



Glensound
Keeps Working

DARK88 MKII

**DANTE® NETWORK AUDIO
8 INPUT 8 OUTPUT LINE LEVEL ANALOGUE
INTERFACE**

PRODUCT DETAILS

THE DESIGN BUILDINGS, 6 BROOKS PLACE, MAIDSTONE, KENT, ME14 1HE. ENGLAND.
TEL: +44 (0)1622 753662
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:

GlenSound Electronics Ltd
The Design Buildings
1 – 6 Brooks Place
Maidstone
Kent
ME14 1HE
United Kingdom

Telephone: +44 (0) 1622 753662

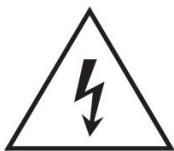
EMAIL ADDRESSES

General enquires: office@glenSound.com

Technical enquires: techinfo@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.



English: This symbol is intended to highlight 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 is intended to warn that the product can be energised from more than one Mains power source. Care must be taken if accessing internal components. Ensure that both Mains Power supplies are fully disconnected.

- 1) Read these instructions
- 2) Keep these instructions
- 3) Heed all warnings
- 4) Follow all instructions
- 5) This product is intended for indoor use only
- 6) The intended ambient operating temperature of this product is 0°C to 40°C
- 7) Do not use this apparatus near water
- 8) Clean only with a dry cloth
- 9) Do not block any ventilation openings. Install in accordance with manufacturer's instructions
- 10) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat
- 11) 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 is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet
- 12) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus
- 13) The mains plugs and rear-panel IEC appliance couplers serve as the disconnect devices. Both mains cords must be unplugged to completely isolate the unit from mains power. The socket-outlets used for mains power must be installed near the equipment and be easily accessible
- 14) 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
- 15) Only use attachments/ accessories specified/ supplied by the manufacturer
- 16) This product is designed for stationary installation in a standard 19-inch equipment rack (1RU). 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 the ventilation slots on the left and right sides of the chassis are not obstructed by rack walls or cabling.
- 17) 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
- 18) Unplug this apparatus during lightning storms or when unused for long periods of time
- 19) 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
- 20) Do not attempt to modify this product. Doing so could result in personal injury and/ or product failure.
- 21) The product contains no user serviceable parts and **must not** be disassembled in any way
- 22) This equipment is not suitable for use in locations where children are likely to be present
- 23) 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



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 FOR:

DARK88 MKII

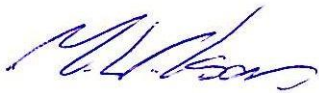
Eight channel AoIP, Analogue I/O interface

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:

Product safety:	EN IEC 62368-1:2020 + A11:2020
Emissions:	EN55032:2015
Immunity:	EN55035:2017

Signed for and on behalf of GlenSound Electronics Ltd.



Marc Wilson, Managing Director
Maidstone, Kent, England

Date: 01/03/2026

RoHS DIRECTIVE

RoHS 2 Directive 2011/65/EU as amended by (EU) 2015/863 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%
Bis(2-ethylhexyl) phthalate	0.1%
Benzyl butyl phthalate	0.1%
Dibutyl phthalate	0.1%
Diisobutyl phthalate	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 DARK88 MKII

Handbook Contents

Issue 4

Description

Page No.

Contents

IMPORTANT SAFETY INSTRUCTIONS	Error! Bookmark not defined.
PRODUCT WARRANTY:	3
OVERVIEW	8
DARK88 MKII FRONT PANEL LAYOUT	9
DARK88 MKII REAR PANEL LAYOUT	11
SIMPLIFIED BLOCK DIAGRAM	12
CONNECTING THE DARK88 MKII TO A DANTE® NETWORK	13
Getting DANTE® Controller	13
Connecting DARK88 MKII To the Network	13
Audio Over IP Network	13
Running DANTE® Controller	14
DANTE® Controller TIP	14
UPDATING FIRMWARE	15
UPDATING THE BROOKLYN MODULE	Error! Bookmark not defined.
AES67 MODE	15
WIRING INFORMATION	26

OVERVIEW

The Glensound DARK88 MKII is an analogue to digital and digital to analogue converter designed to connect line level analogue audio circuits to a DANTE®/AES67 audio network.

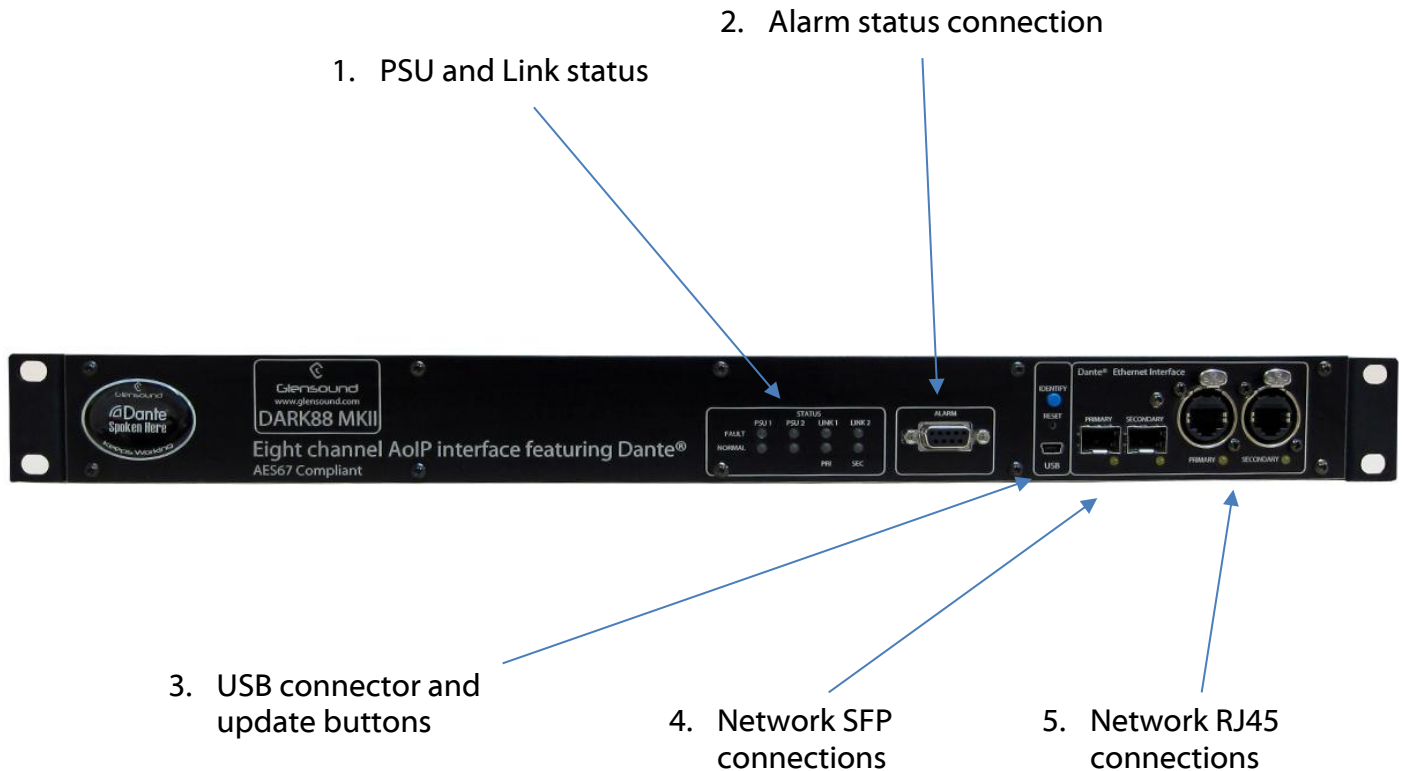
DANTE® network audio is a common protocol for distributing high quality linear audio over standard IP networks and it is widely used by many audio equipment manufacturers. The DARK88 MKII DANTE® audio interface is compatible with all DANTE® audio interfaces across all manufacturers. Further details of DANTE® network audio can be found at www.audinate.com

Intended for live on-air broadcast applications, the DARK88 MKII has been designed with multiple redundancy capabilities. It has 2 mains power sources and it also has fully redundant network connections for both Copper & Fibre circuits.

The DARK88 MKII provides 8 analogue line level (0dB) inputs to the DANTE® network and 8 analogue line level (0dB) outputs from the DANTE® network.

The DARK88 MKII can connect to Dante® networks operating with sample rates of up to 192kHz.

DARK88 MKII FRONT PANEL LAYOUT



1. PSU and Link status

There are 4 red LEDs and 4 green LEDs that illuminate depending on the status of the link. Red indicates no connection, green indicates a successful connection.

For example, if you have connected the DARK88 MKII to two separate PSUs, only one of which works then you will have a red 'Fault' LED illuminate to warn you that there is no power detected on the connection that is not receiving mains power.

2. Alarm status connection

This 8-way female D-type connector will report the failure of a link status if one is detected whilst in operation.

3. USB connector and update buttons

The MINI USB connection allows the firmware of the DARK88 MKII to be updated. To prepare the DARK88 MKII for a firmware update; power on the unit, press and hold down the reset button, press and hold down the identify button, release the reset button and then release the identify button a second after.

4. **Network SFP Connections**

There are 2 standard network data SFP sockets provided to allow redundant network connectivity if using DANTE® network audio protocol. They are both gigabit network connections. They accept standard SFP modules. The status LEDs flash to show when data is being correctly communicated with the attached switch.

If you require SFP modules then please email sales@glen sound.com for a quotation.

Network Note

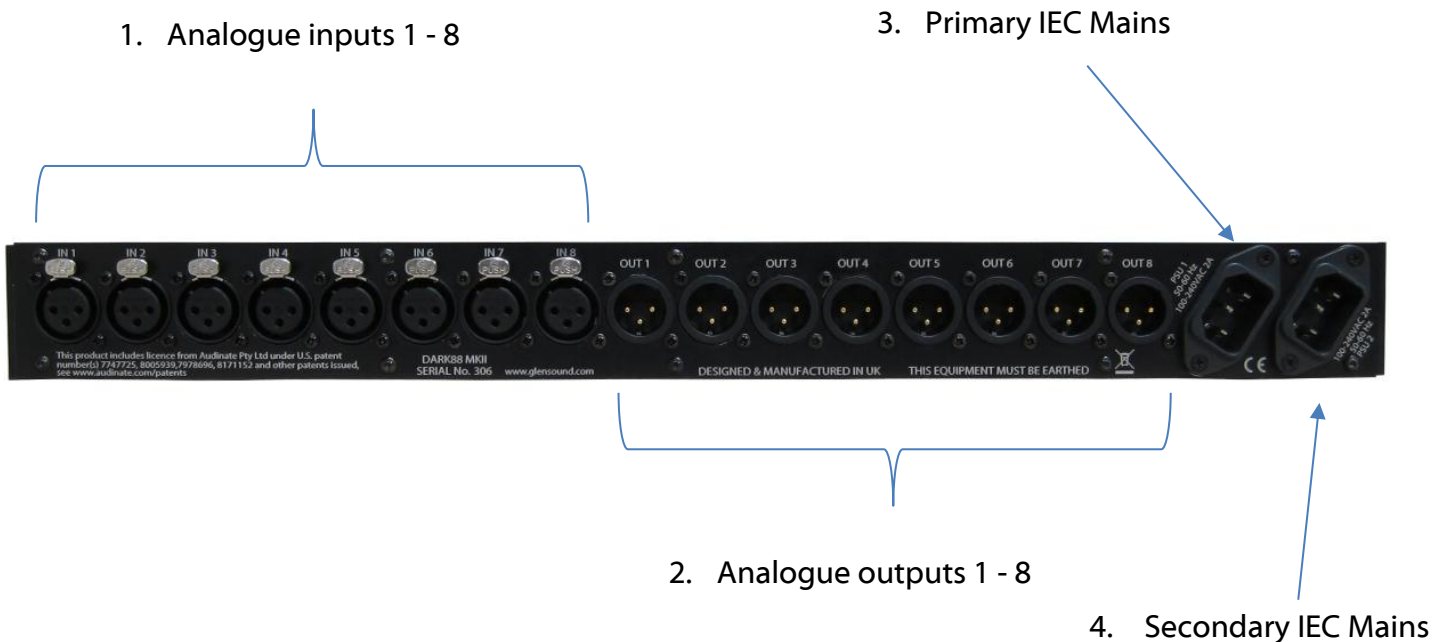
Factory default is to have the SFP & RJ45 sockets set to work in redundant mode.

It is possible using DANTE® controller to set these network interfaces to work as a network switch instead of the redundant mode, meaning other network equipment can be connected to them.

5. **Network RJ45 connections**

There are 2 standard network data RJ45 sockets provided to allow redundant network connectivity if using DANTE® network audio protocol. They are both gigabit network connections. The status LEDs flash to show when data is being correctly communicated with the attached switch.

DARK88 MKII REAR PANEL LAYOUT



1. Analogue inputs 1 - 8

The 8 x female XLRs accept balanced line level (0dB) audio inputs. These inputs are sent to the Dante®/ AES67 network outputs.

2. Analogue outputs 1 – 8

The 8 x male XLRs provide balanced line level (0dB) audio outputs from the Dante®/ AES67 network inputs.

3. Primary IEC Mains

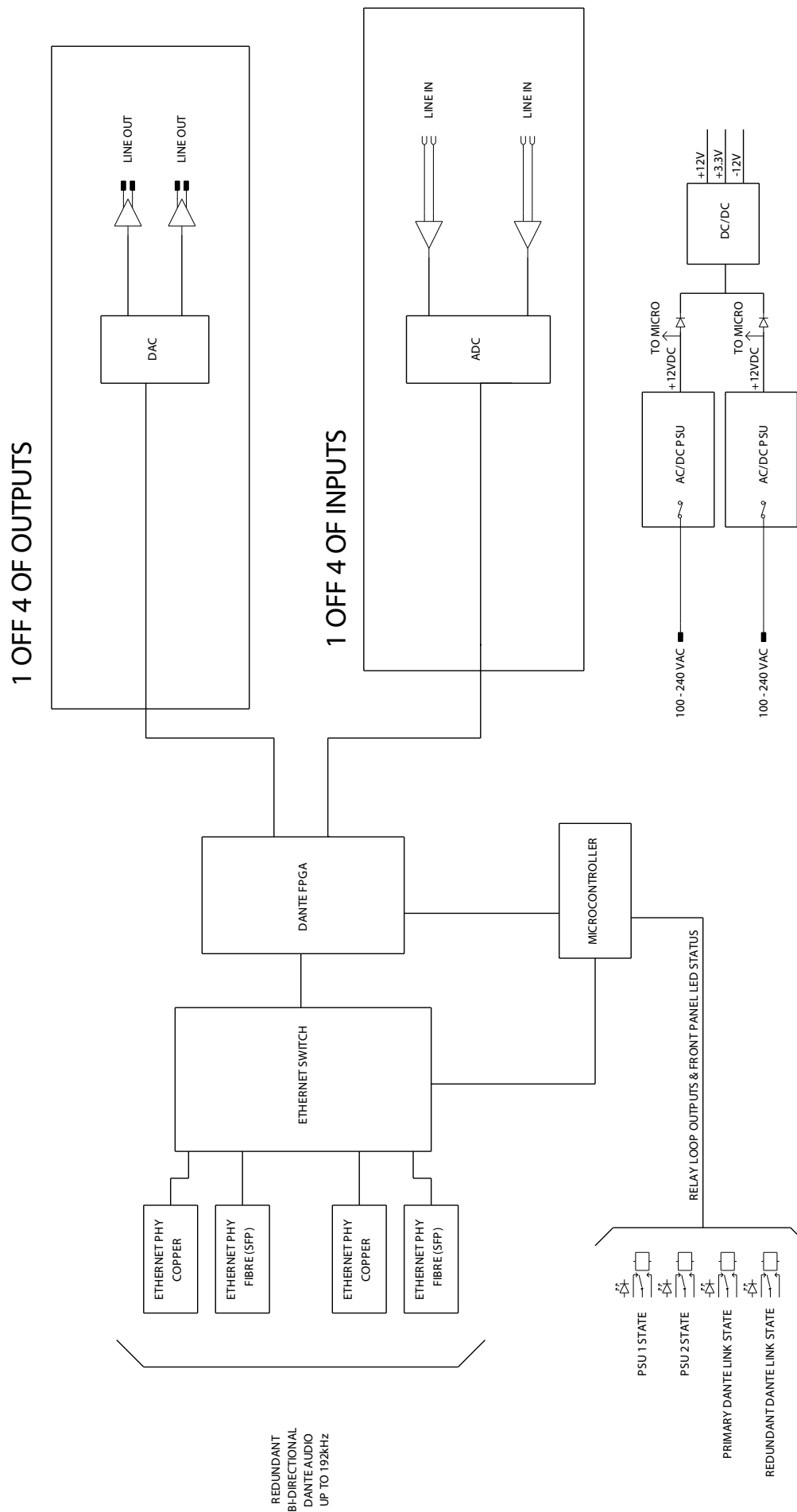
The standard IEC mains plug accepts external AC voltages of 100 - 240 VAC +/- 10%. There is a non-accessable internal fuse for this input.

The DARK88 MKII is designed to operate with either primary or secondary mains sources or both for power redundancy.

4. Secondary IEC Mains

The standard IEC mains plug accepts external AC voltages of 100 - 240 VAC +/- 10%. There is a non-accessable internal fuse for this input.

SIMPLIFIED BLOCK DIAGRAM



CONNECTING THE DARK88 MKII TO A DANTE® NETWORK

The DARK88 MKII is a network audio device utilizing the reliable and versatile DANTE® audio over IP protocol. DANTE® is a widely used proprietary system made by Audinate.

For full details of the power of DANTE® network audio and instructions for using it, visit www.audinate.com

Getting DANTE® Controller

If you are connecting the DARK88 MKII 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 DARK88 MKII To the Network

The DARK88 MKII 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 panel. Once connected to the network it will be possible to see the DARK88 MKII from within the DANTE® controller and route its' audio circuits.

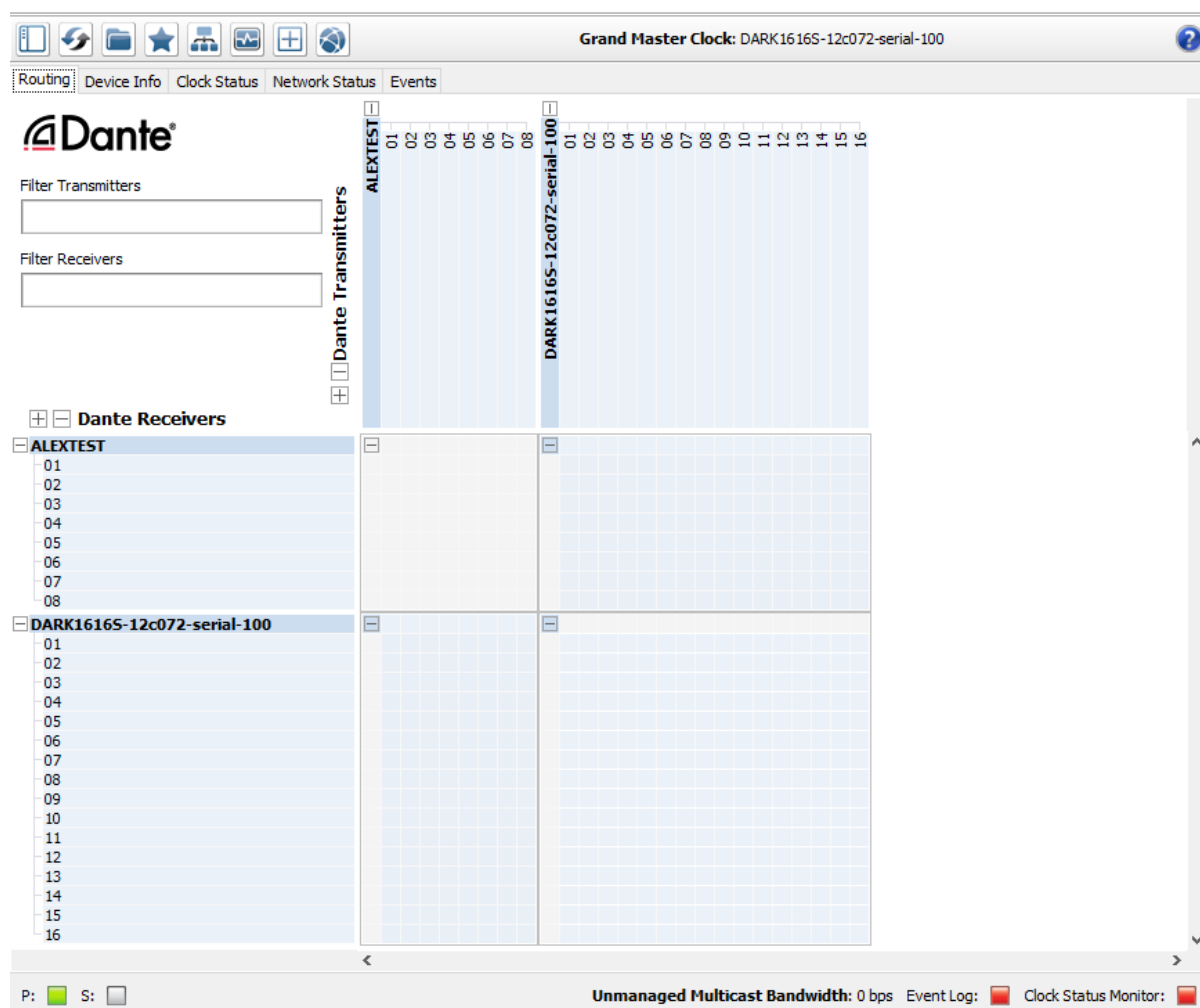
Audio Over IP Network

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 DARK88 MKII 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:

'DARK88 MKII-12c072- serial-100'

Where 'DARK88 MKII-12c072' refers to the GlenSound product and MAC address and 'serial-100' refers to its 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.

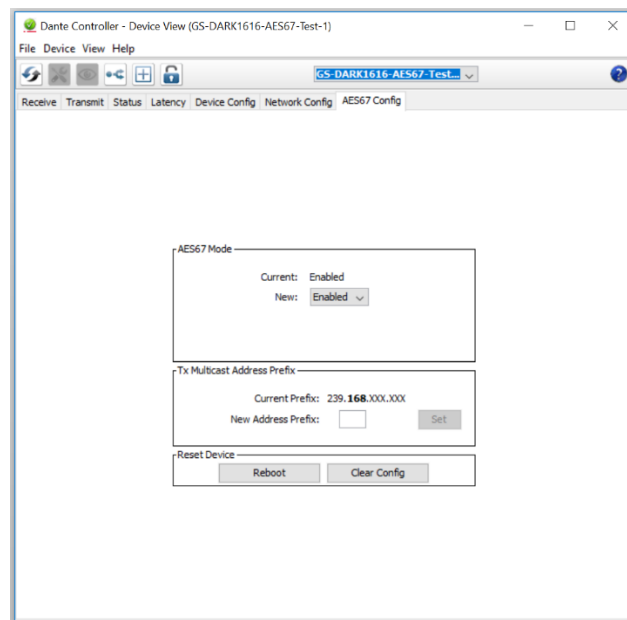
AES67 MODE

The DARK88 MKII 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 DARK88 MKII 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 DARK88 MKII 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 DARK88 MKII to open the Device View window where you will find an AES67 tab to enable AES67 support.

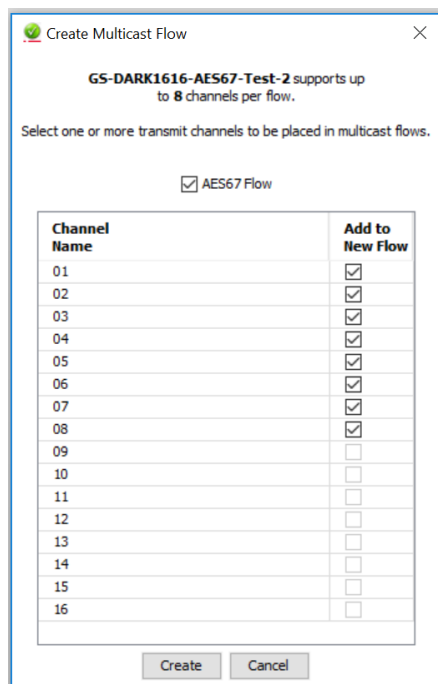


Once the AES67 drop down box has been enabled you'll have to reboot the Paradiso for the change to take effect. After the reboot go back to the AES67 tab and set the multicast prefix address to one that is suitable for your network.

2. Sending AES67 Audio

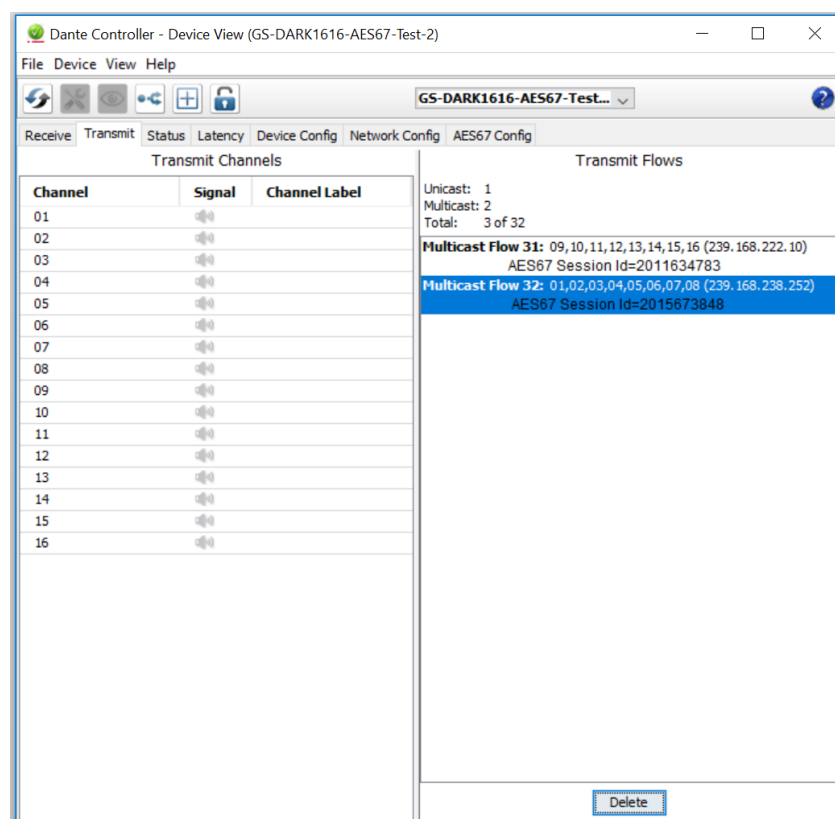
To transmit AES67 audio to the network a multicast flow must first be setup.

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

UPDATING FIRMWARE

The DARK88 MKII is a complex digital audio system comprising of a DSP and several Micro Controllers. All these items run software and may need to be occasionally updated.

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 DARK88 MKII 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 DARK88 MKII.

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

Contact GlenSound to find the latest available version. sales@glenSound.com

Name	Date	Type	Size
 Dark1616S1.1.1.dfu	21/03/2018 11:18	DFU File	47 KB

Figure 1 Example filename

4. Connect To A PC

Connect the DARK88 MKII to the PC via the USB cable. The Mini USB connector is located on the front panel of the DARK88 MKII.



Figure 2 Front panel USB connector

5. Firmware update preparation

To prepare the DARK88 MKII 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 DARK88 MKII successfully entered DFU mode then it will appear as 'STM Device in DFU Mode' under the 'Available DFU Devices tab'.

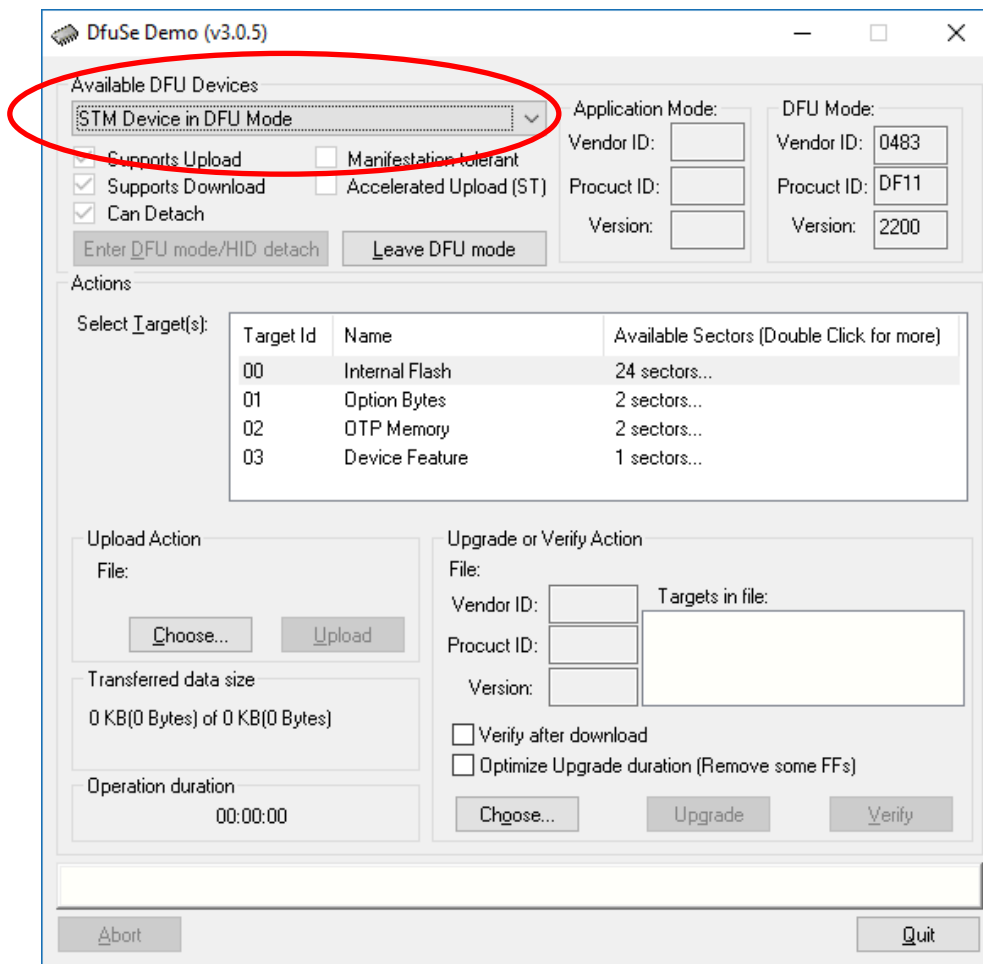


Figure 3 Device successfully recognised

Now the .dfu file needs to be selected so that DfuSe Demo knows the correct firmware to put on to the DARK88 MKII.

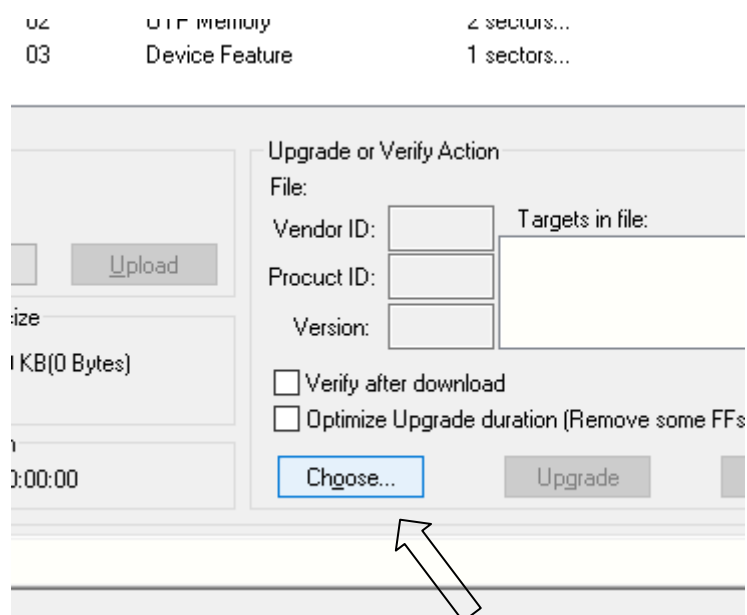


Figure 4 Choose .dfu file

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'.

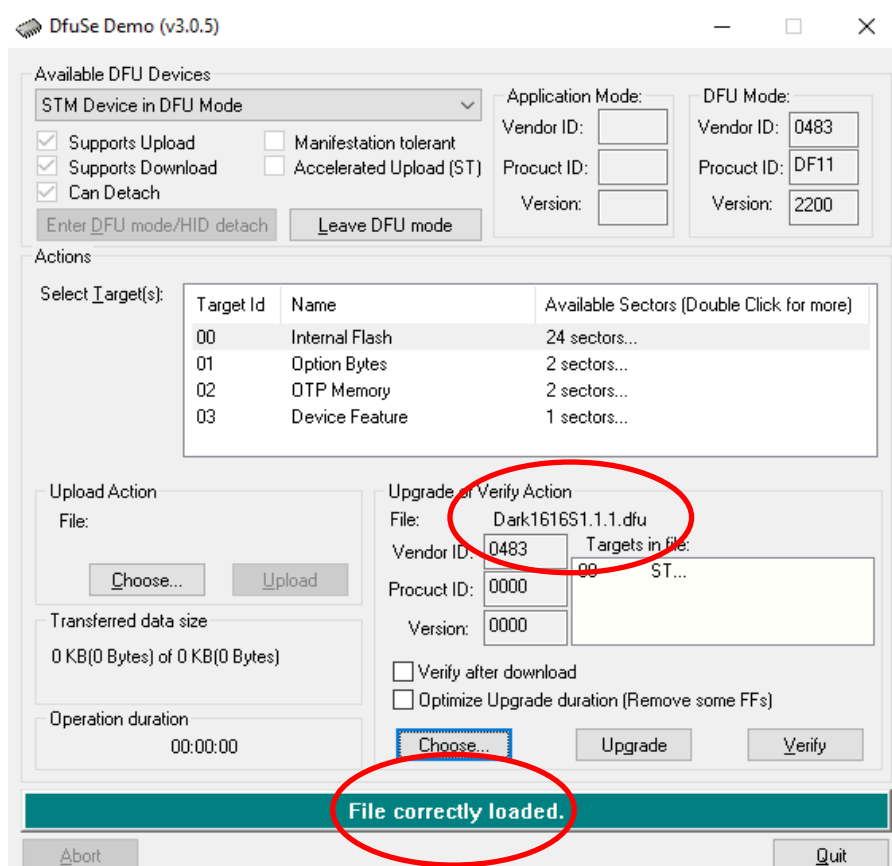


Figure 5 .dfu successfully loaded

7. Upgrading the DARK88 MKII firmware

The firmware is now ready to be put on to the DARK88 MKII. Tick the 'Verify after download' box first and then click 'Upgrade'.

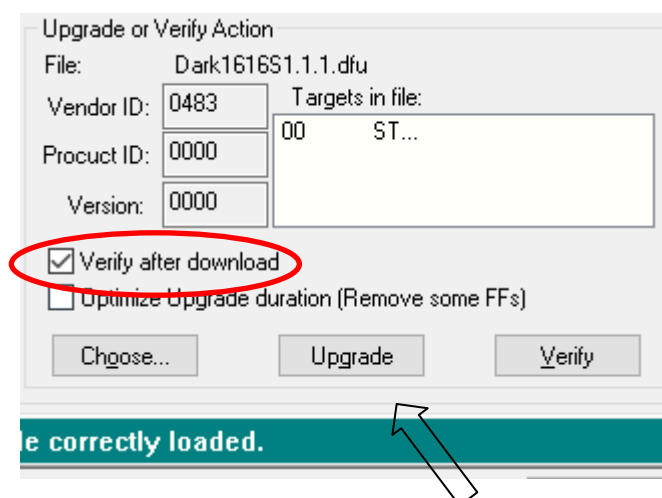


Figure 6 Upgrade

Click yes to proceed.

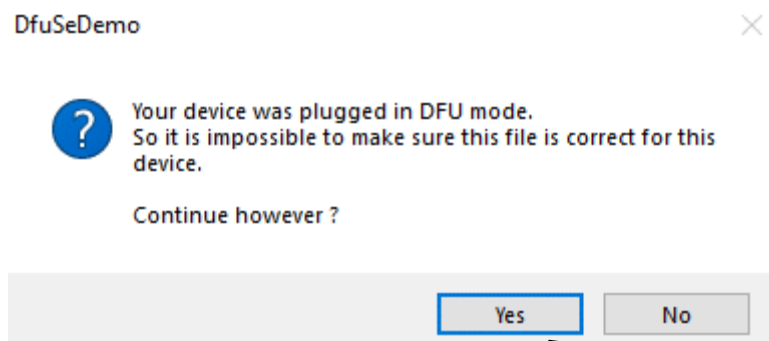


Figure 7 Start upgrade

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

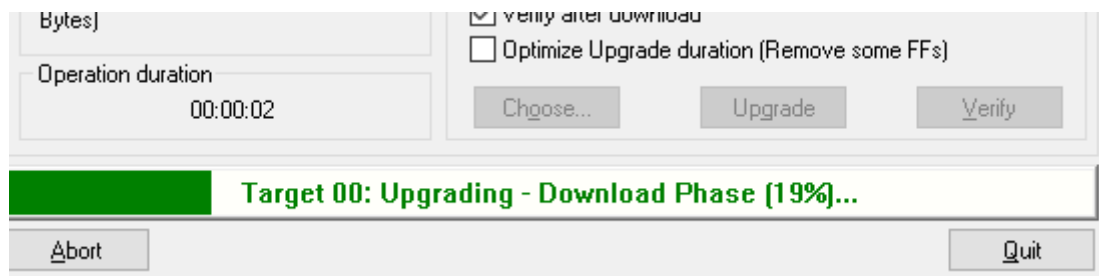


Figure 8 Upgrade status

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.

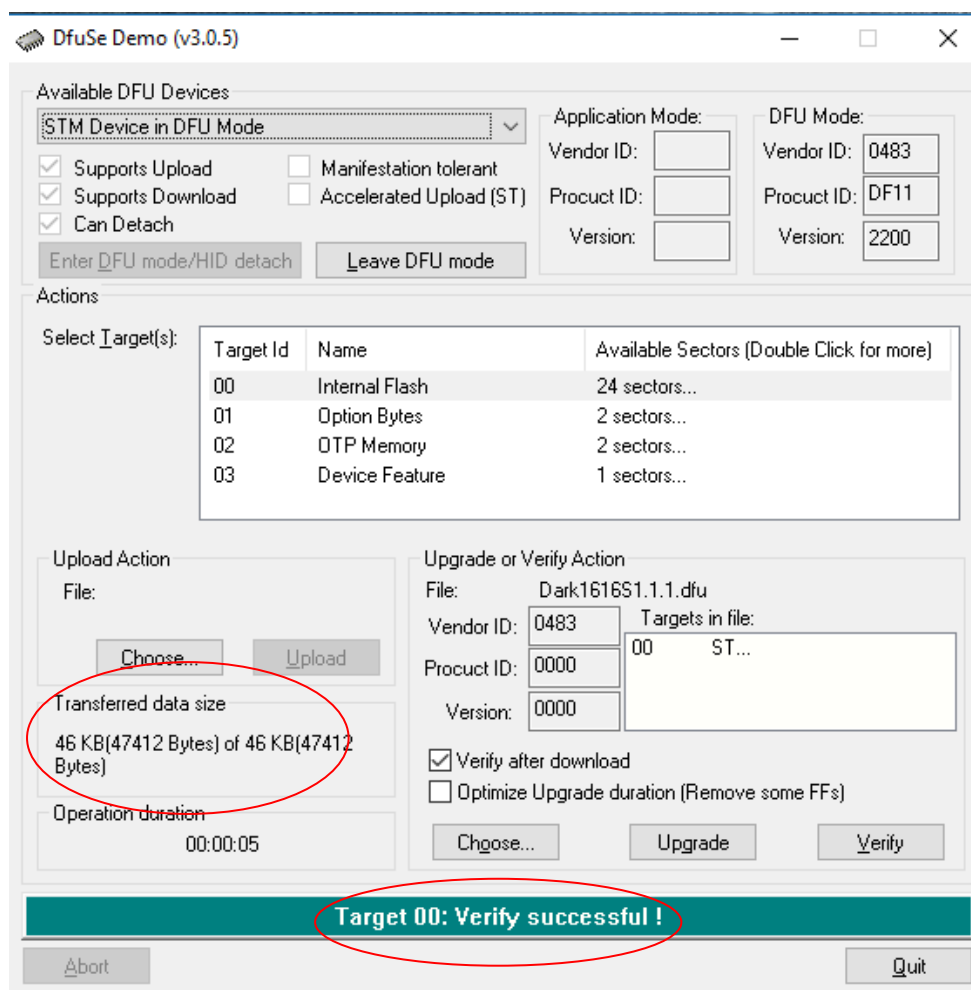


Figure 9 Successful upgrade!

8. Final steps

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

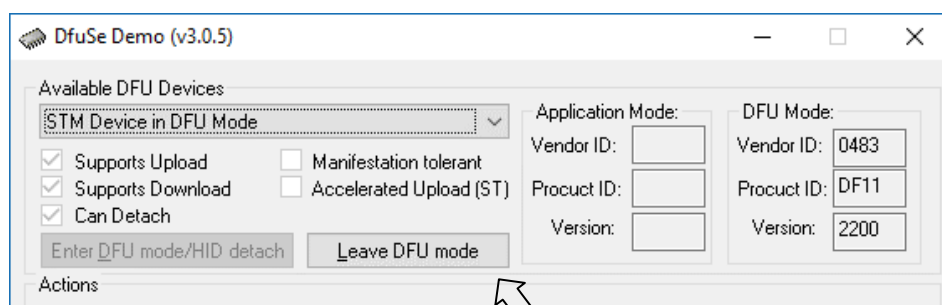


Figure 10 Final step

You may now disconnect the USB cable and continue to use the DARK88 MKII with the freshly updated firmware!

UPDATING THE DANTE FIRMWARE

Dante specific firmware runs on the Dante chipset in the device. This is updated separately from the main device firmware.

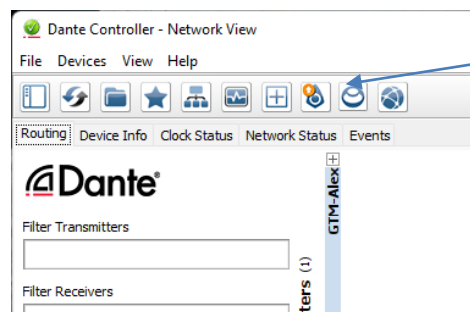
Updating the device

The firmware that runs in the Dante 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.

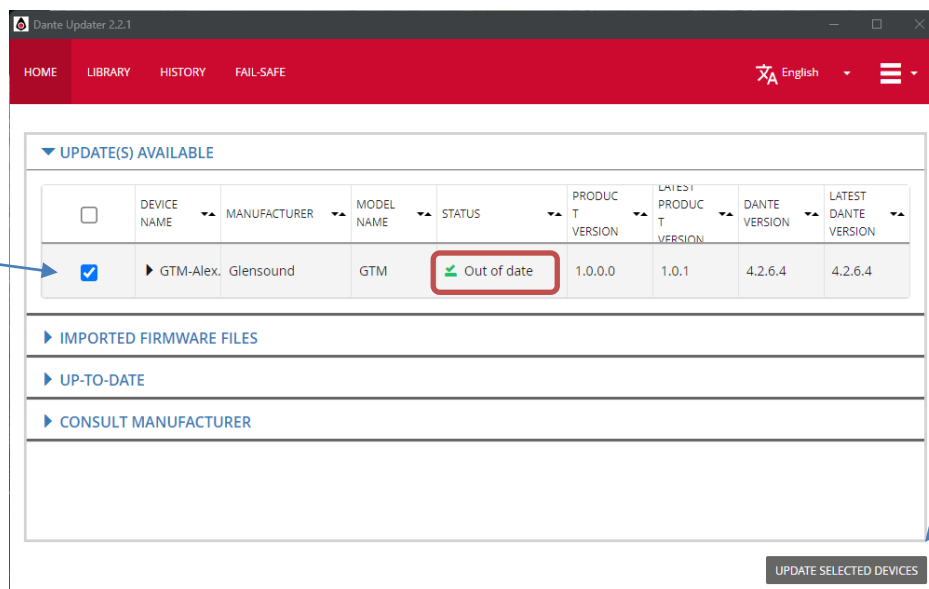


Dante controller notifies you if a device on your network is out of date.

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

DEVICE	IP ADDRESS	UPDATE STATUS
GTM-Alex	169.254.198.133	Ready for update

Do not power off or disconnect your computer or devices while updates are in progress

☒ I understand that audio will be interrupted.

CANCEL UPDATE NOW UPDATE SELECTED DEVICES

4.

Update is in progress

DEVICE	IP ADDRESS	UPDATE STATUS
GTM-Alex	169.254.198.133	

Do not power off or disconnect your computer or devices while updates are in progress

☒ I understand that audio will be interrupted.

CANCEL UPDATING UPDATE SELECTED DEVICES

5.

A. Update finished. Tick box to continue

B. Press to reboot device

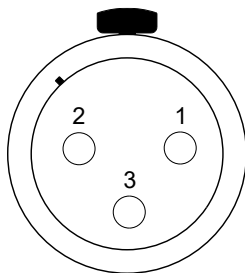
Update finished, device will now reboot

DEVICE	IP ADDRESS	UPDATE STATUS
GTM-Alex	169.254.198.133	☒ REBOOT REQUIRED

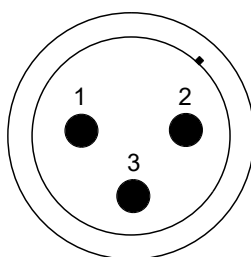
SELECT ALL REBOOT SELECTED DEVICES CLOSE

UPDATE SELECTED DEVICES

WIRING INFORMATION



XLR SOCKET (FEMALE)



XLR PLUG (MALE)

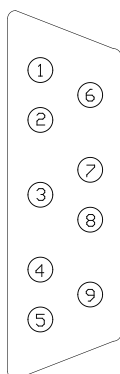
STANDARD XLR AUDIO PINOUTS:

1: Ground/ Earth

2: INPHASE/ POSITIVE/ MIC +

3: MATE/ NEGATIVE/ MIC -

ALARMS D9 SOCKET PIN OUT



ALARMS

PSU1 Failure NC

PSU1 Failure NO

PSU2 Failure NC

PSU2 Failure NO

LINK Primary Failure NC

LINK Primary Failure NO

LINK Secondary Failure NC

LINK Secondary Failure NO

COMMON

Pin 1

Pin 6

Pin 2

Pin 7

Pin 3

Pin 8

Pin 4

Pin 9

Pin 5

Closed Contact when PSU1 fails

Open Contact when PSU1 fails

Closed Contact when PSU2 fails

Open Contact when PSU2 fails

Closed Contact when Primary link fails

Open Contact when Primary link fails

Closed Contact when Secondary link fails

Open Contact when Secondary link fails

Common for above (Internally linked to Ground)