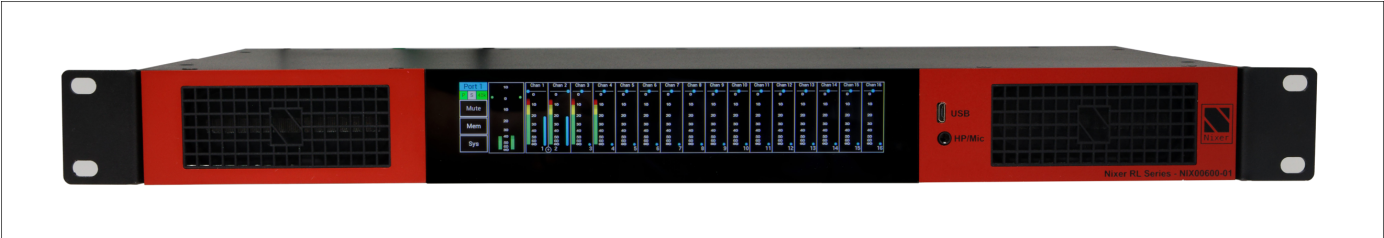


# RL256 Monitor

## User Manual

### V1.04

(rev a 22/11/21)



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## 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: RL256 - Audio over Ethernet Diagnostic Tool  
 Brand: Nixer  
 Model: RL256 (Mk 1)  
 CE Affixing Date: 28.02.20

### 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:<br>EN55022:2007-06-01, Class B wireless,<br>EN 550022:2007-06-01, wired  |
|                 | Immunity | EN 61000-6-1:2007-12-01:<br>EN 61000-4-2 + A1+A2: 2002-02-01,<br>EN 61000-4-3: 2007-11-01,<br>EN 61000-4-4: 2005-09-01,<br>EN 61000-4-5:2007-08-01,<br>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 RL256, 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 RL256, 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 RL256 must be connected following the guidance in this manual. Never connect power amplifier outputs directly to the RL256. 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 RL256 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.

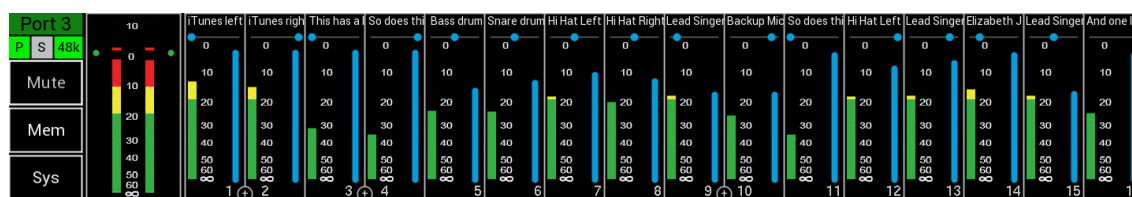
## Introduction

Thank you for purchasing your new Nixer RL256 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 its clear and simple to use touchscreen interface and it is housed in a compact and robust case.

A 1U 19 inch rack mounted AoIP monitoring and mixing unit, which allows two modes of operation, a mixing mode which can mix up to up to 256 channels at 48kHz (128 channels at 96kHz) plus microphone input (via headphone connector) and AES input to create a 259 into 2 mixer. Alternatively, it can be set into a simple Listen mode where touching a channel instantly routes to the LR output and cancels any previous selection.

The outputs of the LR bus are presented to the user via the inbuilt 4mm x 9mm full range speakers or via the 3.5mm 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 RL256. The mix output is also routed to the Port 1 output.

The RL256 is operated and controlled via the large letterbox 6.6" diagonal (168mm) 1440 x 240 24-bit 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 RL256 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 RL256

Please take care when unpacking your product

In the box, you will find

- the RL256 which will contain up to 4 AoIP cards and optional Wi-Fi depending on the model purchased
- Arial (if ordered with optional Wi-Fi)
- 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 RL256 follow this quick guide to get you started using it.

Firstly, if you have any Dante AoIP cards installed you will need to download and install a copy of Dante Controller onto your PC/Mac

You can download this from

<https://www.audinate.com/products/software/dante-controller>

To power the RL256 plug in a 24V DC supply with a 2.5mm barrel connector (not supplied)

Note: use two PSUs for PSU redundancy

Next plug your RL256 into your network with the required number of RJ45 patch leads

If you have purchased your unit with a Ravenna card(s) you will be able to access each card directly by typing it's IP address into a standard web browser, (this can be found under the System Network Tab), in the form <http://192.168.0.19/advanced/index.html>. (Please substitute the IP address with the IP address of your card)

Once plugged in and power applied the splash screen on the RL256 appear after a couple of seconds

After the RL256 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 RL256 appear in the list of devices

You will then be able to select sources and destinations for your RL256

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 RL256 via the touch screen interface

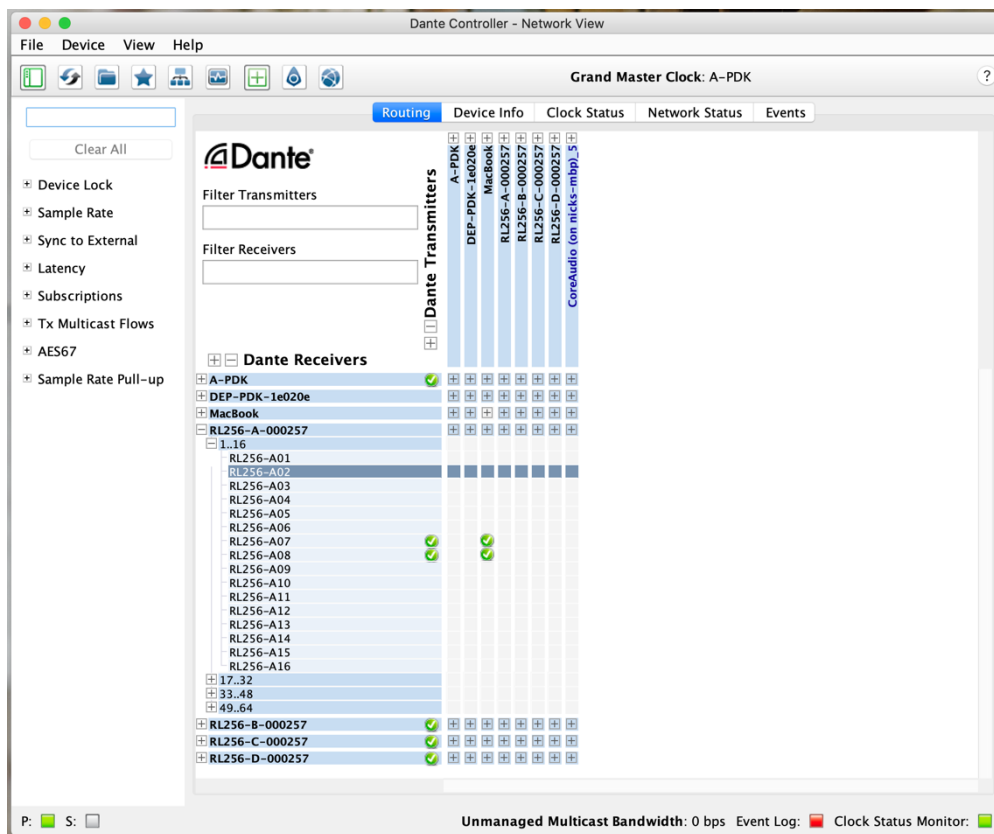
For Ravenna interfaces the routing can be carried out directly via the advanced page accessed via your web browser as described above

Please take the time to register your RL256 [here](#)



<http://www.nixerproaudio.com/Registration/registration.php>

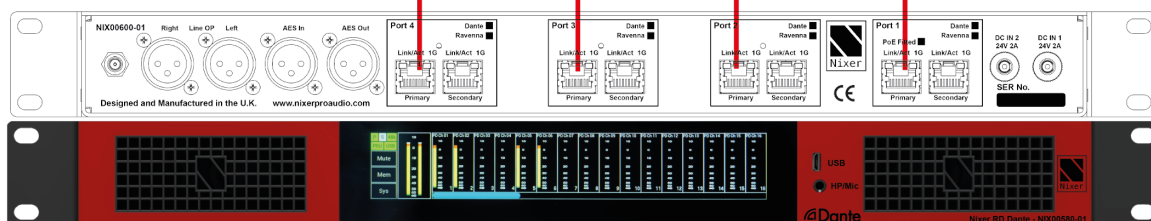
View of Dante Controller with RL Series connected



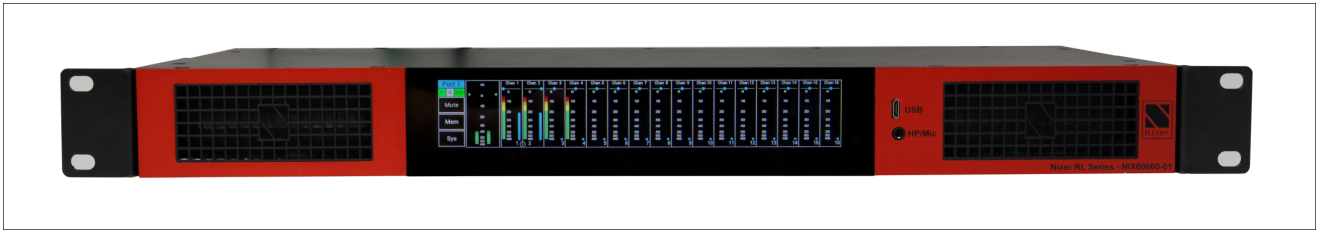
Example RL Series connection diagram



Four Dante inputs shown connected to the same switch. Allows the RL256 to monitor up to 256 channels of Dante at 48kHz. All four inputs can be connected to up to four independent Dante networks (all Dante Ports inputs have separate SRCs).



## RL256 Front View



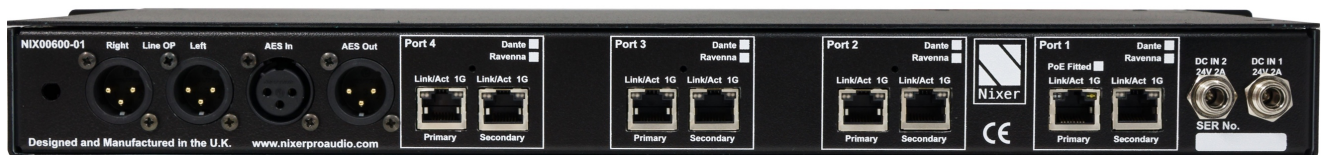
The RL256 Monitor is operated and controlled via the large letterbox 6.6" diagonal (168mm) 1440 x 240 24-bit colour LCD and capacitive touch panel.

A simple and elegant menu system has been designed to be intuitive to navigate allowing the user to access all the features of the RL256 Monitor very quickly.

The high-resolution screen is easy to read presenting comprehensive metering, routing and status information to the user.

Firmware updates of the RL256 Monitor are achieved via a dedicated USB micro AB connector on the front panel. There is also a dedicated 3.5mm jack socket for the headphone output.

## Rear View



On the rear of the RL256 Monitor there are 2x balanced line outputs on 3 pin male XLRs and AES output also on 3 pin male XLR. These outputs can be derived from either pre or post the Main Volume and Mute settings of the speakers/headphones.

Additionally, there is an AES input via 3 pin female XLR connector

There are four pairs of RJ45 connectors labelled Port 1 through to Port 4 and these will be either Dante, Ravenna or Not Fitted depending on how the unit was specified at time of purchase

## Power

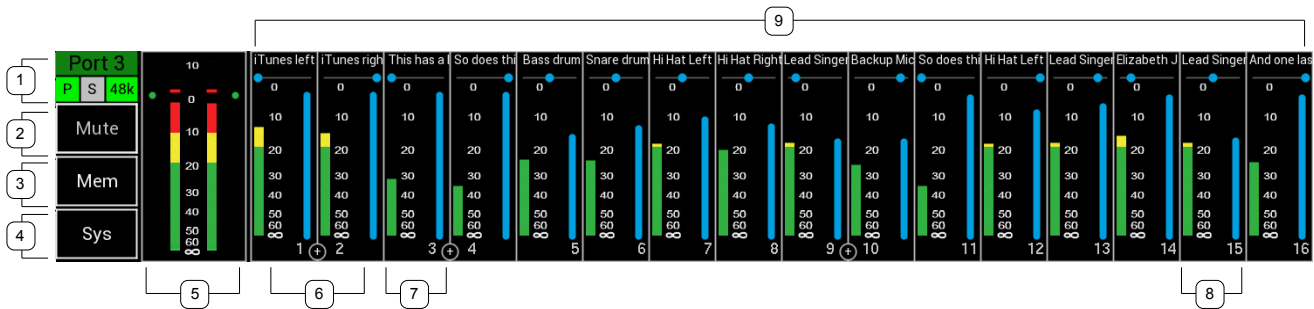
Connect a 24V 2amp DC PSU to either DC input, connecting both will provide PSU redundancy.

These are not supplied as standard and can be ordered at time of purchase

Part No. NIX00629

24V 1.5A Power adaptor 90-264VAC input with multi-blade adaptors. 2.5mm screw lock plug

## RL256 Software



## Main Input Screen

### 1. RL256 Status Bar

#### Port Number

- a. Port number currently being viewed 1 – 4
- b. The background of the port indicates the type of card fitted
  - a. Green indicates a Dante card
  - b. Blue indicates a Ravenna card?

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

Audio Sampling 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 frequency of 44.1kHz
- b. 48K indicates a frequency of 48Khz
- c. 96K indicates a frequency of 96Khz
- d. – (displayed in grey) indicates there is no valid Sample Frequency

## 2. Mute

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

## 3. Mem Button

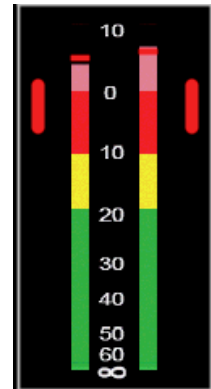
Pressing the Memory area will open the Memory Settings Menu

## 4. Sys Button

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

## 5. Main Meters

- a. 2 level meters displaying signal in 1dB steps from +10dBFS down to -60dBFS
- b. 0dBFS up to +10dBFS is displayed as pink segment
  - i. Note Although the RL256 internally can work with higher level signals it has a built-in limiter which prevents signals going above 0dBFS to the outputs
- c. 0dBFS down to -10dBFS is indicated by a red segment
- d. -10dBFS down to -20dBFS is indicated in yellow
- e. -20dBFS and lower is indicated in green
- f. An Optional peak hold can be enabled in the System tab under the System menu. Normally the peak is displayed in white, turning red when a 0dBFS or above is detected
- g. Touching this cell will open the Master Output window
- h. Outside the two main meters are two indicators which show how much the limiter is working.
  - i. Green indicators show the limiter is inactive
  - ii. Red indicates limiting and grow larger with more limiting

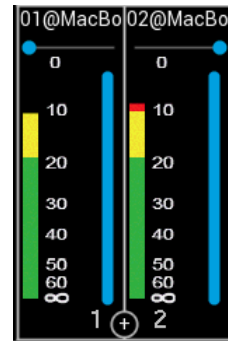


## 6. Channel meters

- a. This area of the screen displays 16 channels
- b. Channels can be displayed in mono see point 8
- c. Channels can also be configured in odd and even pairs to be a stereo shown in point 7
- d. Channels that have been connected to a Dante source will show their name in white and take their name from the connected source (not supported with Ravenna cards)
- e. Channels that have not been connected to a Dante source will be displayed in grey with their RL256 default name (not supported with Ravenna cards)

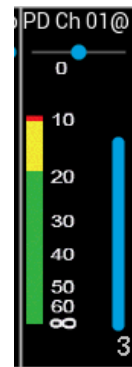
7. Stereo linked channels

- a. Stereo channels can be configured in the Channel Window (Touching the cell will open the Channel Window)
- b. Stereo channels are indicated by the + sign between the two channels
- c. Each channel has a 0dBFS to -60dBFS meter (meter scales can be configured to be SMPTE or EBU standard in the System tab of the System menu)
- d. Channel Pan can be seen below the channel name
- e. Channel volume is indicated by the blue vertical bar next to the meter scale



8. Mono channels

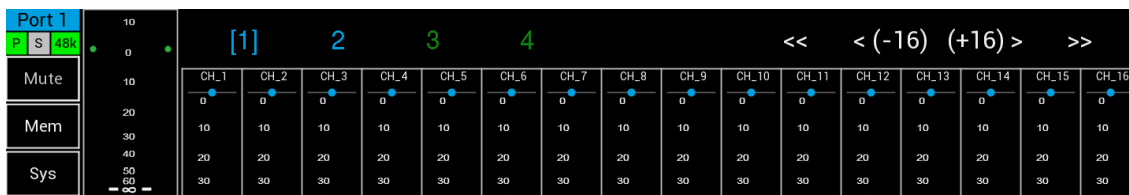
- a. Mono channels can be configured in the Channel Window (Touching the cell will open the Channel Window)
- b. Each channel has a 0dBFS to -60dBFS meter (meter scales can be configured to be SMPTE or EBU standard in the System tab of the System menu)
- c. Channel Pan can be seen below the channel name
- d. Channel volume is indicated by the blue vertical bar next to the meter scale



9. Unassigned channel

- a. Channels that have not been routed to a Dante source appear in grey with the default RL256 channel name (not supported with Ravenna cards)

Navigation

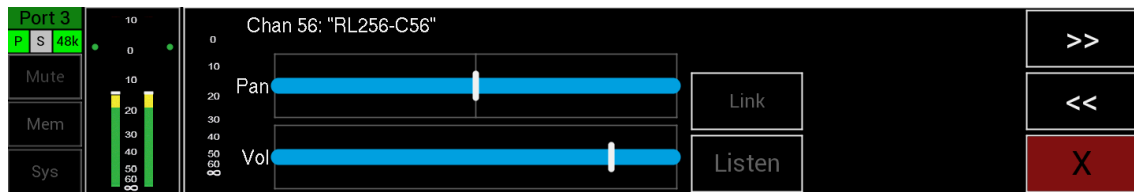


Touch gestures

- Touch cell for pop up window (or to select channel to listen too in listen mode)
- Swipe Left or Right – to scroll through the 67 available channels.
- Down – to view the quick scroll menu
  - [1] – currently selected Port
  - 2 – select Port 2
  - 3 – select Port 3
  - 4 – select Port 4
  - X – no AoIP card fitted to this port

- << - jump to channel 1
  - <(-16) – jumps back 16 channels from the current channels
  - (+16)> - jumps forward 16 channels
  - >> - jumps to channel 67 (AES3)
- Swipe gestures are disabled in 16 channel mode

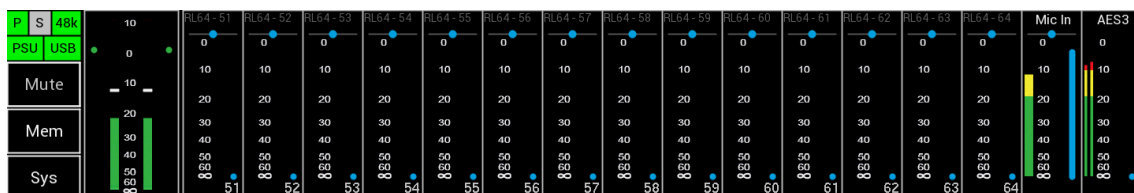
## Channel Window



On pressing a Channel Cell the Channel Window will appear

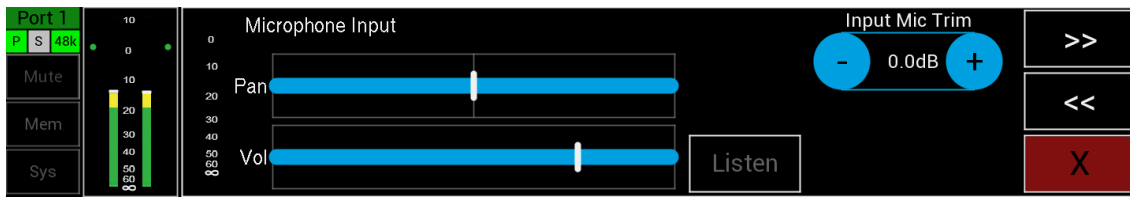
This window displays the following:

- Channel Number
- Dante RX Channel name and if there is a valid Dante connection the name and path of that connection – or channel number if Ravenna card fitted
- A high-resolution meter showing the level of the currently selected channel
- Pan Control
  - Slide the pan control from left to right to adjust panning to LR main mix
- Volume Control
  - Slide volume slider to adjust volume level sent to the LR Main mix
- Listen – pressing this button will activate the Solo Listen function
  - On selection, this button will turn from dark grey to green
  - Main LR audio will be Muted
  - Selected channel audio will be routed to the LR output
  - Pressing the button, a second time or moving to another channel deactivates this function and the main LR audio mix will be unmuted
- << - pressing this button decrements one channel
- >> - pressing this button increments one channel
- X – pressing this button closes this window



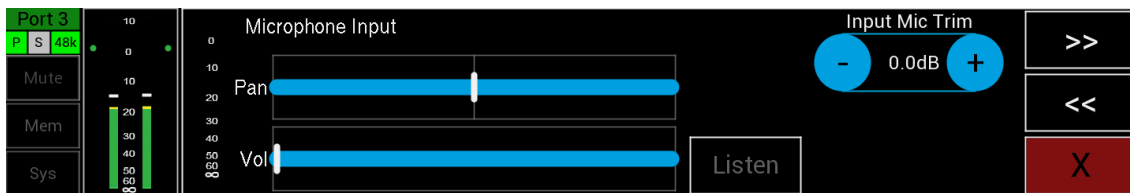
Scrolling to the end of the channel list there are two special channels Mic input and AES3 input

On pressing Mic In, the Microphone input window will appear



- Mic Trim
  - Shows the current gain setting for the mic input which can be changed in 0.5dB steps from -12dB up to +40dB
- A high-resolution meter showing the level of the currently selected channel
- Pan Control
  - Slide the pan control from left to right to adjust panning to LR main mix
- Volume Control
  - Slide volume slider to adjust volume level sent to the LR Main mix
- Listen – pressing this button will activate the Solo Listen function
  - On selection, this button will turn from dark grey to green
  - Main LR audio will be Muted
  - Selected channel audio will be routed to the LR output
  - Pressing the button, a second time or moving to another channel deactivates this function and the main LR audio mix will be unmuted
- << - pressing this button decrements one channel
- >> - pressing this button increments one channel
- X – pressing this button closes this window

On pressing AES3 the AES3 input window will appear

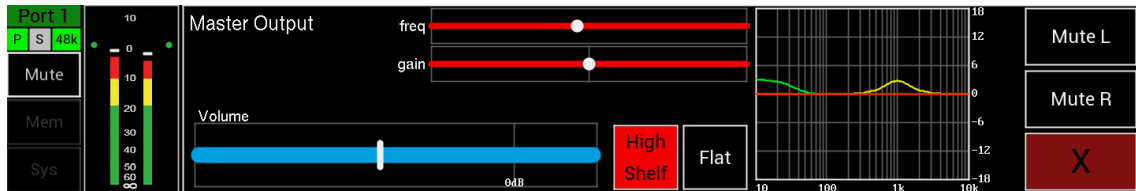


- A high-resolution meter showing the level of the currently selected channel
- Volume Control
  - Slide volume slider to adjust volume level sent to the LR Main mix
- PFL – pressing this button will activate the Solo Listen function
  - On selection, this button will turn from dark grey to green
  - Main LR audio will be Muted
  - Selected channel audio will be routed to the LR output
  - Pressing the button, a second time or moving to another channel deactivates this function and the main LR audio mix will be unmuted
- << - pressing this button decrements one channel
- >> - pressing this button increments one channel
- X – pressing this button closes this window



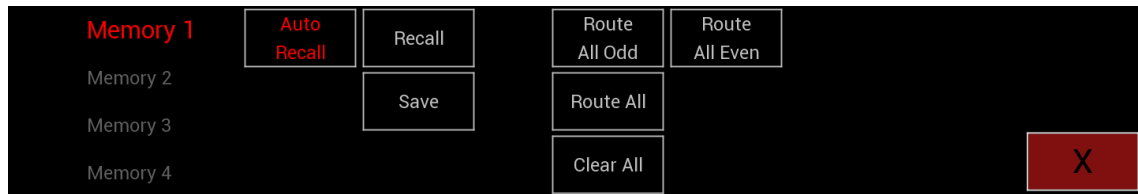
## Master Output Window

On pressing the Main Meters, the Master output window will appear



- Volume Control
  - Slide volume slider to adjust main volume level
  - Up to 20dB gain can be added
- Master EQ
  - Press Low Shelf button to rotate through the following options
  - Low Shelf
    - 20Hz to 1kHz
    - +/-18dB gain
  - Mid bell
    - 40Hz to 8kHz
    - +/-18dB gain
    - Q 1 to 5
  - High Shelf
    - 600Hz to 6kHz
    - +/-18dB gain
  - Flat – resets the EQ
  - EQ Graph – displays current settings
  - Tap the EQ graph to toggle between EQ in and EQ out
- Mute
  - Press to Mute the audio
- Mute L
  - Press to Mute the left channel audio only
- Mute R
  - Press to Mute the right channel audio only
- X – pressing this button closes this window

## Memory Menu



On pressing the Mem Button, the Memory Menu window will open

This window displays the following:

- Memory number (1 to 4)
- Recall – pressing recall after selecting a memory will recall the memory
- Save – pressing this button saves the units current routing and pan settings to the selected memory
- Route All Odd – routes all odd numbered channels to the L of the Main LR mix at full volume and panned to the Left
- Route All Even – routes all even numbered channels to the R of the Main LR mix at full volume and panned to the R
- Route All – routes all odd numbered channels to the L of the Main LR mix at full volume and panned to the Left and routes all even numbered channels to the R of the Main LR mix at full volume and panned to the R
- Clear All – clears routing and sets pan to centre on all channels
- 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.

## Selecting auto recall of a memory

A memory can be selected to Auto Recall when the RL256 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
- Memory set to be recalled is always shown in red

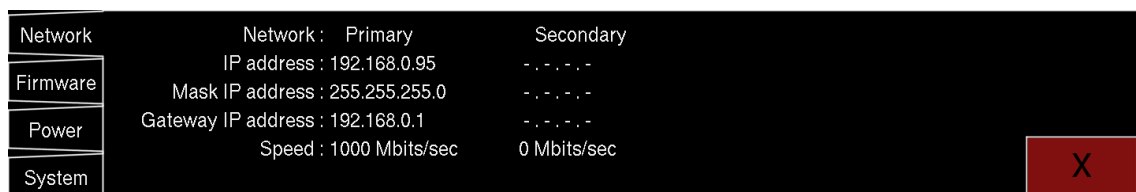
## The System Menu

Pressing the Sys button opens the System Menu

The System Menu consists of several tabs

- Network
- Firmware
- Power
- System

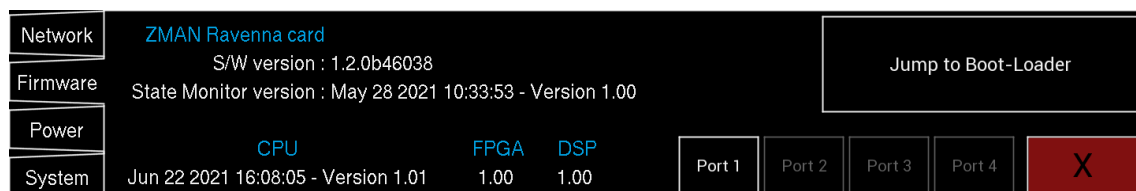
## Network



Network connection parameters 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

## Firmware

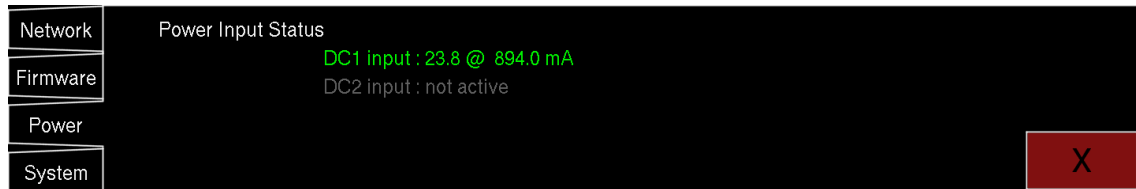


Firmware versions are displayed on this page

- Select Port number to see the versions for the
- Brooklyn II Card firmware(s) or ZMAN Card firmware(s) depending on AoIP card fitted

- RL256 firmware, FPGA version and DSP version (Port 1 only)
- Jump to Boot-Loader – enters the RL256 into update mode please read section called Update for more information

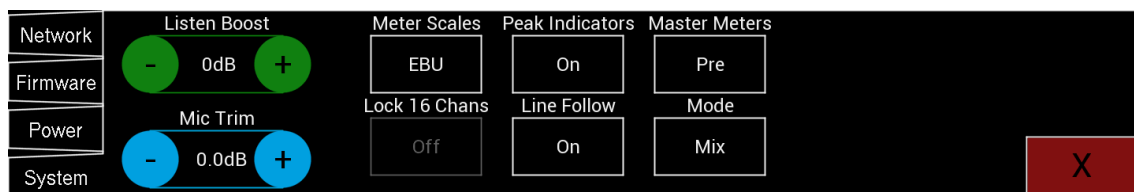
## Power



PSU voltages are displayed on this page

- DC Input 1
- DC Input 2

## System



System setting are displayed and set from this page

- PFL Boost
  - Shows the current PFL trim gain which can be adjusted from 0dB to 30dB in 1dB steps
- Mic Trim
  - Shows the current gain setting for the mic input which can be changed in 0.5dB steps from -12dB up to +40dB
- Meter Scales – press this button to toggle through options
  - SMPTE – sets meter scale to SMTPE scale
  - EBU – sets meter scale to EBU scale
- Peak Indicators
  - Peak Hold – enables peak hold markers on the main meters
- Lock 16 Chans
  - Locks the display to the first 16 channels only and disables swipe left/right and up/down functions
- Line Follow
  - Enabling this function will make the Line Outputs, AES3 out and Dante Output follow the Main Volume and Mute
- Master Meters
  - Pre – master meters signal is derived from pre the output fader
  - Post – master meters signal is derived from post the output fader

- Mode
  - Mix – enables the mixer functionality (with up to 256 into 2 channels) with pan and level for each channel. When in this mode channel outlines are in white
  - Listen – enables Listen mode where pressing a channel will route that signal directly to the Main LR outputs. Any channels that have been configured to stereo will route in stereo to the LR output.
    - Note channels can only be switched between stereo and mono in Mix mode and Listen mode retains these setting

## Checking the Current versions

|          |  |      |      |                     |        |        |        |
|----------|--|------|------|---------------------|--------|--------|--------|
| Network  | ZMAN Ravenna card  |      |      | Jump to Boot-Loader |        |        |        |
| Firmware | S/W version : 1.2.0b46038<br>State Monitor version : May 28 2021 10:33:53 - Version 1.00 |      |      |                     |        |        |        |
| Power    | CPU  | FPGA | DSP  | Port 1              | Port 2 | Port 3 | Port 4 |
| System   | Jun 22 2021 16:08:05 - Version 1.01  | 1.00 | ---- |                     |        |        | X      |

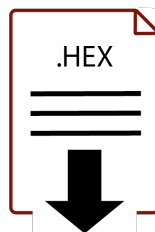
Check the current version(s) of the firmware on each of the Ports on your product

Compare this to the latest firmware in the Downloads section of the Nixer website  
<https://www.nixerproaudio.com/Downloads/>

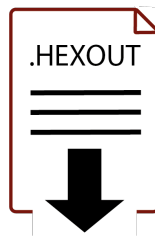
## Downloading the latest firmware(s)

If there are updates available follow the steps below

- If you do not have the Nixer BLM.exe program download and install the latest version of Nixer BLM.exe (V1.5) from  
[https://www.nixerproaudio.com/resources/Nixer-BLM\\_V1.5.exe](https://www.nixerproaudio.com/resources/Nixer-BLM_V1.5.exe)
- Next download the CPU firmware (.hex file)

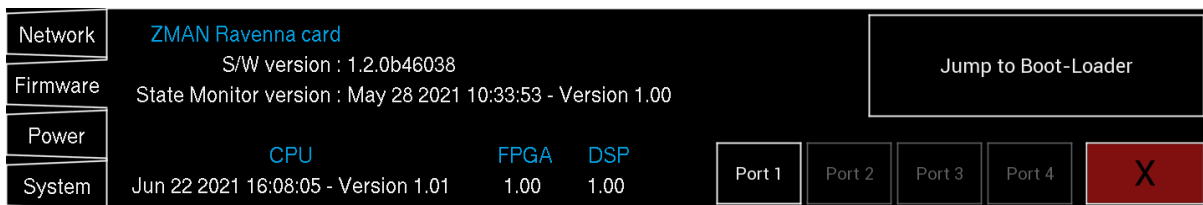


- If it has also been updated download the (.hexout file)

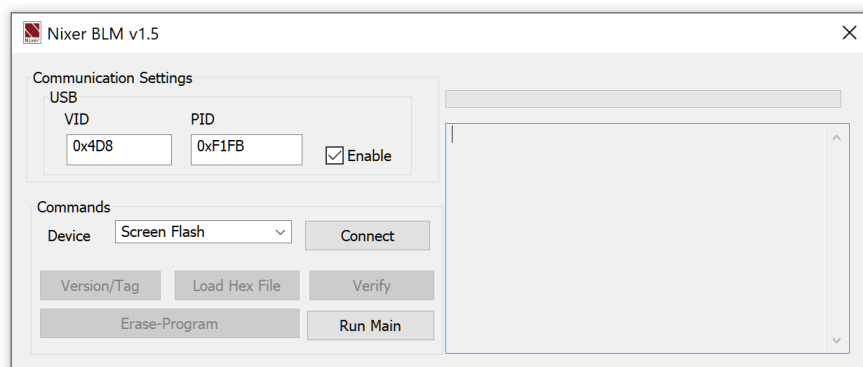


## Updating the CPU firmware

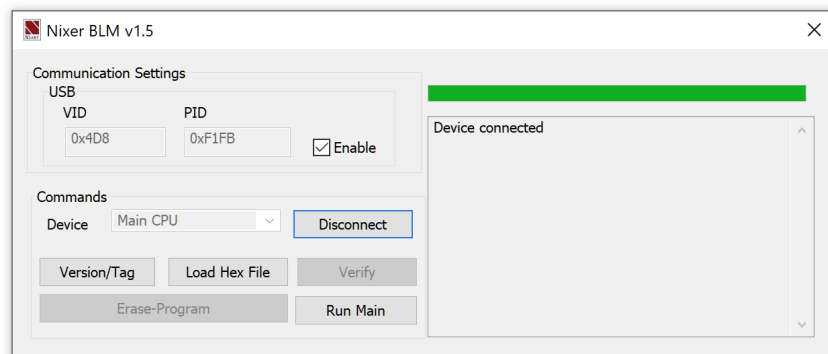
- Next attach the RL256 to the PC via a USB cable and turn it on
- You will have five new USB devices attached to your PC



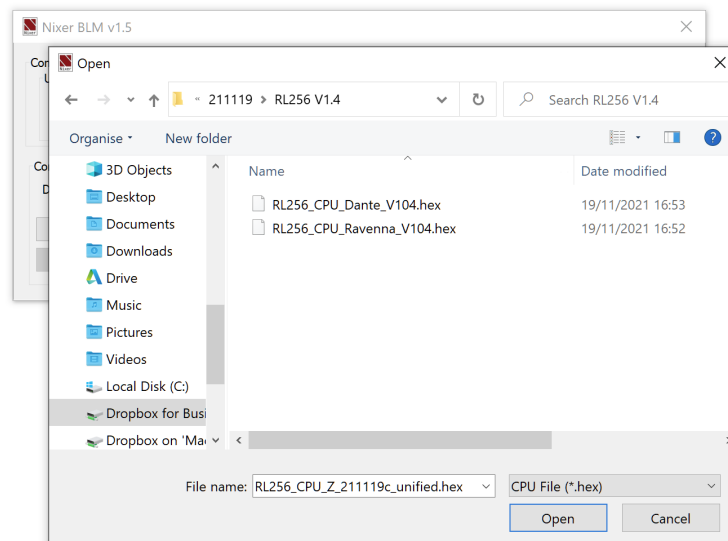
- Navigate to the Update Menu in the System menus select Port 1 and press the button to enter Boot Loader Mode. You will see a countdown of dots before the screen goes blank – **ALWAYS update Port 1 first**
- For Ports 2 through to 4 the screen will not go blank when the respective Port is put into Bootloader mode, instead once the countdown dots finish the screen will jump back to Port 1
- A new USB device called USB HID Bootloader #xx will connect to your PC
- Your RL256 is now ready to update Port 1
- Run the Nixer BLM program on your PC



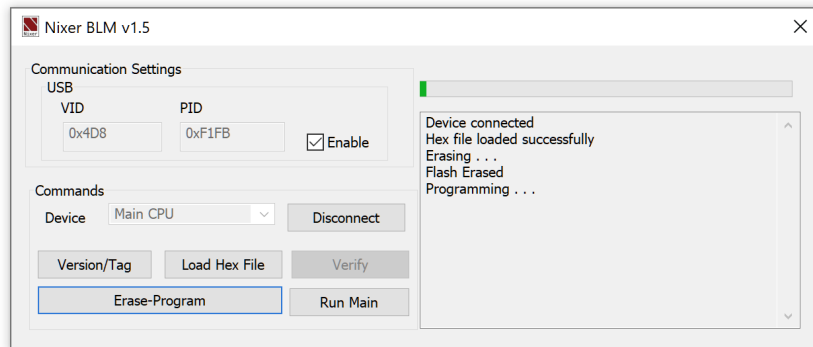
- Once the program is running change “Screen Flash” to “Main CPU” via the drop-down menu and click connect



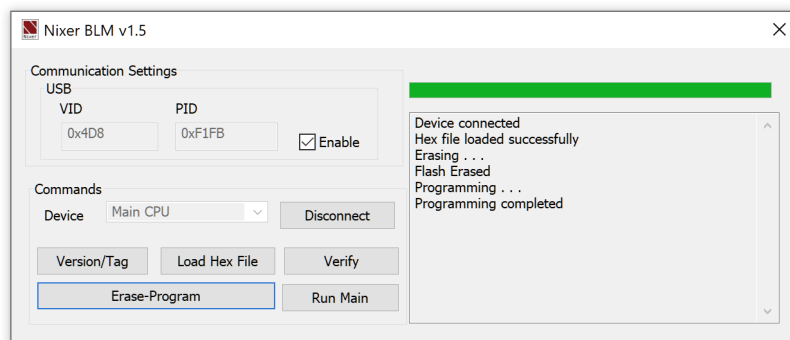
- You will now see that it says device connected in the status window
- Click on Load Hex File. Next navigate to and load in the .hex file that you downloaded from [www.nixerproaudio.com](http://www.nixerproaudio.com)



- Note for Dante Ports load the firmware that has Dante in the name for example RL256\_CPU\_Dante\_V104.hex
- Note for Ravenna Ports load the firmware that has Ravenna in the name for example RL256\_CPU\_Ravenna\_V104.hex
- Loading the incorrect version into a Port will cause abnormal behaviour of the product
- 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



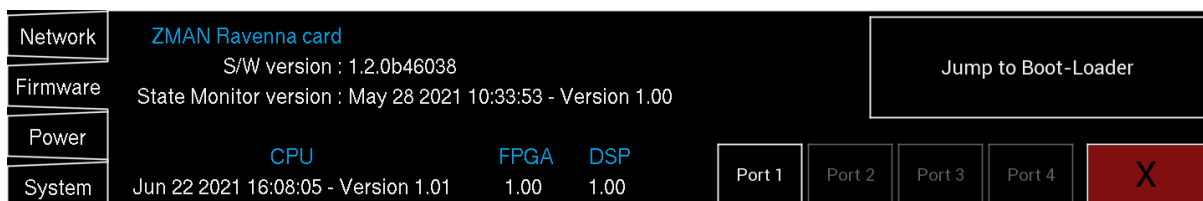
- When the device has been programmed the status window will say “Programming completed. Click Run Main and your unit will reboot with its updated software
- This procedure will now need to be repeated for Ports 2 through to 4 if fitted. The



order of updating is not important for these Ports. First select the Port required then press Jump to Boot-Loader as noted earlier at the end of the countdown dots the screen will jump back to Port 1. The Nixer BLM program can now be used to update the firmware in the Port that has been put into Boot-Loader mode by following the instructions above

## Updating the FPGA firmware

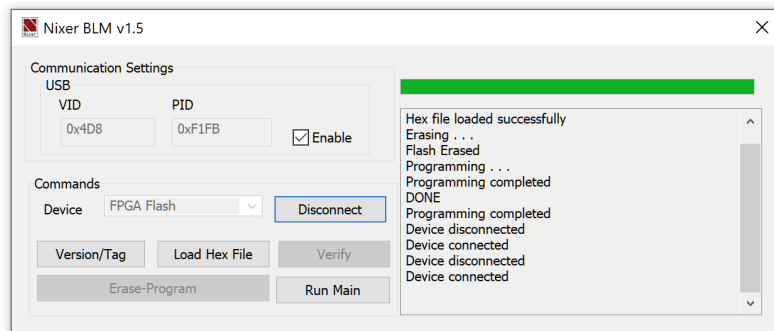
- To update the FPGA firmware, start the Nixer BLM program



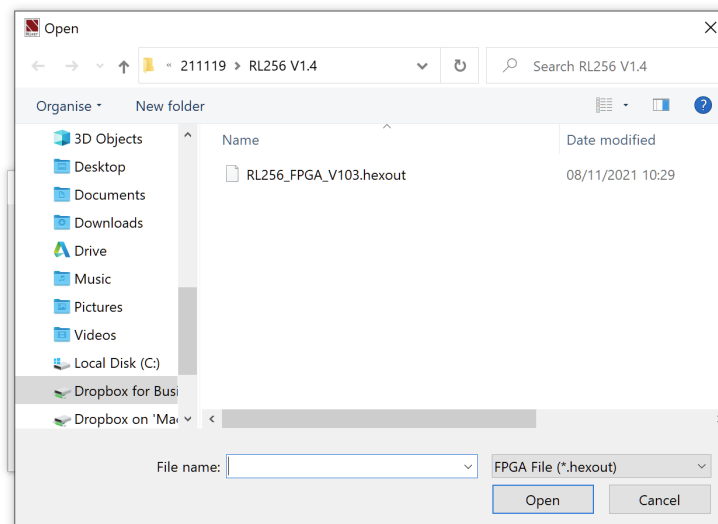
- Go to the firmware page and select Port 1 and Jump to Boot-Loader



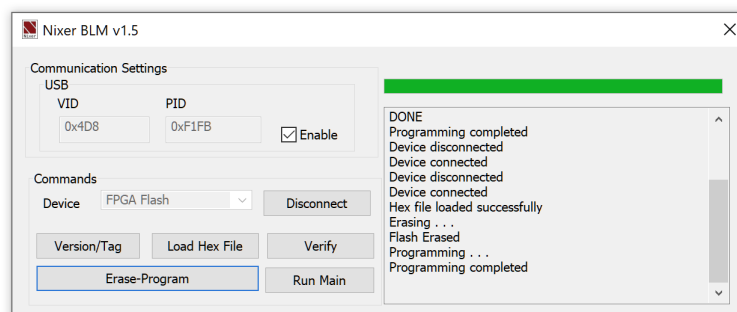
- Select FPGA Flash from the pull-down menu and click connect



- Once connected click Load Hex File and navigate to and open the .hexout file you have downloaded



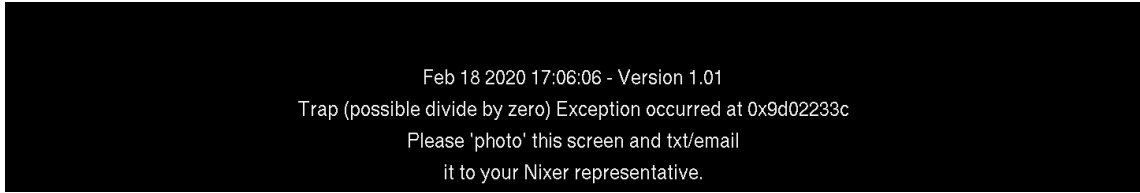
- Click Erase-Program



- Once the status window says Programming complete click Run Main and your RL256 will reboot

- When the Splash Window starts you will see confirmation of the Main CPU firmware followed by the FPGA version
- You will now need to repeat this procedure for Ports 2 through to Port 4 (where fitted)

## Exceptions and Errors



Feb 18 2020 17:06:06 - Version 1.01  
Trap (possible divide by zero) Exception occurred at 0x9d02233c  
Please 'photo' this screen and txt/email  
it to your Nixer representative.

If you experience an Exception which causes the RL256 to freeze please take a picture of the screen and email it to [support@nixerproaudio.com](mailto:support@nixerproaudio.com)  
Please also supply, if possible, a description of how you were using the RL256 at the time the error occurred, what screen you were in, buttons pressed etc

Restarting your device should resume normal functionality again

## Support

Additional information about Nixer products, updates, manuals etc can be found at

[www.nixerproaudio.com](http://www.nixerproaudio.com)

All support and technical questions should be addressed to your local distributor or can be sent directly to

[support@nixerproaudio.com](mailto:support@nixerproaudio.com)

## 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 100Mbps 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

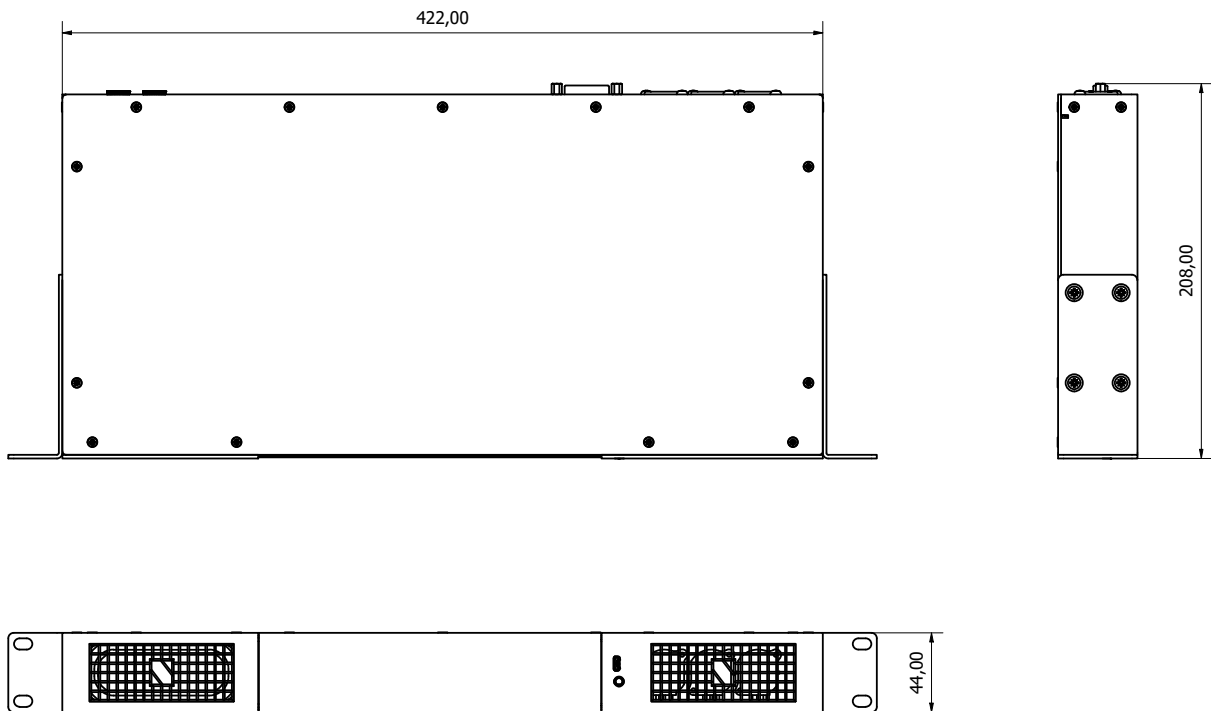
## Nixer RL256 Monitor Specifications

- 1 AoIP monitoring unit with four channel count options (selected at time of purchase)
  - RL64 64 channels on 1 pair of 1Gbit network ports
  - RL128 128 channels on 2 pairs of 1Gbit network ports
  - RL192 192 channels on 3 pairs of 1Gbit network ports
  - RL256 256 channels on 4 pairs of 1Gbit network ports
- 2 AoIP supported (selected at time of purchase)
  - Dante supporting
    - Dante Controller
    - Dante Domain Manager
    - AES67
    - SMPTE 2110
  - Ravenna supporting
    - AES67
    - SMPTE 2110
    - NMOS
- 3 Sample rates supported
  - 44.1kHz
  - 48kHz
  - 88.2kHz
  - 96kHz
- 4 Bit Depth supported
  - 16bit
  - 24bit
  - 32bit
- 5 Depending on version up to 259 x 2 mixer with the following controls
  - Pan
  - Level
  - PFL
  - Option to Link odd and even adjacent channels into stereo pairs
- 6 Output
  - Built in speakers/headphones
  - Line Output
  - AES3 Output
  - Up to 259 channel meters (16 displayed at a time)
  - High resolution meters switchable scale standards from
    - EBU
    - SMPTE
  - Screen swipe left and right to allow viewing of all meters
  - Screen swipe down to present navigation controls
    - Selection of Port to be viewed from 1 to 4
    - Jump +16 channels
    - Jump -16 channels
    - Jump to end

- Jump to beginning
- 7 Main LR meters
  - Large high-resolution meters displaying +10dBFS down to -60dBFS in 1dB steps
  - Optional Peak hold
  - Limiter operation indicators
- 8 Internal 2W/channel amplifier feeding either
  - 2x 4mm x 9mm full range drivers
  - Headphone output
- 9 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
  - Output Mute relays
- 10 Stereo AES3 output on 3pin male XLR connector
  - Fed from main Stereo LR bus
  - Option to follow main volume control
- 11 Stereo AES3 Input on 3pin female XLR connector
  - SRC converts from 44.1kHz, 48kHz or 96kHz to RL64 sample rate
  - AES3 routing to main mix via
    - Level
    - PFL
- 12 3.5mm Headphone socket and microphone input
  - Headphone output for driving loads from 8ohm to 600ohm
  - Microphone input routing to main mix via
    - Input Gain control 0dB to 30dB
    - Pan
    - Level
    - PFL
  - Socket wiring is suitable for use with most common mobile phone headsets
- 13 Up to 8x 1Gbps RJ45 AoIP inputs
  - 1Gbps operation
  - User configurable for Switched or Redundant operation
  - Network configuration information available via menu
- 14 Power input
  - 2x 2.5mm DC inputs sockets with screw lock for use with external 24V 2amp adaptor (not supplied)
    - Recommended NIX00629 24V 1.5A Power adaptor 90-264VAC input with multi-blade adaptors. 2.5mm screw lock plug (Cost option)
  - Both power inputs can be active at the same time for redundancy
- 15 USB port is used for product firmware updates
- 16 LCD
  - 6.6" (168mm) diagonal 24-bit colour LCD with 1440xRGBx240 resolution
  - LED backlight (adjustable brightness via software)
  - multi touch capacitive touch overlay with gesture support
- 17 Size
  - 494mm wide by 210mm deep by 44mm height

- 2.0kG
- 18 19inch rack mounting ears can be removed for desktop use

*Dimensioned drawing*



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