



# **unAX210+**

## **4x2 Mic/Line AES67 Networked Audio Wall Plate**

### **User Manual**





### IMPORTANT SAFETY INSTRUCTIONS

The symbols below are internationally accepted symbols that warn of potential hazards with electrical products.



This symbol, wherever it appears, alerts you to the presence of un-insulated dangerous voltage inside the enclosure -- voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and third grounding prong. The wider blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by Attero Tech
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.
13. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
16. If rack mounting, provide adequate ventilation. Equipment may be located above or below this apparatus but some equipment (like large power amplifiers) may cause an unacceptable amount of hum or may generate too much heat and degrade the performance of this apparatus,



TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

### LIMITED FIVE YEAR WARRANTY

The equipment is warranted for five years from date of purchase from Attero Tech, LLC against defects in materials or workmanship. This warranty does not cover equipment which has been abused or damaged by careless handling or shipping. This warranty does not apply to used or demonstrator equipment. Should any defect develop, Attero Tech, LLC will, at our option, repair or replace any defective parts without charge for either parts or labor. If Attero Tech, LLC cannot correct the defect in the equipment, it will be replaced at no charge with a similar new item. Attero Tech, LLC will pay for the cost of returning your equipment to you. This warranty applies only to items returned to Attero Tech, LLC, shipping costs prepaid, within five years from the date of purchase. This Limited Warranty is governed by the laws of the State of Indiana. It states the entire liability of Attero Tech, LLC and the entire remedy of the purchaser for any breach of warranty as outlined above. NEITHER ATTERO TECH, LLC NOR ANYONE INVOLVED IN THE PRODUCTION OR DELIVERY OF THE EQUIPMENT SHALL BE LIABLE FOR ANY INDIRECT, SPECIAL, PUNITIVE, CONSEQUENTIAL, OR INCIDENTAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THIS EQUIPMENT EVEN IF ATTERO TECH, LLC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL THE LIABILITY OF ATTERO TECH, LLC EXCEED THE PURCHASE PRICE OF ANY DEFECTIVE EQUIPMENT.

This warranty gives you specific legal rights. You may have additional legal rights which vary from state to state.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and EN55032. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.





## 1 – Overview

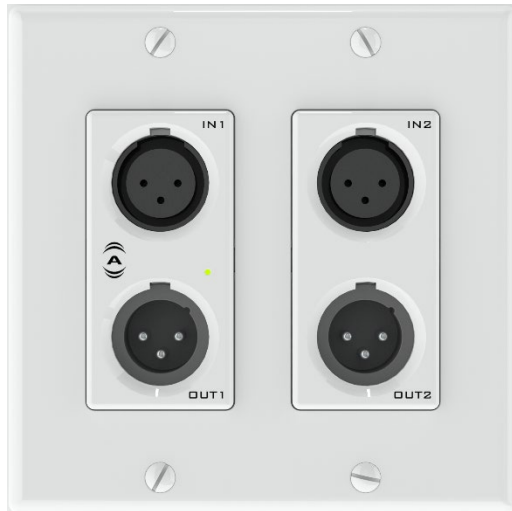


Figure 1 - unAX2IO+ Front Panel

The unAX2IO+ AES67 audio interface is a cost effective XLR-IO wall plate solution. The unAX2IO+ features two balanced mic/line XLR inputs, two balanced XLR line outputs, and a further two balanced line inputs on de-pluggable connectors on the side of the unit. All inputs and outputs can be used simultaneously and all audio channels are available separately on the audio network. There is also a built in tone generator that can be used for diagnostics.

The unAX2IO+ is designed to fit into all dual gang US junction boxes, mud rings, and old work brackets. The unAX2IO+ is PoE enabled, so all connectivity (power, control and data) is provided by a single CAT-5/6 cable. The unAX2IO+'s size and I/O density make it easy to put AES67 connectivity wherever it's needed.

Atterotech unIFY Control Panel application can be used to configure the device-specific features. It is also used to configure its AES67 transmit and receive streams as well.

The unAX2IO+ also supports control by third party systems allowing external configuration of its settings such as phantom power and input gain in real time. Further information on 3<sup>rd</sup> party control can be found later in this document in section 3.

### 1.1 – What's in the Box

The unAX2IO+ comes supplied with the following

- unAX2IO+ device
- Mounting kit
- Decora plate
- 6-position depluggable terminal block

### 1.2 – Optional Extras

The following are available as options for the unAX2IO+ and that may be ordered separately:

- unXP2I - Passive Dual XLR-F single gang Decora wall plate - P/N: 900-00204 -xx  
(Available in white (-01) or black (-02). Supplied with appropriately colored 3-gang Decora cover plate).



## 2 – Device Installation



ID	Description
1	Power/ ID LED
2	2 x Mic/Lin Balanced audio inputs on XLR
3	2 x Balanced Line Audio outputs on XLR
4	2 x Balanced Line inputs on De-pluggable terminal block
5	AES67 / Control / PoE Port

**\*Note:** The unAX210+ has a label on the front of the metal housing at the top that shows the devices MAC address. This is important for initial device identification as these digits make up part of the devices default network name. The MAC address is also given on the back of the unit.

### 2.1 – Mounting

A typical installation will involve mounting the wall plate into a pre mounted wall box or mounting bracket. Before installation, make sure the wall box where the unAX210+ is to be installed is pre-wired with a suitable cable back to a PoE-enabled network switch or mid-span injector. If a mid-span injector is being used, the cable should be connected to the port that supplies both Ethernet and power (refer to the devices manual if unsure which port is which).

Attach the network cable from the switch/mid-span injector to the Ethernet port of the unAX210+. If the switch or mid-span injector is already running and PoE is enabled, the unit should power up and the green ID LED on the front of the device should turn on.

With the cable attached, carefully place the unAX210+ into the wall box taking care to not trap the cabling. Once full in place, secure it with the screws provided. Once the unit is secured in the wall box, fit the Decora plate and secure it with the screws provided with it.

**\*Note:** All Atterotech products are tested using UTP cabling and it is recommended that UTP cabling be used when installing them. STP cabling can be used for installation though care must be taken not introduce grounding issues into the system by doing so.

The figure below shows the installation of the companion passive XLR audio input plate and the unAX210+.

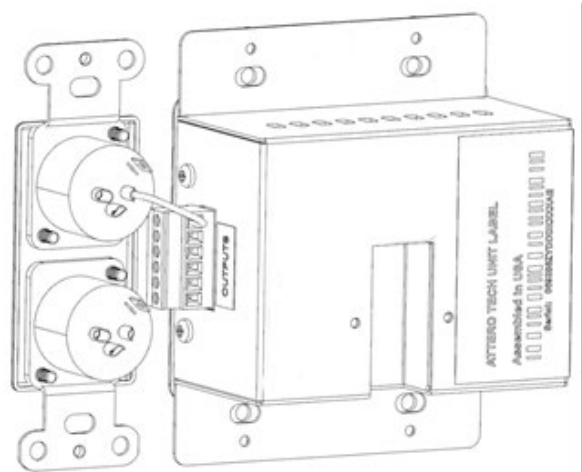
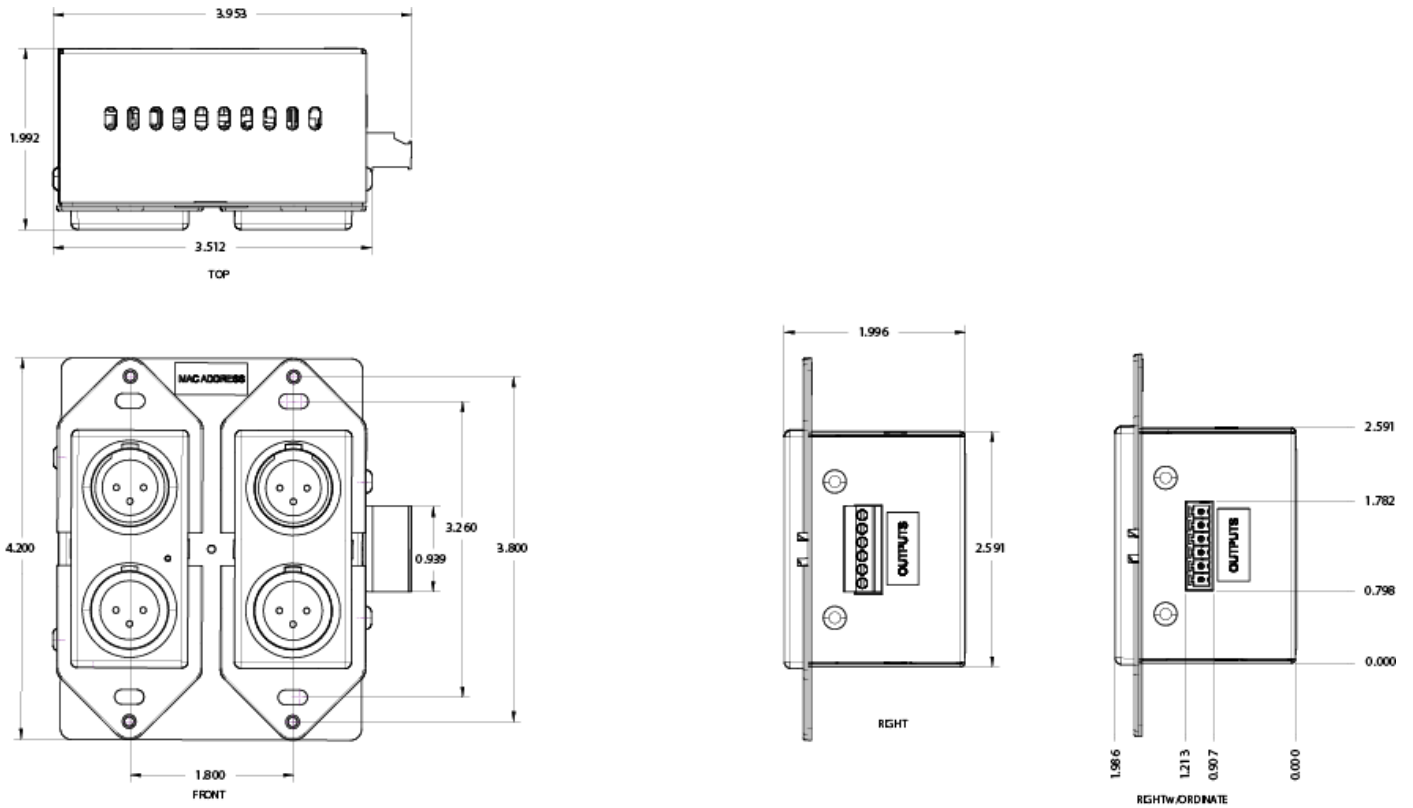


Figure 2 – unAX210+ Installed with unXP21 (Rear View)



*\*Note: 2D and 3D CAD models can be downloaded from the Attero Tech customer portal. Please contact Attero Tech for any further product related information that is not accessible on the website.*



### 2.2 – Hardware Connections

The unAX210+ provides balanced audio outputs to external analog audio equipment. Refer to the following diagrams and instructions for connecting different types of audio devices to the outputs of the unAX210+. Professional grade audio cabling is recommended to achieve the best audio performance throughout the system

#### 2.2.1 – In-wall Terminal Block Pinout

The following table shows the pin out of the terminal block connections, pins are numbered left to right when looking at the side of the unit with the front face up.

ID	Description
1	Analog Line Input 4 +
2	Analog Line Input 4 -
3	Ground
4	Analog Line Input 3+
5	Analog Line Input 3 -
6	Ground

#### 2.2.2 – Balanced Output to a Balanced Input

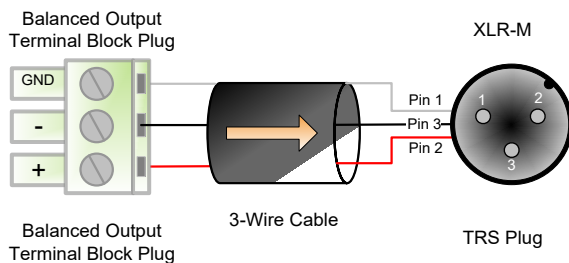


Figure 4 – Balanced Wiring Guide

#### 2.2.3 – Unbalanced Output to an Balanced Input

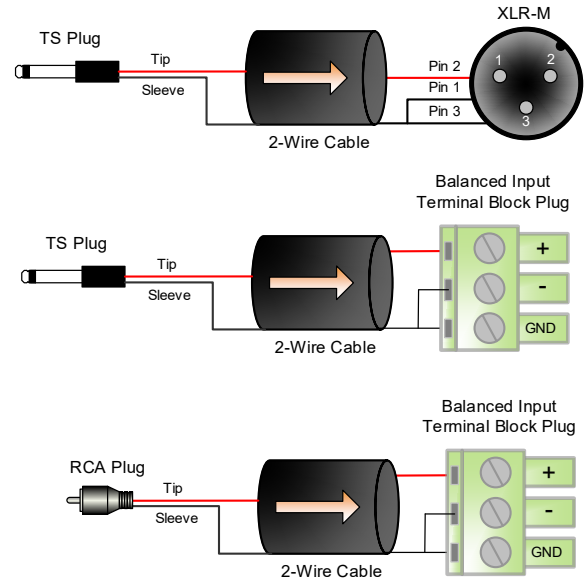


Figure 5 – Unbalanced Wiring Guide

### 2.3 – Error Reporting

The unAX210+ is equipped with error reporting features. Upon power up, the front panel power LED will briefly light red and then change to green if the device boots successfully. For those devices, set with a dynamic IP address but without a DHCP server, this process can take 20 seconds or more.

If the LED remains on solid red, this indicates a device failure. If power cycling the unit does not correct this problem, contact Atterotech technical support.



### 3 – Device Configuration

There are two parts of the device that require software to setup. First the audio routing, and second the configurable features of the device itself.

Configuration of the unAX210+ specific features is carried out using the Atterotech unIFY Control Panel application. This application is available from the Atterotech customer portal at <https://portal.atterotech.com/home/>. It should be used to examine and modify the device specific features such as mic/line gain settings, and phantom power. See the unIFY Control Panel manual for details on adjusting these settings.

The audio routing is also done using Atterotech's unIFY Control Panel. There is a tab on the devices configuration for each unit specifically for setting up receive and transmit streams.

**\*Note:** When using unIFY Control Panel, the unAX210+ will be shown using a default device name of unAX210-##### where '#####' is the last six characters of the devices MAC address.

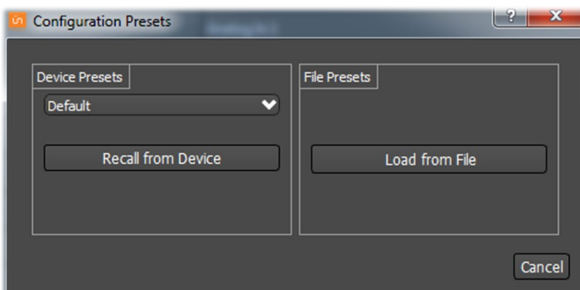
**\*Note:** The unAX210+ settings are volatile and parameter changes will be lost if the unit is reset or power cycled. However, unIFY Control Panel can be used to save presets and change the power-on defaults to prevent loss of settings. This is a manual process and is not automatic. See the unIFY Control Panel manual for steps to save.

#### 3.1.1 – Preset Configuration

Most devices feature preset capabilities for recalling a previously saved set of settings either from a file on the PC or from non-volatile memory on the target device. When a device is selected for configuration, if the device supports presets, a "Save Presets" button and "Load Presets" button will be added to the toolbar.

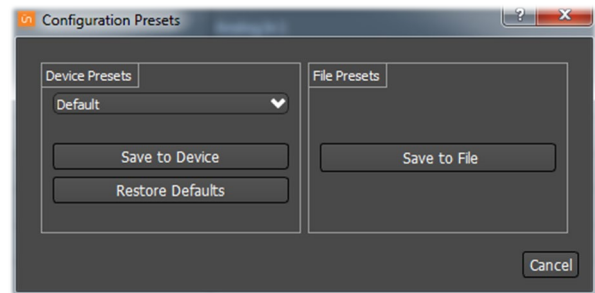


##### 3.1.1.1 – Save Presets



When the "Save Presets" button is pressed, the "Configuration Presets" dialog will open in save mode.

**\*Note:** If the parameter lock is active, the device preset side will be greyed out as the parameter lock prevents any change to device settings. This lock must be removed before a preset can be saved to the device. This may require the Dante lock be removed first, if that is also active.



##### 3.1.1.2 – Save: Device Presets

Current settings can be saved to a preset in non-volatile memory on the selected device. Use the dropdown list to select which preset the current settings will be stored to, then click the "Save to Device" button. On all Atterotech devices, preset 0 is used to store the power-on defaults.

The power-on defaults can be reset back to factory settings with the "Restore Defaults" button.

**\*WARNING: Use this with care!**

##### 3.1.1.3 – Save: File Presets

Current settings can also be stored off to a file. The file created can be used to apply the same settings to multiple devices (see Multiple Device Preset Load feature in the unIFY Control Panel manual). It can also be stored off as a back-and recalled later if needed.

##### 3.1.1.4 – Load Presets

When the "Load Presets" button is pressed, the "Configuration Presets" dialog will open in "Load" mode.

**\*Note:** If the parameter lock is active, loading a preset will not be possible as configuration changes are blocked. A warning will instead pop up warning the user that the parameter lock is active. This lock must be removed before a preset can be loaded. This may require the Dante lock be removed first, if that is also active.

##### 3.1.1.5 – Recall – Device Presets

Update the current settings from a previously stored preset in non-volatile memory on the device. Use the dropdown list to select the desired preset, then click the "Recall from Device" button.

##### 3.1.1.6 – Recall – File Presets

Use the "Load from File" button to update the current device settings from a file which was previously saved using the "Save Preset to File" feature.

### 3.2– AES67 Audio Network Note

For successful deployment of Atterotech's AES67 enabled products, it is necessary to insure the AES67 audio network is properly configured. A Quick Start Guide for AES67 Audio Networking is available from the Atterotech Customer Portal at <https://portal.atterotech.com/home/?v=files/560321a2b075c>. As setup needs may vary by product, it may also be necessary to check with the AES67-enabled product manufacturer as well.





### 3.3 – IP Address Setup

\*\*\*\*\*IMPORTANT\*\*\*\*\*

Failure to correctly configure IP addresses will not allow an unAX210+ device to correctly authenticate in the unIFY Control Panel software, the devices parameters will not be available, the input and output channels also won't be visible and routing of audio to and from the device will not be possible.

In order to configure a unAX210+, both to set up internal parameters and also setup audio routing, the PC will need to be able to communicate with the devices over the network. While all AES67 devices will be discovered regardless of the IP address setup on the PC, communication can only occur if the PC and the device have compatible IP addresses.

By default, the unAX210+ is set to get a dynamic IP address. Like almost all network devices, if the unAX210+ does not find a DHCP server to retrieve an IP address from, it will give itself a local link address sometimes also known as an automatic private IP address (APIPA) instead. A local link IP address is always in the range 169.254.x.y.

To ensure communication, the PC can either be set to get a dynamic IP address, or be given a static IP address in the range 169.254.x.y. The PC may require a restart if its IP address is changed for the change to take effect.

In some applications, IP addresses of devices may need to be set to something specific and that can be done once initial communication has been established. Bear in mind however that if a static IP address is assigned to a device and that static IP address is in a different range to the IP it was previously using to communicate with the PC, the PC will lose communication with the device until such time as the PC IP address is also changed to an IP in range of the devices new IP address.

### 3.4- Factory Reset

\*\*\*\*\*IMPORTANT\*\*\*\*\*

The factory reset returns the entire device to its factory defaults. Using this feature will mean all custom AES67 settings and all audio power-on default settings will be cleared.

*\*NOTE: The factory reset is a useful way of quickly restoring communications with a device which has an unknown static IP address as a factory reset returns the device's network settings to getting a dynamic IP. Having successfully completed a factory reset of the device, setting the PC's IP address to also obtain a dynamic IP address should then allow the PC to communicate fully with that device.*

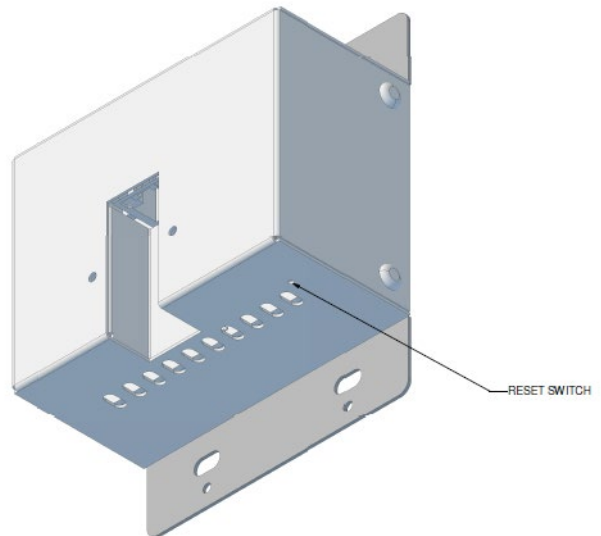


Figure 6 – Factory reset location

Access to the factory reset button is through a small circular hole on the underside of the unit, next to the ventilation cutouts.

To use the factory reset, insert a small screwdriver or paperclip into the hole to activate the factory reset switch. There should be a noticeable “click” when it's activated. Hold the switch in for 5 to 10 seconds then release. If the factory reset was successful, the unit will reset which is indicated by the power LED will turning red.

### 3.5 – Firmware Updates

All units should leave the factory with the latest firmware available at the time of shipping. However, the unAX210+ has the ability to be updated in the field should it be required. Updates are applied via the network using Atterotech unIFY Control Panel's smart firmware update facility. The latest unAX210+ SFU file is available from the Atterotech customer portal.

### 3.6- 3<sup>rd</sup> Party Control

The unAX210+ supports 3<sup>rd</sup> party control allowing external system to manage the unAX210+'s settings such as phantom power, mic/line gain options and control of presets. The interface which is available to anyone to use with any device capable of sending and receiving UDP messages.

Information on the commands the unAX210+ supports as well as details of how to use the 3<sup>rd</sup> party UDP interface can be found in the unIFY 3<sup>rd</sup> party Software API document, available from the Atterotech customer portal.

### 3.7 – Using the Command interface

In order to make use of the control interface the unAX210+ and the controlling device need to be on the same physical subnet and need to have IP addresses in the same range. The control devices should then be able to converse with the unAX210+ without any further configuration necessary.





### – ARCHITECTS & ENGINEERS SPECIFICATION

The AES67 Break Out Interface shall have two balanced mic/line analog XLR inputs, two side mounted balanced line 3-pin depluggable inputs, and two balanced line analog XLR outputs. Each analog input shall be included in an AES67 multicast audio transmit stream, and each analog output shall be capable of being driven from a channel within an AES67 multicast audio stream.

Each XLR input channel shall have +48V phantom power, selectable via software on a per channel basis. They also have four gain levels: -15dB (pad active), 0dB, +25dB and +40dB, selectable via software on a per channel basis. Each side-mounted balanced line input shall have software selectable input sensitivity for pro (+4dBu) or consumer (-10dBV) nominal signal levels.

Each output channel shall have adjustable volume between 0dB and -60dB in 1dB increments plus a mute, selectable via software on a per channel basis.

All parameter changes will be non-volatile and self-restoring in the event of PoE power interruption.

The unit shall accept IEEE 802.3af standard PoE as power input. The unit shall be compliant with FCC 47CFR Parts 15B and 18 (Class B), EN 61000, ICES-003, CE (EN55032 Class A and EN55034 Class B) and RoHS requirements.

The unit shall be the Atterotech unAX210+ I/O Interface.

### 3.8 – Device Specifications

Analog Audio Inputs	
Input Type	Balanced and RF filtered 3-pin XLR-F (Front)
Input Impedance	>1.8 kΩ @ any input gain
Maximum Input Levels	+20 dBu, -15 dB Pad Active +5 dBu, 0dB Pad Inactive -22 dBu, +25 dB Gain -38 dBu, +40 dB Gain
THD+N	< 0.05 % @ any input gain (20 -22 kHz)
EIN	-115 dB (20 -22 kHz)
Dynamic Range	> 95 dB (20 -22 kHz)
Frequency Response	20-20kHz, +/- 0.5dB
Analog Audio Output	
Output Type	Balanced output on 3-pin Terminal Block (Side)
Maximum output level	+20 dBu , with SW volume control
THD+N	< 0.05 % (20 -22 kHz)
AES67 Network	
Physical Layer	Ethernet
Connector (s)	RJ-45
Cable Quality	CAT-5e or better, UTP
Transmission Speed	100 Mbps
Supported Sample Rates	48kHz
Minimum Audio Latency	1ms
AES67 Support	AES67, SAP based stream discovery

Power Specifications	
PoE Power	802.3af Class 0
Power Consumption	< 5W Max
Physical Dimensions	
Width	3.54"
Height	4.2"
Depth	2"
Weight	0.6 lbs.
Regulatory Compliance	
Certifications	FCC CFR 47 Parts 15B Class B ICES-003 CE (EN55032 / EN55034) RoHS REACH
Environmental Operating Specifications	
Operating Temperature	0 to 40°C



### Document Information

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### Revision History

Revision	Date	Author	Description of change
00_a	08/10/17	CNL	Initial Draft
00_b	8/14/17	JDA	Updated header/footer template. Condensed layout. Added reset switch rendering.
00_c	8/28/17	JDA	Updated old image content
00_d	8/30/17	JDA	Updated compliance standards in spec table
00_e	9/1/17	CNL	Changes after final review
01	9/1/17	CNL	Initial Release
02	9/19/17	JDA	Added side input pinout and removed Mac references.
02_a	9/25/17	CNL	Removed references to MAC
02_b	11/28/17	CNL	Correct heading numbering for side pinout section
02_c	03/15/18	SGG	Warranty Updated
02_d	03/21/18	SGG	Bug #5165 - AES67 quick start guide reference in config section Bug #5130 - Reference volatile memory - save presets/boot config steps