Glensound
Keeps Working

BEATRICE MIX32

DANTE® /AES67 NETWORK AUDIO FIXED MIXER SUBRACK WITH 32 x 32 x up to 4 MIXERS

PRODUCT DETAILS

THE DESIGN BUILDINGS, 6 BROOKS PLACE, MAIDSTONE, KENT, ME14 1HE. ENGLAND.
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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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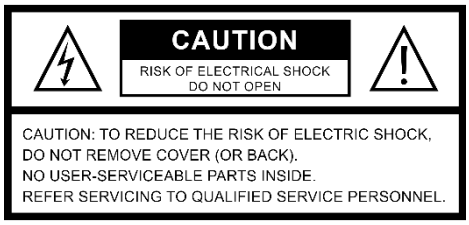
Technical enquires: techinfo@glensound.com

Sales enquires: sales@glensound.com

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 moulded 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 unit's 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.

SAFETY WARNING

The MIX32 contains no user serviceable parts and **must not** be dissasembled in any way.





CE

EU DECLARATION OF CONFORMITY FOR:

MIX32

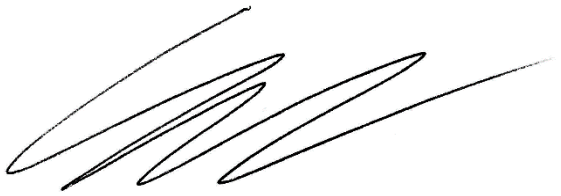
AoIP, Fixed Ratio Mixer

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: 21/05/2019

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 MIX32

Handbook Contents

Issue 8

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OVERVIEW

The Glensound BEATRICE MIX32 is a high-density audio mixer for producing fixed ratio audio mixes from/ to Dante® and AES67 audio networks. It can be fitted with a maximum of 4 independent mixer cards, each with their own redundant network interface. Each of these mixer cards provides 32 audio inputs and 32 audio outputs from the network, with the 32 outputs being mixes derived from different sets of input channels.

Audio limiter/ compressor circuits are also provided for each output.

The fixed ratio mixes in the Beatrice MIX32 were originally designed to allow network audio intercom systems to generate multiple listening circuits, however the high-quality low noise, digital mixers can be also be used for many other applications.

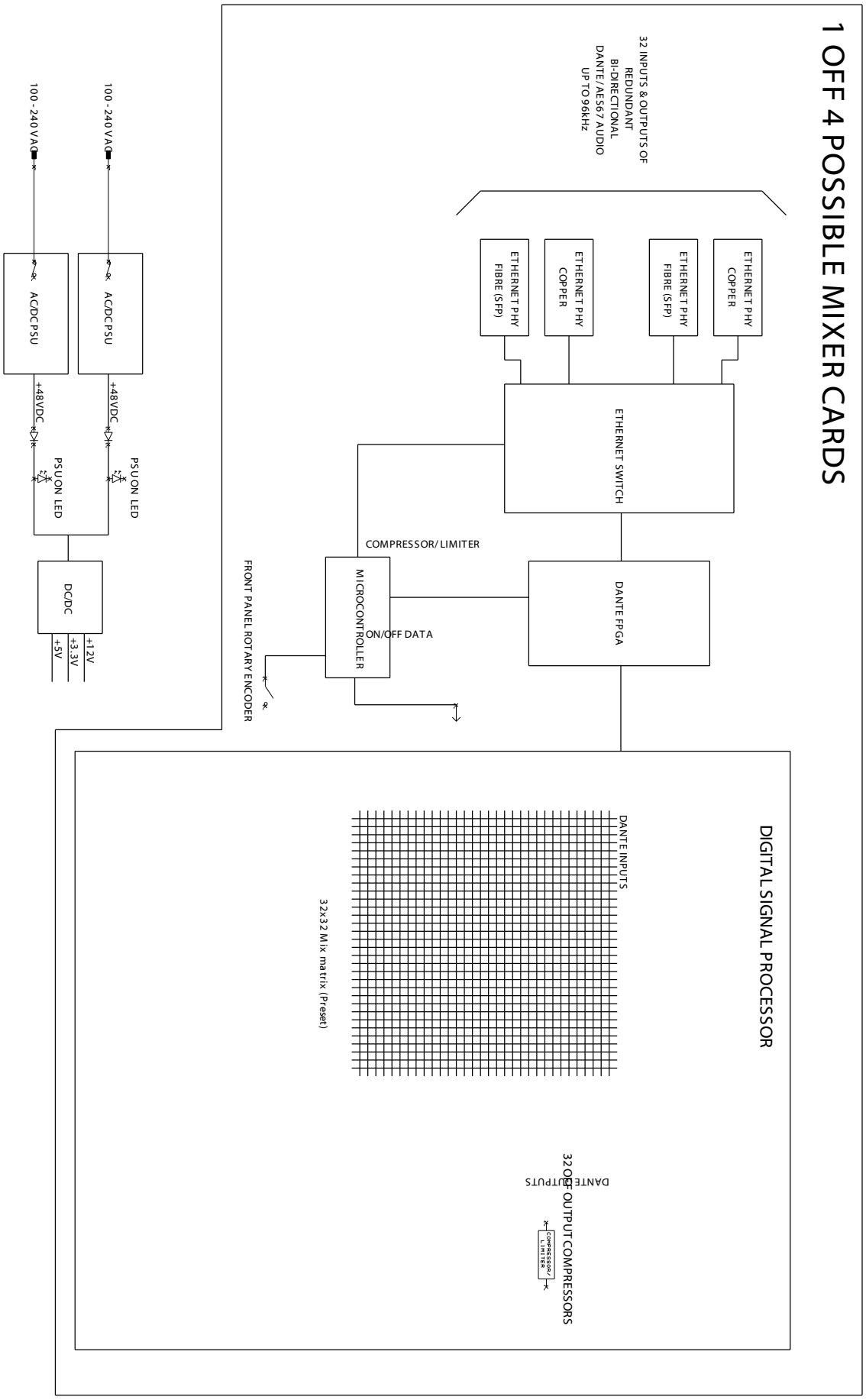
The Beatrice MIX32 can also operate in a 'pass through' mode, where all Dante® inputs are passed straight through to the equivalent numbered Dante® output.

A clean feed or mix-minus mode is also available. In this mode, each mix has multiple outputs. Each output contains all channels in the mix except its own input.

Being designed for 24/7 broadcast operation, the Beatrice MIX32 features both redundant power supplies and redundant network interfaces.

Dante® network audio is a common protocol for distributing high quality linear audio over standard IP networks and it is widely used by many audio equipment manufacturers. The Glensound Beatrice Mix32 Dante® audio interface will be compatible with any other manufacturers Dante audio interface. Further details of Dante® network audio can be found at www.audinate.com

SIMPLIFIED BLOCK DIAGRAM



CONNECTING THE BEATRICE MIX32 TO A DANTE® NETWORK

The Beatrice Mix32 is a network audio device utilising 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 inferno 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 Mix32 To the Network

Beatrice Mix32s 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 front. Once connected to the network it will be possible to see the Beatrice from within the Dante controller and route its' audio circuits.

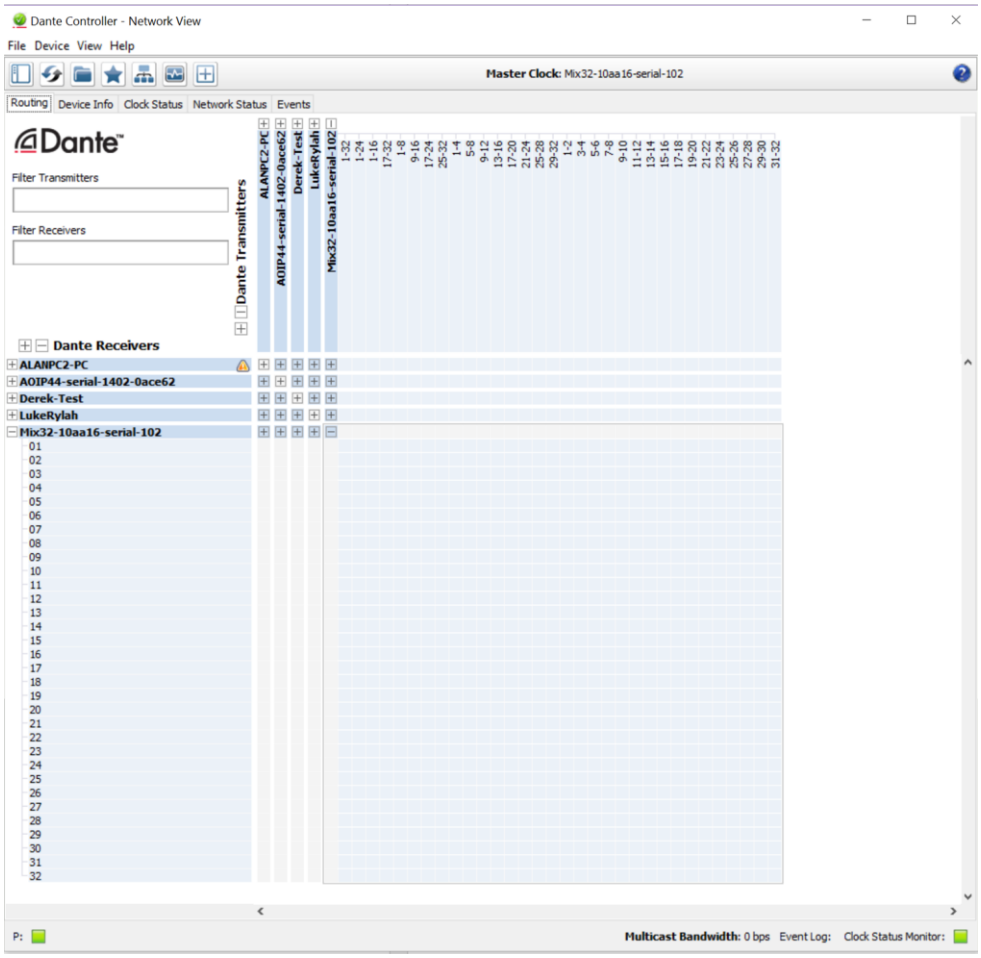
Audio Over IP Network

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 Mix32 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:

‘Mix32-10aa16-serial-102’

Where ‘Mix32-10aa16’ refers to the Glensound product i.e. Beatrice Mix32 and its Dante Brooklyn module MAC address and ‘serial-102’ denotes the hardware racks serial number.

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.

MIXER MODES

The mixer mode is selected using the rotary Hex switch on the front panel.

IMPORTANT: The position of the rotary switch is only read by the microprocessor while the Beatrice Mix32 is turning on. So, moving the switch to a different position while the unit is on will make no difference until the unit is powered down and turned back on.

IMPORTANT: Changing the rotary HEX switch does not update the Dante channel labels. These may be updated using the appropriate Dante pre-set file. These files may be downloaded from our website.

Switch position	Mode	Description
0	Pass through	Inputs passed directly to outputs
1	Fixed Mixer Mode	32 fixed mix sums
2	Mix_minus_32	32 channel mix minus
3	Mix_minus_24_8	1x24, and 1x8 channel mix minus
4	Mix_minus_16_16	2x16 channel mix minus
5	Mix_minus_16_8_8	1x16 and 2x8 channel mix minus
6	Mix_minus_16_8_4_4	1x16, 1x8, and 2x4 channel mix minus
7	Mix_minus_8_8_8_8	4x8 channel mix minus
8	Mix_minus_8_8_8_4_4	3x8 and 2x4 channel mix minus
9	Mix_minus_8_8_4_4_4_4	2x8 and 4x4 channel mix minus
A-F	Reserved for future use	Do not use

PASS THROUGH MODE

General

Pass through mode sets each incoming Dante audio circuit to be routed directly to the equivalent numbered outgoing Dante audio circuit.

Uses

Pass through mode is very useful in network audio systems that incorporate devices using a 4-channel chipset from Audinate (the company behind Dante®) called Ultimo.

The Ultimo chipset can provide 4 audio inputs & outputs to a Dante® network. However, the chipset can only receive data streams from 2 locations within the network, meaning that to use all 4 incoming audio circuits these must be sent from no more than 2 different devices on the network.

If you need a device on your network that contains an Ultimo chipset to receive audio from 4 different network locations then the pass through mode of the Beatrice Mix 32 will have to be used. The principle of operation is very simple. Route all 4 audio channels originating from different devices that you want to be received by the Ultimo chipset via 4 pass through channels of the Beatrice Mix 32 and then the receiving Ultimo chipset will receive all 4 audio channels from just one network source (and hence work).

FIXED MIXER MODE

Each mixer has 32 audio inputs and 32 audio outputs to/ from the Dante®/ AES67 network. The table below describes what input channels are mixed together to create each output.

Output	Mix of inputs
1	1-32
2	1-24
3	1-16
4	17-32
5	1-8
6	9-16
7	17-24
8	25-32
9	1-4
10	5-8
11	9-12
12	13-16
13	17-20
14	21-24
15	25-28
16	29-32
17	1-2
18	3-4
19	5-6
20	7-8
21	9-10
22	11-12
23	13-14
24	15-16
25	17-18
26	19-20
27	21-22
28	23-24
29	265-26
30	27-28
31	29-30
32	31-32

CLEAN FEED (Mix-Minus) MODE

- **General**

In the clean feed configurations, several pre-set configurations are available.

Each mix has multiple outputs, with each output configured so that it does not include its own mix input.

For example, switch position 2 provides a 32-channel mix. Output channel 5 is a mix of channels 1-4, and 6-32, so audio from input channel 5 is not present on the output. This is useful where you wish to contribute to a mix but do not wish to hear your own voice back.

See the table below for a full list of available clean feed mixes per switch position.

All of the clean feed mixes feature automatic signal ducking. The highest numbered input channel of a mix has priority and will cause the level of the other channels in the mix to be reduced.

Switch position →	2	3	4	5	6	7	8	9
	Mix_minus_32	Mix_minus_24_8	Mix_minus_16_16	Mix_minus_16_8_8	Mix_minus_16_8_4_4	Mix_minus_8_8_8_8	Mix_minus_8_8_8_4_4	Mix_minus_8_8_4 4_4_4
Output	Mix of inputs	Mix of inputs	Mix of inputs	Mix of inputs	Mix of inputs	Mix of inputs	Mix of inputs	Mix of inputs
1	1-32 excluding 1	1-24 excluding 1	1-16 excluding 1	1-16 excluding 1	1-16 excluding 1	1-8 excluding 1	1-8 excluding 1	1-8 excluding 1
2	1-32 excluding 2	1-24 excluding 2	1-16 excluding 2	1-16 excluding 2	1-16 excluding 2	1-8 excluding 2	1-8 excluding 2	1-8 excluding 2
3	1-32 excluding 3	1-24 excluding 3	1-16 excluding 3	1-16 excluding 3	1-16 excluding 3	1-8 excluding 3	1-8 excluding 3	1-8 excluding 3
4	1-32 excluding 4	1-24 excluding 4	1-16 excluding 4	1-16 excluding 4	1-16 excluding 4	1-8 excluding 4	1-8 excluding 4	1-8 excluding 4
5	1-32 excluding 5	1-24 excluding 5	1-16 excluding 5	1-16 excluding 5	1-16 excluding 5	1-8 excluding 5	1-8 excluding 5	1-8 excluding 5
6	1-32 excluding 6	1-24 excluding 6	1-16 excluding 6	1-16 excluding 6	1-16 excluding 6	1-8 excluding 6	1-8 excluding 6	1-8 excluding 6
7	1-32 excluding 7	1-24 excluding 7	1-16 excluding 7	1-16 excluding 7	1-16 excluding 7	1-8 excluding 7	1-8 excluding 7	1-8 excluding 7
8	1-32 excluding 8	1-24 excluding 8	1-16 excluding 8	1-16 excluding 8	1-16 excluding 8	1-8 excluding 8	1-8 excluding 8	1-8 excluding 8
9	1-32 excluding 9	1-24 excluding 9	1-16 excluding 9	1-16 excluding 9	1-16 excluding 9	9-16 excluding 9	9-16 excluding 9	9-16 excluding 9
10	1-32 excluding 10	1-24 excluding 10	1-16 excluding 10	1-16 excluding 10	1-16 excluding 10	9-16 excluding 10	9-16 excluding 10	9-16 excluding 10
11	1-32 excluding 11	1-24 excluding 11	1-16 excluding 11	1-16 excluding 11	1-16 excluding 11	9-16 excluding 11	9-16 excluding 11	9-16 excluding 11
12	1-32 excluding 12	1-24 excluding 12	1-16 excluding 12	1-16 excluding 12	1-16 excluding 12	9-16 excluding 12	9-16 excluding 12	9-16 excluding 12
13	1-32 excluding 13	1-24 excluding 13	1-16 excluding 13	1-16 excluding 13	1-16 excluding 13	9-16 excluding 13	9-16 excluding 13	9-16 excluding 13
14	1-32 excluding 14	1-24 excluding 14	1-16 excluding 14	1-16 excluding 14	1-16 excluding 14	9-16 excluding 14	9-16 excluding 14	9-16 excluding 14
15	1-32 excluding 15	1-24 excluding 15	1-16 excluding 15	1-16 excluding 15	1-16 excluding 15	9-16 excluding 15	9-16 excluding 15	9-16 excluding 15
16	1-32 excluding 16	1-24 excluding 16	1-16 excluding 16	1-16 excluding 16	1-16 excluding 16	9-16 excluding 16	9-16 excluding 16	9-16 excluding 16
17	1-32 excluding 17	1-24 excluding 17	17-32 excluding 17	17-24 excluding 17	17-24 excluding 17	17-24 excluding 17	17-24 excluding 17	17-21 excluding 17
18	1-32 excluding 18	1-24 excluding 18	17-32 excluding 18	17-24 excluding 18	17-24 excluding 18	17-24 excluding 18	17-24 excluding 18	17-21 excluding 18
19	1-32 excluding 19	1-24 excluding 19	17-32 excluding 19	17-24 excluding 19	17-24 excluding 19	17-24 excluding 19	17-24 excluding 19	17-21 excluding 19
20	1-32 excluding 20	1-24 excluding 20	17-32 excluding 20	17-24 excluding 20	17-24 excluding 20	17-24 excluding 20	17-24 excluding 20	17-21 excluding 20
21	1-32 excluding 21	1-24 excluding 21	17-32 excluding 21	17-24 excluding 21	17-24 excluding 21	17-24 excluding 21	17-24 excluding 21	21-24 excluding 21
22	1-32 excluding 22	1-24 excluding 22	17-32 excluding 22	17-24 excluding 22	17-24 excluding 22	17-24 excluding 22	17-24 excluding 22	21-24 excluding 22
23	1-32 excluding 23	1-24 excluding 23	17-32 excluding 23	17-24 excluding 23	17-24 excluding 23	17-24 excluding 23	17-24 excluding 23	21-24 excluding 23
24	1-32 excluding 24	1-24 excluding 24	17-32 excluding 24	17-24 excluding 24	17-24 excluding 24	17-24 excluding 24	17-24 excluding 24	21-24 excluding 24
25	1-32 excluding 25	25-32 excluding 25	17-32 excluding 25	25-32 excluding 25	25-28 excluding 25	25-32 excluding 25	25-28 excluding 25	25-28 excluding 25
26	1-32 excluding 26	25-32 excluding 26	17-32 excluding 26	25-32 excluding 26	25-28 excluding 26	25-32 excluding 26	25-28 excluding 26	25-28 excluding 26
27	1-32 excluding 27	25-32 excluding 27	17-32 excluding 27	25-32 excluding 27	25-28 excluding 27	25-32 excluding 27	25-28 excluding 27	25-28 excluding 27
28	1-32 excluding 28	25-32 excluding 28	17-32 excluding 28	25-32 excluding 28	25-28 excluding 28	25-32 excluding 28	25-28 excluding 28	25-28 excluding 28
29	1-32 excluding 29	25-32 excluding 29	17-32 excluding 29	25-32 excluding 29	29-32 excluding 29	25-32 excluding 29	29-32 excluding 29	29-32 excluding 29
30	1-32 excluding 30	25-32 excluding 30	17-32 excluding 30	25-32 excluding 30	29-32 excluding 30	25-32 excluding 30	29-32 excluding 30	29-32 excluding 30
31	1-32 excluding 31	25-32 excluding 31	17-32 excluding 31	25-32 excluding 31	29-32 excluding 31	25-32 excluding 31	29-32 excluding 31	29-32 excluding 31
32	1-32 excluding 32	25-32 excluding 32	17-32 excluding 32	25-32 excluding 32	29-32 excluding 32	25-32 excluding 32	29-32 excluding 32	29-32 excluding 32

Switch position →	A	
Output	**Mix of inputs**	
1	1-2	Higher channel dims lower channel by 30dB
2	3-4	
3	5-6	
4	7-8	
5	9-10	
6	11-12	
7	13-14	
8	15-16	
9	17-18	
10	19-20	
11	21-22	
12	23-24	
13	25-26	
14	27-28	
15	29-30	
16	31-32	
17	1-2	Higher channel dims lower channel by 10dB
18	3-4	
19	5-6	
20	7-8	
21	9-10	
22	11-12	
23	13-14	
24	15-16	
25	17-18	
26	19-20	
27	21-22	
28	23-24	
29	25-26	
30	27-28	
31	29-30	
32	31-32	

COMPRESSOR/ LIMITERS

Each mixer card has output compressor / limiter circuits built in.

We call the circuit's compressor/ limiters because the design of the circuit means that they are neither a traditional hard limiter nor soft compressor. Initially gentle compression is introduced and as the input signal increases so does the compression ratio, until eventually it becomes a limiter.

All outputs have a compressor/limiter circuit built in.

UPDATING FIRMWARE

Equipment needed

- A windows based PC
- USB Type A to Mini B cable
- A copy of ‘DfuSe Demo’ software
- The latest firmware from Glensound
- A STM32 Device and mains power

Instructions

1. Download and install DfuSE Demo

   ‘DfuSE Demo’ is a firmware updating tool that is required for loading new firmware on to the STM32 Device.

   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.

2. Install DFuSE driver

   Once DFuSE is installed, navigate to the following location on your machine:

   C:\Program Files (x86)\STMicroelectronics\Software\DfuSe v3.0.6\Bin\Driver\Win10

   You now need to run the following driver.
   - If your machine is 64 bit run ‘dpinst_amd64.exe’
   - If your machine is 32 bit run ‘dpinst_x86.exe’

   This will install the driver you need.

3. Download firmware

   Once you have downloaded the file, place it in a folder or location of your choice.

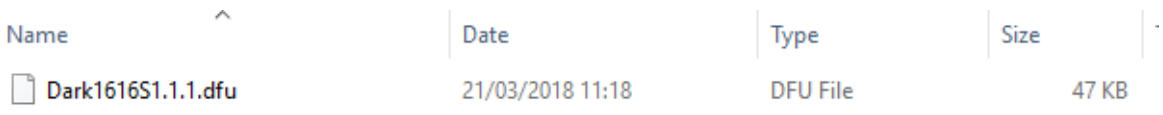


Figure 1 Example filename

4. Connect To A PC

Connect the STM32 Device to the PC via the USB cable. The Mini USB connector is located on a panel of the STM32 Device.



Figure 2 Front panel USB connector

5. Firmware update preperation

   To prepare the STM32 Device for a firmware update;

   1. Power on the unit
   2. Press and hold down the reset button
   3. Press and hold down the identify button
   4. Release the reset button and then release the identify button a second after

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

6. Loading the firmware

   Now open DfuSe Demo.

   If the STM32 Device successfully entered DFU mode then it will appear as ‘STM Device in DFU Mode’ under the ‘Available DFU Devices tab’.

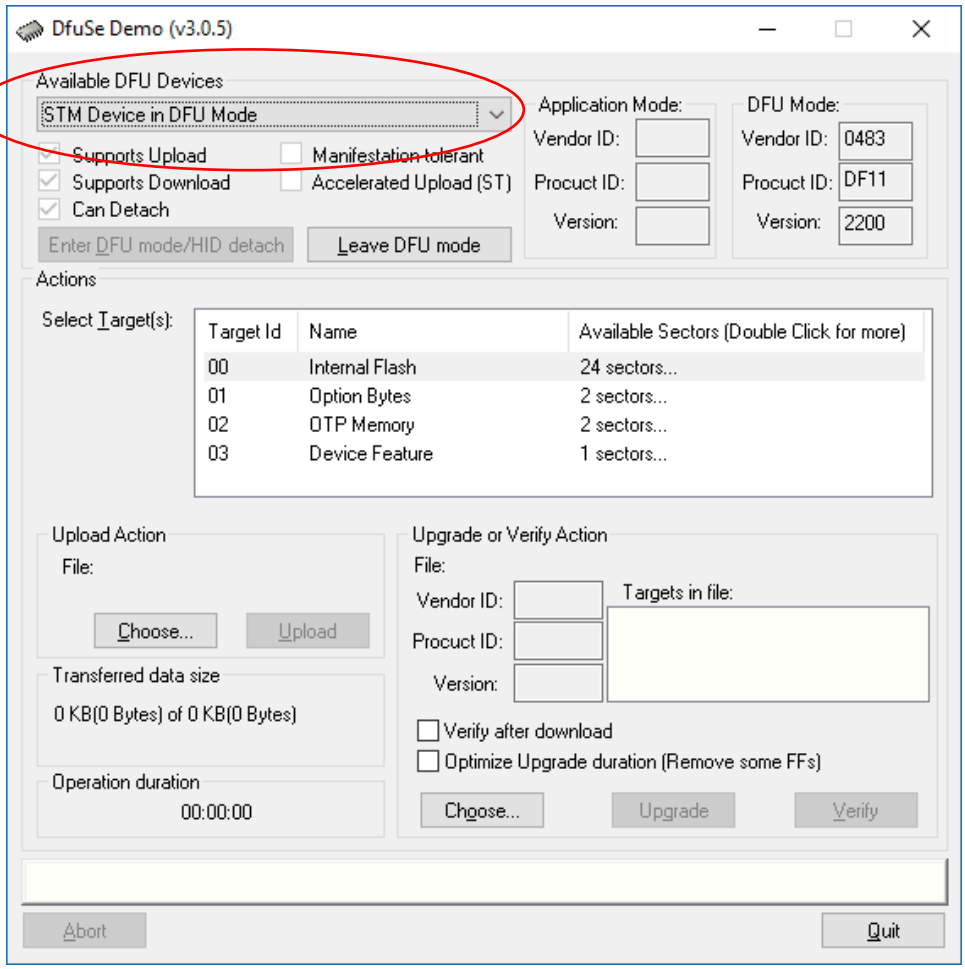


Figure 3 Device successfully recognised

Now the .dfu file needs to be selected so that DfuSe Demo knows the correct firmware to put on to the STM32 Device.

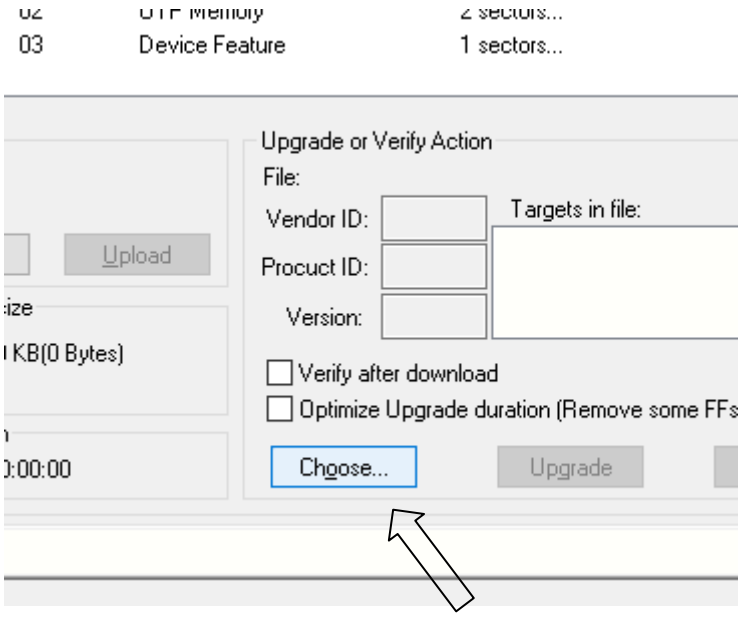


Figure 4 Choose .dfu file

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’.

7. Upgrading the STM32 Device firmware

The firmware is now ready to be put on to the STM32 Device. Tick the ‘Verify after download’ box first and then click ‘Upgrade’.

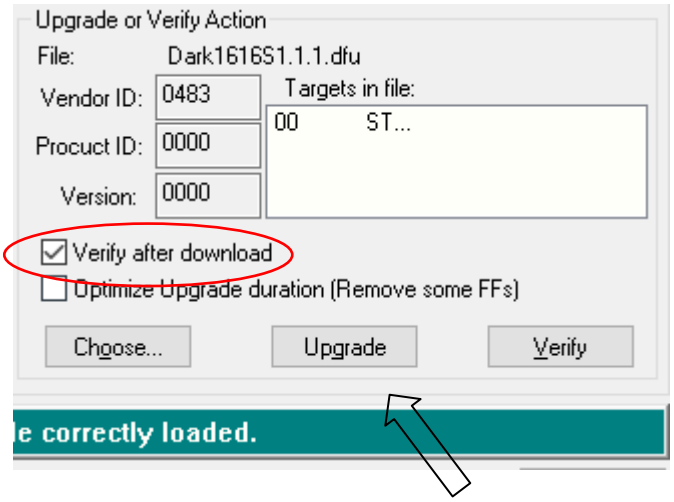


Figure 6 Upgrade

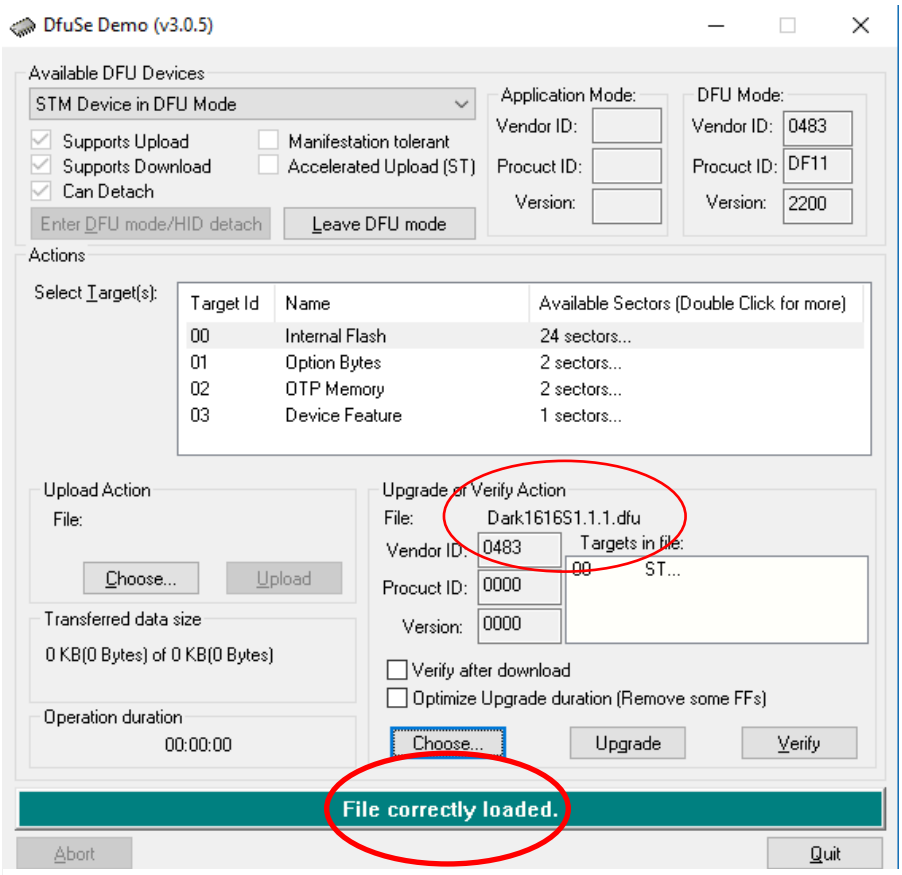


Figure 5 .dfu successfully loaded

Click yes to proceed.

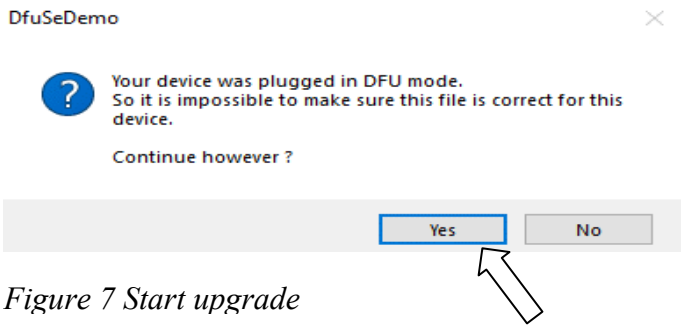


Figure 7 Start upgrade

The progress bar along the bottom will show the status of the operation.

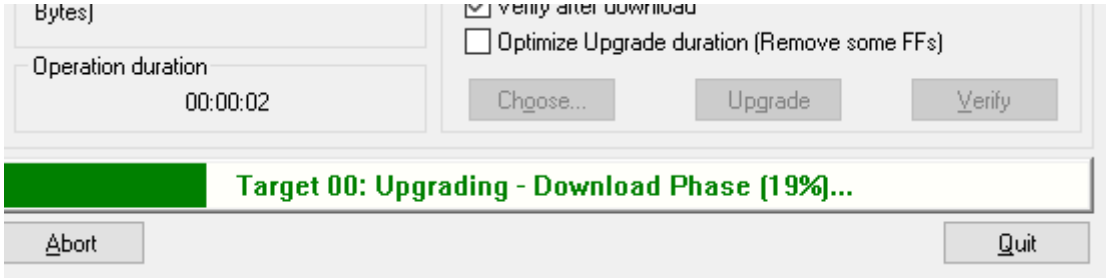


Figure 8 Upgrade status

If the operation was successful, DfuSe Demo will report that “Targery 00: Verify Successful!”.

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

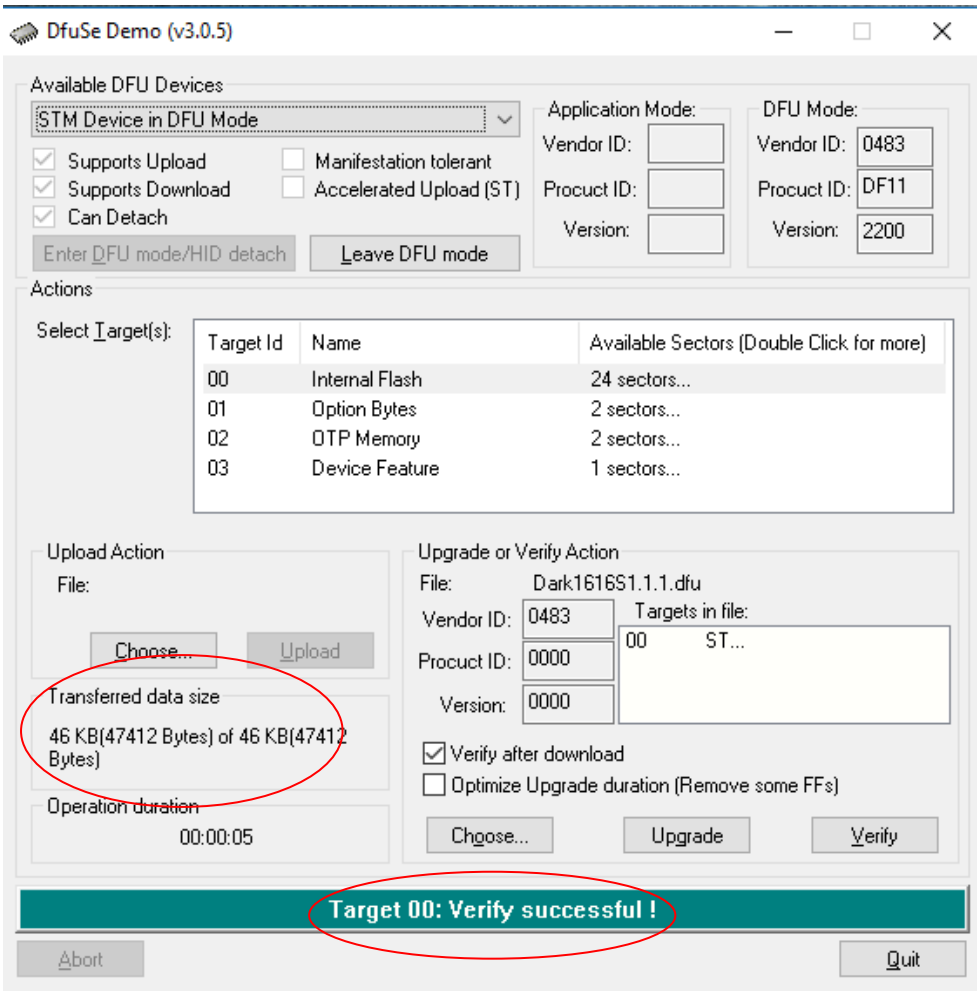


Figure 9 Successful upgrade!

8. Final steps

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

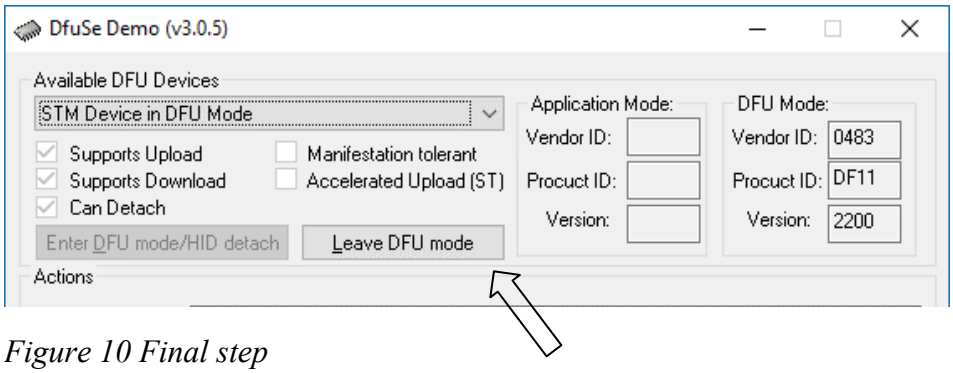


Figure 10 Final step

You may now disconnect the USB cable and continue to use the STM32 Device with the freshly updated firmware!

1. Updating the Brooklyn module

The Brooklyn module is a device supplied by Audinate that does most of the processing for the actual Dante®/ AES67 network audio streams. There is one Brooklyn module on each Mix32 mixer card. We supply special code that setup/ initiates the Brooklyn module and makes it work in particular way and we also run extra code on its internal microprocessor to make it work correctly with the Beatrice Mix32.

The firmware that runs on the Brooklyn module 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

The actual firmware to install using the above tool will be supplied by support. It will be a .dnt file.

Please note we strongly advise that when you do the update that only your PC and the Beatrice Mix32 that you want to update are on the network to save accidently updating the wrong Dante device.

2. Multiple Mix Cards

Each Beatrice Mix32 can be fitted with up to 4 off mixer cards.
When updating firmware it is necessary to update each mix card separately.

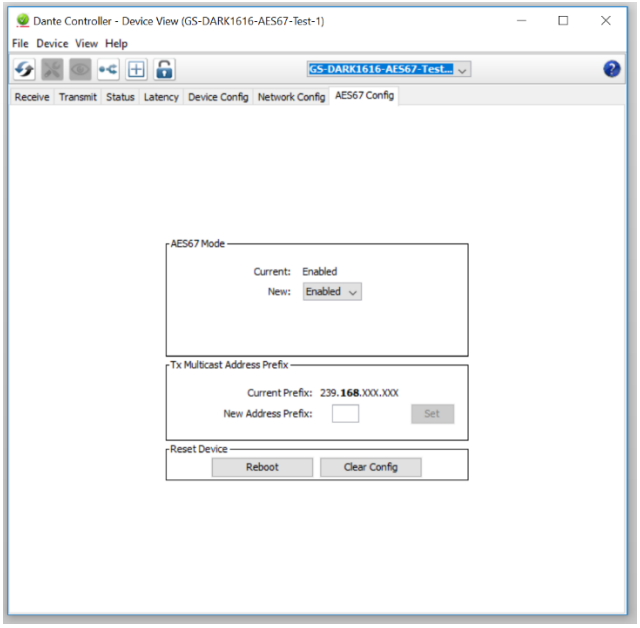
AES67 MODE

The Mix32 uses a module from Audinate called a Brooklyn Module for its network audio interface. Audinate are the company behind Dante® and as such the module's primary network audio protocol is Dante®, however Audinate have enabled their module to comply with AES67 and therefore the Mix32 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 Mix32 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 Mix32 to open the Device View window where you will find an AES67 tab to enable AES67 support.

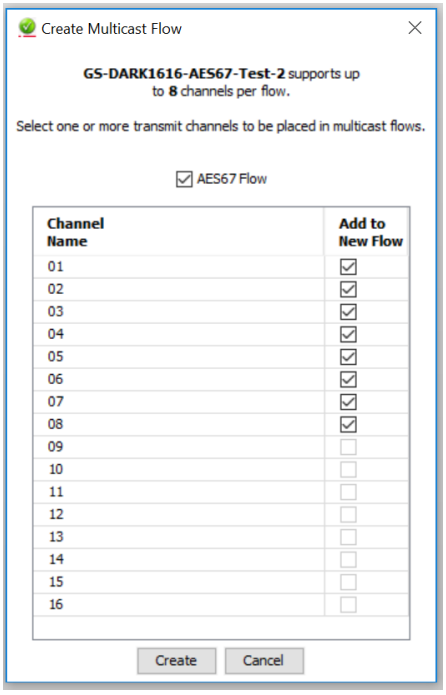


Once the AES67 drop down box has been enabled you'll have to reboot the Mix32 for the change to take effect. After the reboot go back to the AES67 tab and set the multicast prefix address to one that is suitable for your newtork.

2. Sending AES67 Audio

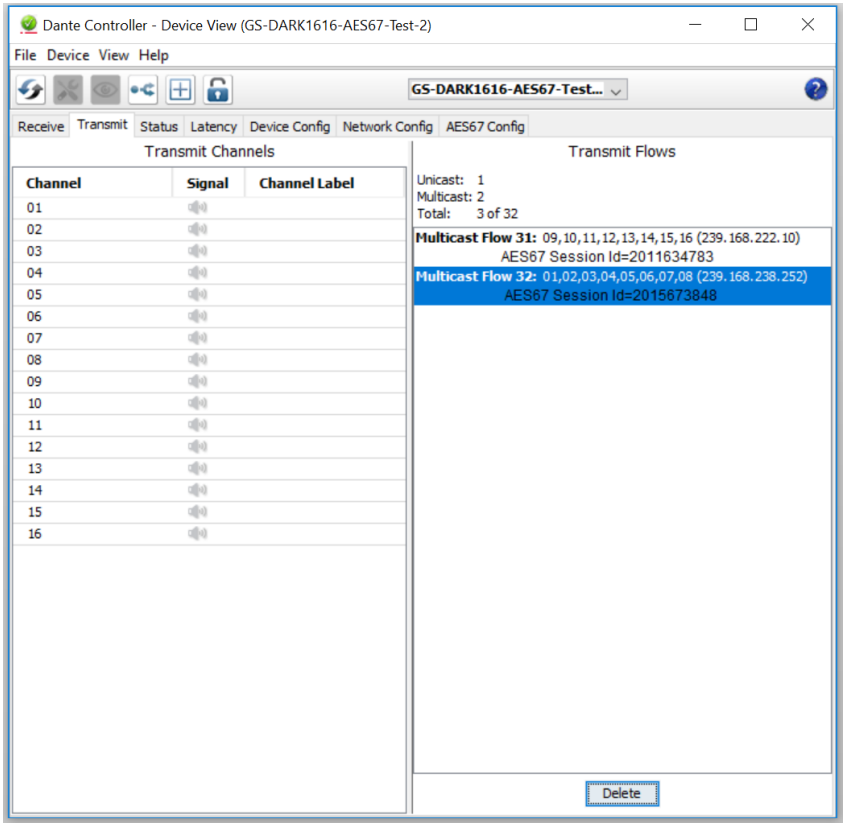
To transmit AES67 audio to the network a multicast flow must first be setup.

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 8 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

SPECIFICATION

NETWORK:

Physical Interface: 2 x Copper Neutrik Ethercon
2 x SFP (Fibre GBIC) Slots (SFP modules not included)
Audio Sample Frequency: Up to 96kS/s
Transfer Rate: 1000 Mbps

AUDIO:

Audio inputs & outputs are entirely digital fed via the digital network. Internally audio is processed in a DSP with 32 bit resolution. Performance is expected to be completely flat and noise free, we cannot measure it as its performance exceeds the performance of our test equipment.

PHYSICAL:

Size: 19” 1RU, 30cm deep
Weight: 2.8Kg (1 mix card fitted)
Shipping Carton: Rugged export quality cardboard
Shipping Size: 62 x 42 x 12 cms
Shipping Weight: 4.5Kg

POWER:

Quantity of Inputs: 2
Physical Inputs: IEC plug
Type of Input: Fully redundant
Voltage Range: 100 – 240 VAC +/-10%
Frequency: 50 – 60 Hz
Consumption: 14 Watts (1 x mix card fitted) then add 2 Watts for each extra mix card

INCLUDED ITEMS:

RJ45 Cable: 2 off per mix card fitted
Mains Cable: 2 off (UK & Europe only)