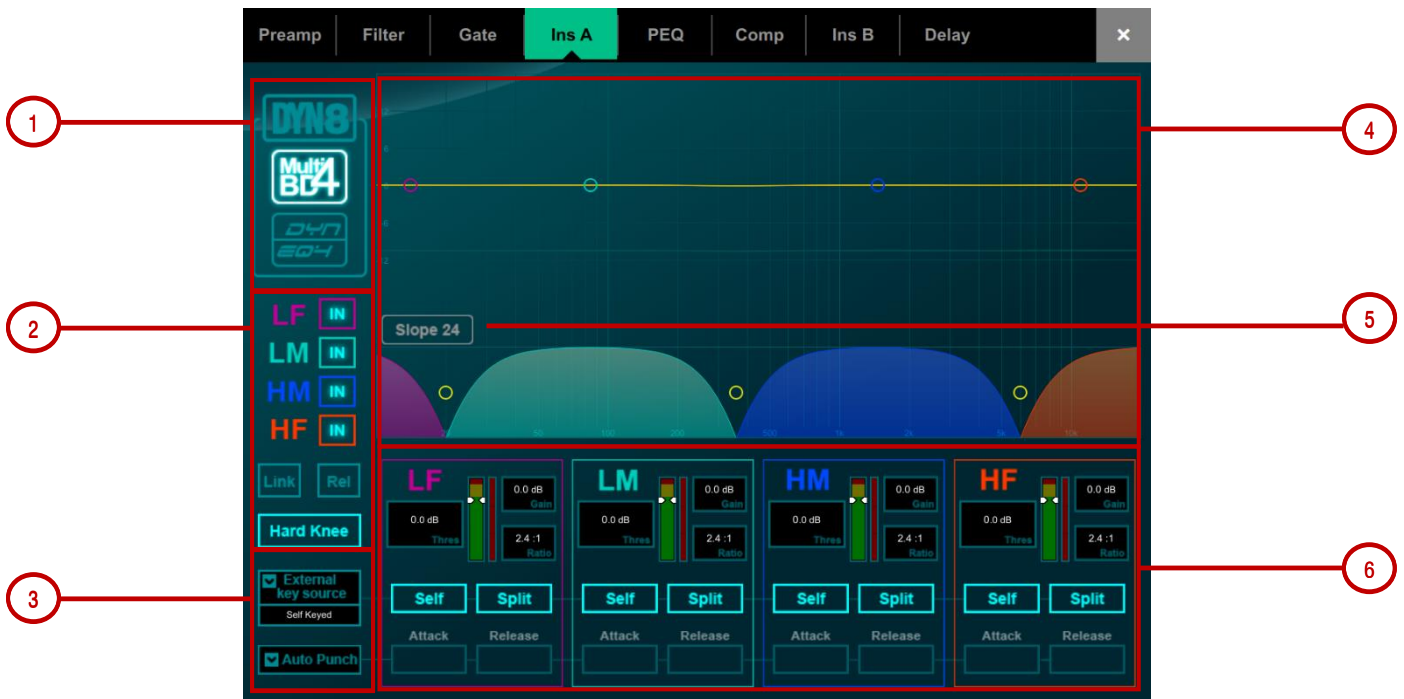
RTA Settings – Touch **RTA** to enable or disable the RTA overlay.

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.

13.5. 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 can be set to **Split** (same key signal feeds both side of a stereo pair) or **Wide** (true stereo key).

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.

14. Appendix C - 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 GLD 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.

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.

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.

ADT Doubler



An Automatic Double Tracking module capable of creating short echo/chorus, 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 chorus.

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 Chorus with Thickness set high. Mid position for classic doubling. $\frac{3}{4}$ position with thickness high for echo-chorus. 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 chorus 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:

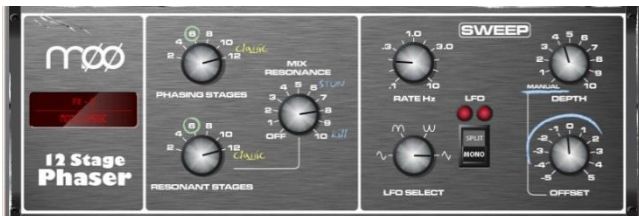
Ambient - HF rich, subtle flange, creating ambience. Great with overhead mics for a spatial sound.

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.

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.

The two channels are independent but their controls can be linked thanks to a latch switch.

Mode – A three position switch changing the EQ band type from **Classic**, **Shelf** and **Band Pass**.

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 in Classic mode. 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.

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.

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.

15. Appendix D – Scene and Show memory content

15.1. 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

FX Sends, FX Returns

- Level
- Mute
- Routing assignments, sends and Pan
- DCA / Mute Group assignments
- Name & Colour

DCA

- Assignments
- Level
- Mute
- Name & Colour

Mute Groups

- Assignments
- Mute

MIDI Strips

- MIDI messages
- Name & Colour

Mix channels

- Ext Input Gain, Pad, +48V
- Digital Trim, Polarity
- Insert In/Out and operating level
- PEQ
- NEQ
- Compressor
- Level (channel fader)
- Mute
- Pan
- Routing assignments, sends and Pan
- Delay
- DCA / Mute Group assignments
- Name & Colour
- Source point

FX

- FX parameters for each unit
- PEQ

Others

- AMM Settings
- IP Controllers settings
- Source Select settings
- Dyn8 routing and parameters
- Softkeys settings
- GPIO settings
- Patchbay – Input source, Inserts, Outputs, Tie lines.
- Virtual SoundCheck settings
- I/O Port – Option card settings
- Output Polarity
- Digital Out Sample Rate
- Talkback HPF
- Ganging
- ME Stereo configuration for Monitor outs
- Global Direct Out source
- Global Tap Tempo
- Strip Assigns for each bank
- Mixer illumination
- Soft Rotary controls

15.2. 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
- Cue lists
- Current cue list
- Scene options (Editing Confirmation, Auto Store, Auto Increment, Track Embedded, Go on Touch)

Libraries

- All User Libraries

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
- 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)
- Mix Follow Pan

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
- SIP Safes

Others

- PEQ / Comp order
- Custom meters
- 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

15.3. Settings not stored in Shows

The following settings are not stored in Show memories. These settings are local to the Avantis.

- Network settings
- Event logs
- User Profiles

16. Appendix E – Template Shows

Template Shows provide a quick starting point by giving you a familiar layout and classic mix architecture. They contain default Scenes to reset the mixer settings, patch and Surface layout to the starting point.

FoH and MON Shows have:

- Input fader strips on left banks, Mix and DCA masters on right bank.
- Input channel 1-48 source from SLink socket.
- Input channel 49-56 source from Local Inputs.
- Input channel 57/58, 59/60 configured as Stereo and sourced from Local Inputs 9-12 (XLR) for music playback.
- Input channel 61/62 configured as Stereo and sourced from Local 13/14 (AES)
- Input channel 63/64 configured as Stereo and sourced from the USB stereo playback.
- Custom Rotaries assigned to Compressor parameters (follow SEL)
- SoftKeys, IP Controllers, Virtual SoundCheck settings, Talkback HPF and Soft Rotary Controls are Safe in the Global Safes.

16.1. 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:

- 4 Groups (2 Mono, 2 Stereo)
- 8 Mono FX Sends
- 13 Aux (8 Mono, 5 Stereo)
- 4 Matrix (2 Mono, 2 Stereo)
- LR (single fader strip)

16.2. Monitors

This Template configures the Avantis as a dedicated monitor console with 16 monitor mixes.

Bus architecture:

- 0 Groups (0 Mono, 0 Stereo)
- 8 Mono FX Sends
- 16 Aux (8 Mono, 8 Stereo)
- 4 Matrix (2 Mono, 2 Stereo)

16.3. FOH LCRplus

This Template configures a traditional architecture and layout with three way LCR+ main mix for mixing FoH and monitors from FoH, with a centre speaker or centre cluster with divergence control.

Bus architecture:

- 4 Groups (2 Mono, 2 Stereo)
- 8 Mono FX Sends
- 12 Aux (8 Mono, 4 Stereo)
- 4 Matrix (2 Mono, 2 Stereo)
- LCR+ (Separate fader strip)

17. Appendix F – I/O Module Options

17.1. 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.

17.2. 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. AES Mode – Choose between Professional and Consumer AES mode for compatibility with third-party devices.

3. Input SRC Bypass – Enable this option to disable input sample rate conversion on a per input basis.

① Only turn off SRC if the AES sources are syncing from a 96kHz clock provided by or shared with the Avantis.

17.3. 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.

17.4. 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, Avantis will mute the incoming audio. However, an option to ignore these errors is given to allow wider compatibility with third party equipment.

① 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!

17.5. 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 Avantis Audio Clock Source, choose the Link that is used as the sync source.

See section [10.9](#) 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 Avantis 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.

① 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.

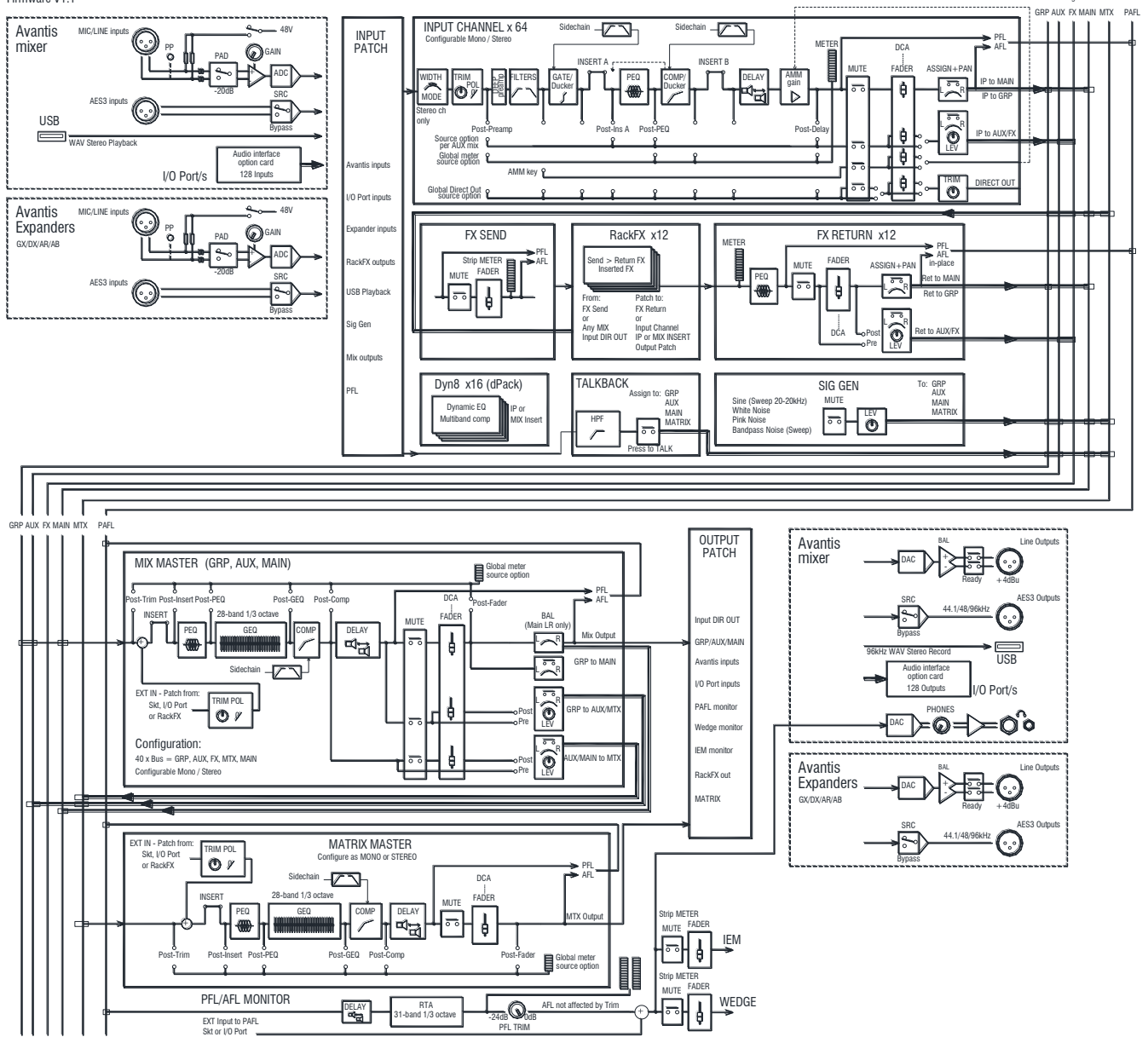
4. Ignore Active Inverted – Select to ignore AES3 Active errors in the MADI stream.

18. Block Diagram

AVANTIS BLOCK DIAGRAM

Firmware V1.1

64 input channels x 42 bus Mix Engine



19. Processing specs

Input Processing

64 Input Channels	Processing	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 20Hz – 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	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

42 Mix Processing Channels	Configure as mono/stereo Groups, Aux, Main, Matrix, PAFL
Main mix modes	None, LR, LCR, 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
NEQ-12	12-band fully parametric, +/-15dB, with selectable shelving / bell / hi- pass 12/24/48dB per octave
GEQ	28 bands 31Hz -16kHz, +/-12dB
Type	Constant-Q, Proportional-Q, digiGEQ, hybrid
Gain	Frequencies displayed on LCD strip
PEQ	as input channel
Compressor	as input channel
Delay	Up to 680ms, in/out



Talkback	Assignable source	FX	
High Pass Filter	12dB/octave, 20Hz-400Hz	FX Processing	12x RackFX engine, internal module
Routing	To Groups, Aux, Main, Matrix	Mode	Send>Return, Inserted, Daisy Chain FX, direct to output
		FX Returns	
Signal Generator	Sine, White Noise, Pink Noise, Bandpass Noise	12 Stereo dedicated returns	Fader, Pan, Mute, Routing to Grp, Aux, FX, Main
Sine, Bandpass sweep	20-20kHz		4-band PEQ on each return
Controls	Level, Mute		
Routing	To Groups, Aux, Main, Matrix		
RTA	31-Band 1/3 octave 20-20kHz		
Source	Follows selected PAFL source		
Peak Band Indication	Option to display dominant frequency		