AVN-DIO12

Dual Mono Microphone Input to Dante® with Mic Gain

Handbook

SONIFEX

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

Registration & Warranty

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This handbook is for use with the following products:
AVN-DIO12 Dual Microphone to Dante® with Mic Gain
Artwork: AW11067 Stock Code: 30-392

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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.

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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.

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.

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

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.

AVN-DIO12 Dual Microphone Input to Dante® with Mic Gain Converter

Fig 1: AVN-DIO12 Front Panel

Fig 2: AVN-DIO12 Rear Panel

The **AVN-DIO12** is a dual microphone input to Dante converter with adjustable mic gain in the Sonifex DIO range of Dante input/output devices. It features 2 balanced analogue XLR inputs and one Neutrik etherCON connector for direct connection to a Dante AoIP network. Each mic can be routed via Dante Controller to any Dante receiver.

It's powered using Power over Ethernet (PoE), using a Neutrik etherCON connector for power and data redundancy. The AVN-DIO12 uses the latest Audinate Dante chipset so is AES67 and Dante Domain Manager compliant.

Gain Adjustment

The AVN-DIO012 has coarse and fine mic gain for each microphone input. The coarse gain is set using the toggle switch, which provides 14dB/44dB of gain. The fine gain can be set using a trimmer adjustment tool, or small flat blade screwdriver, and adds between 0dB and 42dB of additional gain.

High Pass Filter

Each microphone input has an on/off toggle switch which turns the high pass filter on or off. When enabled, it acts on frequencies below 125Hz at a roll-off of 6dB/octave.

Phantom Power

Phantom power is enabled/disabled via a toggle switch on the front panel for each microphone input. When enabled, a 48V DC supply is provided to power an appropriate microphone. The red LED next to each input will illuminate to indicate phantom power is enabled.

Audio Level LED

To help you set the mic gain, a level LED is provided on the front panel for each microphone input to display the audio level being sent to the Dante network. The indicator thresholds are as follows:

- Off: Level is under -38dBFS (-20dBu)
- Green: Level is between -38dBFS (-20dBu) and -18dBFS (0dBu)
- Amber: Level is between -18dBFS (0dBu) and -10dBFS (+8dBu)
- Red: Level is above -10dBFS (+8dBu)

Note: when using a phantom powered microphone, it may be necessary to earth the unit using the rear panel earth tag to eliminate mains hum.

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Windows® is a registered trademark of Microsoft Corporation

Setup

First connect microphones to the mic inputs this will allow them to be transmitted over the Dante network.

Connect the device to a PoE enabled switch using an Ethernet cable, the device will automatically turn on. If the switch does not support PoE, a PoE injector can be used to provide power.

By default the Dante IP address is obtained automatically, therefore the device will automatically appear in Dante Controller. If your device does not appear in Dante Controller please see the Network Troubleshooting section of this manual.

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

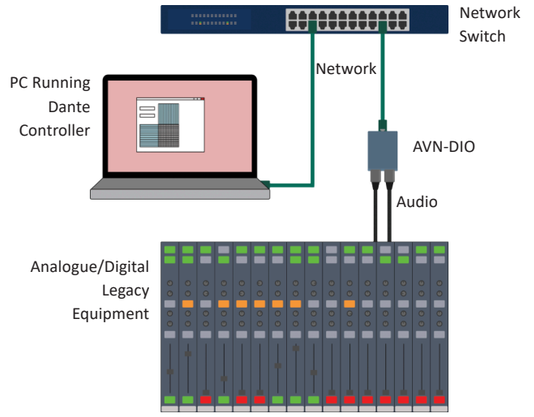

Fig 3: Typical AVN-DIO setup

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 incoming or outgoing data is sensed on the port.

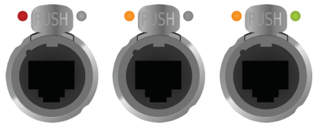

Fig 4: Power, Link, and Activity LEDs

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.

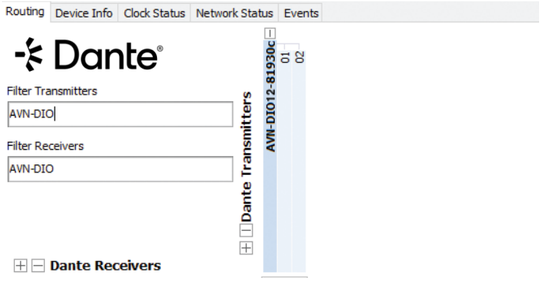

Fig 5: Dante Controller - Routing tab

Network Troubleshooting

If the device does not show up in Dante Controller please check that the Ethernet cable is correctly connected 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:

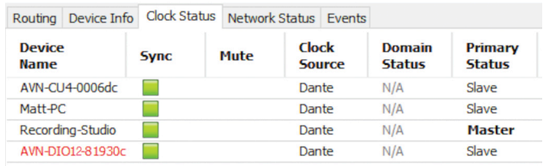

Fig 6: Red device name indicates network configuration error

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

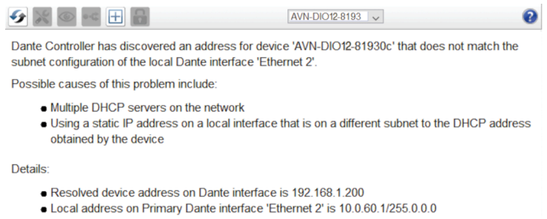

Fig 7: Error details

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 access the device, 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.

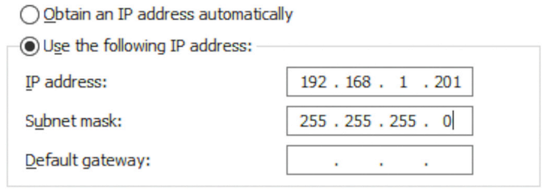

Fig 8: Windows IPv4 settings

Save the changes made to the settings then close and re-open Dante Controller. The device should now appear correctly.

Note: if your computer has multiple network interfaces on the same physical network or IP subnet this can lead to unexpected results, in this case those interfaces can be disabled. To do this in Windows 10, type **View Network Connections** into the search bar, right-click the network connection to disable, and select **Disable**.

In Dante Controller the device's configuration should now be accessible. The device can now be configured and the network settings can be modified so that the device is in the correct IP subnet.

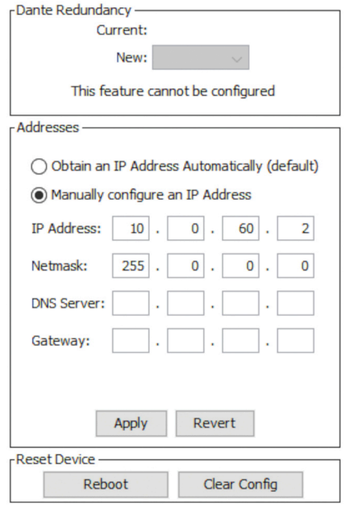

Fig 9: Dante Controller - Network Config in Device View

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 IP address, click the **Reboot** button, the device will restart and its IP address will be updated. Reconfigure the computers IP address to return to the prior IP subnet.

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.

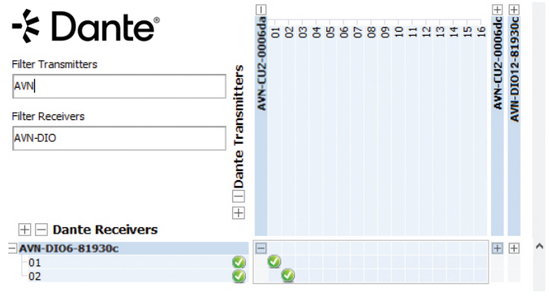

Fig 10: Routed audio stream

To remove a connection simply click on the green tick.

Transmit and receive channels in a diagonal can be quickly routed together by holding the control key (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.

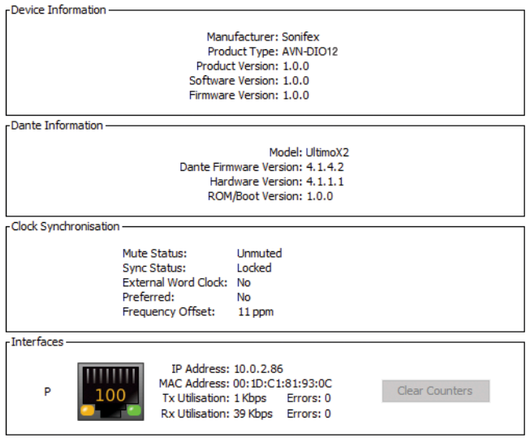

Fig 11: Status tab

Device Configuration

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

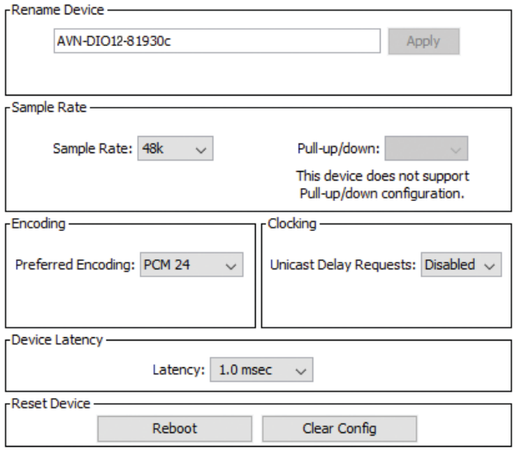

Fig 12: Device Config tab

- 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 1-4: AVN-DIOMT Deskbar Fittings

AVN-DIOMT Deskbar

Fig 1-6: Iso View Shown with AVN-DIOMT Deskbar Attached

Fig 1-8: AVN-DIO Front Iso View Shown without Accessories

Fig 1-9: AVN-DIO Rear Iso View Shown without Accessories

Technical Specification For AVN-DIO12

Microphone XLR Input Pin-out	
Pin	Function
1	Chassis Ground
2	Input Phase
3	Input Non Phase

Microphone Input - XLR	
Input Impedance:	2.2kΩ balanced
Maximum Input Level:	-68dBu (max gain) to -2dBu (min gain)
Gain:	Adjustable 14dB to 86dB
Frequency Response:	20Hz to 20kHz, +0/-0.5dB (ref 1kHz)
High Pass Filter Response:	Fc = 125Hz @ 6dB per octave
THD+N:	<0.01%, -32dBu input, 40dB gain, 20Hz to 20kHz, 20kHz BW
E.I.N.:	129dBu, 20kHz BW, max gain, Rs=200Ω
Common Mode Rejection:	>60dB @ 1kHz
Phantom Power:	+48V ± 4V

Network and AoIP	
AoIP Standard:	Dante
Channels:	2 transmit
Flows:	2 transmit
Sample Rates:	44.1kHz, 48kHz, 88.2kHz, 96kHz
Encoding:	PCM 16, PCM 24, PCM 32
AES67 Support:	Yes
Connectivity:	etherCON (RJ45 compatible)
Speed:	100Mbps
Dante Domain Manager Ready:	Yes
Clock Source:	Internal (PTP Leader) or Network PTP Leader

PoE Power	
Standard	802.3af
Class	0
PD Power Range	0.44 W to 12.94 W
Typical PSE Power Usage	TBD
Max PSE Power Usage	15.4 W

Equipment Type	
AVN-DIO12:	Dual Microphone Input to Dante® with Mic Gain

Physical Specification	
Dimensions (Raw):	14.0cm (W) x 13.6cm (D) x 4.2cm (H) 5.5” (W) x 5.4” (D) x 1.7” (H)
Dimensions (Boxed):	17.8cm (W) x 17cm (D) x 5.6cm (H) 7.0” (W) x 6.7” (D) x 2.2” (H)
Weight	
	Nett: 0.5kg Gross: 0.7kg Nett: 1.1lbs Gross: 1.4lbs

Accessories	
AVN-DIOMT:	AVN-DIO Large Unit Underdesk Mount
AVN-DIORK:	AVN-DIO 1U 19” rack kit (5 x small DIO or 3 x large DIO)

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