DIO Audiophile Dante® Interfaces

AVN-DIO06 Dante® to AES3 XLR Stereo Input & Output
AVN-DIO07 Dante® to AES3 BNC Stereo Input & Output
AVN-DIO08 Dante® to AES3 Terminal Block Stereo Input & Output

Manufacturers of Audio Products for AV, Installed Sound, Broadcast Radio & Broadcast TV

SONIFEX

Register Online for an Extended 2 Year Warranty

Product: _____

Serial No: _____

www.sonifex.co.uk/register

Product Warranty - 2 Year Extended

As standard, Sonifex products are supplied with a 1 year back to base warranty. In order to register the date of purchase and so that we can keep you informed of any product design improvements or modifications, it is important to complete the warranty registration online. Additionally, if you register the product on the Sonifex website, you can increase your product warranty to 2 years. Go to the Sonifex website at: www.sonifex.co.uk/register to apply for your 2 year warranty.

Sonifex Warranty & Liability Terms & Conditions

1. Definitions

'the Company' means Sonifex Ltd and where relevant includes companies within the same group of companies as Sonifex Limited.

'the Goods' means the goods or any part thereof supplied by the Company and

where relevant includes: work carried out by the Company on items supplied by the Purchaser; services supplied by the Company; and software supplied by the Company.

'the Purchaser' means the person or organisation who buys or has agreed to buy the Goods.

'the Price' means the Price of the Goods and any other charges incurred by the Company in the supply of the Goods.

'the Warranty Term' is the length of the product warranty which is usually 12 months from the date of despatch; except when the product has been registered at the Sonifex website when the Warranty Term is 24 months from the date of despatch.

'the Contract' means the quotation, these Conditions of Sale and any other document incorporated in a contract between the Company and the Purchaser.

This is the entire Contract between the parties relating to the subject matter hereof and may not be changed or terminated except in writing in accordance with the provisions of this Contract. A reference to the consent, acknowledgement, authority or agreement of the Company means in writing and only by a director of the Company.

2. Warranty

a. The Company agrees to repair or (at its discretion) replace Goods which are found to be defective (fair wear and tear excepted) and which are returned to the Company within the Warranty Term provided that each of the following are satisfied:

i. notification of any defect is given to the Company immediately upon its becoming apparent to the Purchaser;

ii. the Goods have only been operated under normal operating conditions and have only been subject to normal use (and in particular the Goods must have been correctly connected and must not have been subject to high voltage or to ionising radiation and must not have been used contrary to the Company's technical recommendations);

iii. the Goods are returned to the Company's premises at the Purchaser's expense;

iv. any Goods or parts of Goods replaced shall become the property of the Company;

v. no work whatsoever (other than normal and proper maintenance) has been carried out to the Goods or any part of the Goods without the Company's prior written consent;

vi. the defect has not arisen from a design made, furnished or specified by the Purchaser;

vii. the Goods have been assembled or incorporated into other goods only in accordance with any instructions issued by the Company;

viii. the defect has not arisen from a design modified by the Purchaser;

ix. the defect has not arisen from an item manufactured by a person other than the Company. In respect of any item manufactured by a person other than the Company, the Purchaser shall only be entitled to the benefit of any warranty or guarantee provided by such manufacturer to the Company.

b. In respect of computer software supplied by the Company the Company does not warrant that the use of the software will be uninterrupted or error free.

c. The Company accepts liability:

i. for death or personal injury to the extent that it results from the negligence of the Company, its employees (whilst in the course of their employment) or its agents (in the course of the agency);

ii. for any breach by the Company of any statutory undertaking as to title, quiet possession and freedom from encumbrance.

d. Subject to conditions (a) and (c) from the time of despatch of the Goods from the Company's premises the Purchaser shall be responsible for any defect in the Goods or loss, damage, nuisance or interference whatsoever consequential economic or otherwise or wastage of material resulting from or caused by or to the Goods. In particular the Company shall not be liable for any loss of profits or other economic losses. The Company accordingly excludes all liability for the same.

e. At the request and expense of the Purchaser the Company will test the Goods to ascertain performance levels and provide a report of the results of that test. The report will be accurate at the time of the test, to the best of the belief and knowledge of the Company, and the Company accepts no liability in respect of its accuracy beyond that set out in Condition (a).

f. Subject to Condition (e) no representation, condition, warranty or other term, express or implied (by statute or otherwise) is given by the Company that the Goods are of any particular quality or standard or will enable the Purchaser to attain any particular performance or result, or will be suitable for any particular purpose or use under specific conditions or will provide any particular capacity, notwithstanding that the requirement for such performance, result or capacity or that such particular purpose or conditions may have been known (or ought to have been known) to the Company, its employees or agents.

g. i. To the extent that the Company is held legally liable to the Purchaser for any single breach of contract, tort, representation or other act or default, the Company's liability for the same shall not exceed the price of the Goods.

ii. The restriction of liability in Condition (g)(i) shall not apply to any liability accepted by the Seller in Condition (c).

h. Where the Goods are sold under a consumer transaction (as defined by the Consumer Transactions (Restrictions on Statements) Order 1976) the statutory rights of the Purchaser are not affected by these Conditions of Sale.

Unpacking Your Product

Each product is shipped in protective packaging and should be inspected for damage before use. If there is any transit damage take pictures of the product packaging and notify the carrier immediately with all the relevant details of the shipment. Packing materials should be kept for inspection and also for if the product needs to be returned.

The product is shipped with the following equipment so please check to ensure that you have all of the items below. If anything is missing, please contact the supplier of your equipment immediately.

Item	Quantity
Product Unit	1
A3 Folded Handbook	1

Repairs & Returns

Please contact Sonifex or your supplier if you have any problems with your Sonifex product. Email technical.support@sonifex.co.uk for the repair/upgrade/returns procedure, or for support & questions regarding the product operation.

CE Conformity

The products in this manual comply with the essential requirements of the relevant European health, safety and environmental protection legislation.

The technical justification file for this product is available at Sonifex Ltd.

The declaration of conformity can be found at:
https://www.sonifex.co.uk/declarations

WEEE Directive

The Waste Electrical and Electronic Equipment (WEEE) Directive was agreed on 13 February 2003, along with the related Directive 2002/95/EC on Restrictions of the use of certain Hazardous Substances in electrical and electronic equipment (RoHS). The Waste Electrical and Electronic Equipment Directive (WEEE) aims to minimise the impacts of electrical and electronic equipment on the environment during their life times and when they become waste. All products manufactured by Sonifex Ltd have the WEEE directive label placed on the case. Sonifex Ltd will be happy to give you information about local organisations that can reprocess the product when it reaches its "end of use", or alternatively all products that have reached "end of use" can be returned to Sonifex and will be reprocessed correctly free of charge.

Atmosphere/Environment

This apparatus should be installed in an area that is not subject to excessive temperature variation (<0°C, >50°C), moisture, dust or vibration.

This apparatus shall not be exposed to dripping or splashing, and no objects filled with water, such as vases shall be placed on the apparatus.

DIO Audiophile Dante® Interfaces

The DIO Audiophile Dante® Interfaces are simple plug and play audio interfaces which provide a convenient and elegant method of connecting legacy analogue and digital audio equipment to the Dante AoIP audio network.

There are a range of different products to suit different needs and this handbook is for the following products:

• AVN-DIO06 Dante to AES3 XLR Stereo Input & Output
• AVN-DIO07 Dante to AES3 BNC Stereo Input & Output
• AVN-DIO08 Dante to AES3 Terminal Block Stereo Input & Output

All Sonifex DIO interfaces provide a simple, convenient, and elegant plug and play method of connecting legacy analogue and digital audio equipment to the Dante AoIP audio network.

All DIO products use Dante Controller for configuration and are powered by PoE (Power over Ethernet). They use rugged aluminium boxes with side slots for screw-mounting and contain superior audio circuitry for optimal audio performance. All feature rugged Neutrik EtherCon® connectors and Neutrik lockable audio connectors for ultra-reliable connectivity.

AVN-DIO06

The AVN-DIO06 is a Dante to AES3 digital input and output audio converter in the Sonifex DIO range of Dante input/output devices. It features stereo AES3 digital audio inputs and outputs on Neutrik XLR connectors, and one Neutrik EtherCon® connector for direct connection to a Dante AoIP network. Pick any available Dante channels as the inputs and route the outputs of the DIO06 via Dante Controller.

AVN-DIO07

The AVN-DIO07 is a Dante to AES3 digital input and output audio converter in the Sonifex DIO range of Dante input/output devices. It features stereo AES3 digital audio inputs and outputs on BNC connectors, and one Neutrik EtherCon® connector for direct connection to a Dante AoIP network. Select any available Dante channels as the inputs and route the outputs of the DIO07 via Dante Controller.

AVN-DIO08

The AVN-DIO08 is a Dante to AES3 digital input and output audio convertor in the Sonifex DIO range of Dante input/output devices. It features stereo AES3 digital audio inputs and outputs on terminal block connectors, and one Neutrik EtherCon® connector for direct connection to a Dante AoIP network. Pick any available Dante channels as the inputs and route the outputs of the DIO08 via Dante Controller.

DIO06 Dante to AES3 XLR Stereo Input & Output

DIO07 Dante to AES3 BNC Stereo Input & Output

DIO08 Dante to AES3 Terminal Block Stereo Input & Output

Fig 1-1: AVN-DIO Front and Rear View

Setup

The DIO Dante device is configured with a dynamic network address, so to initially get the unit working, connect it to a network with a DHCP server (such as a router) and a suitable IP address will be given to the unit. Once connected, a different IP address can be given to the DIO using Dante Controller. See the following section on Network Troubleshooting if you're having problems connecting your DIO device.

Simply plug an Ethernet connector into the Ethernet port of the DIO and the other end of the Ethernet connector into a PoE enabled switch. Alternatively, if the switch doesn't support PoE, a PoE adaptor can be used to provide the power.

The audio inputs/outputs should be connected to the legacy equipment and this allows the legacy equipment to transmit audio and receive audio through the Dante® network.

A computer on the Dante® network can then configure connections between the DIO and other Dante® enabled devices, using Dante Controller.
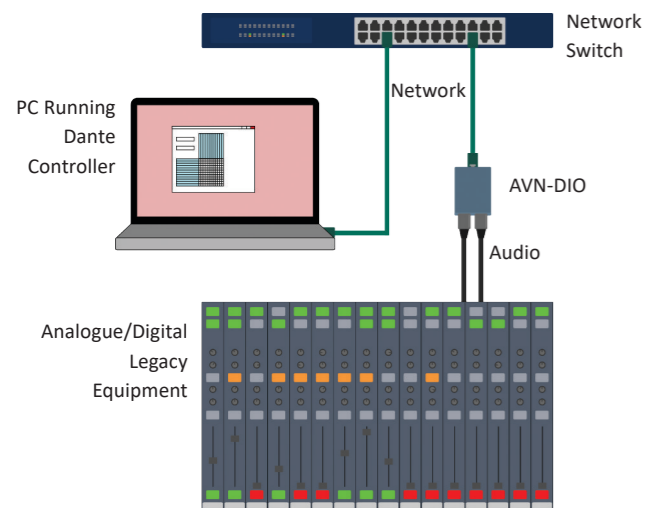

Fig 1-1: Setup

Link

Link status is indicated using the top-left status LED. Once power has been supplied to the unit the link status LED turns red. The link status LED turns amber when a link is established with a link speed of 100 Mbps.

Link activity is indicated using the top-right status LED which blinks when data is incoming, or when outgoing data is sensed on the port.
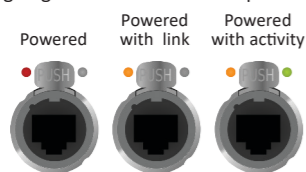

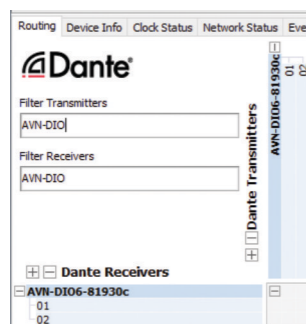*Fig 1-2: Power, Link, and Activity LEDs*

Dante Controller

Once a link has been established Dante Controller can be used to configure the device. Dante Controller is an application provided by Audinate and can be downloaded from their website.

https://www.audinate.com/

Within Dante Controller the unit should be visible within the **Routing** tab.

Fig 1-3: Routing

Network Troubleshooting

The device can be seen within Dante® Controller if it is connected to the same network as the computer. If the device doesn't show up in Dante® Controller please check that the connection to the network is correct and that the device and computer are on the same network.

If the computer and the device are on different IP subnets, the device will appear in Dante® Controller with red text:

Fig 1-4: Red Device Name Indicates Different Network Subnet

Opening the **Device View** for the device will provide details about the problem.
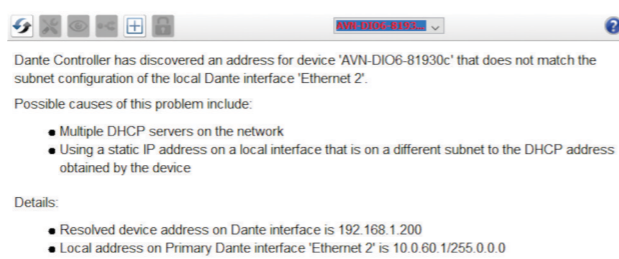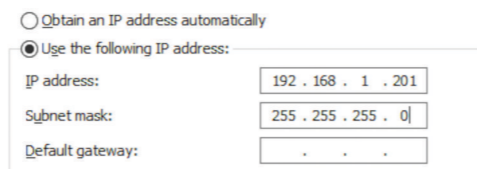

Fig 1-5: Problem Details

In this example notice the device is on the 192.168.1.X subnet and the computer is on the 10.X.X.X subnet. To correct this, edit the computer's IP address.

In Windows 10, type **View Network Connections** into the search bar. Right-click the network that the device is connected to and select **Properties.** Double click **Internet Protocol Version 4 (TCP/IPv4)** in the item list and edit the IP address.

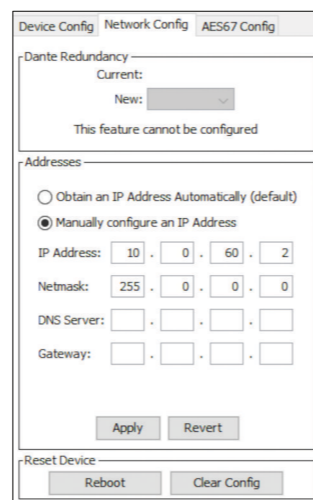*Fig 1-6: Windows IPv4 Settings*

Save the changes made to the settings then close and re-open Dante® Controller. The device should now appear correctly. If the device name is still red, you may need to disable the other network connections on the computer. To do this, in Windows 10, type **View Network Connections** into the search bar. Right-click the network connection to disable and select **Disable**.

Now that the device appears in Dante® Controller, it can be configured and the network settings can be modified so that the device is in the correct subnet.

Open the **Device View** for the device and select the **Network Config** tab. Within this tab are options to obtain an IP address automatically, or to configure an IP address manually.

After configuring the devices address, click the **Reboot** button and then revert your computers IP address so that it is on the original subnet using the process above.

Fig 1-7: Dante Controller Network Config

For more troubleshooting information please see the official Dante® FAQs at:

https://www.audinate.com/resources/faqs

And Dante® Controller User Guide at:

https://dev.audinate.com/GA/dante-controller/userguide/pdf/latest/

Routing Audio

Audio can be routed seamlessly between each Dante® enabled device on the network by creating connections between the transmit channel of one device and the receive channel of another device. When a routing is initially created, an hour glass is displayed to show the connection is being created. After a short time a green tick is displayed to indicate the connection has been created successfully.

Transmitters and receivers can also be filtered by typing a name into the corresponding filter field. Further filtering options are available from the filter pane.

Fig 1-8: Routed Audio Stream

To remove a connection simply click on the green tick.

Transmit and receive channels in a diagonal can be quickly routed together by holding **Ctrl** and clicking on the minimise/maximise button on the routing grid.

Device View

Open up the **Device View** by double clicking on the device name in the routing grid.

Status

Within the **Status** tab, information about the device can be seen, such as the product type and the current IP address.
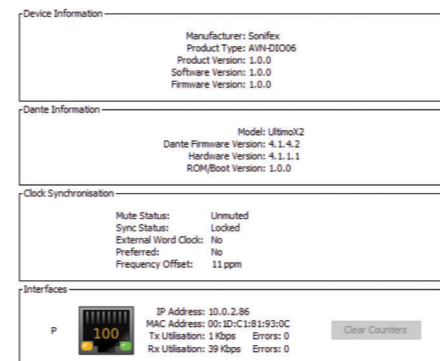

Fig 1-9: Status

Device Configuration

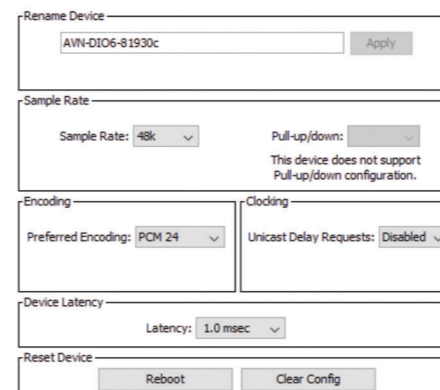Within the **Device Config** tab the following can be modified.

- Device Name
- Sample Rate
- Encoding
- Clocking
- Device Latency

An option is also available to clear the configuration, resetting all settings to their default values.

Fig 1-10: Device Config

Technical Specification

AES3 XLR Stereo Input Pin-out

Pin	Function
1	Chassis Ground
2	Input Phase
3	Input Non Phase

AES3 XLR Stereo Output Pin-out

Pin	Function
1	Chassis Ground
2	Output Phase
3	Output Non Phase

AES3 BNC Input & Output Pin-out

Pin	Function
Inner	Signal
Outer	Chassis Ground

AES3 Terminal Stereo Input & Output Pin-out

Pin	Function	Pin	Function
1	Chassis Ground	4	Chassis Ground
2	Input Phase	5	Output Phase
3	Input Non Phase	6	Output Non Phase

Power Supply - Class 0 802.3af PoE

Device	Power Consumption (Watts)
DIO06, DIO07, DIO08	< 3 W

AES3 Input - XLR/Terminal

Parameter	Description
Input Impedance	110Ω balanced
Input Format	AES-3
Supported Sample Rates	32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz

AES3id Input - BNC

Parameter	Description
Input Impedance	75Ω unbalanced
Input Format	AES-3id
Supported Sample Rates	32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz

AES3 Output - XLR/Terminal

Parameter	Description
Output Impedance	110Ω balanced
Output Format	AES-3
Supported Sample Rates	44.1kHz, 48kHz, 88.2kHz, 96kHz

AES3id Output - BNC

Parameter	Description
Output Impedance	75Ω unbalanced
Output Format	AES-3id
Supported Sample Rates	44.1kHz, 48kHz, 88.2kHz, 96kHz

Dante

Parameter	Description
Sample Rates:	44.1kHz, 48kHz, 88.2kHz, 96kHz
Encoding:	PCM 16, PCM 24, PCM 32

PoE Power

Standard:	802.3at Type 1
Class:	0
PD Power Range:	0.44 W to 12.94 W
Typical PSE Power Usage:	
AVN-DIO06	2W
AVN-DIO07	2W
AVN-DIO08	2W
Max PSE Power Usage:	15.4 W

Equipment Type

AVN-DIO06	Dante® to AES3 XLR Stereo Input & Output
AVN-DIO07	Dante® to AES3 BNC Stereo Input & Output
AVN-DIO08	Dante® to AES3 Terminal Block Stereo Input & Output

Physical Specification

AVN-DIO06	10.6cm (W) x 7.3cm (D) x 4.3cm (H)
Dimensions (Raw):	4.2" (W) x 2.9" (D) x 1.7" (H)
AVN-DIO07	11.6cm (W) x 7.3cm (D) x 4.3cm (H)
Dimensions (Raw):	4.6" (W) x 2.9" (D) x 1.7" (H)
AVN-DIO08	10.6cm (W) x 7.3cm (D) x 4.3cm (H)
Dimensions (Raw):	4.2" (W) x 2.9" (D) x 1.7" (H)
AVN-DIO06,07,08	17.4cm (W) x 9.5cm (D) x 5.6cm (H)
Dimensions (Boxed):	6.9" (W) x 3.7" (D) x 2.2" (H)

Weight

AVN-DIO06,07,08	Nett: 0.2kg Gross: 0.3kg
Weight:	Nett: 0.44lbs Gross: 0.66lbs