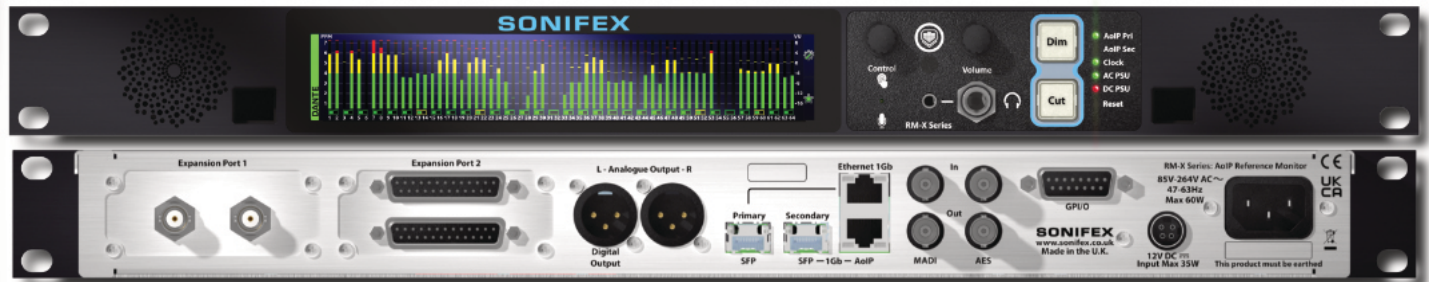


RM-X-64-DNT

64 Channel Dante & MADI Reference Monitor, with I/O Expansion

Quick Start Guide



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Audio Solutions for
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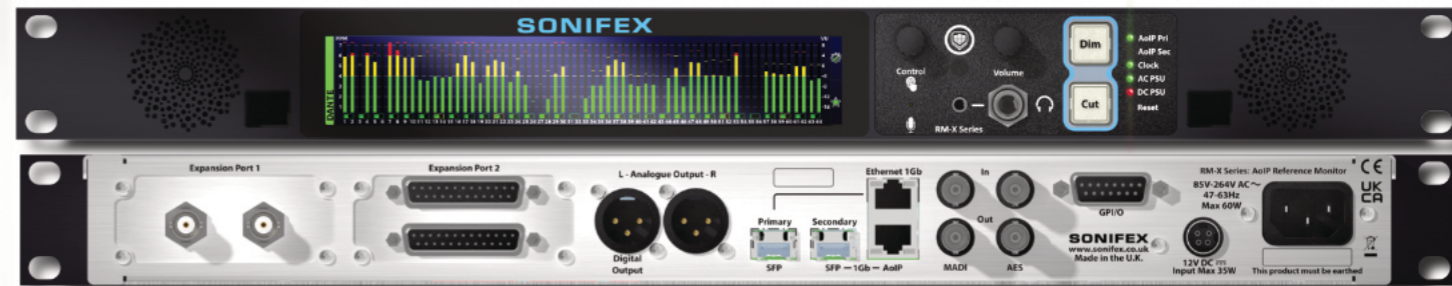
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RM-X-64-DNT

64 Channel Dante & MADI Reference Monitor, with I/O Expansion

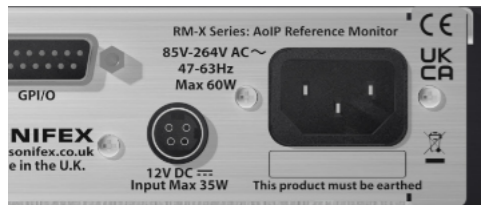
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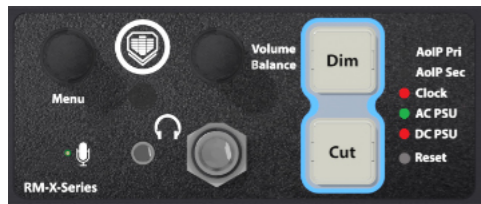
Introduction

The RM-X-64-DNT AoIP Reference Monitor has two main metering modes; source and group metering. The source metering shows the status of all of the 64 Dante and 64 MADI input channels, plus additional inputs provided by expansion cards fitted in the 2 available slots. Group metering allows specific channels from any of the available inputs to be monitored in user configurable groups. Each meter mode has a simple and a detailed view. The simple views allow complete source or group monitoring, while the detailed views show additional information and a larger, more detailed, audio meter display for the selected channels. The built-in web server is the primary method for configuring the RM-X-64-DNT and setting up the metering groups, so the first step is configuring a network connection to the unit.

1. Connecting Power

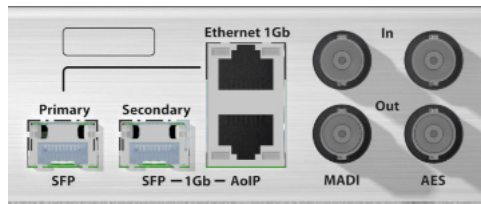


1.1 The RM-X-64-DNT can be powered from the mains AC input or the 12V DC adaptor. Both power sources can be connected and powered at the same time to provide redundancy if required. Power on the unit using the chosen power source.

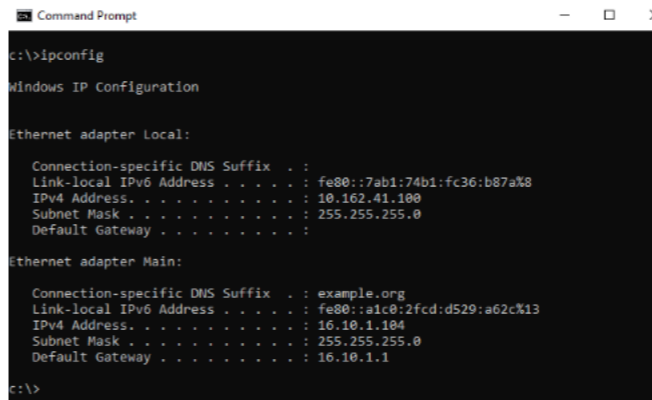


1.2 The front panel LED corresponding to the selected power source will turn green to show good power status.

2. Connecting to the Web Server



2.1 Plug an Ethernet cable into the primary network port of the RM-X-64-DNT, located on the rear panel. Connect the other end of the Ethernet cable to your network switch, and ensure your PC is also connected to the same switch.



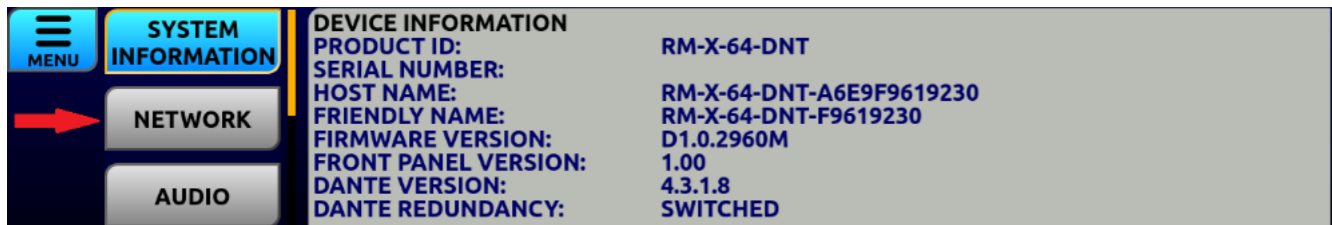
2.2 To make a network connection between your Windows PC and the RM-X-64-DNT, they will both need to be configured on the same network subnet. If the IP address and subnet mask of the PC are already known, skip to the next step to continue. Otherwise, open a Command Prompt on your PC and run the command 'ipconfig'. The output of this command lists the configuration of all the available network adaptors. Note the IPv4 Address and Subnet Mask of the adaptor used. In this example using the 'Main' adaptor, the IP address is 16.10.1.104 and the subnet mask is 255.255.255.0.



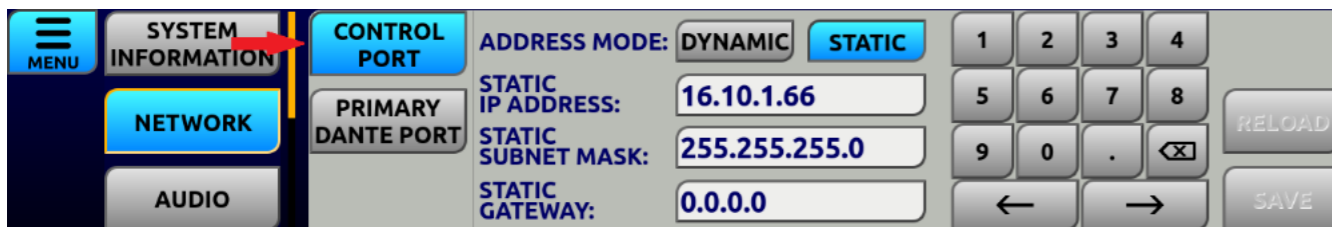
2.3 On the RM-X-64-DNT display, there are two buttons that access additional screens. The upper button, highlighted in red, opens the Quick Access window. The lower button, highlighted in yellow, opens the Group Meters Favourites window. Touch the upper button to open the Quick Access screen



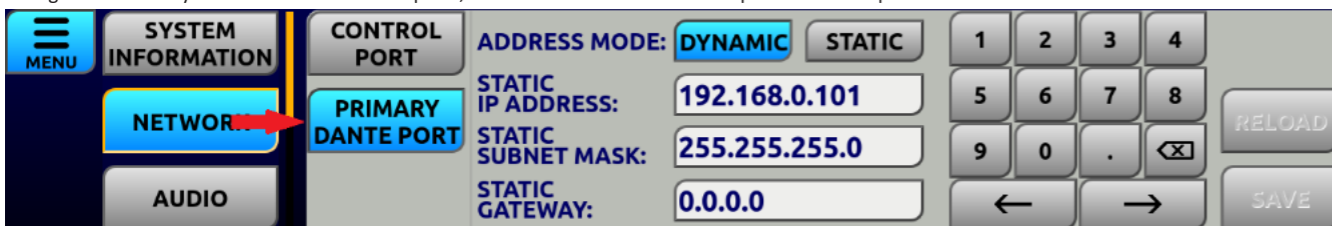
2.4 On the Quick Access window, touch the 'MENU' button indicated by the red arrow to open the system menu.



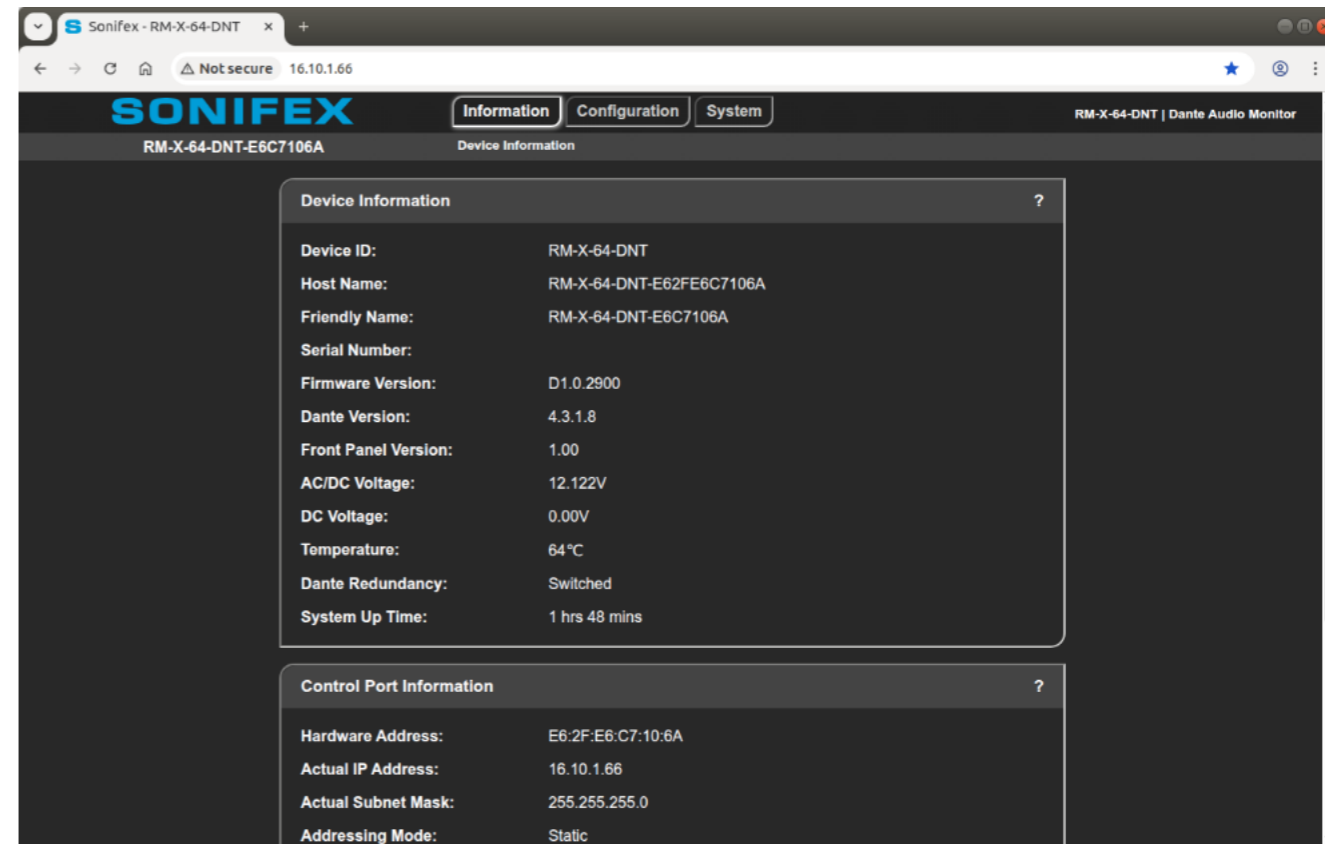
2.5 In the system menu, touch the 'NETWORK' button to open the network settings. Alternatively, turn the 'Menu' rotary control to highlight the 'NETWORK' button.



2.6 This sub-menu displays the available network ports on the unit. Ensure the 'CONTROL PORT', indicated by a red arrow, is selected. This port is used to access the embedded control interfaces, including the web server and Ember+ provider. It is not used for audio. To configure the port, select the required 'ADDRESS MODE' by touching either the 'DYNAMIC' or 'STATIC' button. When using static address mode, edit the IP address by touching the corresponding edit box and use the keypad to edit the value so that it is on the same subnet as the PC. Edit the subnet mask in the same way so that it matches the subnet of the PC. The current settings can be reloaded if required by touching the 'RELOAD' button, which is enabled once changes have been made. The 'SAVE' button applies the changes made to any of the available network ports, so do not use until the next step has been completed.

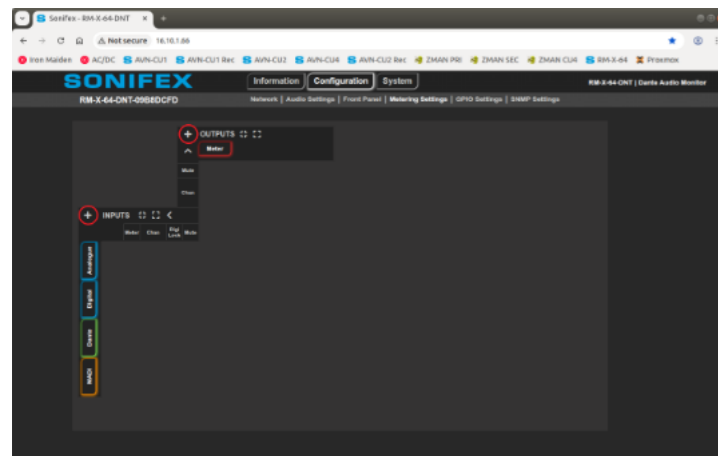


2.7 In order to interact with other Dante devices on your audio network, the primary port will need to be setup on the same subnet. Edit the address mode and static settings, if required, in the same way as the control port in the previous step. Once complete, press the 'SAVE' button and the unit will reboot



2.8 Open a web browser and enter the RM-X-64-DNT control port IP address into the address bar and press enter. The device information page will open, showing details of the connected unit.

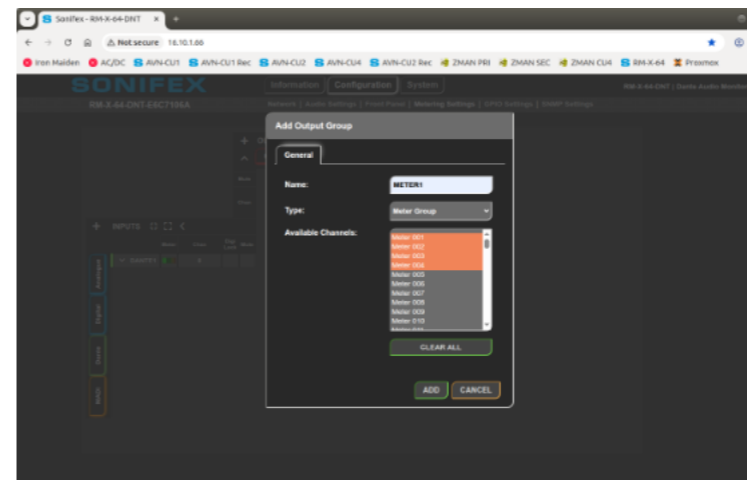
3. Adding and Configuring Audio Input and Meter Output Groups



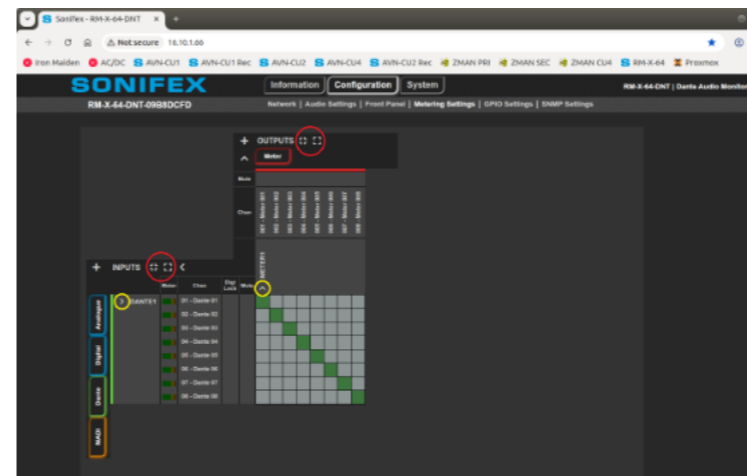
3.1 In the RM-X-64-DNT web server, navigate to the 'Metering Settings' page which is located under the 'Configuration' tab. This page allows audio inputs and meter outputs to be assigned to user specified groups. Audio from the audio input group can then be routed to a meter output group. These configured meter groups will then be available for monitoring in the group meters area of the front panel display. A new group is added by clicking the '+', shown circled in red, in either the 'INPUTS' or 'OUTPUTS' area. Click add in the 'INPUTS' area to add the first input group.



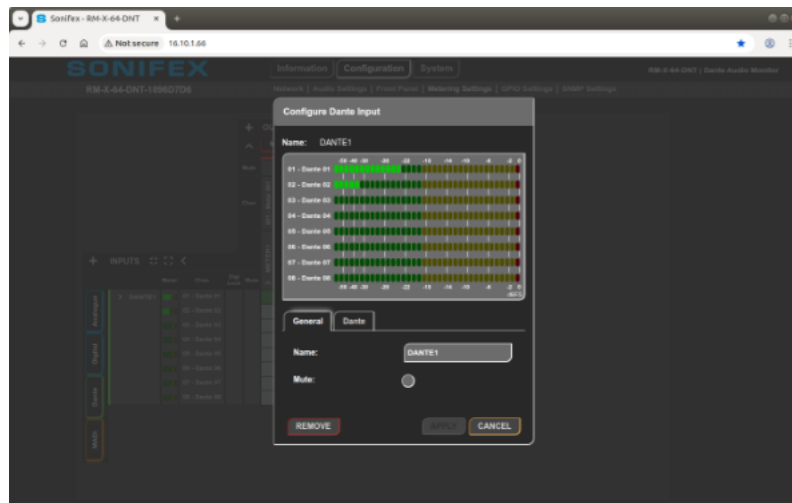
3.2 The 'Add Input Group' dialog will be shown. Enter an appropriate name for the group and select the required input type from the list of audio inputs available on the unit. This list will include the built-in Dante and MADI interface types as well as others provided by any fitted expansion cards. The 'Available Channels' list will show the channels of the selected type that are available for inclusion in the new group. Up to 16 channels can be assigned to the group and any channels that have been previously assigned to a group will not appear in the list. When complete, click the 'ADD' button.



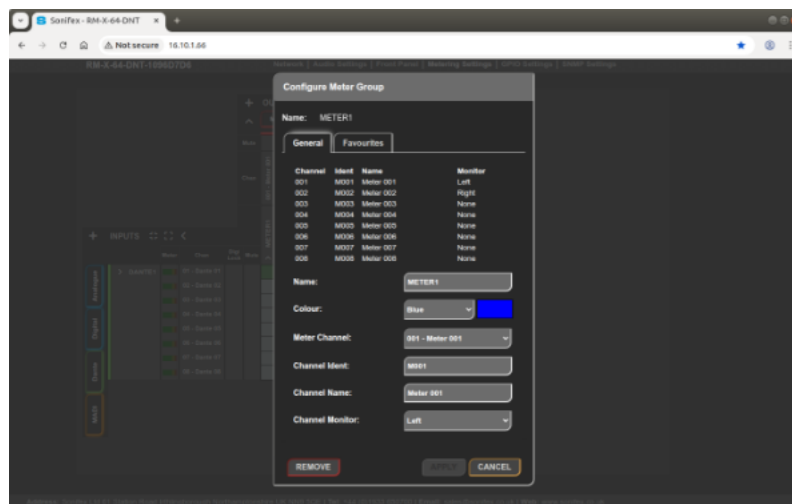
3.3 Click the output add icon to add an output group. The 'Add Output Group' dialog is similar to the input version and it shows the available meter channels that can be assigned to the group. These are the channels that will appear in the front panel group meters display area. Once the group details have been entered, click the 'ADD' button.



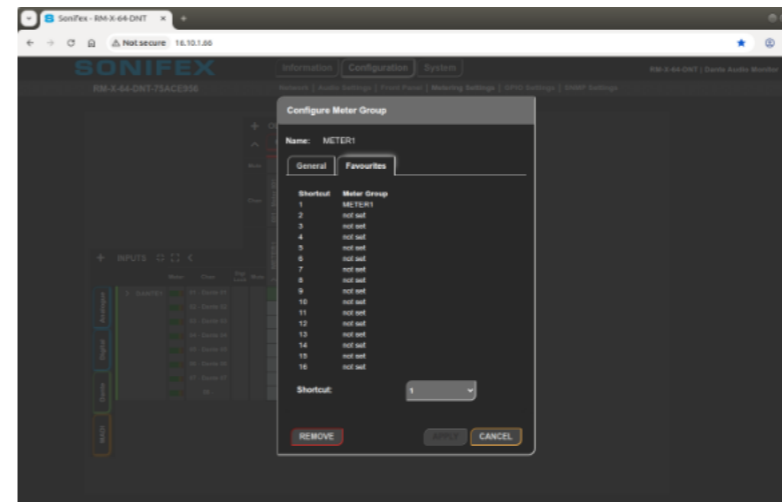
3.4 The new groups will appear in the input and output sections of the routing grid. Each group can be individually expanded or collapsed by clicking the controls circled in yellow. All input or output groups can be expanded or collapsed together by clicking the controls circled in red. To route audio from an audio input to a meter output, position the cursor over the box that intersects the required input and output channels, and click on the box. Current connections are shown with a green box. To delete a connection, click on the green connection box to show the configuration dialog, and select 'DELETE'. To edit the parameters associated with a group, click on the input or output group name.



3.5 For audio input groups, the configuration dialog 'General' tab shows audio meters for all channels. The tabbed area shows the available options that can be edited. To save any changes, click the 'APPLY' button. To delete the group, click the 'REMOVE' button.

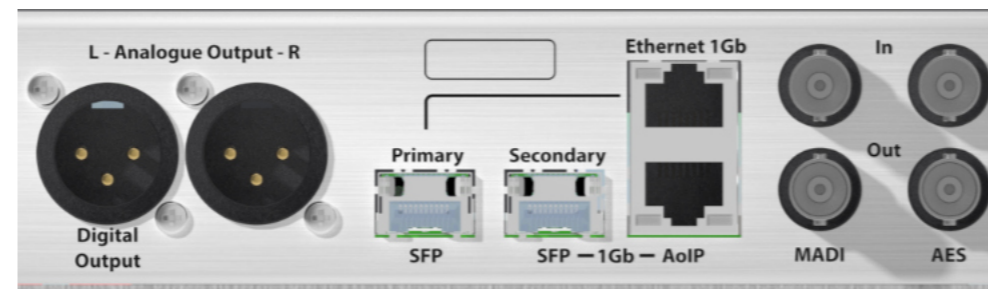


3.6 For meter output groups, the configuration dialog 'General' tab shows the current settings for the channels in the group. The name and colour settings are used to identify the group in the group meters display on the front panel. The individual channel ident, name and monitor settings are shown in the detailed group meters display.

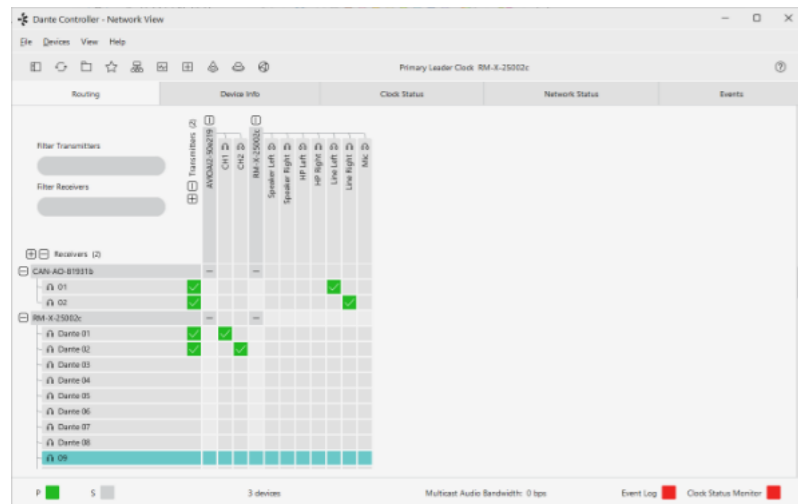


3.7 The 'Favourites' tab allows the meter group to be assigned to one of the 16 available favourites buttons on the front panel favourites window, accessed via the lower button on the right hand side of the display. To save any changes, click the 'APPLY' button. To delete the group, click the 'REMOVE' button.

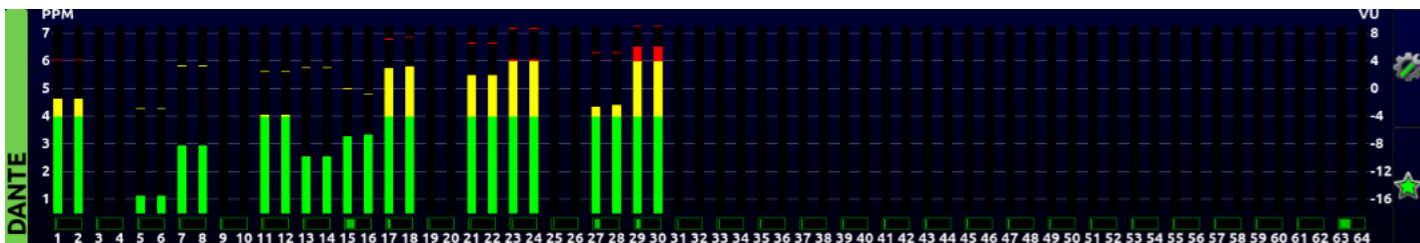
4. Connecting & Monitoring Audio



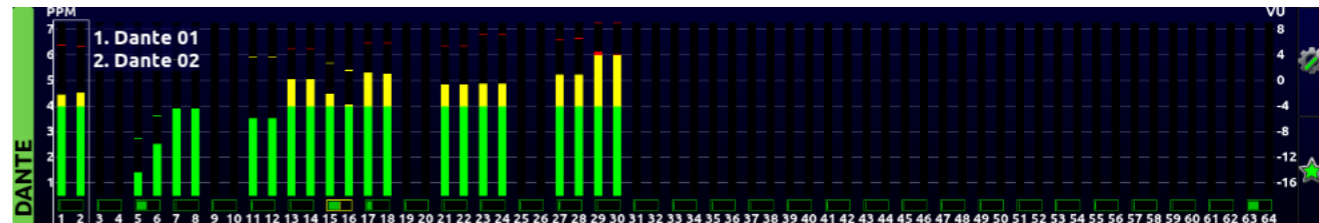
4.1 The RM-X-64-DNT audio connections are on the rear panel. The Dante audio over IP inputs and outputs use the primary and secondary network interfaces, with both dedicated copper and SFP ports available. Up to 64 receive channels are available and there are 7 fixed transmit channels for left and right speaker, headphone and line outputs and a front panel mounted microphone output for talkback. The MAD1 interface can receive up to 64 channels for monitoring with all channels retransmitted on a buffered output. The Analogue/Digital line outputs have the same selected monitored audio as the headphones and internal speakers. The AES/Id buffered loop through can be used as an audio clock synchronisation source.



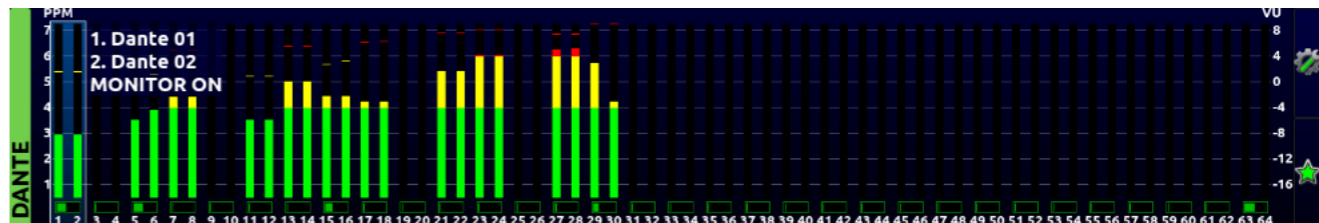
4.2 Dante sources are routed to the RM-X-64-DNT using the Dante Controller application. The default device name in Dante Controller is based on the device type and the last 3 octets of the primary Dante port hardware address. Expand the 'Receivers' rows to show the channels on this device, and the 'Transmitters' columns of the device you want to route the audio from, and then click on the intersecting box. After a short time, the status should update and a green tick indicates the connection was successfully made.



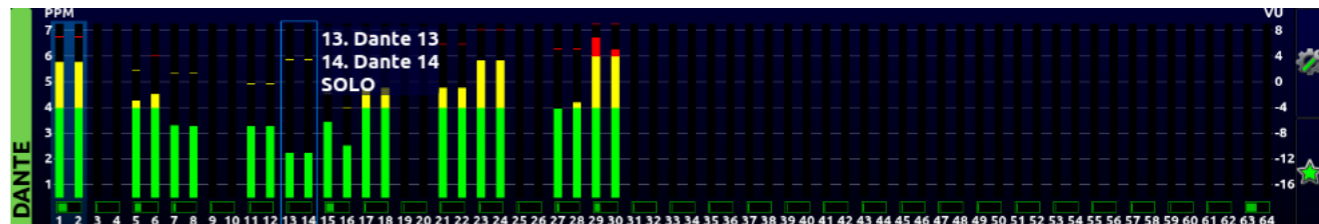
4.3 The default metering mode on the RM-X-64-DNT is source metering. Each source audio type is displayed on a separate screen, with Dante on the first screen and MADI on the second. Additional screens will be available for any fitted expansion cards. Swipe the screen to the left or right to change the source type. The source meters are grouped in channels pairs and show the audio level, using the currently selected metering standard, and the phase.



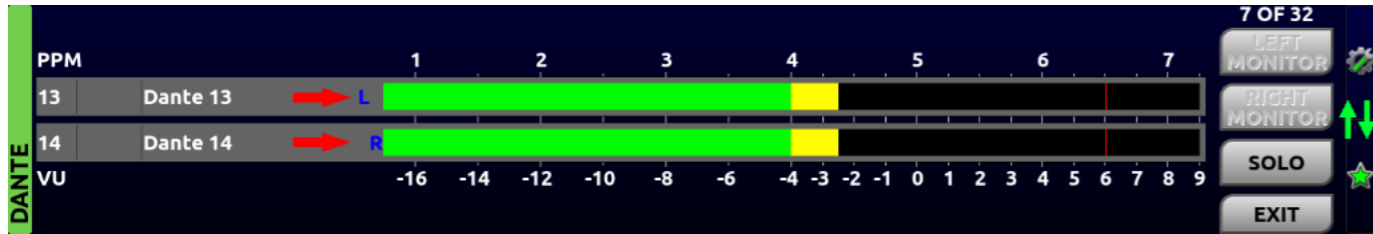
4.4 To enable or disable audio monitoring on a channel pair, first select and highlight a channel pair by touching the screen. Alternatively, press the 'Menu' rotary control once to enable select mode, and then turn to highlight the required channels.



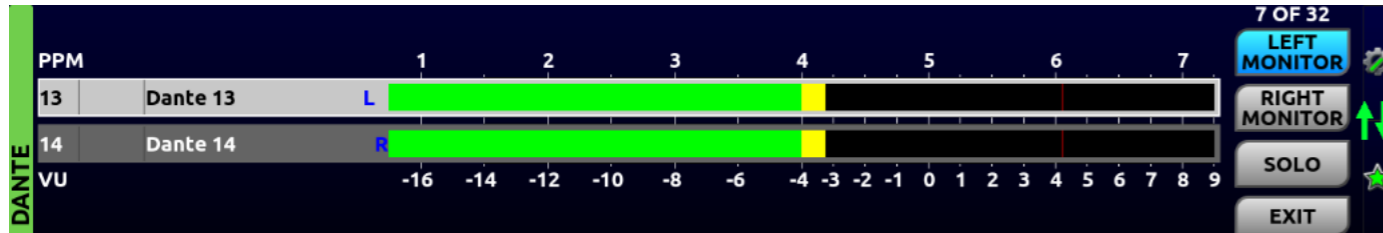
4.5 When the required channel pair is highlighted, touch again or press the 'Menu' rotary control to turn the monitor on/off. The highlight information and the channels background colour will change to indicate when the monitor is on. Audio from all enabled monitoring channels across all sources is routed to the left and/or right loudspeaker, headphone and line output channels, based on the monitor assignments. After a short period of inactivity, the highlight disappears.



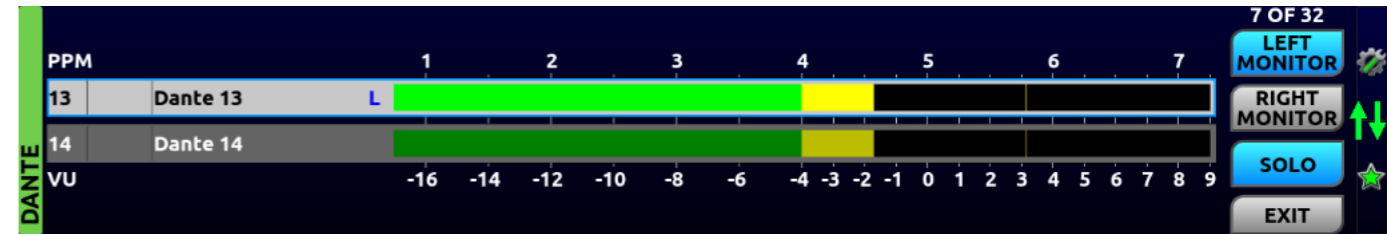
4.6 To temporarily monitor, or solo, a single channel pair, touch and hold the channel pair or press and hold the 'Menu' rotary control once the required channels are highlighted. The channel highlight changes to blue and the associated information indicates that solo is active. All other active monitor channels are muted while solo is active.



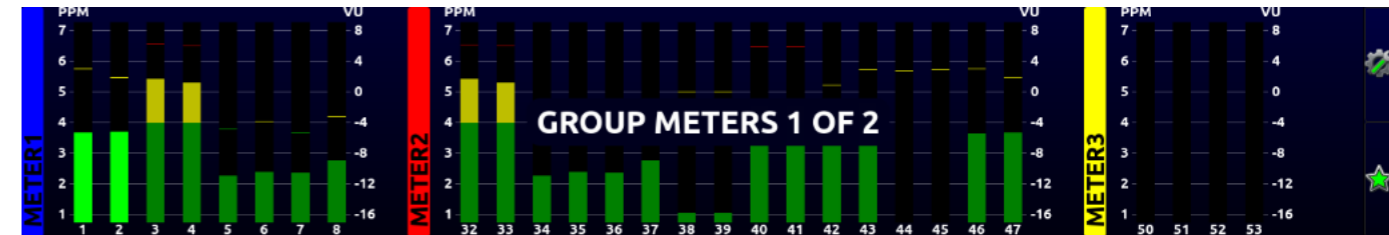
4.7 To change to the detailed source meters view, double touch the channel pair or double press the 'Menu' rotary control when the required channels are highlighted. To change the selected channel pair in detailed view, swipe the display up or down. To change the selected source, swipe the display left or right. Alternatively, the 'Menu' rotary control can be used and the arrows on the right side of the display, currently green, show the current scroll direction. Pressing the 'Menu' rotary control changes the scroll direction and turning it changes the selected channel pair (green arrows) or source (blue arrows). Audio from the displayed channels only will be routed to the monitor outputs, using the current monitor assignments which are shown on each channel and indicated by the red arrows. To modify the assignment, touch one of the meter channels to select.



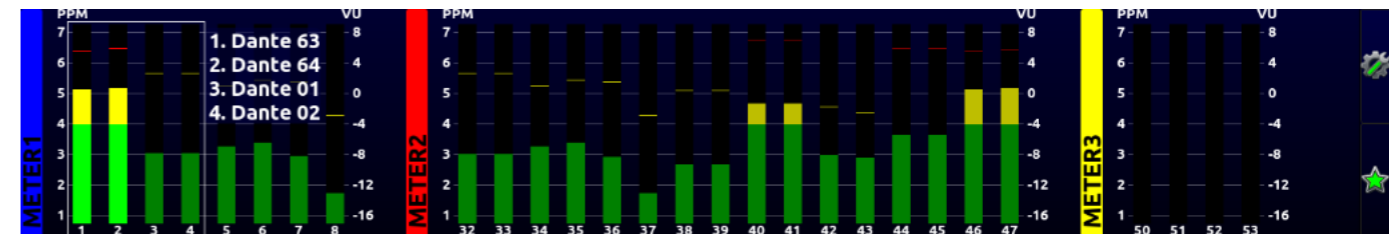
4.8 The 'LEFT MONITOR' and 'RIGHT MONITOR' buttons are highlighted to reflect the current monitor settings for the selected channel. Press the buttons to change the settings. After a short period of inactivity, the selected channel will automatically deselect.



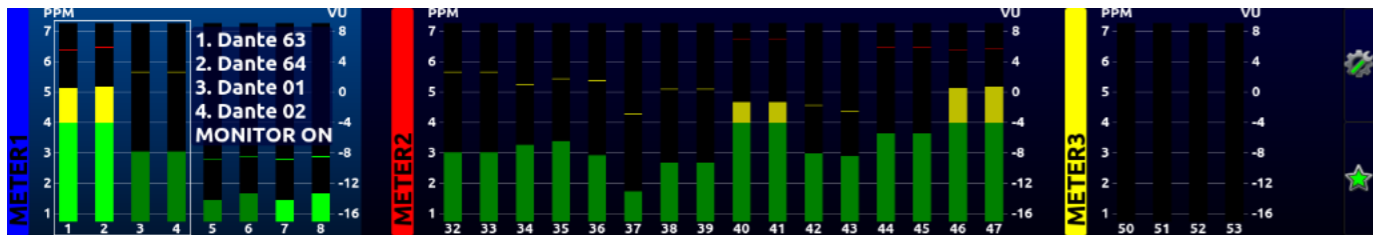
4.9 The 'SOLO' button routes audio from the selected channel, shown with a blue border, using the current monitor assignments for that channel. If no assignments are set, the audio will be routed to both left and right monitor channels. If no channel is selected, the first and second channels are routed to the left and right monitor channels respectively. The solo function stays active when changing the selected channel or source. The 'EXIT' button or a double press of the 'Menu' rotary control will exit the detailed view and return to source meters.



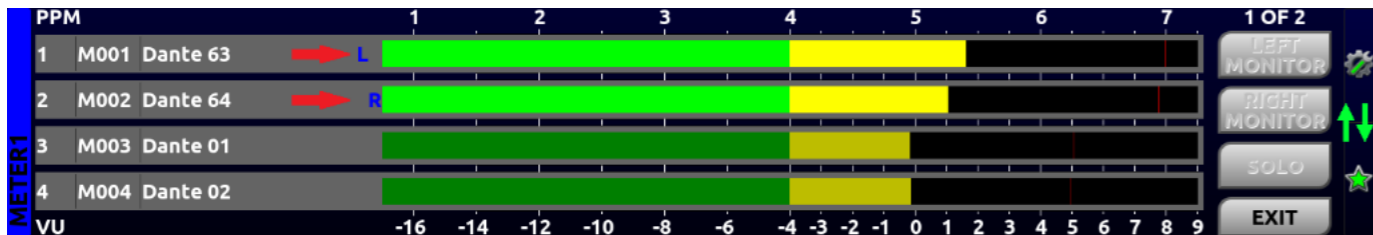
4.10 The second metering mode on the RM-X-64-DNT is group meters. To change to group meters from the source meters view, swipe up or down on the screen. A temporary message indicates the mode and the number of group meter screens that are currently available. Swipe the screen left or right to view the required screen. If no meter groups have been created, group metering is not available.



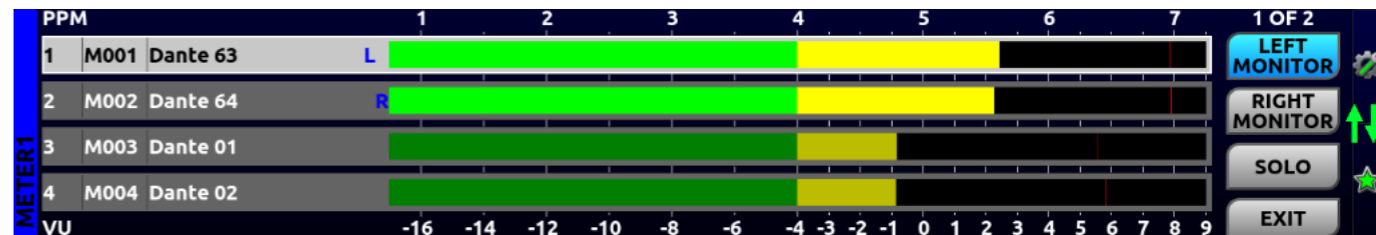
4.11 Meter groups are organised and selected in sub-groups of up to a maximum of 4 channels. This is the maximum number of channels that can be shown in each page of the detailed group meters view. To enable monitoring of a group, first select and highlight any of the sub-groups by touching the screen. Alternatively, press the 'Menu' rotary control to enter select mode and then turn to highlight a sub-group.



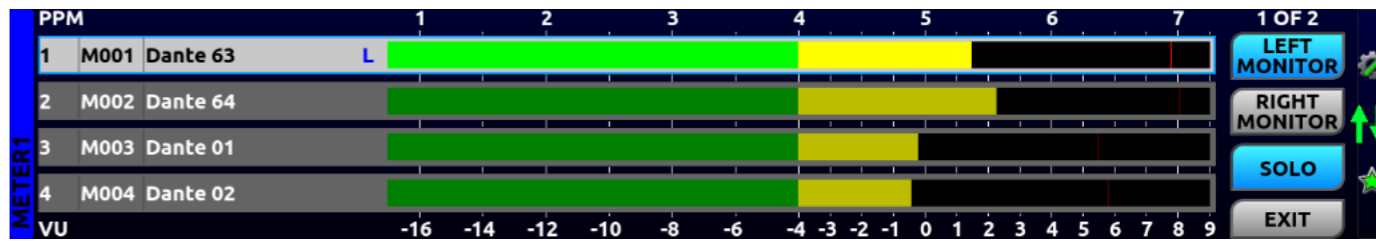
4.12 When the highlight is within the required group, touch again or press the 'Menu' rotary control to turn the monitor on/off. The highlight information and the group background colour will change to indicate when the monitor is on. Audio from all enabled monitor groups is routed to the left and/or right loudspeaker, headphone and line output channels, based on the monitor assignments. After a short period of inactivity, the highlight will disappear.



4.13 To change to the detailed group meters view, double touch the sub-group or double press the 'Menu' rotary control when the required channels are highlighted. To change the selected sub-group in detailed view, swipe the display up or down. To change the selected meter group, swipe the display left or right. Alternatively, the 'Menu' rotary control can be used and the arrows on the right side of the display, currently green, show the current scroll direction. Pressing the 'Menu' rotary control changes the scroll direction and turning it changes the selected sub-group (green arrows) or meter group (blue arrows). Audio from the displayed sub-group only will be routed to the monitor outputs, using the current monitor assignments which are shown on each channel and indicated by the red arrows. To modify the assignment, touch one of the meter channels to select.



4.14 The 'LEFT MONITOR' and 'RIGHT MONITOR' buttons are highlighted to reflect the current monitor settings for the selected channel. Press the buttons to change the settings. After a short period of inactivity, the selected channel will automatically deselect.



4.15 The 'SOLO' button routes audio from the selected channel, shown with a blue border, using the current monitor assignments for that channel. If no assignments are set, the audio will be routed to both left and right monitor channels. The 'EXIT' button or a double press of the 'Menu' rotary control will exit the detailed view and return to group meters.

5. Accessing Group Meter Favourites

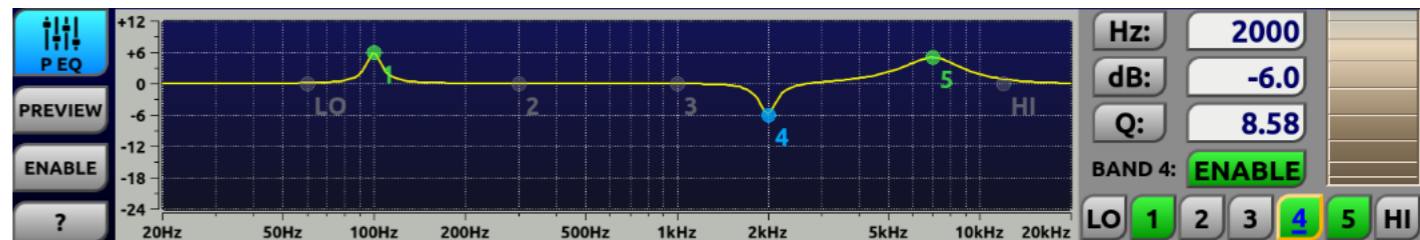


5.1 The favourites buttons allow instant access of up to 16 preconfigured meter groups. The favourites are assigned in the 'Favourites' tab of the 'Configure Meter Group' dialog in the 'Metering Settings' web page, accessed by clicking on an existing meter group. Touch a button with a group assignment to automatically switch to Group Meters and show the selected meter group.

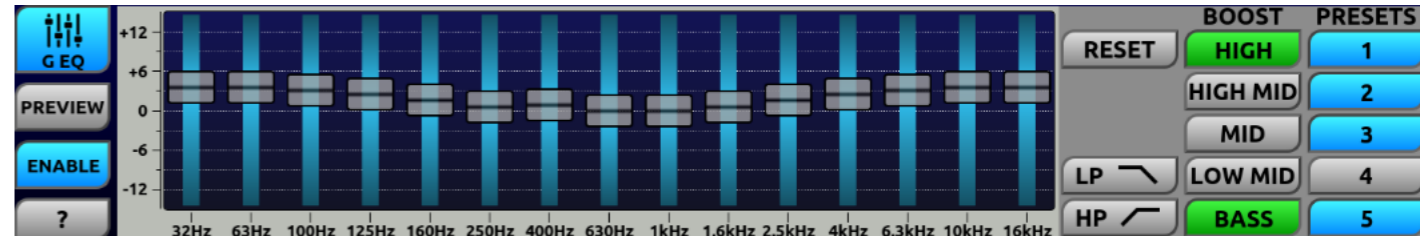
6. Parametric and Graphic Equalisers



6.1 The Parametric and Graphic Equaliser select buttons are located on the Quick Access screen, indicated by red arrows. Touch a button to open the required EQ screen.



6.2 The parametric EQ has 5 fully configurable bands, plus high and low shelf filter bands. The help button, marked with '?', provides information and instructions for each part of the screen. To use, touch the help button then touch a control or area to view the associated help information. To clear the help information, touch either the help button again or the displayed help window.



6.3 The graphic EQ has 15 bands with a gain adjustment range of ± 12 dB for each band. Similarly to the parametric EQ screen, the help button, marked with '?', provides information and instructions for each part of the screen. To use, touch the help button then touch a control or area to view the associated help information. To clear the help information, touch either the help button again or the displayed help window. To close either of the equaliser screens, touch the 'P EQ' or 'G EQ' button in the top left of the screen.

7. Quick Reference

7.1 Menu Rotary Control Operation

Screen	Operation	When	Result
Source Meters – simple view	Press	Channel select mode not visible	Enable channel pair select mode
		Channel select mode visible	Channel pair monitor on/off
	Rotate	Channel select mode visible	Change channel pair or source
Source Meters – detail view	Double press	Channel select mode visible	Enter detail view
		Always	Change scroll direction
	Rotate	Up/Down scroll (green arrows)	Change channel pair
		Left/Right scroll (blue arrows)	Change source
Group Meters – simple view	Double press	Always	Exit detail view
		Sub-group select mode not visible	Enable sub-group select mode
	Press	Sub-group select mode visible	Group monitor on/off
		Sub-group select mode visible	Change sub-group or group
Group Meters – detail view	Double press	Sub-group select mode visible	Enter detail view
		Always	Change scroll direction
	Rotate	Up/Down scroll (green arrows)	Change sub-group
		Left/Right scroll (blue arrows)	Change group
Menu	Double press	Always	Exit detail view
		System information menu selected	Select system information page
	Press	System information page selected	Select system information menu
		Rotate	Menu button selected
Parametric EQ	Press	System information menu selected	Scroll system information
		EQ band selected	Load EQ band settings
		Edit box selected	Enable edit mode high value
		Edit mode high value enabled	Enable edit mode low value
	Rotate	Edit mode low value enabled	Return to parameter select mode
		Enable button selected	Enable/disable band
		Parameter select mode	Change selected parameter
		Edit mode high value enabled	Change parameter high value
Graphic EQ	Press	Edit mode low value enabled	Change parameter low value
		Band Select mode not visible	Enable band select mode
	Rotate	Band Select mode visible	Enable band edit mode
		Band edit mode enabled	Return to band select mode
Graphic EQ	Rotate	Band Select mode visible	Change selected band
		Band edit mode enabled	Change selected band gain

7.2 Volume Balance Rotary Control Operation

Screen	Operation	When	Result
All	Press	Volume or balance control not visible	Show volume or balance control
		Volume or balance control visible	Change volume or balance control
	Rotate	Volume control visible	Change monitor volume
Balance control visible		Change monitor balance	

7.3 Dim & Cut Button Operation

Button Mode	Operation	Result
Disabled	All	None
Momentary	Press/Hold	Dim or Cut activated on function enabled monitor outputs
	Release	Dim or Cut deactivated on function enabled monitor outputs
Latching	Press/Hold	Dim or Cut activated/deactivated on function enabled monitor outputs
	Release	None
Auto	Short Press	Dim or Cut activated on function enabled monitor outputs
	Short Press Release	None
	Long Press	Dim or Cut activated on function enabled monitor outputs
	Long Press Release	Dim or Cut deactivated on function enabled monitor outputs

7.4 Status LED Operation

LED	Colour	Indication
AoIP Pri	Off	No valid AoIP connection on the Dante primary interface
	Green	Valid AoIP connection on the Dante primary interface
AoIP Sec	Off	No valid AoIP connection on the Dante secondary interface
	Green	Valid AoIP connection on the Dante secondary interface
Clock	Red	PTP Synchronisation lost or not available
	Green	Device is a PTP Leader or Follower
AC PSU	Off	AC PSU LED is disabled – configure in the Front Panel web page
	Red	The supply on the AC power input is at an unsafe level or no AC power supply is connected
	Green	AC power supply is connected and at a safe level
DC PSU	Off	DC PSU LED is disabled – configure in the Front Panel web page
	Red	The supply on the DC power input is at an unsafe level or no DC power supply is connected
	Green	DC power supply is connected and at a safe level

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