# RD Dante
User Manual
V3.00

(rev a 17.01.22)

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Contents

Manufacturer's CE Declaration of Conformity

Manufacturer Identification

Legal Name: Nixer Ltd
                                  45 Evelyn Road, Dunstable
                                  Bedfordshire, LU5 4NG
                                  Tel.: +44 (0) 1582 343111

Representative: Nick Fletcher
Function: CEO/CTO

Product: RD-Dante - Audio over Ethernet Diagnostic Tool
Brand: Nixer
Model: RD-Dante (Mk 1)
CE Affixing Date: 01.02.2019

Declaration:
Provided that it is installed, maintained and used in the application for which it is made,
with respect of the professional practices, relevant installation codes and manufacturer's

> We hereby declare, under our sole responsibility, that the above referenced product complies with the
> essential requirements of Council Directives 2004/108/EC (EMC), 2006/95/EC (LVD) and 2011/65/EC
> (ROHS)

instructions:
European harmonized standards applied:

EMC	Emission	EN 61000-6-3:2007-10-01:
		EN55022:2007-06-01, Class B wireless,
		EN 550022:2007-06-01, wired
	Immunity	EN 61000-6-1:2007-12-01:
		EN 61000-4-2 + A1+A2: 2002-02-01,
		EN 61000-4-3: 2007-11-01,
		EN 61000-4-4: 2005-09-01,
		EN 61000-4-5:2007-08-01,
		EN 61000-4- 6+A1:2002-02-01,
Product safety:		2006/95/EG
ROHS:		

Signature of manufacturer's representative:

_____Nick Fletcher

Important Safety Information

CAUTION: These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the User Manual unless you are qualified to do so. Refer all servicing to qualified service personnel.

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on this apparatus.
- Clean only with a dry cloth.
- Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install or use near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
- Only use attachments/accessories specified by the manufacturer.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- To completely disconnect mains power from this apparatus, the power supply cord must be unplugged.

For US and CANADA only:
Do not defeat the safety purpose of the grounding-type plug. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of an uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

General Precautions

- Do not place heavy objects on the RD Dante, expose it to sharp objects or handle it in any way that may cause damage, e.g., rough handling and/or excessive vibration.
- Do not subject the equipment to dirt, dust, heat or vibration during operation or storage. Never expose the console to rain or moisture in any form. Should the unit become wet, turn it off and disconnect it from the power source without further delay. The equipment should be given sufficient time to dry out before recommencing operation.
- When cleaning the RD Dante, never use chemicals, abrasive substances or solvents.
- The front panel should be cleaned using a soft brush and a dry lint-free cloth. For persistent marks, use a soft cloth and isopropyl alcohol.
- Keep these instructions for future reference. Follow all warnings in this manual and those printed on the unit.
- The RD Dante must be connected following the guidance in this manual. Never connect power amplifier outputs directly to the RD Dante. Connectors and plugs must never be used for any other purpose than that for which they are intended.
- The equipment must be powered from an appropriate source which can be via either of the mains inputs. Use both inputs for redundancy purposes.
- The RD Dante must not be operated inside a case or enclosed as the housing acts as a heatsink for the components inside.
- Refer servicing to qualified technical personnel only.

Introduction

Thank you for purchasing your new Nixer RD Dante audio network confidence monitor, diagnostic and testing tool. This unit has been designed to make it convenient and easy to test, setup and monitor audio signals within Dante networks. Operation is via it's clear and simple to use touchscreen interface and it is housed in a compact and robust case.

It's a 2U 19inch rackmount Dante unit, which allows the monitoring of up to 64 Dante (or AES67) channels at 48kHz (32 channels at 96kHz). The signals are presented to the user via the inbuilt speakers or the headphone jack. The speakers are automatically muted when a headphone jack is inserted. Simultaneous outputs are also available in the form of the stereo balanced line outputs and AES output accessed via XLR connectors on the rear of the unit.

The balanced line outputs and AES output can be configured to follow the volume settings of the speakers or headphones. Alternatively, they can be set to independent levels with individual trim controls for each.
Additional inputs are available as an unbalanced stereo line input on a 3.5mm jack and AES input via the XLR connector
All of these inputs can be routed to any of the Dante output channels.

An internal oscillator with user adjustable frequency and level settings is available to send to any of the 64 Dante outputs with options for Sine Wave, Square Wave or PNG.

The device is operated and controlled via the large 5.0" diagonal (127mm) 24bit colour LCD and capacitive touch panel.
A simple and elegant menu system has been designed to be intuitive to navigate allowing the user to access all the features of the RD Dante very quickly.
The high-resolution screen is easy to read presenting comprehensive metering, routing and status information to the user.

Nixer Ltd was founded in 2000 by two professional audio design engineers who have between them over 50 years' experience of designing and manufacturing the highest quality audio products possible. Their designs have been used on many world-famous shows on Broadway, The West End and around the world.

Welcome and Unpacking

Thank you for purchasing a RD Dante
Please take care when unpacking your product
In the box, you will find
- the RD Dante
- an IEC mains input lead
- Quick Start Guide

Check that all the parts are present and in good condition

Please contact your retailer immediately should anything be incorrect

Quick Start Guide

Once you have unpacked your RD Dante you can follow this quick guide to get you started using it.
Firstly, you will need to down load and install a copy of Dante Controller onto your PC/Mac
You can download this from
https://www.audinate.com/products/software/dante-controller
Next plug your RD Dante into your network with an RJ45 patch lead
Once plugged in and power applied the splash screen on the RD Dante appear after a couple of seconds
After the RD Dante has booted you will be presented with the main screen
If you have a valid network connection the status light in the top left side of the screen next to the P (primary) will turn green
At this point start Dante Controller on your PC/Mac and you will see your RD Dante appear in the list of devices
You will then be able to select sources and destinations for your RD Dante
For more advice on using Dante Controller please visit the Audinate Website
Once you have done this you will be able to start using your RD Dante via the touch screen interface

Please take the time to register your RD Dante here
http://www.nixerproaudio.com/Registration/registration.php
Once you have registered you will be full access to download the User Manual and any software updates available for your RD Dante

You can also find online videos on how to use the PD Dante (RD Dante id functionally the same) at the following address
https://www.youtube.com/channel/UCEzE5jynjD4oAu0wxgNpo0g/videos

View of Dante Controller with RD Dante connected
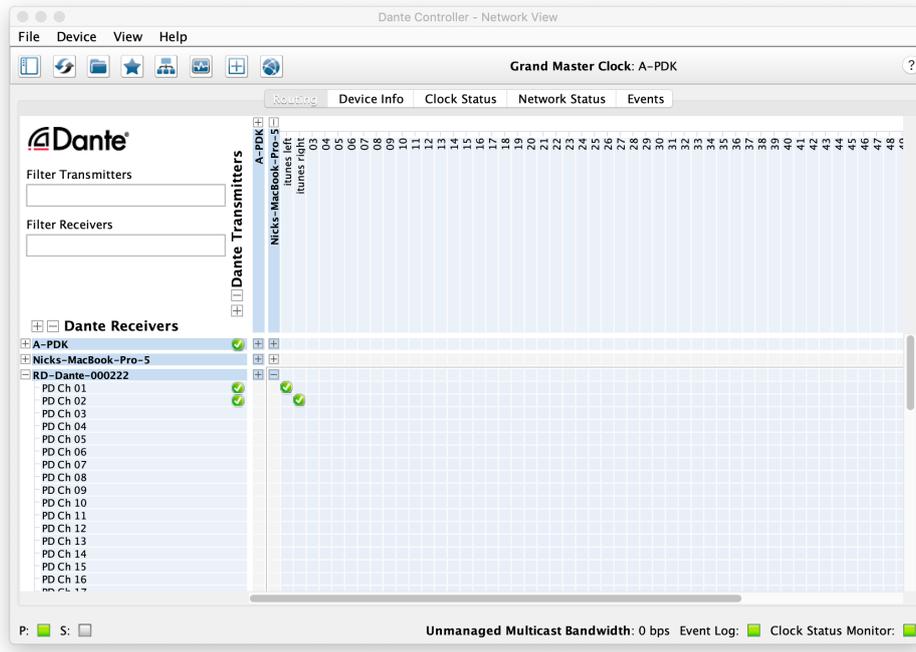
Basic RD Dante connection diagram

PoE Enable Switch

Computer running Dante Controller
for setting initial connections

Dante Network
containing other
Dante enabled
devices

Connect the RD Dante to the Dante network via a RJ45 cable and to a mains
supply via ether IEC inlet (or DC adaptor(s) if using the NIX00537DC)
Connect both supplies for redundancy
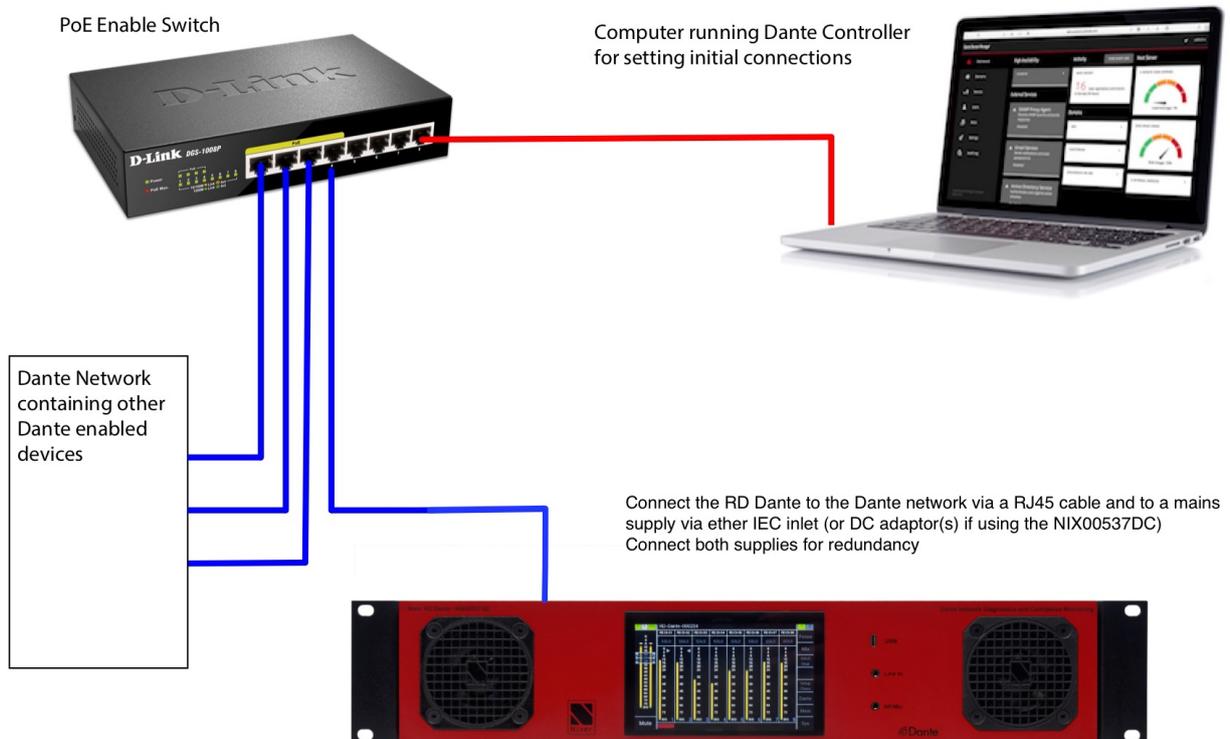
RD Dante Front View

The front of the unit has a large 5" (127mm) Capacitive touchscreen TFT display plus two full range 63.5mm diameter speakers in optimally tuned and ported enclosures for confidence monitoring. The front panel is the location for the 3.5mm jack headphone output with mic input, the 3.5mm stereo line input jack and the USB micro AB connector for installing firmware updates.

Rear View

Rear view of the RD Dante showing the two etherCON 1G RJ45 Ethernet ports, Primary and Secondary with independent LEDs for each port showing activity and speed. Next to these is situated the 3pin male XLR AES output, 3 pin female XLR AES input, Left Line and Right Line balanced outputs on 3 pin male XLRs. There are two IEC mains inputs which can be used individually or together if PSU redundancy is required. These inputs can accept any AC voltage in the range of 90 to 250volts and 50 to 60Hz and will draw under 2 amps. Also note the speaker ports which should not be blocked/covered as this will adversely affect both the speaker performance and cooling of the internal PSUs.

Note NIX00537DC has two 2.1mm DC inputs in place of the IEC inlets

Power

Firstly, connect the RD Dante Primary port to a Dante Network
Then to turn on your RD Dante just apply a power source to either of the IEC mains inputs
(or connect both for PSU redundancy)
You will see the RD Dante splash screen which will give information on the Firmware version
and FPGA version.
After a few seconds, you will see the main input screen shown on the next page

RD Dante Software
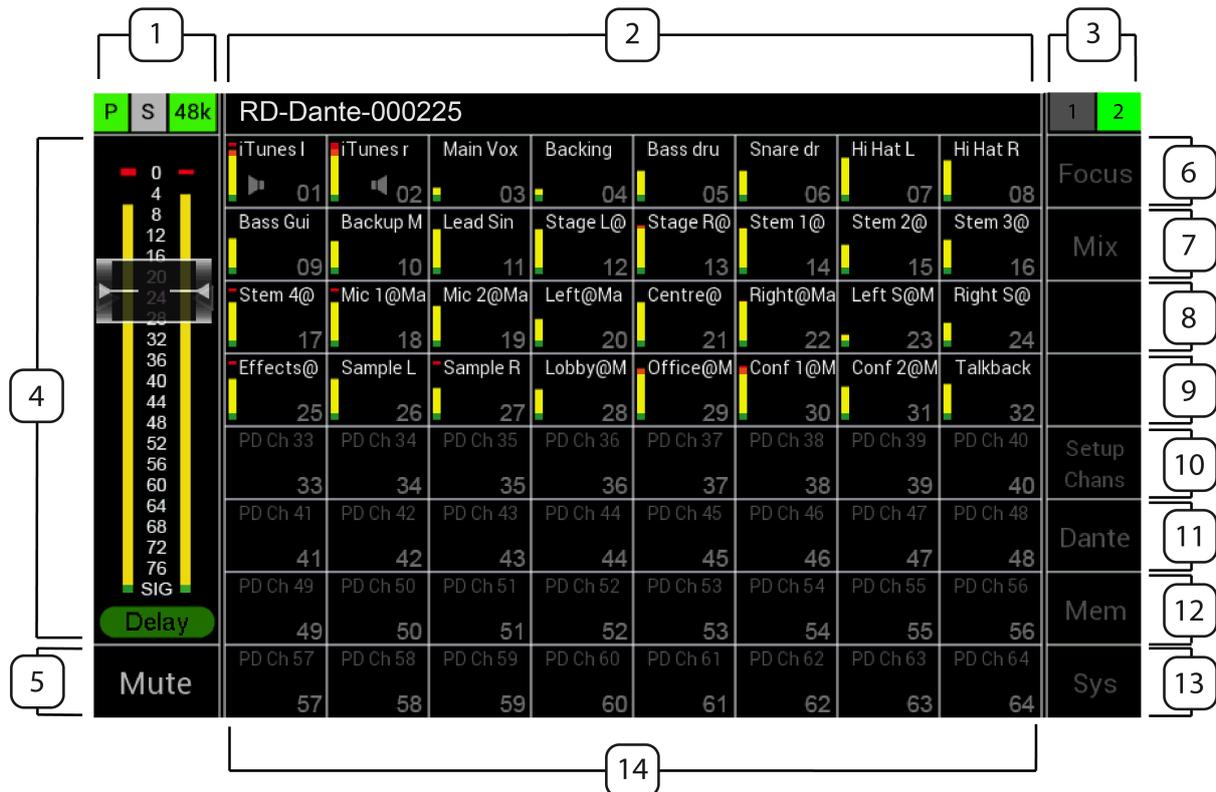
Main Input Screen

1. Dante Network Status Bar

   Primary port status is shown by a "P" on a square box. The colour of the box will change to reflect the current connection

   a. Green = 1Gbps network connection
   b. Orange = 100Mbps network connection
   c. Grey = no valid network connection

   Secondary port status is shown by a "S" on a square box. The colour of the box will change to reflect the current connection

   a. Green = 1Gbps network connection
   b. Orange = 100Mbps network connection
   c. Grey = no valid network connection

   Clock Frequency is shown on a rectangular box. The colour of this box is normally green when a valid clock is present with the clock speed overlaid on the box

   a. 44K indicates a clock of 44.1kHz
   b. 48K indicates a clock of 48Khz

     c. 96K indicates a clock of 96Khz
     d. – (displayed in grey) indicates there is no valid clock

2. Main Menu Bar

   The Main Menu Bar displays the Dante network name of the RD Dante

3. Displays PSU status

   PSUs 1 and 2 statuses are indicated here.
   Grey background indicates no power present
   Green background indicates power supply is active

4. Main Meters and Volume

     a. 2 level meters displaying signal in 1dB steps from 0dBFS down to -76dBFS
     b. 0dBFs is indicated by a red segment
        i. Optionally peak hold can be enabled in the Meter tab under the System menu. Normally the peak is displayed in white, turning red when a 0dBFS is detected
     c. Touching and dragging the volume fader knob will change the volume level. The attenuation of the fader can be read through the transparent section of the fader knob.
     d. User defined nominal signal level is shown via two grey triangles on either side of the meters. This feature can be enabled and disabled via the Meter tab under the System menu
     e. SIG present indicated by a green segment
     f. When the Delay is active a green Delay logo is displayed
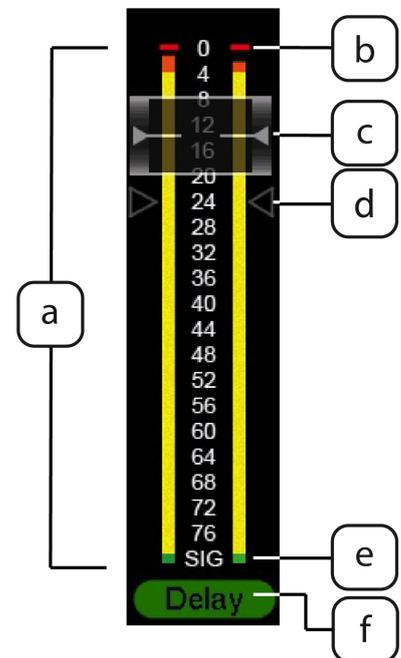
5. Mute

     a. Pressing this cell toggles the Mute function
     b. Mute active is indicated with the button background turning Red

6. Focus

     a. Pressing Focus toggles the Focus function which, is described in the Focus section

7. The Mode Indicator

The operational mode of the RD Dante is shown here and can be toggled through the following options by pressing it

- a. Mix – allows the selection of channel(s) and assignment to the Left and Right outputs
- b. Mix (Hold) – only available in 8 channel view and enables PFL hold
- c. Listen – automatically assigns the selected channel to the L and R outputs and cancels any previous selection (option to Hold which turns off the automatic cancellation of the previous selected channel)
- d. Listen (Hold) – only available in 64 channel view and enables the PFL hold function
- e. In 16 channel view only the Mix mode is available

8. PFL Hold indicator

9. Displays the Size button on the 16 channel and 32 channel screens. Pressing will change the font size in four steps from the smallest to largest

10. Setup Channels
    - a. Pressing setup Channels will open the Setup channels window descried in the Channels Setup Menu

11. Dante Button

    Pressing the Dante button will open the Dante Network menu which is described in the Dante Section

12. Memory

    Pressing the Memory area will open the Memory Settings Menu

13. System Button

    Pressing the system button will open the System Menu which is described in the System Menu section

14. Channel Grid Area

    The channel grid area can be configured to display in one of three possible modes via the Mode menu tab under the Sys menu

8 Channel Mode

a. This comprises a grid of 8 channels
b. Each individual cell displays
    i. Channel name either
        1. Routed subscription name in white or
        2. Dante RX channel name in grey
    i. Solo button
    ii. L and R routing assignment
    iii. Full size input signal meter with an optional peak indicator which will hold until reset (settings for this are under the Meter tab in the Sys menu)
    iv. Input channel number
c. Touching a channel in the meter area will open the Channel Assignment window
d. Touching Solo will enable Solo function for the selected channel
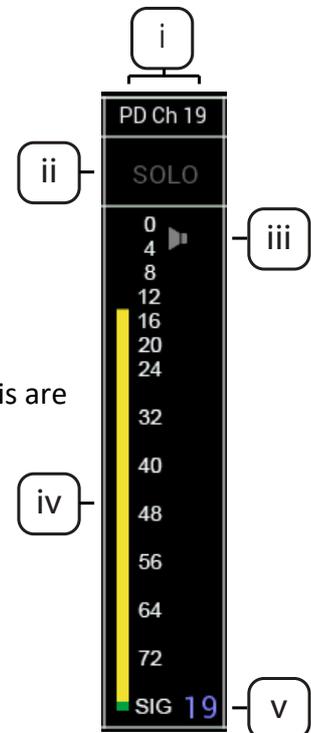
16 Channel Mode
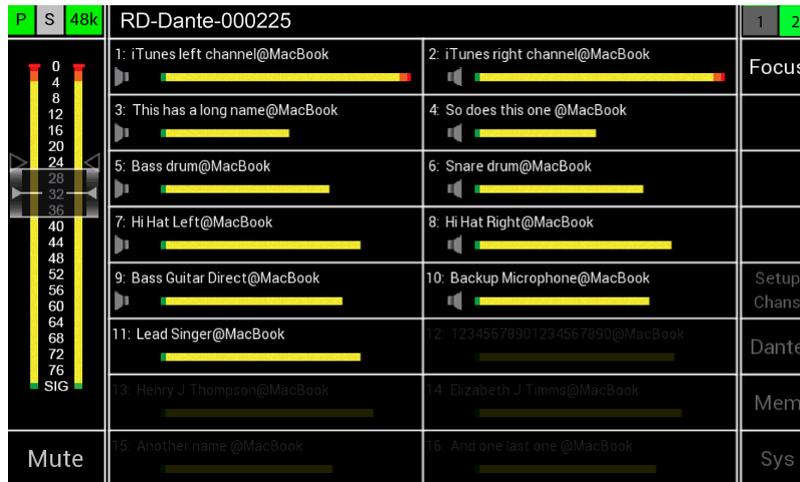
a. This comprises a 2 by 8 grid of 16 channels
b. Touching and dragging the channel area vertically up or down will scroll through all the available channels

c. Each individual cell displays
   i. Channel name either
      1. Routed subscription name in white or
      2. Dante RX channel name in grey
   ii. L and R routing assignment
   iii. Large High-resolution input signal meter with an optional peak indicator which will hold until reset (settings for this are under the Meter tab in the Sys menu)
   iv. Input channel number

d. Touching a channel will open the Channel Assignment window
e. Touching Size will increase the font size of the text in the cells in four steps. Once the largest size font is reached pressing the button again will reset the font to its smallest size.

32 Channel mode

a. This comprises a 4 by 8 grid of 32 channels
b. Touching and dragging the channel area vertically up or down will scroll through all the available channels
c. Each individual cell displays
    i. Channel name either
        1. Routed subscription name in white or
        2. Dante RX channel name in grey
    ii. High resolution input signal meter with an optional peak indicator which will hold until reset (settings for this are under the Meter tab in the Sys menu)
    iii. L and R routing assignment
    iv. Input channel number

d. Touching a channel will open the Channel Assignment window Touching Size will increase the font size of the text in the cells in four steps. Once the largest size font is reached pressing the button again will reset the font to its smallest size.

64 Channel mode

a. This comprises an 8 by 8 grid of 64 channels
b. Each individual cell displays
    i. Channel name either
        1. Routed subscription name in white or
        2. Dante RX channel name in grey
    i. High resolution input signal meter with an optional peak indicator which will hold until reset (settings for this are under the Meter tab in the Sys menu)
    ii. L and R routing assignment
    iii. Input channel number
c. Touching a channel will open the Channel Assignment window

Channel Assignment Window
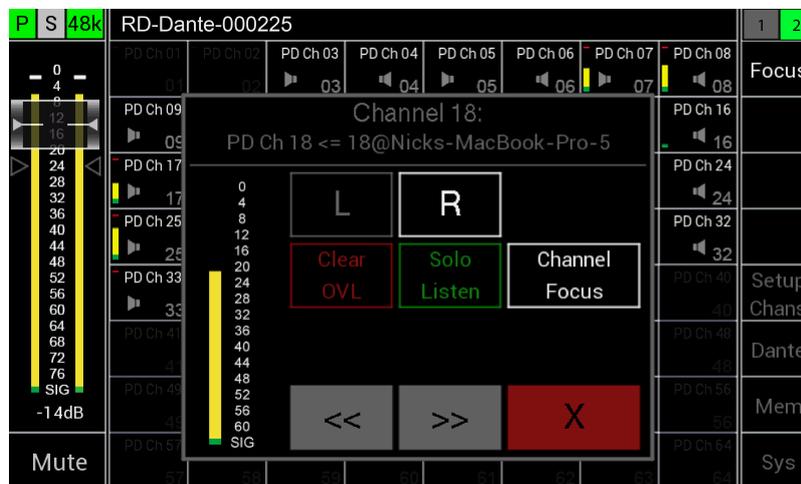
On pressing a Channel Cell the Channel Assignment window will open overlaying the Main Input Screen

This window displays the following:

- Channel Number
- Dante RX Channel name and if there is a valid Dante connection the name and path of that connection
- A high-resolution meter showing the level of the currently selected channel
- Left and Right assignment
  - o Dark Grey indicates that the channel is unassigned
  - o White indicates channels is assigned
  - o Pressing a button toggles the function
- Clear OVL – pressing this button clears the meter overload if it has set
  - o Orange indicates that a peak signal has been detected on the selected channel

- o Peak signal level to be detected is set up via the Sys Menu under the Meters tab
  - o Dark grey indicates no peak signal has been detected (default state)
- Solo Listen – pressing this button will activate the Solo Listen function
  - o On selection, this button will turn from dark grey to green
  - o Main LR audio will be Muted
  - o Selected channel audio will be routed to the LR output
  - o Pressing the button, a second time or moving to another channel deactivates this function and the main LR audio mix will be unmuted
- Channel Focus – toggles channel focus for the currently selected channel
- << - pressing this button decrements one channel
- >> - pressing this button increments one channel
- X – pressing this button closes this window

Channel Setup Menu

On pressing a Setup Chans Button the Setup Channels Menu window will open overlaying the Main Input Screen

This window displays the following:

- Route all Odd to L – pressing this button routes all Odd channels to the Left Output
- Route all Even to R – pressing this button routes all Even channels to the Right Output
- Clear All OVLs – Clears all Channel OVL indicators that have been set
- Route all to L – pressing this button routes all channels to the Left Output
- Route all to R – pressing this button routes all channels to the Right Output
- Clear All Routing – pressing this button will clear all channel routing
- Focus All Off – Turns off Focus on all channels
- Focus All On – Turns on Focus on all channels
- Focus All Active – enables focus on all routed channels

- X – pressing this button closes this window

Focus

The Focus function on the RD Dante allows the user to highlight particular channels that are of more interest/importance
Pressing the Focus button on the main screen toggles the Focus function
Any channels which have had their Focus set to off in the Channel Assignment window will be dimmed relatively to channels which have their Focus set to on.
The effect can be seen in the above example screen where the selected channels are now more prominent than the unselected channels
Focus is saved with routing information in the memories.
This makes it very easy for the user to create different Focus groups which change with a recalled memory

Dante Menu

On pressing the Dante Button, the Dante Menu window will open

This window displays the following

- A list of all the Dante devices on the network showing the following
  - Device name
  - Sample rate
  - Source (Src) select button
  - Destination (Dst) select button
  - This unit shown in blue
- Select Device – allows a device to be selected for the list
- View RX Channels – will show the RX channels for the currently selected device and will be greyed out when no Dst (destination) is selected
- View TX Channels – will show the TX channels for the currently selected device and will be greyed out when no Src (source) is selected
- Set Routing – allows routing between any Dante devices on the network and will be greyed out when no Src (source) and Dst (destination) are selected
- Clear Local Routing – will clear all the subscribed channels on the RD Dante. It is followed by a confirmation window
- Network Config – allows the configuration of the network port of any connected Dante device and will be greyed out when no device is selected
- Identify(Src.) – will cause the selected device to identify itself via flashing its screen and/or flashing its network port LEDs (not all third party devices support this function please refer to their respective manuals)
- If the list of devices is longer than 8 units, the arrow keys will turn white on the left side of the screen
  - Single up arrow with a bar at the top will scroll to the top of the list
  - Double up arrow will scroll eight devices up the list
  - Single up arrow will scroll one device up the list
  - Single down arrow will scroll one device down the list
  - Double down arrow will scroll eight devices down the list

- o Single down arrow with a bar at the bottom will scroll to the bottom of the device list
- Tapping the name of a unit will bring up the device rename window
- `tapping the sample rate of a unit brings up the sample rate settings for that unit
- X – escapes back to the main screen

Device Rename
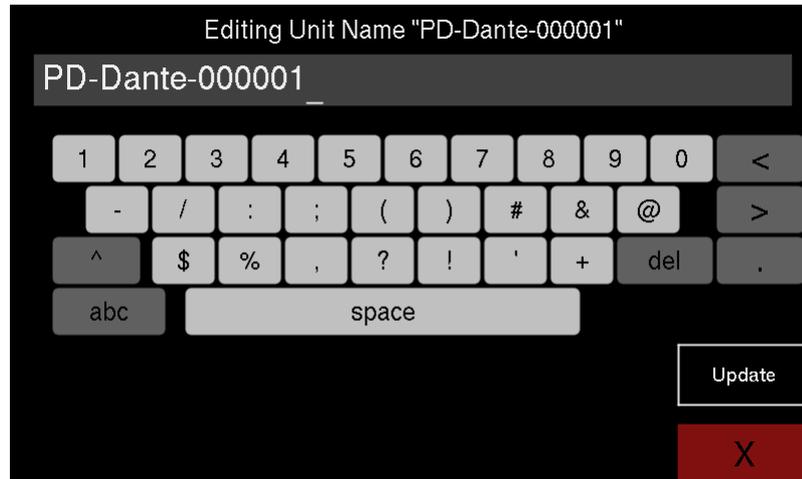
On pressing any device name in the device list the screen above will be displayed

This window displays the following

- Current device name
- Box with the name being edited highlighted and a flashing cursor
- Keyboard
    - o <> – Use the two arrow keys to move the cursor left and right along the name
    - o del – deletes the character above the cursor
    - o ^ – change to upper case
    - o abc – changes keyboard to letters
    - o 123 – changes keyboard to special characters
- Update – press this to update the name once editing is complete
- X – escapes back to the main screen

Change Sample Rate
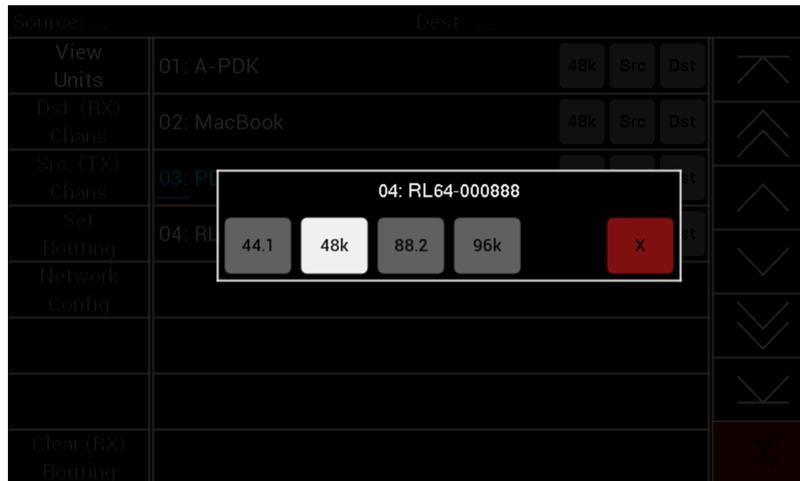
On pressing the sample rate of a device in the device list the screen above will be displayed

This window displays the following

- Current device name
- Box with allowed Sample Rates for the device
- Current Sample rate shown in white
- Press the desired sample rate to change the device to this sample rate
- X – escapes back to the main screen

Note if AES67 mode has been enabled then the sample rate will not change and is fixed at 48kHz

View RX Channels

Example of viewing the RX channels of the selected device

Please note that to obtain the channel names the RD Dante will communicate via the network with the selected device which means there will be a short delay before the list is populated.

A red "Spinner" will appear while this occurs

Example of the "Spinner" running while RD Dante is fetching name

On some occasions the list will remain grey which indicates that the names have not been retrieved. Simply press the Dst. (RX) Chans button to perform a refresh

The list will appear in white once correctly retrieved

Unrouting RX Channels

It is also possible to remove individual and multiple routes in the RX channels screen. Simply select the channel(s) that need to be unrouted. The background of selected channel(s) will turn white

The Clear (RX) Routing button will also change to white

Press this button to unrouted selected channels – please note there is no confirmation message the route(s) will simply be unrouted

View TX channels

View Units	01: 01	⟰
Dst. (RX) Chans	02: 02	⟰
Src. (TX) Chans	03: 03	⌃
Set Routing	04: 04	⌄
Network Config	05: 05	⟱
	06: 06	⟱
	07: 07	⌄
Clear (RX) Routing	08: 08	X

Source: MBP->...   Dest: ...

Example of viewing TX channels Example of viewing TX channels
Touching a TX name in

"PD-Dante-000120" TX-Name[01]

PD Ch 01_

```
Q  W  E  R  T  Y  U  I  O  P   <
 A  S  D  F  G  H  J  K  L    >
 ^  Z  X  C  V  B  N  M  del  .
123        space
```

Update

X

Set Routing

Source: MacBook->...   Dest: PD-Dante-test08->...

View Units	01: A-PDK	48k	Src	Dst	⟰
Dst. (RX) Chans	02: MacBook	48k	Src	Dst	⟰
Src. (TX) Chans	03: NICKFLETCHE71B6	48k	Src	Dst	⌃
Set Routing	04: PD-Dante-000001	48k	Src	Dst	⌄
Network Config	05: PD-Dante-test08	48k	Src	Dst	⟱
	06: RL64-000888	96k	Src	Dst	⟱
					⌄
Clear (RX) Routing					X

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Source: MBP->01(+3)	**Dest: RD-Dante-000234->...**	
Source Channel(s)	01: 01	⟰
Prev	02: 02	⟰
Next	03: 03	⋀
	04: 04	⋁
	05: 05	⟱
	06: 06	⋁
	07: 07	⋁
Home	08: 08	X

To set the routing between any pair of Dante devices attached on the same network.
Press the Src (source) button for the device that audio is going to be listened too and it will turn green.
Next press the Dst (destination) button for the device that will be connected to the source signal

After this press the Set Routing button

Source: MBP->01(+3)	**Dest: RD-Dante-000234->RD Ch 57(+3)**	
Dest. Channel(s)	57: RD Ch 57	⟰
Prev	58: RD Ch 58	⟰
	59: RD Ch 59	⋀
Route	60: RD Ch 60	⋁
	61: RD Ch 61	⟱
	62: RD Ch 62	⋁
	63: RD Ch 63	⋁
Home	64: RD Ch 64	X

The screen will then change to the Source Channel(s) screen
Select the channel(s) that need to be routed and then press Next to go to the Destination Channel(s) screen

The selection process always works from the lowest number to the highest number so for example to select all 64 channels of another device
Select Channel 1 then go to the end of the list and select channel 64 and all the channels in between will also be selected

Press Prev to go back to the previous screen or Home to return to the main Dante menu

Select a channel to route to and the list will automatically fill in with the number of channels that were selected in the Source Channel(s) page

Press Route to subscribe the selected routing and the following display will appear
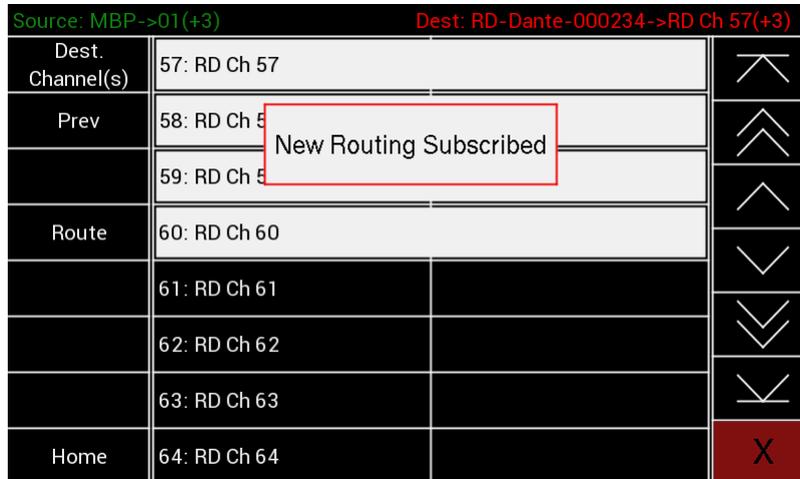
The Selection has now been subscribed

Press Prev to go back to the previous screen or Home to return to the main Dante menu

Network Config

Pressing Network Config will bring up the screen below
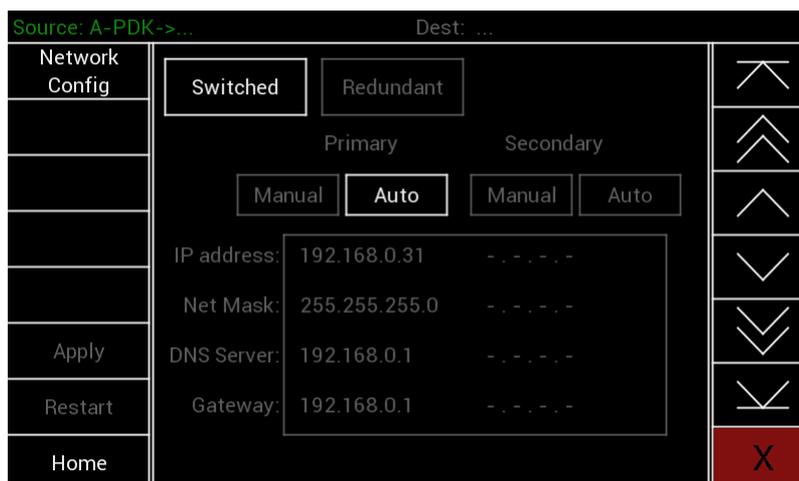
From the Network Config menu the following can be changed

- Change between Switched and Redundant modes
  - Current status is displayed in white

- Primary and Redundant can be changed independently to be
    - Manual – IP address, Net Mask etc can be set manually
    - Auto – IP address etc set by DCHP server
    - Current status displayed in white

To make a change to the settings touch the box of the item to be altered and it will turn red, indicating a change of state.

To alter the IP address, Net Mask, DNS Server or Gateway touch the item to be changed and
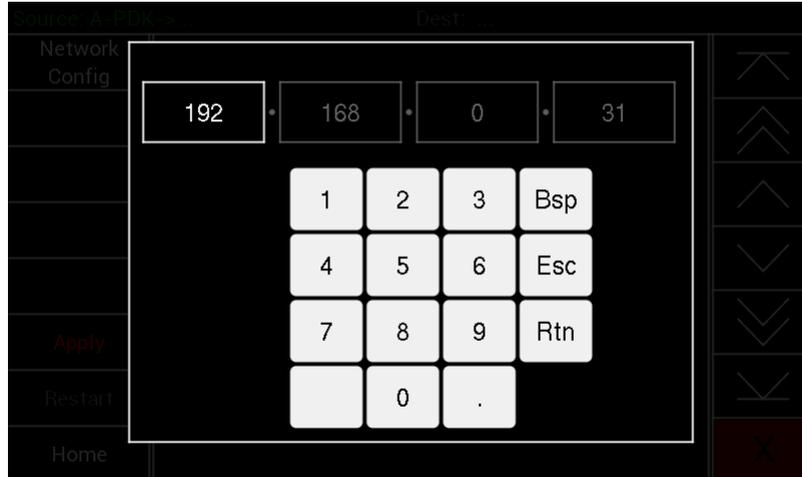
the following popup will appear

The cell highlighted in white will be edited by typing with the number keys

- Pressing the "." key will step onto the next box or touching the desired box will also highlight it
- Press "Bsp" to delete one character at a time in the selected box
- Press "Esc" to abandon the edits
- Press "Rtn" when finished editing to shut the pop up window

All pending changes will be highlighted in red

The Apply button will also turn red at this point to indicate changes have been made

Changes will not be applied until the Apply button is pressed

Once pressed the screen will display a confirmation screen

- Press Yes to confirm changes
- Press No to abandon the changes
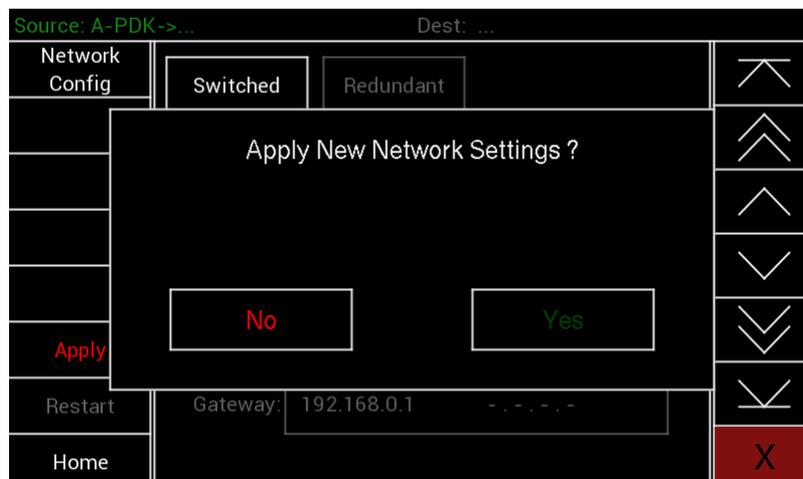
Restart will change to red and changes will not be applied to the edited unit until it has been rebooted by pressing Restart
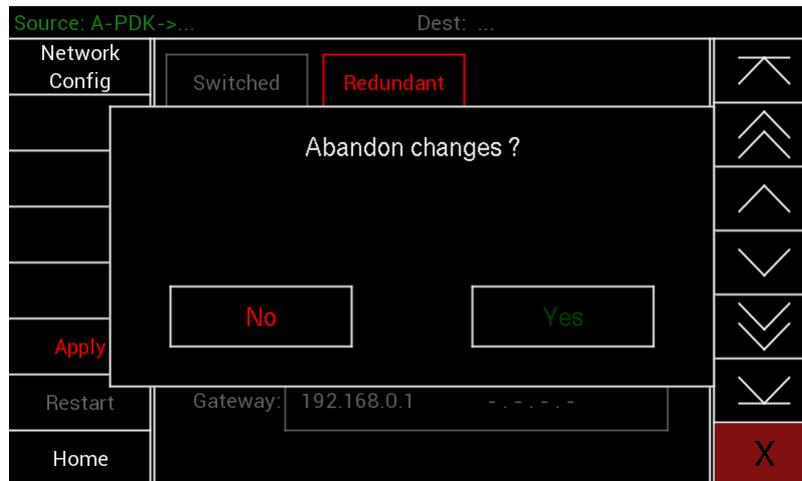
Anytime during the procedure pressing Home will return the user to the main Dante screen, if any changes are imminent and the Home button is pressed a pop up will appear

Memory Menu

On pressing the Memory Button the Memory Menu window will open
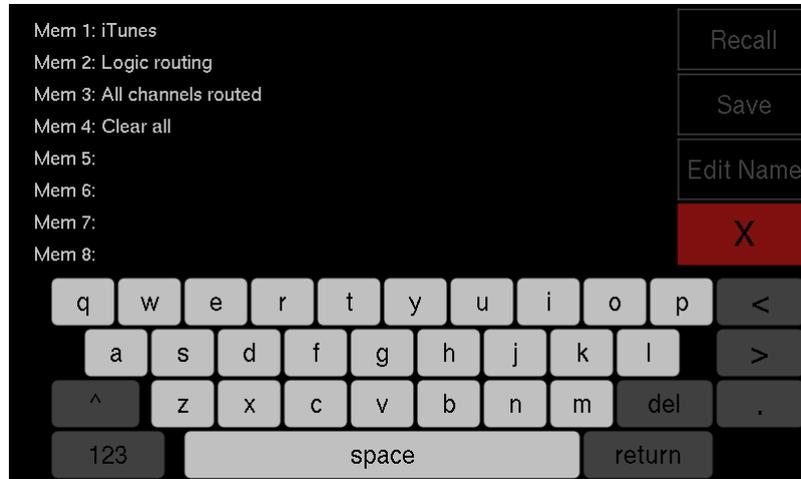

This window displays the following:

- Memory number and name (1 to 8)
- An on screen QWERTY keyboard
- Recall – pressing recall after selecting a memory will recall the memory
- Save – pressing this button saves the units current routing and focus settings to the selected memory
- Edit Name – pressing this button will allow the selected memory's name to be edited
- X – pressing this button closes this window
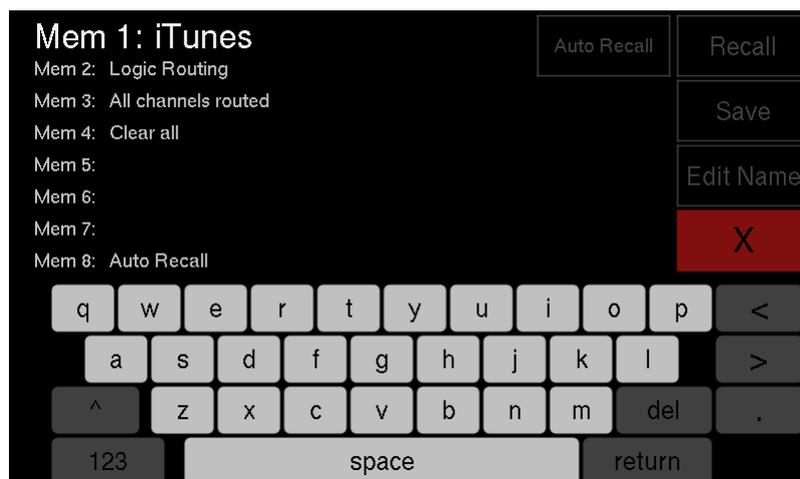
Selecting a memory

Pressing the name of a memory will highlight that memory which will then be displayed in a larger font. This indicates which memory will be recalled, saved or have its name edited.

## Editing the name of a memory
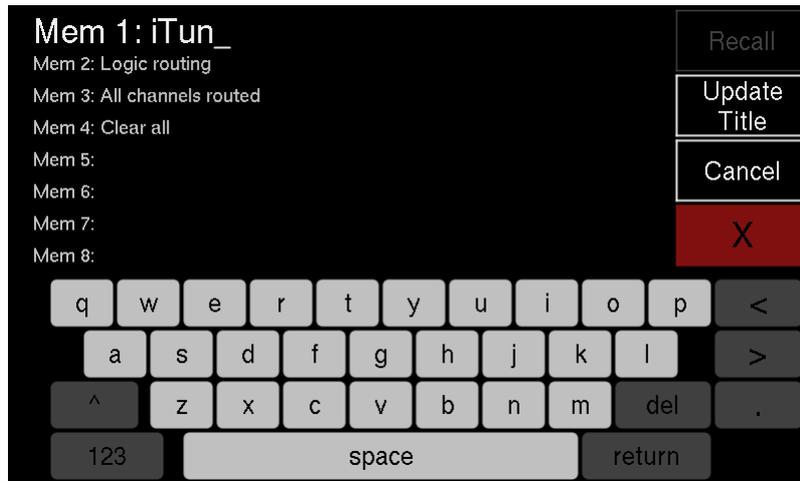
With a memory highlighted pressing the Edit Name button will enable the name to be edited with the on screen qwerty keyboard. The menu buttons change to Update Title and Cancel

- Once you have finished editing the name press the Update Title button to complete the process
- Or press Cancel to escape without saving any of the changes

Selecting auto recall of a memory
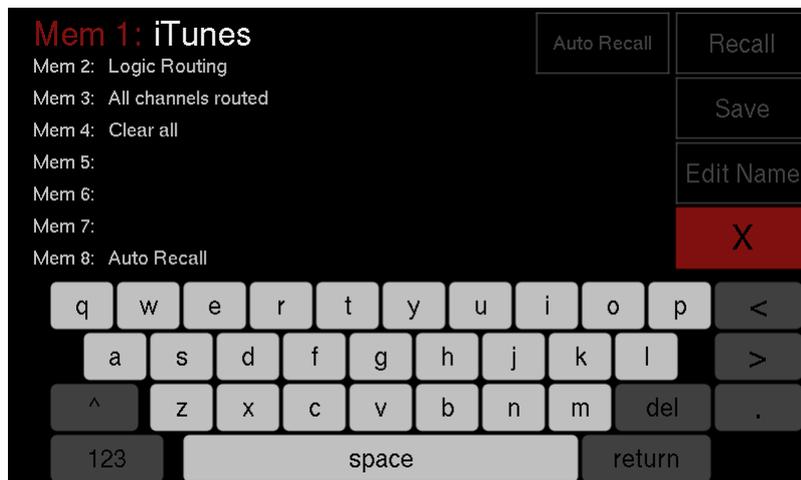
A memory can be selected to Auto Recall when the RD Dante is turned on

- Select the memory you would like to Auto Recall
- Press the Auto Recall button which will change the Memory number to red indicating that this memory will be recalled on power on
- Auto Recall will be indicated when no memory is selected by the memory number in red

The System Menu
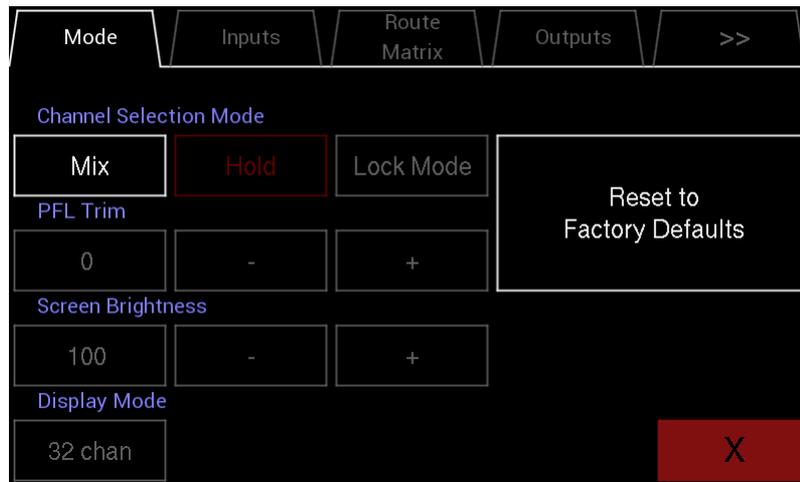
Pressing the System button opens the System Menu

The System Menu consists of several tabs

- Mode
- Inputs
- Route Matrix
- Outputs
- >>

Mode

- Mix – Selects the RD Dante to Mix mode where it allows the selection of channel(s) and assignment to the Left and Right outputs. Mixes can then be saved and recalled to the Memories
- Listen – Selects the RD Dante to Listen mode where any selected channel is immediately routed to the L R outputs and any previously selected channel is cleared.
    - o Hold – Works in conjunction with Listen changing the Listen mode to additive where each additional channel is routed directly to the LR outputs without clearing the previous selection(s)
- PFL Trim (SOLO)
    - o Shows the current PFL trim gain which can be adjusted from 0dB to 30dB in 1dB steps
    - o – decreases the gain by 1dB
    - o + increases the gain by 1dB
- Lock Mode – prevents the mode from being changed from the Main Screen but it can still be changed from the System Menu
- Screen Brightness

- o Displays the screen brightness as a percentage and is adjustable from 100% down to 20%
- o – decreases the brightness by 5%
- o + increases the brightness by 5%
- Display Mode
  - o This button rotates through 4 options
  - o 64 channel mode
  - o 32 channel mode
  - o 16 channel mode
 - o 8 channel mode

Inputs
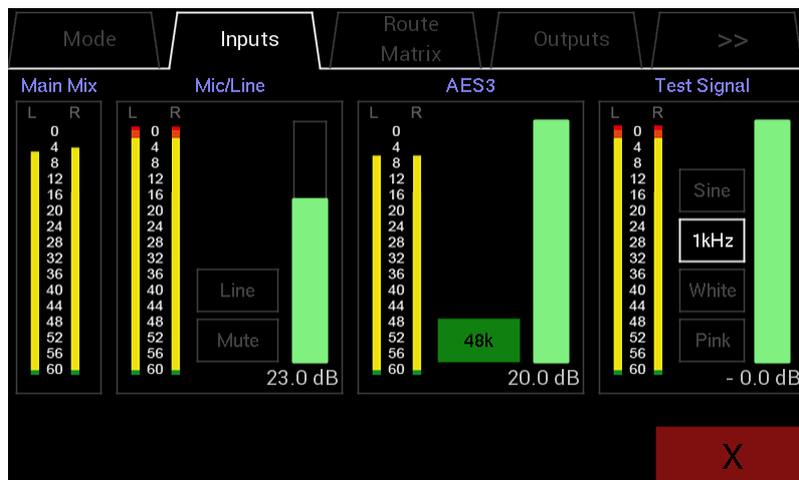
- The Input page is split into four areas
  - o Main Mix
  - o Mic/Line
  - o AES3
  - o Test Signal
- Main Mix
  - o A stereo meter displaying the main mix level
- Mic/Line
  - o A stereo meter displaying the selected inputs level (post the trim)
  - o A button that toggles between Mic and Line Inputs. The name of the currently selected input will be displayed in the button
  - o The Line Input and Mic Inputs can be adjusted between +40dB and -12dB in 1dB steps via the volume bar
  - o A Mic bias of 2.6V is available at the microphone input
- AES3
  - o A stereo meter displaying the AES3 level (post the trim)
  - o The AES input can be adjusted from +20dB to -20dB in 1dB steps via the volume bar
  - o There is also an indicator that will turn green when the input locks and the sample frequency will also be displayed

- o   A red indicator means that there is no lock to the incoming signal
- o   The AES input features a sample rate convertor adjusting the sample rate to the currently selected Dante rate internally
- o   The AES Input is accessed via the 3 pin female XLR on the rear panel
- Test Signal
  - o   A stereo meter displaying the test signal level (post trim)
  - o   The RD Dante also features an internal signal generator
  - o   There is a choice of the following signal generators
    - ▪ Sine wave
    - ▪ Square wave
    - ▪ Triangle wave
    - ▪ Burst Tone
    - ▪ White Noise
    - ▪ Pink Noise
  - o   The currently selected generator is indicated by the button in white
  - o   Press one of the three buttons to select it
  - o   The wave type button selects the wave type rotating through the options
    - ▪ Sine
    - ▪ Square
    - ▪ Triangle
  - o   The frequency can be selected to be one of the following 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 2kHz, 5kHz or 10kHz please note at higher frequencies the square and triangle waves will appear more and more like a sinewave
  - o   Also note that the built-in speakers have a limited low frequency response and frequencies below 200Hz will not be audible from them
  - o   The signal level of the generator can be varied from 0dBFs down to -60dBFs in 0.5dB steps via the volume bar
  - o   When set to Burst Tone the frequency can be set and by pressing the Rate button a new pop up will appear allowing the number of On Cycles (max 24) and the Total Cycles (max 1000) to be adjusted
 - o   Adjust the value with the + and – buttons or tap the value to use the keypad to enter a value
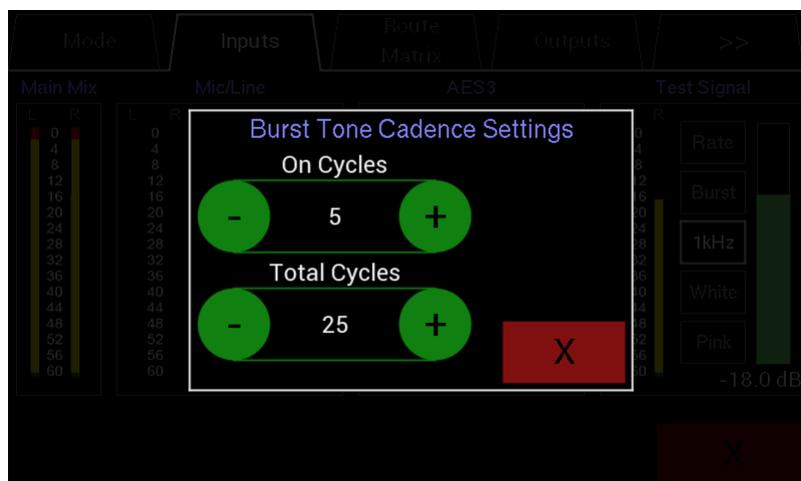
Route Matrix
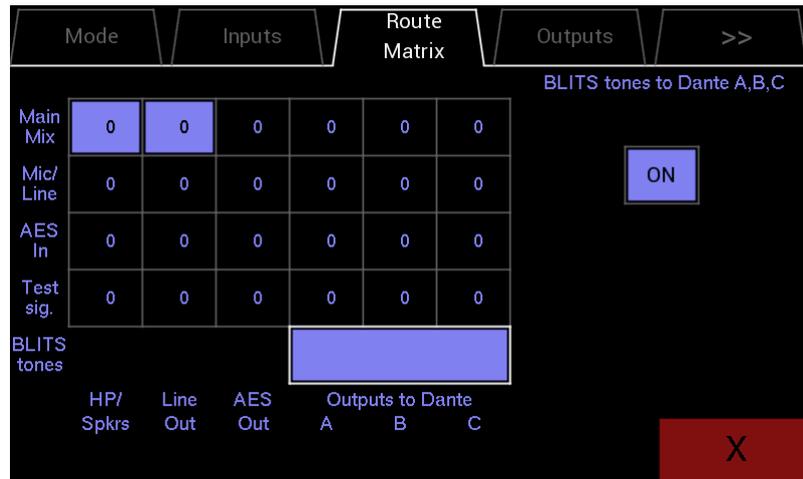
This page is split into two areas

- The five by six Output Routing Matrix
  - Five rows displaying where the signal will be derived from
  - Six columns displaying where the signal will be sent too
  - Signals can be sent to all six destinations but can only come from one source indicated by a level shown in white. All other possible sends will show their pre-set level in grey
  - Pressing one of the areas in this grid will select that send to the Output Control area
- The selected Output Control area
  - Displays the level of the currently selected matrix send on two high definition meters
  - Shows the name of the selected send and routing destination
  - On Button – toggles the send between On and Off. Selecting a send to On will deselect any previously routed send
  - Output Level indicator
  - Output Level trim controls which allow the output to be attenuated in 1dB steps from 0db to -60dB
  - Output Level can also be trimmed via the volume control
  - For the BLITS tones this can only be set to be On or Off and has fixed routing to the 3 stereo Dante outputs A,B and C

Outputs
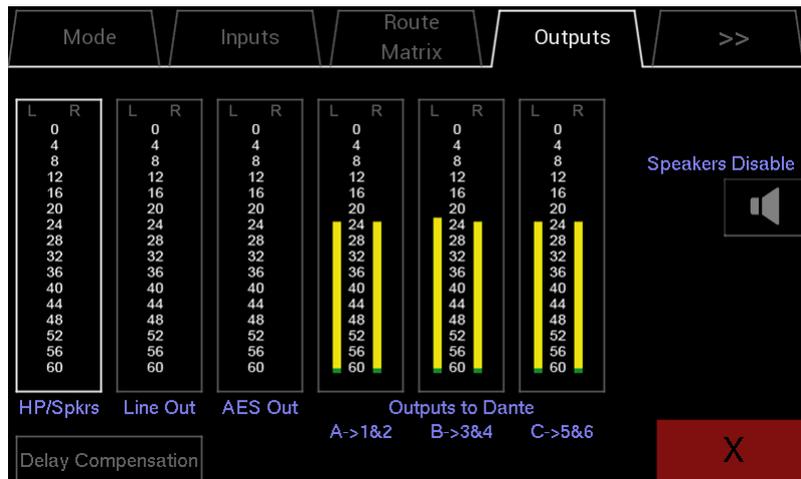
This page is split into seven areas, 6 stereo meters and a control area. Select an output by touching its meter. Controls for that output will then be displayed in the control area

- HP/Spkrs
    - A stereo meter displaying the current output level
    - Speakers Disable – This button toggles between disabling the speakers but leave the headphones functioning as normal
- Line Out
    - A stereo meter displaying the current output level
    - Line out follow:
        - Vol – when selected output will follow main mix Volume control
        - Mute – when selected output will follow main mix Mute
- AES Out
    - A stereo meter displaying the current output level
    - AES out follow:
        - Vol – when selected output will follow main mix Volume control
        - Mute – when selected output will follow main mix Mute

- Outputs to Dante A, B and C

    - Three stereo meters indicating the output level of Dante outputs A, B and C
    - Pressing one of the three Dante outputs will select it to the output channel selection area
    - Displays the currently selected Dante output and which pair of Dante channels it is routed to
    - Pressing the single arrow buttons will increment or decrement the selected Dante output by one pair i.e. increment 1&2 to 3&4, decrement 9&10 to 7&8 etc.
    - Pressing the double arrow buttons will increment or decrement the selected Dante output by five pairs i.e. increment 1&2 to 11&12, decrement 19&20 to 9&10 etc.

- o Dante channels already assigned to an output will be skipped as Dante outputs cannot be assigned to the same Dante channels

- Delay Compensation
    - o Adds a user settable delay to the output of the unit
    - o This can be set in
        - Metres   (max 137.2)
        - Feet   (max 450.1)
        - mS   (max 400.0)
    - o Adjust the value with the + and – buttons or tap the value to use the keypad to enter a value
    - o When it is active a small Delay symbol can be seen below the fader on the Main Screen

>>
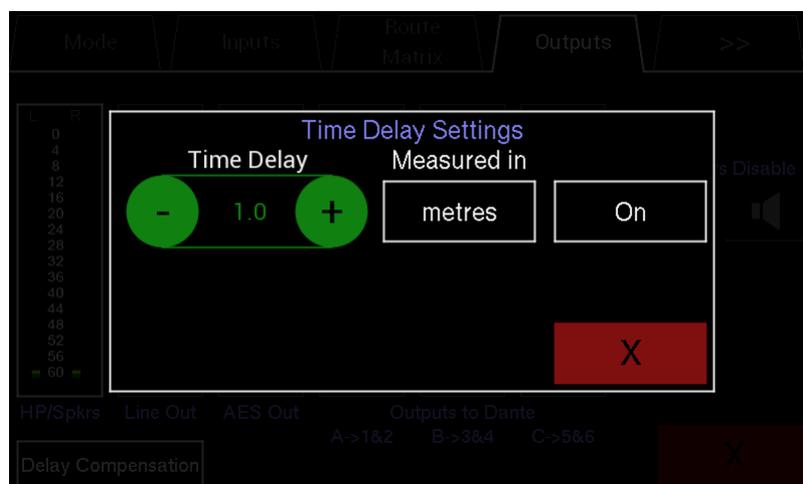
Press this Tab to see additional Setup pages

<<

Press this Tab to return to the previous Setup Pages

Meter Control
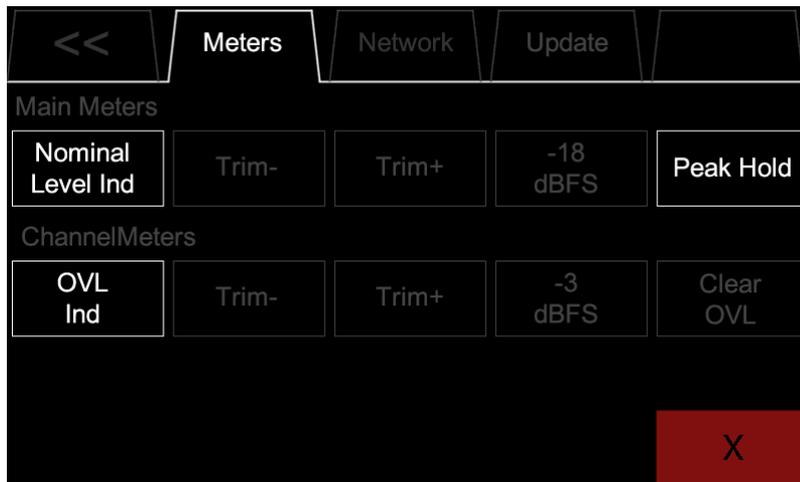
- Main Meters
    - Nominal Level Ind – Enable to display nominal level markers on main stereo meters
    - Trim- – decrements the nominal level in 1dB steps
    - Trim+ – increments the nominal level in 1dB steps
    - Nominal level can be set from -6dbFS to -24dBFS
    - Peak Hold – enables peak hold markers on the main meters
- Channel Meters
    - OVL Ind – enables OVL markers on channel meters
    - Trim- – decrements the OVL trigger level in 1dB steps
    - Trim+ – increments the OVL trigger level in 1dB steps
    - OVL trigger level can be set from 0dbFS down to -12dBFS
   - Clear OVL – clears any set OVL markers on the main channel window

System Info

Network connection parameters and firmware versions are displayed on this page

- Primary Connection
    - IP Address
    - Mask IP Address
    - Gateway IP Address
    - Network Speed
- Secondary Connection
    - IP Address
    - Mask IP Address
    - Gateway IP Address
    - Network Speed
- Brooklyn II Card firmware(s)
- RD Dante firmware and FPGA version

PIN
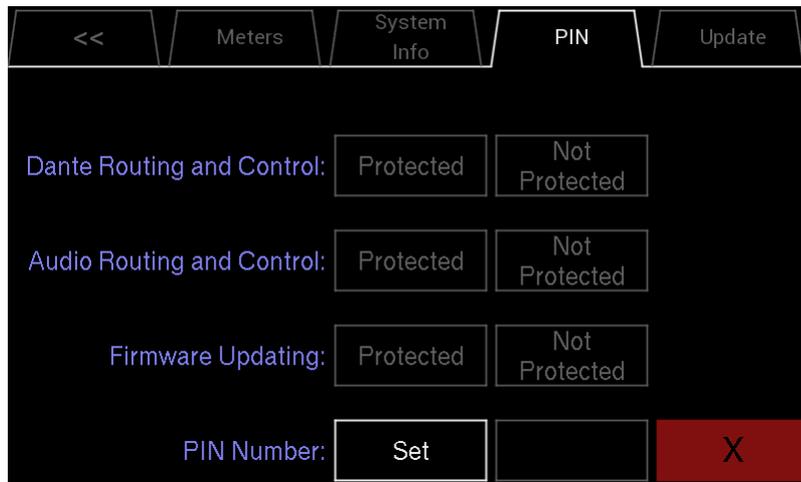
To set a PIN number on the PD Dante press SET
The following pop up will appear
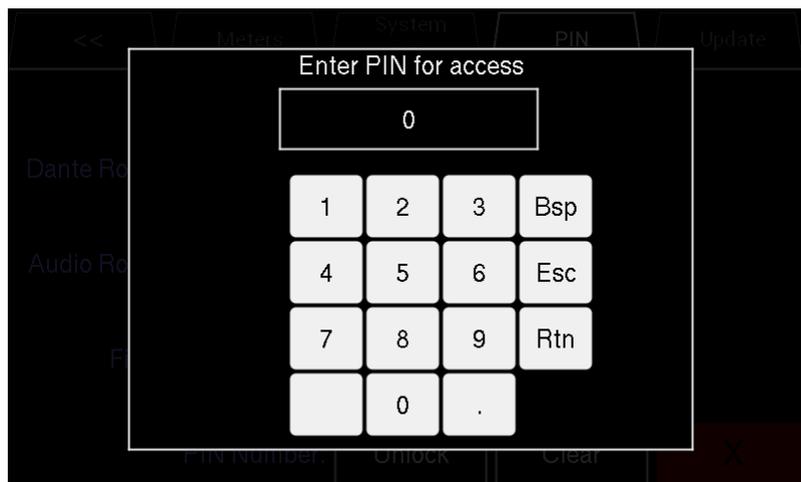
Type in the required pin number (must be four digits)

- Bsp – deletes the last character
- Esc – escapes from this pop up without changes
- Rtn – returns to the PIN menu keeping the set PIN

After setting a PIN number and returning the main PIN screen a brief pop up will be displayed saying "Setting New PIN number"

Once the PIN has been set the screen will look like the following
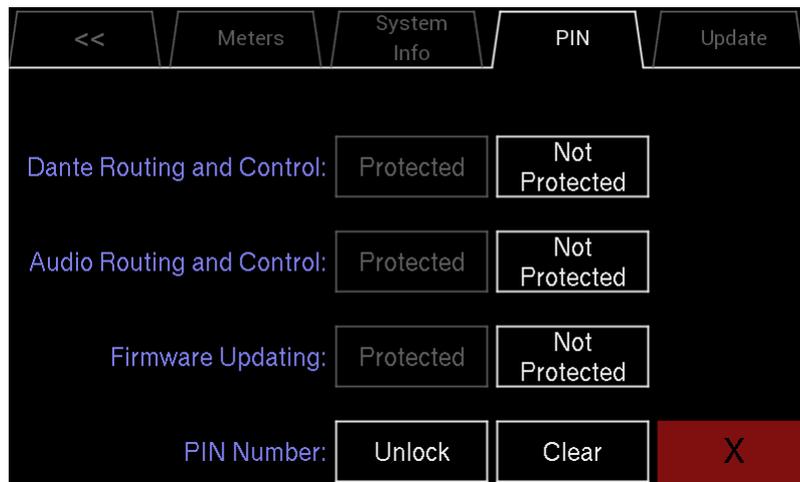
To unlock the unit, type the PIN number. The lock button will change from "Unlock" to "Lock"
At this point the unit is now locked and any settings that have been changed to "Protected" will not be accessible until the unit is unlocked with the PIN number
To "Unlock" the device simply press the "Lock" button and type the Pin code when requested
To "Clear" the PIN code press "Clear" and type in the code when requested

If the PIN code has been lost or forgotten send an email to support@nixerproaudio.com with the title "PIN Code removal" and instructions on how to reset the PIN code will be emailed back

Update

To update your RD Dante
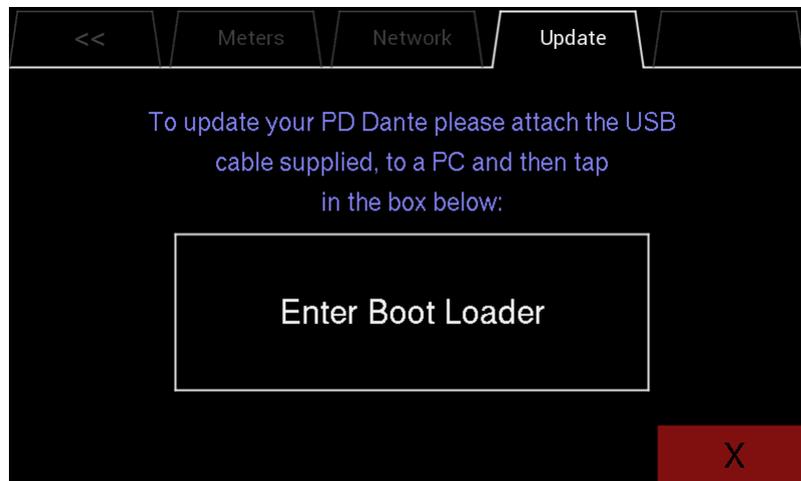
- If you do not have it download and install the Nixer BLM.exe from www.nixerproaudio.com (at time of manual release this was V1.5)
- Also download the latest firmware from ww.nixer.uk.com to your PC
- Next attach the RD Dante to the PC via the USB cable that came with your product
- Navigate to the Update Menu in the System menus and press the button to enter Boot Loader Mode. You will see a countdown of dots before the screen goes blank
- Your RD Dante is now ready to update
- Run the Nixer BLM program on your PC
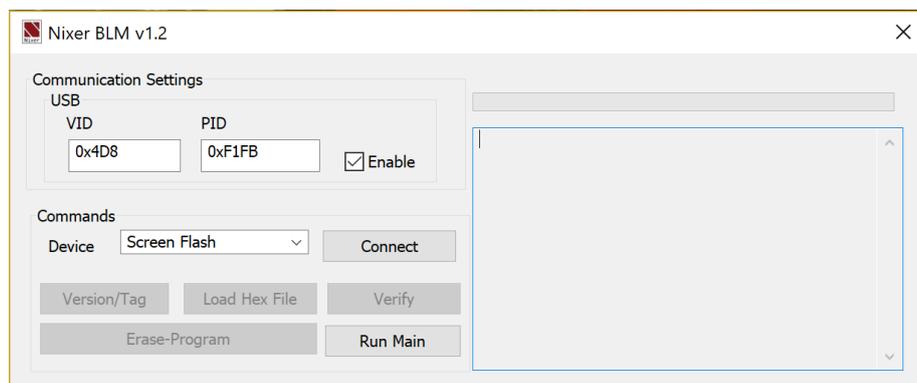
- Once the program is running change "Screen Flash" to "Main CPU" via the drop-down menu and click connect
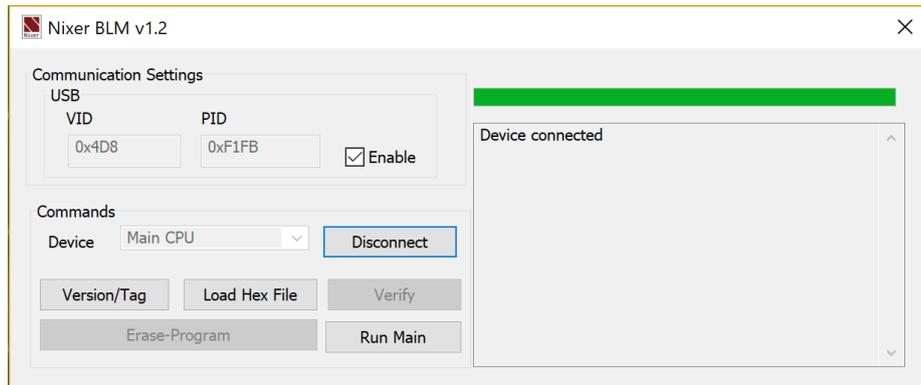
- You will now see that it says device connected in the status window
- Click on Load Hex File. Next navigate to and load in the .hex file that you downloaded from ww.nixerproaudio.com
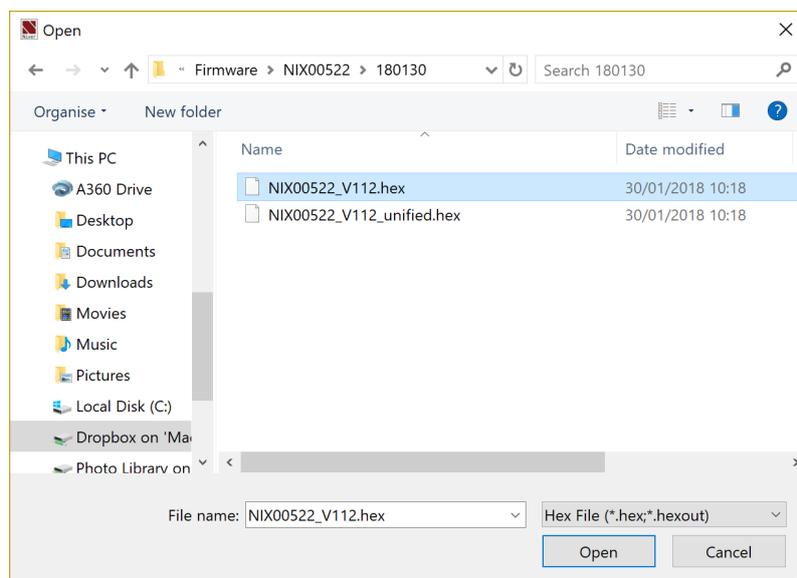
- Click the Erase-Program Button and your device will be reprogrammed. You will see the progress in the status window and by the status bar which will gradually fill as the device is programme
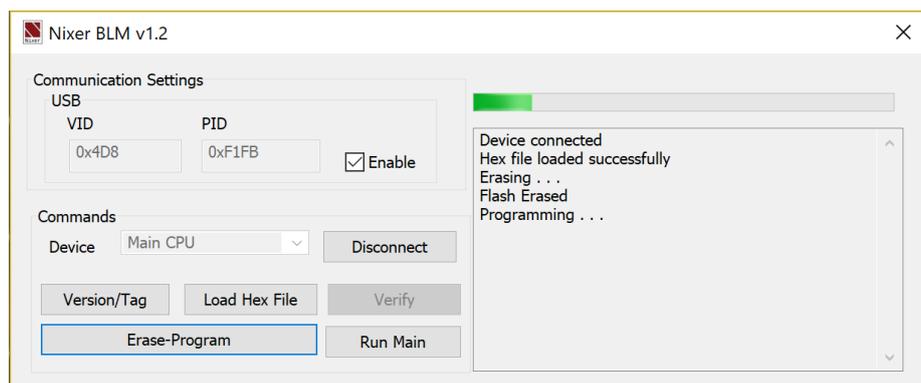
- When the device has been programmed the status window will say "Programming completed. Click Run Main and your unit will reboot with its updated software
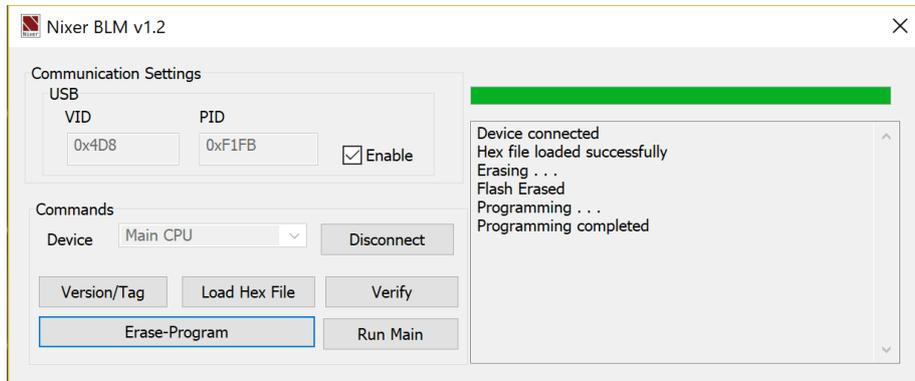
- To update the FPGA firmware, start the Nixer BLM program
- Select FPGA Flash from the pull-down menu and click connect
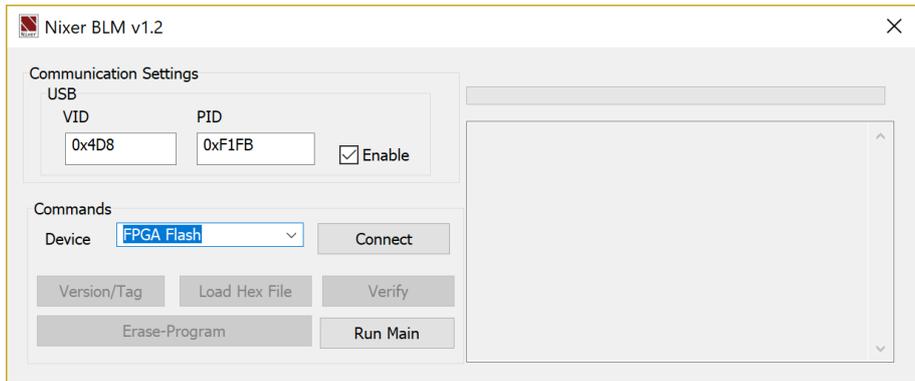
- Once connected click Load Hex File and navigate to and open the .hexout file you have downloaded
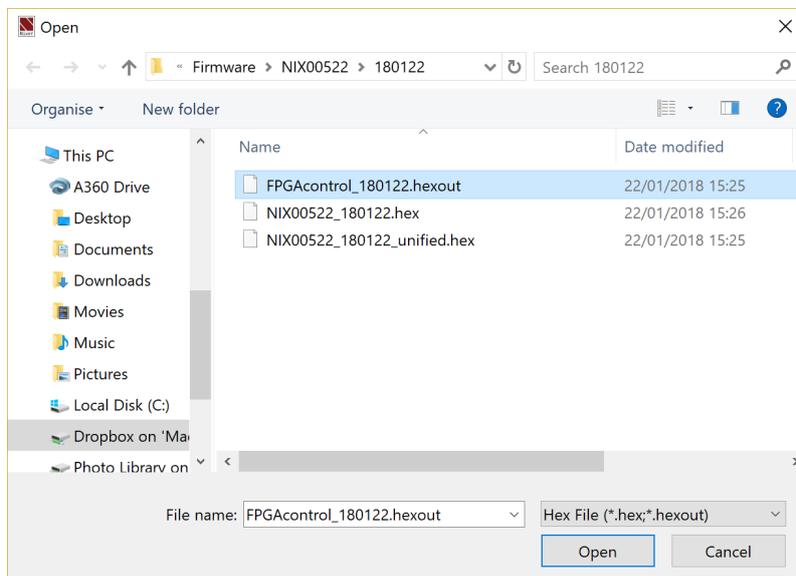
- Click Erase-Program
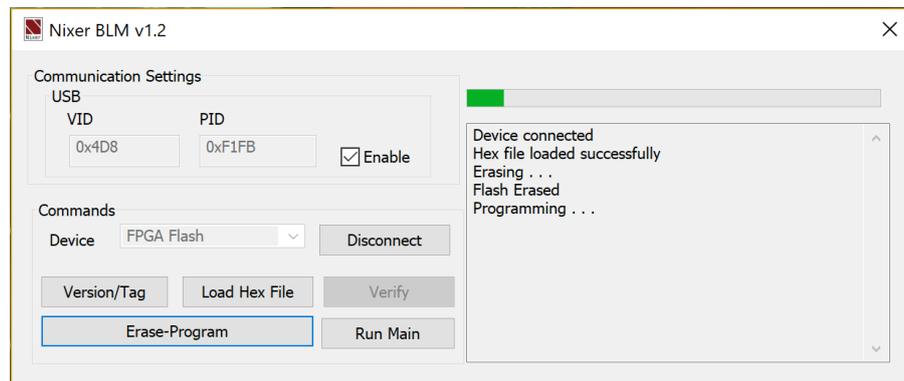
- Once the status window says Programming complete click Run Main and your RD Dante will reboot
- When the Splash Window starts you will see confirmation of the Main CPU firmware followed by the FPGA version

Configuring Dante Networks

You can configure your Dante network in one of two ways

- Switched (non-redundant) in this mode the Primary and Secondary ports are effectively two ports of a switch and it does not matter which port you connect too.
- Redundant mode where the Primary port and Secondary port must be connected to two independent networks. This then gives complete redundancy to the network

Correct IP configuration

Dante hardware devices are set to obtain their IP address automatically from the network. They will either:
- Automatically assign themselves an address in the range 169.254.*.* (172.31.*.* for the secondary network if present), or
- Obtain an IP address from a DHCP server if it is present on the network

Your PC or Mac TCP/IP network configuration set should be set to 'Obtain an IP address automatically'. This way it will automatically acquire a Link Local automatic IP address in the same network as other Dante devices. If a DHCP server is present, the computer and Dante devices will all acquire their IP addresses via DHCP.

Possible IP network configuration mistakes

Possible network configuration errors are listed below. Dante Controller will try to automatically detect these. If detected the offending device will be displayed in red.

Incorrect PC/Mac IP configuration

- Accidentally having multiple network interfaces with addresses in the same subnet
- If your secondary network is using Link Local (no DHCP server), all devices on that network will be in the 172.31.*.* range. The secondary network interface for the computer must be manually configured (using static IP addressing) to the same range.

Incorrect general IP configuration

- Accidentally having multiple DHCP servers on the same network
  Unusual – for example, someone may have a PC connected to the network with a DHCP server running that they're not aware of.
- Incorrectly configured static IP addresses

- You shouldn't typically need to configure static IP addresses at all. If for some reason you do, it must be in the same subnet as the rest of the network.

Incorrect redundant network configuration

There are a few ways to incorrectly configure a redundant network. More than one of these can be present at the same time.
- Connecting the secondary interface of a Dante device to the primary network
  - Most commonly by either misunderstanding how redundancy works, and using only one switch with all cables connected to it; or correctly using two switches or networks, but accidentally connecting one secondary cable to a primary network switch
- Joining the primary and secondary Dante networks
  - By connecting primary and secondary switches, or perhaps just using one switch.
- Multiple interfaces on the same device using the same IP address subnet
  - Possibly by having the same DHCP server on both primary and secondary networks, or both DHCP servers configured to serve the same IP addresses. Also, mixing DHCP and Link Local on the same network can cause issues. It is often necessary to have all devices and the computer on either DHCP or Link Local.

Dante Latency will depend upon the number of switches the signal is being routed through and on average a signal takes 100uS to travel through a switch (Please remember that each Dante device contains one switch)
In a simple Dante network with just one external switch latencies below 0.25mS will be easily attainable.
Note that Multicast streams will always have a latency of 1mS

For complex networks, it is recommended to set some values in DSCP part of the QoS (Quality of Service) in managed routers/switches
There are 64 parameters in DSCP set all to Low Priority except for the following:
- #8   (Control Data)   set to Medium Priority
- #46   (Audio Data)   set to High Priority
- #56   (Clock)   set to High Priority
You will need to refer to your router manual for how to adjust these settings

If using Multicast streams, Wi-Fi and/or 100Mbs it would be also advisable to use IGMP snooping if it is available on your router as this will significantly reduce the overall data rate on your network and only send data to the IP address that requests it rather than to all IP addresses.

For Dante Cable Copper:

- Use CAT5e or CAT6, solid core, shielded
- Never use a copper cable longer than 100m
- Use cable with solid copper cores whenever possible
- Stranded copper cores are more flexible, but not so good at long distance transmission
- Keep 60m maximum with stranded cable
- A lot of rugged "stage-cable" is stranded, so take care.

For Dante Optical Cable:

- Multi-Mode up to 500metres – lower cost
- Single Mode up to several kilometres – longer distances and can be used with patch panels

Recommended Switch Specifications

- 1Gbps (or more per port)
- Switching capacity 2x the total number of ports i.e. 10 ports = 20Gbps
- EEE (Energy Efficient Ethernet) must be disabled (if it can't be then avoid it)
- Fan less operation
- Fibre module options
- Easy to use web interface

Do NOT under any circumstance use switches with EEE (Energy Efficient Ethernet or 'Green Ethernet') enabled
If you are using a managed switch then please go into the system settings of the switch and disable EEE

Nixer RD Dante Specifications

1 Monitoring of 64 Dante channels at 48kHz (32 channels at 96kHz)
2 Output up to 64 Dante channels at 48kHz (32 channels at 96kHz)
3 Sample rates supported
- 44.1kHz
- 48kHz
- 88.2kHz
- 96kHz
4 Bit Depth supported
- 16bit
- 24bit
- 32bit
5 AES67 compatible
6 Fully compatible with New Dante Domain Manager
7 Two main modes of operation
- User defined mix to L and R output
  − User memories with customizable names
- PFL mode where selected channel is sent to LR with two modes
  − Auto cancel previous selection
  − Additive with Clear button
8 64 channel meters
- High resolution meters
- Optional Peak indicator with user definable trigger level
9 Main LR meters
- Large high-resolution meters displaying 0dBFS down to -60dBFS in 1dB steps
- Optional Peak hold
- Optional Working level indicator with user definable level
10 Internal 25W/channel amplifier feeding either
- 2x 63.5mm full range drivers in optimized ported cabinets
- Headphone output
11 Dual Balanced Line Outputs 0dBFS = +21dBu maximum output into 600ohms 2x 3pin male XLR connectors
- Fed from main Stereo LR bus
- Option to follow main volume control
- User adjustable trim (0dB to -60dB in 1dB steps)
- Output Mute relays
12 Stereo AES output on 3pin male XLR connector

- Fed from main Stereo LR bus
- Option to follow main volume control
- User adjustable trim (0dB to -60dB in 1dB steps)

13 Stereo AES Input on 3pin female XLR connector

- User selectable routing to Dante output(s)

14 Stereo unbalanced line input on 3.5mm stereo jack

- with input level trim control suitable for use with common music playback devices such as, iPods, iPhones, MP3 players
- max input level +8.5dBu

15 3.5mm Headphone socket and microphone input

- Headphone output for driving loads from 8ohm to 600ohm
- Microphone input with gain control (up to 40dB) and level trim
- Socket wiring is suitable for use with most common mobile phone headsets

16 Dual 1Gbps RJ45 Dante inputs

- 1Gbps or 100Mbps operation
- User configurable for Switched or Redundant operation
- Network configuration information available via menu

17 Power input

- NIX00537
  - 2x IEC mains socket
  - 90-250V 50-60Hz mains input
  - Both power inputs can be active at the same time for redundancy
- NIX00537DC
  - Alternate version NIX00537DC has 2x 2.1mm DC inputs sockets in place of the 2x IEC mains inputs and must be powered via an external 24V 2Amp DC adaptor(s)
  - Adaptors not supplied
  - Both power inputs can be active at the same time for redundancy

18 USB port is used for product firmware updates

19 Internal oscillator with selectable routing to Dante output(s) and level control

- Sine/Square/Triangle Wave generation settable to a frequency of 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 2kHz, 5kHz and 10kHz
- White Noise Generator
- Pink Noise Generator

20 LCD

- 5.0” (127mm) diagonal 24bit colour LCD with 800xRGBx480 resolution
- LED backlight (adjustable brightness via software)
- 5-point touch capacitive touch overlay with gesture support

21 Size

- 494mm wide by 300mm deep by 88mm height
- 7.5kG

22 19inch rack mounting ears can be removed for desktop use

Dimensioned drawing

311,50

479,00

88,45
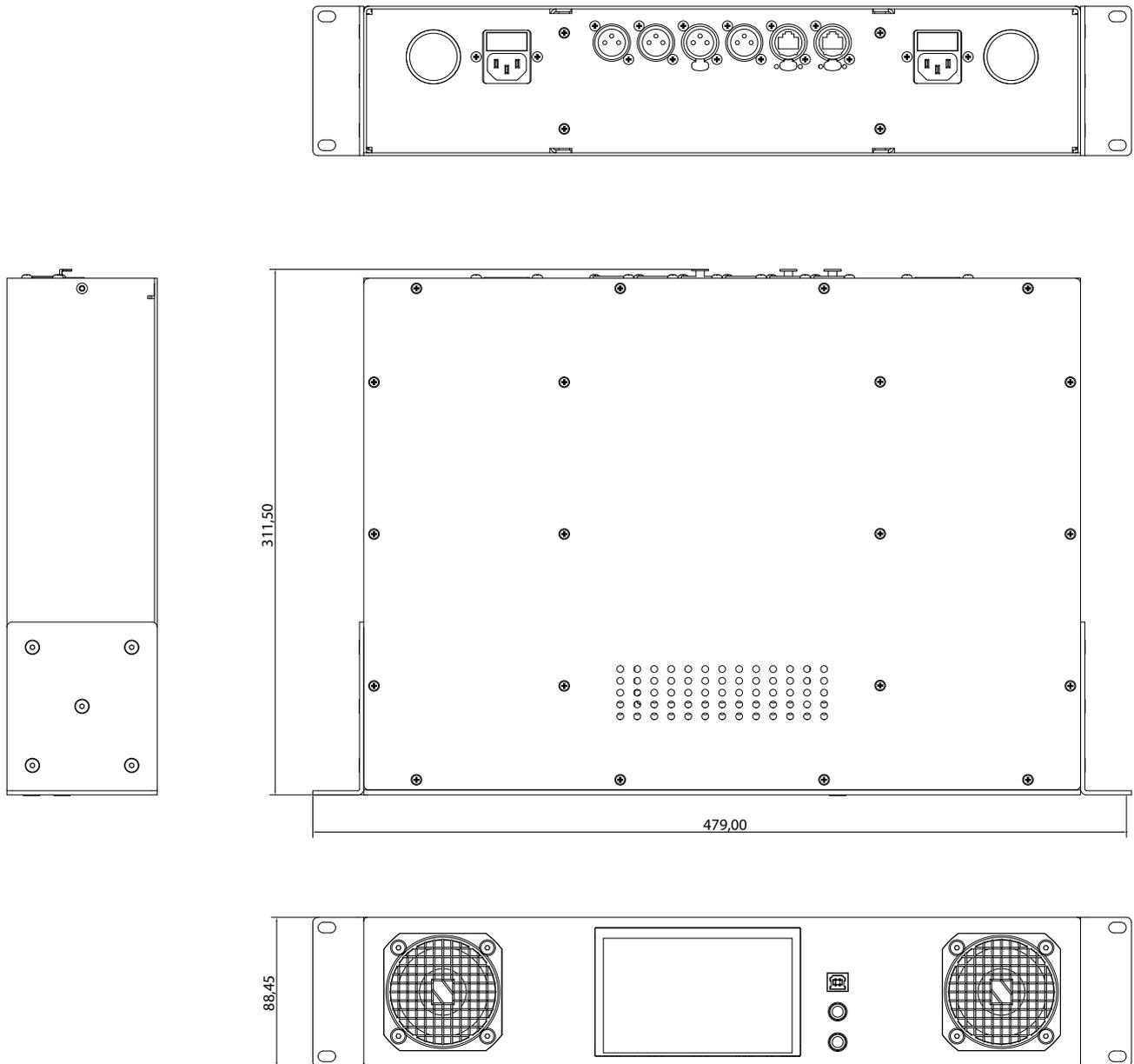
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etherCON is a registered trademark of Neutrik AG