



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.





1 – Overview

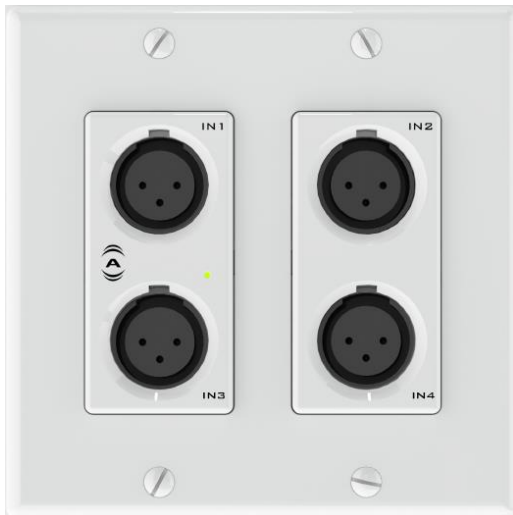


Figure 1 - unAX4I Front Panel

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.

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 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

- unAX4I device
- Mounting kit
- Decora plate
- 6-position depluggable terminal block

1.2 – Optional Extras

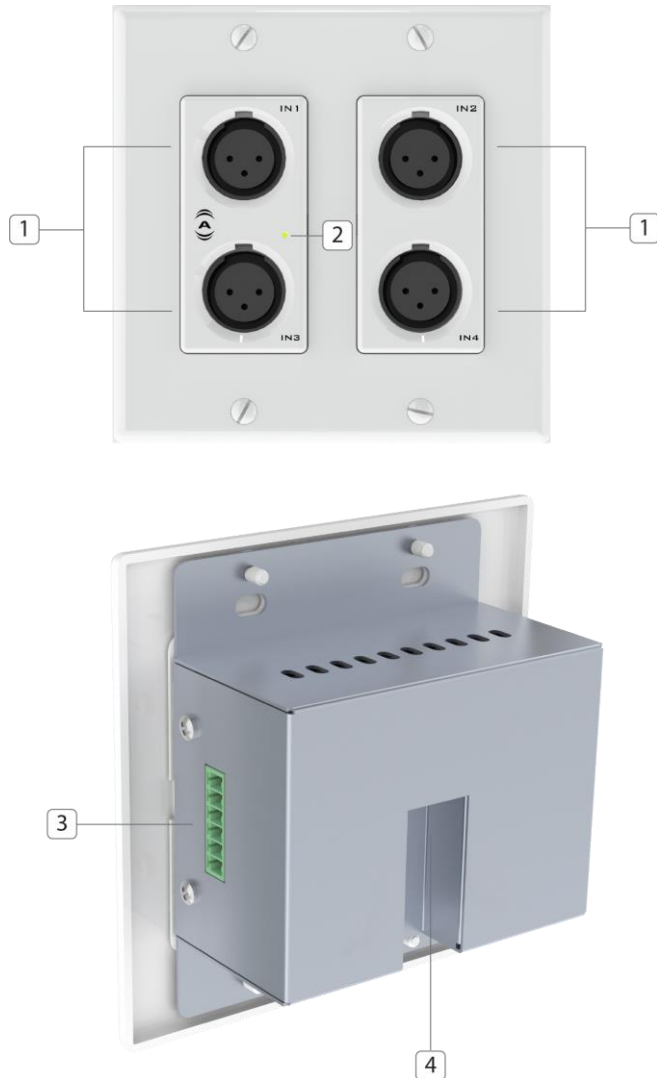
The following are available as options for the unAX4I and that may be ordered separately:

- 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



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.

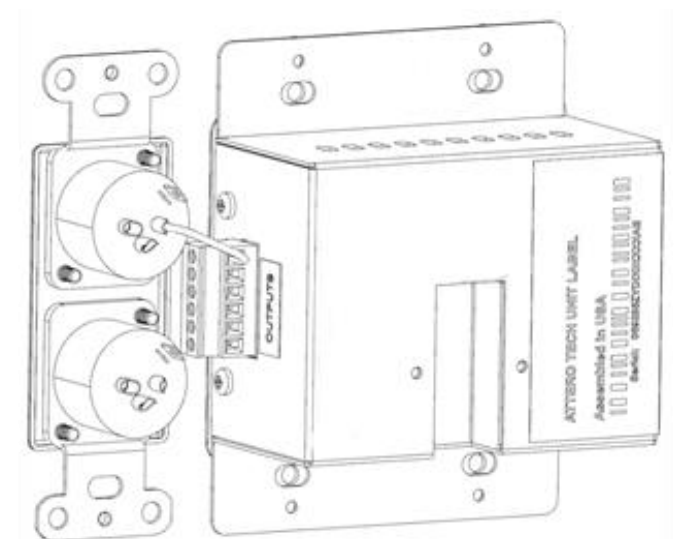


Figure 2 – unAX4I Installed with unXP2O (Rear View)

#	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.

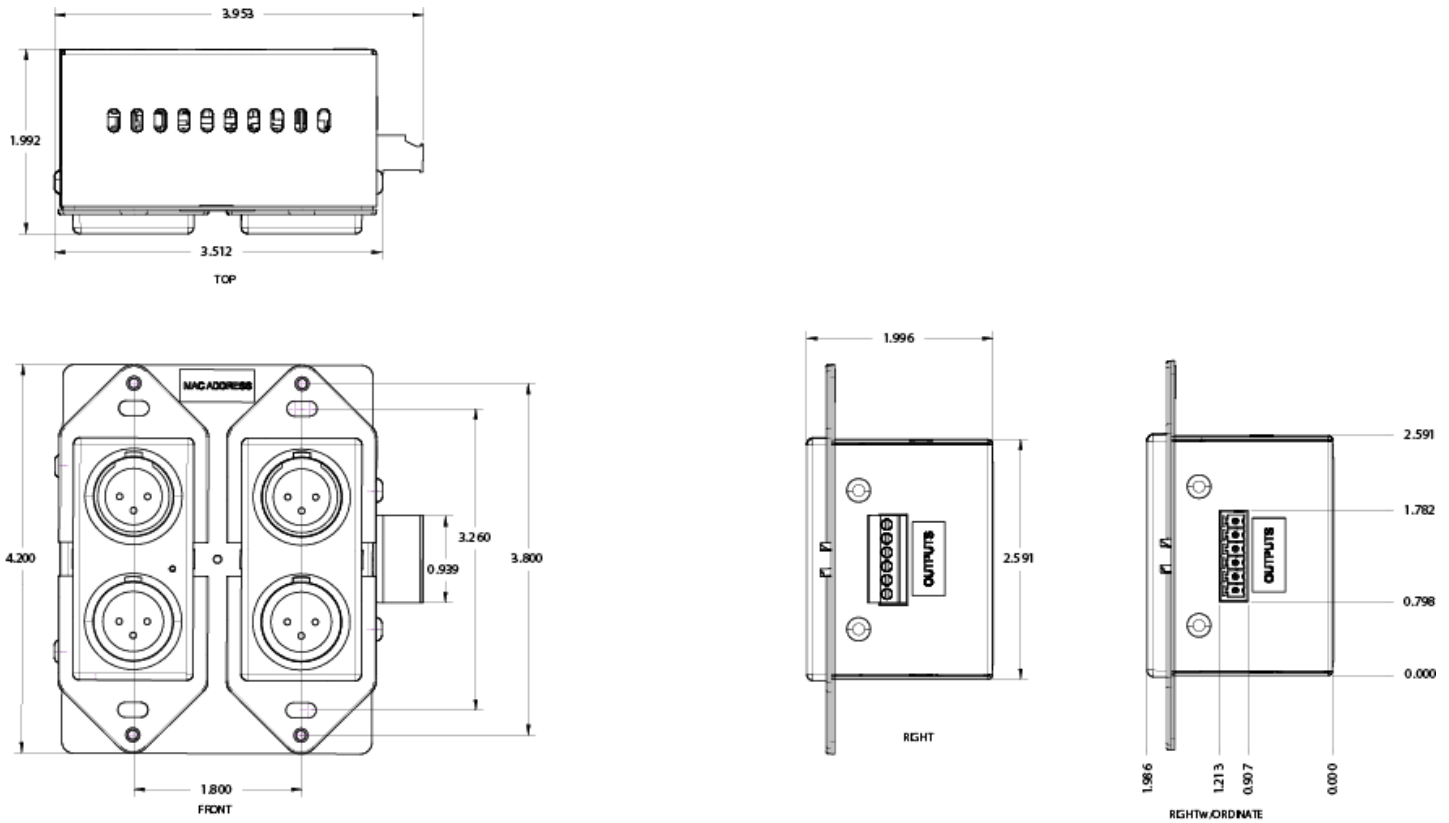


Figure 3 - Dimensioned Drawing

***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 Atterotech 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.

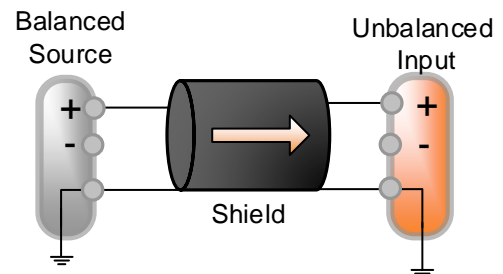


Figure 7 - Balanced Source to Unbalanced Input

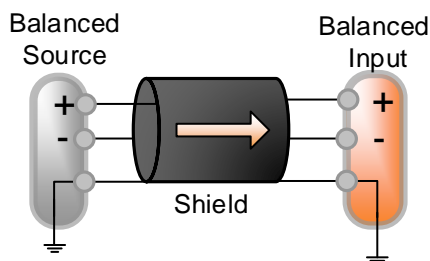


Figure 4 - Balanced Source Connection

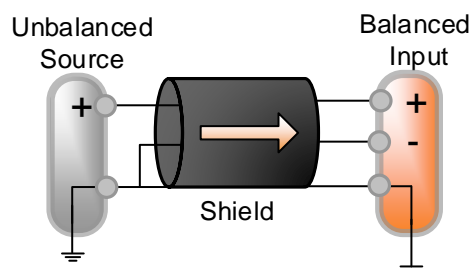


Figure 5 - 3-Wire Unbalanced Source Connection

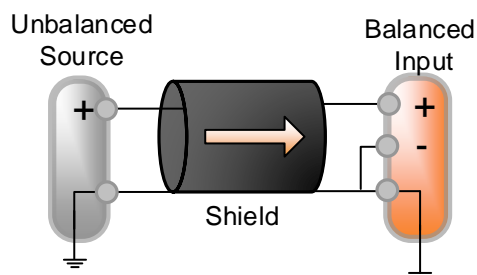


Figure 6 - 2-Wire Unbalanced Source Connection



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 Atterotech unIFY Control Panel application. This application is available from the Atterotech website (www.atterotech.com). It should be used to examine and modify the device specific features such as mic/line gain settings, and phantom power.

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 unAX4I will be shown using a default device name of unAX4I-##### where '#####' is the last six characters of the devices MAC address.

3.1 – IP Address Setup

*******IMPORTANT*******

Failure to correctly configure IP addresses will not allow a unAX4I 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 unAX4I, both to set up internal parameters and also setup audio routing, the PC/Mac 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 or Mac, communication can only occur if the PC/Mac and the device have compatible IP addresses.

By default, the unAX4I is set to get a dynamic IP address. Like almost all network devices, if the unAX4I does not find a DHCP server to retrieve an IP address from, it will give itself an 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/Mac 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.

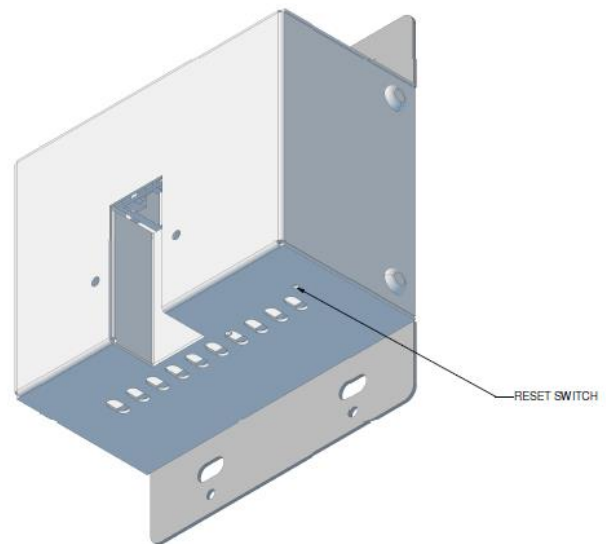
In some applications, IP addresses of devices may need to be set to something specific and that can be done once initial communication has been established. Bear in mind however that if a static IP address is assigned to a device and that static IP address is in a different range to the IP it was previously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

3.2 – 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.



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 and is indicated by the power LED will turning red.

3.3 – Firmware Updates

The unAX4I has the ability to be updated in the field. Updates are applied via the network using Atterotech unIFY Control Panel's Smart Firmware update facility. The latest unAX4I SFU file is available from the Atterotech customer portal.



3.4 – 3rd Party Control

The unAX4I supports 3rd party control allowing external system to manage the unAX4I'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 unAX4I supports as well as details of how to use the 3rd party UDP interface can be found in the unIFY 3rd party Software API document, available from the registered users section of the Attero Tech website (Go to www.atterotech.com and click on the log-in option).

3.5 – Using the Command interface

In order to make use of the control interface the unAX4I 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 unAX4I without any further configuration necessary.



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 Atterotech 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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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
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01_a	03/15/18	SGG	Warranty Updated