SPARK

Ultra-Compact Network Audio Commentary Unit

PRODUCT DETAILS

⨍Dante™

Glensound Electronics Ltd

Thank you for choosing a new Glensound product.

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:

Glensound Electronics Ltd
1 – 6 Brooks Place
Maidstone
Kent
ME14 1HE
United Kingdom

Telephone: +44 (0) 1622 753662
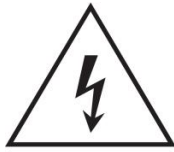
Fax: +44 (0) 1622 762330

EMAIL ADDRESSES

General enquires: office@glensound.co.uk

Technical enquires: techinfo@glensound.co.uk

Sales enquires: sales@glensound.co.uk
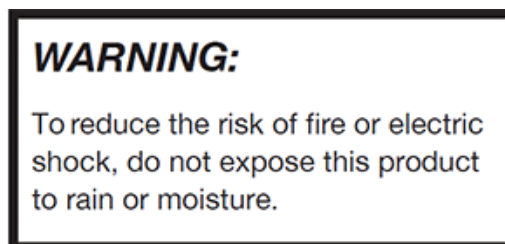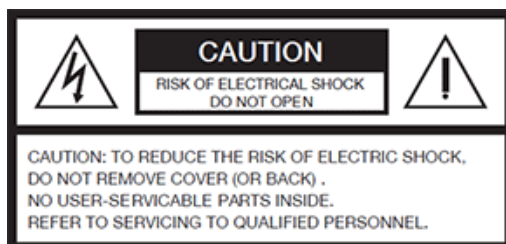
IMPORTANT SAFETY INSTRUCTIONS

This symbol is intended to warn that dangerous voltages within the product are present and constitute a risk of electric shock.

This symbol is intended to highlight that there are important operating & maintenance instructions in the literature accompanying this unit.

1) Read these instructions
2) Keep these instructions
3) Heed all warnings
4) Follow all instructions
5) Do not use this apparatus near water
6) Clean only with a dry cloth
7) Do not block any ventilation openings. Install in accordance with manufacturer's instructions
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat
9) 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 third grounding prong. The wider blade or the 3rd prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet
10) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus
11) Only use attachments/ accessories specified/ supplied by the manufacturer
12) 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
13) Unplug this apparatus during lightning storms or when unused for long periods of time
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as 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
15) Do not attempt to modify this product. Doing so could result in personal injury and/ or product failure

CAUTION
RISK OF ELECTRICAL SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICABLE PARTS INSIDE.
REFER TO SERVICING TO QUALIFIED PERSONNEL.

WARNING:

To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

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.

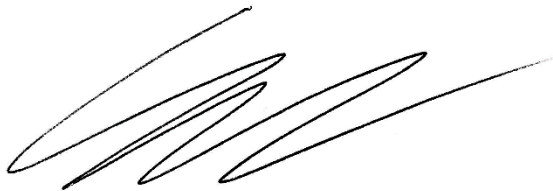# CE

EU DECLARATION OF CONFORMITY

SPARK

Ultra-Compact Dante/ AES67 commentary unit

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:

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: 02/03/2021

RoHS DIRECTIVE

RoHS 2 Directive 2011/65/EU restricts the use of the hazardous substances listed below in electrical and electronic equipment.

This product conforms to the above directive and for these 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 SPARK
HANDBOOK CONTENTS

OVERVIEW

Spark is an ultra-compact network audio commentators' box for a single commentator.

It was designed to have the smallest footprint possible to make it fit in the most bijou of commetary booths whilst retaining usability for the commentator, exceptional audio performance and sophistiacted remote control.

Spark's network audio interface is based on the Broadway chipset from Audinate, making it ideal for both Dante and AES67 infrastructures and also SMPTE 2110-30 capable (when used in conjunction with Dante Domain Manager (licence fees apply)).

Power is supplied via standard Power Over Ethernet (PoE) technology and for versatility it can also be powered by USB.

Network interface, microphone in and headphone out connectors are all on the rear panel, whilst headphone volume controls are via recessable front panel knobs making the overall setup perfect for tight spaces.

Although ultra-compact the internal audio circuits have not been compromised in any way, top quality analogue to digital chipsets and the very latest profusion remote controlled microphone amplifier and an audio specific DSP are all used to ensure the absolute optimon contribution microphone performance is achieved.

SPARK FRONT PANEL LAYOUT

1. Mic On/Off Button

2. Talkback Buttons

3. Volume knobs

1. **Retractable volume knob**

   The large illuminated Mic On/Off button turns the commentator's microphone on/ off the main programme audio output. When the internal illumination is on then the commentator's microphone is also on and being routed to the network program output. *Please note the button can be programmed to operate in a number of different ways via GlenController.*

2. **Speak button volume**

   Each of the four channels has a speak button which toggles the microphone on or off for that specific channel. When the channel is active the button illuminates blue. A double press of the speak key will send an outgoing call signal on that channel. The behaviour of this button can be changed in Glensound Controller.
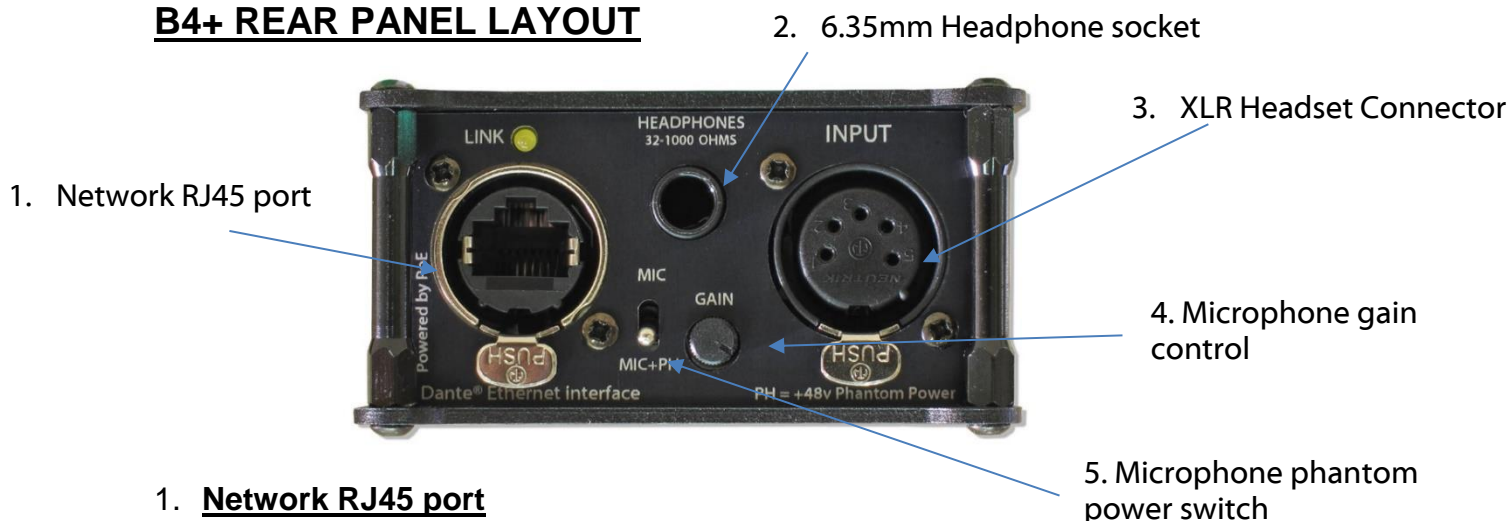
3. **Talkback Buttons**

   Pictured for this manual is the Spark3, which has three talkback switches, the Spark1 and Spark2 only have one or two talkback buttons so they appear different from the above picture.

   The

4. **Present LED**

   This LED will illuminate when there is incoming audio present on a respective channel.

B4+ REAR PANEL LAYOUT

2. 6.35mm Headphone socket

3. XLR Headset Connector

1. Network RJ45 port

4. Microphone gain control

5. Microphone phantom power switch

1. **Network RJ45 port**

   This is a standard 1Gbps ethernet IP interface that allows connection to a Dante network. The amber LED indicates network activity. The PoE source used to power the device can be a mid-span adapter or a network switch with PoE.

2. **6.35mm headphone socket**

   A 6.35mm jack socket is available for a headphone connection, with a recommended impedance range of 32-1000 ohms.

   Stereo & mono headphones can be used, or single earpieces.

   A sophisticated headphone amplifier design maintains the same output level, regardless of the impedance of the earpiece or headphones used.

3. **XLR Headset connector**

   The headset connector carries both microphone in and headphone out audio circuits. The B4+ can be fitted at the factory with a female 5-pin XLR, male 4-pin XLR or standard female 3-pin XLR. See the end of the manual for wiring information.

4. **Microphone gain control**

   This small pot allows adjusting the gain of the microphone preamplifier. It can be remotely controlled or locked in Glensound Controller, see the page 22 for more information.

5. **Microphone phantom power switch**

   This two-way toggle switch allows turning phantom power (+48V) to the microphone on or off. It can be remotely controlled or locked in Glensound Controller, see page 22 for more information.

B4+ SIDE PANELS LAYOUT

Right side

1. DC In connector

Left side

2. ALT button

3. PAN button

1. DC In connector

A standard DC IN barrel jack connector for 12V 1A DC input. The centre pin is 2.5mm. It is wired centre pin + Volts.

2. ALT button

This button effects the volume pots when held down.

3. PAN button

This button effects the volume pot when held down.

It will also make the B4+ label in Glensound Controller light up in case you need to identify which device you have remote control of.

Whilst holding down the ALT and or PAN buttons, different functionality is available:

Channel number	Normal function	'PAN' button held down	'ALT' button held down	'ALT + PAN' buttons held down
1	Channel 1 volume	Channel 1 panning	Master headphone volume	Master headphone panning
2	Channel 2 volume	Channel 2 panning	Mic sidetone volume	Mic sidetone panning
3	Channel 3 volume	Channel 3 panning	Call incoming chime volume	Call incoming chime volume
4	Channel 4 volume	Channel 4 panning	None	None

Extra functions:
Alt + Pan + Talk1, held for 5 seconds: resets the GlenController remote password
Alt + Pan + Talk2, held for 5 seconds: restores factory settings in the unit

AUDIO BLOCK DIAGRAM (analogue representation of digital circuits)

AUDIO FROM DANTE
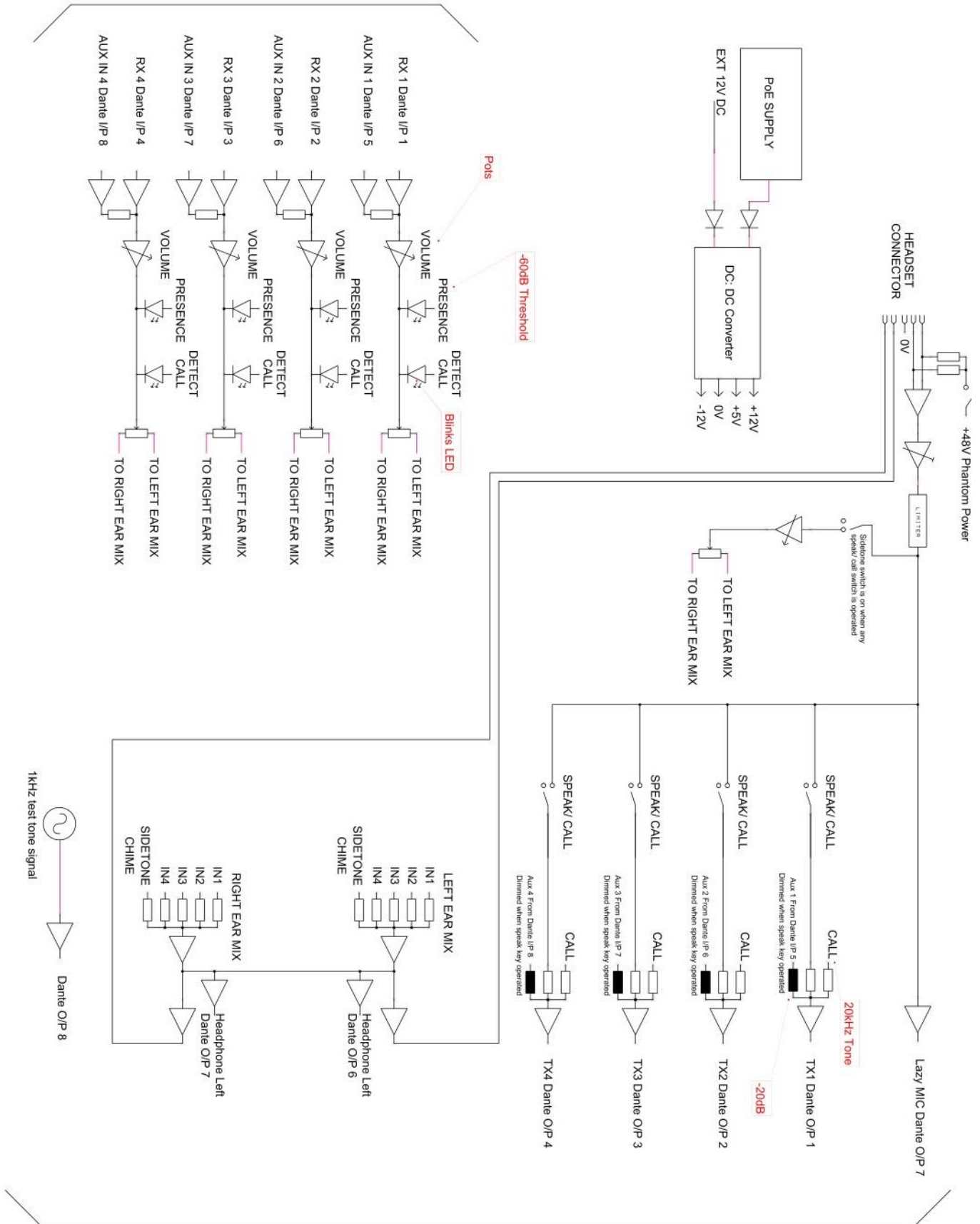
AUDIO TO DANTE

CALLING FROM OTHER BEATRICE DEVICES

A standard 20kHz sinewave tone is how the Beatrice B4+ listens for call detection. This is standard among all Glensound Beatrice devices as well as some other intercom manufacturer's products.

When the Beatrice B4+ receives a call, the channel specific LEDs will flash and the device will ring for a few seconds.

To send a call from your Beatrice B4+, simply double press the channel button you wish to call. The yellow call LED will flash to indicate that the device has sent a call signal to that channel.

The following button modes are:

Mode	Description (The default behaviour is 'Intelligent')
Intelligent	*A brief push of the key will turn the channel on or off. But a press and hold of the key will only turn the output on (or off if already on) while the key is being pressed.*
Momentary	*The key must be held down to operate.*
Latching	*A push of the key will turn the channel on, another push will then turn the channel off.*
Cough	*The channel is always on and only off when the key is pressed and held down.*
Always on	*The key is always on and cannot be turned off.*
Always off	*The key is disabled and cannot be turned on.*

CONNECTING THE BEATRICE UNIT 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 device to the network

The Beatrice can be connected to the network that you are going to use for your audio distribution simply by plugging in to the RJ45 network connections on the rear. Once connected to the network it will be possible to see the Beatrice 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:
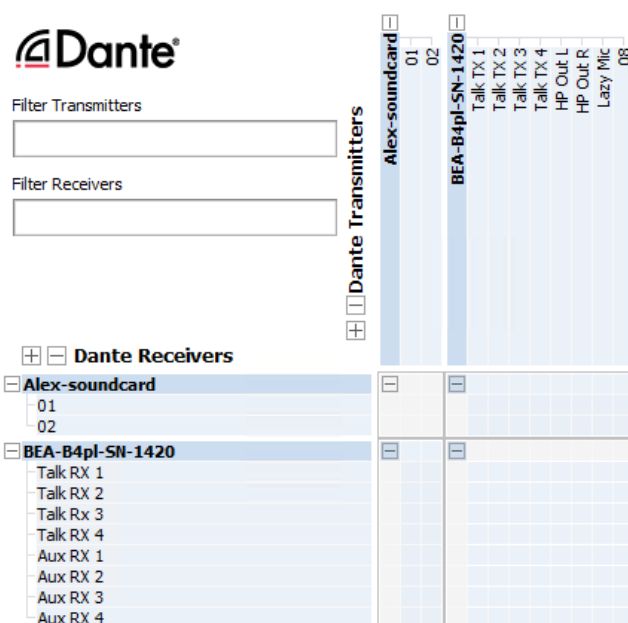
The Beatrice B4+ will have been named at the factory during test to allow them to be identified by the Dante controller.

The format used for the factory name is:

'BEA-B4pl-SN-XXXX'

Where 'BEA-B4pl' refers to the Glensound product i.e. Beatrice B4+.

The 'SN-XXXX' refers to the serial number of the Beatrice B4+ which can be found printed on the rear or side of the unit.

The unit may be renamed in Dante controller by opening the 'Device view' window and selecting Beatrice B4+ in the drop-down menu. Go to the 'Device Config' tab and change the name with the Rename Device box.

Note if you upload a new DNT file or clear the devices config then the name will change to 'BEA-B4pl-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.
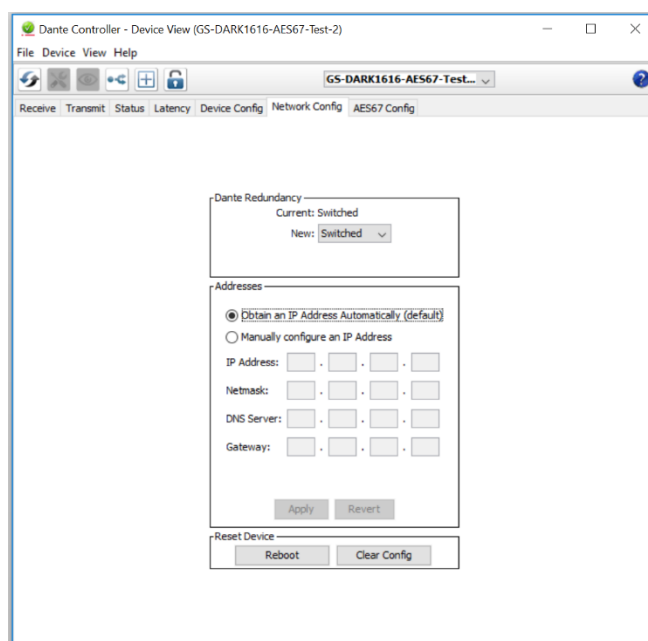
AES67 MODE

The Beatrice uses a chipset from Audinate called the Broadway for its network audio interface. Audinate are the company behind Dante and as such the primary network audio protocol is Dante, however Audinate have enabled their chip 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.

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.
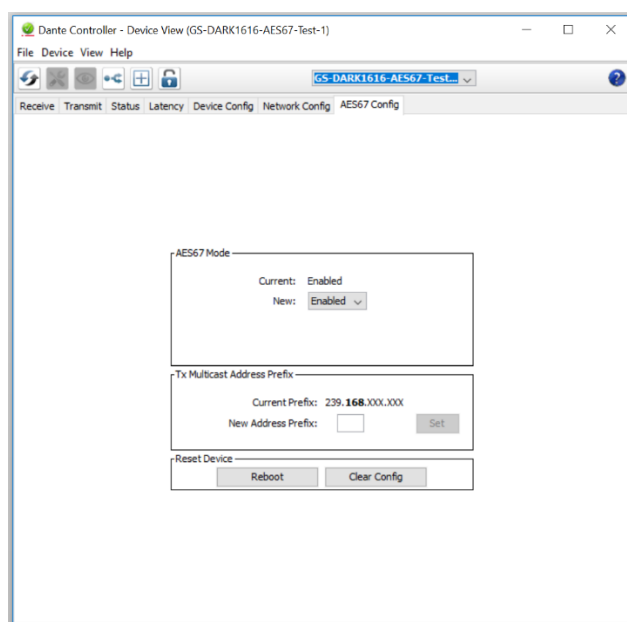

Once the AES67 drop down box has been enabled you'll have to reboot the Beatrice for the change to take effect. After the reboot go back to the AES67 tab and set the multicast prefix address to one that is suitable for your newtork.
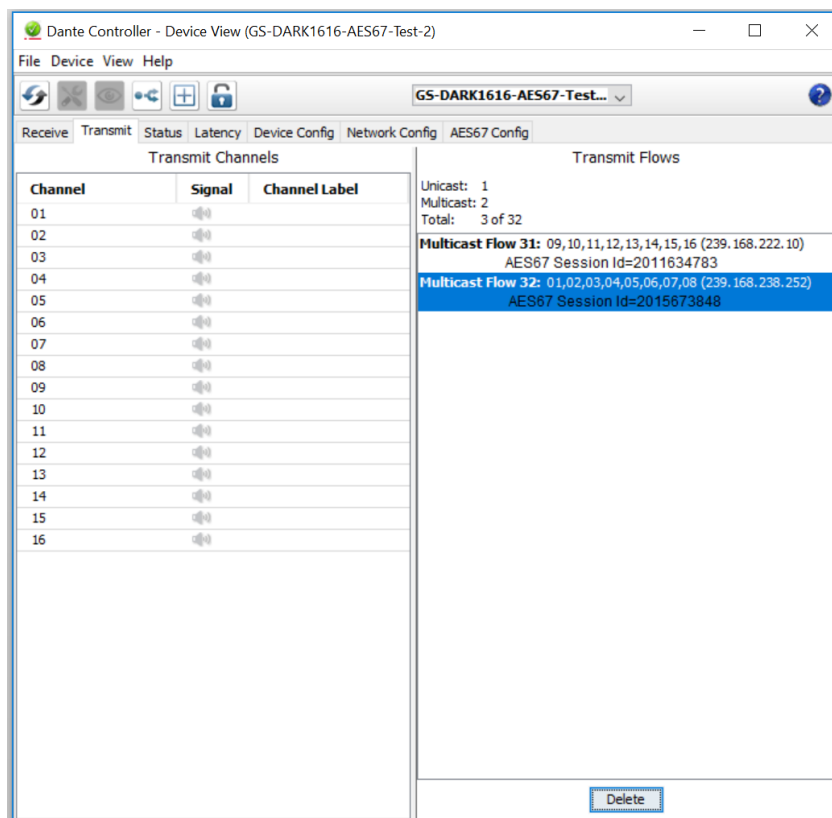
Sending AES67 Audio

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.
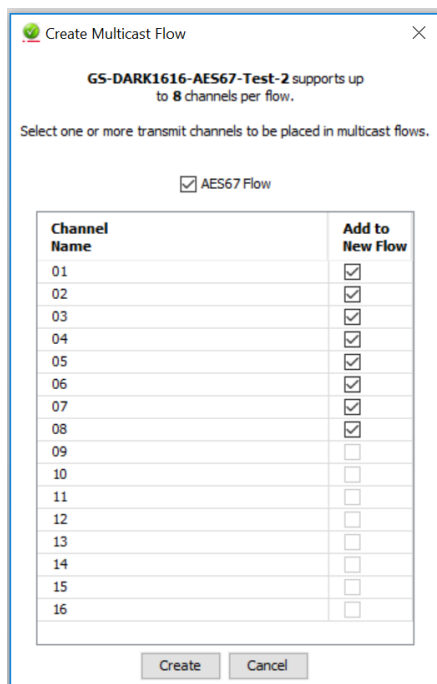
Tick the AES67 Flow check box, then select channels to be included in the flow then click 'Create'

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

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.

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
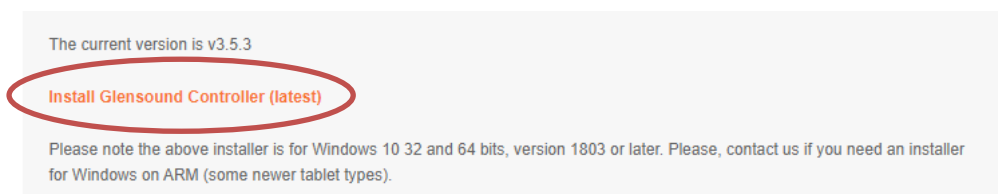
Received AES67 flows have the following constraints:

- 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
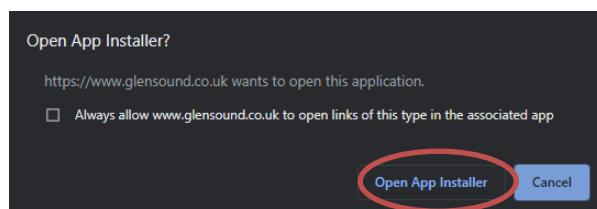
GLENSOUND CONTROLLER

Glensound Controller is a windows 10 application that allows remote control of some Glensound products over a network. The Beatrice B4+ has full remote-control functionality and can be operated from a remote location with only a windows PC and access to the network the B4+ is on.
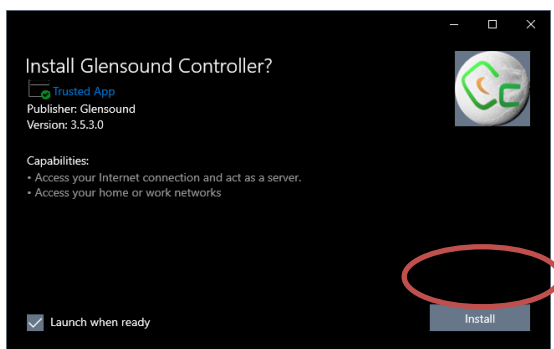
Installing the app

1. To install the latest version of Glensound Controller go to https://www.glensound.co.uk/product-details/glencontroller/ and click on the highlighted orange text "Install Glensound Controller (latest)".

The current version is v3.5.3

Install Glensound Controller (latest)

Please note the above installer is for Windows 10 32 and 64 bits, version 1803 or later. Please, contact us if you need an installer for Windows on ARM (some newer tablet types).

2. Next click "Open App Installer" if prompted.

Open App Installer?

https://www.glensound.co.uk wants to open this application.

☐ Always allow www.glensound.co.uk to open links of this type in the associated app

Open App Installer   Cancel

3. Then simply click "Install"   4. The app will install and open when ready

Install Glensound Controller?
Trusted App
Publisher: Glensound
Version: 3.5.3.0

Capabilities:
• Access your Internet connection and act as a server.
• Access your home or work networks

☑ Launch when ready   Install

Install Glensound Controller?
Trusted App
Publisher: Glensound
Version: 3.5.3.0

Capabilities:
• Access your Internet connection and act as a server.
• Access your home or work networks

Getting the system ready for install...

☑ Launch when ready   Cancel

Note:

Some windows 10 machines may be required to enable 'sideloading' of programs if it has been disabled by your organization. To enable, go to → **Windows Start** → **Settings** → **Update and Security** → **For developers** → Select '**Sideload apps**'.
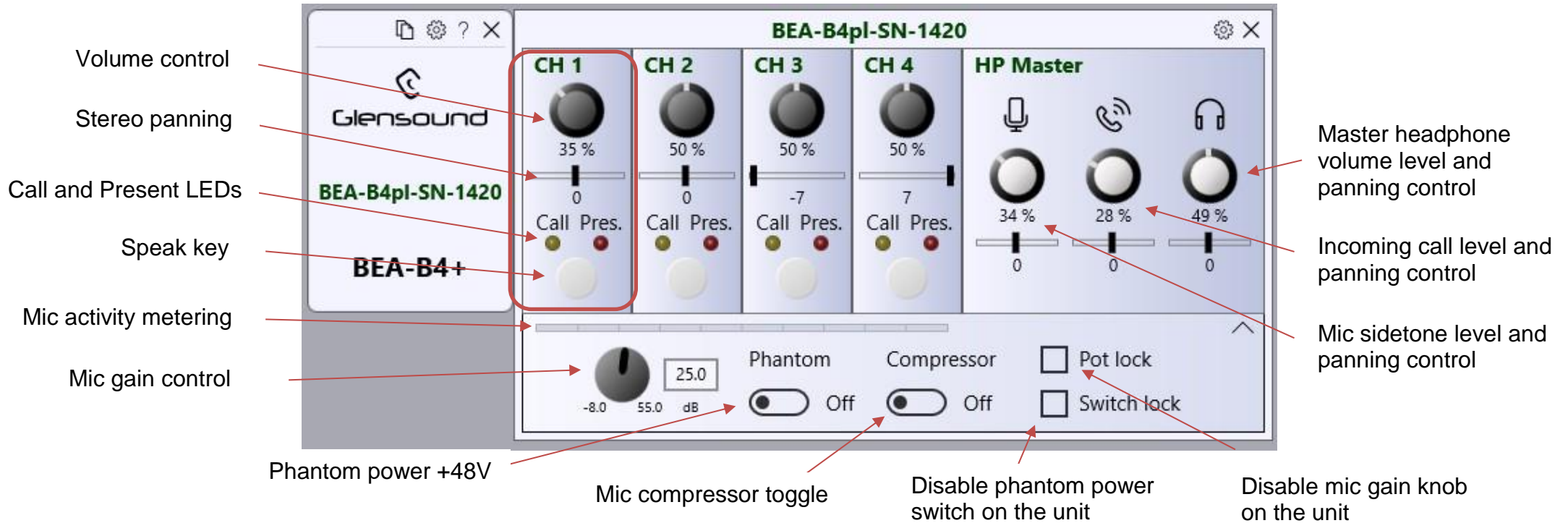
Uninstalling the app

To uninstall Glensound Controller open the windows 10 start menu and find Glensound Controller, right click and choose "Uninstall".

GlensoundController
Google Chrome
Groove Music

📌 Pin to Start
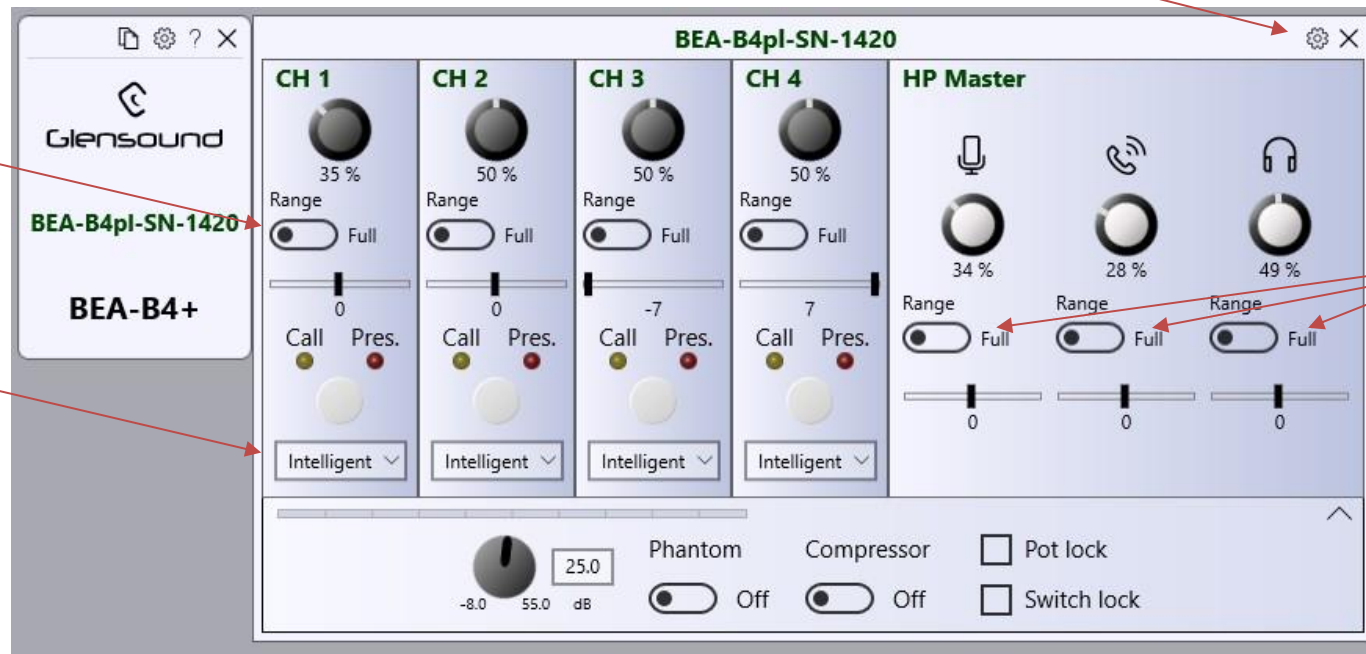More   >
🗑 Uninstall
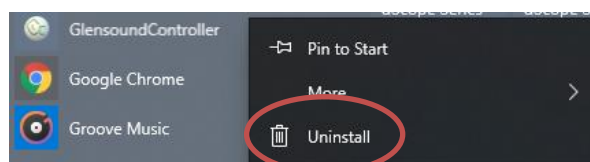
Using the app with the Beatrice B4+

This is the normal device view for the Beatrice B4+ in Glensound Controller and presents quick access to the device controls.

Volume control

Stereo panning

Call and Present LEDs

Speak key

Mic activity metering

Mic gain control

Phantom power +48V

Mic compressor toggle

Disable phantom power switch on the unit

Disable mic gain knob on the unit

Master headphone volume level and panning control

Incoming call level and panning control

Mic sidetone level and panning control

Click the cog icon to open more settings

Pot range toggle – full or limited for making the endstop not be -INF

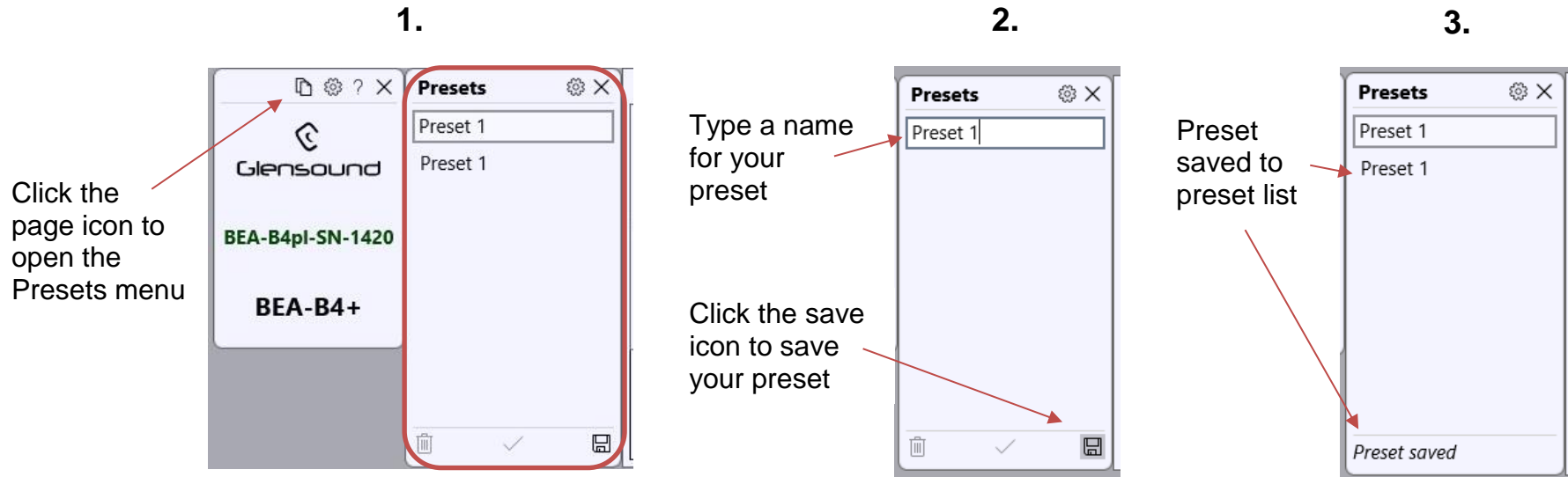Speak key functionality – see page 10 for description of different types

Pot range toggle – full or limited for making the endstop not be -INF

BEA-B4pl-SN-1420

Glensound
BEA-B4pl-SN-1420
BEA-B4+

CH 1 35 %
Range Full
0
Call   Pres.
Intelligent

CH 2 50 %
Range Full
0
Call   Pres.
Intelligent

CH 3 50 %
Range Full
-7
Call   Pres.
Intelligent

CH 4 50 %
Range Full
7
Call   Pres.
Intelligent

HP Master
34 %   28 %   49 %
Range Range Range
Full   Full   Full
0   0   0

25.0
-8.0   55.0   dB

Phantom   Off
Compressor   Off
Pot lock
Switch lock

Go to https://www.glensound.co.uk/product-details/glencontroller/ and check the '**Useful Videos'** tab for informative YouTube tutorials on how to use other features of Glensound Controller.
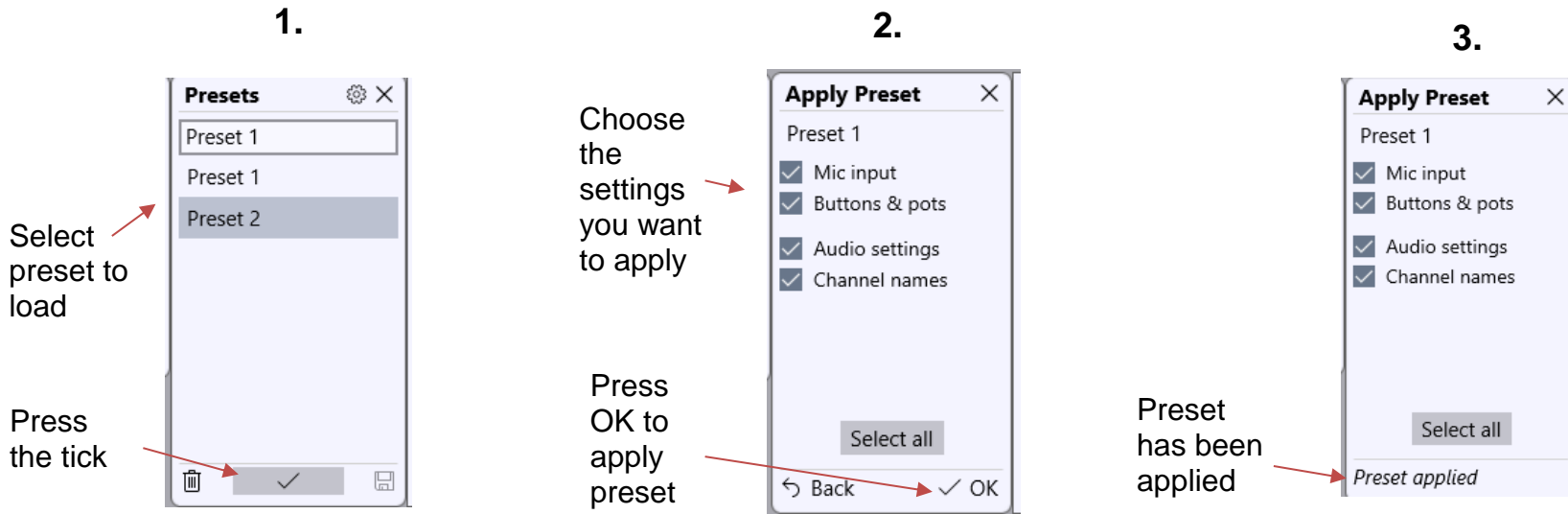
Saving and loading presets

Glensound controller allows saving and loading of 'Presets' which is a saved copy of the configured settings of a B4+.

1.

Saving Preset

Click the page icon to open the Presets menu

Type a name for your preset

Click the save icon to save your preset

2.

Preset saved to preset list

3.

1.

Loading Preset

Select preset to load

Press the tick

2.

Choose the settings you want to apply

Press OK to apply preset

3.

Preset has been applied

UPDATING FIRMWARE

Instructions

1.

A. Click the sidebar icon to access the sidebar

B. Click the cog icon to open the settings page

C. Click to enter maintenance mode
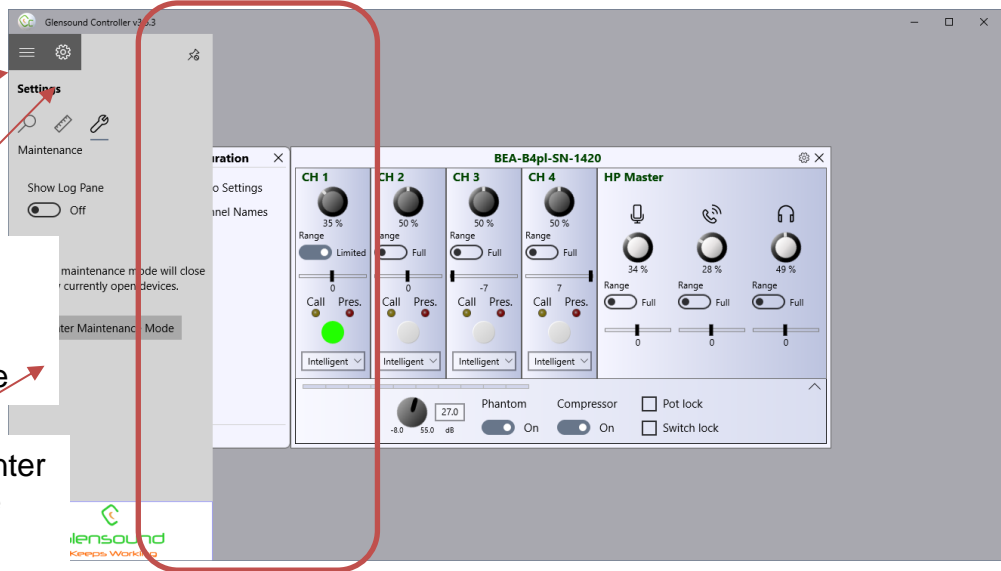
2.

A. Select the device you wish to update

B. Click to update your device

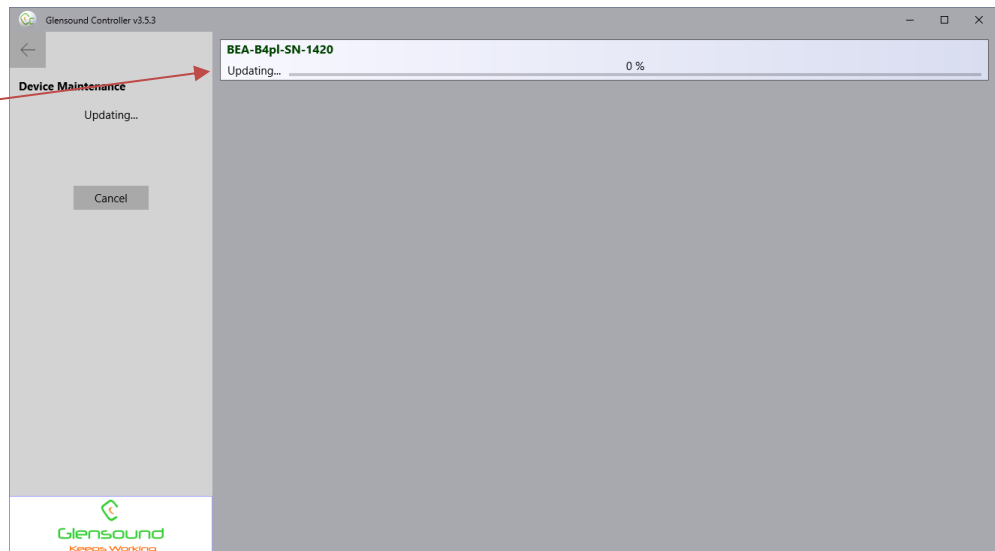**Caution! Audio will be interrupted during the device update**

3.

Click start to
begin updating

4.

Update
progression bar

5.

Update
finished, device
will now restart
automatically

UPDATING THE BROADWAY CHIPSET

The Broadway Chipset is a device supplied by Audinate that does most of the processing for the actual Dante/ AES67 network audio streams. There is one Broadway Chipset in each Beatrice B4+. We supply special code (a .dnt file) that sets up/ initiates the Broadway Chipset and makes it work in particular way that is compatible to the Beatrice.

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.
Ion the Device View box open the Status Tab.

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

Finding Out What The Latest Available Version Is

Go the Beatrice's web page at Glensound.com and open the 'Firmware Latest Version' Tab.

This will give both the latest version numbers/ file names and the location to download the file from.

Updating the device

The firmware that runs in the Broadway Chipset is updated using Audinate's Firmware updating tool. The updating tool and a user guide can be downloaded from Audinate's website:
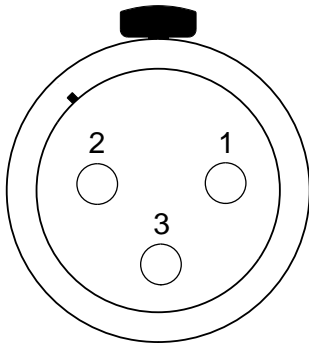
https://www.audinate.com/products/firmware-update-manager

NOTE:

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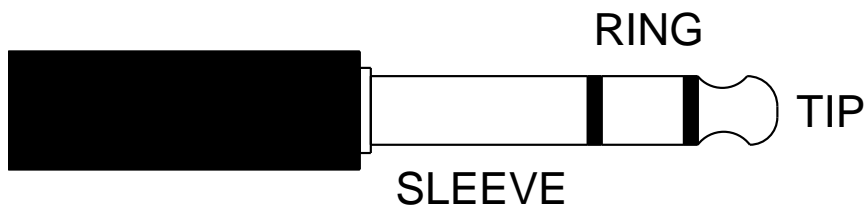
WIRING INFORMATION

XLR & JACK Wiring
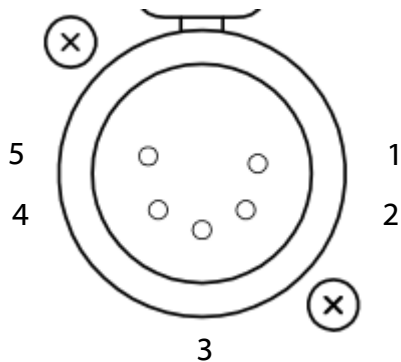

XLR SOCKET (FEMALE)

STANDARD XLR AUDIO PINOUTS:

1: Ground/ Earth

2: INPHASE/ POSITIVE/ MIC +

3: MATE/ NEGATIVE/ MIC -

RING

TIP

SLEEVE

STANDARD HEADPHONE WIRING:

TIP: A/ LEFT Ear

RING: B/ RIGHT Ear

SLEEVE: Common/ Earth

OPTIONAL 5 or 4 PIN XLR WIRING INFORMATION

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

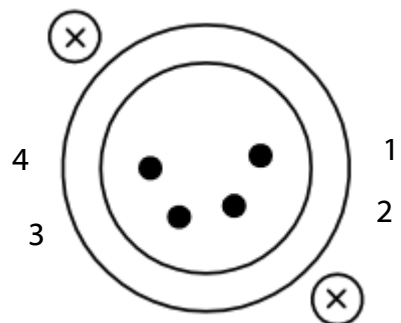**1: MATE/ NEGATIVE/ MIC -**

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 +