



HANDBOOK

AVN-PXH12

12 x 2 Channel Mix Monitor, AoIP Portal



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This handbook is for use with the following product:
AVN-PXH12 12 x 2 Channel Mix Monitor, AoIP Portal
AW10850A, Stock Code: 30-363

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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: <http://www.sonifex.co.uk>

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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

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Sonifex Limited • 61 Station Road • Irthlingborough • Northamptonshire • NN9 5QE • United Kingdom
Tel: +44 (0)1933 650 700 • Fax: +44 (0)1933 650 726 • Email: technical.support@sonifex.co.uk • Internet: www.sonifex.co.uk

Product Warranty - 2 Year Extended

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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 (1/4") 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

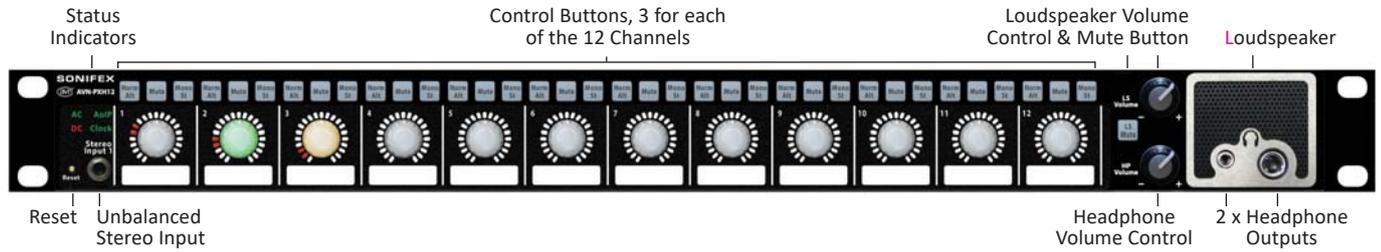


Fig 2-1: AVN-PXH12 Front Panel

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 $\pm 1\mu\text{s}$ or the unit is a PTP master.
- Amber The unit is the PTP slave with a clock offset of between $\pm 1\mu\text{s}$ and $\pm 10\mu\text{s}$.
- 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 $\pm 10\mu\text{s}$.
- Flash Red The unit is a PTP slave and no master is available.

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 by 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 left input as a mono signal is sent to both left and right outputs.
- Green The right input as a mono signal is sent to both left and right outputs.

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

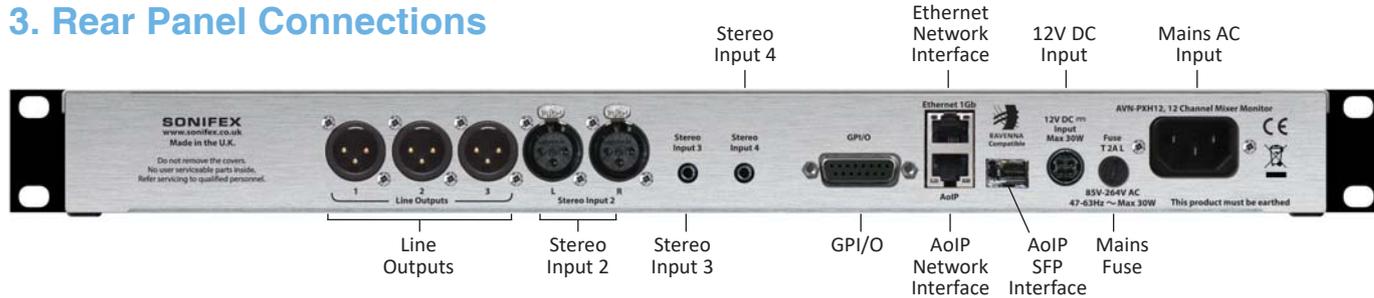
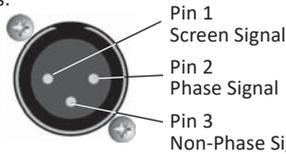


Fig 3-1 AVN-PXH12 Rear Panel

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

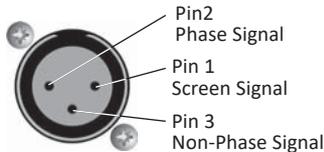


Each output can be assigned to be from a physical input, an AES67 stream, the mix left output, the mix right output or a mono mix of the stereo output.

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



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

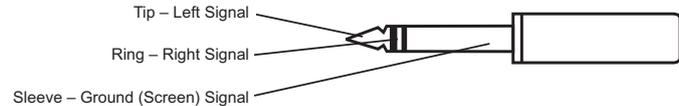


Fig 3-2: 3.5mm & 6.35mm (¼ inch) 'A' Gauge Stereo Jack Plug

GPIO (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 KPIX 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
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
 - > Configuration
 - > Network
 - > PTP Profiles
 - > AoIP Streams
 - > Source Selection
 - > 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.



Fig 4-1: Information Web Page

Configuration Tab

The pages under the Configuration tab are split into groups and all of the unit's configuration settings can be edited here. Each page has a SUBMIT button that sends the changes to the connected unit. The SUBMIT button remains disabled until changes have been made on the page. Once the SUBMIT button has been pressed, a busy indicator will be shown and the page will be temporarily disabled until the changes have been written.

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

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 intercom name can only contain letters, numbers and hyphens although it cannot start or end with a hyphen.

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.

Information - Configuration - System

Device Name	Help: Device Name
Friendly Name: <input style="width: 90%;" type="text" value="MyMixMonitor"/>	Friendly Name: Identifies the unit in both network discovery and AoIP stream selection.
Ethernet Network Port Settings	Help: Network Port Settings
Address Mode: <input type="radio"/> Dynamic <input checked="" type="radio"/> Static	Address Modes Dynamic address mode allows the unit to acquire an IP address automatically from either a DHCP server or via Auto Configuration if no DHCP server is found. Enable static address mode to use the IP address and subnet mask entered on this page.
Static IP Address: <input style="width: 90%;" type="text" value="192.168.0.100"/>	
Static Subnet Mask: <input style="width: 90%;" type="text" value="255.255.255.0"/>	
Static Gateway: <input style="width: 90%;" type="text" value="0.0.0.0"/>	
Audio over IP Network Port Settings	IP Address Enter the static IP address that you wish to assign to the port. This will be used when static address mode is enabled. The default settings are: 192.168.0.100 for the Ethernet Port. 192.168.1.100 for the AoIP Port.
Address Mode: <input type="radio"/> Dynamic <input checked="" type="radio"/> Static	Subnet Mask Enter the subnet mask of the network you wish to connect to. This will be used when static address mode is enabled. The default settings are: 255.255.255.0 for both ports.
Static IP Address: <input style="width: 90%;" type="text" value="10.0.60.10"/>	Gateway Enter the IP address of your router. This will be used when static address mode is enabled. The default settings are: 0.0.0.0 for both ports.
Static Subnet Mask: <input style="width: 90%;" type="text" value="255.0.0.0"/>	Auto Multicast: <input checked="" type="checkbox"/>
Static Gateway: <input style="width: 90%;" type="text" value="0.0.0.0"/>	Changing the network port settings will require the unit to be restarted. If the settings of the network port this browser is connected to are 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.
<input type="button" value="SUBMIT"/>	Press submit to save the changes to the device.

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 xxxxxx 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

AoIP Stream Setup & Assignment

AoIP Output Stream Setup Web Page

The AoIP Output Streams web page allows you to specify the type and multicast IP address of the stream outputs generated by the mix monitor. There are just 2 streams:

1. Contains 8 channels and consists of the 4 physical stereo inputs.
2. A 2 channel stream of the mixed outputs selected, and not muted, by the device.

Each multicast address should be unique throughout the AVN system.

Source Selection Web Page

This page allows you to select the source for all 24 inputs (12 x Main and 12 x Alternate) available on the unit. To change a source, use the Source Select dropdown to select the channel to be altered and then press the EDIT button for the 'Main' or 'Alternate' source. A dialog will appear allowing you to choose between:

Unconnected: The input service is not used.

Local Physical Input: This then shows a drop-down of available physical inputs.

AoIP stream: This then shows a drop-down of available AoIP streams names and associated channel numbers to select from.

Fig 4-2: AoIP Output Streams

Fig 4-3: All Source Selection Dialog

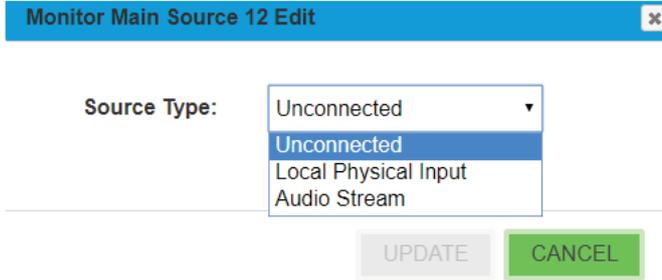


Fig 4-4: Source Type Selection Dialog

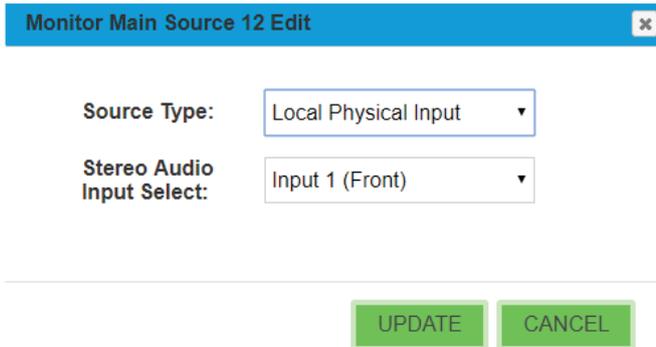


Fig 4-5: Physical Input Source Selection Dialog

The following dialog shows the three selections available when pressing the EDIT button.

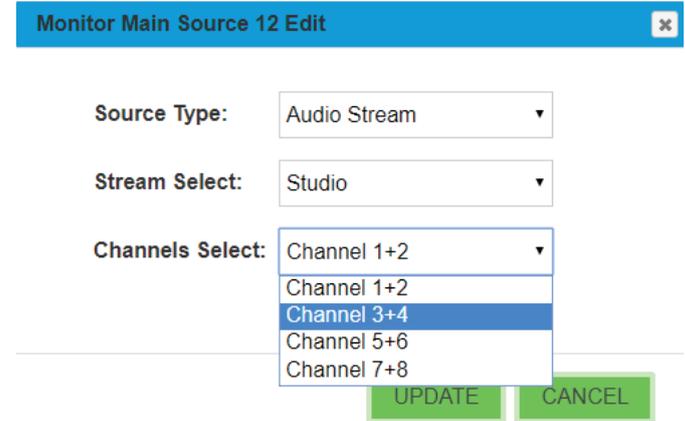


Fig 4-6: AoIP Source Selection Dialog

Misc Settings Web Page

Front Panel Settings

LED Brightness

The Misc Settings web page allows you to set the brightness of the front panel LEDs (from 0 - 255) and whether the volume knob shows the input level.

Audio Settings

Audio Input/Output Lineup

The XLR inputs have a variable line up which sets the analogue audio level that corresponds to full scale digits in digital levels.

Similarly the XLR outputs have a variable line up which sets the analogue audio level that corresponds to full scale digits in digital levels.

Headphone Audio Attenuation

The Misc Settings web page allows you to set the audio attenuation from 0-24dB to be applied individually to the 2 types of jack socket (6.35mm and 3.5mm) on the front panel.

The screenshot displays the 'Misc Settings Web Page' interface, divided into two main sections: 'Front Panel Settings' and 'Audio Settings'. Each section includes a 'Help' sidebar on the right.

Front Panel Settings:

- Brightness:** A numeric input field set to 128, with red minus and green plus buttons.
- Audio Level Indication:** A checked checkbox with a blue checkmark icon.

Audio Settings:

- Audio Input Line Up:** A dropdown menu showing '+18dBu = 0dBFS'.
- Audio Output Line Up:** A dropdown menu showing '+18dBu = 0dBFS'.
- 6.35mm Att. (dB):** A numeric input field set to 6, with red minus and green plus buttons.
- 3.5mm Att. (dB):** A numeric input field set to 6, with red minus and green plus buttons.
- SUBMIT:** A grey button at the bottom of the form.

Help: Front Panel Settings:

- Brightness:** Sets the LED brightness.
- Audio Level Indication:** Enables audio level indication in the front panel encoders.

Help: Audio Settings:

- Audio Input Line Up:** The XLR inputs have a variable line up which sets the analogue audio level that corresponds to full scale digits in digital levels.
- Audio Output Line Up:** The XLR outputs (if fitted) have a variable line up which sets the analogue audio level that corresponds to full scale digits in digital levels.
- 6.35mm Att. (dB):** Sets the attenuation of the 6.35mm jack on the front of the unit. Value is an integer between 0 and 24 dB.
- 3.5mm Att. (dB):** Sets the attenuation of the 3.5mm jack on the front of the unit. Value is an integer between 0 and 24 dB.

Press submit to save the changes to the device.

Fig 4-7: Misc Settings Web Page

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.

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 an .swu suffix. The upgrade will take around a minute to complete. If the upgrade fails, then there is a fallback 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

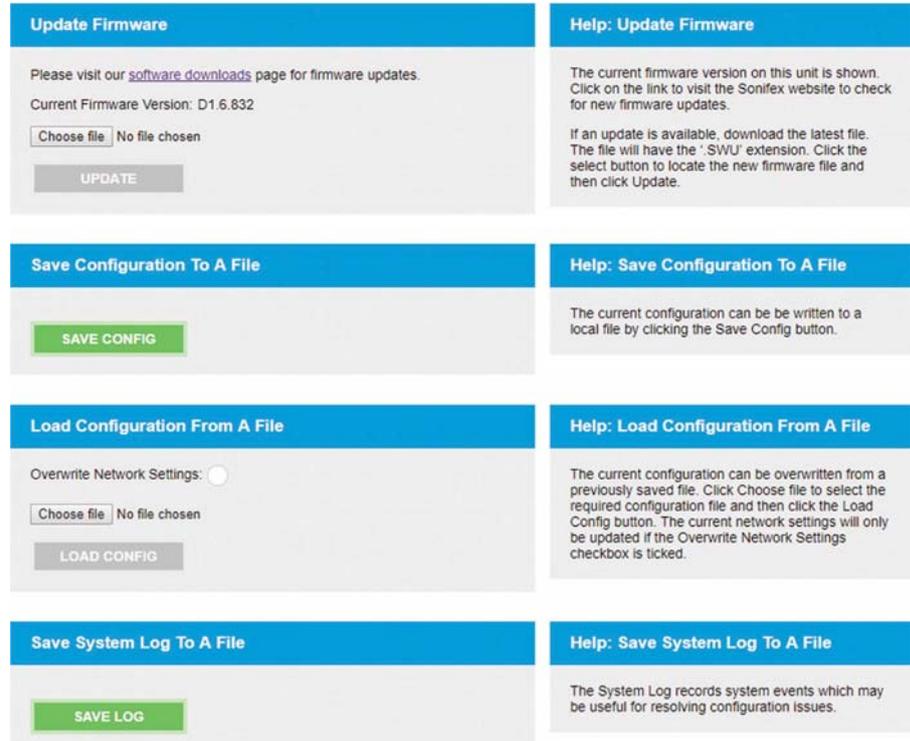


Fig 4-8: System Web Page

holding down the LS Mute button for around 2½ seconds during a power or reset cycle of the unit.

Save Configuration to a File

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

Load Configuration From a File

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 from the config file.

5. Technical Specifications

Audio-Over-IP Specification

Open Standards:	RAVENNA, AES67
Device Discovery:	Bonjour (mDNS / DNS-SD)
Audio Delivery:	RTP/UDP over IPv4 multicast
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 & Custom profiles
Timing Protocol:	PTPv2, IEEE1588-2008

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

Input Impedance:	>20kΩ balanced
0dBFS Line-Up:	+15/+18/+20/+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
Input Impedance:	>20kΩ balanced
0dBFS Line-Up:	+15/+18/+20/+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:	+15/+18/+20/+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

*+18dB, +22dB & +24dB are handled in hardware, +15dB and +20dB in DSP

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
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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
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Fuse Rating:	Anti-surge fuse 2A 20mm x 5mm, type T 2A L
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Equipment Type

AVN-PXH12:	12 x 2 channel mix monitor, AoIP portal
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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-DC60:	60W DC power supply with KPJX-45 plug
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SONIFEX

www.sonifex.co.uk

t:+44 (0)1933 650 700

f:+44 (0)1933 650 726

sales@sonifex.co.uk