



unA6IO-BT (discontinued)

4x2 Multi-I/O AES67
Networked Audio Wall Plate with Bluetooth

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 - unA6IO-BT Front Panel

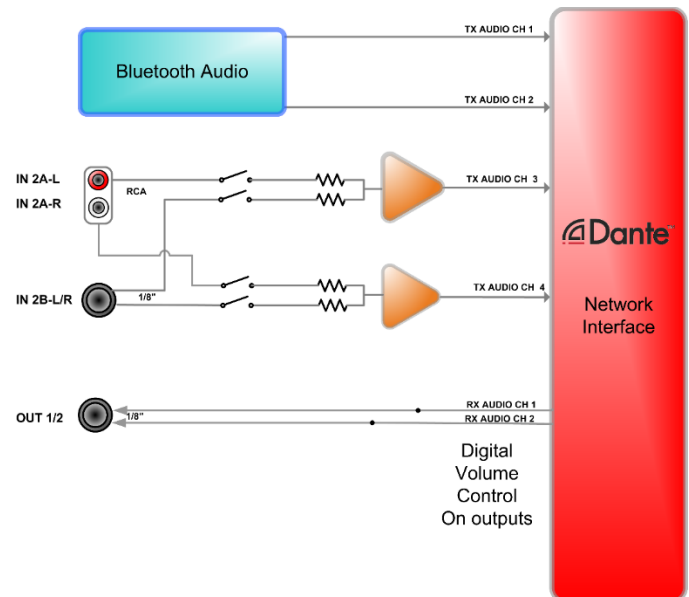


Figure 2 - unA6IO-BT Signal Flow

The unA6IO-BT Audio interface is a 4x2 multi-I/O AES67 wall plate with Bluetooth designed for in-wall installation into 2-gang US junction boxes. Its form-factor and I/O density make it easy to put AES67 connectivity close to audio sources used in professional AV installations – thereby eliminating costly and interference prone analog wiring, power supplies and giving a clean, finished look to an AV installation all while providing networked audio system flexibility with AES67-compliant audio networking.

As well as a stereo Bluetooth input, the unA6IO-BT also features two sets of stereo line-level audio connections for consumer audio device connectivity. The RCA inputs (IN 3/4 A) and 3.5mm stereo input (IN 3/4B) are software selectable to be used as two independent stereo inputs, or summed as shown in the following signal flow diagram. There is also 3.5mm output jack that can be used to output unbalanced stereo audio.

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 stream configuration.

The unA6IO-BT 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 4.

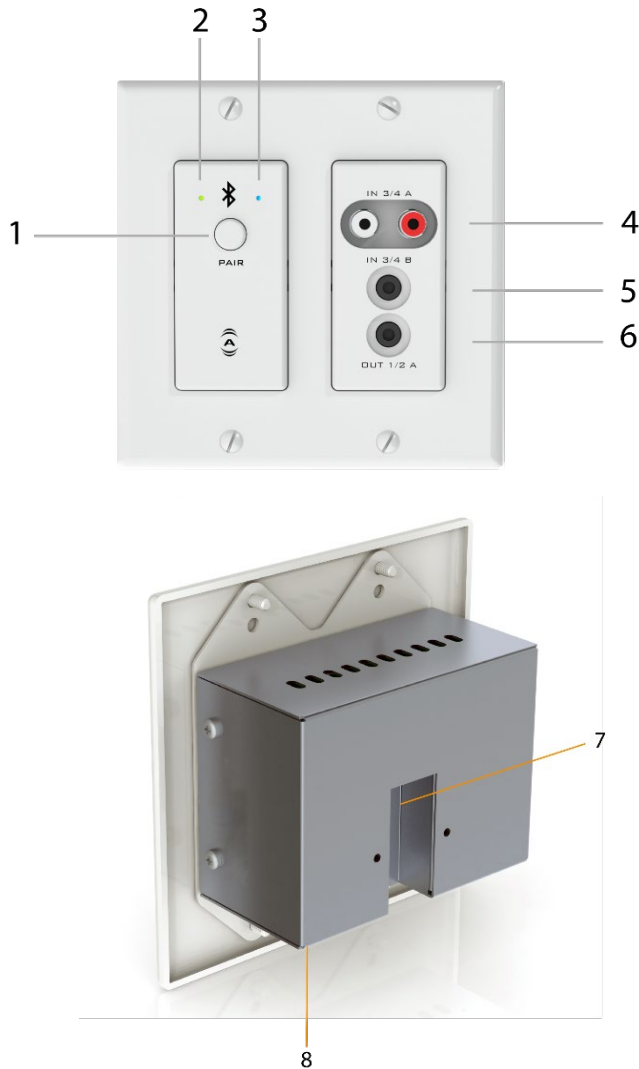
1.1 – What’s in the Box

The unA6IO-BT comes supplied with the following

- unA6IO-BT device
- Mounting kit
- Decora plate



2 - Device Installation



part of the devices default network name. The MAC address is also given on the back of the unit.

2.1 - Mounting

For typical installations the wall plate is mounted into a pre-mounted wall box or mounting bracket. Before installation, make sure the wall box is pre-wired with a suitable Ethernet 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).

***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.

Attach the network cable from the switch/mid-span injector to the Ethernet port of the unA610-BT. If the switch or mid-span injector is already running and PoE is enabled, the unit should power up. The power LED should turn on red then eventually turn green (this may take several seconds). If the LED remains red, this indicates a device failure and if power cycling does not correct this problem, contact Atterotech technical support.

With the Ethernet cable attached, carefully place the unA610-BT into the wall box taking care to not trap the cabling. Once fully 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.

2.2- Hardware Connections

The unA610-BT provides unbalanced audio inputs and outputs for consumer style devices such as smart phones, MP3 players and laptops. In most cases these sources already utilize unbalanced audio connections. However, if the source you are using utilizes balanced outputs, the following diagram shows the audio wiring for appropriately interfacing a mono source to the unbalanced inputs of the unA610-BT.

Device Features	
1	Bluetooth Pairing/Connect Button
2	Power/ ID LED
3	Bluetooth connection status LED
4	2 x Unbalanced Line Audio inputs (3.5mm TRS)
5	2 x Unbalanced Line Audio Outputs (3.5mm TRS)
6	2 x Mic/Lin Balanced audio inputs (XLR-F)
7	AES67 / Control / PoE Port
8	Factory Reset Switch

***Note:** The unA610-BT 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

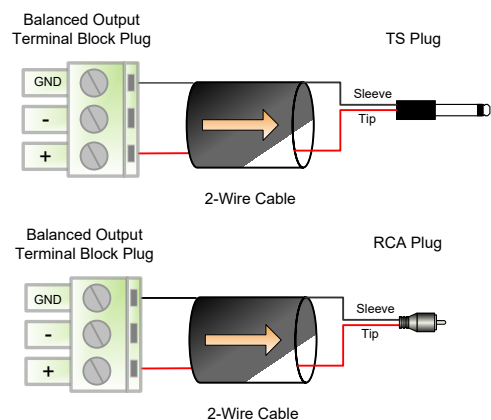


Figure 3 - Unbalanced Wiring Guide

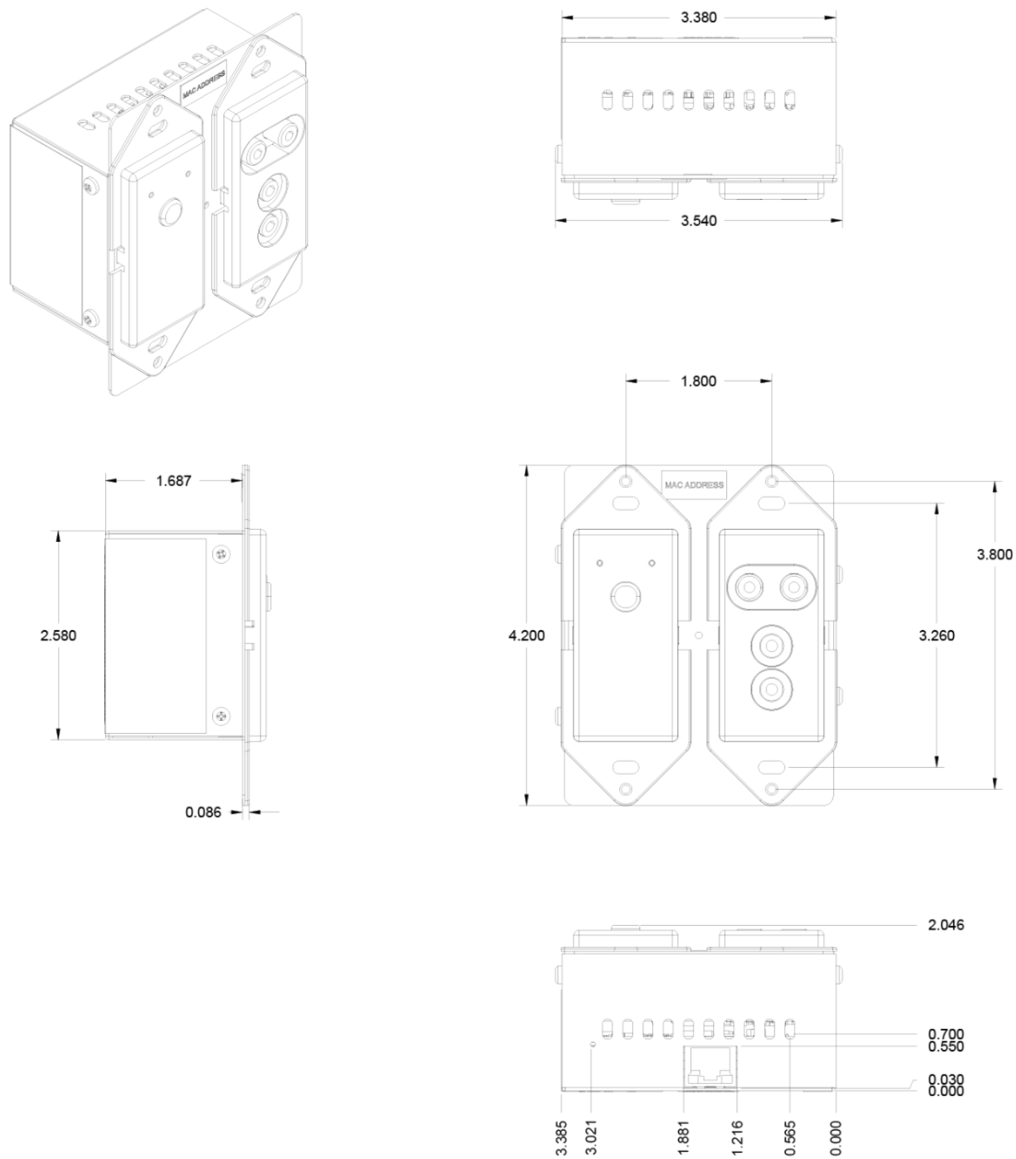


Figure 4 - unA6IO-BT Dimensioned Drawings

**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.*



3 – Bluetooth® Operation

The unA610-BT is designed for two primary usage modes to facilitate a number of professional AV applications.

**Note: Once paired/connected, the Bluetooth® friendly name is visible to other devices. However, while another device may be able to pair and save to its Bluetooth® device list when in this state, breaking the connection of the currently active device will not be possible.*

Stand-alone mode:

This usage model is intended for applications where casual users of a public venue (sports bar, spa, stadium luxury box, fitness center) have access to connect their devices to the audio system but headaches are minimized by eliminating automatic reconnect and pairing history features.

In this mode, users connect their Bluetooth® audio enabled smart device by simply pressing the front panel "PAIR" button. The blue Bluetooth® status LED will begin flashing to indicate that the unA610-BT is now visible to other Bluetooth® devices and accepting pairings. This pairing period lasts 30 seconds after which the status LED will stop flashing and turn off and the unA610-BT will disable its Bluetooth® interface.

**Note: The default friendly name visible to other devices is the same as the network device name "unA610-BT-xxxx". This name can be customized by the installer using the unIFY Control Panel software (v3.0 or greater). Once this field is customized, the friendly name will not track changes to the Dante name.*

If a successful pairing is made during the pairing period, the status LED will stop flashing and turn constantly on.

To disconnect a Bluetooth device from the unA610-BT, press and hold the PAIR button for 5 seconds and then release it. The status LED will turn off, and the connection will be reset. Another device may now be connected by repeating the pairing process.

3rd Party Mode:

In this usage model, the unA610-BT is integrated into a large AV system that includes a 3rd party control system. Using the network and the 3rd party programming API, integrators can customize the usage of the unA610-BT. The control system can be used to configure the following functions:

- Limit errant connections by disabling the front panel pairing button
- Implement user privileges by only initiating the pairing/connect process remotely through the control system user interface.
- Report current unA610-BT Bluetooth® interface status to the control system.

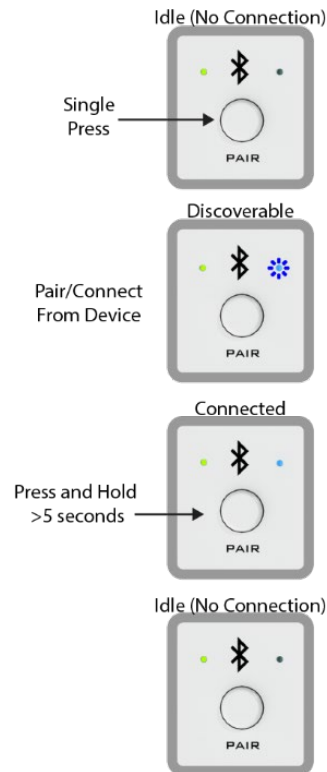


Figure 4 – Stand-alone Mode



4 – 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 unA610-BT 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. 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 unA610-BT will be shown using a default device name of unA610-##### where '#####' is the last six characters of the devices MAC address.

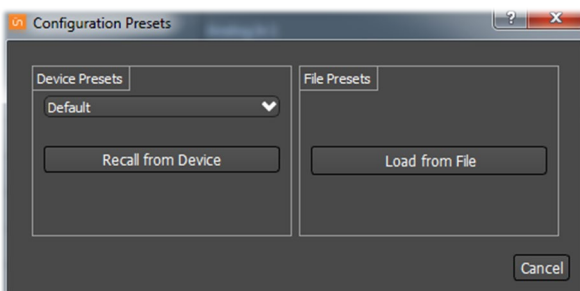
***Note:** The unA610-BT settings are volatile and parameter changes will be lost if the unit is reset or power cycled. However, unIFY Control Panel can be used to save presets and change the power-on defaults to prevent loss of settings. This is a manual process and is not automatic. See the unIFY Control Panel manual for steps to save.

4.1.1 – 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.

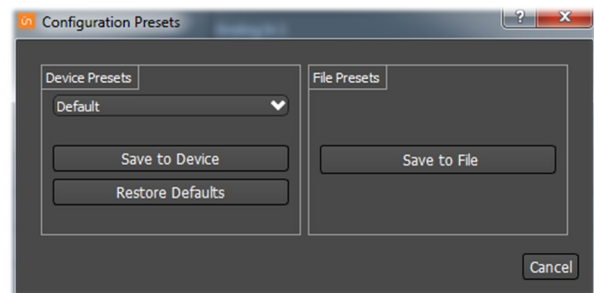


4.1.1.1 – Save Presets



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.



4.1.1.2 – 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!**

4.1.1.3 – 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.

4.1.1.4 – 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.

4.1.1.5 – 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.

4.1.1.6 – 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.

4.2– 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.



4.3 – IP Address Setup

***** IMPORTANT *****

Failure to correctly configure IP addresses will not allow an unA610-BT 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 unA610-BT 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 unA610-BT is set to get a dynamic IP address. Like almost all network devices, if the unA610-BT 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 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.

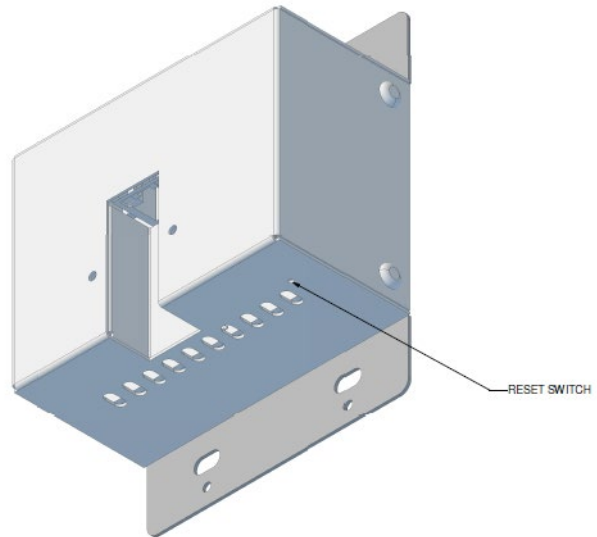
In some applications, IP addresses of devices may need to be set to something specific and that can be done once initial communication has been established. Bear in mind however that if a static IP address is assigned to a device and that static IP address is in a different range to the IP it was previously 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.

4.4– 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.*



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.

4.5 – Firmware Updates

The unA610-BT 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 unA610-BT SFU file is available from the Atterotech customer portal.

4.6– 3rd Party Control

The unA610-BT supports 3rd party control allowing external system to manage the unA610-BT'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.

In order to make use of the control interface the unA610-BT 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 unA610-BT without any further configuration necessary.

Information on the commands the unA610-BT 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 Atterotech website (Go to www.atterotech.com and click on the log-in option).



5 – ARCHITECTS & ENGINEERS SPECIFICATION

The AES67 2-gang wall plate interface unit shall provide two front panel mounted mic/line analog inputs on XLR. Selectable gains of -18dB, -3dB, +25dB, and +40dB and a +48V phantom power option shall be provided via software for each balanced mic/line input. These mic/line inputs are digitized and introduced to the audio network as transmit channels 1 and 2.

The device shall also provide two sets of unbalanced line level input connections: one on a set of RCA connectors, the other using a stereo 3.5mm TRS connection. These inputs are selectable for independent or summed operation via software and introduced to the AES67 interface on transmit channels 3 and 4. The internal analog to digital signal conversion shall be performed at 24-bit resolution with a sampling frequency of 48 kHz.

The AES67 interface unit shall provide two balanced analog inputs on the side of the in-wall enclosure via a 6-pin depluggable

Phoenix-style connector for analog conversion of up to 2 AES67 digital audio network channels. Additionally, the two received AES67 output channels shall also be converted and output on a front panel mounted 3.5mm stereo TRS connector. The internal digital to analog signal conversion shall be performed at 24-bit resolution with a sampling frequency of 48 kHz.

The AES67 interface unit shall receive power over the Ethernet cable from an IEEE 802.3af PoE compliant network switch or midspan injector.

The AES67 interface shall be compliant with the RoHS, WEEE and REACH directives. The AES67 interface unit shall be Compliant with the EMI/EMC requirements for FCC and CE.

The unit shall be the Atterotech unA610-BT I/O Interface.

5.1 – Device Specification

Analog Audio Inputs	
Input Type	Stereo Bluetooth® v3.0 audio receiver (A2DP Profile only) Stereo Unbalanced Inputs on RCA (Inputs 3/4 A) Stereo Unbalanced Inputs on 3.5mm TRS (Inputs 3/4 B)
Bluetooth Range	10m (30ft) minimum
Input Switching	Software selectable line level input source on In 3 and In 4 <ul style="list-style-type: none"> RCA L/R 3.5mm L/R RCA + 3.5mm L (3) And RCA + 3.5mm R (4)
Input Impedance	>10k Ohms (Inputs 3/4 A & B)
Maximum Input Levels	+12 dBu (Inputs 3/4 A & B)
THD+N	< 0.1% Bluetooth® Input @ -3dBFS <0.01% Line Inputs ¾ @ -3dBFS
Dynamic Range	>95 dB (Inputs 3/4 A & B)
Frequency Response	20Hz – 20kHz, +/- 3dB (Bluetooth® Input) 20Hz – 20kHz, +/- 1dB (Inputs 3/4 A & B)

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	1 ms
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	AB	Initial Draft
00_b	10/17/17	CNL	Review and revisions
00_c	10/18/17	AB	Updated unA610-BT graphics on pages 3 & 4
00_d	11/7/17	JDA	Updated friendly name functionality.
01	11/13/17	CNL	Release Version
01_a	03/15/18	SGG	Warranty Updated
01_b	03/20/18	SGG	Bug #5163 - AES67 quick start guide reference in config section Bug #5128 - Reference volatile memory - save presets/boot config steps.