unAX4I (discontinued)

4x2 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 A digital device, pursuant to Part 15 of the FCC Rules and EN55022. 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.
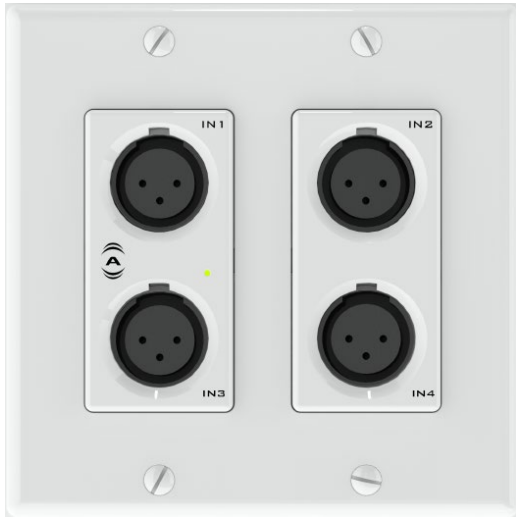
CE

1 – Overview

Figure 1 - unAX4I Front Panel

The unAX4I AES67 audio interface is a cost effective XLR IO wall plate solution. The unAX4I features four balanced mic/line XLR inputs and two balanced line outputs do 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. The unAX4I is designed to fit into all dual gang US junction boxes, mud rings, and old work brackets. The unAX4I is PoE enabled, so all connectivity (power, control and data) is provided by a single CAT-5/6 cable. The unAX4I's size and I/O density make it easy to put AES67 connectivity whenever it's needed.

Attero Tech 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 unAX4I 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 3rd party control can be found later in this document in section 3.

1.1 – What's in the Box

The unAX4I comes supplied with the following
- o unAX4I device
- o Mounting kit
- o Decora plate
- o 6-position depluggable terminal block

1.2 – Optional Extras

The following are available as options for the unAX4I and that may be ordered separately:

- o unXP2O - Passive Dual XLR-M single gang Decora wall plate - P/N: 900-00187 –xx

  (*Available in white (-01) or black (-02). Supplied with appropriately colored 3-gang Decora cover plate*).

2 – Device Installation
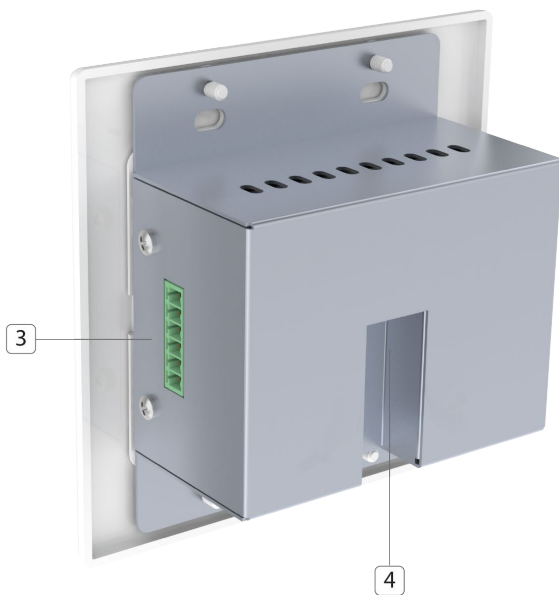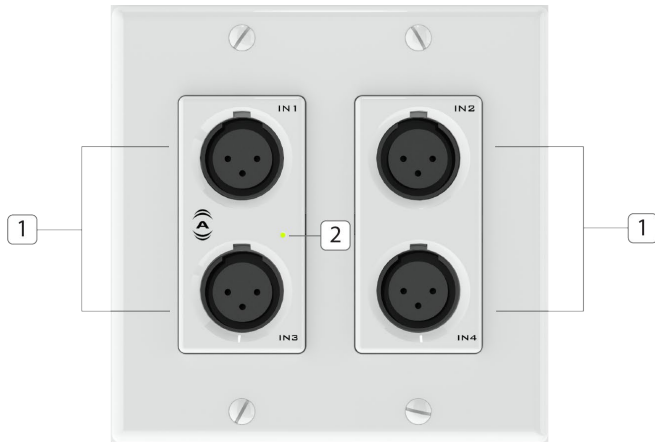
#	Feature
1	4 x Mic/Lin Balanced audio inputs on XLR
2	Power / Status / ID LED
3	2 x Balanced Line outputs on De-pluggable terminal block
4	AES67 / Control / PoE Port

Note: The unAX4I 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 unAX4I 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 unAX4I. 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 unAX4I 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.

The figure below shows the installation of the companion passive unXP2O XLR audio output plate and the unAX4I.
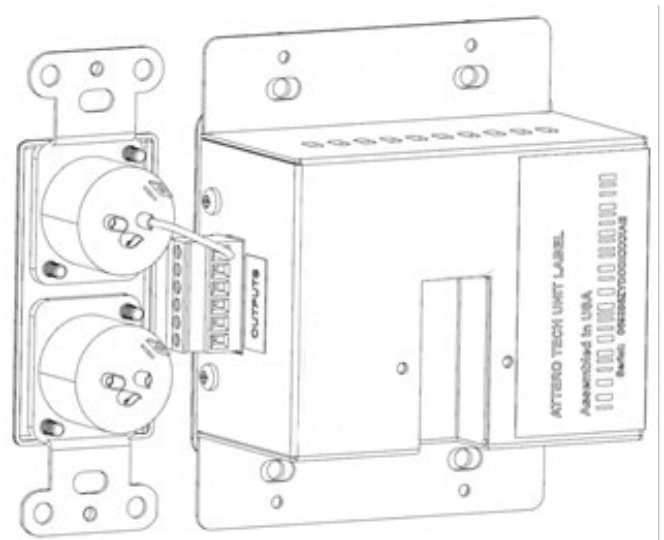
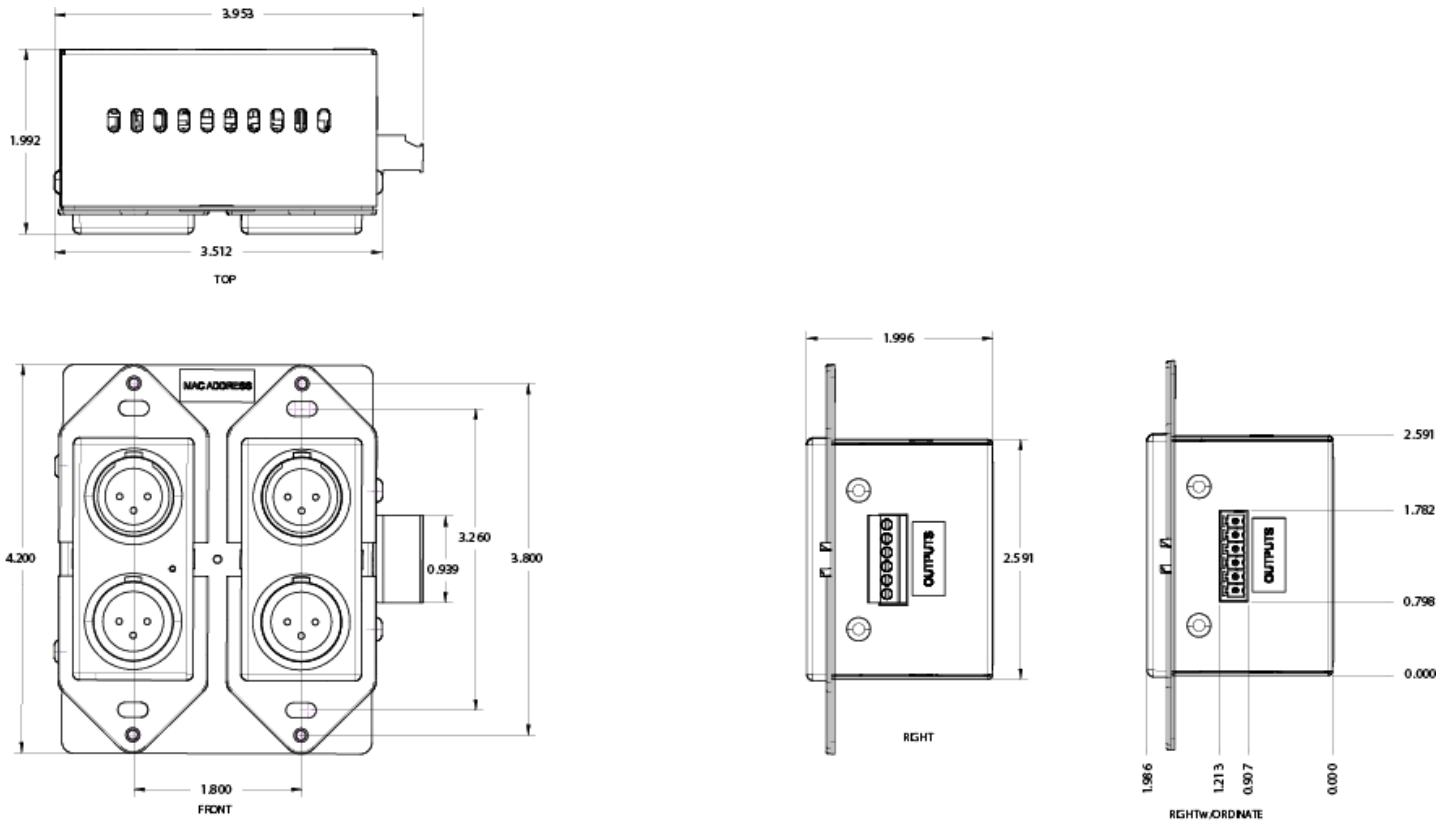**Figure 2 – unAX4I Installed with unXP2O (Rear View)**

Figure 3 - Dimensioned Drawing

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 – Error Reporting

The unAX4I 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. If the LED remains on solid red, this indicates a device failure. If power cycling the unit does not correct this problem, contact Attero Tech technical support.

2.3 – Hardware Connections

The unAX4I provides balanced inputs and outputs to external analog audio equipment. Refer to the following diagrams for connecting different types of audio devices to the inputs and outputs of the unAX4I. Professional grade audio cabling is recommended to achieve the best audio performance throughout the system.
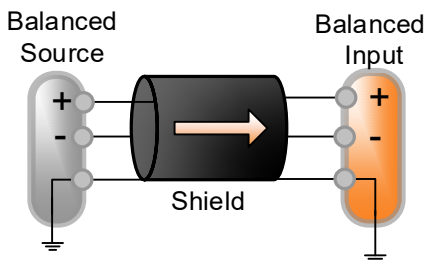
Figure 4 - Balanced Source Connection
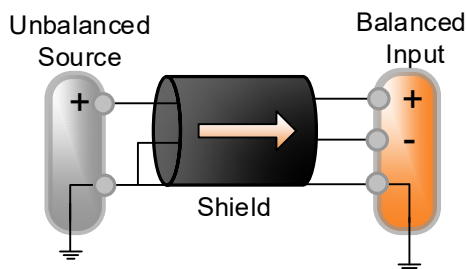
Figure 5 - 3-Wire Unbalanced Source Connection
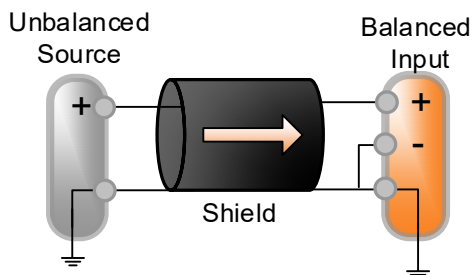
Figure 6 - 2-Wire Unbalanced Source Connection
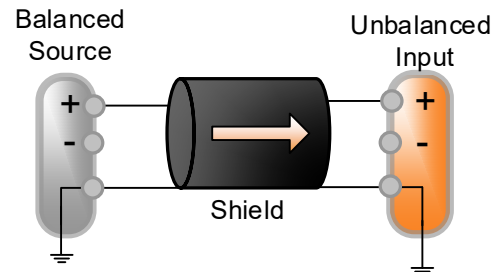
Figure 7 - Balanced Source to Unbalanced Input
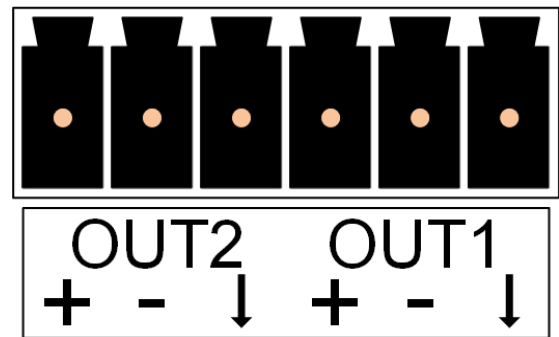
Figure 8 – De-pluggable Terminal Block Wiring

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 unAX4I specific features is carried out using the Attero Tech unIFY Control Panel application. This application is available from the Attero Tech 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 Attero Tech'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 unAX4I will be shown using a default device name of unAX4I-###### where '######' is the last six characters of the devices MAC address.

Note: The unAX4I 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
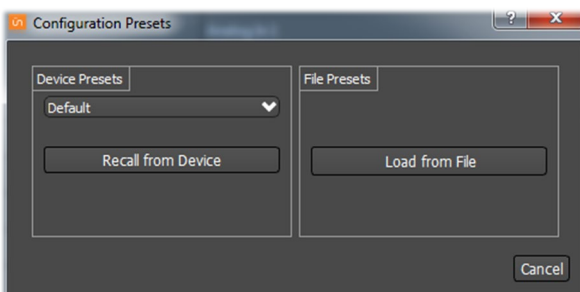
When the "Save Presets" button is pressed, the "Configuration Presets" dialog will open in save mode.

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.
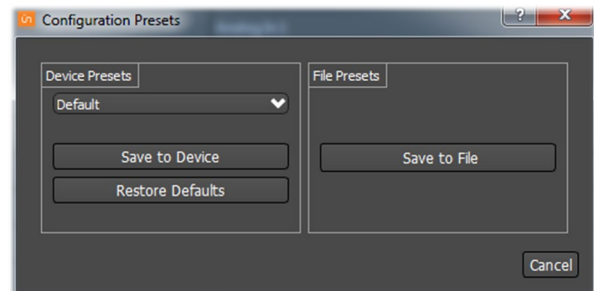
3.1.1.2 – Save: Device Presets

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 Attero Tech 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 Attero Tech'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 Attero Tech 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.

4 –ARCHITECTS & ENGINEERS SPECIFICATION

The AES67 Break Out Interface shall have four balanced mic/line analog XLR inputs and two side mounted balanced line 3-pin depluggable outputs. Each analog input shall be capable of being 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.

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 A), EN 55011, ICES-003, CE (EN55022 Class A and EN55024 Class A) and RoHS requirements.

The unit shall be the Attero Tech unAX4I I/O Interface.

4.1– Device Specifications

Analog Audio Inputs	
Input Type	4 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 Outputs	
Output Type	2 Balanced and RF filtered 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	< 6W Max

Physical Dimensions	
Width	3.54"
Height	4.2"
Depth	2"
Weight	0.6 lbs.

Regulatory Compliance	
Certifications	FCC CFR 47 Parts 15B Class A, EN55011 ICES-003 CE (EN55022 / EN55024) RoHS REACH

Environmental Operating Specifications	
Operating Temperature	0 to 40˚ C

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Revision History

Revision	Date	Author	Description of change
00_a	08/28/17	AJB	Initial Draft
00_b	09/27/17	CNL	Updates and changes after review
00_c	11/13/17	CNL	Minor changes and corrections after change by Alex
00_d	11/14/17	CNL	Updated hardware wiring diagrams
01	11/14/17	CNL	Release Version
01_a	03/15/18	SGG	Warranty Updated
01_b	03/21/18	SGG	Bug #5166 - AES67 quick start guide reference in config section
01_c	03/22/18	SGG	Bug #4493 – added graphic w/ side phoenix plug wiring Bug #5132 - Reference volatile memory – save presets/boot config steps