Glensound
Keeps Working

BEATRICE

B4, D4, R4, & W4

4 Channel Network Audio Intercom

PRODUCT DETAILS

Dante™

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Visit our Website at www.glensound.com

Glensound Electronics Ltd

Thank you for choosing a new Glensound product.

All rights reserved.

Information contained in this manual is subject to change without notice, if in doubt please contact us for the latest product information.

If you need any help with the product then we can be contacted at:

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IMPORTANT SAFETY INSTRUCTIONS

Read this safety sheet prior to installation or initial use. This generic safety sheet covers multiple product configurations across our range. The full operating & installation manual and model-specific technical specifications are available online at: www.glensound.com

DANGEROUS VOLTAGE: This symbol is intended to warn that dangerous voltages within the product are present and constitute a risk of electric shock.	IMPORTANT INSTRUCTIONS: This symbol is intended to highlight that there are important operating, installation, and maintenance instructions in the literature accompanying this unit.
THIS UNIT MUST BE EARTHED (Class I Mains Models): English: This symbol highlights that the equipment must have a valid earth connection with the protective earthing conductor. Danish: *Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.* Finnish: *Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan.* Norwegian: *Apparatet må tilkoples jordet stikkontakt.* Swedish: *Apparaten skall anslutas till jordat uttag.*	**CAUTION – SHOCK HAZARD: DISCONNECT ALL POWER SOURCES:** This symbol warns that the product can be energised simultaneously from more than one power source (e.g., dual AC mains supplies, external DC power, and/or PoE). Care must be taken if accessing internal components. Ensure that ALL connected power supplies are fully disconnected.

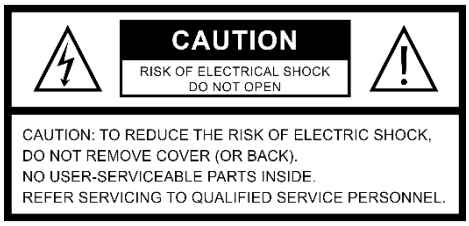
1. Read & Keep Instructions: Read these instructions, keep these instructions, heed all warnings, and follow all instructions.

2. Indoor Use & Moisture: Unless otherwise specified in the model-specific manual, this product is intended for indoor use only. Do not use this apparatus near water, and do not expose this product to rain or moisture.

3. Ambient Temperature: The intended ambient operating temperature of this product is 0°C to 40°C (or 0°C to 50°C where specified in the model-specific technical specifications in the online user manual).

4. Cleaning & Heat Sources: Clean only with a dry cloth. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

5. Cable & Cord Protection: Protect all power cords and network cables from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.





6. Attachments & Lightning: Only use attachments/accessories specified or supplied by the manufacturer. Unplug this apparatus during lightning storms or when unused for long periods of time.

7. Servicing & No User-Serviceable Parts: The product contains no user-serviceable parts and must not be disassembled or modified in any way. Doing so could result in personal injury and/or product failure. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when a 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.

8. Professional Environment: This equipment is not suitable for use in locations where children are likely to be present.

POWER SUPPLY & DISCONNECT INSTRUCTIONS (APPLICABLE BY MODEL CONFIGURATION)

9. Simultaneous / Redundant Power Sources (Mains, DC & PoE): Depending on the model, this product may be powered by a single source or simultaneously by multiple redundant power sources (dual AC mains inlets, an AC mains inlet, an external DC power input, and/or Power over Ethernet [PoE]). Disconnecting a single power lead will NOT isolate the unit if another power source remains connected. To completely de-energize the equipment, unplug ALL connected AC mains cords, DC barrel jack/external DC connectors, and PoE RJ45/etherCON network cables.

10. AC Mains Disconnect Devices (Single or Dual IEC Inlets): Where AC mains inlets are fitted, the mains plug(s) and rear-panel IEC appliance coupler(s) serve as the disconnect device(s). On dual-mains models, both mains' cords must be unplugged to isolate the unit from AC mains power. The socket-outlet(s) used for mains power must be installed near the equipment and be easily accessible.

11. Plug Grounding & Polarization (AC Mains Models): Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has 2 blades with one wider than the other. A grounding-type plug has 2 blades and a third grounding prong provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

12. Approved Detachable Earthed Mains Cords (Class I AC Mains Models): Use only approved detachable 3-core earthed mains cords (minimum H05VV-F 3G0.75 mm² with IEC 60320-1 C13 connector) rated for the country of installation: • United Kingdom: Use a BS 1363-1 approved molded plug fitted with a 5 A ASTA-approved BS 1362 fuse. • European Union: Use a CEE 7/7 (Schuko/French) earthed plug. • Denmark: When connecting to wall socket-outlets in Denmark, use an approved 3-pin earthed plug complying with DS 60884-2-D1 (Standard Sheet DK 2-1a) to ensure protective earthing is maintained. • USA/Canada: Use a UL-listed / CSA-certified 3-conductor grounding power cord [minimum 18 AWG, SVT/SJT] with a NEMA 5-15P plug. • All other regions: Use a nationally safety-approved 3-core earthed mains cord rated for the country of installation.

13. Internal Primary Fusing & Neutral Fusing Warning (AC Mains Models – Service Personnel Only): Internal primary fuse(s) are located between the Live terminal of the IEC inlet and the Live input of the power supply and should only be changed by a qualified service engineer using a correctly rated replacement as specified in the product handbook. WARNING – Neutral Fusing: Because the AC mains plug may be reversible in some electrical distribution systems, the internal primary fuse may be located in the neutral conductor. Always

disconnect all AC mains power cords completely from the IEC inlet(s) to de-energize all phase conductors before opening the enclosure or servicing the unit.

14. Power over Ethernet (PoE) Models: Unplugging the RJ45 / etherCON network cable disconnects PoE power from the unit. The Ethernet cable intended to be connected to the unit is for indoor building routing only and must not exit the building structure without appropriate primary surge protection.

15. External DC / USB Power Input Models: Connect only the manufacturer-supplied AC/DC power adaptor (where provided), or a safety-approved external DC or USB power supply complying with BS EN IEC 62368-1 (classified as ES1 and PS2/Limited Power Source [LPS]) that matches the voltage, minimum current rating, and pin polarity marked adjacent to the DC/USB input connector or specified in the product manual. The external power adaptor plug and the DC/USB input connector serve as the DC disconnect devices and must remain readily accessible; unplugging the DC/USB connector disconnects external DC power only and will not isolate the unit if AC mains or PoE remains connected.

INSTALLATION, THERMAL, MECHANICAL & OPTICAL SAFETY (APPLICABLE BY MODEL CONFIGURATION)

16. Ventilation & Sealed Heatsink Enclosures: Do not block any ventilation openings; install in accordance with the manufacturer's instructions. On models where the aluminum enclosure acts as the units heatsink, do not cover the unit or speaker grille with soft furnishings, cloths, or curtains, and allow free airflow around the housing.

17. 19-Inch Equipment Rack Installation (Rack-Mount Models): Rack-mounted models are designed for stationary installation in a standard 19-inch equipment rack. Secure the unit to the front rack rails using all four mounting holes on the integral rack ears with appropriate rack screws (e.g., M6 screws and cage nuts). Ensure that ventilation openings on the chassis are not obstructed by rack walls or cabling.



18. Carts, Stands, Brackets & Tip-Over Hazard: Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

19. Optical SFP Transceiver Modules (Where fitted): Any optical SFP transceiver modules installed in this product must be certified Class 1 Laser Products in accordance with IEC/EN 60825-1. Do not look directly into open optical ports or fibre-optic cable ends while the equipment is energized.



Disposal (WEEE): the crossed-out wheeled bin symbol means this product must not be disposed of with household waste. Take it to an approved electrical and electronic equipment recycling point, or contact Glensound for advice.
Declaration of conformity: Glensound declares that this product complies with the applicable UK and EU legislation. The full declaration of conformity is available at www.glensound.com.
Manufacturer: Glensound Electronics Ltd, The Design Buildings, 6 Brooks Place, Maidstone, Kent, ME14 1HE, UK · Tel: +44 (0)1622 753662 · Email: sales@glensound.com · www.glensound.com

PRODUCT WARRANTY:

All equipment is fully tested before dispatch and carefully designed to provide you with trouble free use for many years.

We have a policy of supporting products for as long as possible and guarantee to be able to support your product for a minimum of 10 years.

For a period of one year after the goods have been despatched the Company will guarantee the goods against any defect developing after proper use providing such defects arise solely from faulty materials or workmanship and that the Customer shall return the goods to the Company’s works or their local dealer.

All non-wear parts are guaranteed for 2 years after despatch and any defect developing after proper use from faulty materials or workmanship will be repaired under this warranty providing the Customer returns the goods to the Company's works or their local dealer.

CE

EU DECLARATION OF CONFORMITY FOR:

GS-BEATRICE B4, R4, D4

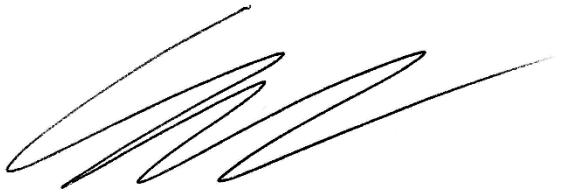
4 Channel Dante/ AES67 intercom

This declaration of conformity is issued under the sole responsibility of the manufacturer.

This equipment is manufactured by Glensound Electronics Ltd of Brooks Place Maidstone Kent ME14 1HE is CE marked and conforms to the following Union harmonisation legislation:

Low Voltage Directive:	EN60065 and EN62368-1:2014
Emissions:	BS EN55032:2015
Immunity:	BS EN55035:2017

Signed for and on behalf of Glensound Electronics Ltd.



Gavin Davis, Managing Director
Maidstone, Kent, England

Date: 15/03/2018

RoHS DIRECTIVE

EC directive 2002/95/EC restricts the use of the hazardous substances listed below in electrical and electronic equipment.

This product conforms to the above directive and for this purposes, the maximum concentration values of the restricted substances by weight in homogenous materials are:

Lead	0.1%
Mercury	0.1%
Hexavalent Chromium	0.1%
Polybrominated Biphenyls	0.1%
Polybrominated Diphenyl Ethers	0.1%
Cadmium	0.01%

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT REGULATIONS 2006 (WEEE)

Glensound Electronics Ltd is registered for business to business sales of WEEE in the UK our registration number is:

WEE/JJ0074UR

GLENSOUND BEATRICE B4, D4 & R4

Handbook Contents

Issue 5

Description Page No.

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OVERVIEW

This manual covers 3 very similar 4 channel BEATRICE IP intercom units. All 3 units share a common internal DSP and Network interface card and all 3 also share the same software.

The 3 units are:

BEATRICE B4: 4 Channel Beltpack

BEATRICE D4: 4 Channel Desktop

BEATRICE R4: 4 Channel 1RU Subrack

The BEATRICE range of IP intercoms was designed for broadcast, theatre and professional audio applications.

Our Beatrice intercom system utilises the reliable and proven Dante™ network audio transmission protocol to allow real time distribution of uncompressed audio across standard networks. As such the BEATRICE 4 channel units are also fully compatible with other manufacturers' equipment using the Dante™ protocol. A future firmware update will make the Beatrice AES67 compliant.

All units in the system are designed to be very easy to use for the operator and simple to setup for the technician. They includes all the basic functionality required for small intercom systems and none of the overly complex installation requirements normally associated with large systems.

The name Beatrice was chosen for our intercom range as she was the love of Dante Alighieri:

'Dante had fallen in love with another, Beatrice Portinari (known as Bice), whom he first met when he was only nine.' Source Wikipedia.

FOUR AUDIO CHANNELS TWO NETWORK LOCATIONS

The 4 channel Beatrice units have a network audio interface chipset called ‘Ultimo’ that is supplied to Glensound under licence by Audinate (The Australian company behind the brilliant Dante newtork audio protocol).
The Ultimo chipset is a 4 audio channel interface, however it has 2 fundemental limitations.

1) **4 Outgoing Channels:**

The chipset can only provide 2 Unicast outgoing circuits, to provide 4 outgoing audio circuits 2 of the channels must be set to multicast.

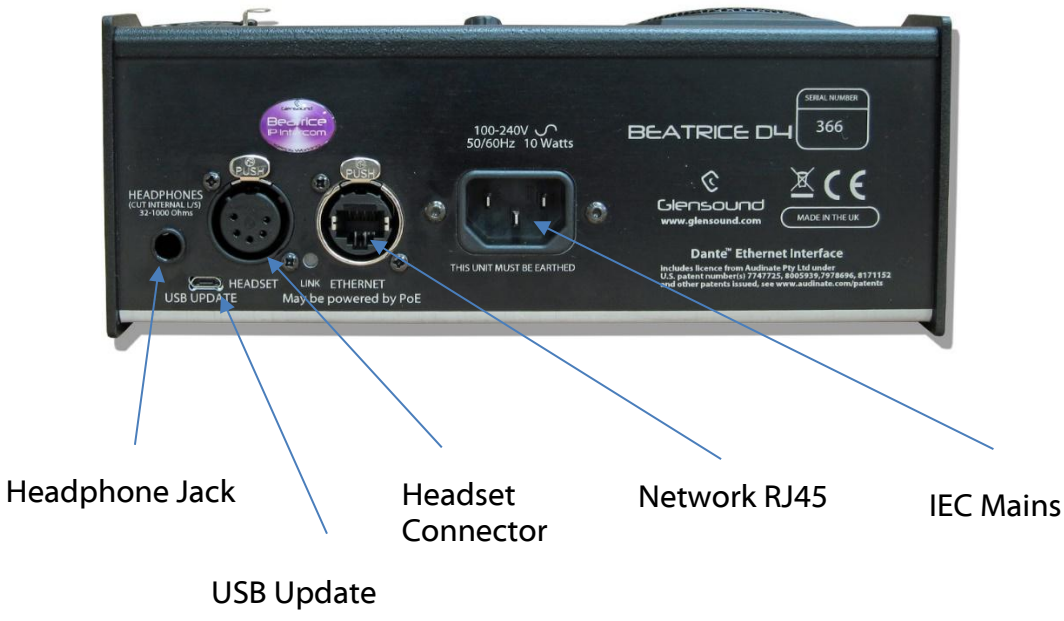
2) **4 Incomming Channels:**

Although 4 incoming audio channels can be received these can only be sent to the Ultimo chipset from 2 discreet locations on the newtork as the chipset can only receive 2 network data streams.

D4 PANEL LAYOUT

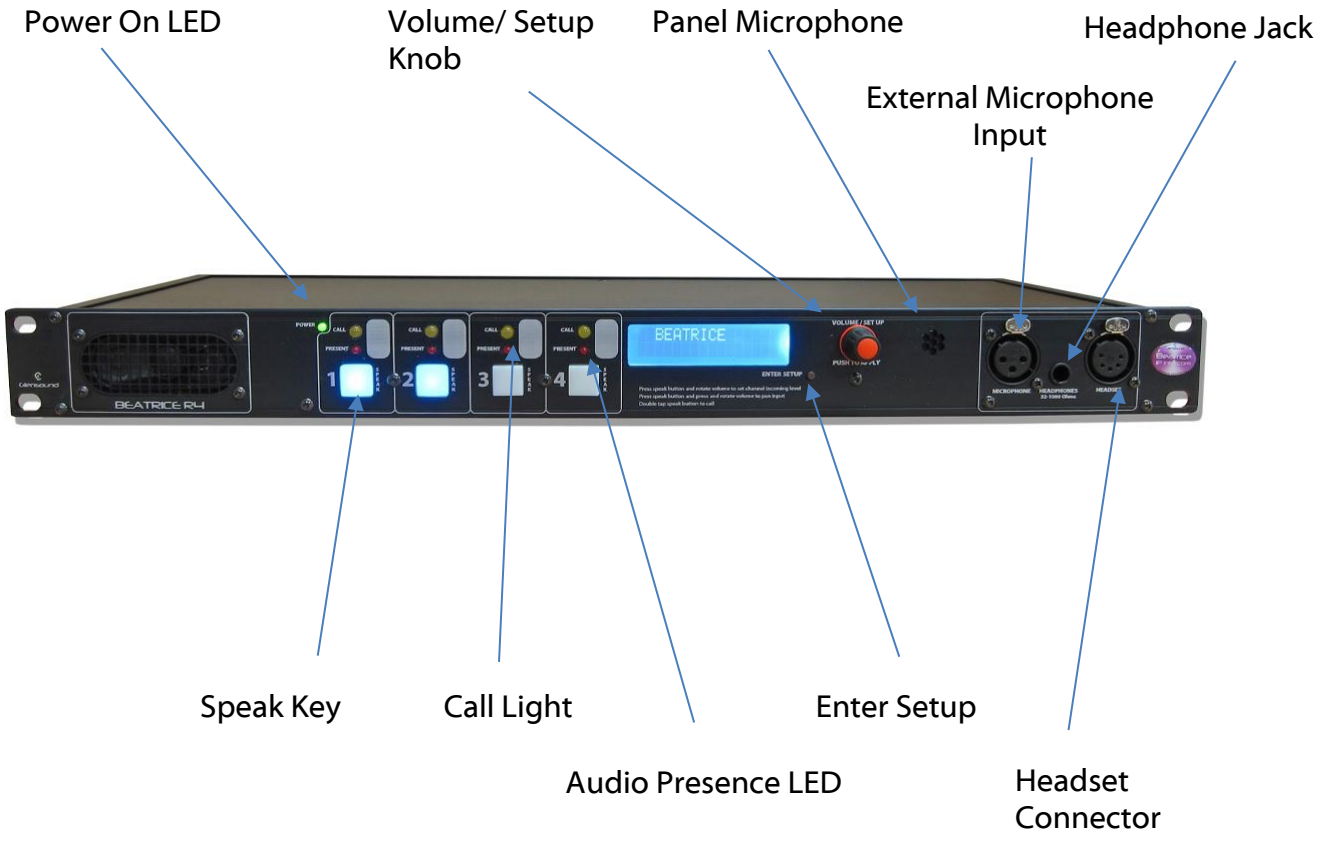
Front & Rear Panels

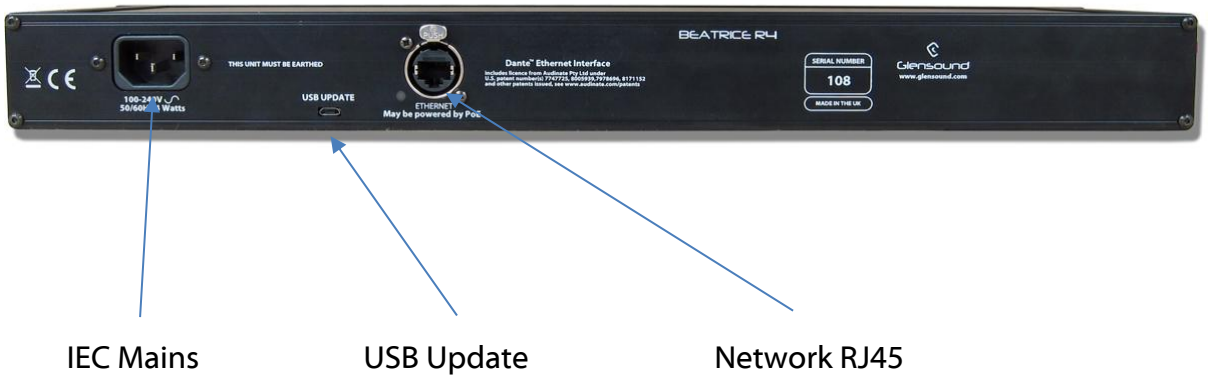




R4 PANEL LAYOUT

Front & Rear Panels





B4 PANEL LAYOUT
Front, Rear & Side



FEATURES

1. **Volume/ Setup Knob**

   This multi-function knob provides several different functions depending upon whether the user is in setup mode or not.

   In Normal Mode there are 3 functions:

   A) Rotating the control increases / decreases the loudspeaker/ headphone volume.
   B) Simultaneously pushing the knob in and rotating it while pressing a speak key will pan the associated incoming audio circuit between left/ right ears.
   C) Simultaneously pressing a speak key and rotating the knob will increase / decrease the input gain of the associated incoming circuit.

   In Setup Mode:

   The knob is used to enter menus and change parameters. This is done by rotating the knob until the desired menu is seen on the display, then push the knob and the menu will be accessed, rotate the knob again to select the desired setting and press the knob in to select and save that setting.

2. **Power On LED**

   The power on LED indicates that the device is powered on and the internal microprocessor is working correctly.

3. **Panel Microphone**

   Note: This feature is not fitted to the Beltpack B4.
   The panel microphone is a small electret microphone fitted behind the front panel and is suitable for most communications purposes.

4. **External Microphone Input**

   This is a balanced microphone input. It can accept dynamic and condenser microphones and phantom power (48v) can be turned on/ off in the menu system. The gain of this input is also adjusted in the menu system.

5. **Speak Key**

   These multifunction keys can operate in a number of different ways. In general terms they route the output of the selected microphone to the channels output. How they function i.e. Latching, Momentary or Intelligent can be setup using the associated menu option.

   Other functions are:

A) Double click (just like a pc mouse) will send a call signal to the connected circuit and make the receivers call LED flash and also (if enabled) provide an audio indication of an incoming call.
B) While simultaneously pressing the talk key and turning the volume/ setup knob the input gain of the associated channel will be adjusted.
C) While simultaneously pressing the talk key and pushing and rotating the volume/ setup knob the associated incoming circuit will be panned left/ right to the headphone output.

6. **Call Light**

This bright yellow LED will flash to indicate an incoming call on that circuit. Pressing the speak key will automatically cancel the call light.

7. **Audio Presence LED**

The red audio presence LED indicates the presence of incoming audio on a particular circuit. It has a threshold of approximately -20dB (so any lower level audio will not trigger it) and it stays illuminated for 10 seconds after the detected audio falls below the threshold.

8. **Enter Setup Button**

Pressing the small tactile switch will put the unit in setup mode. When in setup mode all 4 speak keys will flash to clearly indicate that you are in setup mode.

The setup mode is protected by a 2 digit passcode. The passcode is 45 (the numeric equivalent of GL). Just turn the volume/ setup knob until 45 is shown on the screen and then push the knob to select.

9. **Headphone Jack**

This standard 6.35mm (1/4”) stereo headphone socket accepts headphones from 30 to 1000 Ohms.
It has a unique headphone amplifier that allows it to provide the correct output level regardless of the headphone impedance and it can also have mono headphone jacks connected with no adverse effect.

10. **USB Update**

The USB connector is used for connected a PC to the device for loading software updates.

11. **Headset Connector**

Note this can be factory fitted to the B4 instead of the 3 pin microphone in XLR. The headset connector carries both microphone in and headphone out audio circuits.

12. **Network RJ45**

The Neutrik Ethercon network socket can connect to both Neutrik Ethercons and standard RJ45 cables. It is a 100M/bit standard IP network connection. The status LED flashes to show when data is being correctly communicated with the attached switch.
If connected to a Power Over Ethernet (PoE) source then the unit will be powered from it.

13. **IEC Mains**

Note: There is no mains option on the Beltpack B4
The standard IEC mains plug accepts external AC voltages of 100 -240 VAC +/- 10%.

CONFIGURATION MENU

1. Entering/ Leaving Setup

To enter setup press the small round flush mounted button marked ‘SETUP’

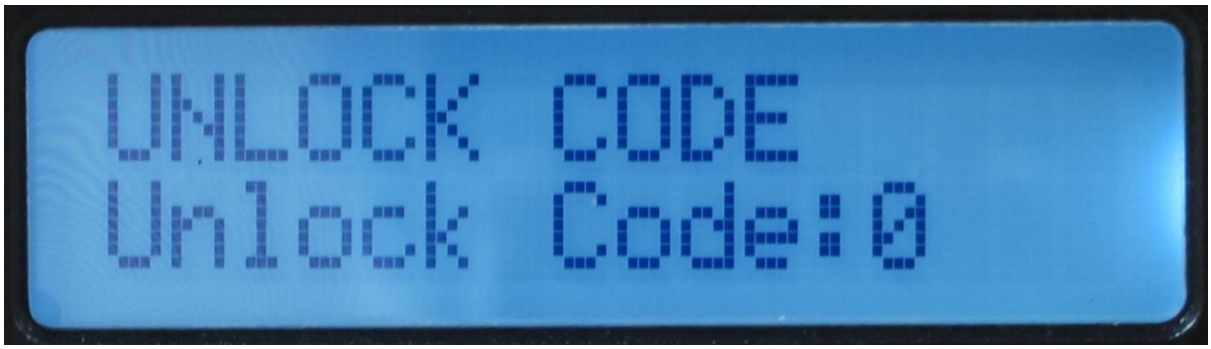
Once in setup mode all 4 talkback switches flash to make it clear that you are in the setup mode.

If no action is taken the unit will automatically exit setup mode after about 30 seconds of inactivity.

When in setup mode pressing the ‘SETUP’ button will exit the mode and the unit will return to normal operation.

A. Unlock Code

To prevent operators entering the configuration menu and altering the device’s settings when you first enter the setup mode the display asks for an unlock code.



To unlock the device rotate the Volume/ Setup knob until the number 45 is displayed on the screen and then push the Volume/ Setup knob.

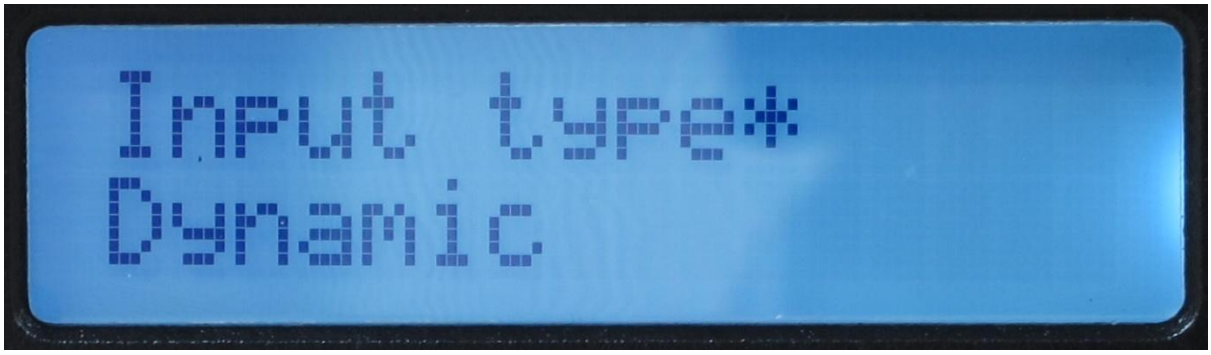
2. Selecting The Different Menus & Options Within The Menu

Once in setup mode with the device unlocked, rotate the Volume/ Setup knob to scroll between the different menu settings. Once the display indicates the desired menu that you would like to alter push the Volume/ Setup knob to enter that selected sub menu.

Once in the sub menu, rotate the Volume/ Setup knob both clockwise and anti-clockwise to display all available options for that parameter. When the setting that you want to make is displayed on the screen push the Volume/ Setup knob and it will then be set.

B. Input Type

This setting allows the user to select either the internal microphone or the external microphone to be used for talkback purposes. There are 2 options for the external microphone to allow different types of microphones to be connected.



AVAILABLE OPTIONS:

Dynamic: *External mic input for dynamic microphones*

Phantom: *External mic input with +48V Phantom Power being supplied*

Panel: *The Internal microphone mounted behind the front panel. (Not available on the Beltpack)*

C. Input Gain

This adjusts the input gain of the microphone input and should be used to set the output level of the user's microphone to the intercom network.

The gain range is nominally marked 0 – 30 for panel mic and 0 – 17 for the external mic.

To correctly set the gain, connect a microphone and set the appropriate input type, enter the Input Gain menu and start talking into the microphone at the level that you will use the unit. Next to the Gain level a very simple PPM will appear on the screen made up of the characters >>>X<<< to indicate the audio level. The goal is to set the level such that during normal speech the 'X' is on most the time and that you do not get too many '<<'. If you don't see the 'X' and only see '>>' then you will need to turn the gain up.



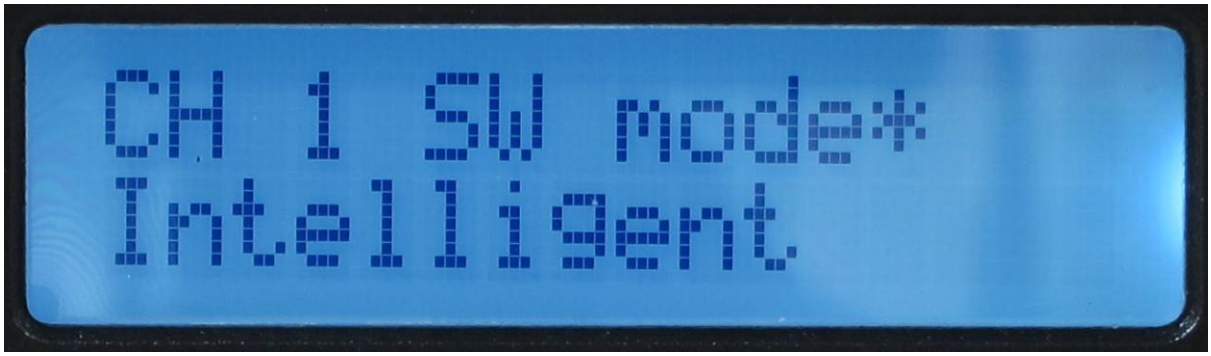
D. Sidetone Vol

Sidetone is standard terminology for the user's own voice appearing the user's own headphones. It has no effect on the outgoing level heard by other people on the intercom network.
This setting adjusts the gain (volume) of the user's own voice in their heaphone feed.



E. CH1 to CH4 SW Mode

There are 4 identical menu options for setting the operation of the 4 talkback keys (buttons/ switches). Each of the 4 talkback keys can be independantly set.



AVAILABLE OPTIONS:

Momentary: *The talkback key must be held down to operate.*

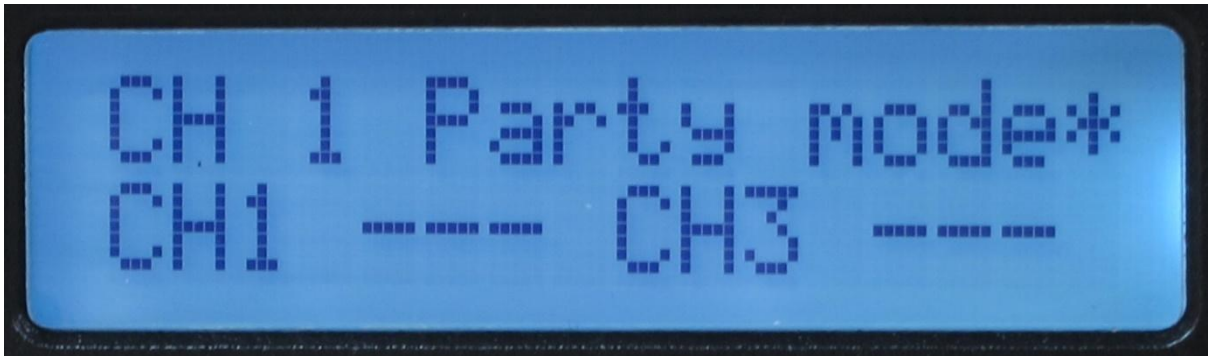
Latching: *A push of the talkback key will turn the channel on, another push will then turn the channel off.*

Intelligent: *A brief push of the talkback key will turn the channel on or off. But a press and hold of the talkback key will only turn the output on (or off if already on) while the key is being pressed.*

F. CH1 to CH4 Party Mode

There are 4 identical menu options to set part mode on the 4 output channels.

Party mode is a facility that can be used to set up a party line style intercom. When in party mode the Channels output can have audio from any of the 4 incoming circuits routed and mixed to it.



In the above screen shot, Channel 1's output would have both Channel 1 and Channel 3's inputs routed to it. Therefore any incoming audio received on either Channel 1 or 3 would also be received by the destination that Channel 1's output is routed to within the overall intercom system.

G. Call mode

This mode provides the ability to turn off the calling feature for any of the channels. If you are in a setup where the calling feature is not being used, then turning it off (disabling it) can prevent accidental triggering of the call circuit.



In the above screen shot only CH3 and CH4 have their call mode switched on.

Turning off the call mode turns off the transmitting of the call signal when a double tap on the channels talk key is detected. It also turns of the detectors looking for an incomming call signal.

H. RX Only mode

The receive only mode allows one or more of the 4 circuits to be set to receive audio only. When set in this mode pressing a channels talk key turns the associated incoming audio circuit on/ off to the loudspeaker/ headphones.



When a channel is set to receive only the operators microphone is never routed to the channels output and a call signal will also never be sent to the output.

In the above screenshot CH2 has been set to receive only.

I. Headphone Boost

Headphone boost is a facility provided in case you are working in a very noisy enviroment. By turning it on the headphone output level is increased by 10dB.



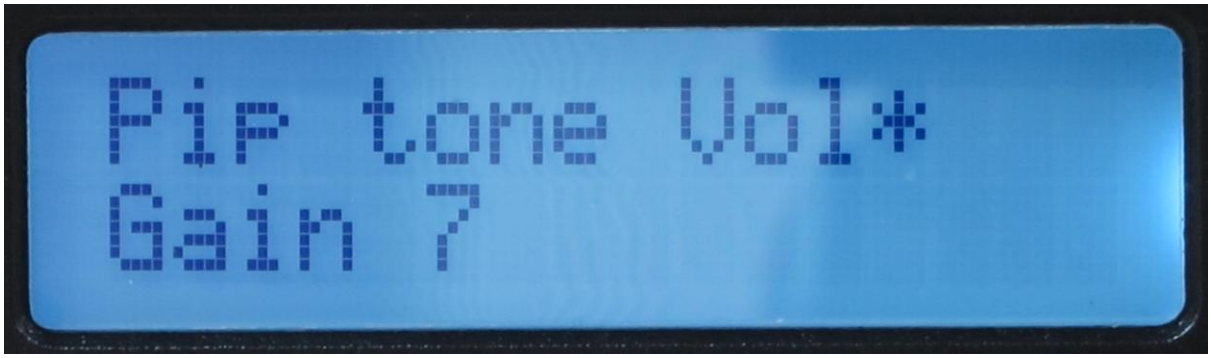
If ‘ON’ is not shown on the setup screen as per the above picture then headphone boost is turned off.

HIGH HEADPHONE LEVELS CAN BE DANGEROUS

Please note high headphone output levels can seriously damage you hearing. Please consult your health and safety officer to confirm a suitable and safe output level prior to using this equipment.

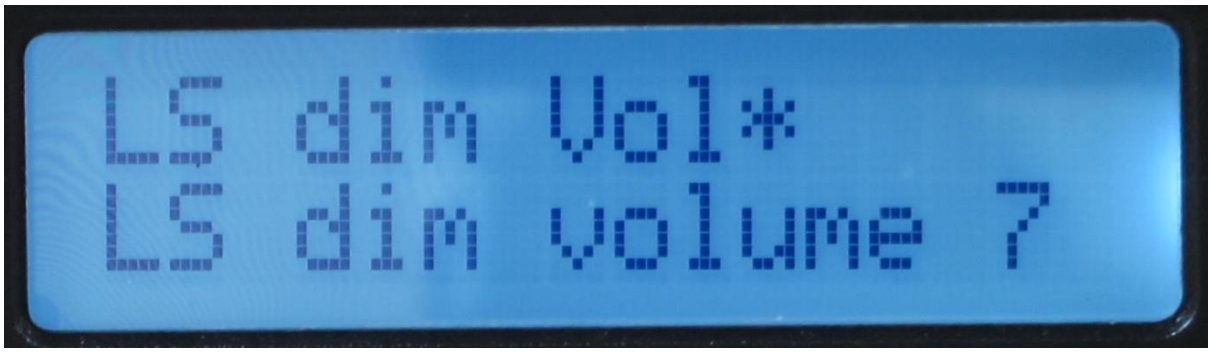
J. Pip Tone Vol

Pip tone is the audio alert that a call has been received on one of the channels and is used to indicate to the user that there is an incomming call.
The volume of this alert can be adjusted using this control.



K. LS dim Vol

LS (Loudspeaker) dim, is the amount of dimming that occurs on the front panel loudspeaker when a talkback key is pressed. By dimming the loudspeaker when a talkback channel is on you reduce the amount of acoustical pickup between the loudspeaker and microphone which helps to eliminate nasty acoustical feedback.



Note: LS Dim is not available on the beltpack B4.

L. End Stop Vol

The term ‘End stop’ refers to old fashioned electronic volume circuits where an ‘end stop’ resistor would be placed at the bottom of a volume potentiometer to prevent that potentiometer from fully attenuating (turning off) the audio signal.

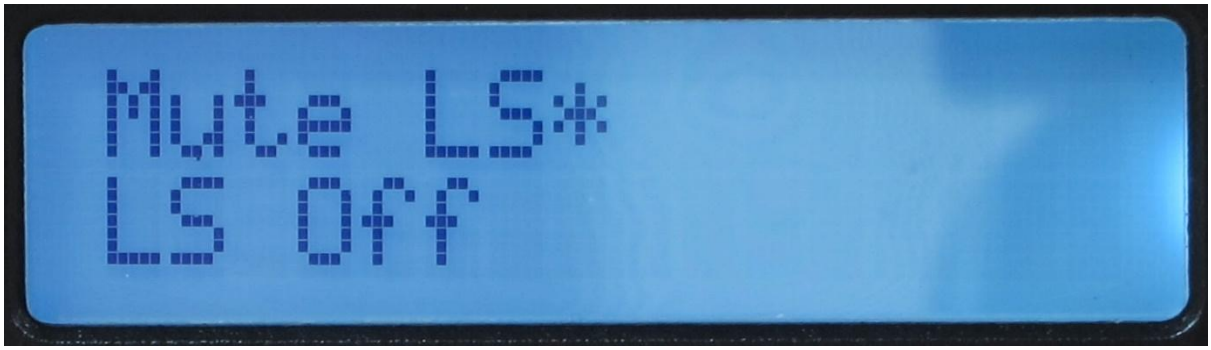


In the Beatrice units each of the 4 incoming audio circuits have their own adjustable level control (to adjust the incoming level of one circuit, press the associated talkback key and adjust the Volume/ setup knob).

This ‘End stop’ menu adjusts the minimum level that these 4 incoming audio circuits can be set to, where ‘0’ equates to off and ‘10’ equates to full volume.

M. Mute LS

Mute LS, this control is either on or off. It turns the front panel loudspeaker on or off and is normally used when the operator is wanting to operate from headset and audio coming from the loudspeaker would disturb the local environment.



Note: LS Dim is not available on the beltpack B4.

N. Save Preset

There are 4 presets available. If you select a preset (1 – 4) and push the volume/ setup knob then all the current settings will be saved to that position in non-volatile memory. If there was a previously saved preset on the same preset number this will be overwritten.



Please note the preset only saves configurations available via the menu system, it does not save any Dante network information.

O. Load Preset

The load preset menu recalls previously saved configurations.



P. Set idle display name

From firmware version 1.9.0 it is possible to set the idle display name.

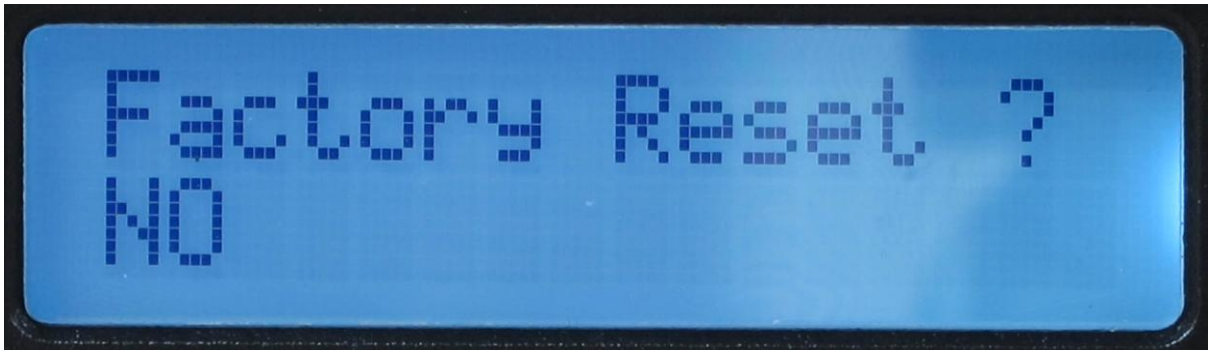




Press the encoder to enter the editor. Rotate the encoder to select the desired letter then press the encoder to move to the next character.
The text on the top line indicates the current character number. Press the encoder to increment the position.
Note:- text is saved when you reach the end of the line.

Q. Factory Reset

If the factory reset menu is entered and ‘Yes’ selected (and then the Volume/ Setup knob is pushed) then the units configuration will return to factory defaults.



Please note factory reset will not overwrite and saved presets.

FACTORY PRESETS

If the factory reset menu option is sleected the device will return to the following parameters.

Please note that any saved presets are not affected by the factory reset operation.

```
hp_mix.rx1_gain = 15;
hp_mix.rx2_gain = 15;
hp_mix.rx3_gain = 15;
hp_mix.rx4_gain = 15;

hp_mix.rx1_pan =  7;
hp_mix.rx2_pan =  7;
hp_mix.rx3_pan =  7;
hp_mix.rx4_pan =  7;

hp_mix.sidetone_level = 7;
hp_mix.sidetone_pan =  7;

tx_channel_mix[0].button_mode = 2;    //intelligent
tx_channel_mix[1].button_mode = 2;
```

```
tx_channel_mix[2].button_mode = 2;
tx_channel_mix[3].button_mode = 2;

tx_channel_mix[0].party_mode = 0;
tx_channel_mix[1].party_mode = 0;
tx_channel_mix[2].party_mode = 0;
tx_channel_mix[3].party_mode = 0;

hp_mix.pip_gain =  7;

hp_mix.master_gain = 15;
hp_mix.ls_dim_gain = 0;

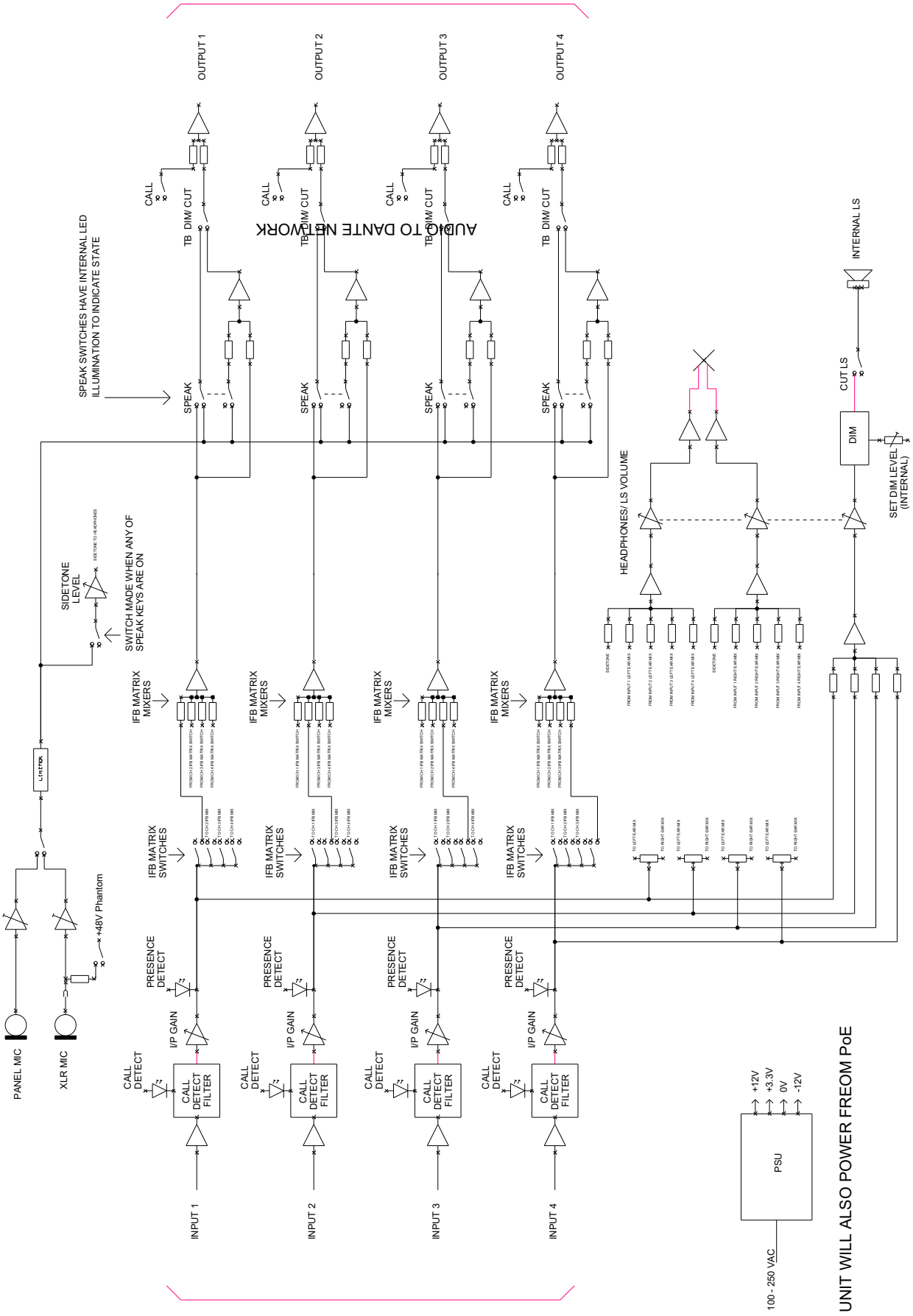
hp_mix.rx_endstop_gain = 6;

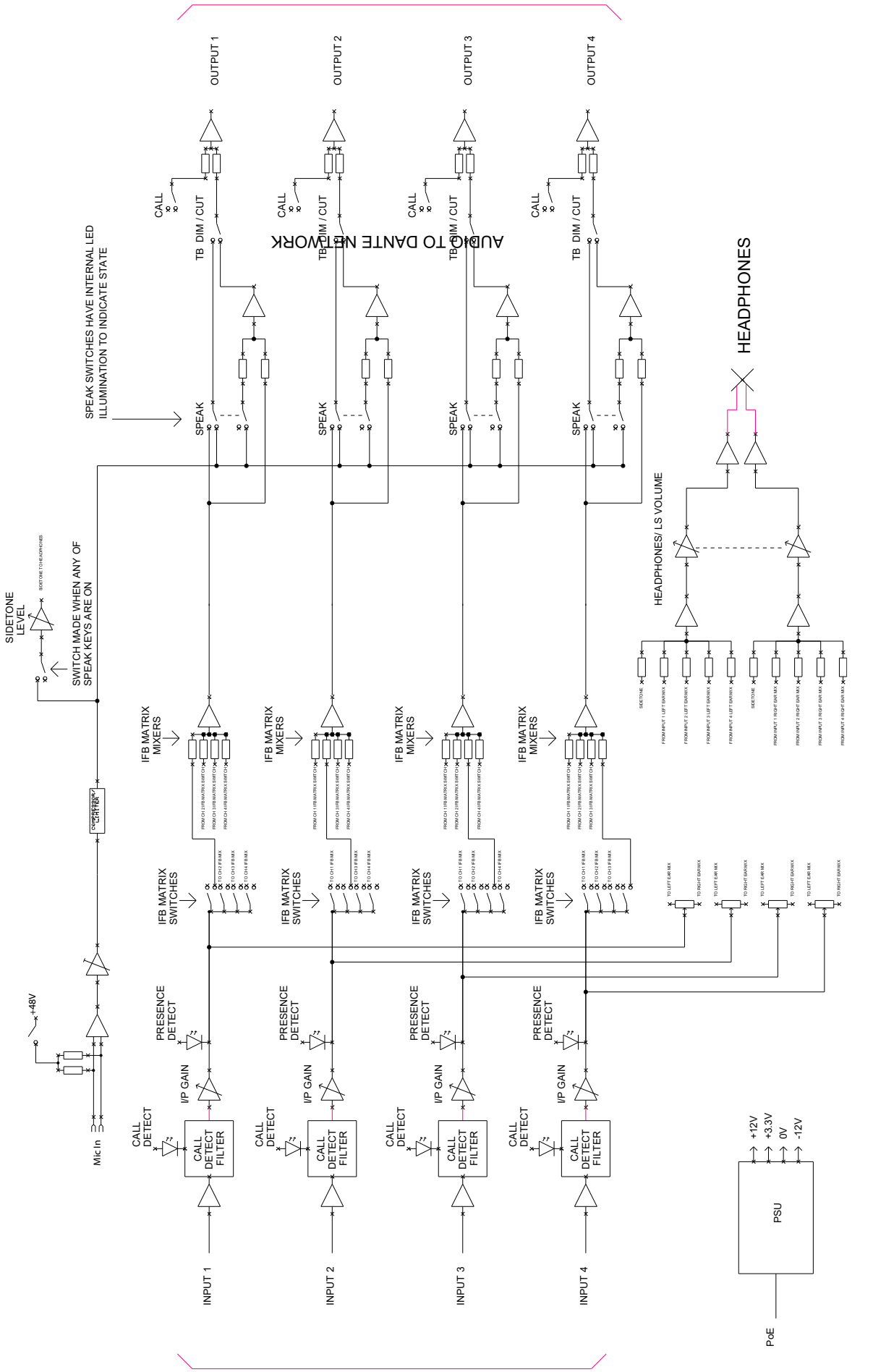
ls_mix.ls_mute = 0;

mic_line.current_input_type = 0;    //dynamic
mic_line.current_input_gain = 10;
mic_line.current_pwr_state = 0;
mic_line.phantom_gain = 10;
mic_line.dynamic_gain = 10;

mic_line.panel_mic_gain = 15;
```

AUDIO BLOCK DIAGRAMS (analogue representation of digtal circuits)




AUDIO TO DANTE NETWORK
OUTPUT 1
OUTPUT 2
OUTPUT 3
OUTPUT 4
CALL
TB DIM / CUT
SPEAK
SPEAK SWITCHES HAVE INTERNAL LED ILLUMINATION TO INDICATE STATE
HEADPHONES
HEADPHONES/ LS VOLUME
SIDETONE LEVEL
SWITCH MADE WHEN ANY OF SPEAK KEYS ARE ON
IFB MATRIX MIXERS
IFB MATRIX SWITCHES
PRESENCE DETECT
I/P GAIN
CALL DETECT
CALL DETECT FILTER
+48V
Mic In
INPUT 1
INPUT 2
INPUT 3
INPUT 4
+12V
+3.3V
0V
-12V
PSU
PoE

CONNECTING THE BEATRICE UNITS TO A DANTE NETWORK

The Beatrices are network audio devices utilizing the reliable and versatile Dante audio over IP protocol. Dante is a proprietary system (although very widely used) the originators of which are Audinate.

The information below is only meant as a very basic guide. Full details of the power of Dante network audio and instructions for using it can be found at www.audinate.com

Getting Dante Controller

If you are connecting the Beatrice to a new Dante network the first thing you will need to do is to get the free Dante controller software from Audinate.
This can be downloaded by visiting Audinate's web site at www.audinate.com

Connecting Beatrice To The Network

Beatrices can be connected to the network that you are going to use for your audio distribution simply by plugging in either, and, or any of the network connections on the rear. Once connected to the network it will be possible to see the inferno from within the Dante controller and route its' audio circuits.

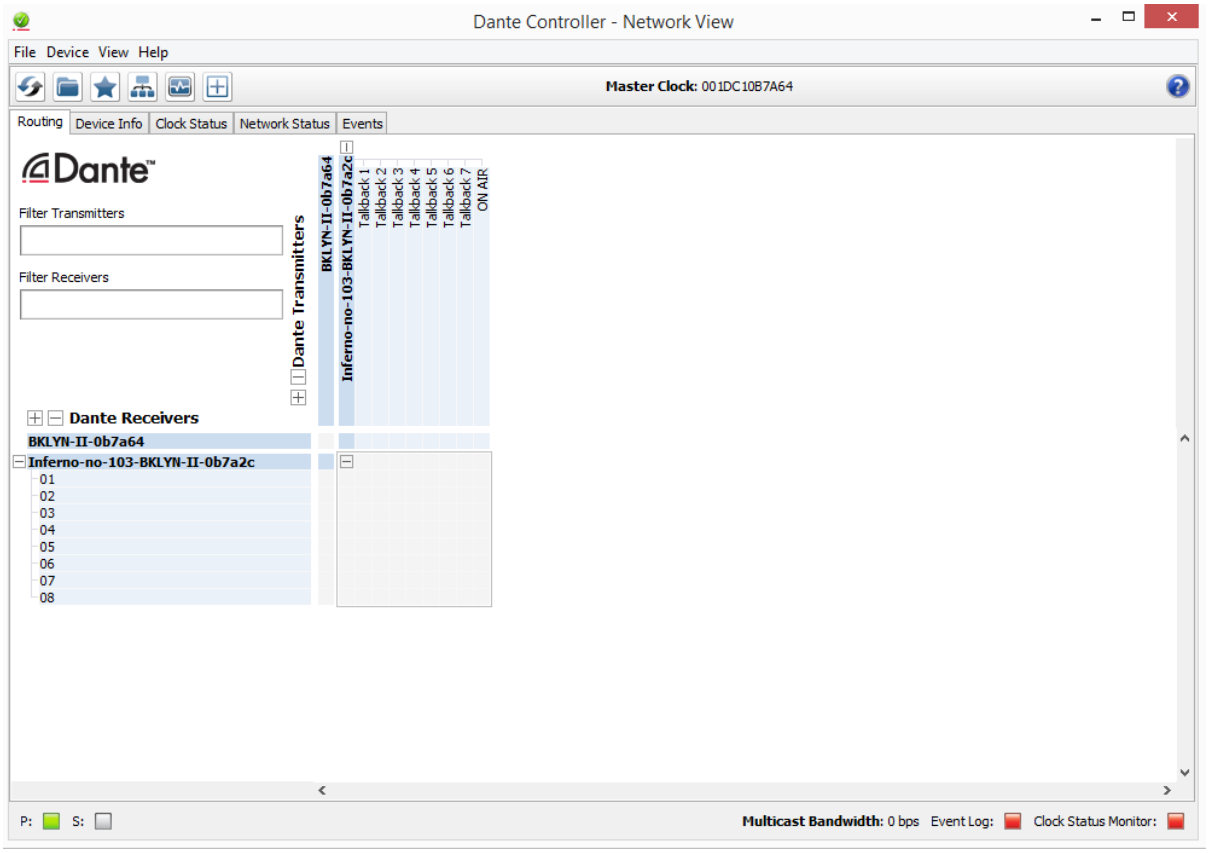
Audio Over IP Network

We strongly recommend that you consider your network topology carefully and would not recommend sharing broadcast audio and general data on the same network.

For more details of audio over IP network structure please visit www.audinate.com

Running Dante Controller

At the time of writing this manual the Dante Controller looks as per the screenshot below:



The Beatrice will have been named at the factory during test to allow them to be identified by the Dante controller.

The format used for the factory name is:

‘BeatriceXX-snXXX’

Where ‘BeatriceXX’ refers to the Glensound product i.e. BeatriceR4 or D4 or B4.

The ‘–snXXX’ refers to the serial number of the Beatrice unit which can be found printed on the rear or side of the unit.

Note if you upload a new DNT file or clear the devices config then the name will change to BeatriceXX-xxXxXx whereby the ‘X’s refer to the devices MAC address.

Dante Controller TIP

If you have never run Dante controller before then make sure that on the bottom left of the Dante controllers’ screen ‘P’ or ‘S’ is next to a green square as this indicates that it is connected to a network. By clicking ‘P’ or ‘S’ a pop up box opens to allow you to set what network interface the controller is using.

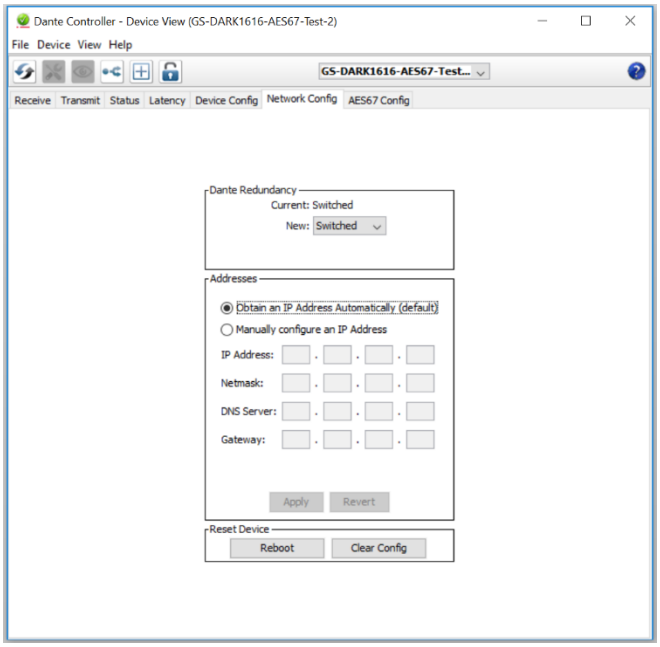
Device Not Showing Up In Dante Controller

If your Dante™ device does not show up in Dante™ Controller then the most likely issue is that the device's IP Address is not appropriate for your network.

A) It maybe that the device is set to obtain an IP address automatically using DHCP (this is the default configuration) and your network is setup for fixed IP addresses only and does not have a DHCP server.
B) It maybe that the device has had a fixed IP address assigned but that this address is not suitable for your network.

The solution to both scenarios is basically the same.

1) You must connect your Dante™ device directly to the Ethernet port of your computer using an Ethernet cable.
2) Make sure that your computer is set to 'Obtain an IP address automatically'
3) After a few minutes the Dante™ device should now appear in Dante™ Controller.
4) Double click the device name to open up device view.
5) Open up the 'Network Config' tab
6) Either turn on 'Obtain an IP Address Automatically' or correctly configure the 'Manually configure an IP Address' options for your network.
7) Click on 'Apply' to confirm the new settings, then disconnect the computer and reconnect the Dante™ device to your network.



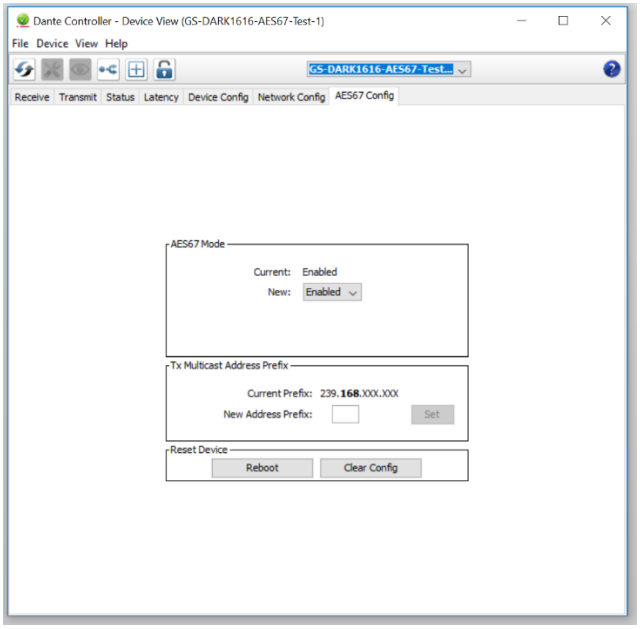
AES67 MODE

The Beatrice uses a chipset from Audinate called Ultimo for its network audio interface. Audinate are the company behind Dante™ and as such the chipset's primary network audio protocol is Dante, however Audinate have enabled their module to comply with AES67 and therefore the Beatrice can be set to AES67 mode for interaction with other AES67 devices.

Please note however that Glensound are relying on Audinate's AES67 interface and are unfortunately not able to provide full AES67 support for the unit. AES67 support should be sought directly from Audinate.

1. Turning On AES67 Mode

If you want to use your Beatrice on an AES67 network and it has not been set to AES67 mode then this can be set in Dante controller by double clicking the Beatrice to open the Device View window where you will find an AES67 tab to enable AES67 support.

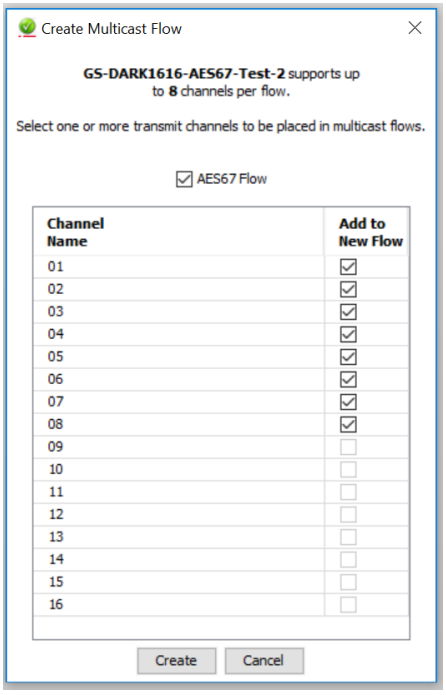


Once the AES67 drop down box has been enabled you'll have to reboot the Beatrice for the change to take effect. After the reboot go back to the AES67 tab and set the multicast prefix address to one that is suitable for your newtork.

2. Sending AES67 Audio

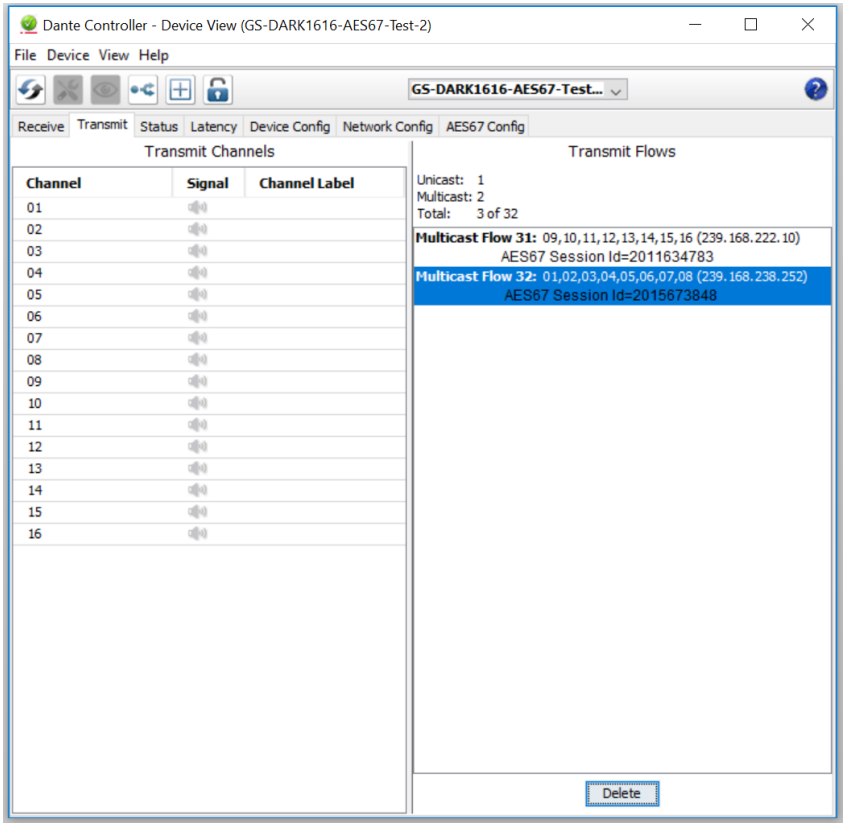
To transmit AES67 audio to the network a multicast flow must first be setup.

This is done by selecting the ‘Create New Multicast Flow’ Icon  in the Device View.



Tick the AES67 Flow check box, then select up to 4 channels to be included in the flow then click ‘Create’

Once set the flows can be seen in the transmit tab of the device view.



3. Receiving AES67 Audio

Once a compatible AES67 stream is detected on the network by Dante Controller the AES67 flows will appear in the Dante Transmitters section in the Routing tab.

4. AES67 Restrictions

AES67 flows can only be generated with the following constraints:

- Multicast Only
- Non-redundant
- Destination address in range 239.nnn.0.0 to 239.nnn.255.255 (239.nnn/16), port 5004
- 48kHz sampling rate
- 24 bit linear (L24) encoding
- 1 msec packet time
- Up to 8 channels per stream

Received AES67 flows have the following constraints:

- Multicast Only
- Non-redundant
- Destination address in range 239.nnn.0.0 to 239.nnn.255.255 (239.nnn/16), port 5004. Must match destinatio address range.
- 48kHz sampling rate
- L16 or L24 encoding
- 125usec, 250usec, 333usec, 1 msec packet time
- Up to 8 channels per stream

UPDATING FIRMWARE

The Beatrice units are a digital audio system comprising of a Micro Controller and ADC and DAC converters. These items run software and may need to be occasionally updated.

Equipment needed

- A windows based PC
- USB Type A to Micro B cable
- A copy of 'DfuSe Demo' software
- The latest firmware from Glensound
- The Beatrice unit to update

Instructions

1. Download and install DfuSE Demo

   'DfuSE Demo' is a firmware updating tool that is required for loading new firmware on to the Beatrice.

   It can be downloaded from the STMicroelectronics website found here: https://goo.gl/AbzhsA. It is the file named "STSW-STM32080".

   Once you have downloaded this file you will need to extract the .exe "DfuSe_Demo_V3.0.5_Setup.exe", then run and install it.

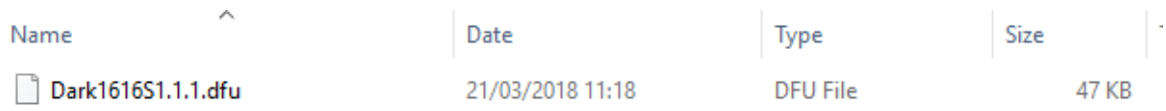


Figure 1 Example filename

2. Connect To A PC

   Connect the Beatrice to the PC via the USB cable. The Micro USB connector is located on the rear panel of the unit.

3. Firmware update preperation

   To prepare the Beatrice for a firmware update;

   1. Press and hold down the Enter Setup button
   2. Power on the unit
   3. Release the Enter Setup button

   Your PC should make an audible sound when this process is successful as windows is detecting a new USB device.

4. Loading the firmware

Now open DfuSe Demo.

If the Beatrice successfully entered DFU mode then it will appear as ‘STM Device in DFU Mode’ under the ‘Available DFU Devices tab’.

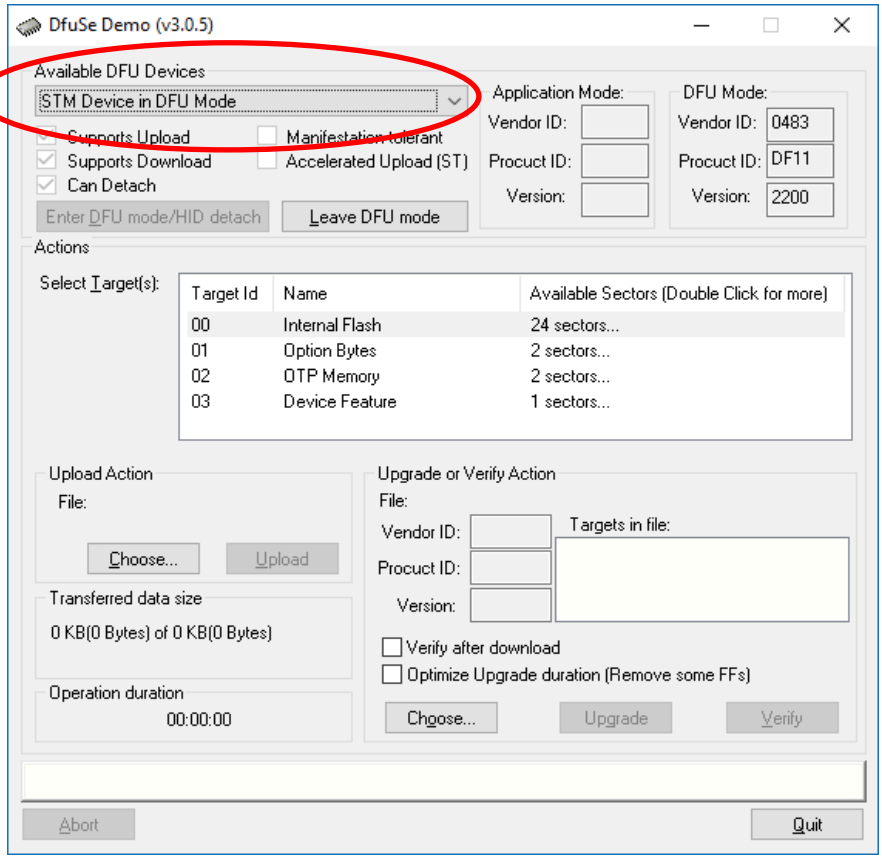


Figure 2 Device successfully recognised

Now the .dfu file needs to be selected so that DfuSe Demo knows the correct firmware to put on to the Beatrice.

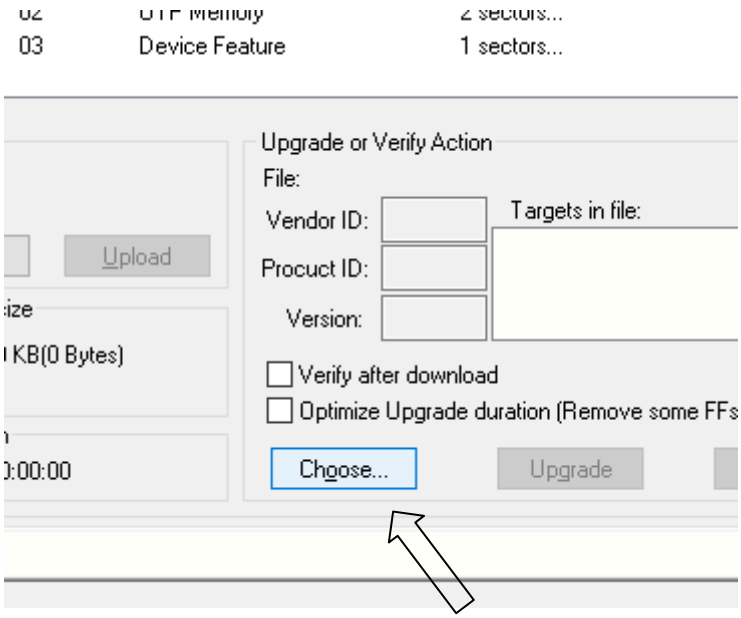


Figure 3 Choose .dfu file

Click choose and then select the .dfu file that you downloaded from the Glensound website. This will be located in your downloads folder by default.

If the file loads successfully then it will read along the bottom 'File correctly loaded'.

5. Upgrading the Beatrice firmware

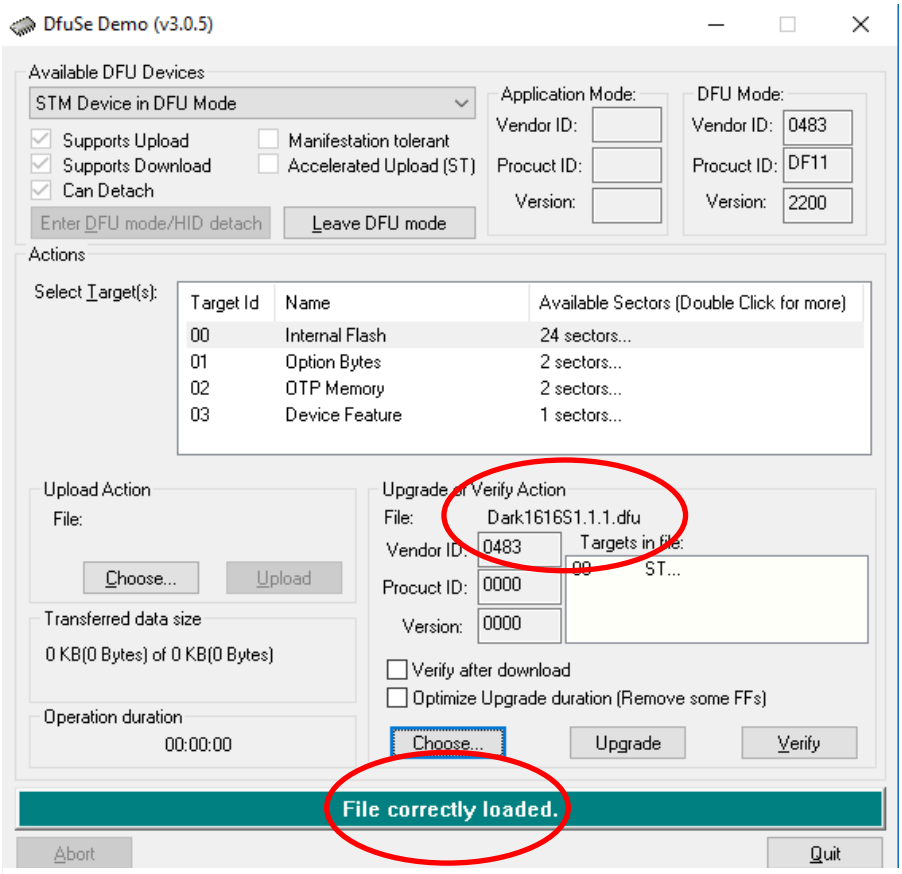


Figure 4 .dfu successfully loaded

The firmware is now ready to be put on to the Beatrice. Tick the ‘Verify after download’ box first and then click ‘Upgrade’.

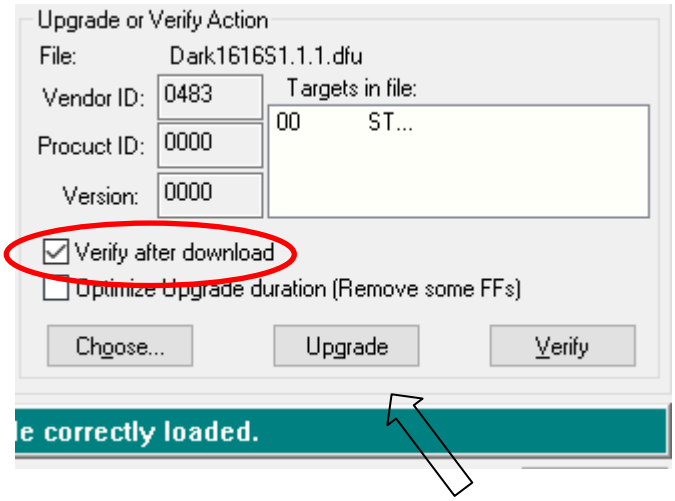


Figure 5 Upgrade

Click yes to proceed.

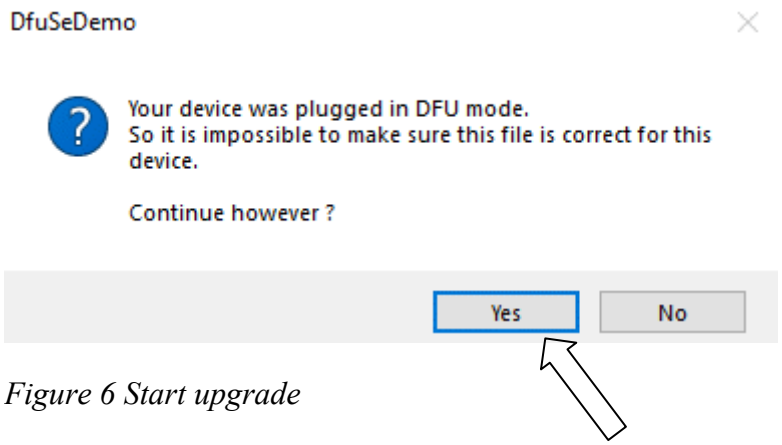


Figure 6 Start upgrade

The progress bar along the bottom will show the status of the operation.If the operation was successful, DfuSe Demo will report that “Target 00: Verify Successful!”.

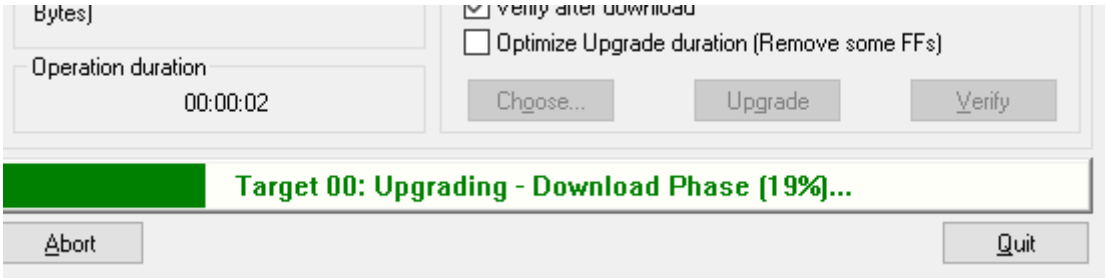


Figure 7 Upgrade status

You may also see that it will report how much data was successfully transferred.

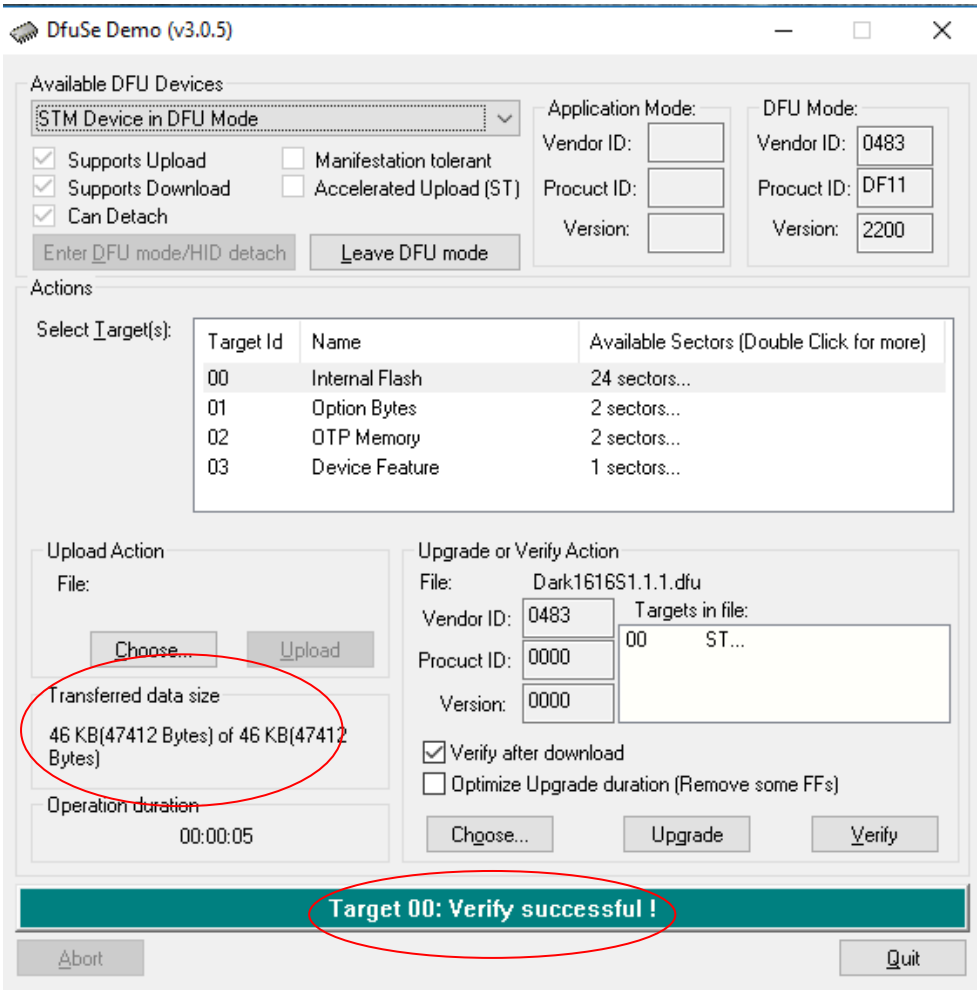


Figure 8 Successful upgrade!

6. Final steps

Now click “Leave DFU mode” to finish the procedure.

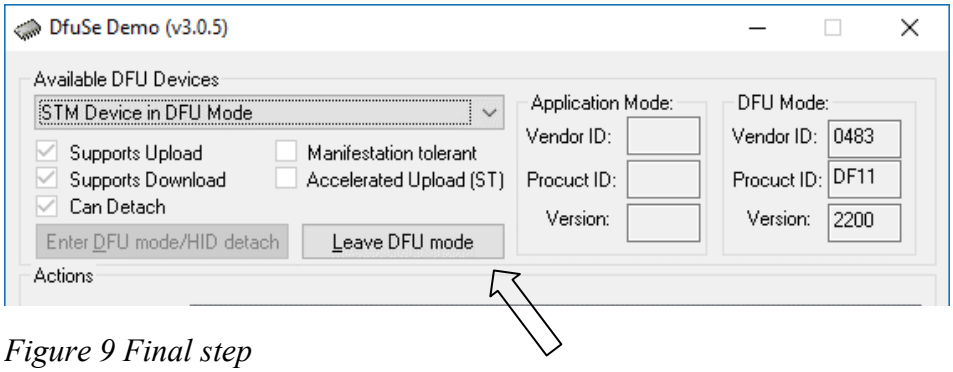


Figure 9 Final step

You may now disconnect the USB cable and continue to use the Beatrice with the freshly updated firmware!

UPDATING THE ULTIMO CHIPSET

The Ultimo Chipset is a device supplied by Audinate that does most of the processing for the actual Dante/ AES67 network audio streams. There is one Ultimo Chipset in each Beatrice. We supply special code (a .dnt file) that sets up/ initiates the Ultimo Chipset and makes it work in particular way that is compatible to the Beatrice.

1. Finding Out Current Installed Version

Using Dante® controller double click on the Beatrice device name in the routing tab to open the Device View box.
In the Device View box open the Status Tab.

The 'Product Version:' shows the currently installed version of Ultimo Chipset dnt code.

2. Updating the Ultimo Chipset

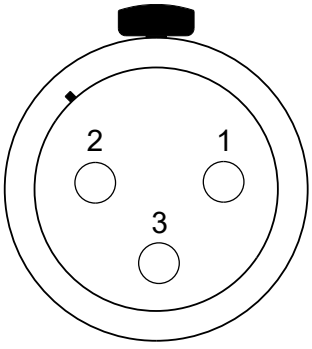
The firmware that runs in the Ultimo Chipset is updated using Audinate's Firmware updating tool. The updating tool and a user guide can be downloaded from Audinate's website:

https://www.audinate.com/products/firmware-update-manager

NOTE:
Please note we strongly advise that when you do the update that only your PC and the Paradiso that you want to update are on the network to save accidently updating the wrong Dante device.

WIRING INFORMATION

XLR & JACK Wiring



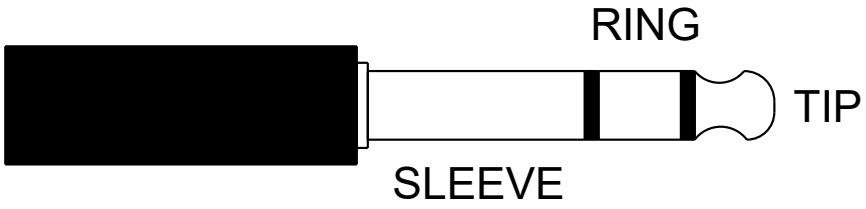
XLR SOCKET (FEMALE)

STANDARD XLR AUDIO PINOUTS:

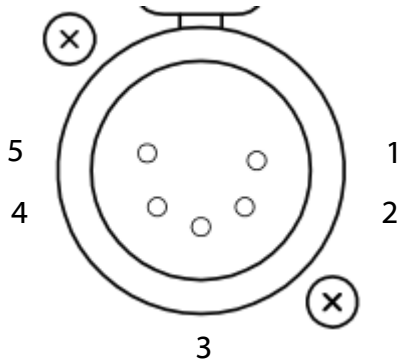
1: Ground/ Earth

2: INPHASE/ POSITIVE/ MIC +

3: MATE/ NEGATIVE/ MIC -



OPTIONAL 5 or 4 PIN XLR WIRING INFORMATION



5 PIN XLR AUDIO PINOUTS:
Female XLR fitted to Beatrice, mates with cable mounted male

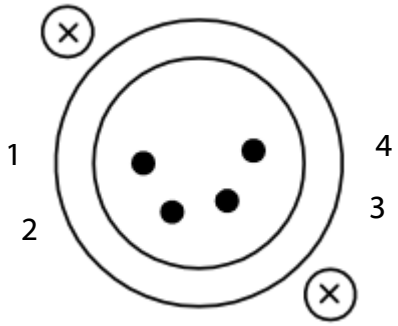
1: MATE/ NEGATIVE/ MIC -

2: INPHASE/ POSITIVE/ MIC +

3: GROUND/ EARTH

4: HEADPHONE LEFT

5: HEADPHONE RIGHT



4 PIN XLR AUDIO PINOUTS:
Male XLR fitted to Beatrice, mates with cable mounted female

1: MIC GND/ MIC –

2: INPHASE/ POSITIVE/ MIC +

3: HEADPHONE GND

4: POSITIVE/ HEADPHONE +