



DARK80

DANTE[®] NETWORK AUDIO 8 LINE LEVEL ANALOGUE OUTPUTS

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 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

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:

DARK80

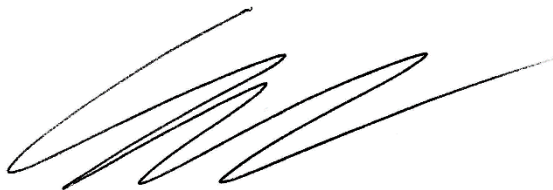
8 Channel Portable PoE Powered Network Audio Output Unit

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:

| | |
|-------------------------------|-----------------------------------|
| 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: 04/02/2020

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)

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

WEE/JJ0074UR

GLENSOUND DARK80

Handbook Contents

Issue 1

Description

Page No.

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OVERVIEW

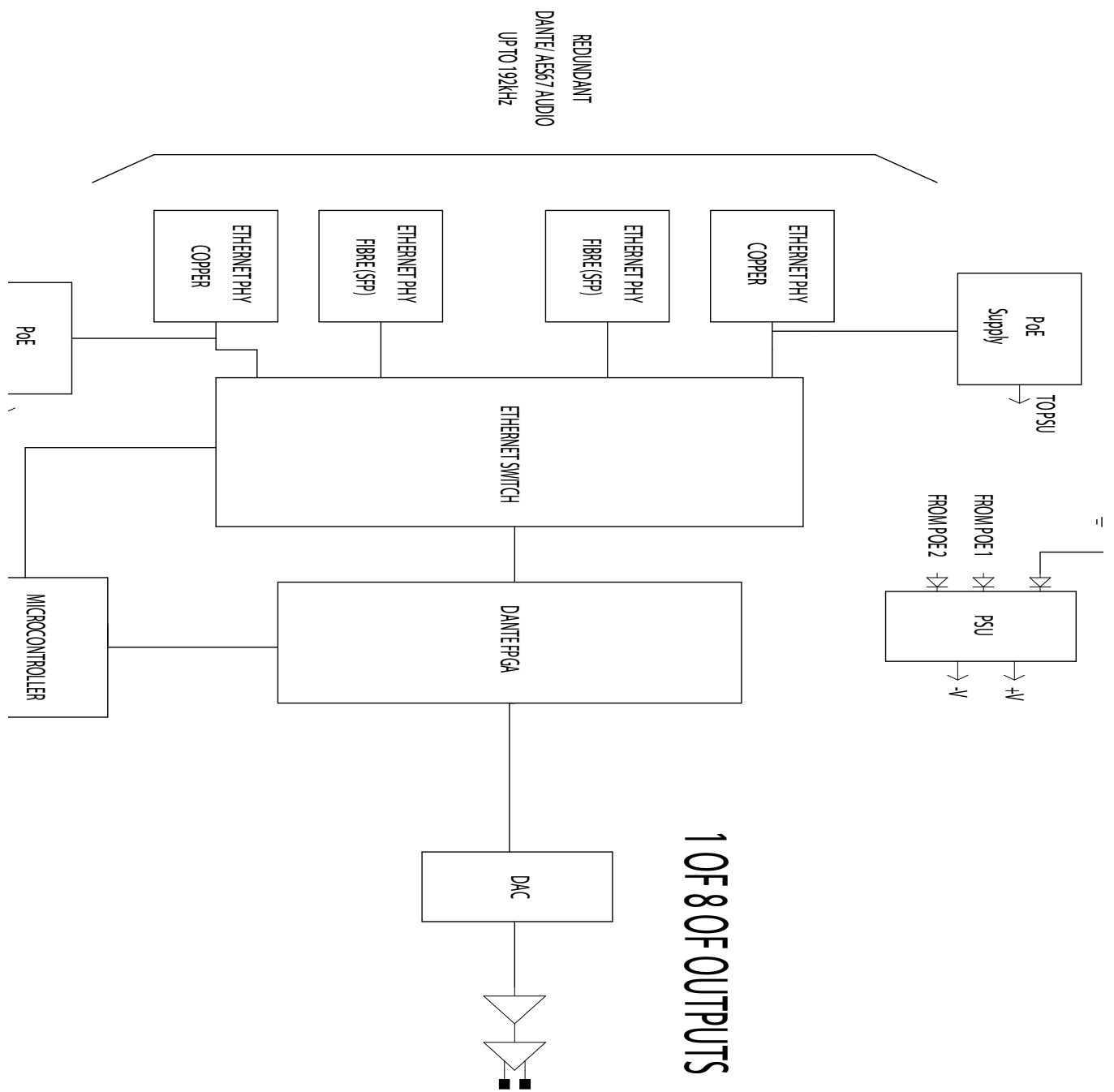
The GlenSound DARK80 is a digital to analogue converter designed to connect Dante® / AES67 audio networks to line level analogue audio input circuits.

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 DARK80 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

Being designed for live on-air broadcast applications the unit has been designed with multiple redundancy capabilities. It features fully redundant network connections for both Copper & Fibre circuits. It can be powered by Power Over Ethernet (PoE) from either copper network port, additionally it can be powered from an external 12V DC source.

The DARK80 provides 8 balanced analogue audio outputs from the Dante® network and feature low noise digital to analogue converters.

SIMPLIFIED BLOCK DIAGRAM



DARK80 CONNECTIONS



CONNECTING THE DARK80 TO A DANTE® NETWORK

The DARK80 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 DARK80 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 DARK80s To The Network

DARK80s 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 DARK80 from within the Dante® controller and route its' audio circuits.

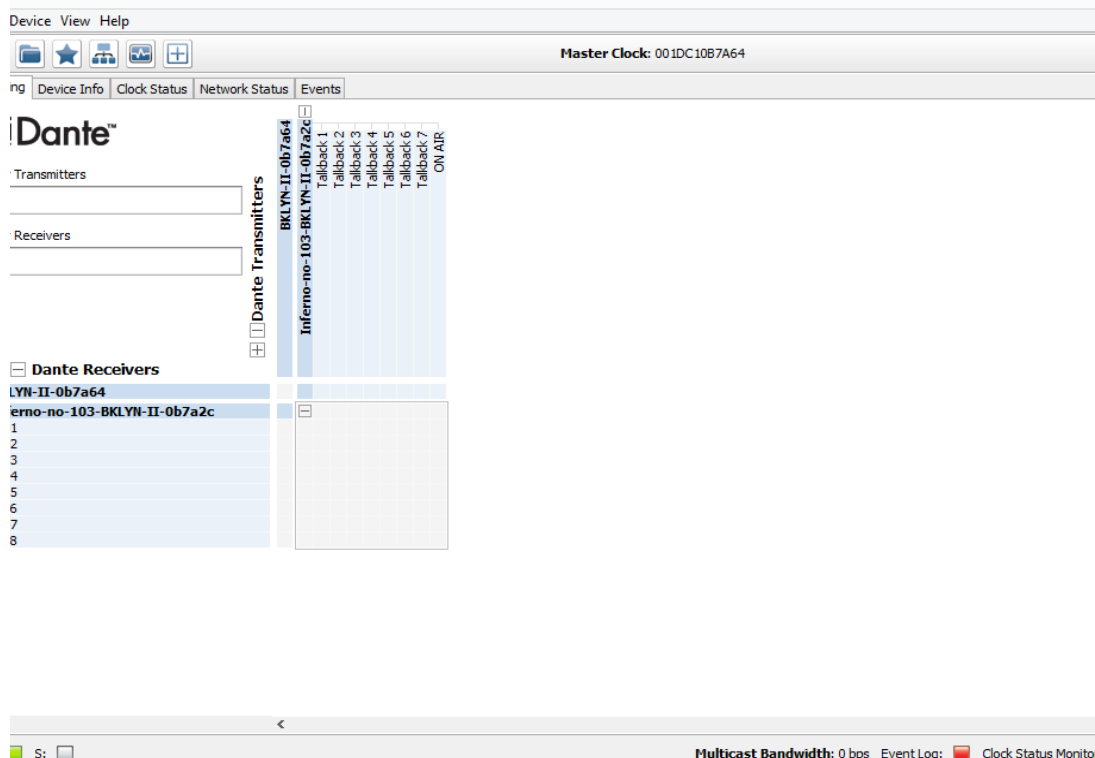
Audio Over IP Network

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 DARK80 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:

'GLENSOUND-DARK80-SNxxx'

Where 'GLENSOUND-DARK80' refers to the Glensound product i.e. DARK80 and 'SNxxx' its serial no.

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.

UPDATING FIRMWARE

The DARK80 is a network audio device utilizing the reliable and versatile Dante. It may be necessary to install the latest version of DARK80 Firmware for the Paradiso App to work or for other general updates.

The firmware is the code that runs internally in the DARK80 and provides the structure for the Microcontroller. The firmware can be updated without the need to return the unit to GlenSound.

1. Finding Out Current Installed Version

There is currently unfortunately no way of displaying what version of firmware is installed in the DARK80.

We suggest making a note of the date that the firmware was last updated to compare to the release date of our firmware versions.

2. Finding Out What The Latest Available Version Is

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

3. How to Update the Firmware

- 1) Get the new firmware from GlenSound's web site.
Using your browser download the .dfu from the following location: (Note the following locations were correct at the time of writing this manual but will change as the firmware is updated please see above).

<http://www.glenSound.co.uk/Software/Dante/DARK8AO.dfu>

Note: The above address is just a file location. There is no web page associated with it, so you may see 'page not found' but your browser should still download the file.

Make sure you know where your browser has downloaded and saved the file to as you'll need it in a minute.

- 2) Install on a pc a program called Dfuse. This is a program that is supplied by ST Microelectronics who are the manufacturer of the intelligent microprocessor that we use in the DARK8MAI. Just googling Dfuse should provide the link to ST Microelectronics Dfuse download page. The programme to download is 'DFUSE DEMO'. Follow the download instructions to download and install Dfuse on your PC.
- 3) Make sure you know where the latest version of the DARK80's firmware is located on your pc (this is a .dfu file). This is a file that you downloaded in step 1.
- 4) Connect the USB 1 port on the front of the DARK80 that you want to update to a USB port on your PC.
- 5) Press and hold the 'IDENTIFY' button. While pressing the 'IDENTIFY' button press and release the recessed 'RESET' button (you'll need a pencil or pointed object to push the recessed reset button. Do not press too hard, it only moves a small amount).

- 6) If this is the first time you have connected the DARK80 to the PC then windows will load drivers for it.
- 7) Open the Dfuse software and in the top drop down list select the device shown (there should only be one device available called something like '*STM device in DFU Mode*')
- 8) Under the 'Upgrade or Verify Action' box at the bottom right area of the Dfuse software use the 'choose' button to locate the downloaded .dfu file.
- 9) Tick the 'Verify after download' box
- 10) Use the 'update' button (next to the choose button) in the Dfuse software to start the update.
- 11) Wait for the update to be completed.
- 12) Press the recessed 'RESET' button on the front panel (or turn the DARK80 on/off)the new firmware will now be loaded.

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 in each DARK80. We supply special code (a .dnt file) that sets up/ 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 DARK8MAI.

1. Finding Out Current Installed Version

Open Dante Controller.

Open Device Info tab.

Double Click in the device that you are working with....a new window will open called 'Device View (name of device'

Open the status tab.

The Firmware Version (of the Brooklyn module) will be found under the 'Device Information' heading.

2. Finding Out What The Latest Available Version Is

Contact Glensound to find the latest available version. sales@glensound.com

3. Updating the Brooklyn Module

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 can currently be downloaded from:

http://www.glensound.co.uk/Software/Dante/DARKAO_v1.0.0.dnt

When downloading the above file please make sure that you know where your computer has saved it.

Please note we strongly advise that when you do the update that only your PC and the DARK80 that you want to update are on the network to save accidental updating the wrong Dante device.

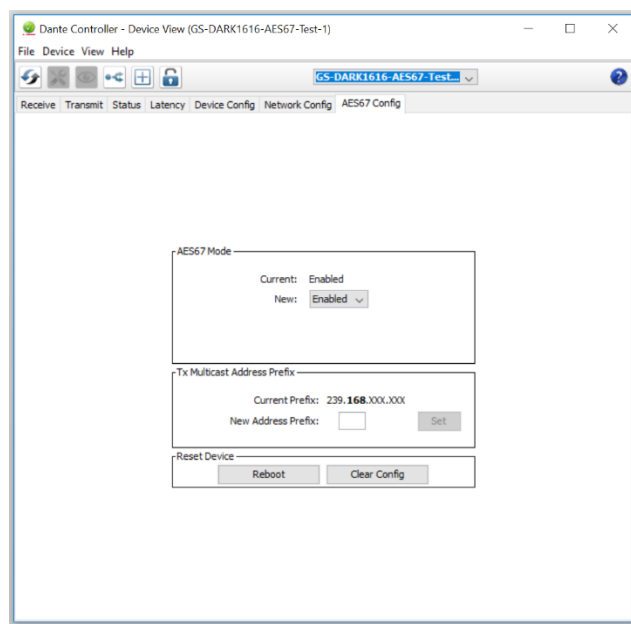
AES67 MODE

The DARK80 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 DARK80 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 DARK80 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 DARK80 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 DARK80 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. 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.

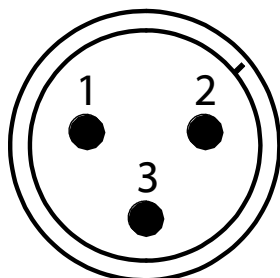
3. AES67 Restrictions

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

WIRING INFORMATION

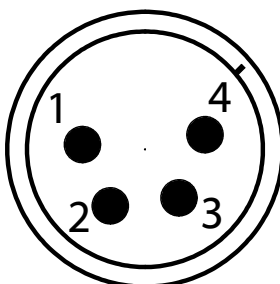
XLR Wiring



3 PIN XLR PLUG (MALE)

External DC power input: 2.5mm Barrel, Centre +Ve, 9 to 15 Volts, 1 Amp

OPTIONAL 4 PIN DC XLR Wiring



4 PIN XLR PLUG (MALE)