AVN-PXH12

12 x 2 Channel Mix Monitor, AoIP Portal

AES67 *now!*

RAVENNA

EMBER+

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

SONIFEX

For the latest Sonifex handbook information please visit the Sonifex website at www.sonifex.co.uk

This handbook is for use with the following product:
AVN-PXH12 12 x 2 Channel Mix Monitor, AoIP Portal
AW10850, Stock Code: 30-363

Revision 1.05 August 2021
©Sonifex Ltd, 2021
All Rights Reserved

Sonifex Ltd, 61, Station Road, Irthlingborough,
Northants, NN9 5QE, England.
Tel: +44 (0)1933 650 700
Fax: +44 (0)1933 650 726
Email: sales@sonifex.co.uk
Website: https://www.sonifex.co.uk

Made in the UK by **SONIFEX**

Contents

Contents continued...

Figures

SONIFEX

Register Online for an Extended 2 Year Warranty

As standard, Sonifex products are supplied with a 1 year back to base warranty.

If you register the product online, you can increase your product warranty to 2 years and we can also keep you informed of any product design improvements or modifications.

Product: _____
_____
Serial No: _____

To register your product, please go online to 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	
IEC mains lead fitted with moulded mains plug		1
Handbook and warranty card	1	

If you require a different power lead, please let us know when ordering the product.

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: http://www.sonifex.co.uk/declarations

Safety & Installation of Mains Operated Equipment

There are no user serviceable parts inside the equipment. If you should ever need to look inside the unit, always disconnect the mains supply before removing the equipment covers. The cover is connected to earth by means of the fixing screws. It is essential to maintain this earth/ground connection to ensure a safe operating environment and provide electromagnetic shielding.

Voltage Setting Checks

Ensure that the machine operating voltage is correct for your mains power supply by checking the box in which your product was supplied. The voltage is shown on the box label. The available voltage settings are 115V, or 230V. Please note that all products are either switchable between 115V and 230V, or have a universal power supply.

Fuse Rating

The product is supplied with a single fuse in the live conducting path of the mains power input. For reasons of safety it is important that the correct rating and type of fuse is used. Incorrectly rated fuses could present a possible fire hazard, under equipment fault conditions. The active fuse is fitted on the outside rear panel of the unit.

Power Cable & Connection

An IEC power connector is supplied with the product which has a moulded plug attached.

The mains plug or IEC power connector is used as the disconnect device. The mains plug and IEC power connector shall remain readily operable to disconnect the apparatus in case of a fault or emergency.

The mains lead is automatically configured for the country that the product is being sent to, from one of:

Territory	Voltage	IEC Lead Type	Image
UK & Middle East	230V	UK 3 pin to IEC lead	
Europe	230V	European Schuko round 2 pin to IEC lead	
USA, Canada and South America	115V	3 flat pin to IEC lead	
Australia & New Zealand	230V	Australasian 3 flat pin to IEC lead	

Connect the equipment in accordance with the connection details and before applying power to the unit, check that the machine has the correct operating voltage for your mains power supply.

This apparatus is of a class I construction. It must be connected to a mains socket outlet with a protective earthing connection.

Important note: If there is an earth/ground terminal on the rear panel of the product then it must be connected to Earth.

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.

1. Sonifex AVN-PXH12   2 x 12 Channel Mix Monitor, AoIP Portal

Overview

The Sonifex AVN-PXH12 is a monitor-mixer primarily designed for monitoring Audio Over IP audio channels in a compact 1U format rack. Any AES67 audio channels on your network can be assigned to input channels on the unit and mixed down to analogue outputs, two headphone outputs and a built-in speaker.

It is a stereo monitoring device that allows you to monitor up to 12 audio sources, from an input total of 24, at any one time. The 24 audio sources can be selected from 4 discrete stereo analogue audio inputs (1 x front panel 3.5mm jack socket, 2 x rear panel 3.5mm jack sockets and 1 x rear panel stereo XLR input pair) or from any RAVENNA, AES67 or AES67-enabled Dante® AoIP connected streams.

These stereo signals are routed to the 12 x control channels on the front panel, each of which have a 'Normal' and an 'Alternate' input selection. Each channel has three buttons: one for input selection, another to Mute the channel and the third to select whether the channel input is routed to the left, right or stereo output legs.

Dante® is a trademark of Audinate Pty Ltd.

The knob for each channel controls the level of the input routed to the output and the knob also illuminates either green, amber or red to show input level. Pressing the knob 'Solos' the channel input to the output.

The front panel has 3 outputs: individually driven stereo headphones on 6.35mm (¼") jack and 3.5mm jack sockets, each with their own individual attenuation settings, and a mono-mix speaker output. There are discrete volume controls for the headphones and the speaker, and the latter also has a mute button.

The rear panel has an additional 3 line level XLR-3 audio outputs, which can be designated as mono mix or left or right channel outputs of the mixed audio content (similar to the speaker and headphone outputs respectively), or any of the physical inputs or AoIP input sources.

The unit also sends to the network, as AoIP AES67 streams, the 8 channels of the 4 physical stereo inputs, together with a stereo mix of the speaker output.

Fig 1-1: AVN-PXH12 Front Panel

Fig 1-2: AVN-PXH12 Rear Panel

The rear panel contains IEC mains and secondary DC power inputs which provide power redundancy to the product. There are two Ethernet RJ45 connections (control and AoIP) and there is an Ethernet SFP module that, when used, replaces the AoIP RJ45 connection.

A rear panel GPIO connector provides 10 local ports which can be user configured as inputs or outputs and provide software controlled functionality. A voltage free relay contact can be used to operate external equipment.

A built-in web server provides complete configuration control of the unit including source assignment to each channel and also allows for firmware updates and configuration backup. The unit can be controlled by suitable Ember+ commands.

2. Front Panel Controls & Indicators
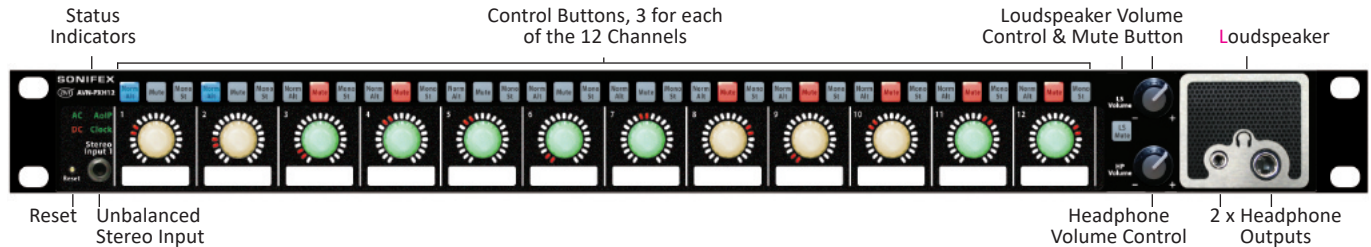
Fig 2-1: AVN-PXH12 Front Panel

The Front Panel consists of three areas:
- Status indicators on the far left.
- Channel controls and indicators in the centre.
- Monitoring outputs on the far right.

Status Indicators & Stereo Input 1

On the left hand side there are 4 status indicators, an unbalanced stereo analogue audio input on a 3.5mm jack socket and a recessed reset button.

Indicators:

AC PSU

Indicates the status of the internal AC-DC power supply as follows:

Green   AC-DC generated voltage is within normal operating range of +11V to +13V. This is the normal condition.

Amber   AC-DC generated voltage less than +11V or greater than +13V. This indicates a warn condition.

Red   AC-DC generated voltage is less than +10V or greater than +14V. This indicates a fault condition.

Fig 2-2: AVN-PXH12 Status Indicators & Front Panel Controls

DC PSU

Indicates the status of the DC power input as follows:

Green   DC voltage is within normal operating range of +11V to +13V. This is the normal condition.

Amber   DC voltage less than +11V or greater than +13V. This indicates a warn condition.

Red   Not connected or DC voltage is less than +10V or greater than +14V. This indicates a fault condition if a DC power source is connected.

AoIP

When green this indicates that the mix monitor AoIP network connection is linked.

Clock

Indicates the status of PTP clock as follows:

Green	The unit is the PTP slave with a clock offset of less or equal to ±1µs or the unit is a PTP master.
Amber	The unit is the PTP slave with a clock offset of between ±1µs and ±10µs.
Flash Amber	The unit is in a listening state and is not yet acting as a master or a slave.
Red	The unit is the PTP slave with a clock offset of greater than ±10µs.

Stereo Analogue Input 1

The stereo input on the front panel is an unbalanced 3.5mm stereo jack socket with the following pin connections:

Tip:	Analogue Input Left
Ring:	Analogue Input Right
Sleeve:	Ground

Channel Controls & Indicators

The middle section consists of a set of controls and indicators for each of the 12 channels.

Fig 2-3: AVN-PXH12 Status Indicators & Front Panel Controls

Volume Control & Level Indicator

Volume Knob – There is a knob to control the signal level of that channel in the output mix, and this is shown by the LED set around the knob. There are 21 LEDs and we use this to show 41 discrete levels, by illuminating them in a 1, 2, 1, 2 pattern.

Input Level – The knob is illuminated to indicate the input source level (ie pre level control signal) by lighting:

Green	For low levels	-60 to -18dBFS
Yellow	For normal levels	-18 to 0dBFS
Red	For high levels	0dBFS

This illumination can be disabled if not required, using the webserver software.

Channel Source Selection

A Norm/Alt button allows you to select the primary (Norm) or secondary (Alt) input as defined in the webserver pages.

Channel Mute

The Mute button can be used to remove the channel source from the mix output and it illuminates orange when muted.

Channel Solo

The knob, in addition to being a signal level of that channel, is also a press and hold control that Solos the channel my muting all the other channels in the output mix. When the knob is held down, the Mute buttons of the other channels illuminate orange.

Source Earpiece Assignment

The Mono/St button is used to assign the left and right legs of the source signal to the output:

Unlit   Stereo input routes as a stereo output.
Red   The stereo input is mono summed to the left output only.
Green   The stereo input is mono summed to the right output only

Scribble Space

There is also a scribble space underneath for the user to label the channels for easy identification.

Monitoring Outputs

The right hand side of the front panel contains the monitoring audio outputs and volume controls. There are physical audio outputs on the rear of the product.

Fig 2-4: AVN-PXH12 Front Panel Monitoring Outputs & Controls

Headphone Output Sockets

There is 1 x 6.35mm stereo jack socket and 1 x 3.5mm stereo jack socket with a common volume control pot and software settable independent attenuation values. Each output is individually driven to allow for both headphones to be connected at the same time.

Each jack socket has the following connections:

Tip: Headphone Left
Ring: Headphone Right
Sleeve: Ground

When headphones are connected, the speaker is automatically muted.

Speaker Control

The front panel speaker has its own volume pot.

Speaker Mute

The LS Mute button is used to mute the loudspeaker output.

3. Rear Panel Connections

Stereo Input 4 · Ethernet Network Interface · 12V DC Input · Mains AC Input

Line Outputs · Stereo Input 2 · Stereo Input 3 · GPI/O · AoIP Network Interface · AoIP SFP Interface · Mains Fuse
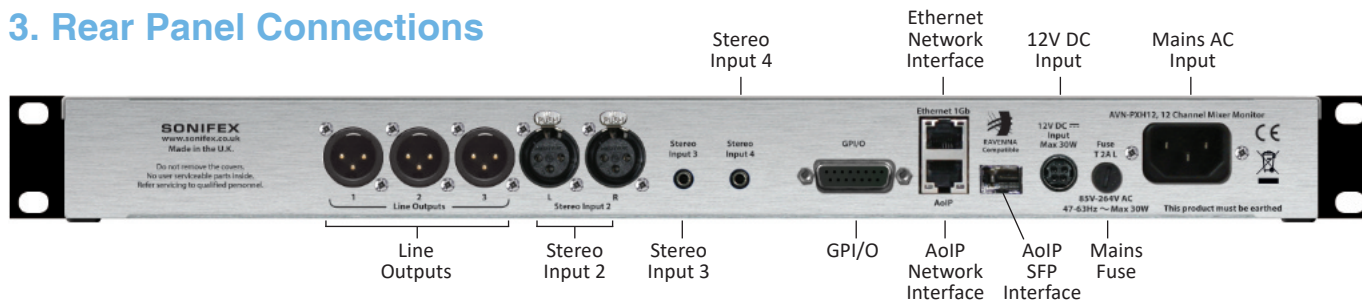
Fig 3-1 AVN-PXH12 Rear Panel

Mono Balanced Analogue Outputs 1 - 3

There are three mono XLR 3 pin male outputs (XLR-3-32, 50Ω balanced floating) with the following connections:

Pin 1:   Screen
Pin 2:   Phase
Pin 3:   Non-Phase

Pin 1 Screen Signal
Pin 2 Phase Signal
Pin 3 Non-Phase Signal
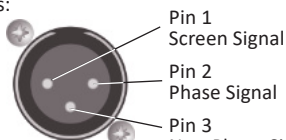
Each output can be assigned to be
from a physical input, an AES67 stream,
the mix left output, the mix right output or a mono mix of the stereo output.

Stereo Balanced Analogue Input 2

Stereo line input 2 consists of 2 x XLR 3 pin female connectors (XLR-3-31, 10kΩ balanced floating) with the following connections:

Pin 1:   Screen
Pin 2:   Phase
Pin 3:   Non-Phase

Pin2 Phase Signal
Pin 1 Screen Signal
Pin 3 Non-Phase Signal
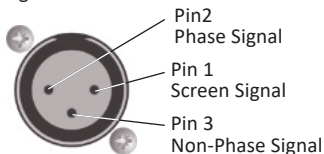
Stereo Unbalanced Analogue Inputs 3 & 4

Stereo line inputs 3 & 4 consist of 2 x unbalanced 3.5mm stereo jack sockets with the following pin connections:

Tip: Analogue Input Left
Ring: Analogue Input Right
Sleeve: Ground

Tip – Left Signal
Ring – Right Signal
Sleeve – Ground (Screen) Signal
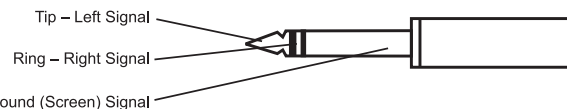
Fig 3-2: 3.5mm & 6.35mm (¼ inch) 'A' Gauge Stereo Jack Plug

GPI/O (General Purpose Input/Output)

This 15 pin 'D' type socket provides 10 configurable general purpose inputs or outputs and a voltage free switching relay contact. The connections are as follows:

Pin 1	GPIO Port 1
Pin 2	GPIO Port 2
Pin 3	GPIO Port 3
Pin 4	GPIO Port 4
Pin 5	GPIO Port 5
Pin 6	Relay – Normally Open Contact
Pin 7	Relay – Normally Closed Contact
Pin 8	Relay – Common
Pin 9	GPIO Port 6
Pin 10	GPIO Port 7
Pin 11	GPIO Port 8
Pin 12	GPIO Port 9
Pin 13	GPIO Port 10
Pin 14	Fused (200mA) +12VDC Supply
Pin 15	Ground

GPIO ports configured as an output are open collector type, i.e. when the output is active, the pin will be pulled to ground – and is capable of sinking 20mA.

GPIO inputs are active low, i.e. the pin should be pulled to ground to activate it.

Ethernet 1GB & AoIP 1GB Network Interfaces

These RJ45 connectors are the gigabit network ports. The upper connector is the configuration and control port and the lower connector is the audio over IP (AoIP) port.

The dual Ethernet connectivity means that Audio over IP can be separated from the setup/monitoring which can be done from your main network. This is the preferred arrangement as it is important that the AoIP network transfers are not affected by bulk transfers on the main network.

However all command and control functions are available on both ports so if you wish a single network connection via the AoIP port will suffice for both audio and control.

AoIP SFP Interface

This SFP (small form-factor pluggable) connector allows an alternative interface type to be used for the AoIP port, for example fibre. If a SFP interface is used, the AoIP network port cannot be used at the same time.

12V DC Input

This 4 pin KPJX connector allows an external +12V power supply to be used to power the unit. When looking at the rear of the unit, the pin locations and connections are as follows:

	Location	Connection
	Location	Connection
Pin 1	Upper Left	+12V DC
Pin 2	Upper Right	+12V DC
Pin 3	Lower Left	0V
Pin 4	Lower Right	0V

Both the 12V DC input and the mains AC input can be connected at the same time and the unit will automatically switch between power supplies or load share as appropriate.

Mains Fuse

This 20mm x 5mm anti-surge mains fuse is rated at 2A.

Mains AC Input

This universally filtered IEC is the mains AC input power supply to the unit and is continuously rated 85-264V AC @ 47-63Hz.

4. Embedded Web Server

The AVN-PXH12 has an embedded web server which provides easy access to all the configuration options through a web browser. It also gives access to system information and allows the firmware to be easily updated when new releases are made available.

To access the embedded web server, the unit needs to be connected to a network via either of the 2 network ports on the rear panel. The upper port is the general access Ethernet port and the lower port is the Audio over IP (AoIP) port. By default, both ports are set to static address mode with the upper port IP address set to 192.168.0.100 and the lower port IP address set to 192.168.1.100.

If the network address mode for the port to be used has been set to dynamic, the unit will attempt to acquire an IP address from a DHCP server or auto configuration if no DHCP server is found.

Once the IP address of the required port is known, simply type this into the address bar of a web browser. The Device Information page of the connected AVN-PXH12 will be displayed. This is the default page and will always be displayed first when connecting to the embedded web server.

The unit can also be accessed using it's hostname of:

AVN-PXH12-SerialNo

where 'SerialNo' is the 7 digit serial number of the product (add leading zeros if the number is less than 7 digits), e.g. AVN-PXH12-0098765.

The right hand side of each page has a brief help section that describes the content of each section.

Web Page Menu Structure

For information about AVN discovery and network connections, which is applicable to all Sonifex AVN products, see the Sonifex handbook "AVN - A Guide to Media Networking & Configuration of the AVN Product Range".

The structure of the current webpages is as below. Please note that as the webpages are updated, new features may be added to them which aren't documented here. Use the help text on the right hand side of the webpage to get instructions on use.

> Main Page
> \>   Information
> > \>   Device Information
> \>   Configuration
> > \>   Network
> > \>   PTP Profiles
> > \>   Audio Routing
> > \>   GPIO Settings
> > \>   SNMP Settings
> > \>   Misc. Settings
> \>   System

Information Web Page

This information shows the current status of the unit as well as the software versions of the various modules running on it. When contacting Sonifex technical support, it is important to provide the information shown on this page.

The lower half of the page shows the status of the Precision Time Protocol (PTP) clock, as well as the configuration of the network ports as shown:

The network IP addresses and subnet masks shown are the actual values currently in use.

Device Information ?

Device ID:	AVN-PXH12
Host Name:	AVN-PXH12-0088140
Friendly Name:	AVN-PXH12-0088140
Serial Number:	0088140
Firmware Version:	D2.7.2125
Front Panel Version:	1.7
AC/DC Voltage:	12.122V
DC Voltage:	0.00V
Temperature:	48°C
System Up Time:	0 hrs 8 mins

PTP Clock Information ?

Status:	Master
Domain Number:	0
Master ID:	d0a4b1.fffe.000124
Master Offset:	0ns

Ethernet Network Information ?

Hardware Address:	D0:A4:B1:00:01:23
Actual IP Address:	0.0.0.0
Actual Subnet Mask:	0.0.0.0
Addressing Mode:	Static

Audio Network Information ?

Hardware Address:	D0:A4:B1:00:01:24
Actual IP Address:	10.0.200.7
Actual Subnet Mask:	255.255.255.0
Addressing Mode:	Static

Fig 4-1: Device Information Web Page

Network Web Page

The Network page shows the current configuration of the Ethernet and AoIP network ports. The friendly name is also set here.

Device Name & Security

Friendly Name – This is the user friendly name that identifies the unit on the network. It is a good idea to assign a user name or location as this is easily recognised by other users. The default name is made from the device ID and the 7 digit product serial number i.e. AVN-PXH12-1234567. The friendly name can only contain letters, numbers and hyphens although it cannot start or end with a hyphen.

Password

In order to prevent other users connected to the same network from modifying your devices configuration it is important to protect your device with a password. The password may be between 4 and 8 characters long and may only contain numbers and letters.

Retype Password

In this field a password must be retyped, this is to make sure you didn't accidentally enter your intended password incorrectly.

Fig 4-2: Network Web Page

Removing Password Protection

Password protection can be removed from a device by clearing both the 'Password' and 'Retype Password' fields and submitting the form.

HTTP Port

The HTTP port number can be set to any integer from '1024' up to and including '65535', or to '80' the default value. The value entered determines which port the web server on the device will use. When the port number is modified the unit will be restarted automatically.

To view the web pages of a device with a modified port number, the port number must be specified in the address bar of the web browser after the IP address and separated by a colon.

For example, if the HTTP port of a unit is set to '1024' and the IP address of the unit is '192.168.0.100' then 'http://192.168.0.100:1024' would need to be entered into the address bar of the web browser.

The web server on the unit is advertised as an Avahi / Bonjour service so tools like Sonifex Service Discovery or avahi-browse will be able to discover the address and port number being used by the web server on the unit.

Ethernet & AoIP Network Port Settings

Address Mode – Each network port has its own independent address mode which determines how the port obtains its IP address. When set to dynamic, the unit will attempt to acquire an IP address automatically from either a DHCP server or via auto configuration if no DHCP server is found. The actual IP address will be shown on the device information page. When static mode is used, the IP address, subnet mask & gateway values entered will be assigned to the corresponding network port.

Static IP Address – This is the IP address that will be assigned to the corresponding network port when static address mode is selected. It is important to ensure that this IP address is not currently in use on the network. These values are not used when the address mode is dynamic.

Static Subnet Mask – This is the subnet mask that will be used for the corresponding network port when static address mode is selected. These values are not used when the address mode is dynamic.

Static Gateway - This is the router IP address that will be used for the corresponding network port when static address mode is selected.

Auto Multicast – When this option is enabled, and the address mode of the AoIP port is set to static, the AoIP transmit multicast IP addresses, shown on the AoIP Streams Web Page, are automatically configured based on the AoIP port IP address. If the IP address of the AoIP port is changed, the multicast addresses are updated. This simplifies configuration and ensures the multicast addresses are unique on the network.

If any of the network configuration options are changed, the unit will automatically restart to implement the new settings. If the IP address of the network port that is currently being used to access the web server is changed, a new connection will need to be made once the unit has restarted. Otherwise, the new page will be shown automatically once the restart is complete.

Network Defaults

Friendly Name: AVN-PXH12-xxxxxxx
                            Where xxxxxxx is the product serial number

    Ethernet Port:
        Address Mode: Static
        Static IP Address: 192.168.0.100
        Static Subnet Mask: 255.255.255.0

    Audio over IP Port:
        Address Mode: Static
        Static IP Address: 192.168.1.100
        Static Subnet Mask: 255.255.255.0

    Auto Multicast: Enabled

PTP Web Page

These pages are the same (or very similar) for all AVN products and the methods and details are covered in the "AVN - A Guide to Media Networking & Configuration of the AVN Product Range" manual obtainable from http://www.sonifex.co.uk/company/logos-images/handbooks/avn_guide.pdf

Audio Routing Web Page

On the 'Audio Routing' web page, the routing of audio from physical inputs, incoming AoIP streams and virtual inputs can be configured. Each "Mixer Source" position appears as a virtual output across the top of the grid allowing the user to assign an audio source to each of the 12 mixer inputs.

The audio assigned to the "Mixer Source" inputs is mixed together at the levels set by the encoders on the front of the unit.

The overall mixer output is then available on the "Mono Mixer Output" and "Stereo Mixer Output" virtual input buses shown on the left side of the grid.

This allows the user to then route the mixer output to any of the 3 available XLR outputs.

By default, the "Mono Mixer Output" is routed to the Loudspeaker ("LS Output") and the Stereo Mixer Output is routed to an AoIP output stream. The physical Inputs are also routed to an AoIP output stream.

Fig 4-3: The Audio Routing Grid on the 'Audio Routing' Web Page

Add an AoIP Input Stream

Clicking on the plus button next to the 'INPUTS' text and then clicking the button 'Add AoIP Input' brings up a window 'Add New AoIP Input Stream', the window has two tabs 'General' and 'AoIP'. When the window is first loaded the 'AoIP' tab is selected.

AoIP Tab
Automatic Discovery

Fig 4-4: AoIP Tab of Add New AoIP Stream Window

In the 'AoIP' tab, the 'Stream Name' drop-down box contains a list of all the streams that have been discovered on the network when a stream is selected in this drop-down, information about the stream is shown. The information shown includes:

- Discovery Method – Streams are discovered using SAP or Avahi/Bonjour. A green tick will be shown to indicate how the selected stream was discovered.
- SDP Compatibility – AES67 and RAVENNA logos are shown here when the SDP of a discovered stream contains the parameters required for each standard. It the logo is not shown, then the SDP that has been discovered does not contain all the necessary parameters.
- SDP – The SDP that was discovered for the selected stream is shown in the SDP box.
- SDP Errors – If there are any errors with the SDP then another textbox will be shown giving details of these.

A 'Buffer Delay' can also be set for the selected stream, this allows for smooth playback of digital streams in a high latency network, the buffer delay is measured in samples and can be entered manually or one of the options 18, 48, 96, 144, 192, 240, 480, or 960 from the drop-down list can be selected.

It is also possible to edit the SDP of a discovered stream (for example to add a parameter that was missing from the SDP which meant that the stream was not recognised as being RAVENNA compatible). This can be done by clicking the 'Edit SDP' checkbox which allows the text in the SDP text box to be modified.

To add a stream to the grid, click the 'Add' button.

Manual Entry
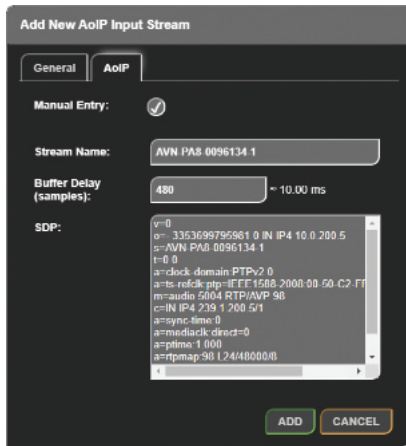
Fig 4-5: AoIP Tab of Add New AoIP Stream Window with Manual Entry Checkbox Selected

If a particular AoIP stream is not discoverable via SAP or Avahi/Bonjour then it is possible to add the SDP manually by selecting the 'Manual Entry' checkbox. When selected, the user can enter a custom 'Stream Name' and an SDP for the custom stream.

As with the discovered streams, a 'Buffer delay' can be set before clicking the 'Add' button to add the stream to the grid.

General Tab
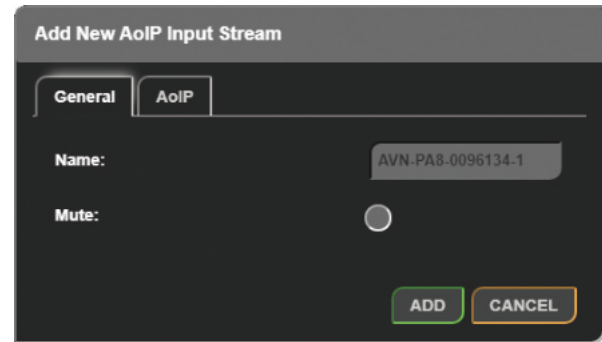
Fig 4-6: General Tab of Add New AoIP Input Stream Window

In the 'General' tab the value in the 'Stream Name' field of the stream you have selected in the 'AoIP' tab is displayed in the 'Name' text field. A stream can be muted by selecting the 'Mute' checkbox before adding it, this is useful if you want to pre-configure a streams routing. If a stream is muted, a mute icon (🔇) will be shown next to the stream name in the grid.

Configuring AoIP Inputs

After adding an AoIP input stream it appears on the audio routing grid. Clicking the name of an AoIP input, located to the left of the routing grid, opens the 'Edit AoIP Input Stream' window, this window is essentially the same as the window that opens up when 'Add AoIP In Stream' is pressed, however there are a couple of extra features under the 'AoIP' tab.

If the stream was added manually, by clicking 'Manual Entry', at the top of the 'AoIP' tab will be a label 'Manual Entry' with a green tick next to it.

An option to edit the SDP of an AoIP input stream is also available, this is done by selecting the 'Edit SDP' checkbox, this then allows the 'SDP' information input field to be edited. There is also a label 'Edited' with a black cross next to it, when the SDP for a stream that was automatically discovered has been edited, the black cross next to the label changes to a green tick.

A 'Remove' button is also available at the bottom of an edit window. When pressed the AoIP input stream is removed from the grid.

SDP Errors
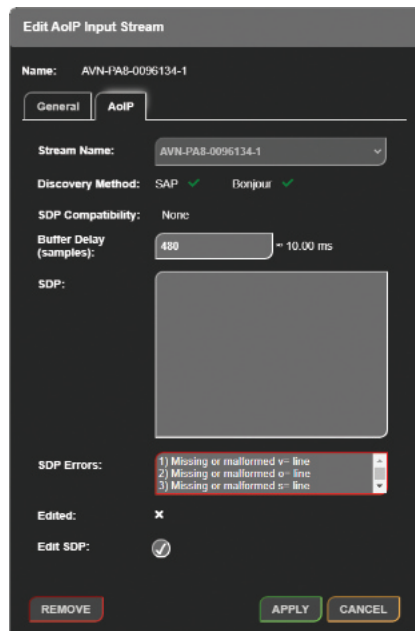
Fig 4-7: 'Edit AoIP Input Stream' Window 'AoIP' Tab 'SDP Errors' Field

The 'SDP Errors' field displays errors about the information contained within the 'SDP' field. This section explains what each of the possible error messages.

Missing or malformed v= line
The 'v=' line provides the version number of the Session Description Protocol. Currently the only version of SDP is version 0. An example of a correct 'v=' line is shown below.

v=0

Missing or malformed o= line
The 'o=' line provides the originator and identifier of the session, this consists of a username, session ID, session version, network type, address type, and a unicast address. An example of a correct 'o=' line is shown below.

o=- 9 0 IN IP4 10.0.1.11

Missing or malformed s= line
The 's=' line provides the session name. An example of a correct 's=' line is shown below.

s=Presenter

Missing or malformed t= line
The 't=' line provides the start and stop times of a session, if both start and stop times are set to 0 the session is taken to be permanent. An example of a correct 't=' line is shown below.

t=0 0

Missing or malformed c= line
The 'c=' line provides connection data this consists of a network type, address type, and a connection address. An example of a correct 'c=' line is shown below.

c=IN IP4 239.8.1.11/1

Missing or malformed m= line

The 'm=' line provides a media description and consists of the media type, the port which receives the media stream, the transport protocol being used, and the media format description. An example of a correct 'm=' line is shown below.

m=audio 5004 RTP/AVP 98

No a=rtpmap attribute found

The 'rtpmap' attribute is used to provide an RTP payload with a codec, a clock rate and any encoding parameters, an RTP payload is mapped to this attribute using the format number. The final format of this attribute should be as shown below.

a=rtpmap:format codec/clock rate/encoding parameters

An example of how this attribute is used is shown below.

a=rtpmap:98 L24/48000/8

a=rtpmap format () does not match format found in m= line ()

The 'rtpmap' attributes format should match format provided on the corresponding 'm=' line.

a=rtpmap channel count () is > max number of channels ()

The 'rtpmap' attributes channel count should be equal to or less than the maximum number of channels, the maximum number of channels is 8 on the PXH12.

a=rtpmap codec '' not supported

The 'rtpmap' attributes codec should be a supported format, the PXH12 supports the following formats;

- L16
- L24
- L32
- AM824

No clock-domain or ts-refclk attribute found

In order for the audio stream to be played correctly the source of the audio stream and the PXH12 must have use synchronous clocks. RAVENNA compatible streams use the 'clock-domain' attribute in order to achieve this, where-as AES67 compatible streams use the 'ts-refclk' attribute in the media block to achieve this. If neither of these attributes is available the audio stream will not playback correctly therefore the user is prevented from adding it.

Unable to obtain PTP domain from the a=clock-domain attribute

This error message is displayed if no clock domain is specified for the 'clock-domain' attribute.

a=clock-domain PTP domain () does not match configured PTP domain ()

This error message is displayed if the clock domain specified by the 'clock-domain' attribute is different to the domain setup in the 'PTP Settings' web page.

Unable to obtain PTP domain from the a=ts-refclk attribute

This error message is displayed if no clock domain is specified for the 'ts-refclk' attribute.

a=ts-refclk PTP domain () does not match configured PTP domain ()

This error message is displayed if the clock domain specified by the 'ts-refclk' attribute is different to the domain setup in the 'PTP Settings' web page.

Configuring AoIP Outputs

Clicking the name of an AoIP output stream, located along the top of the routing grid, opens a window called 'Configure AoIP Output', the window has two tabs 'General' and 'AoIP'. When the window is first loaded the 'General' tab is selected.

General Tab

Fig 4-8: General Tab of Configure AoIP Output Window
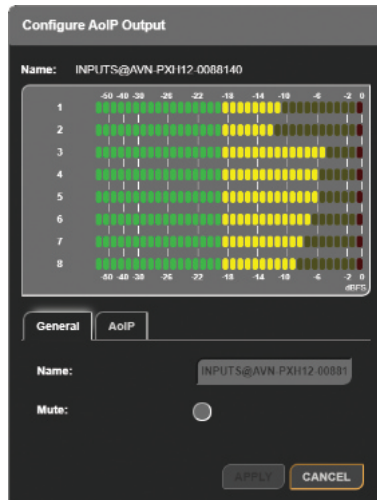
The AoIP output has a default name which cannot be changed. A stream can be muted by selecting the 'Mute' checkbox. If a stream is muted, a mute icon (🔇) will be shown next to the stream name in the grid.
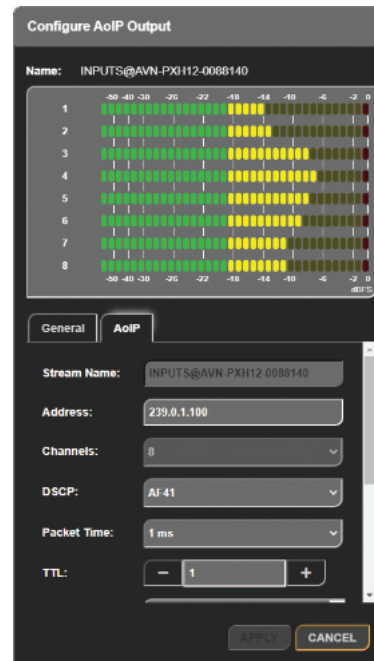
AoIP Tab

Fig 4-9: AoIP Tab of Add New AoIP Output Stream Window

Stream Name

In the 'AoIP' tab the stream name can again be seen in the 'Stream Name' field.

Address

A multicast or unicast IP address can be entered in the 'Address' field. This field cannot be changed when 'Auto Multicast' is enabled within the 'Network' web page.

Channels

The number of channels the AoIP stream consists is fixed, this is 2 channels for the mix AoIP stream and 8 channels for the inputs AoIP stream.

DSCP

The DSCP of the stream can also be set to allow the precedence of the stream packets to be modified. The different values this field can be set to is covered in Table 12 1: DSCP Names & Their Corresponding IP Precedence.

Packet Time

The 'Packet Time' of an AoIP output stream can be changed. The time between packets and the size of the packets both decrease as the value of 'Packet Time' decreases. Therefore, decreasing the packet time will result in smoother audio streaming on higher latency networks. Not all devices can handle lower packet times, if this is the case, the packet time will need to be adjusted in order to be compatible with those devices. This packet time can be set to either 125 µs, 250 µs, 333 µs, 1 ms or 4 ms. The 'Packet Time' can only be set to 4 ms when the number of 'Channels' is set to 2.

TTL

The Time to Live (TTL) option can be set to an integer value from 1 to 255 and is used to limit the time a packet spends on a network.

SDP

The SDP of the AoIP output stream can be found in the 'AoIP' tab and a button is available to copy the SDP to the clipboard.

Configure Physical Input
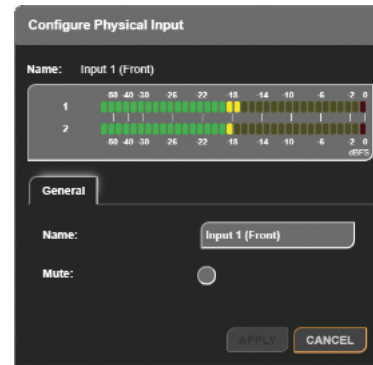
Fig 4-10 'Configure Physical Input' Window

When the identity label of a physical input is pressed the 'Configure Physical Input' window is displayed, this provides some general information and options for the input.

The 'Name' field displays the name of the input. At the bottom of the window are the 'Apply' and 'Cancel' buttons. Pressing 'Apply' will save any valid changes and close the window, the button is enabled once changes have been made. Pressing 'Cancel' will discard any changes and close the window.

General Tab

The general tab provides a 'Name' input field, this allows the identity label for the input to be changed. The general tab also provides a 'Mute' checkbox, selecting the checkbox and pressing 'Apply' will cause any audio on the physical input to be muted.

An 'Audio Line Up' option is also available on the XLR inputs, this can be changed between the following;

- +18dBu = 0dBFS
- +22dBu = 0dBFS
- +24dBu = 0dBFS

Configure Virtual Output
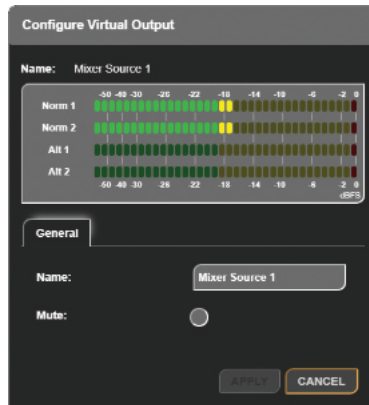
Fig 4-11: 'Configure Virtual Output' Window 'General' Tab

When the identity label of a virtual output is pressed the 'Configure Virtual Output' window is displayed, this provides some general information and options for the output.

The 'Name' field displays the name of the output. At the bottom of the window are the 'Apply' and 'Cancel' buttons. Pressing 'Apply' will save any valid changes and close the window, the button is enabled once changes have been made. Pressing 'Cancel' will discard any changes and close the window.

General Tab

The general tab provides a 'Name' input field, this allows the identity label for the output to be changed. The general tab also provides a 'Mute' checkbox, selecting the checkbox and pressing 'Apply' will cause any audio on the virtual output to be muted.

Configure Physical Output
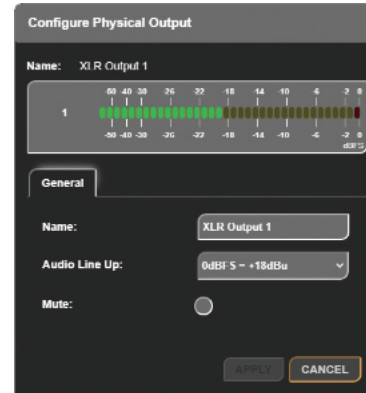
Fig 4-12: 'Configure Physical Output' Window 'General' Tab

When the identity label of a physical output is pressed the 'Configure Physical Output' window is displayed, this provides some general information and options for the output.

The 'Name' field displays the name of the output. At the bottom of the window are the 'Apply' and 'Cancel' buttons. Pressing 'Apply' will save any valid changes and close the window, the button is enabled once changes have been made. Pressing 'Cancel' will discard any changes and close the window.

General Tab

The general tab provides a 'Name' input field, this allows the identity label for the output to be changed, on all the XLR outputs.

An 'Audio Line Up' option is also available on the XLR outputs, this can be changed between the following;

- +18dBu = 0dBFS
- +22dBu = 0dBFS
- +24dBu = 0dBFS

The general tab also provides a 'Mute' checkbox, selecting the checkbox and pressing 'Apply' will cause any audio on the physical output to be muted.

Collapse Inputs/Outputs

When the 'Collapse' button (⊹) next to the 'INPUTS' or 'OUTPUTS' text is pressed the inputs/outputs on the routing grid are minimised. Each channel is hidden and instead, an overview of the routings is shown. If any channels from an input stream are routed to any channels of an output stream, the corresponding grid box will be coloured in light green. There is also the option to minimise individual inputs and outputs by pressing the downwards pointing arrow next to the inputs/outputs name.

Expand Inputs/Outputs

When the 'Expand' button (⟬⟭) next to the 'INPUTS' or 'OUTPUTS' text is pressed the inputs/outputs on the routing grid are maximised and their channels are displayed. The boxes for each routing are shown in a darker green when maximised. There is also the option to maximise individual inputs and outputs by pressing the sideways pointing arrow next to the inputs/outputs name.

Filtering Inputs/Outputs
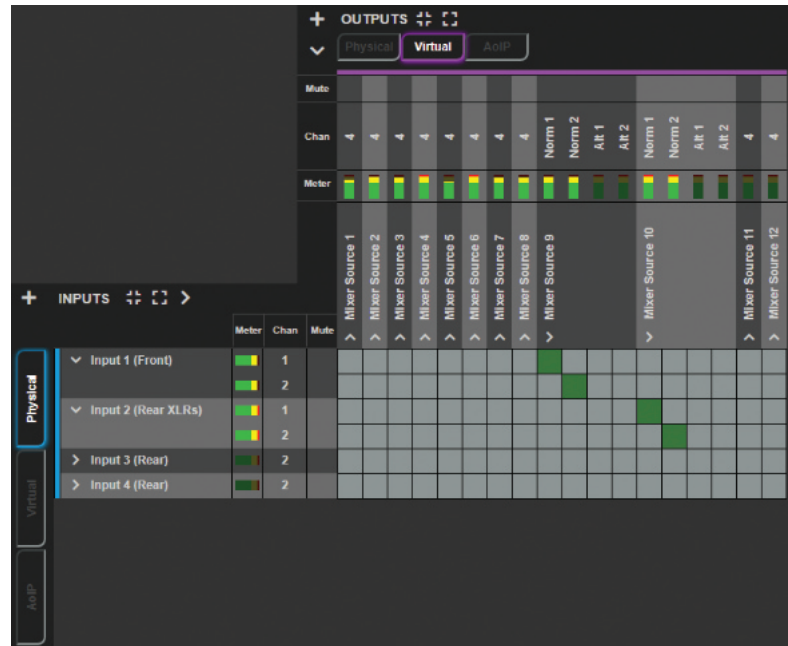
Fig 4-13: Filtered Routing Grid

Inputs and outputs can be filtered depending on their type allowing the user to focus on only the inputs and outputs they are interested in. Inputs can be filtered based on whether they are 'AoIP', 'Virtual', or 'Physical' inputs. Outputs can also be filtered based on whether they are 'AoIP', 'Virtual', or 'Physical' outputs. Filtering is performed by clicking on the corresponding buttons to the left of the inputs list and above the outputs list. An example of filtering is shown in Fig 8-37: Filtered Routing Grid, here the user is only interest in the physical inputs and the virtual outputs.

Show/Hide Input/Output Status Icons
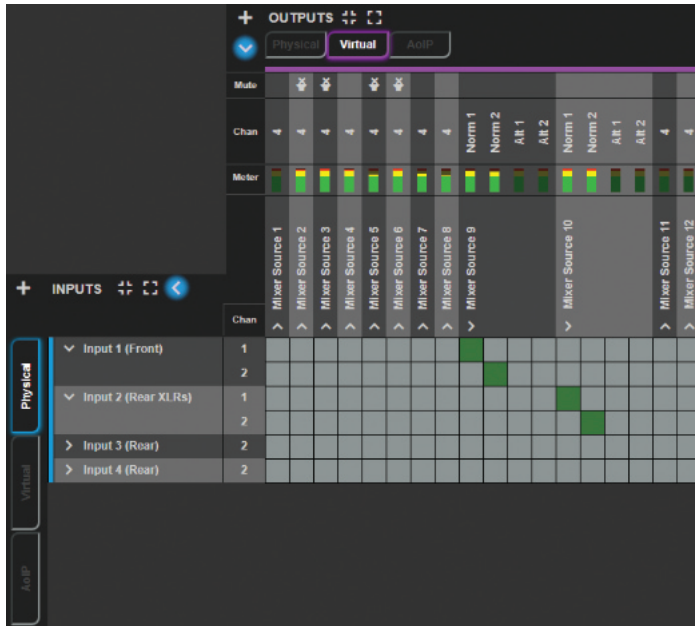
Fig 4-14: Show or Hide Status Icons

The various status icons on the input and output lists can be show and hidden by pressing the buttons highlight in Fig 8-38: Show or Hide Status Icons, in this image the status icons are shown for the output section and hidden for the input section.

Routing

Clicking on a box in line with an input/output when that input/output is minimised will maximise that input/output, this then allows the routing of individual channels between that input/output. Routing is achieved by clicking on a box which is in line with an input/output channel, this will cause the audio from the input channel to be routed to the selected output channel. When an input/output channel is routed, the corresponding box will become a dark green colour, clicking on the box when it is this dark green colour will open up another window entitled 'Configure Connection'. If the user holds down the 'Ctrl' key and clicks on a dark green box, the routing is deleted without having to use the 'Configure Connection" window.

Configuring Connection

General Tab
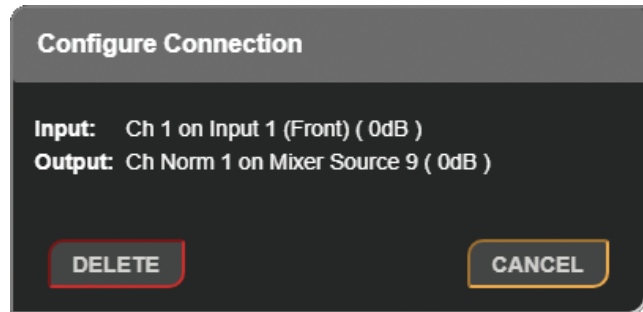
Fig 4-15: General Tab of Configure Connection Window

The 'Configure Connection' window lists the connected input and output channels next to the labels 'Input' and 'Output'. At the bottom of this window are the options to 'Cancel' (closing the window) or to 'Delete' the connection, this removes the routing between the input and output channel.

GPIO Settings

On the 'GPIO Settings' web page an overview of connections between logical inputs and logical outputs can be seen, this web page allows the device to be configured to perform actions when a particular event or set of events occurs.

The following input types are available:

• Physical GPI
• Virtual GPI
• Event

The following output types are available:

• Physical GPO
• Virtual GPO
• Event
• Relay

Add Input

Clicking on the button plus button (✚) next to the 'INPUTS' text brings up a window with the title 'Add Input' the window has one tab 'General'. At the bottom of this window are the 'Add' and 'Cancel' buttons. Pressing 'Add' will add the input to the grid. Pressing 'Cancel' at any time will close the window without making any changes.

General Tab

Fig 4-16: General Tab of Add Input Window (GPIO Settings)

Type

The type drop-down menu allows the user to configure how the input will operate, the options available are described below.

Physical GPIO

Allows a general-purpose input on the rear panel of the device to be used as a trigger for an output.

When selected the following options are also displayed:

• Available Ports
• Input Mode

Virtual GPIO

Allows a virtual general-purpose input to be created using a source from the network, this can then be as a trigger for an output.

When selected the following options are also displayed:

• Available Ports
• vGPIO Source

Event
Allows an input event to be selected which will then cause an output to be triggered, for example an input event could be set when DC power is lost.

When selected the following options are also displayed:

• Available Events

Available Ports
This drop-down menu allows the user to select which of the available physical ports or virtual ports to setup, this is dependent on the type of port selected.

There are ten physical ports available and ten virtual ports available.

Input Mode (Physical GPI Only)
The input mode can be set to either 'Momentary' or 'Latching'.

Momentary
When the input mode is set to 'Momentary', the input function is enabled only whilst the input is active.

Latching
When the input mode is set to 'Latching', making the input active briefly will toggle whether the input function is enabled or disabled.

vGPIO Source (Virtual GPI Only)
The 'vGPIO Source' drop-down window allows the user to select a virtual general-purpose output port from another device that is available on the network and use that to set the state of the virtual input.

Available Events
This drop-down menu allows an event to be selected that can then be used as an input to drive the state of another output the list of options are as follows:

Eth Link Down
Active when no connection is available via the ethernet network port on the device.

AoIP Link Down
Active when no connection is available via the AoIP network port on the device.

AC Power Off
Active when the status of the AC port is in fault condition (red AC status LED).

DC Power Off
Active when the status of the DC port is in fault condition (red DC status LED).

PTP Sync Lost
Active when the connection to the PTP master is lost.

LS Mute
Active when the mute button on the front panel of the unit is pressed.

Add Output
Clicking on the plus button (✚) next to the 'OUTPUTS' text brings up a window with the title 'Add Output' the window has one tab 'General'. At the bottom of this window are the 'Add' and 'Cancel' buttons. Pressing 'Add' will add the output to the GPIO grid. Pressing 'Cancel' at any time will close the window without making any changes.
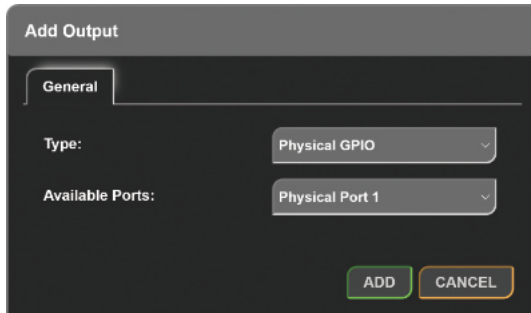
General Tab

Fig 4-17: General Tab of Add Output Window (GPIO Settings)

Type

The type drop-down menu allows the user to configure how the output will operate, the options available are described below.

Physical GPIO

Allows a general-purpose output on the rear panel of the device to be enabled when any of the inputs routed to this output are active.

When selected the following options are also displayed:

• Available Ports

Virtual GPIO

Creates a virtual general-purpose output on the network, this virtual general-purpose output becomes active when any of the inputs routed to this output are active.

When selected the following options are also displayed:

• Available Ports

Event

Allows an event to be activated when any of the inputs routed to this output are active.

When selected the following options are also displayed:

• Available Events

Relay

Allows the relay available on the 'GPIO' connector, to be toggled on and off when any of the inputs routed to this output are activated.

When selected the following options are also displayed:

• Available Relays

Available Ports

This drop-down menu allows the user to select which of the available physical ports or virtual ports to setup, this is dependent on the type of port selected.

There are ten physical ports available and ten virtual ports available.

Available Events

This drop-down menu allows the event to be triggered when any input routed to this output is active, the list of options are as follows.

LS Mute

Mute the devices loud speaker.

Available Relays

The 'Available Relays' drop-down menu allows the user to select which of the available relays on the device is to be setup as an output, there is one relay available on an AVN-PXH12.

Routing Grid

The routing grid uses coloured routing squares to show the status of a routing within the grid.

Creating Routings

Normal un-routed squares will be displayed in grey (■), this represents a potential connection between an input and output that has not yet been routed but is allowed to be.
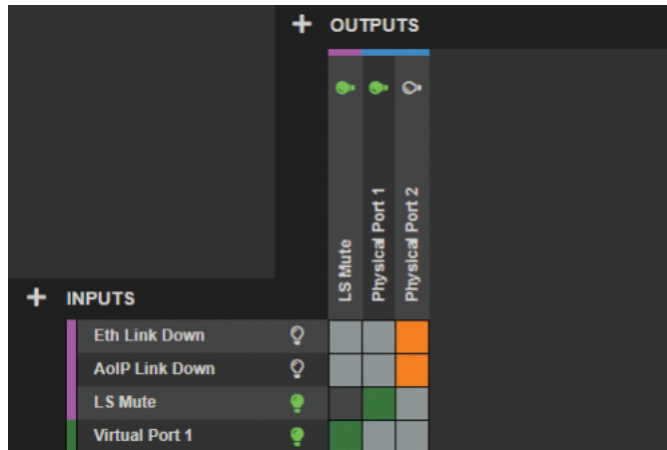

Fig 4-18: GPIO Routing Example

Clicking on the square causes a routing to be made between that input and output. A routed inactive connection is displayed using an orange square (■), where as an active connection is displayed using a dark green square (■). When a connection is active the output connected will become active.

Lightbulbs

Alongside inputs and outputs on the grid are light-bulb symbols, these are normally a dark grey colour (💡) but become green (💡) when the input or output is activated.

Quick Delete

Routing can also be quickly removed without entering the 'Configure Connection' window for each routing. Instead, the user can hold 'Ctrl' on the keyboard and hover over a routing, a red square (■) is displayed.

This shows that the routing can be deleted. In order to delete the routing, click on the routing whilst it is red.

Non-routable Squares

If an input can't be routed to an output a grey square (■) is shown and clicking on the square does nothing. Upon hovering over these non-routable squares, the cursor is changed to a 'not-allowed' type cursor (🚫).

Configuring Connection

The configure connection window is displayed when a routing is clicked. At the top of the window the input and output being configured is displayed at the bottom of the window the 'Delete', 'Apply', and 'Cancel' buttons are displayed, pressing the 'Delete' button will remove the routing, pressing the 'Apply' button will apply any changes, and pressing the 'Cancel' button will close the window without applying any changes.
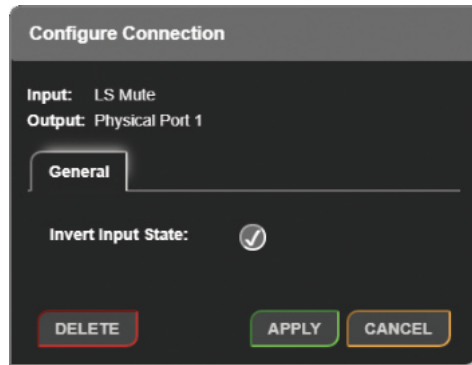
General Tab

Fig 4-19: General Tab of Configure Connection Window (GPIO Settings)

Invert Input State

This option inverts the input state, this means that if the input is inactive the output routing will be active and if the input is active the routing will become inactive.

SNMP Settings Web Page

The SNMP settings web page allows configuration of SNMP messages, this is used to send traps to an SNMP master which can then perform tasks such as sending an email.

The SNMP master can also get and set certain parameters on the PXH12.

The SNMP setting web page consists of two sections these are the 'Download Sonifex MIB Files' section and the 'SNMP Settings' section. At the bottom of the web page is the 'Submit' button this is used to save any changes made to the configuration, this is disabled (grey button) by default

and then becomes enabled (green button) when changes are made to the configuration.

Download Sonifex MIB Files

Fig 4-20: Download Sonifex MIB Files

The section contains a single button 'Download'. Pressing the download button causes two files to be downloaded 'SONIFEX-GPIO-MIB' and 'SONIFEX-MIB' these are used by the SNMP master to decode messages received over SNMP.

SNMP Settings

Fig 4-21: SNMP Settings

This section is used to setup the SNMP configuration.

System Location
The system location is used to specify the physical location of the unit this may be set to any value which is between 0 and 20 characters in length. The system location can be accessed via SNMP using the OID 1.3.6.1.2.1.1.6 (sysLocation).

System Contact

The system contact is used to specify the user of the device again this may be set to any value which is between 0 and 100 character is length. The system contact can be accessed via SNMP using the OID 1.3.6.1.2.1.1.4 (sysContact).

Community

The SNMP community string is used as a form of security, if the string is set to 'public' without quotation marks any SNMP master on the network may query the device. If the community string is set to anything else the SNMP master will need to send this community string along with any SNMP requests in order to acquire the requested information otherwise the request will be denied. This may be set to any value which is between 0 and 20 characters long.

Trap Destination

The trap destination is the IP address of the SNMP master, this allows the device to send SNMP trap messages to the SNMP master containing information about the devices current state, for example a SNMP trap message is sent when the state of a GPI is changed along with information about that GPI such as the GPI number and its current state.

Disabling SNMP Trap Messages

To prevent SNMP trap messages being sent the 'Trap Destination' field can be cleared and the form submitted.

Misc. Settings Web Page
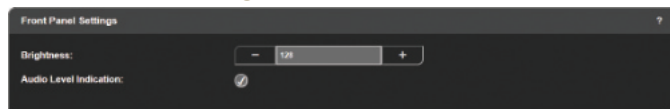## Front Panel Settings

Fig 4-22: Front Panel Settings

The brightness of the front panel LEDs can be varied from the minimum brightness of 0 to the maximum brightness 255. The audio level indication can also be controlled, when enabled the colour of a mixer channels control knob is dependent on the level of the audio on the corresponding mixer channel.

Headphone Settings

Fig 4-23: Headphone Settings

An attenuation of 0dB to 24dB can be applied individually to the 2 types of headphone output jack socket (6.35mm and 3.5mm) on the front panel.

System Web Page

The system web page allows the user to update the firmware; to save and load complete configurations from saved files; and to save the system log to a file for examination of any fault conditions.

Fig 4-24: Update Firmware Section
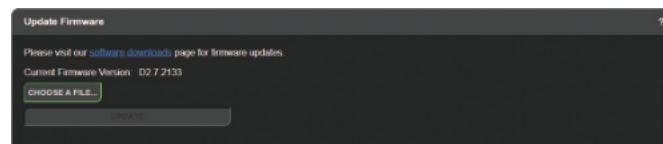
Firmware Updates

To upgrade the unit the new firmware will need to be available on the connected PC. These files are downloadable from the Sonifex website – www.sonifex.co.uk and will have a '. SWU' suffix. The upgrade will take around a minute to complete. If the upgrade fails, then there is a fall-back recovery system that is permanently available to the unit, which will cause

the unit to enter a default IP state which can be accessed from a browser at a URL of http://192.168.0.100:8080 Again select the .swu file and click the upgrade button.

Front Panel Firmware Updates

The front panel has its own firmware, and this is embedded into the main code above. If the unit starts up and recognises that the front panel code in the firmware is a different version to that currently stored in the front panel, then the main board will perform an update on the front panel. It does this by restarting the front panel in a bootstrap mode where the encoder knobs 1&2 and 7&8 will flash alternately and where the channel buttons will show a progress bar for the update of around 60 seconds. The front panel can be forced into bootstrap mode by holding down the LS Mute button for around 2½ seconds during a power or reset cycle of the unit.

Save Configuration to a File

Fig 4-25: Save Configuration To A File Section

Click on the Save Config button to save the current unit settings to a file.

Load Configuration from a File

Fig 4-26: Load Configuration From A File Section

The current configuration can be overwritten from a previously saved config file. Click 'Choose file' and then the 'Load Config' button. Select the 'Overwrite Network Settings' checkbox if you want to use the network settings present in the config file. If the 'Overwrite Network Settings' checkbox is not checked, the network settings in the uploaded file are ignored and only the other configuration parameters present in the file are applied.

Save System Log to A File

Fig 4-27: Save System Log To A File Section

The system log contains useful information about the recent activity of the device, this can be useful for debugging the system and monitoring events.
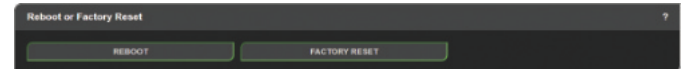
Reboot or Factory Reset

Fig 4-28: Reboot or Factory Reset Section

If the device is not performing correctly the device may need a reboot, this can be done remotely by clicking the 'Reboot' button. The device can also be set to factory defaults by clicking the 'Factory Reset' button, this may be useful if you are passing the device on to somebody else.

5. Technical Specifications

Audio-Over-IP Specification

Open Standards:	RAVENNA, AES67
Device Discovery:	Bonjour (mDNS / DNS-SD)
Audio Delivery:	RTP/UDP over IPv4 multicast and unicast
QoS:	DiffServ
Stream Management:	RTSP/SDP
Control:	Web server/Ember+
Format:	Linear PCM 24-bit (L24)
Channels Per Stream:	2 - 8
Frames Per Packet:	48 (1ms)
Transmit Streams:	1 x 8 channel, 1 x 2 channel
Sample Rate:	48 kHz

Ember+ Interface Connection

Interface Type:	Provider
Network Interface:	Ethernet port and AoIP port
Port:	9000

Timing Synchronisation

Profile Support:	Default, AES Media, SMPTE, AES-SMPTE & Custom profiles
Timing Protocol:	PTPv2, IEEE1588-2008

Audio Inputs – Gain setting 0dBFS = +18dBu unless otherwise stated

Input Impedance:	>20kΩ balanced
0dBFS Line-Up:	+18/+22/+24dBu balanced
Frequency Response:	20Hz to 20kHz, +0/-0.2dB
THD+N:	<-110dBFS, -30dBFS, 20Hz to 20kHz, all input gain settings, 20kHz BW
Noise:	-110dBFS, 20kHz BW, Rs=200Ω
Crosstalk:	<-100dB
Common Mode Rejection:	>70dB @ 1kHz, all input gain settings

Audio Outputs – Gain setting 0dBFS = +18dBu unless otherwise stated

Output Impedance:	<50Ω balanced
0dBFS Line-Up:	+18/+22/+24dBu balanced
Frequency Response:	20Hz to 20kHz, +0/-0.5dB
THD+N:	<-110dBFS, -30dBFS, 20Hz to 20kHz, all input gain settings, 20kHz BW
Noise:	-110dBFS, 20kHz BW, Rs=200Ω
Crosstalk:	<-100dB
Common Mode Rejection:	>70dB @ 1kHz, all input gain settings

Unbalanced Line Inputs

Input Impedance:	> 20kΩ
0dBFS Line-Up:	+12dBu
Frequency Response:	20Hz to 20kHz, +0/-0.2dB
THD+N:	< -97dBFS, -30dBFS, 20Hz to 20kHz, unity gain, 20kHz BW
Noise:	-100dBFS, 20kHz BW, Rs=200Ω
Crosstalk:	< -97dB

Headphone Outputs

Output Impedance:	Drives 150mW into 32Ω to 600Ω headphones
0dBFS Line-Up:	+20dBu
Frequency Response:	20Hz to 20kHz, +0/-0.2dB

THD+N:	< -108dBFS, -30dBFS, 20Hz to 20kHz, unity gain, 20kHz BW
Noise:	-110dBFS, 20kHz BW

Loudspeaker

Power Output:	4W
Volume:	Mute to full volume via front panel control

Connections

Headphone Outputs:	1 x 6.35mm (¼") stereo jack socket 1 x unbalanced stereo 3.5mm jack socket
Audio Inputs:	1 x stereo balanced, 2 x female 3 pin XLRs 3 x unbalanced stereo 3.5mm jack sockets
Audio Outputs:	3 x male balanced 3 pin XLRs
GPIO:	15-way 'D'-type socket
Network:	2 x gigabit Ethernet, RJ45, 10/100/1000BASE-T IEEE 802.3 compliant, automatic MDI/MDIX crossover. 1 x SFP Type SGMII, 1000BASE-X & 100BASE-FX media support for both copper and fibre SFP modules
Mains AC Input:	Universal filtered IEC, continuously rated 85-264VAC, 47-63Hz, Max 60W
DC Input:	Nominal 12VDC, KPJX-45 4 pin 7.5A power jack socket, positive pins 1 and 3, range 10.3V-13.2V DC, 3A minimum
Fuse Rating:	Anti-surge fuse 2A 20mm x 5mm, type T 2A L

Equipment Type

AVN-PXH12:	12 x 2 channel mix monitor, AoIP portal

Physical Specification

Dimensions (Raw):	48.3cm (W) x 17.5cm (D) x 4.4cm (H) (1U) 19" (W) x 6.9" (D) x 1.8" (H) (1U)
Dimensions (Boxed):	59cm (W) x 28cm (D) x 11cm (H) 23" (W) x 11" (D) x 4.3" (H)

Weight:

Nett: 2.4kg	Gross: 3.1kg
Nett: 5.3lbs	Gross: 6.8lbs

Accessories

AVN-DC060: Additional Information	60W DC power supply with KPJX-4S plug12.

6. Additional Information

DSCP Name	DS Field Value	IP Precedence (Description)
CS0		0: Best Effort
CS1, AF11-AF13	8, 10, 12, 14	1: Priority
CS2, AF21-AF23	16, 18, 20, 22	2: Immediate
CS3, AF31-AF33	24, 26, 28, 30	3: Flash (mainly used for voice signalling)
CS4, AF41-AF43	32, 34, 36, 38	4: Flash Override
CS5, EF PHB	40, 46	5: Critical (mainly used for RTP)
VOICE ADMIT	44	5: Critical (uses Call Admission Control)
CS6	48	6: Internetwork Control
CS7	56	7: Network Control

Table 12-1: DSCP Names & Their Corresponding IP Precedence

Table 12-1 shows the corresponding IP precedence for the DSCP names used in the PTP Profiles and AoIP Stream Settings. For more information on the types of DSCP name, see the following documents;

- CS: Class Selector (RFC 2474)
- AFxy: Assured Forwarding (x= class, y = Drop Precedence) (RFC 2597)
- EF: Expedited Forwarding (RFC 3246)

SONIFEX