

Signature Series

Maximum Resilience Broadcast Audio



Ao IP44

Analogue Audio To Dante Interface

4 analogue audio inputs & outputs to Dante network audio

User Guide

Glensound

6 Brooks Place, Maidstone
Kent, UK, ME14 1HE
Tel: +44 (0)1622 753662
www.glensound.co.uk





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
1 – 6 Brooks Place
Maidstone
Kent
ME14 1HE
United Kingdom

Telephone: +44 (0) 1622 753662

Fax: +44 (0) 1622 762330

EMAIL ADDRESSES

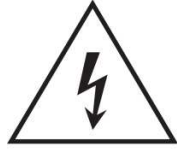
General enquires: office@glenSound.co.uk

Technical enquires: techinfo@glenSound.co.uk

Sales enquires: sales@glenSound.co.uk



IMPORTANT SAFETY INSTRUCTIONS



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

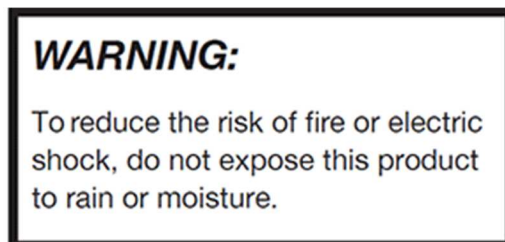
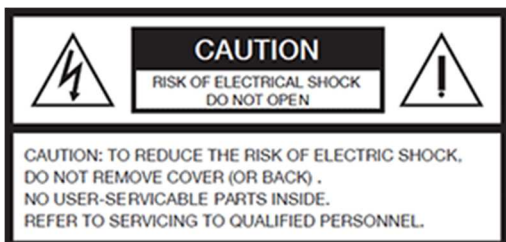


This symbol is intended to highlight that there are important operating & maintenance instructions in the literature accompanying this unit.

- 1) Read these instructions
- 2) Keep these instructions
- 3) Heed all warnings
- 4) Follow all instructions
- 5) Do not use this apparatus near water
- 6) Clean only with a dry cloth
- 7) Do not block any ventilation openings. Install in accordance with manufacturer's instructions
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat
- 9) Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has 2 blades with one wider than the other. A grounding type plug has 2 blades and third grounding prong. The wider blade or the 3rd prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet
- 10) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus
- 11) Only use attachments/ accessories specified/ supplied by the manufacturer



- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip over
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped
- 15) Do not attempt to modify this product. Doing so could result in personal injury and/ or product failure





IMPORTANT: MAINS PLUG WIRING INSTRUCTIONS

This Signature unit is supplied with a moulded mains plug fitted to the AC mains lead.

Mains wiring colours/ connections:

The Green/ Yellow or Green wire must be connected to the terminal in the plug marked 'E' or with the Earth Symbol.

The Blue or Black wire must be connected to the terminal in the plug marked 'N' (Neutral).

The Red or Brown wire must be connected to the terminal in the plug marked 'L' (Live).




THIS UNIT MUST BE EARTHED



THIS UNIT IS FITTED WITH AN INTERNAL MAINS FUSE.

The fuse is located internally between the Live terminal of the IEC plug and the Live input of the power supply. The fuse should only be changed by a qualified service engineer. If replacing the fuse care should be taken to fit a correctly rated replacement. The fuse rating can be found in the technical specifications page of this handbook.



This equipment manufactured by GlenSound Electronics Ltd of Brooks Place
Maidstone Kent ME14 1HE is  marked and conforms to:

Low Voltage Directive: EN60065

Emissions: EN55103.1

Immunity: EN55103.2

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

RoHS2 DIRECTIVE

EC 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 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%

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.



AoIP44 Handbook Contents

Issue 2,

Description

Page No.

Contents

IMPORTANT SAFETY INSTRUCTIONS.....	3
PRODUCT WARRANTY:.....	6
OVERVIEW	8
PHYSICAL INSTALLATION	9
AUDIO BLOCK DIAGRAM	11
EXAMPLES OF USE.....	12
1. Interface To Existing Dante Network.....	12
2. Interface To News/ Voiceover Studio	13
USER INDICATORS	14
1. Power On LED	14
2. Network LED	14
REAR PANEL CONNECTORS	15
3. Network.....	15
4. Audio Outputs.....	15
5. Audio Inputs	15
6. DC In	15
7. Mains In	15
CONNECTING THE AoIP44 TO A DANTE NETWORK.....	16
Getting Dante Controller	16
Connecting AoIP44s To A Network.....	16
Audio Over IP Network.....	16
Running Dante Controller.....	17
Dante Controller TIP.....	17
UPDATING THE ULTIMO CHIPSET	18
WIRING INFORMATION	19
TECHNICAL SPECIFICATION.....	20



OVERVIEW

The GlenSound AoIP44 is an economical subrack designed to interface balanced analogue audio circuits to and from a network audio system featuring Dante. It provides 4 audio inputs to the network and also 4 audio outputs from the network on balanced 3 pin XLRs.

The AoIP44 can be used as a simple low cost audio I/O break out unit on a large Dante audio network where it can be integrated extremely easily using the Dante Controller and is fully compatible with any manufacturers Dante equipment.

The AoIP44 can also be used in very simple audio over IP scenarios where 4 bi-directional audio circuits are needed to be distributed across a buildings network infrastructure, in which case 2 x AoIP44 units can be used connected together across the network. The AoIP44 is equally suited for high integrity broadcast purposes, intercom, just simple paging facilities or simple distribution of audio.

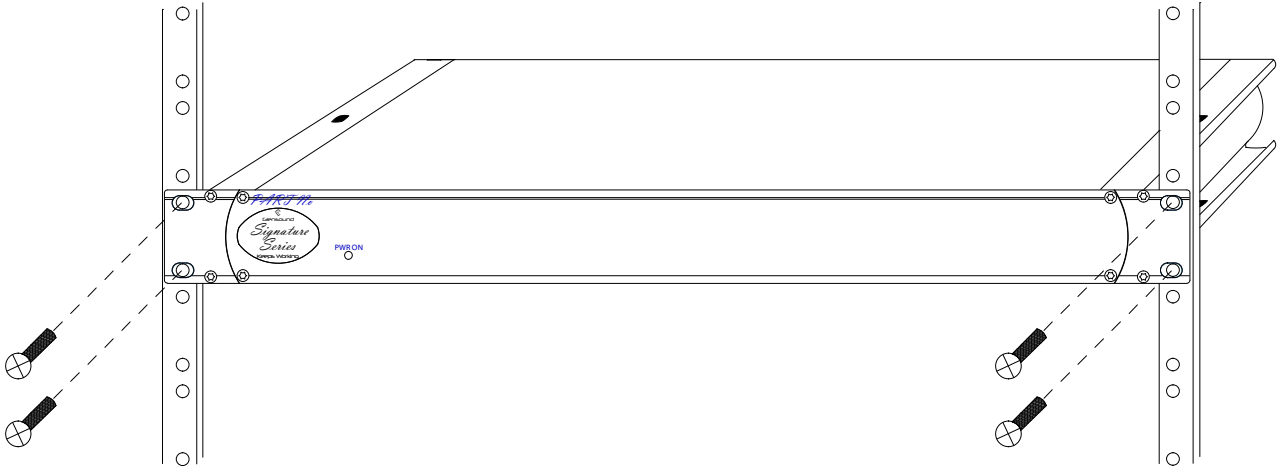
Being part of our Signature Range, the AoIP44 comes as standard with removeable rack ears (to allow front or rear mounting in 19" racks), mounting holes to allow under desk mounting (the holes are equally suited for screwing the unit into odd places!) and an optional external DC power supply for applications requiring redundant power supplies. It is housed in an all anodised aluminium chassis.

As with GlenSound's other Dante products 0dB = -18dBfs.

PHYSICAL INSTALLATION

The GlenSound Signature Series have been designed to be highly versatile for installation and can be installed in 19" racks with either their front or rear panels facing the front of the rack. They can also be mounted underneath desks or work tops and can be either permanently mounted or stood (using the supplied feet) on top of desks or worktops.

INSTALLING SIGNATURE SERIES IN A 19" RACK



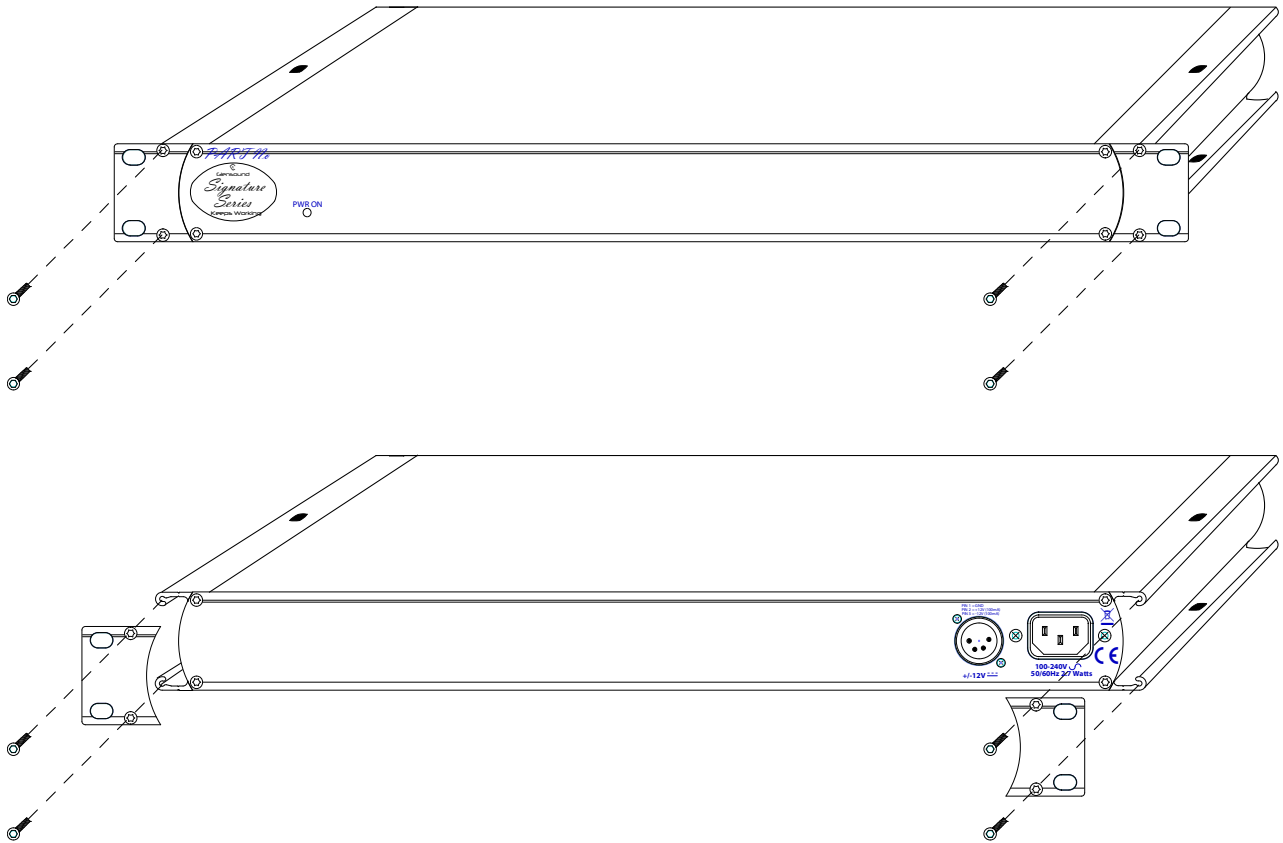
Firmly hold the signature subrack within the 19" rack and locate in 1RU of space. Use the supplied 6mm rack screws to securely attach the unit to the rack.

INSTALLING ADHESIVE FEET FOR NON PERMANENT TABLE TOP MOUNTING



Remove the front rack ears (if they are not required), turn the unit upside down and attach the supplied 4 adhesive feet as per the above drawing.

SWAPPING RACK EARS TO ALLOW THE REAR TO BE INSTALLED AT THE FRONT OF A RACK

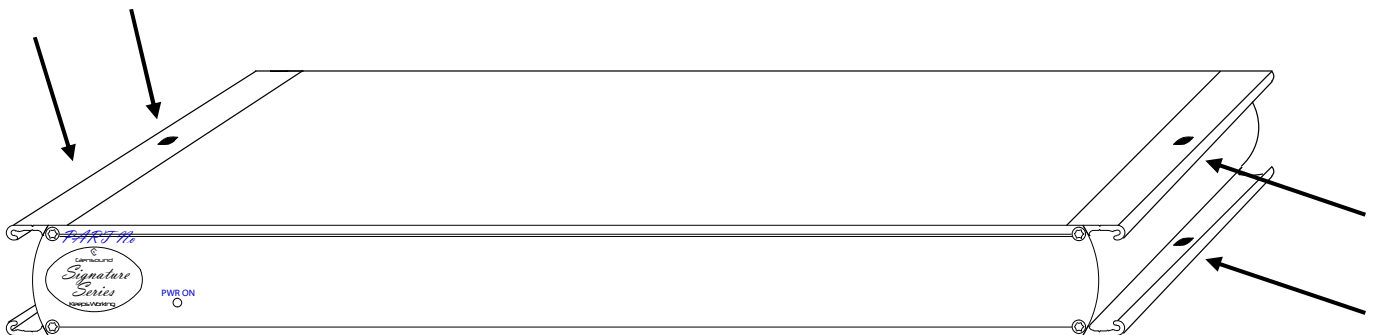


First remove the 4 silver button head screws that fix the rack ears onto the front of the unit as shown in the top picture above.

Remove the rack ears and turn the unit around for access to its back panel.

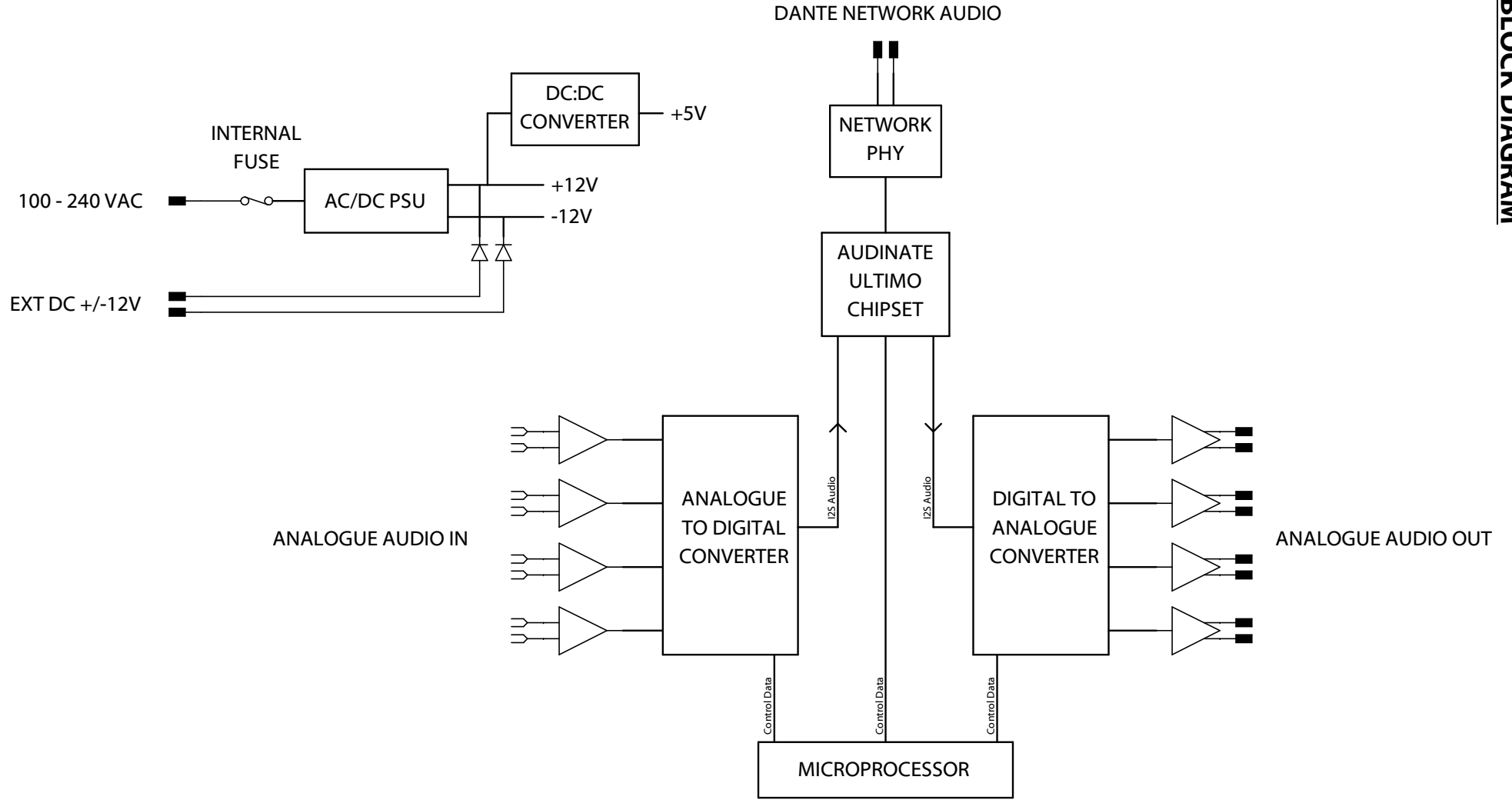
Re-fit the 2 rack ears using the same 4 silver button head screws that were removed from the front as per the bottom picture above.

USING THE MOUNTING HOLES FOR PERMANENTLY ATTACHING THE UNIT ABOVE OR BELOW A WORKTOP/ DESK



Use either the top or bottom mounting holes as indicated above to use suitable screws to attach the signature unit to a worktop or bench. ****PLEASE ENSURE THAT YOU USE SUITABLE FIXINGS****

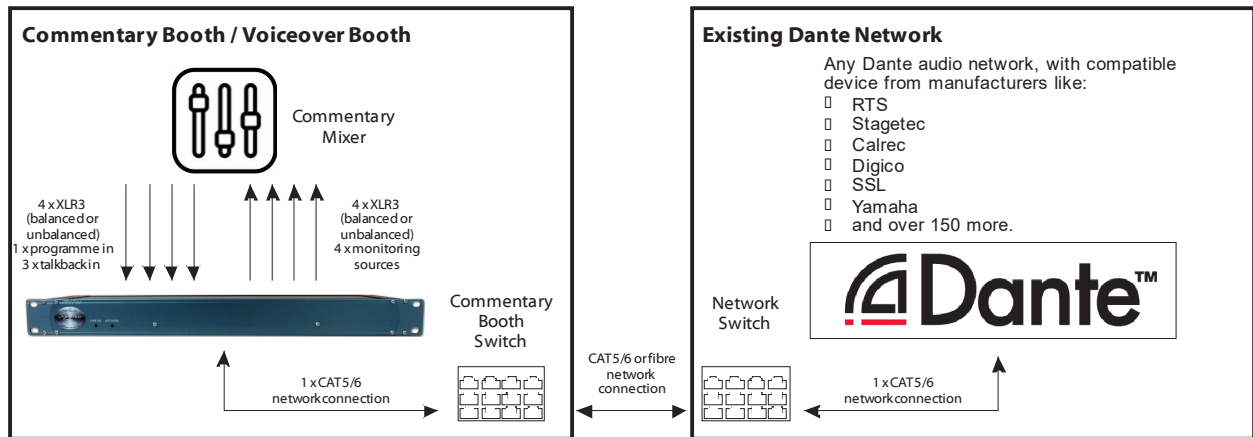
AUDIO BLOCK DIAGRAM



EXAMPLES OF USE

1. Interface To Existing Dante Network

Commentary Unit Connection To An Existing Dante Network



There are over 150 manufacturers that design Dante compatible equipment. In this example, the broadcaster has an established Dante network. This is most likely to be an audio console, or an intercom system.

The broadcaster needs to expand the network by adding an existing commentary booth / voice over position. Using the AoIP44, the commentary position can be added to the existing Dante network very cost effectively.

The AoIP44 is located in the commentary booth, and connected into the broadcast network via a single CAT5/6 cable.

The Glensound GS-CU001B is the most widely used commentary unit by broadcasters. It provides a programme mix output (direct outputs also available), and has 3 talkback outputs. These connect to the inputs of the AoIP44 via XLR connections.

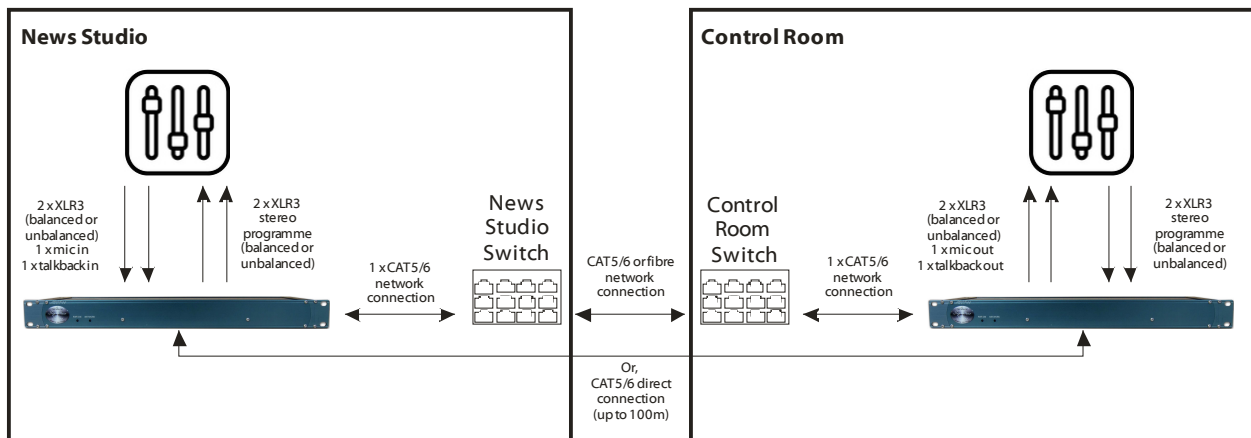
The AoIP44 outputs connect to the headphone monitoring inputs on the GS-CU001B via XLR. This allows the commentators to hear 4 channels. These are typically the programme audio, and talkback returns.

The audio routing can be configured via the Dante Controller software. Simply run Dante Controller on any PC connected to the network. All available sources and destinations will be shown on the AoIP44, and all other Dante compatible devices on the network. Click the check boxes to route the audio in the desired directions, and the system is now ready to be used.

Audio routing only needs to be configured by Dante Controller on the first time the AoIP44 is connected to the network as all routes are stored locally on the device.

2. Interface To News/ Voiceover Studio

Programme Send With Stereo Return Monitoring



A small voice over studio is used for production of voice recording and by the newsreaders. This is a separate studio to the main studios, and separate from the control room.

As there are only a few channels to transmit between the locations the AoIP44 is a cost effective option for connecting the bi-directional audio.

The mixer in the voice over studio only has 2 outputs: the direct output of the microphone, and a separate talkback channel. These connect to the local AoIP44 via XLR. There is a local network switch in the voice over studio and this connects via a spare port to the AoIP44 via CAT5/6, so that it is now recognised on the local network.

A second AoIP44 connects to the local network switch in the control room via a CAT5/6 connection. Two of the audio outputs from the AoIP44 are connected to the control room mixer via XLR. We will configure this as the 2 channels of audio coming from the voice over studio. The stereo programme output from the control room mixer is connected to two of the AoIP44 inputs via XLR. All of the physical audio connections have now been made.

As both AoIP44s are connected on the network, the audio routing can be configured via the Dante Controller software. Simply run Dante Controller on any PC connected to the network and both AoIP44s will be displayed showing available sources and destinations. Click the check boxes to route the audio in the desired directions, and the system is now ready to be used.

Over shorter distances, network switches are not even required and 2 x AoIP44s can connect directly. Audio routing still needs to be configured by Dante Controller on the units when they are connected to a network, but this is only required once to set the required routing.

USER INDICATORS



1. Power On LED

The front panel bright blue LED lights when power is available from either the internal mains power supply or the external DC input.

2. Network LED

The front panel Network LED is on when data is being transferred to/ from the network. It is not unusual for this LED to flicker quickly.

REAR PANEL CONNECTORS



3. Network

The Neutricon RJ45 connector provides connectivity to your IP network

4. Audio Outputs

Four balanced analogue audio outputs are provided for the return audio from the Dante network on Neutrik XLR plugs.

5. Audio Inputs

Four balanced analogue audio inputs are provided for sending audio into the Dante network on Neutrik XLR sockets.

6. DC In

An external DC power supply such as our Signature PS1 can be connected here to provide either the power to the AoIP44 or a redundant power supply if the mains input is also used.

7. Mains In

The filtered IEC inlet allows connection to external mains supplies of between 100 & 240 VAC (+/- 10%)

CONNECTING THE AoIP44 TO A DANTE NETWORK

The AoIP44 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 AoIP44 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 AoIP44s To A Network

AoIPs can be connected to the network that you are going to use for your audio distribution simply by plugging in the network connection on the rear. Once connected to the network it will be possible to see the AoIP44 from within the Dante controller and route the audio circuits.

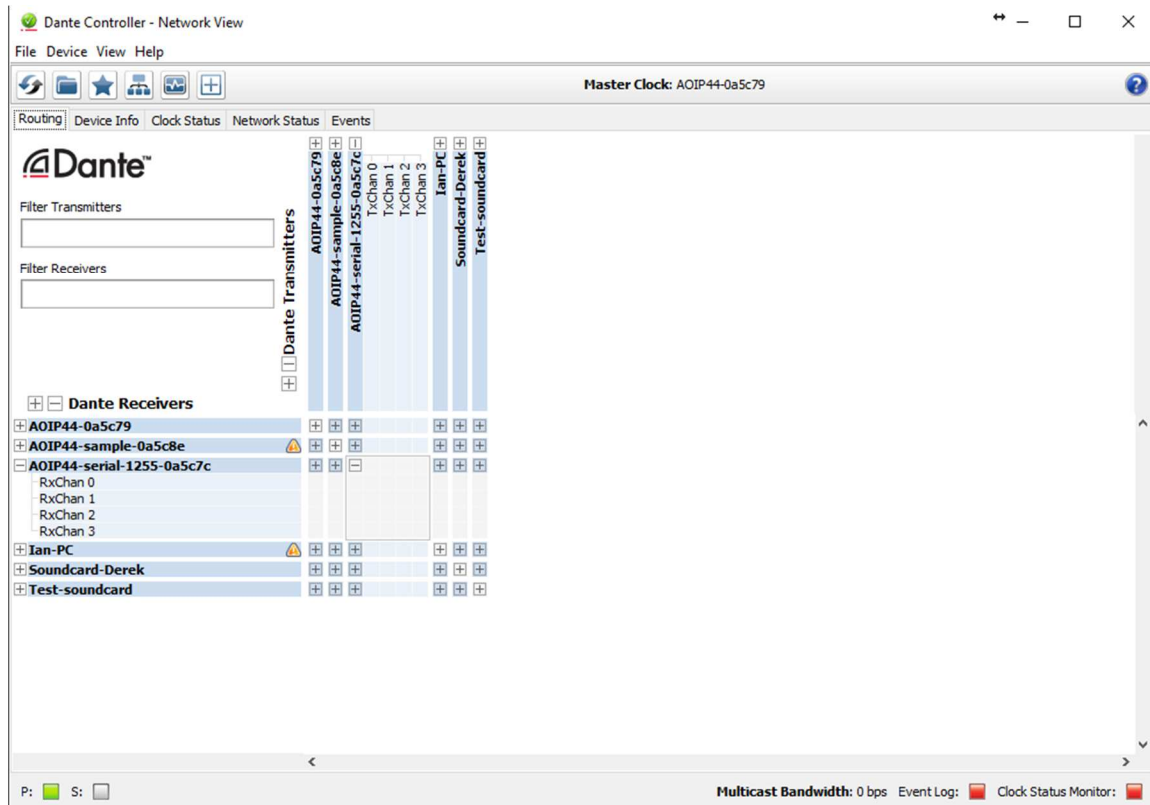
Audio Over IP Network

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, Dante Controller looks as per the screenshot below:



The AoIP44 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:

'AOIP44-serial-XXXX-YYYYYY'. 'XXXX' will be the units 4 digit serial number, and 'YYYYYY' will be the AoIP44's 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.

UPDATING THE ULTIMO CHIPSET

The Ultimo chipset is a device supplied by Audinate that does most of the processing for the actual Dante™ network audio streams. There is one Ultimo chipset in each AoIP44. We supply special code (a .dnt file) that sets up/ initiates the Ultimo chipset and makes it work in particular way that is suitable for the AoIP44.

1. Finding Out What The Latest Available Version Is

Go the AoIP44's's web page at <http://www.glen sound.co.uk/product-details/aoip44/> and open the 'Firmware Latest Version' Tab.

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

2. Updating the Ultimo Chipset

The firmware that runs on the Ultimo chipset is updated using Audinate's Firmware updating tool. The updating tool and a user guide can be downloaded from Audinate's website:

<https://www.audinate.com/products/firmware-update-manager>

The actual firmware to install using the above tool can currently be downloaded from (but check as per step 1 in case there is a more up to date version):

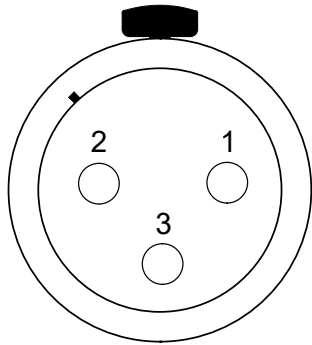
http://www.glen sound.co.uk/Software/Dante/AOIP44_D=3.10_FW=1.0.0.dnt

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

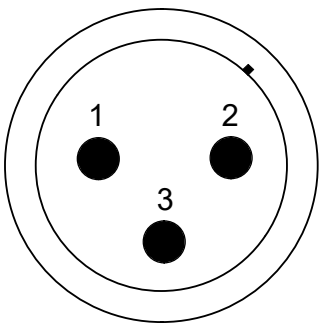
Please note we strongly advise that when you do the update that only your PC and the Paradiso that you want to update are on the network to save accidentally updating the wrong Dante device.



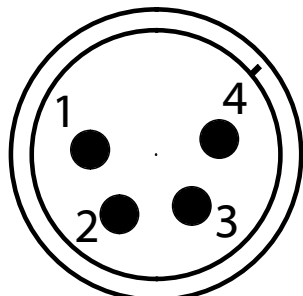
WIRING INFORMATION



XLR SOCKET (FEMALE)



XLR PLUG (MALE)



4 PIN XLR PLUG (MALE)

STANDARD XLR AUDIO PINOUTS:

- 1: Ground/ Earth
- 2: INPHASE/ POSITIVE/ MIC +
- 3: MATE/ NEGATIVE/ MIC -

EXTERNAL DC INPUT:

- PIN 1: GND
- PIN 2: +12V
- PIN 3: -12V



TECHNICAL SPECIFICATION

AUDIO

Frequency Response <= 0.25dB

Flat until 22k

Maximum Input Before Clip

+18dBu

Maximum Output Level

+18dBu

Input Impedance

>20k Ohm

Output Impedance

50 Ohms

Distortion

0.013% THD @ 100Hz, 1kHz & 10kHz
Reference to +8dBu output

Noise Residual

-94.6dBu

THD+N Relative (1k +8dBu)

0.00134%

Dynamic Range

112.6dBs

Crosstalk (0dBu input to output 1k tone)

-94.7dBu

Output Type

Electronically balanced (can be wired unbalanced) on Neutrik 3 pin XLR plug

Input Type

Electronically balanced (can be wired Unbalanced) on Neutrik 3 pin XLR socket

NETWORK AUDIO

Compatible Audio Networks

Dante uncompressed, low latency audio.
For full details visit www.audinate.com

Network Connection

Neutrik RJ45 EtherCON

Dante Network Sample Rate

44.1k, 48k, 88.2k, 96k

POWER

Mains Input

Filtered IEC, 100 to 240VAC
47 - 63Hz

AC Consumption

4.3 Watts @ 230VAC

DC Input

4 Pin Neutrik XLR. +12v 240mA, -12v N/A

Internal Mains Fuse

20mm 1A Anti Surge

PHYSICAL

Size

445 x 123 x 44mm (LxDxH) no rack ears
482mm length (19" 1RU) with rack ears

Weight

1.2kg

Mechanics

All aluminium construction, anodized and laser etched

Shipping Carton

Rugged export quality cardboard carton
610 x 420 x 130mm LxDxH

Shipping Weight

2.7kg

E & OE