



SPARK

Ultra-Compact Network Audio Commentary Unit

PRODUCT DETAILS



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 your 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

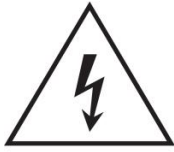
Fax: +44 (0) 1622 762330

EMAIL ADDRESSES

General and Technical enquires: office@glenSound.com

Sales enquires: sales@glenSound.com

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.



EU DECLARATION OF CONFORMITY

SPARK

Ultra-Compact Network Audio 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  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.



Marc Wilson, Managing Director
Maidstone, Kent, England

Date: 30/03/23

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

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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 bijoux of commentary booths whilst retaining usability for the commentator, exceptional audio performance and sophisticated remote control.

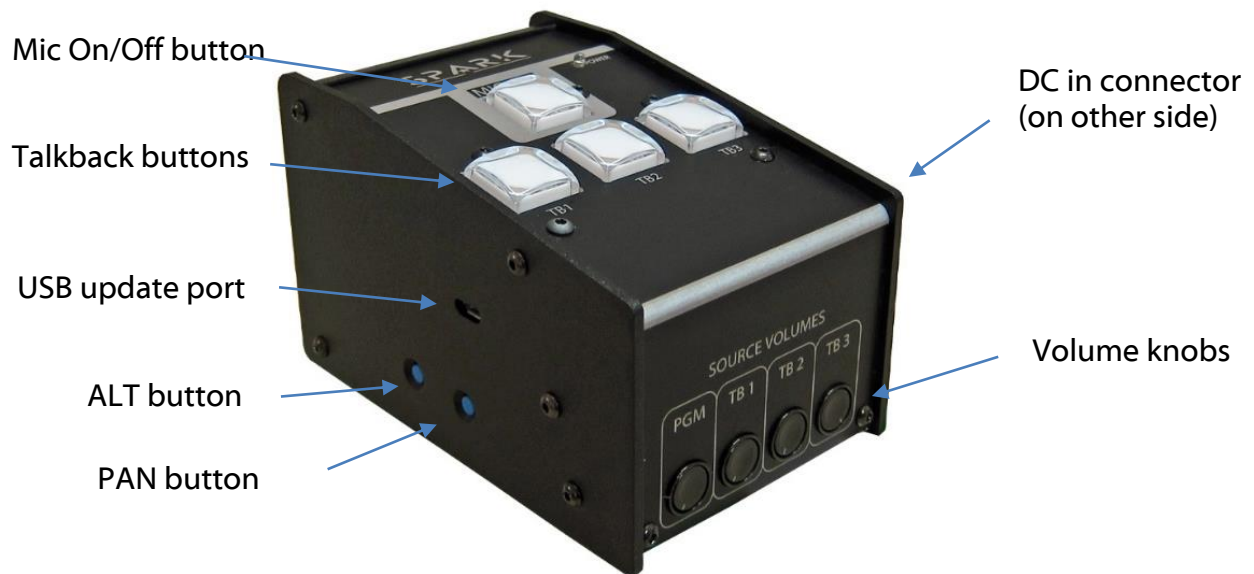
Spark's network audio interface is based on the Broadway chipset from Audinate, making it ideal for both Dante and AES67 infrastructures and also SMPTE 2110-30 capable (when used in conjunction with Dante Domain Manager (licence fees apply)).

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

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 optimum microphone performance is achieved.

SPARK Front Layout



Mic On/Off button

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. In GlenController It can be configured to have 6 different behaviours:

Mode	Description (The default behaviour is 'Intelligent')
Intelligent	<i>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.</i>
Momentary	<i>The key must be held down to operate.</i>
Latching	<i>A push of the key will turn the channel on, another push will then turn the channel off.</i>
Cough	<i>The channel is always on and only off when the key is pressed and held down.</i>
Always on	<i>The key is always on and cannot be turned off.</i>
Always off	<i>The key is disabled and cannot be turned on.</i>

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. These buttons can also be configured to have multiple behaviors in GlenController.

Volume knobs

This retractable pot controls the channel specific volume. The pots also have extra functions which are active when the ALT and PAN side buttons are pressed. To access the knob simply push it in and it will click and extend for adjustment. To retract the knob simply push it back into the unit until it clicks back into place.

USB update port

In normal conditions SPARK firmware can be updated via GlenController over an IP network. This micro-USB port is for manual offline updating the SPARK firmware. Please contact Glensound if you require an offline firmware updating method.

ALT button

This button effects the volume pots when held down.

Hold the button down when powering up the unit to enter DFU mode for manual firmware updating.

PAN button

This button effects the volume pots when held down.

It will also make the SPARK 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

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.

SPARK Rear layout



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.

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.

XLR connector

This standard 3 pin XLR is the input of the user's microphone. +48V phantom power can be enabled or disabled for use with condenser microphones.

Microphone gain control

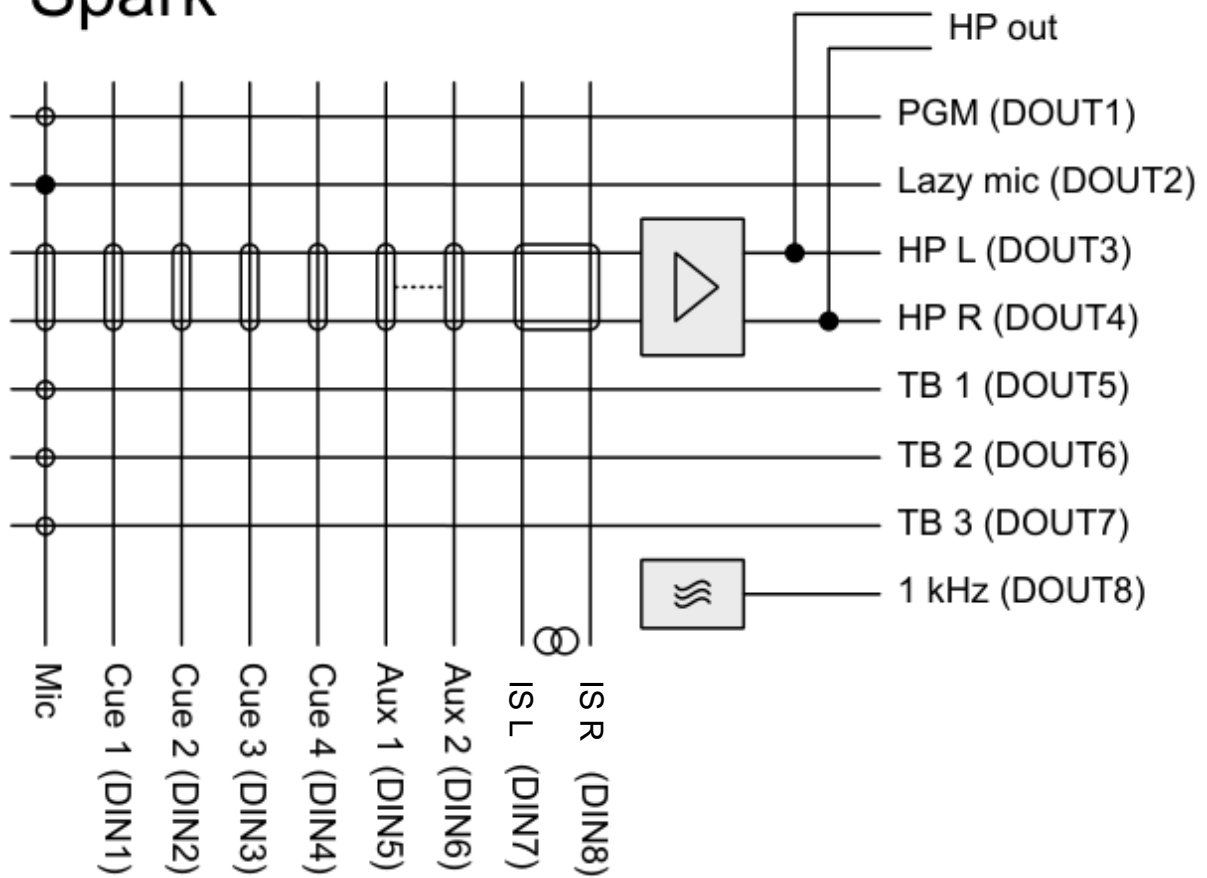
This small pot allows adjusting the gain of the microphone preamplifier. It can be remotely controlled or locked in GlenSound Controller, see [page 20](#) for more information.

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 20](#) for more information.

Audio Block Diagram

Spark



Connecting The SPARK To A Dante Network

The SPARK is a network audio device 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 SPARK 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 SPARK device to the network

The SPARK 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 SPARK from within the Dante controller and route its' audio circuits.

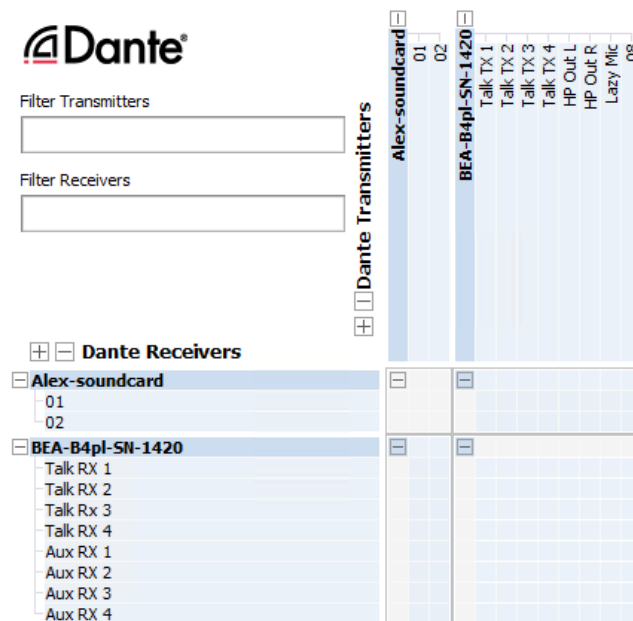
Audio Over IP Network

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 SPARK 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:

'SPARK-SN-XXXX'

Where 'SPARK' refers to the Glensound product i.e. SPARK

The 'SN-XXXX' refers to the serial number of the SPARK 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 SPARK 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 'SPARK-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.

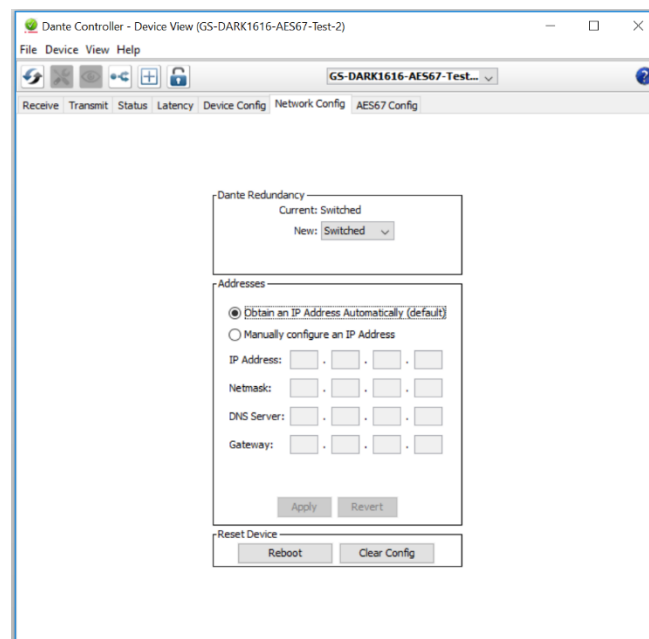
Device not showing up in Dante Controller

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.



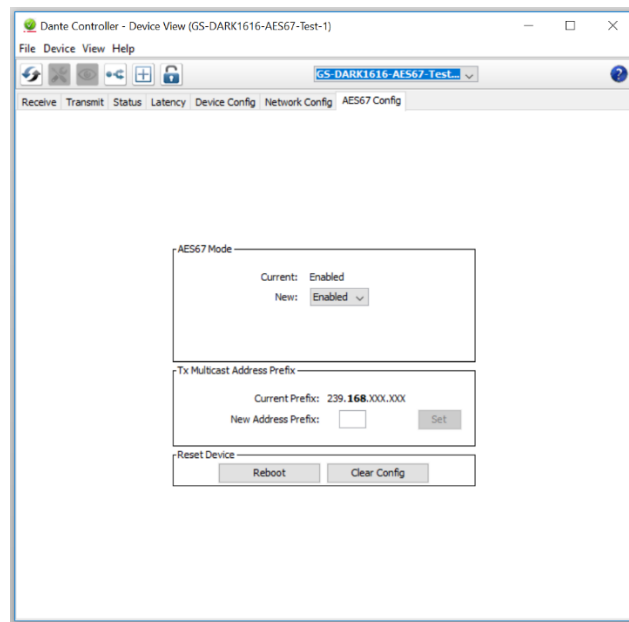
AES67 Mode

The SPARK 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 SPARK 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 SPARK 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 SPARK to open the Device View window where you will find an AES67 tab to enable AES67 support.

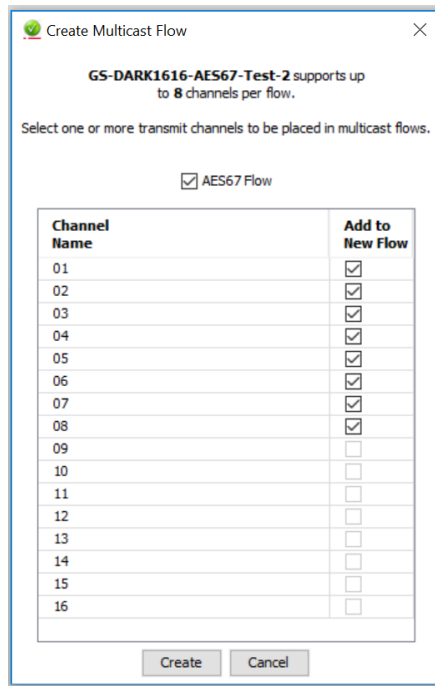


Once the AES67 drop down box has been enabled you'll have to reboot the SPARK for the change to take effect. After the reboot go back to the AES67 tab and set the multicast prefix address to one that is suitable for your network.

Sending AES67 Audio

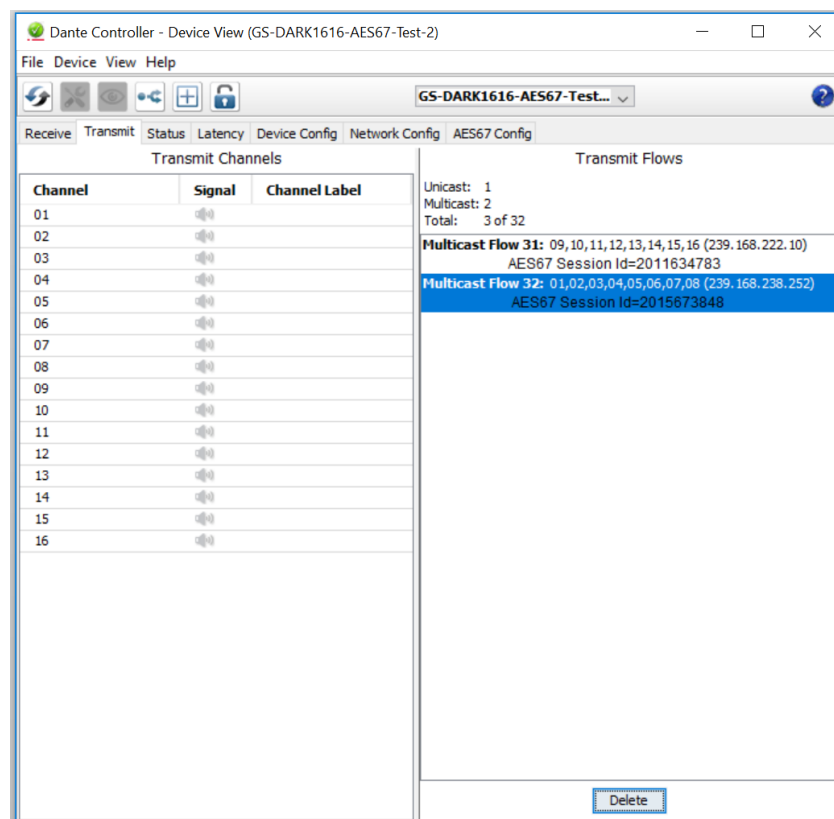
To transmit AES67 audio to the network a multicast flow must first be setup.

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 destination address range.
- 48kHz sampling rate
- L16 or L24 encoding
- 125usec, 250usec, 333usec, 1 msec packet time
- Up to 8 channels per stream

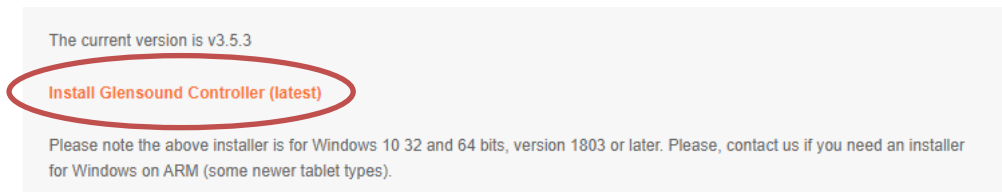
The SPARK also supports SMPTE-ST2110-30 via Dante Domain Manager (DDM), with a license purchased from Audinate.

GlenSound Controller

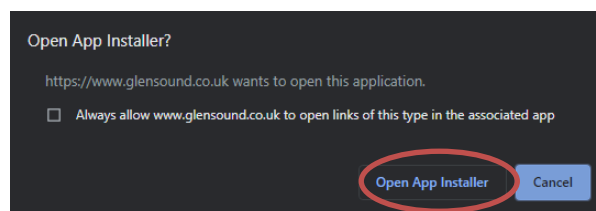
GlenSound Controller is a windows 10 & 11 application that allows remote control of some GlenSound products over a network. The SPARK has full remote-control functionality and can be operated from a remote location with only a windows PC and access to the network the SPARK is on.

Installing the app

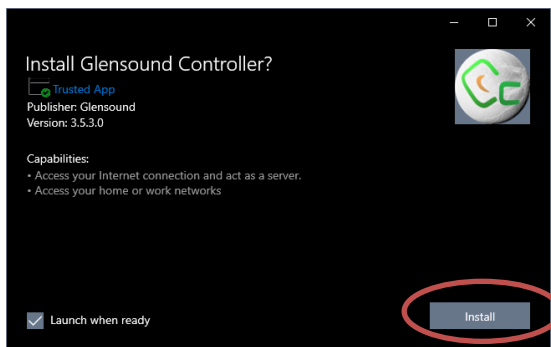
1. To install the latest version of GlenSound Controller go to the 'Download' tab at <https://www.glenSound.co.uk/product-details/glencontroller/> and click on the highlighted orange text "Install GlenSound Controller".



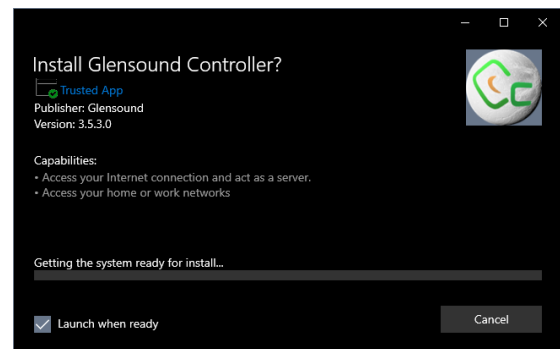
2. Next click "Open App Installer" if prompted.



3. Then simply click "Install"



4. The app will install and open when ready

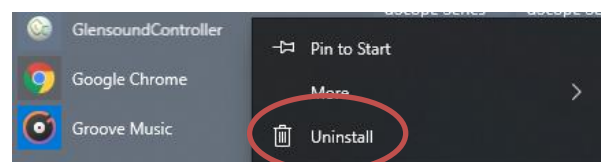


Sideloading

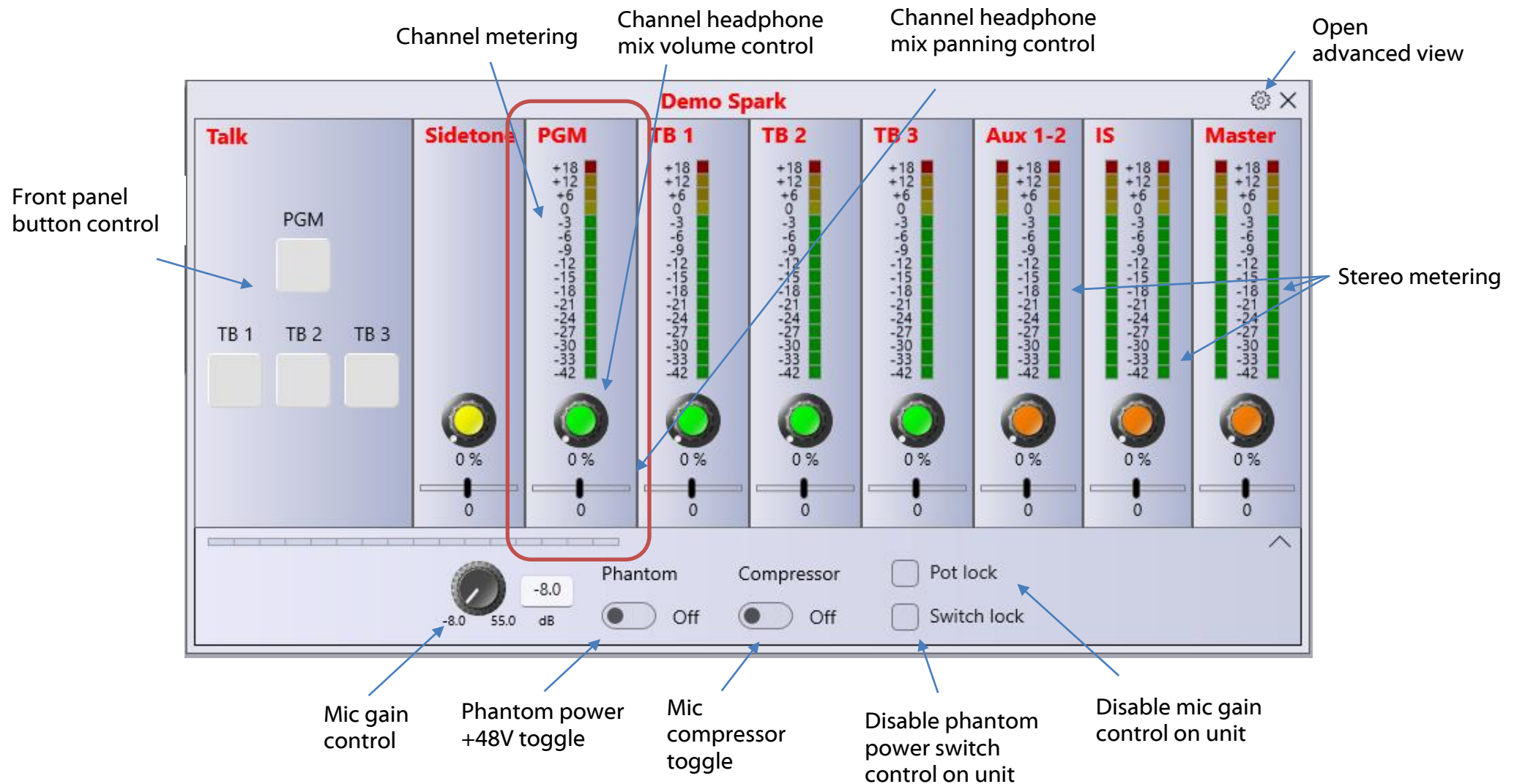
Some windows machines may be required to enable 'sideloading' of programs if it has been disabled by your organization. To enable, go to → **Windows Start** → **Settings** → **Update and Security** → **For developers** → Select '**Sideload apps**'.

Uninstalling the app

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

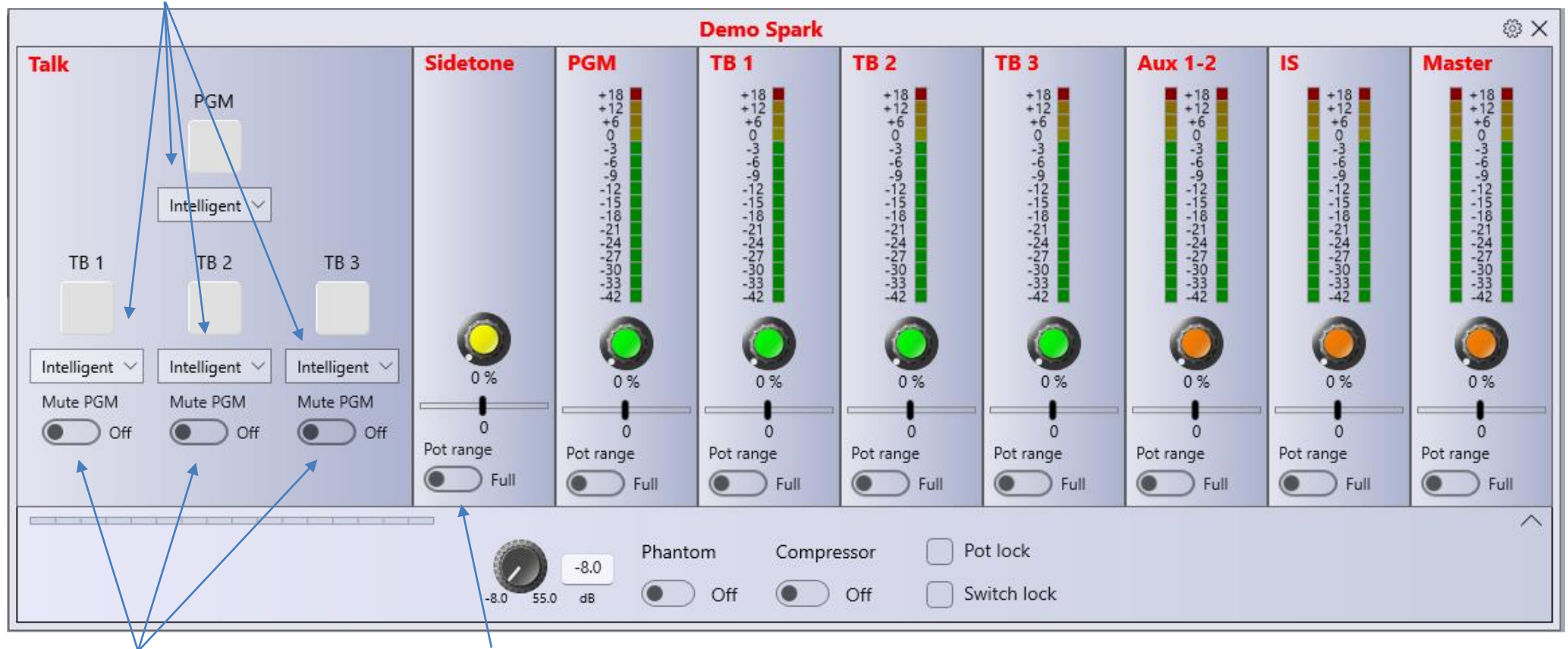


Using the app with the SPARK



Advanced view

Change button behaviour when active
See [page 9](#) for description of behaviours



Mute PGM button when
this button active

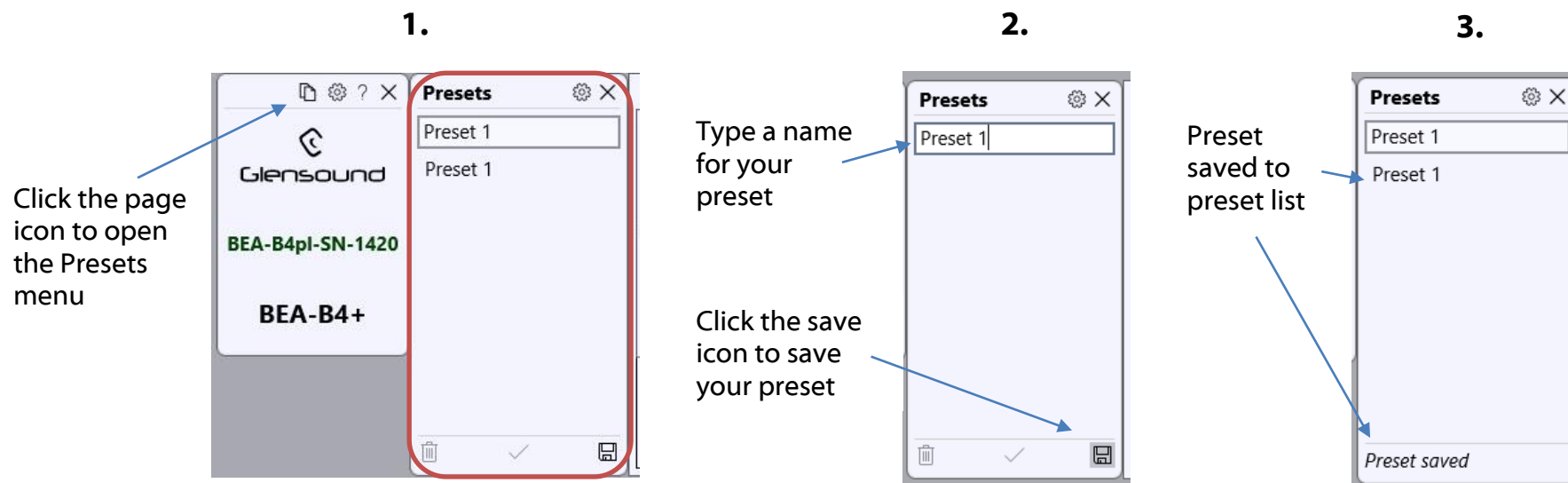
Change controllable range of pot endstop:
Full = volume can be turned fully off and muted
Limited = volume cannot be fully muted

Go to <https://www.glen sound.co.uk/product-details/glencontroller/> and check the 'Useful Videos' tab for informative YouTube tutorials on how to use other features of GlenSound Controller.

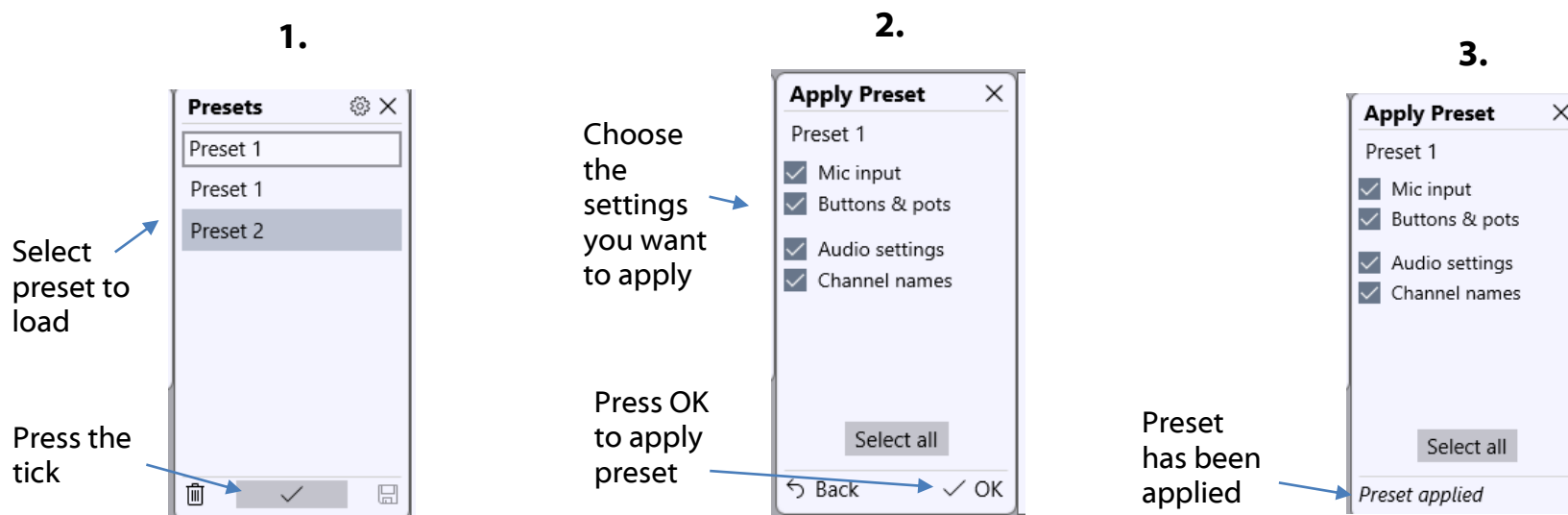
Saving and loading presets

GlenSound controller allows saving and loading of 'Presets' which is a saved copy of the configured settings of the SPARK.

Saving Preset



Loading Preset



Updating Firmware

The SPARK microcontroller code is the main firmware that operates the device. It can be updated via GlenController over an IP network. Make sure your PC is connected to the same network and can see the SPARK in GlenController.

You need internet access for GlenController to automatically obtain the latest code from the database. However, once GlenController has obtained the code from the database your PC can be offline to do a firmware update. Note that the code does not persist if GlenController is quit.

If you require offline updating please contact office@glen sound.com and we can provide a manual offline method.

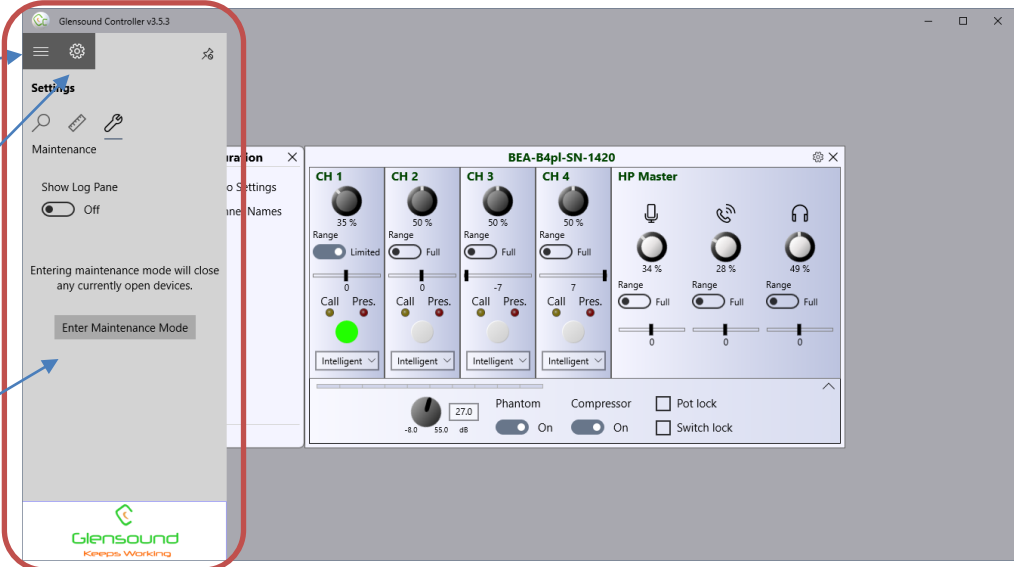
Instructions

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

The screenshot shows the GlenController v3.5.3 application window. On the left is a sidebar with a hamburger menu icon at the top. The main area displays the 'Settings' page, which includes a search icon, a 'Maintenance' section with a 'Show Log Pane' toggle (currently Off), and a warning message: 'Entering maintenance mode will close any currently open devices.' Below this is a button labeled 'Enter Maintenance Mode'. The background shows a device configuration screen for 'BEA-B4pl-SN-1420' with various sliders and controls.

2.

A. Select the device you wish to update

B. Click to update your device

The screenshot shows the 'Device Maintenance' screen in GlenController v3.5.3. On the left, there is a sidebar with a back arrow and a 'Device Maintenance' section containing a 'WARNING: During update audio will be disrupted.' and an 'Update Selected' button. The main area displays a table of devices. The first device is selected with a checkmark in the first column.

	Name	HostName	Type	IP 1	IP 2	DINT version	DFU version	DFU latest
<input checked="" type="checkbox"/>	BEA-B4pl-SN-1420	BEA-B4pl-02002a	BEA-B4+	169.254.197.11	0.0.0.0	1.0.0	1.1.0	1.1.0

Caution! Audio will be interrupted during the device update

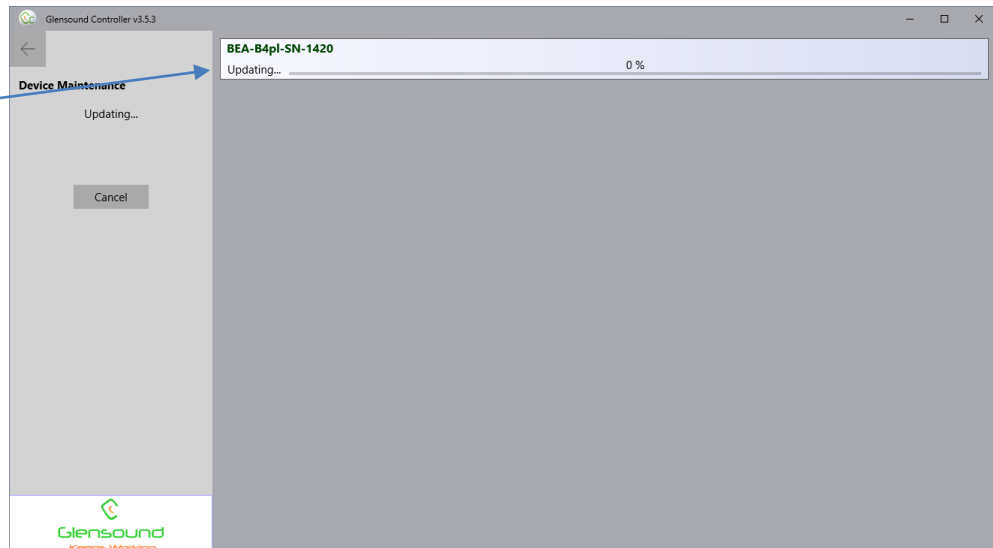
3.

Click start to begin updating



4.

Update progression bar



5.

Update finished, device will now restart automatically



Updating The Dante firmware

The SPARK has Dante specific firmware that runs inside the Dante chipset, known as Broadway.

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 SPARK.

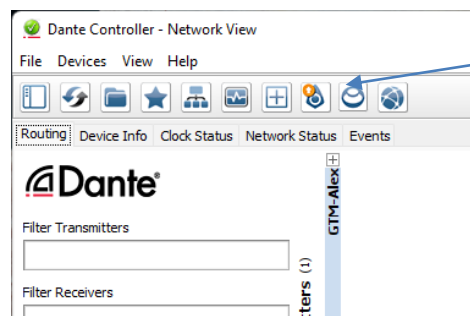
Updating the device

The firmware that runs in the Broadway Chipset can be updated using the built-in Dante Updater in Dante Controller. Please ensure you have a connection to the internet.

If you want to update devices on a Dante network that is not connected to the Internet, you can download the files ahead of time to your computer, move the computer to the offline network, and then update the devices using the downloaded files.

Dante Updater displays a list of all online firmware files in the Library tab, so you can choose which files to download, or even download the entire database if you are not sure which files you will need. For further details please visit www.audinate.com

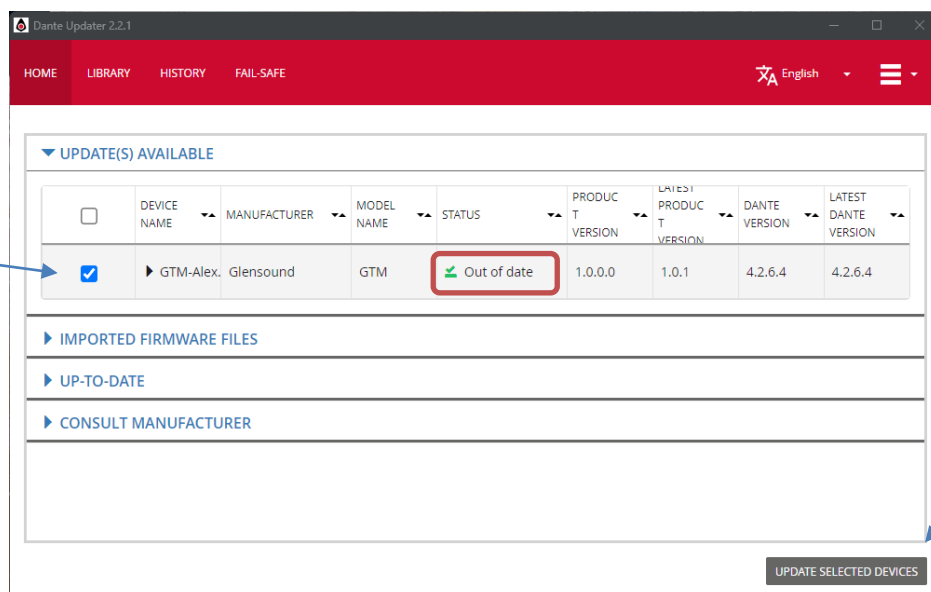
1.



Dante controller notifies you if a device on your network is out of date.

Click the icon

2.



A. Tick the box to choose your unit for updating

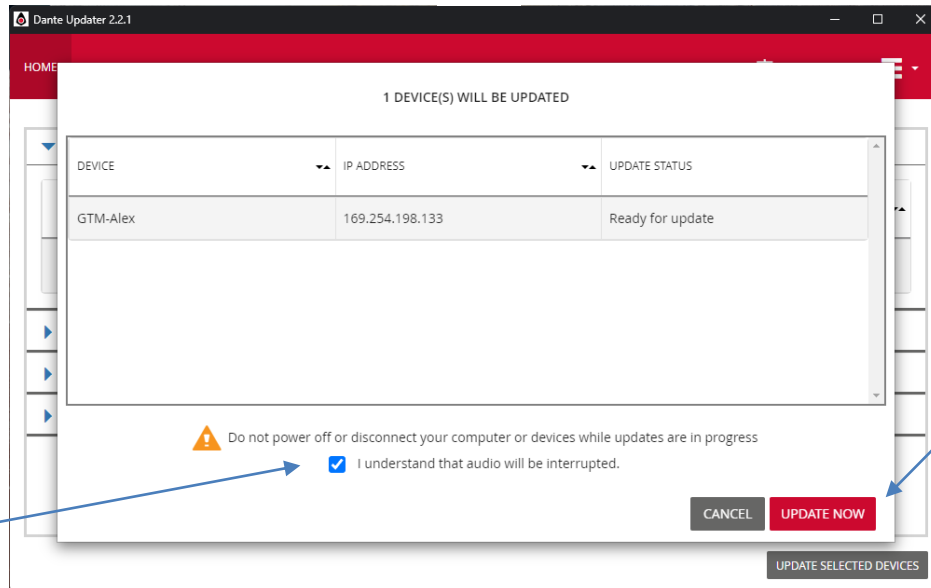
B. Press to update device

3.

Caution! Audio will be interrupted during the device update

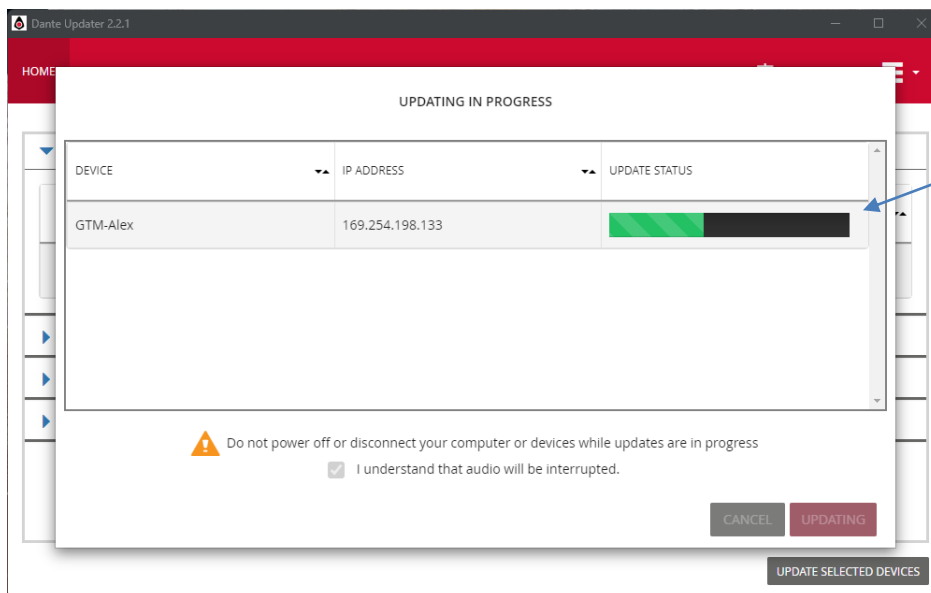
A. Tick box to confirm

B. Press to update device



4.

Update is in progress

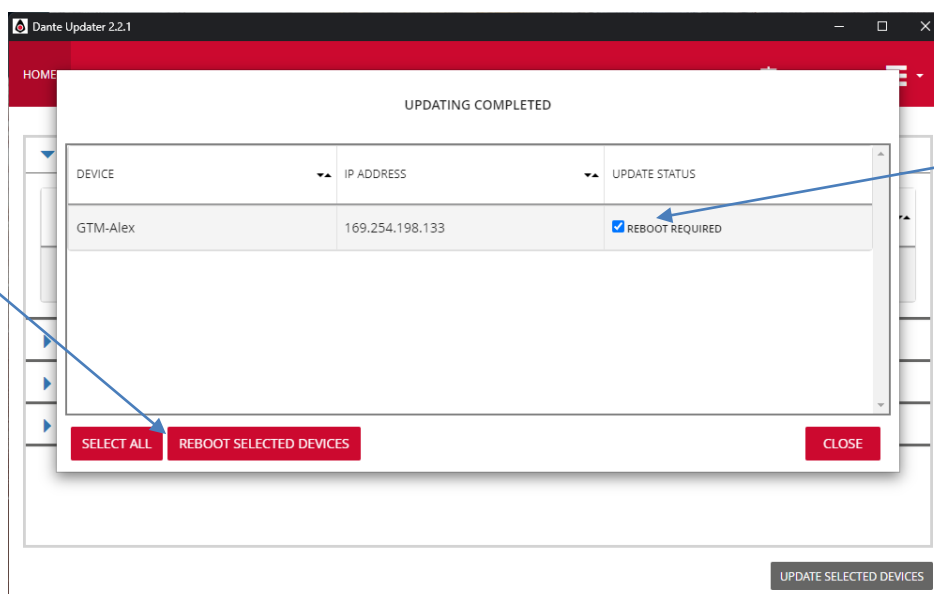


5.

A. Update finished. Tick box to continue

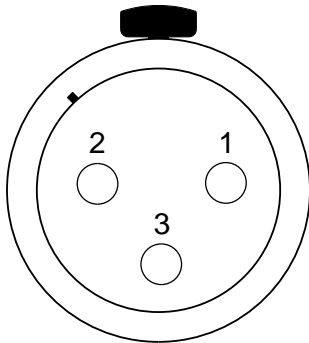
B. Press to reboot device

Update finished, device will now reboot



Wiring Information

XLR & Jack Wiring



XLR SOCKET (FEMALE)

STANDARD XLR AUDIO PINOUTS:

1: Ground/ Earth

2: INPHASE/ POSITIVE/ MIC +

3: MATE/ NEGATIVE/ MIC -



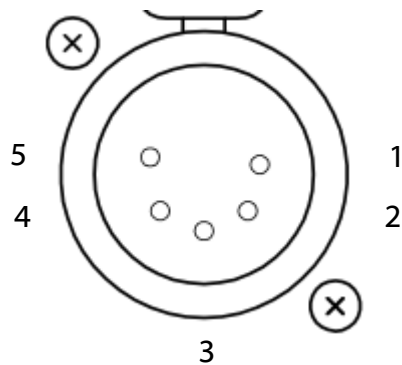
STANDARD HEADPHONE WIRING:

TIP: A/ LEFT Ear

RING: B/ RIGHT Ear

SLEEVE: Ground / Earth

Optional 5 Or 4 Pin XLR Wiring Information



5 PIN XLR AUDIO PINOUTS:

Female XLR fitted to SPARK, mates with cable mounted male

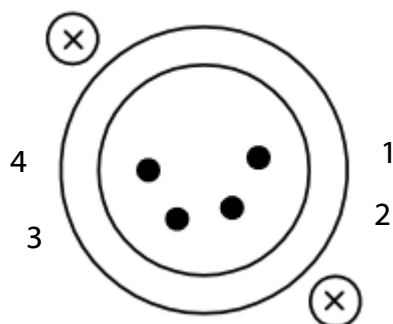
1: MATE/ NEGATIVE/ MIC -

2: INPHASE/ POSITIVE/ MIC +

3: GROUND/ EARTH

4: HEADPHONE LEFT

5: HEADPHONE RIGHT



4 PIN XLR AUDIO PINOUTS:

Male XLR fitted to SPARK, mates with cable mounted female

1: MIC GND/ MIC -

2: INPHASE/ POSITIVE/ MIC +

3: HEADPHONE GND

4: POSITIVE/ HEADPHONE +